Final Environmental Impact Report on the

Natomas Levee Improvement Program Phase 4a Landside Improvements Project

State Clearinghouse No. 2009032097

Prepared for:

SAFCA

Sacramento Area Flood Control Agency

November 3, 2009

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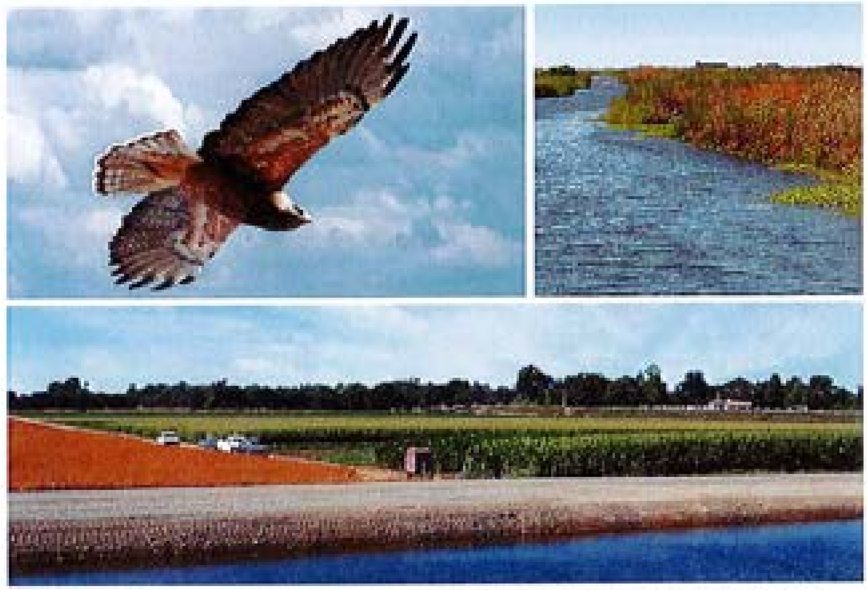

State Clearinghouse No. 2009032097

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November 3, 2009

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SAFCA
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Control
Agency

November 3, 2009

TO: **Commenting Parties**

FROM: **John Bassett, P.E., Director of Engineering, SAFCA**
(916) 874-7606

SUBJECT: **FINAL ENVIRONMENTAL IMPACT REPORT ON THE NATOMAS LEVEE IMPROVEMENT PROGRAM PHASE 4a LANDSIDE IMPROVEMENTS PROJECT (SCH # 2009032097)**

The Sacramento Area Flood Control Agency (SAFCA), as lead agency pursuant to the California Environmental Quality Act (CEQA), has prepared a final environmental impact report (FEIR) on the Natomas Levee Improvement Program (NLIP) Phase 4a Landside Improvements Project (Phase 4a Project). The FEIR has been prepared in accordance with the requirements of CEQA to respond to comments received on the draft environmental impact statement/draft environmental impact report (DEIS/DEIR) for the Phase 4a Project; and to present corrections, revisions, and other clarifications to the DEIS/DEIR.

The FEIR is being provided to all parties that submitted comments on the DEIS/DEIR. The FEIR can also be reviewed online at SAFCA's Web site at http://www.safca.org or at the SAFCA office, located at 1007 7th Street, 7th Floor, Sacramento, California.

SAFCA will conduct a public hearing to consider certification of the FEIR at the SAFCA Board of Directors meeting scheduled for 3:00 p.m. on November 13, 2009, located in the Sacramento County Board of Supervisors Chambers, Room 1450, at 700 H Street, Sacramento, California. The public is invited to attend in person, or view the meeting on SAFCA's Web site.

Please contact John Bassett at telephone number 916/874-7606, fax number 916/874-8289, or bassettj@saccounty.net with questions regarding the FEIR.

The U.S. Army Corps of Engineers will prepare a separate final environmental impact statement (FEIS) in accordance with the requirements of the National Environmental Policy Act. The FEIS will be circulated for a 30-day review period in early 2010.

Enclosure

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ACRONYMS AND ABBREVIATIONS

Airport	Sacramento International Airport
APN	Assessor Parcel Number
BMPs	best management practices
CCAD	Consolidated Capital Assessment District
CEQ	Council of Environmental Quality
CESA	California Endangered Species Act
Common Features Project	American River Common Features Project
CVFPB	Central Valley Flood Protection Board
DFG	California Department of Fish and Game
EPA	U.S. Environmental Protection Agency
FAA	Federal Aviation Administration
FEIR	Final Environmental Impact Report
FEIS	Final Environmental Impact Statement
GHG	greenhouse gas
I-5	Interstate 5
LTMP	Long-Term Management Plan
MMP	Mitigation and Monitoring Plan
NBHCP	Natomas Basin Habitat Conservation Plan
NCC	Natomas Cross Canal
NCMWC	Natomas Central Mutual Water Company
NEMDC	Natomas East Main Drainage Canal
NEPA	National Environmental Policy Act
NLIP	Natomas Levee Improvement Program
NMFS	National Marine Fisheries Service
NOI	Notice of Intent
NOP	Notice of Preparation
NPDES	National Pollutant Discharge Elimination System
PGCC	Pleasant Grove Creek Canal
Phase 1 Project	NCC South Levee Phase 1 Improvements
Phase 2 Project	NLIP Phase 2 Landside Improvements Project
Phase 3 Project	NLIP Phase 3 Landside Improvements Project
Phase 4a Project	NLIP Phase 4a Landside Improvements Project
RD	Reclamation District
ROD	record of decision
SACDOT	Sacramento Department of Transportation
SACOG	Sacramento Area Council of Governments
SAFCA	Sacramento Area Flood Control Agency
SCAS	Sacramento County Airport System
SMAQMD	Sacramento Metropolitan Air Quality Management District
SRA	shaded riverine aquatic
SRFCP	Sacramento River Flood Control Project
SWPPP	storm water pollution prevention plan
TNBC	The Natomas Basin Conservancy
USACE	U.S. Army Corps of Engineers
USC	United States Code
USFWS	U.S. Fish and Wildlife Service

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1.0 INTRODUCTION

This final environmental impact report (FEIR) has been prepared by the Sacramento Area Flood Control Agency (SAFCA) in accordance with the requirements of the California Environmental Quality Act (CEQA). SAFCA is the lead agency for complying with CEQA.

This FEIR has been prepared to respond to comments received on the draft environmental impact statement/draft environmental impact report (DEIS/DEIR) on the Natomas Levee Improvement Program (NLIP), Phase 4a Landside Improvements Project (Phase 4a Project) that was issued for public review in August 2009. The FEIR consists of the DEIS/DEIR and this document, which includes comments on the DEIS/DEIR, responses to those comments, and revisions to the DEIS/DEIR. Both the DEIS/DEIR and this FEIR should be used as the informational basis for addressing the environmental impacts of implementing the Phase 4a Project.

The Phase 4a Project consists of improvements to a portion of the Natomas Basin's perimeter levee system in Sutter and Sacramento Counties, California, and associated landscape, irrigation/drainage infrastructure modifications, and environmental mitigation, including habitat creation and management. SAFCA has initiated this effort in cooperation with the California Department of Water Resources (DWR) and the Central Valley Flood Protection Board (hereinafter referred to together as "State"), and the U.S. Army Corps of Engineers (USACE), Sacramento District, with the aim of incorporating the NLIP into the Natomas components of the Federally authorized American River Common Features Project (Common Features Project).

The overall purpose of the multi-phase NLIP is to bring the entire 42-mile Natomas Basin perimeter levee system into compliance with applicable Federal and state standards for levees protecting urban areas through a program of proposed levee improvements to address levee height deficiencies, levee seepage potential, and streambank erosion conditions along the Natomas Basin perimeter levee system. The Landside Improvements Project, which is a component of the NLIP, consists of four phases (and the fourth project phase consists of two subphases—the Phase 4a and 4b Projects). The Phase 4a Project includes proposed improvements affecting approximately 6 miles of the levee system in Reaches 10–15 of the Sacramento River east levee and two pump station sites along the Natomas Cross Canal (NCC) south levee.

To implement the Phase 4a Project, SAFCA is requesting permission from USACE pursuant to Section 14 of the Rivers and Harbors Act of 1899 (33 United States Code [USC] 408, hereinafter referred to as "Section 408") for alteration of Federal project levees; Section 404 of the Clean Water Act (33 USC 1344, hereinafter referred to as "Section 404") for the placement of fill in jurisdictional waters of the United States; and Section 10 of the Rivers and Harbors Act of 1899 (33 USC 403, hereinafter referred to as "Section 10") for work performed in, over, or under navigable waters of the United States (such as excavation of material from or deposition of material into navigable waters). SAFCA may also need to obtain several state approvals or permits: Central Valley Flood Protection Board (CVFPB) encroachment permit, California Surface Mining and Reclamation Act permit, Clean Water Act Section 401 water quality certification, Clean Water Act Section 402 National Pollutant Discharge Elimination System permit, California Fish and Game Code Section 2081 incidental-take authorization, California Fish and Game Code Section 1602 streambed alteration agreement, California Department of Transportation (Caltrans) encroachment permit, and authority to construct authorization from the Sacramento Metropolitan Air Quality Management District and the Feather River Air Quality Management District.

1.1 PURPOSE AND INTENDED USES OF THIS DOCUMENT

CEQA requires a lead agency that has prepared a DEIR to consult with and obtain comments from responsible and trustee agencies that have jurisdiction by law with respect to the proposed project, and to provide the general public with an opportunity to comment on the DEIR. The FEIR is the mechanism for responding to these comments. This FEIR has been prepared to respond to comments received on the DEIS/DEIR, which are reproduced in this document; and to present corrections, revisions, and other clarifications and amplifications to the DEIS/DEIR, including minor project modifications, made in response to these comments and as a result of SAFCA's ongoing planning and engineering efforts. The DEIS/DEIR and this FEIR will be used to support the SAFCA decision regarding whether to approve the Phase 4a Project.

This FEIR will also be used by CEQA responsible agencies, such as the CVFPB and Central Valley Regional Water Quality Control Board, and trustee agencies, such as the California Department of Fish and Game, to ensure that they have met the requirements of CEQA before deciding whether to issue discretionary permits and approvals for the portions of the Phase 4a Project over which they have authority. It may also be used by other state, regional, and local agencies that may have an interest in resources that could be affected by the project or would issue permits and/or other regulatory approvals.

USACE will prepare a separate final environmental impact statement (FEIS) in accordance with the requirements of the National Environmental Policy Act (NEPA). USACE, Sacramento District is the Federal lead agency for complying with NEPA. The FEIS will constitute a reprint of the entire DEIS/DEIR, and will include comment letters, responses to comments, and any text changes/clarifications/modifications, including minor project modifications, made in response to these comments and as a result of SAFCA's ongoing planning and engineering efforts. The FEIS will be circulated for a 30-day public review period after which USACE will consider any comments it receives on the FEIS, make decisions on whether to grant permission for the Phase 4a Project pursuant to Section 408, issue permits pursuant to Sections 404 and 10, and issue a record of decision (ROD).

The Federal Aviation Administration (FAA) is serving as a cooperating Federal agency for NEPA. In the event that SAFCA and USACE select an alternative that requires the Sacramento International Airport (Airport) to change its Airport Layout Plan or seek a release from Federal Airport Improvement Grant assurances, the FAA would use USACE's FEIS in exercising its decision-making authority under 49 USC 47107 regarding whether to approve those actions.

1.1.1 Incorporation by Reference

This FEIR is tiered from, or incorporates by reference, information contained in the following documents:

- *Environmental Impact Report on Local Funding Mechanisms for Comprehensive Flood Control Improvements for the Sacramento Area*, State Clearinghouse No. 2006072098 (Local Funding EIR) (SAFCA 2007a), which evaluated the Phase 1 Project's potential impacts at a project level and the NLIP's potential impacts at a program level;

- *Environmental Impact Report on the Natomas Levee Improvement Program, Landside Improvements Project*, State Clearinghouse No. 2007062016 (Phase 2 EIR) (SAFCA 2007b), which evaluated the Phase 2 Project's potential impacts at a project level and the NLIP's potential impacts at a program level;

- *Environmental Impact Statement for 408 Permission and 404 Permit to Sacramento Area Flood Control Agency for the Natomas Levee Improvement Project* (Phase 2 EIS) (USACE 2008), which evaluated the Phase 2 Project's potential impacts at a project level and the NLIP's potential impacts at a program level;

- *Supplement to the Environmental Impact Report on the Natomas Levee Improvement Program, Landside Improvements Project—Phase 2 Project*, State Clearinghouse No. 2007062016 (Phase 2 SEIR) (SAFCA 2009a), which evaluated the potential impacts of the Phase 2 Project's modifications at a project level; and

- *Environmental Impact Statement/Environmental Impact Report on the Natomas Levee Improvement Program, Phase 3 Landside Improvements Project*, State Clearinghouse No. 2008072060 (Phase 3 DEIS/DEIR) (USACE and SAFCA 2009), which the Phase 3 Project's potential impacts at a project level.[1]

Copies of these documents are available to the public at SAFCA's office at 1007 7th Street, 7th Floor, Sacramento, California, during normal business hours, and are also available on SAFCA's Web site, at http://www.safca.org/Programs_Natomas.html.

1.2 PROJECT LOCATION

The Natomas Basin is located at the confluence of the American and Sacramento Rivers. Encompassing approximately 53,000 acres, the Basin extends northward from the American River and includes portions of the city of Sacramento, Sacramento County, and Sutter County (**Plate 1**). In addition to the American and Sacramento Rivers to the south and west, the Natomas Basin is bordered to the north by the NCC and to the east by the Pleasant Grove Creek Canal (PGCC) and the Natomas East Main Drainage Canal (NEMDC) (**Plate 1**). The NCC diverts the runoff from a large watershed in western Placer and southern Sutter Counties around the Natomas area and is a major contributor to the flows in the upper reach of the Sacramento River channel in SAFCA's jurisdiction. The NEMDC is an engineered channel along the southeastern flank of Natomas. Tributaries to the NEMDC include Dry Creek, Arcade Creek, Rio Linda Creek, Robla Creek, and Magpie Creek Diversion Channel. The Natomas Basin is protected from high flows in these tributaries and in the American and Sacramento Rivers by a Federal perimeter levee system.

The Natomas Basin floodplain is occupied by more than 83,000 residents and over $8.2 billion in damageable property, including the Airport and extensive urban development, primarily in the southern one-third of the Basin. The remaining agricultural lands in the Natomas Basin provide habitat for several important wildlife species. This habitat is protected under Federal and state laws, and expansion of the urban footprint into the remaining agricultural areas is governed by the *Natomas Basin Habitat Conservation Plan* (NBHCP), which is aimed at setting aside and conserving tracts of agricultural land that are needed to sustain the affected species.

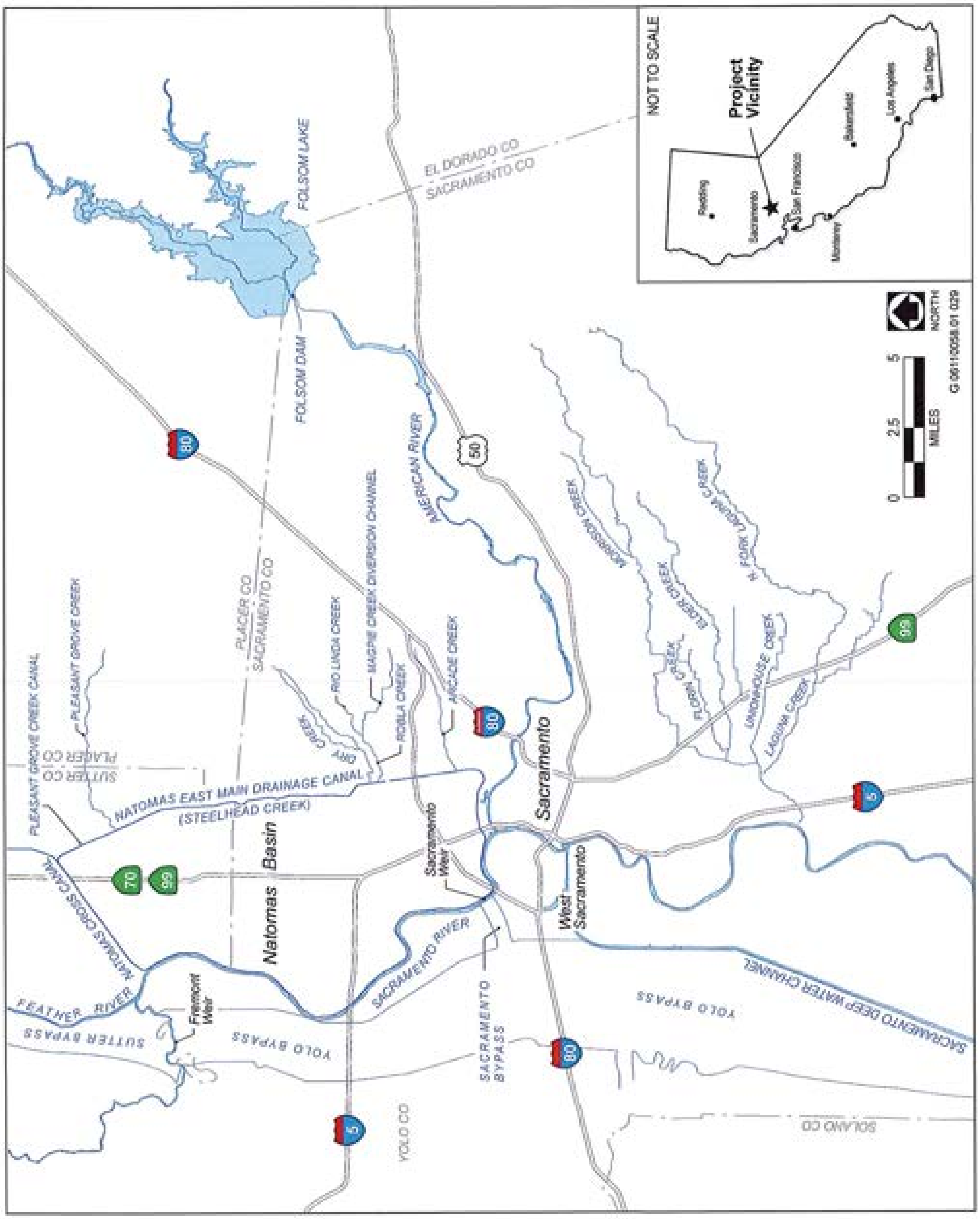
The Phase 4a Project location primarily includes the Sacramento River east levee Reaches 10–15, NCC south levee, Riverside Canal, and various borrow sites within the Natomas Basin (primarily the Fisherman's Lake Borrow Area). These areas are shown in **Plates 3a** through **3d**, later in this chapter.

1.3 PROJECT BACKGROUND

As stated above, the overall purpose of the multi-phase NLIP is to bring the entire 42-mile Natomas Basin perimeter levee system into compliance with applicable Federal and state standards for levees protecting urban areas. The Phase 4a Project is one subphase of the fourth project phase of the NLIP Landside Improvements Project, and includes proposed improvements affecting approximately 6 miles of the levee system in Reaches 10–15 of the Sacramento River east levee and two pump station sites along the NCC south levee.

The proposed improvements address identified deficiencies in the Natomas Basin perimeter levee system based on (1) design criteria used to certify levees as providing 100-year flood risk reduction under regulations adopted by the Federal Emergency Management Agency (FEMA), (2) design criteria used by USACE and the State for

[1] Although SAFCA has certified the Phase 3 EIR, USACE has not yet issued its Section 408 ROD for the Phase 3 Project, but is expected to do so in December 2009. USACE has, however, issued its Phase 3a ROD in October 2009, which covers issuance of the Section 404 permit (see Section 1.4.3, "Phase 3 Project," of this FEIR for details regarding the separation of the Phase 3 Project permits and approvals).



Source: Adapted by AECOM in 2007 based on CASIL Layers; SAFCA 2007a

Project Location **Plate 1**

the levees comprising the American River Common Features Project, and (3) design 200-year[2] water surface elevations developed by SAFCA in cooperation with the State using hydrologic modeling data developed by USACE and the State as part of the Sacramento–San Joaquin River Basins Comprehensive Study.

Although SAFCA anticipates that all segments of the Natomas perimeter levee system will eventually be improved to meet all of the above design criteria, SAFCA is partnering with DWR using SAFCA's local capital assessments and grant funding available through DWR's FloodSAFE California Programs to initiate improvements to segments of the Natomas perimeter levee system in advance of full Federal authorization for the constructed improvements. SAFCA proposes to complete this "early implementation project"—which includes the Phase 2, 3, and 4a Projects—by the end of 2011. Phase 2 Project construction is underway and would be complete by the end of 2010; and it is anticipated that construction of the Phase 3 and 4a Projects will be completed by the end of 2011. It is anticipated that the remaining segments of the perimeter levee system (i.e., the Phase 4b Project) would be improved by USACE by 2013. This will require Congressional authorization to expand the scope of the already authorized Common Features Project based on a General Re-evaluation Report (GRR) to be completed by USACE for presentation to Congress in 2010. SAFCA is coordinating with USACE to ensure that the planning and design of the early implementation project are consistent with applicable USACE planning, engineering, and design guidelines. While the GRR will be a separate report with its own environmental documentation, USACE and SAFCA recognize that Federal actions taken in connection with the early implementation project will need to be appropriately reflected in the GRR.

To move forward as quickly as possible to reduce the risk of flooding in the Natomas Basin, SAFCA identified the broad outlines of the early implementation project at a program level of detail and developed an incremental implementation strategy based on carrying out the project in four phases, with each phase contributing independently and cumulatively to reducing flood risk. Each individual project phase would contribute to reduced flood risk for the Natomas Basin, and thus has independent utility. However, no single project phase would achieve the overall flood risk reduction objectives of the NLIP. The NLIP, as a program, has independent utility from the other areas under consideration in the GRR because the NLIP will provide added flood risk reduction to an entire area (similar to a ring levee) and this increased flood risk reduction is not dependent on the outcome of the GRR.

1.4 NATOMAS LEVEE IMPROVEMENT PROGRAM, LANDSIDE IMPROVEMENTS PROJECT PHASING

The relationship of the NLIP Landside Improvement Project phases to one another and their relationship to this FEIR is summarized below. **Table 1-1** presents the NLIP Landside Improvements Project's major components and construction timing of each project phase; these are also shown in **Plate 2**. Years are shown in the table below to identify the anticipated starting point of each NLIP project phase; however, as described in the subsections below, only some components of each project phase would begin in the first year of construction (e.g., while some portions of the Phase 3 Project [Phase 3a] would begin in 2009, proposed levee work [Phases 3b] would not begin until 2010). Further, the project phases, while originally envisioned to be constructed in the order they are numbered, could be constructed out of order (e.g., the Phase 4a Project, or components thereof, could be constructed before major levee construction of the Phase 3 Project) depending on project approvals, permitting, project design, and other factors. Project phasing and construction sequencing of project components are not necessarily dependent upon one another, but are dependent more on the availability and timing of funding and environmental permits and clearances. Because each project is analyzed in the cumulative context of the entire NLIP Landside Improvements Project, there will be no undisclosed impacts if the order of construction is altered.

[2] Design event analysis results, as a measure of system performance, are given as the expected (mean) frequency of the maximum event that can be safely passed through the reservoir, spillway, and downstream leveed system with a set (e.g., 3 feet) "freeboard" above the computed (expected) water surface profile. Design event analysis is not the same as the analysis procedure used by USACE as a basis for determining Federal interest in a project or for USACE certification for FEMA's National Flood Insurance Program. USACE defines system performance as containing a specified frequency event (e.g., 1% event) with a high level of assurance (i.e., Conditional Non-exceedance Probability = 90%) and includes consideration of system uncertainties.

Table 1-1 Major Components and Construction Timing of the Landside Improvements Project Phases	
Project Phase and Construction Timing	Project Component
Phase 1 Project 2007–2008	Natomas Cross Canal south levee improvements (westernmost 12,500 feet): Through-seepage and underseepage remediation
Phase 2 Project 2009–2010	Natomas Cross Canal south levee improvements: Levee raising and seepage remediation Sacramento River east levee (Reaches 1–4B): Levee raising and seepage remediation Relocation of the Upper Elkhorn Canal (North Drainage Canal to Elkhorn Reservoir) Construction of the Upper Giant Garter Snake (GGS)/Drainage Canal (North Drainage Canal to just south of Elkhorn Reservoir) Removal of a deep culvert at the location of Reclamation District (RD) 1000 Pumping Plant No. 2 Borrow and reclamation at: Airport north bufferlands; Brookfield; Dunmore; RD 1001; and Sutter Pointe Habitat creation and management Right-of-way acquisition Infrastructure relocation and realignment
Phase 3 Project 2009–2011	Sacramento River east levee (Reaches 5A–9B): Levee raising and seepage remediation Pleasant Grove Creek Canal west levee: Levee raising, slope flattening, and widening; and seepage remediation Natomas East Main Drainage Canal west levee (Elkhorn Boulevard to NEMDC Stormwater Pumping Station): Levee widening and flattening and seepage remediation Natomas East Main Drainage Canal west levee (NEMDC Stormwater Pumping Station to Northgate Boulevard): Seepage remediation and slope stability remediation Relocation of approximately 9,400 feet of the Elkhorn Canal (highline irrigation canal) downstream of Elkhorn Reservoir Construction of a new GGS/Drainage Canal downstream of Elkhorn Reservoir Reconstruction of RD 1000 Pumping Plant No. 2 Habitat creation and management Infrastructure relocation and realignment Landside vegetation removal Right-of-way acquisition Encroachment management Borrow and reclamation at Airport north bufferlands; Brookfield; Dunmore; Elkhorn Borrow Area; Lower Woodland Corridor; Krumenacher; Novak; Pacific Terrace; private property (in Reaches 5A, 6B, and 7); RD 1001; South Sutter, LLC; Sutter Pointe; and Twin Rivers Unified School District stockpile Reconfiguration of Airport West Ditch
Phase 4a Project 2010–2011	Sacramento River east levee (Reaches 10–15): Levee raising and seepage remediation Sacramento River east levee Reach 4B: Seepage remediation Natomas Cross Canal south levee: Levee raising and seepage remediation at two locations Replacement of South Lauppe Pump Riverside Canal (highline irrigation canal) relocation and extension Modifications to Natomas Central Mutual Water Company's Riverside Pumping Plant and RD 1000's Pumping Plants Nos. 3 and 5 Development of new and replacement groundwater wells Borrow site excavation and reclamation at Fisherman's Lake Borrow Area (including Novak); I-5 Borrow Area; Elkhorn Borrow Area; South Sutter, LLC; Krumenacher; Twin Rivers Unified School District stockpile; and Airport north bufferlands Habitat creation and management Infrastructure relocation and realignment Landside and waterside vegetation removal Landside vegetation removal in Sacramento River east levee Reaches 12A–15 Right-of-way acquisition Encroachment management Exchange of properties between SAFCA and the Sacramento County Airport System in Reaches 4A, 5B, and 6 of the Sacramento River east levee

Table 1-1 Major Components and Construction Timing of the Landside Improvements Project Phases	
Project Phase and Construction Timing	Project Component
Phase 4b Project 2011–2013	Sacramento River east levee (Reaches 16–20): Levee widening, slope flattening, and seepage remediation American River north levee (Reaches 1–4): Slope flattening and seepage remediation Pleasant Grove Creek Canal west levee: Levee raising, slope flattening, culvert remediation, and waterside erosion control Natomas East Main Drainage Canal west levee (Sankey Road to Elkhorn Boulevard): Levee raising and slope flattening Natomas East Main Drainage Canal west levee (Elkhorn Boulevard to Northgate Boulevard): Levee raising and waterside erosion control. Natomas Cross Canal: State Route 99 bridge remediation and ditch relocations Pumping Plants: Modifications to RD 1000 pumping plants and City of Sacramento sump pumps to accommodate levee improvements West Drainage Canal: Improvements south of I-5 Borrow site excavation and reclamation Habitat creation and management Infrastructure relocation and realignment Landside vegetation removal Right-of-way acquisition Encroachment management
Notes: Airport = Sacramento International Airport; GGS = Giant Garter Snake; NEMDC = Natomas East Main Drainage Canal; RD = Reclamation District; I-5 = Interstate 5 Source: Data compiled by AECOM in 2009, based on information provided by SAFCA	

Each of the project phases discussed below also includes associated habitat, drainage, irrigation, and related infrastructure improvements.

1.4.1 Phase 1 Project

In February 2007, the SAFCA Board of Directors certified the Local Funding EIR (SAFCA 2007a), which examined the physical environmental effects associated with the program of flood damage reduction measures and related mitigation and habitat enhancements that the local funding mechanisms would be used to finance. The Local Funding EIR covered the NLIP Landside Improvements Project Phases 1–4 at a program level of detail and the Phase 1 Project (NCC South Levee Phase 1 Improvements) at a project-specific level of detail. The Phase 1 Project, consisting of improvements to address through-seepage and underseepage in the westernmost 12,500 feet of the NCC south levee, was constructed in 2007 and 2008.

1.4.2 Phase 2 Project

In November 2007, the SAFCA Board of Directors certified the Phase 2 EIR (State Clearinghouse No. 2007062016), which covered the three additional phases of "landside" components of the NLIP that were proposed for construction in 2008 (Phase 2 Project), 2009 (Phase 3 Project), and 2010 (Phase 4 Project). The Phase 2 EIR was tiered from the analysis in the Local Funding EIR, consistent with Section 15152 of the State CEQA Guidelines. The 2008 construction phase (now referred to as the Phase 2 Project) was analyzed at a project level, and the 2009–2010 construction phases (now referred to as the Phase 3 Project and Phase 4 Project, or the remainder of the Landside Improvements Project) were analyzed at a program level. The Phase 2 Project was approved for implementation by the SAFCA Board of Directors on November 29, 2007.

To implement the Phase 2 Project, SAFCA required permission from USACE pursuant to Section 408 for alteration of a Federal project levee and Section 404 for the discharge of fill into jurisdictional waters of the United States. Therefore, following completion of the Phase 2 EIR and local approval of the Phase 2 Project, USACE prepared the Phase 2 EIS (USACE 2008). A ROD was issued in January 2009, at which time USACE also issued the 408 permission and 404 permit for the Phase 2 Project.

The Phase 2 Project as presented in the Phase 2 EIS differs from the Phase 2 Project as evaluated in the 2007 Phase 2 EIR for the reasons described as follows. By the time the Phase 2 EIS began, SAFCA's engineering consultants had determined that cutoff walls could be used instead of seepage berms along several of the Sacramento River east levee reaches. Thus, the Phase 2 EIS includes proposed cutoff walls in some Sacramento River east levee reaches and a discussion of the impacts of the cutoff walls on groundwater recharge. Additionally, it became clear during the EIS process that much of the 2008 construction phase (or Phase 2 Project) would actually have to be conducted in 2009. The Phase 2 EIS therefore acknowledges that possibly all of the Phase 2 Project construction could be concurrent with construction of the Phase 3 Project, and discusses the consequences to haul truck traffic, noise, air quality, and other construction-related effects accordingly. These differences were considered in the Phase 2 SEIR (SAFCA 2009a), prepared by SAFCA, which was certified by the SAFCA Board of Directors in January 2009, at which time the Board also approved the modifications to the Phase 2 Project.

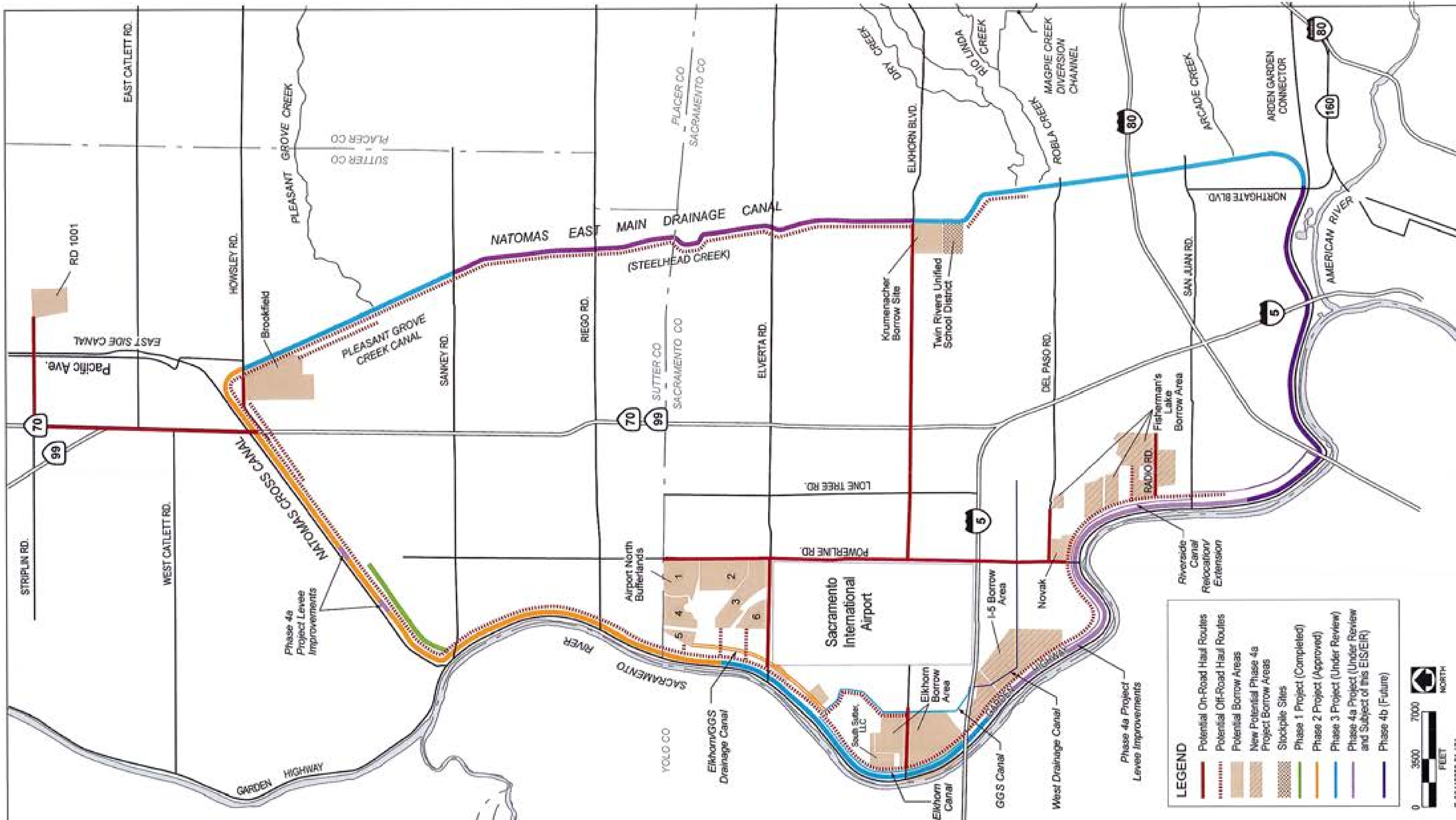
Construction of the Phase 2 Project began in May 2009 and is anticipated to be completed in 2010, assuming receipt of all required environmental clearances and permits. The Phase 2 Project can be constructed on a stand-alone basis, assuming no further action on the balance of the NLIP is taken. It is clear that a portion of Phase 2 Project construction would be complete prior to construction of the Phase 3 Project. However, it is still likely that there would be some overlap in construction schedules between these two phases (see below).

1.4.3 PHASE 3 PROJECT

The Phase 3 Project addresses underseepage, riverbank erosion, encroachment, and levee height deficiencies along the Sacramento River east levee Reaches 5A–9B, the PGCC west levee, and a portion of the NEMDC west levee (between Elkhorn and Northgate Boulevards).

In February 2009, USACE and SAFCA issued the Phase 3 DEIS/DEIR (State Clearinghouse No. 2008072060) for public review and comment. Following public review, SAFCA prepared an FEIR (SAFCA 2009b) to provide responses to comments on the Phase 3 DEIS/DEIR. The SAFCA Board of Directors certified the FEIR and approved the Phase 3 Project in May 2009. Separately, USACE prepared an FEIS to provide responses to comments received on the Phase 3 DEIS/DEIR; the Phase 3 FEIS was issued for public review in August 2009. USACE will consider whether to grant Section 408 permission, which will be documented in the ROD, in December 2009.

To construct the Phase 3 Project with minimal interruption of and conflict with drainage/irrigation services and wildlife habitat (specifically, giant garter snake habitat), some Phase 3 Project components need to be constructed in 2009 in advance of the Phase 3 Project's major levee construction that would occur in 2010. To facilitate this staged construction, a staged permitting approach was developed for the Phase 3 Project. Specifically, irrigation and drainage infrastructure (termed the Phase 3a Project) was permitted by USACE and the Central Valley Regional Water Quality Control Board (Central Valley RWQCB) under Sections 404 and 401, respectively, of the Clean Water Act, in October 2009; this work would occur in late 2009 and early 2010, in advance of Phase 3 Project levee construction. Some vegetation encroachments will also occur during the non-nesting season for raptors and other bird species. A separate, but related, set of permits for the Phase 3 Project's Sacramento River east levee construction and related pumping plant improvements (termed the Phase 3b Project) is anticipated in late 2009; this work would occur in 2010. Finally, because of cost constraints and priorities for various improvements in the flood damage reduction system, the Phase 3 Project's PGCC and NEMDC west levee improvements (termed the Phase 3c Project) will, if necessary, be permitted separately and may be built by USACE at a later time.



Source: Base map from CASIL Layers and Sacramento Area Council of Governments (SACOG) 2007; adapted by AECOM in 2008 and 2009 based on data from MBK Engineers and Mead & Hunt

Natomas Levee Improvement Program Construction Phasing and Anticipated Haul Routes from Soil Borrow Areas **Plate 2**

As noted above, preliminary construction (canal work, utility relocation, vegetation removal, and demolition of structures) of the Phase 3 Project (known as the Phase 3a Project) began in fall 2009; however, major levee construction (known as the Phase 3b Project) would not begin until 2010, assuming receipt of all required environmental clearances and permits. The potential exists for up to 30% of the Phase 2 Project to also be constructed in 2010, concurrent with Phase 3 Project's major levee construction, or even potentially concurrently with the Phase 4a Project, depending on the timing and availability of funding.

1.4.4 PHASE 4a PROJECT

The Phase 4 Project consists of two subphases (4a and 4b) to provide the flexibility to construct the Phase 4 Project over more than one construction season. Each of the subphases has its own independent utility, can be accomplished with or without the other subphase, and provides additional flood risk reduction benefits to the Natomas Basin whether implemented individually or collectively.

The Phase 4a Project, which is the subject of this FEIR, includes levee raising and seepage remediation along the Sacramento River east levee (Reaches 10–15) and in two locations of the NCC south levee, relocation and extension of the Riverside Canal, and modifications to the Riverside Pumping Plant and Reclamation District (RD) 1000's Pumping Plant Nos. 3 and 5. Landside and waterside vegetation removal in Reaches 10–15, as needed, to accommodate these elements would be completed ahead of Phase 4a Project construction. Parcels within the Fisherman's Lake Borrow Area (including Novak) would be the primary source of soil borrow for Phase 4a Project construction. Additional borrow could be obtained from the Interstate 5 (I-5) Borrow Area, and borrow areas previously addressed in the Phase 3 DEIS/DEIR; those areas excavated for borrow material would be reclaimed as agricultural land, grassland, or managed marsh depending on their location and existing land use. Upon completion of borrow activities within the Fisherman's Lake Area, agricultural upland habitat, managed seasonal and perennial marsh, and woodland corridors would be created and managed as the Fisherman's Lake Habitat Complex.

In August 2009, USACE and SAFCA issued the Phase 4a DEIS/DEIR (USACE and SAFCA 2009) for public review and comment. SAFCA has prepared this FEIR to provide responses to comments on the DEIS/DEIR. Subsequently, the SAFCA Board of Directors will consider whether to certify the Phase 4a EIR and approve the Phase 4a Project. As noted above, USACE will prepare a separate FEIS to provide responses to comments on the DEIS/DEIR in accordance with NEPA. Subsequently, USACE will consider whether to grant Section 408 permission and issue permits under Sections 404 and 10.

If permitted, the Phase 4a Project could be constructed at the same time as portions of the Phase 2 and 3 Projects. Construction of the Phase 4a Project is planned to begin in 2010 and anticipated to be completed in 2011, assuming receipt of all required environmental clearances and permits.

1.4.5 PHASE 4b PROJECT

The Phase 4b Project will include improvements along the Sacramento River east levee (Reaches 16–20), American River north levee (Reaches 1–4), NEMDC and PGCC west levee, and NCC south levee; pumping plant modifications; and habitat improvements along the West Drainage Canal south of I-5. The environmental impacts of these improvements were evaluated at a program level in the Local Funding EIR, Phase 2 EIR, and Phase 2 EIS. The project-specific impacts of the Phase 4b Project will be evaluated in a separate, project-level EIS/EIR in 2010. Construction of the Phase 4b Project is planned to begin in 2011 and anticipated to be completed in 2013, assuming receipt of all required environmental clearances and permits.

1.5 RESOURCE AGENCY COORDINATION AND STATUS OF NATOMAS LEVEE IMPROVEMENT PROGRAM PERMITS, AUTHORIZATIONS, AND APPROVALS

Over the course of project planning and environmental review for the NLIP Landside Improvements Project, USACE and SAFCA have coordinated informally with the U.S. Fish and Wildlife Service (USFWS), the National Marine Fisheries Service (NMFS), the California Department of Fish and Game (DFG), and The Natomas Basin Conservancy (TNBC). **Table 1-2** includes the status of permits, authorizations, and approvals for the NLIP project phases.

Table 1-2
NLIP Resource Agency Coordination[1]

Agency	Permit/Authorization/Approval	Status
	Programmatic	
USFWS	Programmatic Biological Opinion	Issued October 2008 Amendment issued May 2009, Appendage issued September 2009
DFG, Central Valley RWQCB, USACE, and USFWS	Long Term Management Plan Approval	Granted May 2009
	Phase 2 Project	
USACE	Section 408 Permission	Granted January 2009
USACE	Section 404 Permit	Issued January 2009 Amendment issued May 2009[2] 2nd Amendment anticipated August 2009
Central Valley RWQCB	Section 401 Water Quality Certification	Issued January 2009
DFG	Section 2081 Incidental Take Authorization	Issued May 2009
NMFS	Concurrence of Determination of Not Likely to Adversely Affect	January 2009
DFG	Section 1602 Streambed Alteration Agreement	Issued January 2009
USFWS	Biological Opinion	Issued October 2008 Amendment issued May 2009
USFWS	Fish and Wildlife Coordination Act Report	October 2008
Sacramento County	SMARA Exemption	Granted February 2009
Sutter County	SMARA Exemption	Granted February 2009
DFG, Central Valley RWQCB, USACE, and USFWS	MMP	Approval granted May 2009
SWRCB	Section 402 NPDES General Construction Permit	Notice of Intent filed March 2009
	Phase 3 Project[3]	
USACE	Section 408 Permission	Under review, permission anticipated late summer/fall 2009
USACE	Section 404 Permits[3]	Under review, Phase 3a permit received October 2009, Phase 3b permit anticipated winter 2009
USACE	Section 10 Permit	In preparation, permit anticipated late summer/fall 2009
Central Valley RWQCB	Section 401 Water Quality Certifications[3]	In preparation, Phase 3a certification received September 2009, late summer/fall for Phase 3b, and 2011 for Phase 3c
DFG	Section 2081 Incidental Take Authorization	In preparation, authorization anticipated November 2009

Table 1-2 NLIP Resource Agency Coordination[1]		
Agency	Permit/Authorization/Approval	Status
DFG	Section 1602 Streambed Alteration Agreement[4]	In preparation, landside canal footprint agreement received September 2009, later stages anticipated winter 2009
USFWS	Biological Opinion	Biological Opinion received September 2009
NMFS	Biological Opinion (Phase 3b and 4a combined)	Anticipated October 2009
USFWS	Fish and Wildlife Service Coordination Act Report	Draft received June 2009, final received October 2009
Sacramento County	SMARA Permit or Exemption	In preparation, permit or exemption anticipated winter 2009
Sutter County	SMARA Permit or Exemption	In preparation, permit or exemption anticipated winter 2009 (if needed)
DFG, Central Valley RWQCB, USACE, and USFWS	MMP	Submitted to agencies for review, approval from USACE received September 2009, all other agencies anticipated October 2009
SWRCB	Section 402 NPDES General Construction Permit	In preparation, permit anticipated fall 2009
Phase 4a Project		
USACE	Section 408 Permission	Anticipated Spring 2010
USACE	Section 404 Permit	Anticipated Spring 2010
USACE	Section 10 Permit	Anticipated Spring 2010
Central Valley RWQCB	Section 401 Water Quality Certification	Anticipated Spring 2010
DFG	Section 2081 Incidental Take Authorization	Anticipated Spring 2010
DFG	Section 1602 Streambed Alteration Agreement	Anticipated Spring 2010
USFWS/NMFS	Biological Opinion	Anticipated Spring 2010
USFWS	Fish and Wildlife Service Coordination Act Report	Anticipated Spring 2010
Sacramento County	SMARA Permit or Exemption	In preparation, permit or exemption anticipated winter 2010 or spring 2011
DFG, RWQCB, USACE, and USFWS	MMP	Anticipated Spring 2010
SWRCB	Section 402 NPDES Permit	Anticipated Spring 2010
Phase 4b Project – Anticipated 2010–2011[5]		

Notes: USFWS = U.S. Fish and Wildlife Service; NMFS = National Marine Fisheries Service; DFG = California Department of Fish and Game; RWQCB = Regional Water Quality Control Board; USACE = U.S. Army Corps of Engineers; SMARA = Surface Mining and Reclamation Act; MMP = Mitigation and Monitoring Plan; SWRCB = State Water Resources Control Board; NPDES = National Pollutant Discharge Elimination System

[1] Although Phase 1 Project permitting and regulatory requirements were fulfilled, they are not included in this table because construction is complete.

[2] The Phase 2 Project Section 404 permit was amended based on the Amended Phase 2 Biological Opinion.

[3] The Phase 3 Project Section 404 permit has been separated into 3 subphases (a, b, and c).

[4] The Phase 3 Project DFG 1602 Streambed Alteration Agreement will be separated into (at least) 3 subphases.

[5] The Phase 4b Project will require similar permits and regulatory approvals/authorizations as the Phase 2, 3, and 4a Projects.

Source: Data compiled by AECOM in 2009

1.6 PROJECT PURPOSE/PROJECT OBJECTIVES

SAFCA's project objectives adopted in connection with the NLIP are: (1) provide at least a 100-year level of flood risk reduction to the Natomas Basin as quickly as possible, (2) provide 200-year flood risk reduction to the Basin over time, and (3) avoid any substantial increase in expected annual damages as new development occurs in the Basin. The first two project objectives would reduce the residual risk of flooding sufficiently to meet the minimum requirements of Federal and state law for urban areas like the Natomas Basin. The third project objective is a long-term objective of SAFCA's.

Additional project objectives that have informed SAFCA's project design are to:

(1) use flood damage reduction projects in the vicinity of the Airport to facilitate management of Airport lands in accordance with the Airport's *Wildlife Hazard Management Plan* (Sacramento County Airport System [SCAS] 2007); and

(2) use flood damage reduction projects to increase the extent and connectivity of the lands in the Natomas Basin being managed to provide habitat for giant garter snake, Swainson's hawk, and other special-status species.

SAFCA's approach to defining flood risk reduction accomplishments level of protection (system performance) differs from that of USACE. References in this document to levels of flood protection are based on SAFCA's "best estimate" approach (FEMA's and the state's current method) and should not be taken as USACE concurrence that such levels would be achieved based on USACE's approach of incorporating risk and uncertainty in the estimate of system performance. In any case, flood risk to the Natomas Basin would be considerably reduced by the project.

1.7 SUMMARY DESCRIPTION OF THE PHASE 4a PROJECT

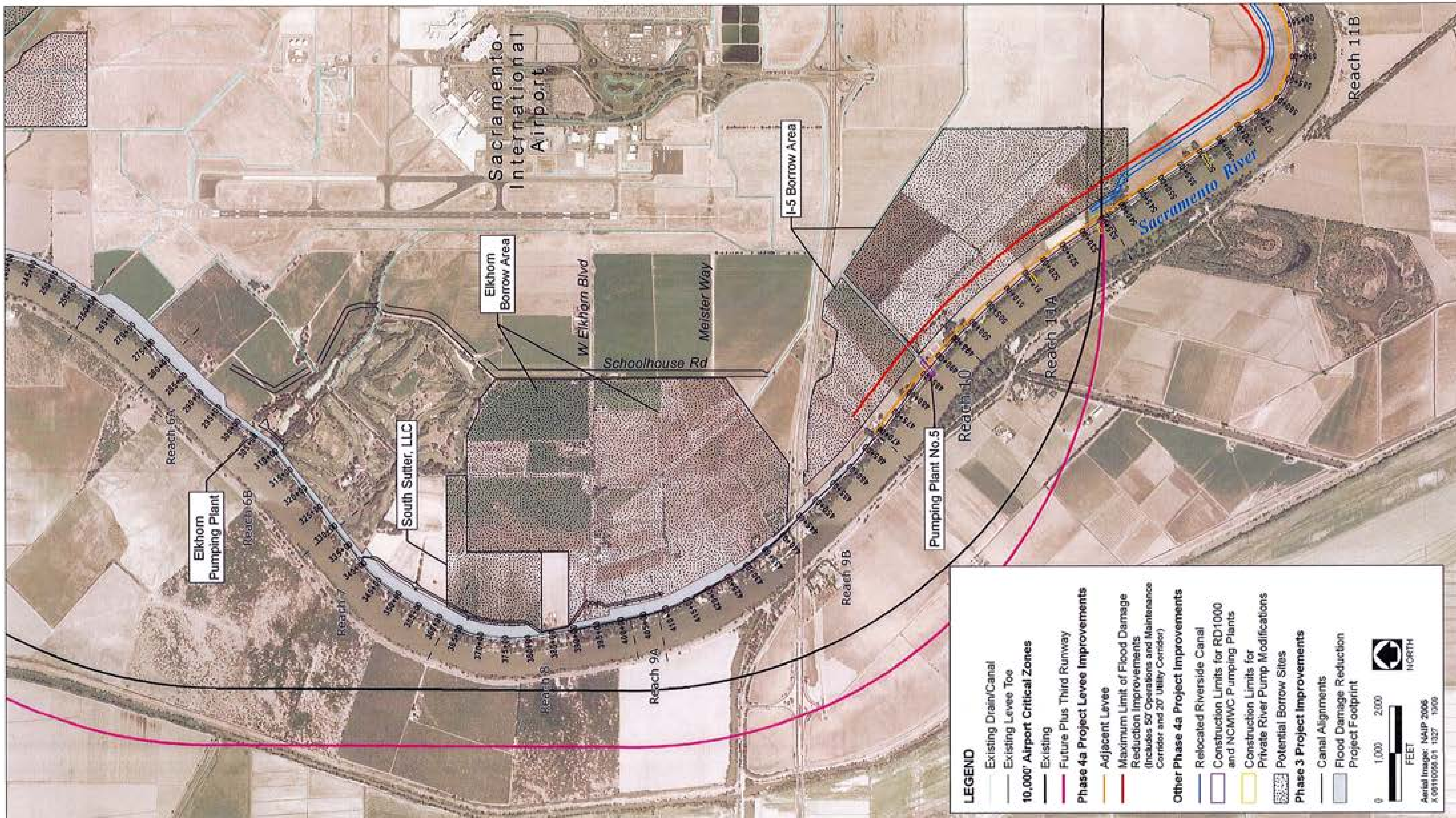
The Phase 4a Project addresses underseepage, stability, erosion, encroachment, and levee height deficiencies along approximately 6 miles of the Sacramento River east levee in Reaches 10–15 and two pump station sites along the NCC south levee. If permitted, these improvements could be constructed at the same time as the Phase 3 Project and with up to 30% of the Phase 2 Project. Construction of the Phase 4a Project is scheduled to begin in 2010 and is expected to be completed in 2011, assuming receipt of all required environmental clearances, permits, and approvals for project implementation. **Plates 3a** through **3d** provide an overview of the elements of the Proposed Action.

The Proposed Action has the following major elements:

- **Sacramento River east levee Reaches 10–15: Levee raising/rehabilitation and seepage remediation (Plates 3a** and **3b)**—Construct an adjacent levee, raised in Reaches 10–11B, with cutoff walls, seepage berms, and relief wells, where required, to reduce seepage potential. Cutoff wall construction would be conducted 24 hours per day, seven days per week (24/7).

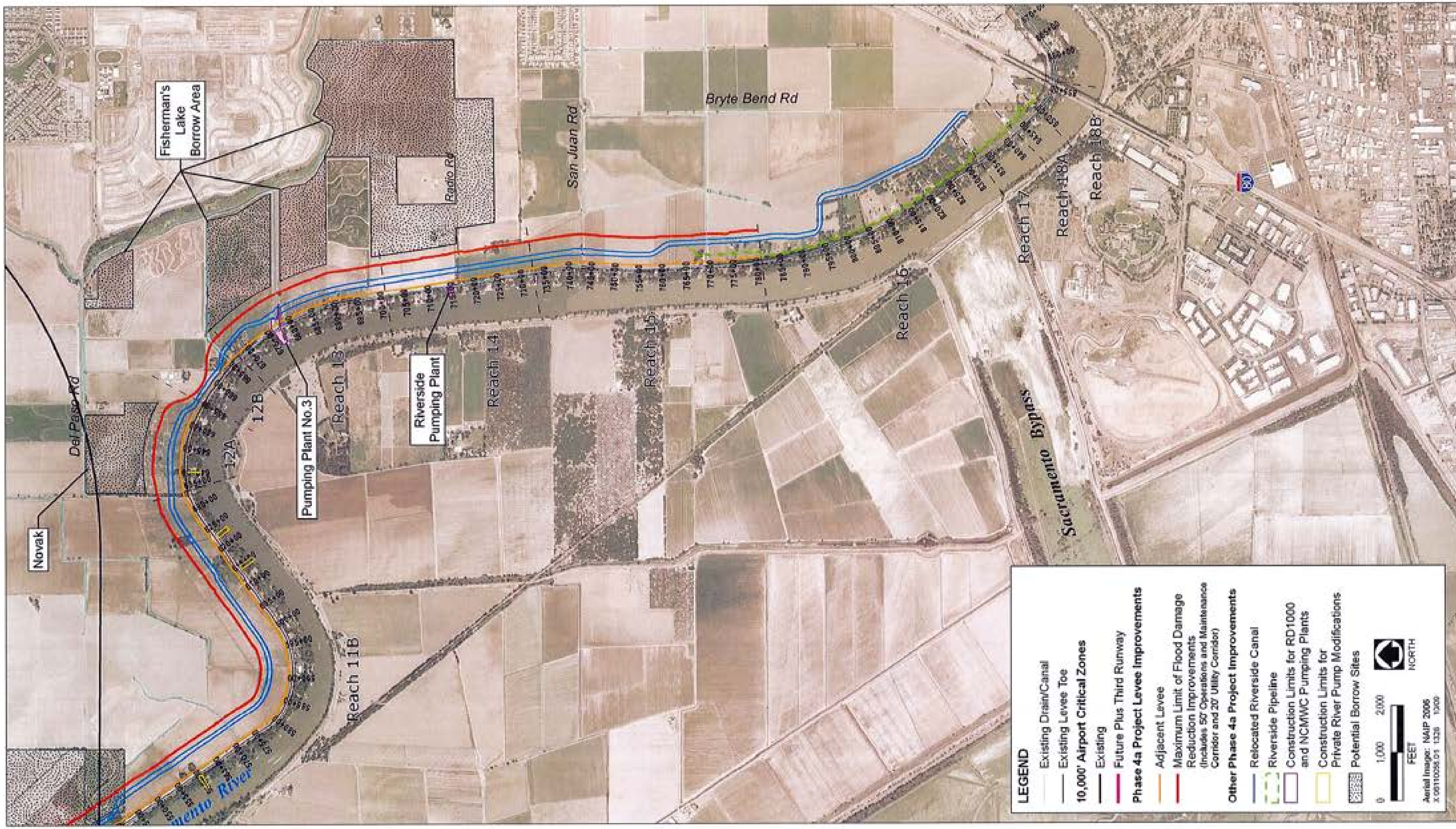
- **Sacramento River east levee Reach 4B: Seepage remediation**—Install cutoff wall in the adjacent levee from Stations 190+00 to 214+00 to provide additional seepage remediation (**Plate 3c**).

- **NCC south levee: Levee raising and seepage remediation at two locations**—At the Natomas Central Mutual Water Company (NCMWC) Bennett Pump Station and Northern Main Pump Station, raise the NCC south levee, flatten levee side slopes, install cutoff wall, and modify or replace the existing pumps and motors to reflect raising the discharge pipes above the 200-year design flood elevation. Cutoff wall construction would be conducted 24/7.



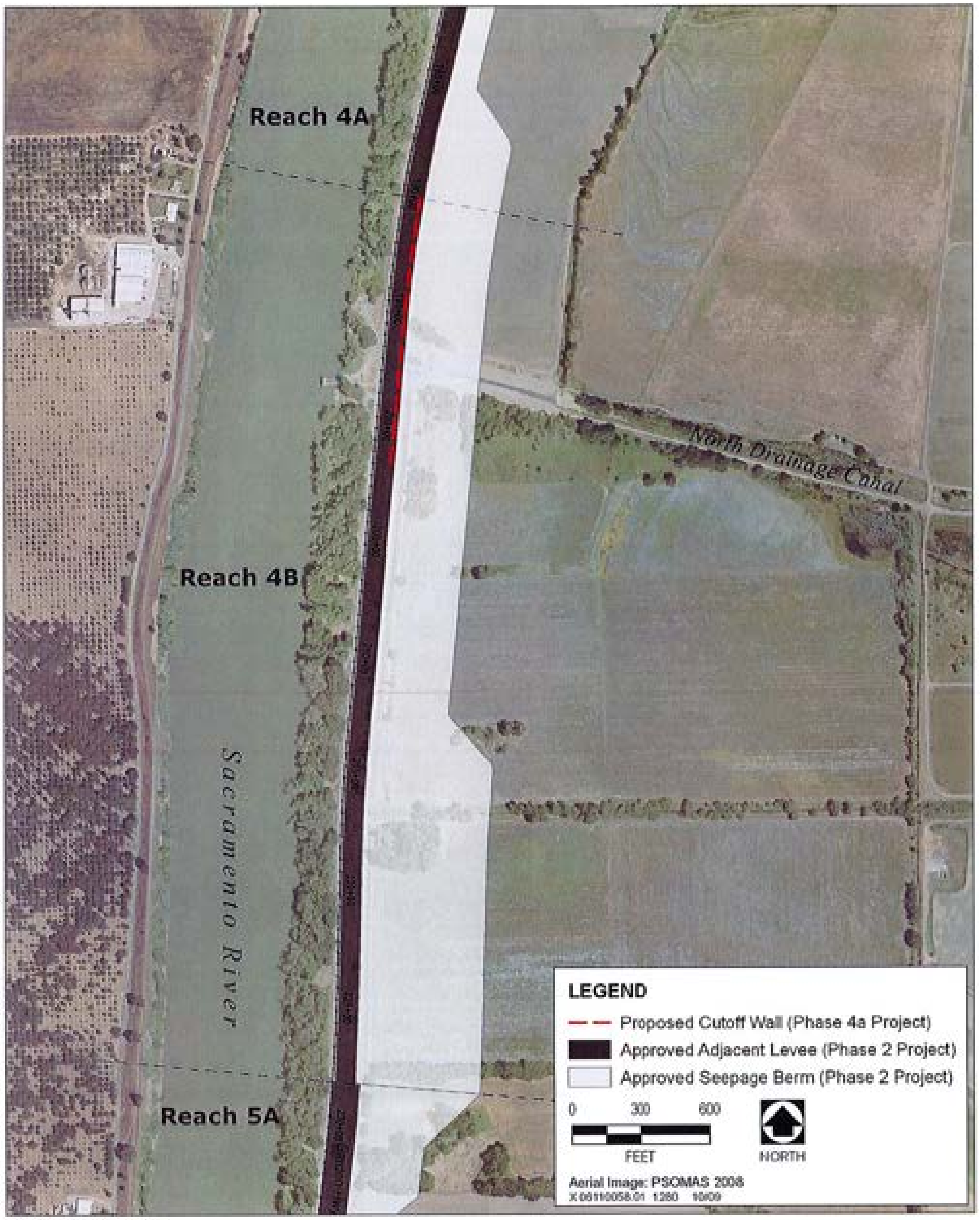
Source: SACOG 2004

Proposed Phase 4a Project Features – Sacramento River East Levee **Plate 3a**



Source: SACOG 2004

Proposed Phase 4a Project Features – Sacramento River East Levee and Fisherman's Lake Borrow Area **Plate 3b**



Source: SACOG 2004

Proposed Cutoff Wall in Sacramento River East Levee Reach 4B **Plate 3c**

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Source: SACOG 2004

Proposed Phase 4a Project Features – Natomas Cross Canal and Brookfield Borrow Site

Plate 3d

- **Replacement of South Lauppe Pump**—At Sacramento River Mile 77.2 (left bank), remove the pump, intake, and support structure prior to initiation of a separate USACE project to construct bank protection at the site. Following completion of USACE's bank protection project, SAFCA would reconstruct the pump, intake, and support structure.

- **Riverside Canal (highline irrigation canal) relocation and extension**—Extend the relocated canal upstream of Powerline Road in Reaches 11B–12B of the Sacramento River east levee; relocate the canal east of the adjacent levee in Reaches 13–15 and east of the adjacent levee, residences, and tree groves in Reaches 15–17; and construct a piped section in Reaches 15–18B at the toe of the new adjacent levee.

- **Modifications to NCMWC Riverside Pumping Plant**—Raise the pumping plant's discharge pipes above the 200-year design water surface and modify or replace the plant's existing pumps and motors to accommodate the raised discharge pipes. In-water construction would include use of dredge pumps to remove sediment so that new pumps could be installed, but no dewatering involving use of a cofferdam is anticipated.

- **Modifications to RD 1000 Pumping Plants Nos. 3 and 5**—Raise the pumping plants' discharge pipes above the 200-year design water surface, extend the pipes to tie into existing discharge pipes within the waterside bench, replace or modify pumps and motors, and perform other seepage remediation, including relocating the landside stations away from the levee to accommodate the raised discharge pipes. Most of these modifications would take place above the Sacramento River's normal summer and fall water surface elevations; however, reconstruction of the Pumping Plant No. 3 outfall and the removal of a deep culvert at Pumping Plant No. 3 would require dewatering.

- **Development of new and replacement groundwater wells**—Abandon approximately 13 agricultural wells and replace the wells in locations outside the footprint of the levee improvements. Additionally, construct 5 new wells to provide a water supply for habitat mitigation features. Drilling of the wells would require construction to continue 24 hours per day for up to 3 days to avoid collapse or seizing of drill equipment within the hole.

- **Borrow site excavation and reclamation**—Excavate earthen material at the borrow sites and then return the sites to preconstruction uses or suitable replacement habitat. For the Phase 4a Project levee and canal improvements along the Sacramento River east levee, the Fisherman's Lake Borrow Area is anticipated to be the primary source of soil borrow material (see **Plate 2**). However, additional borrow sites may be needed for Phase 4a Project work along the Sacramento River; these include the I-5 Borrow Area, the Elkhorn Borrow Area, South Sutter, LLC, Krumenacher, the Airport north bufferlands, and the Twin Rivers Unified School District stockpile site. For the Phase 4a Project construction on the NCC south levee, the Brookfield borrow site is anticipated to be the primary source of soil borrow material. Some of these borrow sites (Elkhorn Borrow Area, Airport north bufferlands, Krumenacher, Twin Rivers Unified School District stockpile site, and South Sutter, LLC) have been fully analyzed in previous environmental documents; therefore, their potential impacts are incorporated by reference into the Phase 4a DEIS/DEIR. The Fisherman's Lake and I-5 Borrow Areas are fully analyzed in the Phase 4a DEIS/DEIR.

- **Habitat creation and management**—Establish a habitat complex in the Fisherman's Lake Borrow Area (Fisherman's Lake Habitat Complex) through the creation of approximately 140 acres of agricultural upland habitat; establishment of perennial native grasses on levee slopes, seepage berms, and access and maintenance areas; creation of up to 120 acres of managed seasonal and perennial marsh; and establishment of woodlands consisting of native riparian and woodland species at locations along the landside of the Sacramento River east levee.

- **Infrastructure relocation and realignment**—Realign and relocate private irrigation and drainage infrastructure (wells, pumps, canals, and pipes); and relocate utility infrastructure (power poles) as needed to accommodate the levee improvements and canal relocations.

- **Landside vegetation removal**—In Reaches 12B–15 of the Sacramento River east levee, clear landside vegetation in a corridor up to 660 feet wide to prepare for Phase 4a Project levee and canal improvement work.

- **Waterside vegetation removal**—Up to 4 acres of waterside vegetation would be removed due to replacement of pumping plants and construction of outfalls in Reaches 10–15 of the Sacramento River east levee.

- **Right-of-way acquisition**—Acquire lands within the Phase 4a Project footprint along the Sacramento River east levee, NCC south levee, and at associated borrow sites.

- **Encroachment management**—Remove encroachments as required to meet the criteria of USACE, CVFPB, and FEMA.

- **Exchange of properties between SAFCA and SCAS in Reaches 4A, 5B, and 6 of the Sacramento River east levee**—SAFCA and SCAS would carry out a land exchange that would support expansion of Airport bufferlands along the eastern edge of the new Elkhorn Irrigation Canal and provide SAFCA additional habitat mitigation land along the upper portion of the Sacramento River east levee outside of the 10,000-foot Airport Critical Zone.

1.8 MAJOR CONCLUSIONS OF THE ENVIRONMENTAL ANALYSIS

The following impacts of the Proposed Action were found to be significant and unavoidable. Most of these impacts would be temporary and short-term and related to construction activities. Where feasible mitigation exists, it has been included to reduce these impacts; however, the mitigation would not be sufficient to fully reduce the impacts to a less-than-significant level. The following impacts are presented in the order they appear in Chapter 4.0, "Environmental Consequences and Mitigation Measures," of the Phase 4a DEIS/DEIR.

- conversion of Important Farmland to nonagricultural uses;

- conflicts with lands under Williamson Act contracts;

- potential to temporarily physically divide or disrupt an established community;

- potential loss of mineral resources;

- loss of woodland habitats (10–15 years until maturity);

- impacts on Swainson's hawk and other special-status birds;

- potential damage or disturbance to known prehistoric resources from ground-disturbance or other construction-related activities;

- potential damage to or destruction of previously undiscovered cultural resources from ground-disturbance or other construction-related activities;

- potential discovery of human remains during construction;

- temporary increase in traffic on local roadways;

- temporary emissions of reactive organic gases (ROG), oxides of nitrogen (NO_X), and respirable particulate matter less than 10 microns in diameter (PM_{10}) during construction;

- generation of temporary, short-term construction noise;
- temporary, short-term exposure of residents to increased traffic noise levels from hauling activity;
- alteration of scenic vistas, scenic resources, and existing visual character of the project area; and
- new sources of light and glare that adversely affect views.

1.9 REQUIREMENTS FOR DOCUMENT CERTIFICATION AND FUTURE STEPS IN PROJECT APPROVAL

On August 28, 2009, USACE and SAFCA announced the release of the Phase 4a DEIS/DEIR for a 45-day public review and comment period that ended October 13, 2009. The DEIS/DEIR was submitted to the State Clearinghouse for distribution to reviewing agencies. A notice of availability was published in the *Sacramento Bee* and distributed to a broad mailing list.

A public hearing to receive comments on the DEIS/DEIR was held at the Sacramento County Board of Supervisors Chambers on September 17, 2009 during the regular meeting of the SAFCA Board of Directors. The public hearing was recorded and a transcript was prepared.

As a result of these notification efforts, written and verbal comments were received from Federal, state, and local agencies; tribal government; organizations; businesses, and individuals on the content of the DEIS/DEIR. Chapter 3.0, "Responses to Comments on the DEIS/DEIR," identifies these commenting parties, their respective comments, and responses to these comments. None of the comments received, or the responses provided, constitute "significant new information" by CEQA standards (State CEQA Guidelines CCR Section 15088.5).

SAFCA will hold a public hearing as part of its Board of Directors meeting on November 13, 2009, to consider certification of the EIR and to decide whether to approve the Phase 4a Project, at which time the public and interested agencies may comment on the project.

1.10 ORGANIZATION AND FORMAT OF THIS DOCUMENT

This document is organized as follows:

Chapter 1.0, "Introduction," presents a summary of the Proposed Action, summarizes the major conclusions of the DEIS/DEIR, describes the purpose of the FEIR, provides an overview of the environmental review process, and describes the content of the FEIR.

Chapter 2.0, "Minor Modifications to the Phase 4a Project," presents minor modifications to the Phase 4a Project as a result of ongoing engineering refinements since release of the Phase 4a DEIS/DEIR.

Chapter 3.0, "Responses to Comments on the DEIS/DEIR," contains a list of all parties who submitted comments on the DEIS/DEIR during the public review period, copies of the comment letters received, a copy of the transcript from the September 17 public hearing, and responses to the comments.

Chapter 4.0, "Revisions to the DEIS/DEIR," presents revisions to the DEIS/DEIR text made in response to comments, or to amplify, clarify or make minor modifications or corrections. Changes in the text are signified by ~~strikeouts~~ where text is removed and by <u>underline</u> where text is added.

Chapter 5.0, "References," includes the references to documents used to support the comment responses.

Chapter 6.0, "List of Preparers," lists the individuals who assisted in the preparation of this document.

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2.0 MINOR MODIFICATIONS TO THE PHASE 4A PROJECT

2.1 INTRODUCTION

CEQA requires recirculation of an EIR when the lead agency adds "significant new information" to an EIR, regarding changes to the project description or the environmental setting, after public notice is given of the availability of a draft EIR for public review under State CEQA Guidelines California Code of Regulations (CCR) Section 15087, but before EIR certification (State CEQA Guidelines CCR Section 15088.5[a]). Recirculation is not required unless the EIR is changed in a way that would deprive the public of the opportunity to comment on significant new information, including a new significant impact in which no feasible mitigation is available to fully mitigate the impact (thus resulting in a significant and unavoidable impact), a substantial increase in the severity of a disclosed environmental impact, or development of a new feasible alternative or mitigation measures that would clearly lessen environmental impacts but which the project proponent declines to adopt (State CEQA Guidelines CCR Section 15088.5[a]). Recirculation is not required where the new information added to the EIR merely clarifies or amplifies or makes insignificant modifications in an adequate EIR (State CEQA Guidelines CCR Section 15088.5[b]).

Since release of the DEIS/DEIR, SAFCA has continued to refine the features of the Phase 4a Project. As a result of these engineering refinements, the Phase 4a Project has undergone minor modifications that are identified in the following discussion. These modifications would not substantially increase the intensity or severity of an impact or create a new significant impact, as discussed further below.

2.2 DESIGN REFINEMENTS IN FISHERMAN'S LAKE HABITAT COMPLEX

2.2.1 MODIFIED LOCATIONS OF WOODLAND CORRIDORS

As part of ongoing engineering refinements, the footprint of the proposed flood damage reduction improvements in Reaches 12A–15 of the Sacramento River east levee has been narrowed, making room for the alignment of the relocated Riverside Canal to shift closer to the levee. The revised canal realignment is shown on **Plate 3b**. Based on the revised Riverside Canal alignment, SAFCA has determined that woodland corridors originally planned for the area between the levee and canal could now be located to the landside of the canal, adjacent to the Novak and Fisherman's Lake Borrow Areas. These corridors, which would be planted with native riparian species, would be 200 feet wide, except in Reach 12B where the corridor width would range 100–200 feet. The proposed woodland corridor locations are shown on **Plate 4**, along with the locations of other habitat types that would be created and preserved as part of the Phase 4a Project. Where the woodland corridor crosses The Natomas Basin Conservancy (TNBC) Cummings preserve (southern end of Reach 13), the woodland corridor would be designed in consultation with TNBC to ensure that it enhances the land in a way that is consistent with the requirements of the Natomas Basin Habitat Conservation Plan (NBHCP).

These proposed corridors would support about 30 acres of woodland in the Fisherman's Lake Habitat Complex. The balance of the proposed 58 acres of woodland that would be planted or preserved would be located in Reach 4a of the Sacramento River east levee on the Rio Ramaza North and South sites (as shown in Plate 2-14 in the Phase 4a DEIS/DEIR). The realigned Riverside Canal and woodland corridors are located within the worst-case footprint—up to 660 feet from the centerline of Garden Highway—that was analyzed in the Phase 4a DEIS/DEIR. No additional farmland conversion or habitat loss would occur as a result of these refinements. The amount of groundwater that would be pumped to irrigate the woodland during the 3- to5-year establishment period would not change. These project changes do not constitute significant new information that would require recirculation of the document because no new significant or substantially more severe environmental impacts have been identified.

2.2.2 MARSH WATER SUPPLY DESIGN REFINEMENTS

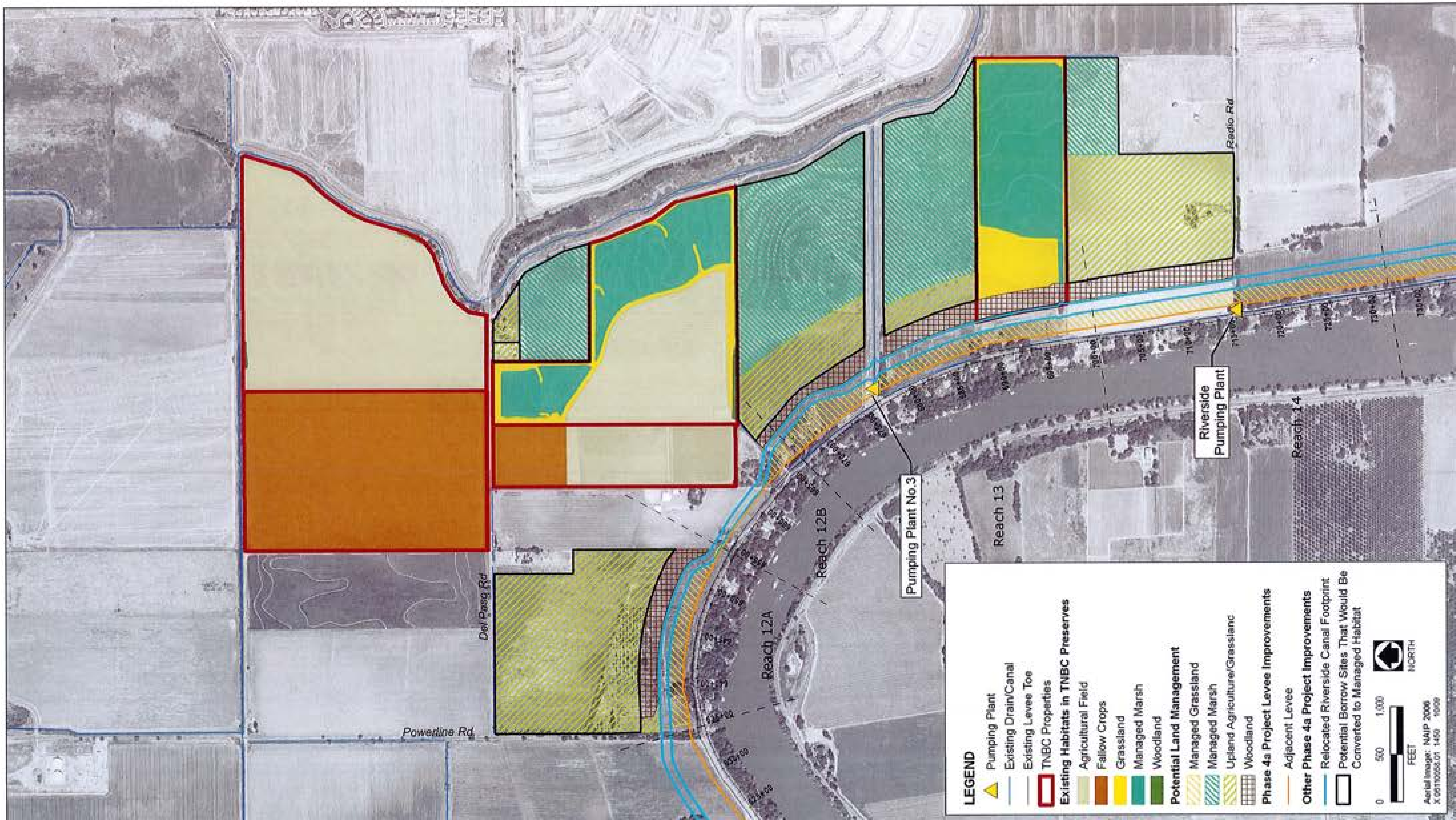
The Phase 4a DEIS/DEIR described and evaluated the potential impacts of groundwater wells that would provide a supplemental water supply to the proposed managed marshes in Reaches 12–13 of the Sacramento River east levee (**Plate 4**). As the design of the Fisherman's Lake Habitat Complex has been refined, the locations and pumping rates of the proposed wells have been modified based on new estimates of water supply requirements (**Plate 5**). Luhdorff & Scalmanini Consulting Engineers (LSCE) analyzed the potential impacts of the proposed Phase 4a Project habitat wells; the analysis is provided in a technical memorandum dated August 5, 2009 contained in Appendix C2 of the Phase 4a DEIS/DEIR. The August 5 analysis concluded that modeling of simulated well drawdowns demonstrated that the proposed wells would not significantly reduce the yield of existing wells along the Sacramento River east levee in Reaches 12A–14. The proposed modifications to the Fisherman's Lake Habitat Complex described in this FEIR have also been modeled by LSCE. The results of this modeling effort are described in a supplemental technical memorandum dated October 30, 2009. Both memoranda are contained in **Appendix A** of this FEIR. The supplemental analysis concluded that the project modifications would not change the conclusion that operation of the proposed wells would not significantly reduce the yield of existing wells in the study area. These changes do not constitute significant new information that would require recirculation of the document because no new significant or substantially more severe environmental impacts have been identified. Impact 4.5-c, "Effects on Groundwater," identified in the Phase 4a DEIS/DEIR, would remain less than significant.

2.3 PUMPING PLANT CONSTRUCTION ADDITIONS AND MODIFICATIONS

2.3.1 ADDITION OF NINE PRIVATE RIVER PUMP UPGRADES

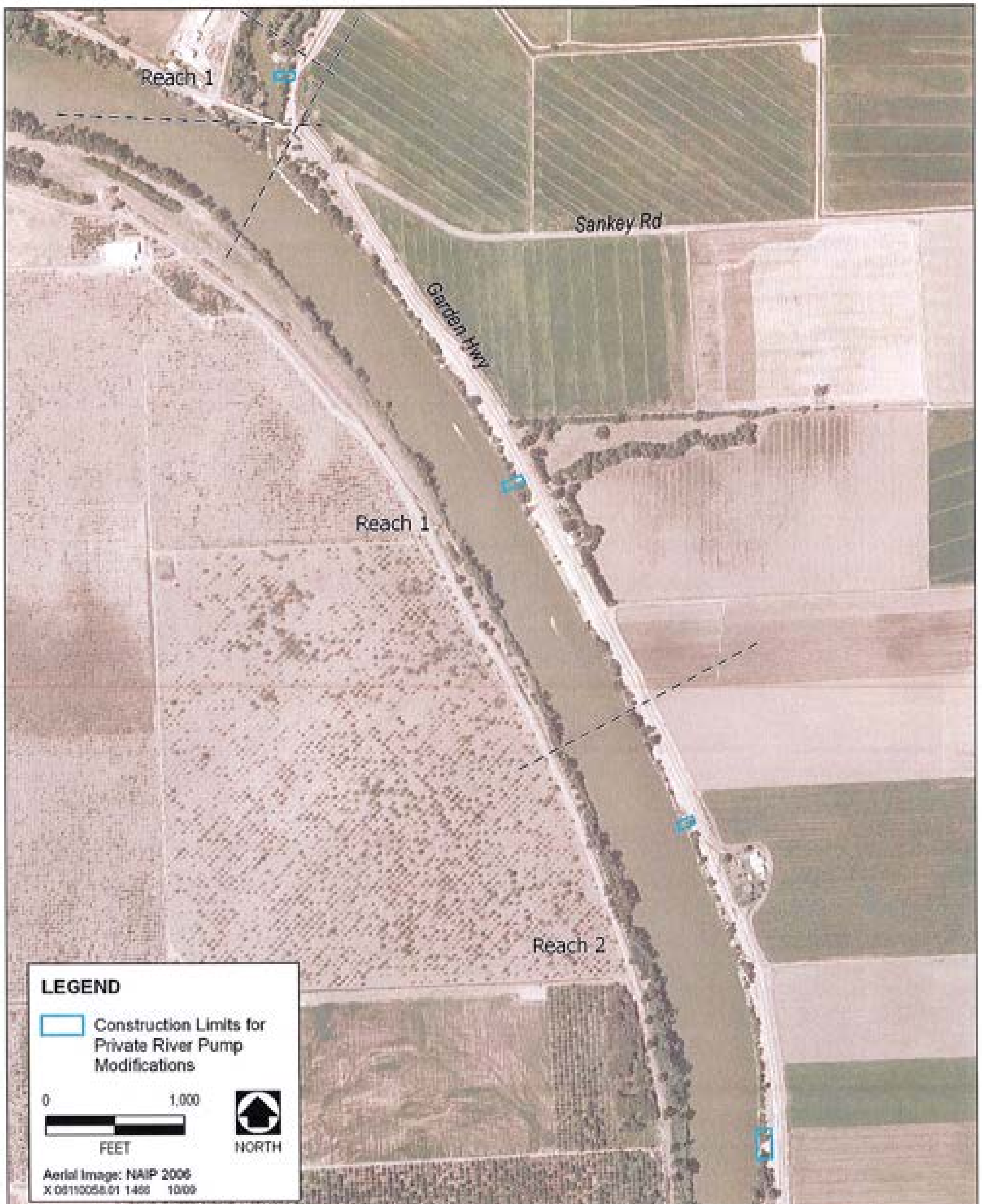
The Phase 4a DEIS/DEIR analyzed modifications to the South Lauppe Pump, a private river pump in Reach 2 of the Sacramento River east levee. The construction limits of this pump are shown at the southernmost location in **Plate 5**. Nine other private river pumps along the Natomas Cross Canal (NCC) south levee and Sacramento River east levee have been identified as also requiring modifications, including raising discharge pipes and upgrading motors and pumps to be compatible with approved and proposed levee improvements:

- **NCC South Levee Reach 1/Sacramento River East Levee Reaches 1 and 2. Plate 5** shows the locations of three of the private river pumps (Odysseus, Cummings, and North Lauppe Pump), which are located in the NCC south levee Reach 1 and in Sacramento River east levee Reaches 1 and 2, respectively. As part of the Phase 4a Project, the pump discharge pipes would be raised above the 200-year (0.005 AEP) water surface elevation to comply with current levee standards. Pipe installations at the Cummings and North Lauppe pump locations would require Garden Highway to be closed for up to 4 weeks with traffic control measures, including detours for through traffic. The modified pipe configuration would require upgrades to the pump motors and pump bowls. The capacity of the facilities would be unchanged, but the higher pumping levels would require more power input to maintain existing capacity. These modifications would be constructed in winter 2010, after the irrigation season, and would be completed by April 1, 2011 to minimize irrigation service disruptions. The pumping facility rehabilitation would require removal and replacement of existing pumps using a crane from the bench area above the top of the NCC and Sacramento River bank. A barge could also be employed for removal and replacement of pumps. Motor upgrades would most likely require an upgrade of electrical equipment, as well as overhead electrical service. New conduits from the power pole to the pump platform would be constructed by open trenching. New power poles and guy wires could also be required. Steel members on the pumping plant superstructure may be replaced or upgraded on existing foundations. Where foundations are inadequate, additional and/or replacement supports would be constructed. Minor vegetation trimming and/or clearing may be required.



Source: Footprints (EDAW 2009, Riverside Canal (Mead & Hunt 2009), Borrow Sites (Mead & Hunt 2009), Woodland Corridor (EDAW 2009), Proposed Habitats (EDAW 2009)

Potential Fisherman's Lake Habitat Elements **Plate 4**



Source: Mead & Hunt 2009

Phase 4a Project – Private River Pumps

Plate 5

At the Odysseus Pump in the NCC south levee Reach 1, cast-in-place concrete drilled piers or slab foundations would be constructed. New steel H-piles would be driven to support the pump and platform upgrades at the Cummings Pump in Sacramento River east levee Reach 1. To remove and reinstall the pumps, some localized minor maintenance dredging under the pump house may be required to clear sediment buildup, if any, around the pump bowls. Dredging would be performed by divers with dredging hoses. The sites would generally be accessed off of the adjacent NCC levee patrol road and Garden Highway, along existing access roads. Temporary fencing would be installed around any sensitive habitat to be protected adjacent to work areas. Storm water pollution prevention best management practices would be implemented. No dewatering would be required. Work within the NCC and Sacramento River would be limited to removal and replacement of pumps by crane and any required repairs to steel pump platform superstructure. No fill placement or bank hardening is anticipated. Upon completion, disturbed overbank areas would be restored with native seed mix.

- **Sacramento River East Levee Reaches 11A–12A. Plates 3a and 3b** show the locations of six private river pumps south of Interstate 5 (I-5) that would be modified as part of the Phase 4a Project. The Siddiqui and Hewitt private river pumps are located in Reach 11A. The three Sacramento International Airport (Airport) river pumps are located in Reach 11B. The SAFCA pump for the Novak property is located in Reach 12A. Following completion of the proposed levee improvements in these reaches, the pipes at each private pumping plant would be raised above the 200-year (0.005 AEP) water surface elevation. Pipe installations would require Garden Highway to be closed for up to 4 weeks with traffic control measures, including detours for through traffic. The existing discharge pipes would be extended landward through the new levee footprint to adjacent agricultural fields and would be reconnected to irrigation distribution systems (pipes and/or ditches to match existing) that were relocated to make room for the expanded levee footprint.

  For waterside pipe replacement, vegetation would be avoided to the extent feasible, but generally an approximately 15-foot-wide corridor would be required for excavation, removal, and replacement of pipes. The modified pipe configuration would require upgrades to the pump motors and pump bowls. The capacity of the facilities would be unchanged, but the higher pumping levels would require more power input to maintain existing pumping capacity. The pumping facility rehabilitation would require removal and replacement of existing pumps using a crane from the bench area above the top of the Sacramento River bank. A barge could also be employed for removal and replacement of pumps. Motor upgrades would most likely require upgrade of electrical equipment, as well as overhead electrical service. New conduits from power poles to pump platforms would be constructed by open trenching. New power poles and guy wires might also be required. Steel members on the pumping plant superstructure may require replacement or upgrade. Where foundations are inadequate, additional and/or replacement supports would need to be constructed. Improvements to the foundations could include cast-in-place concrete drilled piers or slab foundations and/or driving new or replacement steel H-piles. Some minor tree trimming and clearing of undergrowth would be required to provide access for the work. Because relocation of the platforms is not anticipated, tree removal would be minimal (less than 1 acre).

  Pipe replacement would occur within the normal levee construction window between April 15 and October 30, and would require temporary piping around the construction area. Pump replacement would likely occur during winter to minimize irrigation service disruptions. Replacement of the pumps would be completed no later than April. To remove and reinstall the pumps, some localized minor maintenance dredging under the pump house might be required to clear sediment buildup, if any, around the pump bowls. Dredging would be performed by divers with dredging hoses. Construction equipment would generally reach sites from Garden Highway. Temporary protective fencing would be installed around any sensitive habitat adjacent to work areas. Storm water pollution prevention best management practices would be implemented. No dewatering would be required. In-water work would be limited to removal and replacement of pumps by crane and any required repairs to steel pump platform superstructure. No fill placement or bank hardening is anticipated. Upon completion, disturbed overbank areas would be restored with native seed mix.

Modifications to these nine private river pumps would result in less than 1 acre of vegetation removal (Impact 4.7-a). In-water work, including maintenance dredging and pile driving, could disturb or injure fish and aquatic habitats (Impact 4.7-i). Closure of Garden Highway for pipe installations would contribute to a temporary, short-term increase in traffic and traffic hazards on local roadways and potential disruption of emergency service response times and access (Impacts 4.10-a through 4.10-c). Construction activities, including pile driving, would generate temporary, short-term and intermittent noise near noise-sensitive receptors (Impact 4.12-a). These impacts were previously identified in the Phase 4a DEIS/DEIR and the following mitigation measures would apply to the proposed project modifications and would be implemented:

- Mitigation Measure 4.7-a, "Minimize Effects on Woodland Habitat; Implement all Woodland Habitat Improvements and Management Agreements; Compensate for Loss of Habitat; and Comply with Section 7 of the Federal Endangered Species Act, Section 1602 of the California Fish and Game Code, and Section 2081 of the California Endangered Species Act Permit Conditions"

- Mitigation Measure 4.7-i, "Implement Mitigation Measure 4.6-a, "Implement Standard Best Management Practices, Prepare and Implement a Stormwater Pollution Prevention Plan, Prepare and Implement a Spill Containment Plan, and Comply with National Pollutant Discharge Elimination System Permit Conditions," Implement a Feasible Construction Work Window that Minimizes Impacts to Special-Status Fish Species for Any In-Water Activities, and Implement Operational Controls and a Fish Rescue Plan that Minimizes Impacts to Fish Associated with Cofferdam Construction and Dewatering";

- Mitigation Measure 4.10-a, "Prepare and Implement a Traffic Safety and Control Plan for Construction-Related Truck Trips"; and

- Mitigation Measure 4.12-a, "Implement Noise-Reducing Construction Practices, Prepare and Implement a Noise Control Plan, and Monitor and Record Construction Noise Near Sensitive Receptors."

Table 2-1 shows the significance conclusions after mitigation for the relevant impacts for the DEIS/DEIR and with the addition of the project modifications. No significance conclusions would change as a result of the project modifications.

Table 2-1
Significance Conclusions Before and After Proposed Project Modifications

Impact	Mitigation	Phase 4a DEIS/DEIR Significance Conclusion After Mitigation	Significance Conclusion After Application of Mitigation to Project Modification
Impact 4.7-a: Loss of Woodland Habitats	Mitigation Measure 4.7-a	Significant and Unavoidable	Significant and Unavoidable
Impact 4.7-i: Temporary Construction-related Impacts to Fish and Aquatic Habitats	Mitigation Measure 4.7-i	Significant and Unavoidable	Significant and Unavoidable
Impact 4.10-a: Temporary Increase in Traffic on Local Roadways	Mitigation Measure 4.10-a	Significant and Unavoidable	Significant and Unavoidable
Impact 4.10-b: Temporary Increase in Traffic Hazards on Local Roadways	Mitigation Measure 4.10-a	Less than significant	Less than significant
Impact 4.10-c: Temporary Disruption of Emergency Service Response Times and Access	Mitigation Measure 4.10-a	Less than significant	Less than significant
Impact 4.12-a: Generation of Temporary, Short-Term Construction Noise	Mitigation Measure 4.12-a	Significant and Unavoidable	Significant and Unavoidable

These changes do not constitute significant new information that would require recirculation of the DEIS/DEIR because no new significant or substantially more severe environmental impacts have been identified.

2.3.2 MODIFICATIONS OF CONSTRUCTION ACTIVITIES AT PUMPING PLANT NOS. 3 AND 5

The Phase 4a DEIS/DEIR addressed 24 hours per day, 7 days per week (24/7) for construction of cutoff walls and groundwater wells (including up to two weeks of continuous pump testing for each well). Construction of modifications to Pumping Plant Nos. 3 and 5 would also be conducted on a 24/7 schedule. The construction limits for Pumping Plant Nos. 3 and 5 are shown on **Plates 3b and 3a**, respectively. Once dewatering of excavation areas has begun, groundwater pumping would need to be continuous to maintain the groundwater at levels low enough so as not to interfere with construction activities. Installation of sheet pile coffer dams, excavation, culvert removal, pump reconfiguration, and construction of new concrete outfall structures would also be conducted on a 24/7 schedule to ensure that these activities are completed within the allowable construction window. Discharge from dewatering would either be dispersed on farmland or released to adjacent canals or the Sacramento River, potentially degrading water quality in these water bodies (Impact 4.6-a). It has been determined that closure of Garden Highway to install pipes could be up to 120 days, compared to the 60 days disclosed in the Phase 4a DEIS/DEIR (Impacts 4.10-a through 4.10-c). Traffic control measures, including detours for through traffic on North Bayou, Powerline, and San Juan Roads, would be used. Pumping Plant No. 3 is located in Reach 13 of the Sacramento River east levee, where a cutoff wall would also be constructed on a 24/7 schedule. The pumping plant and cutoff wall construction activities would not overlap; therefore, 24/7 construction in this reach could take place throughout the entire 6-month construction season (Impact 4.12-a). See Chapter 4.0, "Revisions to the DEIS/DEIR," of this FEIR for revisions to Mitigation Measure 4.12-a concerning 24/7 construction of pumping plant modifications. These impacts were previously identified for other proposed Phase 4a Project elements, and the following Phase 4a DEIS/DEIR mitigation measures would apply to the proposed project modifications and would be implemented:

- Mitigation Measure 4.6-a, "Implement Standard Best Management Practices, Prepare and Implement a Stormwater Pollution Prevention Plan, and Comply with National Pollutant Discharge Elimination System Permit Conditions";

- Mitigation Measure 4.10-a, "Prepare and Implement a Traffic Safety and Control Plan for Construction-Related Truck Trips"; and

- Mitigation Measure 4.12-a, "Implement Noise-Reducing Construction Practices, Prepare and Implement a Noise Control Plan, and Monitor and Record Construction Noise Near Sensitive Receptors."

Table 2-2 shows the significance conclusions after mitigation for the relevant impacts for the DEIS/DEIR and with the addition of the project modifications. No significance conclusions would change as a result of the project modifications.

These changes do not constitute significant new information that would require recirculation of the document because no new significant or substantially more severe environmental impacts have been identified.

Table 2-2 Significance Conclusions Before and After Proposed Project Modifications			
Impact	Mitigation	Phase 4a DEIS/DEIR Significance Conclusion After Mitigation	Significance Conclusion After Application of Mitigation to Project Modification
Impact 4.6-a: Temporary Impacts on Water Quality from Stormwater Runoff, Erosion, or Spills	Mitigation Measure 4.6-a	Less than significant	Less than significant
Impact 4.10-a: Temporary Increase in Traffic on Local Roadways	Mitigation Measure 4.10-a	Significant and Unavoidable	Significant and Unavoidable
Impact 4.10-b: Temporary Increase in Traffic Hazards on Local Roadways	Mitigation Measure 4.10-a	Less than significant	Less than significant
Impact 4.10-c: Temporary Disruption of Emergency Service Response Times and Access	Mitigation Measure 4.10-a	Less than significant	Less than significant
Impact 4.12-a: Generation of Temporary, Short-Term Construction Noise	Mitigation Measure 4.12-a	Significant and Unavoidable	Significant and Unavoidable

2.4 OTHER PROJECT MODIFICATIONS

Additional modifications to the Phase 4a Project are as follows.

2.4.1 ROAD CLOSURES REQUIRED DURING RELOCATION OF RIVERSIDE CANAL

The relocation of Riverside Canal (**Plate 3b**), which was analyzed in the Phase 4a DEIS/DEIR, would require road closures at San Juan, Powerline, and Radio Roads for up to 2 weeks at each crossing as culverts are installed under these roads. Traffic control measures, including detours, would be employed. Phase 4a DEIS/DEIR Mitigation Measure 4.10-a, "Prepare and Implement a Traffic Safety and Control Plan for Construction-Related Truck Trips," would be applicable to this modification and would be implemented to reduce impacts related to temporary increases in traffic and traffic hazards on local roadways and potential disruption of emergency service response times and access. These road closures do not constitute significant new information that would require recirculation of the document because no new significant or substantially more severe environmental impacts have been identified. Impact 4.10-a would remain significant and unavoidable as disclosed in the Phase 4a DEIS/DEIR.

2.4.2 REDUCED LENGTH OF PROPOSED CUTOFF WALL IN SACRAMENTO RIVER EAST LEVEE REACH 4B

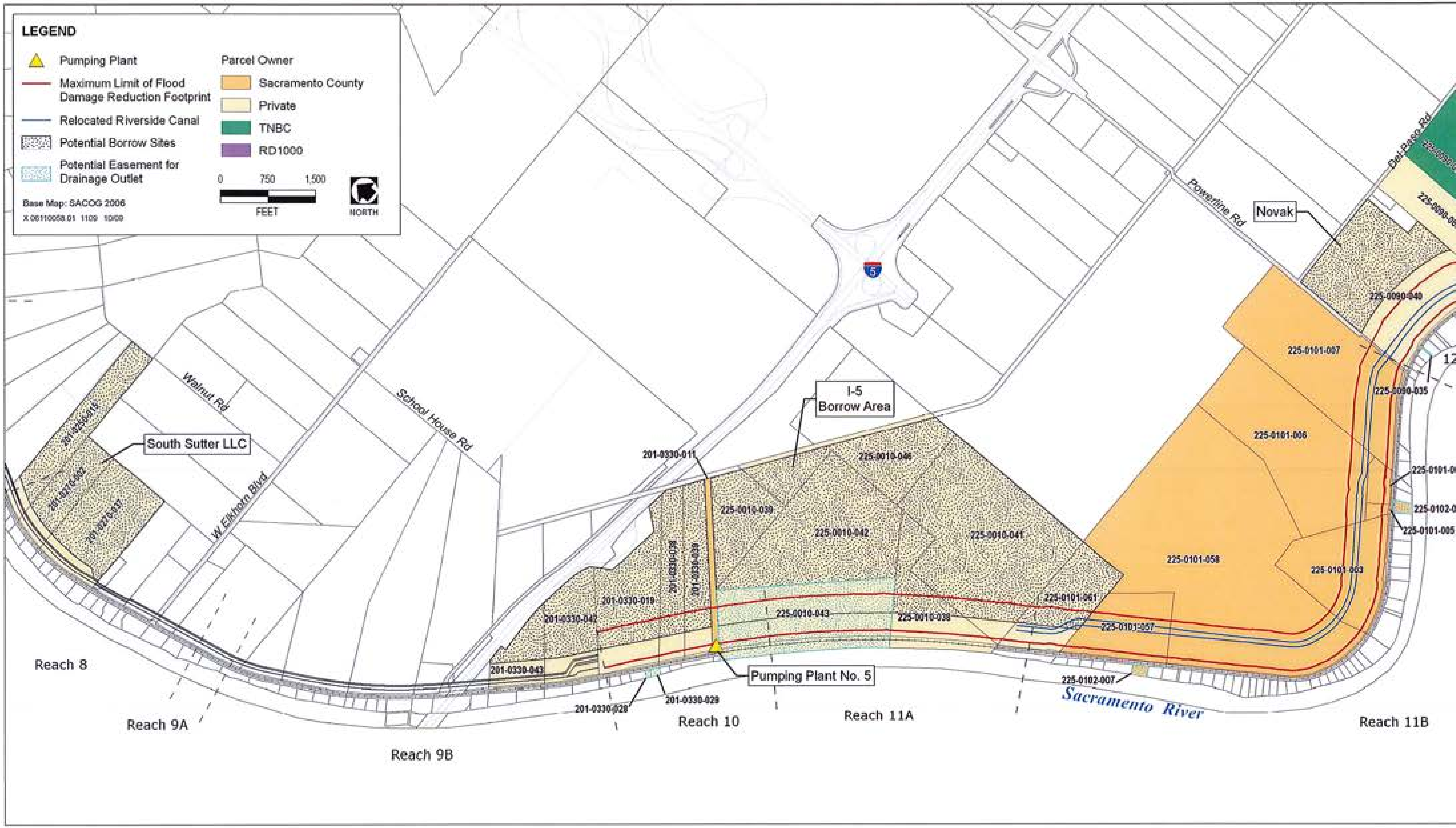
The Phase 4a DEIS/DEIR described a proposed cutoff wall for Reach 4B of the Sacramento River east levee (Stations 190+00 to 214+00) to provide additional seepage remediation to the 300-foot-wide berm in the same location. The linear extent of this cutoff wall has been reduced by approximately 11,000 feet, with the southern terminus of the wall now located at Station 201+50. **Plate 3c** shows the new location of the proposed cutoff wall. Under Impact 4.5-c, "Effects on Groundwater," the Phase 4a DEIS/DEIR concluded that the use of cutoff walls along the Sacramento River would be have a less-than-significant impact on groundwater levels and well yields. The reduction in the length of the cutoff wall in Reach 4B would decrease a potential obstruction to the movement of groundwater to and from the river in Reach 4B, further reducing this already less-than-significant impact. Thus, this change in the project does not constitute significant new information that would require recirculation of the document because no new significant or substantially more severe environmental impacts have been identified.

2.4.3 CHANGED LOCATIONS OF WATERSIDE DRAINAGE OUTLETS

The Phase 4a DEIS/DEIR analyzed the construction and operation of up to 10 waterside drainage outlets in Sacramento River east levee Reaches 10–13. As the design of the drainage system has been further refined, the locations have changed, with no outlets required south of Reach 12A. **Plates 6a and 6b** show the parcels that have been identified as possible locations for easements under the revised design. Rights-of-way for these easements would be up to 30 feet wide. No increase in vegetation removal (Impact 4.7-a), impacts to water quality (Impact 4.6-a), or disturbance or injury to fish and aquatic habitats (Impact. 4.7-i) would result from these design changes. Therefore, these changes do not constitute significant new information that would require recirculation of the document because no new significant or substantially more severe environmental impacts have been identified. Impacts 4.6-a, 4.7-a, and 4.7-i would remain significant and unavoidable as disclosed in the Phase 4a DEIS/DEIR.

2.4.4 ADDITIONAL PROPERTY TO BE ACQUIRED IN THE FISHERMAN'S LAKE BORROW AREA

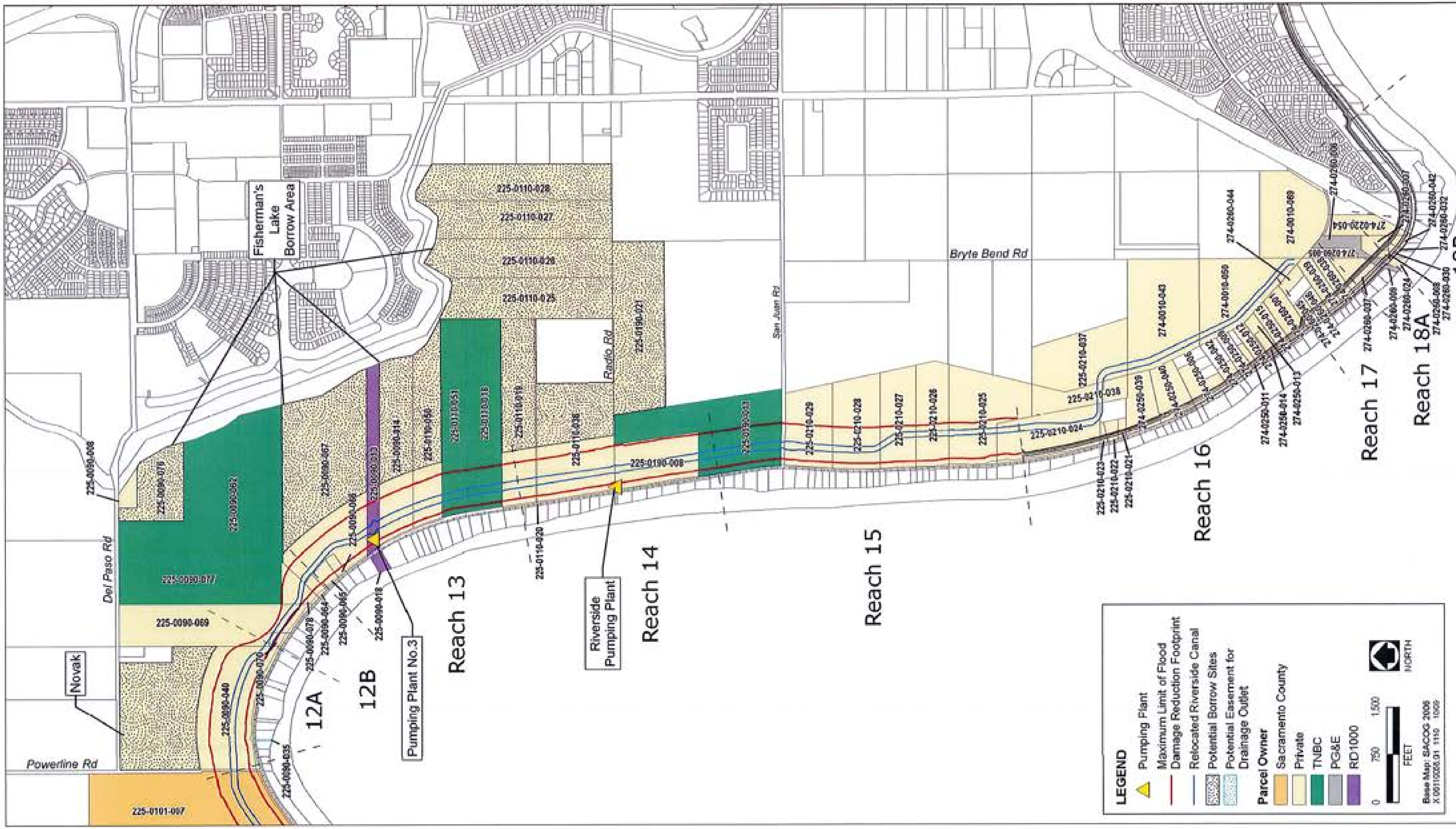
An additional property in the northeast corner of the Fisherman's Lake Borrow Area would be acquired as part of the Phase 4a Project. The parcel, which is approximately 3.5 acres, is shown on **Plate 6b** as Assessor's Parcel Number 225-0090-008. The property contains an unoccupied single-family home, trees, an outbuilding, and scattered debris. The land cover is classified as "developed/low density" on the western half, and "nonnative annual grassland" on the eastern half (Jones and Stokes 2007). The property would be cleared of structures and debris and converted to "upland agriculture/grassland", as shown on **Plate 4**. No loss of Important Farmland would occur (Impact 4.2-a), and the property would be converted to habitat, with native oaks on the property preserved to the extent feasible. Therefore, the addition of this parcel does not constitute significant new information that would require recirculation of the document because no new significant or substantially more severe environmental impacts have been identified. Impact 4.2-a would remain significant and unavoidable as disclosed in the Phase 4a DEIS/DEIR.



Source: Parcels (Mead & Hunt 2008), Alignments (EDAW 2009), Riverside Canal (2009)

Phase 4a Parcel Ownership Map 1 of 2

Plate 6a



Source: Parcels (Mead & Hunt 2008), Alignments (EDAW 2009), Riverside Canal (2009)

Phase 4a Parcel Ownership Map 2 of 2 **Plate 6b**

3 RESPONSES TO COMMENTS ON THE DEIS/DEIR

This chapter contains the comment letters received on the Phase 4a DEIS/DEIR, including transcribed comments received during the September 17, 2009 public hearing, and USACE's and SAFCA's individual responses to significant environmental issues raised in those comments. Each letter, as well as each individual comment within the letter, has been given a number for cross-referencing. Responses are sequenced to reflect the order of comments within each letter. **Table 3-1** lists all parties who submitted comments on the Phase 4a DEIS/DEIR during the public review period.

Table 3-1
List of Commenters

Letter #	Commenter	Date of Comment	Page Number
Federal Agencies (F)			
F1	U.S. Department of the Interior, Office of the Secretary, Office of Environmental Policy and Compliance, Pacific Southwest Region	October 9, 2009	F1-1
F2	U.S. Environmental Protection Agency, Region IX	October 13, 2009	F2-1
Tribal Government (T)			
T1	Shingle Springs Rancheria	October 16, 2009	T1-1
State Agencies (S)			
S1	State of California – The Resources Agency, Central Valley Flood Protection Board	October 13, 2009	S1-1
S2	California Environmental Protection Agency – Office of Environmental Health Hazard Assessment	October 1, 2009	S2-1
Local Agencies (L)			
L1	Sacramento County Airport System	October 6, 2009	L1-1
L2	Sacramento Metropolitan Air Quality Management District	October 7, 2009	L2-1
L3	Sutter County, Neal P. Hay PE, Associate Civil Engineer	September 21, 2009	L3-1
L4	Sacramento County Department of Transportation	September 21, 2009	L4-1
L5	Rio Linda Elverta Recreation and Parks District	September 1, 2009	L5-1
Organizations (O)			
O1	Garden Highway Community Association	October 13, 2009	O1-1
O2	Association for the Environmental Preservation of the Garden Highway	October 14, 2009	O2-1
Businesses (B)			
B1	Wickland Pipelines, LLC	October 13, 2009	B1-1
Individuals (I)			
I1	Frances Tennant	September 17, 2009	I1-1
I2	Ann Amioka	September 28, 2009	I2-1
I3	The MKG Trust/Chris. J. Rufer	October 12, 2009	I3-1
I4	Roland Candee	September 30, 2009	I4-1
Public Hearing (PH)			
PH	September 17, 2009 Public Hearing	September 17, 2009	PH-1

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F1

United States Department of the Interior

OFFICE OF THE SECRETARY
Office of Environmental Policy and Compliance
Pacific Southwest Region
1111 Jackson Street, Suite 520
Oakland, California 94607

IN REPLY REFER TO:
ER09/933

Electronically Filed

09 October 2009

Elizabeth Holland, Planning Division
U.S. Army Corps of Engineers, Sacramento Division
1325 J Street
Sacramento, CA 95814

Subject: Review of the Draft Environmental Impact Statement (DEIS) for the Natomas Levee Improvement Program, **Phase 4a Landslide Improvement Project**, Sutter and Sacramento Counties, CA

Dear Ms. Holland:

The Department of the Interior has received and reviewed the subject document and has no comments to offer. F1-1

Thank you for the opportunity to review this project.

Sincerely,

Patricia Sanderson Port
Regional Environmental Officer

cc:
Director, OEPC

Letter F1 Response	U.S. Department of the Interior, Office of the Secretary, Office of Environmental Policy and Compliance, Pacific Southwest Region October 9, 2009

F1-1 Comment noted.

F2

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

OCT 13 2009

Ms. Elizabeth Holland
Environmental Resources Branch
U.S. Army Corps of Engineers
Sacramento District
1325 J Street, 10th Floor
Sacramento, California 95814-2922

Subject: Draft Environmental Impact Statement (DEIS) Natomas Levee Improvement Program Phase 4a Landside Improvements Project (CEQ# 20090298)

The U.S. Environmental Protection Agency (EPA) has reviewed the above-referenced document pursuant to the National Environmental Policy Act (NEPA), Council on Environmental Quality (CEQ) regulations (40 CFR Parts 1500-1508), and our NEPA review authority under Section 309 of the Clean Air Act.

EPA's primary concern is that the DEIS analysis of conformity applicability shows mitigated nitrogen oxide (NO_x) emissions exceeding the conformity threshold. Prior to completing the Final EIS, the Corps should either revise the project so that the emissions no longer exceed the threshold, or complete a conformity determination for the project. Whichever the case, EPA is ready to coordinate with the Corps to avoid project delays. To clarify a point of apparent confusion, off-site mitigation (or offsets) may be included in a conformity determination, but may not be considered in an analysis to determine the applicability of conformity. F2-1

We are pleased to learn of the cooperation of the Corps and the Sacramento Area Flood Control Agency (SAFCA) with the US Fish and Wildlife Service, California Department of Fish and Game, and the Natomas Basin Conservancy to ensure this project and future development adhere to, and do not undermine, the underlying assumptions, goals, and objectives of the Natomas Basin Habitat Conservation Plan. F2-2

While we acknowledge the urgent need for the levee improvements and the benefits of the Proposed Action, we have rated the DEIS as Environmental Concerns – Insufficient Information (EC-2) (see enclosed "*Summary of Rating Definitions*") due to our concerns regarding the conformity analysis, described above, and the management of the residual flood risk, discussed in our enclosed detailed comments. F2-3

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We appreciate the opportunity to review this DEIS. When the FEIS is released for public review, please send one hard copy and one CD ROM to the address above (mail code: CED-2). If you have any questions, please contact Tom Kelly, the lead reviewer for this project, at (415) 972-3856 or kelly.thomasp@epa.gov, or me at (415) 972-3521.

Sincerely,

Kathleen M. Goforth, Manager
Environmental Review Office

Enclosures:
Summary of EPA Rating Definitions
Detailed Comments

cc: Ken Sanchez, U.S. Fish and wildlife Service
Robert Solecki, Central Valley RWQCB
Jeff Drongesen, California Department of Fish and Game
John Bassett, Sacramento Area Flood Control Agency
Helen Thomson, Sacramento Area Council of Governments
Larry Greene, Sacramento Metropolitan Air Quality Management District
David A. Valler Jr., Feather River Air Quality Management District
John Roberts, The Natomas Basin Conservancy

Incorporate Residual Flood Risk into Land Use Planning

In our letters on earlier phases of this project, dated August 4, 2008 and April 3, 2009, respectively, we raised concerns about residual flood risk to future development in a floodplain protected by the project's improved levees. The Corps responded in the Final EISs, dated November 14, 2008 and August 21, 2009, by describing county flood safety plans and Sacramento Area Flood Control Agency (SAFCA) development impact fees to avoid any substantial increase in the expected damage due to an uncontrolled flood. While we are pleased to learn of these steps, we remained concerned.

In 1995, the National Research Council published "Flood Risk Management and the American River Basin; an Evaluation." After acknowledging that specific improvements were planned or foreseeable to alleviate flood risk, the report suggested, "[d]evelopment within the Natomas Basin thus should be subject to prudent flood-plain management requirements under *federal*, state and local authority" (emphasis added). We concur and suggest the Corps take a more active role to ensure adequate safeguards are in place to manage the area's residual risk. F2-4

As the National Research Council report noted, the risk of flooding over a 50 year period, even for systems designed to withstand 200-year flood, is 22% or 1 in 5. It also stated, "[p]erhaps the worst thing that might be done is to create a false sense of security or to encourage people to think that any proposed project provides complete protection from flooding."

EPA is not opposed to development in the Natomas Basin. Development close to urban centers is a tenet of EPA's Smart Growth Program, but such development must adequately address residual flood risk. Section 2.5.1 of the DEIS contains many prudent measures to manage residual risk, including some land use planning measures. EPA suggests the Corps consider additional measures, contained in the SAFCA white paper titled, "Legislative Framework for Flood Control Flood Risk Management in the Sacramento Valley (Endorsed by SACOG [Sacramento Area Council of Governments] 4/20/06)." As SAFCA acknowledges, many measures are beyond their authority to implement. EPA notes that the Corps brought this document to our attention in the previously mentioned responses to comments.

Recommendation:
The Corps should request local implementation of land use controls suggested in the white paper, or suitable alternatives. EPA noted the following land use measures from the white paper, which were not discussed in the DEIS:

- require property owners to obtain flood insurance (page 2 and 7)
- ensure that occupants of areas protected by levees have adequate notice or disclosure about the risk of flooding (page 6)
- outline a comprehensive flood risk management program that promotes appropriate land use planning (page 9),
- design urbanizing areas to ensure that there is no net increase in the peak flow of stormwater (e.g. low impact development, see http://www.epa.gov/nps/lid/) discharged from the floodplain (page 5).

F2-4 (Con't)

SUMMARY OF EPA RATING DEFINITIONS*

This rating system was developed as a means to summarize the U.S. Environmental Protection Agency's (EPA) level of concern with a proposed action. The ratings are a combination of alphabetical categories for evaluation of the environmental impacts of the proposal and numerical categories for evaluation of the adequacy of the Environmental Impact Statement (EIS).

ENVIRONMENTAL IMPACT OF THE ACTION

"LO" (Lack of Objections)

The EPA review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

"EC" (Environmental Concerns)

The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce the environmental impact. EPA would like to work with the lead agency to reduce these impacts.

"EO" (Environmental Objections)

The EPA review has identified significant environmental impacts that should be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

"EU" (Environmentally Unsatisfactory)

The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potentially unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the Council on Environmental Quality (CEQ).

ADEQUACY OF THE IMPACT STATEMENT

"Category 1" (Adequate)

EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis or data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

"Category 2" (Insufficient Information)

The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analysed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses, or discussion should be included in the final EIS.

"Category 3" (Inadequate)

EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analysed in the draft EIS, which should be analysed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the NEPA and/or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

*From EPA Manual 1640, Policy and Procedures for the Review of Federal Actions Impacting the Environment.

F2-1 The Phase 4a DEIS/DEIR includes a CEQA-compliant air quality analysis as well as mitigation measures (see Section 4.11, "Air Quality," of the Phase 4a DEIS/DEIR). If the Phase 4a Project is approved, these mitigation measures will be adopted and incorporated into the project, and compliance will be monitored pursuant to SAFCA's mitigation monitoring and reporting program (MMRP) that also will be adopted following EIR certification as part of the project approval. A conformity determination is not required for CEQA compliance; therefore, SAFCA is proceeding with this FEIR. Under NEPA, however, such a determination is required to complete the NEPA process and before a record of decision (ROD) can be issued. USACE and SAFCA are coordinating with the U.S. Environmental Protection Agency (EPA) to resolve this issue in conjunction with USACE's FEIS. USACE and SAFCA appreciate EPA's sensitivity to avoiding project delays.

F2-2 Comment noted.

F2-3 See Response to Comment F2-1 regarding the conformity analysis and Response to Comment F2-4 regarding the management of residual flood risk.

F2-4 Neither USACE nor SAFCA have authority over local land use planning; therefore, neither agency can require implementation of the types of land use controls listed by the commenter. However, it should be noted that in 2007, the State Legislature adopted Senate Bill 5 (Machado) and Assembly Bill 5 (Wolk) enacting many of the recommendations contained in the SAFCA white paper referenced in the comment. As a result, the state's planning, subdivision, and flood management laws have been amended to incorporate important new flood risk management requirements. These requirements include a heightened standard of flood protection (200-year or greater) for urban areas that is likely to result in restricting future development to the flood basins that are already substantially developed and excluding new development from flood basins that are currently rural in nature; new levee operation and maintenance reporting requirements; new flood risk notice and disclosure requirements for occupants of floodplains; new building code requirements for structures in floodplain areas; and new flood emergency response requirements for local agencies with jurisdiction over floodplain lands. These requirements will be incorporated in a comprehensive update of the plan of flood protection for the Sacramento and San Joaquin River Basins that the Legislature has directed the California Department of Water Resources (DWR) to prepare by the end of 2010.

The full text of Senate Bill 5 can be viewed at the following Web site: http://www.leginfo.ca.gov/pub/07-08/bill/sen/sb_0001-0050/sb_5_bill_20071010_chaptered.pdf.

T1

SHINGLE SPRINGS RANCHERIA

Shingle Springs Band of Miwok Indians,
Shingle Springs Rancheria
(Verona Tract), California
5281 Honpie Road, Placerville, CA 95667
P.O. Box 1340, Shingle Springs, CA 95682
(530) 676-8010 Office, (530)676-8033 Fax

October 16, 2009

Mr. John Basset, Director of Engineering
SAFCA
1007 7th Street, 7th Floor
Sacramento, California 95814

Re: Natomas Levee Improvement Project Phase 4a Draft EIS/EIR August 28, 2009

Dear Mr. Bassett:

The Shingle Springs Band of Miwok Indians has reviewed the Draft Environmental Impact Statement ("EIS") and Draft Environmental Impact Report ("EIR") for Phase 4a of the Natomas Levee Improvement Project ("Project"). In general, the Tribe feels that the Draft EIS/EIR ("Draft") is a well-written articulation of the Project's potential environmental impacts. The Tribe would like to comment however, on the following: T1-1

Cultural Significance of the Project Site to the Shingle Springs Band of Miwok Indians

Page 3-55 provides an overview of the "Environmental Setting" of the Project site and states that the Project area is situated "within the lands traditionally occupied by the Nisenan, or Southern Maidu." The Tribe recommends that a sentence be added, explaining that the Shingle Springs Band of Miwok Indians ("Tribe") is descended from the Nisenan and Maidu people, and that Project area is of special cultural significance to the Tribe because of its location in the Tribe's aboriginal territory. T1-2

Similarly, section 4.8, entitled "Cultural Resources," on page 4.8-1 of the Draft states that Mr. John Tayaba, of the Shingle Springs Band of Miwok Indians, has been designated the Most Likely Descendant ("MLD") for the Project by the Native American Heritage Commission ("NAHC"). The Tribe would like to add a sentence stating that the reason for Mr. Tayaba's designation as MLD is that the Tribe's aboriginal territory is in the area of the Project site.

The Tribe strongly supports the pre-construction training session discussed on page 4.8-10, given by a qualified professional archaeologist, to all construction personnel so that they may assist with the identification of undiscovered cultural resource materials and avoid them where possible. In addition to training on recognition of cultural resource material, the T1-3

Tribe recommends that such training also note the importance of cultural resource materials to modern Tribal members. T1-3 (Cont.)

Preferred Mitigation Measures

It is the Tribe's view that human burials should always be avoided, to the greatest extent feasible. Therefore, the Tribe takes issue with the mitigation measure proposed on page 4.8-10 of the Draft. In particular, the Tribe objects to the use of a backhoe excavator "to increase the sample of information at depths below 6 feet that cannot be reached with conventional shovel test methods." The Tribe believes that backhoe excavators should be reserved for use only after other less invasive methods have proven unsuitable. Unlike canine forensic investigations, which are minimally invasive and also discussed in this section, the use of a backhoe excavator has the potential to destroy culturally-sensitive burials and artifacts of importance to the Tribe. Therefore, the Tribe requests that a distinction be made between these two mitigation measures (canine forensics and backhoe excavators) for clarification. Furthermore, the Tribe would like the Draft to reflect the Tribe's preference for the use of canine forensic investigations where possible, rather than more invasive mitigation methods. T1-4

Consultation

The "Impacts and Mitigation Measures" section on page 4.8-5 of the Draft states: "These measures would be implemented by the Sacramento Area Flood Control Agency ("SAFCA") and the United States Army Corps of Engineers ("USACE"), in consultation with the State Historic Preservation Officer ("SHPO")." The Tribe recommends that this sentence instead state, "…implemented by USACE and SAFCA, in consultation with the SHPO, *the Native American most likely descendant ("MLD"), and other appropriate parties.*"

Similarly, on page 4.8-8, the Draft states, "The evaluation of eligibility and determination of effects on all eligible and listed sites will be made in consultation with USACE and the SHPO." The next sentence of the Draft states "The sites that require evaluation may be significant both for their data potential and for their importance to local Native American groups, and may have the integrity to convey this significance." Given the impact such a decision will have on Native American groups, and in particular the Tribe, it is recommended that consultation include USACE, the SHPO, *and the MLD*. T1-5

On page 4.8-11, the Draft discusses the procedure after the discovery of a previously unidentified archaeological resource. Currently, the Draft states "…construction activities shall be halted in the vicinity of the find and the construction contractor, SAFCA, USACE, and other appropriate parties shall be notified regarding the discovery." The Tribe recommends that this portion instead state "…construction activities shall be halted in the vicinity of the find and the construction contractor, SAFCA, USACE, *the MLD, the Native American Heritage Commission ("NAHC"), if proper*, and other appropriate parties shall be notified regarding the discovery."

Likewise, on page 4.8-8 under 4.8-b, the Draft EIS/EIR states that "under either the proposed action or the RSLIP Alternative, SAFCA shall implement the following measures… Consult with USACE, the SHPO, and other consulting parties such as Native American individuals and organizations, to develop appropriate treatment or mitigation in an HPTP, per Stipulation V (A) of the Programmatic Agreement ("PA") if the project would result in adverse effects on eligible resources." Instead, the Tribe recommends that this portion of the Draft EIS/EIR state "…Consult with USACE, the SHPO, *the Native American most likely descendant ("MLD")*, and other consulting parties such as Native American individuals and organizations…" T1-5 (Cont.)

Other Comments

The next paragraph on 4.8-9 contains a small typographical error. It currently states "…further mitigation may required." This paragraph should instead state "further mitigation may *be* required." T1-6

Conclusion

We appreciate this opportunity to comment on the Draft and look forward to our continued collaboration as the Project moves forth. If you have any questions, please do not hesitate to contact our Attorney, Michelle LaPena, at (916) 442-9906.

Sincerely,

Nicholas Fonseca
Tribal Chairman

T1-1 Comment noted.

T1-2 The text has been revised as requested. See Chapter 4.0, "Revisions to the DEIS/DEIR," of this FEIR.

T1-3 The text has been revised as requested. See Chapter 4.0, "Revisions to the DEIS/DEIR," of this FEIR.

T1-4 The text has been revised as requested. See Chapter 4.0, "Revisions to the DEIS/DEIR," of this FEIR.

T1-5 The text has been revised as requested. See Chapter 4.0, "Revisions to the DEIS/DEIR," of this FEIR.

T1-6 The text has been revised as requested. See Chapter 4.0, "Revisions to the DEIS/DEIR," of this FEIR.

S1

STATE OF CALIFORNIA – THE RESOURCES AGENCY ARNOLD SCHWARZENEGGER, GOVERN

CENTRAL VALLEY FLOOD PROTECTION BOARD
3310 El Camino Ave., Rm. LL40
SACRAMENTO, CA 95821
(916) 574-0609 FAX: (916) 574-0682
PERMITS: (916) 574-0685 FAX: (916) 574-0682

October 13, 2009

John Bassett
Sacramento Area Flood Control Agency
1007 7th Street, 7th Floor
Sacramento, CA 95814

Dear Mr. Bassett:

State Clearinghouse (SCH) Number: 2009032097
Draft Environmental Impact Report Natomas Levee Improvement Program Phase 4a Landside Improvements Project

Staff for the Central Valley Flood Protection Board has reviewed the subject document and provides the following comments:

The proposed project is located within the jurisdiction of the Central Valley Flood Protection Board (Formerly known as The Reclamation Board). The Board is required to enforce standards for the construction, maintenance and protection of adopted flood control plans that will protect public lands from floods. The jurisdiction of the Board includes the Central Valley, including all tributaries and distributaries of the Sacramento River and the San Joaquin River, and designated floodways (Title 23 California Code of Regulations (CCR), Section 2).

A Board permit is required prior to starting the work within the Board's jurisdiction for the following:

- The placement, construction, reconstruction, removal, or abandonment of any landscaping, culvert, bridge, conduit, fence, projection, fill, embankment, building, structure, obstruction, encroachment, excavation, the planting, or removal of vegetation, and any repair or maintenance that involves cutting into the levee (CCR Section 6); S1-1
- Existing structures that predate permitting or where it is necessary to establish the conditions normally imposed by permitting. The circumstances include those where responsibility for the encroachment has not been clearly established or ownership and use have been revised (CCR Section 6);
- An acceptable vegetation plan including, the detailed design drawings, vegetation type and the plant names (i.e. common name and scientific name), total number of each plant, planting spacing and irrigation method that will be within the project area (Title 23, California Code of Regulations CCR Section 131).

The permit application and Title 23 CCR can be found on the Central Valley Flood Protection Board's website at http://www.cvfpb.ca.gov/. Contact your local, federal and state agencies, as other permits may apply.

If you have any questions please contact me at (916) 574-0651 or by email jherota@water.ca.gov.

Sincerely,

James Herota
Staff Environmental Scientist
Floodway Protection Section

cc:

Governor's Office of Planning and Research
State Clearinghouse
1400 Tenth Street, Room 121
Sacramento, CA 95814

S1-1 SAFCA recognizes that the Phase 4a Project would involve alterations of levees under the jurisdiction of the Central Valley Flood Protection Board (CVFPB) and would therefore require an encroachment permit from the CVFPB to construct those alterations. (See also Section 1.7.3.2, "State Actions/Permits," in the Phase 4a DEIS/EIR.) SAFCA would obtain all necessary permits and approvals before project construction.

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S2

Office of Environmental Health Hazard Assessment

Joan E. Denton, Ph.D., Director
Headquarters • 1001 I Street • Sacramento, California 95814
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Linda S. Adams
Secretary for Environmental Protection

Arnold Schwarzenegger
Governor

October 1, 2009

Mr. John Bassett
Sacramento Area Flood Control Agency
1007 7th Street, 7th floor
Sacramento, CA 95814

Dear Mr. Bassett:

Following is OEHHA's review of the Natomas Levee Improvement Program Borrow Site Environmental Conditions prepared by Kleinfelder, Inc. dated August 12, 2009:

Introduction

As part of the Natomas Levee Improvement Program (NLIP), levee improvements are proposed to be constructed on three properties: the South Sutter/Thornton (South Sutter), Novak, and Huffstutler / Johnson Trust (Huffstutler) properties. Kleinfelder assessed the environmental conditions at the three properties and reported their findings in the document entitled "Borrow Site Environmental Conditions South Sutter/Thornton Property (APN 201-0250-015, 201-0270-002, -037) Novak Property (APN 225-0090-040) Huffstutler/Johnson Trust Property (APN 225-0110-019, -020, -037), Sacramento County, California, August 12, 200". We reviewed this document for the Sacramento Area Flood Control Agency (SAFCA).

The properties are also proposed for use as sources of borrow soil during construction of the NLIP improvements. The NLIP encompasses approximately 45 perimeter miles of terrain with some interior reach. The Garden Highway is at the western and southern borders, the Natomas Cross Canal is at the northern border, and the East Levee Road and Natomas Road form the eastern border. S2-1

Organochlorine pesticides (OCPs) and arsenic, lead, and copper were detected in soil samples from the properties (based on the report text; no laboratory data sheets are provided). Some soil samples contained concentrations that exceed some default environmental and human health risk screening levels. Where the default assumptions incorporated into development of published regulatory screening levels were inappropriate for site conditions, the default assumptions were modified to more accurately reflect site-specific conditions, where possible. No details of these modifications were provided.

Mr. John Bassett
October 1, 2009
Page 2

Kleinfelder further evaluated the detected pesticide residues considering existing site conditions, proposed NLIP construction activities, and post-improvement land use. Based on these factors, Kleinfelder concluded the following:

- Concentrations of the OCP toxaphene that were detected in soil samples from the South Sutter and Novak properties do not currently pose ecological or human health risks requiring mitigation
- It is unlikely that these conditions pose a threat to neighboring properties.
- Ordinary dust control and worker personal hygiene practices required during construction activities will mitigate exposure of on-site construction workers, consistent with usual occupational health and safety requirements, and prevent undue exposure of nearby off-site receptors.
- Evaluation of levee improvement construction activities, including use of the South Sutter and Novak properties for borrow soil, indicates that the work will not create health risks requiring mitigation or exacerbate existing environmental conditions, and may improve upon existing environmental conditions.
- The proposed post-construction land use for the South Sutter and Novak properties is expected to reduce ecological or human health risks relative to current conditions.
- Concentrations of arsenic and the OCP dieldrin detected in soil samples from the Huffstutler property do not currently pose human health risks on the site requiring mitigation or remediation.
- It is unlikely that current conditions threaten neighboring properties.
- The detected pesticide residue concentrations on the site are not inconsistent with accepted agricultural practices.
- Detected residues may present a long-term potential for ecological risk and are not appropriate for land uses that provide habitat for ecological receptors.
- With appropriate controls, levee improvement construction activities (which include use of the Huffstutler property for borrow soil) are not expected to pose risks requiring mitigation or remediation or exacerbate existing environmental conditions, and may improve environmental conditions.
- Because the proposed land use for the Huffstutler property after construction will provide habitat for ecological receptors, the pesticide residues in the topsoil likely would pose excess ecological risks. The ecological risk posed by arsenic and dieldrin could be mitigated through removal and encapsulation by using the soil to construct the proposed seepage berm.

S2-1 (Cont.)

Mr. John Bassett
October 1, 2009
Page 3

Human Health Risk Assessment

Kleinfelder compared average and maximum detected concentrations of arsenic, dieldrin and toxaphene to human-health-based screening levels. All three chemicals of potential concern exceed one or more screening levels (indicated by bold font in Table 1).

Table 1: Soil screening evaluation for ingestion and dermal uptake (mg/kg)

	Arsenic	Dieldrin	Toxaphene
Huffstutler mean	**18.5**	**0.025**	ND
Huffstutler maximum	**43**	**0.1**	ND
Novak mean	**8.2**	ND	**0.12**
Novak maximum	**10**	ND	**0.22**
South Sutter mean	7.6	0.001	**0.035**
South Sutter maximum	**11**	**0.006**	**0.19**
Residential CHHSL*	0.07	0.034	0.46
Commercial CHHSL	0.24	0.35	1.8
Residential ESL**	0.39	0.0023	0.00042
Commercial ESL	1.6	0.0023	0.00042
Construction ESL	15	1.6	22

* California human health screening level
** San Francisco Bay Regional Water Quality Control environmental screening level

S2-1 (Cont.)

There is some ambiguity in the report about the airborne dust level anticipated during the work. The table on page 19 shows airborne concentrations of arsenic, dieldrin and toxaphene based on the DTSC particle emission factor (PEF) which predicts an ambient air dust concentrations of 1 mg/m^3, while the paragraph under the table on page 19 discusses an air standard of 5 mg/m^3 based on the OSHA permissible exposure level (PEL) for dust. We therefore analyzed the airborne soil exposure pathway and corresponding human health risk estimates (results in
Table 2).

Table 2: On-site concentrations of airborne soil particles & health-based limits

	Maximum soil concentration (mg/kg)	Predicted airborne concentration (ug/m^3) based on DTSC PEF	OSHA PEL for dust	OEHHA REL (ug/m^3)	RWQCB ESL (ug/m^3)
Arsenic	43	0.043*	0.215	0.015	0.00057
Dieldrin	0.1	0.0001	0.0005		0.00053

oxaphene 0.22 0.00022 0.0011 0.0075
*Note: The value in the table on page 19 is incorrect. This is the corrected value.

Table 2 shows that predicted airborne concentrations of dieldrin and toxaphene do not exceed ambient air screening levels. However, the maximum arsenic concentration found on the Huffstutler property is predicted to exceed the ambient air screening level and the OEHHA REL whether the PEF or the PEL is used as the basis for airborne dust. If average or UCL concentrations are used, the exposure estimates would be lower, but still above the REL for arsenic.

Multipathway human health risks and hazards

Table 3 shows that all calculated hazard quotients are below the threshold of 1.0. Risk estimates corresponding to the maximum arsenic concentration exceed 10^{-6}. Although there are no current on-site residents, subsequent agricultural operations could involve residential use.

Table 3: Multipathway Risks and Hazard Quotients***

		Construction*		Residential*	
	concentration	Risk**	HQ	Risk**	HQ
Arsenic	43 ppm	4.80E-6	0.53	5.50E-5	0.29
Dieldrin	0.1 ppm	8.80E-8		1.40E-6	
Toxaphene	0.22 ppm	1.50E-8		2.70E-7	
sum		4.90E-6		5.67E-5	

*Based on estimated total-dose (oral + dermal + inhalation) using PEA equations, excluding food pathways.
** 1.0 E-6 is the same as 1 x 10^{-6} or one chance in a million
*** Other carcinogenic organochlorine pesticides may add to the total risks.

Infiltration into groundwater

Evaluation of the risk associated with groundwater contamination is vague in the report. A soil profile, water table depth and chemical analysis of groundwater would better address the risk due to infiltration. Please discuss the potential impact of excavation at the borrow sites on groundwater infiltration at those locations.

Human health issues and concerns that need to be addressed

- This report does not contain sufficient documentation to enable OEHHA to verify the results and conclusions. Upper confidence limits on arithmetic mean concentrations, which are often used to calculate exposure point concentrations, were not provided in the report.

S2-1
(Cont.)

- OEHHA has estimated risks and hazards from exposure to maximum detected levels of borrow site contaminants by multiple routes. While we do not consider these estimates to be the final word on the subject, they do raise some concerns that should be addressed in an expanded risk assessment.
- Please discuss the airborne arsenic concentrations for construction workers in light of chronic arsenic toxicity. Please clarify which dust level will be achieved and the proposed mechanism to ensure compliance with whichever standard is to be applied.
- Please explain how a fenceline standard of 1 mg/m^3 applied during construction and during subsequent agricultural operations will protect adjacent residents.
- Although the residual concentrations during subsequent agricultural operations may be different, it seems unlikely that dust generation during agricultural operations (e.g. disking) will be 1/1000 of that during construction. Please explain.
- Organochlorine pesticides may act in an additive manner. Screening out chemicals because they do not exceed ESLs ignores this additivity and is inconsistent with OEHHA guidance. Please ensure that the sum of the ratios of the concentrations of OCPs to their CHHSLs or ESLs to not exceed unity.

S2-1 (Cont.)

Ecological risk assessment

The ecological assessment in the report is incomplete considering the proposed land conversion to ecological habitats. Additional information would help to characterize these sites including land area, the number and horizontal spacing of soil samples, depth of water table and the presence of any temporal wetlands. Conversion of historic (and pre-regulatory) agricultural land to ecological habitat merits a thorough consideration of chemicals of potential ecological concern. Fish and wildlife species may be more sensitive to several agricultural chemicals than humans. The presence of chlorinated herbicides (atrazine), oganophosphates (diazinon), carbamates (carbofuran), pyrethroids, and the historical organochlorine, mirex, would be significant in ecological risk assessment (see DTSC 1996[1]). Terrestrial organisms are exposed to soil contaminants through dietary items, drinking from local pools, surface contact and burrowing (i.e., ingestion, inhalation and dermal exposure). Aquatic organisms (including amphibians) are also exposed to these contaminants through respiration, dermal contact and ingestion. The chemicals considered in the report could enter surface waters through soil runoff, leaching or particulate air transport (dust). The soil contaminants can also enter landward aquatic environments such as vernal pools, ephemeral streams or other temporal wetlands.

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[1] California Department of Toxic Substances Control. 1996. Guidance for Ecological Risk Assessment at Hazardous Waste Sites and Permitted Facilities. Part A: Overview. Sacramento, July.

Mr. John Bassett
October 1, 2009
Page 6

Screening-level evaluation of ecological risks

The ecological assessment in the report considered environmental screening levels (ESLs) for soil from several sources (Table 4). The consultants chose to use ESLs developed by USEPA through the Resource Conservation and Recovery Act (RCRA) as the project-specific ESLs. We agree that this was an appropriate selection of screening levels. However, the calculation of a separate set of ESLs to evaluate the risk associated with chemicals leaching into surface waters is puzzling. The consultants recalculated the ESLs developed by SFBRWQCB[2] using alternate values for the constant that estimates the mobility of a chemical in soil, K_{oc}. For toxaphene, the substituted k_{oc} (99,300 cm^3/g) was much larger than that used by the SFBRWQCB (4,900 cm^3/g). Although both of these values fall within the range of K_{oc} values reported by ATSDR[3] (300, 4,900 and 100,000 cm^3/g), the value used by the consultants is at the extreme of the range and results in a much higher (i.e., less conservative) ESL for toxaphene (93 mg/kg compared to the previous from 0.00042 mg/kg). ATSDR notes that the K_{oc} values for toxaphene are based on the pure technical mixture while the agricultural application typically included a hydrocarbon solvent (e.g., xylene) that would increase mobility in soil. While the SFBRWQCB ESL may be highly conservative, the recalculated ESL may not capture the true risk. Analysis of groundwater at the borrow sites would clarify the risk associated with toxaphene leaching. S2-1 (Cont.)

Table 4: Soil screening evaluation for ecological receptors (mg/kg)

	Arsenic	Dieldrin	Toxaphene
Huffstatler mean	18.5	0.029	ND
Huffstatler maximum	43	0.1	ND
Novak mean	8.2	ND	0.12
Novak maximum	10	ND	0.22
South Sutter mean	7.6	0.001	0.035
South Sutter maximum	11	0.006	0.19
SFBRWQCB ESLs	1.6	0.0023	0.0004
USEPA RCRA ESLs	5.7	0.0024	0.119
Eco SSL: Avian	43	0.022	na
Eco SSL: Plants	18	na	na
Project specific soil ESL	11.3	0.0024	0.119
Project-specific ESL for leaching [1]	11.3	0.0033	93
[1] Recalculations of SFBRWQCB ESLs			

As shown in Table 4, each of the borrow sites contain soil that exceeds the project-specific ESLs for at least one chemical:

[2] San Francisco Regional Water Quality Control Board

[3] ATSDR. 1996. Toxicological Profile for Toxaphene. Agency for Toxic Substances and Disease Registry, Division of Toxicology, Atlanta, GA.

- The **Huffstutler site** was the most problematic with significantly elevated soil concentrations of **dieldrin** and **arsenic**. This finding supports expanded testing after stockpiled soil from this site is re-spread on **this** or any **other site (including seepage berms)**. Potential leaching of arsenic or dieldrin to surface waters or wetlands could also be considered here. A full ecological risk assessment may be beneficial at this site.
- The **Novak site** contained elevated concentrations of **toxaphene** within the top 12 inches of soil.
- The **South Sutter site** surface soil had elevated **toxaphene** concentrations and one sample contained a **dieldrin** concentration above the project-specific ESL.
- The potential availability of soil contaminants to ecological receptors at the levee site is unclear. Dieldrin and arsenic in soil could be taken up by plants at the levee site and thus introduced into the food web. Invertebrates and small mammals may attempt to burrow into landward berms. Underseepage and permeable berms could result in small landward pools of water containing dissolved and particulate contaminants. Additionally, soil runoff from the levee site could transport contaminants to surface waters or nearby wetlands. Careful planning at the levee site could minimize potential risk of exposure. However, sufficient detail was not provided to review potential ecological risks at the levee site. S2-1 (Cont.)

Accurate estimation of ecological risk due to soil contamination at these sites is dependent on the accuracy of the site characterization, including the evaluation of all potential chemicals of ecological concern. The chemicals considered in this report are persistent in the environment. Mobilization of these chemicals could have a lasting ecological impact. These findings support expanded testing after stockpiled soil is re-spread on the sites.

Ecological Risk Summary

OEHHA has evaluated the ecological assessment included in the report. While we do not consider this evaluation to be the final word on the subject, we suggest that additional ecological risk assessment of the soil contamination is needed. The report did not fully characterize the site including full consideration of chemicals of potential ecological concern. The potential for contamination of surface waters and wetlands merits further consideration. Sampling groundwater and any current wetlands on the sites would shed light on leaching potential. Follow-up testing of levee runoff into surface waters or wetlands would identify any need to better secure the soil at the levee site.

Yours Truly,

James C. Carlisle, Senior Toxicologist
Integrated Risk Assessment Branch

S2-1 This comment letter is in response to SAFCA's request for a peer review from the Office of Environmental Health Hazard Assessment (OEHHA) of the "Borrow Site Environmental Conditions" report prepared by Kleinfelder and appended to the Phase 4a DEIS/DEIR as Appendix I. As a result of OEHHA's peer review, the Kleinfelder report has been revised. See **Appendix A** of this FEIR for the revised report. The revised report did not require any changes to the Phase 4a Project environmental analysis or mitigation measures because it clarifies the analysis but does not change any of the conclusions in the DEIS/DEIR regarding the significance or severity of impacts.

Sacramento County Airport System
G. Hardy Acree, Director of Airports

County Exec
Terry Sc

L1

County of Sacramento

October 6, 2009

Mr. John Bassett
Director of Engineering
Sacramento Area Flood Control Agency (SAFCA)
1007 Seventh Street, Seventh Floor
Sacramento, CA 95814

Subject: Comments on NLIP Phase 4A Draft EIS/EIR
State Clearinghouse No. 2009032097

Dear Mr. Bassett:

The Sacramento County Airport System (County Airport System) appreciates the opportunity to comment on the Draft Environmental Impact Statement/Draft Environmental Impact Report (DEIS/DEIR) issued on August 28, 2009 for the Natomas Levee Improvement Program (NLIP), Phase 4a Landside Improvement Project. Our comments correspond to the arrangement of subjects in the DEIS/DEIR.

<u>Overview and Support for NLIP</u>

The "Need for Action" section of the DEIS/DEIR (page 1-16) states that uncontrolled flooding in the Natomas Basin floodplain exceeding a 100-year flood event could result in $7.4 billion in damage, **excluding** damage to Sacramento International Airport (Airport). Taking the Airport into account would, of course, greatly increase the damage cost estimate. As noted in Section 1.4.2.1, of the DEIS/DEIR, Reaches 4A through 12B of the east bank of the Sacramento River (River) abutting Airport property have numerous locations where levee seepage has been identified as a problem. In addition, Plate 1-3 depicts levee height deficiencies adjacent to Airport property extending from 0.00 – 1.49 feet in Reach 11B (near the intersection of Power Line Road and Garden Highway) to a range of 2.00 – 2.49 feet in the stretch of the River extending southward from the Sutter County line to Reach 8 (parallel to the south end of both runways). Such levee height deficiencies pose a threat to continued Airport operations.

L1-1

Moreover, a complete levee failure would almost completely inundate the Natomas Basin with water depths averaging ten to 20 feet. Absent the NLIP, the Natomas Basin will be permanently designated as a FEMA special flood hazard area subject to development restrictions. The NLIP will provide the protection needed for the Airport to remain operational during flood conditions, to protect Airport investments made thus far by the County of Sacramento (County) and the Federal Aviation Administration (FAA), and to

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continue Airport development pursuant to the Airport Master Plan Update approved by the Sacramento Board of Supervisors in August 2007. The County Airport System therefore remains supportive of SAFCA's efforts to provide comprehensive flood protection in the Natomas Basin through implementation of the Natomas Levee Improvement Program.[1] L1-1 (Cont.)

Comments on Specific Sections of DEIS/DEIR

1. ES.9.1 and Section 2.1.5.1 – Alternatives Eliminated From Further Consideration
   a. The County Airport System concurs with elimination of the third alternative, "Construction of New Setback Levee" (paged ES-8 and 2-11). This option would entail construction of a separate, five-mile long levee parallel to the existing Sacramento River (River) east levee, approximately 500-1000 feet back (inboard) from the existing levee. This option is infeasible from our perspective because it would intrude into the approach and departure airspace for the north end of the existing west runway (16R), and would likewise intrude into airspace for the planned future third runway that will be constructed approximately 1,200 feet west of the existing 16R/34L between the years 2020 and 2030. (Please see the enclosed exhibit showing all of the Airport projects planned for construction pursuant to the Airport Master Plan Update approved by the County Board of Supervisors on August 7, 2007.) A new setback levee would possibly allow standing water to accumulate in the space between the two levees as a result of underseepage and/or through seepage, thereby acting as an attractant for birds hazardous to nearby aircraft movement. We have therefore concluded that the preferred method of constructing an adjacent levee (described in Section 2.1.3.1) would offer the flood protection needed by the Airport while minimizing the attraction of hazardous wildlife. L1-2

   b. Airport Compartment Levee (pages ES-9 and 2-12): We also concur with SAFCA's conclusion that this alternative is infeasible for the factors cited. It would only be a partial solution that would not protect the overall Natomas Basin from a 100-year flood risk. In particular, building a levee around the Airport would exceed the County Airport System's fiscal resources, and would constrain future expansion and development of the Airport. This alternative would also limit Airport access by customers and staff during a flood. L1-3

   c. Cultural Resources Impact Alternative (pages ES-9 and 2-12): This approach would entail constructing a 500-foot wide stability berm rather than deep cutoff walls to avoid deep ground-disturbing work. The analysis concluded that the intensity and severity of impacts on other environmental resources and considerations (including but not limited to biotic, hydrological, transportation and hazards) would be more potentially substantial than those related to cultural resources. We concur with this conclusion. Although this alternative will be analyzed in the Phase 4a project as a "worst-case" scenario, on balance the County Airport System would prefer that this alternative not be imple- L1-4 mented on any Airport land owned by the County of Sacramento. As stated on a number of previous occasions, most of the approximately 6,000 acres comprising the Airport was acquired with a combination of funds generated by Airport operations (termed "Airport Enterprise Funds") and federal grant-in-aid funding provided by the FAA. As such, Airport property is subject to the requirements of FAA "Grant Assurances" that restrict use of the land to aviation purposes, in addition to FAA policies and regulations pertaining to airport design and operation. The FAA and the County Airport System would therefore prefer a project design that intrudes to the least degree possible upon such federally obligated land. L1-4 (Cont.)

2. Section 1.4 - Project Purpose/Project Objectives
   a. Section 1.4.1.1. – SAFCA Project Objectives. The County Airport System strongly supports inclusion of the following additional project objective that has informed SAFCA's project design, which appears on page 1-16: L1-5
      i. "Use flood damage reduction projects in the vicinity of the Airport to facilitate management of Airport lands in accordance with the Airport's Wildlife Hazard Management Plan (WHMP)."
   b. Section 1.4.1.2. - U.S. Army Corps of Engineers. This section states that some residual risk will always remain regardless of the flood damage reduction system selected. The County Airport System concurs with the project's preferred alternative, and while acknowledging that some residual risk is inherent to the NLIP, we believe that it would be appropriate for the Corps to issue permits for the Phase 4a Project pursuant to Sections 404 and 408 of the federal Clean Water Act. L1-6
   c. Section 1.4.2.2. – Other Problems and Needs Related to Project Implementation – Aviation Safety. This section summarizes wildlife hazards at the Airport and FAA requirements for managing and reducing hazardous wildlife attractants. Several corrections are in order relative to this discussion.
      i. Page 1-23, First paragraph: This discussion correctly points out that "...agricultural uses are the primary wildlife attractants in the Airport Critical Zone." However, as pointed out by the FAA Advisory Circular (AC) on hazardous wildlife attractants,[ii] the greatest potential threat to aviation safety arises not necessarily from a single incompatible land use near an airport, but from the synergistic effect of two or more hazardous wildlife attractants aligned in such a manner as to induce wildlife movement directly through the airport and/or surrounding airspace (Section 2.8 of AC). Relative to the Natomas Basin, the most problematic situation is the co-location of agriculture near the airport **in combination with** other land uses such as habitat preserves, stormwater management facilities, golf courses and other land uses, as described in Section 2 of the AC, that pose the greatest threat to aviation safety. This paragraph should be expanded to include such information so that L1-7

readers will be aware of the compounded impacts of nearby incompatible land uses near airports.

ii. The same paragraph discusses the Airport "Critical Zone," but the AC does not use such terminology. The AC instead refers to three "separation criteria" or perimeters for hazardous wildlife attractants. These are distances that must be maintained between an airport's "air operations area" (AOA) and the hazardous wildlife attractant. The DEIS/DEIR incorrectly states on pages 1-23 and 2-84 (Aviation Safety Components) that the separation criteria are based on the runway centerline, but this is no longer the case. (The description of the separation distances in Section 6.15 (starting on page 6-9) is more correct, but incorrectly uses the word "radius" instead of "perimeter.") The discussion needs to be corrected accordingly. The three separation criteria are: L1-7 (Cont.)

1. Perimeter A – a separation distance of 5,000 feet from the AOA boundary for airports that support piston-powered (propeller) aircraft.
2. Perimeter B - notwithstanding more stringent requirements for specific land uses, a separation distance of 10,000 feet between an airport's AOA and hazardous wildlife attractants for airports serving turbine-powered (jet) aircraft.
3. Perimeter C – a separation distance of five statute miles between the farthest edge of the airport's AOA and hazardous wildlife attractants if such attractants could cause hazardous wildlife movement into or across aircraft approach, departure and circling airspace.

3. Section 1.5.3 – Project Authorization
   a. Section 1.5.4 – Relationship of this EIS/EIR to Other Documents
      i. This section emphasizes that the project phases may not necessarily be constructed in the order in which they are numbered, i.e. that a component of Phase 4a could be constructed before one or more components of Phase 3. As communicated previously to SAFCA, a number of NLIP components require access to Airport land for which advance notice and evaluation by the FAA and County Airport System will be required, in addition to consideration of potential interaction of NLIP and Airport construction traffic on nearby public roads. We therefore request sufficient advance notice when a project component is implemented, especially if it is likely to be initiated out of sequence. L1-8

4. Section 2.1.3 – Types of Flood Risk Reduction Measures Considered
   a. Section 2.1.3.1 – Construct Adjacent Levee (Preferred Measure)
      i. Based on the evaluation of the various means available to SAFCA for reducing flood risk in the Natomas Basin, the County Airport System concurs that raising the levee by installing an Adjacent Levee is the most feasible method. Although this approach will shift the levee prism L1-9

landward onto land Airport land that is federally obligated for aviation purposes (protection from encroachment by incompatible land uses such as residential housing), we believe the comprehensive protection that this method will provide to the local and federal investment in the Airport is consistent with the intent of the FAA's grant assurance requirements. L1-9 (Cont.)

5. Section 2.3 – Proposed Action. This section summarizes the components comprising the proposed Phase 4a project. We have the following comments.
   a. Modifications to RD 1000 Pumping Plants Nos. 3 and 5. Current staff of the County Airport System have always assumed that the M10 Drain that conveys water from the RD 1000 West Drainage Canal to Pump 5 was owned by RD 1000. We recently discovered, however, that the parcel containing the M10 Drain (APN 201-0330-11) was never conveyed to RD 1000 as contemplated. In addition, the parcel on which the pump itself is located on the "river side" of Garden Highway (APN 201-0330-034) was likewise never conveyed from the County to RD 1000. (Plate 2-9a, page 2-41, therefore correctly identifies both parcels as owned by the County.) The County Airport System and RD 1000 have initiated discussions regarding either a conveyance or easement to correct this situation. L1-10

   b. Borrow Site Excavation and Reclamation (page 2-26, Plate 2-7, Plate 2-6a, and Table 2-10). The DEIS/DEIR states that the Fisherman's Lake Borrow Area is anticipated to be the primary source of soil borrow material, but that additional borrow sites may be needed for the Phase 4a project. Two of these areas are west and southwest of the Airport on land that is not currently owned by the County of Sacramento: the "Elkhorn Borrow Area" (554 acres bounded by Garden Highway on the west, Schoolhouse Road on the east, and I-5 on the south), and the "I-5 Borrow Area," comprised of 505 acres abutting Garden Highway on the southwest facing side, and bordering Airport land on the east. Table 10-2 (page 2-64) notes that both sites would be excavated to a depth between three and four feet, and that the proposed post-reclamation use would be field crops. It is stated in Section 2.3.3.5 (Environmental Commitments for Borrow Sites) that SAFCA would "conduct a wildlife-aircraft strike analysis and implement mitigation for earthmoving activities within the Critical Zone" (page 2-67). The County Airport System is concerned about SAFCA's potential use of these two borrow sites for the reasons discussed below. L1-11

      i. Both sites encompass many acres near the Airport, and are located in the furthest westward portion of the Basin. The manner in which reclamation is carried out by SAFCA could therefore result in substantial hazardous wildlife impacts on the Airport, particularly if standing water accumulates on the parcels. In addition, if the reclaimed property is cultivated in crops that require irrigation by flooding (also referred to as siphon irrigation), substantial numbers of hazardous species could be attracted to these areas from nesting and roosting habitat located elsewhere in the Basin. The result would be precisely the type of synergistic hazardous wildlife situation described in the FAA *Wildlife Hazards* AC, in which birds would fly back and forth across the airport. The Airport is already exposed to this type of occurrence, as shown on the enclosed exhibit showing the flight path of White-faced ibis across both runways as they traveled between a habitat area in the far eastern edge of the Basin and an irrigated alfalfa field abutting the western perimeter fence of the Airport on July 3, 2007. According to a County Airport System biologist, approximately 10,000 ibis occupied the field that day. The environmental commitment measure quoted above appears related strictly to mitigating hazardous wildlife attractants during construction, rather than addressing post-reclamation site characteristics that may attract hazardous wildlife. The County Airport System therefore requests that the excavation and reclamation plans for the Elkhorn Borrow Area and the I-5 Borrow Area be submitted in a timely fashion to the County Airport System for review and comment by our staff biologists. L1-11 (Cont.)

ii. Airport Land Acquisition Program: Most of the I-5 Borrow Area[iii] is comprised of a number of parcels identified in the Airport Master Plan for acquisition to protect the approach and departure airspace for existing Runway 34L. This area is approximately 442 acres in size; see area highlighted in red on enclosed aerial photograph, on the south side of I-5.[iv] Because it is the intent of the County to acquire this property in the future, the County Airport System is concerned that the property be left in a post-project condition that complies with FAA airport design, drainage and hazardous wildlife standards. We therefore strongly encourage discussions between the County Airport System and SAFCA regarding the parcels comprising the I-5 Borrow Area.

c. Property Exchange Between SAFCA and County Airport System in Reaches 4A, 5B and 6 of the River (page 2-26 and Section 2.3.9). The County Airport System continues to support this exchange illustrated on Plate 2-14 because it would allow SAFCA to implement habitat mitigation on Airport parcels that are outside the 10,000 Perimeter B, thereby minimizing Airport hazardous wildlife concerns. Completion of the exchange will also contribute to aviation safety by allowing the County Airport System to gain land use control over a number of parcels bordering the west side of the Airport perimeter fence, and currently separated by the Airport's Yuki property. Irrigated crop cultivation on several of these parcels acts as a hazardous wildlife attractant, causing birds to fly to these sites from other areas of the Natomas Basin. In so doing, the birds fly through the airport and surrounding airspace used for aircraft approach and departure. L1-12

6. Section 2.3.1 – Flood Risk Reduction Components
   a. Section 2.3.1.1 – Sacramento River East Levee – Relief Wells (page 2-32). This section states that a number of relief wells will be constructed where seepage berms cannot be sufficiently wide and/or cutoff walls cannot be sufficiently deep enough to meet seepage prevention parameters. Relief wells will therefore be constructed about 50 – 100 feet apart, with surface water discharge flowing into collection ditches and/or roadside ditches for conveyance to RD 1000 Pumping Plant No. 5. Due to the proximity of such ditches to the Airport, the County Airport System requests that a ditch maintenance program be developed to prevent the growth of aquatic vegetation that could act as an attractant for hazardous wildlife. L1-13

   b. Reconstruction of Intersections (page 2-38) and reconstruction of Garden Highway (page 2-47). The sites that would require reconstruction include the intersection of Power Line Road and Garden Highway. The Airport parcel abutting the west side of Power Line Road and the north side of Garden Highway at this intersection (APN 225-0101-077) is one of seven parcels comprising the 460 acre designated Swainson's Hawk Foraging Mitigation Area established under the requirements of the Airport Master Plan Final EIR and Mitigation Monitoring and Reporting Program (MMRP), in combination with the requirements of an EIR and MMRP certified by the Board in the early 1990s for another Airport project.[v] The mitigation plan assumed that future widening of Power Line Road would be required, so the western edge of the hawk mitigation area is set back (westward) 25 feet from the road. Please inform the County Airport System if it appears that reconstruction of the intersection will require more than this 25-foot wide allowance. In addition, please note that the parcel on the river side of Garden Highway at this intersection (APN 225-0102-047) is also Airport property. L1-14

   c. Modification of Jet Fuel Pipeline Access Valve in Reach 11B (page 2-46): As noted, this 12-inch pipeline located between five and ten feet below ground provides jet fuel to the Airport. It is therefore absolutely essential that levee construction activities not damage or in any way interfere with the continuous operation of the pipeline. Coordination with both the County Airport System and the pipeline's owner, Wickland Pipeline, LLC, must occur well in advance of levee improvements in the area traversed by the pipeline. L1-15

7. Section 3.3.1 – Natomas Basin Description
   a. Airport lands: This paragraph states that half "…of the Airport lands lie outside of the Airport Operations Area and consist of "bufferlands" devoted to agricultural or open space use," and refers the reader to Plate 1-7 (page 1-22). This statement is incorrect. The only Airport land on which agricultural activity is likely to occur is within the 460-acre designated Swainson's hawk foraging mitigation area established pursuant to the Mitigation Monitoring and Reporting Programs (MMRPs) for the Master Plan Update approved by the Board in L1-16

August 2007 (190 acres), and an MMRP approved in the early 1990s in conjunction with the East Terminal project (270 acres). The majority of this area is outside the 10,000-foot Perimeter B. Implementation of the approved Swainson's hawk foraging mitigation plan will occur after completion of the NLIP in Reach 11. The previously referenced FAA *Hazardous Wildlife* AC recognizes that agriculture is one of the primary attractants of hazardous wildlife on and near airports, and therefore strongly discourages agriculture on airport land. In conformance with FAA policies, no agricultural cultivation occurs on Airport land. Any land that was previously leased to tenant farmers is now idle. The previous agricultural leases lapsed in December 2007. New leases were not executed. (As accurately stated on page 3-101 of the DEIS/DEIR, "Agricultural leases on these bufferlands expired on December 31, 2007, and they are currently managed as grassland open space.")

Plate 1.7 should therefore be modified to correspond to the depiction of Airport land shown on the enclosed exhibit titled "County Owned Airport Property," in which Airport land south of I-5 and north of Elverta Road is designated as "Aircraft Approach/Departure Land Use Compatibility Area," and the land between I-5 and Elverta is designated as "Airport." Alternatively, the buffer land could be indicated on Plate 1.7 as "Safety and Noise Impact Buffer." Plate 1-7 is particularly in error with respect to its depiction of a large portion of Airport land north of I-5 as "Airport Buffer land," when in fact much of the area shown is comprised of roads, parking lots and other paved areas. We therefore request that Plate 1-7 be corrected, and that the sentence referenced above be revised as follows: L1-16 (Cont.)

i. "Half of the Airport lands lie outside the Airport Operations Area and consist of land that serves the sole purpose of airspace approach and departure protection and to ensure land use compatibility with aircraft operations."

b. Table 3.1.1 (page 3-3) – Description of River East Levee Area by Reach and NLIP Phase
   i. The Phase 3 description states that Reaches 5A and 5B states that "Field crops and fallow Airport bufferlands border the levee throughout the reach on Airport land." Please change the word "fallow" to "idle" or "grassland managed as open space," consistent with the aforementioned statement on page 3-101. The word "fallow" connotes a temporary period during which agricultural land has been plowed, but not seeded, in preparation for future cultivation. That is not the case with the referenced Airport property because agricultural activity is not carried out, in compliance with the FAA *Wildlife Hazards* AC. L1-17

c. Comprehensive Airport Land Use Master Plan (page 3-14). This section refers to the former name (misstated in the text) for the document that public service airports must adopt pursuant to the requirements of the California Public Utilities Code. The former Comprehensive Land Use Plans or L1-18

"CLUPs" are now referred to as Airport Land Use Compatibility Plans (ALUCP). A report approved by the County Board of Supervisors on April 19, 2006[vi] acknowledges that the ALUCPs for Sacramento International, Mather and McClellan Airports are outdated, represent operational scenarios that are no longer applicable, and apply methodologies that do not provide optimal guidance for long-term airport land use compatibility. The Board adopted Resolution 2006-0490 for Sacramento International Airport, which, among other actions, defines Airport Policy Planning Areas (APPAs) for incorporation into the County General Plan. We recommend that the preparers of the DEIS/DEIR consult the April 19, 2006 report and make the appropriate corrections in this section of the DEIS/DEIR. L1-18 (Cont.)

d. Section 3.7.2.1 – General Biological Resources
   i. Plate 3-3 (page 3-35) depicts "Existing Habitat in the Phase 4a Project Area." The exhibit incorrectly includes a substantial portion of Airport land both north and south of I-5 in the "Agricultural Field" and "Fallow Crop" habitat types. As noted above, it is inaccurate to classify any Airport land as falling into either of these two categories. It is more appropriate to categorize all Airport land between I-5 and Elverta Road as "Airport," and all land south of I-5 in Plate 3-3 should be identified as "Aircraft Approach/Departure Land Use Compatibility Area," or if a shorter designation is needed, it could be referred to as "Safety and Noise Impact Buffer Area." Please refer to the enclosed exhibit titled "County Owned Airport Property." L1-19

e. Section 3.15.2.5 – Aircraft Safety
   i. The third paragraph on the top of page 3-101contains the following two sentences, which we suggest be amended as shown in underlining. As currently written, readers could infer that such crops are currently grown on Airport land within the Critical Zone (10,000-foot Perimeter B), when this is not the case. L1-20
      1. "Agricultural crops and open water are the primary wildlife attractants with<u>in</u> the Airport's Critical Zone. Rice, wheat, safflower, corn and alfalfa are all grown in the <u>non-Airport portion</u> of the Critical Zone."

This concludes our comments on the DEIS/DEIR on Phase 4a of the NLIP. The County Airport System appreciates the opportunity to submit comments. You may contact me at the telephone number below if you have any questions or comments. Alternatively, you may contact Senior Environmental Analyst Greg Rowe at 874-0698. Hazardous wildlife questions may be directed to Senior Natural Resource Specialist Janae Scruggs, at 874-0820.

Sincerely,

G. Glen Rickelton
Manager – Planning and Environment
916-874-0482 or rickeltong@saccounty.net

Enclosures

- Plate A-5 – All North East Runway Extension (shows all Master Plan projects)
- Exhibit: White-faced ibis flight path, July 3, 2007
- Exhibit: Airport Land Acquisition Program
- Exhibit: County Owned Airport Property

C: Elizabeth Holland, Planning Division – Corps of Engineers
G. Hardy Acree, Director of Airports
Carl W. Mosher, Deputy Director – Airport Planning and Design
Greg Rowe, Senior Environmental Analyst - Planning and Environment
Janae Scruggs, Senior Natural Resource Specialist – Planning and Environment
Douglas Pomeroy, Environmental Protection Specialist - FAA

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[i] As stated in Section 2.2.1.1 of the DEIS/DEIR ("No Project Construction"), without flood control improvements, the Airport may be compelled to operate within its existing footprint, abandoning current plans for modernization and expansion.
[ii] Federal Aviation Administration, Advisory Circular No. 150/5200-33B, *Hazardous Wildlife Attractants On or Near Airports*. August 28, 2007.

[iii] Section 2.3.3.2 discusses the I-5 Borrow Area in detail.
[iv] As shown on Plate 2-9a, the Airport land acquisition program includes portions of the following parcel numbers identified as possible borrow sites: 225-0010-038, 039, 041, 042, 043 and 046; 201-0330 038 and 039; and 225-0101-061.
[v] The Airport Swainson's Hawk Foraging Mitigation Area is correctly summarized on page 4.7-24 of the DEIS/DEIR.
[vi] Agenda item number 2. A subsequent report to the Board on November 29, 2006 (agenda item number 2) specified additional action on the APPAs.

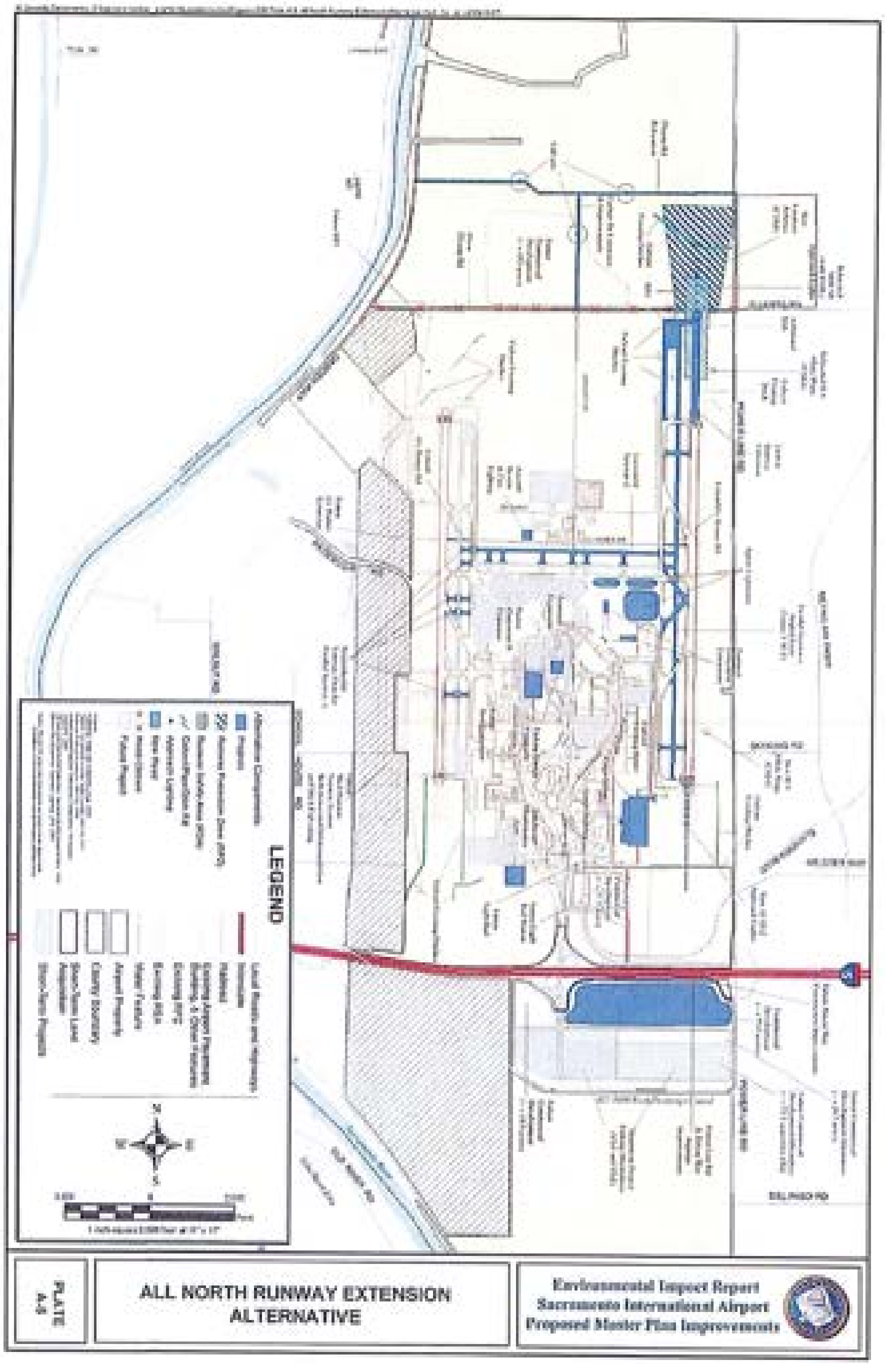
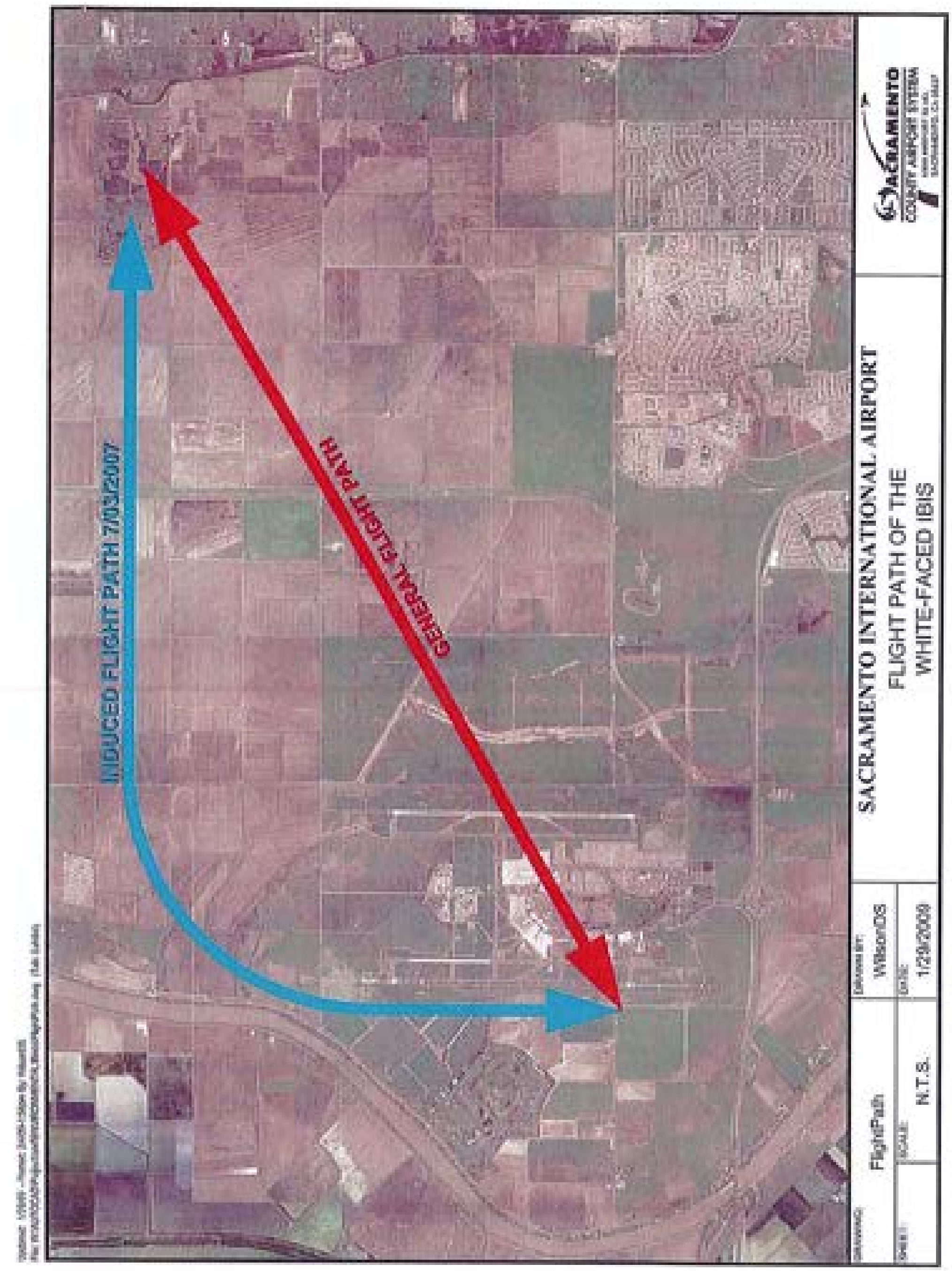


PLATE 4-5
ALL NORTH RUNWAY EXTENSION ALTERNATIVE
Environmental Impact Report
Sacramento International Airport
Proposed Master Plan Improvements
LEGEND


INDUCED FLIGHT PATH 7/03/2007
GENERAL FLIGHT PATH
SACRAMENTO INTERNATIONAL AIRPORT
FLIGHT PATH OF THE
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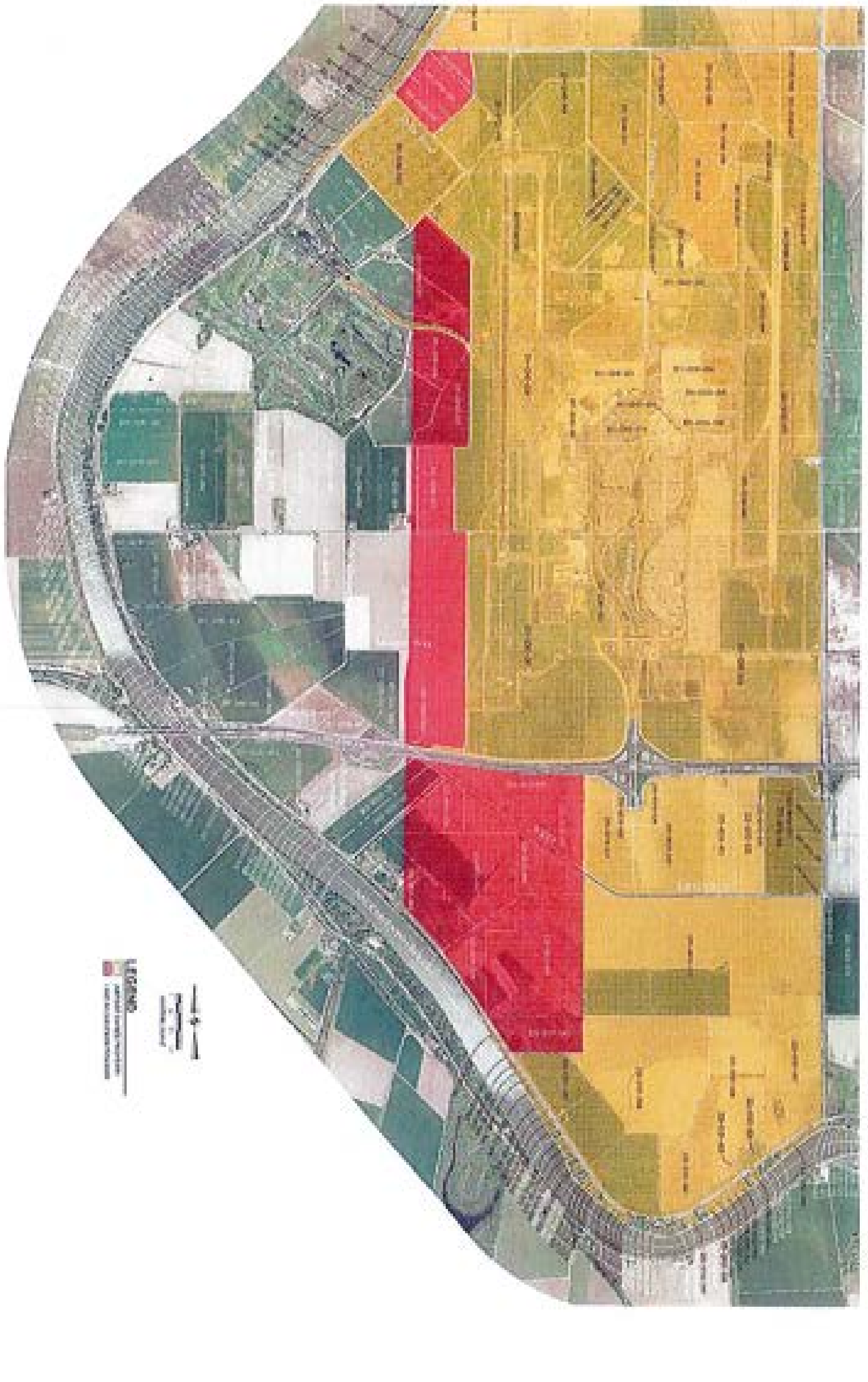
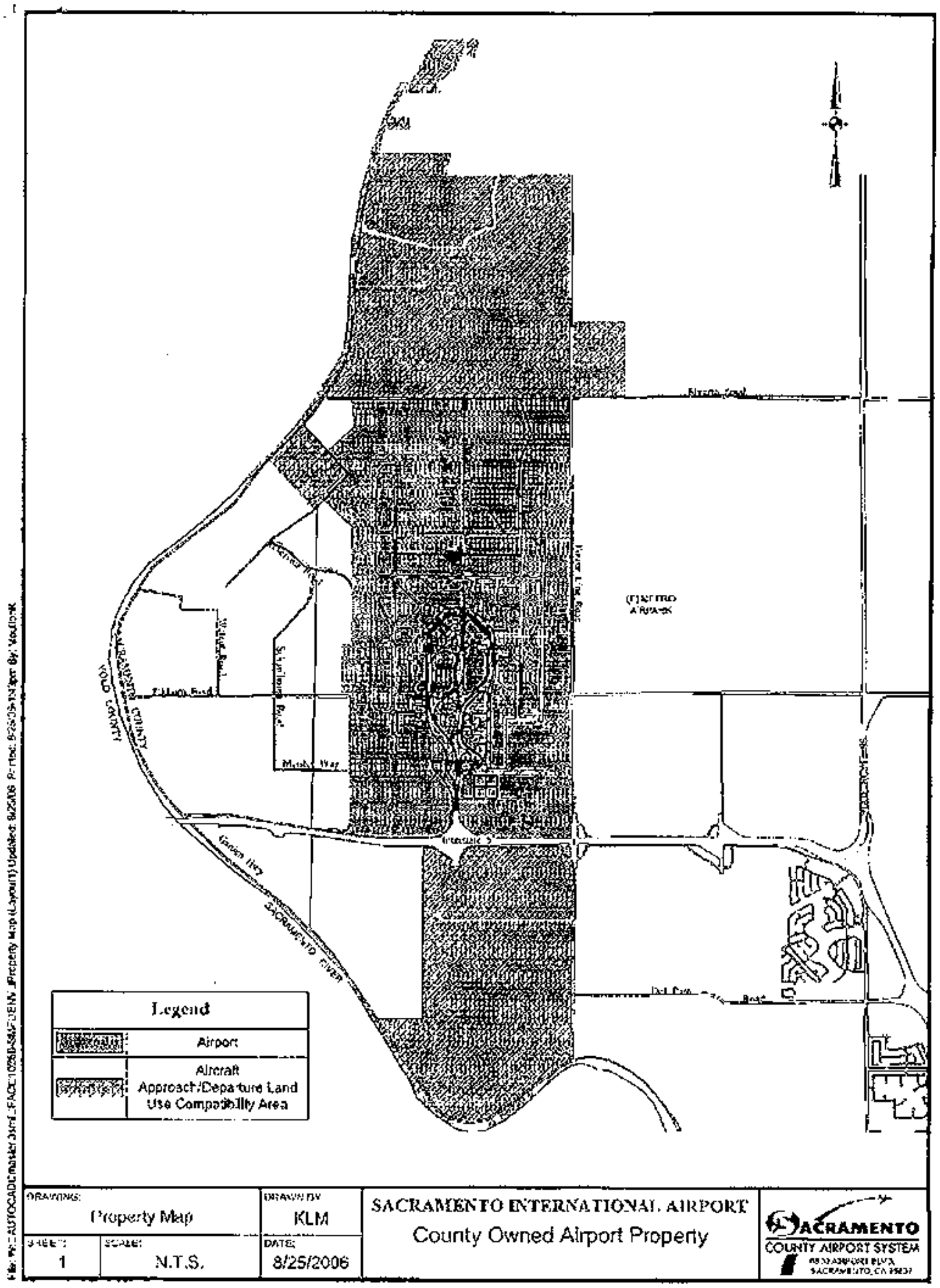
SACRAMENTO
COUNTY AIRPORT SYSTEM




Legend
Airport
Aircraft Approach/Departure Land Use Compatibility Area
DRAWING:
Property Map
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1
SCALE:
N.T.S.
DATE:
8/25/2006
SACRAMENTO INTERNATIONAL AIRPORT
County Owned Airport Property
SACRAMENTO
COUNTY AIRPORT SYSTEM

L1-1 Comment noted.

L1-2 Comment noted.

L1-3 Comment noted.

L1-4 Comment noted.

L1-5 Comment noted.

L1-6 Comment noted.

L1-7 The discussion in Chapter 1.4.2.2, "Other Problems and Needs Related to Project Implementation," under the subheading, "Aviation Safety," is revised to include discussion of incompatible land uses near airports. See Chapter 4.0, "Revisions to the DEIS/DEIR," of this FEIR.

The phrase "Airport Critical Zone" is used throughout the Phase 4a DEIS/DEIR (and previous certified and approved NLIP environmental documents). USACE and SAFCA understand that this language is being phased out and that the new terminology is "Perimeter A, B, and C." In the Phase 4a DEIS/DEIR, "Airport Critical Zone" is synonymous with "Perimeter B." The Phase 4a Project would be located outside of the Airport Critical Zone, or Perimeter B, and this new terminology does not change any of the conclusions in the Phase 4a DEIS/DEIR. See Chapter 4.0, "Revisions to the DEIS/DEIR," of this FEIR. Future NLIP environmental documents, such as the Phase 4b EIS/EIR, will use the new terminology.

L1-8 SAFCA has been and will continue to be involved in ongoing coordination with SCAS regarding NLIP project components located on and off Airport property that could affect aviation safety, including notifying SCAS of project implementation that could affect access to Airport land and construction traffic on nearby roads.

L1-9 Comment noted.

L1-10 Comment noted.

L1-11 The Elkhorn and I-5 Borrow Areas, as indicated in Table 2-10 and elsewhere in the Phase 4a DEIS/DEIR, would be returned to their current use—field crops—after borrow activities are completed and following site reclamation. If these borrow areas are selected to provide borrow material for the Phase 4a Project, SAFCA will submit the reclamation plans for these borrow areas to SCAS for informational purposes.

L1-12 Comment noted.

L1-13 To the extent that relief wells are used for the Phase 4a Project, collection/roadside ditches would be maintained in accordance with the requirements of Reclamation District (RD) 1000.

L1-14 SCAS cites the road intersection reconstruction that would be necessary to implement the Phase 4a Project and requests that SCAS be informed if the reconstruction would require more than a 25-foot-wide allowance and that a portion of the parcel on the waterside is on Airport property. SAFCA will inform SCAS if more than a 25-foot-wide allowance is necessary.

L1-15 Mitigation Measure 4.15-c, "Review Design Specifications and Prepare and Implement an Impact Avoidance and Contingency Plan in Consultation with Wickland Pipelines, LLC," in the Phase 4a DEIS/DEIR requires SAFCA and its engineers to coordinate with Wickland Pipelines, LLC, as the commenter requests.

L1-16 The text has been revised as requested. See Chapter 4.0, "Revisions to the DEIS/DEIR," of this FEIR. See Response to Comment L1-7 regarding continued use the "Airport Critical Zone" terminology.

L1-17 The text has been revised as requested. See Chapter 4.0, "Revisions to the DEIS/DEIR," of this FEIR.

L1-18 On page 3-14 of the Phase 4a DEIS/DEIR, under the "Sacramento International Airport Comprehensive Airport Land Use Plan," the first sentence explains that comprehensive airport land use plans (CLUPs) are now referred to as airport land use compatibility plans (ALUCPs), as described by the commenter. However, the Airport's land use plan is titled *The Sacramento International Airport (formerly Sacramento Metropolitan Airport) Comprehensive Land Use Plan* [emphasis added], and has not been updated to reflect guidance for naming airport land use plans (ALUC 1994). Hence, it would be confusing and inaccurate to refer to this document as "ALUCP."

The commenter notes that the Sacramento County Board of Supervisors approved Resolution 2006-0490 for the Airport, which defined Airport Policy Planning Areas (APPAs) to be included into the County General Plan. However, the current County General Plan does not include this.

L1-19 The plate has been revised as requested. See Chapter 4.0, "Revisions to the DEIS/DEIR," of this FEIR.

L1-20 The text has been revised as requested. See Chapter 4.0, "Revisions to the DEIS/DEIR," of this FEIR.

L2

SACRAMENTO METROPOLITAN
AIR QUALITY
MANAGEMENT DISTRICT

Larry Greene
AIR POLLUTION CONTROL OFFICER

October 7, 2009

Mr. John Bassett
Director of Engineering
Sacramento Area Flood Control Agency (SAFCA)
1007 Seventh Street, 7th Floor
Sacramento, CA 95814

Ms. Elizabeth Holland
Planning Division
USACE, Sacramento District
1325 J Street
Sacramento, CA 95814

Natomas Levee Improvement Program (NLIP), Phase 4a Landside Improvements Project, Draft EIS/EIR (SAC200701184e)

Dear Mr. Bassett and Ms. Holland:

The Sacramento Metropolitan Air Quality Management District (SMAQMD) staff reviewed the NLIP Phase 4a Landside Improvements Project Draft EIS/EIR and offers the following comments.

Greenhouse Gases (GHG)
No GHG emission reduction measures have been identified for this phase or previous NLIP phases. The SMAQMD's draft *Guide to Air Quality Assessment in Sacramento County*, July 2009, suggests best management practices (BMPs) to reduce GHG emissions from construction projects. Although some of the BMPs are not easily quantifiable and some may not be applicable to this project, including the BMPs that are practical as mitigation for this project would highlight the importance of reducing GHG emissions and provide some level of reduction. The draft BMPs can be found at the following website:
www.airquality.org/ceqa/cequguideupdate/Ch6FinalConstructionGHGReductions.pdf L2-1

Appendix F Air Quality Modeling Results
Phase 3 emissions were included in Table 4.11-1, Summary of Maximum Daily Emissions, but they do not appear in Appendix F. Phase 2 emissions were included in a summary format, but not Phase 3 emissions. L2-2

The emissions calculations provided don't clearly show the 909.6 pounds/day of NOx emissions for the Sacramento East Levee Reaches 10-15 portion of the project. It appears data is missing. Please include in the final EIS/EIR.

777 12th Street, 3rd Floor • Sacramento, CA 95814-1908
916/874-4800 • 916/874-4899 fax
www.airquality.org

Thank you for considering these comments. Please contact me at 916-874-4881 or khuss@airquality.org if you have any questions.

Sincerely,

Karen Huss

Karen Huss
Associate Air Quality Planner/Analyst

Cc: Larry Robinson, Sacramento Metropolitan Air Quality Management District
Sondra Andersson, Feather River Air Quality Management District

L2-1 In this comment, the Sacramento Metropolitan Air Quality Management District (SMAQMD) suggests the inclusion of practical Best Management Practices (BMPs) to reduce greenhouse gas (GHG) emissions as identified in the recently developed draft *Guide to Air Quality Assessment in Sacramento County* (SMAQMD 2009). Although this new guidance is in draft form and has not yet been adopted, SAFCA will implement additional GHG reduction measures as part of its MMRP. See Chapter 4.0, "Revisions to the DEIS/DEIR," of this FEIR.

L2-2 A summary of the Phase 3 Project emissions was inadvertently omitted from Appendix F of the Phase 4a DEIS/DEIR. See **Appendix C** of this FEIR for the Phase 3 Project emissions.

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L3

From: Bassett, John (MSA)
To: Dunn, Francine; Rader, David; Henningsen, Sarah; Holland, Elizabeth G SPK; Dadey, Kathleen A SPK;
cc: Gilchrist, M. Holly (MSA); Washburn, Timothy (MSA);
Subject: FW: Natomas Levee Improvement Program, Phase 4a Landside Improvements Project
Date: Monday, September 21, 2009 5:23:26 PM

From: Neal Hay [mailto:NHay@co.sutter.ca.us]
Sent: Monday, September 21, 2009 2:51 PM
To: Bassett. John (MSA)
Cc: Al Sawyer
Subject: Natomas Levee Improvement Program, Phase 4a Landside Improvements Project

Mr. Bassett, Director of Engineering,

In reviewing the draft Environmental Impact Statement / Environmental Impact Report for the above mentioned project, under the Proposed Action, in the last sentence of the first paragraph on page 4.10-3, we believe "Howsley Rd" should replace "Sankey Rd" in the description of the haul route from the Brookfield borrow site to the NCC south levee. L3-1 Also, under the proposed action for Mitigation Measure 4.10-a, item (l), page 4.10-6, Sutter County requests that the final EIS mention the project Roadway Repairs Agreement between Sutter County and SAFCA dated August 21, 2008. L3-2

Neal P Hay PE
Senior Civil Engineer
Sutter County
530-822-4402 Direct

Letter L3 Response	Sutter County Neal P. Hay, PE, Associate Civil Engineer September 21, 2009

L3-1 The text has been revised as requested. See Chapter 4.0, "Revisions to the DEIS/DEIR," of this FEIR.

L3-2 SAFCA will, as the commenter requests, coordinate with Sutter County for its review and approval of roadway improvement plans. Mitigation Measure 4.10-a, "Prepare and Implement a Traffic Safety and Control Plan for Construction-Related Truck Trips," in the Phase 4a DEIS/DEIR states that before the start of the first construction season, SAFCA shall coordinate with Sacramento and Sutter Counties and the City of Sacramento to address maintenance and repair of affected roadways resulting from increased truck traffic. This would include public roadways that may be modified as part of the Phase 4a Project.

L4

Municipal Services Agency

Department of Transportation
Michael J. Penrose, Director

County of Sacramento

Terry Schutten, County Executive
Paul J. Hahn, Agency Administrator

September 21, 2009

John Bassett
Director of Engineering
Sacramento Area Flood Control Agency
1007 Seventh Street, 7th Floor
Sacramento, CA 95814

SUBJECT: **COMMENTS ON THE DRAFT ENVIRONMENTAL IMPACT STATEMENT (EIS)/ENVIRONMENTAL IMPACT REPORT (EIR) ON THE NATOMAS LEVEE IMPROVEMENT PROGRAM PHASE 4A LANDSIDE IMPROVEMENTS PROJECT.**

Dear Mr. Bassett:

The Sacramento County Department of Transportation (SACDOT) has reviewed the DEIS/EIR for the Natomas Levee Improvement Program (NLIP), Phase 4a Landside Improvements Project, dated August 28, 2009. We have previously submitted a comment letter on the NOP for DEIR/EIS of this project, dated April 6, 2009. We appreciate the opportunity to review this document. We have following comments to offer:

- Coordinate with the SACDOT staff in implementing the Traffic Safety and Control Plan for construction related truck traffic.
- Coordinate the improvements plans with SACDOT for review and approval of the public roadways, and private farms roads that will be modified as part proposed project. L4-1
- Coordinate the closure of public roadway with SACDOT that will affect the County residents.
- We are currently working with SAFCA staff to include the recreational bike/pedestrian path in the project description of the phase 4B DEIS/DEIR. SACDOT staff will provide the project description for the bike/pedestrian path to the SAFCA in a timely manner. L4-2
- Power poles relocations shall be coordinate with SMUD and SACDOT to avoid conflicts with the intended bike/pedestrian path. L4-3
- As shown in the plate 2-7 (see attached copy), the project proposes truck haul routes to access borrow and levee improvement sites via the County's rural roadways. The L4-4

"Leading the Way to Greater Mobility"

Design & Planning: 906 G Street, Suite 510, Sacramento, CA 95814 . Phone: 916-874-6291 . Fax: 916-874-7831
Operations & Maintenance: 4100 Traffic Way, Sacramento, CA 95827 . Phone: 916-876-6123 . Fax: 916-876-6363
www.sacdot.com

projects add significant amounts of truck traffic to these rural roads; therefore, significant impacts would result. As a mitigation measure, the project proponent shall enter into a maintenance agreement with the Maintenance and Operations Section of the Department of Transportation. This agreement shall cover the maintenance and repair of any roadway damaged by the project's construction activities. The agreement shall state that this maintenance and repair be at the cost of the project proponent. L4-4 (Cont.)

Should you have any questions, please feel free to contact me at (916) 875-2844

Sincerely,

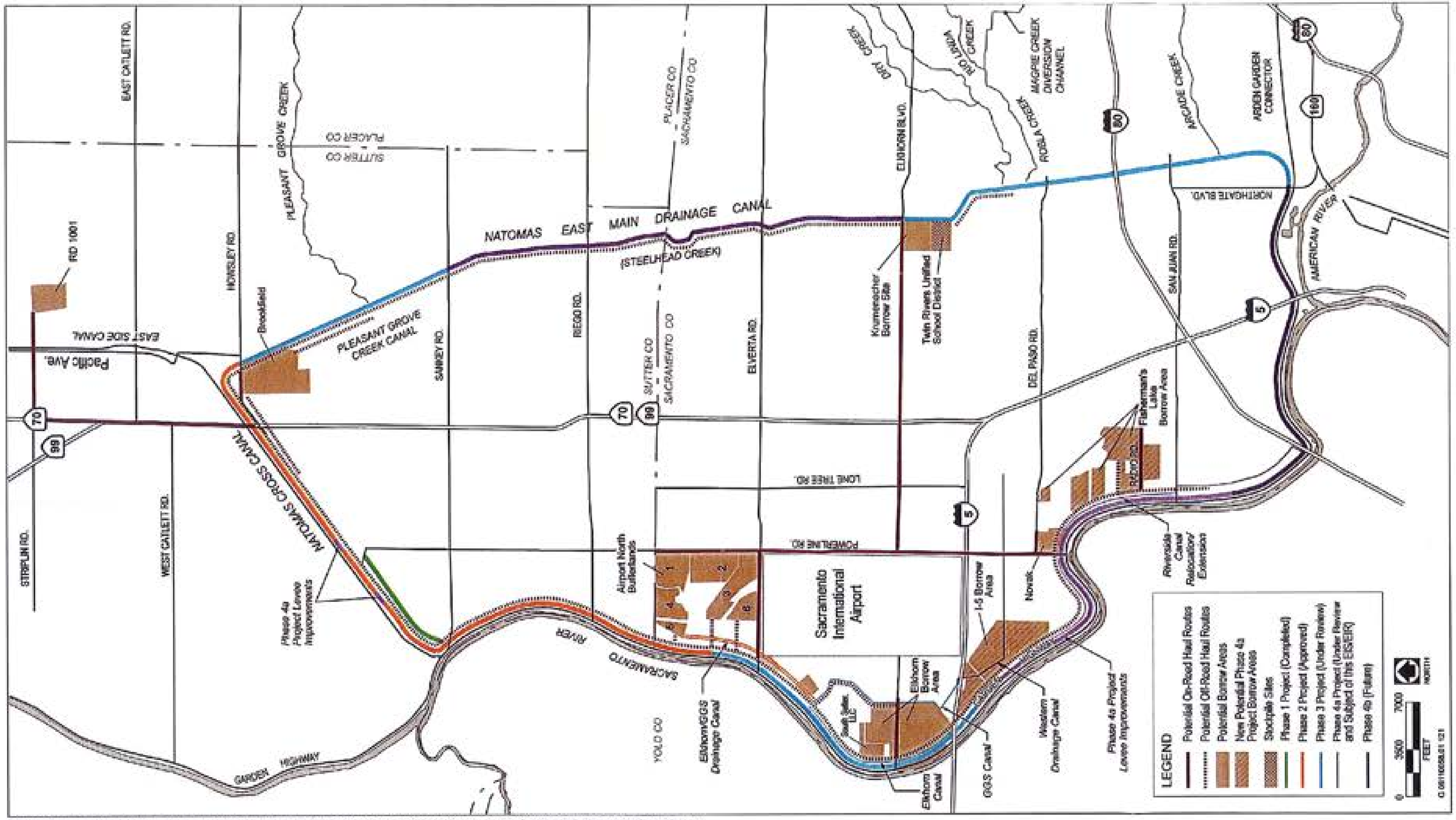
Kamal Atwal

Kamal Atwal, P.E.
Associate Transportation Engineer
Department of Transportation

KA

Attachment: Copy of Plate 2-7 from Phase 4B DEIR/EIS

c: Dan Shoeman, DOT
Dean Blank, DOT
Matt Darrow, DOT
Ron Vicari, DOT
Rizaldy Mananquil, DOT



Source: Base map from CASIL Layers and SACOG 2007; adapted by EDAW in 2008 and 2009 based on data from MBK Engineers and Mead & Hunt

Natomas Levee Improvement Program Construction Phasing and Anticipated Haul Routes from Soil Borrow Areas **Plate 2-7**

NLIP Phase 4a Landside Improvements Project
USACE and SAFCA

2-35

DEIS/DEIR
Alternatives

L4-1 Mitigation Measure 4.10-a, "Prepare and Implement a Traffic Safety and Control Plan for Construction-Related Truck Trips," subpart (b) in the Phase 4a DEIS/DEIR requires that the traffic safety and control plan be submitted to local jurisdictions, including Sacramento County, prior to initiation of construction-related activity involving high traffic volumes.

Mitigation Measure 4.10-a subpart (f) in the Phase 4a DEIS/DEIR requires SAFCA to coordinate with Sacramento County (as well as Sutter County and the City of Sacramento) before the start of the first construction season to address maintenance and repair of affected roadways resulting from increased truck traffic. This would include public roadways that may be modified as part of the Phase 4a Project.

Mitigation Measure 4.10-a subpart (h) in the Phase 4a DEIS/DEIR requires SAFCA and its primary contractors to coordinate with Sacramento County before the start of construction regarding any closures of any public roadways that would be required for project construction. See Chapter 4.0, "Revisions to the DEIS/DEIR," of this FEIR.

L4-2 Comment noted; Sacramento County Department of Transportation (SACDOT) is working with SAFCA on a project description, which will be provided to SAFCA in a timely manner, for a SACDOT-sponsored recreational bike/pedestrian path to be included in the Phase 4b Project, which will be the subject of a separate EIS/EIR to be issued in early 2010.

L4-3 Mitigation Measure 4.14-b, "Verify Utility Locations, Coordinate with Utility Providers, Prepare and Implement a Response Plan, and Conduct Worker Training with Respect to Accidental Utility Damage and Implement Mitigation Measure 4.15-c, "Review Design Specifications and Prepare and Implement an Impact Avoidance and Contingency Plan in Consultation with Wickland Pipelines, LLC", in the Phase 4a DEIS/DEIR states that power pole relocations shall be coordinated with the Sacramento Municipal Utility District and SACDOT to avoid conflicts with the SACDOT-proposed bike/pedestrian path.

L4-4 See Mitigation Measure 4.10-a subpart (f) in the Phase 4a DEIS/DEIR, which requires SAFCA to coordinate with the City of Sacramento and applicable county(ies) before the start of construction to address maintenance and repair of affected roadways resulting from increased truck traffic.

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L5

Rio Linda Elverta Recreation and Park District
810 Oak Lane
Rio Linda, CA 95673
916-991-5929 Fax 916-991-2892

September 1, 2009

John Bassett, Director of Engineering
SAFCA
1007 7th Street
Sacramento, CA 95814

Response to Draft EIR Natomas Levee Improvement Program Phase 4A Landside Improvement.

Regarding section 4A and the entire Natomas East main drain.

- Elkhorn Blvd to Sutter County should continue the UEDA Parkway facility of the City of Sacramento. It should be scheduled and planned now, during this process. L5-1

- The maps and diagrams should show the Rio Linda Elverta Recreation and Park District boundaries on the maps. L5-2

- The Rio Linda Elverta Recreation and Park District must be listed as a Local Responsible Agency. L5-3

Sincerely,

Don Schatzel
District Administrator
Rio Linda Elverta Recreation and Park District

Rio Linda Elverta Recreation and Park District
Don Schatzel, District Administrator
September 1, 2009

L5-1 See Response to Comment L4-2.

L5-2 After review of the Rio Linda Elverta Recreation and Park District (District) boundaries (available at the District's Web site at http://www.riolindaelvertaparks.org/locations.cfm), USACE and SAFCA have determined that the District's boundaries do not overlap with the Phase 4a Project footprint. Thus, the Phase 4a Project would not affect the recreation facilities within the District.

L5-3 As noted above, in Response to Comment L5-2, the Phase 4a Project, which is the subject of this FEIR, would not affect recreation facilities within the District; therefore, the District would not be a local responsible agency for the Phase 4a Project. The Phase 4b Project, however, will overlap with the District's boundaries and, thus, may have an effect on recreation facilities within the District. The Phase 4b Project will be analyzed in a separate EIS/EIR to be issued in early 2010. The District will be listed as a local responsible agency for the Phase 4b Project.

O1

Garden Highway Community Association
2701 Del Paso Road, #130-231
Sacramento, CA 95835

October 13, 2009

John Bassett, Director of Engineering
SAFCA
1007 7th Street, 7th Floor
Sacramento, CA 95814

AND

Elizabeth Holland, Planning Division
U.S. Army Corps of Engineers
1325 J Street, Room 1480
Sacramento, CA 95814

RE: Comments on ENVIRONMENTAL IMPACT STUDY NATOMAS LEVEE IMPROVEMENT PROGRAM PHASE 4A; SAFCA'S REQUEST FOR 408 PERMISSION AND 404 PERMIT

SAFCA and US Army Corps of Engineers:

The Garden Highway Community Association (GHCA) is an incorporated community association whose membership includes nearly all waterside and landside property owners along the Garden Highway in the area addressed in SAFCA's Natomas Levee Improvement Program (NLIP). The GHCA supports increased flood protection for the Natomas Basin, as long as it is done in a fiscally responsible, environmentally conscious, and scientifically sound manner. At the same time, as most GHCA members live on or next to the NLIP, they have an enormous interest and concern in how this project is implemented.

Below is a list of comments and concerns regarding the Draft Environmental Impact Study (DEIS) / Draft Environmental Impact Review (DEIS) pertaining to SAFCA's Phase 4A of the NLIP and US Army Corps Permitting.

1. <u>The DEIS is Generally Defective</u>

The DEIS is 575 pages, not including appendixes, refers to numerous other documents of similar size and appears to have taken years to prepare. Many portions are unintelligible to the average property owner and, taken as a whole, certainly cannot be fully researched and understood in the timeframe required. As a result, the GHCA prefaces this comment letter by advising that there may be numerous additional issues requiring comment of which the GHCA is not currently cognizant. Moreover, the DEIS is yet another fragment of a "chopped" up project that does not adequately address the potential impact on the environment, which cumulatively may have disastrous consequences." <u>San Joaquin Raptor/Wildlife Rescue Center v County of Stanislaus</u> (1994) 27 Cal.App.4th 713, 730. O1-1

2. **Failure to Adequately Consider and Protect Wildlife**

The United States Environmental Protection Agency has previously commented on the NLIP, noting its continued concern over the temporary and permanent effects the Project is expected to have on the waters of the United States and recommended the continued "close consultation and collaboration" with the U. S. Fish and Wildlife Agency, California Department of Fish and Game and The Natomas Basin Conservancy to "ensure effects on woodlands, threatened and sensitive species habitat and waters of the US are avoided and minimized." Overall, this Agency has previously classified prior EIS drafts associated with the NLIP as "Insufficient Information (EC-2)". O1-2

The California Department of Fish and Game "DFG" has also expressed serious concern regarding the environmental impacts of the NLIP:

- The DFG believes pertinent mitigation measures are potentially unenforceable and may not bring the impacts to fisheries and aquatic resources to below a level that is significant.

- The DFG has found transplantation of herbaceous plants is typically unsuccessful and should be considered experimental. Mitigation measures for any potentially unavoidable impacts to special-status plants should include additional measures to increase the chances of survival for the population in question. Mitigation sites should be permanently protected and managed in perpetuity.

- The DFG is concerned with potential impacts to raptor nesting behavior not currently addressed in the DEIR, especially with regard to 24/7 construction and an estimated 900-1000 haul trips per day to deliver fill material. The DFG "believes that each of these activities could potentially result in significant impacts to nesting raptors including nest abandonment, starvation of young, and/or reduced health and vigor of eggs or nestlings that could result in death." O1-3

- In their current form, the DFG opines that the environmental documents do not explore the potential impacts of nighttime construction activities on nesting raptors. Moreover, construction at night poses additional complications for the effectiveness of biological monitors in ensuring that appropriate buffer zones are in place around active nests and that birds do not abandon their nests.

- The DFG has noted that prior DEIRS do not provide a discussion of potential impacts to the Northern Harrier, a ground nesting raptor and does not consider avoidance or mitigation measures.

The GHCA further notes the DEIR purports to mitigate the loss of woodland habitat by the promise to create three acres of canopied woodlands for every one acre destroyed. This mitigation goal is fatally flawed in that there is no discussion, explanation and/or plan to address the environmental tragedy that will result from the 50 to 100 year period required for the "new" woodland habitat to be developed – assuming the planned mitigation goal is even reached. As evidenced by recent "mitigation" attempts employed in Phase 2 of the NLIP, the attempted transplantation of existing trees is failing miserably and the attempted planting of new saplings creates virtually no habitat. O1-4

Despite the failure to mitigate the significant adverse impacts resulting from the destruction of woodland habitat, and the lack of necessary funding to effect the planned mitigation related thereto, SAFCA is proceeding with the destruction of woodland habitat and the clear-cutting of heritage oaks and other trees (see Paragraph 3, below). O1-4 (Cont.)

Further, the NLIP also proposes to utilize lands purchased by the Natomas Basin Conservancy ("Conservancy") as borrow areas. These borrow areas will provide the base material for the landside levee improvements on the south side levee along the Natomas Cross Canal and the east side levee along the Sacramento River. Despite SAFCA's proposed use of these lands, the Conservancy acquired these properties to offset urban development's significant adverse impacts on protected wildlife species within the Natomas Basin. The Conservancy acquires and manages these properties consistent with the Natomas Basin Habitat Conservation Plan. The GHCA believes there still is no agreement between the Conservancy and SAFCA on the use of Conservancy lands and how these lands will carry out their intended conservation purpose after the soil necessary for the construction of the levee improvements is removed. Thus, any claimed mitigation for the loss and disturbance of Conservancy land is impermissibly deferred to some future time after Project approval and implementation. O1-5

Despite the fact that SAFCA has been afforded several bites at the apple in an attempt to come up with acceptable environmental mitigation, it continues to gloss over the devastating impact the Project will have on the sensitive habitat of protected species, including raptors, snakes and flora (see comments of the California Department of Fish and Game summarized above). O1-6

Lastly, on page ES-5, SAFCA indicates the potential for several Phases to be constructed concurrently. How is this possible when the previous EIR/EIS's for Phases 2 and 3 clearly state that all "habitat creation" would be performed "in advance" of the subsequent phases? O1-7

3. <u>Premature Habitat Removal</u>

The GHCA is vehemently opposed to what it perceives to be the hasty, irresponsible and premature removal of heritage oaks and other irreplaceable habitat. Namely, SAFCA seems bent on moving forward with the removal of this habitat during the fall of 2009 within Reaches 5A to 9, and possibly beyond. The GHCA contends there is no legitimate expectation that levee construction activity in these Reaches will commence any time during the next 12 months. SAFCA need only look at the current progress of the Project to understand this objection. O1-8

Moreover, SAFCA appears intent on moving forward with tree removal without NEPA approval, not expected until 2010. Thus, the GHCA contends this planned destruction violates applicable environmental laws and regulations.

Further, on page ES-4, the DEIS notes that completion of the "early implementation project" is expected by the end of 2010. Conversely, the Phase 3 DEIR noted this action would be completed by the end of 2011 (Phases 1 through 4). On the next page (ES-5) SAFCA states Phase 4A is planned to be completed in 2011 and 4B in 2011 or beyond. The GHCA wonders whether the "early implementation project" definition been changed to exclude Phases 4A and 4B, or has SAFCA found a way to complete ~18 O1-9 miles of the NLIP in the same amount of time it took them to complete ~3000 feet this year (which is still not complete)? O1-9 (Cont.)

The second to last sentence of the Phase 2 Project bullet on page ES-4 states, "The Phase 2 Project could be constructed on a stand-alone basis, assuming no further action on the balance of the NLIP is taken." If there is even a possibility of "no further action on the balance of the NLIP" why is SAFCA insisting on removing all the trees in the footprint of Phase 3 and 4A during the fall of 2009? On the next page, the DEIS notes the condition, "assuming receipt of all required environmental clearances and permits." There is no mention of the required funding being available. If SAFCA does not have the required clearances and permits to remove the trees, or if those permits have been granted based on the premise that all other clearances, permits, and funding are in place, how can SAFCA legally remove these trees? The GHCA contends that no premature tree destruction should take place until all clearances, permits, and funding are in place. O1-10

Page ES-25, Impact 4.7-a: Loss of Woodland Habitats. The proposed action states loss of ~ 22 acres of woodlands to be 'less than significant' on the environment after mitigation. While with proper care of the newly created habitats this might be true in 50+ years, the GHCA contends the loss of 100+ year old endangered trees to be significant for the next few generations. O1-11

4. **Failure to Study Simultaneous Multi-Phase Construction**

As noted in the preceding paragraph, SAFCA is now postulating that multiple phases of the NLIP could be constructed simultaneously. This directly contravenes the construction impact and mitigation advanced in the prior environmental documents and creates new issues not previously studied or addressed. For example, there would be compounded effects of CO_2 emissions, noise, dust, vibration, and disruption to wildlife that has not been analyzed. Compared to the original Phase 3 EIR, emissions in just Sacramento County would raise from ROG 75 lb/day to 287 lb/day, NOX 413 lb/day to 1,476 lb/day, and PM10 971 lb/day to 3,847 lb/day if these phases are to be done simultaneously. On page ES-16, "Air Quality," the DEIR references the "nonattainment status of the Feather River Air Quality Management District and the Sacramento Metropolitan Air Quality Management District for ozone and PM10." The GHCA contends the cumulative effect of simultaneous construction during multiple construction phases has not been sufficiently analyzed by the responsible agencies? O1-12

Furthermore, simultaneous construction could involve three or more phases of simultaneous, 24/7 construction. Given the grave impacts of just one 24/7 worksite, the GHCA believes SAFCA certainly cannot justify multiple worksites operating in this manner. This impact would be The current DEIS unreasonably harmful to wildlife, the environment, and Garden Highway residents. O1-13

5. **Failure to Adequately Address Encroachments/Levee Prism**

Page ES-14, Encroachment Management, states "Remove encroachments as required to meet the criteria of the USACE, CVFPB, and FEMA." Conversely, SAFCA has repeatedly advised members of the GHCA that the "adjacent" levee adopted by the NLIP "should" remove the waterside trees, landscaping, fencing, and other vegetation and improvements from the "levee prism." In other words, SAFCA O1-14 believes implementation of the NLIP would spare these items from removal under even the most aggressive encroachment standards. Thus, the GHCA is concerned with the apparent unchanged position regarding encroachments as described in the current DEIS. O1-14 (Cont.)

Moreover, have these agencies identified what (if any) waterside encroachments are required to be removed within any construction phases? This question is of utmost importance to the GHCA and its members. SAFCA has also advised the GHCA it has maps of approximately 30,000 encroachments and all associated easements on the waterside of the levee. Oddly, SAFCA has thus far refused to share this information with the GHCA and/or its individual members. Research has revealed some vague, inadequately mapped easements dating back to the early 1900's which appear to show little or no support for any planned encroachment removal.

SAFCA also stated "on the record" that it is willing to grant "post-facto" permits for encroachments that do not endanger the levee. Unfortunately, because the property owners have no information as to what items SAFCA feels are permitted or not, the members of the GHCA are left to guess about the future of their properties. O1-15

The members of the GHCA are very concerned about which "encroachments" might require removal and with the various easements SAFCA and/or its partners will attempt to claim. SAFCA has promised to work with each property owner to discuss and resolve issues regarding alleged encroachments, but thus far has taken no such action. Phase 2 construction is underway, yet the GHCA is aware of no affected property owners having been contacted regarding encroachment or easement plans. This not only impacts existing improvements, but future improvements. The uncertainty also creates resale problems and negatively affects property values.

6. <u>Failure to Justify 24/7 Construction</u>

As accurately noted by the California Department of Fish and Game, the DEIR does not adequately address the potential impacts to raptor nesting especially with regard to 24/7 construction and an estimated 900-1000 haul trips per day to deliver fill material. The DFG "believes that each of these activities could potentially result in significant impacts to nesting raptors including nest abandonment, starvation of young, and/or reduced health and vigor of eggs or nestlings that could result in death." Moreover, the DEIR does not explore the potential impacts of nighttime construction activities on nesting raptors. Moreover, construction at night poses additional complications for the effectiveness of biological monitors in ensuring that appropriate buffer zones are in place around active nests and that birds do not abandon their nests. O1-16

SAFCA contends Cutoff Walls, wells and perhaps additional aspects of the Project require a 24/7 construction schedule. The DEIR fails to set forth sufficient justification for 24/7 construction and does not include a necessary "balancing test" - balancing the significance of the impact (damage to environment) to the benefits of the protected interests (people, property, etc.). Moreover, SAFCA has built other Cutoff Walls without the need for 24/7 construction. In fact, recent contracts executed between SAFCA and the current contractor performing Cutoff Wall Construction in Phase 2 of the NLIP define stoppages in slurry construction of up to 48 hours as insignificant. The residents along Garden O1-17

Highway and the sensitive environment that exists in the riparian, river habitat adjacent thereto cannot be subjected to 24/7 construction simply because SAFCA is running behind schedule on what might be perceived as an overly ambitious project. It is anticipated 24/7 construction during subsequent phases of the NLIP would have an exponentially adverse impact on property owners spanning many miles in all directions. Moreover, the use of trucks to get to and from the actual "construction" sites will expand the location of the impact far beyond the limited construction sites addressed by SAFCA.

When a DEIR concludes that an impact is "significant" and cannot be mitigated, CEQA requires that the certifying body (SAFCA) perform a balancing test - balancing the significance of the impact (damage to environment) to the benefits of the protected interests (people, property, etc.). The certifying body must also make "findings on the record" that a balancing test was performed and how the results were determined. The GHCA has never seen any evidence that this requirement has been met with regard to 24/7 construction, and other important aspects of the NLIP. The GHCA also does not believe SAFCA has adequately investigated alternatives to 24/7 construction which cannot be summarily dismissed solely on account of additional cost. O1-17 (Cont.)

Moreover, SAFCA has in essence granted itself a "free pass" for 24/7 construction if it deems it necessary for any reason, without a supplemental DEIR or public review. In other words, SAFCA appears to be "reserving the right" to make up any construction schedule it deems fit, without regard to the environment impacts stemming from that decision.

Despite failing to justify the need for 24/7 construction and the failure to mitigate the significant adverse impacts of that construction on humans and protected wildlife species and their habitat prior to approval of the NLIP, SAFCA is proceeding with the implementation of the Project. Therefore, SAFCA has prejudicially abused its discretion by failing to reduce or avoid the Project's significant adverse impacts on protected wildlife species and their habitat prior to project approval and implementation.

The GHCA also challenges the 500' distance standard for relocation. As all GHCA members learned during the 2007-2008 "Bank Protection" project, construction work along the water and in the open expanses along the rural banks of the Sacramento River, construction sound and reverberation can and do travel for miles. 24/7 construction was periodically attempted during sections of that project with dismal impacts on the residents of Garden Highway. It is anticipated 24/7 construction during subsequent phases of the NLIP would have an exponentially adverse impact on property owners spanning many miles in all directions. Moreover, the use of trucks to get to and from the actual "construction" sites will expand the location of the impact far beyond the limited construction sites addressed by SAFCA. O1-18

Furthermore, the DEIS purports to grant SAFCA the additional right to also utilize 24/7 construction for "occasional construction activities." The GHCA believes this "loop hole" is overbroad and could be interpreted as giving SAFCA the unfettered discretion to disregard all adopted construction restraints to obtain permission for the NLIP. The GHCA believes any construction after 7:00 p.m. is highly disruptive, unnecessary and virtually assures disruption of the quiet enjoyment of all property owners within the construction zone and surrounding sound zones. O1-19

The GHCA also feels the DEIS ignores both city and county (Sacramento and Sutter) noise ordinances. As such, the GHCA seeks an explanation as how SAFCA plans to deal with its violations of local noise ordinances. O1-20

7. Failure to Provide Information About Assumptions Used In DEIR

The DEIS bases many of its conclusions about the Project's environmental impacts on the assumption that levee widening will have no impact on habitat that falls within the expanded footprint. The DEIS fails to provide any meaningful information substantiating that assumption. The EIS is the primary means of achieving the Legislature's considered declaration that it is the policy of this state to "take all action necessary to protect, rehabilitate, and enhance the environmental quality of the state"... The EIS is also intended "to demonstrate to an apprehensive citizenry that the agency has, in fact, analyzed and considered the ecological implications of its actions." Laurel Heights Improvement Ass'n v. Regents of the Univ. of California (1988) 47 Cal.3d 376, 392).

Since the public was not provided with the notice that they widening would encroach on additional habitat, the very interested public in this matter has been denied a meaningful opportunity to participate in CEQA's mandatory environmental review proceeding. (See, Mountain Lion Coalition v. CA Fish and Game Comm'n (1989) 214 Cal.App.3d 1043
1050-1051. O1-21

Inadequate information or explanation of the impact of the levee, widening on habitat precluded meaningful public review and an opportunity to comment on the environmental consequences of the proposed Project. California's high court has emphasized "public participation is an essential part of the CEQA process." Concerned Citizens of Costa Mesa v. 32nd District Agricultural Assoc. (1987) 42 Cal.3d 929, 935. "To facilitate CEQA's information role, the EIR must contain facts and analysis, not just the agency's bare conclusions or opinions. This requirement enables the decision-makers and the public to make an "independent, reasoned judgment" about a proposed project" ibid. The California Supreme Court has acknowledged that interested citizens hold a "privileged position" within the CEQA process "based on a belief that citizens can make important contributions to environmental protection and on notions of democratic decision making." Id. at p. 936.

8. Inadequate Mitigation Due to Lack of Funding

Nearly simultaneously with the approval of the Phase 3 EIR, SAFCA acknowledged that there was inadequate Local, State or Federal Funding to complete Phase 3 of the Project, much less Phase 4A, including completion of the mitigation measures. In fact, SAFCA executive Stein Buer recently described funding for the NLIP as a "leap of faith." O1-22

Because SAFCA has no means of insuring that the mitigation measures will actually be implemented due to inadequate funding, the Phase 4A DEIR fails to comply with CEQA.

9. **General Construction and Mitigation**

The DEIR contains insufficient notice about construction schedule and plans, complaint procedures and logs, power pole plans, encroachment removal plans, mitigation locations, schedules and compliance. The DEIR fails to identify the "levee prism" as contemplated by the new, adjacent levee design proposed by SAFCA and fails to adequately address potential construction related damage to improvements and vegetation. The DEIR additionally fails to adequately address decreased highway safety stemming from the new design, increased rainwater and pollutant runoff, and well starvation issues. O1-23

10. **Alternative Designs**

SAFCA has failed to conduct a legitimate, unbiased study to determine the most economically and environmentally sound project design to bring the Natomas Basin up to the USACE 100 year flood protection standard. SAFCA has summarily dismissed feasible alternatives that would lead to region-wide solutions to the flooding potential in the Natomas Basin and surrounding communities. SAFCA has also failed to make a rationale, "good faith" effort at minimizing the height and footprint of the adjacent levee system, especially in light of the lower and inferior levee systems both upstream and adjacent to the NLIP. O1-24

Moreover, substantial evidence in the record indicates that the impacts of the Project will be influenced by ongoing and future climate change, which SAFCA has failed to consider. In a response to a public comment about whether a previous DEIR took into account the effect of climate change on river flows, SAFCA states, "this potential climate change effect is too speculative to reasonably draw a conclusion on regarding the significance of foreseeable direct effects on physical conditions at the project site."

The California Department of Water Resources ("DWR") recently published a technical memorandum report entitled "Progress on Incorporating Climate Change into Management of California's Water Resources." This document is available on at http://baydeltaoffice.water.ca.gov/climate change/DWRClimateChangeJuly06.pdf. Chapter 6 of DWR's technical report in entitled "Climate Change Impacts on Flood Management" offers some helpful information about the effect of climate change on flood management. While acknowledging the uncertainty associated with evaluating changes in weather events due to climate change, DWR's technical report provides a description of climate change scenario data that would be suitable for analyzing climate change impacts on flood frequency. O1-25

SAFCA's DEIR also fails to describe the existing physical environmental conditions in order to determine the Project's significant adverse impacts on the existing environment. In determining whether a project's impacts may significantly affect the existing environment, there must be a "baseline" set of environmental conditions to use as a comparison to the anticipated project impacts. As the Court of Appeal has explained, "it is only against this baseline than any significant environmental effects can be determined." <u>County of Amador v. El Dorado County Water Agency</u> (1999) 76 Cal.App.4th 99, 952. O1-26

The DEIR, and in fact the entire NLIP design, relies on a computer simulation that describes a hypothetical physical condition, but does not describe the actual physical conditions on the ground.

Conversely, CEQA requires the establishment of the existing physical environmental conditions. Several court decisions have determined that the impacts of a proposed project must be measured against the "real conditions on the ground." Save Our Peninsula Committee v. Monterey County Board of Supervisors (2001) 87 Cal.App.4th 99, 121. "An EIR must focus on impacts to the existing environment, not hypothetical situations." ibid.

The proposed impacts of a project must be compared against real, physical, environmental conditions. This would include the existing condition of the west side levees along the Sacramento River and the north side levee along the Natomas Cross Canal. This comparison would answer the question of "levee parity" and whether any spots along the river side of the east levee improvements or west side of the Sacramento River in Yolo County, or north side of the Natomas Cross Canal in Sutter County would be more vulnerable to flooding. O1-26 (Cont.)

In other words, if the east side levee along the Sacramento River and the south side levee along the Natomas Cross Canal have sufficient freeboard to ensure safe containment of the "200-year" design water surface, then these improved levees will have a significant adverse effect on the existing lower levee, properties, and structures along the west side of the Sacramento River, the homes and residents along Garden Highway on the river side of the improved east side levees, and the existing lower levee, properties and structures along the north side of the Natomas Cross Canal, which are lower than the 200-year design water surface.

The DEIR fails to compare the effects of the proposed levee improvements against the existing physical environmental conditions. The failure to provide this analysis frustrates "the central function of the EIR, to inform decision makers about the impacts of the proposed project on the existing environment." Save Our Peninsula Committee, supra, 87 Cal.App.4th at p. 127.

The DEIR further fails to consider the impacts of mounting environmental legislation and biological opinions which will significantly impact alternative flood protection plans, summarily dismissed by SAFCA as "impossible" or "inconceivable." One such edict recently issued by the The National Marine Fisheries Service unveiled a complex set of rules, a "biological opinion", which will likely have enormous impacts on local flood protection practices with the goal of increasing the populations of winter- and spring-run salmon, Central Valley steelhead and green sturgeon. According to Kate Poole, attorney at the Natural Resources Defense Council, "There's no question any more about the fact that the Bay-Delta ecosystem is in dire need of significant changes and fixes. This is one big step to do that." O1-27

The new federal rules require that reclamation districts find a way to flood the Yolo Bypass more often to improve salmon habitat, negating SAFCA's argument that the Yolo Bypass could not be used to divert more water from the Sacramento River than current rules permit. Moreover, SAFCA's concern that water diversion to the Yolo Bypass would be too costly to local water and flood agencies apparently did not negate the decision on the new rules. The ruling governs water operations of the California Department of Water Resources, who will share the cost of the new orders. Clearly, flooding the Yolo Bypass "more frequently" will require a lowering of the Sacramento River weirs – a proposal made by the GHCA more than two years ago as a more effective, long-term solution in lieu of an eternal levee battle in the narrow channels of the Sacramento River.

11. **Damage to Businesses**

The DEIR fails to address the impact of the project on the businesses that exist along and upon Garden Highway which thrive only because individuals seek the tranquility and peace of a rural, river atmosphere that is easily accessible, peaceful and enjoyable. O1-28

12. **Hydrology**

The hydrology reports postulated by SAFCA and its engineers conclude the improved levee system contemplated by the NLIP will not increase the flood risk to the waterside property owners within the NLIP. These reports are explicitly based upon the assumption that other surrounding Reclamation Districts will NEVER improve their levees. This assumption is improper, flawed and not in concert with the current push by adjacent Districts to fortify their levees. The threat of increased flood risk cannot be summarily dismissed and a funding mechanism must be included to deal with the financial impact of this impact. O1-29

Equally troubling, on page ES-4, footnote #2, SAFCA admits its "design event analysis is not the same as the analysis procedure used by USACE." As the primary advertised goal of the NLIP is to obtain USACE certification, why is SAFCA deviating from the USACE event analysis? The DEIS further notes that the USACE analysis "includes consideration of system uncertainties." Does this mean the SAFCA analysis does not account for "system uncertainties" such as the other side of the levee overtopping or failing?

Waterside residents adjacent to the NLIP are very concerned about increased flooding of their homes due to the levee being raised as much as three feet. SAFCA has systematically advised the GHCA not to worry, as levees will overtop or fail elsewhere. Unfortunately, it appears SAFCA;s engineering analysis does not account for this or assumes the other levees will be raised and reinforced. If both sides of the levee are eventually raised, then the water capacity of the river will be increased. This would allow the upstream reservoirs to release more water during a flood event and subject residents to a much greater chance of flooding. The GHCA has been advised there is debate amongst USACE engineers as to which provides the better hydrological model, "perfect world" where you cannot take into account deficiencies in other parts of the levee, or "real world" where you can. What is SAFCA's view on this? O1-30

13. **Construction Standards**

California Title 23 (Waters) Division 1, Chapter 1, Article 8, Paragraph 133 states:

These standards apply only to the construction, reconstruction, or repair of dwellings and associated improvements on the left bank waterward berm and waterward levee slope of the Sacramento River between levee miles 0.00 and 18.60, Unit 1, Reclamation District 1000. These standards supplement and, where in conflict with, supersede the standards in section 111 through section 137. While these standards are not specifically for commercial construction, in general, the principles in this section will apply to commercial development. ... O1-31

These rules were specifically designed to accommodate the unique characteristics of the Natomas (RD 1000) section of California levees. Although not discussed in this document, they are referenced and appear to be important to SAFCA's claim that the "adjacent setback levee" would move the "levee prism" further landside and significantly reduce the need to remove waterside improvements and vegetation.

The Central Valley Flood Protection Board (CVFPB) is currently initiating a major revision to Title 23, but the GHCA was unable to locate any revisions to this section based on the new levee prism. The GHCA feels that if SAFCA is confident its design will move the levee prism further "landside", it should advocate appropriate revisions to this section of the documents. The failure to do so causes the DEIS to fall into direct contradiction with the promises and assurances SAFCA has made to the GHCA, and results in further concern about the true intentions of SAFCA's mitigation promises. As SAFCA and CVFPB are "working together", the GHCA believes joint consensus and a final determination on these issues should be straightforward. O1-31 (Cont.)

14. **Property Values**

The DEIS, consistent with all prior SAFCA action related to the NLIP, wholly fails to address the impact of the Project on property values in the affected areas and has no funding mechanism in place to deal with the destruction of property values in and around the project that will ripen into eminent domain and inverse condemnation lawsuits. This exposure includes, but is not limited to, irreparable damage to property values which began when this project was first publically announced (at a time when real estate values were significantly higher than today), and will continue indefinitely into the future. The project has stalled and prevented sales, land improvements and retirement plans. This trend will increase exponentially when active construction begins. Due the lack of a funding mechanism, the taxpayers will be left to shoulder yet another wave of unanticipated and undisclosed cost overruns. O1-32

15. **Failure to Explain Waterside Vegetation Removal**

On page ES-14, Waterside Vegetation Removal, the DEIS states that up to 4 acres of waterside vegetation will be removed due to replacement of pumping plants and construction of outfalls. How much of this is for pumping plants and how much for outfalls? Does SAFCA anticipate that outfall construction will require removal of any trees on homeowner property, and have the affected homeowners been notified? O1-33

16. **Utility Disruption**

The DEIR fails to address loss of utility services to property owners due to power pole relocation or otherwise. O1-34

17. Conflict of Interest

Each state and local agency must adopt a conflict of interest code tailoring the disclosure requirements for each position within the agency to the types of governmental decisions a person holding that position would make. (Gov. Code Sections 87301 and 87302.) Apparently, the SAFCA Board of Directors is not held accountable to these laws, creating an actual controversy. O1-35

Equally troubling, SAFCA has wholly failed to maintain any independence between itself and the agencies, consultants and engineers that have proposed, created, modified and approved the NLIP. This is abundantly demonstrated in the relationship between SAFCA and EDAW, who collaborated on the NLIP DEIR, yet did not even pretend to maintain a level of objectivity or independence. In fact, SAFCA is not accountable to any independent agency or firm capable of objectively evaluating the decisions it makes relative to the NLIP. As a result, the "rubber stamping" of illegal and flawed EIRS has become an accepted practice in Sacramento County. O1-36

The GHCA contends the lack of independent oversight of the NLIP violates the spirit of CEQA and has led to legitimate challenges to the NLIP being summarily and improperly rejected.

18. Failure to Consider Environmental Impact of Development

While SAFCA publicly justifies the massive NLIP as a necessary cure for the imminent, Hurricane Katrina type flooding that could occur in the Natomas Basin in the event of a 100-year-flood, in reality SAFCA is simply trying to lift the building moratorium affecting the builders who have imprudently chosen to pave over rice fields in a "basin". These are the same developers who have spent hundreds of thousands of dollars supporting our local officials and lobbying for the right to resume rapid development within the floodplain. Without more "urban sprawl", these developers and the County of Sacramento are unable to tap into the "quick cash" that has been created from destroying our evaporating farm lands.

The GHCA contends that rather than encouraging additional urban sprawl, local agencies should be focusing on creating more housing in urban areas, i.e. building up, not out. Moreover, the failure of local agencies to curb their appetite for our farmlands will only increase traffic congestion, gas and carbon emissions and regional pollution at a time when universal fears and concerns over global warming, water scarcity and energy depletion is gaining momentum. O1-37

The GHCA contends the urban sprawl into the Natomas Basin, quite ironically, increases the flood potential for Natomas and surrounding communities. Vast farmland that previously collected and stored water during heavy storms, before slowly releasing it through natural underground seepage, has now been paved and improved with storm drains. Accordingly, thousands of acre feet of rainwater that previously rested safely within area farmland is now immediately collected and pumped into the Sacramento River. Historical flow charts from the Sacramento River during times of heavy storms confirm the negative impact Natomas Basin development is having on regional flood protection.

19. **Failure to Address Project's Usurpation of Agency Resources**

Due to the NLIP and other regional flood projects, SAFCA has usurped the staff and resources at governmental agencies whose involvement is required to review and approve these projects, including but not limited to, the Central Valley Flood Protection Board (previously "Department of Water Resources") and the Army Corps of Engineers. As a result, the staff and resources of the Central Valley Flood Protection Board and the Army Corps of Engineers have become virtually unavailable to anything or anyone other than SAFCA and its projects. O1-38

The GHCA contends SAFCA should pay for additional staff and resources at these governmental agencies so that taxpayers are provided an equal opportunity to access and utilize the services of these agencies. Currently, these individuals are being wholly ignored by these agencies whose personnel admit they cannot keep up with anything other than SAFCA's flood projects.

For the reasons set forth herein, the GHCA respectfully objects to the approval of the DEIS for Phase 4A and requests that the responsible reviewing agencies reject it.

We appreciate your consideration in reviewing our comments and hope for the best possible outcome for all involved.

Sincerely,

GARDEN HIGHWAY COMMUNITY ASSOCIATION

O1-1 USACE and SAFCA have prepared the NLIP environmental documents, including the Phase 4a DEIS/DEIR, in accordance with NEPA and CEQA, in particular the tiering provisions (see Section 1.5, "Intended Uses of the EIS/EIR and Relationship to Other Documents," of the Phase 4a DEIS/DEIR). USACE and SAFCA have strived to ensure that the NLIP environmental documents are understandable to decision makers and to the public, while still containing the level of detail necessary for a robust and technically adequate analysis aimed to withstand legal scrutiny. To help facilitate clarity, the NLIP environmental documents, including the Phase 4a DEIS/DEIR, include numerous plates, tables, and formatting considerations to highlight discussions pertaining to project alternatives, environmental impacts, and proposed mitigation measures.

CEQA requires tiering, whenever feasible as determined by the lead agency, and authorizes lead agencies to treat large and complex phase projects first in a general program-level analysis and then analyze subsequent actions within the program at a project-level of detail while incorporating relevant program level analysis by reference (see California Public Resources Code [PRC] Sections 21068.5, 21093, 21094) . CEQA provides numerous alternative ways to accomplish the purposes of tiering (see, e.g., 14 California Code of Regulations [CCR] Sections 15152, 15157, 15168, 15385; see also Section 15150 [incorporation by reference]). Thus, by tiering, the environmental effects associated with an entire suite of related actions are analyzed to the extent possible in a program-level document and then specific actions within the program are analyzed at a project level when sufficient detail exists to perform project-level analysis.

NEPA authorizes tiering, and allows agencies to treat general matters in program-level documents and then analyze subsequent actions at project level of detail in tiered environmental impact statements (40 Code of Federal Regulations [CFR] Section 1502.20; see also 40 CFR 1502.21 [incorporation by reference]).

USACE and SAFCA analyzed the impacts of the entire NLIP Landside Improvements Project, including cumulative impacts, in the Phase 2 EIR (SAFCA 2007) and Phase 2 EIS (USACE 2008). Subsequent documents, such as the Phase 3 EIR, Phase 3 EIS, and the Phase 4a DEIS/DEIR, analyze the impact of specific project phases within the NLIP as provided for under the tiering principle. Because USACE and SAFCA considered the impacts of the Phase 4a Project, incorporating relevant program-level analysis by reference as authorized by NEPA and CEQA, USACE and SAFCA have considered the entirety of the Phase 4a Project and its relationship to the larger NLIP in the manner expressly provided for under NEPA and CEQA. The Phase 4a DEIS/DEIR, and all previous NLIP environmental documents, examined the cumulative effects of the NLIP and the Phase 4a Project consistent with the requirements of NEPA and CEQA. Because the effects of the entire NLIP have been disclosed in program-level documents, and the impacts of the NLIP and project phases have been analyzed in relation to the cumulative context, there is no factual basis to support the contention that the NLIP Landside Improvements Project has been in any way piecemealed or segmented.

The commenter's reliance on *San Joaquin Raptor/Wildlife Rescue Center v. County of Stanislaus* (27 Cal. App. 4th 713, 730 [1994]) is misplaced. The page cited in the comment supports the general rule that a lead agency under CEQA must analyze the whole of the action; in *San Joaquin Raptor*, the agency has left a major infrastructure component out of the project description. The comment offers no specific facts to demonstrate that SAFCA has failed to analyze the entirety of the Phase 4a Project. To the contrary, the comment simultaneously contends that the Phase 4a DEIS/DEIR is very detailed, which tends to support the conclusion that the project has been exhaustively analyzed and substantial evidence has been provided to support conclusions.

O1-2 EPA's comment letter on the Phase 3 DEIS/DEIR and USACE's and SAFCA's responses in the Phase 3 FEIR are included as **Appendix D3** to this FEIR. Comments on previous NLIP environmental documents, as well as any resulting project/document revisions made in response to those comments, were incorporated into the Phase 4a DEIS/DEIR, as applicable. USACE and SAFCA have and will continue to work closely with the U.S. Fish and Wildlife Service (USFWS), the California Department of Fish and Game (DFG), and The Natomas Basin Conservancy (TNBC).

O1-3 DFG's comment letter on the Phase 3 DEIS/DEIR and USACE's and SAFCA's responses in the Phase 3 FEIR are included as **Appendix D4** to this FEIR. Comments on previous NLIP environmental documents, as well as any resulting project/document revisions made in response to those comments, were incorporated into the Phase 4a DEIS/DEIR, as applicable.

O1-4 Impact 4.7-a, "Loss of Woodland Habitats," of the Phase 4a DEIS/DEIR addresses short-term (10–15 years) and long-term impacts due to loss of woodland habitat. SAFCA disagrees with the commenter's statement that it would take 50–100 years for new woodland habitat development. Based upon the expert professional judgment of SAFCA's biological consultants (Leo Edson, Ann Chrisney, Chris Fitzer, and Stephanie Jentsch of AECOM, formerly EDAW), habitat function would be expected to be restored within approximately 10–15 years, as described in Impact 4.7-a. Regardless of the length of time required to restore woodland habitat that would provide existing ecological function, the Phase 4a DEIS/DEIR concludes that short-term (10–15 years) impacts to woodland habitats would be a significant and unavoidable impact for many years before reaching a less-than-significant level because replacement plantings would require a minimum of 10–15 years before providing important habitat components such as shade and structure. SAFCA's previous projects involving woodland plantings and transplants within the project vicinity have been successful. Of 50 trees planted in the Rio Linda Creek Conservation Area, 94% have survived; similarly, of 14 oaks transplanted by SAFCA in 2004 as part of the Hagedorn Grove project, 12 survived (Buck, pers. comm., 2009).

At the time of submission of this comment letter on the Phase 4a Project (October 13, 2009), woodland plantings and transplants have not yet been completed; therefore, it is not yet possible to report on the success rate for these tree plantings and transplants. However, pursuant to the construction contract, SAFCA's contractor for tree planting is required to attain performance standards during the maintenance period, which is considered to be the 3-year-period immediately following acceptance of the installation portion of the woodland plantings by SAFCA. If the performance standards are not met, the project will not be accepted until the identified remedial actions are implemented by the contractor as directed by SAFCA. These remedial measures could include additional weed control or additional planting, using adaptive management to identify those plants best suited to the site. Performance standards included in the construction contract are listed below in **Table 3-1**.

Table 3-1 Performance Standards for Planting Survival During the Maintenance Period		
Year	Survival of Container Plants by Area (%)	Survival of Native Seed by Area (%)
1	95	50
2	95	50
3	90	50
Assessment Timing	Late Summer	Late Summer
Source: SAFCA 2009c		

SAFCA will conduct field assessments of the plant survivorship once per year, at the timing noted in the above table. Healthy plants are considered to be robust, in good form, free of disease and insect infestation, and exhibit vigorous growth (foliage and wood); they must not be heat- or water-stressed (SAFCA 2009c).

In addition, a Development Impact Fee Program (Fee Program) was adopted by the SAFCA Board of Directors in May 2008 (available at www.safca.org). The development projections, upon which the Fee Program is based, come from data provided by the Sacramento Area Council of Governments (SACOG). The Fee Program will fund a series of flood risk reduction projects that will build on the accomplishments of SAFCA's Consolidated Capital Assessment District (CCAD). SAFCA has determined that there is sufficient Federal or state support and local funding through the CCAD to provide at least a 100-year level of flood protection to the Natomas Basin over the next 11 years. During this period, the Fee Program will provide a portion of the local share of the cost of achieving at least a "200-year" level of protection. Based on SACOG Blueprint projections, SAFCA estimates that over $400 million will be generated over the next 30 years as a result of the Fee Program.

SAFCA anticipates that funding for project construction, implementation of mitigation measures, monitoring, and long-term management will be provided through SAFCA's CCAD and existing Operations and Management District for SAFCA's long-term obligations. If the Phase 4a Project is not funded and implemented, however, mitigation measures for the Phase 4a Project would not be required.

O1-5 The commenter's assertion that the Phase 4a Project will use TNBC lands for borrow material is incorrect. The Phase 4a DEIS/DEIR states on page 2-65 that the Fisherman's Lake Borrow Area would be the primary source of soil borrow for the Phase 4a Project. TNBC owns some lands adjacent to the Fisherman's Lake Borrow Area, including managed marsh and agricultural upland (field crop). These TNBC-owned conservation lands would not be used for borrow operations. Lands that are currently used for agricultural purposes would provide borrow material, and would then be reclaimed as a mosaic of managed marsh and uplands. These sites would thus create connectivity between existing TNCB parcels adjacent to the Phase 4a Project borrow sites (see Plate 2-9b in the Phase 4a DEIS/DEIR, which shows the location of TNBC lands in relation to the proposed Phase 4a Project borrow sites). As set forth in the Long-Term Management Plan (LTMP) that has been approved by the resources agencies with jurisdiction over the project and USACE, SAFCA intends to enter into management agreements with TNBC to manage the borrow/mitigation sites at Fisherman's Lake. These agreements will not be executed until SAFCA has more specific plans and specifications for these sites. See Chapter 4.0, "Revisions to the DEIS/DEIR," of this FEIR for the clarified text.

O1-6 The Phase 4a DEIS/DEIR provides a list of significant and unavoidable impacts that would result from implementation of the Phase 4a Project (see pages ES-11 and 5-38 of the Phase 4a DEIS/DEIR) because no feasible mitigation is available to reduce the significant impacts to a less-than-significant level, or identified mitigation would minimize the impacts but would not mitigate the significant impacts to a less-than-significant level. Impacts to biological resources are included on this list and are discussed in detail in Chapter 4.0, "Environmental Consequences and Mitigation Measures," of the Phase 4a DEIS/DEIR. SAFCA is obligated to secure permits from the applicable resource/regulatory agencies before project construction that could affect agency-regulated habitat. Issuance of these permits indicates that proposed mitigation and compensation are considered to be acceptable according to applicable Federal, state, and local regulations. Project construction cannot commence in areas where such permits are required. Agency documents are legally binding, enforceable terms and conditions of the various agencies including: USFWS, the National Marine Fisheries Service (NMFS), DFG, TNBC, Sacramento County, SCAS, the Natomas Central Mutual Water Company, and RD 1000. See also Response to Comment O1-3.

O1-7 SAFCA's habitat conservation strategy is programmatic in nature and applies collectively to all of the NLIP project phases. To assist USACE and SAFCA in implementing this strategy, an LTMP was prepared and, in May 2009, was approved by USACE, USFWS, DFG, and the Central Valley Regional Water Quality Control Board. Additionally, MMRPs are prepared for each project phase and adopted by the SAFCA Board of Directors at the time of EIR certification and project approval of each project phase. Both the LTMP and MMRP are available on SAFCA's Web site at http://www.safca.org/Programs_Natomas.html.

Many of the Phase 2 Project habitat improvements have been or will be completed prior to the beginning of Phase 3 Project construction; however, many will not, as noted below.

- approximately 62 acres of woodland habitat are being planted and are scheduled to be in place before Phase 3 Project levee construction begins;
- similarly, the Brookfield borrow site (proposed to be used for Phase 2 Project borrow material) is expected to be reclaimed for rice production in 2010, before Phase 3 Project levee construction begins;
- for the approximately 100 acres of new Swainson's hawk habitat, land acquisition has occurred, but actual habitat reclamation will not occur until after Phase 3 Project construction begins because the lands are borrow sites (e.g., Thornton) that first need to be used for borrow activities for the Phase 3 Project;
- marsh habit creation will occur as part of the Phase 4a Project, although land acquisition will occur before Phase 3 Project construction begins; and
- the upper portions of the Giant Garter Snake (GGS) and Elkhorn Canals will be constructed before Phase 3 Project construction begins.

In summary, most of the land acquisition has occurred and management agreements are in place. As lands are ready for turnover to or management by TNBC, they will be managed in accordance with the LTMP and other management agreements.

O1-8 Vegetation and tree removal in Reaches 5A–9 of the Sacramento River east levee is part of the Phase 3 Project. As required by CEQA, significant and unavoidable effects of the Phase 3 Project, including effects related to the loss of vegetation and trees, were disclosed in the Phase 3 EIR, and feasible mitigation to reduce those effects were also identified. In May 2009, the SAFCA Board certified the Phase 3 EIR; adopted findings, a statement of overriding considerations, and an MMRP, as required by CEQA; and approved the Phase 3 Project, together signaling the completion of the CEQA process for the Phase 3 Project. Funding for Phase 3 Project tree removal and planting has been secured. Tree removal began in fall 2009 and must be completed prior to the nesting season, which begins in March 2010. Tree planting will occur in 2010 and be completed by the end of the year. USACE has no jurisdiction over the tree removal activities; therefore, USACE approval and NEPA compliance are not required for these tree removal activities. As stated above, non-riparian tree-removal activities are subject to CEQA, which has been completed for the Phase 3 Project. SAFCA is in full compliance with all applicable environmental laws and regulations.

O1-9 In 2006, when SAFCA embarked upon the multi-phase NLIP to bring the entire 42-mile Natomas Basin perimeter levee system into compliance with applicable Federal and state standards for levees protecting urban areas, SAFCA had a goal of project completion by 2010; however, as public outreach, environmental review, design, permitting, and construction of the multiple project phases have proceeded, numerous delays have been encountered that have affected the overall NLIP schedule (which is posted and updated regularly on SAFCA's Web site at www.safca.org). It is anticipated that construction of the Phase 3 and 4a Projects will be completed by the end of 2010. These project phases along with the Phase 2 Project will be funded by SAFCA and the State of California and will be implemented in advance of full Federal authorization for the constructed improvements. For this reason, these NLIP project phases are collectively referred to as the "early implementation project." The Phase 4b Project, which will be the subject of an EIS/EIR to be issued in early 2010, will likely be implemented by USACE following Congressional authorization of the Phase 4b Project and the other NLIP project phases.

O1-10 See Response to Comment O1-8. USACE and SAFCA are working closely to secure all required environmental clearances and permits for each of the NLIP project phases. While USACE has not yet approved the Phase 3 and 4a Projects, its approval is anticipated in the near future. A Phase 3b Project record of decision (ROD) is expected in December 2009 (note: a Phase 3a ROD was issued in October 2009 to cover the canal work, utility relocation, vegetation removal, and demolition of structures that need to be constructed in advance of the Phase 3 Project levee improvements) and a Phase 4a Project ROD is expected in early 2010. USACE has already issued a ROD, in January 2009, approving the Phase 2 Project, for which the Phase 2 EIS included both project-level (of the Phase 2 Project) and program-level (of the Phase 3 and 4 Projects) analyses. Further, similar projects have been approved by USACE upstream of the Natomas Basin (e.g., USACE has approved alterations to the levee system protecting RD 784 as part of the Three Rivers Levee Improvement Authority project in Yuba County). SAFCA would not implement any project components without issuance of the required environmental clearances and permits. See **Table 1-2** in this FEIR for status information on all required permits, authorizations, and approvals of the NLIP project phases. Funding for the NLIP, including the removal and planting of trees, has been approved and appropriated by the State.

O1-11 Impact 4.7-a, "Loss of Woodland Habitats," in the Phase 4a DEIS/DEIR contains a discussion of both short-term (10–15 years) and permanent impacts to woodland habitats, and the impact is determined to be significant overall. As stated on page 4.7-11 of the Phase 4a DEIS/DEIR, mitigation would reduce permanent impacts to a less-than-significant level; however, no mitigation is available to fully reduce the short-term (10–15 years) impact, which would remain significant and unavoidable for many years before reaching a less-than-significant level because replacement plantings would require a minimum of 10–15 years before providing important habitat components such as shade and structure. Page ES-25 of the Phase 4a DEIS/DEIR, which is a summary of the Phase 4a DEIS/DEIR impacts and mitigation measures, is revised to clarify this distinction. See Chapter 4.0, "Revisions to the DEIS/DEIR," of this FEIR.

O1-12 As discussed on page 4.11-1 of the Phase 4a DEIS/DEIR, to ensure that worst-case air quality impacts were captured for both the Proposed Action and the Raise and Strengthen Levee in Place (RSLIP) Alternative as required under NEPA and CEQA, emissions were estimated assuming that all of the Phase 4a Project is constructed in 2010 (simultaneous with construction of the Phase 3 Project and 30% of the Phase 2 Project, as discussed in Chapter 2.0, "Alternatives"). Construction elements in the Phase 2 and 3 Projects are summarized in Section 2.2.2, "No-Action Alternative—Implementation of Natomas Levee Improvement Program Phase 1, 2, and 3 Projects Only," of the Phase 4a DEIS/DEIR. It should be noted that emissions are estimated within the air districts that regulate them. For purposes of analyzing the impacts of the Phase 4a Project, it is assumed that of the 30% of the Phase 2 Project construction that may occur in 2010, half would occur in Sutter County and half would occur in Sacramento County.

O1-13 As stated in the Phase 4a DEIS/DEIR, residents in or near the affected cutoff wall work area would be afforded the opportunity, at SAFCA's expense, to temporarily relocate to a nearby hotel for as long as construction extends 24 hours per day, 7 days per week (24/7) within 500 feet of their residence (see Mitigation Measure 4.12-a, "Implement Noise-Reducing Construction Practices, Prepare and Implement a Noise Control Plan, and Monitor and Record Construction Noise Near Sensitive Receptors"). Further, because 24/7 noise impacts are localized in nature, it is not clear how these impacts would be "compounded" by occurring in different locations of the Sacramento River east levee at the same time or in different weeks, months, or years. Because 24/7 work would be conducted in discrete locations within the areas already identified for construction, and would only affect people locally for relatively short periods of time, there would not be any undisclosed compounding of effects that was not already analyzed in the Phase 4a DEIS/DEIR analysis of construction impacts. See also Response to Comment O1-18, which substantiates the 500-foot distance, and **Appendix D2** of this FEIR, which includes the Phase 3 FEIR Master Response concerning 24/7 construction.

O1-14 The adjacent levee is designed to physically remove the vegetation and improvements from the Garden Highway "levee prism." However, the entire Garden Highway levee will remain subject to regulation under applicable Federal and state laws and guidelines. It is likely that under the criteria of USACE, the CVFPB, and the Federal Emergency Management Agency (FEMA), levee maintenance agencies will need to demonstrate that they have the ability to conduct routine inspections of the waterside slope of Garden Highway during non-flood conditions and that they have the ability during flood conditions to identify and respond to erosion and other indications of stress along the waterside slope that could threaten the adjacent levee.

O1-15 SAFCA is currently preparing a proposal for how the requirements of USACE, the CVFPB, and FEMA should be met with respect to the Garden Highway levee. SAFCA's database of encroachments is currently being prepared and is not yet complete. Upon completion, the database will be made available as a public document. The purpose of the database is to catalog encroachments. Based on that data, SAFCA, the CVFPB, and RD 1000 will be able to make recommendations about the disposition of each encroachment, some of which may require modification and others of which may not. If an encroachment would ordinarily require a permit, and it does not currently have a permit, an effort will be made to encourage property owners to bring the encroachment under permit. SAFCA is not the permitting agency for encroachments, however. As of the writing of this FEIR (November 2009), SAFCA has contacted the applicable property owners for inventory of improvements.

O1-16 See Response to Comment O1-3. Impact 4.7-f, "Impacts on Swainson's Hawk and Other Special-Status Birds," in the Phase 4a DEIS/DEIR describes potential disturbance of special-status birds during project construction, which would occur during the daytime and nighttime. Mitigation Measure 4.7-f, "Minimize Potential Impacts on Swainson's Hawk and Other Special-Status Birds Foraging and Nesting Habitat, Monitor Active Nests during Construction, Implement All Upland and Agricultural Habitat Improvements and Management Agreements to Compensate for Loss of Quantity and Quality of Foraging Habitat, Obtain Incidental Take Authorization, and Implement

Mitigation Measure 4.7-a, 'Minimize Effects on Woodland Habitat, Implement all Woodland Habitat Improvements and Management Agreements, Compensate for Loss of Habitat, and Comply with Section 7 of the Federal Endangered Species Act, Section 1602 of the California Fish and Game Code, and Section 2081 of the California Endangered Species Act Permit Conditions,'" in the Phase 4a DEIS/DEIR would be implemented during both daytime and nighttime activities to help reduce this impact; however, the impact would remain significant and unavoidable for many years due to the short-term (10–15 years) loss of woodland habitat.

O1-17 The SAFCA Board will adopt written findings for each significant environmental impact identified in the Phase 4a DEIS/DEIR (PRC Section 21081; State CEQA Guidelines CCR Sections 15091 and 15096[h]) prior to approving the Phase 4a Project. If the Board concludes that certain impacts will remain significant and unavoidable, the findings must contain a statement of overriding considerations, in which the SAFCA Board must find, prior to approving the project, that the benefits of the project outweigh its unavoidable adverse physical environmental effects (State CEQA Guidelines CCR Sections 15092 and 15096[h]). The statement of overriding considerations must include specific social, economic, legal, technological, or other benefits of the project that outweigh the significant effects on the physical environment, and must be based on substantial evidence in the DEIR, FEIR, and the administrative record.

NEPA, like CEQA, provides for an agency review and decision-making process. USACE will review the Phase 4a FEIS and any comments received on either the draft or final, per agency's decision-making procedures, as provided in 40 CFR Section 1505.1. The results of the decision-making process are documented in a ROD, which will be prepared as required under 40 CFR Section 1505.2. The ROD must identify all factors and considerations that were balanced in the agency decision-making process as well as the agency's tentative decision on the project (40 CFR Section 1505.29[a]). The ROD is subsequently filed with the U.S. EPA and published in the Federal Register (40 CFR 1506.10) before the final decision is made.

SAFCA has attempted to describe those project components that SAFCA foresees would require 24/7 construction. SAFCA acknowledges, however, that unforeseen circumstances may occur during further project design and construction that may render 24/7 construction necessary for various reasons. In either case (planned or unforeseen), the Sacramento County's noise ordinance (described in Response to Comment O1-20) would apply.

See also Response to Comments O1-13, O1-16, O1-18, and O1-19, and **Appendix D2** of this FEIR, which includes the Phase 3 FEIR Master Response concerning 24/7 construction.

O1-18 Phase 4a Project cutoff wall construction noise was modeled using the Federal Transit Noise and Vibration Impact Assessment 2006 reference noise levels for heavy construction equipment in conjunction with the Federal Highway Administration Roadway Construction Noise Model January 2006 usage factors, as described in Section 4.12.1, "Methodology and Thresholds of Significance," of the Phase 4a DEIS/DEIR. The conservative modeling assumed flat world conditions and does not take into account shielding provided by the existing levee along the Sacramento River. It is assumed that modeled noise levels would actually be lower than predicted in the Phase 4a DEIS/DEIR due to the existing intervening levee prism. Noise monitoring conducted during NLIP Phase 2 cutoff wall construction along the Sacramento River east levee resulted in noise levels 6 decibels (dB) lower than predicted at 100 feet in the Phase 4a DEIS/DEIR. During this noise monitoring, the construction equipment only had partial shielding from the degraded levee; construction equipment was located on top of the degraded levee, the sound level meter was located perpendicular to the construction activity (multiple excavators, water trucks, and loaders), and only the banks of the degraded levee partially shielded the construction equipment. This method was used to simulate future noise conditions of cutoff wall construction along the Sacramento River east levee at sensitive receptors along Garden Highway and did not benefit from complete shielding that would be present during cutoff wall construction along the Sacramento River east levee adjacent to sensitive receptors.

Furthermore, the example used by the commenter involves completely different construction site characteristics than would be present during Sacramento River east levee cutoff wall construction; therefore, it is not applicable to the Phase 4a Project or the NLIP in general. The comment, however, is correct in that when noise travels over a body of water, the attenuation rate is lower than when noise travels over dirt, grasslands, or vegetated soils, commonly described as soft-site conditions. Soft-site conditions attenuate noise more than hard-site conditions (asphalt, concrete, or water) due to ground absorption of noise. The Sacramento River east levee construction areas do not have an intervening body of water, but instead have a substantial amount of soils (i.e., soft-site conditions), in the form of an existing intervening 25-foot levee prism after degradation of the landside levee toe to desired cutoff wall construction elevation. These analyses were performed by Acoustics Specialist, Chris Shields, of AECOM, formerly EDAW.

Impact 4.12-c, "Temporary, Short-term Exposure of Residents to Increased Traffic Noise Levels from Truck Hauling Associated with Borrow Activity," of the Phase 4a DEIS/DEIR discusses noise impacts from truck haulage. Further, the construction contractor will be responsible for, and the construction specifications will anticipate that, hauling will occur during normal construction hours and that the construction crew will build up adequate supplies during daylight hours to support nighttime construction.

O1-19 At the time the Phase 4a DEIS/DEIR was issued (August 2009), SAFCA was not aware of any Phase 4a Project construction that would require 24/7 construction other than cutoff walls and groundwater well drilling (including up to two weeks of continuous pump testing for each well). However, as of the writing of this FEIR (November 2009), it has come to SAFCA's attention that 24/7 construction will also be required for construction of pumping plant modifications (see Chapter 2.0, "Changes to the Phase 4a Project," specifically Section 2.1.2.2, "Modifications to Construction Activities at Pumping Plant Nos. 3 and 5," of this FEIR). This construction practice has been analyzed in the Phase 4a DEIS/DEIR and would not result in new significant or substantially more severe environmental impacts. See Chapter 4.0, "Revisions to the DEIS/DEIR," of this FEIR for revisions to Mitigation Measure 4.12-a concerning 24/7 construction of groundwater wells and pumping plant modifications.

See also Response to Comments O1-17 and O1-18 and **Appendix D2** of this FEIR, which includes the Phase 2 FEIR Master Response: 24/7 Cutoff Wall Construction.

O1-20 The noise standards and ordinances of the City of Sacramento and Sacramento and Sutter Counties are described in Section 4.12, "Noise," of the Phase 4a DEIS/DEIR on pages 4.12-2 and 4.12-3. Impact 4.12-a, "Generation of Temporary, Short-term Construction Noise," of the Phase 4a DEIS/DEIR states that due to the anticipated 24/7 construction schedule of some project components, "noise may be generated by construction equipment operating near homes during the more noise-sensitive early morning and nighttime hours (i.e., during hours that are not exempted by the applicable local ordinances in the City and County of Sacramento) and could result in sleep disturbance at nearby residences." Even with implementation of Mitigation Measure 4.12-a, "Implement Noise-Reducing Construction Practices, Prepare and Implement a Noise Control Plan, and Monitor and Record Construction Noise Near Sensitive Receptors," which includes a provision for temporary relocation of residents within 500 feet of nighttime cutoff wall construction, this impact was determined to be significant and unavoidable because of the close proximity of noise-sensitive receptors to construction activities and the limited feasibility of mitigating construction noise to acceptable levels. SAFCA will adopt findings and a statement of overriding considerations for this and all other significant and unavoidable impacts of the Phase 4a Project when SAFCA considers EIR certification and project approval, as discussed in more detail in Response to Comment O1-17.

For the Phase 4a Project, 24/7 work would occur entirely in Sacramento County. Section 6.68.090 of the Sacramento County Code exempts nighttime noise activities when unavoidable conditions occur during a construction project and the nature of the project necessitates that work in process be continued until a specific phase is completed. This exemption allows work to continue after 8:00 p.m., including operation of machinery and equipment as necessary to bring the specific work in progress to completion under conditions that will not jeopardize inspection acceptance or create undue financial hardships for the contractor or owner.

O1-21 This comment suggests that the Phase 4a DEIS/DEIR concluded that the expanded levee footprint, resulting from levee widening, would have no impact on biological resources in this footprint. However, as discussed in Section 4.7.1.1, "Methodology," of the Phase 4a DEIS/DEIR "[i]mpacts resulting from levee improvement activities were based on the assumption that disturbance could occur within a 660-foot-wide corridor adjacent to the current levee toe on the landside for the Proposed Action and within a 630-foot-wide corridor for the RSLIP Alternative. However, this is a worst-case estimate of disturbance limits based on the potential use of 500-foot-wide berms, and it is probable that a reduced footprint with narrower berms or cutoff walls would meet project objectives along most levee reaches." As a result, acreage was likely overestimated in the Phase 4a DEIS/DEIR, which is allowable under NEPA and CEQA to ensure that the worst-case impact is analyzed.

The Phase 4a DEIS/DEIR carefully tabulates the impacts on sensitive resources in the footprint of proposed improvements. A quantitative summary is provided in Table 2-15 on page 2-94 and Table 2-16 on page 2-96 of the Phase 4a DEIS/DEIR. Section 4.7.2, "Impacts and Mitigation Measures," considers acreage, including the overestimation of the expanded levee footprint discussed above, in the following biological resources impacts:

- Impact 4.7-a, "Loss of Woodland Habitats;"
- Impact 4.7-b, "Impacts on Wildlife Corridors;"
- Impact 4.7-c, "Impacts on Jurisdictional Waters of the United States;"
- Impact 4.7-d, "Impacts on Special-Status Plant Species;"
- Impact 4.7-f, "Impacts on Swainson's Hawk and Other Special-Status Birds;"
- Impact 4.7-h, "Impacts on Other Special-Status Wildlife Species, Including Burrowing Owl and Northwestern Pond Turtle;" and
- Impact 4.7-k, "Impacts on Successful Implementation of the NBHCP."

O1-22 See Response to Comment O1-4 regarding funding for the NLIP. The cost of implementing the Phase 4a Project mitigation measures is included in the total cost of the Phase 4a Project. The MMRP required by CEQA is designed to ensure that the CEQA lead agency implements mitigation measures as specified in the draft and final EIR. If there were insufficient funding to award contracts for construction of the Phase 4a Project, it will not be built and the impacts that have been identified as requiring mitigation would not occur, thus negating the need for the mitigation.

O1-23 Assuming that this comment refers to the Garden Highway Settlement Agreement, SAFCA is meeting the requirements of that Agreement, which concerns only the Phase 2 Project but is being voluntarily implemented for the other NLIP project phases, and is contained in Appendix A3 of the Phase 4a DEIS/DEIR. The construction schedule is posted on SAFCA's Web site (available at www.safca.org/Programs_Natomas.html) and is e-mailed weekly to the Garden Highway Community Association. Power pole relocation is discussed in numerous locations in Chapter 2.0, "Alternatives," of the Phase 4a DEIS/DEIR, including on pages 2-26, 2-32, 2-38, and 2-45. Encroachment removal is discussed in Section 2.3.7, "Additional Actions to Meet FEMA, USACE, and State Design Requirements: Encroachment Management," of the Phase 4a DEIS/DEIR. For details regarding the levee prism, see **Appendix D2** of this FEIR, which includes the Phase 3 FEIR Master Response regarding the Sacramento River levee prism and Plate 4. The following impact discussions in the Phase 4a DEIS/DEIR address the other issues raised by the commenter:

- Impact 4.10-b, "Temporary Increase in Traffic Hazards on Local Roadways," addresses roadway safety issues;
- Impact 4.6-1, "Temporary Impacts on Water Quality from Stormwater Runoff, Erosion, or Spills," addresses general pollutant runoff;
- Impact 4.6-b, "Impacts to Sacramento River Water Quality from Stormwater Runoff from Garden Highway Drainage Outlets," addresses drainage issues and pollutant runoff along Garden Highway; and
- Impact 4.5-c, "Effects on Groundwater," addresses impacts to groundwater and well yields.

See also Response to Comment O1-14.

O1-24 See Section 2.1.5, "Alternatives Considered, but Eliminated from Further Consideration," and Appendix B1, "Alternatives Formulation and Screening Details," of the Phase 4a DEIS/DEIR. See also **Appendix D1** of this FEIR, which includes the Phase 2 FEIR Master Response: Hydraulic Impacts of the NLIP.

O1-25 While information about general climate change trends is available, such information does not allow a precise determination of how climate change will affect the Natomas Basin and the NLIP specifically. DWR's *Progress on Incorporating Climate Change into Management of California's Water Resources* (DWR 2006) states, "the combination of earlier melt times, greater variability and greater potential for direct storm runoff may challenge the current system of flood protection and water supply in the state" (DWR 2006:6-34). This is a general statement showing the potential for more precipitation as rainfall rather than snow for the state as a whole, and thus a greater volume of water flowing through flood control systems in the state. It is worth noting that the same section of the cited document notes, "there is great uncertainty in the magnitude, timing, and location of precipitation and runoff changes associated with climate change" (DWR 2006:6-31). Thus, available data suggest that specific flood damage reduction impacts at discrete geographic locations cannot be predicted; therefore, such impacts are considered too speculative for meaningful consideration. The potential for future increases in flood risk underscore the urgency of the NLIP, including the Phase 4a Project.

It should be noted that future flood damage reduction at specific geographic locations is dependent upon a range of future and thus unknown variables including the nature of climate change, water management and water diversion, and improvements to flood damage reduction and water storage structures. Because these future variables are too speculative and cannot be accurately predicted let alone analyzed, it is impossible to reduce available data and trends to specific predictions about the precise impact of climate change at the location of the Phase 4a Project. The State CEQA Guidelines specifically indicate that where an impact is too speculative for analysis, the lead agency is relieved of the duty to discuss the impact in detail (14 CCR Section 15145). Consideration of speculative environmental effects is not required under NEPA (Mandelker 2007: 8-102, citing City of Riverview v. Surface Transp. Bd., 398 F 3d 434 [6th Cir. 2005]).

O1-26 Chapter 3.0, "Affected Environment," of the Phase 4a DEIS/DEIR provides detailed information related to the existing physical environment of the Phase 4a Project area. As discussed in Section 4.1.2.2, "Impact Mechanisms," of the Phase 4a DEIS/DEIR, the CEQA environmental analysis compares the action alternative and no-project alternative (No-Action Alternative) to the existing conditions at the time of release of the NOP (i.e., baseline for the purposes of CEQA), which was March 27, 2009 for the Phase 4a Project. NEPA considers the No-Action Alterative (i.e., expected future conditions without the project) to be the baseline to which the action alternatives are compared, and the No-Action Alterative is compared to existing conditions (including the Phase 2 Project). Each issue area discussed in Chapter 4.0, "Environmental Consequences and Mitigation Measures," of the Phase 4a DEIS/DEIR includes the section, "Methodology and Thresholds of Significance," where the impact mechanisms specific to the respective issue areas are discussed.

Section 4.5.1.1, "Methodology," of the Phase 4a DEIS/DEIR provides an overview of surface hydrology analysis, and states, specific to the NLIP analysis: "The surface hydrology analysis evaluated the potential flood-related impacts of the action alternatives on water surface elevations in the stream and river channels in the project area and in the larger watershed within which the project is situated. Specifically, a UNET hydraulic computer model was used to compare existing conditions in the waterways surrounding the Natomas Basin and in the larger SRFCP with the Proposed Action (With Project and Without Project [i.e., No-Action Alternative], respectively) and other reasonably foreseeable improvements to Folsom Dam and the urban levees outside the Natomas Basin." Following this discussion, Table 4.4-1 of the Phase 4a DEIS/DEIR summarizes the conditions and assumptions associated with each of the model runs. The modeling output generated by these conditions under the targeted flood scenarios is displayed in Tables 4.5-2 through 4.5-9 of the Phase 4a DEIS/DEIR. More detailed hydraulic modeling results are included in Appendix C of the Phase 4a DEIS/DEIR.

The use of a hydraulic computer model of the Sacramento River Flood Control Project (SRFCP) was reviewed and approved for use for this project in 2006 by the USACE Sacramento District to compare existing conditions in the waterways surrounding the Natomas Basin and in the larger SRFCP with and without the NLIP improvements and the other improvements comprising the 200-year flood protection program for the Sacramento area. See Appendix C of the Phase 4a DEIS/DEIR for more information regarding the hydrologic modeling approach.

O1-27 As discussed in Section 2.1.5, "Alternatives Considered, but Eliminated from Further Consideration," of the Phase 4a DEIS/DEIR, the Yolo Bypass Improvements alternative was eliminated from consideration because, "(1) it would be too costly for SAFCA to implement; (2) levee height increases and substantial seepage and slope stability remediation would still be required for the Natomas perimeter levee system, adding to costs; (3) these improvements lie outside of SAFCA's jurisdiction and would require Federal, State, and local cooperation and funding; and (4) the project objectives of restoring 100-year flood protection to the Natomas Basin could not be achieved as quickly as possible." Implementation of the Phase 4a Project is contingent on issuance of numerous permits, authorizations, and approvals, including biological opinions from USFWS and NMFS; these agencies will consider applicable environmental legislation and biological opinions before issuance of permits. The project cannot proceed without the required permits.

O1-28 Mitigation Measure 4.3-c, "Notify Residents and Businesses of Project Construction and Road Closure Schedules; Comply with the Garden Highway Settlement Agreement; and Implement Mitigation Measure 4.10-a, 'Prepare and Implement a Traffic Safety and Control Plan for Construction-Related Truck Trips,' and Mitigation Measure 4.10-c, 'Notify Emergency Service Providers about Project Construction and Maintain Emergency Access or Coordinate Detours with Providers," in the Phase 4a DEIS/DEIR requires SAFCA to provide business owners with information pertaining to construction activities, complaint procedures, and construction timelines.

It should further be noted that effects analyzed under CEQA must be related to a physical change in the environment (State CEQA Guidelines CCR Section 15358[b]). Economic and social effects are not considered environmental effects under CEQA. These effects need to be considered in an EIR only if they would lead to a significant adverse effect on the physical environment.

O1-29 SAFCA's conclusion that the NLIP would not increase the flood risk to waterside property owners along Garden Highway is based on surveys that indicate that the Sacramento River east levee is currently higher than most of the Sacramento River west levee in the reach downstream of the NCC. Therefore, increasing this height differential would not alter the current balance of risks in this reach of the system. The increased height of the east levee would contribute cumulatively to an increase in flood risk to waterside property owners only if the west levee were raised to a height equal to or greater than the current height of the east levee. The protected basin on the west side of the Sacramento River is agricultural in nature; it contains very few damageable structures. As discussed in Section 3.2.2, "Environmental Setting," of the Phase 4a DEIS/DEIR, SAFCA recently entered into an arrangement with Yolo County, DWR, the Yolo Land Trust, and the Sacramento Valley Conservancy that resulted in the recordation of agricultural conservation easements on 1,660 acres of land in this basin. Under these circumstances and in light of recently enacted revisions to the State's Planning and Subdivision laws restricting development in floodplain areas (see Response to Comment F2-4), it is highly unlikely that the Sacramento River west levee will ever be raised to a height exceeding the current height of the Sacramento River east levee.

Further, the commenter states that "these reports are explicitly based upon the assumption that other surrounding Reclamation Districts will never improve their levee." This statement is not correct. USACE and the CVFPB have set policies that grant all levee districts the opportunity to strengthen their levees. If a levee district chooses to raise a levee, then that district must demonstrate that it will not have an adverse impact. The Phase 4a Project's hydraulic impact analysis took this into consideration by assuming that other levees in the system would overtop, but not fail. If other levee districts choose to raise their levees then those districts will need to conduct a hydraulic impact analysis to demonstrate that there are not adverse impacts.

O1-30 See Response to Comment O1-29.

O1-31 As described in Section 1.7.2.2, "State Responsible and Trustee Agencies," and Section 1.7.3.2, State Actions/Permits," in the Phase 4a DEIS/DEIR, the CVFPB is a state responsible agency under CEQA for the Phase 4a Project.

O1-32 Effects analyzed under CEQA must be related to a physical change in the environment (State CEQA Guidelines CCR Section 15358[b]). Economic and social effects are not considered environmental effects under CEQA. These effects need to be considered in an EIR only if they would lead to an environmental effect. Therefore, the project's impact on property values is beyond the scope of the CEQA analysis.

NEPA does require consideration of economic effects (40 CFR 1508.8); however, this requirement is limited to effects that are reasonably foreseeable rather than speculative in nature (Mandelker 2007: 8-102, citing *City of Riverview v. Surface Transp. Bd.*, 398 F 3d 434 [6th Cir. 2005]). Here the commenter states that the project would decrease property values, but does not offer specific facts linking the project to a demonstrable effect on property values that can be clearly attributed to the project. Absent specific facts showing a clear effect on property values, this comment contains speculation that is beyond the required and practicable scope of analysis under NEPA.

O1-33 The approximately 4 acres of waterside vegetation that would be removed includes approximately 3 acres for replacement of pumping plants and approximately 1 acre for construction of outfalls. Pursuant to the Garden Highway Settlement Agreement contained in Appendix A3 of the Phase 4a DEIS/DEIR, SAFCA will make every effort to design new outfalls in such a way to confine them to the property line, thus minimizing impacts to private property. Unfortunately, the property lines are often the location of trees, which SAFCA and many property owners desire to retain as much as possible. Property owners will be consulted about where new outfalls should be located on their properties, either along property lines to minimize property impacts or somewhere on the owner's property to minimize tree removal, if feasible. Property owners affected by new outfalls on their properties have been contacted by SAFCA.

O1-34 The potential disruption of utility service due to power pole relocation or otherwise is addressed in Impact 4.14-b, "Potential Disruption of Utility Service," in the Phase 4a DEIS/DEIR. Mitigation Measure 4.14-b, "Verify Utility Locations, Coordinate with Utility Providers, Prepare and Implement a Response Plan, and Conduct Worker Training with Respect to Accidental Utility Damage and Implement Mitigation Measure 4.15-c, "Review Design Specifications and Prepare and Implement an Impact Avoidance and Contingency Plan in Consultation with Wickland Pipelines, LLC" in the Phase 4a DEIS/DEIR requires that "(u)tility relocations shall be staged to minimize interruptions in service," and that "(n)otification of any potential interruptions in service shall be provided to the appropriate agencies and affected landowners."

In addition, this mitigation measure requires use of the Underground Services Alert to locate any underground utilities, and preparation of a response plan to address accidental damage to utilities. Specifically, the response plan would include:

- chain of command rules for notification of authorities,
- appropriate actions and responsibilities to ensure the safety of the public and workers,
- worker education training conducted by the contractor, and
- implementation of the response plan by SAFCA and its contractors.

SAFCA will voluntarily meet the requirements of the Garden Highway Settlement Agreement, contained in Appendix A3 of the Phase 4a DEIS/DEIR, for the Phase 4a Project. The construction schedule is posted on SAFCA's Web site (www.safca.org/Programs_Natomas.html) and is e-mailed weekly to the Garden Highway Community Association. In addition, during construction activities, SAFCA will prepare a regularly updated summary of upcoming construction activities for posting on SAFCA's Web site. This will include the location and type of construction activities, anticipated road closures, and areas that would be on a 24/7 construction schedule.

O1-35 This is not a comment on the Phase 4a Project or the Phase 4a DEIS/DEIR. For reference, SAFCA adopted by resolution the model conflict of interest code provided in CCR, Title 2, Chapter 7 in 1990 (Resolution 90-003).

O1-36 While the lead agency is ultimately responsible for the adequacy and objectivity of the Draft and Final EIR under CEQA, including the scope, content, impact conclusions, and proposed mitigation measures, a Draft and Final EIR may be prepared by lead agency staff, another public or private entity, the project applicant or project applicant's consultant, or a combination of these parties (see California PRC 21165[a]). Additionally, the lead agency may rely on another lead agency's EIR and use the previously prepared EIR as its own (State CEQA Guidelines CCR Section 15084[d]). The preparation of an EIR is a difficult task that is sometimes beyond the expertise or time constraints of an agency's own staff. Consequently, many lead agencies rely on private consultants to prepare EIRs.

When a project that is subject to CEQA requires a Federal discretionary permit, entitlement, authorization, or Federal funding, or occurs on Federal land, NEPA also applies. CEQA and NEPA establish similar processes. When a project is subject to both CEQA and NEPA, state and local agencies are encouraged to cooperate with Federal agencies to the fullest extent possible, through such measures as joint planning, research, hearings, and joint preparation of environmental documents (State CEQA Guidelines CCR Sections 15222 and 15226).

SAFCA maintains independence from the agencies, consultants, and engineers that have proposed, created, modified, and approved the NLIP. While not required by NEPA or CEQA, an independent Board of Senior Consultants reviews the engineering and design aspects of the project. This Board ensures that any identified levee deficiencies are handled appropriately and that remedial measures selected to address deficiencies are appropriately designed. In addition, MWH, an engineering firm, is under contract to the City of Sacramento to review the NLIP. Furthermore, the NEPA and CEQA environmental review processes for the project involve technical experts and attorneys reviewing and analyzing the potential environmental effects of the project. See State CEQA Guidelines CCR Section 15084(d) regarding preparation of an EIR.

O1-37 Growth-inducing impacts of the NLIP are discussed in Section 5.2, "Growth Inducement," of the Phase 4a DEIS/DEIR. As described in that section, population growth and urban development within the project area are driven by local, regional, and national economic conditions. Local land use decisions are within the jurisdiction of the cities and counties within the project area: the City of Sacramento and Sacramento and Sutter Counties. Each of these agencies has adopted a general plan consistent with state law. These general plans provide an overall framework for growth and development within the jurisdiction of each agency, including the project area. Although each of these agencies is a member of SAFCA, as a joint powers agency, SAFCA is limited to exercising powers common to all of its constituent members, including RD 1000 and American River Flood Control District, neither of which has any land use planning authority. Accordingly, SAFCA has no authority to permit development and has only limited authority to impose conditions on the development that is permitted.

O1-38 This comment is not related to compliance with NEPA or CEQA, and SAFCA does not agree with the commenter's statements regarding use of agency staff and resources.

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O2

ASSOCIATION FOR THE ENVIRONMENTAL PRESERVATION OF THE GARDEN HIGHWAY
6301 Garden Highway
Sacramento, CA 95837

October 14, 2009

Board of Directors
Sacramento Area Flood Control Agency
1007 7th Street
Sacramento, CA 95814

Dear Members of the Board:

I am writing you on behalf of the many Garden Highway residents who are horrified by SAFCA staff's latest plan to again needlessly cut hundreds, if not thousands of mature and heritage oak trees and other mature trees along the Garden Highway. Last fall I asked this Board to reject staff's plan to cut some 900 mature and heritage oak trees in the reaches along the Garden Highway (NLIP). I pointed out that SAFCA had no funding to build the levee in this area in 2009. I argued that Federal funding would not happen. As of today, SAFCA has not built the levees in reaches 2-4 along the Garden Highway. Thus, the trees in this area were cut last year needlessly and, as I predicted, SAFCA did not receive Federal funding for the NLIP.

The latest plan is to cut trees in Reaches 5 15 (Phases 3 and 4a) this fall/winter. As you well know, SAFCA does not have the funds in hand to build levees in Phases 3 and 4a, and, after finally admitting that federal funding will not be available, staff now is counting on the State to provide the $300 mil or so to build these phases. Last fall the State sold some $6 bil. in bonds to fund state projects. SAFCA ultimately received only $40 mil. for the NLIP from this bond sale. Just a few days ago the State attempted to sell $4.5 bil. in bonds. This attempt was a resounding failure. The bond interest rate had to be raised to an unacceptable rate and even then the full amount of bonds was not sold. The effects of California's terrible bond rating have now surfaced. There is talk of California defaulting on its bonds/going bankrupt. The latest budget passed by California is already unraveling because of a $2 bil revenue shortage. California will not finance Phases 3 and 4a of the NLIP next year. O2-1

We have a proposal. We will not object to the vast majority of SAFCA staff's plans to prepare for Phases 3 and 4a next year. SAFCA can rebuild the canals, remove the houses, drill the new wells, move the power lines, transplant the smaller trees, etc everything necessary for the preparation of building the Phase3 and 4a levees except tree cutting. Then, if SAFCA gets funding to build the levees, the trees can be cut immediately thereafter probably during mobilization time. With appropriate planning, the trees could be cut without one day of levee construction delay.

Staff's argument is that sooner or later the levees at Phases 3 and 4a will be built -- so, eventually the trees will go. This is not necessarily true. (Note the Auburn Dam project.) For example, the National Marine Fisheries Service has recently issued an edict that more water must be released into the Yolo Bypass to help protect salmon. This will necessitate the lowering of the Fremont Weir resulting in an entirely different hydrological picture for the NLIP. At this moment numerous agencies are working on implementation of this edict. By next year SAFCA's present plans for the NLIP may be obsolete precluding the necessity of removing the hundreds of trees. O2-1 (Cont.)

The bottom line: Cutting hundreds, if not thousands, of trees without complete assurance that the project will ever go would be ecologically irresponsible. Waiting until SAFCA has the money "in the bank" is ecologically responsible. With a little ingenuity, SAFCA staff could develop a plan that postpones tree cutting until funding is assured without delaying the project at all. Even if the plan resulted in a short delay, the potential saving of this environmental treasure would be well worth it. SAFCA staff's preoccupation with "speed" cannot take precedence over the possible preservation of 100 year old woodlands.

Doug Cummings, Co-chair
Association for the Environmental Preservation of the Garden Highway

CC: Matt Weiser
Sacramento Bee

O2-1 See Response to Comments O1-4, O1-8, O1-10, and O1-11.

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B1

WICKLAND
PIPELINES LLC

October 13, 2009

Ms. Elizabeth Holland
Planning Division
USACE, Sacramento District
1325 J Street
Sacramento, CA 95814

Mr. John Bassett
Director of Engineering
SAFCA
1007 7th Street, 7th Floor
Sacramento, CA 95814

Subject: Draft EIS/EIR – Natomas Levee Improvement Program, Phase 4a Landside Improvements Project

Dear Ms. Holland and Mr. Bassett:

As noted in the above referenced Draft EIS/EIR, Wickland Pipelines LLC ("Wickland"), a public utility pipeline company, operates a CPUC regulated pipeline that delivers jet fuel to the Sacramento International Airport. The pipeline is 12" in diameter and travels through the Phase 4a Project footprint in Reach 11B of the Sacramento River.

Wickland has reviewed the Draft EIS/EIR, and has the following comments:

1. Page 2-25 of the Draft EIS/EIR describes the Proposed Action along Reaches 10-15 as "[l]evee raising/rehabilitation and seepage remediation." This action is further described as involving construction of an adjacent levee, raised in Reaches 10-11B, with cutoff walls, seepage berms, and relief wells, where required, to reduce seepage potential. Elsewhere in the document (Page 2-32), it is noted that cutoff walls can extend to a depth of 110 feet below ground surface in some areas. The exact areas within Reach 11B designated for cutoff walls do not seem to be identified. B1-1

As the attached alignment sheets illustrate, Wickland's jet fuel pipeline passes under the Garden Highway levee at a depth of about 80' below the highway surface before rising to a depth of about 6' at a point 300' north of the landside toe of the levee. If a cutoff wall is placed along this portion of the levee, the cutoff wall must be designed and engineered to accommodate the existence of the pipeline. In addition, construction techniques must be employed that do not damage or impair the structural integrity of the pipeline.

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2. On Page 2-46 of the Draft EIS/EIR, it is stated that "USACE has not evaluated whether the pipeline must be relocated to comply with seepage remediation requirements." Relocation of the pipeline does not appear to be included in the description of the Proposed Action, nor are any of the potential impacts associated with pipeline relocation identified, studied or mitigated. Based on these facts, Wickland is assuming that relocation of the pipeline is outside the scope of Phase 4a of the Levee Improvement Program, and not under serious consideration at this time. B1-2

3. Mitigation Measure 4.15-c provides that Wickland should be consulted for advance review and approval of design specifications and impact avoidance and safety measures for construction activities within 10' of the jet fuel pipeline. Given the potential seriousness of a construction related pipeline mishap, Wickland recommends that this provision be extended to cover any construction activities within 50' of the pipeline. B1-3

4. Mitigation Measure 4.15-c should be expanded to require that all excavation and construction in the vicinity of the jet fuel pipeline be undertaken in strict conformity with the latest version of the Best Practices of the Common Ground Alliance. B1-4

5. Mitigation Measure 4.15-c should be further modified to require reasonable advance notice to Wickland of those dates and times when excavation and/or grading will occur within 20' of the jet fuel pipeline so that Wickland can have personnel present to observe operations. B1-5

6. Page 2-46, the Draft EIS/EIR outlines required modifications and additions to a jet fuel pipeline shutoff valve necessitated by the fact that a 500-foot-wide seepage berm is planned for the area within which the valve is located. These modifications and additions include a new valve riser stem, alterations to the pipeline cathodic protection system and the construction of a concrete vault around the shutoff valve. It is Wickland's understanding that all costs associated with these modifications and additions, as well as all reasonable expenses incurred by Wickland in the course of implementing Mitigation Measure 4.15c, will be borne by SAFCA and/or USACE. B1-6

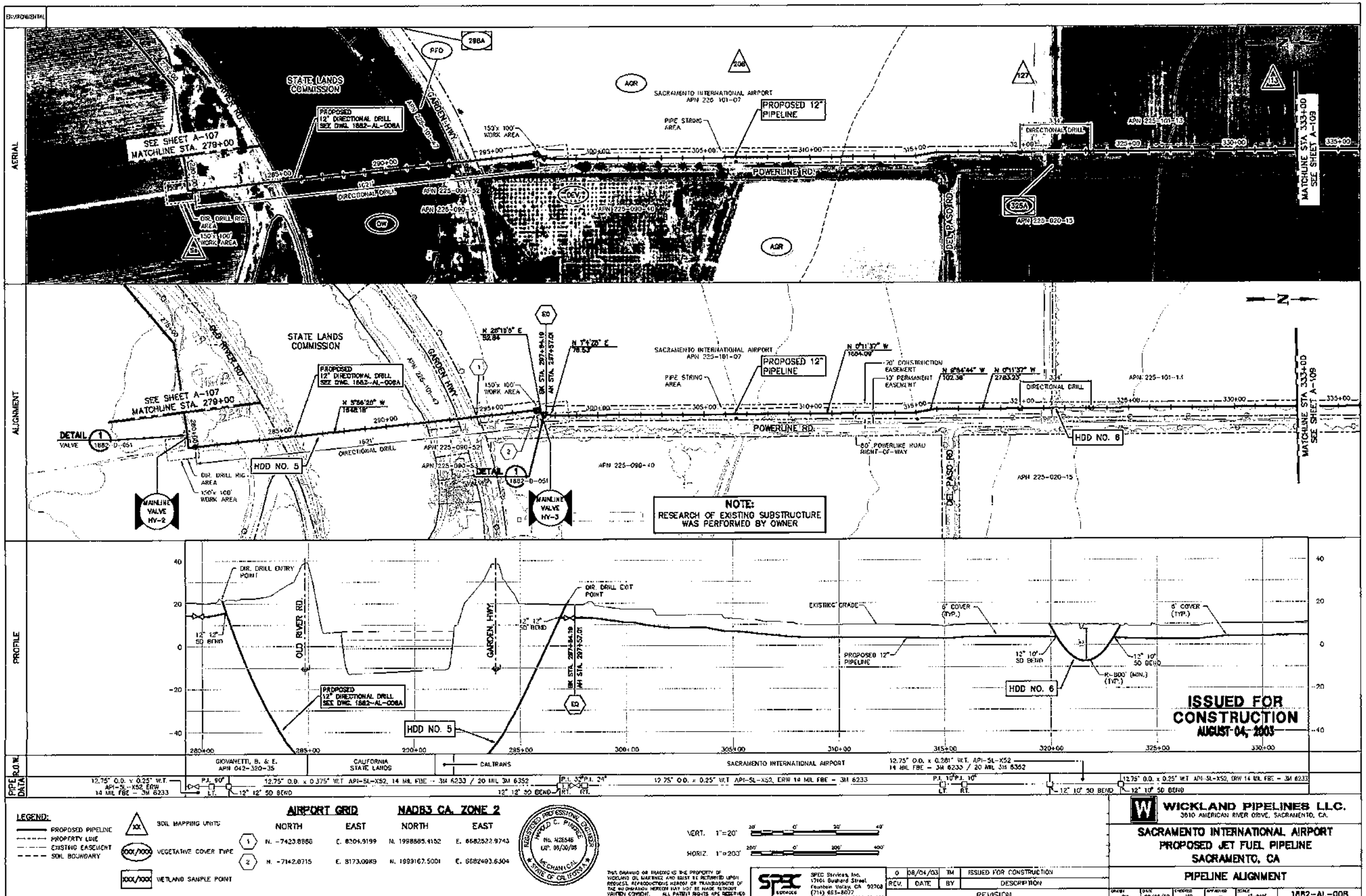
If you have any questions regarding these comments, please contact me by telephone at (916) 978-2450, or by email at dhall@wickland.com.

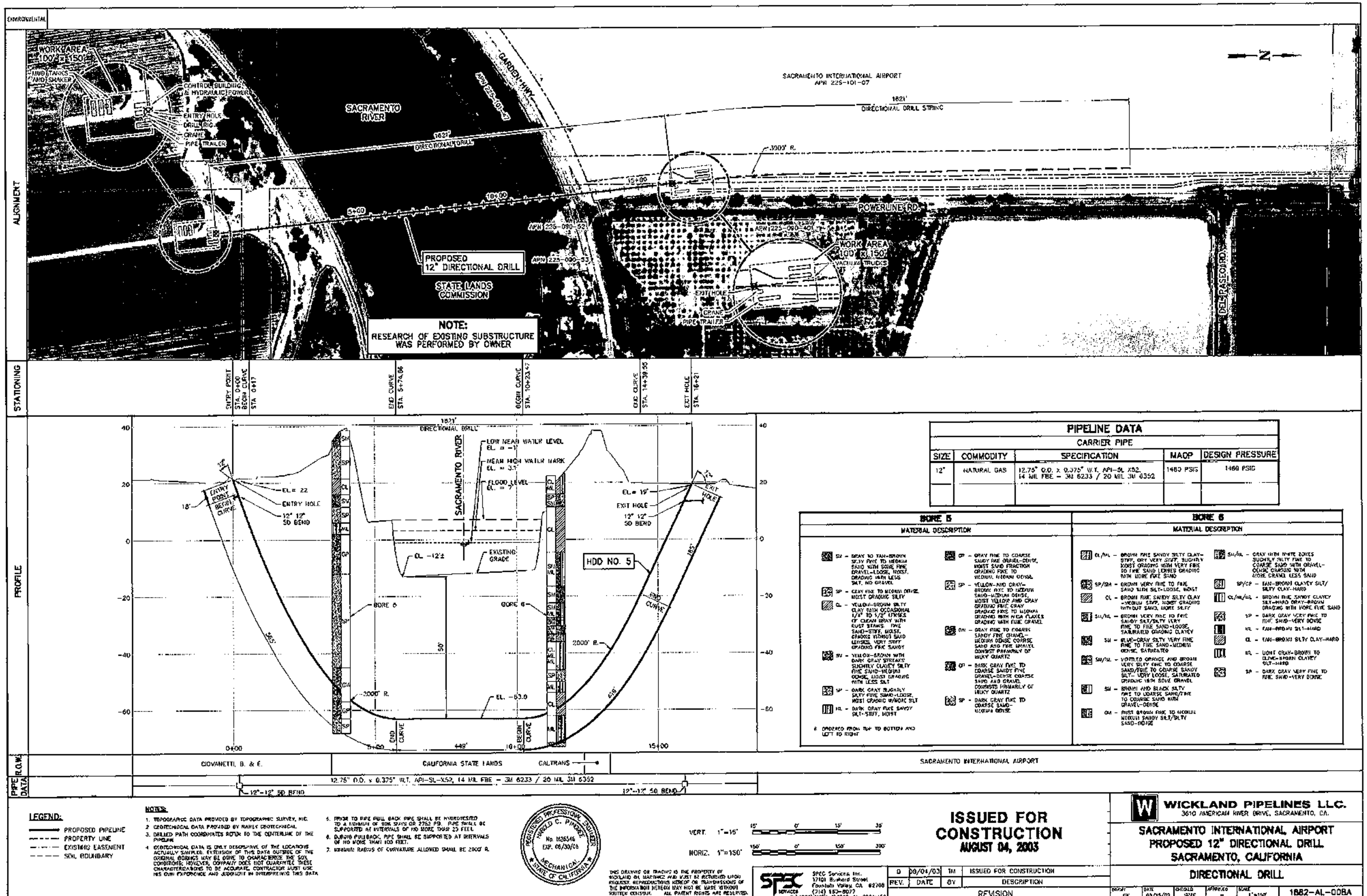
Yours truly,

Daniel E. Hall

Daniel E. Hall

Attachments


WICKLAND PIPELINES LLC.
3610 AMERICAN RIVER DRIVE, SACRAMENTO, CA.
SACRAMENTO INTERNATIONAL AIRPORT
PROPOSED JET FUEL PIPELINE
SACRAMENTO, CA
PIPELINE ALIGNMENT
1882-AL-008
ISSUED FOR CONSTRUCTION
AUGUST 04, 2003
NOTE:
RESEARCH OF EXISTING SUBSTRUCTURE WAS PERFORMED BY OWNER
STATE LANDS COMMISSION
SACRAMENTO INTERNATIONAL AIRPORT
PROPOSED 12" PIPELINE
HDD NO. 5
HDD NO. 6
POWERLINE RD.
GARDEN HWY
OLD RIVER RD.
DEL PASO RD.
MATCHLINE STA. 279+00 SEE SHEET A-107
MATCHLINE STA 333+00 SEE SHEET A-109
AIRPORT GRID
NADB3 CA. ZONE 2
LEGEND:


SACRAMENTO RIVER
WORK AREA 100' x 150'
SACRAMENTO INTERNATIONAL AIRPORT APN 225-101-07
1821' DIRECTIONAL DRILL STRING
PROPOSED 12" DIRECTIONAL DRILL
STATE LANDS COMMISSION
NOTE: RESEARCH OF EXISTING SUBSTRUCTURE WAS PERFORMED BY OWNER
POWERLINE RD.
DEL PASEO RD.
GARDEN HWY
ALIGNMENT
STATIONING
PROFILE
HDD NO. 5
PIPELINE DATA
CARRIER PIPE
SIZE | COMMODITY | SPECIFICATION | MAOP | DESIGN PRESSURE
12" | NATURAL GAS | 12.75" O.D. x 0.375" W.T. API-5L X52, 14 MIL FBE - 3M 6233 / 20 MIL 3M 6352 | 1480 PSIG | 1480 PSIG
BORE 5
BORE 6
MATERIAL DESCRIPTION
GIOVANETTI, B. & E.
CALIFORNIA STATE LANDS
CALTRANS
SACRAMENTO INTERNATIONAL AIRPORT
12.75" O.D. x 0.375" W.T. API-5L-X52, 14 MIL FBE - 3M 6233 / 20 MIL 3M 6352
LEGEND:
PROPOSED PIPELINE
PROPERTY LINE
EXISTING EASEMENT
SOIL BOUNDARY
NOTES:
ISSUED FOR CONSTRUCTION
AUGUST 04, 2003
WICKLAND PIPELINES LLC.
3610 AMERICAN RIVER DRIVE, SACRAMENTO, CA.
SACRAMENTO INTERNATIONAL AIRPORT
PROPOSED 12" DIRECTIONAL DRILL
SACRAMENTO, CALIFORNIA
DIRECTIONAL DRILL
1882-AL-008A

B1-1 SAFCA is aware of the location of the jet fuel pipeline and would implement measures to reduce the potential of accidental damage or release. See Mitigation Measure 4.15-c, "Review Design Specifications and Prepare and Implement an Impact Avoidance and Contingency Plan in Consultation with Wickland Pipelines, LLC," in the Phase 4a DEIS/DEIR.

B1-2 Relocation of the jet fuel pipeline is not part of the Phase 4a Project.

B1-3 The requested text is revised. See Chapter 4.0, "Revisions to the DEIS/DEIR," of this FEIR.

B1-4 The requested text is revised. See Chapter 4.0, "Revisions to the DEIS/DEIR," of this FEIR.

B1-5 SAFCA anticipates that Wickland Pipelines, LLC would attend weekly construction meetings that will be held during construction of the Phase 4a Project. Thus, Wickland Pipelines, LLC would have knowledge of the construction schedule and can make arrangements to observe construction activities within 20 feet of the jet fuel pipeline.

B1-6 Costs associated with modifications and additions to the jet fuel pipeline shutoff valve are not a NEPA/CEQA issue and will be determined at an appropriate time before project construction begins.

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I1

SAFCA Board of Directors
Sacramento County Board of Supervisors

I again want to complain bitterly about SAFCA's treatment of the people who live in the area in which they are seizing property.

SAFCA seems to be able to obtain millions of dollars to protect the habitat of the Swenson hawk and the giant garter snake, even some of the old trees along the river. This seems to be "politically correct." However, they cheat the PEOPLE who have lived in this area for years. They do not offer just compensation for the land and homes that they are taking This is the reason for the many eminent domain actions that are currently pending. I would hope that some politicians would consider it "politically correct" to protect the PEOPLE who live in this area. Don't we deserve the consideration and the protection of our "habitat" equal to that of a garter snake? I1-1

SAFCA made an offer for my home of 57 years in an amount that was not even half enough to purchase a buildable lot on Garden Highway, let alone enough to rebuild my home and garden. They have made similarly low bids for compensation to my friends and neighbors who have been served with eminent domain actions. These actions were approved by the board of supervisors without comment. They "rubber stamped" everything SAFCA asked for with no concern for the people whose lives were adversely affected.

Aren't there any politicians with concern for the PEOPLE?

Frances Tennant
2196 Garden Highway
Sacramento, CA 95833
(916) 922-6080
francestenn@yahoo.com

Letter I1 Response	Frances Tennant September 17, 2009

I1-1 The commenter's property is located within the footprint of the Phase 4b Project (not the Phase 4a Project), which will be the subject of a separate EIS/EIR to be issued in early 2010. As noted in Section 2.3.8, "Lands, Easements, Relocations, and Rights-of-Way," in the Phase 4a DEIS/DEIR, privately owned lands required to implement the Phase 4a Project would be acquired in fee. Real property acquisition and relocation services would be accomplished in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, (42 USC 4601 *et seq.*) and implementing regulation, 49 CFR Part 24; and California Government Code Section 7267 *et seq.*

I2

Subject: FW: Plate 2-12, NLIP Phase 4a Landside Improvements Project
Date: Monday, September 28, 2009 1:16:12 PM

From: Adams/Amioka [mailto:vibrocount@lanset.com]
Sent: Monday, September 28, 2009 8:08 AM
To: Bassett. John (MSA)
Subject: Re: Plate 2-12, NLIP Phase 4a Landside Improvements Project

Re: Plate 2-12, Potential Fisherman's Lake Habitat Complex Development
NLIP Phase 4a Landside Improvements Project

Mr. Bassett:

The crosshatching representing proposed woodland appears to go directly through my mother's home in Reach 14 just south of Radio Road. We are hoping that this is an inadvertent oversight not recognizing the longtime residence and related structures on this property, and one that can be corrected with a revised map. What can we do to make sure the revision occurs? I2-1

Thank you,

Ann Amioka
Concerned Daughter
291 River Run Circle
Sacramento, CA 95833
(916) 929-7843 (home)
(916) 501-2949 (cell)
(916) 930-1234 (work)

I2-1 A SAFCA representative has met with the commenter to discuss her concerns regarding the Phase 4a Project's effects on her mother's property. As discussed with the commenter, SAFCA would only acquire a portion of the commenter's mother's property (not including the residence) for the Phase 4a Project. See Chapter 4.0, "Revisions to the DEIS/DEIR," of this FEIR for the corrected Plate.

13

The MKG Trust
4140 Garden Highway
Sacramento, California 95834
12 October 2009

Mr. John Bassett
Sacramento Area Flood Control Agency
1007 7th Street, 7th Floor
Sacramento, CA 95814

Re: Riverside Canal and Draft Environmental Impact Statement/Draft Environmental Impact Report (DEIS/DEIR) for Natomas Levee Improvement Program, Phase 4a Landside Improvements Project

Dear John,

Ross Oliveira and I met with you on 28 August 2009 and discussed the proposed Riverside Canal that would cross our property. The DEIS/DEIR describes pipelines being installed in certain areas in Reaches 12B-13 and elsewhere and we request to be involved in the decision process prior to any final approvals that would affect our property. Our preference would be for a pipeline to be installed across our property. I3-1

Additionally, after reading through the DEIS/DEIR, I would like to point out that there are mulitiple start dates documented in the report. On page 2-48, the construction activity "relocation of canal and removal of landside structures and other facilities," is estimated to begin on 1 May 2009 and end on 28 May 2009. It also states on page 2-56, the "construction season schedule for the relocated and extended Riverside Canal," is estimated to begin in August and end in January. Can you explain? I3-2

Please let us know when we can discuss how we can help to achieve our objectives with the Phase 4a Landside Improvements Project that will affect our property.

Respectfully yours,

Chris

Chris J. Rufer

I3-1 Comment noted; final design of the Riverside Canal is not yet complete.

I3-2 Table 2-4, on page 2-48 of the Phase 4a Project DEIS/DEIR, provides a summary of the Phase 4a Project's Sacramento River east levee major construction activities and their anticipated schedules. Canal relocation in the context of this table refers to irrigation conveyance features generally associated with agriculture. This does not include the Riverside Canal, construction of which is estimated to begin in August 2010 and end in January 2011 as shown in Table 2-7 on page 2-56 of the Phase 4a DEIS/DEIR.

14

September 30, 2009

Elizabeth Holland, Planning Division
U.S. Army Corps of Engineers, Sacramento District
1325 J Street
Sacramento, CA 95814

Subject: Comments on Draft EIS/EIR, Natomas Levee Improvement Program, Phase 4a Landside Improvements Project

Dear Ms. Holland,

My name is Roland L. Candee and I live on the Garden Highway in Sutter County. I object to the U.S. Army Corps of Engineers giving permission to SAFCA to proceed with the Natomas Levee Improvement Program.

You should include in your documentation your U.S. Army Corps of Engineers August 28, 2009, letter to all interested parties as that letter contains what amount to admissions that this program is really a single project that is being improperly divided up into phases because SAFCA views this approach as the "most practical and cost-effective" way "to move forward as quickly as possible". It is hard to imagine a clearer example of connected actions than what is present here in the piecemeal approach being taken by SAFCA. 40 C.F.R. Section 1508.25 requires that an agency consider the effects of connected actions within a single EIS. Obviously, building up part of the 42-mile levee system for the Natomas basin would be a waste if the levee failed in any stretch of those 42 miles as the whole basin would be flooded regardless of where the levee failed. One of the obvious purposes of a single environmental review document is that such would avoid confusion and your August 28, 2009 letter notes that the piecemeal approach you are choosing to pursue is "confusing to the casual observer". While I am unaware of any legal NEPA/CEQA status for a "casual observer", your own documents admitting to the confusing nature of this piecemeal approach are very telling. Your executive summary in the DEIS (pg. ES-1) tries to justify this approach by saying that each phase has its own "independent utility", yet fails to explain how there is any independent utility to part of a levee being in place. Wouldn't that be like saying one wall to a bathtub has "independent utility"? 14-1

There continue to be deficiencies in the DEIS along the same lines as pointed out in the comments from FEMA dated December 21, 2006, addressed to John Bassett at SAFCA, Comments to SAFCA's draft EIR on Local Funding Mechanisms for the project. Under the cited authorities in the FEMA comments, any development must not increase base flood elevation levels and must document that any development would not cause *any* rise in base flood elevation levels. I pointed out the documentation in a prior comment on this matter showing that there was some, albeit small, rise in base flood elevation that would result from the project and got a response from SAFCA that SAFCA had determined that .1 foot was the threshold level of significance. I object to a determination that .1 foot is the threshold level of significance as "any" clearly means 14-2 any measurable amount – not any amount over .1 foot. In any event, Table 4.5-5 and 4.5-7 and 4.5-8 all currently document well over .1 foot rises in base flood elevation levels at many points and SAFCA should be estopped to now claim levels over .1 foot are not significant. It is just obvious that raising the levee height shifts the flood risk away from the Natomas basin at the direct expense of those living, such as myself and my neighbors. along the Sacramento River. I4-2 (Cont.)

Under the circumstances, as a minimum, any permission or permits granted by the U.S. Army Corps of Engineers for the NLIP to proceed should require SAFCA to admit that the property of myself and my neighbors who live on the waterside of the current Garden Highway in areas where the levee is being raised is being inversely condemned and SAFCA should proceed as required by law in an inverse condemnation situation. I4-3

Roland L. Candee
10411 Garden Highway
Sacramento, CA 95837

I4-1 See Response to Comment O1-1.

I4-2 The Sacramento River does not carry a FEMA Floodway designation. Both the Sacramento and Sutter County Floodplain Management Ordinances allow for increase in the base flood elevation with notification outreach to affected property owners, and FEMA conditional letter of map revision. The Sacramento County Floodplain Management Ordinance further states that (applicable to urban streams) a 0.1-foot change in base flood water surface elevation shall be considered to be zero impact. Sacramento County's ordinance clarifies that Sacramento County does not allow the 1-foot increase that FEMA allows in their minimum national policies; if there would be greater than a 0.1-foot increase, a formal process would be required before Sacramento County could consider allowing it. (Booth, pers. comm., 2009.)

See also **Appendix D1**, which includes the Phase 2 FEIR Master Response: "Hydraulic Impacts of the NLIP."

I4-3 Comment noted. SAFCA will comply with all applicable laws.

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PH

CLERK:
THE FIRST ITEM IS A PUBLIC HEARING – DRAFT ENVIRONMENTAL IMPACT STATEMENT/ENVIRONMENTAL IMPACT REPORT (STATE CLEARINGHOUSE # 2009032097) ON THE NATOMAS LEVEE IMPROVEMENT PROGRAM PHASE 4A LANDSIDE IMPROVEMENTS PROJECT

TIM WASHBURN:
MADAM CHAIR, MEMBERS OF THE BOARD, TIM WASHBURN, DIRECTOR OF PLANNING. THIS ITEM IS A PUBLIC HEARING ON THE DRAFT ENVIRONMENTAL IMPACT STATEMENT AND ENVIRONMENTAL IMPACT REPORT FOR THE NATOMAS LEVEE IMPROVEMENT PROGRAM, LANDSIDE IMPROVEMENT PROJECT, PHASE 4A. I WILL GIVE A LITTLE OVERVIEW OF WHAT'S IN THE PROJECT, ANSWER ANY QUESTIONS THE BOARD MAY HAVE AND THEN ASK THE BOARD TO OPEN THE HEARING AND TAKE ANY COMMENTS THAT THE PUBLIC MAY WANT TO OFFER ON THE DOCUMENT. THESE OF COURSE WILL BE RECORDED AND WE WILL RESPOND TO THESE COMMENTS WHEN THE PUBLIC COMMENT PERIOD ON THE DRAFT EIS/EIR CLOSES.

THE PUBLIC COMMENT PERIOD COMMENCED ON AUGUST 28TH, IT WILL END ON OCTOBER 13TH. AND SO, WE WILL TAKE ANY COMMENTS THAT ARE OFFERED TODAY ORALLY, AND THEN OF COURSE ANY WRITTEN COMMENTS THAT MAY BE SUBMITTED IN CONNECTION WITH THE DRAFT EIS/EIR AND RESPOND TO THEM.

LET ME JUST GIVE A LITTLE, SARAH IF YOU COULD BRING UP THE OVERHEAD, IT FITS BETTER SIDEWAYS, IF YOU DON'T MIND LOOKING AT NATOMAS SIDEWAYS. SO, THIS IS THE NATOMAS BASIN, AS YOU KNOW WE'VE SORTA MADE OUR WAY, PHASE 1 OF THE PROJECT, WE DID SOME WORK IN 2007, 2008 IN PHASE 2 OF THE PROJECT ALONG THE CROSS CANAL AND THE UPPER 4 MILES OF THE SACRAMENTO RIVER EAST LEVEE IS UNDER WAY THIS SUMMER. PHASE 3 OF THE PROJECT, WHICH IF YOU CAN SEE IT, IS IN GREEN HERE, JUST NORTH OF ELVERTA ROAD AND EXTENDING DOWN JUST PAST INTERSTATE 5. PHASE 3 OF THE RROJECT, THE FINAL EIR WAS CERTIFIED BY THIS BOARD, EARLIER THIS SUMMER. THE FINAL EIS IS OUT FOR PUBLIC REVIEW AND WE EXPECT THE CORPS TO ISSUE A RECORD OF DECISION ON THAT DOCUMENT, SOMETIME LATER THIS YEAR, NOVEMBER OR DECEMBER.

THIS DOCUMENT, THIS DRAFT EIS/EIR IS PHASE 4A, WHICH EXTENDS FROM JUST SOUTH OF INTERSTATE 5 AROUND PAST SAN JUAN ROAD DOWN TO THE AREA JUST SOUTH OF SAN JUAN ROAD. IT'S THE AREA IN THE COLOR ORANGE AND SO IT INVOLVES LEVEE RAISING AND UNDER SEEPAGE IMPROVEMENTS, FROM THAT POINT JUST SOUTH OF I-5. THE LEVEE RAISING IS PRETTY MUCH RESOLVED, AS WE GET TO POWERLINE ROAD,

AND THEN IT BECOMES A MATTER OF JUST ADDRESSING UNDER SEEPAGE ISSUES AROUND THE SACRAMENTO RIVER EAST LEVEE, AS I SAY, TO THE AREA SOUTH OF SAN JUAN ROAD.

IN ORDER TO DO THE LEVEE IMPROVEMENTS IN THIS REACH OF THE SYSTEM, AS IN THE REACHES ABOVE, WE HAVE TO RELOCATE IRRIGATION AND DRAINAGE FACILITIES TO ALLOW THE LEVEE IMPROVEMENTS TO GO FORWARD SO THERE IS A MAJOR RELOCATION OF THE RIVERSIDE IRRIGATION CANAL, WHICH IS THIS AREA SHOWN IN ORANGE HERE, WE ARE ACTUALLY, POTENTIALLY EXTENDING THE REACH OF THE RIVERSIDE IRRIGATION CANAL, SO IT GOES FURTHER TO THE EAST, ACROSS THE NOVAK PROPERTY THAT SAFCA OWNS AND THEN POTENTIALLY ACROSS THE BUFFERLANDS OF THE AIRPORT. THE AIRPORT HAS EXPRESSED AN INTEREST IN HAVING SURFACE WATER TO IRRIGATE THE BUFFERLANDS SOUTH OF THE AIRPORT...

YES SIR?

JOHN SHIELS:
EXCUSE ME TIM, REFERRING BACK TO THE RIVERSIDE, YOU MEAN – LANDSIDE?

TIM WASHBURN:
YES, LANDSIDE

WELL, IT'S CALLED THE RIVERSIDE CANAL, IT IS ON THE LANDSIDE OF THE LEVEE. SO IT IS THE RIVERSIDE IRRIGATION CANAL, LANDSIDE OF THE SACRAMENTO RIVER EAST LEVEE.

JIMMIE YEE:
IT'S ON THE SIDE OF THE RIVER.

TIM WASHBURN:
IT'S ON THE SIDE OF THE RIVER.

OKAY, SO THERE IS THE POTENTIAL FOR EXTENDING THE RIVERSIDE CANAL AND ACTUALLY PROVIDING SURFACE WATER IRRIGATION TO THE SOUTH AIRPORT BUFFERLANDS.

THE RELOCATION ACTUALLY IS REQUIRED FURTHER SOUTH AND IS COVERED IN THE ENVIRONMENTAL DOCUMENT, TAKING RIVERSIDE RELOCATION ALL THE WAY DOWN TO ITS TERMINEST POINT NEAR THE 880 OVERCROSSING. YOU KNOW THE LEVEE IMPROVEMENTS, LEVEE RAISING, AND SEEPAGE CONTROL ARE THE BASE FLOOD CONTROL PROJECT AND RELOCATION OF THIS IRRIGATION FACILITY AND RELOCATION OF BOTH RD1000'S DRAINAGE DISCHARGE PUMPS, SO WE HAVE PUMPING PLANT 5

HERE, SOUTH OF INTERESTATE 5 AND PUMPING PLANT 3, JUST WEST OF FISHERMANS LAKE. THOSE 2 PUMPING PLANTS NEED TO BE RELOCATED AND THE DISCHARGE PIPES RAISED OVER THE LEVEE.

AND THE WATER COMPANY HAS THE RIVERSIDE PUMPING PLANT HERE, JUST WEST OF FISHERMANS LAKE ALSO THAT HAS TO BE RELOCATED, IMPROVED AND THE PIPES RAISED OVER THE LEVEE, SO THESE ARE OUR MAJOR PUMPING FACILITY IMPROVEMENTS THAT HAVE TO BE DONE AS PART OF THIS PROJECT.

IN ADDITION, THERE ARE ANY NUMBER OF AGRICULTURAL WELLS IN THIS REACH OF THE PROJECT, SINCE THERE IS NO SURFACE WATER DELIVERY FROM THE SOUTHERLY POINT OF THE ELKHORN CANAL UP HERE, NORTH OF ELKHORN BOULEVARD, ALL THE WAY DOWN TO WHERE THE RIVERSIDE CANAL CURRENTLY COMMENCES. THERE ARE A LOT OF WELLS IN THE PROJECT FOOTPRINT THAT ARE GOING TO BE RELOCATED OUT OF THE PROJECT FOOTPRINT AND HAVE TO BE RE..., YOU KNOW WE HAVE TO PUT NEW WELLS IN TO REPLACE THOSE. AND THEN WE ARE ADDING WELLS IN THE VICINITY OF FISHERMANS LAKE IN CONNECTION WITH OUR BORROW AND MITIGATION ENHANCEMENT PROGRAM IN THE AREA OF FISHERMANS LAKE, THAT I WILL TALK ABOUT.

SO, THERE'S A LOT OF WELL RELOCATION AND WELL CONSTRUCTION. I THINK WE'RE ESTIMATING AS MANY AS 13 TO 18 WELLS MAY BE DUG IN CONNECTION WITH THIS PHASE OF THE PROJECT.

THE IMPROVEMENTS FOR UNDERSEEPAGE IN THIS REACH ARE LIKELY TO BE PREDOMINANTLY EARTHERN BERMS. IT LOOKS AT THIS POINT LIKE THERE WILL BE A LIMITED AMOUNT OF THE REACH WHERE WE WILL ESTABLISH CUTOFF WALLS, PERHAPS ONLY IN THIS FAIRLY LIMITED AREA IN REACH 12B DOWN TO 13 HERE, SO JUST SITTING ON EITHER SIDE OF THE RD1000 PUMP PLANT 3 THERE WILL BE A CUTOFF WALL, OTHERWISE IT LOOKS LIKE THE UNDERSEEPAGE OR MEDIATION MEASURE WILL BE AN EARTHERN BERM.

THAT MEANS WE NEED A LOT OF SOIL MATERIAL TO SUPPORT THIS PHASE OF THE PROJECT. AND THE CONCEPT IS, ALTHOUGH WE ARE SHOWING MANY POSSIBLE BORROW LOCATIONS IN THIS REACH. THE MOST LIKELY BORROW LOCATIONS ARE AROUND FISHERMANS LAKE, WHERE WE HAVE IDENTIFIED 4 PARCELS IN PARTICULAR THAT APPEAR TO BE LARGE ENOUGH IN SIZE, HAVE AN ADQUATE QUALITY AND QUANITY OF MATERIAL AND CAN BE RECLAIMED TO MEET THE MITIGATION NEEDS OF THE PROJECT THAT WOULD HELP TO EXPAND AND BE COMPATIBLE WITH THE REFUGE PROPERTIES OF THE HCP THAT THE NATOMAS BASIN CONSERVANCY CURRENTLY HAS AROUND FISHERMANS LAKE.

SO THE IDEA IS, THEY HAVE APPROXIMATELY 250 ACRES OF CONSERVATION LANDS JUST TO THE WEST OF FISHERMANS LAKE, WE ARE

POTENTIALLY PROPOSING TO ADD ANOTHER 250 TO 300 ACRES OF LAND THAT WOULD SERVE AS A SOURCE OF BORROW MATERIAL FOR THIS PHASE OF THE PROJECT, AND THEN WOULD BE RECLAIMED TO EITHER MARSH HABITAT, TO SWAINSON HAWK FORAGE HABITAT OR TO WOODLANDS THAT WE NEED TO MEET OUR COMPENSATION REQUIREMENTS FOR THE PROJECT AND ALL OF THAT WOULD OCCUR IN THE AREA AROUND FISHERMANS LAKE, ESSENTIALLY EAST OF POWERLINE AND EXTENDING DOWN TO ABOUT RADIO ROAD, JUST NORTH OF SAN JUAN ROAD.

THERE ARE OTHER PARCELS THAT WE'VE IDENTIFIED IN THE AREA THAT MAY PROVIDE BORROW MATERIAL, BUT THAT WOULD NOT NECESSARILY BE RECLAIMED FOR OUR COMPENSATION PURPOSES SOUTH OF FISHERMANS LAKE – THE OLD WHITTER RANCH PROPERTY AND A PORTION OF THE LOS RIOS COMMUNITY COLLEGE PROPERTY THAT IS NOW IN PRIVATE OWNERSHIP, MIGHT PROVIDE ADDITIONAL BORROW MATERIAL FOR THIS PHASE. LIKE I SAY, QUITE A BIT OF BORROW MATERIAL IS NEEDED HERE, BUT AS WITH PRIOR PHASES OF THE PROJECT, IT LOOKS LIKE WE ARE IN A GOOD POSITION FOR THAT BORROW MATERIAL TO BE MOVED TO THE LEVEE IMPROVEMENT LOCATIONS EFFICIENTLY, OFF ROAD, WITHIN THE PROJECT HAUL ROUTES, WHICH HAVE BEEN THE KEY TO GETTING VERY GOOD BIDS ON MOVING THIS DIRT AROUND IN OUR LAST TWO CONTRACT AWARDS.

SO, WE ARE HOPEFUL THAT WE WILL CONTINUE TO GET GOOD BIDS BY PROVIDING THE LOCATION OF THE BORROW MATERIAL AND THE PROXIMITY TO THE LEVEE SITES BEING ABLE TO REACH THE LEVEE SITES OFF ROAD. WE HOPE WE WILL CONTINUE TO GET GOOD BIDS ON THE BORROW MATERIAL.

SO, THIS PROJECT INVOLVES NOT ONLY AS I SAY, SUBSTANTIAL LEVEE IMPROVEMENTS AND FOOTPRINT IMPROVEMENTS ALONG THE SACRAMENTO RIVER EAST LEVEE, BUT VERY SUBSTANTIAL, OUR MOST SUBSTANTIAL HABITAT COMPENSATION TO DATE. THIS WILL BE THE MAJOR HABITAT CONSERVATION AREA FOR THE NATOMAS LEVEE IMPROVEMENT PROJECT AROUND FISHERMANS LAKE.

JIMMIE YEE:
TIM I HAVE A QUESTION, BEFORE YOU MOVE ON TO SOME OTHER ITEM. THIS THING ABOUT BORROW, FILL AND LOCATION, HAS THAT BEEN TRANSMITTED TO THE AIRPORT? BECAUSE, I'M CONCERNED ABOUT BIRD STRIKES.

TIM WASHBURN:
YAH, MAYBE I COULD SHOW THIS MAP JIMMIE. WE TOOK A LOOK AT THE AIRPORT CRITICAL ZONE, WHICH IS SHOWN IN BLACK AS THE CURRENT AIRPORT CRITICAL ZONE, AND THEN THE MAP HAS BEEN SLIGHTLY ADJUSTED TO ACCOUNT FOR FUTURE RUNWAY CONSTRUCTION, THAT'S IN THE AIRPORT MASTER PLAN, SO THEN THE CRITICAL ZONE WOULD ADD

THIS RED LINE AND THIS GREEN LINE AND BE A LITTLE BIT BIGGER. BUT WHERE WE'RE TALKING ABOUT THE BORROW OPERATION IS HERE AT FISHEMANS LAKE, THAT'S OUTSIDE OF THE 10,000 FOOT CRITICAL ZONE. WE' RE NOT DOING ANY MARSH CREATION WITHIN THE 10,000 FOOT CRITICAL ZONE. WE DO HAVE A POTENTIALLY SIGNIFICANT BORROW OPERATION OVER HERE WEST OF THE AIRPORT, BUT THIS LAND WOULD JUST BE CONVERTED BACK TO ITS CURRENT CROP LAND USE. SO THERE WOULD BE NO ADDITIONAL STANDING WATER OR OTHER AQUATIC HABITIAT CREATED IN CONNECTION WITH THAT BORROW OPERATION. BUT THE BORROW OPERATION AT FISHERMANS LAKE WOULD CREATE ABOUT 120 ACRES POTENTIALLY OF MARSH HABITAT, BUT OUTSIDE THE 10,000 FOOT CRITICAL ZONE.

JIMMIE YEE:
AIRPORT STAFF HAS SAID ITS OKAY?

TIM WASHBURN:
THE FAA IS A RESPONSIBLE AGENCY ON THE FEDERAL SITE, SO THEY ARE PART OF THE NEPA REVIEW PROCESS, SO THEY WILL REVIEW, AND OF COURSE AIRPORT STAFF WILL REVIEW, AND ARE REVIEWING THE DRAFT EIR RIGHT NOW.

JIMMIE YEE:
YAH, I JUST WANT TO BE SURE THAT AIRPORT STAFF HAS REVIEWED IT.

TIM WASHBURN:
YAH

JIMMIE YEE:
AND NOT POSTED ANY MAJOR OPPOSITION.

TIM WASHBURN:
WELL, OF COURSE, I MEAN YOU KNOW, WE DO HAVE A FIVE MILE ZONE ALSO, WHICH IS MUCH MORE DEMANDING. THE CRITICAL ZONE HAS BEEN THE AREA OF MOST CONCERN, THAT'S THE 10,000 FOOT ZONE AROUND THE AIRPORT, AND SO WE'VE AVOIDED THAT IN OUR PLAN.

JIMMIE YEE:
OKAY

TIM WASHBURN:
MAYBE I COULD TOUCH ON THE IMPLICATIONS FROM A PROPERTY POINT OF VIEW AND THIS IS IN THE ENVIRONMENTAL DOCUMENT, WHAT ARE THE PROPERTIES THAT ARE POTENTIALLY AFFECTED IN THIS PHASE OF THE PROJECT. SO IF WE'RE DOWNSTREAM BY 5, THERE ARE A NUMBER OF AGRICULTURAL PROPERTIES, A COUPLE OF WHICH HAVE HOMES ON THEM, THAT ARE AFFECTED BY THE PROJECT AND BECAUSE THIS IS AN AREA WITH FAIRLY DEEP UNDERSEEPAGE WHERE WE HAVEN'T REALLY BEEN ABLE

TO FIND ENOUGH SOLID MATERIAL TO CONNECT A WALL TO, THIS IS AN AREA, WHERE AS I SAY, THERE WILL BE A BERM CONSTRUCTED TO ADDRESS UNDERSEEPAGE AND WHERE THE BERM WILL BE IN MANY PLACES ALONG THE WAY HERE, AT LEAST 300 FEET WIDE, SO THIS IS A WIDE FOOTPRINT, ABOUT 450 FEET, FROM THE CENTERLINE OF THE LEVEE, WHICH IS THE LIGHT YELLOW AREA HERE, ESSENTIALLY CUTTING ACROSS THESE AGRICULTURAL PARCELS DOWNSTREAM OF I-5, UNTIL YOU HIT THE ORANGE AREA HERE, WHICH IS THE AIRPORT SOUTH BUFFERLAND, SO THERE WILL BE A NEED TO ACQUIRE PRIVATE PROPERTY, A FAIRLY SIGNIFICANT AMOUNT OF PRIVATE PROPERTY, TO ACCOMMODATE THE LEVEE FOOTPRINT, MUCH LIKE THE PHASE THREE PROJECT THAT CAME THROUGH THE BOARD THIS SUMMER, ALSO IN THIS REACH.

FURTHER DOWN, DOWN THE WAY, YOU GET TO THE END OF THE AIRPORT SOUTH BUFFERLANDS, THE NEXT PARCEL WE OWN, IT'S THE NOVAK PARCEL THAT WE PURCHASED IN 2008. THESE GREEN PARCELS ARE TNBC PARCELS AND TWO OF THEM WILL BE AFFECTED BY THE PROJECT FOOTPRINT AND WE WILL HAVE TO REPLACE THE LOST HABITAT TO THE TNBC, AS WE DID IN PHASE 2, CONSISTENT WITH THE NATOMAS BASIN HCP, THE WAY WE DO THAT IS, WE ACQUIRE SURPLUS LAND THAT THE TNBC OWNS, ACRE FOR ACRE, FOR THE AMOUNT OF LAND THAT IS ABSORBED INTO OUR PROJECT FOOTPRINT AND THE ENDOWMENT MONEY THAT IS CONNECTED TO THE LAND THAT IS BEING ABSORBED INTO OUR PROJECT FOOTPRINT, SHIFTS OVER TO THE SURPLUS LAND THAT WE BUY FROM TNBC, SO WE HAVE A FAIRLY EFFICIENT WAY OF HANDELING THE IMPACT OF OUR PROJECT ON TNBC LAND IN THIS REACH, WELL IN ANY REACH, BUT THIS IS WHERE WE ARE HAVING OUR MOST SIGNIFICANT IMPACT ON TNBC LAND.

RAY TRETHEWAY:
TIM, FOR THE PUBLIC'S SAKE, YOU MIGHT JUST WANT TO SPELL OUT..

TIM WASHBURN:
THE NATOMAS BASIN CONSERVANCY (TNBC) AND THEY HAVE, AS I SAID EARLIER, FAIRLY EXTENSIVE HOLDINGS HERE, IN AND AROUND FISHERMANS LAKE. SORRY, SUPPOSED TO GET RID OF THAT. (PHONE RANG)

THE BORROW SITES, ARE THE SHADED IN AREAS HERE AND SO THOSE ARE THE AREAS WHERE WE WOULD LOOK TO GET THE BORROW MATERIALS WE NEED FOR THIS PROJECT AND WITH THE EXCEPTION OF THE WHITTER PROPERTY AND THE LOS RIOS PROPERTY THE SHADED AREAS WOULD BE THE AREAS WE WOULD ANTICIPATE RECLAIMING FOR EITHER MARSH OR SWAINSON HAWK HABITAT IN THIS REACH OF THE PROJECT.

SO AGAIN, WE HAVE A PRETTY NICE FIT WITH THE AREAS WE NEED FOR OUR BORROW MATERIAL AND THE AREAS THAT WE NEED FOR OUR HABITAT AND GOOD PROXIMITY FOR MOVING THIS MATERIAL EITHER SOUTH, ALL

THE WAY DOWN TO THE END OF REACH 15 HERE, POTENTIALLY, AND THEN WEST BACK UP TOWARD I-5. SO WE HAVE NO HAULAGE EXCEEDING ABOUT THREE MILES, WHICH IS ABOUT WHERE WE WERE WHEN WE GOT OUR VERY GOOD BIDS THE LAST TIME THROUGH IN PHASE TWO. SO, WE'RE HOPEFUL THAT WE'RE, AS I SAID EARLIER, WE'VE GOT THE RIGHT COMBINATION OF LANDS AND LOCATION HERE, TO CONTINUE GETTING SOME GOOD BIDS ON MOVING SOIL MATERIAL.

SO REAL ESTATE ACQUISTION IS UNDER WAY AND WE WILL OBVIOUSLY BE INTERACTING WITH THE PROPERTY OWNERS AND THE BOARD IN THE NEXT SEVERAL MONTHS, TO GET THE RIGHTS WE NEED TO GO FORWARD WITH THE PROJECT.

SO IN TERMS OF IMPACTS, THE STAFF REPORT SUMMARIZES THEM, BUT THEY ARE OF THE SAME TYPE THAT WE HAVE DISCUSSED WITH THE BOARD IN OUR PHASE 2 AND PHASE 3 EIR'S. THERE IS GOING TO BE A LOSS OF PRIME AND IMPORTANT FARM LAND AS WE CONVERT PORTIONS OF THESE AGRICULTURAL PARCELS TO OUR LEVEE FOOTPRINT OR TO OUR HABITAT COMPENSATION AREA, SO IT'S A FAIRLY SUBSTANTIAL LOSS OF FARMLAND DUE TO THE PROJECT.

THERE WILL OF COURSE BE NOISE, DUST AND AIR QUALITY IMPACTS, IT IS A MAJOR PROJECT, AND ACTUALLY WE WILL HAVE UNDOUBTABLY, ACCUMULATION OF CONSTRUCTION ACTIVITY ALL ALONG THE EAST LEVEE OF THE SACRAMENTO RIVER AND THE GARDEN HIGHWAY, ADJACENT TO THE GARDEN HIGHWAY, BECAUSE PHASE 2, PHASE 3 AND PHASE 4A, ARE ALL LIKELY TO BE GOING AT THE SAME TIME. WE WILL LITERALLY, IN THE SUMMER OF 2010, BE CONSTRUCTING LEVEE IMPROVEMENTS, ALONG ABOUT A 15 MILE REACH OF THE LEVEE. SO THIS WILL BE EXTENSIVE CONSTRUCTION ACTIVITY ALONG THE GARDEN HIGHWAY, OR LANDSIDE OF THE GARDEN HIGHWAY IN 2010. SO THERE WILL BE NOISE; THERE WILL BE DUST; THERE WILL BE AIR QUALITY IMPACTS; THERE WILL BE TRANSPORTATION IMPACTS; BUT OF COURSE THE TRANSPORTATION IMPACTS ARE MITIGATED TO A LARGE EXTENT, BY OUR KEEPING THE PRINCIPAL CONSTRUCTION TRAFFIC - THE HAULAGE TRAFFIC, OFF-ROAD AND IN OUR PROJECT FOOTPRINT.

THERE WILL BE AN EXTENSIVE REMOVAL OF TREES ON THE LANDSIDE OF THE LEVEE IN THIS REACH OF THE PROJECT. MANY OF THEM WILL BE RELOCATED, BUT AN EVEN GREATER NUMBER WILL BE CUT DOWN. NOW OBVIOUSLY, WE HAVE A VERY ROBUST WOODLAND CREATION PROGRAM, AS WE'VE DESCRIBED TO THE BOARD AND WE EXPECT SOMEWHERE ON THE ORDER OF 40 PLUS ACRES OF WOODLAND HABITAT TO BE RE-ESTABLISHED IN THIS FISHERMAN LAKE AREA AND OVERALL OF COURSE, WE ARE REPLACING THE LOST WOODLANDS AT ABOUT A TWO AND ONE HALF TO ONE, PER ACRE RATIO. BUT, MANY OF THESE TREES ARE MATURE AND IT WILL TAKE TIME FOR THEM TO COME BACK AND THAT IS A SIGNIFICANT AND OBVIOUS LOSS BOTH AESTHETICALLY AND SHORT TERM

IN TERMS OF HABITAT. BUT WE HAVE, AS I'VE INDICATED, A VERY ROBUST HABITAT COMPENSATION PLAN THAT IS GEARED TO ENHANCE AND BE VERY COMPATIBLE WITH THE NATOMAS BASIN CONSERVANCY HOLDINGS. SO THE NET HERE, WE THINK, WILL BE LONG TERM, VERY POSITIVE IN TERMS OF WHAT RESULTS OVER TIME, NOT ONLY IN PUBLIC SAFETY BUT IN TERMS OF THE HABITAT VALUES THAT WE ARE CREATING.

SO, MAYBE I COULD TAKE QUESTIONS AND THEN YOU COULD OPEN THE HEARING.

CHAIR SUSAN PETERS:
ANY QUESTIONS, MR TRETHEWAY

RAY TRETHEWAY:
WELL SOUNDS LIKE TIM WE'RE MOVING INTO THE MORE POPULATED AREA?

TIM WASHBURN:
YES

RAY TRETHEWAY:
AND MORE EXTENSIVE WORK

TIM WASHBURN:
YES

RAY TRETHEWAY:
IT'S A FIFTEEN MILE STRETCH RIGHT?

TIM WASHBURN:
WELL THIS IS BECAUSE WE GOT A LATE START THIS SUMMER, SO PHASE 2 IS NOW GOING TO MOVE OVER INTO 2010 AND OF COURSE PHASE 3, FROM ELVERTA DOWN TO I-5 WILL GET UNDERWAY AND NOT ONLY UNDERWAY, BUT SUBSTANTIALLY COMPLETED AND THEN THIS WORK SOUTH OF I-5 ALL THE WAY AROUND TO SOUTH OF SAN JUAN ROAD, ALL THREE AREAS WILL BE UP AND GOING AT THE SAME TIME.

RAY TRETHEWAY:
EXACTLY. SO, I THINK PERHAPS THIS IS AN OPPORTUNITY, I'M THINKING ABOUT HOW LONG THE PUBLIC REVIEW IS SET FOR

TIM WASHBURN
THE PUBLIC REVIEW WILL RUN TROUGH OCTOBER 13 - IT'S A 45 DAY PUBLIC REVIEW PERIOD THAT COMMENCED AUGUST 28TH.

RAY TRETHEWAY:
THAT'S PRETTY SHORT. HOW MANY PUBLIC HEARINGS DO WE HAVE SCHEDULED?

TIM WASHBURN:
THIS IS THE PUBLIC HEARING.

RAY TRETHEWAY:
JUST SEEMS TO ME, THAT STAFF SHOULD CONSIDER AT LEAST ONE OR TWO PUBLIC HEARINGS, I KNOW WE'RE GOING TO CATCH PEOPLE NEXT YEAR, THEIR ATTENTION, BUT WE KNOW WHAT HAPPENED WITH THE CROSS CANAL, JUST IN THE FIRST THREE OR FOUR MILES OF THE SACRAMENTO RIVER...PUBLIC RELATIONS PROBLEMS, HOME OWNERS AND PROPERTY OWNERS, VEGETATION ISSUES. I THINK IT WOULD BE A WISE THOUGHT ON BEHALF OF STAFF TO TRY TO GET THE WORD OUT THERE AS EARLY AS POSSIBLE, EVEN THOUGH IT IS GOING TO HIT US NEXT CONSTRUCTION PERIOD. BUT THE MORE WE CAN TELL PEOPLE, YOU KNOW WE HELD A PUBLIC HEARING WITH THE BOARD AND WE'RE GOING TO TELL THEM, THERE WAS FIVE PEOPLE IN THE AUDIENCE, AND THEY'RE GOING TO ASK, HOW MANY WERE THERE? I THINK WE HAVE A PRETTY GOOD OUTREACH TEAM THAT COULD HANDLE THAT.

CHAIR SUSAN PETERS:
STEIN

STEIN BUER:
RAY I'D JUST LIKE TO, FIRST OF ALL, IF IT'S THE PLEASURE OF THE BOARD THAT WE HOLD ONE OR TWO MEETINGS IN THE COMMUNITY TO EMPHASIZE THIS INFORMATION, WE'RE HAPPY TO DO THAT, BUT I ALSO WANT TO POINT OUT THAT WE HAVE A VERY, VERY ACTIVE OUTREACH CAMPAIGN, WHEREIN WE ARE USING EMAIL, AND OUR WEBSITE AND DIRECT MAIL TO EFFECTED PROPERTY OWNERS AND RESIDENTS OF THE NATOMAS BASIN, AS THIS PROGRAM GOES FORWARD. IF YOU LIKE, WE CAN SPEND A FEW MINUTES ON THAT AT THE NEXT MEETING, JUST SO THAT THE BOARD CAN GET AN UPDATE ON HOW EXTENSIVE THAT OUTREACH EFFORT IS AND WE'LL BE HAPPY TO SUPPLEMENT WITH, LET'S SAY, ONE ADDITIONAL MEETING, IN THE BASIN, DURING THIS PERIOD, IF THAT'S THE PLEASURE OF THE BOARD.

RAY TRETHEWAY:
WELL I THINK PART OF IT, WELL, TRULY IT'S A STAFF DISCUSSION, I DON'T THINK WE NEED TO DIRECT YOU ON IT, QUITE FRANKLY. BUT WHEN I THINK WHAT TIM SAID, THIS SUMMER HE WAS, IN THE END IT'S A GREAT ENHANCEMENT TO THE AREA, NOT ONLY TO FLOOD CONTROL, BUT HABITAT WISE, OPEN SPACE LAND AND PUBLIC LANDS. AT EVERY OPPORTUNITY, WE'RE REALLY PUTTING INTO PLACE HERE THE BIGGER PICTURE INSTEAD OF ISSUE BY ISSUE, IT HELPS, IT HELPS THE GENERAL PUBLIC GET BEHIND EXTRAORDINARY EFFORTS THAT SAFCA IS UNDERTAKING. SO IT'S NOT JUST PARTICULARLY THIS DOCUMENT, IT'S THE OUTCOME OF THIS DOCUMENT THAT NEEDS TO BE PART OF THE STORY.

STEIN BUER:

AND THE CHALLENGE HAS BEEN THAT ATTENDANCE HAS BEEN DROPPING OFF AT THESE MEETINGS, FOR EXAMPLE, PETE GHELFI WORKED WITH THE CORPS TO CONDUCT A COUPLE MEETINGS, FAIRLY RECENTLY ON WORK THAT WAS GOING TO BE LED BY THE CORPS, ALONG THE GARDEN HIGHWAY AND IT GOT HOW MANY ATTENDEES?

PETE GHELFI:
ONE

STEIN BUER:
ONE. SO, WE PUT A LOT OF STAFF EFFORT INTO BEING OUT THERE AND WE REACH ONE PERSON. THAT'S NOT VERY EFFECTIVE AND SO WHAT WE'RE TRYING TO DO IS USE OUR RESOURCES EFFECTIVELY AND REACH A LARGE NUMBER OF PEOPLE. AND ANY COMMUNITY GROUP THAT INVITES US TO GO OUT TO SPEAK, WE'RE ALWAYS RECEPTIVE TO DOING SO.

RAY TRETHEWAY:
WELL, I THINK, PERHAPS MY OFFICE AND I'M SURE, SUPERVISOR DICKINSON'S OFFICE WILL HAVE SOME IDEAS ON HOW, PERHAPS NOT ON HOW FOR AN OPEN MEETING, BUT PERHAPS HAVE SOME FOCUS TARGET AUDIENCES.

TIM WASHBURN:
MY SURVIVAL FORMAT OR SOMETHING WOULD GENERATE SOME INTEREST

CHAIR SUSAN PETERS:
I THINK YOU'RE HEARING YOU NEED TO HAVE A MEETING OUT THERE, I DON'T KNOW IF WE NEED TO KEEP GOING OVER THE SAME INFORMATION, BUT

RAY TRETHEWAY:
NO, ACTUALLY I WAS REVERSING IT. I THINK WE CAN WORK DIRECTLY AND TARGET THE AUDIENCES

CHAIR SUSAN PETERS:
REALLY? YOU DON'T WANT IT TO COME TO A MEETING?

CORTEZ QUINN:
I KIND OF AGREE, IF ONLY ONE PERSON SHOWED UP

RAY TRETHEWAY:
WE HAVE FIVE HERE TODAY OR THREE

STEIN BUER:
YAH, SO MAYBE THE WAY TO DO THIS, A MORE EFFICIENT WAY IS TO GO AHEAD AND PLAN TO HAVE A COMMUNITY MEETING, WORK WITH THE COMMUNITY GROUPS OUT THERE, NOT NECESSARILY TIED FORMALLY TO THIS PARTICULAR DOCUMENT, BUT TO GIVE PEOPLE A CHANCE TO GET AN

UPDATE ON THE PROGRAM AS A WHOLE AND THAT WAY THIS PROCESS MOVES FORWARD WITHOUT IMPEDIMENT, BUT WE MEET THE GOAL OF BEING RESPONSIVE TO ANYONE WHO WANTS TO COME AND SPEAK WITH US DIRECTLY AND HEAR OUR RESPONSES.

RAY TRETHEWAY:
YAH, LET'S TALK OFF LINE ON THIS, THAT WOULD BE GREAT IDEA

CHAIR SUSAN PETERS:
ANY ADDITIONAL QUESTIONS? MR. NOTTOLI

DON NOTTOLI:
THANK YOU MADAM CHAIR, I HAVE A QUESTION ABOUT THE REFERENCE, I HAVEN'T FOUND THE DOCUMENT YET, BUT WHERE WE TALK ABOUT THE LANDSIDE VEGETATION REMOVAL. WE'VE HAD THESE DICUSSIONS IN THE PAST, THE CORRIDOR WAS JUST THREE TO FOUR HUNDRED FEET, YOU'RE NOW AT 660 FEET, YOU'RE A FULL QUARTER OF - AN EIGHTH OF A MILE?
TIM WASHBURN:
660 WAS FOR ENVIRONMENTAL REVIEW PURPOSES, OKAY, THE FOOTPRINT IS 450.

RAY TRETHEWAY:
THAT WAS MY QUESTION

TIM WASHBURN:
AT ITS WIDEST.

DON NOTTOLI:
OKAY, SO THAT HASN'T CHANGED FROM THE DISCUSSION WE HAD HERE A COUPLE OF MONTHS AGO.

TIM WASHBURN:
NO.

DON NOTTOLI:
SO WHY DO YOU HAVE TO LOOK AT 660?

TIM WASHBURN:
WELL, 660, WELL, LET'S SAY THIS TO. IN THAT REACH, DOWNSTREAM OF I-5, THERE IS YET A DISCUSSION GOING ON AMONG THE ENGINEERS AS TO WHETHER THE BERM MAY ACTUALLY HAVE TO BE FIVE HUNDRED FEET WIDE, BECAUSE OF THE DEPTH OF THE UNDERSEEPAGE AND THE FACT THAT THERE'S SIMPLY, STILL, A VERY LARGE GRADIENT, WATER EXIT GRADIENT, EVEN WHEN YOU GO OUT THREE HUNDRED FEET.

DON NOTTOLI:
SO THIS DOCUMENT WOULD COVER THAT FIVE HUNDRED FOOT BERM, VERSUS FOUR HUNDRED AND FIFTY FOOT FOOTPRINT?

TIM WASHBURN:
YES. YES. SO WE MADE THE FOOTPRINT FOR ENVIRONMENTAL PURPOSES AS WIDE AS POSSIBLE, SO WE DIDN'T END UP IN A POSITION, WHERE WE SUBSEQUENTLY DECIDE, OH NOW WE NEED TO MAKE IT WIDER, OH BUT THE ENVIRONMENTAL DOCUMENT ASSUMED 450.

NOW IT WILL BE THE EXCEPTION, THAT YOU MAY HAVE A BERM AS WIDE AS 500 FEET PLUS AN O&M CORRIDOR AND A UTILITY CORRIDOR WHICH WOULD MAKE IT OUT TOWARD 660. THAT'S POSSIBLE, BUT THAT WILL BE THE EXCEPTION NOT THE RULE.

DON NOTTOLI:
AND AGAIN, LOOKING AT THIS EXCEPTION, POTENTIALLY THEN, FOR WHAT LINEAR LENGHTS WOULD YOU BE LOOKING AT POTENTIALLY, SINCE YOU KNOW THESE AREAS WHERE THEY ARE CONCERNED ABOUT SEEPAGE?

TIM WASHBURN:
JOHN HELP ME HERE, BUT I'M THINKING 3,000 FEET MAYBE. IN THAT RANGE WOULD BE THE OUTER

JOHN BASSETT:
THAT'S AN APPROXIMATE RANGE, THE BIGGEST REACH OF THE 500 FOOT BERM ACTUALLY IS ON THE AIRPORT PROPERTY, JUST WEST OF POWERLINE ROAD AND THEN THERE IS ONE REACH UPSTREAM AND ONE END REACH AT THE DOWNSTREAM END OF THE PROJECT.

DON NOTTOLI:
AGAIN I RECOGNIZE THAT YOU ARE TRYING TO HOLD BACK THE SACRAMENTO RIVER, BUT THAT'S AN EXTREMELY WIDE, ARE YOU TALKING ABOUT FROM TOE TO TOE OR ARE YOU TALKING ABOUT ACROSS THE TOP OF IT, THE BERM?

JOHN BASSETT:
THAT'S FROM THE TOE OF THE LEVEE OUT TO THE EDGE OF THE BERM.

TIM WASHBURN:
SO ITS, ESSENTIALLY WE WILL HAVE ADDED THE ADJACENT LEVEE, WHICH HAS A 40 FOOT CROWN

DON NOTTOLI:
RIGHT

TIM WASHBURN:
WE WILL NOW HAVE A 60 FOOT WIDE LEVEE, WITH A 3 TO 1 SLOPE AND A 500 FOOT SEEPAGE BERM

DON NOTTOLI:

AND YOU CAN'T PUT ANY PLANTING ON THAT BERM, IT HAS TO ALL BE FREE AND CLEAR, OR CAN YOU? I MEAN, YOU CAN PLANT GRASSES, BUT YOU CAN'T PUT TREES.

TIM WASHBURN:
THAT'S CORRECT. WE WILL BE PUTTING NATIVE GRASSES ON THE BERM, SO IT WILL HAVE A HABITAT VALUE, BUT IT BECOMES A WIDE FOOTPRINT AND GETS OUT TO THAT 660.

DON NOTTOLI:
IT CERTAINLY CHANGES THE LANDSCAPE, AGAIN, I DON'T KNOW IF THE AIRPORT PROPERTY IS THE ONE THAT HAS THE FORESTED, I DON'T THINK IT'S THE FORESTED PIECE THAT YOU WERE TALKING ABOUT EARLIER, BUT, OR IS IT? IS THIS WHERE YOU ARE GOING TO BE CLEARING, YOU HAVE SOME AREAS WHERE YOU ARE GOING TO CLEAR OUT SOME PRETTY GOOD SIZED TRACKS OF TREES.

JOHN BASSETT:
THERE IS TREE CLEARING ON THE AIRPORT. THERE IS ONLY A FAIRLY SMALL AREA IN THE SOUTH BUFFERLANDS THAT HAS TREES, MOST OF IT IS ALREADY OPEN FARM LAND THAT WOULD BE CONVERTED TO GRASSLANDS WHICH IS ALSO MEETING AIRPORT SWAINSON HAWK FORAGING AREA REQUIREMENTS.

DON NOTTOLI:
WHEN YOU SAY GRASSLANDS YOU'RE GOING TO BE, ALFALFA, YOU'RE GOING TO FARM, OR YOU JUST GOING TO PUT NATIVE GRASSES AND JUST LET IT GROW WILD.

TIM WASHBURN:
WELL, IT GETS MOWED AND IT GETS MANAGED AS A SURFACE ON THE FLOOD CONTROL BERM AND ON THE LEVEE SLOPE, BUT IT HAS A HIGHER HABITAT VALUE, WE BELIEVE THAN

DON NOTTOLI:
THAN GRAVEL

TIM WASHBURN:
YAH, WELL, OR BERMUDA OR OTHER NON-NATIVE GRASSES.

DON NOTTOLI:
OKAY, THANKS.

CHAIR SUSAN PETERS:
ANYONE ELSE WITH QUESTIONS FOR MR. WASHBURN

RAY TRETHEWAY
JUST A FOLLOW UP ON THAT

CHAIR SUSAN PETERS:
MR. TRETHEWAY

RAY TRETHEWAY:
DOES IT QUALIFY FOR ANY CREDITS WITH FISH AND GAME FOR OUR WILDLIFE?

TIM WASHBURN:
WELL, WHAT WE HAVE PROPOSED TO THEM IS A PACKAGE, WE TRIED TO AVOID, YOU KNOW, SPECIFIC RATIO'S FOR, OKAY HOW MUCH DO YOU GET FOR THIS AND HOW MUCH DO YOU GET FOR THAT. WHAT WE HAVE PROPOSED IS, WE ARE CREATING A SIGNIFICANT AMOUNT OF GRASSLAND ON THE LEVEE SLOPE, BERM AND IN THE O&M CORRIDORS, AND THEY APPRECIATE THAT. WE ARE ALSO CREATING BLOCKS OF EITHER FARMED OR MANAGED FARMED HABITAT, WHICH WE WOULD TAKE A BORROW AREA AND CONVERT IT BACK INTO CROP LAND, OR WE WOULD MANAGE IT AS GRASSLAND, PERHAPS A HAY CROP, PERHAPS ALFALFA, SO IT'S A MORE ACTIVELY MANAGED LAND SURFACE THAN THE GRASSLANDS ON THE BERM, OR THE SLOPE, OR IN THE O&M CORRIDOR. SO, THE TOTAL AMOUNT OF HABITAT THAT WE HAVE CREATED FOR FORAGING HABITAT, FOR SWAINSON'S HAWK, IS CONSIDERABLE AND THEY APPRECIATE THAT.

RAY THETHEWAY:
IT'S PRIME HABITAT TOO.

TIM WASHBURN:
YOU KNOW THEY WOULD SAY, ALFALFA IN PARTICULAR, WITH FOUR OR FIVE CUTTINGS IN A SEASON, THAT'S PRIME, OKAY, BUT GRASSLAND HABITIAT, WE HOPE AND BELIEVE, WHICH IS MORE OF ITS NATIVE HABITAT TO BEGIN WITH, ALSO PROVIDES A HIGH QUALITY OF FORAGING POTENTIAL.

RAY TRETHEWAY:
OKAY, THANK YOU.

CHAIR SUSAN PETERS:
ADDITIONAL QUESTIONS – I DON'T SEE ANY, STAY TUNED

TIM WASHBURN:
ALL RIGHT

CHAIR SUSAN PETERS:
IF ANYONE HERE WISHES TO SPEAK

TIM WASHBURN:
YOU NEED TO OPEN THE PUBLIC HEARING

CHAIR SUSAN PETERS:
I WILL AS SOON AS I FINISH THIS STATEMENT.

PLEASE FILL OUT A SPEAKERS REQUEST FORM AND GIVE IT TO OUR CLERK, SO, AND WE DO ALREADY HAVE ONE PERSON SIGNED UP, SO WE WILL **[GAVEL SOUND] OPEN THE PUBLIC HEARING.**

FRANCIS TENNANT

FRANCIS TENNANT:
(CAN'T HEAR HER, TOO FAR AWAY)

CHAIR SUSAN PETERS:
IF YOU COULD COME TO THE MICROPHONE WE COULD HEAR YOU.
THANK YOU.

FRANCES TENNANT:
I'VE BEEN AT EVERY SINGLE MEETING THAT I'VE KNOW ABOUT. I'VE NEVER GOTTEN ONE EMAIL FROM SAFCA OR ANYBODY ELSE. I WOULD HAVE BEEN AT THE MEETING IF I KNEW ABOUT IT.

THIS MAN JUST SPENT 40 MINUTES TALKING ABOUT HABITAT FOR SWAINSON'S HAWK AND PASSED OVER IN 5 WORDS, THE ACQUISTION OF PRIVATE PROPERTY AND HOMES. SAFCA SEEMS ABLE TO PAY MILLIONS OF DOLLARS TO PROTECT THE HABITAT OF SWAINSON HAWK AND OF THE GIANT GARTER SNAKE, BUT THEY ARE CHEATING THE PEOPLE WHO LIVE OUT THERE. THAT'S WHY YOU HAVE ALL OF THESE EMINENT DOMAIN THAT ARE BEING PURSUED RIGHT NOW. PH-1

THEY OFFERED ME, FOR MY HOME OF 57 YEARS, AN AMOUNT THAT WAS NOT EVEN ENOUGH, HALF ENOUGH TO BUY A LOT ON GARDEN HIGHWAY AND THEY'VE DONE THIS TO A LOT OF MY FRIENDS TOO. THESE ACTIONS THAT THEY SAY THEY ARE GOING TO DO ARE APPROVED BY THE BOARD OF SUPERVISORS WITHOUT COMMENT, THEY'RE RUBBER STAMPED, NOBODY PAYS ANY ATTENTION TO THE PEOPLE THAT LIVE OUT THERE. I THINK WE DESERVE AS MUCH CONSIDERATION AS A GARTER SNAKE!

AND I GO TO EVERY SINGLE MEETING THAT I KNOW ABOUT AND YOU KNOW IT AND MY EMAIL IS ON EVERY SINGLE HANDOUT THAT I GIVEOUT WHEN I COME TO ONE.

CHAIR SUSAN PETERS:
THANK YOU MRS. TENNANT, WE HAVE YOUR LETTER, AND IT WILL BE PUT IN THE FILE DOCUMENTATION RESPONDED TO IN THAT EIR, IN THAT FINAL EIR.

OUR NEXT SPEAKER IS JAVED SIDDIQUI

JAVED SIDDIQUI:
GOOD AFTERNOON. I AM JAVED SIDDIQUI, MY ADDRESS IS AT 1808 J STREET IN SACRAMENTO. OUR FAMILY OWNS PROPERTY WITHIN THE NATOMAS BASIN, SOUTH OF I-5 AND IT IS AFFECTED BY THIS PROJECT.

I WANT TO MENTION THAT WE ARE SUPPORTIVE OF THE FLOOD CONTROL PROJECT AND WE'RE LOOKING FORWARD TO WORKING WITH SAFCA STAFF TO ACHIEVE THE 200 YEAR FLOOD PROTECTION THAT YOU ARE SEEKING.

WE HAVE REQUESTED INFORMATION THAT I BELIEVE IS BEING DEVELOPED, BUT THAT DETAILED DESIGN INFORMATION IS NOT AVAILABLE NOW AND I'VE NOT BEEN ABLE TO VIEW IT. WE HOPE THAT THE FINAL DESIGN WILL BE REFINED TO REDUCE THE ADVERSE IMPACTS TO OUR PROPERTY AND TO OUR NEIGHBORS PROPERTIES AND THE FOOTPRINT OF THE LEVEE WOULD BE REDUCED ACCORDINGLY, IF POSSIBLE, TO COME UP WITH A SMART DESIGN. PH-2

I HEARD TODAY, THAT THE ONLY ALTERNATE THAT IS BEING CONSIDERED IS THE LEVEE AND THE BERM. THERE ARE OTHER ALTERNATES, AND WE WANT THOSE TO BE CONSIDERED AND INDEPENDENTLY ANALYZED. PH-3

SO, WE'RE LOOKING FORWARD TO WORKING WITH SAFCA AND WE'LL CONTINUE TO SUPPORT THE EFFORTS, BUT WE JUST WANT TO, THE BOARD TO REALIZE, THAT THE LAND OVER THERE MAY BE AGRICULTURAL NOW, DOES HAVE A GOOD FUTURE AND WHAT YOU DO WITH IT AND HOW YOU DO IT, WOULD AFFECT IT FOR A LONG TIME. JUST LIKE K STREET MALL. PH-4

CHAIR SUSAN PETERS:
WERE YOU PLANNING TO SUBMIT YOUR COMMENTS IN WRITING MR SIDDIQUI?

JAVED SIDDIQUI:
UH.. I CAN SEND THEM.

CHAIR SUSAN PETERS:
I THINK IT WOULD BE A GOOD IDEA, IF YOU HAVE SOME ALTERNATES THAT YOU WANT STUDIED.

JAVED SIDDIQUI:
THANK YOU VERY MUCH.

ARE THERE ANY OTHER SPEAKERS ON THIS ISSUE?
OKAY
[GAVEL]
CLOSE THE PUBLIC HEARING THEN.

ARE THERE ANY ADDITIONAL QUESTIONS FROM THIS BOARD?
MR. NOTTOLI

DON NOTTOLI:
THANK YOU MADAM CHAIR.
TIM, ARE THERE ANY HOMES THAT ARE OCCUPIED, AGAIN I STEPPED IN A BIT LATE, SO MAYBE YOU WENT OVER THAT BEFORE I GOT HERE, BUT ARE THERE OCCUPIED HOMES TO BE AFFECTED HERE?

TIM WASHBURN:
THERE ARE THREE OCCUPIED HOMES IN THIS PROJECT REACH THAT ARE IN CONFLICT WITH THE PROJECT FOOTPRINT.

DON NOTTOLI:
OKAY, SO WHAT IS PROPOSED, TO REMOVE THE HOUSES OR ARE WE WORKING AROUND THEM AS WE TRIED TO DO IN OTHER AREAS?

TIM WASHBURN:
THERE ARE THREE THAT WE CAN WORK AROUND.

DON NOTTOLI:
SO THE THREE THAT YOU MENTIONED ARE THE THREE THAT YOU CAN WORK AROUND?

TIM WASHBURN:
NO. THERE ARE SIX ALTOGETHER, THREE THAT WE CAN WE CAN WORK AROUND, THREE THAT DO NOT APPEAR TO HAVE A WORK AROUND POTENTIAL, ALTHOUGH WE ARE STILL...

DON NOTTOLI:
AND IS MS. TENNANT'S ONE OF THOSE?

TIM WASHBURN:
MR SIDDIQUI, NO, NO.

DON NOTTOLI:
NO, HOW ABOUT THE LADY THAT SPOKE PREVIOUSLY

TIM WASHBURN:
MS. TENNANT IS NOT ACTUALLY IN THIS PHASE OF THE PROJECT.

DON NOTTOLI:
THAT'S WHAT I THOUGHT, SHE IS IN ANOTHER REACH, I JUST WANT TO BE CLEAR ABOUT THAT. AND WE HAD DIRECT CONTACT WITH THE HOMEOWNERS EITHER, WHO'S HOMES ARE WORK AROUND AND/OR POTENTIALLY THE ONES THAT WOULD BE IN THE PATH AND WOULD ACTUALLY BE SLATED FOR REMOVAL, TO BE FRANK ABOUT IT, UM, WE'VE HAD CONVERSATIONS ABOUT IT, THEY'VE ALL RECEIVED PUBLIC NOTICE AND WE'VE HAD OUTREACH CONVERSATIONS WITH THOSE FOLKS?

TIM WASHBURN:
I'M GOING TO TURN TO JOHN ON THAT.

40:01

JOHN BASSETT:
THE THREE THAT ARE SAVEABLE, TIM HAS HAD EXTENSIVE DISCUSSIONS, THE CHARMINE/ROBINSON PROPERTIES. THE SOUZA PROPERTY WHICH IS JUST UPSTREAM OF THAT HAS TWO RENTAL PROPERTIES ON IT, MR. SOUZA DOES NOT LIVE THERE. HEINRICK, WHICH IS JUST NORTH OF THAT, WE HAVE MADE AN OFFER TO MS. HEINRICK ALREADY, HEWITT IS THE NEXT ONE UPSTREAM FROM THAT, WE HAVE MADE AN OFFER TO MS. HEWITT AND THEN THE REST OF THE RESIDENTIAL STRUCTURES ARE OWNED BY, OR A NUMBER OF THEM ARE ALSO RENTAL, ARE OWNED BY MR. SIDDIQUI AND THEN WE GO TO THE KRUGAL PROPERTY AND WE MADE CONTACT WITH MS. KRUGAL.

DON NOTTOLI:
OKAY, SO YOU HAVE. I'M GLAD YOU MADE THAT CONTACT, DOESN'T MEAN PEOPLE ARE NECESSARILY PLEASED OR NOT, BUT I WANTED TO BE CLEAR ABOUT THAT. THANK YOU.

CHAIR SUSAN PETERS:
OKAY. ANYONE ELSE? OKAY, THERE IS NO ACTION RECOMMENDED ON THIS SO WE WILL RECEIVE AND FILE THIS REPORT AND I THINK I DID SAY WE ENDED THE PUBLIC HEARING.

OKAY, NEXT ON OUR AGENDA IS A CLOSED SESSION. IS THAT WHAT YOU WANT TO DO NEXT?

41.16

Transcript prepared by Lyndee Russell, Clerk of the Board

Frances Tennant

PH-1 See Response to Comment I1-1.

Javed Siddiqui

PH-2 USACE and SAFCA are coordinating with the commenter and other affected property owners to share requested project design information as appropriate, available, and feasible. Most recently, in response to letters submitted to SAFCA by the commenter on June 16 and July 22, 2009, SAFCA issued a letter response to the commenter dated October 16, 2009 that included a table documenting the dates SAFCA provided or will provide each of the commenter's requested items (noted in the June and July letters). These items are included in **Appendix E** of this FEIR. SAFCA has participated in numerous telephone conversations and meetings with the commenter to discuss the NLIP and its potential effects to the commenter's property.

PH-3 Under NEPA and CEQA, the Federal and state lead agencies must consider a reasonable range of alternatives that would achieve most of the project objectives and reduce some of the environmental impacts of the project. The alternatives must also include a no-project alternative. Lead agencies are not required to consider every conceivable alternative, but are instead required to present a range of reasonable alternatives to foster informed decision-making (see CCR, Title 14, Section 15126.6 and 40 CFR 1502.14).

Section 2.1.5, "Alternatives Considered, but Eliminated from Further Consideration," of the Phase 4a DEIS/DEIS describes nine alternatives that were considered but eliminated from further consideration in previously certified and approved NLIP environmental documents (USACE and SAFCA 2009:2-10 through 2-13). This discussion illustrates the range of possible alternatives considered by USACE and SAFCA in relation to the NLIP as a whole. The Phase 4a DEIS/DEIR carries forward three alternatives to the Phase 4a Project for detailed analysis: the No-Action Alternative, the Proposed Action, and the RSLIP Alternative. The differences among these alternatives are described in the Phase 4a DEIS/DEIR (see Table ES-1of the Phase 4a DEIS/DEIR for a comparison of the major components of the alternatives), as are the differences in associated environmental effects (see Table 2.5 of the Phase 4a DEIS/DEIR for a comparison of the impacts of the alternatives). Because the Phase 4a Project alternatives vary in the nature and severity of their potential environmental effects, USACE and SAFCA have presented a reasonable range of alternatives from which to select the proposed action.

PH-4 Comment noted.

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4.0 REVISIONS TO THE DEIS/DEIR

Changes to the text of the Phase 4a DEIS/DEIR are shown in this chapter, in page order, with a line through the text that has been deleted (~~strikeout~~) or underlining where new text has been added.

4.1 REVISIONS TO EXECUTIVE SUMMARY

PAGE ES-4

To provide clarification and in response to Comment O1-9, the first full paragraph on page ES-4, under Section ES.5, "Project Background and Phasing," of the Phase 4a DEIS/DEIR is revised as follows:

> Although SAFCA anticipates that all segments of the Natomas perimeter levee system will eventually be improved to meet all of the above design criteria, SAFCA is partnering with the California Department of Water Resources (DWR) using SAFCA's local assessments and grant funding available through DWR's FloodSAFE California Program to initiate improvements to segments of the Natomas perimeter levee system in advance of full Federal authorization for the constructed improvements. SAFCA proposes to complete this "early implementation project"—which includes the Phase 2, 3, and 4a Projects—by the end of ~~2010~~2011. Phase 2 Project construction is underway and would be complete by 2010; and it is anticipated that construction of the Phase 3 and 4a Projects will be completed by the end of 2011. It is anticipated that the remaining segments of the perimeter levee system (i.e., the Phase 4b Project) would be improved by USACE. This will require Congressional authorization to expand the scope of the already authorized Common Features Project based on a General Re-evaluation Report (GRR) to be completed by USACE for presentation to Congress in 2010. SAFCA is coordinating with USACE to ensure that the planning and design of the early implementation project are consistent with applicable USACE planning, engineering, and design guidelines. While the GRR will be a separate report with its own environmental documentation, USACE and SAFCA recognize that Federal actions taken in connection with the early implementation project will need to be appropriately reflected in the GRR.

PAGE ES-25

To correct an inaccuracy and in response to Comment O1-11, Table ES-2 on page ES-25 of the Phase 4a DEIS/DEIR is revised as follows:

Table ES-2
Summary of Impacts and Mitigation Measures

Resource Topic/Impact	Alternative	Duration of Impact	Quantification of Impact (Where Applicable)	Level of Significance before Mitigation	Mitigation Measure	Level of Significance after Mitigation
Biological Resources						
Impact 4.7-a: Loss of Woodland Habitats	No-Action Alternative: No Construction	Permanent	Loss of 21 acres to conform with USACE guidance regarding levee vegetation encroachments	Potentially Significant	No feasible mitigation is available	Significant and Unavoidable

Table ES-2 Summary of Impacts and Mitigation Measures						
Resource Topic/Impact	Alternative	Duration of Impact	Quantification of Impact (Where Applicable)	Level of Significance before Mitigation	Mitigation Measure	Level of Significance after Mitigation
	No-Action Alternative: Potential Levee Failure	Not Applicabl e	Unquantifiable	Too Speculative	No mitigation is required	Too Speculative
	Proposed Action	Short term (10–15 years) and Permanent	Loss of approximately 18 acres of landside woodlands and approximately 4 acres of waterside woodlands	Significant	Mitigation Measure 4.7-a: Minimize Effects on Woodland Habitat; Implement all Woodland Habitat Improvements and Management Agreements; Compensate for Loss of Habitat; and Comply with Section 7 of the Federal Endangered Species Act, Section 1602 of the California Fish and Game Code, and Section 2081 of the California Endangered Species Act Permit Conditions	Short term (10–15 years) impact: Significant and Unavoidable Permanent impact: Less than Significant
	RSLIP Alternative	Permanent	Loss of approximately 18 acres of landside woodlands and 21 acres of waterside woodland	Significant	Implement Mitigation Measure 4.7-a	Significant and Unavoidable

4.2 REVISIONS TO CHAPTER 1.0, "INTRODUCTION AND STATEMENT OF PURPOSE AND NEED"

PAGE 1-10 THROUGH 1-12

To provide clarification and in response to Comment O1-9, the last paragraph on page 1-10 and continuing on page 1.12, under Section 1.3, "Project History and Planning Context," of the Phase 4a DEIS/DEIR is revised as follows:

> SAFCA is partnering with DWR using SAFCA's local assessments and grant funding available through DWR's FloodSAFE California Program to initiate improvements to segments of the Natomas perimeter levee system in advance of full Federal authorization for the constructed improvements. SAFCA proposes to complete this "early implementation project"—which includes the Phase 2, 3, and 4a Projects—by the end of ~~2010~~2011. Phase 2 Project construction is underway and would be complete by 2010; and it is anticipated that construction of the Phase 3 and 4a Projects will be completed by the end of 2011. It is anticipated that the remaining segments of the perimeter levee system (i.e., the Phase 4b Project) would be improved by USACE. This will require Congressional authorization to expand the scope of the already authorized Natomas components of the Common Features Project based on a General Re-evaluation Report (GRR) to be completed by USACE for presentation to Congress in 2010. SAFCA is coordinating

with USACE to ensure that the planning and design of the early implementation project are consistent with applicable USACE planning, engineering, and design guidelines. While the GRR will be a separate report with its own environmental documentation, USACE and SAFCA recognize that Federal actions taken in connection with the early implementation project will need to be appropriately reflected in the GRR.

PAGE 1-23

In response to Comment L1-7, the first and second full paragraphs on page 1-23, under Section 1.4.2.2, "Other Problems and Needs Related to Project Implementation," of the Phase 4a DEIS/DEIR are revised as follows:

> The Airport has one of the highest numbers of reported bird strikes of all California airports. The frequency of these strikes is directly related to the Airport's location in the western portion of the Natomas Basin, which is a relatively flat, low-lying area, along the Pacific Flyway, dominated by agricultural crop lands and supporting irrigation and drainage infrastructure. These agricultural uses are the primary wildlife attractants in the area, with rice cultivation, including flooding of the rice fields in winter and summer, considered the most significant attractant. The greatest potential threat to aviation safety arises from the synergistic effect of two or more hazardous wildlife attractants that encourage wildlife movement directly through the Airport and/or surround airspace. In the Natomas Basin, the most problematic situation is the co-location of agriculture near the Airport in combination with other land uses such as habitat preserves, stormwater management facilities, and golf courses.
>
> Since 1996, the Federal Aviation Administration (FAA) has required the Airport to maintain and implement a WHMP. The WHMP relies on a combination of wildlife control and land management strategies and outlines steps for monitoring, documenting, and reporting potential wildlife hazards and bird strikes. ~~In accordance with~~ The FAA Advisory Circular (AC) 150/5200-33B, *Hazardous Wildlife Attractants on or Near Airports* (FAA 2007)~~,~~ provides separation criteria for hazardous wildlife attractants, as follows:
>
> - Perimeter A – a separation distance of 5,000 feet from the airport operations area boundary for airports that support piston-powered (propeller) aircraft.
> - Perimeter B – notwithstanding more stringent requirements for specific land uses, a separation distance of 10,000 feet between an airport's airport operations area and hazardous wildlife attractants for airports serving turbine-powered (jet) aircraft.
> - Perimeter C – a separation distance of 5 statute miles between the farthest edge of the airport's airport operation area and hazardous wildlife attractants if such attractants would cause hazardous wildlife movement into or across aircraft approach, departure and circling airspace.
>
> ~~t~~The Airport has been directed by the FAA to reduce wildlife attractants in ~~the Airport Critical Zone~~ Perimeter B, the area within a 10,000-foot separation distance from the air operations area ~~radius from the centerline of the two parallel runways~~ for turbine-powered aircraft. For purposes of this document, the term "Airport Critical Zone" is used to describe "Perimeter B."

4.3 REVISIONS TO CHAPTER 2.0, "ALTERNATIVES"

PAGE 2-25

As noted in Section 2.3.2, "Modifications to Construction Activities at Pumping Plant Nos. 3 and 5," of this FEIR, construction of modifications to Pumping Plant Nos. 3 and 5 would occur 24 hours per day, seven days per week (24/7). Because of this project modification, the seventh bullet on page 2-25 under Section 2.3, "Proposed Action," of the Phase 4a DEIS/DEIR is revised as follows:

- **Modifications to RD 1000 Pumping Plants Nos. 3 and 5**—Raise the pumping plants' discharge pipes above the 200-year design water surface, extend the pipes to tie into existing discharge pipes within the waterside bench, replace or modify pumps and motors, and perform other seepage remediation, including relocating the landside stations away from the levee to accommodate the raised discharge pipes. Most of these modifications would take place above the Sacramento River's normal summer and fall water surface elevations; however, reconstruction of the Pumping Plant No. 3 outfall and the removal of a deep culvert at Pumping Plant No. 3 would require dewatering. Construction on both pumping plants would occur 24/7.

PAGE 2-38

As noted in Section 2.4, "Other Project Modifications," of this FEIR, as the design of the drainage system has been refined, the locations have changed, with no outlets required south of Sacramento River east levee Reach 12A. Because of this project modification, the first bullet on page 2-38 under Section 2.3.1.1, "Sacramento River East Levee," of the Phase 4a DEIS/DEIR is revised as follows:

- **Waterside Drainage Outfalls.** Raising the approximately 16,800 feet of levee in Reaches 10–12 would require stormwater to be collected and drained from the area between Garden Highway and the raised adjacent levee. A grassed drainage swale would convey runoff water to drop inlets, and new pipe laterals would convey the water beneath Garden Highway to new outfalls on the waterside of the levee. Seven to ten drainage outlets would be required; most of the outlets would be placed above the Sacramento River's 2-year water surface elevation. No waterside outlets would be required ~~in~~ south of Reach ~~15~~12A because the new adjacent levee would not be raised above the existing levee, and runoff from Garden Highway would continue to drain to both the landside and waterside of the levee.

PAGE 2-39

To correct an inaccuracy, Table 2-2 of the Phase 4a DEIS/DEIR is revised as follows:

Table 2-2
Quantities of Fill Required for the Proposed Action

Material Type	Quantity	Primary Source (Average Round-Trip Haul Distance)
Levee fill	~~2,271,000~~2,217,000 cy	Fisherman's Lake (4 miles)
Seepage berm fill	1,792,000 cy	Fisherman's Lake (4 miles)
Stability berm/Inspection trench	185,000 cy	On-site
Aggregate base	34,000 tons	Commercial source (30 miles)
Asphalt concrete	4,500 tons	Commercial source (30 miles)
Total	**4,194,000 cy/38,500 tons**	

Note: cy = cubic yards
Source: Data provided by HDR in 2009 and compiled by EDAW in 2009

PAGE 2-47

As noted in Section 2.4, "Other Project Modifications," of this FEIR, waterside drainage outlets would not be required along the Sacramento River east levee south of Reach 12A. Because of this project modification, the third bullet on page 2-47 of the Phase 4a DEIS/DEIR is revised as follows:

- **Installation of Surface Drainage Outlets across Garden Highway:** Upstream of Reach 13~~15~~ of the Sacramento River east levee, the area between the new adjacent levee and the Garden Highway pavement would include new storm drainage collection facilities to convey surface water beneath Garden Highway and toward the Sacramento River. These drainage facilities would be necessary only in areas where the adjacent levee is higher than Garden Highway or during the transition back to the non-raised adjacent levee. A surface collection system (grassed drainage swale) would convey runoff water to drop inlets, and new pipe laterals would convey the water beneath Garden Highway to new waterside outfalls spaced approximately 1,500 feet apart in the berm along the east bank of the Sacramento River. In most locations, the outfalls would be placed above the Sacramento River's 2-year water surface elevation. The locations of the cross culverts would be selected to minimize impacts on existing residential properties. These discharge pipes would require minor landscape improvements to prevent erosion and ensure that applicable water quality standards are met. Excavation of a trench to install the culvert piping across Garden Highway would be required, and those segments where excavation occurs would have to be reconstructed. Single-lane traffic controls and through-traffic detours would be required during this phase of construction. No waterside outlets would be required ~~in Reach 15 either~~ from Reach 13 south because the new adjacent levee would not be raised above the existing levee or because the transition from the raised levee to the existing levee height would end at a point where runoff from Garden Highway in this reach could continue to drain to both the landside and waterside of the levee as it does now.

PAGE 2-48

As noted in Section 2.4, "Other Project Modifications," of this FEIR, the length of the cutoff wall in the Sacramento River east levee Reach 4B has been reduced. Because of this project modification, the first paragraph under the section "Reach 4B Cutoff Wall Installation," of the Phase 4a DEIS/DEIR is revised as follows:

> Additional geotechnical analysis conducted since certification of the Phase 2 SEIR has determined that a cutoff wall is required in Reach 4B of the Sacramento River east levee. The 3-foot-wide soil-bentonite cutoff wall would be installed in the adjacent levee from approximately Station 190+00 to station 201~~14~~+~~0~~50. The approximate location of the proposed cutoff wall is shown on **Plate 2-6c**. Installation of the cutoff wall is expected to occur during the 2010 construction season, when reconstruction of RD 1000 Pumping Plant No. 2 is also planned. Construction of the Reach 4B adjacent levee, in which the cutoff wall would later be installed, is expected to occur in the 2009 and 2010 construction seasons. Construction of the adjacent levee and reconstruction of Pumping Plant No. 2 were addressed in the Phase 2 EIR. Installation of the cutoff wall in Reach 4B, however, cannot occur until the Phase 4a ROD has been issued by USACE and the Phase 4a EIR has been certified by the SAFCA Board of Directors.

PAGES 2-58 AND 2-59

As noted in Section 2.3.2, "Modifications to Construction Activities at Pumping Plant Nos. 3 and 5," of this FEIR, construction at Pumping Plant Nos. 3 and 5 would occur for up to 120 days and would occur 24/7. Because of this project modification, the first paragraph under Section 2.3.2.3, "Modifications or Relocations of Pumping Plant Nos. 3 and 5," of the Phase 4a DEIS/DEIR is revised as follows:

> Because the Natomas Basin is surrounded by levees, all excess drainage within the Basin must be pumped out. Drainage within most of the Basin is pumped to the Sacramento River and the NEMDC via RD

1000's drainage system and pumping plants. The existing discharge pipes at RD 1000's Pumping Plant Nos. 3 and 5 cross through the Sacramento River east levee above the 1957 design water surface elevation (see **Plates 2-6a** and **2-6b**). Under the new levee performance criteria, the discharge pipes are required to cross the levee above the new 200-year design water surface. Therefore, both pumping plants would require new discharge pipes and additional modifications to accommodate the new criteria and levee improvements. Raising these discharge pipes, which currently cross the levee under Garden Highway, would require closure of Garden Highway to through traffic for up to ~~6~~120 days, with a traffic detour for Pumping Plant No. 5 between North Bayou Road and Powerline Road and a detour for Pumping Plant No. 3 between Powerline Road and San Juan Road. As design evaluations continue and the design is refined, additional modifications could be required to maintain the plant's current operations, such as adding relief wells and lining the intake channel with either filter gravel or rock-covered geotextile fabric. In addition, relocating the pump stations may be necessary to accommodate the adjacent levee footprint. Temporary pipes will be installed under Garden Highway at Pumping Plant Nos. 3 and 5 (see **Plates 2-6a** and **2-6b**) concurrent with cutoff wall construction. In the following construction year, permanent pipes will be installed after the levee has settled. Garden Highway would be closed to through traffic for up to ~~6~~120 days for replacement of the temporary pipes. Traffic detours would be located between Bayou Road and Powerline Road for Pumping Plant No. 5, and between Powerline Road and San Juan Road for Pumping Plant No. 3. Construction on both pumping plants would occur 24/7.

PAGE 2-65

To provide clarification and in response to Comment O1-5, the first paragraph in Section 2.3.3.1, "Fisherman's Lake Borrow Area," of the Phase 4a DEIS/DEIR is revised as follows:

The Fisherman's Lake Borrow Area consists of multiple parcels (**Plate 2-9b**) beginning at Powerline Road and extending south to and beyond Radio Road. These parcels, including the Novak borrow site, total approximately 563 acres. Existing land uses within the Fisherman's Lake Borrow Area include orchard, field crops, and rice cultivation. Some lands in the surrounding area include managed marsh and agricultural upland (field crop) areas owned by TNBC~~. T~~; these existing conservation areas would not be used for borrow operations. As part of the Phase 4a Project, parcels within the Fisherman's Lake Borrow Area would be used for several project purposes: levee improvements, relocation and extension of the Riverside Canal, woodland mitigation, other habitat creation, and borrow. The areas excavated for borrow material would be reclaimed as agricultural land, grassland, or managed marsh depending on their location and existing land use.

PAGE 2-66

In response to Comment S2-1 and the subsequently revised "Borrow Site Environmental Conditions" report prepared by Kleinfelder (See **Appendix A** of this FEIR for the revised report), the second paragraph in Section 2.3.3.4, "Borrow Site Construction," of the Phase 4a DEIS/DEIR is revised as follows:

Excavated soils not used for borrow material, such as the organic surface layer or soils considered unsuitable for levee construction, would be stockpiled and respread on-site after excavation. Any unsuitable borrow material would be stockpiled on-site and graded back into the restored site, which would result in a finish grade elevation somewhat higher than the final design grades. As described in Mitigation Measure 4.15-b(2), soil reuse may include: containing portions of the affected topsoil within the core of seepage berms, with an overlay of clean soil to prevent surface runoff caused by rainfall erosion on the topsoil materials; rip, mix, and/or amend affected topsoil that is re-spread onto borrow sites, levee, and/or berm surfaces, to provide a plant growth medium and reduce the concentration of pesticide residues in the soil; establish native perennial grasses and other perennial vegetation cover (e.g., hay, alfalfa) on these planted surfaces to reduce sediment runoff that may be caused by rainfall erosion or surface irrigation; and improve the drainage of agricultural lands used as borrow/mitigation sites to reduce ponded water and minimize the discharge of sediments into nearby drainages.

The borrow-site excavation operations would use water for dust control and to maintain proper moisture content in the borrow material. Revegetation activities would include erosion control on excavated slopes (i.e., hydroseeding), application of fertilizer, and seeding. It is anticipated that no unsuitable material would be hauled off-site. Debris encountered during excavation would be hauled off-site.

PAGE 2-70

To correct an inaccuracy, the second sentence in Section 2.3.4.2, "Fisherman's Lake Habitat Complex," of the Phase 4a DEIS/DEIR is revised as follows:

This complex (**Plate 2-12**) would be developed beginning ~~in~~ as part of the Phase 4a Project (see Section 2.3.4.3, "Construction of Phase 4a Habitat Elements," below), with other improvements to continue ~~in~~ as part of the Phase 4b ~~and Phase 4c~~ Projects.

PAGE 2-70

As noted in Section 2.2, "Design Refinements in Fisherman's Lake Habitat Area," of this FEIR, proposed woodland corridors in Sacramento River east levee Reaches 12–14 would support about 30 acres of woodland compensation. Because of this project modification, the first bullet under Section 2.3.4.2, "Fisherman's Lake Habitat Complex," of the Phase 4a DEIS/DEIR is revised as follows:

- more than doubling TNBC's preserve holdings west of Fisherman's Lake by creating up to 120 acres of managed marsh, preserving approximately 140 acres of managed agricultural uplands, and establishing ~~up to 40~~about 30 acres of oak woodland groves;

PAGE 2-74

As noted in Section 2.2, "Design Refinements in Fisherman's Lake Habitat Area," of this FEIR, proposed woodland corridors in Sacramento River east levee Reaches 12–14 would support about 30 acres of woodland compensation. Because of this project modification, the third footnote in Table 2-11 in the Phase 4a DEIS/DEIR is revised as follows:

Table 2-11
Proposed Habitat Creation/Preservation in the Phase 4a Project Area

Habitat Type	Created (acres)
Managed marsh/canals (giant garter snake habitat)	Up to 120
Agricultural uplands[1]	136
Managed grassland[2]	400
Woodlands[3]	58

[1] Includes Novak borrow site, which was previously analyzed as part of the Phase 3 Project.

[2] Located on levee slopes, seepage berms, and rights-of-way.

[3] Approximately ~~38~~30 acres of woodlands would be established in Reaches 12A–14 of the Sacramento River east levee (**Plate 2-12**) and approximately 20 acres of woodlands would be established in Reach 4A of the Sacramento River east levee (**Plate 2-14**).

Source: Data provided by SAFCA in 2009 and compiled by EDAW in 2009

PAGE 2-84

In response to Comment L1-7, the first paragraph of Section 2.3.5, "Aviation Safety Components," of the Phase 4a DEIS/DEIR is revised as follows:

> The Airport experiences a high rate of aircraft/bird strikes, which pose a substantial hazard to flight safety. In accordance with the Federal Aviation Administration (FAA) Advisory Circular (AC) 150/5200-33B, Hazardous Wildlife Attractants on or Near Airports (FAA 2007), the Airport has been directed by the FAA to reduce wildlife attractants in the Airport Critical Zone (i.e., Perimeter B), the area within a 10,000-foot ~~radius from the centerline of the two parallel runways~~ separation distance from the air operations area for turbine-powered aircraft. Additionally, the FAA recommends that no land uses deemed incompatible with safe airport operations be maintained in the General Zone, a radius of 5 miles from the edge of the Airport Operations Area, if the attractant could cause hazardous wildlife movement into or across the approach or departure airspace. Open water and agricultural crops are recognized as being the greatest wildlife attractants in the Airport vicinity, and rice cultivation is considered the most incompatible agricultural crop because of its flooding regime. The following describes the aviation safety components associated with the project:

4.4 REVISIONS TO CHAPTER 3.0, "AFFECTED ENVIRONMENT"

PAGE 3-1

In response to Comment L1-16, the first paragraph of Section 3.1.1, "Natomas Basin," of the Phase 4a DEIS/DEIR is revised as follows:

> The Natomas Basin (**Plate 1-1**) is located at the confluence of the American and Sacramento Rivers. Encompassing approximately 53,000 acres, the Basin extends northward from the American River and includes portions of the city of Sacramento, Sacramento County, and Sutter County. In addition to the American and Sacramento Rivers, the Natomas Basin is bordered on the north by the Natomas Cross Canal (NCC) and on the east by the Pleasant Grove Creek Canal (PGCC) and the Natomas East Main Drainage Canal (NEMDC) (also known as Steelhead Creek). The NCC diverts the runoff from a large watershed in western Placer and southern Sutter Counties around the Natomas Basin and is a contributor to the flows in the upper reach of the Sacramento River channel in SAFCA's jurisdiction. The NEMDC is an engineered channel along the southeastern flank of the Natomas Basin. Tributaries to the NEMDC include Dry Creek, Arcade Creek, Rio Linda Creek, Robla Creek, and Magpie Creek Diversion Channel. The Natomas Basin is protected from high flows in these water bodies and in the American and Sacramento Rivers by an interconnected perimeter levee system. This levee system was originally created to promote agricultural development. Today, however, the Natomas Basin contains three major public transportation facilities (Interstate 5 [I-5], Interstate 80 [I-80], and State Route [SR] 99/70) and is the site of the Sacramento International Airport (Airport). Airport lands account for a little over 10% of the total acreage in the Basin. Half of the Airport lands lie outside of the Airport Operations Area and consist of "bufferlands" ~~devoted to agricultural or open space use~~ managed as grassland open space (see **Plate 1-7**). About 30% of the Basin consists of developed urban uses mostly located south of Elkhorn Boulevard in the city of Sacramento. The remaining 60% of the Basin is in some form of developed agricultural or open space use in unincorporated areas of Sacramento and Sutter Counties, including 4,000 acres under the management of The Natomas Basin Conservancy (TNBC) (see **Plate 1-8**).

PAGE 3-3

In response to Comment L1-17, Table 3.1-1 on page 3-3 of the Phase 4a DEIS/DEIR is revised as follows:

Table 3.1-1
Description of the Sacramento River East Levee Area by Reach and by NLIP Phase

Reach	Landside	Waterside
	Phase 3 Project	
5A and 5B	Field crops and ~~fallow~~ idle Airport north bufferlands border the levee throughout the reach on Airport land. A cluster of woodlands is located at the start of the reach. A rural residence with outbuildings and surrounding woodland is located approximately 1,600 feet south of the start of the reach. West Elverta Road intersects Garden Highway approximately 1,500 feet north of the end of the reach. The Elkhorn Canal closely parallels the levee throughout the reach.	Woodland covers the entire reach west of Garden Highway.

PAGE 3-35

In response to Comment L1-19, Plate 3-3 in the Phase 4a DEIS/DEIR is revised. The land use designations on Airport land have been reclassified from "Fallow Crop" and "Agricultural Field" habitat types to "Airport" and "Aircraft Approach/Departure Land Use Compatibility Area," where appropriate.

PAGE 3-55

In response to Comment T1-2, Section 3.8.2.1, "Prehistoric and Ethnographic Setting," of the Phase 4a DEIS/DEIR is revised as follows:

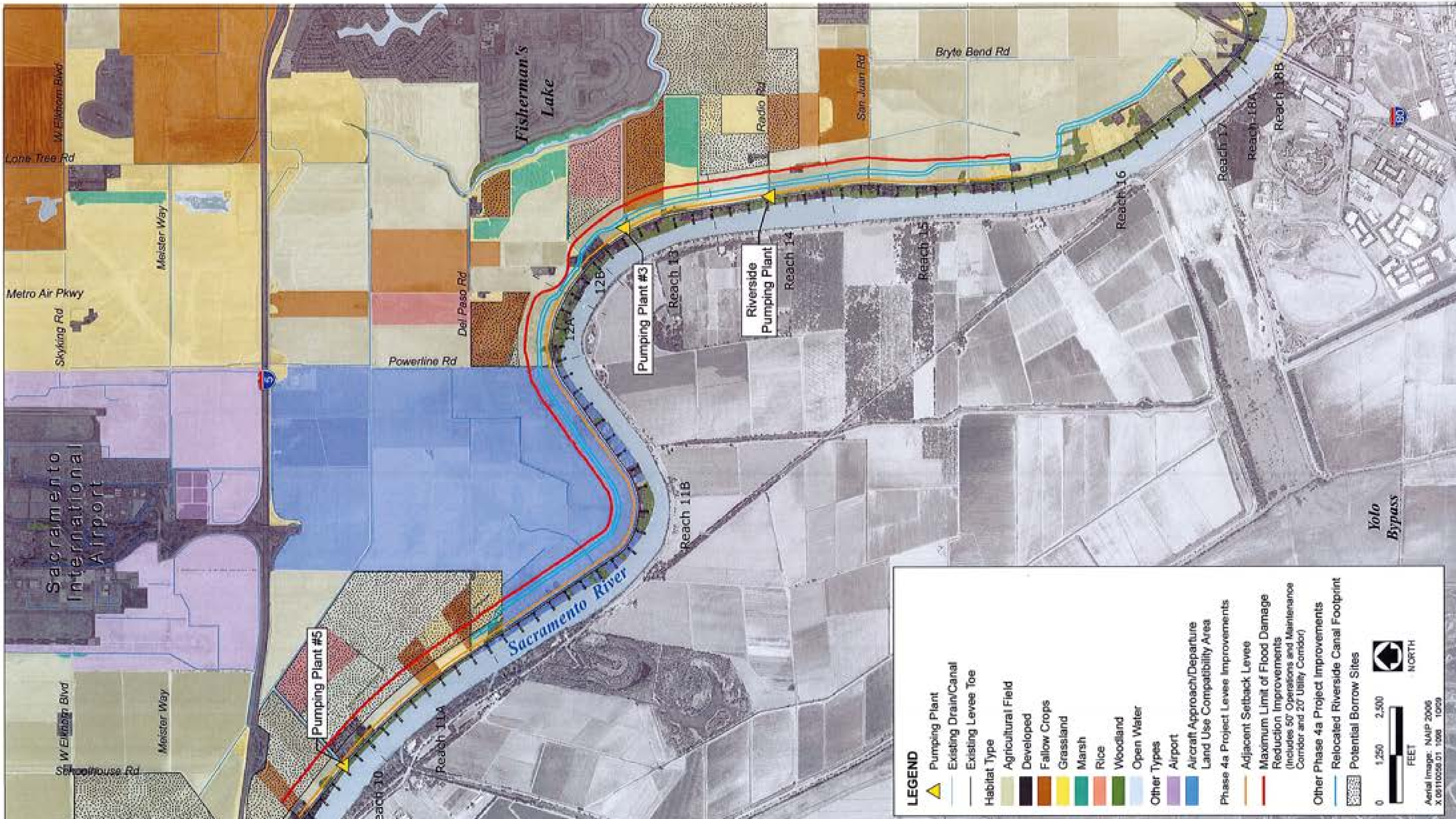
> The Phase 4a Project area is situated within the lands traditionally occupied by the Nisenan, or Southern Maidu. The language of the Nisenan, which includes several dialects, is classified within the Maiduan family of the Penutian linguistic stock (Kroeber 1925). The western boundary of Nisenan territory was the western bank of the Sacramento River and the area between present-day Sacramento and Marysville. In the Sacramento Valley, the tribelet, consisting of a primary village and a few satellite villages, served as the basic political unit (Moratto 1984). Valley Nisenan territory was divided into three tribelet areas, each populated with several large villages (Wilson and Towne 1978), generally located on low, natural rises along streams and rivers or on slopes with a southern exposure. One important village, Pusune, near Discovery Park, appears to have been recorded as CA-Sac-26. Other villages—Wollok, Leuchi, Wishuna, Totola, and Nawrean—were located east of the confluence of the Feather and Sacramento Rivers, near the northwestern portion of the Natomas Basin.
>
> Euro-American contact with the Nisenan began with infrequent excursions by Spanish explorers and Hudson Bay Company trappers traveling through the Sacramento and San Joaquin Valleys in the early 1800s. In general, Nisenan lifeways remained stable for centuries until the early to middle decades of the 19th century. With the coming of Russian trappers and Spanish missionaries, cultural patterns began to be disrupted as social structures were stressed. An estimated 75% of the Valley Nisenan population died in the malaria epidemic of 1833. With the influx of Europeans during the Gold Rush era, the population was further reduced by disease and violent relations with the miners. However, today the Maidu are reinvesting in their traditional culture and, through newfound political, economic, and social influence, now constitute a growing and thriving native community in California.

The Shingle Springs Band of Miwok Indians (Tribe) is descended from the Nisenan and Maidu people and attaches special cultural significance to the NLIP project area because the NLIP is situated in the Tribe's aboriginal territory.

PAGE 3-101

In response to Comment L1-20, the second full paragraph on page 3-101 of the Phase 4a DEIS/DEIR is revised as follows:

> The frequency of wildlife strikes at the Airport is directly related to the Airport's location. The Airport is situated in the western portion of the Natomas Basin, which is a relatively flat, low-lying area that was part of the Sacramento/American River floodplain. Historically, wetlands in the Basin attracted tremendous numbers of migratory waterfowl. Land reclamation and the extensive construction of canals, levees, and pumping stations have allowed more than 80% of the Natomas Basin to be converted to agricultural production (City of Sacramento, Sutter County, and TNBC 2003). Agricultural crops and open water are the primary wildlife attractants within the Airport's Critical Zone. Rice, wheat, safflower, corn, and alfalfa are all grown in the non-Airport portion Critical Zone. The FAA considers rice cultivation, including flooding of the rice fields in winter and summer, as the most incompatible current land use in the Critical Zone (SCAS 2007).



Source: Project Footprint (EDAW February 3, 2009), Riverside Canal (Mead & Hunt March 9, 2009), Borrow Sites (Mead & Hunt March 9, 2009), Woodland Corridor and Potential Marsh Habitat Sites (EDAW March 4, 2009), Habitats (Jones and Stokes 2007)

Existing Habitat in the Phase 4a Project Area **Plate 3-3**

4.5 REVISIONS TO CHAPTER 4.0, "ENVIRONMENTAL CONSEQUENCES AND MITIGATION MEASURES"

REVISIONS TO SECTION 4.3, "LAND USE, SOCIOECONOMICS, AND POPULATION AND HOUSING"

PAGES 4.3-1 AND 4.3-2

To correct an inaccurate cross-reference and to provide an update, the third paragraph in Section 4.3.1.2, "Thresholds of Significance," of the Phase 4a DEIS/DEIR is revised as follows:

> As stated in Section 2.3.~~6~~8, "Lands, Easements, Relocations, and Rights-of-Way," under the Proposed Action and RSLIP Alternative, approximately 12 residences and associated structures may need to be removed from the landside of the Sacramento River east levee during implementation of the Phase 4a Project. SAFCA would minimize the project footprint to avoid these residences to the extent feasible (see ~~Chapter 2.0, "Alternatives"~~ the sixth bullet in Section 2.3.1.1, "Sacramento River East Levee"). All relocations of residents would be conducted in compliance with Federal and state relocation law. Acquisition and relocation services would be accomplished in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (42 United States Code [USC] 4601 et seq.), and implementing regulation, 49 Code of Federal Regulations [CFR] Part 24; and California Government Code Section 7267 et seq., California Code of Civil Procedure Sections 1263.010 to 1263.620 and 1255.010 to 1255.060, California Community and Housing Development Title 25, and State and Caltrans Right of Way Manual, Chapter 10. These laws require that appropriate compensation be provided to displaced landowners and tenants, and residents would be relocated to comparable replacement housing. Refer to Section 3.3, "Land Use, Socioeconomics, and Population and Housing," and Chapter 6.0, "Compliance with Federal Environmental Laws and Regulations," for more details regarding these regulations. The existing housing stock in the project vicinity has sufficient available housing for rent and purchase to accommodate displaced residents from these residences. Therefore, no new construction would be required to accommodate the relocation of residences and no further discussion of the permanent displacement of housing or persons is necessary in this EIS/EIR.

REVISIONS TO SECTION 4.5, "HYDROLOGY AND HYDRAULICS"

PAGE 4.5-1

To correct an error, the second bulleted item on page 4.5-1 of the Phase 4a DEIS/DEIR is revised as follows:

- ~~*Draft*~~ *Evaluation of Potential Groundwater Impacts Due to Proposed Construction for Natomas Levee Improvement Program,* Luhdorff & Scalmanini Consulting Engineers ~~2008~~2009 (**Appendix C2**);

Revisions to Section 4.6, "Water Quality"

Page 4.6-1

As noted in Section 2.3.2, "Modifications to Construction Activities at Pumping Plant Nos. 3 and 5," of this FEIR, construction of these modifications would require discharge of dewatering. Because of this project modification, the fifth paragraph on page 4.6-1, under "Proposed Action and RSLIP Alternative," of the Phase 4a DEIS/DEIR is revised as follows:

> Project implementation would include extensive ground-disturbing activities during construction, many of them near local drainages and waterways that could become contaminated by soil or construction substances. These waterways include the Sacramento River, the NCC, the West Drainage Canal in the Fisherman's Lake Area, and the Riverside Canal. Construction for the Proposed Action would include landside widening of the Sacramento River east levee along Reaches 10–15 (with levee raising in Reaches 10–11B); and the RSLIP Alternative would raise the Sacramento River east levee in place along reaches 10–11B and strengthen it in place in Reaches 12–15. Both action alternatives would include installation of cutoff walls, seepage berms, and relief wells where necessary. In addition, both of these alternatives would include raising the NCC south levee with the installation of cutoff walls at the Bennett and Northern Main Pump Stations, ~~and~~ relocation and extension of the Riverside Canal away from the existing Sacramento River east levee, and modifications to Pumping Plant Nos. 3 and 5 to accommodate levee construction. Activities associated with Sacramento River east levee construction include reconstructing sections of Garden Highway and some intersections, and removing vegetation along the landside of the existing levee.

Page 4.6-2

As noted in Section 2.3.2, "Modifications to Construction Activities at Pumping Plant Nos. 3 and 5," of this FEIR, construction of these pumping plant modifications would require discharge of dewatering. Because of this project modification, a new paragraph has been added to page. 4.6-2 of the Phase 4a DEIS/DEIR as follows:

> Slurry that would be used for construction of the new cutoff walls has a fluid consistency when being placed. Improper handling or storage could result in releases to nearby surface water, thereby degrading water quality.
>
> Construction of Pumping Plant Nos. 3 and 5 would require dewatering on both the waterside and landside of the Sacramento River east levee. Discharge from dewatering would either be dispersed on farmland or released to adjacent canals or the Sacramento River, potentially degrading water quality in these water bodies.

Revisions to Section 4.8, "Cultural Resources"

Page 4.8-1

To response to Comment T1-2, the third paragraph under "Native American Tribal Consultation" in Section 4.8.1.1, "Methodology," of the Phase 4a DEIS/DEIR is revised as follows:

> The NAHC also designated a Most Likely Descendant (MLD) for the project, Mr. John Tayaba of the Shingle Springs Band of Miwok Indians. Mr. Tayaba has been designated as the MLD because he is a member of the Shingle Springs Band of Miwok Indians, and the Tribe's aboriginal territory includes the NLIP project area. Mr. Tayaba is designated to determine how to reinter identified prehistoric human remains that are uncovered in the NLIP area with appropriate dignity per California Public Resources Code Section 5097.98. Representatives from SAFCA,

USACE, and EDAW, and Mr. Tayaba meet weekly to discuss management of cultural resources for the NLIP and milestones in the Section 106 process.

PAGES 4.8-5

In response to Comment T1-5, Section 4.8.3, "Impacts and Mitigation Measures," of the Phase 4a DEIS/DEIR is revised as follows:

> This section describes the impacts of the Proposed Action and alternatives under consideration on cultural resources and outlines treatment measures that may avoid or reduce the predicted impacts. These measures would be implemented by USACE and SAFCA, in consultation with the SHPO and the MLD, as appropriate. The specific documents that will further define and describe monitoring and mitigation measures include HPTPs that SAFCA will prepare and the Construction Monitoring and Inadvertent Discovery Plan, in compliance with the PA.

PAGE 4.8-8

In response to Comment T1-5, the second full paragraph on page 4.8-8 of the Phase 4a DEIS/DEIR is revised as follows:

> The evaluation of eligibility and determination of effects on all eligible and listed sites will be made in consultation with USACE and the SHPO, and the MLD, as appropriate. The sites that require evaluation may be significant both for their data potential and for their importance to local Native American groups, and may have the integrity to convey this significance. Such resources would be eligible for listing on the NRHP and the CRHR. As described above, it is possible that ground-disturbing work associated with the Phase 4a Project may, absent mitigation or treatment, result in significant impacts to CA-Sac-16/H, CA-Sac-17/H, CA-Sac-268, and CA-Sac-485/H, as well as other prehistoric sites listed in **Table 4.8-1**. Significant impacts may occur by conducting ground-disturbing construction that diminishes the data these resources may contain, or disturbing interred human skeletal remains and associated grave goods, under both the Proposed Action and the RSLIP Alternative. This impact is considered **potentially significant**. ***(Similar)***

In response to Comment T1-5, the second bullet under Mitigation Measure 4.8-b, "Avoid Ground Disturbance Near Eligible and Listed Resources to the Extent Feasible, Prepare a Finding of Effect, and Resolve Any Adverse Effects through Preparation of an HPTP," of the Phase 4a DEIS/DEIR is revised as follows:

- Consult with USACE, the SHPO, the MLD, and other consulting parties such as Native American individuals and organizations, to develop appropriate treatment or mitigation in an HPTP, per Stipulation V(A) of the PA if the project would result in adverse effects on eligible resources.

To correct a typographical error and in response to Comment T1-6, the third bullet under Mitigation Measure 4.8-b, "Avoid Ground Disturbance Near Eligible and Listed Resources to the Extent Feasible, Prepare a Finding of Effect, and Resolve Any Adverse Effects through Preparation of an HPTP," of the Phase 4a DEIS/DEIR is revised as follows:

- Document the site and avoid further effects by protecting the resource through capping per management under an HPTP or other avoidance measures where feasible. Where physical impacts cannot be avoided and such physical impacts could damage the data these sites contain, including mortuary components, further mitigation may be required. Such mitigation may consist of data recovery excavations to retrieve those values and mortuary assemblages that contain significance for archaeology after consultation with and the agreement of the Native American most likely descendent (MLD), where possible.

PAGE 4.8-10

In response to Comment T1-4, the second bullet under Mitigation Measure 3.4-d, "Conduct Additional Backhoe and Canine Forensic Investigations," of the Phase 4a DEIS/DEIR is revised as follows:

- Additional inventory ~~should~~ may be conducted at appropriate intervals along the Sacramento River east levee ~~for the Phase 2 Project~~, using a backhoe excavator, to increase the sample of information at depths below 6 feet that cannot be reached with conventional shovel test methods. Such methods may be used only when necessary to address potential project-related effects to cultural resources because other methods are ineffective or project circumstances dictate that such resources must be identified in advance of construction. USACE and SAFCA shall consult with the MLD regarding the use of such methods. USACE and SAFCA recognize the Tribe's preference for less invasive methods of investigation such as the use of canine forensics.

In response to Comment T1-3, the final bullet on page 4.8-10 under Mitigation Measure 4.8-c, "Train Construction Workers before Construction, Monitor Construction Activities, Stop Potentially Damaging Activities, Evaluate Any Discoveries, and Resolve Adverse Effects on Eligible Resources, if Encountered," of the Phase 4a DEIS/DEIR is revised as follows:

- Before construction begins, a qualified professional archaeologist retained by SAFCA shall give a presentation and training session to all construction personnel so that they can assist with identification of undiscovered cultural resource materials and avoid them where possible. Such training shall note the importance of these materials to Native American groups that attach cultural significance to resources in the project area.

PAGE 4.8-11

In response to Comment T1-5, the first bullet on page 4.8-11 under Mitigation Measure 4.8-c, "Train Construction Workers before Construction, Monitor Construction Activities, Stop Potentially Damaging Activities, Evaluate Any Discoveries, and Resolve Adverse Effects on Eligible Resources, if Encountered," of the Phase 4a DEIS/DEIR is revised as follows:

- A qualified archaeologist shall monitor ground-disturbing construction activities along the Sacramento River east levee. In areas of known sacred value, such as archaeological sites containing Native American burials, a Native American monitor will be present to observe potentially destructive construction activities and to ensure proper treatment of human remains in accordance with State law. If a previously unidentified archaeological resource is uncovered during construction, construction activities shall be halted in the vicinity of the find and the construction contractor, SAFCA, USACE, the MLD, and the NAHC (if appropriate), and other appropriate parties shall be notified regarding the discovery. Where construction would consist of cutoff walls excavated in a bentonite and/or cement slurry, SAFCA and USACE anticipate that it will not be possible to identify the precise location of any materials found in spoils or at soil mixing stations, thus construction cannot stop during excavation of cutoff walls if resources are discovered in spoils.

REVISIONS TO SECTION 4.10, "TRANSPORTATION AND CIRCULATION"

PAGE 4.10-3

In response to Comment L3-1, the second full paragraph on page 4.10-3 of the Phase 4a DEIS/DEIR is revised as follows:

Haul routes proposed for transporting materials from borrow sites to construction areas are shown in **Plate 2-7**. Construction of the Sacramento River east levee improvements and Riverside Canal relocation and extension would require borrow from the Fisherman's Lake Area, which is located in Reaches 12A–15. Other potential sources of soil borrow include the I-5 Borrow Area, the Elkhorn Borrow Area, South Sutter, LLC, the Airport north bufferlands, the Krumenacher borrow site, and the Twin Rivers Unified School District stockpile site (adjacent to the NEMDC west levee). Hauling from the Fisherman's Lake Borrow Area would primarily take place on off-road haul routes, with some truck traffic occurring on short sections of Del Paso, Powerline, and Radio Roads. The improvements to the Sacramento River east levee would involve haul trucks carrying borrow material to construction areas along unpaved access roads that would be constructed parallel to the Sacramento River east levee to allow equipment to move up and down the levee during construction. Because the I-5 Borrow Area, the Elkhorn Borrow Area, and the South Sutter, LLC borrow site are located close to construction sites along the Sacramento River east levee, borrow material would primarily be trucked on the off-road haul routes shown on **Plate 2-7** or moved overland via scrapers. Truck hauling from the South Sutter, LLC borrow site and the Elkhorn Borrow Area could also take place on West Elkhorn Boulevard west of Schoolhouse Road. Hauling from the Krumenacher borrow site and the Twin Rivers Unified School District stockpile site, which are both located adjacent to the NEMDC west levee, would use Elkhorn Boulevard and Powerline Road. Personnel, equipment, and other imported construction materials would reach the construction areas and Garden Highway via a combination of roadways that may include SR 99/70, Elverta Road, Powerline Road, Natomas Road, East Levee Road, Elkhorn Boulevard, Del Paso Road, San Juan Road, El Centro Road, and West El Camino Avenue. Borrow material would be hauled from the Brookfield borrow site to the NCC south levee along a short section of ~~Sankey~~Howsley Road and on off-road haul routes paralleling the levee.

PAGE 4.10-3

As noted in Section 2.4.1, "Road Closures Required during Relocation of Riverside Canal," of this FEIR, construction of the relocated Riverside Canal would require additional road closures. Because of this project modification, the last paragraph on page 4.10-3 of the Phase 4a DEIS/DEIR is revised as follows:

Implementation of the Proposed Action would result in a substantial increase in traffic on local roadways associated with truck haul trips during construction activities. In addition, temporary, short-term road closures would be required to accommodate construction activities on the levee and relocated Riverside Canal. The Proposed Action may require portions of Garden Highway south of Powerline Road to experience single-lane closures for 8–12 weeks for construction of cutoff walls. One-way traffic would be maintained during cutoff-wall construction to provide access to properties along the work area. Lane closures on the landside of Garden Highway may also be necessary in this area for installation of underground utilities. Relocation of the Riverside Canal would require road closures at San Juan, Powerline, and Radio Roads for up to 2 weeks at each crossing as culverts are installed under these roads. These lane closures would be minimal in duration and extent, and measures would be taken to provide access outside of construction working hours for residents on the landside of Garden Highway.

PAGE 4.10-4

As noted in Section 2.3.2, "Modifications to Construction Activities at Pumping Plant Nos. 3 and 5," of this FEIR, Garden Highway would need to be closed for up to 120 days to install pipes. Because of this project modification, the first full paragraph on page 4.10-4 of the Phase 4a DEIS/DEIR is revised as follows:

Temporary pipes would be installed under Garden Highway at the Riverside Pumping Plant and Pumping Plants Nos. 3 and 5 (see **Plate 2-6a**) concurrent with cutoff wall construction. In the following construction year permanent pipes would be installed after the levee has settled. Garden Highway would be closed to through traffic for up to ~~60~~120 days in three locations for replacement of the temporary pipes; except for these closure points, Garden Highway would remain open and traffic detours would be located between Powerline Road and San Juan Road for the Riverside Pumping Plant, between North Bayou Road and Powerline Road for Pumping Plant No. 5, and between Powerline Road and San Juan Road for Pumping Plant No. 3.

PAGE 4.10-6

To provide clarification and in response to Comment L4-1, subpart (h) of Mitigation Measure 4.10-a, "Prepare and Implement a Traffic Safety and Control Plan for Construction-Related Truck Trips," of the Phase 4a DEIS/DEIR is revised as follows:

(h) Before the start of construction, SAFCA and its primary contractors shall coordinate with Sacramento County regarding any closures of ~~Garden Highway~~any public roadways.

PAGE 4.10-8

As noted in Section 2.4.1, "Road Closures Required during Relocation of Riverside Canal," of this FEIR, construction of the relocated Riverside Canal would require additional road closures. Because of this project modification, the fourth paragraph on page 4.10-8 of the Phase 4a DEIS/DEIR is revised as follows:

> The Proposed Action would increase traffic on local roadways associated with construction trips. In addition, temporary road closures associated with levee improvements could cause or contribute to temporary increases in traffic levels as traffic is detoured or slowed on some local roadways and SR 99/70. Increased traffic congestion could interfere with the use of main roadways for emergency evacuation routes. Garden Highway is the primary access for homes and businesses located on the water side of the levee. Temporary construction closures, including an approximately 8- to 12-week closure of one lane of Garden Highway downstream of Powerline Road, would interfere with emergency access to these residences and businesses (see also Section 4.16, "Socioeconomics and Population and Housing"). Installation of the permanent pipes for the pumping stations would take place one year following completion of levee construction as described in Impact 4.10-a, "Temporary Increase in Traffic on Local Roadways." Closures of Garden Highway would be required at three different locations with detours provided that would maintain access; however delays in emergency service response times may result. In addition, relocation of the Riverside Canal would require road closures at San Juan, Powerline, and Radio Roads for up to 2 weeks at each crossing as culverts are installed under these roads. Because the Proposed Action could result in delays in emergency service response times, this impact is considered **potentially significant**.

REVISIONS TO SECTION 4.11, "AIR QUALITY"

PAGES 4.11-7 THROUGH 4.11-12

In response to Comment L2-1, Mitigation Measure 4.11-a, "Implement Applicable District-Recommended Control Measures to Minimize Temporary Emissions of ROG, NO_X, and PM_{10} during Construction," in the Phase 4a DEIS/DEIR is revised to add the following text:

> SMAQMD has also recently released since publication of the DEIS/DEIR, draft BMPs for consideration as practical alternatives to reduce construction-generated greenhouse gas (GHG) emissions. SAFCA shall implement a range of measures to reduce GHG emissions, which may include the following:
>
> - improve fuel efficiency from construction equipment by reducing unnecessary idling (modify work practices, install auxiliary power for driver comfort); performing equipment maintenance (inspections, detect failures early, corrections); training equipment operators in proper use of equipment; using the

proper size of equipment for the job; and using equipment with new technologies (repowered engines, electric drive trains);

- use alternative fuels for generators at construction sites such as propane or solar, or use electrical power;
- encourage and provide carpools, shuttle vans, transit passes, and/or secure bicycle parking for construction worker commutes;
- reduce electricity use in the construction office by using compact fluorescent bulbs, powering off computers every day, and replacing heating and cooling units with more efficient ones;
- recycle or salvage non-hazardous construction and demolition debris (goal of at least 75% by weight);
- use locally sourced or recycled materials for construction materials (goal of at least 20% based on costs for building materials, and based on volume for roadway, parking lot, and sidewalk and curb materials); and
- develop a plan to efficiently use water for adequate dust control.

REVISIONS TO SECTION 4.12, "NOISE"

PAGE 4.12-6

As noted in Section 2.3.2, "Modifications to Construction Activities at Pumping Plant Nos. 3 and 5," of this FEIR, 24/7 construction would be required for these pumping plants. Because of this project modification, the second paragraph on page 4.12-6 of the Phase 4a DEIS/DEIR is revised as follows:

> Assuming a standard exterior-to-interior attenuation rate of 25 dBA for typical residential buildings with doors and windows closed, noise generated by construction equipment could result in interior noise levels that exceed the interior noise standard of 45 dBA L_{dn}/CNEL for residential land uses established by the City of Sacramento, Sacramento County, and Sutter County. Although construction activity is expected to take place during daytime hours in Sacramento County, Sutter County, and the City of Sacramento, because of the need to complete levee improvements outside of the flood season and because of other environmental and engineering constraints on project schedule, as described in Chapter 2.0, "Alternatives," it is possible that construction may need to be conducted 24 hours per day, 7 days per week (24/7). For example, 24/7 construction would be needed for installation of cutoff walls in Reach 4B and in portions of Reaches 10–15 of the Sacramento River east levee, as well as for modifications to Pumping Plant Nos. 3 and 5. In addition, up to three days of 24-hour construction would be required for drilling of groundwater wells to replace existing wells located within the proposed levee footprint and for new wells to supply water for habitat mitigation. Therefore, noise may be generated by construction equipment operating near homes during the more noise-sensitive early morning and nighttime hours (i.e., during hours that are not exempted by the applicable local ordinances in the City and County of Sacramento) and could result in sleep disturbance at nearby residences.

PAGE 4.12-7 THROUGH 4.12-8

As noted in Section 2.3.2, "Modifications to Construction Activities at Pumping Plant Nos. 3 and 5," of this FEIR, 24/7 construction would be required for these pumping plants. Because of this project modification, Mitigation Measure 4.12-a, "Implement Noise-Reducing Construction Practices, Prepare and Implement a Noise Control Plan, and Monitor and Record Construction Noise Near Sensitive Receptors," of the Phase 4a DEIS/DEIR is revised as follows:

Proposed Action and RSLIP Alternative

SAFCA and its primary contractors for engineering design and construction shall ensure that the following measures are implemented at each work site in any year of project construction to avoid and minimize construction noise effects on sensitive receptors. These measures are consistent with SAFCA's standard contract specifications for noise control.

All Project Construction

The primary construction contractors shall employ noise-reducing construction practices. Measures that shall be used to limit noise shall include the measures listed below:

- Equipment shall be used as far away as practical from noise-sensitive uses.
- All construction equipment shall be equipped with noise-reduction devices such as mufflers to minimize construction noise and all internal combustion engines shall be equipped with exhaust and intake silencers in accordance with manufacturers' specifications.
- Equipment that is quieter than standard equipment shall be used, including electrically powered equipment instead of internal combustion equipment where use of such equipment is a readily available substitute that accomplishes project tasks in the same manner as internal combustion equipment.
- Construction site and haul road speed limits shall be established and enforced.
- The use of bells, whistles, alarms, and horns shall be restricted to safety warning purposes only.
- Noise-reducing enclosures shall be used around stationary noise-generating equipment (e.g., compressors and generators).
- Fixed construction equipment (e.g., compressors and generators), construction staging and stockpiling areas, and construction vehicle routes shall be located at the most distant point feasible from noise-sensitive receptors.
- When noise sensitive uses are within close proximity and subject to prolonged construction noise, noise-attenuating buffers such as structures, truck trailers, or soil piles shall be located between noise generation sources and sensitive receptors.
- Before construction activity begins within 500 feet of one or more residences or businesses, written notification shall be provided to the potentially affected residents or business owners, identifying the type, duration, and frequency of construction activities. Notification materials shall also identify a mechanism for residents or business owners to register complaints with the appropriate jurisdiction if construction noise levels are overly intrusive. The distance of 500 feet is based on the 60-dBA contour of the loudest anticipated construction activity.

- ~~When construction of cutoff walls takes place during nighttime hours (between 10:00 p.m. and 6:00 a.m.), SAFCA shall honor requests from affected residents to provide reasonable reimbursement of local hotel or short-term rental stays for the period of time that cutoff wall construction takes place within 500 feet of the residents requesting reimbursement.~~

- If noise-generating activities are conducted within 100 feet of noise-sensitive receptors (the 70-dBA noise contour of construction noise), the primary contractor shall continuously measure and record noise levels generated as a result of the proposed work activities. Sound monitoring equipment shall be calibrated before taking measurements and shall have a resolution within 2 dBA. Monitoring shall take place at each activity operation adjacent to sensitive receptors. The recorded noise monitoring results shall be furnished weekly to SAFCA.

- The primary contractor shall prepare and implement a detailed noise control plan based on the proposed construction methods. This plan shall identify specific measures to ensure compliance with the noise control measures specified above. The noise control plan shall be submitted to and approved by SAFCA before any noise-generating construction activity begins.

24/7 Project Construction

In addition to the noise-reducing measures listed above, SAFCA shall implement the following measures concerning 24/7 project construction:

- When construction of cutoff walls takes place during nighttime hours (between 10:00 p.m. and 6:00 a.m.), SAFCA shall honor requests from affected residents to provide reasonable reimbursement of local hotel or short-term rental stays for the period of time that cutoff wall construction takes place within 500 feet of the residents requesting reimbursement.

- When construction of groundwater wells (including up to two weeks of continuous pump testing for each well) or modifications to Pumping Plant Nos. 3 and 5 takes place during nighttime hours (between 10:00 p.m. and 6:00 a.m.) and the resulting noise levels exceed the applicable County noise standard (i.e., 45 dBA L_{eq} and 65 dBA L_{max} for Sutter County and 45 dBA L_{50} and 65 dBA L_{max} for Sacramento County), SAFCA shall honor requests from affected residents to provide reasonable reimbursement of local hotel or short-term rental stays for the period of time that construction of groundwater wells or modifications to Pumping Plant Nos. 3 and 5 takes place within 500 feet of the residents requesting reimbursement.

Implementing this mitigation measure would reduce the impact, but may not reduce noise levels at all times to a **less-than-significant** level because of the close proximity of noise-sensitive receptors to construction activities and the limited feasibility of mitigating construction noise to acceptable levels, especially during nighttime hours. Therefore, this temporary, short-term impact would remain **significant and unavoidable.** ***(Similar)***

Revisions to Section 4.15, "Hazards and Hazardous Materials"

Page 4.6

To correct an inaccuracy and in response to Comment S2-1 and the subsequently revised "Borrow Site Environmental Conditions" report prepared by Kleinfelder (See **Appendix A** of this FEIR for the revised report), the second paragraph on page 4.15-6 of the Phase 4a DEIS/DEIR is revised as follows:

> A review of preliminary risk screening levels indicates that concentrations of on-site pesticide residues could pose a risk to ecological receptors (i.e., wildlife in land and aquatic habitats). This exposure could occur through leaching of pesticide residues into groundwater or through runoff of soils containing pesticide residue into surface water bodies. Borrow activities would reduce the distance from the ground surface to the groundwater table by removing approximately ~~6–12 inches~~2–3 feet of soil. Respreading topsoil onto borrow sites could potentially increase the risk of pesticide residues and other contaminants leaching into the groundwater because the migration distance to the water table would be reduced (Kleinfelder 2009b:24-25). However, according to calculations performed by Kleinfelder, borrow material activities on the South Sutter, LLC borrow site and the Novak property would not be expected to affect groundwater or pose an unacceptable ecological risk, because the levels of potentially hazardous materials are less than project-specific screening levels and within DTSC's normal concentrations for agricultural sites (Kleinfelder 2009b: 31). Because the Huffstutler Trust/Johnson property would be used for habitat following completion of borrow activities, there could be an ecological risk posed by arsenic and dieldrin (Kleinfelder 2009: 31). Even with implementation of Mitigation Measure 4.6-a, "Implement Standard Best Management Practices, Prepare and Implement a Stormwater Pollution Prevention Plan, and Comply with National Pollutant Discharge Elimination System Permit Conditions," which would reduce the potential for runoff of soils containing hazardous materials during construction, impacts after construction from respreading of topsoil containing pesticides residue would pose a risk to ecological receptors (Kleinfelder 2009b:32). Therefore, this impacts is considered to be **significant**.

Page 4.15-12 through 4.15-13

In response to Comments B1-3 and B1-4, Mitigation Measure 4.15-c, "Review Design Specifications and Prepare and Implement an Impact Avoidance and Contingency Plan in Consultation with Wickland Pipelines, LLC," of the Phase 4a DEIS/DEIR is revised as follows:

Proposed Action and RSLIP Alternative

Prior to issuance of construction contract bid requests for the Phase 4a Project, SAFCA and its engineers shall ensure that Wickland Pipelines, LLC has approved design specifications and impact avoidance and safety measures for construction activities within ~~10~~50 feet of the jet fuel pipeline (CCR Title 8, Section 1541). Construction specifications to be approved with Wickland Pipelines, LLC include, but are not limited to, the type of construction and equipment (e.g., bulldozers, graders, excavators) and the location and depth of earth-moving activities near the pipeline (i.e., ~~10~~50 feet). All excavation and construction in the vicinity (i.e., 50 feet) of the jet fuel pipeline shall be undertaken in strict conformity with the most recent version of the Best Practices of the Common Ground Alliance available.

Prior to the start of earthmoving activities, an impact avoidance and contingency plan shall be prepared and implemented by SAFCA in consultation with Wickland Pipelines, LLC. The plan shall include, but shall not be limited to:

- a contingency plan for actions to take in the event of damage to the pipeline or release of jet fuel, which shall include chain of command and notification procedures, worker safety, pipeline security, wildlife care, response procedures, necessary permits for response actions, and waste handling and disposal;

- a worker health and safety plan and worker training that shall consider personal protective equipment, operations safety within ~~10~~ 50 feet of the pipeline, and a contact list for reporting and obtaining medical service; and

- a method to provide the Airport with jet fuel in the event that the pipeline incurs substantial damage.

Agreements made between SAFCA, SAFCA's contractor, and Wickland Pipelines, LLC shall be in compliance with applicable Federal and state regulations (e.g., Hazardous Liquid Pipeline Safety Act, Pipeline Safety Improvement Act of 2002, Cal OSHA regulations).

Implementing this mitigation measure would reduce the potential impact of accidental release of jet fuel due to damage of the jet fuel pipeline under the Proposed Action and the RSLIP Alternative to a **less-than-significant** level because excavation and construction activities within 50 feet of the jet fuel pipeline will be implemented in conformity with the Best Practices of the Common Ground Alliance, and an impact avoidance plan and design specifications would be agreed upon by SAFCA and Wickland Pipelines, LLC prior to issuance of construction bid requests, ensuring contractor compliance with avoidance and safety measures related to the jet fuel pipeline. ***(Similar)***

4.6 REVISIONS TO CHAPTER 5.0, "CUMULATIVE AND GROWTH-INDUCING IMPACTS AND OTHER STATUTORY REQUIREMENTS"

PAGES 5-24 AND 5-35

In response to Comment L2-1, the final paragraph on page 5-34 of the Phase 4a DEIS/DEIR is revised as follows:

To establish additional context in which to consider the order of magnitude of project-generated GHG emissions, it may be noted that facilities (i.e., stationary, continuous sources of GHG emissions) that generate greater than 25,000 metric tons CO_2/year are mandated to report GHG emissions to the California Air Resources Board (ARB) pursuant to AB 32. In addition, a threshold of 10,000 metric tons CO_2/year was recommended by the Market Advisory Committee for inclusion in a GHG cap and trade system, a threshold of 10,000 metric tons CO_2e/year adopted by the South Coast Air Quality Management District for stationary/industrial projects, and a draft preliminary threshold of 7,000 metric tons of CO_2e/year for industrial projects by ARB. Absent any agency-adopted threshold for GHG emissions, it is notable that the Proposed Action would generate emissions substantially less than 25,000 metric tons CO_2/year (and other recommended targets). This information is presented for informational purposes, and it is not the intention of SAFCA to adopt 25,000 metric tons CO_2/year as a numeric threshold. Rather, the intention is to put project-generated GHG emissions in the appropriate statewide context in order to evaluate the contribution to the global impact of climate change. SMAQMD has also recently released since publication of the DEIS/DEIR, draft BMPs for consideration as practical alternatives to reduce construction-generated GHG emissions. As part of Mitigation Measure 4.11-a, "Implement Applicable District-Recommended Control Measures to Minimize Temporary Emissions of ROG, NO_X, and PM_{10} during Construction," SAFCA would implement a range of measures to reduce GHG emissions, which may include the following:

- improve fuel efficiency from construction equipment by reducing unnecessary idling (modify work practices, install auxiliary power for driver comfort); performing equipment maintenance (inspections, detect failures early, corrections); training equipment operators in proper use of equipment; using the proper size of equipment for the job; and using equipment with new technologies (repowered engines, electric drive trains);

- use alternative fuels for generators at construction sites such as propane or solar, or use electrical power;
- encourage and provide carpools, shuttle vans, transit passes, and/or secure bicycle parking for construction worker commutes;
- reduce electricity use in the construction office by using compact fluorescent bulbs, powering off computers every day, and replacing heating and cooling units with more efficient ones;
- recycle or salvage non-hazardous construction and demolition debris (goal of at least 75% by weight);
- use locally sourced or recycled materials for construction materials (goal of at least 20% based on costs for building materials, and based on volume for roadway, parking lot, and sidewalk and curb materials); and
- develop a plan to efficiently use water for adequate dust control.

Therefore, b~~B~~ecause the project's emissions would be temporary and short-term in nature~~;~~ and far below the minimum standard for reporting requirements under AB 32, and because the project would implement a range of measures to reduce GHG emission, the project's GHG emissions would not result in a cumulatively considerable contribution to a significant cumulative impact on GHG emissions and global climate change.

4.7 REVISIONS TO CHAPTER 7.0, "CONSULTATION AND COORDINATION"

To correct an inadvertent omission of an NOP comment letter submitted by the Sacramento Metropolitan Air Quality Management District, Table 7-1 is revised as follows:

Table 7-1
Written Comments Received on the NOI/NOP

Commenter	Date
...	
Sacramento Metropolitan Air Quality Management District	April 13, 2009
▸ Requests that the complete air quality analysis and all assumptions used in the model or calculations be included as an appendix to the DEIS/DEIR. ▸ Provides the staff contacts for permitting and future NLIP environmental documents.	
...	
Source: Compiled by AECOM in 2009	

4.8 REVISIONS TO CHAPTER 8.0, "LIST OF PREPARERS"

To correct an inadvertent omission, the list of preparers in the Phase 4a DEIS/DEIR is revised as follows:

EDAW

Name	Qualifications and Experience	Participation
…		
Chris Fitzer	B.A. Geography (Environmental Concentration); M.A. Environmental Planning (Watershed/Water Resources Concentration); 14 years experience	Fisheries
…		

4.9 REVISIONS TO APPENDIX A, "PUBLIC OUTREACH"

The following NOP comment letter submitted by the Sacramento Metropolitan Air Quality Management District was inadvertently left out of the Phase 4a DEIS/DEIR. It is reproduced here.

SACRAMENTO METROPOLITAN
AIR QUALITY
MANAGEMENT DISTRICT

Larry Greene
AIR POLLUTION CONTROL OFFICER

April 13, 2009

Mr. John Bassett
Director of Engineering
Sacramento Area Flood Control Agency (SAFCA)
1007 Seventh Street, 7th Floor
Sacramento, CA 95814

Natomas Levee Improvement Program (NLIP), Phase 4a Landside Improvements Project, Notice of Preparation (NOP)
SAC200701184d

Dear Mr. Bassett:

Thank you for providing the NLIP Phase 4a Landside Improvements Project NOP to the Sacramento Metropolitan Air Quality Management District (SMAQMD).

We appreciate that you will be including an air quality analysis (including greenhouse gas emissions) for this phase and the potential overlap with phases 2 and 3. Be sure to include the complete analysis as an appendix to the DEIR/DEIS and all assumptions used in the model or calculations.

The SMAQMD permitting contacts will be Ali Othman (916-874-4857 or aothman@airquality.org) and Brian Krebs (916-874-4856 or bkrebs@airquality.org).

I will be the SMAQMD contact for all future NLIP environmental documents. Please forward the DEIR/DEIS directly to me. I can be reached at 916-874-4881 or khuss@airquality.org.

Sincerely,

Karen Huss

Karen Huss
Associate Air Quality Planner/Analyst

Cc: Larry Robinson, Sacramento Metropolitan Air Quality Management District
Sondra Andersson, Feather River Air Quality Management District

777 12th Street, 3rd Floor ▪ Sacramento, CA 95814-1908
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5.0 REFERENCES

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6.0 LIST OF PREPARERS

Following is a list of the individuals who prepared sections of the FEIR, provided significant background materials, or participated in preparing the FEIR.

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AECOM

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Jonathan Kors, P.E. .... Project Manager, Natomas Cross Canal South Levee Design

APPENDIX A

Groundwater Analyses

A1 Potential Impacts of Proposed Phase 4a Habitat Mitigation Wells

(Revised from Phase 4a DEIS/DEIR Version)

MEMORANDUM

LUHDORFF & SCALMANINI
CONSULTING ENGINEERS

DATE: August 5, 2009 **FILE NO.:** 07-1-084

TO: David Rader, EDAW
Timothy Washburn, SAFCA

FROM: Glenn Browning

SUBJECT: POTENTIAL IMPACTS OF PROPOSED PHASE 4A HABITAT MITIGATION WELLS

The Sacramento Area Flood Control Agency (SAFCA) plans to construct five wells for habitat mitigation as part of the Phase 4a Natomas Levee Improvement Project. The impacts of these five wells are being evaluated in the Phase 4a Environmental Impact Statement (EIS)/Environmental Impact Report (EIR) currently in preparation by EDAW. Because these wells are in the very early planning stages, no definite information is available about well design, location, or capacity. All wells would be located east of the Sacramento River East Levee (SREL), and tentative locations are shown in **Figure 1**. The five proposed habitat mitigation wells and adjacent reaches are as follows:

- Giant Garter Snake (GGS) Backup Well – Reach 6A
- Woodland Planting Well (North) – Reach 7
- Woodland Planting Well (South) – Reach 14
- Fisherman's Lake Marsh Well (North) – Reach 13
- Fisherman's Lake Marsh Well (South) – Reach 13

The impacts of the habitat mitigation wells will depend on various factors in addition to the final well locations. Other assumptions required to evaluate the potential well impacts are summarized in **Table 1**. These include well usage, water demand, pumping rate, and well construction (including depth and perforated interval). **Table 1** shows that the maximum annual water demand estimated for the five wells is relatively small except for the GGS Backup Well, which could pump up to 3,550 acre-feet (af) in a critically-dry year. During those years, the total water demand for all five wells is estimated be about 4,300 af. Between 1906 and 2008, a total of 14 years (about 14 percent of the total) have been identified as critically-dry based on the Sacramento River Basin 40-30-30 Index developed by the State Water Resources Control Board. If the GGS Backup Well is only pumped during critically-dry years, its average annual water demand would be about 490 af. The average annual water demand for all wells would then be about 1,200 af. After the woodland planting wells are no longer needed, the total average annual water demand would decrease to about 1,100 af.

There are a number of potential impacts that can occur as a result of increased groundwater pumping, but the evaluation of the potential impacts addressed in this memo is limited to reductions in the yields of existing nearby wells due to drawdowns caused by the new wells. Other potential impacts of increased groundwater extraction listed below were considered unlikely to occur and were not specifically analyzed for this study:

- Overdraft – Groundwater levels in the western portion of the Natomas Basin are high and have remained relatively stable over time, and those conditions are not expected to change due to pumpage from the proposed habitat mitigation wells. As discussed above, the average annual pumpage from the five new wells is projected to range from about 1,100 to 1,200 af/yr. This represents a small percentage of the total pumpage in the Natomas Basin and will not cause chronic groundwater level declines.
- Land subsidence – Subsidence due to groundwater extraction is most likely to occur during periods when groundwater levels reach new historical lows during the irrigation season or fail to fully recover at the end of the year. Such conditions are not expected to occur in the western portion of the Natomas Basin with or without the habitat mitigation wells.
- Groundwater quality impacts – There are no known areas of groundwater contamination near the proposed wells, and no groundwater quality impacts are expected due to the increased pumping.
- Surface water impacts – Pumping of the habitat mitigation wells will tend to increase seepage from the Sacramento River and nearby canals. This will offset some of the reduction in recharge from the River that is expected as a result of slurry cutoff walls to be installed by SAFCA along the SREL. Increased seepage from the River and nearby canals due to the proposed pumping will not be measurable.

Giant Garter Snake Canal Backup Well

Water for the GGS Canal will be supplied primarily by surface water purchased from the Natomas Central Mutual Water Company (NCMWC), which has relatively senior rights to water from the Sacramento River. NCMWC has adequate water supplies during most years, but it can experience cutbacks of up to 25 percent of its contract supply in critically-dry years. The GGS Canal Backup Well would be installed near the canal to provide supplemental water during years when NCMWC receives less than its full allocation of surface water. The tentative location for the GGS Canal Backup Well is on the Horangic property, now owned by SAFCA, which is located north of the Teal Bend Golf Club in Reach 6A, as shown on **Figure 1**.

The high point of the GGS Canal will be in Reach 6A, and the canal is designed to flow both north and south from that location. The design flow rate is about five cubic feet per second (cfs) in each direction, and losses are estimated to be about 9.6 cfs for seepage and a maximum of 0.4 cfs for evaporation. Therefore, the normal water demand will be about 20 cfs (Mead and Hunt, 2009). During a critically-dry year, NCMWC would be expected to supply only 75 percent of this amount, and the remaining 25 percent (five cfs) would be supplied by groundwater. As shown in **Table 1**, a pumping rate of about 2,200 gallons per minute (gpm) would be required to supply five cfs of water to the GGS Canal. If the well was pumped continuously, it could supply about 295 af in a month or 3,550 af during the year.

Table 1 also shows assumptions about the depths and perforated intervals of the habitat mitigation wells, but these should not be considered as recommendations. A test hole should be drilled at each site prior to designing the wells, and the well design should be determined by a geologist or engineer based on results of electrical logging conducted in the test hole. Estimates made by DWR (2003) indicate that the average capacity of irrigation wells in the Natomas Basin is about 1,600 gpm (LSCE, 2008). In some areas, larger capacities can be obtained by constructing deeper wells. It is generally recommended that new large-capacity irrigation wells located near the Natomas Basin levees not be perforated in the upper 100 feet of the aquifer system for two reasons:

- Deep slurry cutoff walls (75 feet or more) are planned for a number of reaches of the SREL. It is preferable that large-capacity wells constructed near these cutoff walls be completed below the bottom of the cutoff walls in order to not increase seepage through the cutoff walls. The cutoff wall currently planned for the southern portion of Reach 6A (adjacent to the GGS Backup Well location) would have depth of 115 feet from the top of the levee.
- Domestic wells in the area are often completed partially in shallow sands, and new large-capacity wells pumping from those zones would have greater impacts on nearby domestic wells.

For planning purposes, it is assumed that a perforated interval of 100 to 500 feet in depth would be required to obtain a sustained yield of 2,200 gpm. The GGS Backup Well would only be used intermittently (primarily during critically-dry years) but would cause larger drawdowns than the other proposed habitat mitigation wells during those years because it would pump at a relatively high rate. Well mapping conducted by Mead and Hunt (2008) shows only four existing wells within a one-half mile radius of the proposed location of the GGS Backup Well. One of these is an active domestic well, one is an unused domestic well, and two wells are identified as "other" (unknown use). The unused domestic well is located on the Horangic property now owned by SAFCA near the proposed location of the GGS Backup Well. Only one of the other three wells has a known completion (161-188 feet). The three active wells are located almost one-half mile from the tentative location of the GGS Backup Well shown on **Figure 1**.

Estimates of drawdown due to pumping of the GGS Backup Well were made using a single-layer analytical groundwater flow model based on the Theis (1935) equation. A transmissivity of 7,600 ft^2/day and a storage coefficient of 0.005 were used in the model based on aquifer testing conducted in the area. Using the analytical model, drawdowns of about 12 feet after 30 days of pumping or 17 feet after 90 days of pumping were predicted at a distance of one-half mile from the well. These drawdown estimates are conservative because continuous pumping for such long periods is unlikely. Most of the water pumped by the GGS Backup Well would come from deeper, semi-confined aquifers; and drawdowns in shallower wells would be less than those estimated with the single-layer model.

Under current conditions, groundwater levels are relatively high in the western portion of the Natomas Basin, and chronic groundwater level declines are not anticipated even with the increased pumping. The proposed GGS Backup Well would not be expected to significantly reduce the yield of existing wells, and no mitigation is considered necessary.

Woodland Planting Wells

SAFCA plans to install two wells to irrigate young trees to be planted in woodland corridors east of the SREL. The northern woodland corridor consists of about 21 acres in Reaches 7 and 8. For planning purposes, it is assumed that the northern well would be located near the center of the corridor in the southern portion of Reach 7. The southern woodland corridor will consist of about 40 acres in Reaches 12A to 15. It is assumed that the southern well would be located near Radio Road in Reach 14. The tentative well locations are shown on **Figure 1**.

Woodland planting corridors will only be irrigated for the first three to five years until the trees become established. Continued irrigation will be unnecessary after the roots reach the water table, which is relatively shallow along the SREL. Irrigation would be most frequent in the summer months, especially during the first two years, and the frequency would decrease beginning in the third year. Assumptions about the irrigation schedule and flow rates are based on data provided by River Partners for existing woodland plantings in Reach 2. The irrigation schedule and water demand based on the existing woodland plantings are shown in **Table 2**. The irrigation schedule ranges from 24 hours every other week in March and November to 24 hours three times a week in July and August during the first two years. The average plant spacing is 12.5 feet, resulting in a plant density of about 280 plants per acre. The plants are irrigated with a drip system, and each emitter has an output of two gallons per hour (gph). If all plants are irrigated simultaneously, the flow rate would need to be 560 gph or 9.3 gpm per acre. This is a conservative estimate because the drip system would likely be divided into sets so that the irrigation schedule could be staggered.

Based on a pumping rate of 9.3 gpm per acre, the woodland planting well capacities would need to be about 195 gpm and 372 gpm for the northern and southern wells, respectively. These capacities were rounded off to 200 and 400 gpm in **Table 1**. The maximum water demand is estimated to be seven af/mo (total of 37 af/yr) for the northern woodland corridor and 14 af/mo (total of 70 af/yr) for the southern woodland corridor. In order to obtain sustained yields of 200 to 400 gpm, it is assumed that the well depths would range from 250 to 300 feet. As discussed above for the GGS Backup Well, the woodland planting wells would not be perforated above a depth of 100 feet.

Well mapping conducted by Mead and Hunt (2008) shows nine existing wells within a one-half mile radius of the proposed location of the northern Woodland Planting Well. Seven of these are identified as domestic wells and two as "other". As shown in **Table 1**, these wells range in depth from 115 to 269 feet with an average of 158 feet. A total of 13 wells are mapped within a one-half mile radius of the proposed location of the southern Woodland Planting Well. Ten of these are identified as domestic wells, two as irrigation wells, and one as "other". These wells range in depth from 115 to 225 feet, with an average of 152 feet.

Estimates of drawdown caused by the woodland planting wells were made using the groundwater flow model discussed above. Drawdowns due to the northern Woodland Planting Well are predicted to be about one foot after 30 days of pumping and about two feet after 90 days of pumping at a distance of one-half mile from the well. Drawdowns due to the southern Woodland Planting Well are predicted to be about two feet after 30 days of pumping and about three feet after 90 days of pumping at a distance of one-half mile from the well. The estimated drawdowns are conservative because the irrigation schedule does not require that the wells be pumped continuously. Predicted drawdowns due to pumping of the woodland planting wells are considered to be negligible and will not impact the yield of any nearby existing wells.

Fisherman's Lake Marsh Wells

SAFCA plans to install two wells to irrigate managed marsh planned for the Sharma and AKT properties west of Fisherman's Lake. The original proposed well locations were in the southwest corner of the Sharma property and the northwest corner of the AKT property, which would made the wells very close to each other and too close to existing Natomas Basin Conservancy (NBC) wells on the Natomas Farms property (north of Sharma) and the Cummings property (south of AKT). In order to reduce mutual interference among these wells, the tentative locations of SAFCA's Fisherman's Lake marsh wells have been moved to the eastern edges of the two properties (**Figure 2**). This provides a minimum well spacing of at least one-quarter mile between each of the four wells.

SAFCA plans to transfer ownership and management of the Sharma and AKT properties (including the proposed wells) to the NBC for creation of wetland and grassland habitat. Up to 50 acres of managed marsh are planned for the eastern portions of both properties. The managed marsh would be irrigated primarily with surface water purchased from NCMWC, and the Fisherman's Lake marsh wells would supplement surface water supplies during November through March when NCMWC does not normally deliver water. NCMWC has a permit to deliver up to 10,000 af of surface water during the fall and winter months, so it may be feasible to irrigate the Sharma and AKT properties with surface water throughout the year. In that case, the Fisherman's Lake Marsh wells would only be needed for backup supply during critically-dry years.

The water demand for managed marsh areas to be created on the Sharma and AKT properties was estimated based on data for an existing well on NBC's Natomas Farms property, which is used to irrigate about 36 acres of managed marsh. Pumpage from the Natomas Farms Well is not metered, and the 2005-2009 pumpage estimates shown on **Table 3** are based on SMUD power use records. The Natomas Farms Well is 290 feet deep and has perforated intervals of 120-140 feet, 180-200 feet, and 270-290 feet. The capacity of the well is approximately 1,200 gpm at present. Based on the power use records and an estimated pump efficiency of 65 percent, the estimated annual pumpage ranged from a low of 75 af a high of about 220 af, as shown in **Table 3**. The maximum annual pumpage (220 af) occurred over a period of three months (January through March) in both 2007 and 2009. Since it began operation in 2005, the Natomas Farms Wells has not pumped for more than three consecutive months in any year. On a per acre basis, the highest annual water demand was 6.1 af/ac.

Based on a water demand of 6.1 af/ac over a three-month period, the maximum monthly pumpage required to irrigate 50 acres of managed marsh on the Sharma and AKT properties would be 105 af/month or about 800 gpm (**Table 1**). A perforated interval of approximately 100 to 400 feet in depth is estimated to sustain this level of production.

Well mapping conducted by Mead and Hunt (2008) shows six existing wells within a one-half mile radius of the tentative location of the northern Fisherman's Lake Marsh Well. Four of these are identified as domestic wells and two as irrigation wells (the NBC Natomas Farms and Cummings wells). As shown in **Table 1**, the domestic wells range in depth from 91 to 160 feet, with an average of 130 feet. Three existing wells have been mapped within a one-half mile radius of the proposed location of the southern Fisherman's Lake Marsh Well. Two of these are identified as domestic wells and one as an irrigation well (the NBC Cummings Well). Construction information is not available for the Cummings Well, but the two domestic wells are 113 and 120 feet deep.

Estimates of drawdown due to pumping of the Fisherman's Lake marsh wells were also made using the groundwater flow model. Pumping of the two Fisherman's Lake Marsh wells and the two existing NBC wells was simulated together, so that potential mutual interference among these wells could be evaluated. Mutual interference would be largest at the southern Fisherman's Lake Marsh Well, and a total drawdown of about 35 feet is predicted at this well after 30 days of pumping. This represents a drawdown of 22 feet due to pumping of the well itself and 13 feet due to mutual interference with the other three wells. The Fisherman's Lake Marsh wells are predicted to cause about seven feet of additional drawdown at the NBC Natomas Farms Well and ten feet of additional drawdown at the NBC Cummings Well after 30 days of pumping. This increased drawdown would not be expected have a measurable effect on the yields of the NBC wells.

The closest domestic wells are located almost one-half mile west of the proposed Fisherman's Lake marsh wells (**Figure 2**). Using the analytical model, the additional drawdown due to both Fisherman's Lake Marsh wells is predicted to be about nine feet after 30 days of pumping and 12 feet after 90 days of pumping at this location. This is slightly more than the drawdown estimated due the two existing NBC wells (eight feet after 30 days and ten feet after 90 days). No problems have been reported at any nearby wells due to pumping of the NBC wells.

Pumping of the Fisherman's Lake marsh wells is predicted to cause nine to 12 feet of additional drawdown depending on the pumping period. Drawdowns in shallow domestic wells would be less than those estimated with the single-layer model because most of the water pumped by the irrigation wells would come from deeper, semi-confined aquifers. This drawdown would occur primarily during the winter months when groundwater levels are normally high and other pumpage in the area is minimal. The additional drawdown due to this pumping would not be expected to cause reductions in the yield of nearby domestic wells.

Summary

This study evaluated the potential effects of drawdowns due to SAFCA's proposed habitat mitigation wells on existing nearby wells (primarily domestic wells). The increased pumping is not expected to significantly reduce the yield of any existing wells.

Other potential impacts of increased groundwater extraction (overdraft, land subsidence, groundwater quality impacts, and surface water impacts) were considered unlikely to occur and were not specifically analyzed for this study. The habitat mitigation wells could pump up to about 4,300 af during a critically-dry year, but the average annual pumpage would be expected to range from 1,100 to 1,200 af. The planned pumpage from the five new wells represents a small percentage of the total pumpage in the Natomas Basin and will not cause chronic groundwater level declines. Groundwater levels in the western portion of the Natomas Basin are high and have remained relatively stable over time, and these conditions are not expected to change due to pumpage from the proposed habitat mitigation wells.

Table 1
Proposed SAFCA Wells for Phase 4a Habitat Mitigation

		GGS Canal Backup Well[1]	Woodland Planting Well (North)[2]	Woodland Planting Well (South)[3]	Fisherman's Lake Marsh Well (North)[4]	Fisherman's Lake Marsh Well (South)[5]
Reach		6A	7-8	12-14	13	13
Duration		Indefinite	3-5 Years	3-5 Years	Indefinite	Indefinite
Frequency of Use		Only during critically-dry years	Annually (primarily April - October)	Annually (primarily April - October)	Annually (primarily Nov. - March)	Annually (primarily Nov.-March)
Irrigated Area	**(ac)**	NA	21 ac woodland corridor	40 ac woodland corridor	Up to 50 ac managed marsh	Up to 50 ac managed marsh
Estimated Well Depth	**(ft)**	500	250	300	400	400
Estimated Well Completion	**(ft)**	100-500	100-250	100-300	100-400	100-400
Estimated Well Capacity	**(gpm)**	2,200	200	400	800	800
Maximum Monthly Pumpage	**(af/mo)**	295	7	14	105	105
Maximum Annual Pumpage	**(af/yr)**	3,550	37	70	315	315
Existing Wells Within 1/2 Mile Radius		2 domestic (1 unused) 2 other	7 domestic 2 other	10 domestic, 2 irrigation, 1 other	4 domestic 2 irrigation	2 domestic 1 irrigation
Depth Range of Wells Within 1/2 Mile Radius	**(ft)**	125-204	115-269	115-225	91-290	113-120
Average Depth of Wells Within 1/2 Mile Radius	**(ft)**	165	158	152	162	117

1. GGS Canal flow requirements estimated by Mead & Hunt to be 20 cfs. GGS Canal will be supplied primarily by NCMWC surface water. Well would be used only during critically-dry years when NCMWC surface water could be reduced by 25%. Projected pumping rate (2,200 gpm) = 4.9 cfs.
2. Temporary well to water woodland plantings in Reaches 6-9B for 3-5 years until tree roots are deep enough to reach water table. Estimated pumping rate and water demand based on data from River Partners for woodland plantings in Reach 2.
3. Temporary well to water woodland plantings in Reaches 12-15 for 3-5 years until tree roots are deep enough to reach water table. Estimated pumping rate and water demand based on data from River Partners for woodland plantings in Reach 2.
4. Well to be used by Natomas Basin Conservancy (NBC) to supplement NCMWC surface water for irrigation of up to 50 acres of managed marsh on the Sharma property. Well would be used only during months when NCMWC water is not available (typically November-March). Estimated pumping rate and water demand based on data from NBC's Natomas Farms well.
5. Well to be used by NBC to supplement NCMWC surface water for irrigation of up to 50 acres of managed marsh on the AKT property. Well would be used only during months when NCMWC water is not available (typically November-March). Estimated pumping rate and water demand based on data from NBC's Natomas Farms well.

Table 2
Water Demand Estimate for Woodland Planting Corridors[1]

Year	Month	Irrigation Schedule	Monthly Operation (hours)	Water Demand (gph/ac)	Water Demand (gpm/ac)	Water Demand (gal/ac)	Water Demand (af/ac)	21-ac Corridor Water Demand (af)	21-ac Corridor Pumping Rate (gpm)	40-ac Corridor Water Demand (af)	40-ac Corridor Pumping Rate (gpm)
1 & 2	Jan	-	-	-	-	-	-	-	-	-	-
	Feb	-	-	-	-	-	-	-	-	-	-
	Mar	24 x 2	48	558	9.3	26,784	0.08	1.73	195	3.29	372
	Apr	16 x 4	64	558	9.3	35,712	0.11	2.30	195	4.38	372
	May	24 x 4	96	558	9.3	53,568	0.16	3.45	195	6.58	372
	Jun	24 x 6	144	558	9.3	80,352	0.25	5.18	195	9.86	372
	Jul	24 x 8	192	558	9.3	107,136	0.33	6.90	195	13.15	372
	Aug	24 x 8	192	558	9.3	107,136	0.33	6.90	195	13.15	372
	Sep	24 x 6	144	558	9.3	80,352	0.25	5.18	195	9.86	372
	Oct	24 x 4	96	558	9.3	53,568	0.16	3.45	195	6.58	372
	Nov	24 x 2	48	558	9.3	26,784	0.08	1.73	195	3.29	372
	Dec	-	-	-	-	-	-	-	-	-	-
	Total		1,024			571,392		36.82		70.14	
3	Jan	-	-	-	-	-	-	-	-	-	-
	Feb	-	-	-	-	-	-	-	-	-	-
	Mar	24 x 2	48	558	9.3	26,784	0.08	1.73	195	3.29	372
	Apr	16 x 4	64	558	9.3	35,712	0.11	2.30	195	4.38	372
	May	24 x 4	96	558	9.3	53,568	0.16	3.45	195	6.58	372
	Jun	24 x 4	144	558	9.3	80,352	0.25	5.18	195	9.86	372
	Jul	24 x 4	192	558	9.3	107,136	0.33	6.90	195	13.15	372
	Aug	24 x 4	192	558	9.3	107,136	0.33	6.90	195	13.15	372
	Sep	8 x 4	144	558	9.3	80,352	0.25	5.18	195	9.86	372
	Oct	-	-	-	-	-	-	-	-	-	-
	Nov	-	-	-	-	-	-	-	-	-	-
	Dec	-	-	-	-	-	-	-	-	-	-
	Total		880			491,040		31.65		60.28	

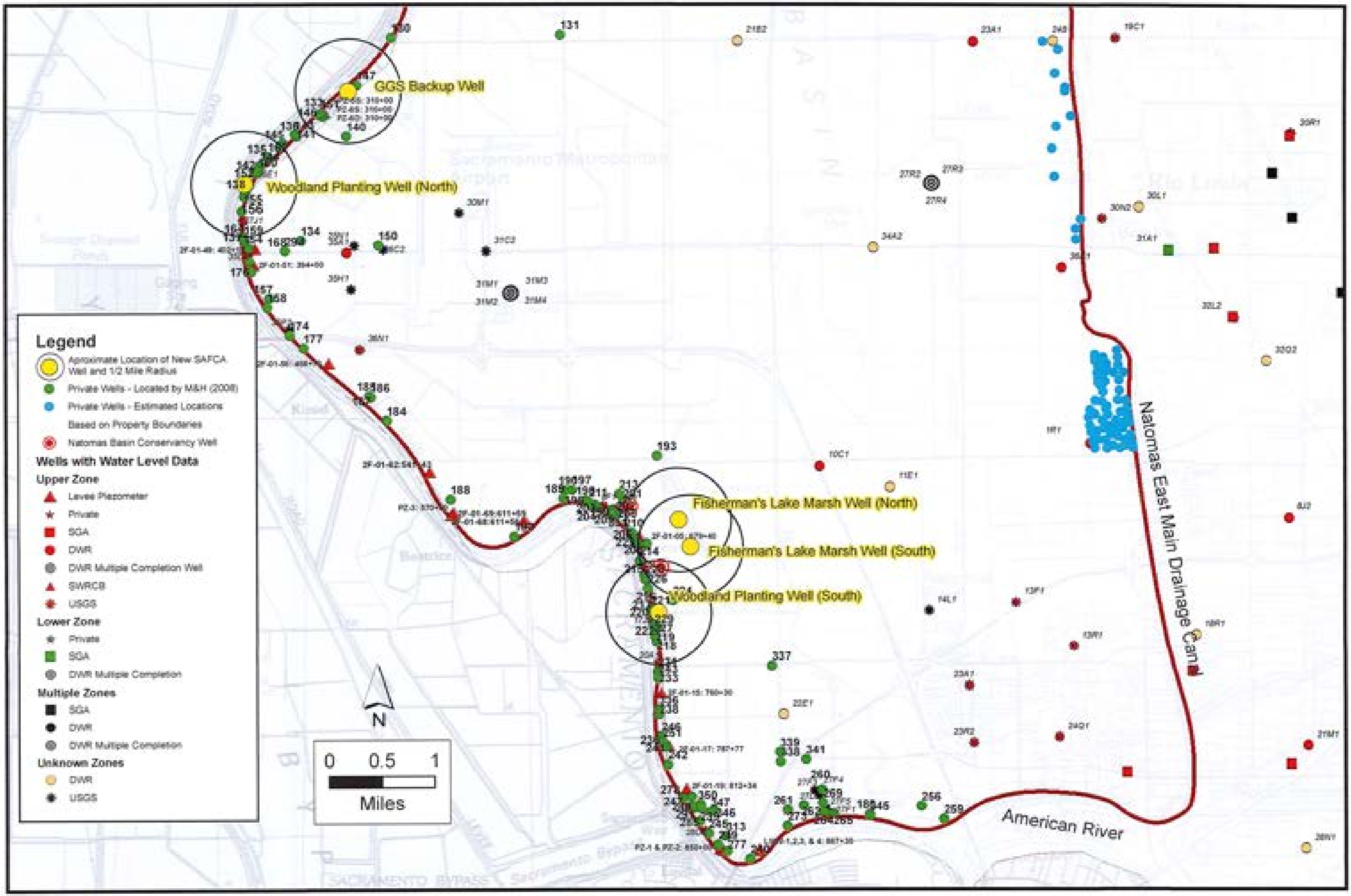
1. Estimates based on data provided by River Partners for existing woodland plantings in Reach 2.

Table 3
Pumpage Estimate for Natomas Basin Conservancy Natomas Farms Well Based on Power Use Records

	Estimated Pumpage					Estimated Irrigation Rate				
Month	**2009 (af)**	**2008 (af)**	**2007 (af)**	**2006 (af)**	**2005 (af)**	**2009 (af/ac)**	**2008 (af/ac)**	**2007 (af/ac)**	**2006 (af/ac)**	**2005 (af/ac)**
Jan	133	48	77			3.7	1.3	2.1		
Feb	63	27	76	56		1.7	0.7	2.1	1.5	
Mar	23		69			0.6		1.9		
Apr				10	78				0.3	2.1
May					17					0.5
Jun										
Jul				13					0.4	
Aug										
Sep										
Oct				52	10				1.4	0.3
Nov										
Dec				51					1.4	
Total	**219**	**75**	**221**	**183**	**104**	**6.1**	**2.1**	**6.1**	**5.0**	**2.9**

Assumptions:

1. Estimated well efficiency = 65 percent (based on pump curve and current well capacity of 1,200 gpm)
2. Assumed energy usage = 200 kwh/af (based on data for other wells with similar size pumps and similar efficiencies)
3. Estimated irrigated acreage = 36.2 acres (managed marsh and open water areas only)



FILE: \\server_pe2900\Public\SAFCA\GIS\Figure 1 Proposed SAFCA Wells for Habitat Mitigation.mxd Date: 8/3/2009

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Figure 1
Proposed SAFCA Wells for Habitat Mitigation and Existing Wells In and Near the Natomas Basin

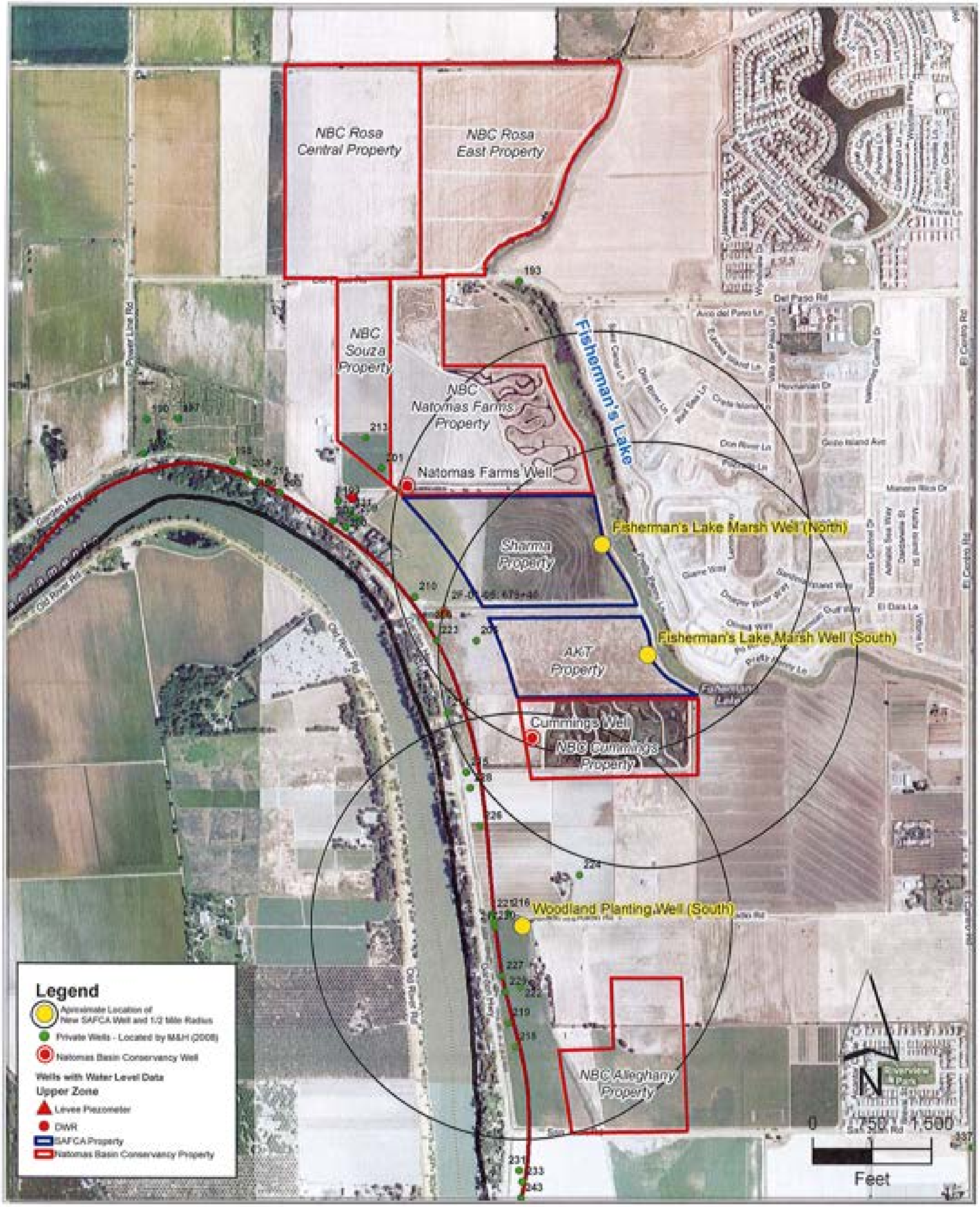

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Figure 2
SAFCA and Natomas Basin Conservancy Properties and Wells Near Fisherman's Lake

A2 Drawdown and Mutual Interference due to Proposed Fisherman's Lake Marsh Wells

MEMORANDUM

LUHDORFF & SCALMANINI
CONSULTING ENGINEERS

DATE: October 30, 2009 **FILE NO.:** 07-1-084

TO: David Rader, EDAW
David Breinke, Mead & Hunt
Timothy Washburn, SAFCA

FROM: Glenn Browning

SUBJECT: POTENTIAL IMPACTS OF PROPOSED FISHERMAN'S LAKE MARSH WELLS

The Sacramento Area Flood Control Agency (SAFCA) plans to construct up to three wells for habitat mitigation in the Fisherman's Lake area (Reach 13) as part of the Phase 4a Natomas Levee Improvement Project. All wells would be operated by The Natomas Basin Conservancy (TNBC) to irrigate existing or new managed marsh east of the Sacramento River East Levee (SREL) and west of Fisherman's Lake. The initial evaluation of the potential impacts of the Fisherman's Lake marsh wells was summarized in a memorandum prepared by Luhdorff & Scalmanini, Consulting Engineers (LSCE) on August 5, 2009. That analysis has been updated due to revised well locations and water demand estimates.

As discussed below, SAFCA has the option of constructing either two or three new wells to irrigate managed marsh in the Fisherman's Lake area. The new wells will supplement an existing well owned by TNBC on the Natomas Farms property. Another existing TNBC well on the Cummings property will be abandoned to make way for planned levee improvements and will be replaced by one of the new wells. Existing and proposed locations of the Fisherman's Lake marsh wells (based on three new wells) are shown on **Figure 1**. From north to south, these wells are as follows:

- Natomas Farms Well – existing TNBC well
- Sharma Property Well – proposed well
- Angelo K. Tsakopoulos (AKT) Property Well – proposed well
- Cummings Well – existing TNBC well to be abandoned
- Johnson Property Well – proposed well

If only two new wells are constructed, they would be located on the Sharma and Johnson properties, as discussed below.

TNBC currently irrigates managed marsh on the Natomas Farms and Cummings properties west of Fisherman's Lake, primarily using surface water supplied by the Natomas Central Mutual Water Company (NCMWC). Groundwater has historically been used to supplement surface water supplies during the winter months (November through March) when NCMWC does not normally deliver water. In the future, TNBC would prefer to use surface water pumped from Fisherman's Lake or nearby drainage canals as the primary winter water supply, but this will require changes to NCMWC policies in addition to infrastructure changes. If those changes occur, the wells would be needed primarily for backup supply during dry years. The analysis of potential impacts described below is applicable whether groundwater is the primary or secondary source of supply for managed marsh during the winter months.

Exiting and proposed managed marsh acreages in the Fisherman's Lake area are summarized in **Table 1**. TNBC's Natomas Farms property contains approximately 52 acres of managed marsh complex, including 36 acres of irrigated wetland/aquatic habitat and 16 acres of non-irrigated marsh-associated upland habitat. TNBC's Cummings property contains about 41 acres of managed marsh complex, including approximately 30 acres of wetland/aquatic habitat and 11 acres of marsh-associated upland habitat.

SAFCA plans to transfer ownership of four additional parcels west of Fisherman's Lake (Natomas Urban Development [NUD], Sharma, AKT, and Johnson) to TNBC for creation of managed marsh and upland habitat. The estimated habitat acreage to be developed on these properties is shown in **Table 1**. The area of additional marsh complex ranges from approximately 16 acres on the NUD property to 48 acres on the Sharma property. Current plans call for wetland and aquatic habitat to be created on about 60 percent of the marsh complex areas. The total proposed area of new managed marsh complex is about 123 acres, which includes about 74 acres of wetland and aquatic habitat. When habitat creation is complete, the total area of managed marsh west of Fisherman's Lake will be about 215 acres, including approximately 140 acres of irrigated wetland/aquatic habitat and 75 acres of non-irrigated marsh-associated upland habitat.

Water Demand and Supply

Water demand for wetland and aquatic habitat on all parcels was estimated based on data for TNBC's Natomas Farms property. As explained in LSCE's August 5, 2009 memorandum, pumpage from the existing Natomas Farms and Cummings wells is not metered, and 2005-2009 pumpage estimates were based on SMUD power use records for the Natomas Farms well (see **Table 2**). The Natomas Farms well is 290 feet deep and has perforated intervals of 120-140 feet, 180-200 feet, and 270-290 feet below ground surface (bgs). A pump test was conducted in the well in August 2009, and a capacity of 1,100 gallons per minute (gpm) was reported. Based on the power use records and a well efficiency of 60 percent, the estimated annual pumpage ranged from a low of 75 acre-feet (af) to a high of about 220 af, as shown in **Table 2**. The estimated monthly pumpage was largest in January 2009 (133 af), followed by volumes of 76 to 78 af in April 2005 and January and February 2007. Since it began operation in 2005, the Natomas Farms well has not pumped for more than three consecutive months in any year. On a per acre basis, the largest monthly water demands were about 3.7 af per acre (af/ac) of managed marsh in January 2009 and 2.1 af/ac in April 2005 and January and February 2007.

Pumping Rates Based on Four Wells

Water demand to irrigate the Fisherman's Lake managed marsh areas during the winter months was estimated separately for the properties north and south of the Plant 3 Drainage Canal (**Figure 1** and **Table 3**). The Natomas Farms, NUD, and Sharma properties are located north of the Drainage Canal. If SAFCA elects to construct three new wells, one of these would be located on the Sharma property to supplement pumpage by the existing Natomas Farms well. Based on the estimated maximum Natomas Farms monthly water demand of 3.7 af/ac, the peak water demand for these properties would be about 276 af/mo or 2,080 gpm. The existing Natomas Farms well and the new well to be constructed on the Sharma property would each need to pump about 1,040 gpm to meet this demand. Water demands in other months were assumed to be about 2.1 af/ac (total of 157 af/mo), which corresponds to a total pumping rate of 1,180 gpm (590 gpm per well).

The AKT, Cummings, and Johnson properties are located south of the Plant 3 Drainage Canal (**Figure 1** and **Table 3**). The existing well on the TNBC Cummings property would be abandoned. If SAFCA chooses to construct three new wells, two of these would be located on the AKT and Johnson properties. Based on the estimated Natomas Farms monthly water demand of 3.7 af/ac, the maximum water demand for these properties would be 241 af/mo or about 1,820 gpm. New wells constructed on the AKT and Johnson properties could supply this peak demand by pumping about 910 gpm each. Water demands in other months were assumed to be about 2.1 af/ac (total of 137 af/mo), which corresponds to a total pumping rate of 1,030 gpm (515 gpm per well).

Pumping Rates Based on Three Wells

If only two new wells are constructed, the peak water demand for all properties would remain the same (about 517 af/mo) based on the estimated maximum Natomas Farms monthly water demand of 3.7 af/ac (about 3,900 gpm). Since the existing Natomas Farms well has a capacity of about 1,100 gpm, the two new wells to be constructed on the Sharma and Johnson properties would need to pump about 1,400 gpm each to supply this demand. Water demands in other months were assumed to be about 2.1 af/ac (total of 293 af/mo), which corresponds to a pumping rate of 2,210 gpm (735 gpm for each of the three wells).

Well Construction and Capacities

Construction information and capacities for the existing and proposed wells is shown in **Table 4**. The new wells would be about 400 feet deep with a perforated interval of approximately 100 to 400 feet bgs. Perforations shallower than 100 feet are not be recommended because this would increase impacts at nearby domestic wells. If three new wells are constructed, the design capacities should be at least 1,500 gpm for each well. If only two new wells are constructed, the design capacities should be at least 2,000 gpm for each well. The design capacities need to be larger than the estimated peak pumping rates partly because TNBC has experienced problems with calcification of well screens in this area. This can result in reduced well capacities over time even if regular maintenance is performed.

Simulated Drawdown

In order to estimate the drawdown at nearby off-site wells and the mutual interference caused by the Fisherman's Lake marsh wells, a simple single-layer analytical groundwater flow model based on the Theis (1935) equation was used to simulate the proposed pumping. A transmissivity of 7,600 ft^2/day and a storage coefficient of 0.005 were used in the model based on aquifer testing conducted east of Reach 4A. The simulations assumed continuous pumping for a three-month period based on estimated water demands of 3.7 af/ac of wetland/aquatic habitat for the first month and 2.1 af/ac for the following two months. The results were used to estimate the drawdown at nearby domestic wells located near the SREL in close proximity to the existing and proposed Fisherman's Lake marsh wells. The mutual interference among the Fisherman's Lake marsh wells was also estimated based on the model results. The results show that the maximum drawdowns and mutual interference would occur at the end of the first month, and those results are discussed below.

Existing Conditions (Based on Two Wells)

In order to compare existing and future pumping impacts, the analytical model was first used to estimate the drawdown caused by the two existing TNBC wells after one month of pumping. The simulated pumping rate for the Natomas Farms well was 970 gpm based on the January 2009 water demand of 3.7 af/ac. The simulated pumping rate for the Cummings well was 470 gpm based on the current well capacity determined from pump testing conducted in August 2009. The estimated mutual pumping interference is about three feet at the Natomas Farms well and five feet at the Cummings well. The estimated mutual interference is relatively small because the existing TNBC wells are spaced about 3,000 feet apart. As shown on **Figure 2**, the maximum simulated drawdown at nearby domestic wells is about 14 feet, and the simulated drawdown at most domestic wells is 12 feet or less.

Future Conditions (Based on Four Wells)

The analytical model was also used to estimate drawdowns due to future pumping of the existing Natomas Farms well and the proposed new wells. If three new wells are constructed, the minimum spacing between wells would be about 1,800 feet. As shown on **Table 3**, the simulated pumping rates are based on a peak water demand of 3.7 af/ac/mo (about 3,900 gpm total):

- Natomas Farms Well – 1,040 gpm
- Sharma Property Well – 1,040 gpm
- AKT Property Well – 910 gpm
- Johnson Property Well – 910 gpm

Contours of simulated drawdown after one month of pumping at these rates are shown on **Figure 3**. The model results indicate that the maximum mutual interference would be about 18 feet at the well to be constructed on the AKT property. Mutual interference at the existing Natomas Farms well is estimated to be about 13 feet (10 feet more than under existing conditions). Although this mutual interference will result in slightly reduced yields and increased pumping costs, it is considered to be a significant impact for deep irrigation wells.

The maximum predicted drawdown due to all four Fisherman's Lake marsh wells is about 25 feet at the closest domestic wells and 22 feet or less at most domestic wells. The maximum drawdown is estimated to be about 11 feet more than under existing conditions. This drawdown would not be expected to cause significant reductions in the yield of nearby domestic wells for two reasons:

- The pumping would occur during the winter months when groundwater levels are normally high and other pumping in the area is low.
- Most of the water pumped by the Fisherman's Lake marsh wells would come from deeper, semi-confined aquifers. Domestic wells in this area mapped by Mead & Hunt (2008) range in depth from 91 to 160 feet, with an average of about 125 feet. Drawdowns in these relatively shallow wells would be less than those estimated with the single-layer model because there would be little overlap between the perforated intervals of the domestic wells and the deeper irrigation wells.

<u>Future Conditions (Based on Three Wells)</u>

The peak pumping rates simulated above are very low compared to the typical capacities of irrigation wells in the Natomas Basin. This presents SAFCA with the option of constructing only two new wells to supplement the existing Natomas Farms well. If two wells are constructed, one would be located in the eastern portion of the Sharma property and the other would be located in the northeastern corner of the Johnson property. Under this option, the well spacing would increase to about 2,800 feet. Because there would be only one well south of the Plant 3 Drainage Canal, a pipeline would be required to transport water from north to south across the canal. The cost of the pipeline would likely be much less than the cost of constructing a third new well.

Estimated pumping rates based on a total of three wells are shown on **Table 3**. The cumulative pumping rate would remain the same (about 3,900 gpm). It is assumed that the Natomas Farms well would continue to pump at its current capacity of 1,100 gpm, and the remaining water would be pumped by the two new wells:

- Natomas Farms Well – 1,100 gpm
- Sharma Property Well – 1,400 gpm
- Johnson Property Well – 1,400 gpm

The simulated drawdown caused by this pumping is shown on **Figure 4**. The simulated maximum mutual interference would decrease to about 14 feet due to the greater well spacing.

Mutual interference at the existing Natomas Farms well is estimated to be about 12 feet (nine feet more than under existing conditions).

The maximum predicted drawdown at nearby domestic wells due to three Fisherman's Lake marsh wells is the same as for four wells: about 25 feet at the closest wells and 22 feet or less at other domestic wells. The maximum drawdown is about 11 feet more than under existing conditions. This drawdown would not be expected to cause significant reductions in the yield of nearby domestic wells

Woodland Planting Well

As discussed in LSCE's August 5, 2009 memorandum, SAFCA also plans to install two wells to irrigate young trees to be planted in woodland corridors east of the SREL. The northern woodland planting well would be located in Reach 7 and would irrigate about 21 acres of woodland corridor in Reaches 7 and 8. The southern woodland planting well would be used to irrigate about 25 acres in Reaches 12A to 14. This well was originally proposed to be located south of Radio Road as shown on **Figure 1**, but this location is outdated since current plans do not call for the southern woodland corridor to extend south of Radio Road. A well located near Pumping Plant 3 (in the western portion of the Sharma or AKT properties) would be more centrally located. However, as discussed below, the southern woodland planting well may be unnecessary because water to irrigate this woodland corridor could be supplied by one or more of the Fisherman's Lake marsh wells.

The woodland planting corridors will only be irrigated for the first three to five years until the trees become established. Continued irrigation will be unnecessary after the roots reach the water table, which is relatively shallow along the SREL. Irrigation would be most frequent in the summer months, especially during the first two years, and the frequency would decrease beginning in the third year. Assumptions about the irrigation schedule and flow rates are based on data provided by River Partners for existing woodland plantings in Reach 2. The irrigation schedule and water demand based on the existing woodland plantings are shown in **Table 5**. The irrigation schedule ranges from 24 hours every other week in March and November to 24 hours three times a week in July and August during the first two years. The average plant spacing is 12.5 feet, resulting in a plant density of about 280 plants per acre. The plants are irrigated with a drip system, and each emitter has an output of two gallons per hour (gph). If all plants are irrigated simultaneously, the flow rate would need to be 560 gph or 9.3 gpm per acre. This is a conservative estimate because the drip system would likely be divided into sets so that the irrigation schedule could be staggered.

Based on a flow rate of 9.3 gpm per acre, a total flow rate of 233 gpm would be needed to irrigate the southern woodland planting corridor. The maximum water demand is estimated to be 8.2 af/mo (total of 44 af/yr) and would decrease to 37 af/yr by the third year. Most of this demand would occur during May through October, with the highest demand occurring in July and August. Thus, the woodland planting water demand would occur in different seasons from the portion of the managed marsh water demand supplied by groundwater. Therefore, one of the proposed Fisherman's Lake marsh wells could be used for both purposes. Although some piping would be required, it would be much less expensive than constructing an additional well just to irrigate the southern woodland corridor for a three to five-year period.

Summary and Recommendations

SAFCA plans to construct two or three new wells to be used by TNBC to irrigate managed marsh habitat west of Fisherman's Lake. The new wells would be used along with the existing Natomas Farms well for water supply during the winter months. One of the new wells would be a replacement for the existing TNBC Cummings well, which would be abandoned due to levee construction activities. TNBC would prefer to irrigate these properties with surface water except during critically-dry years, but that will require changes to NCMWC policies in addition to infrastructure changes. This study evaluated the potential impacts on nearby domestic wells and mutual pumping interference caused by the proposed Fisherman's Lake marsh wells. Those impacts could occur in any year if groundwater continues to be the primary source of supply during the winter months but would be limited to dry years if TNBC is able to transition to surface water as the primary source of supply.

Only a total of about 140 acres of these parcels (the wetland and aquatic habitat areas) would be irrigated. The resulting water demand is small enough that SAFCA could supply the water with a total of three wells, including two new wells. The model results indicate that impacts at nearby domestic wells would be similar and mutual interference would be about 25 percent lower if only two new wells are constructed. The two well option would be recommended due to the reduced mutual interference and a significant savings in construction costs.

Based on three new wells plus the existing Natomas Farms well, pumping for a one month period at the projected peak rate is predicted to cause about 18 feet of mutual interference. If only two new wells are constructed, the estimated mutual interference would decrease to about 14 feet. These estimates compare with approximately three to five feet of mutual interference under existing conditions. The additional mutual interference will result in slightly reduced yields and increased pumping costs but is considered to be a minor impact for deep irrigation wells.

The model results indicate that there would be up to 25 feet of drawdown at the closest domestic wells based on construction of either two or three new wells. This represents an additional 11 feet of drawdown compared with pumping of the two existing TNBC wells. This additional drawdown would occur during the winter months and would not be expected to cause significant reductions in the yield of nearby domestic wells. Groundwater levels in the western portion of the Natomas Basin are high and have remained relatively stable over time, and these conditions are not expected to change due to pumpage from these or other proposed habitat mitigation wells.

Revised plans call for the southern woodland corridor to end in Reach 14 at Radio Road. If a separate well is constructed to irrigate woodland plantings in this corridor, it would likely be moved north to the western portion of the Sharma or AKT properties. This well is considered to be redundant, however, because most of the irrigation of woodland plantings would occur when the proposed Fisherman's Lake marsh wells would otherwise be idle (the late spring, summer, and early fall). It would be more cost effective to use one of the proposed Fisherman's Lake marsh wells for both purposes instead of constructing a separate well to irrigate the woodland corridor.

Table 1
Habitat Acreage West of Fisherman's Lake

Status	Property	Managed Marsh Complex (ac)			Upland Habitat/Other (ac)	Total (ac)
		Wetland/Aquatic Habitat[1]	Marsh-Associated Upland Habitat	Marsh Complex Total[2]		
Existing	TNBC Natomas Farms	36.2	15.5	51.7	89.5	141.2
	TNBC Cummings	30.0	11.0	41.0	25.8	66.8
	Total	**66.2**	**26.5**	**92.7**	**115.3**	**208.0**
Proposed	Natomas Urban Development	9.5	6.4	15.9	5.0	20.9
	Sharma	28.8	19.2	48.0	35.2	83.2
	AKT	22.0	14.6	36.6	27.8	64.4
	Johnson	13.2	8.8	22.0	68.5	90.5
	Total	**73.5**	**49.0**	**122.5**	**136.5**	**259.0**
Total		**139.7**	**75.5**	**215.2**	**251.8**	**467.0**

1. For proposed managed marsh areas, wetland/aquatic acreage assumed to be 60% of total marsh complex acreage per Mead & Hunt (2009).
2. Proposed managed marsh complex acreage for NUD, Sharma, and AKT parcels per Mead & Hunt (2009) based on 60% design submittal.

Table 2
Pumpage Estimate for Natomas Basin Conservancy Natomas Farms Well Based on Power Use Records

Month	Estimated Pumpage					Estimated Irrigation Rate				
	2009 (af)	**2008 (af)**	**2007 (af)**	**2006 (af)**	**2005 (af)**	**2009 (af/ac)**	**2008 (af/ac)**	**2007 (af/ac)**	**2006 (af/ac)**	**2005 (af/ac)**
Jan	133	48	77			3.7	1.3	2.1		
Feb	63	27	76	56		1.7	0.7	2.1	1.5	
Mar	23		69			0.6		1.9		
Apr				10	78				0.3	2.1
May					17					0.5
Jun										
Jul				13					0.4	
Aug										
Sep										
Oct				52	10				1.4	0.3
Nov										
Dec				51					1.4	
Total	**219**	**75**	**221**	**183**	**104**	**6.1**	**2.1**	**6.1**	**5.0**	**2.9**

Assumptions:

1. Estimated well efficiency = 60 percent (based on August 4, 2009 pump test by Knutsen Pump Testing)
2. Estimated energy usage = 200 kwh/af (based on August 4, 2009 pump test by Knutsen Pump Testing)
3. Estimated irrigated acreage = 36.2 acres (wetland and aquatic habitat areas only provided by TNBC)

Table 3
Fisherman's Lake Marsh Wells:
Estimated Peak Water Demand and Pumping Rates

Location	Property	Wetland/ Aquatic Habitat Acreage[1]	Estimated Peak Water Demand			Pumping Rates for Individual Wells During Peak Month (gpm)			
			(af/ac/mo)	(af)	(gpm)	Natomas Farms	Sharma	AKT	Johnson
Pumping Rates Based on 4 Wells									
North of Plant 3 Drainage Canal	Natomas Farms	36.2	3.7	134					
	Natomas Urban Development	9.5	3.7	35					
	Sharma	28.8	3.7	107					
	Total	**74.5**		**276**	**2,080**	**1,040**	**1,040**		
North of Plant 3 Drainage Canal	AKT	22.0	3.7	81					
	Cummings	30.0	3.7	111					
	Johnson	13.2	3.7	49					
	Total	**65.2**		**241**	**1,820**			**910**	**910**
Total		**139.7**		**517**	**3,900**				
Pumping Rates Based on 3 Wells									
North of Plant 3 Drainage Canal	Natomas Farms	36.2	3.7	134					
	Natomas Urban Development	9.5	3.7	35					
	Sharma	28.8	3.7	107					
	Total	**74.5**		**276**	**2,080**	**1,100**	**1,400**		
North of Plant 3 Drainage Canal	AKT	22.0	3.7	81					
	Cummings	30.0	3.7	111					
	Johnson	13.2	3.7	49					
	Total	**65.2**		**241**	**1,820**				**1,400**
Total		**139.7**		**517**	**3,900**				

1. Wetland/aquatic habitat acreage from Table 1.

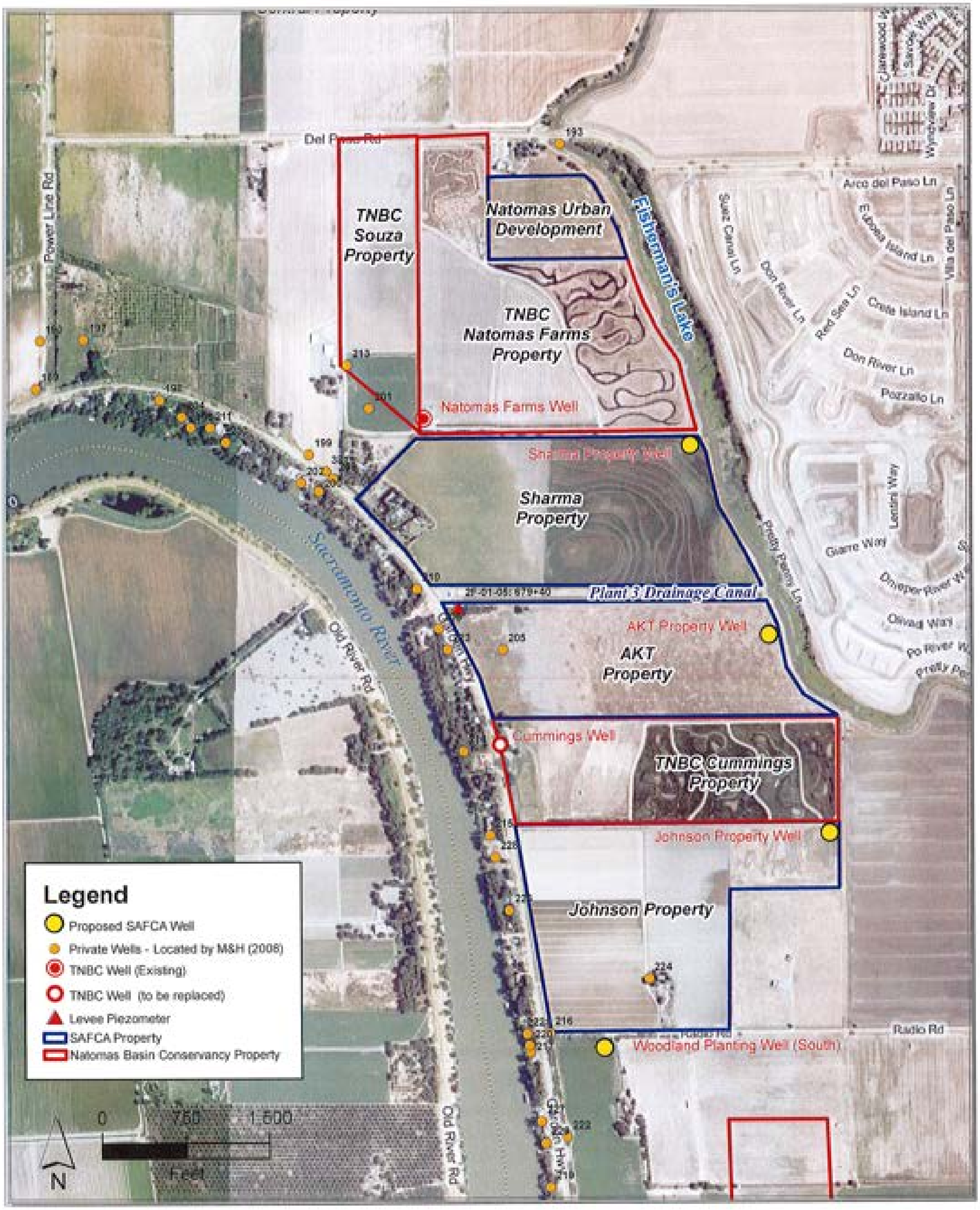
Table 4
Fisherman's Lake Marsh Complex Wells

Property Name	Status of Well	Perforated Interval (ft)	Existing Capacity (gpm)	Design Capacity (gpm)	Estimated Peak Monthly Pumpage (af)		Average Pumping Rate During Peak Month (gpm)	
					4 Wells	3 Wells	4 Wells	3 Wells
Existing Wells								
Natomas Farms	Existing	120-290	1,100	NA	138	121	1,040	1,100
Cummings	Existing (To Be Abandoned)	NA	470	NA	-	-	-	-
Total					**138**	**121**	**1,040**	**1,100**
New Wells (3)								
Sharma	Proposed	~100-400	-	1,500	138		1,040	
AKT	Proposed	~100-400	-	1,500	121		910	
Johnson	Proposed	~100-400	-	1,500	121		910	
Total					**379**		**2,860**	
New Wells (2)								
Sharma	Proposed	~100-400	-	2,000		198		1,400
Johnson	Proposed	~100-400	-	2,000		198		1,400
Total						**396**		**2,800**
Total (New and Existing Wells)								
Total					**517**	**517**	**3,900**	**3,900**

Table 5
Water Demand Estimate for Woodland Planting Corridors[1]

Year	Month	Irrigation Schedule	Monthly Operation (hours)	Water Demand (gph/ac)	Water Demand (gpm/ac)	Water Demand (gal/ac)	Water Demand (af/ac)	Northern Corridor (21 acres)		Southern Corridor (25 acres)	
								Water Demand (af)	Pumping Rate (gpm)	Water Demand (af)	Pumping Rate (gpm)
1 & 2	Jan	-	-	-	-	-	-	-	-	-	-
	Feb	-	-	-	-	-	-	-	-	-	-
	Mar	24 x 2	48	558	9.3	26,784	0.08	1.73	195	2.05	233
	Apr	16 x 4	64	558	9.3	35,712	0.11	2.30	195	2.74	233
	May	24 x 4	96	558	9.3	53,568	0.16	3.45	195	4.11	233
	Jun	24 x 6	144	558	9.3	80,352	0.25	5.18	195	6.16	233
	Jul	24 x 8	192	558	9.3	107,136	0.33	6.90	195	8.22	233
	Aug	24 x 8	192	558	9.3	107,136	0.33	6.90	195	8.22	233
	Sep	24 x 6	144	558	9.3	80,352	0.25	5.18	195	6.16	233
	Oct	24 x 4	96	558	9.3	53,568	0.16	3.45	195	4.11	233
	Nov	24 x 2	48	558	9.3	26,784	0.08	1.73	195	2.05	233
	Dec	-	-	-	-	-	-	-	-	-	-
	Total		1,024			571,392		36.82		43.84	
3	Jan	-	-	-	-	-	-	-	-	-	-
	Feb	-	-	-	-	-	-	-	-	-	-
	Mar	24 x 2	48	558	9.3	26,784	0.08	1.73	195	2.05	233
	Apr	16 x 4	64	558	9.3	35,712	0.11	2.30	195	2.74	233
	May	24 x 4	96	558	9.3	53,568	0.16	3.45	195	4.11	233
	Jun	24 x 4	144	558	9.3	80,352	0.25	5.18	195	6.16	233
	Jul	24 x 4	192	558	9.3	107,136	0.33	6.90	195	8.22	233
	Aug	24 x 4	192	558	9.3	107,136	0.33	6.90	195	8.22	233
	Sep	8 x 4	144	558	9.3	80,352	0.25	5.18	195	6.16	233
	Oct	-	-	-	-	-	-	-	-	-	-
	Nov	-	-	-	-	-	-	-	-	-	-
	Dec	-	-	-	-	-	-	-	-	-	-
	Total		880			491,040		31.65		37.67	

1. Estimates based on data provided by River Partners for existing woodland plantings in Reach 2.



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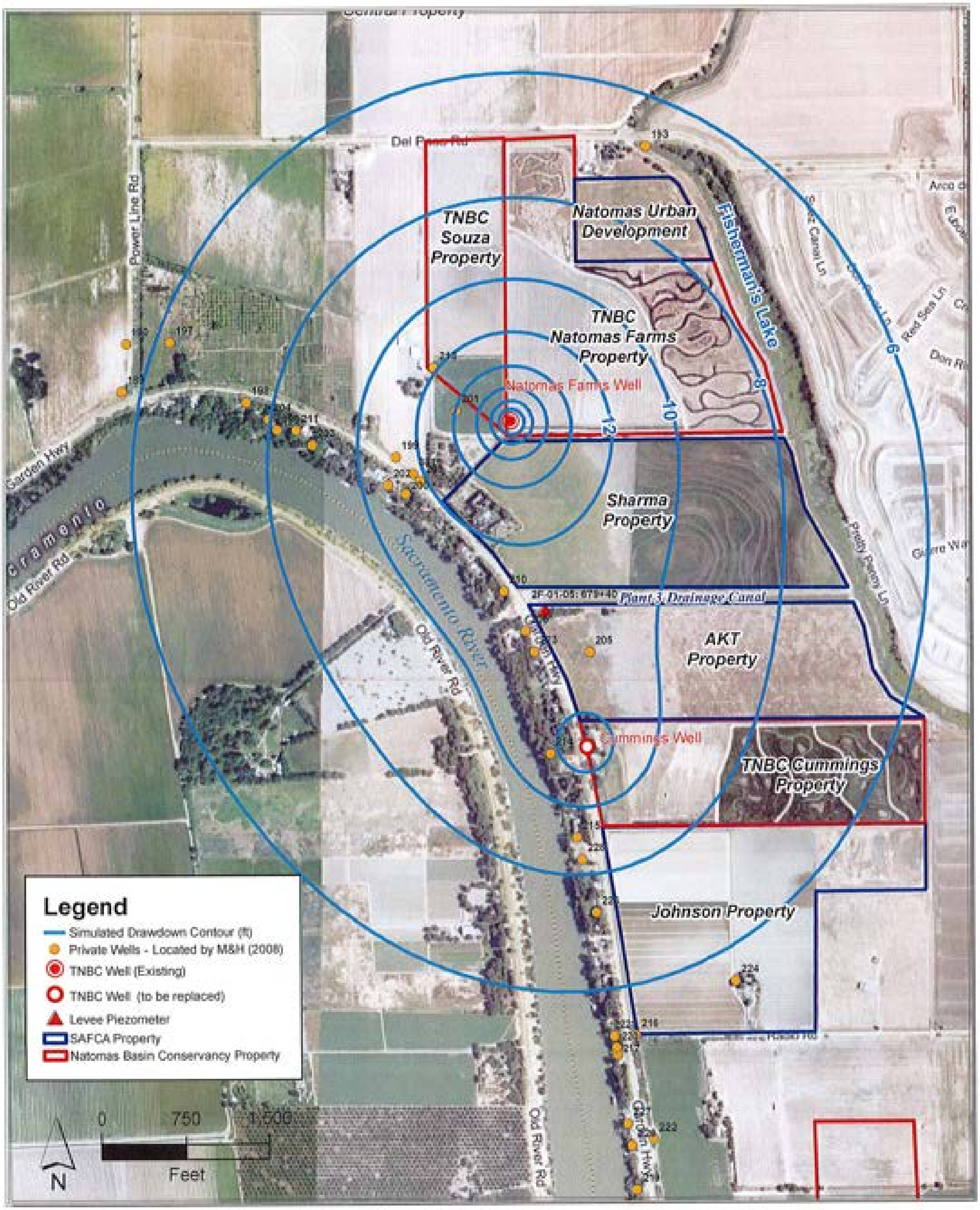
CONSULTING ENGINEERS

Figure 1
Existing and Proposed Fisherman's Lake Marsh Wells



FILE: C:\Documents and Settings\tnguyen.LSCEDOMAIN\Desktop\Job files\SAFCA\Figure 2 Simulated drawdown contour.mxd Date: 10/22/2009

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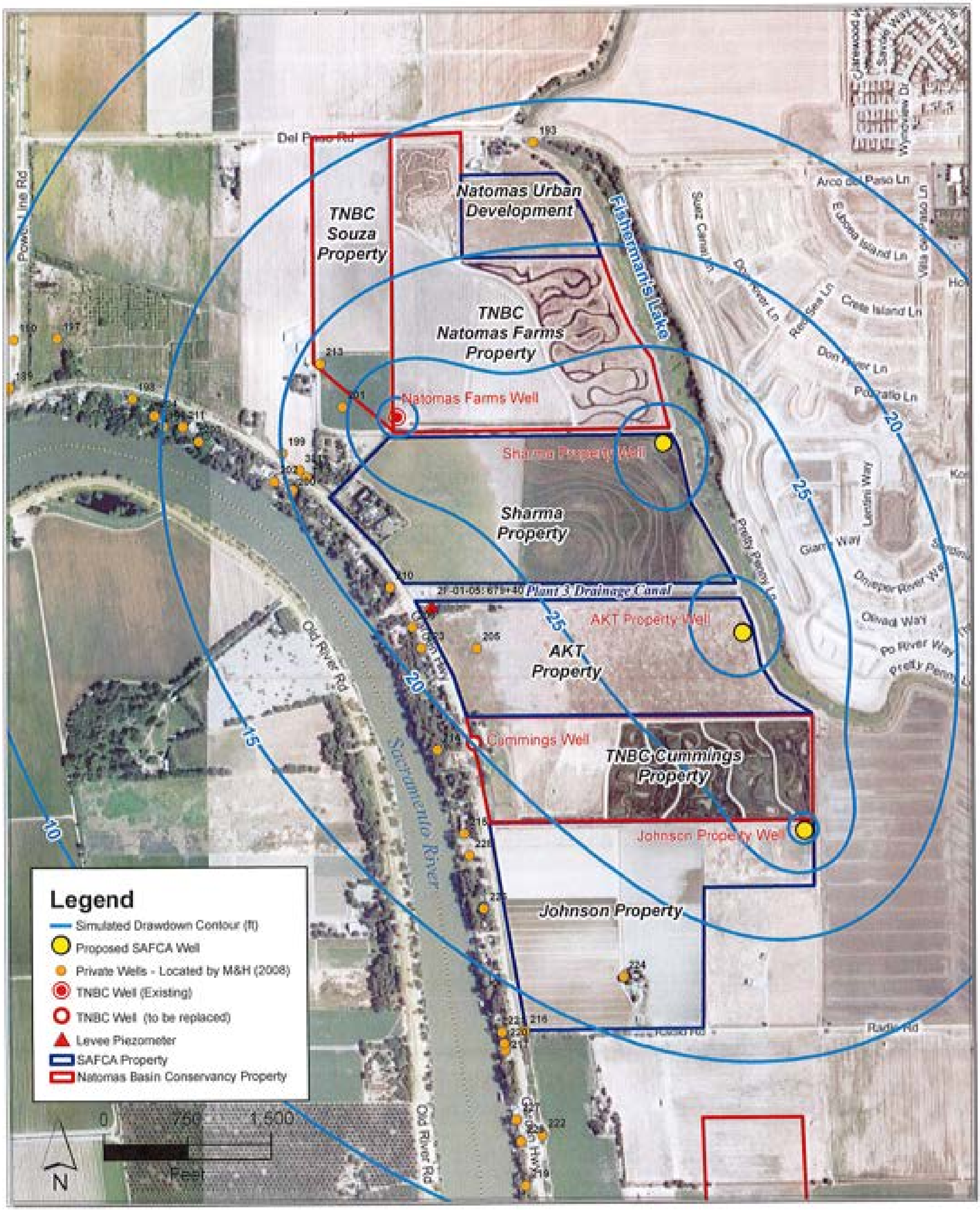
Figure 2
Simulated Drawdown Due to Existing Natomas Basin Conservancy Fisherman's Lake Marsh Wells



FILE: C:\Documents and Settings\tnguyen.LSCEDOMAIN\Desktop\Job files\SAFCA\Figure 3b1 Simulated drawdown contour.mxd Date: 10/23/2009

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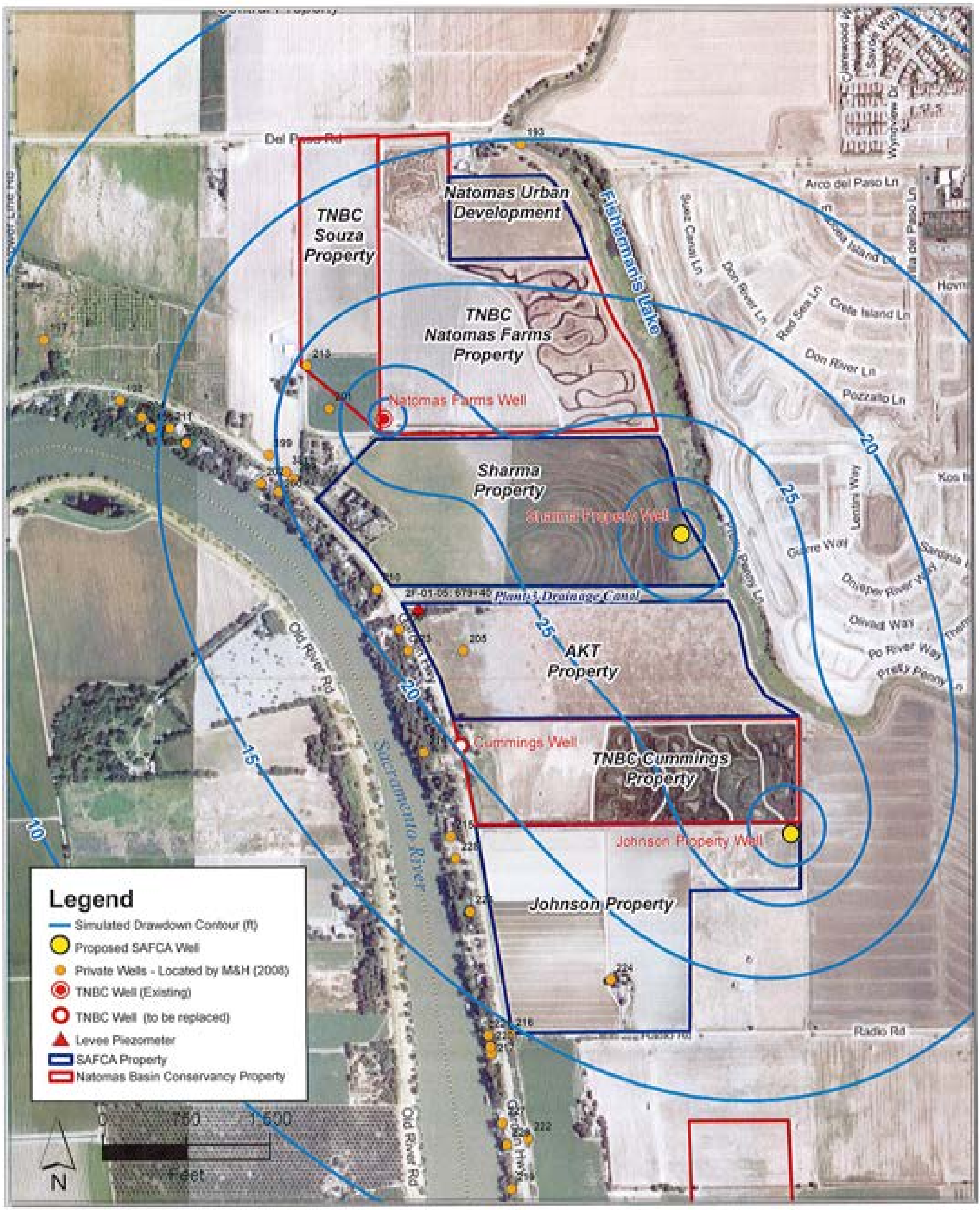
Figure 3
Simulated Drawdown Due to Existing and Proposed Fisherman's Lake Marsh Wells (4 Wells Total)



FILE: C:\Documents and Settings\nguyen.LSCEDOMAIN\Desktop\Job files\SAFCA\Figure 3b1 Simulated drawdown contour.mxd Date: 10/23/2009

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Figure 4
Simulated Drawdown Due to Existing and Proposed Fisherman's Lake Marsh Wells (3 Wells Total)

APPENDIX B

Borrow Site Environmental Conditions

(Revised from Phase 4a DEIS/DEIR Version)

BORROW SITE ENVIRONMENTAL CONDITIONS
SOUTH SUTTER/THORNTON PROPERTY
(APN 201-0250-015, 201-0270-002, -037)
NOVAK PROPERTY (APN 225-0090-040)
HUFFSTUTLER/JOHNSON TRUST PROPERTY
(APN 225-0110-019, -020, -036)
SACRAMENTO COUNTY, CALIFORNIA

October 29, 2009

A Report Prepared for:

Mr. John Bassett
Sacramento Area Flood Control Agency
1007 7th Street, 7th Floor
Sacramento, California 95814

BORROW SITE ENVIRONMENTAL CONDITIONS
SOUTH SUTTER/THORNTON PROPERTY
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Kleinfelder Job No. 94582

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October 29, 2009

KLEINFELDER
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1 EXECUTIVE SUMMARY

An assessment of environmental conditions existing on three properties was conducted for the Sacramento Area Flood Control Agency (SAFCA). The three properties are identified as the South Sutter/Thornton (South Sutter), Novak, and Huffstutler/Johnson Trust (Huffstutler) properties. Levee improvements are proposed to be constructed on the properties as part of the Natomas Levee Improvement Program (NLIP). The properties are also proposed for use as sources of borrow soil during construction of the NLIP improvements. The NLIP encompasses approximately 45 perimeter miles of terrain with some interior reach. The Garden Highway is at the western and southern borders, the Natomas Cross Canal is at the northern border, and the East Levee Road and Natomas Road form the eastern border.

In summary, concentrations of pesticide residues, including organochlorine pesticides (OCPs) and arsenic, were detected in soil samples collected from the properties at concentrations that exceed some default environmental and human health risk screening levels. Consequently, Kleinfelder further evaluated the detected pesticide residues considering existing site conditions, proposed NLIP construction activities, and post-improvement land use.

Based on these factors, Kleinfelder believes concentrations of the OCP toxaphene that were detected in soil samples from the South Sutter and Novak properties do not currently pose ecological or human health risks requiring mitigation. It is also unlikely that the existing conditions on the site pose a threat to neighboring properties. Even so, ordinary dust control and worker personal hygiene practices will be required during construction activities to mitigate exposure of on-site construction workers, consistent with usual occupational health and safety requirements, and to prevent undue exposure of nearby off-site receptors. Evaluation of levee improvement construction activities, including use of the South Sutter and Novak properties for borrow soil, indicates that the work will not create health risks requiring mitigation or exacerbate existing environmental conditions, and may improve upon existing environmental conditions. The proposed land use for the South Sutter and Novak properties after construction is completed is expected to reduce ecological or human health risks relative to current conditions.

Kleinfelder concludes that concentrations of arsenic detected in soil samples from the Huffstutler property may pose human health risks on the site requiring mitigation or remediation during construction work. However, it is unlikely that current conditions on the site pose a threat to neighboring properties provided that fugitive dust emissions are controlled during construction work. The detected pesticide residue concentrations on the site are not inconsistent with accepted agricultural practices. However, the detected concentrations may present a long-term potential for ecological risk and are not appropriate for land uses that provide habitat for ecological receptors.

Commonly used dust control and worker personal hygiene practices are recommended during construction activities to reduce exposure of on-site construction workers and nearby off-site human populations to health risks associated with pesticide residues. With appropriate controls, levee improvement construction activities (which include use of the Huffstutler property for borrow soil) are not expected to pose risks requiring mitigation or remediation or exacerbate existing environmental conditions, but may improve upon current environmental conditions. Because the proposed land use for the Huffstutler property after construction will provide habitat for ecological receptors, the pesticide residues in the topsoil likely would pose excess ecological risks. The ecological risk posed by arsenic and dieldrin could be mitigated through removal and encapsulation by using the soil to construct the proposed seepage berm.

2 INTRODUCTION

The Natomas Levee Improvement Program (NLIP) encompasses approximately 45 perimeter miles of terrain with some interior reach. The Garden Highway is at the western and southern borders, the Natomas Cross Canal is at the northern border, and the East Levee Road and Natomas Road form the eastern border. As a part of the Area-Wide Due Diligence Assessment (DDA) for properties proposed for acquisition within the NLIP, SAFCA requested Kleinfelder evaluate environmental conditions in advance of acquisition and disturbance of the site for levee improvements.

Land use, both past and present, on the properties in the NLIP region is predominantly agricultural and rural residential. Given the long-term agricultural use, it is expected that physical features such as wells, underground pipelines for irrigation, and septic systems, and agricultural practices such as pesticide application would be associated with many of these properties. The proposed future development of the area is for levee improvement and protection of habitat for threatened and endangered species. Future land use may include a variety of options: excavation of borrow material for levee construction, continued agricultural production, conversion to grassland or forested habitat, marshland, and public utility levee construction. As land is converted from one use to another, it is prudent to consider potential issues such as whether residual pesticides from past operations are compatible with the proposed future land use, and whether there are short-term and/or long-term risks to human health or the environment associated with excavation and movement of soil during and following construction.

To assist SAFCA in evaluating potential environmental impacts associated with past and current uses of the properties, Kleinfelder conducted Phase I ESAs for properties proposed for acquisition. The Phase I ESAs were conducted in general accordance with the scope and limitations in ASTM E1527-05 and the State of California Department of Water Resources' *State-Federal Flood Control Systems Modification-Early Implementation Project-Land Acquisition Process* (S-FFCSM-EIP-LAP), and the All Appropriate Inquiry (AAI) standards of the Small Business Liability and Revitalization Act (the "Brownfields Law").

When the Phase I ESA results suggested additional evaluation was needed, Kleinfelder conducted limited surface soil sampling at specific properties to assess for the potential presence of pesticide residues typically associated with past agricultural land use. Soil samples collected at these properties were analyzed for pesticide residue compounds such as persistent organochlorine pesticides and the inorganic metals/metalloids arsenic, copper, and lead. If pesticide residues were detected, the concentrations were initially compared to the San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels (ESLs), May 2008 update (SFBRWQCB, 2008) as a means of assessing the need for further site investigation or mitigation. These ESLs are not intended to determine whether a condition is hazardous or must be reported to a regulatory agency. Rather, they are conservative values that can be used to screen whether a chemical can be assumed to not pose a significant, long-term threat to human health or the environment, or whether additional evaluation is warranted. Under most circumstances, when a chemical is present in soil or groundwater at concentrations below its corresponding ESL, it can be assumed to not pose a significant, long-term threat to human health or the environment. ESLs are discussed further in Section 4.3.

3 PURPOSE

The purpose of this report is to evaluate potential effects of environmental conditions on construction of the proposed levee and associated structures. The general approach used to evaluate environmental conditions for the NLIP is described in Section 2, Introduction. Specifically, this report summarizes the existing environmental conditions on three properties that were found during the initial screening process to warrant further assessment. The properties, and the associated assessor parcel numbers (APNs) are:

- South Sutter/Thornton property (APN 201-0250-015, 201-0270-002, -037)
- Novak property (APN 225-0090-040), and
- Huffstutler/Johnson Trust property (APN 225-0110-019, -020, -037)

Soil from these properties is proposed to be used as borrow material in the NLIP. Therefore SAFCA desires to evaluate potential effects of environmental conditions at these properties on construction of the proposed levee and associated structures.

Phase I ESAs were performed on the South Sutter, Novak, and Huffstutler properties. These properties historically have been used for agricultural purposes. No evidence was found to suggest that the properties were used for a purpose other than agriculture in those areas being evaluated for borrow material for the NLIP, with the exception of rural residential land use at the Huffstutler property since 1952. To support use of the properties for borrow soil during the NLIP construction, sampling was performed to evaluate current conditions associated with historical use of agricultural chemicals.

Concentrations of pesticide residues (organochlorine pesticides, arsenic, copper, and lead) were detected in soil samples collected from the properties. The pesticide residue concentrations appear to be consistent with concentrations found on fields at other agricultural properties. Further, they do not constitute a reportable condition or an imminent threat to public health, welfare or the environment. For these reasons, ESLs are considered an appropriate means of screening whether a residual pesticide can be assumed to not pose a significant, long-term threat to human health or the environment, or whether additional evaluation is warranted. Although some pesticide residue concentrations exceeded ESLs, no evidence was found to suggest improper application or disposal of pesticides took place on the properties. In addition, none of the detected concentrations exceeded the California hazardous waste thresholds (e.g. Total Threshold Limit Concentrations and Soluble Threshold Limit Concentrations); therefore, site soil used as borrow material does not meet the definition of hazardous waste. Issues related to hazardous waste classification are discussed further in Section 5.5.3.

4 HUMAN HEALTH RISK EVALUATION

4.1 HUMAN HEALTH SCREENING AND REGULATORY LEVELS

The detected residual pesticide results were evaluated further by comparing to published screening level criteria (discussed below), in the context of planned future land uses. Consideration was made for the routes by which materials may be encountered by humans, resulting in exposure, and the potential for exposure to sensitive biota (i.e. mammals, birds, plants, etc.). For the purposes of this screening evaluation only, adjacent properties were assumed to be residential, which provides a conservative, health protective evaluation of potential impacts to both residents and workers. Where the default assumptions incorporated into development of published regulatory screening levels are inappropriate for site conditions, the default assumptions are modified to more accurately reflect site specific conditions, where possible.

4.2 EXISTING SITE CONDITIONS

Current site conditions at the South Sutter, Novak, and Huffstutler properties are described below. Evaluation of current conditions was based on the results of the Phase I ESA and limited soil sampling conducted to assess for the potential presence of residual pesticides on the areas proposed for use as borrow material.

4.2.1 South Sutter Property

Based on information reviewed during preparation of the Phase I Environmental Site Assessment (ESA) for the South Sutter property, the area evaluated for borrow material has been used for agricultural purposes dating to at least 1961 (Kleinfelder, 2009a, b). There was no evidence of other land uses on the area evaluated for borrow material revealed during the South Sutter property Phase I ESA. Based upon the Phase I ESA results, the proposed use as borrow material, and at the request of SAFCA, Kleinfelder conducted surface soil sampling to assess for the potential presence of residual pesticides associated with past agricultural use (Kleinfelder, 2009f).

Soil samples were collected from the South Sutter property in January and March 2009. The sample locations are shown on Plate 1. The samples were submitted for laboratory analysis of OCPs, chlorinated herbicides, and the inorganic metals/metalloids arsenic, copper, and lead, which may be associated with pesticide mixtures. Analytical results are presented on Table 1; laboratory reports are included in Appendix B. Detected concentrations were initially compared to the ESLs for soil leaching and residential scenarios to screen for whether the chemical could be assumed to not pose a significant, long-term threat to human health or the environment, or whether additional evaluation was warranted.

Composite surface soil samples collected at the South Sutter property came from the upper 6 inches of soil. The OCP toxaphene was detected in four of eight composite surface samples (4:1 composites) at concentrations ranging from 0.036 to 0.19 milligrams per kilogram (mg/kg, or parts per million, ppm). The detected concentrations of toxaphene exceeded the soil leaching ESL of 0.00042 mg/kg. The soil leaching ESL for toxaphene is based on potential leaching from soil and migrating to surface water with subsequent impact to aquatic habitat, and is more conservative than values for protection of soil habitat or for human health. The residential direct exposure ESL for toxaphene is 0.46 mg/kg (SFBRWQCB 2008, Table K-1). Discrete soil samples collected from greater depths did not contain detectable concentrations of toxaphene. In addition, the OCP dieldrin was detected in one composite sample at a concentration of 0.0061 mg/kg, which exceeded the soil leaching ESL of 0.002 mg/kg. The residential direct exposure ESL for dieldrin is 0.0034 mg/kg (SFBRWQCB 2008, Table K-1). Dieldrin was not detected in the other composite or discrete soil samples. The OCP DDD (a breakdown product of DDT) and DDE were detected in one and three composite soil samples respectively, and these concentrations were below their respective ESLs. Therefore, further evaluation of DDD and DDE is not included in this evaluation.

Arsenic was detected in each soil sample at concentrations ranging from 4.1 to 11 mg/kg. While these concentrations exceeded the residential direct exposure ESL of 0.39 mg/kg, they are consistent with typical background concentrations for arsenic in Central Valley alluvium (commonly 5 to 10 mg/kg) (USGS, 1984, DTSC, undated). Copper and lead were detected in each soil sample at concentrations well below their respective ESLs (Kleinfelder, 2009f).

Results for the pesticide residues of potential concern are summarized in the table below.

South Sutter Property					
	Summary of Analytical Results (mg/kg)				SFBRWQCB Soil Leaching ESL
Analyte	**Minimum**	**Maximum**	**Mean**	**95UCL on Mean**	
Toxaphene	ND(0.020)	0.19	0.031	0.070	0.00042
Dieldrin	ND(0.0010)	0.0061	0.0014	---	0.0023

ND: Not detected. Reporting Limit in ( )
---: Could not be calculated (too few detected values).
Values for OCPs reflect conversion of units from µg/kg to mg/kg
Mean: arithmetic average, the sum of n numbers divided by n, which is a measure of central tendency; ND values calculated at DL/2.
95UCL: the upper confidence limit at a confidence of 95%; i.e., the probability that the actual mean is equal to or less than the 95UCL is 0.95.

At California agricultural properties, detected concentrations of toxaphene typically range between 0.01 and 5.97 mg/kg. Dieldrin typically ranges between 0.004 to 0.031 mg/kg (DTSC, 2008a). The maximum detected concentration of toxaphene at the South Sutter property was 0.19 mg/kg. This concentration is within the range DTSC observed at other agricultural sites and is less than the residential direct exposure ESL for toxaphene of 0.46 mg/kg (SFBRWQCB 2008, Table K-1). Therefore, the soil concentrations at South Sutter do not indicate a release to the environment that would represent an Imminent and Substantial Endangerment according to DTSC (DTSC, 1993).

The single detection of dieldrin of 0.0061 mg/kg (one detection in 22 samples) at the South Sutter property is within the concentration range observed by DTSC at agricultural properties. The concentration at this property does not constitute a reportable condition or an imminent threat to public health, welfare or the environment.

4.2.2 Novak Property

Based on information reviewed during the Phase I ESA for the Novak property, the area evaluated for borrow material has been used for agricultural purposes dating to at least 1922 (Kleinfelder, 2009c). There was no evidence of other land uses on the area evaluated for borrow material revealed during the Novak property Phase I ESA. Based upon the Phase I ESA results, the proposed use as borrow material, and at the request of SAFCA, Kleinfelder conducted surface soil sampling to assess for the potential presence of residual pesticides associated with past agricultural use (Kleinfelder, 2009g).

Soil samples were collected from the Novak property in September 2008 and in April and July 2009. The sample locations are shown on Plate 2. The samples were submitted for laboratory analysis of OCPs, chlorinated herbicides, and the inorganic metals/metalloids arsenic, copper, and lead, which may be associated with pesticide mixtures. Analytical results are presented on Table 2; laboratory reports are included in Appendix B. Detected concentrations were initially compared to the ESLs for soil leaching and residential scenarios to screen for whether the chemical could be assumed to not pose a significant, long-term threat to human health or the environment, or whether additional evaluation is warranted.

At the Novak property, composite samples were collected from the upper 6 inches of soil (shallow soil). Toxaphene was detected in the five composite surface soil samples at concentrations that ranged from 0.11 to 0.14 mg/kg. Additionally, discrete soil samples also collected from 0 to 6 inches below ground surface (bgs) contained detectable toxaphene concentrations ranging from 0.046 to 0.16 mg/kg; these results are consistent with the composite sample results. Discrete soil samples collected in the interval from 6 inches to one foot bgs contained detectable toxaphene concentrations ranging from 0.023 to 0.22 mg/kg, which exceed the soil leaching ESL of 0.00042 mg/kg. The residential direct exposure ESL for toxaphene is 0.46 mg/kg (SFBRWQCB 2008, Table K-1). Discrete soil samples collected from depths greater than one foot bgs did not contain detectable concentrations of toxaphene (laboratory reporting limit of 0.020 mg/kg). No other OCPs were detected in soil samples collected from the proposed borrow area on the Novak property.

Arsenic was detected in each soil sample at concentrations ranging from 6.1 to 10 mg/kg. These concentrations are consistent with typical background concentrations for arsenic in Central Valley alluvium (USGS, 1984, DTSC undated). Copper and lead were detected in each sample at concentrations well below their respective ESLs (Kleinfelder, 2009g).

Results for the pesticide residues of potential concern are summarized in the following table.

Novak Property					
	Summary of Analytical Results (mg/kg)				SFBRWQCB Soil Leaching ESL
Analyte	**Minimum**	**Maximum**	**Mean**	**95UCL on Mean**	
Toxaphene	ND(0.020)	0.22	0.10	0.12	0.00042

ND: Not detected. Reporting Limit in ( )
Values for OCPs reflect conversion of units from µg/kg to mg/kg
Mean: arithmetic average, the sum of n numbers divided by n, which is a measure of central tendency; ND values calculated at DL/2.
95UCL: the upper confidence limit at a confidence of 95%; i.e., the probability that the actual mean is equal to or less than the 95UCL is 0.95.

The maximum detected concentration of toxaphene at the Novak property was 0.22 mg/kg. This concentration is within the range observed by DTSC at other agricultural sites (DTSC, 2008a) and is less than the residential direct exposure ESL of 0.46 mg/kg (SFBRWQCB 2008, Table K-1). Therefore, the soil concentrations do not indicate a release to the environment that would represent an Imminent and Substantial Endangerment according to DTSC (DTSC, 1993).

4.2.3 Huffstutler Property

Based on information reviewed during the Phase I ESA for the Huffstutler property, the area evaluated for borrow material was used for agricultural purposes since at least 1952 (Kleinfelder, 2009d). There was no evidence of other land uses on the area evaluated for borrow material revealed during the Huffstutler property Phase I ESA. A limited Phase II ESA was conducted by another consultant at the site during 2006 (WKA, 2006). This Phase II ESA revealed the presence of detectable concentrations in soil of the OCPs dieldrin, DDT, and DDE (a breakdown product of DDT), as well as concentrations of arsenic and lead in excess of likely background concentrations. Based upon the Phase I ESA results, the proposed use as borrow material, and at the request of SAFCA, Kleinfelder conducted surface soil sampling to assess for the potential presence of residual pesticides associated with past agricultural use (Kleinfelder, 2009e). Soil samples were collected from the Huffstutler property in January, February, and July 2009. The sample locations are shown on Plate 3. The samples were submitted for laboratory analysis of OCPs, chlorinated herbicides, and the inorganic metals/metalloids arsenic, copper, and lead, which may be associated with pesticide mixtures. Analytical results are presented on Table 3; laboratory reports are included in Appendix B. Detected concentrations were initially compared to the ESLs for soil leaching and residential scenarios to screen for whether the chemical could be assumed to not pose a significant, long-term threat to human health or the environment, or whether additional evaluation is warranted.

Composite samples were collected at the Huffstutler property from the upper 6 inches of soil (shallow soil) on site. Dieldrin was detected in the nine composite surface samples collected from the southernmost parcel (APN 225-0110-036) at concentrations ranging from 0.020 to 0.10 mg/kg. Discrete samples collected from a depth of 1 to 1.5 feet bgs did not contain detectable concentrations of dieldrin. In addition, DDT and DDE were detected in the nine composite samples, but at concentrations well below their respective ESLs; DDD was detected in 6 of 9 composite samples at concentrations below its ESL. Toxaphene was not detected in soil samples collected from the Huffstutler property.

Arsenic was detected in each composite soil sample at concentrations ranging from 12 to 36 mg/kg. Based on DTSC's estimated background concentrations for arsenic in soil in California, these concentrations were judged to exceed typical background concentrations for arsenic in Central Valley alluvium. Discrete soil samples collected from 6 inches to 1 foot bgs contained detectable arsenic concentrations ranging from 6.3 to 43 mg/kg. Discrete soil samples collected from 1 to 1.5 feet bgs contained detectable arsenic concentrations ranging from 7.3 to 36 mg/kg. Discrete soil samples collected between 1.5 and 2 feet bgs contained detectable arsenic concentrations ranging from 5.4 to 12 mg/kg; concentrations at this depth appear to be consistent with typical background concentrations in Central Valley alluvium (DTSC, undated). Copper and lead were detected at concentrations well below their respective ESLs (Kleinfelder, 2009e).

Results for the pesticide residues of potential concern are summarized in the table below.

Toxaphene was not detected at the Huffstutler property. The range of detected dieldrin concentrations at the Huffstutler property, 0.02 to 0.1 mg/kg, is greater than the range of dieldrin concentrations found by DTSC at other agricultural properties, which typically ranges between 0.004 to 0.031 mg/kg (DTSC, 2008a). The concentrations at this property do not constitute a reportable condition or an imminent threat to public health or welfare or the environment; nevertheless, these results may indicate it is appropriate to manage site soils to control the presence of dieldrin.

Huffstutler Property (APN 225-0110-020 & -036)					
	Summary of Analytical Results (mg/kg)				SFBRWQCB Soil Leaching ESL
Analyte	**Minimum**	**Maximum**	**Mean**	**95UCL on Mean**	
Arsenic	5.4	43	16	21	0.39
Dieldrin	ND(0.0010)	0.10	0.025	0.043	0.0023

ND: Not detected. Reporting Limit in ( )
Values for OCPs reflect conversion of units from µg/kg to mg/kg
Mean: arithmetic average, the sum of n numbers divided by n, which is a measure of central tendency; ND values calculated at DL/2.
95UCL: the upper confidence limit at a confidence of 95%; i.e., the probability that the actual mean is equal to or less than the 95UCL is 0.95.

4.3 PROJECT IMPACTS

As discussed in Section 4.2, concentrations of pesticide residues detected in soil were initially compared to soil leaching residential ESLs to evaluate the potential for human and ecological risk. Because some ESLs were exceeded on each of the three properties, additional evaluation of potential risks was conducted. Identification of potentially-exposed human populations, exposure pathways, and project-specific screening levels is discussed in this section as well as in Section 4.5.

The NLIP involves implementation of flood protection measures for existing levees along the Sacramento River east levee. This is proposed to be accomplished by construction of a new, larger levee adjacent to and on the landside of the existing levee. Depending on native soil conditions and site access restrictions, additional measures may include construction of seepage berms or cutoff walls. Construction involves stripping approximately 1 foot of vegetative matter and topsoil from the landside toe of the existing levee within the footprint of the new adjacent levee. Suitable soil for construction of the levee will be excavated from several borrow sites, including the three properties discussed in this report. Borrow activities generally will consist of stripping and stockpiling topsoil, followed by excavation, transportation, and placement of borrow within the new adjacent levee. Additional borrow soil will be used to construct seepage berms where they are needed. Stockpiled topsoil not adversely impacted by pesticide residues generally will be returned to the borrow excavation and re-spread.

The future land uses of these three properties (continued agricultural production, grassland or forested habitat, marshland, temporary construction staging and public utility levees) are expected to result in minimal human exposure to residual pesticides.

There is a potential for construction workers to be exposed by direct contact with soil containing pesticide residues during earthwork. Additionally, unmitigated fugitive dust emitted from the sites during construction could migrate in ambient air to adjacent properties. Considering these future land uses and potential exposure for humans, soil screening levels were selected for the following media and routes of exposure:

- Over a long-duration exposure, dust emitted to ambient air at off-site residential property;
- Over a short duration exposure, construction workers coming into direct contact with soil from various depths, and dust emitted to ambient air during earthmoving operations;

When the SFBRWQCB developed ESLs for individual constituents, various potentially exposed populations and exposure pathways were evaluated for each constituent. In general, the ESL for a particular constituent represents the lowest value among the several screening levels that were developed for the potentially exposed populations and exposure pathways that were evaluated. Because different populations are not all affected in the same way by various constituents, the population and exposure pathway represented by the ESL for one constituent may not be the same population and pathway as for another constituent. The ESL table for a residential direct exposure scenario was used to evaluate current conditions. The ESL table for construction worker direct exposure was used to evaluate risks during the soil management phase of the project.

Table 4 (attached) presents the screening levels for arsenic, dieldrin, and toxaphene for construction worker direct exposure. The ESL for pesticide residues to leach from soil is based upon risk to an ecological habitat in surface water. Therefore the ESL for soil leaching is used for evaluation of ecological risks, discussed in Section 5.

In addition to using ESLs to evaluate direct exposure risk for construction workers, other criteria were used to evaluate potential risks related to pesticide residues in airborne dust. The United States Occupational Health and Safety Administration (OSHA) published permissible exposure limits (PELs) for the pesticide residuals that were detected on the properties, and for airborne particulates (dust). The PELs are standards that can be used to monitor and control construction worker exposure to pesticide residues in airborne dust.

The California Environmental Protection Agency (Cal EPA) Office of Environmental Health Hazard Assessment (OEHHA) has published short-term ambient air exposure standards for several constituents, including arsenic. OEHHA has established Acute and 8-hour Reference Exposure Levels (RELs) for arsenic of 0.2 $\mu g/m^3$ and 0.015 $\mu g/m^3$, respectively (OEHHA 2008). The RELs can be used as monitoring standards for off-site dust emissions to residential properties during construction activities. However, OEHHA has not established RELs for toxaphene or dieldrin. The USEPA Region IX Regional Screening Level tables (RSLs, USEPA, 2009) include ambient air screening levels for toxaphene (0.0076 $\mu g/m^3$) and dieldrin (0.00053 $\mu g/m^3$) that can be used to evaluate potential exposures of residential populations in lieu of RELs. The RSLs consider long-term (chronic) exposures, and so are more conservative than short-term standards such as the Acute and 8-hour RELs. The REL and RSL ambient air screening levels may be used by site managers as potential air monitoring standards for off-site dust emissions during and after on-site construction activities and are presented below. Airborne dust mitigation is discussed further in Section 4.5.

Ambient Air Screening Levels

Pesticide Residue	OSHA PEL Construction Worker Ambient Air (µg/m³)	OEHHA REL Off-Site Ambient Air (µg/m³)	USEPA Region 9 RSL Off-Site Ambient Air (µg/m³)
Arsenic	10	0.2 (acute) 0.015 (8-hour)	0.00057 [a]
Dieldrin	500	NA	0.00053
Toxaphene	250	NA	0.0076

Notes:
[a] Presented for reference, but not used for screening.
NA: Not applicable
PEL: OSHA Permissible Exposure Limit
REL: Reference Exposure Levels: values from OEHHA Technical Support Document for Derivation of Noncancer Reference Exposure Levels, Appendix D
RSL: Residential Screening Levels: values from USEPA RSLs for ambient air concentrations.

4.4 CONCLUSIONS

The results of limited Phase II ESAs performed on the three properties revealed the presence of detectable concentrations of the OCPs toxaphene and dieldrin, as well as arsenic elevated above background concentrations. The concentrations exceed ESLs that account for all potentially exposed populations. Project-specific screening levels (presented in Section 4.3) were identified to evaluate potential exposure of construction workers and off-site residents that may result from the project. Conclusions regarding the potential risks to human receptors are presented in the following paragraphs. Mitigation measures are described Section 4.5.

Airborne concentrations of the detected pesticide residues may pose an unacceptable risk to site workers and off-site populations under some conditions. Mitigation of potential human health risks posed by airborne concentrations is discussed in Section 4.5.

4.4.1 South Sutter Property

Toxaphene was detected in soil on the South Sutter property. The maximum detected concentration of toxaphene at the site was 0.19 mg/kg. The maximum detected concentration is less than the ESL for construction worker direct exposure (see Table 4). Under foreseeable conditions, current toxaphene concentrations do not pose a human health risk to neighboring properties requiring mitigation. Further, appropriate fugitive dust controls for construction activities will mitigate exposure and potential health risks for construction workers and neighboring populations. Fugitive dust mitigation is discussed in Section 4.5.

4.4.2 Novak Property

Toxaphene also was detected in soil on the Novak property. The maximum detected concentration of toxaphene in surface soil at the site was 0.22 mg/kg, which also is less than the ESL for construction worker direct exposure (see Table 4). Under foreseeable conditions, current toxaphene concentrations do not pose a human health risk to neighboring properties requiring mitigation. Further, appropriate fugitive dust controls for construction activities will mitigate exposure and potential health risks for construction workers and neighboring populations. Fugitive dust mitigation is discussed in Section 4.5.

4.4.3 Huffstutler Property

Dieldrin was detected in surface soil on the Huffstutler property. The maximum detected concentration of dieldrin in surface soil at the site was 0.10 mg/kg, which is below the ESL for construction worker direct exposure (see Table 4). Under foreseeable conditions, current dieldrin concentrations do not pose a human health risk to neighboring properties requiring mitigation and are not expected to pose an unacceptable direct contact risk to construction workers. Further, appropriate fugitive dust controls for construction activities will mitigate exposure and potential health risks for construction workers and neighboring populations. Fugitive dust mitigation is discussed in Section 4.5.

Arsenic was detected at concentrations greater than the background concentration in soil samples collected from the Huffstutler property. The maximum detected arsenic concentration was 43 mg/kg, which exceeds the ESL for construction worker direct exposure. Arsenic could pose a potential direct exposure risk to construction workers if left unmitigated. Unmitigated fugitive dust emitted during construction work could expose construction workers and neighboring populations to arsenic in ambient air during soil management. Mitigation measures are described below. Under current and foreseeable land use conditions, arsenic does not pose a human health risk to neighboring properties requiring mitigation other than fugitive dust control during construction activities.

4.5 MITIGATION

Considering the current environmental conditions at the three properties, the selection of mitigation measures during construction of the proposed levee and associated structures should consider the following:

- Soil management implications concerning possible construction worker exposure during construction, which should be accomplished using best management practices for occupational exposures.
- Soil management implications concerning fugitive dust emitted during construction, which again can be accomplished using established best management practices for reducing dust generation during construction.

4.5.1 Construction Worker Protection During Construction

Earthwork during NLIP construction activities has the potential to emit fugitive dust containing residual pesticides. At high enough concentrations, residual pesticides in fugitive dust could pose an unacceptable risk to on-site construction workers. If not controlled, fugitive dust could also migrate beyond property boundaries and expose off-site residents during construction work. Should site properties continue to be used for agricultural production, dust could be emitted during crop management and expose agricultural workers and affect off-site residential ambient air. Therefore, potential risks to on-site workers and off-site residents were evaluated to determine the need for dust monitoring or control measures.

Construction work involving soil movement may generate significant fugitive dusts to the breathing space of construction workers. The respirable portion of fugitive dusts generated from soils containing pesticide residues may also contain pesticide residues.

The ESLs for construction workers presented in Table 4 incorporate chronic airborne emissions equivalent to 1 mg/m^3 of fugitive dust in calculating screening levels for chronic exposure. Therefore, evaluation of risks presented in Section 4, by comparing pesticide residue concentrations in soil, also addressed construction worker chronic exposure to pesticide residues in ambient air.

However, over a short duration (i.e. one to eight hours), greater than 1 mg/m^3 fugitive dust could be generated at a construction site such that, instead of pesticide residues, it is the particulate nature of dust that could adversely impact construction worker health. OSHA has published a PEL for fugitive dusts; respirable Particulates Not Otherwise Specified (NOS) of 5 mg/m^3 averaged over an 8-hour duration. Potentially, use of this Particulates NOS standard as the upper limit of fugitive dust in breathing air could result in a short duration construction worker exposure to pesticide residues present in 5 mg/m^3 of respirable particulates. Therefore, the ambient air concentration of pesticide residues was evaluated assuming a respirable particulate concentration of 5 mg/m^3 in the equation below using the maximum detected concentration of each pesticide residue in soil. The calculated ambient air concentration was then compared to OSHA PELs for each of the pesticide residues.

Construction Work Ambient Air (µg/m^3) =
Soil Concentration (mg/kg) x 1000 µg/mg x 5 mg/m^3 x 0.000001 kg/mg

The calculated ambient air concentration of each pesticide residue is compared to its respective OSHA PEL in the table below.

Evaluation of Construction Worker Short Duration Exposure

Pesticide Residue	Maximum Detected Soil Concentration (mg/kg)	Calculated Ambient Air Concentration (µg/m^3)	OSHA PEL TWA (µg/m^3)
Arsenic	43	0.215	10
Dieldrin	0.10	0.0005	500
Toxaphene	0.22	0.0011	250

mg/kg – milligrams per kilogram
µg/m^3 – micrograms per cubic meter of air
TWA – 8-hour time weighted average
NA – not applicable

Based upon the results above, limiting fugitive dust emissions to the respirable Particulate NOS standard of 5 mg/m^3 is also protective of construction workers for potential pesticide residue exposure. At a concentration of 5 mg/m^3 Particulate NOS, ambient air concentrations of arsenic, dieldrin, and toxaphene will be at least an order of magnitude less than their respective OSHA PELs.

4.5.2 Off-Site Resident Protection During Construction

Dusts generated during on-site construction work could migrate to the breathing zone of off-site residents and cause a short duration exposure (i.e. 1-hour acute exposure or 8-hour sub-chronic exposure) through inhalation of fugitive dust. Management of dust emissions for the protection of construction workers will minimize dust migration to off-site residential ambient air. However, out of an abundance of caution, dust monitoring at the project boundaries (referred to herein as "fenceline") adjacent to residential properties may be conducted to manage exposure to dust concentrations that potentially exceed residential ambient air screening levels. The ambient air screening level for fugitive dusts containing pesticide residues was calculated from the maximum soil concentration of each pesticide residue with the following equation:

Fenceline Particulate NOS not to exceed residential ambient air screening levels of pesticide residues (mg/m^3) =
Ambient Air Screening Level ($\mu g/m^3$) / [Soil Concentration (mg/kg) x 1000 µg/mg x 0.000001 kg/mg]

The calculated Fenceline Particulate NOS for each pesticide residue is presented in the table below:

Fenceline Particulate NOS for Residential Ambient Air Screening Levels

Pesticide Residue	Maximum Detected Soil Concentration (mg/kg)	Residential Ambient Air Screening Level (ug/m^3)	Fenceline Particulate NOS Standard (mg/m^3)
Arsenic (Acute)	43	0.2	4.7
Arsenic (8-hour)	43	0.0015	0.35
Dieldrin	0.10	0.00053	5.3
Toxaphene	0.22	0.0076	35

mg/kg – milligrams per kilogram
ug/m^3 – micrograms per cubic meter of air
mg/m^3 – milligrams per cubic meter of air

Based upon the results above, a Fenceline Particulate NOS standard is recommended for protection of off-site residential populations when arsenic is a constituent of concern. Where arsenic is not a constituent of concern, a Fenceline Particulate NOS standard is not necessary provided dust is managed to meet the construction worker Particulate NOS standard of 5 mg/m^3. Arsenic is only a constituent of concern for the Huffstutler Property; consequently, limiting fugitive dust emissions at the Huffstutler Property boundaries to a Fenceline Particulate NOS 0.35 mg/m^3 will be protective of off-site residential populations for exposure to ambient air pesticide residues during construction work.

Normal dust control measures (soil wetting, etc.) should be sufficient for achieving protection of construction workers and off-site residents. Periodic airborne particulate monitoring can be performed during earthwork activities to demonstrate compliance with the recommended construction worker Particulate NOS standard of 5 mg/m^3 and the Fenceline Particulate NOS standard of 0.35 mg/m^3.concentrations.

4.5.3 On-Site Agricultural Worker and Off-Site Resident Protection Assuming Continued Agricultural Land Use

Should future land use include continued agricultural production, site soils could be emitted as dust during land preparation and crop harvesting. This dust could migrate to the breathing zone of on-site agricultural workers and off-site residential properties. To evaluate the risk to on-site agricultural workers and off-site residents, pesticide residue concentrations in ambient air were calculated from the 95UCL of planned post-construction soil concentrations and compared to residential ambient air screening levels. Soil management plans for the Huffstutler site include removal of dieldrin and toxaphene impacted soils as well as soils containing arsenic above background concentrations. After construction is completed, arsenic concentrations at the three sites are assumed to be equivalent to background and will not require further evaluation for risk to human health or the environment. Therefore, toxaphene, assumed to be present under future conditions at the Novak and South Sutter sites, is the only residual pesticide that requires evaluation for fugitive dusts during future agricultural land use.

The ambient air toxaphene concentration that may result from continued agricultural use were calculated using the maximum 95UCL of toxaphene from the Novak and South Sutter sites, 0.119 mg/kg, and the DTSC Particulate Emission Factor (PEF) for construction sites (DTSC, 2005b) in the following equation:

Agricultural Use Dust (μg/m^3) =

Soil Concentration (mg/kg) x 1000 μg/mg / Construction PEF of 1,000,000 (m^3/kg)

Evaluation of On-Site Agricultural Worker and Off-Site Residential Ambient Air Exposure for Future Agricultural Land Use

Pesticide Residue	95UCL Soil Concentration (mg/kg)	Agricultural Land Use Ambient Air Concentration (μg/m^3)	Residential Ambient Air Screening Level (μg/m^3)
Toxaphene	0.119	0.000119	0.0076

mg/kg – milligrams per kilogram
μg/m^3 – micrograms per cubic meter of air

Based upon these results, future agricultural use of site properties is expected to pose little human health risk.

Application of best management practices in all operational aspects of soil management associated with soil containing these levels of residual pesticides is advisable. These activities should be performed in such a manner that reduces worker exposure and fugitive dust generation and tracking of soil away from the site. Construction work should be done in accordance with applicable local, state, and federal regulations to protect worker health and safety. The site engineer or manager should have a qualified professional prepare an appropriate construction site-specific health and safety plan, which can then serve as the basis for task or activity-specific health and safety plans, if they are needed. The plans should include provisions for potential contact with pesticide residues at the levels identified herein.

5 ECOLOGICAL ASSESSMENT

5.1 ECOLOGICAL SCREENING LEVELS

As mentioned in Section 4, the detected residual pesticide concentrations were evaluated further by comparing to published screening level criteria, in the context of planned future land uses. Consideration was made regarding the potential for the routes by which exposure to sensitive biota (i.e. mammals, birds, plants, etc.) may take place.

Future land uses of these three properties as grassland or forested habitat and public utility levees may contribute to ecological exposure. For this reason the presence and vertical distribution of arsenic, dieldrin and toxaphene were evaluated for possible routes of exposure to wildlife and other biota. Birds, plants, mammals, soil invertebrates, and microbes may potentially come in contact with surface soils from a depth of 0 to 1 foot bgs. In addition, plants, microbes, and soil invertebrates may come in contact with deeper soils; but mammals (such as voles) served as the critical biota for deeper soil due to the tendency of chlorinated pesticides to biomagnify in the food chain and the sensitivity of mammals to elevated exposure to these pesticides.

The potential for residual pesticides to leach from level-graded soils into deeper soil horizons or groundwater, or to be carried by overland flow is an understandable concern, particularly for the potential to migrate into and potentially impact nearby surface waters. However, soil located within and on the public utility levee is unlikely to leach to groundwater because levee construction is designed to reduce water infiltration. Additionally, based upon discussions with SAFCA, Kleinfelder understands that the replanted habitats and levees are to be designed and maintained to reduce potential migration of surface soils as sediment in surface water run-off.

The Draft Environmental Impact Statement/Draft Environmental Impact Report (DEIR/DEIS) to which this report is an attachment contains additional background information regarding the proposed land uses and existing features. This information will be taken into account during a future Tier I Ecological Risk Assessment that will be completed before construction activities commence. Refer to Section 5.5 for information regarding the Tier I Ecological Risk Assessment.

Both USEPA Region V Ecological Screening Levels (Eco-SLs, USEPA, 2003, 2005, 2007) and the National Oceanic and Atmospheric Administration Screening Quick Reference Tables (SQuiRTs, NOAA, 2008) were used to screen for soil levels that are likely to be protective of ecological populations.

5.2 EXISTING SITE CONDITIONS

Existing site conditions were discussed previously in Section 4.2 of this report. The concentrations and distribution of pesticide residues are briefly restated in the following paragraphs.

5.2.1 South Sutter Property

The maximum detected concentration of toxaphene at the South Sutter property was 0.19 mg/kg. This concentration is within the range DTSC observed at other agricultural sites (DTSC, 2008a). Therefore, the soil concentrations at South Sutter do not indicate a release to the environment that would represent an Imminent and Substantial Endangerment according to DTSC (DTSC, 1993).

The single detection of dieldrin of 0.0061 mg/kg at the South Sutter property is within the concentration range observed by DTSC at agricultural properties. The concentration at this property does not constitute a reportable condition or an imminent threat to public health, welfare or the environment.

Arsenic at the South Sutter property was not detected at concentrations judged to be elevated relative to background.

5.2.2 Novak Property

The maximum detected concentration of toxaphene at the Novak property was 0.22 mg/kg. This concentration is within the range observed by DTSC at other agricultural sites (DTSC, 2008a). Therefore, the soil concentrations do not indicate a release to the environment that would represent an Imminent and Substantial Endangerment according to DTSC (DTSC, 1993).

Arsenic at the Novak property was not detected at concentrations judged to be elevated relative to background.

5.2.3 Huffstutler Property

Toxaphene was not detected at the Huffstutler property. The range of detected dieldrin concentrations at the Huffstutler property, 0.02 to 0.1 mg/kg, is greater than the range of dieldrin concentrations found by DTSC at other agricultural properties, which typically ranges between 0.004 to 0.031 mg/kg (DTSC, 2008a). The concentrations at this property do not constitute a reportable condition or an imminent threat to public health or welfare or the environment; nevertheless, these results may indicate it is appropriate to manage site soils to control the presence of dieldrin.

Arsenic was detected in soil samples collected from the upper 1.5 feet at concentrations ranging from 6.3 to 43 mg/kg. These concentrations were judged to exceed background concentrations.

5.3 PROJECT IMPACTS

NLIP construction activities were briefly described in Section 4.3.

Considering future land uses and potential exposure for biota, soil screening levels were selected for the following media and routes of exposure:

- Surface soil from 0 to 1 foot bgs for wildlife and other biota (including mammalian receptors);
- Subsurface soil from 1 to 2 feet bgs for mammalian receptors; and
- Level-graded soils for potential leaching to groundwater and migration to surface water aquatic habitat ecological receptors.

As described in Section 4.3, the ESLs (SFBRWQCB, 2008) for each constituent were established as the lowest screening levels from among several potential receptors and exposure pathways. Some of the generic assumptions that were made in evaluating exposure pathways are overly conservative for conditions on the three properties evaluated in this report. The following paragraphs describe how certain assumptions were modified for the purpose of this report to better represent site conditions.

The ESL soil leaching screening levels for dieldrin and toxaphene rely upon a model for predicting soil concentrations potentially leaching to groundwater and subsequently migrating to surface water aquatic habitat ecological populations. The ESL soil leach model describes the dissolution of chemicals into rain water infiltrating the soil and subsequently diluting and naturally attenuating during migration to groundwater and ultimately to the surface water.

The background concentration of arsenic at agricultural sites in southern California was estimated by DTSC as 11.3 mg/kg (DTSC, 2005, 2008b). The applicability of this background concentration to other regions of California is consistent with reports of naturally occurring concentrations of metals in California (Bradford et al 1996 and Hunter et al 2005). Therefore, the DTSC value was used herein as an assumed lower limit soil screening level for arsenic.

Table 4 (attached) presents the soil leaching and ecological direct exposure screening levels for arsenic, dieldrin, and toxaphene.

It is important to note that the SFBRWQCB ESLs for soil leaching to surface water aquatic habitats do not appear to represent conditions at the project sites. The ESL model predicts the downward migration of dieldrin and toxaphene in soil. However, the vertical concentration profile of dieldrin and toxaphene at the site, which decreases with depth, indicates these chemicals do not leach particularly well in these soils.

Two ESL soil leaching model input values were identified as critical variables. The ESL model assumes the presence of a very low fraction of organic carbon (f_{oc}) in soils. The low f_{oc} value was chosen by SFBRWQCB to represent a relatively clean sand (f_{oc} of 0.001 grams per gram of soil, g/g). The actual f_{oc} for agricultural property is likely to be much greater since agricultural practice strives to increase the organic carbon content in order to promote crop productivity. As a comparison, the California DTSC Preliminary Endangerment Assessment manual (PEA, DTSC, 1994) uses a default f_{oc} value of 0.02 g/g to represent surface soils. A greater concentration of f_{oc} would result in limiting the leachability of organic compounds to groundwater.

The other critical ESL soil leach model variable is the chemical-specific organic carbon equilibrium constant, K_{oc}, in units of cubic centimeters per gram, cm^3/g. The ESL K_{oc} value for dieldrin is given as 7,400 cm^3/g and for toxaphene as 4,900 cm^3/g. In contrast, the USEPA RSL chemical constants table, based upon published peer-reviewed data and the latest understanding of the leaching potential of these pesticides, gives the dieldrin and toxaphene K_{oc} values as 10,600 cm^3/g and 99,300 cm^3/g, respectively (USEPA, 2009). The ESL model description states that chemicals with a K_{oc} value of 30,000 cm^3/g or greater will tightly bind to soil and are assumed not to leach to deeper soils or groundwater. The site-specific data show dieldrin and toxaphene as not detected below depths at which agricultural practice is likely to mix soil, which supports the conclusion that dieldrin and toxaphene are unlikely to leach to groundwater under site-specific conditions. It has been noted that hydrocarbon solvents are often present in toxaphene product formulations. The presence of hydrocarbon solvents in toxaphene products may increase the mobility of toxaphene when the product is applied, and for some time thereafter. However, the persistence of the solvent compared to the toxaphene is low, and the effect would be greatest immediately after the product is applied. The mobility of toxaphene in the soil would decrease with time as the volatile fraction of the hydrocarbon solvent dissipates.

Therefore, the ESL soil leach model was re-evaluated for dieldrin and toxaphene concentrations protective of surface water aquatic habitat. The Phase I and II site assessments did not evaluate f_{oc} in surface soils, therefore the highly conservative f_{oc} value of 0.001 g/g was not altered. The ESL model was re-evaluated by substituting the ESL K_{oc} value for dieldrin and toxaphene with USEPA RSL K_{oc} values. Re-calculating the ESL soil screening level protective of aquatic habitat ecological populations changes the default dieldrin ESL value from 0.0023 mg/kg to a project-specific ESL soil leaching screening value of 0.0033 mg/kg. As previously mentioned, the ESL documentation indicates that when the K_{oc} of a compound is greater than or equal to 30,000 cm^3/g, the compound is considered immobile in subsurface soil (SFBRWQCB 2008). In such cases, the document indicates that the screening level should be set at the theoretical soil saturation level, instead of calculating a screening level using the SESOIL model. For toxaphene, the soil saturation level presented in the ESL document is 93 mg/kg (SFBRWQCB 2008, Table G). The default toxaphene ESL value changes from 0.00042 mg/kg to a project-specific ESL soil leaching screening value of 93 mg/kg. These re-calculated ESL soil leaching screening values are presented in the table below, and are the project-specific soil leaching screening values selected for evaluation in this report.

The project-specific screening values for each route of potential exposure for ecological populations are presented below:

Project-Specific Screening Levels
For Ecological Populations

Pesticide Residue	Surface soil 0-1 ft bgs (mg/kg)	Subsurface Soil 1-2 ft bgs (mg/kg)	Soil Leaching All depths (mg/kg)
Arsenic	5.7	5.7	NA
Dieldrin	0.0024	0.0024	0.0033
Toxaphene	0.119	0.119	93

Notes:
NA – Not Available
The screening level for arsenic is less than the background arsenic concentration of 11.3 mg/kg.
The minimum ecological population screening level for surface and sub-surface soils was that for mammals. Therefore the same ecological screening level was used for surface and subsurface soils.

5.4 CONCLUSIONS

The results of limited Phase II ESAs performed on the three properties revealed the presence of detectable concentrations of the OCPs toxaphene and dieldrin, as well as arsenic elevated above background concentrations. The concentrations exceed ESLs. Project-specific screening levels were developed to allow consideration of potential exposure of sensitive ecological populations. Conclusions regarding the potential risks to ecological receptors are presented in the following paragraphs. Mitigation measures are described Section 5.5.

5.4.1 South Sutter Property

Toxaphene was detected in soil on the South Sutter property at a maximum concentration of 0.19 mg/kg. The maximum detected concentration is greater than the project-specific screening levels for exposure of biota to surface and subsurface toxaphene concentrations. However, the 95UCL on the mean concentration (0.070 mg/kg) is well below the project-specific screening levels. Further, the toxaphene is limited to the upper six inches of topsoil.

Dieldrin was detected in one soil sample at a concentration of 0.0061 mg/kg out of a total of 22 samples. This concentration slightly exceeds the project-specific screening levels for direct contact of biota with dieldrin in surface and subsurface soils, and for leaching to groundwater under the highly conservative assumptions of the ESL leaching model. There is no evidence that dieldrin was inappropriately disposed or applied to the site. Consequently, it is reasonable to assume that the dieldrin was applied as a pesticide. The single detection above the laboratory reporting limit suggests that the average site-wide dieldrin concentration is low. A value of half the reporting limit was used to calculate a mean concentration that is below the project-specific screening levels. Consequently, dieldrin will not be considered further in relation to the South Sutter site.

Before excavation of borrow soil, the topsoil will be stripped and stockpiled for subsequent replacement. The maximum toxaphene concentrations will likely decrease as a natural consequence of the stripping, stockpiling, and re-spreading processes. The average concentration is expected to be less than the 95UCL. Consequently, the soil on the South Sutter property is not expected to pose an unacceptable direct contact risk to ecological receptors.

The maximum detected and 95UCL toxaphene concentrations are below the project-specific soil leaching and ecological direct exposure screening levels. It is unlikely that toxaphene currently poses a threat to groundwater. Although excavation of borrow soil will reduce the grade elevation by approximately two feet, toxaphene is unlikely to pose an unacceptable threat to groundwater after being respread on the site. Stockpiled soil will be sampled and analyzed prior to re-spreading on the site.

Construction activities are not expected to exacerbate current conditions, and as described above, may improve upon current conditions.

5.4.2 Novak Property

Toxaphene was detected in soil on the Novak property at a maximum concentration of 0.22 mg/kg. The maximum detected concentration is greater than the project-specific screening levels for exposure of biota to surface and subsurface toxaphene concentrations. The 95UCL on the mean concentration (0.118 mg/kg) in topsoil is less than the project-specific screening levels. Consequently, if the Novak property will be returned to agricultural use, soil mitigation will not be necessary to reduce potential risk to sensitive ecological receptors. If the projected future use of the Novak property is for establishment of native grassland, site soils are not expected to pose an unacceptable direct contact risk to ecological receptors.

As with the South Sutter property, the maximum detected and 95UCL toxaphene concentrations on the Novak property are below the project-specific soil leaching screening level. It is unlikely that toxaphene currently poses a threat to groundwater. Although excavation of borrow soil will reduce the grade elevation by approximately two feet, toxaphene is unlikely to pose an unacceptable threat to groundwater after being re-spread on the site. Stockpiled soil will be sampled and analyzed prior to re-spreading on the site.

Construction activities are not expected to exacerbate current conditions, and as described above, may improve upon current conditions.

5.4.3 Huffstutler Property

Dieldrin was detected in soil on the Huffstutler property at a maximum concentration of 0.10 mg/kg. Dieldrin was detected in the upper six inches of topsoil, but was not detected at a depth of 1.5 feet bgs. Dieldrin concentrations were not measured in soil samples collected at 1 foot bgs. The maximum detected concentration and the 95UCL on the mean (0.043 mg/kg) are greater than the project-specific screening levels for direct contact of biota with dieldrin in surface and subsurface soils, and for leaching to groundwater.

Arsenic was detected above background concentrations on the Huffstutler property, with a maximum detected concentration of 43 mg/kg. The maximum detected arsenic concentration and the 95UCL on the mean (21 mg/kg) exceed the project-specific screening levels for direct contact of biota with arsenic in surface and subsurface soils and for leaching to groundwater. Arsenic concentrations were observed to be consistent to a depth of 1.5 feet bgs. At 2.0 feet bgs, arsenic concentrations were consistent with background concentrations.

The current land use at the Huffstutler property is for agriculture. Because concentrations of dieldrin and arsenic in topsoil exceed project-specific ecological risk screening levels, the current site conditions may pose an ecological risk. This risk is planned to be mitigated by isolating topsoil containing pesticide residues in excess of project-specific screening levels.

Project-specific screening levels for leaching of dieldrin and arsenic to groundwater were calculated as described in Section 5.3. However, no site-specific soil property data were available to calculate less conservative values. Based on the absence or low concentrations of dieldrin and arsenic at greater depths, it seems unlikely that either dieldrin or arsenic currently poses a threat to groundwater. Pesticide residues that adhere to soil particles may be transported from the site to surface water bodies by erosion and sedimentation. Attempts to quantify the ecological risk posed by erosion and sedimentation under current conditions would be speculative. However, NLIP construction activities will include implementation of runoff controls, so post-construction conditions with respect to erosion and sedimentation are expected to be as good as or better than current conditions.

It is unlikely that either dieldrin or arsenic currently poses an unacceptable ecological risk to neighboring properties. Construction activities are not expected to exacerbate current conditions, and as described above, may improve upon current conditions.

5.5 MITIGATION

Considering the environmental conditions at these properties, the potential effects on ecological receptors from construction of the proposed levee and associated structures would appear to be limited to the following:

- Management of surface soil OCP concentrations at each of the three properties to mitigate short and long-term exposure, to the extent practical, to wildlife and other terrestrial biota.
- Management of soil runoff to surface water at each of the three properties to mitigate short and long-term exposure, to the extent practical, to aquatic biota.

The topsoil at these properties contains manageable levels of pesticide residues that are not required to be reported under Cal EPA regulations. Nevertheless, when topsoil is removed (stripped), it should be wetted prior to working to limit fugitive dust generation and done in a manner that controls erosion and sedimentation, consistent with state and local requirements. Removed topsoil and other soil should be properly stockpiled following typical state and local requirements.

This project is expected to result in conversion of some or all of these properties from an agricultural land use to an ecological land use. Some soils may not be acceptable for use in an ecological land use scenario. Due to the nature of the borrow operations, there will be substantial mixing of soil, which is anticipated to reduce the average concentrations of residual agricultural chemicals and consequently, reduce existing ecological risk that may be associated with residual agricultural chemicals. In addition, soil with higher residual levels can be placed in the berms, if necessary, to further reduce potential ecological exposure. Sediment runoff from the sites, which is the main ecological exposure potential, can be controlled by features such as drainage configuration, re-vegetation, construction of grassland swales, and adjusting soil porosity to eliminate run-off. By reducing both the concentrations and sediment discharge, SAFCA's borrow site activities will reduce potential long-term ecological risk relative to current site conditions.

5.5.1 South Sutter Property

Detected concentrations of pesticide residues in surface soil on the South Sutter property are unlikely to pose unacceptable ecological risks on or off the property. No action appears to be necessary for mitigation of ecological risks related to current conditions, construction activities, or post-construction land use. Construction of runoff controls will improve on current conditions by reducing transport of sediment that may contain pesticide residues.

5.5.2 Novak Property

Detected concentrations of pesticide residues in surface soil on the Novak property are unlikely to pose unacceptable ecological risks on or off the property. No action appears to be necessary for mitigation of ecological risks related to current conditions, construction activities, or post-construction land use. Construction of runoff controls will improve on current conditions by reducing transport of sediment that may contain pesticide residues.

5.5.3 Huffstutler Property

Under the current land use, the detected concentrations of pesticide residues in surface soil on the Huffstutler property are unlikely to pose unacceptable ecological risks off the property. However, the pesticide residue concentrations in topsoil on the Huffstutler property may pose an ecological risk. In lieu of re-spreading stripped topsoil containing pesticide residues in the borrow excavation, the topsoil could be used as borrow to construct portions of the seepage berm. The soils should be placed in the berm so they are no closer than two feet to the berm surface. If soils are to be relocated to the seepage berm, additional sampling and an ecological health risk assessment should be performed to refine the estimated extent and volume of soil that would be relocated.

The pesticide residues in soils on the Huffstutler site are included on the list of characteristically hazardous substances for the characteristic of toxicity. The pesticide residues are present on the property because of historical agricultural practices. There is no evidence that improper disposal or application took place on the property. Consequently, there is no evidence hazardous waste has been disposed on the property. Further, the excavated soil will not be managed on another site, and as a result does not fit the definition of "waste" for the purposes of identification of hazardous waste (DTSC, 2007). Because the soil is not waste, it cannot be classified as hazardous waste unless it is found to contain hazardous waste ("contained-in" policy, DTSC, 2007). Because there is no evidence that hazardous waste has been applied to the property, there is no evidence that the soil contains hazardous waste, regardless of the constituent concentrations.

The fact that the soil is not waste and does not contain hazardous waste notwithstanding, if one were to assume for the sake of argument that the soil is waste, then total pesticide residue concentrations in the soil would first be compared to the applicable total threshold limit concentrations (TTLCs). No pesticide concentrations exceed the respective TTLCs. Consequently, the topsoil from the Huffstutler property is not classified as hazardous by this criterion. In addition to the TTLC, soil sample testing using the waste extraction test (WET) would also be used to identify whether the soil is hazardous waste. Extracts from the WET that contain more than the applicable soluble threshold limit concentration (STLC) would be classified as characteristically hazardous. Because the WET method uses a 10 to 1 dilution factor by weight, it is physically impossible for a solid sample to be classified as hazardous unless the sample contains more than 10 times the STLC expressed in units of mg/kg. Soil from the Huffstutler property does not contain dieldrin in concentrations that could exceed the STLC. Further, with the exception of one sample collected in 2006, soil from the Huffstutler property does not contain arsenic in concentrations that could exceed the STLC. Accordingly, the Huffstutler soil would not be hazardous waste, even if it were incorrectly classified as waste.

As on the other properties, construction of runoff controls will improve on current conditions by reducing transport of sediment that may contain pesticide residues.

6 LIMITATIONS

Kleinfelder offers various levels of investigative and engineering services to suit the varying needs of different clients. It should be recognized that definition and evaluation of geologic and environmental conditions are a difficult and inexact science. Judgments leading to conclusions and recommendations are generally made with incomplete knowledge of the subsurface conditions present due to the limitations of data from field studies. Although risk can never be eliminated, more-detailed and extensive studies yield more information, which may help understand and manage the level of risk. Since detailed study and analysis involves greater expense, our clients participate in determining levels of service that provide adequate information for their purposes at acceptable levels of risk. More extensive studies, including subsurface studies or field tests, should be performed to reduce uncertainties. Acceptance of this report will indicate that SAFCA has reviewed the document and determined that it does not need or want a greater level of service than provided.

During the course of the performance of Kleinfelder's services, hazardous materials may have been discovered. Kleinfelder assumes no responsibility or liability whatsoever for any claim, loss of property value, damage, or injury that results from preexisting hazardous materials being encountered or present on the project site, or from the discovery of such hazardous materials. Nothing contained in this report should be construed or interpreted as requiring Kleinfelder to assume the status of an owner, operator, or generator, or person who arranges for disposal, transport, storage or treatment of hazardous materials within the meaning of any governmental statute, regulation or order. SAFCA is solely responsible for directing notification of all governmental agencies, and the public at large, of the existence, release, treatment or disposal of any hazardous materials observed at the project site, either before or during performance of Kleinfelder's services. SAFCA is responsible for directing all arrangements to lawfully store, treat, recycle, dispose, or otherwise handle hazardous materials, including cuttings and samples resulting from Kleinfelder's services.

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Plates

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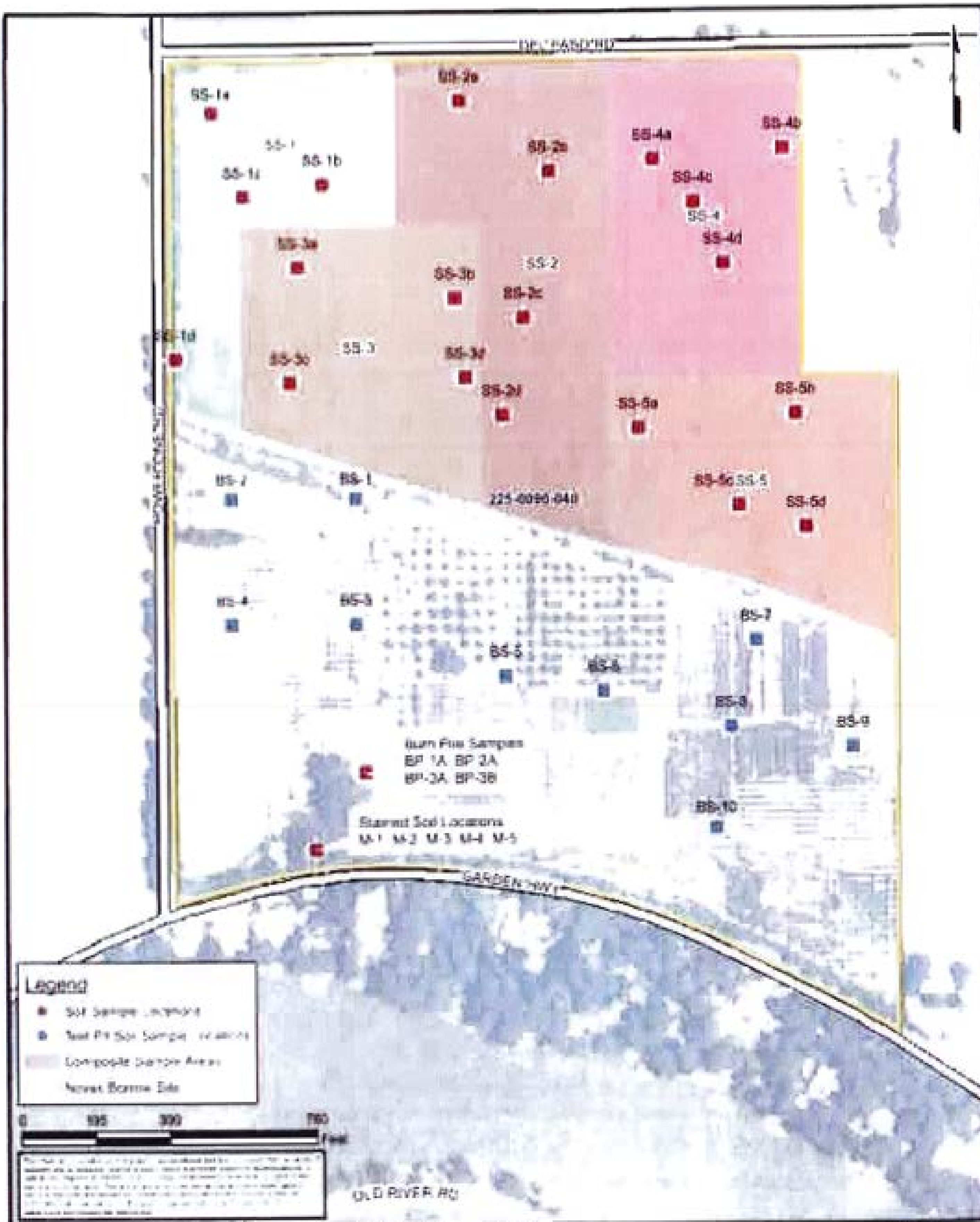
PROJECT NO 94582
DRAWN 4/30/09
DRAWN BY: J Parson
CHECKED BY: S Gardner
FILE NAME
ENVBorrow_SouthSutter.MXD

SAMPLE LOCATION MAP

BORROW SITE ENVIRONMENTAL SAMPLING
SOUTH SUTTER PROPERTIES
SACRAMENTO AND SUTTER COUNTIES, CALIFORNIA

PLATE
1



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PROJECT NO.	[illegible]
DRAWN	[illegible]
DRAWN BY	J. Parson
CHECKED BY	[illegible]
FILE NAME	[illegible]

SOIL SAMPLE LOCATION MAP

SHERMAN'S LAKE BORROW AREA - NOVAK PROPERTY
NATOMAS LEVEE IMPROVEMENT PROGRAM
SACRAMENTO RIVER EAST LEVEE
SACRAMENTO AND SUTTER COUNTIES, CALIFORNIA

PLATE

2

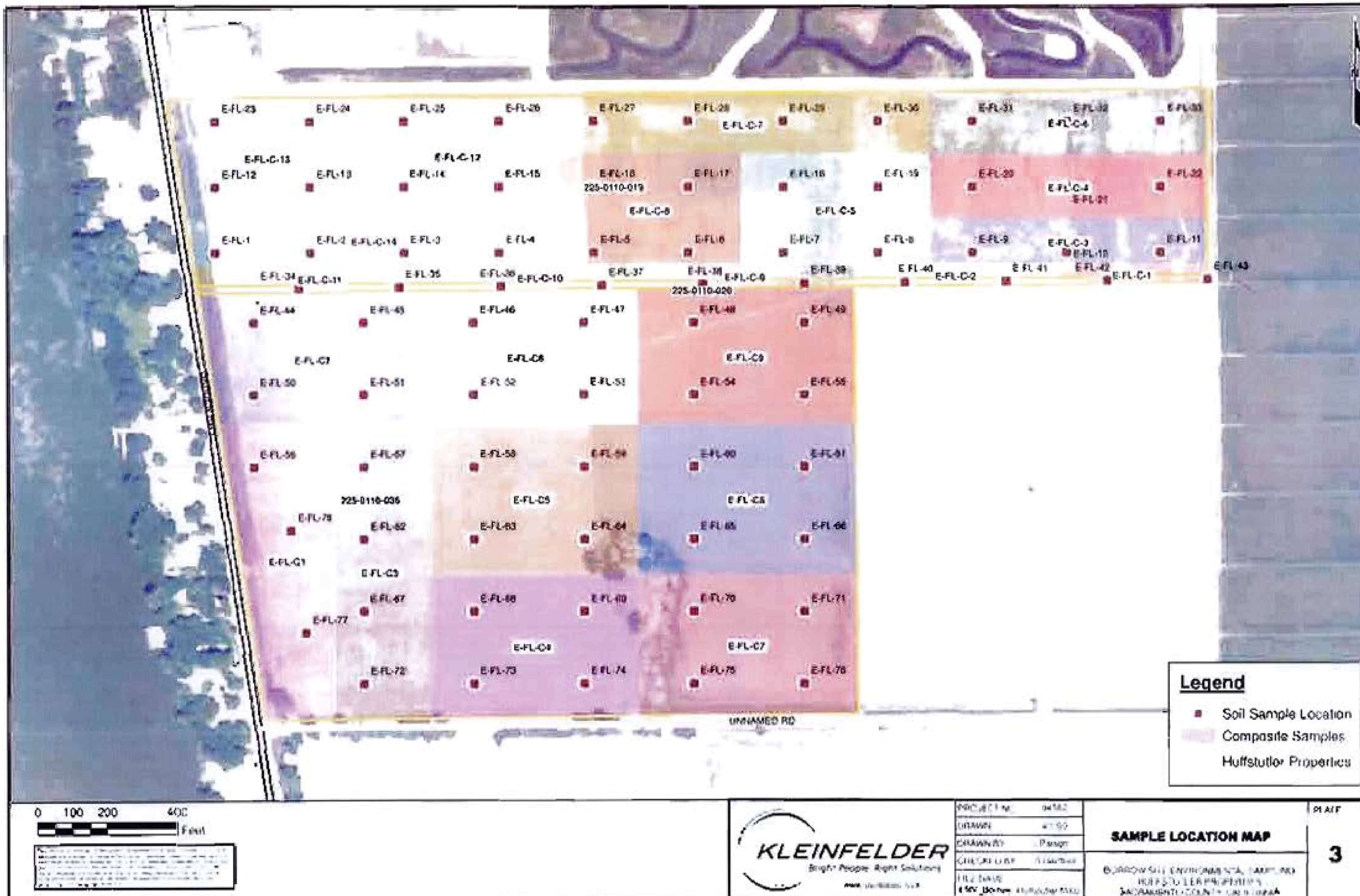
Legend
Soil Sample Location
Composite Samples
Huffstutler Properties
UNNAMED RD
0 100 200 400
Feet
E-FL-1
E-FL-12
E-FL-23
E-FL-24
E-FL-25
E-FL-26
E-FL-27
E-FL-31
E-FL-C-13
E-FL-C-12
E-FL-C-10
225-0110-019
225-0110-020
225-0110-036
KLEINFELDER
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PLATE
3
SAMPLE LOCATION MAP

Tables

Table 1
Summary of Analytical Results
South Sutter Property
Assessors Parcel Numbers 201-0250-015, 201-0270-002, -037
Sacramento County, California

Sample Location	Matrix	Sample Type	Sample Date(s)	Sample Depth (feet)	Chlorinated Herbicides (mg/kg)	Organochlorine Pesticides (ug/kg)				Arsenic (mg/kg)	Copper (mg/kg)	Lead (mg/kg)
						4,4 - DDD	4,4 - DDE	Dieldrin	Toxaphene			
San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels (ESLs), May 2008 Revision						2,400	1,700	2	0.42	0.39 mg/kg	230 mg/kg	200 mg/kg
CS-1	Soil	4:1 Composite	1/7 and 1/14 2009	0-0.5	ND	18	140	6.1	180	9.3	32	16
TP-SS-24-1.0	Soil	Discrete	3/13/2009	1.0	NA	<75	<75	<5.0	<100	5.8	35	13
TP-SS-25-1.0	Soil	Discrete	3/13/2009	1.0	NA	<75	<75	<5.0	<100	8.3	28	13
TP-SS-26-1.0	Soil	Discrete	3/13/2009	1.0	NA	<75	170	<5.0	<100	11	26	14
CS-2	Soil	4:1 Composite	1/14/2009	0-0.5	ND	<15	<15	<1.0	<20	7.0	23	12
CS-3	Soil	4:1 Composite	1/6, 1/7 and 1/14 2009	0-0.5	ND	<15	29	<1.0	89	6.6	31	14
TP-SS-16-1.0	Soil	Discrete	3/13/2009	1.0	NA	<75	<75	<5.0	<100	7.4	29	13
TP-SS-17-1.0	Soil	Discrete	3/13/2009	1.0	NA	<75	<75	<5.0	<100	6.8	28	13
TP-SS-20-1.0	Soil	Discrete	3/13/2009	1.0	NA	<75	<75	<5.0	<100	7.4	27	14
TP-SS-21-1.0	Soil	Discrete	3/13/2009	1.0	NA	<75	<75	<5.0	<100	7.6	26	12
CS-4	Soil	4:1 Composite	1/6 and 1/14 2009	0-0.5	ND	<15	72	<1.0	190	7.6	35	15
TP-SS-18-1.0	Soil	Discrete	3/13/2009	1.0	NA	<75	<75	<5.0	<100	8.2	33	15
TP-SS-19-1.0	Soil	Discrete	3/13/2009	1.0	NA	<75	<75	<5.0	<100	9.3	29	15
TP-SS-22-1.0	Soil	Discrete	3/13/2009	1.0	NA	<75	<75	<5.0	<100	5.6	24	10
TP-SS-23-1.0	Soil	Discrete	3/13/2009	1.0	NA	<75	<75	<5.0	<100	6.7	29	15
CS-5	Soil	3:1 Composite	1/6/2009	0-0.5	ND	<75	<75	<5.0	36	6.6	26	11
SS-CS-5-1-1.0	Soil	Discrete	6/24/2009	1.0	NA	<75	<75	<5.0	<100	4.1	26	11
SS-CS-5-2-1.0	Soil	Discrete	6/24/2009	1.0	NA	<75	<75	<5.0	<100	4.7	25	9.7
SS-CS-5-3-1.0	Soil	Discrete	6/24/2009	1.0	NA	<75	<75	<5.0	<100	4.5	25	9.4
CS-6	Soil	4:1 Composite	1/14/2009	0-0.5	ND	<15	<15	<1.0	<20	7.1	34	15
CS-7	Soil	4:1 Composite	1/6 and 1/14 2009	0-0.5	ND	<15	<15	<1.0	<20	9.2	35	17
CS-8	Soil	4:1 Composite	1/14/2009	0-0.5	ND	<15	<15	<1.0	<20	7.2	31	14

mg/kg Milligrams per kilogram (parts per million)
ug/kg Micrograms per kilogram (parts per billion)
ND Not detected above laboratory reporting limits
Chlorinated Herbicides Analyzed by EPA Method 8151A
Organochlorine Pesticides Analyzed by EPA Method 8081A
Metals Analyzed by EPA 6000/7000 Series
Note 1 For reporting limits of individual chemicals, see analytical report in Appendix B
Note 2. Sampling in four discrete locations (TP-SS-18, -19, -22 and -23) was planned for the March 13 resampling event to further assess the potential presence for toxaphene in the area of composite sample CS-5. However sampling was not conducted due to site access restrictions.

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Table 2
Summary of Analytical Results
Novak Property - North Field
Assessors Parcel Number 201-0090-040
Sacramento, California
94582

Sample Location		Sample Date	Sample Depth (feet)	Sample Type	Organochlorine Pesticides (ug/kg)	Arsenic (mg/kg)	Copper (mg/kg)
San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels (ESLs), May 2008 Revision					Toxaphene: 0.42	0.39	230
SS-1	SS-1 composite	9/24/2008	0-0.5	Composite (Locations SS-1a through SS-1d)	140	8.2	34
	SS-1a-0.5	7/17/2009	0-0.5	Discrete	160	NA	NA
	SS-1a-1.0	7/15/2009	0.5-1	Discrete	170	NA	NA
	SS-1a	4/6/2009	1-1.5	Discrete	<100	10	30
	SS-1b-0.5	7/17/2009	0-0.5	Discrete	100	NA	NA
	SS-1b-1.0	7/15/2009	0.5-1	Discrete	130	NA	NA
	SS-1b	4/6/2009	1-1.5	Discrete	<100	9.6	30
	SS-1c-0.5	7/17/2009	0-0.5	Discrete	100	NA	NA
	SS-1c-1.0	7/15/2009	0.5-1	Discrete	110	NA	NA
	SS-1c	4/6/2009	1-1.5	Discrete	<100	9.3	29
	SS-1d-0.5	7/17/2009	0-0.5	Discrete	74	NA	NA
	SS-1d-1.0	7/15/2009	0.5-1	Discrete	180	NA	NA
	SS-1d	4/6/2009	1-1.5	Discrete	<100	9.3	28
SS-2	SS-2 composite	9/24/2008	0-0.5	Composite (Locations SS-2a through SS-2d)	120	7.6	37
	SS-2a-1.0	7/15/2009	0.5-1	Discrete	130	NA	NA
	SS-2a	4/6/2009	1-1.5	Discrete	<100	6.1	34
	SS-2b-1.0	7/15/2009	0.5-1	Discrete	85	NA	NA
	SS-2b	4/6/2009	1-1.5	Discrete	<100	8.4	29
	SS-2c-1.0	7/15/2009	0.5-1	Discrete	220	NA	NA
	SS-2c	4/6/2009	1-1.5	Discrete	<100	6.4	31
	SS-2d-1.0	7/15/2009	0.5-1	Discrete	160	NA	NA
	SS-2d	4/6/2009	1-1.5	Discrete	<100	6.8	27
SS-3	SS-3 composite	9/24/2008	0-0.5	Composite (Locations SS-3a through SS-3d)	130	8.2	36
	SS-3a-1.0	7/15/2009	0.5-1	Discrete	160	NA	NA
	SS-3a	4/6/2009	1-1.5	Discrete	<100	9.3	31
	SS-3b-1.0	7/15/2009	0.5-1	Discrete	130	NA	NA
	SS-3b	4/6/2009	1-1.5	Discrete	<100	7.1	30
	SS-3c-1.0	7/15/2009	0.5-1	Discrete	110	NA	NA
	SS-3c	4/6/2009	1-1.5	Discrete	<100	9.3	29
	SS-3d-1.0	7/15/2009	0.5-1	Discrete	150	NA	NA
	SS-3d	4/6/2009	1-1.5	Discrete	<100	6.4	26

Table 2
Summary of Analytical Results
Novak Property - North Field
Assessors Parcel Number 201-0090-040
Sacramento, California
94582

Sample Location		Sample Date	Sample Depth (feet)	Sample Type	Organochlorine Pesticides (ug/kg)	Arsenic (mg/kg)	Copper (mg/kg)
San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels (ESLs), May 2008 Revision					Toxaphene: 0.42	0.39	230
SS-4	SS-4 composite	9/24/2008	0-0.5	Composite (Locations SS-4a through SS-4d)	110	7.8	43
	SS-4a-1.0	7/15/2009	0.5-1	Discrete	130	NA	NA
	SS-4a	4/6/2009	1-1.5	Discrete	<100	7.6	32
	SS-4b-1.0	7/15/2009	0.5-1	Discrete	23	NA	NA
	SS-4b	4/6/2009	1-1.5	Discrete	<100	9.9	31
	SS-4c-1.0	7/15/2009	0.5-1	Discrete	130	NA	NA
	SS-4c	4/6/2009	1-1.5	Discrete	<100	9.1	33
	SS-4d-1.0	7/15/2009	0.5-1	Discrete	130	NA	NA
	SS-4d	4/6/2009	1-1.5	Discrete	<100	7.2	30
SS-5	SS-5 composite	9/24/2008	0-0.5	Composite (Locations SS-5a through SS-5d)	140	8.5	36
	SS-5a-0.5	7/17/2009	0-0.5	Discrete	46	NA	NA
	SS-5a-1.0	7/15/2009	0.5-1	Discrete	150	NA	NA
	SS-5a	4/6/2009	1-1.5	Discrete	<100	7.1	31
	SS-5b-0.5	7/17/2009	0-0.5	Discrete	110	NA	NA
	SS-5b-1.0	7/15/2009	0.5-1	Discrete	110	NA	NA
	SS-5b	4/6/2009	1-1.5	Discrete	<100	9.8	34
	SS-5c-0.5	7/17/2009	0-0.5	Discrete	100	NA	NA
	SS-5c-1.0	7/15/2009	0.5-1	Discrete	220	NA	NA
	SS-5c	4/6/2009	1-1.5	Discrete	<100	7.2	30
	SS-5d-0.5	7/17/2009	0-0.5	Discrete	120	NA	NA
	SS-5d-1.0	7/15/2009	0.5-1	Discrete	220	NA	NA
	SS-5d	4/6/2009	1-1.5	Discrete	<100	9.9	30

Explanations

mg/kg: Milligrams per kilogram (parts per million)
ug/kg: Micrograms per kilogram (parts per billion)
<100: Not detected above laboratory reporting limit (100 ug/kg).
NA: Not Analyzed or Does Not Apply

Notes

For reporting limits of individual chemicals, see analytical report in Appendix B.
Chlorinated Herbicides Analyzed by EPA Method 8151A
Organochlorine Pesticides Analyzed by EPA Method 8081A
Organophosphorus Pesticides Analyzed by EPA Method 8141A

Lead (mg/kg)
200
14
NA
NA
14
NA
NA
14
NA
NA
14
NA
NA
12
15
NA
12
NA
10
NA
11
NA
8.7
15
NA
13
NA
10
NA
13
NA
8.8

Lead (mg/kg)
200
19
NA
18
NA
10
NA
14
NA
9.1
15
NA
NA
9.2
NA
NA
15
NA
NA
11
NA
NA
13

Table 3
Summary of Analytical Results
Huffstutler Property
Asssesors Parcel Numbers 225-0110-019, -020, -036
Garden Highway
Sacramento, California

Sample Location (Composite Area)	Sample Id	Sample Type	Sample Date	Sample Depth (feet)	Chlorinated Herbicides (mg/kg)	Organochlorine Pesticides (ug/kg) 4,4 - DDD	4,4 - DDE	4,4 - DDT	Dieldrin	Total Arsenic (mg/kg)	Total Copper (mg/kg)	Total Lead (mg/kg)
San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels (ESLs), May 2008 Revision						2,400	1,700	1,700	2.3	0.39	230	200
Parcel Number 225-0110-036												
C1	E-FL-C-1-0.5	3:1 Composite	1/30/2009	0-0.5	ND	43	280	250	49	12	52	30
	E-FL-56-1.5	Discrete	2/18/2009	1.5	NA	<75	<75	<75	<5.0	9.5	38	17
	E-FL-56-1.0	Discrete	7/22/2009	1.0	NA	NA	NA	NA	NA	8.8	NA	NA
	E-FL-56-2.0	Discrete	7/22/2009	2.0	NA	NA	NA	NA	NA	5.7	NA	NA
	E-FL-77-1.0	Discrete	7/22/2009	1.0	NA	NA	NA	NA	NA	9.3	NA	NA
	E-FL-77-2.0	Discrete	7/22/2009	2.0	NA	NA	NA	NA	NA	5.4	NA	NA
	E-FL-78-1.0	Discrete	7/22/2009	1.0	NA	NA	NA	NA	NA	8.1	NA	NA
	E-FL-78-2.0	Discrete	7/22/2009	2.0	NA	NA	NA	NA	NA	5.6	NA	NA
C2	E-FL-C-2-0.5	4:1 Composite	1/30/2009	0-0.5	ND	ND	130	140	20	19	50	60
	E-FL-44-1.0	Discrete	7/15/2009	1.0	NA	NA	NA	NA	NA	12	NA	NA
	E-FL-44-1.5	Discrete	2/18/2009	1.5	NA	<75	<75	<75	<5.0	7.7	26	13
	E-FL-45-1.0	Discrete	7/15/2009	1.0	NA	NA	NA	NA	NA	23	NA	NA
	E-FL-50-1.0	Discrete	7/15/2009	1.0	NA	NA	NA	NA	NA	15	NA	NA
	E-FL-51-1.0	Discrete	7/15/2009	1.0	NA	NA	NA	NA	NA	35	NA	NA
	E-FL-51-1.5	Discrete	2/18/2009	1.5	NA	ND	ND	ND	ND	9.0	29	16
C3	E-FL-C-3-0.5	4:1 Composite	1/30/2009	0-0.5	ND	65	380	360	52	16	51	40
	E-FL-67-1.5	Discrete	2/18/2009	1.5	NA	<75	77	<75	<5.0	7.3	27	12
	E-FL-57-1.0	Discrete	7/22/2009	1.0	NA	NA	NA	NA	NA	25	NA	NA
	E-FL-57-2.0	Discrete	7/22/2009	2.0	NA	NA	NA	NA	NA	6.3	NA	NA
	E-FL-62-1.0	Discrete	7/22/2009	1.0	NA	NA	NA	NA	NA	13	NA	NA
	E-FL-62-2.0	Discrete	7/22/2009	2.0	NA	NA	NA	NA	NA	6.3	NA	NA
	E-FL-67-1.0	Discrete	7/22/2009	1.0	NA	NA	NA	NA	NA	9.9	NA	NA
	E-FL-67-2.0	Discrete	7/22/2009	2.0	NA	NA	NA	NA	NA	5.5	NA	NA
	E-FL-72-1.0	Discrete	7/22/2009	1.0	NA	NA	NA	NA	NA	6.3	NA	NA
	E-FL-72-2.0	Discrete	7/22/2009	2.0	NA	NA	NA	NA	NA	5.7	NA	NA

Table 3
Summary of Analytical Results
Huffstutler Property
Asssesors Parcel Numbers 225-0110-019, -020, -036
Garden Highway
Sacramento, California

Sample Location (Composite Area)	Sample Id	Sample Type	Sample Date	Sample Depth (feet)	Chlorinated Herbicides (mg/kg)	Organochlorine Pesticides (ug/kg)				Total Arsenic (mg/kg)	Total Copper (mg/kg)	Total Lead (mg/kg)
						4,4 - DDD	4,4 - DDE	4,4 - DDT	Dieldrin			
San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels (ESLs), May 2008 Revision						2,400	1,700	1,700	2.3	0.39	230	200
C4	E-FL-C-4-0.5	4:1 Composite	1/30/2009	0-0.5	ND	40	180	170	38	26	42	68
	E-FL-73-1.5	Discrete	2/18/2009	1.5	NA	<75	<75	<75	<5.0	6.6	26	12
	E-FL-68-1.0	Discrete	7/22/2009	1.0	NA	NA	NA	NA	NA	19	NA	NA
	E-FL-68-2.0	Discrete	7/22/2009	2.0	NA	NA	NA	NA	NA	7.2	NA	NA
	E-FL-69-1.0	Discrete	7/22/2009	1.0	NA	NA	NA	NA	NA	30	NA	NA
	E-FL-69-2.0	Discrete	7/22/2009	2.0	NA	NA	NA	NA	NA	9.2	NA	NA
	E-FL-73-1.0	Discrete	7/22/2009	1.0	NA	NA	NA	NA	NA	20	NA	NA
	E-FL-73-2.0	Discrete	7/22/2009	2.0	NA	NA	NA	NA	NA	11	NA	NA
	E-FL-74-1.0	Discrete	7/22/2009	1.0	NA	NA	NA	NA	NA	23	NA	NA
	E-FL-74-2.0	Discrete	7/22/2009	2.0	NA	NA	NA	NA	NA	6.9	NA	NA
C5	E-FL-C-5-0.5	4:1 Composite	1/30/2009	0-0.5	ND	160	470	590	100	36	46	93
	E-FL-64-1.5	Discrete	2/18/2009	1.5	NA	<75	<75	<75	<5.0	33	39	36
	E-FL-58-1.0	Discrete	7/22/2009	1.0	NA	NA	NA	NA	NA	16	NA	NA
	E-FL-58-2.0	Discrete	7/22/2009	2.0	NA	NA	NA	NA	NA	6.3	NA	NA
	E-FL-59-1.0	Discrete	7/22/2009	1.0	NA	NA	NA	NA	NA	29	NA	NA
	E-FL-59-2.0	Discrete	7/22/2009	2.0	NA	NA	NA	NA	NA	7.5	NA	NA
	E-FL-63-1.0	Discrete	7/22/2009	1.0	NA	NA	NA	NA	NA	25	NA	NA
	E-FL-63-2.0	Discrete	7/22/2009	2.0	NA	NA	NA	NA	NA	6.9	NA	NA
	E-FL-64-1.0	Discrete	7/22/2009	1.0	NA	NA	NA	NA	NA	43	NA	NA
	E-FL-64-2.0	Discrete	7/22/2009	2.0	NA	NA	NA	NA	NA	7.3	NA	NA
C6	E-FL-C-6-0.5	4:1 Composite	1/30/2009	0-0.5	ND	ND	130	140	20	29	50	60
	E-FL-46-1.0	Discrete	7/15/2009	0-0.5	NA	NA	NA	NA	NA	25	NA	NA
	E-FL-47-1.0	Discrete	7/15/2009	0-0.5	NA	NA	NA	NA	NA	32	NA	NA
	E-FL-47-1.5	Discrete	2/18/2009	0-0.5	NA	<75	<75	<75	<5.0	10	NA	NA
	E-FL-52-1.0	Discrete	7/15/2009	0-0.5	NA	NA	NA	NA	NA	27	NA	NA
	E-FL-53-1.0	Discrete	7/15/2009	0-0.5	NA	NA	NA	NA	NA	42	NA	NA

Table 3
Summary of Analytical Results
Huffstutler Property
Asssesors Parcel Numbers 225-0110-019, -020, -036
Garden Highway
Sacramento, California

Sample Location (Composite Area)	Sample Id	Sample Type	Sample Date	Sample Depth (feet)	Chlorinated Herbicides (mg/kg)	Organochlorine Pesticides (ug/kg) 4,4 - DDD	4,4 - DDE	4,4 - DDT	Dieldrin	Total Arsenic (mg/kg)	Total Copper (mg/kg)	Total Lead (mg/kg)
San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels (ESLs), May 2008 Revision						2,400	1,700	1,700	2.3	0.39	230	200
C7	E-FL-C-7-0.5	4:1 Composite	1/30/2009	0-0.5	ND	ND	110	50	36	26	42	67
	E-FL-70-1.5	Discrete	2/18/2009	1.5	NA	<75	<75	<75	<5.0	13	39	32
	E-FL-70-1.0	Discrete	7/14/2009	1.0	NA	NA	NA	NA	NA	18	NA	NA
	E-FL-70-2.0	Discrete	7/14/2009	2.0	NA	NA	NA	NA	NA	6.7	NA	NA
	E-FL-71-1.0	Discrete	7/14/2009	1.0	NA	NA	NA	NA	NA	28	NA	NA
	E-FL-71-2.0	Discrete	7/14/2009	2.0	NA	NA	NA	NA	NA	5.7	NA	NA
	E-FL-75-1.0	Discrete	7/14/2009	1.0	NA	NA	NA	NA	NA	27	NA	NA
	E-FL-75-2.0	Discrete	7/14/2009	2.0	NA	NA	NA	NA	NA	12	NA	NA
	E-FL-76-1.0	Discrete	7/14/2009	1.0	NA	NA	NA	NA	NA	5.9	NA	NA
	E-FL-76-2.0	Discrete	7/14/2009	2.0	NA	NA	NA	NA	NA	4.7	NA	NA
C8	E-FL-C-8-0.5	4:1 Composite	1/30/2009	0-0.5	ND	34	190	120	68	35	47	92
	E-FL-61-1.5	Discrete	2/18/2009	1.5	NA	<75	<75	<75	<5.0	13	41	30
	E-FL-60-1.0	Discrete	7/14/2009	1.0	NA	NA	NA	NA	NA	16	NA	NA
	E-FL-60-2.0	Discrete	7/14/2009	2.0	NA	NA	NA	NA	NA	10	NA	NA
	E-FL-61-1.0	Discrete	7/14/2009	1.0	NA	NA	NA	NA	NA	18	NA	NA
	E-FL-61-2.0	Discrete	7/14/2009	2.0	NA	NA	NA	NA	NA	11	NA	NA
	E-FL-65-1.0	Discrete	7/14/2009	1.0	NA	NA	NA	NA	NA	18	NA	NA
	E-FL-65-2.0	Discrete	7/14/2009	2.0	NA	NA	NA	NA	NA	7.6	NA	NA
	E-FL-66-1.0	Discrete	7/14/2009	1.0	NA	NA	NA	NA	NA	28	NA	NA
	E-FL-66-2.0	Discrete	7/14/2009	2.0	NA	NA	NA	NA	NA	9.4	NA	NA
C9	E-FL-C-9-0.5	4:1 Composite	1/30/2009	0-0.5	ND	33	170	110	60	33	49	90
	E-FL-54-1.5	Discrete	2/18/2009	1.5	NA	<75	<75	<75	<5.0	36	42	28
	E-FL-48-1.0	Discrete	7/14/2009	1.0	NA	NA	NA	NA	NA	19	NA	NA
	E-FL-48-2.0	Discrete	7/14/2009	2.0	NA	NA	NA	NA	NA	7.3	NA	NA
	E-FL-49-1.0	Discrete	7/14/2009	1.0	NA	NA	NA	NA	NA	15	NA	NA
	E-FL-49-2.0	Discrete	7/14/2009	2.0	NA	NA	NA	NA	NA	8.5	NA	NA
	E-FL-54-1.0	Discrete	7/14/2009	1.0	NA	NA	NA	NA	NA	29	NA	NA
	E-FL-54-2.0	Discrete	7/14/2009	2.0	NA	NA	NA	NA	NA	10	NA	NA
	E-FL-55-1.0	Discrete	7/14/2009	1.0	NA	NA	NA	NA	NA	19	NA	NA
	E-FL-55-2.0	Discrete	7/14/2009	2.0	NA	NA	NA	NA	NA	11	NA	NA

Table 3
Summary of Analytical Results
Huffstutler Property
Asssesors Parcel Numbers 225-0110-019, -020, -036
Garden Highway
Sacramento, California

Sample Location (Composite Area)	Sample Id	Sample Type	Sample Date	Sample Depth (feet)	Chlorinated Herbicides (mg/kg)	Organochlorine Pesticides (ug/kg)				Total Arsenic (mg/kg)	Total Copper (mg/kg)	Total Lead (mg/kg)
						4,4 - DDD	4,4 - DDE	4,4 - DDT	Dieldrin			
San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels (ESLs), May 2008 Revision						2,400	1,700	1,700	2.3	0.39	230	200
Parcel Numbers 225-0110-019, -020												
C-1	E-FL-C-1-0.5	2:1 Composite	2/3/2009	0-0.5	ND	<75	<75	<75	<5.0	4.1	30	11
C-2	E-FL-C-2-0.5	2:1 Composite	2/3/2009	0-0.5	ND	<75	<75	<75	<5.0	9.6	38	20
C-3	E-FL-C-3-0.5	3:1 Composite	2/3/2009	0-0.5	ND	<30	<30	<30	<2.0	4.3	30	9.1
C-4	E-FL-C-4-0.5	3:1 Composite	2/3/2009	0-0.5	ND	<30	<30	<30	<2.0	2.9	19	6.2
C-5	E-FL-C-5-0.5	4:1 Composite	2/3/2009	0-0.5	ND	<30	<30	<30	<2.0	10	36	18
C-6	E-FL-C-6-0.5	3:1 Composite	2/3/2009	0-0.5	ND	<30	<30	<30	<2.0	4.8	34	10
C-7	E-FL-C-7-0.5	4:1 Composite	2/3/2009	0-0.5	ND	<30	<30	<30	<2.0	7.2	35	14
C-8	E-FL-C-8-0.5	4:1 Composite	2/4/2009	0-0.5	ND	<30	<30	<30	<2.0	10	40	21
C-9	E-FL-C-9-0.5	2:1 Composite	2/3/2009	0-0.5	ND	<75	<75	<75	<5.0	18	42	33
C-10	E-FL-C-10-0.5	2:1 Composite	2/3/2009	0-0.5	ND	<75	<75	<75	<5.0	18	45	43
	E-FL-36-1.0	Discrete	7/15/2009	0.5-1.0	NA	NA	NA	NA	NA	27	NA	NA
	E-FL-37-1.0	Discrete	7/15/2009	0.5-1.0	NA	NA	NA	NA	NA	30	NA	NA
C-11	E-FL-C-11-0.5	2:1 Composite	2/3/2009	0-0.5	ND	<75	<75	<75	<5.0	14	40	30
	E-FL-34-1.0	Discrete	7/15/2009	0.5-1.0	NA	NA	NA	NA	NA	17	NA	NA
	E-FL-35-1.0	Discrete	7/15/2009	0.5-1.0	NA	NA	NA	NA	NA	18	NA	NA
C-12	E-FL-C-12-0.5	4:1 Composite	2/4/2009	0-0.5	ND	<30	<30	<30	<2.0	11	39	19
C-13	E-FL-C-13-0.5	4:1 Composite	2/4/2009	0-0.5	ND	<30	<30	<30	<2.0	8.1	32	14
C-14	E-FL-C-14-0.5	4:1 Composite	2/4/2009	0-0.5	ND	<30	<30	<30	<2.0	11	37	19

NA: Not Analyzed
mg/kg: Milligrams per kilogram (parts per million)
ug/kg: Micrograms per kilogram (parts per billion)
ND: Not detected above laboratory reporting limits.
Note. For reporting limits of individual chemicals, see analytical report in Appendix B.
Chlorinated Herbicides Analyzed by EPA Method 8151A
Organochlorine Pesticides Analyzed by EPA Method 8081A

Notes

For reporting limits of individual chemicals, see analytical report in Appendix B.
Organochlorine Pesticides Analyzed by EPA Method 8081A
Chlorinated Herbicides Analyzed by EPA Method 8151A
Metals analyzed by EPA 6000/7000 Series Methods
<: Not detected above MDL (Method Detection Limit) shown in parentheses.

Table 4
Land Use Specific Soil Screening Levels

Soil Screening Levels	Construction Workers	Ecological Risks	
		Soil Leaching	Direct Contact
Constituent	mg/kg	mg/kg	mg/kg
Arsenic	15	NA	5.7
Dieldrin	1.6	0.0023	0.0024
Toxaphene	22	0.00042	0.119

Notes:

mg/kg - milligrams per kilogram, equivalent to parts per million (ppm)

NA - Not Available

Construction worker screening levels from SFBRWQCB ESL Table K-3 (Construction DE) and are the minimum of the values for a cancer risk of 1×10^{-6} and a non-cancer hazard of 0.2. The minimum value in each case was that for cancer risk.

SFBRWQCB ESL - Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater, San Francisco Bay Regional Water Quality Control Board (SFBRWQCB), Interim Final - November 2007 (Revised May 2008).

Soil leaching screening level from SFBRWQCB ESL Table G (Soil Leaching).

Ecological populations screening level is the minimum value from the following sources:

USEPA Region V Ecological - USEPA, Region 5, RCRA Ecological Screening Levels August(22, 2003) [based upon exposure to masked shrew {Sorex cinerus}]

USEPA, 2005, Ecological Soil Screening Levels for Arsenic Interim Final OSWER Directive 9285.7-62 (March)

USEPA, 2007, Ecological Soil Screening Levels for Dieldrin Interim Final OSWER Directive 9285.7-56 (revised April 2007)

NOAA Screening Quick Reference Tables (SQuiRTs), 2008. Soil Screening Levels

The minimum ecological population screening level for surface and sub-surface soils was that for mammals. Therefore the same ecological screening level was used for surface and subsurface soils.

Appendix A

Resumes

JOHN BAKER
Northern California Division Manager

Summary of Experience

Mr. Baker has over 37 years experience in the engineering and construction industry, including civil and environmental engineering work on public infrastructure, commercial and publicly-owned buildings and facilities, and contaminated real estate. He has developed strong management and leadership skills through his association with his public and private clients, as well as through the many professional association affiliations he maintains. Mr. Baker has also developed strong relationships with the many regulatory agencies involved in his projects.

Education

MS, Civil Engineering, University of California, Berkeley, California, 1973
BS, Civil Engineering, University of California, Berkeley, California, 1968

Registrations

Professional (P.E.) - Civil, No.23727, CA, 1974
Professional (P.E.) - Civil, No.13717, OR, 1991

Professional Affiliations

Consulting Engineers and Land Surveyors of California, Past President
California Geotechnical Engineers Association, Past President
American Consulting Engineering Council, Past California Delegate and Public Relations Chair
National Groundwater Association
Groundwater Resources Association
American Society of Civil Engineers, Chair, GeoInstitute Professional Practices Council
Engineering Alumni Society, UC Berkeley, Past President

Project Experience

The following is a representative selection of John Baker's project experience.

General

Soil and Groundwater Remediation, State of California Superfund Site, Bulk Fuel Facility, Sacramento County, California.
This site involved fuel and solvent contaminated soil and groundwater resulting from an arson caused fire. A soil and multi - layer groundwater characterization was followed by soil remediation, groundwater monitoring, and eventual case closure by the State of California.

Environmental Site Assessment, Rail Yard, State of California Superfund Site, Sacramento, California .
This historic site had been impacted by over a century of fuel, solvent, and industrial

waste. The assessment involved advising a prospective purchaser on the extent of contamination and the risks involved in obtaining the property for commercial development.

DDT Contaminated Residential Building Site, El Dorado County, California.
This former pear orchard was proposed for residential development. DDT contaminated soil was discovered during the initial property evaluation. With the approval of the local and state regulatory agencies, the impacted soil was used as deep fill during site grading, allowing the project to go ahead.

Soil and Groundwater Characterization/Recalcitrant and Abandoned Site, Yuba County, California.
The owner of this site abandoned the property, leaving significant soil contamination and groundwater impacts that contaminated neighboring drinking water wells. Funded by the State of California's Abandoned and Recalcitrant Owners fund, the site was characterized for soil and groundwater impacts. A combination air sparging and vapor extraction system was designed for site remediation.

Mercury Contaminated Soil Cleanup, Publicly Owned Treatment Facility, Nevada County.
Free mercury discovered during a remodeling of this sewage treatment facility had been deposited from a neighboring gold mine. The site was characterized and the impacted soil encapsulated onsite, through the State's Voluntary Cleanup Program.

Chlorinated Solvent Groundwater Cleanup, Circuit Board Manufacturing Facility, Placer County, California.
This groundwater at this site was impacted by chlorinated solvents resulting from circuit board fabrication and a former airplane maintenance yard. The shallow groundwater, flowing on top of fractured bedrock, was characterized, and a remediation system, including multiple extraction wells and an infiltration trench to accelerate the cleanup was installed.

Environmental Site Assessment, Former Ship Building Facility, Yolo County, California.
This site, once a barge and ship building facility along the Sacramento River, was scheduled for commercial and residential development. The site was characterized for soil and groundwater impacts, and the limited impacts from heavy metals and fuels were remediated prior to commencement of development.

Soil and Groundwater Characterization, Aggregate Quarry, Alameda County, California.
The project proponent, in acquiring the property and works of an existing aggregate quarry, wished to establish a baseline set of environmental conditions prior to closing the sale. The work included soil and groundwater characterization studies near the equipment maintenance area, the asphalt hot plant, and other select areas.

Asbestos and Lead Based Paint Investigation, Mare Island Naval Shipyard, California.
Prior to purchasing abandoned military base housing for conversion to housing for sale on the real estate market, the client asked for an environmental assessment of the property's condition. The work included a full Phase 1 assessment of the property, including lead based paint and asbestos determinations.

Groundwater Characterization, Former Container Terminal, Alameda County, California.
An environmental assessment of a former shipping terminal, which included containerized shipping facilities, detected chlorinated solvent impacts to the shallow groundwater and potentially the neighboring estuary. The assessment included evaluation past remedial work and recommending additional cleanup to render the property clean and purchasable.

Environmental Site Assessment, Proposed East Shore Regional Park, Alameda County, California.
The State of California proposed to purchase approximately 500 acres of waterfront property along the East Shore Freeway in Alameda County. The property consisted primarily of bay shore fill, including construction debris, dredge tailings, and domestic waste. The evaluation consisted of constructing an historical record of those areas fill, what the fill material consisted of, and devising a sampling program to protect the State from CERCLA liability.

Construction Management and Testing Services, Pavement Overall Project, Nevada County .
A major public road improvement project, including localized widening, overlays, and chip seals was conducted by the county. The work included making design recommendations for the various phases of the project, conducted daily construction phase recommendations, and administering the construction contract.

Soil and Groundwater Investigation and Landfill Closure, Sacramento County, California.
An historic landfill utilized between 1880 and 1920 for construction and municipal waste from downtown area of Sacramento was the proposed site of a new fire station. The work included evaluating the hazardous materials and groundwater risks from the landfill. A soil and groundwater characterization, followed by a limited groundwater risk assessment allowed the California Integrated Waste Management Board and the Regional Water Quality Control Board to "close" the site requiring no further action.

Soil Contamination Characterization and Remediation, Correctional Facility, Toloumne County, California.
The correctional facility leased a portion of its site to the Department of Forestry's fire training center. Diesel fuel, used frequently to fuel fire fighting exercises, had severely contaminated the soil around the center. The contamination was characterized, removed, and biologically remediated on site before being returned to its original location.

Soil and Groundwater Investigation and Remediation. Public Right of Way, Placer County, California.
During construction of a new waterline and street improvement project, gasoline and diesel fuel soil contamination was discovered in the public right of way. The project involved characterizing the extent of soil and shallow groundwater contamination, identifying its source, remediating the soil contamination, revising the installation standards for the water line, and overseeing its installation.

Environmental Site Assessment, Proposed 18,000 acre Residential/Commercial Development, Yolo County, California.
An 18,000 acre agricultural property in Yolo County was proposed for residential and commercial development. The project consisted of an initial environmental assessment of the property, including assessment of past remediation practices at two of the site's agricultural corporation yards.

Dams and Levees

Natomas Basin Levee Evaluation, Sacramento Area Flood Control Agency (SAFCA), Sacramento, California. - From 2008 To 2010
Principal in charge for the analyses and mitigation of the Natomas Levee Improvement Program for Sacramento Area Flood Control Agency (SAFCA). This includes assessing 42 miles of levees for slope stability, under and through seepage, liquefaction, lateral spreading, pseudo-static slope stability, and seismic deformation due to a 200-year design seismic event. The project involves performing the analyses, assessing the impact of FEMA mandated flood levels, plus seismically-induced deformations on the integrity of the levee system, and providing possible mitigation measures.

Publications and Papers

Co-author, *Residual DDT in Agricultural Soil* , National Groundwater Association Annual Conference , Baker and Marshall, Dublin, Ohio, 1991.

Co-author, *Preliminary Endangerment Assessment Manual Soil Screening Evaluation* , Groundwater Resources Association of California , Baker and Vassallo, Sacramento, California, 1995.

KALEN BJURSTROM
Environmental Scientist

Summary of Experience

Mr. Bjurstrom has over five years of increasingly responsible technical project and fieldwork experience. Mr. Bjurstrom has conducted fieldwork, evaluated and interpreted data and prepared numerous scientific and regulatory reports including preparation of Phase I and II Environmental Site Assessments, Air Monitoring reports, Groundwater Monitoring Reports and Environmental Health and Safety Plans. His fieldwork experience includes vast knowledge of groundwater sampling using dedicated and non-dedicated pump systems, including the use of low-flow/ micro purge techniques. Mr. Bjurstrom's sampling experience also includes soil sampling using various methods and air monitoring/sampling using a variety of pumps and meteorological equipment. Mr. Bjurstrom is health and safety trained in accordance with 29 CFR 1910.120 and has served as lead Environmental Health and Safety Officer on a number of projects involving the presence of hazardous materials.

Education

California State University, Sacramento, California,

Certifications

OSHA 40-Hour HAZWOPER, 2004
Nuclear Gauge/Troxler,

Project Experience

The following is a representative selection of Kalen Bjurstrom's project experience.

<u>Environmental Work</u>

Lead Health and Safety Officer for DTSC Remediation project at World Radiator in Paradise, CA. - 2007
Responsible for the implementation and oversight of health and safety plan designed specifically for site and approved by DTSC. Performed all air monitoring, soil confirmation sampling, and MET monitoring to ensure worker and residential safety for duration of project. Acted as onsite lead person in lieu of DTSC during project. Responsible for the oversight and direction of remediation contractor and reporting progress to DTSC.

Lead Environmental Health and Safety Officer, Super Wal-Mart, West Sacramento, California. - 2006
Responsible for the oversight and implementation of site specific health and safety plan designed for the construction process of a new Wal-Mart facility in West Sacramento. Worked with a variety of contractors and sub-contractors for the duration of the project to ensure proper enforcement of the HASP. Also responsible for the monitoring and use of engineering controls to help mitigate fugitive dust and trackout from the site boundaries.

Phase II ESA Sampling, Various Clients, California.

Phase II, Environmental Site Assessment, Various Confidential Clients. Phase II assessments primarily resulted from findings associated with Phase I ESAs completed. Projects involving collection of soil, well and surface water samples for laboratory analyses, hazardous waste disposal, additional historical or regulatory agency record review, land surveys, and geophysical investigations. Sites assessed included former auto repair shops, landfills, industrial facilities, commercial facilities and commercial properties.

Phase I ESA's, Various Clients, California.

Phase I, Environmental Site Assessments (ESA), Various Confidential Clients. Phase I ESAs were conducted according to ASTM standards and client specific standards, for a broad range of clients including banks, REITs and other financial institutions, real estate developers, attorneys, industry and commercial business. Environmental conditions likely to affect the sites were evaluated. The sizes of the sites range from less than one acre to several hundred acre parcels. Phase Is have been conducted for retail development, subdivision development and agricultural properties. Tasks included review of regulatory agency files; historical information including chain-of-title, aerial photo analysis, and Sanborn Map review; and geological and hydro geological characterizations for surrounding areas. A site reconnaissance was conducted to evaluate current site conditions, and "Key Site Managers" were interviewed about current and historical property use.

Ground Water Sampling for Various Clients, California. - From 08/19/04 To 07/19/05

Conducted ground water sampling and monitoring at sites that formerly contained industrial type contaminants, such as designated Superfund sites (CERCLA), dry cleaners, print/screen shops and optical lenses production.

Bulk Pesticide Facility Sampling, Western Farm Service. - From 08/19/04 To 07/19/05

Ground Water Sampling for Western Farm Service, Inc. Conducted ground water sampling at large bulk pesticide facilities requiring special decontamination procedures, personal protective equipment, specialized sampling equipment and safety precautions

Aerojet (Gencorp) Environmental Sampling, Sacramento County, California. - From 07/19/05 To 01/03/08

Responsible for ground water sampling in association with the Aerojet facility and surrounding properties. Conducted many large scale sampling projects and speciality sampling projects in association with Aerojet personnel.

DTSC - Victor, 20th Street, Chico, California

Oversaw the installation and implementation of permeable diffusion bags (PDBs) and harness systems in over 50 groundwater monitoring wells in conjunction with DTSC staff.

DeWitt Center Landfill Investigation, Placer County, California. - 2007
Conducted investigation/cleanup of unauthorized landfill in Placer County. This involved soil sampling, test pits and mapping of contaminants found onsite. Implemented erosion control measures and involved in cleanup activities associated with dumping found on property.

Sacramento County Wastewater Treatment Plant, Sacramento County, California. - From 12/01/07 to 01/03/08
Conducted the weekly neutron soil moisture readings in association with former sludge yards at waste water treatment plant. This included the field monitoring and data management.

DAVID DICKEY
Human Health Risk Assessor

Summary of Experience

David has over 15 years of experience bringing sites into compliance with environmental regulations through technical and management processes, most recently in the field of vapor intrusion risk assessment. His experience includes: Chemical toxicology, Scientific support to the US Coast Guard in spill response; State environmental regulator enforcing regulations and negotiating compliance criteria, assessing potential Superfund sites and developing risk assessment regulations; and, Environmental consultant performing site investigations, risk assessments, and negotiations with regulators.

He conducts vapor intrusion evaluations (Johnson and Ettinger modeling) and human health risk assessments (HHRAs), sampling and analysis planning and execution, technical report writing, and integration of analytical results into strategic planning.

Education

MS, Environmental Science, Louisiana State University, Alexandria, Louisiana, 1994
BS, Microbiology, Louisiana State University, Alexandria, Louisiana, 1991

Project Experience

The following is a representative selection of David Dickey's project experience.

Human Health Risk Assessor

Industrial Facility; Bay City, Michigan - From 2005 To 2007
Mr. Dickey developed human health risk evaluations for a variety of sites at a third-party occupied industrial facility. Risk scenarios included unique recreational users and site-specific industrial worker scenarios. Constituents of concern (COCs) included heavy metals, polychlorinated biphenyls (PCBs), and dioxins/furans. The necessity for human health risk evaluations was determined late in the EI submittal process. However, Mr. Dickey completed the multiple risk evaluation tasks quickly, comprehensively, and efficiently, allowing submittal of the EI report on time. While the EI was still under review by the regulatory agency, the state determined it was satisfied with the risk evaluations and no excess risk was present.

Third-Party Review of HHRA; High-visibility Site, Pacoima, California - 2008

In support of client Due Diligence process, Mr. Dickey conducted a third party peer review of an HHRA report submitted to and approved by the state of California. Mr. Dickey identified several significant issues in the HHRA report that indicated potential future liability for a potential landowner. These included deficiencies in the scope of the risk evaluation, conduct of the risk evaluation, and especially, indications of errors in the regulatory review and approval of the submittal. Detailed reporting of these findings enabled the client to address the issues with the landowner and better evaluate other landowner documents for regulatory agency procedural issues that may create a "re-opener".

Scenario-specific PCB concentration limits - 2008
Mr. Dickey developed risk-based concentration limits for construction workers potentially encountering polychlorinated biphenyls (PCBs) in utility trenches at a redeveloped air force base property under residential development.

Third-Party Review of HHRA, Carson, California - 2008
Reviewed and evaluated comprehensiveness of third party drafted HHRA for a former mixed-waste landfill. Particular issues identified were: incomplete vapor intrusion evaluation related to adjacent elementary school; more appropriate guidance availability for landfill gas emissions; incomplete evaluation of potential conduits to surface water and an important drinking water aquifer.

Fish consumption screening values, Los Angeles, CA - 2008
Identified applicable USEPA, FDA, and California regulations and developed fish fillet screening concentrations for a large table of potential constituents of concern. Screening values are to be used as minimum reporting limits for laboratory analysis. Identified typical fish species concentrations for monomethyl mercury and potential impact on evaluation of statistical data.

State Environmental Compliance and Risk Assessment

Louisiana Regulatory Compliance and Risk Assessment (RECAP) - From 1994 To 2005
Five years as La Environmental Regulator with personal contacts within the La Dept of Environmental Quality (LDEQ). Experienced with Solid Waste regulations, Superfund Preliminary Assessment/Site Investigation for the HRS, and team member of the committee that developed LDEQ's risk assessment regulations: Risk Evaluation/Corrective Action Program (RECAP). Subsequently was a consultant specializing in Louisiana compliance and closing sites under the RECAP regulations. Particular experience with the interplay of each division's regulations in relation to the RECAP regulations.

Texas Regulatory Compliance and Risk Assessment (TRRP) - From 2002 To 2005
At an active chemical plant in Beaumont, TX, Mr. Dickey planned and conducted site assessments and evaluation of potential risk under Texas' Risk Reduction Program (TRRP) for compliance with a site-wide RI/FS.

Michigan Regulatory Compliance and Risk Assessment - From 2005 To 2007
Mr. Dickey conducted human health risk evaluations for an industrial facility in Michigan impacted with heavy metals, polychlorinated biphenyls (PCBs), and dioxin/furans. Risk evaluations were conducted using the Michigan risk assessment regulations and included use of the Michigan on-line statistical analysis software.

KURT FRANTZEN

Eastern Division Leader--Risk Analysis & Toxicology Practice

Summary of Experience

Through risk-based approaches that limit remedial cost, Dr. Frantzen serves clients by interfacing science, engineering, and planning to resolve complex property contamination matters. With extensive risk assessment experience and with large investigation/remediation project management experience, he is a hands-on practitioner achieving high equity results for his clients. A biochemist by training, he has more than 20 years of experience in environmental risk analysis, hazardous waste site/Brownfields investigation/remediation, environmental R&D, and cost accountable management. He has worked on state-led, Superfund, DOE, and DOD sites around the US.

Education

MS, Plant Pathology, Kansas State University, Kansas, 1980
BS, Biology, University of Nebraska, Omaha, Nebraska, 1978
PhD, Life Sciences/Biochemistry, University of Nebraska System : Lincoln, 1985

Registrations

Certified Hazardous Materials Manager (C.H.M.M.), No.14143, IHMM, NAT,
Certified Hazardous Materials Manager (C.H.M.M.), No.14143, 2007

Certifications

OSHA 40-Hour HAZWOPER,

Professional Affiliations

Board of Directors, Western New York Forum on Conflict and Consensus, Inc., FY 1996 .
American Chemical Society, Member since 1985 .
American Institute of Biological Sciences, Member since 1992 .
Society for Risk Analysis, Member since 1994 .

Project Experience

The following is a representative selection of Kurt Frantzen's project experience.

Litigation Support

Risk Appraisal of Retail Fuel Oil Business Property under Probate Medway, MA, 2004
Prepared an appraisal of environmental concerns regarding a commercial business property involving heating oil business to help resolve the properties real estate value.

Exposure, Risk, and Cleanup Goal Basis, New York, NY, 2003
Contributed to defense case (property owner) of PRPs involved in litigation associated with the 9/11 WTC disaster

Asbestos Exposure Reconstruction, New York, NY, 2003
Prepared as part of litigation concerning a NJ/NYC transit worker exposure case; for the defense

Human Health Risks from Dioxin and Other Chemical Emissions From Operation of the Tooele Chemical Agent Disposal Facility, 1996
Litigation support for US Army Litigation Center against restraining order preventing conduct of test burns (see US District Court/Utah Central Division Civil #2:96-CV-425C), Project Director.

Toxic Tort Litigation Associated with the Midway-Bayshore Site, 1995
Responsible for the risk assessment used to evaluate risks from MGP residues (1993), and supported expert preparation for PG&E's defense case.

Exposure, Risk, and Cleanup Goal Basis, New York, NY, 2003
Contributed to defense case of PRPs involved in litigation associated with the 9/11 World Trade Center disaster

Human Health Risks from Dioxin and Other Chemical Emissions Due to Hazardous Waste Incineration, 1996
Litigation support for defendant. Project Director and technical contributor

Risk Assessment & Characterization

Ecological Risk Assessment for the Hinkley Site, 1988
Compressor station in Mojave Desert with hexavalent chromium spill to groundwater - the Erin Brockovich - Evaluated fate and transport, the baseline ecological risks and risks associated with remedial alternatives. Concept creator of the implemented remedial alternative that involved pumping and treatment by natural attenuation. Prepared for Pacific Gas and Electric Co. Served as Task Manager and lead ecotoxicologist.

Superfund Ecological Risk Assessment - Peter Cooper/Markhams Sites, Town of Dayton, NY, 2005
Prepared screening-level ecological risk assessment of upland and wetland resources at a large landfill with hide/glue manufacturing wastes from the former Peter Cooper operation in Gowanda, NY, which contained chromium, arsenic, zinc, and various organic solvents. Benchmark EE&S, PLLC

Risk Appraisal of Retail Fuel Oil Business Property under Probate, Medway, MA, 2004
Prepared an appraisal of environmental concerns regarding a commercial business property involving heating oil business to help resolve the properties real estate value. Confidential Client.

Risk Characterization of Two Properties Located at a Former Coking Operation, Everett, MA, 2002-2004
Prepared Massachusetts Contingency Plan (MCP) Imminent Hazard Evaluation, and

Method 3 risk characterizations for two related properties located atop a former coking operation, addressing human, ecological, public welfare, and safety concerns. Confidential Client. Task Manager.

Risk Appraisal of Large Land Tract for Development, Virginia Beach, VA, 2002-2003
Purpose was to appraise the environmental liabilities associated with 400-acre undeveloped tract near a mixed residential and university setting in preparation of development, which has been in use for >100-years, as part of an overall real estate feasibility study. Included a Phase I ESA update for the entire property and risk profiling and liability estimation for the specific 50-acre site slated for initial development. CBN. Task Manager.

Risk Appraisal of a Transit Depot/Garaging Facility, Richmond, VA, 2002
Purpose was to appraise the environmental liabilities associated with 6-acre transit facility in a highly urban area, which has been in use for >100-years, as part of an overall real estate feasibility study. Includes Phase I ESA, risk profiling, and liability estimation. Greater Richmond Transit Company. Task Manager.

Risk Appraisal Transactional Due Diligence Support of a Chlorinated Solvent Contaminated Property, Stamford, CT. 2001
Prepared appraisal of the environmental risk issues associated with a property transaction involving a contaminated commercial property. Followed the Risk Appraisal approach developed by K. Frantzen (see Books and Articles section below). Confidential Client. Project Manager.

Method 3 Risk Characterizations of the Chelsea River Fuel Oil Spill, Boston, MA. 2000 - 2002
Supported the establishment of Data Quality Objectives, design of environmental investigations, and development of a risk characterization program to support closing the spill response activity. This work helped PRP avoid Natural Resource Damages issues. Work performed for Clean Harbors. Project Manager.

Update of Method 3 Risk Characterization, Lawn Street Disposal Site, Attleboro, MA. 1999.
Prepared an update to the Massachusetts Contingency Plan (MCP) Method 3 Risk Characterization prepared previously. For Eastern Utilities / Blackstone Valley Electric Corp. through their consultant GEI Consulting, Inc., Project Manager.

Baseline Risk Assessment for Former MGP Site, Plattsburgh, NY. 1998
Prepared a baseline human health and ecological risk assessment for the upland portion of this former manufactured gas plant site situated within an urban area and along the Saranac River, an important trout fishery. The work included development of remedial objectives and target cleanup levels. For NYSEG, Task Manager and lead author.

Risk Evaluation of Two Small Former MGP Sites, 1998
Evaluated potential risks associated with remaining soil and groundwater contamination at two small urban sites in southeastern New York. Prepared for Orange and Rockland Utilities Co. Task manager and author.

Method 3 Risk Characterization for a Former Manufactured Gas Plant Site, Southbridge, MA, 1998.
Completed a Massachusetts Contingency Plan (MCP) Method 3 Risk Characterization to support a Phase II investigation at a former MGP site currently used as a utility service center. For Mass. Electric Corp., Task Manager.

Method 3 Risk Characterizations for the Mendon Road and Lawn Street Disposal Sites in Attleboro, MA. 1998.
Completed two Massachusetts Contingency Plan (MCP) Method 3 Risk Characterizations. These documents supported the Phase I and Phase II investigations at former sand quarries that were used as disposal sites for oxide box purifier wastes from the former Tidewater MGP in Pawtucket, RI. Supported risk communication efforts including the preparation of fact sheets and presentations at public information meetings. For Eastern Utilities / Blackstone Valley Electric Corp., Task Manager and lead author.

Method 2 Risk Characterization for Franklin Manufacturing Facility, MA, 1998.
Evaluated risks associated with the accumulation of volatile organics within a facility overlying contaminated soils and groundwater to support a No Further Action (NFA) decision. Prepared for Franklin Manufacturing Co. Risk Assessor.

Remedial Investigation and Risk Assessment for Environmentally Impaired Property, 1998
Managed the remedial investigation and baseline human health and ecological risk assessment of the former manufactured gas plant site in the Clifton area of Staten Island. Development of remedial objectives and target cleanup levels, and risk communication support will be included. For KeySpan Energy. Project Manager, lead author, and risk assessor.

Development of Cleanup Goals and Risk Characterization to Support Response Action Outcome, Boston, MA, 1998
A drum burial area was discovered and response actions commenced at a former PVC manufacturing location. Drums contained various organic chemicals, most containing aldehydes and ketones, and which are not common environmental contaminants. Quickly (

Method 3 Risk Characterization of Indoor Air at the Lynnwood Facility, Lynn, MA, 1998
Evaluated risks associated with the accumulation of volatile organics within a facility overlying contaminated soils and groundwater to support a No Further Action (NFA) decision. Prepared for Emlicon Corp. Task manager and author.

Risk Characterization at a Manufacturing Complex, Boston, MA, 1997-1988
Project dealt with risks associated with the accumulation of volatile solvents within buildings within the complex, and construction workers' exposure. Solvents (TCE) used in the manufacturing processes were released into soils underneath certain buildings resulting in a large plume. Designed an indoor air evaluation program. Risk assessment performed according to Massachusetts Contingency Plan (MCP) Method 3 Risk Characterization protocol. Prepared for confidential client. Task manager and author.

Risk Characterization of the Western Ave. Site, Brighton, MA. 1997
Completed a Massachusetts Contingency Plan (MCP) Method 3 Risk Characterization to support the filing of a Response Action Outcome (RAO) for an underground storage tank removal. It also justified not achieving a background concentration for various polycyclic aromatic hydrocarbons and other petroleum hydrocarbons. Prepared for the Massachusetts Turnpike Authority. Task manager and author.

Risk Assessment for the Former Manufactured Gas Plant Site, Cambridge, MD, 1997
prepared a site-specific analysis of risk associated with MGP-related chemicals in surface soil. The assessment was prepared to guide decision-making regarding future use and need for mitigative actions. Prepared for confidential client. Task manager and author.

Bioaccumulation of PAHs into Garden Produce and Associated Health Risks, 1997
Literature review and geochemical analysis of distribution of PAHs in soils, and exposure and associated health risk to gardeners and consumers of garden produce grown in PAH contaminated soils. Prepared for a confidential client. Project Manager and lead author.

Screening-level Ecological Risk Assessment for the Chevron Cincinnati Refinery, 1996
Multimedia analysis of potential risks to ecological resources. Prepared for Chevron Research and Technical Co. Served as Project Director.

Assessment of Risks to the Ecology, Public Health, and Cultural Resources at the DDT Contamination Site, Bandelier National Monument, New Mexico, 1996
Multimedia analysis of potential risk posed by pesticides to various receptors. Demonstrated no action alternative viable. Supported regulatory negotiations. Prepared for National Park Service. Served as Project Director and lead author.

Human Health Risk Assessment for the Tar Creek Superfund Site, Ottawa County, Oklahoma, 1995
An assessment of residential exposures to lead and other metals in the soils in and around homes located near former Picher Mine in the Tri-State Mining District. Part of remedial investigation. Prepared for U.S. EPA Region VI. Served as Task Manager.

Public Health and Ecological Risk Assessment, 1994
Part of a series of reports for a comprehensive investigation of a former manufactured gas plant site for Brooklyn Union Gas Co. Served as lead author and Program Manager.

Risk Assessment for Underground Storage Tank #317 at Building 5110, Fort Wainwright, Alaska, 1993
An alternate contaminant level determination and risk assessment for the U.S. Army Corps of Engineers, Alaska District. ACL accepted by AK-DEC and implemented. Served as Project Manager.

Risk Assessment Guidance, 1993
Developed a six part series of guidance documents for use by various contractors at the U.S. Department of Energy Idaho National Engineering Laboratory (INEL). Served as technical coordinator and principal author.

Public Health and Environmental Evaluation of the Midway-Bayshore Site, 1993
Prepared the risk assessment used to evaluate risks from MGP residues in a residential area in Daly City, CA (San Francisco area) and prepared cleanup goals for closure negotiations with CAL-EPA. For PG&E. Served as lead author.

Public Health and Ecological Risk Assessment for the H & H Burn Pits Site, 1993
Prepared as part of a Remedial Investigation of a National Priorities List site for the U.S. EPA Region 3. Served as Principal Toxicologist.

Environmental Cost/Benefit Assessments, 1993
Cost/benefit analysis of remedial action alternatives for four DEW Line Sites along north coast of Alaska for the U.S. Army Corps of Engineers, Alaska District. Served as project risk assessor.

Public Health and Ecological Risk Assessment for the Cleveland Mill Mine Site, 1993
Part of a Remedial Investigation of a National Priorities List site conducted for the New Mexico State Environment Department. Served as Principal Toxicologist.

Public Health and Ecological Risk Assessment, 1993
Part of a series of reports for a comprehensive investigation and remediation of a former manufactured gas plant site in San Francisco. Developed supporting scientific document for cleanup goal negotiations. Prepared for Pacific Gas and Electric. Served as Principal Toxicologist.

Toxicity Reference Values for Ecological Assessment, 1992
Developed innovative approach of deriving reference doses/concentrations of environmental toxicants for Rocky Mountain Arsenal Ecological Risk Assessment.

Comparison of Environmental Effects of Land-based Re-Use and Ocean Disposal of Municipal Sewage Sludge, 1992
For the New York City Department of Environmental Protection, Land-Based Sludge Management Project. Served as upland resource risk assessor.

Remedial Action Plan and Ecological Risk Assessment for the P&S Yard, Swanson River Field, 1990

For ARCO-Alaska, Project involved a xylene spill in an oil field on the Kenai Peninsula. Served as ecotoxicologist and primary author.

Hazard Analysis for the Proposed Dining Hall at Eielson AFB, Fairbanks, Alaska, 1989
Prepared for the U.S. Army Corps of Engineers-Alaska District. Analyzed hazards associated with building on and in petroleum-contaminated soil and developed a conceptual approach for engineering a protective barrier to allow construction without removal of contaminated soils. Served as Project Manager.

Preliminary Endangerment Assessment for the Birnbaum Scrapyard Site in Hankinson, North Dakota, 1989
Prepared for U.S. EPA Region 8. Principal author.

Preliminary Endangerment Assessment for the Yttrium Processing Plant in Laramie, Wyoming, 1989
Prepared for U.S. EPA Region 8. Principal author.

Risk Assessment for the Madison Wire/Orban Industries Site Remedial Investigation, 1989
Prepared for the New York State Department of Environmental Conservation. Served as Task Manager and lead toxicologist.

Risk Assessment for the Proposed North Post Family Housing Facilities at Fort Wainwright, Fairbanks, Alaska, 1988
Prepared for the U.S. Army Corps of Engineers-Alaska District. Served as Project Manager and lead author.

Human Health Risks Associated with Cooling Tower Emissions, 1987
Prepared for Ocean States Public Power as part of an Environmental Assessment, evaluated potential human health risks from both heavy metals and Legionella in tower drift. A member of the risk assessment team.

Environmental Risk Management

Environmental Risk Management Support and Program Consultant 1997-2004
Key consultant for a program involving a large portfolio of former Manufactured Gas Plant (MGP) sites and ancillary properties for an energy company in the eastern U.S. (100 in all). The scope of work included coordinating site reconnaissance, quality assurance of work plans, participating in developing strategic and tactical approaches to regulatory issues and negotiations, preparing individual property risk appraisals and portfolio threat analysis (comparative risk ranking), quality assurance of remedial investigations, and service as technical spokesperson in public forums. Managed teams performing investigation and remediation of sites, and led the team preparing all exposure and risk assessments and establishing cleanup goals. KeySpan Energy

Environmental Manager for Nott Street Industrial Park. Schenectady, NY, 2001-present
Serve as environmental consultant overseeing and monitoring conditions at the Park, which is under a Stipulation and a VCA from the NYSDEC. Interact with counsel, agency personnel, and tenets (including GE Power Systems) to assure compliance and direct work to achieve closure of extant environmental orders. Schenectady Industrial Corporation. Project Manager.

Environmental Risk Management Support to Evaluate Conditions at a Factory Daycare Center, Upstate, NY. 2001
Providing technical (toxicology and exposure analysis) support during the evaluation of environmental reports of the facility. Also supporting the risk communication program within the company, the center, regulatory agencies, and the media. Confidential Client. Project Manager

Environmental Risk Management Support to Real Estate Developers of Former Apple Orchards, Marlborough, MA. 2000-2001
Providing technical (toxicology and exposure analysis) support during the evaluation of environmental reports of several large parcels former part of a large apple orchard. Public concern expressed over lead arsenate and chlorinated pesticides in soils and their disturbance during development. Also, supported risk communication program at public hearings. MetLife. Avalon, and Gutierrez Companies.

Environmental Risk Management Due Diligence Review of a Mercury Contaminated Building Planned for Redevelopment as Office Space, Danvers, MA. 2000 - 2001
Worked as senior environmental reviewer and consultant to guide Phase I and II ESA activities of the former OSRAM Sylvania Manufacturing Facility. Worked for Redeveloper. Project Manager and Risk Analyst.

Environmental Risk Management Support of a Redevelopment of a Former MGP Site as a Bakery, Yonkers, NY. 2000.
Worked as senior environmental reviewer and consultant to the redevelopment plan of a site for the planned Greyston Bakery along the waterfront; provided third-party verification to support underwriting of the cost-cap insurance policy. Project Manager.

Environmental Risk Management Program for the Brooklyn Borough Gas Works Site. 1997-1998
Conducted baseline human health and ecological risk assessment of the former manufactured gas plant site (18 acres) along Coney Island Creek. Prepared and supported negotiations of remedial objectives and target cleanup levels. The project also required supporting a risk communication program of newsletters, public documents, public meetings, and hearings. For Brooklyn Union / KeySpan Energy. Project Manager and lead author.

Environmental Risk Management Program for the Brooklyn Borough Gas Works Site, 1997-1998

Conducted baseline human health and ecological risk assessment of the former manufactured gas plant site (18 acres) along Coney Island Creek. Prepared and supported negotiations of remedial objectives and target cleanup levels. The project also required supporting a risk communication program of newsletters, public documents, public meetings, and hearings. For Brooklyn Union / KeySpan Energy. Project Manager and lead author.

Publications and Papers

Co-Author with D.K. Wojcicki, *Resolving Environmental Risk Management Dilemmas Associated with the Development of Pesticide Impaired Real Estate.* , In preparation ,

Author, *Lack of Correlation of Adverse Health Outcomes and Affirmative Court Findings to Hazardous Waste Sites and Brownfields Contaminated with Polycyclic Aromatic Hydrocarbons.* , In preparation ,

Co-Author with J.M. Daly and H.W. Knoche, *The Binding of Host Selective Toxin Analogs to Mitochondria from Normal and "Texas" Male Sterile Cytoplasm Maize* , Plant Physiology , 83:863-868, 1987.

Author, *Risk-Based Analysis for Environmental Managers* , Lewis Publishers/CRC Press , Boca Raton, FL, 2001

Author, *Using Risk Appraisals to Manage Environmentally Impaired Properties* , VHB SiteWorks, Watertown, MA , Report 108, 28p, 1999.

Author, *Risk-Based Analysis* , The Brownfields Newsletter , 3(17) 1, King Communication, Washington, D.C., August 27th Issue, 1998.

SUSAN GARDNER
Project Geologist

Summary of Experience

Ms. Gardner is a California Professional Geologist who has worked for Kleinfelder for more than ten years. Her experience includes: environmental site assessment, geotechnical field work and materials testing. Her field activities include: borehole drilling, logging. and soil/rock sampling; groundwater monitoring well installation, developing, and sampling.

Education

BS, Geology, California State University, Sacramento, California, 2000

Registrations

Professional Geologist (P.G.), No.8183, California,

Certifications

NICET - Soils, No. 109368, Level II, NICET, 2003
NICET - Concrete, No. 109368, Level II, NICET, 2003
NICET - Asphalt, No. 109368, Level II. NICET, 2003
DOT - Caltrans, 2003
ACI - Field, No. 078745, Level I, ACI, 2001
Nuclear Gauge/Troxler, No. 094279, 2001

Professional Affiliations

Association of Engineering Geologists .

Project Experience

The following is a representative selection of Susan Gardner's project experience.

California Highway Patrol Academy, West Sacramento, California.
Prepared proposals, prepared work plans, conducted sensitive receptor survey and coordinated sampling events for investigation of soil and groundwater contamination by leaking underground gasoline storage tank.

Geer Road Landfill, Stanislaus County, California. - From May 2006 To present
Responsible for coordination of sampling events, preparation of monitoring reports and tracking of deadlines. Maintains landfill library records.

Fink Road Landfill. Stanislaus County, California. - From May 2006 To present
Responsible for coordination of sampling events, preparation of monitoring reports and tracking of deadlines. Maintains landfill library records.

California Highway Patrol Academy, Napa, California.
Prepared proposals, prepared work plans, organized installation of additional monitoring wells and coordinated sampling events for investigation of soil and groundwater contamination by leaking underground gasoline storage tank.

Aerojet General, Sacramento, California.
Responsible for oversight of drilling operations for the purpose of construction and installation of on and off-site groundwater monitor and extraction wells. Monitor drilling operations, keeping detailed well logs and collecting soil and groundwater samples. Supervise well construction and submit detailed well construction statistics and diagrams.

Cable Car Wash - Groundwater Assessment, Davis, California. - From Nov 3, 2003 To Nov 4, 2008
Three 10,000-gallon gasoline USTs were removed from this site in 1988. The former tanks were found to have impacted soil and groundwater. Since 2003, Kleinfelder has assisted Cable Car Wash with investigation, monitoring, and regulatory coordination at the site. As Project Manager, she is responsible for coordinating quarterly groundwater monitoring, sampling, and reporting. She has overseen preparation of remedial action plan, installation of ozone injection points, and conducting of injection events sampling, and reporting for remediation of soil and groundwater.

Geer Road Landfill - South Area Groundwater Investigation Report. Stanislaus County, California - From Jul 31, 2006 To Jun 1, 2007
Project Manager. Provided a Groundwater Investigation Report for Geer Road Landfill, located in Stanislaus County, California. Groundwater and soil gas were sampled from soil probes (hydropunch), existing gas probes, one existing groundwater monitoring well and the Turlock Irrigation Canal.

Awards

Materials Technical Excellance Award, 2003
For work on Richmond-San Rafael Bridge Seismic Retrofit Metals Testing

CAROL HALL
Environmental Project Manager

Summary of Experience

Ms. Hall has 22 years of environmental project experience in the areas of regulatory compliance, environmental audits, Phase I and II environmental site assessments, environmental project management, and data management. Ms. Hall works on multi-disciplinary projects involving assessment of water quality, hazardous material and waste management issues. She has prepared regulatory analyses and provided technical leadership in federal Superfund projects and California Environmental Quality Act (CEQA) projects. Her work experience includes environmental project management for the Department of Defense, Department of Energy and other federal agencies; State of California and local agencies; financial institutions; legal firms; industry, and business.

Education

BA, Social Science, Michigan State University, Michigan, 1979
Certificate, Biology, Field Ecology, Los Rios Community College, Sacramento City College, California, 2006

Registrations

Registered Environmental Assessor I (R.E.A. I), No.05109, Cal-EPA, CA, 1993
Certified Hazardous Materials Manager (C.H.M.M.), No.13688,

Certifications

OSHA 40-Hour HAZWOPER, OH&S Group, NAT, 1990

Professional Affiliations

Academy of Certified Hazardous Materials Managers, Northern California Chapter Board Member; Sacramento Section Programs Director 2006-2008, Sacramento Section Chair 2008-2009 .
Academy of Certified Hazardous Materials Managers, Government Affairs Subcommittee Member .
Institute of Brownfield Professionals .
California Waste Association .
American Society for Testing and Materials (ASTM) , Member E50 Committee and E50.01 Subcommittee Member, Environmental Assessment, Risk Management & Corrective Action .

Project Experience

The following is a representative selection of Carol Hall's project experience.

Audits/Regulatory Compliance

Environmental Audits, United Agri Products, Agri-Team Members and Industrial Facilities, Various locations in California.

Conducted environmental compliance audits at various agricultural product storage and industrial facilities. Facilities included product warehouses, aboveground product storage tanks, bulk repackaging facilities, mixing and other process areas, and formulators. Several sites have included underground fuel storage tanks, above ground hazardous waste tanks. and vehicle and equipment maintenance shops. Included assessment of air emissions, water discharges, hazardous materials management, and hazardous waste storage and transportation. Reviewed local administering agency records and site records at the time of the site reconnaissance. Findings and recommendations, including estimated costs, were included in the assessment report.

Environmental Audits, Helena Chemical Company, Western Area Power Administration, Various Agricultural Distribution Facilities, Manufacturing Facilities, Mining Operations, Arizona and California.

Provided technical lead for the audits in the areas of water quality, EPCRA community right to know, hazardous materials and hazardous waste compliance. Water quality issues included Spill Prevention Control and Countermeasure (SPCC), NPDES Permitting, and storm water issues. Also assisted with landfill and aboveground and underground storage tank assessments.

Hazardous Material Business Plan, Confidential Client, Various Counties.

Reviewed prior document submittals. Contacted County representatives in more than 20 counties for more than 100 small quantity generator sites. Negotiation of submittal deadlines and fees was successfully conducted. Provided a matrix of information to assist with organization of reporting.

Land Disposal Restrictions and ARARS, Department of Defense. Sacramento Army Depot, Sacramento, California.

Researched land disposal restrictions (LDRs) for mixed waste and other waste. Risk analysis database prepared. Completed a matrix of the Applicable or Relevant and Appropriate Regulations (ARARs) for two operable units at the EPA Superfund site.

Kiewit Environmental Compliance Audits, Various Locations, California. - From 1/1/08 To 6/1/08

Conducted file review audit of confidential client's two precast concrete facilities in the San Francisco Bay Area and Stockton, California, which included review of regulatory documents, procedure manuals, inspection reports, hazardous waste manifests and other reporting documents (e.g. SPCC, NPDES and SWPPP). Prepared preliminary summary list of findings. Provided senior review of preliminary findings for Portland, Oregon precast facility audit.

Historical Site Assessment

Phase I, Environmental Site Assessments (ESA), Various Confidential Clients.
Phase I ESAs were conducted according to ASTM standards and client specific standards, for a broad range of clients including banks, REITs and other financial institutions, real estate developers, attorneys, industry, and commercial businesses. Environmental conditions likely to affect the sites were evaluated. Several of the Phase I site assessments have been of corridors ranging from 1 mile to 24-mile spans for pipeline routing (Mohave Pipeline), light-rail/transportation routing (Joint Power Authority), or recreational area development (Napa River). The sizes of the sites range from less than one acre to 20,000-acre parcels. Other Phase Is have been conducted for residential/school/recreational site development (e.g., urban redevelopment areas, or proposed subdivisions), agricultural properties, former and active landfills, and commercial/industrial property transfers. Tasks included review of regulatory agency files; historical information including chain-of-title, aerial photo analysis, and Sanborn Map review; and geological and hydrogeological characterizations for surrounding areas. A site reconnaissance was conducted to evaluate current site conditions, and "Key Site Managers" were interviewed about current and historical property use.

Phase II, Environmental Site Assessment, Various Confidential Clients.
Phase II assessments primarily resulted from findings associated with Phase I ESAs completed. Managed projects involving collection of soil, well, and surface water samples for laboratory analyses, hazardous waste disposal, additional historical or regulatory agency records review, land surveys, and geophysical investigations. Sites assessed included former landfills, agricultural properties, industrial facilities, commercial facilities, and residential properties.

Environmental Planning & Permitting

Negative Declaration/ Environmental Permitting, Meyer Cookware, Inc., Vallejo, California.
Prepared documents and coordinated of resources to develop a mitigated Negative Declaration, pursuant to the requirements of CEQA and local administering agencies. Tasks included interviews with vendors supplying equipment and materials to develop a list of potential hazardous substances. Mitigation measures were developed for reducing the potential impacts to the environment. Developed a proposed time line for additional environmental permitting submittals.

Negative Declaration, Hunt Wesson, Oakdale, California.
Prepared documentation in support of a Negative Declaration for a new power distribution station, including portions of the Initial Study. Conducted a site reconnaissance, researched site selection issues, and assisted in negotiations with the City of Oakdale Planning Department.

Hazardous Materials/Hazard Evaluation, Twelve Proposed Housing Project Sites, Folsom, California.

Regulatory agency database evaluation for twelve proposed affordable housing project sites in support of the Hazardous Materials/Hazard section for an Initial Study. Site reconnaissance conducted to obtain site setting information (e.g. structures and geology) and document the actual or potential environmental conditions on the sites (eg. USTs/ASTs, evidence of prior land use associated with hazardous materials, wells, sumps, etc.).

Rosetta Resources, Due Diligence Assessment, Rio Vista, California. - From 02/2007 To 09/2007

Prepared area-wide due diligence assessment for natural gas pipeline acquisition project. The study area was an approximately 42-mile area of Rio Vista, California. Pipelines and substations were formerly owned and operated by Pacific Gas & Electric Company (PG&E). Hazardous substance/petroleum product release reports and other operating data provided by PG&E were reviewed for ongoing potential impact following acquisition, as well as standard document review under ASTM requirements.

Water Quality

Drinking Water Source Assessment and Protection Program Documents, Confidential Client, Lincoln, California.

Prepared document to evaluate the feasibility of the proposed source (well) locations. The evaluation included limited historical and regulatory agency database review of site and surrounding area that was used to develop a Potential Contaminating Activities (PCAs) inventory. Prepared Physical Barrier Effectiveness Checklist and Well Data Sheet for groundwater sources. PCAs were ranked according to the vulnerability relative to the potential groundwater source.

Spill Prevention Control and Countermeasure Plan (SPCC), Various Confidential Clients, California.

Provided senior review for SPCC Plans prepared by other Kleinfelder regions. Prepared numerous SPCC Plans for agricultural distribution facilities throughout Californa. Conducted site visits to update SPCC Plans prepared for two federal Air Force bases by another contractor. Prepared SPCC Plans for a chemical plant and other manufacturing plants. an oil storage and distribution center, a northern California city utility district (5 facilities), a regional utility district (2 facilties, a regional airport system (2 airports), a federal utility, golf courses (2 facilities), a hospital facility, a winery, a water treatment plant, construction materials yards (2 facilities), and a food distribution facility. Five state government maintenance facility SPCC Plans were prepared following a preliminary evaluation of their 15 sites for applicability to 40 CFR Part 112 requirements. Developed report format that streamlined multiple site reporting and met federal and state reporting requirements.

Stormwater Pollution Prevention Plan (SWPPP), Elk Grove Waste Water Treatment Plant, Elk Grove, California.

Prepared SWPPP documents for construction activity associated with expansion of existing offices at a waste water treatment facility.

Stormwater Pollution Prevention Plan Review, State of California, Butterfield Way, Sacramento, California.
Reviewed maps and information provided for peer review concerning the proposed stormwater best management practices to be implemented at the construction site.

SAFCA Area Wide Due Diligence Environmental Assessment for Natomas Basin Levees, Sacramento and Sutter Counties, California. - From 10/2007 To Present
Carol Hall is the project manager and technical director for this area-wide due diligence assessment of properties owned by approximately 950 individual land owners along the Sacramento River, Natomas Cross Canal. Pleasant Grove Creek Canal, Natomas East Main Drainage/Steelhead Creek, and American River, which form the boundaries of the Natomas Basin in Sacramento and Sutter Counties. The parcel boundaries for this assessment cover about 45 perimeter miles of terrain. The purpose of the due diligence assessment is to evaluate environmental conditions that may affect the proposed levee upgrade project. In order to efficiently assess this large area in a timely and cost-effective manner, the due diligence assessment will be conducted in phases. In the preliminary evaluation, Kleinfelder will screen properties for potential presence of hazardous materials, recognized environmental conditions (RECs), and identify "significant data gaps". Based on the results of the preliminary evaluation, individual properties with potential RECs will be further evaluated in accordance with the American Society for Testing and Materials (ASTM) Phase I Environmental Site Assessment Process (ASTM E 1527-05). For selected properties suspected of having hazardous materials contamination, sampling will be conducted to evaluate the nature and extent of contamination and need for remediation.

Tasks associated with this due diligence evaluation include regulatory agency and records review; evaluation of physical site characteristics, including geology and hydrology; historical land use review including aerial photographs, topographic maps, zoning/planning maps, Sanborn maps, building department records and city directories; site reconnaissance to observe features indicative of potential RECs; interviews of owners/occupants; GIS data management; and reporting.

SAFCA Domestic Water Well Assessments for Natomas Basin Levees, Sacramento and Sutter Counties, California. - From 2/2009 To Present
Project manager for domestic water well assessments along the waterways associated with the SAFCA Natomas Leveee Improvement Program. Pre- and post-construction assessment comparison to Safe Drinking Water requirements.

SAFCA Limited Phase II Site Assessments for Natomas Basin Levee, Sacramento and Sutter Counties. - From 2/2008 To Present
Project manager for numerous limited Phase II sampling sites associated with the SAFCA Natomas Levee Improvement Program. Approximately 20 sites included based on the results of Phase I Environmental Site Assessment evaluaion. Also, numerous borrow

material locations evaluated for pesticides and metals in predominantly agricultural land use sections of the study area. Pre-construction and post-construction soil and groundwater sampling, hazardous substance and petroleum product impact evaluation, and remediation alternative evaluation as applicable.

Seminars/Training

Biology, Field Ecology Career Certificate, Sacramento City College, May 2006. .

Sacramento County, Preparing and Implementing Storm Water Pollution Plans for Construction Projects. .

Attendee, Classroom. International Bird Rescue Research Center and WildRescue. Wildlife Emergency Response I. Certificate of Completion awarded for 8-hour program on animal capture strategies, handling techniques, and rescue procedures. Length: 1 day. Date Completed: 01/31/2009.

Attendee, Classroom. ASTM International. ASTM Training on Phase I and Phase II Environmental Site Assessments for Commercial Real Estate. Technical and professional training by ASTM.. Length: 1 day - 1 week. Date Completed: 10/30/2008. CEUs: 2.1.

BRIAN HONEA
Geologist

Summary of Experience

Mr. Honea has used his geology background and 10 years of progressively responsible experience to develop a broad knowledge of soils and construction materials. His responsibilities as a Senior Engineering Technician have included field and laboratory testing of construction materials, including soils, concrete, masonry, asphalt pavements and steel building components. He has participated in numerous geotechnical projects, including soil sampling, pile-load testing, monitoring of reinforced earth slope construction and assisted in the development of dewatering systems for stadium construction.

Education

BS, Geology, California State University, Sacramento, California, 1985

Certifications

NICET - Field, Level II,
ICBO - Reinforced Concrete,
ICBO - Masonry,
ICBO - Fireproofing,
ACI - Field, Level I,
Nuclear Gauge/Troxler,
OSHA 40-Hour HAZWOPER,

Project Experience

The following is a representative selection of Brian Honea's project experience.

General

UC Davis Wastewater Treatment Plant, UC Davis, Davis, California.
Provided oversight for field density testing of engineered fill placement for various components of the wastewater treatment plant including oxidation ditch, clarifier, and force main. Services included density testing and observation services related to site preparation, placement of all engineered fill and trench backfill, roadway subgrades, and all foundation excavations. Responsible that all tests and inspections were performed in accordance with contract standards, plans and specifications.

Meadowview Community Center, City of Sacramento, California.
Responsible for soil testing and observation for earthwork placement during construction of facilities, roadways, and associated utilities. Assisted in construction, commissioning, and operation of a soil and groundwater remediation system to remove tetrachloroethylene (PCE) and Naptha Solvents released from two former dry cleaning facilities previously located at the site.

Installation Restoration Program, Sacramento Army Depot, U.S. Army Corps of Engineers, Sacramento, California.
Responsible for field sampling and groundwater monitoring. Collected data and prepared reports in for remediation investigation and feasibility study (RI/FS) under the Comprehensive Environmental Response, Compensation and Liability (CERCLA) for the Superfund site.

Lighthouse Marina and Riverbend Development, West Sacramento, California.
Responsible for observation and testing of soils during levee and building lot construction and reinforced earth slope buttressing of riverside levee slopes.

Treelake Village Subdivision, Placer County, California.
Responsible for testing and observation for site earthwork construction of commercial and residential lots and associated utilities.

City of Galt, California.
Responsible for soils testing for various subdivision. Project involved utility relocations and structural roadway construction.

Aerojet General, Sacramento, California.
Responsible for oversight of drilling operations for the purpose of construction and installation of on and off-site groundwater monitor and extraction wells. Monitored drilling operations, keeping detailed well logs and collecting soil and groundwater samples. Supervised well construction and submit detailed well construction statistics and diagrams. Operated dedicated sampling vehicles using submersible pumps to sample nested multi-completion monitoring wells. Used special equipment handling, cleaning and sampling procedures to maintain the integrity of the samples and reduce the potential for cross contamination between water bearing zones. In addition, performed quarterly plant-wide water level measurements.

Millcreek Landslide, Highway 50, American River Canyon, California.
Part of remediation team that included installation of monitor wells and extensiometers; provided oversight of landslide debris removal and the construction of site drainage systems and protective buttresses.

MICHAEL LAWSON
Senior Professional

Summary of Experience

Mr. Lawson has over 20 years of experience managing and executing environmental and hazardous waste management projects. As a senior engineer and project manager, he has directed staff in their performance of engineering tasks on multidisciplinary projects and served as a senior technical resource in the strategizing and performance of environmental engineering projects. Mr. Lawson is a CA-licensed Professional Engineer (Chemical).

Mr. Lawson's experience includes management of environmental and engineering projects, evaluating and designing waste management and environmental remediation systems, contract administration, construction management, performing feasibility and treatability studies, and providing engineering support for permit applications for numerous clients. He has hands-on field experience with operation and trouble-shooting of numerous remediation and waste management systems. Mr. Lawson has specialized experience in soil vapor extraction, waste incineration and waste stabilization/solidification (S/S). Mr. Lawson is a CA-licensed Professional Engineer (Chemical).

Project Experience

The following is a representative selection of Michael Lawson's project experience.

Esparto Unified School District, Esparto, California.
Prepared of a Removal Action Workplan for arsenic-contaminated soil at a proposed school site. Tasks included conceptual design, cost estimation, statistical evaluation of soil data, agency negotiation, and report preparation.

Atlantic Richfield Company, a BP-affiliated Company, Bay Area, California.
Portfolio Manager for Bay Area retail sites. Managed operation, maintenance, monitoring, and environmental compliance for over thirty retail sites throughout northern California. Directed activities of junior staff and field technicians. Managed repair and upgrade of remediation systems.

Chevron Environmental Management Company, Multiple Site, Bay Area, California.
Managed design, construction, operation, and maintenance of soil and groundwater remediation systems at a dozen retail and commercial sites throughout the San Francisco Bay Area. Project activities included preparation of feasibility studies and corrective action plans, report preparation, remediation system design, preparation of permit applications, management of subcontractors, construction oversight, regulatory interface, and environmental compliance. Mentored and coordinated activities of junior engineers and field technicians. Managed construction projects with aggregate values in excess of $1,500,000.

Air Force Center for Environmental Excellence, Former George Air Force Base, Victorville, California.
Managed remedial investigation and feasibility study preparation for a major release of jet fuel. Project activities included investigation, report preparation, remedial system design, construction and operation, regulatory interface and environmental compliance. Managed project budgets in excess of $1,000,000.

Air Force Center for Environmental Excellence, Beale Air Force Base, California
Managed project for installation of particulate control devices on in-use, stationary compression-ignition engines. Evaluated and interpreted new air emissions control regulations and recommended technical approach for engine retrofit while minimizing disruption to the client facility mission. Total project value exceeded $300,000.

Confidential Client, Western Michigan
Remediation of chlorinated compounds and metals at a leather tannery. Tasks included feasibility study, design and construction management of an air sparging system for removal of volatile chlorinated compounds and in situ oxidation of dissolved metals in groundwater.

City of Owosso, Michigan
Remediation of chlorinated solvents at the redeveloped site of a former manufacturing facility. Tasks included feasibility study, design, and construction management of a slurry wall for containment of contaminants in groundwater and vadose zone soils.

Wisconsin Fuel & Light Co., Manitowoc, Wisconsin.
Remediation of coal tar contamination at a former coal gas manufacturing site. Tasks included a feasibility study, and treatability study and pilot testing of in situ solidification/stabilization of coal tar in site soils and river sediments. Prepared test report documents and coordinated regulatory issues.

Confidential Client, Southwest Michigan
Evaluated feasibility of soil vapor extraction for application to wastewater treatment sludge contaminated with volatile organic constituents and polychlorinated biphenyls. Tasks included pilot test planning, execution, and reporting.

U.S. Army Corps of Engineers, Former Kincheloe Air Force Base, Kinross Township, Michigan.
Preparation of plans and specifications for removal of underground and above ground storage tanks, distribution piping, mechanical equipment, asbestos containing materials, and buildings.

California Department of Health Services, Riverside County, California.
Planning and reporting of a hazardous waste incineration demonstration test on contaminated soil from the Stringfellow site in California, a major Superfund site. Tasks performed include preparation of the demonstration test plan in accordance with RCRA

trial burn requirements, preparation of monthly progress reports, the demonstration test observation, and preparation of the demonstration test final report.

Lockheed Aerospace, Burbank, California.
Involved with the design, permitting and operation of a remediation system for chlorinated solvents and dense, nonaqueous phase liquids (DNAPL) in ground water and soils. The treatment system was a first-of-its-kind combination of the Aqua Detox™ vacuum stripper and a Soil Vapor Extraction (SVE) system. The system design featured zero air discharge and recovery of contaminants by condensation. In operation, DNAPL was decanted from recovered ground water. Vapor phase contaminants in air streams from the stripper and the SVE and were adsorbed onto activated carbon. During the carbon regeneration cycle, the contaminants were condensed and decanted as DNAPL.

U.S. Army, Rocky Mountain Arsenal, Denver, Colorado.
Evaluation and design of candidate technologies for treatment of Basin F liquids at Rocky Mountain Arsenal. Tasks included conceptual design, acceptability rankings, evaluation testing, and pilot test planning for incineration equipment.

IBM Corporation, San Jose, California.
Engineering evaluation of virgin and waste solvent and wastewater handling and storage facilities. Reviewed design of piping, tankage and instrumentation in numerous tank farms, underground waste vaults, and distribution trenches and tunnels. Reviewed maintenance and operating procedures and the site contingency plan for appropriateness. Participated in the preparation of Spill Prevention, Control and Countermeasures (SPCC) and Best Management Practices (BMP) plans.

General Atomics (formerly GA Technologies), La Jolla, California
Design of incinerator subsystems for prototype hazardous waste incinerator. Designed or codesigned extractive flue gas analysis system, liquids pumping station and wet scrubbing system. Managed procurement, fabrication, and installation of equipment items. Studied waste incineration issues, including thermodynamics for high-temperature acid gas capture, volatilization of polychlorinated biphenyls (PCBs) in soil drying operations, fuel feasibility studies, and regulatory compliance of incinerator and ancillary systems. Lead shift operator of prototype hazardous waste incinerator. Participated in over twenty individual test burns on various materials, including soil contaminated with PCBs, sewage sludge, chlorinated solvents, refuse derived fuel (RDF), toluene diisocyanate, and malathion. Responsible for equipment operation, data acquisition, test planning, reporting, trouble-shooting, maintenance, and safety during shift operations.

Publications and Papers

Lead author, *In Situ Solidification/Stabilization Pilot Study for the Treatment of Coal Tar Contaminated Soils and River Sediments* , Stabilization and Solidification of Hazardous, Radioactive, and Mixed Wastes, ASTM STP 1240, T. Michael Gilliam and Carlton C. Wiles, Eds., American Society for Testing and Materials, Philadelphia , 1996 , Pilot study of solidification/stabilization of coal tar-contaminated media

MARK LEE
Senior Environmental Technician

Summary of Experience

For the past 20 years, Mr. Lee has provided field support for site assessment projects. He performs groundwater sampling using dedicated and non-dedicated pump systems and maintains water and soil sampling equipment and field safety equipment. He is trained in the use of the Global Positioning System (GPS) for determining site specific locations of various landmarks. In addition, Mr. Lee oversees the environmental services department equipment, which includes automotive and truck maintenance, supply inventory, and transportation coordination. Mr. Lee is health and safety trained in accordance with 29 CFR 1910.120.

Certifications

Asbestos Inspector, No. 05-3773, CAL/OSHA,
Lead-Based Paint Inspector, No. 15884,
Asbestos Hazard Emergency Response Act (AHERA) Certified,

Project Experience

The following is a representative selection of Mark Lee's project experience.

<u>**General**</u>

Installation Restoration Program, Sacramento Army Depot, U.S. Army Corps of Engineers, Sacramento, California.
Conducted quarterly groundwater sampling at the dedicated pump systems in accordance with the site-specific health and safety plan and chain-of-custody procedures at the Superfund site.

Monitoring, Forward Landfill, Stockton, California.
Conducted lysimeter, landfill gas, ash and groundwater sampling in accordance with the site-specific health and safety plan and the chain-of-custody procedures.

Quarterly Monitoring, Foothill Sanitary Landfill, Stockton, California.
Conducted surface and groundwater sampling in accordance with the site-specific health and safety plan and the chain-of-custody procedures to comply with quarterly monitoring requirements.

Fink Road Landfill, Stanislaus County, California.
Conducted lysimeter, landfill gas, groundwater, surface water, and leachate sampling in accordance with the site-specific health and safety plan and the chain-of-custody procedures.

Geer Road Landfill. Stanislaus County, California.
Conducted groundwater and surface water sampling in accordance with the site-specific health and safety plan and the chain-of-custody procedures for this now closed landfill.

California Rice Industry Association. California Department of Pesticide Regulation (DPR), Sacramento, California.
Collected water samples from eight locations along the Sacramento River Drainage Basin.

Sisters of Mercy Campus, Auburn. California.
Performed hazardous materials surveys of proposed renovations for the Sisters of Mercy facility. Based on the findings of our hazardous materials survey, several building materials were identified as containing asbestos and included: various vinyl floor tiles and mastic, various sheet vinyl flooring materials, Thermal System Insulation (TSI), sink insulation, exterior window caulking, asbestos cement pipe ("Transite"), drywall and joint compound, various ceiling tiles and associated mastic, basecove mastic and carpet adhesive. Components painted with lead-based paint (LBP) and lead-containing paint (LCP) were also identified during the survey. Conducted contractor oversight during removal, performed pre- and post-abatement visual surveys and clearance air monitoring at the conclusion of each phase of removal.

Asbestos and Lead Paint Survey. University Enterprises Inc, Sacramento, California - 2005
Conducted asbestos and lead paint survey of selected buildings at a Former California Youth Authority (CYA) Property in Sacramento, California. The buildings surveyed included the Mower Shop, Storage Shed by Tank, Storage Yard Shed, Green House, Maintenance Warehouse, General Shop, Firehouse Training Center, Residence, and Construction Office. The purpose of the survey was to evaluate the locations, condition, and quantities of building materials containing asbestos and/or lead based paint that might be disturbed during planned building demolition.

Asbestos and Lead Based Paint Survey, Cloverdale, California - 2007
Conducted an asbestos and lead-based paint (LBP) survey at the former Cloverdale Mill in Cloverdale, California to evaluate the location, condition, and quantity of asbestos containing materials (ACM) and LBP. The survey was conducted in general accordance with the United States Environmental Protection Agency (EPA), Department of Health Services (DHS) and California Occupational Safety and Health Administration (Cal-OSHA) standards and protocols, and standards of the local air quality management district.

Asbestos and Lead Based Paint Survey, West Sacramento, California - 2008
Conducted an the Asbestos and Lead-Based Paint Survey at a Reclamation District Pump Station in West Sacramento, California to evaluate the locations, condition, and quantity of potentially hazardous asbestos containing material (ACM) and Lead-Based Paint (LBP) that might present a potential worker safety hazard and/or might require special

handling and waste disposal as part of planned building demolition. The survey was conducted in general accordance with the United States Environmental Protection Agency (EPA), California Department of Public Health (CDPH) and California Occupational Safety and Health Administration (Cal/OSHA) standards and protocols.

Asbestos and Lead Based Paint Surveys, Sacamento and Sutter Counties, California - 2008-2009

Conducted asbestos and lead-based paint surveys on multiple properties in the Natomas Basin in Sacramento and Sutter Counties. Surveys were conducted to evaluate the location, condition, and quantity of potentially hazardous asbestos containing material (ACM) and lead-based paint (LBP) that might present a potential worker safety hazard and/or might require special handling and waste disposal as part of planned building demolition.

The asbestos surveys consisted of a site investigation to identify and collect bulk samples of suspected ACM building materials, laboratory analysis of bulk samples collected by polarized light microscopy (EPA600/R-93/116) to assess asbestos content, and an assessment of the physical condition of the suspect ACMs observed.

The lead-based paint surveys consisted of a site investigation to identify and collect samples of suspected LBP and coatings observed on building components, laboratory analysis of paint chip samples collected by flame atomic absorption spectrometry (SW846-3050B-7420) to assess lead content, and an assessment of the physical condition of the suspected LBP.

These surveys were conducted in general accordance with the standards and protocols of the United States Environmental Protection Agency (EPA), California Environmental Protection Agency (Cal-EPA), California Department of Public Health (Cal-DPH), and California Occupational Safety and Health Administration (Cal-OSHA), as applicable.

Site Reconnaissance, Phase 1 ESA, Sacramento County, California - 2009

Conducted site reconnaissance and provided assistance with the completion of Phase 1 Environmental Site Assessments (ESAs), for 5 rural properties in Sacramento County. These parcels were being evaluated as part of an Area Wide Due Diligence Assessment for the Sacramento Area Flood Control Agency (SAFCA). The purpose of the ESA was to assist the client in the evaluation of potential recognized environmental conditions at the site.

JENNIFER MEYER
Senior Health and Safety Manager

Summary of Experience

Ms. Meyer is a Certified Industrial Hygienist (CIH) and Certified Hazardous Materials Manager (CHMM) with over 19 years of diverse technical experience in environmental and health and safety projects for government and general industry clients including state and federal agencies, real estate and law firms, transportation, communication, and construction companies. Ms. Meyer is also an experienced project manager. Her current responsibilities include management and oversight of environmental, health and safety and industrial hygiene projects in the Colorado Region. Ms. Meyer's work experience includes environmental site assessments of properties, Current Condition reports for properties being protected by Conservation Easements and tasks related to remediation system installation and operations and maintenance for sites involving contamination of soils and groundwater as well as building investigation services for contaminants such as asbestos, lead-based paint, radon, microbial and mold investigations and indoor air quality issues. Ms. Meyer provides technical guidance and corporate resource sharing through her role as leader of the Building Investigation, Health and Safety and Industrial Hygiene Practice Group.

Education

MS, Environmental Policies and Management, University of Denver, Colorado,
BS, Biological Sciences, Colorado State University, 1975
American Hygienist Association-Rocky Mountain Section, 2000
American Hygienist Association-Rocky Mountain Section, 2001

Registrations

Certified Industrial Hygienist (C.I.H.), No.8665 CP, American Board of Industrial Hygiene, 2003
Certified Hazardous Materials Manager (C.H.M.M.), No.7473, 2006

Certifications

Air Sampling Certification (NIOSH), NAT, 1989
OSHA 40-Hour HAZWOPER, 2006
AHERA Inspector, No. AE06-002-BI-R-03, CO, 2006
Asbestos Inspector, No. 6344, CO, 2009
AHERA Project Designer, CO, 2006
Asbestos Inspector, No. 6344, 2008
EPA - 40 Hour Air Monitoring/Sampling,
AHERA Inspector, No. BI-00540, SC, 2006
AHERA Inspector, No. AE08-002-BI-R-09, 2008

Professional Affiliations

American Industrial Hygienist Association-Rocky Mountain Section .

AIHA-National .
Academy of Certified Hazardous Materials Manager (Rocky Mountain Section) .

Project Experience

The following is a representative selection of Jennifer Meyer's project experience.

Environmental Site Assessments

Phase I ESA with additional services for asbestos, lead-based paint and hazardous material surveys:
As Project Manager, Ms. Meyer supports multiple national clients such as Wal-mart, Lowe's, Home Depot and Costco during the acquisition and early development stages for construction of new stores. Services provided include completion of a Phase I ESA in accordance the ASTM guidelines, an update of the Phase I ESA when required and observations and sampling for hazardous materials such as asbestos, lead-based paint and universal wastes. Following identification of potential hazardous material issues, Ms. Meyer has assisted clients with the development of abatement specifications, provided contractor selection assistance, coordinated third party oversight and follow through until the site was deemed ready for future development. Ms. Meyer has developed relationships with the local regulators resulting in effective communication allowing for project completions with minimal delays or unexpected costs.

Observations and sampling to determine environmental risks associated with deactivation of FAA radar facilities:
As Project Manager, Ms. Meyer supports a national contract as a sub-contractor and coordinates observations of FAA radar sites for the presence of hazardous materials, environmental impacts of site activities and limited sampling for asbestos-containing materials and lead-based paint. The project includes site observations, limited sampling and development of recommendations for necessary actions required to achieve regulatory compliance during deactivation and decommissioning activities of radar facilities. Project locations across the United States and short time frame from notification to proceed and requirement to be on-site created unique challenges for employee and sub-contractor coordination.

Industrial Hygiene

Asbestos inspections for over 100 facilities across the United States, including Hawaii and remote areas of Alaska:
Ms. Meyer performed inspections following AHERA guidelines for sample collection and analysis. She coordinated an asbestos survey of nine healthcare buildings where all suspect building materials were identified, sampled and assessed for condition. Data was presented in three formats including a written report, a Microsoft Access database and computer aided drafting (CAD) drawings. The survey was used as a tool to prepare an operations and maintenance plan to assist in budgeting and completion of repair, renovation and demolition of the buildings.

Development of sampling plans and remediation techniques for the removal of cadmium containing brushes from the ASDE-3 equipment:
Ms. Meyer developed sampling plans and remediation techniques for this project. The equipment was located above occupied areas of Air Traffic Control Towers. The sensitivity of the potential contamination required informational briefings to tower personnel, union officials, and management personnel. This briefing included information of possible health risks and the process for remediation with work practices to prevent contamination release and safety risks. Ms. Meyer was involved with the original planning stages; coordinated with remediation teams, industrial hygienists, and FAA personnel. She maintained oversight during remediation at towers in Cleveland, OH; Pittsburgh, PA; Philadelphia, PA; Seattle, WA, Portland, OR, and Anchorage, AK; and characterizated and coordinated disposal of the generated wastes nationwide.

Initial evaluation of clandestine methamphetamine laboratories:
Ms. Meyer has performed initial evaluations of properties that have been identified as previous methamphetamine laboratories. The evaluation process includes observations of conditions, research of production methods and development of a sampling plan to evaluate potential contamination associated with the production of methamphetamine. Following receipt of sample analysis results, Ms. Meyer develops a remediation plan for cleanup of the property. After remedial activities, Ms. Meyer re-samples and determines effectiveness of remediation and makes recommendations for human re-occupancy.

Technical Review of Lead Health Protection Plans for the Demolition of Catenary Structures Transit Authority Railroad:
Ms. Meyer provided technical review of the Lead Health Protection Plans for the abatement and demolition of various lead coated steel catenary structures. The plans included outlining acceptable work practices, engineering and administrative controls, determining similar exposure groups and instituting representative air monitoring and wipe sampling plans to assess employee exposures. Additionally, Ms. Meyer provided consultation on medical surveillance results and drafted and implemented a respiratory protection plan for those employees involved in lead emitting operations.

Internal Operations:
Ms. Meyer is responsible for health and safety plan development and compliance including field investigative techniques and accuracy of sampling methodology, equipment calibration and quality control procedures during the performance of remedial investigations and corrective actions conducted at hazardous waste sites and various manufacturing and industrial facilities.

Hazardous Materials

Air Traffic Control Tower in Bridgeport, Connecticut:
Ms. Meyer performed project oversight and environmental monitoring/sampling during all phases of construction activity for the Air Traffic Control Tower in Bridgeport, CT. Ms. Meyer's activities included review of the abatement design and work plan. During

oversight, she worked with the on-site engineer to monitor and modify work practices, as necessary, to meet regulatory compliance with federal, state, and local regulations. She performed on-site analysis of air samples utilizing the NIOSH 7400 method, as well as the collection of air samples to be analyzed for lead during construction impacts of lead-based paint. When impact to un-sampled materials was anticipated, she worked with personnel on-site to determine sampling plans and actions necessary to avoid disturbance of potential asbestos-containing materials or lead-based paint.

Technical Review of Documentation for Property Transfer

Review of environmental documents as part of due-diligence for the property transfer of large development project:
As Project Manager, Ms. Meyer was responsible for coordinating efforts for the review of nine environmental and four geo-technical documents related to a large development project near Denver, Colorado. Approximately 1,800 acres of mixed-use land was scheduled for purchase and the potential owners requested assistance with the due-diligence process. Ms. Meyer coordinated the effort for the review of documents associated with environmental and geo-technical issues for the site. The project involved confidentiality and a quick turn-around to assess potential business risks associated with the property transfer. Working with a large team including multi-disciplined professionals, Ms. Meyer provided the necessary review and recommendations to assist the client in evaluating the business risks with acquiring the property.

Training

LPS Training - From on-going To Present
Ms. Meyer is responsible for training Kleinfelder employees and subcontractors on the Loss Prevention System (LPS), a behavior-based safety program that is an "organized, common sense" approach based on over 30 years of research, field trials and experience. This training includes awareness, 8-hour initial and annual refresher training.

Health and Safety Training
Ms. Meyer has provided training on a variety of OSHA standards including Hazard Communication training, Lock/out-Tag/out training, Excavation Safety training, asbestos awareness training, Methamphetamine Laboratory Awareness training and Mold/Moisture Intrusion Awareness training. This training is provided for a variety of clients including, property owners, real-estate associates, facility managers and on-site scientists and engineers.

HAZWOPER 8-hour Refresher Classes
Ms. Meyer provides training in accordance with 29 CFR 1910.120 for Kleinfelder employees and for clients. The course combines the requirements of the standard and scenarios that allow the participants to put elements of the classroom requirements into practical applications that they might encounter in their workplaces. Ms. Meyer approaches each class in a unique manner to make it applicable to the attendees.

JOHN PEMBERTON
Geologist

Summary of Experience

Mr. Pemberton is a geologist at the Sacramento office. He has contributed to both environmental and geotechnical projects. Mr. Pemberton has valuable experience in both field and office work. His field work includes: environmental site assessments, soil and groundwater sampling, borehole drilling, logging and soil/rock sampling. In the office, Mr. Pemberton has evaluated data, prepared numerous scientific and regulatory reports and performed laboratory analysis.

Education

BS, Geoscience, University of Iowa, Iowa, 2006

Project Experience

The following is a representative selection of John Pemberton's project experience.

California Highway Patrol Academy, West Sacramento, California.
Inspected removal of irrigation well. Assisted with office work and field preparations.

Cable Car Wash, Davis, California.
Monitored sampling events for investigation of soil contaminated by leaking underground gasoline storage tank. Assisted with installation of ozone spargers.

Ken's Buff and Plating, Sacramento, California.
Conducted a Geoprobe soil and groundwater assessment, logged boreholes, collected samples and prepared a report of the findings.

Raley's Fuel Station, Fair Oaks, California.
Collected and prepared soil samples potentially contaminated by hydrocarbons for laboratory analysis. Prepared report of the findings.

Aerojet, Sacramento, California.
Participated in quarterly monitoring well water level measurements.

SAFCA Natomas Levee Design, Sacramento, California.
Prepared underground service alerts for drill sites. Conducted soil logging from on-site borehole drilling. Also performed laboratory analysis on collected soil samples.

BRIAN URBICK
Environmental Scientist

Summary of Experience

Mr. Urbick is an Environmental Scientist for the Kleinfelder Sacramento office. He has experience in many environmental fields which include: environmental site assessments, groundwater quality monitoring and report writing, and data validation for a variety of projects.

Education

BS, Environmental Chemistry, California State University, Chico, California, 2007

Project Experience

The following is a representative selection of Brian Urbick's project experience.

Environmental Work

CHP Environmental Sampling, Northern California. - From 08/12/07 to 2009

Conducted various ground water sampling activities, soil vapor sampling, site investigations and prepared ground water reports, closure letters and other regulatory documents in association with CHP sites located in: West Sacramento, Grass Valley, and Arcata.

DTSC-Victor, 20th Street, Chico, California. - 2007
Oversaw the installation and implementation of permeable diffusion bags (PDBs) and harness systems in over 50 groundwater monitoring wells in conjunction with California Department of Toxic Substances Control staff.

Cable Car Wash, Davis, California. - From 09/20/07 to 2009
Mr. Urbick has conducted multiple ground water sampling events in association with the Cable Car Wash site. He also assisted with the recent installation and sampling of ozone sparging wells on site.

Aerojet (Gencorp) Environmental Sampling, Sacramento County, California. - From 10/03/07 to 12/31/08
Mr. Urbick has been responsible for ground water sampling at the Aerojet facility and surrounding properties in Rancho Cordova. He participated in many large scale sampling projects and specialty sampling projects in conjunction with Aerojet personnel.

Phase I, Environmental Site Assessments (ESAs) - From 07/30/07 to 2009
Mr. Urbick conducted ESAs according to ASTM standards and client specific standards, for a broad range of clients including banks, REITs and other financial institutions, real estate developers, attorneys, industry and commercial business. Environmental conditions likely to affect the sites were evaluated. The sizes of the sites range from less than one

acre to several hundred acre parcels. Phase Is have been conducted for retail development, subdivision development and agricultural properties. Tasks included review of regulatory agency files; historical information including chain-of-title, aerial photo analysis, and Sanborn Map review; and geological and hydro geological characterizations for surrounding areas. He conducted site reconnaissance to evaluate current site conditions, and "Key Site Managers" were interviewed about current and historical property use.

SAFCA Area Wide Due Diligence Environmental Assessment for Natomas Basin Levees, Sacramento and Sutter Counties, California - From 02/01/08 to 2009
Brian Urbick is a site coordinator for this area-wide due diligence assessment of properties owned by approximately 950 individual land owners along the Sacramento River, Natomas Cross Canal, Pleasant Grove Creek Canal, Natomas East Main Drainage/Steelhead Creek, and American River, which form the boundaries of the Natomas Basin in Sacramento and Sutter Counties. The parcel boundaries for this assessment cover about 45 perimeter miles of terrain. The purpose of the due diligence assessment is to evaluate environmental conditions that may affect the proposed levee upgrade project. In order to efficiently assess this large area in a timely and cost-effective manner, the due diligence assessment is conducted in phases. In the preliminary evaluation, Kleinfelder has screened properties for potential presence of hazardous materials, recognized environmental conditions (RECs), and identified "significant data gaps". Based on the results of the preliminary evaluation, individual properties with potential RECs are further evaluated in accordance with the American Society for Testing and Materials (ASTM) Phase I Environmental Site Assessment Process (ASTM E 1527-05). For selected properties suspected of having hazardous materials contamination, sampling is conducted to evaluate the nature and extent of contamination and need for remediation.

Rice Pesticide Monitoring - From 12/01/07to 2009
Mr. Urbick has collected water samples for several surface water monitoring investigations along local rivers to evaluate potential impacts from pesticides used in rice farming..

Remediation Work

Wickes Forrest Industries, Elmira, California. - From 11/01/07 to 12/01/08
Mr. Urbick conducted remediation system maintenance, work/repair and sampling for the former Wickes Forrest Industries site.

Former Beacon #12429, Sacramento, California. - From 11/01/07 to 2009

Involved in the repair, maintenance, sampling and upkeep of onsite soil vapor extraction and pump and treat remediation system associated with the site.

PAMELA WEE
Senior Program Manager

Summary of Experience

Dr. Wee offers 26 years of experience conducting and managing site remediation and restoration projects, health risk assessments, and Phase I site assessments. Dr. Wee has provided engineering support for Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) investigations at private and federal CERCLA sites. She managed the Sacramento Army Depot Installation Restoration Program, which was a $25 million federal facility CERCLA project. In addition, she has provided air quality modeling and health risk assessments in support of regulatory and permitting activities for facilities regulated under the Resource Conservation and Recovery Act (RCRA).

Education

D.Env., Environmental Science/Engineering, University of California, Los Angeles, California, 1981
MA, Biology, University of California, Riverside, California, 1975
BA, Biology, University of California, Riverside, California, 1973

Registrations

Registered Environmental Assessor II (R.E.A. II), No.20082, CA, 2000

Certifications

OSHA 40-Hour HAZWOPER

Project Experience

The following is a representative selection of Pamela Wee's project experience.

General

Installation Restoration Program, Sacramento Army Depot, U.S. Army Corps of Engineers, Sacramento, California.
Managed the federal facility CERCLA site remediation program, which included project oversight, personnel and budget management, and federal and state agency coordination. Conducted and managed the RI/FS, health risk assessments and developed recommended soil cleanup levels at the facility. With an average contract value of $3 million per year, Dr. Wee coordinated as many as 20 contract modications or delivery orders of engineering and investigative activities at once. These included intrusive and non-intrusive investigations, health risk assessments, and a community relations plan for the basewide IRP.

CERCLA Technical Support, Private Facility, Sacramento, California.
Managed the environmental sampling and analysis program, developed an approach for

validating historical environmental data, and directed preparation of the Quality Assurance Project Plan. Conducted air quality modeling, evaluated chemical toxicity and prepared health risk assessments.

Risk Assessment for RCRA Permit, Confidential Client, Sacramento, California.
Managed a risk assessment of emissions from open burning of waste propellants and explosives at an industrial facility. The risk assessment was prepared for a RCRA permit application, Subpart X.

Air Permitting and Risk Assessment, Confidential Client, Sacramento, California.
Provided air quality modeling and risk assessments for air permitting of groundwater extraction and treatment facilities; RCRA hazardous waste treatment and storage facilities: and specialty chemical manufacturing plants.

Risk assessment for AB2588, Confidential Client, Woodland, California.
Conducted a health risk assessment for compliance under the AB2588 Air Toxics Hot Spots Program.

Phase I Site Assessments, Sacramento Area Flood Control Agency, Sacramento, California.
Managed approx. 25 Phase I Environmental Site Assessments on rural/agricultural properties located adjacent to levees in Sacramento County. Properties were being acquired by SAFCA for their flood management/levee borrow site activities. Assessment also included asbestos and lead-based paint surveys of residential structures on various properties, preparation of abatement specifications and oversight and clearance air monitoring during abatement. Services also included Phase II sampling of soil, groundwater, sediment, and surface water to evaluate VOCs, metals, and TPH in multiple creeks and adjacent properties, including an abandoned landfill disposal area. Health risk evaluations were conducted on selected properties.

On Call Environmental Services, State of California Department of General Services, Sacramento, California
DGS is constructing new office and warehouse facilities at the existing Franchise Tax Board facility in Sacramento. Site grading was to be conducted in an area formerly occupied by a steel fabrication plant. Potential contaminants remaining in soil included lead, TPH, and solvents. Kleinfelder was retained to address hazardous materials prior to and during construction. Activities during the project included review of bid packages, identification of sensitive populations, providing recommendations for hazardous materials handling, ambient air monitoring during grading, on-call testing, disposal and remediation of impacted soils, and compliance with storm water requirements during construction.

On-Call Environmental Services, State of California Department of Water Resources, Sacramento, California.
Project Manager for this contract. Kleinfelder has provided on-call environmental

services to the Department of Water Resources at various facilities including maintenance yards, pumping plants, warehouses, and office buildings. Services have included groundwater monitoring and well installation; asbestos, lead-based paint and mold surveys; baseline air monitoring, abatement oversight and clearance air monitoring in facilities that generally were occupied at the time work was conducted. Kleinfelder has been able to mobilize to the sites quickly to meet the client's schedule, working during non-business hours as needed.

Indoor Air Risk Assessment, General Atomics Building 37, San Diego, California. Conducted a human health risk assessment for potential indoor air exposures to trichloroethylene (TCE), which was present in soil gas beneath Building 37 at General Atomics facility in San Diego. Used the Johnson and Ettinger model to evaluate subsurface vapor intrusion into the building to assess the potential exposure of employees to TCE vapors that may migrate from subsurface soil to indoor air. Estimated cancer risks and noncancer hazards for areas within the building, based on the building configuration. Interacted with the Department of Toxic Substances Control (DTSC) to define acceptable modeling parameters and ensure that regulatory requirements would be addressed.

Health Risk Assessments, Two Industrial Facilities, Antioch and Hayward, California. Conducted health risk assessments at two industrial facilities where soil and/or groundwater were contaminated with Total Petroleum Hydrocarbons (TPH), Volatile Organic compounds (VOCs), and metals resulting from either disposal of process wastes to land, or leaking fuel tanks and associated piping. Developed a conceptual site model for each facility, identified chemicals of concern and exposure pathways, and evaluated both cancer and non-cancer health impacts for soil, groundwater and indoor air exposures. Estimated health risks using the methodology recommended by the California Department of Toxic Substances Control and indoor air levels using the Johnson and Ettinger model. Risk assessments were submitted to the Regional Water Quality Control Board and used to assess the need for remediation of these facilities.

Environmental Site Assessments and CEQA Support, Esparto Unified School District, Esparto California.
Kleinfelder was retained by the district's architect to conduct a Phase I Environmental Site Assessment and Preliminary Endangerment Assessment for a proposed new high school. Kleinfelder identified arsenic as a contaminant of concern and potential health risk on this agricultural property. Soil sampling was conducted to assess the lateral and vertical extent of contamination and estimate the volume of soil requiring removal. Kleinfelder also prepared an Initial Study and EIR for the proposed school and provided planning and permitting support to the district.

Various Projects, California Department of Toxic Substances Control (DTSC)
Pamela Wee has worked extensively with regulators in DTSC's Site Mitigation and Brownfields Reuse Program, Statewide Cleanup Operations Division, Office of Military Facilities, and Human and Ecological Risk Division (HERD). DTSC staff within the Site Mitigation Program are responsible for review of Phase I Site Assessments, Preliminary

Endangerment Assessments, and Remedial/Removal Action Workplans. Toxicologists within HERD primarily are responsible for review and evaluation of health risk assessments.

As project manager, she has been responsible for multiple projects requiring DTSC approval including Phase I environmental due diligence for potential land acquisitions in compliance with current ASTM 1527 standard, and Phase II site investigations for agricultural, commercial and industrial properties. Phase II assessments have included soil, soil gas and groundwater investigations, monitoring well installation and sampling, hazardous waste disposal, and asbestos and lead-based paint investigations. Kleinfelder prepared environmental documentation for all soil and groundwater investigations at these sites including work plans, health and safety plans, quality assurance/quality control and data quality management plans, and community relations plans. Kleinfelder has also conducted health risk assessments based on the data collected in accordance with DTSC's Preliminary Environmental Assessment (PEA) methodology; established risk-based clean up goals for sites, which are protective of public health and the environment; evaluated remedial alternatives and costs; and selected appropriate remedial actions.

Appendix B

Laboratory Reports

CALIFORNIA LABORATORY SERVICES

3249 Fitzgerald Road Rancho Cordova, CA 95742

January 28, 2009

CLS Work Order #: CSA0422
COC #: 03564,65

Sue Gardner
Kleinfelder (Sacramento)
3077 Fite Circle
Sacramento, CA 95827

Project Name: South Sutter Borrow

Enclosed are the results of analyses for samples received by the laboratory on 01/15/09 09:35. Samples were analyzed pursuant to client request utilizing EPA or other ELAP approved methodologies. I certify that the results are in compliance both technically and for completeness.

Analytical results are attached to this letter. Please call if we can provide additional assistance.

Sincerely,

James Liang, Ph.D.
Laboratory Director

CA DOHS ELAP Accreditation/Registration number 1233

CALIFORNIA LABORATORY SERVICES

01/28/09 08:33

Kleinfelder (Sacramento) 3077 Fite Circle Sacramento, CA 95827	Project: South Sutter Borrow Project Number: 94582 Project Manager: Sue Gardner	CLS Work Order #: CSA0422 COC #: 03564.65

94582 South Sutter

TP-SS-28

TP-SS-29

TP-SS-30

TP-SS-20

TP-SS-2

TP-SS-12

TP-SS-22

TP-SS-23

TP-SS-14

№ 03564

CALIFORNIA LABORATORY SERVICES

01/28/09 08:33

Kleinfelder (Sacramento) 3077 Fite Circle Sacramento, CA 95827	Project: South Sutter Borrow Project Number: 94582 Project Manager: Sue Gardner	CLS Work Order #: CSA0422 COC #: 03564,65

TP-SS-1

TP-SS-4

TP-SS-6

TP-SS-2

TP-SS-3

CHAIN OF CUSTODY

№ 03565

CALIFORNIA LABORATORY SERVICES

01/28/09 08:33

Kleinfelder (Sacramento) 3077 Fite Circle Sacramento, CA 95827	Project: South Sutter Borrow Project Number: 94582 Project Manager: Sue Gardner	**CLS Work Order #: CSA0422** COC #: 03564,65

Chlorinated Herbicides by EPA Method 8151A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
CS-1 (TP-SS-24,25,26) Composite (CSA0422-04) Soil	**Sampled: 01/07/09 10:25**	**Received: 01/15/09 09:35**							
2,4-D	ND	0.050	mg/kg	1	CS00437	01/20/09	01/26/09	EPA 8151A	
Dalapon	ND	1.0	"	"	"	"	"	"	
2,4-DB	ND	0.10	"	"	"	"	"	"	
Dicamba	ND	0.010	"	"	"	"	"	"	
Dichloroprop	ND	0.10	"	"	"	"	"	"	
Dinoseb	ND	0.010	"	"	"	"	"	"	
MCPA	ND	2.0	"	"	"	"	"	"	
MCPP	ND	2.0	"	"	"	"	"	"	
Pentachlorophenol	ND	0.010	"	"	"	"	"	"	
2,4,5-T	ND	0.010	"	"	"	"	"	"	
2,4,5-TP (Silvex)	ND	0.010	"	"	"	"	"	"	
Surrogate: 2,4-DCAA		*124 %*	*50-150*		"	"	"	"	
CS-2 (TP-SS-27,28,29,30) Composite (CSA0422-09) Soil	**Sampled: 01/07/09 11:55**	**Received: 01/15/09 09:35**							
2,4-D	ND	0.050	mg/kg	1	CS00437	01/20/09	01/26/09	EPA 8151A	
Dalapon	ND	1.0	"	"	"	"	"	"	
2,4-DB	ND	0.10	"	"	"	"	"	"	
Dicamba	ND	0.010	"	"	"	"	"	"	
Dichloroprop	ND	0.10	"	"	"	"	"	"	
Dinoseb	ND	0.010	"	"	"	"	"	"	
MCPA	ND	2.0	"	"	"	"	"	"	
MCPP	ND	2.0	"	"	"	"	"	"	
Pentachlorophenol	ND	0.010	"	"	"	"	"	"	
2,4,5-T	ND	0.010	"	"	"	"	"	"	
2,4,5-TP (Silvex)	ND	0.010	"	"	"	"	"	"	
Surrogate: 2,4-DCAA		*109 %*	*50-150*		"	"	"	"	

CALIFORNIA LABORATORY SERVICES

Kleinfelder (Sacramento) 3077 Fite Circle Sacramento, CA 95827	Project: South Sutter Borrow Project Number: 94582 Project Manager: Sue Gardner	CLS Work Order #: CSA0422 COC #: 03564,65

Chlorinated Herbicides by EPA Method 8151A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
CS-3 (TP-SS-20,21,16,17) Composite (CSA0422-14) Soil	**Sampled: 01/06/09 10:25**				**Received: 01/15/09 09:35**				
2,4-D	ND	0.050	mg/kg	1	CS00437	01/20/09	01/26/09	EPA 8151A	
Dalapon	ND	1.0	"	"	"	"	"	"	
2,4-DB	ND	0.10	"	"	"	"	"	"	
Dicamba	ND	0.010	"	"	"	"	"	"	
Dichloroprop	ND	0.10	"	"	"	"	"	"	
Dinoseb	ND	0.010	"	"	"	"	"	"	
MCPA	ND	2.0	"	"	"	"	"	"	
MCPP	ND	2.0	"	"	"	"	"	"	
Pentachlorophenol	ND	0.010	"	"	"	"	"	"	
2,4,5-T	ND	0.010	"	"	"	"	"	"	
2,4,5-TP (Silvex)	ND	0.010	"	"	"	"	"	"	
Surrogate: 2,4-DCAA		*113 %*	*50-150*		"	"	"	"	
CS-4 (TP-SS-22,23,18,19) Composite (CSA0422-19) Soil	**Sampled: 01/06/09 10:50**				**Received: 01/15/09 09:35**				
2,4-D	ND	0.050	mg/kg	1	CS00437	01/20/09	01/26/09	EPA 8151A	
Dalapon	ND	1.0	"	"	"	"	"	"	
2,4-DB	ND	0.10	"	"	"	"	"	"	
Dicamba	ND	0.010	"	"	"	"	"	"	
Dichloroprop	ND	0.10	"	"	"	"	"	"	
Dinoseb	ND	0.010	"	"	"	"	"	"	
MCPA	ND	2.0	"	"	"	"	"	"	
MCPP	ND	2.0	"	"	"	"	"	"	
Pentachlorophenol	ND	0.010	"	"	"	"	"	"	
2,4,5-T	ND	0.010	"	"	"	"	"	"	
2,4,5-TP (Silvex)	ND	0.010	"	"	"	"	"	"	
Surrogate: 2,4-DCAA		*109 %*	*50-150*		"	"	"	"	

CALIFORNIA LABORATORY SERVICES

01/28/09 08:33

Kleinfelder (Sacramento) 3077 Fite Circle Sacramento, CA 95827	Project: South Sutter Borrow Project Number: 94582 Project Manager: Sue Gardner	CLS Work Order #: CSA0422 COC #: 03564.65

Chlorinated Herbicides by EPA Method 8151A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
CS-5 (TP-SS-11,6,1) Composite (CSA0422-23) Soil	**Sampled: 01/06/09 12:30**		**Received: 01/15/09 09:35**						
2,4-D	ND	0.050	mg/kg	1	CS00437	01/20/09	01/26/09	EPA 8151A	
Dalapon	ND	1.0	"	"	"	"	"	"	
2,4-DB	ND	0.10	"	"	"	"	"	"	
Dicamba	ND	0.010	"	"	"	"	"	"	
Dichloroprop	ND	0.10	"	"	"	"	"	"	
Dinoseb	ND	0.010	"	"	"	"	"	"	
MCPA	ND	2.0	"	"	"	"	"	"	
MCPP	ND	2.0	"	"	"	"	"	"	
Pentachlorophenol	ND	0.010	"	"	"	"	"	"	
2,4,5-T	ND	0.010	"	"	"	"	"	"	
2,4,5-TP (Silvex)	ND	0.010	"	"	"	"	"	"	
Surrogate: 2,4-DCAA		*113 %*	*50-150*		"	"	"	"	
CS-6 (TP-SS-12,13,7,8) Composite (CSA0422-28) Soil	**Sampled: 01/14/09 10:00**		**Received: 01/15/09 09:35**						
2,4-D	ND	0.050	mg/kg	1	CS00437	01/20/09	01/26/09	EPA 8151A	
Dalapon	ND	1.0	"	"	"	"	"	"	
2,4-DB	ND	0.10	"	"	"	"	"	"	
Dicamba	ND	0.010	"	"	"	"	"	"	
Dichloroprop	ND	0.10	"	"	"	"	"	"	
Dinoseb	ND	0.010	"	"	"	"	"	"	
MCPA	ND	2.0	"	"	"	"	"	"	
MCPP	ND	2.0	"	"	"	"	"	"	
Pentachlorophenol	ND	0.010	"	"	"	"	"	"	
2,4,5-T	ND	0.010	"	"	"	"	"	"	
2,4,5-TP (Silvex)	ND	0.010	"	"	"	"	"	"	
Surrogate: 2,4-DCAA		*126 %*	*50-150*		"	"	"	"	

CALIFORNIA LABORATORY SERVICES

01/28/09 08:33

Kleinfelder (Sacramento)	Project: South Sutter Borrow	
3077 Fite Circle	Project Number: 94582	**CLS Work Order #: CSA0422**
Sacramento, CA 95827	Project Manager: Sue Gardner	COC #: 03564.65

Chlorinated Herbicides by EPA Method 8151A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
CS-7 (TP-SS-14,15,9,10) Composite (CSA0422-33) Soil	**Sampled: 01/06/09 09:18**		**Received: 01/15/09 09:35**						
2,4-D	ND	0.050	mg/kg	1	CS00437	01/20/09	01/26/09	EPA 8151A	
Dalapon	ND	1.0	"	"	"	"	"	"	
2,4-DB	ND	0.10	"	"	"	"	"	"	
Dicamba	ND	0.010	"	"	"	"	"	"	
Dichloroprop	ND	0.10	"	"	"	"	"	"	
Dinoseb	ND	0.010	"	"	"	"	"	"	
MCPA	ND	2.0	"	"	"	"	"	"	
MCPP	ND	2.0	"	"	"	"	"	"	
Pentachlorophenol	ND	0.010	"	"	"	"	"	"	
2,4,5-T	ND	0.010	"	"	"	"	"	"	
2,4,5-TP (Silvex)	ND	0.010	"	"	"	"	"	"	
Surrogate: 2,4-DCAA		*129 %*	*50-150*		"	"	"	"	
CS-8 (TP-SS-2,3,4,5) Composite (CSA0422-38) Soil	**Sampled: 01/14/09 09:26**		**Received: 01/15/09 09:35**						
2,4-D	ND	0.050	mg/kg	1	CS00437	01/20/09	01/26/09	EPA 8151A	
Dalapon	ND	1.0	"	"	"	"	"	"	
2,4-DB	ND	0.10	"	"	"	"	"	"	
Dicamba	ND	0.010	"	"	"	"	"	"	
Dichloroprop	ND	0.10	"	"	"	"	"	"	
Dinoseb	ND	0.010	"	"	"	"	"	"	
MCPA	ND	2.0	"	"	"	"	"	"	
MCPP	ND	2.0	"	"	"	"	"	"	
Pentachlorophenol	ND	0.010	"	"	"	"	"	"	
2,4,5-T	ND	0.010	"	"	"	"	"	"	
2,4,5-TP (Silvex)	ND	0.010	"	"	"	"	"	"	
Surrogate: 2,4-DCAA		*123 %*	*50-150*		"	"	"	"	

CALIFORNIA LABORATORY SERVICES

01/28/09 08:33

Kleinfelder (Sacramento)
3077 Fite Circle
Sacramento, CA 95827

Project: South Sutter Borrow
Project Number: 94582
Project Manager: Sue Gardner

CLS Work Order #: CSA0422
COC #: 03564.65

Metals by EPA 6000/7000 Series Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
CS-1 (TP-SS-24,25,26) Composite (CSA0422-04) Soil Sampled: 01/07/09 10:25 Received: 01/15/09 09:35									
Arsenic	9.3	1.0	mg/kg	4	CS00356	01/16/09	01/16/09	EPA 7060A	
Copper	32	1.0	"	1	"	"	01/16/09	EPA 6010B	
Lead	16	2.5	"	"	"	"	"	"	
CS-2 (TP-SS-27,28,29,30) Composite (CSA0422-09) Soil Sampled: 01/07/09 11:55 Received: 01/15/09 09:35									
Arsenic	7.0	1.0	mg/kg	4	CS00356	01/16/09	01/16/09	EPA 7060A	
Copper	23	1.0	"	1	"	"	01/16/09	EPA 6010B	
Lead	12	2.5	"	"	"	"	"	"	
CS-3 (TP-SS-20,21,16,17) Composite (CSA0422-14) Soil Sampled: 01/06/09 10:25 Received: 01/15/09 09:35									
Arsenic	6.6	1.0	mg/kg	4	CS00356	01/16/09	01/16/09	EPA 7060A	
Copper	31	1.0	"	1	"	"	01/16/09	EPA 6010B	
Lead	14	2.5	"	"	"	"	"	"	
CS-4 (TP-SS-22,23,18,19) Composite (CSA0422-19) Soil Sampled: 01/06/09 10:50 Received: 01/15/09 09:35									
Arsenic	7.6	1.0	mg/kg	4	CS00356	01/16/09	01/16/09	EPA 7060A	
Copper	35	1.0	"	1	"	"	01/16/09	EPA 6010B	
Lead	15	2.5	"	"	"	"	"	"	
CS-5 (TP-SS-11,6,1) Composite (CSA0422-23) Soil Sampled: 01/06/09 12:30 Received: 01/15/09 09:35									
Arsenic	6.6	1.0	mg/kg	4	CS00356	01/16/09	01/16/09	EPA 7060A	
Copper	26	1.0	"	1	"	"	01/16/09	EPA 6010B	
Lead	11	2.5	"	"	"	"	"	"	
CS-6 (TP-SS-12,13,7,8) Composite (CSA0422-28) Soil Sampled: 01/14/09 10:00 Received: 01/15/09 09:35									
Arsenic	7.1	1.0	mg/kg	4	CS00356	01/16/09	01/16/09	EPA 7060A	
Copper	34	1.0	"	1	"	"	01/16/09	EPA 6010B	
Lead	15	2.5	"	"	"	"	"	"	

Kleinfelder (Sacramento)
3077 Fite Circle
Sacramento, CA 95827

Project: South Sutter Borrow
Project Number: 94582
Project Manager: Sue Gardner

CLS Work Order #: CSA0422
COC #: 03564.65

Metals by EPA 6000/7000 Series Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
CS-7 (TP-SS-14,15,9,10) Composite (CSA0422-33) Soil Sampled: 01/06/09 09:18 Received: 01/15/09 09:35									
Arsenic	9.2	1.0	mg/kg	4	CS00356	01/16/09	01/16/09	EPA 7060A	
Copper	35	1.0	"	1	"	"	01/16/09	EPA 6010B	
Lead	17	2.5	"	"	"	"	"	"	
CS-8 (TP-SS-2,3,4,5) Composite (CSA0422-38) Soil Sampled: 01/14/09 09:26 Received: 01/15/09 09:35									
Arsenic	7.2	1.0	mg/kg	4	CS00356	01/16/09	01/16/09	EPA 7060A	
Copper	31	1.0	"	1	"	"	01/16/09	EPA 6010B	
Lead	14	2.5	"	"	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

01/28/09 08:33

Kleinfelder (Sacramento) 3077 Fite Circle Sacramento, CA 95827	Project: South Sutter Borrow Project Number: 94582 Project Manager: Sue Gardner	CLS Work Order #: CSA0422 COC #: 03564.65

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
CS-1 (TP-SS-24,25,26) Composite (CSA0422-04) Soil	**Sampled: 01/07/09 10:25**		**Received: 01/15/09 09:35**						
Aldrin	ND	1.0	µg/kg	1	CS00396	01/19/09	01/22/09	EPA 8081A	
alpha-BHC	ND	2.0	"	"	"	"	"	"	
beta-BHC	ND	10	"	"	"	"	"	"	
delta-BHC	ND	10	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	10	"	"	"	"	"	"	
Chlordane-technical	ND	20	"	"	"	"	"	"	
4,4'-DDD	**18**	15	"	"	"	"	"	"	
4,4'-DDE	**140**	75	"	5	"	"	"	"	
4,4'-DDT	ND	15	"	1	"	"	"	"	
Dieldrin	**6.1**	1.0	"	"	"	"	"	"	
Endosulfan I	ND	15	"	"	"	"	"	"	
Endosulfan II	ND	15	"	"	"	"	"	"	
Endosulfan sulfate	ND	15	"	"	"	"	"	"	
Endrin	ND	15	"	"	"	"	"	"	
Endrin aldehyde	ND	15	"	"	"	"	"	"	
Heptachlor	ND	5.0	"	"	"	"	"	"	
Heptachlor epoxide	ND	2.0	"	"	"	"	"	"	
Methoxychlor	ND	15	"	"	"	"	"	"	
Mirex	ND	10	"	"	"	"	"	"	
Toxaphene	**180**	20	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*67 %*	*46-139*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*85 %*	*52-141*		"	"	"	"	
CS-2 (TP-SS-27,28,29,30) Composite (CSA0422-09) Soil	**Sampled: 01/07/09 11:55**		**Received: 01/15/09 09:35**						
Aldrin	ND	1.0	µg/kg	1	CS00396	01/19/09	01/22/09	EPA 8081A	
alpha-BHC	ND	2.0	"	"	"	"	"	"	
beta-BHC	ND	10	"	"	"	"	"	"	
delta-BHC	ND	10	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	10	"	"	"	"	"	"	
Chlordane-technical	ND	20	"	"	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

01/28/09 08:33

Kleinfelder (Sacramento)
3077 Fite Circle
Sacramento, CA 95827

Project: South Sutter Borrow
Project Number: 94582
Project Manager: Sue Gardner

CLS Work Order #: CSA0422
COC #: 03564,65

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
CS-2 (TP-SS-27,28,29,30) Composite (CSA0422-09) Soil	**Sampled: 01/07/09 11:55**				**Received: 01/15/09 09:35**				
4,4'-DDD	ND	15	µg/kg	1	CS00396	"	01/22/09	EPA 8081A	
4,4'-DDE	ND	15	"	"	"	"	"	"	
4,4'-DDT	ND	15	"	"	"	"	"	"	
Dieldrin	ND	1.0	"	"	"	"	"	"	
Endosulfan I	ND	15	"	"	"	"	"	"	
Endosulfan II	ND	15	"	"	"	"	"	"	
Endosulfan sulfate	ND	15	"	"	"	"	"	"	
Endrin	ND	15	"	"	"	"	"	"	
Endrin aldehyde	ND	15	"	"	"	"	"	"	
Heptachlor	ND	5.0	"	"	"	"	"	"	
Heptachlor epoxide	ND	2.0	"	"	"	"	"	"	
Methoxychlor	ND	15	"	"	"	"	"	"	
Mirex	ND	10	"	"	"	"	"	"	
Toxaphene	ND	20	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*67 %*	*46-139*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*76 %*	*52-141*		"	"	"	"	
CS-3 (TP-SS-20,21,16,17) Composite (CSA0422-14) Soil	**Sampled: 01/06/09 10:25**				**Received: 01/15/09 09:35**				
Aldrin	ND	1.0	µg/kg	1	CS00396	01/19/09	01/22/09	EPA 8081A	
alpha-BHC	ND	2.0	"	"	"	"	"	"	
beta-BHC	ND	10	"	"	"	"	"	"	
delta-BHC	ND	10	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	10	"	"	"	"	"	"	
Chlordane-technical	ND	20	"	"	"	"	"	"	
4,4'-DDD	ND	15	"	"	"	"	"	"	
4,4'-DDE	29	15	"	"	"	"	"	"	
4,4'-DDT	ND	15	"	"	"	"	"	"	
Dieldrin	ND	1.0	"	"	"	"	"	"	
Endosulfan I	ND	15	"	"	"	"	"	"	
Endosulfan II	ND	15	"	"	"	"	"	"	

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Kleinfelder (Sacramento)	Project: South Sutter Borrow	
3077 Fite Circle	Project Number: 94582	**CLS Work Order #: CSA0422**
Sacramento, CA 95827	Project Manager: Sue Gardner	COC #: 03564.65

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
CS-3 (TP-SS-20,21,16,17) Composite (CSA0422-14) Soil		**Sampled: 01/06/09 10:25**			**Received: 01/15/09 09:35**				
Endosulfan sulfate	ND	15	µg/kg	1	CS00396	"	01/22/09	EPA 8081A	
Endrin	ND	15	"	"	"	"	"	"	
Endrin aldehyde	ND	15	"	"	"	"	"	"	
Heptachlor	ND	5.0	"	"	"	"	"	"	
Heptachlor epoxide	ND	2.0	"	"	"	"	"	"	
Methoxychlor	ND	15	"	"	"	"	"	"	
Mirex	ND	10	"	"	"	"	"	"	
Toxaphene	**89**	20	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*74 %*		*46-139*	"	"	"	"	
Surrogate: Decachlorobiphenyl		*84 %*		*52-141*	"	"	"	"	
CS-4 (TP-SS-22,23,18,19) Composite (CSA0422-19) Soil		**Sampled: 01/06/09 10:50**			**Received: 01/15/09 09:35**				
Aldrin	ND	1.0	µg/kg	1	CS00396	01/19/09	01/22/09	EPA 8081A	
alpha-BHC	ND	2.0	"	"	"	"	"	"	
beta-BHC	ND	10	"	"	"	"	"	"	
delta-BHC	ND	10	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	10	"	"	"	"	"	"	
Chlordane-technical	ND	20	"	"	"	"	"	"	
4,4′-DDD	ND	15	"	"	"	"	"	"	
4,4′-DDE	**72**	60	"	4	"	"	"	"	
4,4′-DDT	ND	15	"	1	"	"	"	"	
Dieldrin	ND	1.0	"	"	"	"	"	"	
Endosulfan I	ND	15	"	"	"	"	"	"	
Endosulfan II	ND	15	"	"	"	"	"	"	
Endosulfan sulfate	ND	15	"	"	"	"	"	"	
Endrin	ND	15	"	"	"	"	"	"	
Endrin aldehyde	ND	15	"	"	"	"	"	"	
Heptachlor	ND	5.0	"	"	"	"	"	"	
Heptachlor epoxide	ND	2.0	"	"	"	"	"	"	
Methoxychlor	ND	15	"	"	"	"	"	"	

Kleinfelder (Sacramento) 3077 Fite Circle Sacramento, CA 95827	Project: South Sutter Borrow Project Number: 94582 Project Manager: Sue Gardner	CLS Work Order #: CSA0422 COC #: 03564.65

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
CS-4 (TP-SS-22,23,18,19) Composite (CSA0422-19) Soil Sampled: 01/06/09 10:50 Received: 01/15/09 09:35									
Mirex	ND	10	µg/kg	1	CS00396	"	01/22/09	EPA 8081A	
Toxaphene	190	20	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*62 %*	*46-139*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*81 %*	*52-141*		"	"	"	"	
CS-5 (TP-SS-11,6,1) Composite (CSA0422-23) Soil Sampled: 01/06/09 12:30 Received: 01/15/09 09:35									
Aldrin	ND	1.0	µg/kg	1	CS00396	01/19/09	01/22/09	EPA 8081A	
alpha-BHC	ND	2.0	"	"	"	"	"	"	
beta-BHC	ND	10	"	"	"	"	"	"	
delta-BHC	ND	10	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	10	"	"	"	"	"	"	
Chlordane-technical	ND	20	"	"	"	"	"	"	
4,4′-DDD	ND	15	"	"	"	"	"	"	
4,4′-DDE	ND	15	"	"	"	"	"	"	
4,4′-DDT	ND	15	"	"	"	"	"	"	
Dieldrin	ND	10	"	"	"	"	"	"	
Endosulfan I	ND	15	"	"	"	"	"	"	
Endosulfan II	ND	15	"	"	"	"	"	"	
Endosulfan sulfate	ND	15	"	"	"	"	"	"	
Endrin	ND	15	"	"	"	"	"	"	
Endrin aldehyde	ND	15	"	"	"	"	"	"	
Heptachlor	ND	5.0	"	"	"	"	"	"	
Heptachlor epoxide	ND	2.0	"	"	"	"	"	"	
Methoxychlor	ND	15	"	"	"	"	"	"	
Mirex	ND	10	"	"	"	"	"	"	
Toxaphene	36	20	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*95 %*	*46-139*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*111 %*	*52-141*		"	"	"	"	

Kleinfelder (Sacramento) Project: South Sutter Borrow
3077 Fite Circle Project Number: 94582 **CLS Work Order #: CSA0422**
Sacramento, CA 95827 Project Manager: Sue Gardner COC #: 03564.65

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
CS-6 (TP-SS-12,13,7,8) Composite (CSA0422-28) Soil	**Sampled: 01/14/09 10:00**				**Received: 01/15/09 09:35**				
Aldrin	ND	1.0	µg/kg	1	CS00396	01/19/09	01/22/09	EPA 8081A	
alpha-BHC	ND	2.0	"	"	"	"	"	"	
beta-BHC	ND	10	"	"	"	"	"	"	
delta-BHC	ND	10	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	10	"	"	"	"	"	"	
Chlordane-technical	ND	20	"	"	"	"	"	"	
4,4'-DDD	ND	15	"	"	"	"	"	"	
4,4'-DDE	ND	15	"	"	"	"	"	"	
4,4'-DDT	ND	15	"	"	"	"	"	"	
Dieldrin	ND	1.0	"	"	"	"	"	"	
Endosulfan I	ND	15	"	"	"	"	"	"	
Endosulfan II	ND	15	"	"	"	"	"	"	
Endosulfan sulfate	ND	15	"	"	"	"	"	"	
Endrin	ND	15	"	"	"	"	"	"	
Endrin aldehyde	ND	15	"	"	"	"	"	"	
Heptachlor	ND	5.0	"	"	"	"	"	"	
Heptachlor epoxide	ND	2.0	"	"	"	"	"	"	
Methoxychlor	ND	15	"	"	"	"	"	"	
Mirex	ND	10	"	"	"	"	"	"	
Toxaphene	ND	20	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*73 %*	*46-139*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*82 %*	*52-141*		"	"	"	"	
CS-7 (TP-SS-14,15,9,10) Composite (CSA0422-33) Soil	**Sampled: 01/06/09 09:18**				**Received: 01/15/09 09:35**				
Aldrin	ND	1.0	µg/kg	1	CS00396	01/19/09	01/22/09	EPA 8081A	
alpha-BHC	ND	2.0	"	"	"	"	"	"	
beta-BHC	ND	10	"	"	"	"	"	"	
delta-BHC	ND	10	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	10	"	"	"	"	"	"	
Chlordane-technical	ND	20	"	"	"	"	"	"	

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Kleinfelder (Sacramento) 3077 Fite Circle Sacramento, CA 95827	Project: South Sutter Borrow Project Number: 94582 Project Manager: Sue Gardner	CLS Work Order #: CSA0422 COC #: 03564.65

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
CS-7 (TP-SS-14,15,9,10) Composite (CSA0422-33) Soil	**Sampled: 01/06/09 09:18**	**Received: 01/15/09 09:35**							
4,4′-DDD	ND	15	µg/kg	1	CS00396	"	01/22/09	EPA 8081A	
4,4′-DDE	ND	15	"	"	"	"	"	"	
4,4′-DDT	ND	15	"	"	"	"	"	"	
Dieldrin	ND	1.0	"	"	"	"	"	"	
Endosulfan I	ND	15	"	"	"	"	"	"	
Endosulfan II	ND	15	"	"	"	"	"	"	
Endosulfan sulfate	ND	15	"	"	"	"	"	"	
Endrin	ND	15	"	"	"	"	"	"	
Endrin aldehyde	ND	15	"	"	"	"	"	"	
Heptachlor	ND	5.0	"	"	"	"	"	"	
Heptachlor epoxide	ND	2.0	"	"	"	"	"	"	
Methoxychlor	ND	15	"	"	"	"	"	"	
Mirex	ND	10	"	"	"	"	"	"	
Toxaphene	ND	20	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*77 %*	*46-139*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*84 %*	*52-141*		"	"	"	"	
CS-8 (TP-SS-2,3,4,5) Composite (CSA0422-38) Soil	**Sampled: 01/14/09 09:26**	**Received: 01/15/09 09:35**							
Aldrin	ND	1.0	µg/kg	1	CS00396	01/19/09	01/22/09	EPA 8081A	
alpha-BHC	ND	2.0	"	"	"	"	"	"	
beta-BHC	ND	10	"	"	"	"	"	"	
delta-BHC	ND	10	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	10	"	"	"	"	"	"	
Chlordane-technical	ND	20	"	"	"	"	"	"	
4,4′-DDD	ND	15	"	"	"	"	"	"	
4,4′-DDE	ND	15	"	"	"	"	"	"	
4,4′-DDT	ND	15	"	"	"	"	"	"	
Dieldrin	ND	1.0	"	"	"	"	"	"	
Endosulfan I	ND	15	"	"	"	"	"	"	
Endosulfan II	ND	15	"	"	"	"	"	"	

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Kleinfelder (Sacramento)
3077 Fite Circle
Sacramento, CA 95827

Project: South Sutter Borrow
Project Number: 94582
Project Manager: Sue Gardner

CLS Work Order #: CSA0422
COC #: 03564.65

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
CS-8 (TP-SS-2,3,4,5) Composite (CSA0422-38) Soil Sampled: 01/14/09 09:26 Received: 01/15/09 09:35									
Endosulfan sulfate	ND	15	µg/kg	1	CS00396	"	01/22/09	EPA 8081A	
Endrin	ND	15	"	"	"	"	"	"	
Endrin aldehyde	ND	15	"	"	"	"	"	"	
Heptachlor	ND	5.0	"	"	"	"	"	"	
Heptachlor epoxide	ND	2.0	"	"	"	"	"	"	
Methoxychlor	ND	15	"	"	"	"	"	"	
Mirex	ND	10	"	"	"	"	"	"	
Toxaphene	ND	20	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*64 %*		*46-139*	"	"	"	"	
Surrogate: Decachlorobiphenyl		*79 %*		*52-141*	"	"	"	"	

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Kleinfelder (Sacramento) 3077 Fite Circle Sacramento, CA 95827	Project: South Sutter Borrow Project Number: 94582 Project Manager: Sue Gardner	CLS Work Order #: CSA0422 COC #: 03564.65

Chlorinated Herbicides by EPA Method 8151A - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CS00437 - EPA 8151A										
Blank (CS00437-BLK1)				Prepared: 01/20/09 Analyzed: 01/26/09						
2,4-D	ND	0 050	mg/kg							
Dalapon	ND	1 0	"							
2,4-DB	ND	0 10	"							
Dicamba	ND	0 010	"							
Dichloroprop	ND	0 10	"							
Dinoseb	ND	0 010	"							
MCPA	ND	2.0	"							
MCPP	ND	2.0	"							
Pentachlorophenol	ND	0.010	"							
2,4,5-T	ND	0 010	"							
2,4,5-TP (Silvex)	ND	0 010	"							
Surrogate: 2,4-DCAA	*0.0393*		"	*0.0500*		*79*	*50-150*			
LCS (CS00437-BS1)				Prepared: 01/20/09 Analyzed: 01/26/09						
Dicamba	0 0287	0 010	mg/kg	0 0250		115	50-150			
Dichloroprop	0 0279	0 10	"	0 0250		112	50-150			
Surrogate: 2,4-DCAA	*0.0446*		"	*0.0500*		*89*	*50-150*			
LCS Dup (CS00437-BSD1)				Prepared: 01/20/09 Analyzed: 01/26/09						
Dicamba	0 0293	0.010	mg/kg	0 0250		117	50-150	2	30	
Dichloroprop	0 0282	0.10	"	0 0250		113	50-150	0 9	30	
Surrogate: 2,4-DCAA	*0 0435*		"	*0 0500*		*87*	*50-150*			
Matrix Spike (CS00437-MS1)		**Source: CSA0413-06**		Prepared: 01/20/09 Analyzed: 01/26/09						
Dicamba	0 0282	0 10	mg/kg	0 0250	ND	113	50-150			
Dichloroprop	0.0316	1 0	"	0 0250	ND	127	50-150			
Surrogate: 2,4-DCAA	*0.0453*		"	*0.0500*		*91*	*50-150*			

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Kleinfelder (Sacramento) 3077 Fite Circle Sacramento, CA 95827	Project: South Sutter Borrow Project Number: 94582 Project Manager: Sue Gardner	CLS Work Order #: CSA0422 COC #: 03564,65

Chlorinated Herbicides by EPA Method 8151A - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CS00437 - EPA 8151A										
Matrix Spike Dup (CS00437-MSD1)		Source: CSA0413-06		Prepared: 01/20/09	Analyzed: 01/26/09					
Dicamba	0.0290	0.10	mg/kg	0.0250	ND	116	50-150	3	30	
Dichloroprop	0.0267	1.0	"	0.0250	ND	107	50-150	17	30	
Surrogate: 2,4-DCAA	*0.0529*		"	*0.0500*		*106*	*50-150*			

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Kleinfelder (Sacramento)
3077 Fite Circle
Sacramento, CA 95827

Project: South Sutter Borrow
Project Number: 94582
Project Manager: Sue Gardner

CLS Work Order #: CSA0422
COC #: 03564.65

Metals by EPA 6000/7000 Series Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CS00356 - EPA 3050B										
Blank (CS00356-BLK1)				Prepared & Analyzed: 01/16/09						
Lead	ND	2 5	mg/kg							
Arsenic	ND	0 25	"							
Copper	ND	1.0	"							
LCS (CS00356-BS1)				Prepared & Analyzed: 01/16/09						
Lead	9 40	2 5	mg/kg	10 0		94	75-125			
Arsenic	9 23	1 0	"	10 0		92	75-125			
Copper	9 87	1 0	"	10 0		99	75-125			
LCS Dup (CS00356-BSD1)				Prepared & Analyzed: 01/16/09						
Lead	9 39	2 5	mg/kg	10 0		94	75-125	0.2	25	
Copper	9.98	1.0	"	10 0		100	75-125	1	25	
Arsenic	9.46	1 0	"	10 0		95	75-125	2	25	
Matrix Spike (CS00356-MS1)		Source: CSA0422-04		Prepared & Analyzed: 01/16/09						
Lead	24 2	2 5	mg/kg	10.0	15 5	86	75-125			
Arsenic	17 4	1 0	"	10 0	9 26	81	75-125			
Copper	40 8	1 0	"	10 0	32 2	87	75-125			
Matrix Spike Dup (CS00356-MSD1)		Source: CSA0422-04		Prepared & Analyzed: 01/16/09						
Lead	24 1	2 5	mg/kg	10 0	15 5	85	75-125	0.3	30	
Copper	41 1	1 0	"	10 0	32 2	90	75-125	0.7	30	
Arsenic	18.0	1.0	"	10.0	9 26	87	75-125	3	30	

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3077 Fite Circle
Sacramento, CA 95827

Project: South Sutter Borrow
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Project Manager: Sue Gardner

CLS Work Order #: CSA0422
COC #: 03564,65

Organochlorine Pesticides by EPA Method 8081A - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CS00396 - LUFT-DHS GCNV										
Blank (CS00396-BLK1)				Prepared: 01/19/09 Analyzed: 01/22/09						
Aldrin	ND	1.0	µg/kg							
alpha-BHC	ND	2.0	"							
beta-BHC	ND	10	"							
delta-BHC	ND	10	"							
gamma-BHC (Lindane)	ND	10	"							
Chlordane-technical	ND	20	"							
4,4'-DDD	ND	15	"							
4,4'-DDE	ND	15	"							
4,4'-DDT	ND	15	"							
Dieldrin	ND	1.0	"							
Endosulfan I	ND	15	"							
Endosulfan II	ND	15	"							
Endosulfan sulfate	ND	15	"							
Endrin	ND	15	"							
Endrin aldehyde	ND	15	"							
Heptachlor	ND	5.0	"							
Heptachlor epoxide	ND	2.0	"							
Methoxychlor	ND	15	"							
Mirex	ND	10	"							
Toxaphene	ND	20	"							
Surrogate: Tetrachloro-meta-xylene	*5.40*		"	*8.33*		*65*	*46-139*			
Surrogate: Decachlorobiphenyl	*5.72*		"	*8.33*		*69*	*52-141*			
LCS (CS00396-BS1)				Prepared: 01/19/09 Analyzed: 01/22/09						
Aldrin	13.1	1.0	µg/kg	16.7		79	47-132			
gamma-BHC (Lindane)	13.7	10	"	16.7		82	56-133			
4,4'-DDT	9.36	15	"	16.7		56	46-137			
Dieldrin	13.9	1.0	"	16.7		84	44-143			
Endrin	13.9	15	"	16.7		84	30-147			
Heptachlor	11.2	5.0	"	16.7		67	33-148			
Surrogate: Tetrachloro-meta-xylene	*6.71*		"	*8.33*		*81*	*46-139*			

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Kleinfelder (Sacramento)	Project: South Sutter Borrow	
3077 Fite Circle	Project Number: 94582	CLS Work Order #: CSA0422
Sacramento, CA 95827	Project Manager: Sue Gardner	COC #: 03564.65

Organochlorine Pesticides by EPA Method 8081A - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CS00396 - LUFT-DHS GCNV										
LCS (CS00396-BS1)				Prepared: 01/19/09 Analyzed: 01/22/09						
Surrogate: Decachlorobiphenyl	*5.82*		*µg/kg*	*8.33*		*70*	*52-141*			
LCS Dup (CS00396-BSD1)				Prepared: 01/19/09 Analyzed: 01/22/09						
Aldrin	14.1	1.0	µg/kg	16.7		85	47-132	7	30	
gamma-BHC (Lindane)	14.0	10	"	16.7		84	56-133	2	30	
4,4'-DDT	9.76	15	"	16.7		59	46-137	4	30	
Dieldrin	16.4	1.0	"	16.7		99	44-143	16	30	
Endrin	16.1	15	"	16.7		97	30-147	14	30	
Heptachlor	13.4	5.0	"	16.7		81	33-148	18	30	
Surrogate: Tetrachloro-meta-xylene	*6.14*		"	*8.33*		*74*	*46-139*			
Surrogate: Decachlorobiphenyl	*5.94*		"	*8.33*		*71*	*52-141*			
Matrix Spike (CS00396-MS1)		Source: CSA0413-08		Prepared: 01/19/09 Analyzed: 01/22/09						
Aldrin	18.6	10	µg/kg	16.7	ND	112	47-138			
gamma-BHC (Lindane)	16.0	100	"	16.7	ND	96	38-144			
4,4'-DDT	12.7	150	"	16.7	ND	76	41-157			
Dieldrin	18.7	10	"	16.7	ND	112	46-155			
Endrin	20.2	150	"	16.7	ND	121	34-149			
Heptachlor	13.6	50	"	16.7	ND	82	36-155			
Surrogate: Tetrachloro-meta-xylene	*21.5*		"	*20.8*		*103*	*46-139*			
Surrogate: Decachlorobiphenyl	*9.81*		"	*20.8*		*47*	*52-141*			*QS-4*
Matrix Spike Dup (CS00396-MSD1)		Source: CSA0413-08		Prepared: 01/19/09 Analyzed: 01/22/09						
Aldrin	22.5	10	µg/kg	16.7	ND	135	47-138	19	35	
gamma-BHC (Lindane)	17.6	100	"	16.7	ND	105	38-144	9	35	
4,4'-DDT	11.0	150	"	16.7	ND	66	41-157	14	35	
Dieldrin	18.5	10	"	16.7	ND	111	46-155	1	35	
Endrin	17.7	150	"	16.7	ND	106	34-149	13	35	
Heptachlor	13.2	50	"	16.7	ND	79	36-155	3	35	
Surrogate: Tetrachloro-meta-xylene	*20.7*		"	*20.8*		*100*	*46-139*			
Surrogate: Decachlorobiphenyl	*10.3*		"	*20.8*		*50*	*52-141*			*QS-4*

Kleinfelder (Sacramento) 3077 Fite Circle Sacramento, CA 95827	Project: South Sutter Borrow Project Number: 94582 Project Manager: Sue Gardner	**CLS Work Order #: CSA0422** COC #: 03564.65

Notes and Definitions

QS-4	The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

CALIFORNIA LABORATORY SERVICES

3249 Fitzgerald Road Rancho Cordova CA 95742

March 25, 2009

CLS Work Order #: CSC0671
COC #: 03302

Sue Gardner
Kleinfelder (Sacramento)
3077 Fite Circle
Sacramento, CA 95827

Project Name: South Sutter Borrow

Enclosed are the results of analyses for samples received by the laboratory on 03/18/09 08:55. Samples were analyzed pursuant to client request utilizing EPA or other ELAP approved methodologies. I certify that the results are in compliance both technically and for completeness.

Analytical results are attached to this letter. Please call if we can provide additional assistance.

Sincerely,

James Liang, Ph.D.
Laboratory Director

CA DOHS ELAP Accreditation/Registration number 1233

KLEINFELDER

94582 South Sutter Borrow

#7103

Date	Time	Sample ID	Matrix			OC Pesticides by 8081A	As, Cu, Pb by 6000/7000 series
3-13-09	0937	TP-SS-24-1.0	SOIL	1	8 oz jars	X	X
	0928	TP-SS-25-1.0				X	X
	0920	TP-SS-26-1.0				X	X
	1134	TP-SS-20-1.0				X	X
	1125	TP-SS-21-1.0				X	X
	1110	TP-SS-16-1.0				X	X
	1118	TP-SS-17-1.0				X	X
	1016	TP-SS-22-1.0				X	X
	1008	TP-SS-23-1.0				X	X
	1025	TP-SS-18-1.0				X	X
	1001	TP-SS-19-1.0				X	X

CLS

STANDARD TAT

#7103 3-13-09 1445

3/18/09 0835

STANDARD TAT

3077 Fite Circle
Sacramento, CA 95827
Sgardner@Kleinfelder.com
Sue Gardner cc Pam Webb

CHAIN OF CUSTODY

COC № 03302

Kleinfelder (Sacramento)	Project: South Sutter Borrow	
3077 Fite Circle	Project Number: 94582	CLS Work Order #: CSC0671
Sacramento CA, 95827	Project Manager: Sue Gardner	COC #: 03302

Metals by EPA 6000/7000 Series Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
TP-SS-24-1.0 (CSC0671-01) Soil	**Sampled: 03/13/09 09:37**	**Received: 03/18/09 08:55**							
Arsenic	5.8	1.0	mg/kg	4	CS02074	03/19/09	03/20/09	EPA 7060A	
Copper	35	1.0	"	1	"	"	03/19/09	EPA 6010B	
Lead	13	2.5	"	"	"		"	"	
TP-SS-25-1.0 (CSC0671-02) Soil	**Sampled: 03/13/09 09:28**	**Received: 03/18/09 08:55**							
Arsenic	8.3	1.0	mg/kg	4	CS02074	03/19/09	03/20/09	EPA 7060A	
Copper	28	1.0		1		"	03/19/09	EPA 6010B	
Lead	13	2.5	"	"	"	"		"	
TP-SS-26-1.0 (CSC0671-03) Soil	**Sampled: 03/13/09 09:20**	**Received: 03/18/09 08:55**							
Arsenic	11	1.0	mg/kg	4	CS02074	03/19/09	03/20/09	EPA 7060A	
Copper	26	1.0	"	1	"	"	03/19/09	EPA 6010B	
Lead	14	2.5	"	"	"	"	"	"	
TP-SS-20-1.0 (CSC0671-04) Soil	**Sampled: 03/13/09 11:34**	**Received: 03/18/09 08:55**							
Arsenic	7.4	1.0	mg/kg	4	CS02074	03/19/09	03/20/09	EPA 7060A	
Copper	27	1.0	"	1		"	03/19/09	EPA 6010B	
Lead	14	2.5	"	"	"	"	"	"	
TP-SS-21-1.0 (CSC0671-05) Soil	**Sampled: 03/13/09 11:25**	**Received: 03/18/09 08:55**							
Arsenic	7.6	1.0	mg/kg	4	CS02074	03/19/09	03/20/09	EPA 7060A	
Copper	26	1.0	"	1	"	"	03/19/09	EPA 6010B	
Lead	12	2.5	"	"	"	"	"	"	
TP-SS-16-1.0 (CSC0671-06) Soil	**Sampled: 03/13/09 11:10**	**Received: 03/18/09 08:55**							
Arsenic	7.4	1.0	mg/kg	4	CS02074	03/19/09	03/20/09	EPA 7060A	
Copper	29	1.0	"	1	"	"	03/19/09	EPA 6010B	
Lead	13	2.5	"	"	"	"	"	"	
TP-SS-17-1.0 (CSC0671-07) Soil	**Sampled: 03/13/09 11:18**	**Received: 03/18/09 08:55**							
Arsenic	6.8	1.0	mg/kg	4	CS02074	03/19/09	03/20/09	EPA 7060A	
Copper	28	1.0	"	1	"	"	03/19/09	EPA 6010B	
Lead	13	2.5	"	"		"	"		
TP-SS-22-1.0 (CSC0671-08) Soil	**Sampled: 03/13/09 10:16**	**Received: 03/18/09 08:55**							
Arsenic	5.6	1.0	mg/kg	4	CS02074	03/19/09	03/20/09	EPA 7060A	
Copper	24	1.0	"	1	"	"	03/19/09	EPA 6010B	

CALIFORNIA LABORATORY SERVICES

Kleinfelder (Sacramento)	Project: South Sutter Borrow	
3077 Fite Circle	Project Number: 94582	CLS Work Order #: CSC0671
Sacramento CA, 95827	Project Manager: Sue Gardner	COC #: 03302

Metals by EPA 6000/7000 Series Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
TP-SS-22-1.0 (CSC0671-08) Soil	**Sampled: 03/13/09 10:16**	**Received: 03/18/09 08:55**							
Lead	30	2.5	mg/kg	1	CS02074	"	03/19/09	EPA 6010B	
TP-SS-23-1.0 (CSC0671-09) Soil	**Sampled: 03/13/09 10:08**	**Received: 03/18/09 08:55**							
Arsenic	6.7	1.0	mg/kg	1	CS02074	03/19/09	03/20/09	EPA 7060A	
Copper	29	1.0		1	"	"	03/19/09	EPA 6010B	
Lead	15	2.5		"	"	"	"	"	
TP-SS-18-1.0 (CSC0671-10) Soil	**Sampled: 03/13/09 10:25**	**Received: 03/18/09 08:55**							
Arsenic	8.2	1.0	mg/kg	1	CS02074	03/19/09	03/20/09	EPA 7060A	
Copper	33	1.0	"	1		"	03/19/09	EPA 6010B	
Lead	15	2.5	"	"	"	"	"	"	
TP-SS-19-1.0 (CSC0671-11) Soil	**Sampled: 03/13/09 10:03**	**Received: 03/18/09 08:55**							
Arsenic	9.3	1.0	mg/kg	1	CS02074	03/19/09	03/20/09	EPA 7060A	
Copper	29	1.0	"	1	"	"	03/19/09	EPA 6010B	
Lead	15	2.5	"	"		"	"	"	

CALIFORNIA LABORATORY SERVICES

03/25/09 11:29

Kleinfelder (Sacramento)	Project: South Sutter Borrow	
3077 Fite Circle	Project Number: 94582	CLS Work Order #: CSC0671
Sacramento CA, 95827	Project Manager: Sue Gardner	COC #: 03302

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
TP-SS-24-1.0 (CSC0671-01) Soil Sampled: 03/13/09 09:37 Received: 03/18/09 08:55									
Aldrin	ND	5.0	µg/kg	5	CS02171	03/23/09	03/24/09	EPA 8081A	
alpha-BHC	ND	10	"	"	"	"	"	"	
beta-BHC	ND	50	"	"	"	"	"	"	
delta-BHC	ND	50	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	50	"	"	"	"	"	"	
Chlordane-technical	ND	100	"	"	"	"	"	"	
4,4'-DDD	ND	75	"	"	"	"	"	"	
4,4'-DDE	ND	75	"	"	"	"	"	"	
4,4'-DDT	ND	75	"	"	"	"	"	"	
Dieldrin	ND	5.0	"	"	"	"	"	"	
Endosulfan I	ND	75	"	"	"	"	"	"	
Endosulfan II	ND	75	"	"	"	"	"	"	
Endosulfan sulfate	ND	75	"	"	"	"	"	"	
Endrin	ND	75	"	"	"	"	"	"	
Endrin aldehyde	ND	75	"	"	"	"	"	"	
Heptachlor	ND	25	"	"	"	"	"	"	
Heptachlor epoxide	ND	10	"	"	"	"	"	"	
Methoxychlor	ND	75	"	"	"	"	"	"	
Mirex	ND	50	"	"	"	"	"	"	
Toxaphene	ND	100	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*6[illegible] %*	*46-139*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*76 %*	*52-141*		"	"	"	"	
TP-SS-25-1.0 (CSC0671-02) Soil Sampled: 03/13/09 09:28 Received: 03/18/09 08:55									
Aldrin	ND	5.0	µg/kg	5	CS02171	03/23/09	03/24/09	EPA 8081A	
alpha-BHC	ND	10	"	"	"	"	"	"	
beta-BHC	ND	50	"	"	"	"	"	"	
delta-BHC	ND	50	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	50	"	"	"	"	"	"	
Chlordane-technical	ND	100	"	"	"	"	"	"	
4,4'-DDD	ND	75	"	"	"	"	"	"	
4,4'-DDE	ND	75	"	"	"	"	"	"	
4,4'-DDT	ND	75	"	"	"	"	"	"	
Dieldrin	ND	5.0	"	"	"	"	"	"	
Endosulfan I	ND	75	"	"	"	"	"	"	

Kleinfelder (Sacramento)	Project: South Sutter Borrow	
3077 Fite Circle	Project Number: 91582	CLS Work Order #: CSC0671
Sacramento CA 95827	Project Manager: Sue Gardner	COC #: 03302

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
TP-SS-25-1.0 (CSC0671-02) Soil	**Sampled: 03/13/09 09:28**	**Received: 03/18/09 08:55**							
Endosulfan II	ND	75	µg/kg	5	CS02171	"	03/24/09	EPA 8081A	
Endosulfan sulfate	ND	75	"	"	"	"	"	"	
Endrin	ND	75	"	"	"	"	"	"	
Endrin aldehyde	ND	75	"	"	"	"	"	"	
Heptachlor	ND	25	"	"	"	"	"	"	
Heptachlor epoxide	ND	10	"	"	"	"	"	"	
Methoxychlor	ND	75	"	"	"	"	"	"	
Mirex	ND	50	"	"	"	"	"	"	
Toxaphene	ND	100	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*62 %*		*26-139*	"	"	"	"	
Surrogate: Decachlorobiphenyl		*72 %*		*32-141*	"	"	"	"	
TP-SS-26-1.0 (CSC0671-03) Soil	**Sampled: 03/13/09 09:20**	**Received: 03/18/09 08:55**							
Aldrin	ND	5.0	µg/kg	5	CS02171	03/23/09	03/24/09	EPA 8081A	
alpha-BHC	ND	10	"	"	"	"	"	"	
beta-BHC	ND	50	"	"	"	"	"	"	
delta-BHC	ND	50	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	50	"	"	"	"	"	"	
Chlordane-technical	ND	100	"	"	"	"	"	"	
4,4'-DDD	ND	75	"	"	"	"	"	"	
4,4'-DDE	**170**	75	"	"	"	"	"	"	
4,4'-DDT	ND	75	"	"	"	"	"	"	
Dieldrin	ND	5.0	"	"	"	"	"	"	
Endosulfan I	ND	75	"	"	"	"	"	"	
Endosulfan II	ND	75	"	"	"	"	"	"	
Endosulfan sulfate	ND	75	"	"	"	"	"	"	
Endrin	ND	75	"	"	"	"	"	"	
Endrin aldehyde	ND	75	"	"	"	"	"	"	
Heptachlor	ND	25	"	"	"	"	"	"	
Heptachlor epoxide	ND	10	"	"	"	"	"	"	
Methoxychlor	ND	75	"	"	"	"	"	"	
Mirex	ND	50	"	"	"	"	"	"	
Toxaphene	ND	100	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*59 %*		*26-139*	"	"	"	"	
Surrogate: Decachlorobiphenyl		*62 %*		*32-141*	"	"	"	"	

California Laboratory Services

Kleinfelder (Sacramento)	Project: South Sutter Borrow	
3077 Fite Circle	Project Number: 94582	CLS Work Order #: CSC0671
Sacramento CA 95827	Project Manager: Sue Gardner	COC #: 03302

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
TP-SS-20-1.0 (CSC0671-04) Soil	**Sampled: 03/13/09 11:34**	**Received: 03/18/09 08:55**							
Aldrin	ND	5.0	ug/kg	5	CS02171	03/23/09	03/23/09	EPA 8081A	
alpha-BHC	ND	10	"	"	"	"	"	"	
beta-BHC	ND	50	"	"	"	"	"	"	
delta-BHC	ND	50	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	50	"	"	"	"	"	"	
Chlordane-technical	ND	100	"	"	"	"	"	"	
4,4'-DDD	ND	75	"	"	"	"	"	"	
4,4'-DDE	ND	75	"	"	"	"	"	"	
4,4'-DDT	ND	75	"	"	"	"	"	"	
Dieldrin	ND	5.0	"	"	"	"	"	"	
Endosulfan I	ND	75	"	"	"	"	"	"	
Endosulfan II	ND	75	"	"	"	"	"	"	
Endosulfan sulfate	ND	75	"	"	"	"	"	"	
Endrin	ND	75	"	"	"	"	"	"	
Endrin aldehyde	ND	75	"	"	"	"	"	"	
Heptachlor	ND	25	"	"	"	"	"	"	
Heptachlor epoxide	ND	10	"	"	"	"	"	"	
Methoxychlor	ND	75	"	"	"	"	"	"	
Mirex	ND	50	"	"	"	"	"	"	
Toxaphene	ND	100	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		[illegible] %	*46-139*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*83 %*	*52-141*		"	"	"	"	
TP-SS-21-1.0 (CSC0671-05) Soil	**Sampled: 03/13/09 11:25**	**Received: 03/18/09 08:55**							
Aldrin	ND	5.0	ug/kg	5	CS02171	03/23/09	03/23/09	EPA 8081A	
alpha-BHC	ND	10	"	"	"	"	"	"	
beta-BHC	ND	50	"	"	"	"	"	"	
delta-BHC	ND	50	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	50	"	"	"	"	"	"	
Chlordane-technical	ND	100	"	"	"	"	"	"	
4,4'-DDD	ND	75	"	"	"	"	"	"	
4,4'-DDE	ND	75	"	"	"	"	"	"	
4,4'-DDT	ND	75	"	"	"	"	"	"	
Dieldrin	ND	5.0	"	"	"	"	"	"	
Endosulfan I	ND	75	"	"	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

Kleinfelder (Sacramento)	Project: South Sutter Borrow	
3077 Fite Circle	Project Number: 94582	CLS Work Order #: CSC0671
Sacramento CA, 95827	Project Manager: Sue Gardner	COC #: 03302

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
TP-SS-21-1.0 (CSC0671-05) Soil Sampled: 03/13/09 11:25 Received: 03/18/09 08:55									
Endosulfan II	ND	75	µg/kg	5	CS02171		03/24/09	EPA 8081A	
Endosulfan sulfate	ND	75	"	"	"		"	"	
Endrin	ND	75	"	"	"	"	"		
Endrin aldehyde	ND	75	"	"		"			
Heptachlor	ND	25	"	"		"			
Heptachlor epoxide	ND	10				"		"	
Methoxychlor	ND	75	"	"		"	"	"	
Mirex	ND	50		"	"	"	"	"	
Toxaphene	ND	100	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*61 %*	*46-139*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*74 %*	*52-141*		"	"		"	
TP-SS-16-1.0 (CSC0671-06) Soil Sampled: 03/13/09 11:10 Received: 03/18/09 08:55									
Aldrin	ND	5.0	µg/kg	5	CS02171	03/23/09	03/24/09	EPA 8081A	
alpha-BHC	ND	10	"	"	"		"	"	
beta-BHC	ND	50		"	"	"	"	"	
delta-BHC	ND	50		"	"	"	"	"	
gamma-BHC (Lindane)	ND	50	"	"	"	"	"	"	
Chlordane-technical	ND	100	"	"	"	"	"	"	
4,4'-DDD	ND	75	"	"	"	"	"	"	
4,4'-DDE	ND	75	"	"	"	"	"	"	
4,4'-DDT	ND	75	"	"	"	"	"	"	
Dieldrin	ND	5.0	"	"	"	"	"	"	
Endosulfan I	ND	75		"	"	"	"	"	
Endosulfan II	ND	75	"	"	"	"		"	
Endosulfan sulfate	ND	75	"	"	"		"	"	
Endrin	ND	75	"	"	"	"	"	"	
Endrin aldehyde	ND	75	"	"	"	"	"		
Heptachlor	ND	25	"	"		"		"	
Heptachlor epoxide	ND	10	"	"	"	"	"	"	
Methoxychlor	ND	75	"		"	"	"	"	
Mirex	ND	50	"		"	"	"		
Toxaphene	ND	100	"	"	"	"		"	
Surrogate: Tetrachloro-meta-xylene		*[illegible]*	*46-139*		"	"		"	
Surrogate: Decachlorobiphenyl		*84 %*	*52-141*			"	"	"	

CALIFORNIA LABORATORY SERVICES

Kleinfelder (Sacramento)	Project: South Sutter Borrow	
3077 Fite Circle	Project Number: 94582	**CLS Work Order #: CSC0671**
Sacramento CA, 95827	Project Manager: Sue Gardiner	COC #: 03302

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
TP-SS-17-1.0 (CSC0671-07) Soil	**Sampled: 03/13/09 11:18**	**Received: 03/18/09 08:55**							
Aldrin	ND	5.0	ug/kg	5	CS02171	03/23/09	03/24/09	EPA 8081A	
alpha-BHC	ND	10	"	"	"	"	"	"	
beta-BHC	ND	50	"	"	"	"	"	"	
delta-BHC	ND	50	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	50	"	"	"	"	"	"	
Chlordane-technical	ND	100	"	"	"	"	"	"	
4,4'-DDD	ND	75	"	"	"	"	"	"	
4,4'-DDE	ND	75	"	"	"	"	"	"	
4,4'-DDT	ND	75	"	"	"	"	"	"	
Dieldrin	ND	5.0	"	"	"	"	"	"	
Endosulfan I	ND	75	"	"	"	"	"	"	
Endosulfan II	ND	75	"	"	"	"	"	"	
Endosulfan sulfate	ND	75	"	"	"	"	"	"	
Endrin	ND	75	"	"	"	"	"	"	
Endrin aldehyde	ND	75	"	"	"	"	"	"	
Heptachlor	ND	25	"	"	"	"	"	"	
Heptachlor epoxide	ND	10	"	"	"	"	"	"	
Methoxychlor	ND	75	"	"	"	"	"	"	
Mirex	ND	50	"	"	"	"	"	"	
Toxaphene	ND	100	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*69 %*	*46-139*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*91.5 %*	*52-141*		"	"	"	"	
TP-SS-22-1.0 (CSC0671-08) Soil	**Sampled: 03/13/09 10:16**	**Received: 03/18/09 08:55**							
Aldrin	ND	5.0	ug/kg	5	CS02171	03/23/09	03/24/09	EPA 8081A	
alpha-BHC	ND	10	"	"	"	"	"	"	
beta-BHC	ND	50	"	"	"	"	"	"	
delta-BHC	ND	50	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	50	"	"	"	"	"	"	
Chlordane-technical	ND	100	"	"	"	"	"	"	
4,4'-DDD	ND	75	"	"	"	"	"	"	
4,4'-DDE	ND	75	"	"	"	"	"	"	
4,4'-DDT	ND	75	"	"	"	"	"	"	
Dieldrin	ND	5.0	"	"	"	"	"	"	
Endosulfan I	ND	75	"	"	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

03/25/09 11:29

Kleinfelder (Sacramento)	Project: South Sutter Borrow	
3077 Fite Circle	Project Number: 94582	CLS Work Order #: CSC0671
Sacramento CA 95827	Project Manager: Sue Gardner	COC #: 03302

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
TP-SS-22-1.0 (CSC0671-08) Soil	**Sampled: 03/13/09 10:16**	**Received: 03/18/09 08:55**							
Endosulfan II	ND	75	µg/kg	5	CS02171	"	03/24/09	EPA 8081A	
Endosulfan sulfate	ND	75	"	"	"	"	"	"	
Endrin	ND	75	"	"	"	"	"	"	
Endrin aldehyde	ND	75	"	"	"	"	"	"	
Heptachlor	ND	25	"	"	"	"	"	"	
Heptachlor epoxide	ND	10	"	"	"	"	"	"	
Methoxychlor	ND	75	"	"	"	"	"	"	
Mirex	ND	50	"	"	"	"	"	"	
Toxaphene	ND	100	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		53 %	*46-139*		"	"	"	"	
Surrogate: Decachlorobiphenyl		[illegible] %	*52-141*		"	"	"	"	
TP-SS-23-1.0 (CSC0671-09) Soil	**Sampled: 03/13/09 10:08**	**Received: 03/18/09 08:55**							
Aldrin	ND	5.0	µg/kg	5	CS02171	03/23/09	03/24/09	EPA 8081A	
alpha-BHC	ND	10	"	"	"	"	"	"	
beta-BHC	ND	50	"	"	"	"	"	"	
delta-BHC	ND	50	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	50	"	"	"	"	"	"	
Chlordane-technical	ND	100	"	"	"	"	"	"	
4,4'-DDD	ND	75	"	"	"	"	"	"	
4,4'-DDE	ND	75	"	"	"	"	"	"	
4,4'-DDT	ND	75	"	"	"	"	"	"	
Dieldrin	ND	5.0	"	"	"	"	"	"	
Endosulfan I	ND	75	"	"	"	"	"	"	
Endosulfan II	ND	75	"	"	"	"	"	"	
Endosulfan sulfate	ND	75	"	"	"	"	"	"	
Endrin	ND	75	"	"	"	"	"	"	
Endrin aldehyde	ND	75	"	"	"	"	"	"	
Heptachlor	ND	25	"	"	"	"	"	"	
Heptachlor epoxide	ND	10	"	"	"	"	"	"	
Methoxychlor	ND	75	"	"	"	"	"	"	
Mirex	ND	50	"	"	"	"	"	"	
Toxaphene	ND	100	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		79 %	*46-13[illegible]*		"	"	"	"	
Surrogate: Decachlorobiphenyl		88 %	*52-14[illegible]*		"	"	"	"	

CALIFORNIA LABORATORY SERVICES

03/25/09 11:29

Kleinfelder (Sacramento)	Project: South Sutter Borrow	
3077 Fite Circle	Project Number: 94582	CLS Work Order #: CSC0671
Sacramento CA 95827	Project Manager: Sue Gardner	COC #: 03302

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
TP-SS-18-1.0 (CSC0671-10) Soil	**Sampled: 03/13/09 10:25**	**Received: 03/18/09 08:55**							
Aldrin	ND	5.0	ug/kg	5	CS02171	03/23/09	03/24/09	EPA 8081A	
alpha-BHC	ND	10	"	"	"	"	"	"	
beta-BHC	ND	50	"	"	"	"	"	"	
delta-BHC	ND	50	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	50	"	"	"	"	"	"	
Chlordane-technical	ND	100	"	"	"	"	"	"	
4,4'-DDD	ND	75	"	"	"	"	"	"	
4,4'-DDE	ND	75	"	"	"	"	"	"	
4,4'-DDT	ND	75	"	"	"	"	"	"	
Dieldrin	ND	5.0	"	"	"	"	"	"	
Endosulfan I	ND	75	"	"	"	"	"	"	
Endosulfan II	ND	75	"	"	"	"	"	"	
Endosulfan sulfate	ND	75	"	"	"	"	"	"	
Endrin	ND	75	"	"	"	"	"	"	
Endrin aldehyde	ND	75	"	"	"	"	"	"	
Heptachlor	ND	25	"	"	"	"	"	"	
Heptachlor epoxide	ND	10	"	"	"	"	"	"	
Methoxychlor	ND	75	"	"	"	"	"	"	
Mirex	ND	50	"	"	"	"	"	"	
Toxaphene	ND	100	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*67 %*	*26-139*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*[illegible] %*	*22-141*				"	"	
TP-SS-19-1.0 (CSC0671-11) Soil	**Sampled: 03/13/09 10:01**	**Received: 03/18/09 08:55**							
Aldrin	ND	5.0	ug/kg	5	CS02171	03/23/09	03/24/09	EPA 8081A	
alpha-BHC	ND	10	"	"	"	"	"	"	
beta-BHC	ND	50	"	"	"	"	"	"	
delta-BHC	ND	50	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	50	"	"	"	"	"	"	
Chlordane-technical	ND	100	"	"	"	"	"	"	
4,4'-DDD	ND	75	"	"	"	"	"	"	
4,4'-DDE	ND	75	"	"	"	"	"	"	
4,4'-DDT	ND	75	"	"	"	"	"	"	
Dieldrin	ND	5.0	"	"	"	"	"	"	
Endosulfan I	ND	75	"	"	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

03/25/09 11:29

Kleinfelder (Sacramento)	Project: South Sutter Borrow	
3077 Fite Circle	Project Number: 94582	**CLS Work Order #: CSC0671**
Sacramento CA 95827	Project Manager: Sue Gardner	COC #: 05302

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
TP-SS-39-1.0 (CSC0671-11) Soil	**Sampled: 03/13/09 10:01**	**Received: 03/18/09 08:55**							
Endosulfan II	ND	75	µg/kg	5	[illegible]	"	03/24/09	EPA 8081A	
Endosulfan sulfate	ND	75	"	"	"	"	"	"	
Endrin	ND	75	"	"	"	"	"	"	
Endrin aldehyde	ND	75	"	"	"	"	"	"	
Heptachlor	ND	25	"	"	"	"	"	"	
Heptachlor epoxide	ND	40	"	"	"	"	"	"	
Methoxychlor	ND	75	"	"	"	"	"	"	
Mirex	ND	50	"	"	"	"	"	"	
Toxaphene	ND	100	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*72 %*	*40-139*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*83 %*	*52-141*		"	"	"	"	

California Laboratory Services

Kleinfelder (Sacramento)	Project: South Sutter Borrow	
3077 Fite Circle	Project Number: 94582	CLS Work Order #: CSC0671
Sacramento CA, 95827	Project Manager: Sue Gardner	COC #: 03362

Metals by EPA 6000/7000 Series Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CS02074 - EPA 3050B										
Blank (CS02074-BLK1)				Prepared & Analyzed: 03/19/09						
Lead	ND	2.5	mg/kg							
Copper	ND	1.0								
Arsenic	ND	0.25								
LCS (CS02074-BS1)				Prepared & Analyzed: 03/19/09						
Lead	7.76	2.5	mg/kg	10.0		78	75-125			
Copper	8.28	1.0	"	10.0		83	75-125			
Arsenic	10.3	1.0	"	10.0		103	75-125			
LCS Dup (CS02074-BSD1)				Prepared & Analyzed: 03/19/09						
Lead	7.86	2.5	mg/kg	10.0		79	75-125	1	25	
Copper	8.23	1.0	"	10.0		83	75-125	0.7	25	
Arsenic	10.5	1.0		10.0		105	75-125	1	25	
Matrix Spike (CS02074-MS1)		Source: CSC0671-01		Prepared & Analyzed: 03/19/09						
Lead	18.7	2.5	mg/kg	10.0	13.2	55	75-125			QM-5
Arsenic	15.7	1.0	"	10.0	5.78	99	75-125			
Copper	39.5	1.0	"	10.0	34.7	49	75-125			QM-5
Matrix Spike Dup (CS02074-MSD1)		Source: CSC0671-01		Prepared & Analyzed: 03/19/09						
Lead	19.2	2.5	mg/kg	10.0	13.2	61	75-125	3	30	QM-5
Copper	39.3	1.0	"	10.0	34.7	46	75-125	0.6	30	QM-5
Arsenic	14.8	1.0	"	10.0	5.78	90	75-125	6	30	

California Laboratory Services

Kleinfelder (Sacramento)	Project: South Sutter Borrow	
3077 Fite Circle	Project Number: 91582	CLS Work Order #: CSC0671
Sacramento CA 95827	Project Manager: Sue Gardner	COC #: 03302

Organochlorine Pesticides by EPA Method 8081A - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CS02171 - LUFT-DHS GCNV										
Blank (CS02171-BLK1)				Prepared: 03/23/09 Analyzed: 03/24/09						
Aldrin	ND	5.0	ug/kg							
alpha-BHC	ND	2.0	ug/kg							
beta-BHC	ND	10	ug/kg							
delta-BHC	ND	10								
gamma-BHC (Lindane)	ND	10	ug/kg							
Chlordane (technical)	ND	20								
4,4'-DDD	ND	15	ug/kg							
4,4'-DDE	ND	15	ug/kg							
4,4'-DDT	ND	15	ug/kg							
Dieldrin	ND	1.0	ug/kg							
Endosulfan I	ND	15								
Endosulfan II	ND	15	ug/kg							
Endosulfan sulfate	ND	15	ug/kg							
Endrin	ND	15	ug/kg							
Endrin aldehyde	ND	15	ug/kg							
Heptachlor	ND	5.0	ug/kg							
Heptachlor epoxide	ND	2.0	ug/kg							
Methoxychlor	ND	15								
Mirex	ND	10	ug/kg							
Toxaphene	ND	20	ug/kg							
Surrogate: Tetrachloro-meta-xylene	*6.25*		ug/kg	*8.33*		*[illegible]*	*16-139*			
Surrogate: Decachlorobiphenyl	*8.64*		ug/kg	*[illegible]*		*104*	*52-[illegible]*			
LCS (CS02171-BS1)				Prepared: 03/23/09 Analyzed: 03/24/09						
Aldrin	15.1	1.0	ug/kg	16.7		90	47-132			
gamma-BHC (Lindane)	15.6	10	ug/kg	16.7		93	56-133			
4,4'-DDT	18.0	15	ug/kg	16.7		108	46-137			
Dieldrin	16.6	1.0	ug/kg	16.7		100	44-143			
Endrin	19.2	15	ug/kg	16.7		118	30-147			
Heptachlor	15.2	5.0	ug/kg	16.7		91	35-148			
Surrogate: Tetrachloro-meta-xylene	*7.05*		ug/kg	*8.33*		*85*	*16-139*			
Surrogate: Decachlorobiphenyl	*8.46*		ug/kg	*8.33*		*102*	*52-113*			

CALIFORNIA LABORATORY SERVICES

Kleinfelder (Sacramento)	Project: South Sutter Borrow	
3077 Fite Circle	Project Number: 94582	CLS Work Order #: CSC0671
Sacramento CA, 95827	Project Manager: Sue Gardner	COC #: 01302

Organochlorine Pesticides by EPA Method 8081A - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CS02171 - LUFT-DHS GCNV										
LCS Dup (CS02171-BSD1)					Prepared: 03/23/09	Analyzed: 03/24/09				
Aldrin	13.1	[illegible]	ug/kg	16.7		[illegible]	47-132	1?	[illegible]	
gamma-BHC (Lindane)	14.1	5.0	"	16.7		85	56-133	9	30	
4,4'-DDT	18.2	15	"	16.7		109	16-157	7	30	
Dieldrin	16.0	1.0	"	16.7		96	44-115	4	30	
Endrin	19.1	15	"	16.7		115	30-147	3	30	
Heptachlor	14.4	5.0	"	16.7		87	33-148	9	30	
Surrogate: Tetrachloro-meta-xylene	*6.41*		"	*8.33*		*77*	*26-139*			
Surrogate: Decachlorobiphenyl	*8.48*		"	*8.33*		*102*	*52-141*			
Matrix Spike (CS02171-MS1)		**Source: CSC0671-01**			Prepared: 03/23/09	Analyzed: 03/24/09				
Aldrin	14.0	5.0	ug/kg	16.7	ND	84	47-138			
gamma-BHC (Lindane)	15.0	50	"	16.7	ND	90	38-144			
4,4'-DDT	25.3	25	"	16.7	ND	152	41-157			
Dieldrin	17.2	5.0	"	16.7	ND	103	46-155			
Endrin	21.1	75	"	16.7	ND	127	34-149			
Heptachlor	14.7	25	"	16.7	ND	88	36-155			
Surrogate: Tetrachloro-meta-xylene	*12.7*		"	*20.8*		*61*	*26-139*			
Surrogate: Decachlorobiphenyl	*14.8*			*20.8*		*71*	*52-141*			
Matrix Spike Dup (CS02171-MSD1)		**Source: CSC0671-01**			Prepared: 03/23/09	Analyzed: 03/24/09				
Aldrin	15.2	5.0	ug/kg	16.7	ND	91	47-138	8	35	
gamma-BHC (Lindane)	15.8	50	"	16.7	ND	95	38-144	6	35	
4,4'-DDT	23.4	25	"	16.7	ND	140	41-157	8	35	
Dieldrin	18.0	5.0	"	16.7	ND	108	46-155	5	35	
Endrin	21.3	75	"	16.7	ND	128	34-149	1	35	
Heptachlor	15.7	25	"	16.7	ND	94	36-155	7	35	
Surrogate: Tetrachloro-meta-xylene	*15.9*		"	*20.8*		*76*	*26-139*			
Surrogate: Decachlorobiphenyl	*20.2*		"	*20.8*		*97*	*52-141*			

CALIFORNIA LABORATORY SERVICES

Kleinfelder (Sacramento)	Project: South Sutter Borrow	
3077 Fite Circle	Project Number: 93582	**CLS Work Order #: CSC0671**
Sacramento CA, 95827	Project Manager: Sue Gardner	COC #: 03302

Notes and Definitions

QM-5 The spike recovery was outside acceptance limits for the MS and/or MSD due to matrix interference. The LCS and/or LCSD were within acceptance limits showing that the laboratory is in control and the data is acceptable.

DET Analyte DETECTED

ND Analyte NOT DETECTED at or above the reporting limit

NR Not Reported

dry Sample results reported on a dry weight basis

RPD Relative Percent Difference

California Laboratory Services

3249 Fitzgerald Road Rancho Cordova, CA 95742

June 30, 2009

CLS Work Order #: CSF1036
COC #: 03037

Sue Gardner
Kleinfelder (Sacramento)
3077 Fite Circle
Sacramento, CA 95827

Project Name: SAFCA - South Sutter

Enclosed are the results of analyses for samples received by the laboratory on 06/25/09 08:10. Samples were analyzed pursuant to client request utilizing EPA or other ELAP approved methodologies. I certify that the results are in compliance both technically and for completeness.

Analytical results are attached to this letter. Please call if we can provide additional assistance.

Sincerely,

James Liang, Ph.D.
Laboratory Director

CA DOHS ELAP Accreditation/Registration number 1233

CALIFORNIA LABORATORY SERVICES

06/30/09 09:53

Kleinfelder (Sacramento)
3077 Fite Circle
Sacramento, CA 95827

Project: SAFCA - South Sutter
Project Number: 94582
Project Manager: Sue Gardner

CLS Work Order #: CSF1036
COC #: 03037

CALIFORNIA LABORATORY SERVICES

06/30/09 09:53

Kleinfelder (Sacramento)
3077 Fite Circle
Sacramento, CA 95827

Project: SAFCA - South Sutter
Project Number: 94582
Project Manager: Sue Gardner

CLS Work Order #: CSF1036
COC #: 03037

Metals by EPA 6000/7000 Series Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SS-C5-5-1-1.0 (CSF1036-01) Soil	**Sampled: 06/24/09 15:20**	**Received: 06/25/09 08:10**							
Arsenic	4.1	2.0	mg/kg	20	CS04740	06/25/09	06/25/09	EPA 6020	
Copper	26	1.0	"	1	CS04741	06/25/09	06/25/09	EPA 6010B	
Lead	11	2.5	"	"	"	"	"	"	
SS-C5-5-2-1.0 (CSF1036-02) Soil	**Sampled: 06/24/09 15:27**	**Received: 06/25/09 08:10**							
Arsenic	4.7	1.0	mg/kg	10	CS04740	06/25/09	06/25/09	EPA 6020	
Copper	25	1.0	"	1	CS04741	06/25/09	06/25/09	EPA 6010B	
Lead	9.7	2.5	"	"	"	"	"	"	
SS-C5-5-3-1.0 (CSF1036-03) Soil	**Sampled: 06/24/09 15:35**	**Received: 06/25/09 08:10**							
Arsenic	4.5	1.0	mg/kg	10	CS04740	06/25/09	06/25/09	EPA 6020	
Copper	29	1.0	"	1	CS04741	06/25/09	06/25/09	EPA 6010B	
Lead	9.4	2.5	"	"	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

06/30/09 09:53

Kleinfelder (Sacramento)
3077 Fite Circle
Sacramento, CA 95827

Project: SAFCA - South Sutter
Project Number: 94582
Project Manager: Sue Gardner

CLS Work Order #: CSF1036
COC #: 03037

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SS-C5-5-1-1.0 (CSF1036-01) Soil Sampled: 06/24/09 15:20 Received: 06/25/09 08:10									
Aldrin	ND	5.0	µg/kg	5	CS04745	06/25/09	06/25/09	EPA 8081A	
alpha-BHC	ND	10	"	"	"	"	"	"	
beta-BHC	ND	50	"	"	"	"	"	"	
delta-BHC	ND	50	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	50	"	"	"	"	"	"	
Chlordane-technical	ND	100	"	"	"	"	"	"	
4,4'-DDD	ND	75	"	"	"	"	"	"	
4,4'-DDE	ND	75	"	"	"	"	"	"	
4,4'-DDT	ND	75	"	"	"	"	"	"	
Dieldrin	ND	5.0	"	"	"	"	"	"	
Endosulfan I	ND	75	"	"	"	"	"	"	
Endosulfan II	ND	75	"	"	"	"	"	"	
Endosulfan sulfate	ND	75	"	"	"	"	"	"	
Endrin	ND	75	"	"	"	"	"	"	
Endrin aldehyde	ND	75	"	"	"	"	"	"	
Heptachlor	ND	25	"	"	"	"	"	"	
Heptachlor epoxide	ND	10	"	"	"	"	"	"	
Methoxychlor	ND	75	"	"	"	"	"	"	
Mirex	ND	50	"	"	"	"	"	"	
Toxaphene	ND	100	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*85 %*		*46-139*	"	"	"	"	
Surrogate: Decachlorobiphenyl		*91 %*		*52-141*	"	"	"	"	
SS-C5-5-2-1.0 (CSF1036-02) Soil Sampled: 06/24/09 15:27 Received: 06/25/09 08:10									
Aldrin	ND	5.0	µg/kg	5	CS04745	06/25/09	06/25/09	EPA 8081A	
alpha-BHC	ND	10	"	"	"	"	"	"	
beta-BHC	ND	50	"	"	"	"	"	"	
delta-BHC	ND	50	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	50	"	"	"	"	"	"	
Chlordane-technical	ND	100	"	"	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

06/30/09 09:53

Kleinfelder (Sacramento) 3077 Fite Circle Sacramento, CA 95827	Project: SAFCA - South Sutter Project Number: 94582 Project Manager: Sue Gardner	CLS Work Order #: CSF1036 COC #: 03037

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SS-C5-5-2-1.0 (CSF1036-02) Soil	**Sampled: 06/24/09 15:27**	**Received: 06/25/09 08:10**							
4,4'-DDD	ND	75	µg/kg	5	CS04745	"	06/25/09	EPA 8081A	
4,4'-DDE	ND	75	"	"	"	"	"	"	
4,4'-DDT	ND	75	"	"	"	"	"	"	
Dieldrin	ND	5.0	"	"	"	"	"	"	
Endosulfan I	ND	75	"	"	"	"	"	"	
Endosulfan II	ND	75	"	"	"	"	"	"	
Endosulfan sulfate	ND	75	"	"	"	"	"	"	
Endrin	ND	75	"	"	"	"	"	"	
Endrin aldehyde	ND	75	"	"	"	"	"	"	
Heptachlor	ND	25	"	"	"	"	"	"	
Heptachlor epoxide	ND	10	"	"	"	"	"	"	
Methoxychlor	ND	75	"	"	"	"	"	"	
Mirex	ND	50	"	"	"	"	"	"	
Toxaphene	ND	100	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*81 %*	*46-139*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*91 %*	*52-141*		"	"	"	"	
SS-C5-5-3-1.0 (CSF1036-03) Soil	**Sampled: 06/24/09 15:35**	**Received: 06/25/09 08:10**							
Aldrin	ND	5.0	µg/kg	5	CS04745	06/25/09	06/25/09	EPA 8081A	
alpha-BHC	ND	10	"	"	"	"	"	"	
beta-BHC	ND	50	"	"	"	"	"	"	
delta-BHC	ND	50	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	50	"	"	"	"	"	"	
Chlordane-technical	ND	100	"	"	"	"	"	"	
4,4'-DDD	ND	75	"	"	"	"	"	"	
4,4'-DDE	ND	75	"	"	"	"	"	"	
4,4'-DDT	ND	75	"	"	"	"	"	"	
Dieldrin	ND	5.0	"	"	"	"	"	"	
Endosulfan I	ND	75	"	"	"	"	"	"	
Endosulfan II	ND	75	"	"	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

 06/30/09 09:53

Kleinfelder (Sacramento) 3077 Fite Circle Sacramento, CA 95827	Project: SAFCA - South Sutter Project Number: 94582 Project Manager: Sue Gardner	**CLS Work Order #: CSF1036** COC #: 03037

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SS-C5-5-3-1.0 (CSF1036-03) Soil	**Sampled: 06/24/09 15:35**	**Received: 06/25/09 08:10**							
Endosulfan sulfate	ND	75	µg/kg	5	CS04745	"	06/25/09	EPA 8081A	
Endrin	ND	75	"	"	"	"	"	"	
Endrin aldehyde	ND	75	"	"	"	"	"	"	
Heptachlor	ND	25	"	"	"	"	"	"	
Heptachlor epoxide	ND	10	"	"	"	"	"	"	
Methoxychlor	ND	75	"	"	"	"	"	"	
Mirex	ND	50	"	"	"	"	"	"	
Toxaphene	ND	100	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*81 %*	*46-139*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*83 %*	*52-141*		"	"	"	"	

Kleinfelder (Sacramento)
3077 Fite Circle
Sacramento, CA 95827

Project: SAFCA - South Sutter
Project Number: 94582
Project Manager: Sue Gardner

CLS Work Order #: CSF1036
COC #: 03037

Metals by EPA 6000/7000 Series Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CS04740 - EPA 3050B										
Blank (CS04740-BLK1)				Prepared & Analyzed: 06/25/09						
Arsenic	ND	0.10	mg/kg							
LCS (CS04740-BS1)				Prepared & Analyzed: 06/25/09						
Arsenic	4.09	0.10	mg/kg	5.00		82	75-125			
LCS Dup (CS04740-BSD1)				Prepared & Analyzed: 06/25/09						
Arsenic	4.21	0.10	mg/kg	5.00		84	75-125	3	25	
Matrix Spike (CS04740-MS1)		**Source: CSF1002-01**		Prepared & Analyzed: 06/25/09						
Arsenic	6.68	1.0	mg/kg	5.00	1.73	99	75-125			
Matrix Spike Dup (CS04740-MSD1)		**Source: CSF1002-01**		Prepared & Analyzed: 06/25/09						
Arsenic	5.93	1.0	mg/kg	5.00	1.73	84	75-125	12	30	
Batch CS04741 - EPA 3050B										
Blank (CS04741-BLK1)				Prepared & Analyzed: 06/25/09						
Lead	ND	2.5	mg/kg							
Copper	ND	1.0	"							
LCS (CS04741-BS1)				Prepared & Analyzed: 06/25/09						
Lead	23.2	2.5	mg/kg	25.0		93	75-125			
Copper	10.3	1.0	"	12.5		83	75-125			
LCS Dup (CS04741-BSD1)				Prepared & Analyzed: 06/25/09						
Lead	22.3	2.5	mg/kg	25.0		89	75-125	4	25	
Copper	10.0	1.0	"	12.5		80	75-125	3	25	

CALIFORNIA LABORATORY SERVICES

06/30/09 09:53

Kleinfelder (Sacramento)
3077 Fite Circle
Sacramento, CA 95827

Project: SAFCA - South Sutter
Project Number: 94582
Project Manager: Sue Gardner

CLS Work Order #: CSF1036
COC #: 03037

Metals by EPA 6000/7000 Series Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CS04741 - EPA 3050B										
Matrix Spike (CS04741-MS1)		Source: CSF1002-01		Prepared & Analyzed: 06/25/09						
Lead	32.3	2.5	mg/kg	25.0	11.1	85	75-125			
Copper	80.0	1.0	"	12.5	54.0	208	75-125			QM-5
Matrix Spike Dup (CS04741-MSD1)		Source: CSF1002-01		Prepared & Analyzed: 06/25/09						
Lead	28.1	2.5	mg/kg	25.0	11.1	68	75-125	14	30	QM-5
Copper	76.1	1.0	"	12.5	54.0	177	75-125	5	30	QM-5

CALIFORNIA LABORATORY SERVICES

06/30/09 09:53

Kleinfelder (Sacramento)
3077 Fite Circle
Sacramento, CA 95827

Project: SAFCA - South Sutter
Project Number: 94582
Project Manager: Sue Gardner

CLS Work Order #: CSF1036
COC #: 03037

Organochlorine Pesticides by EPA Method 8081A - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CS04745 - LUFT-DHS GCNV										
Blank (CS04745-BLK1)				Prepared & Analyzed: 06/25/09						
Aldrin	ND	1.0	µg/kg							
alpha-BHC	ND	2.0	"							
beta-BHC	ND	10	"							
delta-BHC	ND	10	"							
gamma-BHC (Lindane)	ND	10	"							
Chlordane-technical	ND	20	"							
4,4'-DDD	ND	15	"							
4,4'-DDE	ND	15	"							
4,4'-DDT	ND	15	"							
Dieldrin	ND	1.0	"							
Endosulfan I	ND	15	"							
Endosulfan II	ND	15	"							
Endosulfan sulfate	ND	15	"							
Endrin	ND	15	"							
Endrin aldehyde	ND	15	"							
Heptachlor	ND	5.0	"							
Heptachlor epoxide	ND	2.0	"							
Methoxychlor	ND	15	"							
Mirex	ND	10	"							
Toxaphene	ND	20	"							
Surrogate: Tetrachloro-meta-xylene	*6.03*		"	*8.33*		*72*	*46-139*			
Surrogate: Decachlorobiphenyl	*7.24*		"	*8.33*		*87*	*52-141*			
LCS (CS04745-BS1)				Prepared & Analyzed: 06/25/09						
Aldrin	12.6	1.0	µg/kg	16.7		75	47-132			
gamma-BHC (Lindane)	12.3	10	"	16.7		74	56-133			
4,4'-DDT	13.7	15	"	16.7		82	46-137			
Dieldrin	13.7	1.0	"	16.7		82	44-143			
Endrin	14.7	15	"	16.7		88	30-147			
Heptachlor	12.5	5.0	"	16.7		75	33-148			
Surrogate: Tetrachloro-meta-xylene	*6.26*		"	*8.33*		*75*	*46-139*			

CALIFORNIA LABORATORY SERVICES

Kleinfelder (Sacramento)
3077 Fite Circle
Sacramento, CA 95827

Project: SAFCA - South Sutter
Project Number: 94582
Project Manager: Sue Gardner

CLS Work Order #: CSF1036
COC #: 03037

Organochlorine Pesticides by EPA Method 8081A - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CS04745 - LUFT-DHS GCNV										
LCS (CS04745-BS1)				Prepared & Analyzed: 06/25/09						
Surrogate: Decachlorobiphenyl	*7.03*		*µg/kg*	*8.33*		*84*	*52-141*			
LCS Dup (CS04745-BSD1)				Prepared & Analyzed: 06/25/09						
Aldrin	12.8	1.0	µg/kg	16.7		77	47-132	2	30	
gamma-BHC (Lindane)	12.5	10	"	16.7		75	56-133	2	30	
4,4'-DDT	13.7	15	"	16.7		82	46-137	0.6	30	
Dieldrin	13.8	1.0	"	16.7		83	44-143	0.3	30	
Endrin	14.9	15	"	16.7		89	30-147	1	30	
Heptachlor	12.7	5.0	"	16.7		76	33-148	1	30	
Surrogate: Tetrachloro-meta-xylene	*5.30*		"	*8.33*		*64*	*46-139*			
Surrogate: Decachlorobiphenyl	*6.61*		"	*8.33*		*79*	*52-141*			
Matrix Spike (CS04745-MS1)		Source: CSF1036-02		Prepared & Analyzed: 06/25/09						
Aldrin	14.6	5.0	µg/kg	16.7	ND	87	47-138			
gamma-BHC (Lindane)	14.9	50	"	16.7	ND	90	38-144			
4,4'-DDT	23.5	75	"	16.7	6.95	99	41-157			
Dieldrin	16.4	5.0	"	16.7	ND	99	46-155			
Endrin	17.6	75	"	16.7	ND	106	34-149			
Heptachlor	15.4	25	"	16.7	ND	93	36-155			
Surrogate: Tetrachloro-meta-xylene	*16.8*		"	*20.8*		*80*	*46-139*			
Surrogate: Decachlorobiphenyl	*18.7*		"	*20.8*		*90*	*52-141*			
Matrix Spike Dup (CS04745-MSD1)		Source: CSF1036-02		Prepared & Analyzed: 06/25/09						
Aldrin	14.8	5.0	µg/kg	16.7	ND	89	47-138	2	35	
gamma-BHC (Lindane)	13.9	50	"	16.7	ND	84	38-144	7	35	
4,4'-DDT	22.4	75	"	16.7	6.95	93	41-157	5	35	
Dieldrin	15.6	5.0	"	16.7	ND	93	46-155	6	35	
Endrin	16.5	75	"	16.7	ND	99	34-149	6	35	
Heptachlor	14.4	25	"	16.7	ND	87	36-155	7	35	
Surrogate: Tetrachloro-meta-xylene	*15.5*		"	*20.8*		*75*	*46-139*			
Surrogate: Decachlorobiphenyl	*17.5*		"	*20.8*		*84*	*52-141*			

06/30/09 09:53

Kleinfelder (Sacramento)	Project: SAFCA - South Sutter	
3077 Fite Circle	Project Number: 94582	**CLS Work Order #: CSF1036**
Sacramento, CA 95827	Project Manager: Sue Gardner	COC #: 03037

Notes and Definitions

QM-5	The spike recovery was outside acceptance limits for the MS and/or MSD due to matrix interference. The LCS and/or LCSD were within acceptance limits showing that the laboratory is in control and the data is acceptable.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

CALIFORNIA LABORATORY SERVICES

3249 Fitzgerald Road Rancho Cordova, CA 95742

September 26, 2008

CLS Work Order #: CRI0909
COC #: 03526

Pam Wee
Kleinfelder (Sacramento)
3077 Fite Circle
Sacramento, CA 95827

Project Name: Novak

Enclosed are the results of analyses for samples received by the laboratory on 09/24/08 13:30. Samples were analyzed pursuant to client request utilizing EPA or other ELAP approved methodologies. I certify that the results are in compliance both technically and for completeness.

Analytical results are attached to this letter. Please call if we can provide additional assistance.

Sincerely,

James Liang, Ph.D.
Laboratory Director

CA DOHS ELAP Accreditation/Registration number 1233

CALIFORNIA LABORATORY SERVICES

09/26/08 16:19

Kleinfelder (Sacramento) 3077 Fite Circle Sacramento, CA 95827	Project: Novak Project Number: 94582-SR2 ACQU Project Manager: Pam Wee	CLS Work Order #: CRI0909 COC #: 03526

CLS

№ 03526

CALIFORNIA LABORATORY SERVICES

09/26/08 16:19

Kleinfelder (Sacramento)
3077 Fite Circle
Sacramento, CA 95827

Project: Novak
Project Number: 94582-SR2 ACQU
Project Manager: Pam Wee

CLS Work Order #: CRI0909
COC #: 03526

Metals by EPA 6000/7000 Series Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Composite SS-1 A-D (CRI0909-05) Soil	**Sampled: 09/24/08 10:30**		**Received: 09/24/08 13:30**						
Arsenic	8.2	1.0	mg/kg	10	CR08047	09/25/08	09/25/08	EPA 6020	
Copper	34	1.0	"	1	CR08048	09/25/08	09/25/08	EPA 6010B	
Lead	14	2.5	"	"	"	"	"	"	
Composite SS-2 A-D (CRI0909-10) Soil	**Sampled: 09/24/08 08:20**		**Received: 09/24/08 13:30**						
Arsenic	7.6	1.0	mg/kg	10	CR08047	09/25/08	09/25/08	EPA 6020	
Copper	37	1.0	"	1	CR08048	09/25/08	09/25/08	EPA 6010B	
Lead	15	2.5	"	"	"	"	"	"	
Composite SS-3 A-D (CRI0909-15) Soil	**Sampled: 09/24/08 09:10**		**Received: 09/24/08 13:30**						
Arsenic	8.2	1.0	mg/kg	10	CR08047	09/25/08	09/25/08	EPA 6020	
Copper	36	1.0	"	1	CR08048	09/25/08	09/25/08	EPA 6010B	
Lead	15	2.5	"	"	"	"	"	"	
Composite SS-4 A-D (CRI0909-20) Soil	**Sampled: 09/24/08 11:45**		**Received: 09/24/08 13:30**						
Arsenic	7.8	1.0	mg/kg	10	CR08047	09/25/08	09/25/08	EPA 6020	
Copper	43	1.0	"	1	CR08048	09/25/08	09/25/08	EPA 6010B	
Lead	19	2.5	"	"	"	"	"	"	
Composite SS-5 A-D (CRI0909-25) Soil	**Sampled: 09/24/08 11:05**		**Received: 09/24/08 13:30**						
Arsenic	8.5	1.0	mg/kg	10	CR08047	09/25/08	09/25/08	EPA 6020	
Copper	36	1.0	"	1	CR08048	09/25/08	09/25/08	EPA 6010B	
Lead	15	2.5	"	"	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

09/26/08 16:19

Kleinfelder (Sacramento) 3077 Fite Circle Sacramento, CA 95827	Project: Novak Project Number: 94582-SR2 ACQU Project Manager: Pam Wee	CLS Work Order #: CRI0909 COC #: 03526

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Composite SS-1 A-D (CRI0909-05) Soil	**Sampled: 09/24/08 10:30**		**Received: 09/24/08 13:30**						
Aldrin	ND	2.0	µg/kg	2	CR08045	09/25/08	09/25/08	EPA 8081A	
alpha-BHC	ND	4.0	"	"	"	"	"	"	
beta-BHC	ND	20	"	"	"	"	"	"	
delta-BHC	ND	20	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	20	"	"	"	"	"	"	
Chlordane-technical	ND	40	"	"	"	"	"	"	
4,4'-DDD	ND	30	"	"	"	"	"	"	
4,4'-DDE	ND	30	"	"	"	"	"	"	
4,4'-DDT	ND	30	"	"	"	"	"	"	
Dieldrin	ND	2.0	"	"	"	"	"	"	
Endosulfan I	ND	30	"	"	"	"	"	"	
Endosulfan II	ND	30	"	"	"	"	"	"	
Endosulfan sulfate	ND	30	"	"	"	"	"	"	
Endrin	ND	30	"	"	"	"	"	"	
Endrin aldehyde	ND	30	"	"	"	"	"	"	
Heptachlor	ND	10	"	"	"	"	"	"	
Heptachlor epoxide	ND	4.0	"	"	"	"	"	"	
Methoxychlor	ND	30	"	"	"	"	"	"	
Mirex	ND	20	"	"	"	"	"	"	
Toxaphene	**140**	40	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*71 %*		*46-139*	"	"	"	"	
Surrogate: Decachlorobiphenyl		*75 %*		*52-141*	"	"	"	"	
Composite SS-2 A-D (CRI0909-10) Soil	**Sampled: 09/24/08 08:20**		**Received: 09/24/08 13:30**						
Aldrin	ND	2.0	µg/kg	2	CR08045	09/25/08	09/25/08	EPA 8081A	
alpha-BHC	ND	4.0	"	"	"	"	"	"	
beta-BHC	ND	20	"	"	"	"	"	"	
delta-BHC	ND	20	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	20	"	"	"	"	"	"	
Chlordane-technical	ND	40	"	"	"	"	"	"	

Kleinfelder (Sacramento) 3077 Fite Circle Sacramento, CA 95827	Project: Novak Project Number: 94582-SR2 ACQU Project Manager: Pam Wee	CLS Work Order #: CRI0909 COC #: 03526

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Composite SS-2 A-D (CRI0909-10) Soil	**Sampled: 09/24/08 08:20**		**Received: 09/24/08 13:30**						
4,4'-DDD	ND	30	µg/kg	2	CR08045	"	09/25/08	EPA 8081A	
4,4'-DDE	ND	30	"	"	"	"	"	"	
4,4'-DDT	ND	30	"	"	"	"	"	"	
Dieldrin	ND	2.0	"	"	"	"	"	"	
Endosulfan I	ND	30	"	"	"	"	"	"	
Endosulfan II	ND	30	"	"	"	"	"	"	
Endosulfan sulfate	ND	30	"	"	"	"	"	"	
Endrin	ND	30	"	"	"	"	"	"	
Endrin aldehyde	ND	30	"	"	"	"	"	"	
Heptachlor	ND	10	"	"	"	"	"	"	
Heptachlor epoxide	ND	4.0	"	"	"	"	"	"	
Methoxychlor	ND	30	"	"	"	"	"	"	
Mirex	ND	20	"	"	"	"	"	"	
Toxaphene	**120**	40	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*72 %*		*46-139*	"	"	"	"	
Surrogate: Decachlorobiphenyl		*78 %*		*52-141*	"	"	"	"	
Composite SS-3 A-D (CRI0909-15) Soil	**Sampled: 09/24/08 09:10**		**Received: 09/24/08 13:30**						
Aldrin	ND	2.0	µg/kg	2	CR08045	09/25/08	09/25/08	EPA 8081A	
alpha-BHC	ND	4.0	"	"	"	"	"	"	
beta-BHC	ND	20	"	"	"	"	"	"	
delta-BHC	ND	20	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	20	"	"	"	"	"	"	
Chlordane-technical	ND	40	"	"	"	"	"	"	
4,4'-DDD	ND	30	"	"	"	"	"	"	
4,4'-DDE	ND	30	"	"	"	"	"	"	
4,4'-DDT	ND	30	"	"	"	"	"	"	
Dieldrin	ND	2.0	"	"	"	"	"	"	
Endosulfan I	ND	30	"	"	"	"	"	"	
Endosulfan II	ND	30	"	"	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

09/26/08 16:19

Kleinfelder (Sacramento)
3077 Fite Circle
Sacramento, CA 95827

Project: Novak
Project Number: 94582-SR2 ACQU
Project Manager: Pam Wee

CLS Work Order #: CRI0909
COC #: 03526

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Composite SS-3 A-D (CRI0909-15) Soil	**Sampled: 09/24/08 09:10**		**Received: 09/24/08 13:30**						
Endosulfan sulfate	ND	30	µg/kg	2	CR08045	"	09/25/08	EPA 8081A	
Endrin	ND	30	"	"	"	"	"	"	
Endrin aldehyde	ND	30	"	"	"	"	"	"	
Heptachlor	ND	10	"	"	"	"	"	"	
Heptachlor epoxide	ND	4.0	"	"	"	"	"	"	
Methoxychlor	ND	30	"	"	"	"	"	"	
Mirex	ND	20	"	"	"	"	"	"	
Toxaphene	**130**	40	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*76 %*		*46-139*	"	"	"	"	
Surrogate: Decachlorobiphenyl		*81 %*		*52-141*	"	"	"	"	
Composite SS-4 A-D (CRI0909-20) Soil	**Sampled: 09/24/08 11:45**		**Received: 09/24/08 13:30**						
Aldrin	ND	2.0	µg/kg	2	CR08045	09/25/08	09/25/08	EPA 8081A	
alpha-BHC	ND	4.0	"	"	"	"	"	"	
beta-BHC	ND	20	"	"	"	"	"	"	
delta-BHC	ND	20	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	20	"	"	"	"	"	"	
Chlordane-technical	ND	40	"	"	"	"	"	"	
4,4'-DDD	ND	30	"	"	"	"	"	"	
4,4'-DDE	ND	30	"	"	"	"	"	"	
4,4'-DDT	ND	30	"	"	"	"	"	"	
Dieldrin	ND	2.0	"	"	"	"	"	"	
Endosulfan I	ND	30	"	"	"	"	"	"	
Endosulfan II	ND	30	"	"	"	"	"	"	
Endosulfan sulfate	ND	30	"	"	"	"	"	"	
Endrin	ND	30	"	"	"	"	"	"	
Endrin aldehyde	ND	30	"	"	"	"	"	"	
Heptachlor	ND	10	"	"	"	"	"	"	
Heptachlor epoxide	ND	4.0	"	"	"	"	"	"	
Methoxychlor	ND	30	"	"	"	"	"	"	

Kleinfelder (Sacramento) 3077 Fite Circle Sacramento, CA 95827	Project: Novak Project Number: 94582-SR2 ACQU Project Manager: Pam Wee	CLS Work Order #: CRI0909 COC #: 03526

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Composite SS-4 A-D (CRI0909-20) Soil	**Sampled: 09/24/08 11:45**		**Received: 09/24/08 13:30**						
Mirex	ND	20	µg/kg	2	CR08045	"	09/25/08	EPA 8081A	
Toxaphene	110	40	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*69 %*	*46-139*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*83 %*	*52-141*		"	"	"	"	
Composite SS-5 A-D (CRI0909-25) Soil	**Sampled: 09/24/08 11:05**		**Received: 09/24/08 13:30**						
Aldrin	ND	2.0	µg/kg	2	CR08045	09/25/08	09/25/08	EPA 8081A	
alpha-BHC	ND	4.0	"	"	"	"	"	"	
beta-BHC	ND	20	"	"	"	"	"	"	
delta-BHC	ND	20	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	20	"	"	"	"	"	"	
Chlordane-technical	ND	40	"	"	"	"	"	"	
4,4´-DDD	ND	30	"	"	"	"	"	"	
4,4´-DDE	ND	30	"	"	"	"	"	"	
4,4´-DDT	ND	30	"	"	"	"	"	"	
Dieldrin	ND	2.0	"	"	"	"	"	"	
Endosulfan I	ND	30	"	"	"	"	"	"	
Endosulfan II	ND	30	"	"	"	"	"	"	
Endosulfan sulfate	ND	30	"	"	"	"	"	"	
Endrin	ND	30	"	"	"	"	"	"	
Endrin aldehyde	ND	30	"	"	"	"	"	"	
Heptachlor	ND	10	"	"	"	"	"	"	
Heptachlor epoxide	ND	4.0	"	"	"	"	"	"	
Methoxychlor	ND	30	"	"	"	"	"	"	
Mirex	ND	20	"	"	"	"	"	"	
Toxaphene	140	40	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*64 %*	*46-139*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*67 %*	*52-141*		"	"	"	"	

CALIFORNIA LABORATORY SERVICES

09/26/08 16:19

Kleinfelder (Sacramento) 3077 Fite Circle Sacramento, CA 95827	Project: Novak Project Number: 94582-SR2 ACQU Project Manager: Pam Wee	CLS Work Order #: CR10909 COC #: 03526

Metals by EPA 6000/7000 Series Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CR08047 - EPA 3050B										
Blank (CR08047-BLK1)				Prepared & Analyzed: 09/25/08						
Arsenic	ND	0.10	mg/kg							
LCS (CR08047-BS1)				Prepared & Analyzed: 09/25/08						
Arsenic	4.20	0.10	mg/kg	5.00		84	75-125			
LCS Dup (CR08047-BSD1)				Prepared & Analyzed: 09/25/08						
Arsenic	4.20	0.10	mg/kg	5.00		84	75-125	0.1	25	
Matrix Spike (CR08047-MS1)		**Source: CR10892-01**		Prepared & Analyzed: 09/25/08						
Arsenic	7.46	1.0	mg/kg	5.00	3.35	82	75-125			
Matrix Spike Dup (CR08047-MSD1)		**Source: CR10892-01**		Prepared & Analyzed: 09/25/08						
Arsenic	7.35	1.0	mg/kg	5.00	3.35	80	75-125	2	30	
Batch CR08048 - EPA 3050B										
Blank (CR08048-BLK1)				Prepared & Analyzed: 09/25/08						
Lead	ND	2.5	mg/kg							
Copper	ND	1.0	"							
LCS (CR08048-BS1)				Prepared & Analyzed: 09/25/08						
Lead	25.1	2.5	mg/kg	25.0		100	75-125			
Copper	12.2	1.0	"	12.5		98	75-125			
LCS Dup (CR08048-BSD1)				Prepared & Analyzed: 09/25/08						
Lead	24.9	2.5	mg/kg	25.0		99	75-125	0.9	25	
Copper	12.2	1.0	"	12.5		98	75-125	0.04	25	

CALIFORNIA LABORATORY SERVICES

09/26/08 16:19

Kleinfelder (Sacramento)
3077 Fite Circle
Sacramento, CA 95827

Project: Novak
Project Number: 94582-SR2 ACQU
Project Manager: Pam Wee

CLS Work Order #: CRI0909
COC #: 03526

Metals by EPA 6000/7000 Series Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CR08048 - EPA 3050B										
Matrix Spike (CR08048-MS1)	**Source: CRI0892-01**			Prepared & Analyzed: 09/25/08						
Lead	152	2.5	mg/kg	25.0	157	NR	75-125			QM-5
Copper	122	1.0	"	12.5	498	NR	75-125			QM-5
Matrix Spike Dup (CR08048-MSD1)	**Source: CRI0892-01**			Prepared & Analyzed: 09/25/08						
Lead	156	2.5	mg/kg	25.0	157	NR	75-125	3	30	QM-5
Copper	107	1.0	"	12.5	498	NR	75-125	13	30	QM-5

CALIFORNIA LABORATORY SERVICES

09/26/08 16:19

Kleinfelder (Sacramento) 3077 Fite Circle Sacramento, CA 95827	Project: Novak Project Number: 94582-SR2 ACQU Project Manager: Pam Wee	CLS Work Order #: CRI0909 COC #: 03526

Organochlorine Pesticides by EPA Method 8081A - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CR08045 - LUFT-DHS GCNV										
Blank (CR08045-BLK1)				Prepared & Analyzed: 09/25/08						
Aldrin	ND	1.0	µg/kg							
alpha-BHC	ND	2.0	"							
beta-BHC	ND	10	"							
delta-BHC	ND	10	"							
gamma-BHC (Lindane)	ND	10	"							
Chlordane-technical	ND	20	"							
4,4'-DDD	ND	15	"							
4,4'-DDE	ND	15	"							
4,4'-DDT	ND	15	"							
Dieldrin	ND	1.0	"							
Endosulfan I	ND	15	"							
Endosulfan II	ND	15	"							
Endosulfan sulfate	ND	15	"							
Endrin	ND	15	"							
Endrin aldehyde	ND	15	"							
Heptachlor	ND	5.0	"							
Heptachlor epoxide	ND	2.0	"							
Methoxychlor	ND	15	"							
Mirex	ND	10	"							
Toxaphene	ND	20	"							
Surrogate: Tetrachloro-meta-xylene	*6.12*		"	*8.33*		*73*	*46-139*			
Surrogate: Decachlorobiphenyl	*7.27*		"	*8.33*		*87*	*52-141*			
LCS (CR08045-BS1)				Prepared & Analyzed: 09/25/08						
Aldrin	14.9	1.0	µg/kg	16.7		89	47-132			
gamma-BHC (Lindane)	15.5	10	"	16.7		93	56-133			
4,4'-DDT	16.3	15	"	16.7		98	46-137			
Dieldrin	16.4	1.0	"	16.7		98	44-143			
Endrin	15.8	15	"	16.7		95	30-147			
Heptachlor	15.1	5.0	"	16.7		91	33-148			
Surrogate: Tetrachloro-meta-xylene	*7.19*		"	*8.33*		*86*	*46-139*			

CALIFORNIA LABORATORY SERVICES

09/26/08 16:19

Kleinfelder (Sacramento) 3077 Fite Circle Sacramento, CA 95827	Project: Novak Project Number: 94582-SR2 ACQU Project Manager: Pam Wee	CLS Work Order #: CRI0909 COC #: 03526

Organochlorine Pesticides by EPA Method 8081A - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CR08045 - LUFT-DHS GCNV										
LCS (CR08045-BS1)				Prepared & Analyzed: 09/25/08						
Surrogate: Decachlorobiphenyl	*8.83*		*µg/kg*	*8.33*		*106*	*52-141*			
LCS Dup (CR08045-BSD1)				Prepared & Analyzed: 09/25/08						
Aldrin	15.0	1.0	µg/kg	16.7		90	47-132	0.8	30	
gamma-BHC (Lindane)	15.5	1.0	"	16.7		93	56-133	0.3	30	
4,4'-DDT	16.1	1.5	"	16.7		96	46-137	1	30	
Dieldrin	16.4	1.0	"	16.7		98	44-143	0.4	30	
Endrin	15.6	1.5	"	16.7		94	30-147	1	30	
Heptachlor	15.2	5.0	"	16.7		91	33-148	0.8	30	
Surrogate: Tetrachloro-meta-xylene	*7.20*		*"*	*8.33*		*86*	*46-139*			
Surrogate: Decachlorobiphenyl	*8.85*		*"*	*8.33*		*106*	*52-141*			
Matrix Spike (CR08045-MS1)		Source: CRI0909-05		Prepared & Analyzed: 09/25/08						
Aldrin	11.9	2.0	µg/kg	16.7	ND	72	47-138			
gamma-BHC (Lindane)	12.2	2.0	"	16.7	ND	73	38-144			
4,4'-DDT	19.7	3.0	"	16.7	ND	118	41-157			
Dieldrin	14.2	2.0	"	16.7	ND	85	46-155			
Endrin	14.9	3.0	"	16.7	ND	89	34-149			
Heptachlor	12.2	1.0	"	16.7	ND	73	36-155			
Surrogate: Tetrachloro-meta-xylene	*14.7*		*"*	*20.8*		*70*	*46-139*			
Surrogate: Decachlorobiphenyl	*16.1*		*"*	*20.8*		*77*	*52-141*			
Matrix Spike Dup (CR08045-MSD1)		Source: CRI0909-05		Prepared & Analyzed: 09/25/08						
Aldrin	11.4	2.0	µg/kg	16.7	ND	68	47-138	4	35	
gamma-BHC (Lindane)	12.0	2.0	"	16.7	ND	72	38-144	2	35	
4,4'-DDT	18.2	3.0	"	16.7	ND	109	41-157	8	35	
Dieldrin	13.7	2.0	"	16.7	ND	82	46-155	3	35	
Endrin	14.6	3.0	"	16.7	ND	87	34-149	2	35	
Heptachlor	12.0	1.0	"	16.7	ND	72	36-155	1	35	
Surrogate: Tetrachloro-meta-xylene	*14.2*		*"*	*20.8*		*68*	*46-139*			
Surrogate: Decachlorobiphenyl	*15.9*		*"*	*20.8*		*76*	*52-141*			

Kleinfelder (Sacramento)	Project: Novak	
3077 Fite Circle	Project Number: 94582-SR2 ACQU	**CLS Work Order #: CRI0909**
Sacramento, CA 95827	Project Manager: Pam Wee	COC #: 03526

Notes and Definitions

QM-5	The spike recovery was outside acceptance limits for the MS and/or MSD due to matrix interference. The LCS and/or LCSD were within acceptance limits showing that the laboratory is in control and the data is acceptable.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

CALIFORNIA LABORATORY SERVICES

3249 Fitzgerald Road Rancho Cordova, CA 95742

April 13, 2009

CLS Work Order #: CSD0335
COC #: 03313

Sue Gardner
Kleinfelder (Sacramento)
3077 Fite Circle
Sacramento, CA 95827

Project Name: Novak

Enclosed are the results of analyses for samples received by the laboratory on 04/08/09 10:25. Samples were analyzed pursuant to client request utilizing EPA or other ELAP approved methodologies. I certify that the results are in compliance both technically and for completeness.

Analytical results are attached to this letter. Please call if we can provide additional assistance.

Sincerely,

James Liang, Ph.D.
Laboratory Director

CA DOHS ELAP Accreditation/Registration number 1233

CALIFORNIA LABORATORY SERVICES

04/13/09 15:54

Kleinfelder (Sacramento) 3077 Fite Circle Sacramento, CA 95827	Project: Novak Project Number: 94582 Project Manager: Sue Gardner	CLS Work Order #: CSD0335 COC #: 03313

94582 NOVAK

[illegible]	[illegible]	SS-2a	[illegible]	X X
	650	SS-1a		X X
	[illegible]	SS-1c		X X
	[illegible]	SS-1d		X X
	[illegible]	SS-3a		X X
	35	SS-[illegible]		X X
	[illegible]	SS-3c		X X
	155	SS-3d		X X
	[illegible]	SS-3e		X X
	[illegible]	SS-2c		X X
	[illegible]	SS-[illegible]		X X
	[illegible]	SS-5a		X X
	[illegible]	SS-5c		X X
	[illegible]	SS-5d		X X
	3[illegible]	SS-5e		X
	333	SS-4a		X X
	[illegible]	[illegible]		X X
	[illegible]	[illegible]		[illegible]
	[illegible]	[illegible]		[illegible]
	[illegible]	[illegible]		

Concrete samples for [illegible] for possible [illegible] testing

NO 03313

CA DOHS ELAP Accreditation/Registration Number 1233

CALIFORNIA LABORATORY SERVICES

04/13/09 15:54

Kleinfelder (Sacramento)
3077 Fite Circle
Sacramento, CA 95827

Project: Novak
Project Number: 94582
Project Manager: Sue Gardner

CLS Work Order #: CSD0335
COC #: 03313

Metals by EPA 6000/7000 Series Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SS-2a (CSD0335-01) Soil	**Sampled: 04/06/09 10:30**	**Received: 04/08/09 10:25**							
Arsenic	6.1	1.0	mg/kg	4	CS02644	04/09/09	04/09/09	EPA 7060A	
Copper	34	1.0	"	1	"	"	04/10/09	EPA 6010B	
Lead	12	2.5	"	"	"	"	"	"	
SS-1a (CSD0335-02) Soil	**Sampled: 04/06/09 10:50**	**Received: 04/08/09 10:25**							
Arsenic	10	1.0	mg/kg	4	CS02644	04/09/09	04/09/09	EPA 7060A	
Copper	30	1.0	"	1	"	"	04/10/09	EPA 6010B	
Lead	14	2.5	"	"	"	"	"	"	
SS-1c (CSD0335-03) Soil	**Sampled: 04/06/09 11:00**	**Received: 04/08/09 10:25**							
Arsenic	9.3	1.0	mg/kg	4	CS02644	04/09/09	04/09/09	EPA 7060A	
Copper	29	1.0	"	1	"	"	04/10/09	EPA 6010B	
Lead	14	2.5	"	"	"	"	"	"	
SS-1b (CSD0335-04) Soil	**Sampled: 04/06/09 11:12**	**Received: 04/08/09 10:25**							
Arsenic	9.6	1.0	mg/kg	4	CS02644	04/09/09	04/09/09	EPA 7060A	
Copper	30	1.0	"	1	"	"	04/10/09	EPA 6010B	
Lead	14	2.5	"	"	"	"	"	"	
SS-3a (CSD0335-05) Soil	**Sampled: 04/06/09 11:22**	**Received: 04/08/09 10:25**							
Arsenic	9.3	1.0	mg/kg	4	CS02644	04/09/09	04/09/09	EPA 7060A	
Copper	31	1.0	"	1	"	"	04/10/09	EPA 6010B	
Lead	13	2.5	"	"	"	"	"	"	
SS-1d (CSD0335-06) Soil	**Sampled: 04/06/09 11:35**	**Received: 04/08/09 10:25**							
Arsenic	9.3	1.0	mg/kg	4	CS02644	04/09/09	04/09/09	EPA 7060A	
Copper	28	1.0	"	1	"	"	04/10/09	EPA 6010B	
Lead	12	2.5	"	"	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

04/13/09 15:54

Kleinfelder (Sacramento) 3077 Fite Circle Sacramento, CA 95827	Project: Novak Project Number: 94582 Project Manager: Sue Gardner	**CLS Work Order #: CSD0335** COC #: 03313

Metals by EPA 6000/7000 Series Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SS-3c (CSD0335-07) Soil	**Sampled: 04/06/09 11:47**	**Received: 04/08/09 10:25**							
Arsenic	9.3	1.0	mg/kg	4	CS02644	04/09/09	04/09/09	EPA 7060A	
Copper	29	1.0	"	1	"	"	04/10/09	EPA 6010B	
Lead	13	2.5	"	"	"	"	"	"	
SS-3d (CSD0335-08) Soil	**Sampled: 04/06/09 11:55**	**Received: 04/08/09 10:25**							
Arsenic	6.4	1.0	mg/kg	4	CS02644	04/09/09	04/09/09	EPA 7060A	
Copper	26	1.0	"	1	"	"	04/10/09	EPA 6010B	
Lead	8.8	2.5	"	"	"	"	"	"	
SS-3b (CSD0335-09) Soil	**Sampled: 04/06/09 12:09**	**Received: 04/08/09 10:25**							
Arsenic	7.1	1.0	mg/kg	4	CS02644	04/09/09	04/09/09	EPA 7060A	
Copper	30	1.0	"	1	"	"	04/10/09	EPA 6010B	
Lead	10	2.5	"	"	"	"	"	"	
SS-2c (CSD0335-10) Soil	**Sampled: 04/06/09 12:20**	**Received: 04/08/09 10:25**							
Arsenic	6.4	1.0	mg/kg	4	CS02644	04/09/09	04/09/09	EPA 7060A	
Copper	31	1.0	"	1	"	"	04/10/09	EPA 6010B	
Lead	11	2.5	"	"	"	"	"	"	
SS-2d (CSD0335-11) Soil	**Sampled: 04/06/09 12:30**	**Received: 04/08/09 10:25**							
Arsenic	6.8	1.0	mg/kg	4	CS02644	04/09/09	04/09/09	EPA 7060A	
Copper	27	1.0	"	1	"	"	04/10/09	EPA 6010B	
Lead	8.7	2.5	"	"	"	"	"	"	
SS-5a (CSD0335-12) Soil	**Sampled: 04/06/09 12:43**	**Received: 04/08/09 10:25**							
Arsenic	7.1	1.0	mg/kg	4	CS02644	04/09/09	04/09/09	EPA 7060A	
Copper	31	1.0	"	1	"	"	04/10/09	EPA 6010B	
Lead	9.2	2.5	"	"	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

 04/13/09 15:54

Kleinfelder (Sacramento)
3077 Fite Circle
Sacramento, CA 95827

Project: Novak
Project Number: 94582
Project Manager: Sue Gardner

CLS Work Order #: CSD0335
COC #: 03313

Metals by EPA 6000/7000 Series Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SS-5c (CSD0335-13) Soil Sampled: 04/06/09 12:56 Received: 04/08/09 10:25									
Arsenic	7.2	1.0	mg/kg	4	CS02644	04/09/09	04/09/09	EPA 7060A	
Copper	30	1.0	"	1	"	"	04/10/09	EPA 6010B	
Lead	11	2.5	"	"	"	"	"	"	
SS-5d (CSD0335-14) Soil Sampled: 04/06/09 13:06 Received: 04/08/09 10:25									
Arsenic	9.9	1.0	mg/kg	4	CS02644	04/09/09	04/09/09	EPA 7060A	
Copper	30	1.0	"	1	"	"	04/10/09	EPA 6010B	
Lead	13	2.5	"	"	"	"	"	"	
SS-5b (CSD0335-15) Soil Sampled: 04/06/09 13:20 Received: 04/08/09 10:25									
Arsenic	9.8	1.0	mg/kg	4	CS02644	04/09/09	04/09/09	EPA 7060A	
Copper	34	1.0	"	1	"	"	04/10/09	EPA 6010B	
Lead	15	2.5	"	"	"	"	"	"	
SS-4d (CSD0335-16) Soil Sampled: 04/06/09 13:33 Received: 04/08/09 10:25									
Arsenic	7.2	1.0	mg/kg	4	CS02644	04/09/09	04/09/09	EPA 7060A	
Copper	30	1.0	"	1	"	"	04/10/09	EPA 6010B	
Lead	9.1	2.5	"	"	"	"	"	"	
SS-4c (CSD0335-17) Soil Sampled: 04/06/09 13:43 Received: 04/08/09 10:25									
Arsenic	9.1	1.0	mg/kg	4	CS02644	04/09/09	04/09/09	EPA 7060A	
Copper	33	1.0	"	1	"	"	04/10/09	EPA 6010B	
Lead	14	2.5	"	"	"	"	"	"	
SS-4a (CSD0335-18) Soil Sampled: 04/06/09 13:53 Received: 04/08/09 10:25									
Arsenic	7.6	1.0	mg/kg	4	CS02644	04/09/09	04/09/09	EPA 7060A	
Copper	32	1.0	"	1	"	"	04/10/09	EPA 6010B	
Lead	10	2.5	"	"	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

04/13/09 15:54

Kleinfelder (Sacramento)
3077 Fite Circle
Sacramento, CA 95827

Project: Novak
Project Number: 94582
Project Manager: Sue Gardner

CLS Work Order #: CSD0335
COC #: 03313

Metals by EPA 6000/7000 Series Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SS-4b (CSD0335-19) Soil Sampled: 04/06/09 14:00 Received: 04/08/09 10:25									
Arsenic	9.9	1.0	mg/kg	4	CS02644	04/09/09	04/09/09	EPA 7060A	
Copper	31	1.0	"	1	"	"	04/10/09	EPA 6010B	
Lead	11	2.5	"	"	"	"	"	"	
SS-2b (CSD0335-20) Soil Sampled: 04/06/09 14:10 Received: 04/08/09 10:25									
Arsenic	8.4	1.0	mg/kg	4	CS02644	04/09/09	04/09/09	EPA 7060A	
Copper	29	1.0	"	1	"	"	04/10/09	EPA 6010B	
Lead	10	2.5	"	"	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

Kleinfelder (Sacramento) 3077 Fite Circle Sacramento, CA 95827	Project: Novak Project Number: 94582 Project Manager: Sue Gardner	CLS Work Order #: CSD0335 COC #: 03313

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SS-2a (CSD0335-01) Soil Sampled: 04/06/09 10:30 Received: 04/08/09 10:25									
Aldrin	ND	5.0	µg/kg	5	CS02658	04/10/09	04/13/09	EPA 8081A	
alpha-BHC	ND	10	"	"	"	"	"	"	
beta-BHC	ND	50	"	"	"	"	"	"	
delta-BHC	ND	50	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	50	"	"	"	"	"	"	
Chlordane-technical	ND	100	"	"	"	"	"	"	
4,4´-DDD	ND	75	"	"	"	"	"	"	
4,4´-DDE	ND	75	"	"	"	"	"	"	
4,4´-DDT	ND	75	"	"	"	"	"	"	
Dieldrin	ND	5.0	"	"	"	"	"	"	
Endosulfan I	ND	75	"	"	"	"	"	"	
Endosulfan II	ND	75	"	"	"	"	"	"	
Endosulfan sulfate	ND	75	"	"	"	"	"	"	
Endrin	ND	75	"	"	"	"	"	"	
Endrin aldehyde	ND	75	"	"	"	"	"	"	
Heptachlor	ND	25	"	"	"	"	"	"	
Heptachlor epoxide	ND	10	"	"	"	"	"	"	
Methoxychlor	ND	75	"	"	"	"	"	"	
Mirex	ND	50	"	"	"	"	"	"	
Toxaphene	ND	100	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*97 %*		*46-139*	"	"	"	"	
Surrogate: Decachlorobiphenyl		*96 %*		*52-141*	"	"	"	"	
SS-1a (CSD0335-02) Soil Sampled: 04/06/09 10:50 Received: 04/08/09 10:25									
Aldrin	ND	5.0	µg/kg	5	CS02658	04/10/09	04/13/09	EPA 8081A	
alpha-BHC	ND	10	"	"	"	"	"	"	
beta-BHC	ND	50	"	"	"	"	"	"	
delta-BHC	ND	50	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	50	"	"	"	"	"	"	
Chlordane-technical	ND	100	"	"	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

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Kleinfelder (Sacramento) 3077 Fite Circle Sacramento, CA 95827	Project: Novak Project Number: 94582 Project Manager: Sue Gardner	CLS Work Order #: CSD0335 COC #: 03313

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SS-1a (CSD0335-02) Soil Sampled: 04/06/09 10:50 Received: 04/08/09 10:25									
4,4'-DDD	ND	75	µg/kg	5	CS02658	"	04/13/09	EPA 8081A	
4,4'-DDE	ND	75	"	"	"	"	"	"	
4,4'-DDT	ND	75	"	"	"	"	"	"	
Dieldrin	ND	5.0	"	"	"	"	"	"	
Endosulfan I	ND	75	"	"	"	"	"	"	
Endosulfan II	ND	75	"	"	"	"	"	"	
Endosulfan sulfate	ND	75	"	"	"	"	"	"	
Endrin	ND	75	"	"	"	"	"	"	
Endrin aldehyde	ND	75	"	"	"	"	"	"	
Heptachlor	ND	25	"	"	"	"	"	"	
Heptachlor epoxide	ND	10	"	"	"	"	"	"	
Methoxychlor	ND	75	"	"	"	"	"	"	
Mirex	ND	50	"	"	"	"	"	"	
Toxaphene	ND	100	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*99 %*	*46-139*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*99 %*	*52-141*		"	"	"	"	
SS-1c (CSD0335-03) Soil Sampled: 04/06/09 11:00 Received: 04/08/09 10:25									
Aldrin	ND	5.0	µg/kg	5	CS02658	04/10/09	04/13/09	EPA 8081A	
alpha-BHC	ND	10	"	"	"	"	"	"	
beta-BHC	ND	50	"	"	"	"	"	"	
delta-BHC	ND	50	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	50	"	"	"	"	"	"	
Chlordane-technical	ND	100	"	"	"	"	"	"	
4,4'-DDD	ND	75	"	"	"	"	"	"	
4,4'-DDE	ND	75	"	"	"	"	"	"	
4,4'-DDT	ND	75	"	"	"	"	"	"	
Dieldrin	ND	5.0	"	"	"	"	"	"	
Endosulfan I	ND	75	"	"	"	"	"	"	
Endosulfan II	ND	75	"	"	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

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Kleinfelder (Sacramento) 3077 Fite Circle Sacramento, CA 95827	Project: Novak Project Number: 94582 Project Manager: Sue Gardner	CLS Work Order #: CSD0335 COC #: 03313

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SS-1c (CSD0335-03) Soil Sampled: 04/06/09 11:00 Received: 04/08/09 10:25									
Endosulfan sulfate	ND	75	µg/kg	5	CS02658	"	04/13/09	EPA 8081A	
Endrin	ND	75	"	"	"	"	"	"	
Endrin aldehyde	ND	75	"	"	"	"	"	"	
Heptachlor	ND	25	"	"	"	"	"	"	
Heptachlor epoxide	ND	10	"	"	"	"	"	"	
Methoxychlor	ND	75	"	"	"	"	"	"	
Mirex	ND	50	"	"	"	"	"	"	
Toxaphene	ND	100	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*97 %*		*46-139*	"	"	"	"	
Surrogate: Decachlorobiphenyl		*93 %*		*52-141*	"	"	"	"	
SS-1b (CSD0335-04) Soil Sampled: 04/06/09 11:12 Received: 04/08/09 10:25									
Aldrin	ND	5.0	µg/kg	5	CS02658	04/10/09	04/13/09	EPA 8081A	
alpha-BHC	ND	10	"	"	"	"	"	"	
beta-BHC	ND	50	"	"	"	"	"	"	
delta-BHC	ND	50	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	50	"	"	"	"	"	"	
Chlordane-technical	ND	100	"	"	"	"	"	"	
4,4´-DDD	ND	75	"	"	"	"	"	"	
4,4´-DDE	ND	75	"	"	"	"	"	"	
4,4´-DDT	ND	75	"	"	"	"	"	"	
Dieldrin	ND	5.0	"	"	"	"	"	"	
Endosulfan I	ND	75	"	"	"	"	"	"	
Endosulfan II	ND	75	"	"	"	"	"	"	
Endosulfan sulfate	ND	75	"	"	"	"	"	"	
Endrin	ND	75	"	"	"	"	"	"	
Endrin aldehyde	ND	75	"	"	"	"	"	"	
Heptachlor	ND	25	"	"	"	"	"	"	
Heptachlor epoxide	ND	10	"	"	"	"	"	"	
Methoxychlor	ND	75	"	"	"	"	"	"	

Kleinfelder (Sacramento)	Project: Novak	
3077 Fite Circle	Project Number: 94582	CLS Work Order #: CSD0335
Sacramento, CA 95827	Project Manager: Sue Gardner	COC #: 03313

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SS-1b (CSD0335-04) Soil Sampled: 04/06/09 11:12 Received: 04/08/09 10:25									
Mirex	ND	50	µg/kg	5	CS02658	"	04/13/09	EPA 8081A	
Toxaphene	ND	100	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*97 %*	*46-139*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*97 %*	*52-141*		"	"	"	"	
SS-3a (CSD0335-05) Soil Sampled: 04/06/09 11:22 Received: 04/08/09 10:25									
Aldrin	ND	5.0	µg/kg	5	CS02658	04/10/09	04/13/09	EPA 8081A	
alpha-BHC	ND	10	"	"	"	"	"	"	
beta-BHC	ND	50	"	"	"	"	"	"	
delta-BHC	ND	50	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	50	"	"	"	"	"	"	
Chlordane-technical	ND	100	"	"	"	"	"	"	
4,4'-DDD	ND	75	"	"	"	"	"	"	
4,4'-DDE	ND	75	"	"	"	"	"	"	
4,4'-DDT	ND	75	"	"	"	"	"	"	
Dieldrin	ND	5.0	"	"	"	"	"	"	
Endosulfan I	ND	75	"	"	"	"	"	"	
Endosulfan II	ND	75	"	"	"	"	"	"	
Endosulfan sulfate	ND	75	"	"	"	"	"	"	
Endrin	ND	75	"	"	"	"	"	"	
Endrin aldehyde	ND	75	"	"	"	"	"	"	
Heptachlor	ND	25	"	"	"	"	"	"	
Heptachlor epoxide	ND	10	"	"	"	"	"	"	
Methoxychlor	ND	75	"	"	"	"	"	"	
Mirex	ND	50	"	"	"	"	"	"	
Toxaphene	ND	100	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*96 %*	*46-139*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*92 %*	*52-141*		"	"	"	"	

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Kleinfelder (Sacramento)	Project: Novak	
3077 Fite Circle	Project Number: 94582	CLS Work Order #: CSD0335
Sacramento, CA 95827	Project Manager: Sue Gardner	COC #: 03313

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SS-1d (CSD0335-06) Soil Sampled: 04/06/09 11:35 Received: 04/08/09 10:25									
Aldrin	ND	5.0	µg/kg	5	CS02658	04/10/09	04/13/09	EPA 8081A	
alpha-BHC	ND	10	"	"	"	"	"	"	
beta-BHC	ND	50	"	"	"	"	"	"	
delta-BHC	ND	50	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	50	"	"	"	"	"	"	
Chlordane-technical	ND	100	"	"	"	"	"	"	
4,4'-DDD	ND	75	"	"	"	"	"	"	
4,4'-DDE	ND	75	"	"	"	"	"	"	
4,4'-DDT	ND	75	"	"	"	"	"	"	
Dieldrin	ND	5.0	"	"	"	"	"	"	
Endosulfan I	ND	75	"	"	"	"	"	"	
Endosulfan II	ND	75	"	"	"	"	"	"	
Endosulfan sulfate	ND	75	"	"	"	"	"	"	
Endrin	ND	75	"	"	"	"	"	"	
Endrin aldehyde	ND	75	"	"	"	"	"	"	
Heptachlor	ND	25	"	"	"	"	"	"	
Heptachlor epoxide	ND	10	"	"	"	"	"	"	
Methoxychlor	ND	75	"	"	"	"	"	"	
Mirex	ND	50	"	"	"	"	"	"	
Toxaphene	ND	100	"	"	"	"	"	"	
Surrogate: Tetrachloro meta-xylene		*101 %*		*46-139*	"	"	"	"	
Surrogate: Decachlorobiphenyl		*96 %*		*52-141*	"	"	"	"	
SS-3c (CSD0335-07) Soil Sampled: 04/06/09 11:47 Received: 04/08/09 10:25									
Aldrin	ND	5.0	µg/kg	5	CS02658	04/10/09	04/13/09	EPA 8081A	
alpha-BHC	ND	10	"	"	"	"	"	"	
beta-BHC	ND	50	"	"	"	"	"	"	
delta-BHC	ND	50	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	50	"	"	"	"	"	"	
Chlordane-technical	ND	100	"	"	"	"	"	"	

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Kleinfelder (Sacramento)	Project: Novak	
3077 Fite Circle	Project Number: 94582	CLS Work Order #: CSD0335
Sacramento, CA 95827	Project Manager: Sue Gardner	COC #: 03313

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SS-3c (CSD0335-07) Soil Sampled: 04/06/09 11:47 Received: 04/08/09 10:25									
4,4′-DDD	ND	75	µg/kg	5	CS02658	"	04/13/09	EPA 8081A	
4,4′-DDE	ND	75	"	"	"	"	"	"	
4,4′-DDT	ND	75	"	"	"	"	"	"	
Dieldrin	ND	5.0	"	"	"	"	"	"	
Endosulfan I	ND	75	"	"	"	"	"	"	
Endosulfan II	ND	75	"	"	"	"	"	"	
Endosulfan sulfate	ND	75	"	"	"	"	"	"	
Endrin	ND	75	"	"	"	"	"	"	
Endrin aldehyde	ND	75	"	"	"	"	"	"	
Heptachlor	ND	25	"	"	"	"	"	"	
Heptachlor epoxide	ND	10	"	"	"	"	"	"	
Methoxychlor	ND	75	"	"	"	"	"	"	
Mirex	ND	50	"	"	"	"	"	"	
Toxaphene	ND	100	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*98 %*	*46-139*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*98 %*	*52-141*		"	"	"	"	
SS-3d (CSD0335-08) Soil Sampled: 04/06/09 11:55 Received: 04/08/09 10:25									
Aldrin	ND	5.0	µg/kg	5	CS02658	04/10/09	04/13/09	EPA 8081A	
alpha-BHC	ND	10	"	"	"	"	"	"	
beta-BHC	ND	50	"	"	"	"	"	"	
delta-BHC	ND	50	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	50	"	"	"	"	"	"	
Chlordane-technical	ND	100	"	"	"	"	"	"	
4,4′-DDD	ND	75	"	"	"	"	"	"	
4,4′-DDE	ND	75	"	"	"	"	"	"	
4,4′-DDT	ND	75	"	"	"	"	"	"	
Dieldrin	ND	5.0	"	"	"	"	"	"	
Endosulfan I	ND	75	"	"	"	"	"	"	
Endosulfan II	ND	75	"	"	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

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Kleinfelder (Sacramento)	Project: Novak	
3077 Fite Circle	Project Number: 94582	CLS Work Order #: CSD0335
Sacramento, CA 95827	Project Manager: Sue Gardner	COC #: 03313

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SS-3d (CSD0335-08) Soil Sampled: 04/06/09 11:55 Received: 04/08/09 10:25									
Endosulfan sulfate	ND	75	µg/kg	5	CS02658	"	04/13/09	EPA 8081A	
Endrin	ND	75	"	"	"	"	"	"	
Endrin aldehyde	ND	75	"	"	"	"	"	"	
Heptachlor	ND	25	"	"	"	"	"	"	
Heptachlor epoxide	ND	10	"	"	"	"	"	"	
Methoxychlor	ND	75	"	"	"	"	"	"	
Mirex	ND	50	"	"	"	"	"	"	
Toxaphene	ND	100	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*95 %*	*46-139*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*93 %*	*52-141*		"	"	"	"	
SS-3b (CSD0335-09) Soil Sampled: 04/06/09 12:09 Received: 04/08/09 10:25									
Aldrin	ND	5.0	µg/kg	5	CS02658	04/10/09	04/13/09	EPA 8081A	
alpha-BHC	ND	10	"	"	"	"	"	"	
beta-BHC	ND	50	"	"	"	"	"	"	
delta-BHC	ND	50	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	50	"	"	"	"	"	"	
Chlordane-technical	ND	100	"	"	"	"	"	"	
4,4'-DDD	ND	75	"	"	"	"	"	"	
4,4'-DDE	ND	75	"	"	"	"	"	"	
4,4'-DDT	ND	75	"	"	"	"	"	"	
Dieldrin	ND	5.0	"	"	"	"	"	"	
Endosulfan I	ND	75	"	"	"	"	"	"	
Endosulfan II	ND	75	"	"	"	"	"	"	
Endosulfan sulfate	ND	75	"	"	"	"	"	"	
Endrin	ND	75	"	"	"	"	"	"	
Endrin aldehyde	ND	75	"	"	"	"	"	"	
Heptachlor	ND	25	"	"	"	"	"	"	
Heptachlor epoxide	ND	10	"	"	"	"	"	"	
Methoxychlor	ND	75	"	"	"	"	"	"	

Kleinfelder (Sacramento) 3077 Fite Circle Sacramento, CA 95827	Project: Novak Project Number: 94582 Project Manager: Sue Gardner	CLS Work Order #: CSD0335 COC #: 03313

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SS-3b (CSD0335-09) Soil Sampled: 04/06/09 12:09 Received: 04/08/09 10:25									
Mirex	ND	50	µg/kg	5	CS02658	"	04/13/09	EPA 8081A	
Toxaphene	ND	100	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*97 %*	*46-139*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*94 %*	*52-141*		"	"	"	"	
SS-2c (CSD0335-10) Soil Sampled: 04/06/09 12:20 Received: 04/08/09 10:25									
Aldrin	ND	5.0	µg/kg	5	CS02658	04/10/09	04/13/09	EPA 8081A	
alpha-BHC	ND	10	"	"	"	"	"	"	
beta-BHC	ND	50	"	"	"	"	"	"	
delta-BHC	ND	50	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	50	"	"	"	"	"	"	
Chlordane-technical	ND	100	"	"	"	"	"	"	
4,4'-DDD	ND	75	"	"	"	"	"	"	
4,4'-DDE	ND	75	"	"	"	"	"	"	
4,4'-DDT	ND	75	"	"	"	"	"	"	
Dieldrin	ND	50	"	"	"	"	"	"	
Endosulfan I	ND	75	"	"	"	"	"	"	
Endosulfan II	ND	75	"	"	"	"	"	"	
Endosulfan sulfate	ND	75	"	"	"	"	"	"	
Endrin	ND	75	"	"	"	"	"	"	
Endrin aldehyde	ND	75	"	"	"	"	"	"	
Heptachlor	ND	25	"	"	"	"	"	"	
Heptachlor epoxide	ND	10	"	"	"	"	"	"	
Methoxychlor	ND	75	"	"	"	"	"	"	
Mirex	ND	50	"	"	"	"	"	"	
Toxaphene	ND	100	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*96 %*	*46-139*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*98 %*	*52-141*		"	"	"	"	

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Kleinfelder (Sacramento) 3077 Fite Circle Sacramento, CA 95827	Project: Novak Project Number: 94582 Project Manager: Sue Gardner	CLS Work Order #: CSD0335 COC #: 03313

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SS-2d (CSD0335-11) Soil Sampled: 04/06/09 12:30 Received: 04/08/09 10:25									
Aldrin	ND	5.0	µg/kg	5	CS02658	04/10/09	04/13/09	EPA 8081A	
alpha-BHC	ND	10	"	"	"	"	"	"	
beta-BHC	ND	50	"	"	"	"	"	"	
delta-BHC	ND	50	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	50	"	"	"	"	"	"	
Chlordane-technical	ND	100	"	"	"	"	"	"	
4,4′-DDD	ND	75	"	"	"	"	"	"	
4,4′-DDE	ND	75	"	"	"	"	"	"	
4,4′-DDT	ND	75	"	"	"	"	"	"	
Dieldrin	ND	5.0	"	"	"	"	"	"	
Endosulfan I	ND	75	"	"	"	"	"	"	
Endosulfan II	ND	75	"	"	"	"	"	"	
Endosulfan sulfate	ND	75	"	"	"	"	"	"	
Endrin	ND	75	"	"	"	"	"	"	
Endrin aldehyde	ND	75	"	"	"	"	"	"	
Heptachlor	ND	25	"	"	"	"	"	"	
Heptachlor epoxide	ND	10	"	"	"	"	"	"	
Methoxychlor	ND	75	"	"	"	"	"	"	
Mirex	ND	50	"	"	"	"	"	"	
Toxaphene	ND	100	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*93 %*	*46-139*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*87 %*	*52-141*		"	"	"	"	
SS-5a (CSD0335-12) Soil Sampled: 04/06/09 12:43 Received: 04/08/09 10:25									
Aldrin	17	5.0	µg/kg	5	CS02658	04/10/09	04/13/09	EPA 8081A	
alpha-BHC	ND	10	"	"	"	"	"	"	
beta-BHC	ND	50	"	"	"	"	"	"	
delta-BHC	ND	50	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	50	"	"	"	"	"	"	
Chlordane-technical	ND	100	"	"	"	"	"	"	

Kleinfelder (Sacramento) 3077 Fite Circle Sacramento, CA 95827	Project: Novak Project Number: 94582 Project Manager: Sue Gardner	CLS Work Order #: CSD0335 COC #: 03313

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SS-5a (CSD0335-12) Soil Sampled: 04/06/09 12:43 Received: 04/08/09 10:25									
4,4'-DDD	ND	75	µg/kg	5	CS02658	"	04/13/09	EPA 8081A	
4,4'-DDE	ND	75	"	"	"	"	"	"	
4,4'-DDT	ND	75	"	"	"	"	"	"	
Dieldrin	ND	5.0	"	"	"	"	"	"	
Endosulfan I	ND	75	"	"	"	"	"	"	
Endosulfan II	ND	75	"	"	"	"	"	"	
Endosulfan sulfate	ND	75	"	"	"	"	"	"	
Endrin	ND	75	"	"	"	"	"	"	
Endrin aldehyde	ND	75	"	"	"	"	"	"	
Heptachlor	ND	25	"	"	"	"	"	"	
Heptachlor epoxide	ND	10	"	"	"	"	"	"	
Methoxychlor	ND	75	"	"	"	"	"	"	
Mirex	ND	50	"	"	"	"	"	"	
Toxaphene	ND	100	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*82 %*		*46-139*	"	"	"	"	
Surrogate: Decachlorobiphenyl		*78 %*		*52-141*	"	"	"	"	
SS-5c (CSD0335-13) Soil Sampled: 04/06/09 12:56 Received: 04/08/09 10:25									
Aldrin	ND	5.0	µg/kg	5	CS02658	04/10/09	04/13/09	EPA 8081A	
alpha-BHC	ND	10	"	"	"	"	"	"	
beta-BHC	ND	50	"	"	"	"	"	"	
delta-BHC	ND	50	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	50	"	"	"	"	"	"	
Chlordane-technical	ND	100	"	"	"	"	"	"	
4,4'-DDD	ND	75	"	"	"	"	"	"	
4,4'-DDE	ND	75	"	"	"	"	"	"	
4,4'-DDT	ND	75	"	"	"	"	"	"	
Dieldrin	ND	5.0	"	"	"	"	"	"	
Endosulfan I	ND	75	"	"	"	"	"	"	
Endosulfan II	ND	75	"	"	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

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Kleinfelder (Sacramento)
3077 Fite Circle
Sacramento, CA 95827

Project: Novak
Project Number: 94582
Project Manager: Sue Gardner

CLS Work Order #: CSD0335
COC #: 03313

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SS-5c (CSD0335-13) Soil Sampled: 04/06/09 12:56 Received: 04/08/09 10:25									
Endosulfan sulfate	ND	75	µg/kg	5	CS02658	"	04/13/09	EPA 8081A	
Endrin	ND	75	"	"	"	"	"	"	
Endrin aldehyde	ND	75	"	"	"	"	"	"	
Heptachlor	ND	25	"	"	"	"	"	"	
Heptachlor epoxide	ND	10	"	"	"	"	"	"	
Methoxychlor	ND	75	"	"	"	"	"	"	
Mirex	ND	50	"	"	"	"	"	"	
Toxaphene	ND	100	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*80 %*	*46-139*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*79 %*	*52-141*		"	"	"	"	
SS-5d (CSD0335-14) Soil Sampled: 04/06/09 13:06 Received: 04/08/09 10:25									
Aldrin	ND	5.0	µg/kg	5	CS02658	04/10/09	04/13/09	EPA 8081A	
alpha-BHC	ND	10	"	"	"	"	"	"	
beta-BHC	ND	50	"	"	"	"	"	"	
delta-BHC	ND	50	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	50	"	"	"	"	"	"	
Chlordane-technical	ND	100	"	"	"	"	"	"	
4,4'-DDD	ND	75	"	"	"	"	"	"	
4,4'-DDE	ND	75	"	"	"	"	"	"	
4,4'-DDT	ND	75	"	"	"	"	"	"	
Dieldrin	ND	5.0	"	"	"	"	"	"	
Endosulfan I	ND	75	"	"	"	"	"	"	
Endosulfan II	ND	75	"	"	"	"	"	"	
Endosulfan sulfate	ND	75	"	"	"	"	"	"	
Endrin	ND	75	"	"	"	"	"	"	
Endrin aldehyde	ND	75	"	"	"	"	"	"	
Heptachlor	ND	25	"	"	"	"	"	"	
Heptachlor epoxide	ND	10	"	"	"	"	"	"	
Methoxychlor	ND	75	"	"	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

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Kleinfelder (Sacramento)
3077 Fite Circle
Sacramento, CA 95827

Project: Novak
Project Number: 94582
Project Manager: Sue Gardner

CLS Work Order #: CSD0335
COC #: 03313

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SS-5d (CSD0335-14) Soil Sampled: 04/06/09 13:06 Received: 04/08/09 10:25									
Mirex	ND	50	µg/kg	5	CS02658	"	04/13/09	EPA 8081A	
Toxaphene	ND	100	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*96 %*	*46-139*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*94 %*	*52-141*		"	"	"	"	
SS-5b (CSD0335-15) Soil Sampled: 04/06/09 13:20 Received: 04/08/09 10:25									
Aldrin	ND	5.0	µg/kg	5	CS02658	04/10/09	04/13/09	EPA 8081A	
alpha-BHC	ND	10	"	"	"	"	"	"	
beta-BHC	ND	50	"	"	"	"	"	"	
delta-BHC	ND	50	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	50	"	"	"	"	"	"	
Chlordane-technical	ND	100	"	"	"	"	"	"	
4,4'-DDD	ND	75	"	"	"	"	"	"	
4,4'-DDE	ND	75	"	"	"	"	"	"	
4,4'-DDT	ND	75	"	"	"	"	"	"	
Dieldrin	ND	5.0	"	"	"	"	"	"	
Endosulfan I	ND	75	"	"	"	"	"	"	
Endosulfan II	ND	75	"	"	"	"	"	"	
Endosulfan sulfate	ND	75	"	"	"	"	"	"	
Endrin	ND	75	"	"	"	"	"	"	
Endrin aldehyde	ND	75	"	"	"	"	"	"	
Heptachlor	ND	25	"	"	"	"	"	"	
Heptachlor epoxide	ND	10	"	"	"	"	"	"	
Methoxychlor	ND	75	"	"	"	"	"	"	
Mirex	ND	50	"	"	"	"	"	"	
Toxaphene	ND	100	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*93 %*	*46-139*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*88 %*	*52-141*		"	"	"	"	

CALIFORNIA LABORATORY SERVICES

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Kleinfelder (Sacramento) 3077 Fite Circle Sacramento, CA 95827	Project: Novak Project Number: 94582 Project Manager: Sue Gardner	CLS Work Order #: CSD0335 COC #: 03313

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SS-4d (CSD0335-16) Soil Sampled: 04/06/09 13:33 Received: 04/08/09 10:25									
Aldrin	ND	5.0	µg/kg	5	CS02658	04/10/09	04/13/09	EPA 8081A	
alpha-BHC	ND	10	"	"	"	"	"	"	
beta-BHC	ND	50	"	"	"	"	"	"	
delta-BHC	ND	50	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	50	"	"	"	"	"	"	
Chlordane-technical	ND	100	"	"	"	"	"	"	
4,4′-DDD	ND	75	"	"	"	"	"	"	
4,4′-DDE	ND	75	"	"	"	"	"	"	
4,4′-DDT	ND	75	"	"	"	"	"	"	
Dieldrin	ND	5.0	"	"	"	"	"	"	
Endosulfan I	ND	75	"	"	"	"	"	"	
Endosulfan II	ND	75	"	"	"	"	"	"	
Endosulfan sulfate	ND	75	"	"	"	"	"	"	
Endrin	ND	75	"	"	"	"	"	"	
Endrin aldehyde	ND	75	"	"	"	"	"	"	
Heptachlor	ND	25	"	"	"	"	"	"	
Heptachlor epoxide	ND	10	"	"	"	"	"	"	
Methoxychlor	ND	75	"	"	"	"	"	"	
Mirex	ND	50	"	"	"	"	"	"	
Toxaphene	ND	100	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*94 %*	*46-139*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*87 %*	*52-141*		"	"	"	"	
SS-4e (CSD0335-17) Soil Sampled: 04/06/09 13:43 Received: 04/08/09 10:25									
Aldrin	ND	5.0	µg/kg	5	CS02658	04/10/09	04/13/09	EPA 8081A	
alpha-BHC	ND	10	"	"	"	"	"	"	
beta-BHC	ND	50	"	"	"	"	"	"	
delta-BHC	ND	50	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	50	"	"	"	"	"	"	
Chlordane-technical	ND	100	"	"	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

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Kleinfelder (Sacramento) 3077 Fite Circle Sacramento, CA 95827	Project: Novak Project Number: 94582 Project Manager: Sue Gardner	CLS Work Order #: CSD0335 COC #: 03313

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SS-4c (CSD0335-17) Soil Sampled: 04/06/09 13:43 Received: 04/08/09 10:25									
4,4'-DDD	ND	75	µg/kg	5	CS02658	"	04/13/09	EPA 8081A	
4,4'-DDE	ND	75	"	"	"	"	"	"	
4,4'-DDT	ND	75	"	"	"	"	"	"	
Dieldrin	ND	5.0	"	"	"	"	"	"	
Endosulfan I	ND	75	"	"	"	"	"	"	
Endosulfan II	ND	75	"	"	"	"	"	"	
Endosulfan sulfate	ND	75	"	"	"	"	"	"	
Endrin	ND	75	"	"	"	"	"	"	
Endrin aldehyde	ND	75	"	"	"	"	"	"	
Heptachlor	ND	25	"	"	"	"	"	"	
Heptachlor epoxide	ND	10	"	"	"	"	"	"	
Methoxychlor	ND	75	"	"	"	"	"	"	
Mirex	ND	50	"	"	"	"	"	"	
Toxaphene	ND	100	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*94 %*	*46-139*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*90 %*	*52-141*		"	"	"	"	
SS-4a (CSD0335-18) Soil Sampled: 04/06/09 13:53 Received: 04/08/09 10:25									
Aldrin	ND	5.0	µg/kg	5	CS02658	04/10/09	04/13/09	EPA 8081A	
alpha-BHC	ND	10	"	"	"	"	"	"	
beta-BHC	ND	50	"	"	"	"	"	"	
delta-BHC	ND	50	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	50	"	"	"	"	"	"	
Chlordane-technical	ND	100	"	"	"	"	"	"	
4,4'-DDD	ND	75	"	"	"	"	"	"	
4,4'-DDE	ND	75	"	"	"	"	"	"	
4,4'-DDT	ND	75	"	"	"	"	"	"	
Dieldrin	ND	5.0	"	"	"	"	"	"	
Endosulfan I	ND	75	"	"	"	"	"	"	
Endosulfan II	ND	75	"	"	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

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Kleinfelder (Sacramento) 3077 Fite Circle Sacramento, CA 95827	Project: Novak Project Number: 94582 Project Manager: Sue Gardner	CLS Work Order #: CSD0335 COC #: 03313

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SS-4a (CSD0335-18) Soil Sampled: 04/06/09 13:53 Received: 04/08/09 10:25									
Endosulfan sulfate	ND	75	µg/kg	5	CS02658	"	04/13/09	EPA 8081A	
Endrin	ND	75	"	"	"	"	"	"	
Endrin aldehyde	ND	75	"	"	"	"	"	"	
Heptachlor	ND	25	"	"	"	"	"	"	
Heptachlor epoxide	ND	10	"	"	"	"	"	"	
Methoxychlor	ND	75	"	"	"	"	"	"	
Mirex	ND	50	"	"	"	"	"	"	
Toxaphene	ND	100	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*95 %*	*46-139*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*88 %*	*52-141*		"	"	"	"	
SS-4b (CSD0335-19) Soil Sampled: 04/06/09 14:00 Received: 04/08/09 10:25									
Aldrin	ND	5.0	µg/kg	5	CS02658	04/10/09	04/13/09	EPA 8081A	
alpha-BHC	ND	10	"	"	"	"	"	"	
beta-BHC	ND	50	"	"	"	"	"	"	
delta-BHC	ND	50	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	50	"	"	"	"	"	"	
Chlordane-technical	ND	100	"	"	"	"	"	"	
4,4'-DDD	ND	75	"	"	"	"	"	"	
4,4'-DDE	ND	75	"	"	"	"	"	"	
4,4'-DDT	ND	75	"	"	"	"	"	"	
Dieldrin	ND	5.0	"	"	"	"	"	"	
Endosulfan I	ND	75	"	"	"	"	"	"	
Endosulfan II	ND	75	"	"	"	"	"	"	
Endosulfan sulfate	ND	75	"	"	"	"	"	"	
Endrin	ND	75	"	"	"	"	"	"	
Endrin aldehyde	ND	75	"	"	"	"	"	"	
Heptachlor	ND	25	"	"	"	"	"	"	
Heptachlor epoxide	ND	10	"	"	"	"	"	"	
Methoxychlor	ND	75	"	"	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

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Kleinfelder (Sacramento)
3077 Fite Circle
Sacramento, CA 95827

Project: Novak
Project Number: 94582
Project Manager: Sue Gardner

CLS Work Order #: CSD0335
COC #: 03313

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SS-4b (CSD0335-19) Soil Sampled: 04/06/09 14:00 Received: 04/08/09 10:25									
Mirex	ND	50	µg/kg	5	CS02658	"	04/13/09	EPA 8081A	
Toxaphene	ND	100	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*91 %*	*46-139*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*88 %*	*52-141*		"	"	"	"	
SS-2b (CSD0335-20) Soil Sampled: 04/06/09 14:10 Received: 04/08/09 10:25									
Aldrin	ND	5.0	µg/kg	5	CS02658	04/10/09	04/13/09	EPA 8081A	
alpha-BHC	ND	10	"	"	"	"	"	"	
beta-BHC	ND	50	"	"	"	"	"	"	
delta-BHC	ND	50	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	50	"	"	"	"	"	"	
Chlordane-technical	ND	100	"	"	"	"	"	"	
4,4'-DDD	ND	75	"	"	"	"	"	"	
4,4'-DDE	ND	75	"	"	"	"	"	"	
4,4'-DDT	ND	75	"	"	"	"	"	"	
Dieldrin	ND	5.0	"	"	"	"	"	"	
Endosulfan I	ND	75	"	"	"	"	"	"	
Endosulfan II	ND	75	"	"	"	"	"	"	
Endosulfan sulfate	ND	75	"	"	"	"	"	"	
Endrin	ND	75	"	"	"	"	"	"	
Endrin aldehyde	ND	75	"	"	"	"	"	"	
Heptachlor	ND	25	"	"	"	"	"	"	
Heptachlor epoxide	ND	10	"	"	"	"	"	"	
Methoxychlor	ND	75	"	"	"	"	"	"	
Mirex	ND	50	"	"	"	"	"	"	
Toxaphene	ND	100	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*95 %*	*46-139*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*90 %*	*52-141*		"	"	"	"	

CALIFORNIA LABORATORY SERVICES

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Kleinfelder (Sacramento) 3077 Fite Circle Sacramento, CA 95827	Project: Novak Project Number: 94582 Project Manager: Sue Gardner	CLS Work Order #: CSD0335 COC #: 03313

Metals by EPA 6000/7000 Series Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CS02644 - EPA 3050B										
Blank (CS02644-BLK1)				Prepared: 04/09/09 Analyzed: 04/10/09						
Lead	ND	2.5	mg/kg							
Copper	ND	1.0	"							
Arsenic	ND	0.25	"							
LCS (CS02644-BS1)				Prepared: 04/09/09 Analyzed: 04/10/09						
Lead	8.28	2.5	mg/kg	10.0		83	75-125			
Copper	7.97	1.0	"	10.0		80	75-125			
Arsenic	10.8	1.0	"	10.0		108	75-125			
LCS Dup (CS02644-BSD1)				Prepared: 04/09/09 Analyzed: 04/10/09						
Lead	8.04	2.5	mg/kg	10.0		80	75-125	3	25	
Copper	7.89	1.0	"	10.0		79	75-125	1	25	
Arsenic	10.8	1.0	"	10.0		108	75-125	0.04	25	
Matrix Spike (CS02644-MS1)		Source: CSD0335-01		Prepared: 04/09/09 Analyzed: 04/10/09						
Lead	18.5	2.5	mg/kg	10.0	11.5	70	75-125			QM-5
Copper	40.6	1.0	"	10.0	33.7	69	75-125			QM-5
Arsenic	15.8	1.0	"	10.0	6.11	97	75-125			
Matrix Spike Dup (CS02644-MSD1)		Source: CSD0335-01		Prepared: 04/09/09 Analyzed: 04/10/09						
Lead	17.9	2.5	mg/kg	10.0	11.5	64	75-125	3	30	QM-5
Copper	40.3	1.0	"	10.0	33.7	66	75-125	0.7	30	QM-5
Arsenic	15.8	1.0	"	10.0	6.11	97	75-125	0.1	30	

CALIFORNIA LABORATORY SERVICES

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Kleinfelder (Sacramento) 3077 Fite Circle Sacramento, CA 95827	Project: Novak Project Number: 94582 Project Manager: Sue Gardner	CLS Work Order #: CSD0335 COC #: 03313

Organochlorine Pesticides by EPA Method 8081A - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CS02658 - LUFT-DHS GCNV										
Blank (CS02658-BLK1)				Prepared: 04/10/09 Analyzed: 04/13/09						
Aldrin	ND	1 0	µg/kg							
alpha-BHC	ND	2 0	"							
beta-BHC	ND	10	"							
delta-BHC	ND	10	"							
gamma-BHC (Lindane)	ND	10	"							
Chlordane-technical	ND	20	"							
4,4'-DDD	ND	15	"							
4,4'-DDE	ND	15	"							
4,4'-DDT	ND	15	"							
Dieldrin	ND	1 0	"							
Endosulfan I	ND	15	"							
Endosulfan II	ND	15	"							
Endosulfan sulfate	ND	15	"							
Endrin	ND	15	"							
Endrin aldehyde	ND	15	"							
Heptachlor	ND	5 0	"							
Heptachlor epoxide	ND	2 0	"							
Methoxychlor	ND	15	"							
Mirex	ND	10	"							
Toxaphene	ND	20	"							
Surrogate: Tetrachloro-meta-xylene	*7 44*		"	*8 33*		*89*	*46-139*			
Surrogate: Decachlorobiphenyl	*7 72*		"	*8 33*		*93*	*52-141*			
LCS (CS02658-BS1)				Prepared: 04/10/09 Analyzed: 04/13/09						
Aldrin	15 4	1 0	µg/kg	16 7		92	47-132			
gamma-BHC (Lindane)	16 0	10	"	16 7		96	56-133			
4,4'-DDT	17 4	15	"	16 7		104	46-137			
Dieldrin	16.4	1 0	"	16 7		98	44-143			
Endrin	19 7	15	"	16 7		118	30-147			
Heptachlor	15 8	5 0	"	16.7		95	33-148			
Surrogate: Tetrachloro meta-xylene	*8 05*		"	*8 33*		*97*	*46 139*			

California Laboratory Services

04/13/09 15:54

Kleinfelder (Sacramento) 3077 Fite Circle Sacramento, CA 95827	Project: Novak Project Number: 94582 Project Manager: Sue Gardner	CLS Work Order #: CSD0335 COC #: 03313

Organochlorine Pesticides by EPA Method 8081A - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CS02658 - LUFT-DHS GCNV										
LCS (CS02658-BS1)				Prepared: 04/10/09 Analyzed: 04/13/09						
Surrogate: Decachlorobiphenyl	*8.34*		*µg/kg*	*8.33*		*100*	*52-141*			
LCS Dup (CS02658-BSD1)				Prepared: 04/10/09 Analyzed: 04/13/09						
Aldrin	16.2	1.0	µg/kg	16.7		97	47-132	5	30	
gamma-BHC (Lindane)	16.9	1.0	"	16.7		101	56-133	5	30	
4,4'-DDT	18.3	1.5	"	16.7		110	46-137	5	30	
Dieldrin	17.2	1.0	"	16.7		103	44-143	5	30	
Endrin	20.7	1.5	"	16.7		124	30-147	5	30	
Heptachlor	16.4	5.0	"	16.7		99	33-148	4	30	
Surrogate: Tetrachloro-meta-xylene	*7.37*		"	*8.33*		*88*	*46-139*			
Surrogate: Decachlorobiphenyl	*7.52*		"	*8.33*		*90*	*52-141*			
Matrix Spike (CS02658-MS1)		Source: CSD0335-01		Prepared: 04/10/09 Analyzed: 04/13/09						
Aldrin	14.2	5.0	µg/kg	16.7	ND	85	47-138			
gamma-BHC (Lindane)	14.8	5.0	"	16.7	ND	89	38-144			
4,4'-DDT	15.6	7.5	"	16.7	ND	93	41-157			
Dieldrin	14.4	5.0	"	16.7	ND	87	46-155			
Endrin	17.3	7.5	"	16.7	ND	104	34-149			
Heptachlor	14.3	2.5	"	16.7	ND	86	36-155			
Surrogate: Tetrachloro-meta-xylene	*18.9*		"	*20.8*		*91*	*46-139*			
Surrogate: Decachlorobiphenyl	*18.1*		"	*20.8*		*87*	*52-141*			
Matrix Spike Dup (CS02658-MSD1)		Source: CSD0335-01		Prepared: 04/10/09 Analyzed: 04/13/09						
Aldrin	14.6	5.0	µg/kg	16.7	ND	88	47-138	3	35	
gamma-BHC (Lindane)	14.8	5.0	"	16.7	ND	89	38-144	0.05	35	
4,4'-DDT	15.7	7.5	"	16.7	ND	94	41-157	0.9	35	
Dieldrin	14.7	5.0	"	16.7	ND	88	46-155	2	35	
Endrin	17.8	7.5	"	16.7	ND	107	34-149	3	35	
Heptachlor	14.9	2.5	"	16.7	ND	89	36-155	4	35	
Surrogate: Tetrachloro-meta-xylene	*19.2*		"	*20.8*		*92*	*46-139*			
Surrogate: Decachlorobiphenyl	*18.4*		"	*20.8*		*88*	*52-141*			

Kleinfelder (Sacramento)	Project: Novak	
3077 Fite Circle	Project Number: 94582	**CLS Work Order #: CSD0335**
Sacramento, CA 95827	Project Manager: Sue Gardner	COC #: 03313

Notes and Definitions

QM-5	The spike recovery was outside acceptance limits for the MS and/or MSD due to matrix interference. The LCS and/or LCSD were within acceptance limits showing that the laboratory is in control and the data is acceptable.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

Kleinfelder (Sacramento)
3077 Fite Circle
Sacramento CA, 95827

Project: Novak
Project Number: 94582
Project Manager: Sue Gardner

CLS Work Order #: CSD0335
COC #: 03313

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SS-2a (CSD0335-01) Soil Sampled: 04/06/09 10:30 Received: 04/08/09 10:25										
Surrogate: Decachlorobiphenyl	*96 %*		*52-141*	µg/kg		*CS02658*	*04/10/09*	*04/13/09*	*EPA 8081A*	
Surrogate: Tetrachloro-meta-xylene	*97 %*		*46-139*	"		"	"	"	"	
4,4'-DDD	ND	1.2	75	"	5	"	"	"	"	
4,4'-DDE	ND	1.1	75	"	5	"	"	"	"	
4,4'-DDT	ND	0.59	75	"	5	"	"	"	"	
Aldrin	ND	0.67	5.0	"	5	"	"	"	"	
alpha-BHC	ND	0.0031	10	"	5	"	"	"	"	
beta-BHC	ND	0.61	50	"	5	"	"	"	"	
Chlordane-technical	ND	5.1	100	"	5	"	"	"	"	
delta-BHC	ND	0.62	50	"	5	"	"	"	"	
Dieldrin	ND	0.97	5.0	"	5	"	"	"	"	
Endosulfan I	ND	0.65	75	"	5	"	"	"	"	
Endosulfan II	ND	0.73	75	"	5	"	"	"	"	
Endosulfan sulfate	ND	0.65	75	"	5	"	"	"	"	
Endrin	ND	0.46	75	"	5	"	"	"	"	
Endrin aldehyde	ND	0.67	75	"	5	"	"	"	"	
gamma-BHC (Lindane)	ND	3.5	50	"	5	"	"	"	"	
Heptachlor	ND	0.53	25	"	5	"	"	"	"	
Heptachlor epoxide	ND	0.64	10	"	5	"	"	"	"	
Methoxychlor	ND	0.74	75	"	5	"	"	"	"	
Mirex	ND	2.7	50	"	5	"	"	"	"	
Toxaphene	ND	13	100	"	5	"	"	"	"	
SS-1a (CSD0335-02) Soil Sampled: 04/06/09 10:50 Received: 04/08/09 10:25										
Surrogate: Decachlorobiphenyl	*99 %*		*52-141*	µg/kg		*CS02658*	*04/10/09*	*04/13/09*	*EPA 8081A*	
Surrogate: Tetrachloro-meta-xylene	*99 %*		*46-139*	"		"	"	"	"	
4,4'-DDD	ND	1.2	75	"	5	"	"	"	"	
4,4'-DDE	ND	1.1	75	"	5	"	"	"	"	
4,4'-DDT	ND	0.59	75	"	5	"	"	"	"	
Aldrin	ND	0.67	5.0	"	5	"	"	"	"	
alpha-BHC	ND	0.0031	10	"	5	"	"	"	"	
beta-BHC	ND	0.61	50	"	5	"	"	"	"	
Chlordane-technical	ND	5.1	100	"	5	"	"	"	"	
delta-BHC	ND	0.62	50	"	5	"	"	"	"	
Dieldrin	ND	0.97	5.0	"	5	"	"	"	"	
Endosulfan I	ND	0.65	75	"	5	"	"	"	"	
Endosulfan II	ND	0.73	75	"	5	"	"	"	"	
Endosulfan sulfate	ND	0.65	75	"	5	"	"	"	"	
Endrin	ND	0.46	75	"	5	"	"	"	"	
Endrin aldehyde	ND	0.67	75	"	5	"	"	"	"	
gamma-BHC (Lindane)	ND	3.5	50	"	5	"	"	"	"	
Heptachlor	ND	0.53	25	"	5	"	"	"	"	
Heptachlor epoxide	ND	0.64	10	"	5	"	"	"	"	
Methoxychlor	ND	0.74	75	"	5	"	"	"	"	
Mirex	ND	2.7	50	"	5	"	"	"	"	
Toxaphene	ND	13	100	"	5	"	"	"	"	

Kleinfelder (Sacramento) 3077 Fite Circle Sacramento CA, 95827	Project: Novak Project Number: 94582 Project Manager: Sue Gardner	CLS Work Order #: CSD0335 COC #: 03313

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SS-1c (CSD0335-03) Soil Sampled: 04/06/09 11:00 Received: 04/08/09 10:25										
Surrogate: Decachlorobiphenyl	*93 %*		*52-141*	µg/kg		*CS02658*	*04/10/09*	*04/13/09*	*EPA 8081A*	
Surrogate: Tetrachloro-meta-xylene	*97 %*		*46-139*	"		"	"	"	"	
4,4'-DDD	ND	1.2	75	"	5	"	"	"	"	
4,4'-DDE	ND	1.1	75	"	5	"	"	"	"	
4,4'-DDT	ND	0.59	75	"	5	"	"	"	"	
Aldrin	ND	0.67	5.0	"	5	"	"	"	"	
alpha-BHC	ND	0.0031	10	"	5	"	"	"	"	
beta-BHC	ND	0.61	50	"	5	"	"	"	"	
Chlordane-technical	ND	5.1	100	"	5	"	"	"	"	
delta-BHC	ND	0.62	50	"	5	"	"	"	"	
Dieldrin	ND	0.97	5.0	"	5	"	"	"	"	
Endosulfan I	ND	0.65	75	"	5	"	"	"	"	
Endosulfan II	ND	0.73	75	"	5	"	"	"	"	
Endosulfan sulfate	ND	0.65	75	"	5	"	"	"	"	
Endrin	ND	0.46	75	"	5	"	"	"	"	
Endrin aldehyde	ND	0.67	75	"	5	"	"	"	"	
gamma-BHC (Lindane)	ND	3.5	50	"	5	"	"	"	"	
Heptachlor	ND	0.53	25	"	5	"	"	"	"	
Heptachlor epoxide	ND	0.64	10	"	5	"	"	"	"	
Methoxychlor	ND	0.74	75	"	5	"	"	"	"	
Mirex	ND	2.7	50	"	5	"	"	"	"	
Toxaphene	ND	13	100	"	5	"	"	"	"	
SS-1b (CSD0335-04) Soil Sampled: 04/06/09 11:12 Received: 04/08/09 10:25										
Surrogate: Decachlorobiphenyl	*97 %*		*52-141*	µg/kg		*CS02658*	*04/10/09*	*04/13/09*	*EPA 8081A*	
Surrogate: Tetrachloro-meta-xylene	*97 %*		*46-139*	"		"	"	"	"	
4,4'-DDD	ND	1.2	75	"	5	"	"	"	"	
4,4'-DDE	ND	1.1	75	"	5	"	"	"	"	
4,4'-DDT	ND	0.59	75	"	5	"	"	"	"	
Aldrin	ND	0.67	5.0	"	5	"	"	"	"	
alpha-BHC	ND	0.0031	10	"	5	"	"	"	"	
beta-BHC	ND	0.61	50	"	5	"	"	"	"	
Chlordane-technical	ND	5.1	100	"	5	"	"	"	"	
delta-BHC	ND	0.62	50	"	5	"	"	"	"	
Dieldrin	ND	0.97	5.0	"	5	"	"	"	"	
Endosulfan I	ND	0.65	75	"	5	"	"	"	"	
Endosulfan II	ND	0.73	75	"	5	"	"	"	"	
Endosulfan sulfate	ND	0.65	75	"	5	"	"	"	"	
Endrin	ND	0.46	75	"	5	"	"	"	"	
Endrin aldehyde	ND	0.67	75	"	5	"	"	"	"	
gamma-BHC (Lindane)	ND	3.5	50	"	5	"	"	"	"	
Heptachlor	ND	0.53	25	"	5	"	"	"	"	
Heptachlor epoxide	ND	0.64	10	"	5	"	"	"	"	
Methoxychlor	ND	0.74	75	"	5	"	"	"	"	
Mirex	ND	2.7	50	"	5	"	"	"	"	
Toxaphene	ND	13	100	"	5	"	"	"	"	

Kleinfelder (Sacramento) 3077 Fite Circle Sacramento CA, 95827	Project: Novak Project Number: 94582 Project Manager: Sue Gardner	CLS Work Order #: CSD0335 COC #: 03313

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SS-3a (CSD0335-05) Soil Sampled: 04/06/09 11:22 Received: 04/08/09 10:25										
Surrogate: Decachlorobiphenyl	*92 %*		*52-141*	µg/kg		*CS02658*	*04/10/09*	*04/13/09*	*EPA 8081A*	
Surrogate: Tetrachloro-meta-xylene	*96 %*		*46-139*	"		"	"	"	"	
4,4′-DDD	ND	1.2	75	"	5	"	"	"	"	
4,4′-DDE	ND	1.1	75	"	5	"	"	"	"	
4,4′-DDT	ND	0.59	75	"	5	"	"	"	"	
Aldrin	ND	0.67	5.0	"	5	"	"	"	"	
alpha-BHC	ND	0.0031	10	"	5	"	"	"	"	
beta-BHC	ND	0.61	50	"	5	"	"	"	"	
Chlordane-technical	ND	5.1	100	"	5	"	"	"	"	
delta-BHC	ND	0.62	50	"	5	"	"	"	"	
Dieldrin	ND	0.97	5.0	"	5	"	"	"	"	
Endosulfan I	ND	0.65	75	"	5	"	"	"	"	
Endosulfan II	ND	0.73	75	"	5	"	"	"	"	
Endosulfan sulfate	ND	0.65	75	"	5	"	"	"	"	
Endrin	ND	0.46	75	"	5	"	"	"	"	
Endrin aldehyde	ND	0.67	75	"	5	"	"	"	"	
gamma-BHC (Lindane)	ND	3.5	50	"	5	"	"	"	"	
Heptachlor	ND	0.53	25	"	5	"	"	"	"	
Heptachlor epoxide	ND	0.64	10	"	5	"	"	"	"	
Methoxychlor	ND	0.74	75	"	5	"	"	"	"	
Mirex	ND	2.7	50	"	5	"	"	"	"	
Toxaphene	ND	13	100	"	5	"	"	"	"	
SS-1d (CSD0335-06) Soil Sampled: 04/06/09 11:35 Received: 04/08/09 10:25										
Surrogate: Decachlorobiphenyl	*96 %*		*52-141*	µg/kg		*CS02658*	*04/10/09*	*04/13/09*	*EPA 8081A*	
Surrogate: Tetrachloro-meta-xylene	*101 %*		*46-139*	"		"	"	"	"	
4,4′-DDD	ND	1.2	75	"	5	"	"	"	"	
4,4′-DDE	ND	1.1	75	"	5	"	"	"	"	
4,4′-DDT	ND	0.59	75	"	5	"	"	"	"	
Aldrin	ND	0.67	5.0	"	5	"	"	"	"	
alpha-BHC	ND	0.0031	10	"	5	"	"	"	"	
beta-BHC	ND	0.61	50	"	5	"	"	"	"	
Chlordane-technical	ND	5.1	100	"	5	"	"	"	"	
delta-BHC	ND	0.62	50	"	5	"	"	"	"	
Dieldrin	ND	0.97	5.0	"	5	"	"	"	"	
Endosulfan I	ND	0.65	75	"	5	"	"	"	"	
Endosulfan II	ND	0.73	75	"	5	"	"	"	"	
Endosulfan sulfate	ND	0.65	75	"	5	"	"	"	"	
Endrin	ND	0.46	75	"	5	"	"	"	"	
Endrin aldehyde	ND	0.67	75	"	5	"	"	"	"	
gamma-BHC (Lindane)	ND	3.5	50	"	5	"	"	"	"	
Heptachlor	ND	0.53	25	"	5	"	"	"	"	
Heptachlor epoxide	ND	0.64	10	"	5	"	"	"	"	
Methoxychlor	ND	0.74	75	"	5	"	"	"	"	
Mirex	ND	2.7	50	"	5	"	"	"	"	
Toxaphene	ND	13	100	"	5	"	"	"	"	

Kleinfelder (Sacramento) 3077 Fite Circle Sacramento CA, 95827	Project: Novak Project Number: 94582 Project Manager: Sue Gardner	CLS Work Order #: CSD0335 COC #: 03313

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SS-3c (CSD0335-07) Soil Sampled: 04/06/09 11:47 Received: 04/08/09 10:25										
Surrogate: Decachlorobiphenyl	*98 %*		*52-141*	µg/kg		*CS02658*	*04/10/09*	*04/13/09*	*EPA 8081A*	
Surrogate: Tetrachloro-meta-xylene	*98 %*		*46-139*	"		"	"	"	"	
4,4'-DDD	ND	1.2	75	"	5	"	"	"	"	
4,4'-DDE	ND	1.1	75	"	5	"	"	"	"	
4,4'-DDT	ND	0.59	75	"	5	"	"	"	"	
Aldrin	ND	0.67	5.0	"	5	"	"	"	"	
alpha-BHC	ND	0.0031	10	"	5	"	"	"	"	
beta-BHC	ND	0.61	50	"	5	"	"	"	"	
Chlordane-technical	ND	5.1	100	"	5	"	"	"	"	
delta-BHC	ND	0.62	50	"	5	"	"	"	"	
Dieldrin	ND	0.97	5.0	"	5	"	"	"	"	
Endosulfan I	ND	0.65	75	"	5	"	"	"	"	
Endosulfan II	ND	0.73	75	"	5	"	"	"	"	
Endosulfan sulfate	ND	0.65	75	"	5	"	"	"	"	
Endrin	ND	0.46	75	"	5	"	"	"	"	
Endrin aldehyde	ND	0.67	75	"	5	"	"	"	"	
gamma-BHC (Lindane)	ND	3.5	50	"	5	"	"	"	"	
Heptachlor	ND	0.53	25	"	5	"	"	"	"	
Heptachlor epoxide	ND	0.64	10	"	5	"	"	"	"	
Methoxychlor	ND	0.74	75	"	5	"	"	"	"	
Mirex	ND	2.7	50	"	5	"	"	"	"	
Toxaphene	ND	13	100	"	5	"	"	"	"	
SS-3d (CSD0335-08) Soil Sampled: 04/06/09 11:55 Received: 04/08/09 10:25										
Surrogate: Decachlorobiphenyl	*93 %*		*52-141*	µg/kg		*CS02658*	*04/10/09*	*04/13/09*	*EPA 8081A*	
Surrogate: Tetrachloro-meta-xylene	*95 %*		*46-139*	"		"	"	"	"	
4,4'-DDD	ND	1.2	75	"	5	"	"	"	"	
4,4'-DDE	ND	1.1	75	"	5	"	"	"	"	
4,4'-DDT	ND	0.59	75	"	5	"	"	"	"	
Aldrin	ND	0.67	5.0	"	5	"	"	"	"	
alpha-BHC	ND	0.0031	10	"	5	"	"	"	"	
beta-BHC	ND	0.61	50	"	5	"	"	"	"	
Chlordane-technical	ND	5.1	100	"	5	"	"	"	"	
delta-BHC	ND	0.62	50	"	5	"	"	"	"	
Dieldrin	ND	0.97	5.0	"	5	"	"	"	"	
Endosulfan I	ND	0.65	75	"	5	"	"	"	"	
Endosulfan II	ND	0.73	75	"	5	"	"	"	"	
Endosulfan sulfate	ND	0.65	75	"	5	"	"	"	"	
Endrin	ND	0.46	75	"	5	"	"	"	"	
Endrin aldehyde	ND	0.67	75	"	5	"	"	"	"	
gamma-BHC (Lindane)	ND	3.5	50	"	5	"	"	"	"	
Heptachlor	ND	0.53	25	"	5	"	"	"	"	
Heptachlor epoxide	ND	0.64	10	"	5	"	"	"	"	
Methoxychlor	ND	0.74	75	"	5	"	"	"	"	
Mirex	ND	2.7	50	"	5	"	"	"	"	
Toxaphene	ND	13	100	"	5	"	"	"	"	

Kleinfelder (Sacramento) 3077 Fite Circle Sacramento CA, 95827	Project: Novak Project Number: 94582 Project Manager: Sue Gardner	CLS Work Order #: CSD0335 COC #: 03313

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SS-3b (CSD0335-09) Soil Sampled: 04/06/09 12:09 Received: 04/08/09 10:25										
Surrogate: Decachlorobiphenyl	94 %		52-141	µg/kg		CS02658	04/10/09	04/13/09	EPA 8081A	
Surrogate: Tetrachloro-meta-xylene	97 %		46-139	"		"	"	"	"	
4,4'-DDD	ND	1.2	75	"	5	"	"	"	"	
4,4'-DDE	ND	1.1	75	"	5	"	"	"	"	
4,4'-DDT	ND	0.59	75	"	5	"	"	"	"	
Aldrin	ND	0.67	5.0	"	5	"	"	"	"	
alpha-BHC	ND	0.0031	10	"	5	"	"	"	"	
beta-BHC	ND	0.61	50	"	5	"	"	"	"	
Chlordane-technical	ND	5.1	100	"	5	"	"	"	"	
delta-BHC	ND	0.62	50	"	5	"	"	"	"	
Dieldrin	ND	0.97	5.0	"	5	"	"	"	"	
Endosulfan I	ND	0.65	75	"	5	"	"	"	"	
Endosulfan II	ND	0.73	75	"	5	"	"	"	"	
Endosulfan sulfate	ND	0.65	75	"	5	"	"	"	"	
Endrin	ND	0.46	75	"	5	"	"	"	"	
Endrin aldehyde	ND	0.67	75	"	5	"	"	"	"	
gamma-BHC (Lindane)	ND	3.5	50	"	5	"	"	"	"	
Heptachlor	ND	0.53	25	"	5	"	"	"	"	
Heptachlor epoxide	ND	0.64	10	"	5	"	"	"	"	
Methoxychlor	ND	0.74	75	"	5	"	"	"	"	
Mirex	ND	2.7	50	"	5	"	"	"	"	
Toxaphene	ND	13	100	"	5	"	"	"	"	
SS-2c (CSD0335-10) Soil Sampled: 04/06/09 12:20 Received: 04/08/09 10:25										
Surrogate: Decachlorobiphenyl	98 %		52-141	µg/kg		CS02658	04/10/09	04/13/09	EPA 8081A	
Surrogate: Tetrachloro-meta-xylene	96 %		46-139	"		"	"	"	"	
4,4'-DDD	ND	1.2	75	"	5	"	"	"	"	
4,4'-DDE	ND	1.1	75	"	5	"	"	"	"	
4,4'-DDT	ND	0.59	75	"	5	"	"	"	"	
Aldrin	ND	0.67	5.0	"	5	"	"	"	"	
alpha-BHC	ND	0.0031	10	"	5	"	"	"	"	
beta-BHC	ND	0.61	50	"	5	"	"	"	"	
Chlordane-technical	ND	5.1	100	"	5	"	"	"	"	
delta-BHC	ND	0.62	50	"	5	"	"	"	"	
Dieldrin	ND	0.97	5.0	"	5	"	"	"	"	
Endosulfan I	ND	0.65	75	"	5	"	"	"	"	
Endosulfan II	ND	0.73	75	"	5	"	"	"	"	
Endosulfan sulfate	ND	0.65	75	"	5	"	"	"	"	
Endrin	ND	0.46	75	"	5	"	"	"	"	
Endrin aldehyde	ND	0.67	75	"	5	"	"	"	"	
gamma-BHC (Lindane)	ND	3.5	50	"	5	"	"	"	"	
Heptachlor	ND	0.53	25	"	5	"	"	"	"	
Heptachlor epoxide	ND	0.64	10	"	5	"	"	"	"	
Methoxychlor	ND	0.74	75	"	5	"	"	"	"	
Mirex	ND	2.7	50	"	5	"	"	"	"	
Toxaphene	ND	13	100	"	5	"	"	"	"	

Kleinfelder (Sacramento) 3077 Fite Circle Sacramento CA, 95827	Project: Novak Project Number: 94582 Project Manager: Sue Gardner	CLS Work Order #: CSD0335 COC #: 03313

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SS-2d (CSD0335-11) Soil Sampled: 04/06/09 12:30 Received: 04/08/09 10:25										
Surrogate: Decachlorobiphenyl	*87 %*		*52-141*	µg/kg		*CS02658*	*04/10/09*	*04/13/09*	*EPA 8081A*	
Surrogate: Tetrachloro-meta-xylene	*93 %*		*46-139*	"		"	"	"	"	
4,4'-DDD	ND	1.2	75	"	5	"	"	"	"	
4,4'-DDE	ND	1.1	75	"	5	"	"	"	"	
4,4'-DDT	ND	0.59	75	"	5	"	"	"	"	
Aldrin	ND	0.67	5.0	"	5	"	"	"	"	
alpha-BHC	ND	0.0031	10	"	5	"	"	"	"	
beta-BHC	ND	0.61	50	"	5	"	"	"	"	
Chlordane-technical	ND	5.1	100	"	5	"	"	"	"	
delta-BHC	ND	0.62	50	"	5	"	"	"	"	
Dieldrin	ND	0.97	5.0	"	5	"	"	"	"	
Endosulfan I	ND	0.65	75	"	5	"	"	"	"	
Endosulfan II	ND	0.73	75	"	5	"	"	"	"	
Endosulfan sulfate	ND	0.65	75	"	5	"	"	"	"	
Endrin	ND	0.46	75	"	5	"	"	"	"	
Endrin aldehyde	ND	0.67	75	"	5	"	"	"	"	
gamma-BHC (Lindane)	ND	3.5	50	"	5	"	"	"	"	
Heptachlor	ND	0.53	25	"	5	"	"	"	"	
Heptachlor epoxide	ND	0.64	10	"	5	"	"	"	"	
Methoxychlor	ND	0.74	75	"	5	"	"	"	"	
Mirex	ND	2.7	50	"	5	"	"	"	"	
Toxaphene	ND	13	100	"	5	"	"	"	"	
SS-5a (CSD0335-12) Soil Sampled: 04/06/09 12:43 Received: 04/08/09 10:25										
Surrogate: Decachlorobiphenyl	*78 %*		*52-141*	µg/kg		*CS02658*	*04/10/09*	*04/13/09*	*EPA 8081A*	
Surrogate: Tetrachloro-meta-xylene	*82 %*		*46-139*	"		"	"	"	"	
4,4'-DDD	ND	1.2	75	"	5	"	"	"	"	
4,4'-DDE	ND	1.1	75	"	5	"	"	"	"	
4,4'-DDT	ND	0.59	75	"	5	"	"	"	"	
Aldrin	17	0.67	5.0	"	5	"	"	"	"	
alpha-BHC	ND	0.0031	10	"	5	"	"	"	"	
beta-BHC	ND	0.61	50	"	5	"	"	"	"	
Chlordane-technical	ND	5.1	100	"	5	"	"	"	"	
delta-BHC	ND	0.62	50	"	5	"	"	"	"	
Dieldrin	ND	0.97	5.0	"	5	"	"	"	"	
Endosulfan I	ND	0.65	75	"	5	"	"	"	"	
Endosulfan II	ND	0.73	75	"	5	"	"	"	"	
Endosulfan sulfate	ND	0.65	75	"	5	"	"	"	"	
Endrin	ND	0.46	75	"	5	"	"	"	"	
Endrin aldehyde	ND	0.67	75	"	5	"	"	"	"	
gamma-BHC (Lindane)	ND	3.5	50	"	5	"	"	"	"	
Heptachlor	ND	0.53	25	"	5	"	"	"	"	
Heptachlor epoxide	ND	0.64	10	"	5	"	"	"	"	
Methoxychlor	ND	0.74	75	"	5	"	"	"	"	
Mirex	ND	2.7	50	"	5	"	"	"	"	
Toxaphene	ND	13	100	"	5	"	"	"	"	

Kleinfelder (Sacramento)	Project: Novak	CLS Work Order #: CSD0335
3077 Fite Circle	Project Number: 94582	COC #: 03313
Sacramento CA, 95827	Project Manager: Sue Gardner	

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SS-5c (CSD0335-13) Soil Sampled: 04/06/09 12:56 Received: 04/08/09 10:25										
Surrogate: Decachlorobiphenyl	*79 %*		*52-141*	µg/kg		*CS02658*	*04/10/09*	*04/13/09*	*EPA 8081A*	
Surrogate: Tetrachloro-meta-xylene	*80 %*		*46-139*	"		"	"	"	"	
4,4'-DDD	ND	1.2	75	"	5	"	"	"	"	
4,4'-DDE	ND	1.1	75	"	5	"	"	"	"	
4,4'-DDT	ND	0.59	75	"	5	"	"	"	"	
Aldrin	ND	0.67	5.0	"	5	"	"	"	"	
alpha-BHC	ND	0.0031	10	"	5	"	"	"	"	
beta-BHC	ND	0.61	50	"	5	"	"	"	"	
Chlordane-technical	ND	5.1	100	"	5	"	"	"	"	
delta-BHC	ND	0.62	50	"	5	"	"	"	"	
Dieldrin	ND	0.97	5.0	"	5	"	"	"	"	
Endosulfan I	ND	0.65	75	"	5	"	"	"	"	
Endosulfan II	ND	0.73	75	"	5	"	"	"	"	
Endosulfan sulfate	ND	0.65	75	"	5	"	"	"	"	
Endrin	ND	0.46	75	"	5	"	"	"	"	
Endrin aldehyde	ND	0.67	75	"	5	"	"	"	"	
gamma-BHC (Lindane)	ND	3.5	50	"	5	"	"	"	"	
Heptachlor	ND	0.53	25	"	5	"	"	"	"	
Heptachlor epoxide	ND	0.64	10	"	5	"	"	"	"	
Methoxychlor	ND	0.74	75	"	5	"	"	"	"	
Mirex	ND	2.7	50	"	5	"	"	"	"	
Toxaphene	ND	13	100	"	5	"	"	"	"	
SS-5d (CSD0335-14) Soil Sampled: 04/06/09 13:06 Received: 04/08/09 10:25										
Surrogate: Decachlorobiphenyl	*94 %*		*52-141*	µg/kg		*CS02658*	*04/10/09*	*04/13/09*	*EPA 8081A*	
Surrogate: Tetrachloro-meta-xylene	*96 %*		*46-139*	"		"	"	"	"	
4,4'-DDD	ND	1.2	75	"	5	"	"	"	"	
4,4'-DDE	ND	1.1	75	"	5	"	"	"	"	
4,4'-DDT	ND	0.59	75	"	5	"	"	"	"	
Aldrin	ND	0.67	5.0	"	5	"	"	"	"	
alpha-BHC	ND	0.0031	10	"	5	"	"	"	"	
beta-BHC	ND	0.61	50	"	5	"	"	"	"	
Chlordane-technical	ND	5.1	100	"	5	"	"	"	"	
delta-BHC	ND	0.62	50	"	5	"	"	"	"	
Dieldrin	ND	0.97	5.0	"	5	"	"	"	"	
Endosulfan I	ND	0.65	75	"	5	"	"	"	"	
Endosulfan II	ND	0.73	75	"	5	"	"	"	"	
Endosulfan sulfate	ND	0.65	75	"	5	"	"	"	"	
Endrin	ND	0.46	75	"	5	"	"	"	"	
Endrin aldehyde	ND	0.67	75	"	5	"	"	"	"	
gamma-BHC (Lindane)	ND	3.5	50	"	5	"	"	"	"	
Heptachlor	ND	0.53	25	"	5	"	"	"	"	
Heptachlor epoxide	ND	0.64	10	"	5	"	"	"	"	
Methoxychlor	ND	0.74	75	"	5	"	"	"	"	
Mirex	ND	2.7	50	"	5	"	"	"	"	
Toxaphene	ND	13	100	"	5	"	"	"	"	

Kleinfelder (Sacramento)
3077 Fite Circle
Sacramento CA, 95827

Project: Novak
Project Number: 94582
Project Manager: Sue Gardner

CLS Work Order #: CSD0335
COC #: 03313

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SS-5b (CSD0335-15) Soil Sampled: 04/06/09 13:20 Received: 04/08/09 10:25										
Surrogate: Decachlorobiphenyl	*88 %*		*52-141*	µg/kg		*CS02658*	*04/10/09*	*04/13/09*	*EPA 8081A*	
Surrogate: Tetrachloro-meta-xylene	*93 %*		*46-139*	"		"	"	"	"	
4,4′-DDD	ND	1.2	75	"	5	"	"	"	"	
4,4′-DDE	ND	1.1	75	"	5	"	"	"	"	
4,4′-DDT	ND	0.59	75	"	5	"	"	"	"	
Aldrin	1.7	0.67	5.0	"	5	"	"	"	"	J
alpha-BHC	ND	0.0031	10	"	5	"	"	"	"	
beta-BHC	ND	0.61	50	"	5	"	"	"	"	
Chlordane-technical	ND	5.1	100	"	5	"	"	"	"	
delta-BHC	ND	0.62	50	"	5	"	"	"	"	
Dieldrin	ND	0.97	5.0	"	5	"	"	"	"	
Endosulfan I	ND	0.65	75	"	5	"	"	"	"	
Endosulfan II	ND	0.73	75	"	5	"	"	"	"	
Endosulfan sulfate	ND	0.65	75	"	5	"	"	"	"	
Endrin	ND	0.46	75	"	5	"	"	"	"	
Endrin aldehyde	ND	0.67	75	"	5	"	"	"	"	
gamma-BHC (Lindane)	ND	3.5	50	"	5	"	"	"	"	
Heptachlor	ND	0.53	25	"	5	"	"	"	"	
Heptachlor epoxide	ND	0.64	10	"	5	"	"	"	"	
Methoxychlor	ND	0.74	75	"	5	"	"	"	"	
Mirex	ND	2.7	50	"	5	"	"	"	"	
Toxaphene	ND	13	100	"	5	"	"	"	"	
SS-4d (CSD0335-16) Soil Sampled: 04/06/09 13:33 Received: 04/08/09 10:25										
Surrogate: Decachlorobiphenyl	*87 %*		*52-141*	µg/kg		*CS02658*	*04/10/09*	*04/13/09*	*EPA 8081A*	
Surrogate: Tetrachloro-meta-xylene	*94 %*		*46-139*	"		"	"	"	"	
4,4′-DDD	ND	1.2	75	"	5	"	"	"	"	
4,4′-DDE	ND	1.1	75	"	5	"	"	"	"	
4,4′-DDT	ND	0.59	75	"	5	"	"	"	"	
Aldrin	ND	0.67	5.0	"	5	"	"	"	"	
alpha-BHC	ND	0.0031	10	"	5	"	"	"	"	
beta-BHC	ND	0.61	50	"	5	"	"	"	"	
Chlordane-technical	ND	5.1	100	"	5	"	"	"	"	
delta-BHC	ND	0.62	50	"	5	"	"	"	"	
Dieldrin	ND	0.97	5.0	"	5	"	"	"	"	
Endosulfan I	ND	0.65	75	"	5	"	"	"	"	
Endosulfan II	ND	0.73	75	"	5	"	"	"	"	
Endosulfan sulfate	ND	0.65	75	"	5	"	"	"	"	
Endrin	ND	0.46	75	"	5	"	"	"	"	
Endrin aldehyde	ND	0.67	75	"	5	"	"	"	"	
gamma-BHC (Lindane)	ND	3.5	50	"	5	"	"	"	"	
Heptachlor	ND	0.53	25	"	5	"	"	"	"	
Heptachlor epoxide	ND	0.64	10	"	5	"	"	"	"	
Methoxychlor	ND	0.74	75	"	5	"	"	"	"	
Mirex	ND	2.7	50	"	5	"	"	"	"	
Toxaphene	ND	13	100	"	5	"	"	"	"	

07/16/09 08:00

Kleinfelder (Sacramento)
3077 Fite Circle
Sacramento CA, 95827

Project: Novak
Project Number: 94582
Project Manager: Sue Gardner

CLS Work Order #: CSD0335
COC #: 03313

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SS-4c (CSD0335-17) Soil Sampled: 04/06/09 13:43 Received: 04/08/09 10:25										
Surrogate: Decachlorobiphenyl	*90 %*		*52-141*	µg/kg		*CS02658*	*04/10/09*	*04/13/09*	*EPA 8081A*	
Surrogate: Tetrachloro-meta-xylene	*94 %*		*46-139*	"		"	"	"	"	
4,4'-DDD	ND	1.2	75	"	5	"	"	"	"	
4,4'-DDE	ND	1.1	75	"	5	"	"	"	"	
4,4'-DDT	ND	0.59	75	"	5	"	"	"	"	
Aldrin	ND	0.67	5.0	"	5	"	"	"	"	
alpha-BHC	ND	0.0031	10	"	5	"	"	"	"	
beta-BHC	ND	0.61	50	"	5	"	"	"	"	
Chlordane-technical	ND	5.1	100	"	5	"	"	"	"	
delta-BHC	ND	0.62	50	"	5	"	"	"	"	
Dieldrin	ND	0.97	5.0	"	5	"	"	"	"	
Endosulfan I	ND	0.65	75	"	5	"	"	"	"	
Endosulfan II	ND	0.73	75	"	5	"	"	"	"	
Endosulfan sulfate	ND	0.65	75	"	5	"	"	"	"	
Endrin	ND	0.46	75	"	5	"	"	"	"	
Endrin aldehyde	ND	0.67	75	"	5	"	"	"	"	
gamma-BHC (Lindane)	ND	3.5	50	"	5	"	"	"	"	
Heptachlor	ND	0.53	25	"	5	"	"	"	"	
Heptachlor epoxide	ND	0.64	10	"	5	"	"	"	"	
Methoxychlor	ND	0.74	75	"	5	"	"	"	"	
Mirex	ND	2.7	50	"	5	"	"	"	"	
Toxaphene	ND	13	100	"	5	"	"	"	"	
SS-4a (CSD0335-18) Soil Sampled: 04/06/09 13:53 Received: 04/08/09 10:25										
Surrogate: Decachlorobiphenyl	*88 %*		*52-141*	µg/kg		*CS02658*	*04/10/09*	*04/13/09*	*EPA 8081A*	
Surrogate: Tetrachloro-meta-xylene	*95 %*		*46-139*	"		"	"	"	"	
4,4'-DDD	ND	1.2	75	"	5	"	"	"	"	
4,4'-DDE	ND	1.1	75	"	5	"	"	"	"	
4,4'-DDT	ND	0.59	75	"	5	"	"	"	"	
Aldrin	ND	0.67	5.0	"	5	"	"	"	"	
alpha-BHC	ND	0.0031	10	"	5	"	"	"	"	
beta-BHC	ND	0.61	50	"	5	"	"	"	"	
Chlordane-technical	ND	5.1	100	"	5	"	"	"	"	
delta-BHC	ND	0.62	50	"	5	"	"	"	"	
Dieldrin	ND	0.97	5.0	"	5	"	"	"	"	
Endosulfan I	ND	0.65	75	"	5	"	"	"	"	
Endosulfan II	ND	0.73	75	"	5	"	"	"	"	
Endosulfan sulfate	ND	0.65	75	"	5	"	"	"	"	
Endrin	ND	0.46	75	"	5	"	"	"	"	
Endrin aldehyde	ND	0.67	75	"	5	"	"	"	"	
gamma-BHC (Lindane)	ND	3.5	50	"	5	"	"	"	"	
Heptachlor	ND	0.53	25	"	5	"	"	"	"	
Heptachlor epoxide	ND	0.64	10	"	5	"	"	"	"	
Methoxychlor	ND	0.74	75	"	5	"	"	"	"	
Mirex	ND	2.7	50	"	5	"	"	"	"	
Toxaphene	ND	13	100	"	5	"	"	"	"	

07/16/09 08:00

Kleinfelder (Sacramento) 3077 Fite Circle Sacramento CA, 95827	Project: Novak Project Number: 94582 Project Manager: Sue Gardner	**CLS Work Order #: CSD0335** COC #: 03313

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SS-4b (CSD0335-19) Soil Sampled: 04/06/09 14:00 Received: 04/08/09 10:25										
Surrogate: Decachlorobiphenyl	*88 %*		*52-141*	µg/kg		*CS02658*	*04/10/09*	*04/13/09*	*EPA 8081A*	
Surrogate: Tetrachloro-meta-xylene	*91 %*		*46-139*	"		"	"	"	"	
4,4'-DDD	ND	1.2	75	"	5	"	"	"	"	
4,4'-DDE	ND	1.1	75	"	5	"	"	"	"	
4,4'-DDT	ND	0.59	75	"	5	"	"	"	"	
Aldrin	ND	0.67	5.0	"	5	"	"	"	"	
alpha-BHC	ND	0.0031	10	"	5	"	"	"	"	
beta-BHC	ND	0.61	50	"	5	"	"	"	"	
Chlordane-technical	ND	5.1	100	"	5	"	"	"	"	
delta-BHC	ND	0.62	50	"	5	"	"	"	"	
Dieldrin	ND	0.97	5.0	"	5	"	"	"	"	
Endosulfan I	ND	0.65	75	"	5	"	"	"	"	
Endosulfan II	ND	0.73	75	"	5	"	"	"	"	
Endosulfan sulfate	ND	0.65	75	"	5	"	"	"	"	
Endrin	ND	0.46	75	"	5	"	"	"	"	
Endrin aldehyde	ND	0.67	75	"	5	"	"	"	"	
gamma-BHC (Lindane)	ND	3.5	50	"	5	"	"	"	"	
Heptachlor	ND	0.53	25	"	5	"	"	"	"	
Heptachlor epoxide	ND	0.64	10	"	5	"	"	"	"	
Methoxychlor	ND	0.74	75	"	5	"	"	"	"	
Mirex	ND	2.7	50	"	5	"	"	"	"	
Toxaphene	ND	13	100	"	5	"	"	"	"	
SS-2b (CSD0335-20) Soil Sampled: 04/06/09 14:10 Received: 04/08/09 10:25										
Surrogate: Decachlorobiphenyl	*90 %*		*52-141*	µg/kg		*CS02658*	*04/10/09*	*04/13/09*	*EPA 8081A*	
Surrogate: Tetrachloro-meta-xylene	*95 %*		*46-139*	"		"	"	"	"	
4,4'-DDD	ND	1.2	75	"	5	"	"	"	"	
4,4'-DDE	ND	1.1	75	"	5	"	"	"	"	
4,4'-DDT	ND	0.59	75	"	5	"	"	"	"	
Aldrin	ND	0.67	5.0	"	5	"	"	"	"	
alpha-BHC	ND	0.0031	10	"	5	"	"	"	"	
beta-BHC	ND	0.61	50	"	5	"	"	"	"	
Chlordane-technical	ND	5.1	100	"	5	"	"	"	"	
delta-BHC	ND	0.62	50	"	5	"	"	"	"	
Dieldrin	ND	0.97	5.0	"	5	"	"	"	"	
Endosulfan I	ND	0.65	75	"	5	"	"	"	"	
Endosulfan II	ND	0.73	75	"	5	"	"	"	"	
Endosulfan sulfate	ND	0.65	75	"	5	"	"	"	"	
Endrin	ND	0.46	75	"	5	"	"	"	"	
Endrin aldehyde	ND	0.67	75	"	5	"	"	"	"	
gamma-BHC (Lindane)	ND	3.5	50	"	5	"	"	"	"	
Heptachlor	ND	0.53	25	"	5	"	"	"	"	
Heptachlor epoxide	ND	0.64	10	"	5	"	"	"	"	
Methoxychlor	ND	0.74	75	"	5	"	"	"	"	
Mirex	ND	2.7	50	"	5	"	"	"	"	
Toxaphene	ND	13	100	"	5	"	"	"	"	

Kleinfelder (Sacramento) 3077 Fite Circle Sacramento CA, 95827	Project: Novak Project Number: 94582 Project Manager: Sue Gardner	**CLS Work Order #: CSD0335** COC #: 03313

Organochlorine Pesticides by EPA Method 8081A - Quality Control

CLS Labs

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CS02658 - LUFT-DHS GCNV											
Blank (CS02658-BLK1)					Prepared: 04/10/09 Analyzed: 04/13/09						
Surrogate: Tetrachloro-meta-xylene	*7.44*			*µg/kg*	*8.33*		*89*	*46-139*			
Surrogate: Decachlorobiphenyl	*7.72*			*"*	*8.33*		*93*	*52-141*			
Aldrin	ND	0.13	1.0	"							
alpha-BHC	ND	0.00061	2.0	"							
beta-BHC	ND	0.12	10	"							
delta-BHC	ND	0.12	10	"							
gamma-BHC (Lindane)	ND	0.70	10	"							
Chlordane-technical	ND	1.0	20	"							
4,4'-DDD	ND	0.24	15	"							
4,4'-DDE	ND	0.22	15	"							
4,4'-DDT	ND	0.12	15	"							
Dieldrin	ND	0.19	1.0	"							
Endosulfan I	ND	0.13	15	"							
Endosulfan II	ND	0.15	15	"							
Endosulfan sulfate	ND	0.13	15	"							
Endrin	ND	0.092	15	"							
Endrin aldehyde	ND	0.13	15	"							
Heptachlor	ND	0.11	5.0	"							
Heptachlor epoxide	ND	0.13	2.0	"							
Methoxychlor	ND	0.15	15	"							
Mirex	ND	0.54	10	"							
Toxaphene	ND	2.6	20	"							
LCS (CS02658-BS1)					Prepared: 04/10/09 Analyzed: 04/13/09						
Surrogate: Tetrachloro-meta-xylene	*8.05*			*µg/kg*	*8.33*		*97*	*46-139*			
Surrogate: Decachlorobiphenyl	*8.34*			*"*	*8.33*		*100*	*52-141*			
Aldrin	15.4	0.13	1.0	"	16.7		92	47-132			
gamma-BHC (Lindane)	16.0	0.70	10	"	16.7		96	56-133			
4,4'-DDT	17.4	0.12	15	"	16.7		104	46-137			
Dieldrin	16.4	0.19	1.0	"	16.7		98	44-143			
Endrin	19.7	0.092	15	"	16.7		118	30-147			
Heptachlor	15.8	0.11	5.0	"	16.7		95	33-148			

Kleinfelder (Sacramento) 3077 Fite Circle Sacramento CA, 95827	Project: Novak Project Number: 94582 Project Manager: Sue Gardner	CLS Work Order #: CSD0335 COC #: 03313

Organochlorine Pesticides by EPA Method 8081A - Quality Control
CLS Labs

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CS02658 - LUFT-DHS GCNV											
LCS Dup (CS02658-BSD1)					Prepared: 04/10/09 Analyzed: 04/13/09						
Surrogate: Tetrachloro-meta-xylene	*7.37*			*µg/kg*	*8.33*		*88*	*46-139*			
Surrogate: Decachlorobiphenyl	*7.52*			*"*	*8.33*		*90*	*52-141*			
Aldrin	16.2	0.13	1.0	"	16.7		97	47-132	5	30	
gamma-BHC (Lindane)	16.9	0.70	10	"	16.7		101	56-133	5	30	
4,4'-DDT	18.3	0.12	15	"	16.7		110	46-137	5	30	
Dieldrin	17.2	0.19	1.0	"	16.7		103	44-143	5	30	
Endrin	20.7	0.092	15	"	16.7		124	30-147	5	30	
Heptachlor	16.4	0.11	5.0	"	16.7		99	33-148	4	30	
Matrix Spike (CS02658-MS1)		Source: CSD0335-01			Prepared: 04/10/09 Analyzed: 04/13/09						
Surrogate: Tetrachloro-meta-xylene	*18.9*			*µg/kg*	*20.8*		*91*	*46-139*			
Surrogate: Decachlorobiphenyl	*18.1*			*"*	*20.8*		*87*	*52-141*			
Aldrin	14.2	0.67	5.0	"	16.7	ND	85	47-138			
gamma-BHC (Lindane)	14.8	3.5	50	"	16.7	ND	89	38-144			J
4,4'-DDT	15.6	0.59	75	"	16.7	ND	93	41-157			J
Dieldrin	14.4	0.97	5.0	"	16.7	ND	87	46-155			
Endrin	17.3	0.46	75	"	16.7	ND	104	34-149			J
Heptachlor	14.3	0.53	25	"	16.7	ND	86	36-155			J
Matrix Spike Dup (CS02658-MSD1)		Source: CSD0335-01			Prepared: 04/10/09 Analyzed: 04/13/09						
Surrogate: Tetrachloro-meta-xylene	*19.2*			*µg/kg*	*20.8*		*92*	*46-139*			
Surrogate: Decachlorobiphenyl	*18.4*			*"*	*20.8*		*88*	*52-141*			
Aldrin	14.6	0.67	5.0	"	16.7	ND	88	47-138	3	35	
gamma-BHC (Lindane)	14.8	3.5	50	"	16.7	ND	89	38-144	0.05	35	J
4,4'-DDT	15.7	0.59	75	"	16.7	ND	94	41-157	0.9	35	J
Dieldrin	14.7	0.97	5.0	"	16.7	ND	88	46-155	2	35	
Endrin	17.8	0.46	75	"	16.7	ND	107	34-149	3	35	J
Heptachlor	14.9	0.53	25	"	16.7	ND	89	36-155	4	35	J

Kleinfelder (Sacramento) 3077 Fite Circle Sacramento CA. 95827	Project: Novak Project Number: 94582 Project Manager: Sue Gardner	**CLS Work Order #: CSD0335** COC #: 03313

Notes and Definitions

J	Detected but below the Reporting Limit: therefore, result is an estimated concentration.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

CALIFORNIA LABORATORY SERVICES

3249 Fitzgerald Road Rancho Cordova, CA 95742

July 23, 2009

CLS Work Order #: CSG0744
COC #: 03411

Pam Wee
Kleinfelder (Sacramento)
3077 Fite Circle
Sacramento, CA 95827

Project Name: Novak

Enclosed are the results of analyses for samples received by the laboratory on 07/20/09 09:25. Samples were analyzed pursuant to client request utilizing EPA or other ELAP approved methodologies. I certify that the results are in compliance both technically and for completeness.

Analytical results are attached to this letter. Please call if we can provide additional assistance.

Sincerely,

James Liang, Ph.D.
Laboratory Director

CA DOHS ELAP Accreditation/Registration number 1233

CALIFORNIA LABORATORY SERVICES

07/23/09 14:33

Kleinfelder (Sacramento) 3077 Fite Circle Sacramento, CA 95827	Project: Novak Project Number: 94582 Project Manager: Pam Wee	**CLS Work Order #: CSG0744** COC #: 03411

CALIFORNIA LABORATORY SERVICES

07/23/09 14:33

Kleinfelder (Sacramento) 3077 Fite Circle Sacramento, CA 95827	Project: Novak Project Number: 94582 Project Manager: Pam Wee	**CLS Work Order #: CSG0744** COC #: 03411

CHANGE OF STATUS

CLS Lab Job No.:

Proj. Name:

Samples Were Received

called

and requested the following:

Turnaround time requested for additional work:

Updated lab job database and file folder to:

CALIFORNIA LABORATORY SERVICES

07/23/09 14:33

Kleinfelder (Sacramento) 3077 Fite Circle Sacramento, CA 95827	Project: Novak Project Number: 94582 Project Manager: Pam Wee	CLS Work Order #: CSG0744 COC #: 03411

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SS-1A-0.5 (CSG0744-01) Soil Sampled: 07/17/09 10:35 Received: 07/20/09 09:25									
Toxaphene	160	20	µg/kg	1	CS05385	07/21/09	07/22/09	EPA 8081A	
Surrogate: Tetrachloro-meta-xylene		*90 %*	*46-139*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*94 %*	*52-141*		"	"	"	"	
SS-1B-0.5 (CSG0744-02) Soil Sampled: 07/17/09 10:52 Received: 07/20/09 09:25									
Toxaphene	100	20	µg/kg	1	CS05385	07/21/09	07/22/09	EPA 8081A	
Surrogate: Tetrachloro-meta-xylene		*88 %*	*46-139*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*92 %*	*52-141*		"	"	"	"	
SS-1C-0.5 (CSG0744-03) Soil Sampled: 07/17/09 10:43 Received: 07/20/09 09:25									
Toxaphene	100	20	µg/kg	1	CS05385	07/21/09	07/22/09	EPA 8081A	
Surrogate: Tetrachloro-meta-xylene		*93 %*	*46-139*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*96 %*	*52-141*		"	"	"	"	
SS-1D-0.5 (CSG0744-04) Soil Sampled: 07/17/09 11:00 Received: 07/20/09 09:25									
Toxaphene	74	20	µg/kg	1	CS05385	07/21/09	07/22/09	EPA 8081A	
Surrogate: Tetrachloro-meta-xylene		*93 %*	*46-139*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*96 %*	*52-141*		"	"	"	"	
SS-5A-0.5 (CSG0744-05) Soil Sampled: 07/17/09 11:39 Received: 07/20/09 09:25									
Toxaphene	46	20	µg/kg	1	CS05385	07/21/09	07/22/09	EPA 8081A	
Surrogate: Tetrachloro-meta-xylene		*85 %*	*46-139*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*103 %*	*52-141*		"	"	"	"	
SS-5B-0.5 (CSG0744-06) Soil Sampled: 07/17/09 11:32 Received: 07/20/09 09:25									
Toxaphene	110	20	µg/kg	1	CS05385	07/21/09	07/22/09	EPA 8081A	

CALIFORNIA LABORATORY SERVICES

07/23/09 14:33

Kleinfelder (Sacramento) 3077 Fite Circle Sacramento, CA 95827	Project: Novak Project Number: 94582 Project Manager: Pam Wee	CLS Work Order #: CSG0744 COC #: 03411

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SS-5B-0.5 (CSG0744-06) Soil Sampled: 07/17/09 11:32 Received: 07/20/09 09:25									
Surrogate: Tetrachloro-meta-xylene		*94 %*	*46-139*		*CS05385*	"	*07/22/09*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl		*98 %*	*52-141*		"	"	"	"	
SS-5C-0.5 (CSG0744-07) Soil Sampled: 07/17/09 11:25 Received: 07/20/09 09:25									
Toxaphene	100	20	µg/kg	1	CS05385	07/21/09	07/22/09	EPA 8081A	
Surrogate: Tetrachloro-meta-xylene		*73 %*	*46-139*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*96 %*	*52-141*		"	"	"	"	
SS-5D-0.5 (CSG0744-08) Soil Sampled: 07/17/09 11:15 Received: 07/20/09 09:25									
Toxaphene	120	20	µg/kg	1	CS05385	07/21/09	07/22/09	EPA 8081A	
Surrogate: Tetrachloro-meta-xylene		*84 %*	*46-139*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*95 %*	*52-141*		"	"	"	"	

CALIFORNIA LABORATORY SERVICES

07/23/09 14:33

Kleinfelder (Sacramento) 3077 Fite Circle Sacramento, CA 95827	Project: Novak Project Number: 94582 Project Manager: Pam Wee	CLS Work Order #: CSG0744 COC #: 03411

Organochlorine Pesticides by EPA Method 8081A - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CS05385 - LUFT-DHS GCNV										
Blank (CS05385-BLK1)				Prepared: 07/21/09 Analyzed: 07/22/09						
Aldrin	ND	1.0	µg/kg							
alpha-BHC	ND	2.0	"							
beta-BHC	ND	10	"							
delta-BHC	ND	10	"							
gamma-BHC (Lindane)	ND	10	"							
Chlordane-technical	ND	20	"							
4,4'-DDD	ND	15	"							
4,4'-DDE	ND	15	"							
4,4'-DDT	ND	15	"							
Dieldrin	ND	1.0	"							
Endosulfan I	ND	15	"							
Endosulfan II	ND	15	"							
Endosulfan sulfate	ND	15	"							
Endrin	ND	15	"							
Endrin aldehyde	ND	15	"							
Heptachlor	ND	5.0	"							
Heptachlor epoxide	ND	2.0	"							
Methoxychlor	ND	15	"							
Mirex	ND	10	"							
Toxaphene	ND	20	"							
Surrogate: Tetrachloro-meta-xylene	*6.90*		"	*8.33*		*83*	*46-139*			
Surrogate: Decachlorobiphenyl	*7.90*		"	*8.33*		*95*	*32-141*			
LCS (CS05385-BS1)				Prepared: 07/21/09 Analyzed: 07/22/09						
Aldrin	12.2	1.0	µg/kg	16.7		73	47-132			
gamma-BHC (Lindane)	12.1	10	"	16.7		73	56-133			
4,4'-DDT	14.8	15	"	16.7		89	46-137			
Dieldrin	14.0	1.0	"	16.7		84	44-143			
Endrin	15.1	15	"	16.7		91	30-147			
Heptachlor	11.9	5.0	"	16.7		71	33-148			
Surrogate: Tetrachloro-meta-xylene	*5.58*		"	*8.33*		*67*	*46-139*			

CALIFORNIA LABORATORY SERVICES

Kleinfelder (Sacramento)	Project: Novak	
3077 Fite Circle	Project Number: 94582	CLS Work Order #: CSG0744
Sacramento, CA 95827	Project Manager: Pam Wee	COC #: 03411

Organochlorine Pesticides by EPA Method 8081A - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CS05385 - LUFT-DHS GCNV										
LCS (CS05385-BS1)				Prepared: 07/21/09 Analyzed: 07/22/09						
Surrogate: Decachlorobiphenyl	*7.50*		*µg/kg*	*8.33*		*90*	*52-141*			
LCS Dup (CS05385-BSD1)				Prepared: 07/21/09 Analyzed: 07/22/09						
Aldrin	12.2	1.0	µg/kg	16.7		73	47-132	0.03	30	
gamma-BHC (Lindane)	12.0	1.0	"	16.7		72	56-133	0.7	30	
4,4'-DDT	14.9	1.5	"	16.7		89	46-137	0.3	30	
Dieldrin	13.9	1.0	"	16.7		84	44-143	0.4	30	
Endrin	15.2	1.5	"	16.7		91	30-147	0.3	30	
Heptachlor	11.7	5.0	"	16.7		70	33-148	1	30	
Surrogate: Tetrachloro-meta-xylene	*5.43*		*"*	*8.33*		*65*	*46-139*			
Surrogate: Decachlorobiphenyl	*7.43*		*"*	*8.33*		*89*	*52-141*			
Matrix Spike (CS05385-MS1)	Source: CSG0744-01			Prepared: 07/21/09 Analyzed: 07/22/09						
Aldrin	15.0	5.0	µg/kg	16.7	ND	90	47-138			
gamma-BHC (Lindane)	15.4	5.0	"	16.7	ND	92	38-144			
4,4'-DDT	25.9	7.5	"	16.7	ND	155	41-157			
Dieldrin	18.2	5.0	"	16.7	ND	109	46-155			
Endrin	22.9	7.5	"	16.7	ND	137	34-149			
Heptachlor	15.8	25	"	16.7	ND	95	36-155			
Surrogate: Tetrachloro-meta-xylene	*17.7*		*"*	*20.8*		*85*	*46-139*			
Surrogate: Decachlorobiphenyl	*21.9*		*"*	*20.8*		*105*	*52-141*			
Matrix Spike Dup (CS05385-MSD1)	Source: CSG0744-01			Prepared: 07/21/09 Analyzed: 07/22/09						
Aldrin	14.7	5.0	µg/kg	16.7	ND	88	47-138	2	35	
gamma-BHC (Lindane)	15.4	5.0	"	16.7	ND	92	38-144	0.04	35	
4,4'-DDT	25.2	7.5	"	16.7	ND	151	41-157	3	35	
Dieldrin	16.8	5.0	"	16.7	ND	101	46-155	8	35	
Endrin	21.3	7.5	"	16.7	ND	128	34-149	7	35	
Heptachlor	15.6	25	"	16.7	ND	93	36-155	2	35	
Surrogate: Tetrachloro-meta-xylene	*17.8*		*"*	*20.8*		*85*	*46-139*			
Surrogate: Decachlorobiphenyl	*20.9*		*"*	*20.8*		*100*	*52-141*			

Kleinfelder (Sacramento) 3077 Fite Circle Sacramento, CA 95827	Project: Novak Project Number: 94582 Project Manager: Pam Wee	CLS Work Order #: CSG0744 COC #: 03411

Notes and Definitions

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

CALIFORNIA LABORATORY SERVICES

3249 Fitzgerald Road Rancho Cordova, CA 95742

July 22, 2009

CLS Work Order #: CSG0599
COC #: 03341

Sue Gardner
Kleinfelder (Sacramento)
3077 Fite Circle
Sacramento, CA 95827

Project Name: SAFCA - Novak

Enclosed are the results of analyses for samples received by the laboratory on 07/15/09 15:10. Samples were analyzed pursuant to client request utilizing EPA or other ELAP approved methodologies. I certify that the results are in compliance both technically and for completeness.

Analytical results are attached to this letter. Please call if we can provide additional assistance.

Sincerely,

James Liang, Ph.D.
Laboratory Director

CA DOHS ELAP Accreditation/Registration number 1233

CALIFORNIA LABORATORY SERVICES

07/22/09 14:31

Kleinfelder (Sacramento) 3077 Fite Circle Sacramento, CA 95827	Project: SAFCA - Novak Project Number: 94582 Project Manager: Sue Gardner	CLS Work Order #: CSG0599 COC #: 03341

[illegible]

CALIFORNIA LABORATORY SERVICES

07/22/09 14:31

Kleinfelder (Sacramento) 3077 Fite Circle Sacramento, CA 95827	Project: SAFCA - Novak Project Number: 94582 Project Manager: Sue Gardner	CLS Work Order #: CSG0599 COC #: 03341

CLS LABS
SAMPLE RECEIVING EXCEPTION REPORTS

CLS Labs Job # CSG0599

Problem discovered by: NIH ORELLANA Date: 7/15/09

Nature of problem
CLIENT STATED ON COC THAT THERE IS TWO SAMPLES IDENTIFIED AS (SS-2b). CLIENT PROVIDED EXTRA SAMPLE LABELED (SS-2d.)

Client contacted? Yes ____ No ____ Spoke With: ____

By whom: ____ Date: __/__/__ Time: ____ HRS

Client instructions:

Resolution of problem:
~~CHANGED SAMPLE~~
LOGGED IN SECOND SS-2b AS SS-2d ACCORDING TO SAMPLE TIMES COLLECTED

CALIFORNIA LABORATORY SERVICES

07/22/09 14:31

Kleinfelder (Sacramento) 3077 Fite Circle Sacramento, CA 95827	Project: SAFCA - Novak Project Number: 94582 Project Manager: Sue Gardner	CLS Work Order #: CSG0599 COC #: 03341

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SS-3c-1.0 (CSG0599-01) Soil Sampled: 07/15/09 11:25 Received: 07/15/09 15:10									
Toxaphene	110	20	µg/kg	1	CS05263	07/16/09	07/17/09	EPA 8081A	
Surrogate: Tetrachloro-meta-xylene		*85 %*	*46-139*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*82 %*	*52-141*		"	"	"	"	
SS-1d-1.0 (CSG0599-02) Soil Sampled: 07/15/09 11:35 Received: 07/15/09 15:10									
Toxaphene	180	20	µg/kg	1	CS05263	07/16/09	07/17/09	EPA 8081A	
Surrogate: Tetrachloro-meta-xylene		*82 %*	*46-139*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*80 %*	*52-141*		"	"	"	"	
SS-3a-1.0 (CSG0599-03) Soil Sampled: 07/15/09 11:40 Received: 07/15/09 15:10									
Toxaphene	160	20	µg/kg	1	CS05263	07/16/09	07/17/09	EPA 8081A	
Surrogate: Tetrachloro-meta-xylene		*89 %*	*46-139*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*84 %*	*52-141*		"	"	"	"	
SS-1b-1.0 (CSG0599-04) Soil Sampled: 07/15/09 11:45 Received: 07/15/09 15:10									
Toxaphene	130	20	µg/kg	1	CS05263	07/16/09	07/17/09	EPA 8081A	
Surrogate: Tetrachloro-meta-xylene		*79 %*	*46-139*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*73 %*	*52-141*		"	"	"	"	
SS-1c-1.0 (CSG0599-05) Soil Sampled: 07/15/09 11:50 Received: 07/15/09 15:10									
Toxaphene	110	20	µg/kg	1	CS05263	07/16/09	07/17/09	EPA 8081A	
Surrogate: Tetrachloro-meta-xylene		*95 %*	*46-139*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*83 %*	*52-141*		"	"	"	"	
SS-1a-1.0 (CSG0599-06) Soil Sampled: 07/15/09 11:55 Received: 07/15/09 15:10									
Toxaphene	170	20	µg/kg	1	CS05263	07/16/09	07/17/09	EPA 8081A	

CALIFORNIA LABORATORY SERVICES

07/22/09 14:31

Kleinfelder (Sacramento) 3077 Fite Circle Sacramento, CA 95827	Project: SAFCA - Novak Project Number: 94582 Project Manager: Sue Gardner	CLS Work Order #: CSG0599 COC #: 03341

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SS-1a-1.0 (CSG0599-06) Soil Sampled: 07/15/09 11:55 Received: 07/15/09 15:10									
Surrogate: Tetrachloro-meta-xylene		*84 %*	*46-139*		*CS05263*	*"*	*07/17/09*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl		*87 %*	*52-141*		*"*	*"*	*"*	*"*	
SS-2a-1.0 (CSG0599-07) Soil Sampled: 07/15/09 12:00 Received: 07/15/09 15:10									
Toxaphene	130	20	µg/kg	1	CS05263	07/16/09	07/17/09	EPA 8081A	
Surrogate: Tetrachloro-meta-xylene		*82 %*	*46-139*		*"*	*"*	*"*	*"*	
Surrogate: Decachlorobiphenyl		*76 %*	*52-141*		*"*	*"*	*"*	*"*	
SS-2b-1.0 (CSG0599-08) Soil Sampled: 07/15/09 12:05 Received: 07/15/09 15:10									
Toxaphene	85	20	µg/kg	1	CS05263	07/16/09	07/17/09	EPA 8081A	
Surrogate: Tetrachloro-meta-xylene		*84 %*	*46-139*		*"*	*"*	*"*	*"*	
Surrogate: Decachlorobiphenyl		*77 %*	*52-141*		*"*	*"*	*"*	*"*	
SS-4a-1.0 (CSG0599-09) Soil Sampled: 07/15/09 12:15 Received: 07/15/09 15:10									
Toxaphene	130	20	µg/kg	1	CS05263	07/16/09	07/17/09	EPA 8081A	
Surrogate: Tetrachloro-meta-xylene		*79 %*	*46-139*		*"*	*"*	*"*	*"*	
Surrogate: Decachlorobiphenyl		*72 %*	*52-141*		*"*	*"*	*"*	*"*	
SS-4b-1.0 (CSG0599-10) Soil Sampled: 07/15/09 12:20 Received: 07/15/09 15:10									
Toxaphene	23	20	µg/kg	1	CS05263	07/16/09	07/17/09	EPA 8081A	
Surrogate: Tetrachloro-meta-xylene		*78 %*	*46-139*		*"*	*"*	*"*	*"*	
Surrogate: Decachlorobiphenyl		*69 %*	*52-141*		*"*	*"*	*"*	*"*	
SS-4c-1.0 (CSG0599-11) Soil Sampled: 07/15/09 12:30 Received: 07/15/09 15:10									
Toxaphene	130	20	µg/kg	1	CS05263	07/16/09	07/17/09	EPA 8081A	
Surrogate: Tetrachloro-meta-xylene		*76 %*	*46-139*		*"*	*"*	*"*	*"*	
Surrogate: Decachlorobiphenyl		*71 %*	*52-141*		*"*	*"*	*"*	*"*	

CALIFORNIA LABORATORY SERVICES

 07/22/09 14:31

Kleinfelder (Sacramento)	Project: SAFCA - Novak	
3077 Fite Circle	Project Number: 94582	**CLS Work Order #: CSG0599**
Sacramento, CA 95827	Project Manager: Sue Gardner	COC #: 03341

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SS-4d-1.0 (CSG0599-12) Soil Sampled: 07/15/09 12:35 Received: 07/15/09 15:10									
Toxaphene	130	20	µg/kg	1	CS05263	07/16/09	07/17/09	EPA 8081A	
Surrogate: Tetrachloro-meta-xylene		*79 %*	*46-139*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*74 %*	*52-141*		"	"	"	"	
SS-5b-1.0 (CSG0599-13) Soil Sampled: 07/15/09 12:40 Received: 07/15/09 15:10									
Toxaphene	110	20	µg/kg	1	CS05263	07/16/09	07/17/09	EPA 8081A	
Surrogate: Tetrachloro-meta-xylene		*75 %*	*46-139*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*65 %*	*52-141*		"	"	"	"	
SS-5d-1.0 (CSG0599-14) Soil Sampled: 07/15/09 12:45 Received: 07/15/09 15:10									
Toxaphene	220	20	µg/kg	1	CS05263	07/16/09	07/17/09	EPA 8081A	
Surrogate: Tetrachloro-meta-xylene		*84 %*	*46-139*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*78 %*	*52-141*		"	"	"	"	
SS-5c-1.0 (CSG0599-15) Soil Sampled: 07/15/09 12:50 Received: 07/15/09 15:10									
Toxaphene	220	20	µg/kg	1	CS05263	07/16/09	07/17/09	EPA 8081A	
Surrogate: Tetrachloro-meta-xylene		*90 %*	*46-139*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*85 %*	*52-141*		"	"	"	"	
SS-5a-1.0 (CSG0599-16) Soil Sampled: 07/15/09 12:55 Received: 07/15/09 15:10									
Toxaphene	150	20	µg/kg	1	CS05263	07/16/09	07/17/09	EPA 8081A	
Surrogate: Tetrachloro-meta-xylene		*63 %*	*46-139*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*54 %*	*52-141*		"	"	"	"	
SS-2c-1.0 (CSG0599-17) Soil Sampled: 07/15/09 13:00 Received: 07/15/09 15:10									
Toxaphene	220	20	µg/kg	1	CS05263	07/16/09	07/17/09	EPA 8081A	

CALIFORNIA LABORATORY SERVICES

07/22/09 14:31

Kleinfelder (Sacramento)
3077 Fite Circle
Sacramento, CA 95827

Project: SAFCA - Novak
Project Number: 94582
Project Manager: Sue Gardner

CLS Work Order #: CSG0599
COC #: 03341

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SS-2c-1.0 (CSG0599-17) Soil Sampled: 07/15/09 13:00 Received: 07/15/09 15:10									
Surrogate: Tetrachloro-meta-xylene		*85 %*	*46-139*		*CS05263*	"	*07/17/09*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl		*79 %*	*52-141*		"	"	"	"	
SS-3b-1.0 (CSG0599-18) Soil Sampled: 07/15/09 13:05 Received: 07/15/09 15:10									
Toxaphene	130	20	µg/kg	1	CS05263	07/16/09	07/17/09	EPA 8081A	
Surrogate: Tetrachloro-meta-xylene		*87 %*	*46-139*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*85 %*	*52-141*		"	"	"	"	
SS-3d-1.0 (CSG0599-19) Soil Sampled: 07/15/09 13:10 Received: 07/15/09 15:10									
Toxaphene	150	20	µg/kg	1	CS05263	07/16/09	07/17/09	EPA 8081A	
Surrogate: Tetrachloro-meta-xylene		*95 %*	*46-139*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*91 %*	*52-141*		"	"	"	"	
SS-2d-1.0 (CSG0599-20) Soil Sampled: 07/15/09 13:20 Received: 07/15/09 15:10									
Toxaphene	160	20	µg/kg	1	CS05263	07/16/09	07/17/09	EPA 8081A	
Surrogate: Tetrachloro-meta-xylene		*91 %*	*46-139*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*88 %*	*52-141*		"	"	"	"	

Kleinfelder (Sacramento) 3077 Fite Circle Sacramento, CA 95827	Project: SAFCA - Novak Project Number: 94582 Project Manager: Sue Gardner	CLS Work Order #: CSG0599 COC #: 03341

Organochlorine Pesticides by EPA Method 8081A - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CS05263 - LUFT-DHS GCNV										
Blank (CS05263-BLK1)				Prepared: 07/16/09 Analyzed: 07/17/09						
Aldrin	ND	1.0	µg/kg							
alpha-BHC	ND	2.0	"							
beta-BHC	ND	10	"							
delta-BHC	ND	10	"							
gamma-BHC (Lindane)	ND	10	"							
Chlordane-technical	ND	20	"							
4,4'-DDD	ND	15	"							
4,4'-DDE	ND	15	"							
4,4'-DDT	ND	15	"							
Dieldrin	ND	1.0	"							
Endosulfan I	ND	15	"							
Endosulfan II	ND	15	"							
Endosulfan sulfate	ND	15	"							
Endrin	ND	15	"							
Endrin aldehyde	ND	15	"							
Heptachlor	ND	5.0	"							
Heptachlor epoxide	ND	2.0	"							
Methoxychlor	ND	15	"							
Mirex	ND	10	"							
Toxaphene	ND	20	"							
Surrogate: Tetrachloro-meta-xylene	*6.32*		*"*	*8.33*		*76*	*46-139*			
Surrogate: Decachlorobiphenyl	*6.93*		*"*	*8.33*		*83*	*52-141*			
LCS (CS05263-BS1)				Prepared: 07/16/09 Analyzed: 07/17/09						
Aldrin	12.4	1.0	µg/kg	16.7		74	47-132			
gamma-BHC (Lindane)	12.8	10	"	16.7		77	56-133			
4,4'-DDT	13.0	15	"	16.7		78	46-137			
Dieldrin	12.6	1.0	"	16.7		75	44-143			
Endrin	15.4	15	"	16.7		92	30-147			
Heptachlor	12.6	5.0	"	16.7		75	33-148			
Surrogate: Tetrachloro-meta-xylene	*6.66*		*"*	*8.33*		*80*	*46-139*			

CALIFORNIA LABORATORY SERVICES

07/22/09 14:31

Kleinfelder (Sacramento)
3077 Fite Circle
Sacramento, CA 95827

Project: SAFCA - Novak
Project Number: 94582
Project Manager: Sue Gardner

CLS Work Order #: CSG0599
COC #: 03341

Organochlorine Pesticides by EPA Method 8081A - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CS05263 - LUFT-DHS GCNV										
LCS (CS05263-BS1)				Prepared: 07/16/09	Analyzed: 07/17/09					
Surrogate: Decachlorobiphenyl	*6.79*		*µg/kg*	*8.33*		*81*	*52-141*			
LCS Dup (CS05263-BSD1)				Prepared: 07/16/09	Analyzed: 07/17/09					
Aldrin	12.2	1.0	µg/kg	16.7		73	47-132	1	30	
gamma-BHC (Lindane)	12.5	1.0	"	16.7		75	56-133	2	30	
4,4'-DDT	13.8	1.5	"	16.7		83	46-137	6	30	
Dieldrin	13.0	1.0	"	16.7		78	44-143	4	30	
Endrin	16.0	1.5	"	16.7		96	30-147	4	30	
Heptachlor	12.4	5.0	"	16.7		74	33-148	2	30	
Surrogate: Tetrachloro-meta-xylene	*6.12*		*"*	*8.33*		*73*	*46-139*			
Surrogate: Decachlorobiphenyl	*6.94*		*"*	*8.33*		*83*	*52-141*			
Matrix Spike (CS05263-MS1)	Source: CSG0599-02			Prepared: 07/16/09	Analyzed: 07/17/09					
Aldrin	13.6	5.0	µg/kg	16.7	ND	81	47-138			
gamma-BHC (Lindane)	13.7	5.0	"	16.7	ND	82	38-144			
4,4'-DDT	22.0	7.5	"	16.7	ND	132	41-157			
Dieldrin	15.2	5.0	"	16.7	ND	91	46-155			
Endrin	22.4	7.5	"	16.7	ND	135	34-149			
Heptachlor	13.6	2.5	"	16.7	ND	82	36-155			
Surrogate: Tetrachloro-meta-xylene	*18.6*		*"*	*20.8*		*89*	*46-139*			
Surrogate: Decachlorobiphenyl	*18.1*		*"*	*20.8*		*87*	*52-141*			
Matrix Spike Dup (CS05263-MSD1)	Source: CSG0599-02			Prepared: 07/16/09	Analyzed: 07/17/09					
Aldrin	13.7	5.0	µg/kg	16.7	ND	82	47-138	0.7	35	
gamma-BHC (Lindane)	13.9	5.0	"	16.7	ND	83	38-144	1	35	
4,4'-DDT	21.8	7.5	"	16.7	ND	131	41-157	0.8	35	
Dieldrin	15.0	5.0	"	16.7	ND	90	46-155	1	35	
Endrin	22.8	7.5	"	16.7	ND	137	34-149	2	35	
Heptachlor	13.7	2.5	"	16.7	ND	82	36-155	0.7	35	
Surrogate: Tetrachloro-meta-xylene	*18.7*		*"*	*20.8*		*90*	*46-139*			
Surrogate: Decachlorobiphenyl	*18.1*		*"*	*20.8*		*87*	*52-141*			

CALIFORNIA LABORATORY SERVICES

07/22/09 14:31

Kleinfelder (Sacramento) 3077 Fite Circle Sacramento, CA 95827	Project: SAFCA - Novak Project Number: 94582 Project Manager: Sue Gardner	CLS Work Order #: CSG0599 COC #: 03341

Notes and Definitions

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

CALIFORNIA LABORATORY SERVICES
3249 Fitzgerald Road Rancho Cordova, CA 95742

February 18, 2009

CLS Work Order #: CSB0027
COC #: 03051,52,55

Sue Gardner
Kleinfelder (Sacramento)
3077 Fite Circle
Sacramento, CA 95827

Project Name: FL-036

Enclosed are the results of analyses for samples received by the laboratory on 02/02/09 12:20. Samples were analyzed pursuant to client request utilizing EPA or other ELAP approved methodologies. I certify that the results are in compliance both technically and for completeness.

Analytical results are attached to this letter. Please call if we can provide additional assistance.

Sincerely,

James Liang, Ph.D.
Laboratory Director

CA DOHS ELAP Accreditation/Registration number 1233

CALIFORNIA LABORATORY SERVICES

02/18/09 09:15

Kleinfelder (Sacramento) 3077 Fite Circle Sacramento, CA 95827	Project: FL-036 Project Number: 94582 Project Manager: Sue Gardner	CLS Work Order #: CSB0027 COC #: 03051.52.55

CALIFORNIA LABORATORY SERVICES

02/18/09 09:15

Kleinfelder (Sacramento) 3077 Fite Circle Sacramento, CA 95827	Project: FL-036 Project Number: 94583 Project Manager: Sue Gardner	CLS Work Order #: CSB0027 COC #: 03051,52,55

CALIFORNIA LABORATORY SERVICES

02/18/09 09:15

Kleinfelder (Sacramento) 3077 Fite Circle Sacramento, CA 95827	Project: FL-036 Project Number: 94582 Project Manager: Sue Gardner	CLS Work Order #: CSB0027 COC #: 03051,52,55

CALIFORNIA LABORATORY SERVICES

02/18/09 09:15

Kleinfelder (Sacramento)
3077 Fite Circle
Sacramento, CA 95827

Project: FL-036
Project Number: 94582
Project Manager: Sue Gardner

CLS Work Order #: CSB0027
COC #: 03051,52,55

Chlorinated Herbicides by EPA Method 8151A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
E-FL-C5-0.5 (CSB0027-19) Soil Sampled: 01/30/09 11:05 Received: 02/02/09 12:20									
2,4-D	ND	0.050	mg/kg	1	CS00790	02/02/09	02/16/09	EPA 8151A	
Dalapon	ND	1.0	"	"	"	"	"	"	
2,4-DB	ND	0.10	"	"	"	"	"	"	
Dicamba	ND	0.010	"	"	"	"	"	"	
Dichloroprop	ND	0.10	"	"	"	"	"	"	
Dinoseb	ND	0.010	"	"	"	"	"	"	
MCPA	ND	2.0	"	"	"	"	"	"	
MCPP	ND	2.0	"	"	"	"	"	"	
Pentachlorophenol	ND	0.010	"	"	"	"	"	"	
2,4,5-T	ND	0.010	"	"	"	"	"	"	
2,4,5-TP (Silvex)	ND	0.010	"	"	"	"	"	"	
Surrogate: 2,4-DCAA		*91 %*	*50-150*		"	"	"	"	
E-FL-C6-0.5 (CSB0027-24) Soil Sampled: 01/30/09 11:35 Received: 02/02/09 12:20									
2,4-D	ND	0.050	mg/kg	1	CS00790	02/02/09	02/16/09	EPA 8151A	
Dalapon	ND	1.0	"	"	"	"	"	"	
2,4-DB	ND	0.10	"	"	"	"	"	"	
Dicamba	ND	0.010	"	"	"	"	"	"	
Dichloroprop	ND	0.10	"	"	"	"	"	"	
Dinoseb	ND	0.010	"	"	"	"	"	"	
MCPA	ND	2.0	"	"	"	"	"	"	
MCPP	ND	2.0	"	"	"	"	"	"	
Pentachlorophenol	ND	0.010	"	"	"	"	"	"	
2,4,5-T	ND	0.010	"	"	"	"	"	"	
2,4,5-TP (Silvex)	ND	0.010	"	"	"	"	"	"	
Surrogate: 2,4-DCAA		*77 %*	*50-150*		"	"	"	"	

CALIFORNIA LABORATORY SERVICES

02/18/09 09:15

Kleinfelder (Sacramento) 3077 Fite Circle Sacramento, CA 95827	Project: FL-036 Project Number: 94582 Project Manager: Sue Gardner	**CLS Work Order #: CSB0027** COC #: 03051,52,55

Chlorinated Herbicides by EPA Method 8151A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
E-FL-C8-0.5 (CSB0027-29) Soil	**Sampled: 01/30/09 12:35**	**Received: 02/02/09 12:20**							
2,4-D	ND	0.050	mg/kg	1	CS00790	02/02/09	02/16/09	EPA 8151A	
Dalapon	ND	1.0	"	"	"	"	"	"	
2,4-DB	ND	0.10	"	"	"	"	"	"	
Dicamba	ND	0.010	"	"	"	"	"	"	
Dichloroprop	ND	0.10	"	"	"	"	"	"	
Dinoseb	ND	0.010	"	"	"	"	"	"	
MCPA	ND	2.0	"	"	"	"	"	"	
MCPP	ND	2.0	"	"	"	"	"	"	
Pentachlorophenol	ND	0.010	"	"	"	"	"	"	
2,4,5-T	ND	0.010	"	"	"	"	"	"	
2,4,5-TP (Silvex)	ND	0.010	"	"	"	"	"	"	
Surrogate: 2,4-DCAA		*116 %*	*50-150*		"	"	"	"	
E-FL-C9-0.5 (CSB0027-34) Soil	**Sampled: 01/30/09 12:55**	**Received: 02/02/09 12:20**							
2,4-D	ND	0.050	mg/kg	1	CS00790	02/02/09	02/16/09	EPA 8151A	
Dalapon	ND	1.0	"	"	"	"	"	"	
2,4-DB	ND	0.10	"	"	"	"	"	"	
Dicamba	ND	0.010	"	"	"	"	"	"	
Dichloroprop	ND	0.10	"	"	"	"	"	"	
Dinoseb	ND	0.010	"	"	"	"	"	"	
MCPA	ND	2.0	"	"	"	"	"	"	
MCPP	ND	2.0	"	"	"	"	"	"	
Pentachlorophenol	ND	0.010	"	"	"	"	"	"	
2,4,5-T	ND	0.010	"	"	"	"	"	"	
2,4,5-TP (Silvex)	ND	0.010	"	"	"	"	"	"	
Surrogate: 2,4-DCAA		*65 %*	*50-150*		"	"	"	"	

CALIFORNIA LABORATORY SERVICES

02/18/09 09:15

Kleinfelder (Sacramento)
3077 Fite Circle
Sacramento, CA 95827

Project: FL-036
Project Number: 94582
Project Manager: Sue Gardner

CLS Work Order #: CSB0027
COC #: 03051,52,55

Chlorinated Herbicides by EPA Method 8151A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
E-FL-C7-0.5 (CSB0027-39) Soil	**Sampled: 01/30/09 13:20**	**Received: 02/02/09 12:20**							
2,4-D	ND	0.050	mg/kg	1	CS00790	02/02/09	02/16/09	EPA 8151A	
Dalapon	ND	1.0	"	"	"	"	"	"	
2,4-DB	ND	0.10	"	"	"	"	"	"	
Dicamba	ND	0.010	"	"	"	"	"	"	
Dichloroprop	ND	0.10	"	"	"	"	"	"	
Dinoseb	ND	0.010	"	"	"	"	"	"	
MCPA	ND	2.0	"	"	"	"	"	"	
MCPP	ND	2.0	"	"	"	"	"	"	
Pentachlorophenol	ND	0.010	"	"	"	"	"	"	
2,4,5-T	ND	0.010	"	"	"	"	"	"	
2,4,5-TP (Silvex)	ND	0.010	"	"	"	"	"	"	
Surrogate: 2,4-DCAA		*161 %*	*50-150*		"	"	"	"	*QS-HI*
E-FL-C2-0.5 (CSB0027-44) Soil	**Sampled: 01/30/09 13:50**	**Received: 02/02/09 12:20**							
2,4-D	ND	0.050	mg/kg	1	CS00790	02/02/09	02/16/09	EPA 8151A	
Dalapon	ND	1.0	"	"	"	"	"	"	
2,4-DB	ND	0.10	"	"	"	"	"	"	
Dicamba	ND	0.010	"	"	"	"	"	"	
Dichloroprop	ND	0.10	"	"	"	"	"	"	
Dinoseb	ND	0.010	"	"	"	"	"	"	
MCPA	ND	2.0	"	"	"	"	"	"	
MCPP	ND	2.0	"	"	"	"	"	"	
Pentachlorophenol	ND	0.010	"	"	"	"	"	"	
2,4,5-T	ND	0.010	"	"	"	"	"	"	
2,4,5-TP (Silvex)	ND	0.010	"	"	"	"	"	"	
Surrogate: 2,4-DCAA		*89 %*	*50-150*		"	"	"	"	

CALIFORNIA LABORATORY SERVICES

02/18/09 09:15

Kleinfelder (Sacramento)
3077 Fite Circle
Sacramento, CA 95827

Project: FL-036
Project Number: 94582
Project Manager: Sue Gardner

CLS Work Order #: CSB0027
COC #: 03051.52.55

Metals by EPA 6000/7000 Series Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
E-FL-C1-0.5 (CSB0027-04) Soil	**Sampled: 01/30/09 09:35**	**Received: 02/02/09 12:20**							
Arsenic	12	1.0	mg/kg	4	CS00842	02/04/09	02/04/09	EPA 7060A	
Copper	52	1.0	"	1	"	"	02/05/09	EPA 6010B	
Lead	30	2.5	"	"	"	"	"	"	
E-FL-C3-0.5 (CSB0027-09) Soil	**Sampled: 01/30/09 10:05**	**Received: 02/02/09 12:20**							
Arsenic	16	1.0	mg/kg	4	CS00842	02/04/09	02/04/09	EPA 7060A	
Copper	51	1.0	"	1	"	"	02/04/09	EPA 6010B	
Lead	40	2.5	"	"	"	"	"	"	
E-FL-C4-0.5 (CSB0027-14) Soil	**Sampled: 01/30/09 10:30**	**Received: 02/02/09 12:20**							
Arsenic	26	2.0	mg/kg	8	CS00842	02/04/09	02/04/09	EPA 7060A	
Copper	42	1.0	"	1	"	"	02/04/09	EPA 6010B	
Lead	68	2.5	"	"	"	"	"	"	
E-FL-C5-0.5 (CSB0027-19) Soil	**Sampled: 01/30/09 11:05**	**Received: 02/02/09 12:20**							
Arsenic	36	2.0	mg/kg	8	CS00842	02/04/09	02/04/09	EPA 7060A	
Copper	46	1.0	"	1	"	"	02/04/09	EPA 6010B	
Lead	93	2.5	"	"	"	"	"	"	
E-FL-C6-0.5 (CSB0027-24) Soil	**Sampled: 01/30/09 11:35**	**Received: 02/02/09 12:20**							
Arsenic	29	2.0	mg/kg	8	CS00842	02/04/09	02/04/09	EPA 7060A	
Copper	48	1.0	"	1	"	"	02/04/09	EPA 6010B	
Lead	72	2.5	"	"	"	"	"	"	
E-FL-C8-0.5 (CSB0027-29) Soil	**Sampled: 01/30/09 12:35**	**Received: 02/02/09 12:20**							
Arsenic	35	2.0	mg/kg	8	CS00842	02/04/09	02/04/09	EPA 7060A	
Copper	47	1.0	"	1	"	"	02/04/09	EPA 6010B	
Lead	92	2.5	"	"	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

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Kleinfelder (Sacramento)	Project: FL-036	
3077 Fite Circle	Project Number: 94582	**CLS Work Order #: CSB0027**
Sacramento, CA 95827	Project Manager: Sue Gardner	COC #: 03051,52,55

Metals by EPA 6000/7000 Series Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
E-FL-C9-0.5 (CSB0027-34) Soil	**Sampled: 01/30/09 12:55**	**Received: 02/02/09 12:20**							
Arsenic	**33**	2.0	mg/kg	8	CS00842	02/04/09	02/04/09	EPA 7060A	
Copper	**49**	1.0	"	1	"	"	02/04/09	EPA 6010B	
Lead	**90**	2.5	"	"	"	"	"	"	
E-FL-C7-0.5 (CSB0027-39) Soil	**Sampled: 01/30/09 13:20**	**Received: 02/02/09 12:20**							
Arsenic	**26**	2.0	mg/kg	8	CS00842	02/04/09	02/04/09	EPA 7060A	
Copper	**42**	1.0	"	1	"	"	02/04/09	EPA 6010B	
Lead	**67**	2.5	"	"	"	"	"	"	
E-FL-C2-0.5 (CSB0027-44) Soil	**Sampled: 01/30/09 13:50**	**Received: 02/02/09 12:20**							
Arsenic	**19**	1.0	mg/kg	4	CS00842	02/04/09	02/04/09	EPA 7060A	
Copper	**50**	1.0	"	1	"	"	02/04/09	EPA 6010B	
Lead	**60**	2.5	"	"	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

Kleinfelder (Sacramento)	Project: FL-036	
3077 Fite Circle	Project Number: 94582	CLS Work Order #: CSB0027
Sacramento, CA 95827	Project Manager: Sue Gardner	COC #: 03051,52,55

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
E-FL-C1-0.5 (CSB0027-04) Soil Sampled: 01/30/09 09:35 Received: 02/02/09 12:20									
Aldrin	ND	2.0	µg/kg	2	CS00783	02/02/09	02/03/09	EPA 8081A	
alpha-BHC	ND	4.0	"	"	"	"	"	"	
beta-BHC	ND	20	"	"	"	"	"	"	
delta-BHC	ND	20	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	20	"	"	"	"	"	"	
Chlordane-technical	ND	40	"	"	"	"	"	"	
4,4´-DDD	**43**	30	"	"	"	"	"	"	
4,4´-DDE	**280**	150	"	10	"	"	"	"	
4,4´-DDT	**250**	150	"	"	"	"	"	"	
Dieldrin	**49**	2.0	"	2	"	"	"	"	
Endosulfan I	ND	30	"	"	"	"	"	"	
Endosulfan II	ND	30	"	"	"	"	"	"	
Endosulfan sulfate	ND	30	"	"	"	"	"	"	
Endrin	ND	30	"	"	"	"	"	"	
Endrin aldehyde	ND	30	"	"	"	"	"	"	
Heptachlor	ND	10	"	"	"	"	"	"	
Heptachlor epoxide	ND	4.0	"	"	"	"	"	"	
Methoxychlor	ND	30	"	"	"	"	"	"	
Mirex	ND	20	"	"	"	"	"	"	
Toxaphene	ND	40	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*100 %*	*46-139*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*104 %*	*52-141*		"	"	"	"	
E-FL-C3-0.5 (CSB0027-09) Soil Sampled: 01/30/09 10:05 Received: 02/02/09 12:20									
Aldrin	ND	2.0	µg/kg	2	CS00783	02/02/09	02/03/09	EPA 8081A	
alpha-BHC	ND	4.0	"	"	"	"	"	"	
beta-BHC	ND	20	"	"	"	"	"	"	
delta-BHC	ND	20	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	20	"	"	"	"	"	"	
Chlordane-technical	ND	40	"	"	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

Kleinfelder (Sacramento) 3077 Fite Circle Sacramento, CA 95827	Project: FL-036 Project Number: 94582 Project Manager: Sue Gardner	CLS Work Order #: CSB0027 COC #: 03051,52,55

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
E-FL-C3-0.5 (CSB0027-09) Soil Sampled: 01/30/09 10:05 Received: 02/02/09 12:20									
4,4'-DDD	**65**	30	µg/kg	2	CS00783	"	02/03/09	EPA 8081A	
4,4'-DDE	**380**	300	"	20	"	"	"	"	
4,4'-DDT	**360**	300	"	"	"	"	"	"	
Dieldrin	**52**	2.0	"	2	"	"	"	"	
Endosulfan I	ND	30	"	"	"	"	"	"	
Endosulfan II	ND	30	"	"	"	"	"	"	
Endosulfan sulfate	ND	30	"	"	"	"	"	"	
Endrin	ND	30	"	"	"	"	"	"	
Endrin aldehyde	ND	30	"	"	"	"	"	"	
Heptachlor	ND	10	"	"	"	"	"	"	
Heptachlor epoxide	ND	4.0	"	"	"	"	"	"	
Methoxychlor	ND	30	"	"	"	"	"	"	
Mirex	ND	20	"	"	"	"	"	"	
Toxaphene	ND	40	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*85 %*	*46-139*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*106 %*	*52-141*		"	"	"	"	
E-FL-C4-0.5 (CSB0027-14) Soil Sampled: 01/30/09 10:30 Received: 02/02/09 12:20									
Aldrin	ND	2.0	µg/kg	2	CS00783	02/02/09	02/03/09	EPA 8081A	
alpha-BHC	ND	4.0	"	"	"	"	"	"	
beta-BHC	ND	20	"	"	"	"	"	"	
delta-BHC	ND	20	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	20	"	"	"	"	"	"	
Chlordane-technical	ND	40	"	"	"	"	"	"	
4,4'-DDD	**40**	30	"	"	"	"	"	"	
4,4'-DDE	**180**	150	"	10	"	"	"	"	
4,4'-DDT	**170**	150	"	"	"	"	"	"	
Dieldrin	**38**	2.0	"	2	"	"	"	"	
Endosulfan I	ND	30	"	"	"	"	"	"	
Endosulfan II	ND	30	"	"	"	"	"	"	

California Laboratory Services

Kleinfelder (Sacramento) 3077 Fite Circle Sacramento, CA 95827	Project: FL-036 Project Number: 94582 Project Manager: Sue Gardner	CLS Work Order #: CSB0027 COC #: 03051.52.55

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
E-FL-C4-0.5 (CSB0027-14) Soil Sampled: 01/30/09 10:30 Received: 02/02/09 12:20									
Endosulfan sulfate	ND	30	µg/kg	2	CS00783	"	02/03/09	EPA 8081A	
Endrin	ND	30	"	"	"	"	"	"	
Endrin aldehyde	ND	30	"	"	"	"	"	"	
Heptachlor	ND	10	"	"	"	"	"	"	
Heptachlor epoxide	ND	4.0	"	"	"	"	"	"	
Methoxychlor	ND	30	"	"	"	"	"	"	
Mirex	ND	20	"	"	"	"	"	"	
Toxaphene	ND	40	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*99 %*	*46-139*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*108 %*	*52-141*		"	"	"	"	
E-FL-C5-0.5 (CSB0027-19) Soil Sampled: 01/30/09 11:05 Received: 02/02/09 12:20									
Aldrin	ND	2.0	µg/kg	2	CS00783	02/02/09	02/03/09	EPA 8081A	
alpha-BHC	ND	4.0	"	"	"	"	"	"	
beta-BHC	ND	20	"	"	"	"	"	"	
delta-BHC	ND	20	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	20	"	"	"	"	"	"	
Chlordane-technical	ND	40	"	"	"	"	"	"	
4,4'-DDD	**160**	75	"	5	"	"	"	"	
4,4'-DDE	**470**	380	"	25	"	"	"	"	
4,4'-DDT	**590**	380	"	"	"	"	"	"	
Dieldrin	**100**	5.0	"	5	"	"	"	"	
Endosulfan I	ND	30	"	2	"	"	"	"	
Endosulfan II	ND	30	"	"	"	"	"	"	
Endosulfan sulfate	ND	30	"	"	"	"	"	"	
Endrin	ND	30	"	"	"	"	"	"	
Endrin aldehyde	ND	30	"	"	"	"	"	"	
Heptachlor	ND	10	"	"	"	"	"	"	
Heptachlor epoxide	ND	4.0	"	"	"	"	"	"	
Methoxychlor	ND	30	"	"	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

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Kleinfelder (Sacramento)	Project: FL-036	
3077 Fite Circle	Project Number: 94582	**CLS Work Order #: CSB0027**
Sacramento, CA 95827	Project Manager: Sue Gardner	COC #: 03051,52,55

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
E-FL-C5-0.5 (CSB0027-19) Soil Sampled: 01/30/09 11:05 Received: 02/02/09 12:20									
Mirex	ND	20	µg/kg	2	CS00783	"	02/03/09	EPA 8081A	
Toxaphene	ND	40	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*82 %*	*46-139*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*105 %*	*52-141*		"	"	"	"	
E-FL-C6-0.5 (CSB0027-24) Soil Sampled: 01/30/09 11:35 Received: 02/02/09 12:20									
Aldrin	ND	2.0	µg/kg	2	CS00783	02/02/09	02/03/09	EPA 8081A	
alpha-BHC	ND	4.0	"	"	"	"	"	"	
beta-BHC	ND	20	"	"	"	"	"	"	
delta-BHC	ND	20	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	20	"	"	"	"	"	"	
Chlordane-technical	ND	40	"	"	"	"	"	"	
4,4'-DDD	ND	30	"	"	"	"	"	"	
4,4'-DDE	**210**	150	"	10	"	"	"	"	
4,4'-DDT	**130**	75	"	5	"	"	"	"	
Dieldrin	**34**	2.0	"	2	"	"	"	"	
Endosulfan I	ND	30	"	"	"	"	"	"	
Endosulfan II	ND	30	"	"	"	"	"	"	
Endosulfan sulfate	ND	30	"	"	"	"	"	"	
Endrin	ND	30	"	"	"	"	"	"	
Endrin aldehyde	ND	30	"	"	"	"	"	"	
Heptachlor	ND	10	"	"	"	"	"	"	
Heptachlor epoxide	ND	4.0	"	"	"	"	"	"	
Methoxychlor	ND	30	"	"	"	"	"	"	
Mirex	ND	20	"	"	"	"	"	"	
Toxaphene	ND	40	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*112 %*	*46-139*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*104 %*	*52-141*		"	"	"	"	

CALIFORNIA LABORATORY SERVICES

Kleinfelder (Sacramento)	Project: FL-036	
3077 Fite Circle	Project Number: 94582	CLS Work Order #: CSB0027
Sacramento, CA 95827	Project Manager: Sue Gardner	COC #: 03051,52,55

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
E-FL-C8-0.5 (CSB0027-29) Soil Sampled: 01/30/09 12:35 Received: 02/02/09 12:20									
Aldrin	ND	2.0	µg/kg	2	CS00783	02/02/09	02/03/09	EPA 8081A	
alpha-BHC	ND	4.0	"	"	"	"	"	"	
beta-BHC	ND	20	"	"	"	"	"	"	
delta-BHC	ND	20	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	20	"	"	"	"	"	"	
Chlordane-technical	ND	40	"	"	"	"	"	"	
4,4'-DDD	**34**	30	"	"	"	"	"	"	
4,4'-DDE	**190**	150	"	10	"	"	"	"	
4,4'-DDT	**120**	75	"	5	"	"	"	"	
Dieldrin	**68**	2.0	"	2	"	"	"	"	
Endosulfan I	ND	30	"	"	"	"	"	"	
Endosulfan II	ND	30	"	"	"	"	"	"	
Endosulfan sulfate	ND	30	"	"	"	"	"	"	
Endrin	ND	30	"	"	"	"	"	"	
Endrin aldehyde	ND	30	"	"	"	"	"	"	
Heptachlor	ND	10	"	"	"	"	"	"	
Heptachlor epoxide	ND	4.0	"	"	"	"	"	"	
Methoxychlor	ND	30	"	"	"	"	"	"	
Mirex	ND	20	"	"	"	"	"	"	
Toxaphene	ND	40	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*100 %*	*46-139*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*104 %*	*52-141*		"	"	"	"	
E-FL-C9-0.5 (CSB0027-34) Soil Sampled: 01/30/09 12:55 Received: 02/02/09 12:20									
Aldrin	ND	2.0	µg/kg	2	CS00783	02/02/09	02/03/09	EPA 8081A	
alpha-BHC	ND	4.0	"	"	"	"	"	"	
beta-BHC	ND	20	"	"	"	"	"	"	
delta-BHC	ND	20	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	20	"	"	"	"	"	"	
Chlordane-technical	ND	40	"	"	"	"	"	"	

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Kleinfelder (Sacramento)
3077 Fite Circle
Sacramento, CA 95827

Project: FL-036
Project Number: 94582
Project Manager: Sue Gardner

CLS Work Order #: CSB0027
COC #: 03051,52,55

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
E-FL-C9-0.5 (CSB0027-34) Soil Sampled: 01/30/09 12:55 Received: 02/02/09 12:20									
4,4'-DDD	**33**	30	µg/kg	2	CS00783	"	02/03/09	EPA 8081A	
4,4'-DDE	**170**	150	"	10	"	"	"	"	
4,4'-DDT	**110**	75	"	5	"	"	"	"	
Dieldrin	**60**	2.0	"	2	"	"	"	"	
Endosulfan I	ND	30	"	"	"	"	"	"	
Endosulfan II	ND	30	"	"	"	"	"	"	
Endosulfan sulfate	ND	30	"	"	"	"	"	"	
Endrin	ND	30	"	"	"	"	"	"	
Endrin aldehyde	ND	30	"	"	"	"	"	"	
Heptachlor	ND	10	"	"	"	"	"	"	
Heptachlor epoxide	ND	4.0	"	"	"	"	"	"	
Methoxychlor	ND	30	"	"	"	"	"	"	
Mirex	ND	20	"	"	"	"	"	"	
Toxaphene	ND	40	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*110 %*	*46-139*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*110 %*	*52-141*		"	"	"	"	
E-FL-C7-0.5 (CSB0027-39) Soil Sampled: 01/30/09 13:20 Received: 02/02/09 12:20									
Aldrin	ND	2.0	µg/kg	2	CS00783	02/02/09	02/03/09	EPA 8081A	
alpha-BHC	ND	4.0	"	"	"	"	"	"	
beta-BHC	ND	20	"	"	"	"	"	"	
delta-BHC	ND	20	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	20	"	"	"	"	"	"	
Chlordane-technical	ND	40	"	"	"	"	"	"	
4,4'-DDD	ND	30	"	"	"	"	"	"	
4,4'-DDE	**110**	75	"	5	"	"	"	"	
4,4'-DDT	**50**	30	"	2	"	"	"	"	
Dieldrin	**36**	2.0	"	"	"	"	"	"	
Endosulfan I	ND	30	"	"	"	"	"	"	
Endosulfan II	ND	30	"	"	"	"	"	"	

California Laboratory Services

Kleinfelder (Sacramento)	Project: FL-036	
3077 Fite Circle	Project Number: 94582	**CLS Work Order #: CSB0027**
Sacramento, CA 95827	Project Manager: Sue Gardner	COC #: 03051,52,55

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
E-FL-C7-0.5 (CSB0027-39) Soil Sampled: 01/30/09 13:20 Received: 02/02/09 12:20									
Endosulfan sulfate	ND	30	µg/kg	2	CS00783	"	02/03/09	EPA 8081A	
Endrin	ND	30	"	"	"	"	"	"	
Endrin aldehyde	ND	30	"	"	"	"	"	"	
Heptachlor	ND	10	"	"	"	"	"	"	
Heptachlor epoxide	ND	4.0	"	"	"	"	"	"	
Methoxychlor	ND	30	"	"	"	"	"	"	
Mirex	ND	20	"	"	"	"	"	"	
Toxaphene	ND	40	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*83 %*	*46-139*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*92 %*	*52-141*		"	"	"	"	
E-FL-C2-0.5 (CSB0027-44) Soil Sampled: 01/30/09 13:50 Received: 02/02/09 12:20									
Aldrin	ND	2.0	µg/kg	2	CS00783	02/02/09	02/03/09	EPA 8081A	
alpha-BHC	ND	4.0	"	"	"	"	"	"	
beta-BHC	ND	20	"	"	"	"	"	"	
delta-BHC	ND	20	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	20	"	"	"	"	"	"	
Chlordane-technical	ND	40	"	"	"	"	"	"	
4,4'-DDD	ND	30	"	"	"	"	"	"	
4,4'-DDE	**130**	75	"	5	"	"	"	"	
4,4'-DDT	**140**	75	"	"	"	"	"	"	
Dieldrin	**20**	2.0	"	2	"	"	"	"	
Endosulfan I	ND	30	"	"	"	"	"	"	
Endosulfan II	ND	30	"	"	"	"	"	"	
Endosulfan sulfate	ND	30	"	"	"	"	"	"	
Endrin	ND	30	"	"	"	"	"	"	
Endrin aldehyde	ND	30	"	"	"	"	"	"	
Heptachlor	ND	10	"	"	"	"	"	"	
Heptachlor epoxide	ND	4.0	"	"	"	"	"	"	
Methoxychlor	ND	30	"	"	"	"	"	"	

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Kleinfelder (Sacramento)	Project: FL-036	
3077 Fite Circle	Project Number: 94582	**CLS Work Order #: CSB0027**
Sacramento, CA 95827	Project Manager: Sue Gardner	COC #: 03051,52,55

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
E-FL-C2-0.5 (CSB0027-44) Soil Sampled: 01/30/09 13:50 Received: 02/02/09 12:20									
Mirex	ND	20	µg/kg	2	CS00783	"	02/03/09	EPA 8081A	
Toxaphene	ND	40	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*90 %*	*46-139*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*99 %*	*52-141*		"	"	"	"	

Kleinfelder (Sacramento)
3077 Fite Circle
Sacramento, CA 95827

Project: FL-036
Project Number: 94582
Project Manager: Sue Gardner

CLS Work Order #: CSB0027
COC #: 03051.52.55

Chlorinated Herbicides by EPA Method 8151A - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CS00790 - EPA 8151A										
Blank (CS00790-BLK1)				Prepared: 02/02/09 Analyzed: 02/16/09						
2,4-D	ND	0.050	mg/kg							
Dalapon	ND	1.0	"							
2,4-DB	ND	0.10	"							
Dicamba	ND	0.010	"							
Dichloroprop	ND	0.10	"							
Dinoseb	ND	0.010	"							
MCPA	ND	2.0	"							
MCPP	ND	2.0	"							
Pentachlorophenol	ND	0.010	"							
2,4,5-T	ND	0.010	"							
2,4,5-TP (Silvex)	ND	0.010	"							
Surrogate: 2,4-DCAA	*0.0534*		"	*0.0500*		*107*	*50-150*			
LCS (CS00790-BS1)				Prepared: 02/02/09 Analyzed: 02/16/09						
Dicamba	0.0283	0.010	mg/kg	0.0250		113	50-150			
Dichloroprop	0.0263	0.10	"	0.0250		105	50-150			
Surrogate: 2,4-DCAA	*0.0546*		"	*0.0500*		*109*	*50-150*			
LCS Dup (CS00790-BSD1)				Prepared: 02/02/09 Analyzed: 02/16/09						
Dicamba	0.0288	0.010	mg/kg	0.0250		115	50-150	2	30	
Dichloroprop	0.0299	0.10	"	0.0250		120	50-150	13	30	
Surrogate: 2,4-DCAA	*0.0570*		"	*0.0500*		*114*	*50-150*			
Matrix Spike (CS00790-MS1)		Source: CSB0027-44		Prepared: 02/02/09 Analyzed: 02/16/09						
Dicamba	0.0248	0.010	mg/kg	0.0250	ND	99	50-150			
Dichloroprop	0.0225	0.10	"	0.0250	ND	90	50-150			
Surrogate: 2,4-DCAA	*0.0643*		"	*0.0500*		*129*	*50-150*			

CALIFORNIA LABORATORY SERVICES

Kleinfelder (Sacramento)
3077 Fite Circle
Sacramento, CA 95827

Project: FL-036
Project Number: 94582
Project Manager: Sue Gardner

CLS Work Order #: CSB0027
COC #: 03051,52,55

Chlorinated Herbicides by EPA Method 8151A - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CS00790 - EPA 8151A										
Matrix Spike Dup (CS00790-MSD1)		Source: CSB0027-44		Prepared: 02/02/09	Analyzed: 02/16/09					
Dicamba	0.0176	0.010	mg/kg	0.0250	ND	70	50-150	34	30	QR-2
Dichloroprop	0.0227	0.10	"	0.0250	ND	91	50-150	1	30	
Surrogate: 2,4-DCAA	*0.0541*		"	*0.0500*		*108*	*50-150*			

California Laboratory Services

 02/18/09 09:15

Kleinfelder (Sacramento)	Project: FL-036	
3077 Fite Circle	Project Number: 94582	CLS Work Order #: CSB0027
Sacramento, CA 95827	Project Manager: Sue Gardner	COC #: 03051,52,55

Metals by EPA 6000/7000 Series Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CS00842 - EPA 3050B										
Blank (CS00842-BLK1)				Prepared & Analyzed: 02/04/09						
Lead	ND	2.5	mg/kg							
Arsenic	ND	0.25	"							
Copper	ND	1.0	"							
LCS (CS00842-BS1)				Prepared & Analyzed: 02/04/09						
Lead	8.48	2.5	mg/kg	10.0		85	75-125			
Arsenic	9.75	1.0	"	10.0		98	75-125			
Copper	8.91	1.0	"	10.0		89	75-125			
LCS Dup (CS00842-BSD1)				Prepared & Analyzed: 02/04/09						
Lead	9.19	2.5	mg/kg	10.0		92	75-125	8	25	
Copper	9.15	1.0	"	10.0		92	75-125	3	25	
Arsenic	9.90	1.0	"	10.0		99	75-125	2	25	
Matrix Spike (CS00842-MS1)		Source: CSB0027-04		Prepared & Analyzed: 02/04/09						
Lead	38.8	2.5	mg/kg	10.0	30.2	87	75-125			
Arsenic	20.9	1.0	"	10.0	11.6	94	75-125			
Copper	58.2	1.0	"	10.0	51.8	65	75-125			QM-5
Matrix Spike Dup (CS00842-MSD1)		Source: CSB0027-04		Prepared & Analyzed: 02/04/09						
Lead	39.8	2.5	mg/kg	10.0	30.2	97	75-125	3	30	
Arsenic	21.5	1.0	"	10.0	11.6	100	75-125	3	30	
Copper	60.3	1.0	"	10.0	51.8	85	75-125	4	30	

CALIFORNIA LABORATORY SERVICES

 02/18/09 09:15

Kleinfelder (Sacramento)
3077 Fite Circle
Sacramento, CA 95827

Project: FL-036
Project Number: 94582
Project Manager: Sue Gardner

CLS Work Order #: CSB0027
COC #: 03051,52,55

Organochlorine Pesticides by EPA Method 8081A - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CS00783 - LUFT-DHS GCNV										
Blank (CS00783-BLK1)				Prepared: 02/02/09 Analyzed: 02/03/09						
Aldrin	ND	1.0	µg/kg							
alpha-BHC	ND	2.0	"							
beta-BHC	ND	10	"							
delta-BHC	ND	10	"							
gamma-BHC (Lindane)	ND	10	"							
Chlordane-technical	ND	20	"							
4,4'-DDD	ND	15	"							
4,4'-DDE	ND	15	"							
4,4'-DDT	ND	15	"							
Dieldrin	ND	1.0	"							
Endosulfan I	ND	15	"							
Endosulfan II	ND	15	"							
Endosulfan sulfate	ND	15	"							
Endrin	ND	15	"							
Endrin aldehyde	ND	15	"							
Heptachlor	ND	5.0	"							
Heptachlor epoxide	ND	2.0	"							
Methoxychlor	ND	15	"							
Mirex	ND	10	"							
Toxaphene	ND	20	"							
Surrogate: Tetrachloro-meta-xylene	*6.67*		"	*8.33*		*80*	*46-139*			
Surrogate: Decachlorobiphenyl	*9.05*		"	*8.33*		*109*	*52-141*			
LCS (CS00783-BS1)				Prepared: 02/02/09 Analyzed: 02/03/09						
Aldrin	16.8	1.0	µg/kg	16.7		101	47-132			
gamma-BHC (Lindane)	16.1	10	"	16.7		97	56-133			
4,4'-DDT	17.1	15	"	16.7		103	46-137			
Dieldrin	16.9	1.0	"	16.7		102	44-143			
Endrin	19.0	15	"	16.7		114	30-147			
Heptachlor	12.8	5.0	"	16.7		77	33-148			
Surrogate: Tetrachloro-meta-xylene	*6.99*		"	*8.33*		*84*	*46-139*			

CALIFORNIA LABORATORY SERVICES

 02/18/09 09.15

Kleinfelder (Sacramento)
3077 Fite Circle
Sacramento, CA 95827

Project: FL-036
Project Number: 94582
Project Manager: Sue Gardner

CLS Work Order #: CSB0027
COC #: 03051.52.55

Organochlorine Pesticides by EPA Method 8081A - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CS00783 - LUFT-DHS GCNV										
LCS (CS00783-BS1)				Prepared: 02/02/09 Analyzed: 02/03/09						
Surrogate: Decachlorobiphenyl	*8.39*		µg/kg	*8.33*		*101*	*52-141*			
LCS Dup (CS00783-BSD1)				Prepared: 02/02/09 Analyzed: 02/03/09						QM-1
Aldrin	7.33	1.0	µg/kg	16.7		44	47-132	79	30	
gamma-BHC (Lindane)	6.98	10	"	16.7		42	56-133	79	30	
4,4'-DDT	8.25	15	"	16.7		50	46-137	70	30	
Dieldrin	8.16	1.0	"	16.7		49	44-143	70	30	
Endrin	9.01	15	"	16.7		54	30-147	71	30	
Heptachlor	5.44	5.0	"	16.7		33	33-148	80	30	
Surrogate: Tetrachloro-meta-xylene	*2.61*		"	*8.33*		*31*	*46-139*			
Surrogate: Decachlorobiphenyl	*3.78*		"	*8.33*		*45*	*52-141*			
Matrix Spike (CS00783-MS1)		**Source: CSA0981-05**		Prepared: 02/02/09 Analyzed: 02/03/09						
Aldrin	9.16	1.0	µg/kg	16.7	ND	55	47-138			
gamma-BHC (Lindane)	12.7	10	"	16.7	ND	76	38-144			
4,4'-DDT	8.95	15	"	16.7	ND	54	41-157			
Dieldrin	10.9	1.0	"	16.7	ND	65	46-155			
Endrin	12.5	15	"	16.7	ND	75	34-149			
Heptachlor	10.5	5.0	"	16.7	ND	63	36-155			
Surrogate: Tetrachloro-meta-xylene	*12.0*		"	*20.8*		*58*	*46-139*			
Surrogate: Decachlorobiphenyl	*13.7*		"	*20.8*		*66*	*52-141*			
Matrix Spike Dup (CS00783-MSD1)		**Source: CSA0981-05**		Prepared: 02/02/09 Analyzed: 02/03/09						
Aldrin	8.68	1.0	µg/kg	16.7	ND	52	47-138	5	35	
gamma-BHC (Lindane)	11.6	10	"	16.7	ND	70	38-144	9	35	
4,4'-DDT	8.27	15	"	16.7	ND	50	41-157	8	35	
Dieldrin	10.1	1.0	"	16.7	ND	61	46-155	7	35	
Endrin	11.6	15	"	16.7	ND	70	34-149	7	35	
Heptachlor	9.19	5.0	"	16.7	ND	55	36-155	14	35	
Surrogate: Tetrachloro-meta-xylene	*11.1*		"	*20.8*		*53*	*46-139*			
Surrogate: Decachlorobiphenyl	*12.3*		"	*20.8*		*59*	*52-141*			

CALIFORNIA LABORATORY SERVICES

02/18/09 09:15

Kleinfelder (Sacramento) 3077 Fite Circle Sacramento, CA 95827	Project: FL-036 Project Number: 94582 Project Manager: Sue Gardner	CLS Work Order #: CSB0027 COC #: 03051,52,55

Notes and Definitions

QS-Hi	Surrogate recovery was greater than the upper control limit. A reanalysis was not performed since the analytes associated with the surrogate were not detected.
QR-2	The RPD result exceeded the QC control limits; however, both percent recoveries were acceptable. Sample results for the QC batch were accepted based on percent recoveries and completeness of QC data.
QM-5	The spike recovery was outside acceptance limits for the MS and/or MSD due to matrix interference. The LCS and/or LCSD were within acceptance limits showing that the laboratory is in control and the data is acceptable.
QM-1	The spike recovery was outside acceptance limits for the LCS or LCSD. The batch was accepted based on acceptable MS/MSD recoveries & RPD's.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

CALIFORNIA LABORATORY SERVICES

3249 Fitzgerald Road Rancho Cordova, CA 95742

February 18, 2009

CLS Work Order #: CSB0147
COC #: 03288,89,03077

Sue Gardner
Kleinfelder (Sacramento)
3077 Fite Circle
Sacramento, CA 95827

Project Name: FL-019/020

Enclosed are the results of analyses for samples received by the laboratory on 02/04/09 12:35. Samples were analyzed pursuant to client request utilizing EPA or other ELAP approved methodologies. I certify that the results are in compliance both technically and for completeness.

Analytical results are attached to this letter. Please call if we can provide additional assistance.

Sincerely,

James Liang, Ph.D.
Laboratory Director

CA DOHS ELAP Accreditation/Registration number 1233

CALIFORNIA LABORATORY SERVICES

02/18/09 09:16

Kleinfelder (Sacramento)
3077 Fite Circle
Sacramento, CA 95827

Project: FL-019/020
Project Number: 94582
Project Manager: Sue Gardner

CLS Work Order #: CSB0147
COC #: 03288.89.03077

94582 FL-019/020

CLS

STANDARD TAT

2-3-09	0910	E-FL-43-0.5	SOIL	1	8oz	x x x	Composite 2:1 and label E-FL-C1-0.5
↓	0915	E-FL-42-0.5	↓	↓	↓	x x x	
2-3-09	0935	E-FL-41-0.5	SOIL	1	8oz	x x x	Composite 2:1 and label E-FL-C2-0.5
↓	0940	E-FL-40-0.5	↓	↓		x x x	
2-3-09	1005	E-FL-9-0.5	SOIL	1	8oz	x x x	Composite 3:1 and label E-FL-C3-0.5
	1010	E-FL-10-0.5				x x x	
	1015	E-FL-11-0.5	↓	↓	↓	x x x	
2-3-09	1035	E-FL-20-0.5	SOIL	1	8oz	x x x	Composite 3:1 and label E-FL-C4-0.5
	1040	E-FL-21-0.5				x x x	
	1045	E-FL-22-0.5	↓	↓	↓	x x x	
2-3-09	1050	E-FL-6-0.5	SOIL	1	8oz	x x x	Composite 4:1 and label ~~E-FL-C5-1.0~~ E-FL-C5-0.5
	1055	E-FL-8-0.5				x x x	
	1230	E-FL-18-0.5				x x x	
↓	1235	E-FL-7-0.5	↓	↓	↓	x x x	

STANDARD

3077 Fite Circle
Sacramento CA 95827
Mail to: Sgardner@kleinfelder.com
Sue Gardner

CALIFORNIA LABORATORY SERVICES

Kleinfelder (Sacramento)	Project: FL-019/020	
3077 Fite Circle	Project Number: 94582	**CLS Work Order #: CSB0147**
Sacramento, CA 95827	Project Manager: Sue Gardner	COC #: 03288.89.03077

FL-019/020

CLS

CALIFORNIA LABORATORY SERVICES

Kleinfelder (Sacramento)	Project: FL-019/020	
3077 Fite Circle	Project Number: 94582	CLS Work Order #: CSB0147
Sacramento, CA 95827	Project Manager: Sue Gardner	COC #: 03288.89.03077

CALIFORNIA LABORATORY SERVICES

Kleinfelder (Sacramento)	Project: FL-019/020	
3077 Fite Circle	Project Number: 94582	CLS Work Order #: CSB0147
Sacramento, CA 95827	Project Manager: Sue Gardner	COC #: 03288,89,03077

Chlorinated Herbicides by EPA Method 8151A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
E-FL-C1-0.5 (CSB0147-03) Soil Sampled: 02/03/09 09:10 Received: 02/04/09 12:35									
2,4-D	ND	0.050	mg/kg	1	CS01152	02/11/09	02/17/09	EPA 8151A	
Dalapon	ND	1.0	"	"	"	"	"	"	
2,4-DB	ND	0.10	"	"	"	"	"	"	
Dicamba	ND	0.010	"	"	"	"	"	"	
Dichloroprop	ND	0.10	"	"	"	"	"	"	
Dinoseb	ND	0.010	"	"	"	"	"	"	
MCPA	ND	2.0	"	"	"	"	"	"	
MCPP	ND	2.0	"	"	"	"	"	"	
Pentachlorophenol	ND	0.010	"	"	"	"	"	"	
2,4,5-T	ND	0.010	"	"	"	"	"	"	
2,4,5-TP (Silvex)	ND	0.010	"	"	"	"	"	"	
Surrogate: 2,4-DCAA		*89 %*	*50-150*		"	"	"	"	
E-FL-C2-0.5 (CSB0147-06) Soil Sampled: 02/03/09 09:35 Received: 02/04/09 12:35									
2,4-D	ND	0.050	mg/kg	1	CS01152	02/11/09	02/17/09	EPA 8151A	
Dalapon	ND	1.0	"	"	"	"	"	"	
2,4-DB	ND	0.10	"	"	"	"	"	"	
Dicamba	ND	0.010	"	"	"	"	"	"	
Dichloroprop	ND	0.10	"	"	"	"	"	"	
Dinoseb	ND	0.010	"	"	"	"	"	"	
MCPA	ND	2.0	"	"	"	"	"	"	
MCPP	ND	2.0	"	"	"	"	"	"	
Pentachlorophenol	ND	0.010	"	"	"	"	"	"	
2,4,5-T	ND	0.010	"	"	"	"	"	"	
2,4,5-TP (Silvex)	ND	0.010	"	"	"	"	"	"	
Surrogate: 2,4-DCAA		*58 %*	*50-150*		"	"	"	"	

CALIFORNIA LABORATORY SERVICES

Kleinfelder (Sacramento)	Project: FL-019/020	
3077 Fite Circle	Project Number: 94582	CLS Work Order #: CSB0147
Sacramento, CA 95827	Project Manager: Sue Gardner	COC #: 03288.89.03077

Chlorinated Herbicides by EPA Method 8151A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
E-FL-C3-0.5 (CSB0147-10) Soil	**Sampled: 02/03/09 10:05**	**Received: 02/04/09 12:35**							
2,4-D	ND	0.050	mg/kg	1	CS01152	02/11/09	02/17/09	EPA 8151A	
Dalapon	ND	1.0	"	"	"	"	"	"	
2,4-DB	ND	0.10	"	"	"	"	"	"	
Dicamba	ND	0.010	"	"	"	"	"	"	
Dichloroprop	ND	0.10	"	"	"	"	"	"	
Dinoseb	ND	0.010	"	"	"	"	"	"	
MCPA	ND	2.0	"	"	"	"	"	"	
MCPP	ND	2.0	"	"	"	"	"	"	
Pentachlorophenol	ND	0.010	"	"	"	"	"	"	
2,4,5-T	ND	0.010	"	"	"	"	"	"	
2,4,5-TP (Silvex)	ND	0.010	"	"	"	"	"	"	
Surrogate: 2,4-DCAA		*70 %*	*50-150*		"	"	"	"	
E-FL-C4-0.5 (CSB0147-14) Soil	**Sampled: 02/03/09 10:35**	**Received: 02/04/09 12:35**							
2,4-D	ND	0.050	mg/kg	1	CS01152	02/11/09	02/17/09	EPA 8151A	
Dalapon	ND	1.0	"	"	"	"	"	"	
2,4-DB	ND	0.10	"	"	"	"	"	"	
Dicamba	ND	0.010	"	"	"	"	"	"	
Dichloroprop	ND	0.10	"	"	"	"	"	"	
Dinoseb	ND	0.010	"	"	"	"	"	"	
MCPA	ND	2.0	"	"	"	"	"	"	
MCPP	ND	2.0	"	"	"	"	"	"	
Pentachlorophenol	ND	0.010	"	"	"	"	"	"	
2,4,5-T	ND	0.010	"	"	"	"	"	"	
2,4,5-TP (Silvex)	ND	0.010	"	"	"	"	"	"	
Surrogate: 2,4-DCAA		*64 %*	*50-150*		"	"	"	"	

CALIFORNIA LABORATORY SERVICES

02/18/09 09:16

Kleinfelder (Sacramento) 3077 Fite Circle Sacramento, CA 95827	Project: FL-019/020 Project Number: 94582 Project Manager: Sue Gardner	CLS Work Order #: CSB0147 COC #: 03288,89,03077

Chlorinated Herbicides by EPA Method 8151A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
E-FL-C5-0.5 (CSB0147-19) Soil Sampled: 02/03/09 10:50 Received: 02/04/09 12:35									
2,4-D	ND	0.050	mg/kg	1	CS01152	02/11/09	02/17/09	EPA 8151A	
Dalapon	ND	1.0	"	"	"	"	"	"	
2,4-DB	ND	0.10	"	"	"	"	"	"	
Dicamba	ND	0.010	"	"	"	"	"	"	
Dichloroprop	ND	0.10	"	"	"	"	"	"	
Dinoseb	ND	0.010	"	"	"	"	"	"	
MCPA	ND	2.0	"	"	"	"	"	"	
MCPP	ND	2.0	"	"	"	"	"	"	
Pentachlorophenol	ND	0.010	"	"	"	"	"	"	
2,4,5-T	ND	0.010	"	"	"	"	"	"	
2,4,5-TP (Silvex)	ND	0.010	"	"	"	"	"	"	
Surrogate: 2,4-DCAA		*75 %*	*50-150*		"	"	"	"	
E-FL-C6-0.5 (CSB0147-23) Soil Sampled: 02/03/09 11:15 Received: 02/04/09 12:35									
2,4-D	ND	0.050	mg/kg	1	CS01152	02/11/09	02/17/09	EPA 8151A	
Dalapon	ND	1.0	"	"	"	"	"	"	
2,4-DB	ND	0.10	"	"	"	"	"	"	
Dicamba	ND	0.010	"	"	"	"	"	"	
Dichloroprop	ND	0.10	"	"	"	"	"	"	
Dinoseb	ND	0.010	"	"	"	"	"	"	
MCPA	ND	2.0	"	"	"	"	"	"	
MCPP	ND	2.0	"	"	"	"	"	"	
Pentachlorophenol	ND	0.010	"	"	"	"	"	"	
2,4,5-T	ND	0.010	"	"	"	"	"	"	
2,4,5-TP (Silvex)	ND	0.010	"	"	"	"	"	"	
Surrogate: 2,4-DCAA		*51 %*	*50-150*		"	"	"	"	

Kleinfelder (Sacramento)	Project: FL-019/020	
3077 Fite Circle	Project Number: 94582	CLS Work Order #: CSB0147
Sacramento, CA 95827	Project Manager: Sue Gardner	COC #: 03288,89,03077

Chlorinated Herbicides by EPA Method 8151A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
E-FL-C7-0.5 (CSB0147-28) Soil Sampled: 02/03/09 12:05 Received: 02/04/09 12:35									
2,4-D	ND	0.050	mg/kg	1	CS01152	02/11/09	02/17/09	EPA 8151A	
Dalapon	ND	1.0	"	"	"	"	"	"	
2,4-DB	ND	0.10	"	"	"	"	"	"	
Dicamba	ND	0.010	"	"	"	"	"	"	
Dichloroprop	ND	0.10	"	"	"	"	"	"	
Dinoseb	ND	0.010	"	"	"	"	"	"	
MCPA	ND	2.0	"	"	"	"	"	"	
MCPP	ND	2.0	"	"	"	"	"	"	
Pentachlorophenol	ND	0.010	"	"	"	"	"	"	
2,4,5-T	ND	0.010	"	"	"	"	"	"	
2,4,5-TP (Silvex)	ND	0.010	"	"	"	"	"	"	
Surrogate: 2,4-DCAA		*67 %*	*50-150*		"	"	"	"	
E-FL-C9-0.5 (CSB0147-31) Soil Sampled: 02/03/09 12:45 Received: 02/04/09 12:35									
2,4-D	ND	0.050	mg/kg	1	CS01152	02/11/09	02/17/09	EPA 8151A	
Dalapon	ND	1.0	"	"	"	"	"	"	
2,4-DB	ND	0.10	"	"	"	"	"	"	
Dicamba	ND	0.010	"	"	"	"	"	"	
Dichloroprop	ND	0.10	"	"	"	"	"	"	
Dinoseb	ND	0.010	"	"	"	"	"	"	
MCPA	ND	2.0	"	"	"	"	"	"	
MCPP	ND	2.0	"	"	"	"	"	"	
Pentachlorophenol	ND	0.010	"	"	"	"	"	"	
2,4,5-T	ND	0.010	"	"	"	"	"	"	
2,4,5-TP (Silvex)	ND	0.010	"	"	"	"	"	"	
Surrogate: 2,4-DCAA		*70 %*	*50-150*		"	"	"	"	

CALIFORNIA LABORATORY SERVICES

Kleinfelder (Sacramento)
3077 Fite Circle
Sacramento, CA 95827

Project: FL-019/020
Project Number: 94582
Project Manager: Sue Gardner

CLS Work Order #: CSB0147
COC #: 03288,89,03077

Chlorinated Herbicides by EPA Method 8151A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
E-FL-C10-0.5 (CSB0147-34) Soil Sampled: 02/03/09 13:00 Received: 02/04/09 12:35									
2,4-D	ND	0.050	mg/kg	1	CS01152	02/11/09	02/17/09	EPA 8151A	
Dalapon	ND	1.0	"	"	"	"	"	"	
2,4-DB	ND	0.10	"	"	"	"	"	"	
Dicamba	ND	0.010	"	"	"	"	"	"	
Dichloroprop	ND	0.10	"	"	"	"	"	"	
Dinoseb	ND	0.010	"	"	"	"	"	"	
MCPA	ND	2.0	"	"	"	"	"	"	
MCPP	ND	2.0	"	"	"	"	"	"	
Pentachlorophenol	ND	0.010	"	"	"	"	"	"	
2,4,5-T	ND	0.010	"	"	"	"	"	"	
2,4,5-TP (Silvex)	ND	0.010	"	"	"	"	"	"	
Surrogate: 2,4-DCAA		*70 %*	*50-150*		"	"	"	"	
E-FL-C11-0.5 (CSB0147-37) Soil Sampled: 02/03/09 13:15 Received: 02/04/09 12:35									
2,4-D	ND	0.050	mg/kg	1	CS01152	02/11/09	02/17/09	EPA 8151A	
Dalapon	ND	1.0	"	"	"	"	"	"	
2,4-DB	ND	0.10	"	"	"	"	"	"	
Dicamba	ND	0.010	"	"	"	"	"	"	
Dichloroprop	ND	0.10	"	"	"	"	"	"	
Dinoseb	ND	0.010	"	"	"	"	"	"	
MCPA	ND	2.0	"	"	"	"	"	"	
MCPP	ND	2.0	"	"	"	"	"	"	
Pentachlorophenol	ND	0.010	"	"	"	"	"	"	
2,4,5-T	ND	0.010	"	"	"	"	"	"	
2,4,5-TP (Silvex)	ND	0.010	"	"	"	"	"	"	
Surrogate: 2,4-DCAA		*72 %*	*50-150*		"	"	"	"	

CALIFORNIA LABORATORY SERVICES

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Kleinfelder (Sacramento)	Project: FL-019/020	
3077 Fite Circle	Project Number: 94582	CLS Work Order #: CSB0147
Sacramento, CA 95827	Project Manager: Sue Gardner	COC #: 03288.89.03077

Chlorinated Herbicides by EPA Method 8151A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
E-FL-C8-0.5 (CSB0147-42) Soil Sampled: 02/04/09 08:40 Received: 02/04/09 12:35									
2,4-D	ND	0.050	mg/kg	1	CS01152	02/11/09	02/17/09	EPA 8151A	
Dalapon	ND	1.0	"	"	"	"	"	"	
2,4-DB	ND	0.10	"	"	"	"	"	"	
Dicamba	ND	0.010	"	"	"	"	"	"	
Dichloroprop	ND	0.10	"	"	"	"	"	"	
Dinoseb	ND	0.010	"	"	"	"	"	"	
MCPA	ND	2.0	"	"	"	"	"	"	
MCPP	ND	2.0	"	"	"	"	"	"	
Pentachlorophenol	ND	0.010	"	"	"	"	"	"	
2,4,5-T	ND	0.010	"	"	"	"	"	"	
2,4,5-TP (Silvex)	ND	0.010	"	"	"	"	"	"	
Surrogate: 2,4-DCAA		*68 %*	*50-150*		"	"	"	"	
E-FL-C12-0.5 (CSB0147-47) Soil Sampled: 02/04/09 09:05 Received: 02/04/09 12:35									
2,4-D	ND	0.050	mg/kg	1	CS01152	02/11/09	02/17/09	EPA 8151A	
Dalapon	ND	1.0	"	"	"	"	"	"	
2,4-DB	ND	0.10	"	"	"	"	"	"	
Dicamba	ND	0.010	"	"	"	"	"	"	
Dichloroprop	ND	0.10	"	"	"	"	"	"	
Dinoseb	ND	0.010	"	"	"	"	"	"	
MCPA	ND	2.0	"	"	"	"	"	"	
MCPP	ND	2.0	"	"	"	"	"	"	
Pentachlorophenol	ND	0.010	"	"	"	"	"	"	
2,4,5-T	ND	0.010	"	"	"	"	"	"	
2,4,5-TP (Silvex)	ND	0.010	"	"	"	"	"	"	
Surrogate: 2,4-DCAA		*104 %*	*50-150*		"	"	"	"	

CALIFORNIA LABORATORY SERVICES

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Kleinfelder (Sacramento) 3077 Fite Circle Sacramento, CA 95827	Project: FL-019/020 Project Number: 94582 Project Manager: Sue Gardner	**CLS Work Order #: CSB0147** COC #: 03288.89.03077

Chlorinated Herbicides by EPA Method 8151A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
E-FL-C14-0.5 (CSB0147-52) Soil Sampled: 02/04/09 09:40 Received: 02/04/09 12:35									
2,4-D	ND	0.050	mg/kg	1	CS01152	02/11/09	02/17/09	EPA 8151A	
Dalapon	ND	1.0	"	"	"	"	"	"	
2,4-DB	ND	0.10	"	"	"	"	"	"	
Dicamba	ND	0.010	"	"	"	"	"	"	
Dichloroprop	ND	0.10	"	"	"	"	"	"	
Dinoseb	ND	0.010	"	"	"	"	"	"	
MCPA	ND	2.0	"	"	"	"	"	"	
MCPP	ND	2.0	"	"	"	"	"	"	
Pentachlorophenol	ND	0.010	"	"	"	"	"	"	
2,4,5-T	ND	0.010	"	"	"	"	"	"	
2,4,5-TP (Silvex)	ND	0.010	"	"	"	"	"	"	
Surrogate: 2,4-DCAA		*109 %*	*50-150*		"	"	"	"	
E-FL-C13-0.5 (CSB0147-57) Soil Sampled: 02/04/09 10:20 Received: 02/04/09 12:35									
2,4-D	ND	0.050	mg/kg	1	CS01152	02/11/09	02/17/09	EPA 8151A	
Dalapon	ND	1.0	"	"	"	"	"	"	
2,4-DB	ND	0.10	"	"	"	"	"	"	
Dicamba	ND	0.010	"	"	"	"	"	"	
Dichloroprop	ND	0.10	"	"	"	"	"	"	
Dinoseb	ND	0.010	"	"	"	"	"	"	
MCPA	ND	2.0	"	"	"	"	"	"	
MCPP	ND	2.0	"	"	"	"	"	"	
Pentachlorophenol	ND	0.010	"	"	"	"	"	"	
2,4,5-T	ND	0.010	"	"	"	"	"	"	
2,4,5-TP (Silvex)	ND	0.010	"	"	"	"	"	"	
Surrogate: 2,4-DCAA		*64 %*	*50-150*		"	"	"	"	

CALIFORNIA LABORATORY SERVICES

Kleinfelder (Sacramento) 3077 Fite Circle Sacramento, CA 95827	Project: FL-019/020 Project Number: 94582 Project Manager: Sue Gardner	CLS Work Order #: CSB0147 COC #: 03288,89,03077

Metals by EPA 6000/7000 Series Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
E-FL-C1-0.5 (CSB0147-03) Soil Sampled: 02/03/09 09:10 Received: 02/04/09 12:35									
Arsenic	4.1	1.0	mg/kg	4	CS00953	02/06/09	02/10/09	EPA 7060A	
Copper	30	1.0	"	1	"	"	02/09/09	EPA 6010B	
Lead	11	2.5	"	"	"	"	"	"	
E-FL-C2-0.5 (CSB0147-06) Soil Sampled: 02/03/09 09:35 Received: 02/04/09 12:35									
Arsenic	9.6	1.0	mg/kg	4	CS00953	02/06/09	02/10/09	EPA 7060A	
Copper	38	1.0	"	1	"	"	02/09/09	EPA 6010B	
Lead	20	2.5	"	"	"	"	"	"	
E-FL-C3-0.5 (CSB0147-10) Soil Sampled: 02/03/09 10:05 Received: 02/04/09 12:35									
Arsenic	4.3	1.0	mg/kg	4	CS00953	02/06/09	02/10/09	EPA 7060A	
Copper	30	1.0	"	1	"	"	02/09/09	EPA 6010B	
Lead	9.1	2.5	"	"	"	"	"	"	
E-FL-C4-0.5 (CSB0147-14) Soil Sampled: 02/03/09 10:35 Received: 02/04/09 12:35									
Arsenic	2.9	1.0	mg/kg	4	CS00953	02/06/09	02/10/09	EPA 7060A	
Copper	19	1.0	"	1	"	"	02/09/09	EPA 6010B	
Lead	6.2	2.5	"	"	"	"	"	"	
E-FL-C5-0.5 (CSB0147-19) Soil Sampled: 02/03/09 10:50 Received: 02/04/09 12:35									
Arsenic	10	1.0	mg/kg	4	CS00953	02/06/09	02/10/09	EPA 7060A	
Copper	36	1.0	"	1	"	"	02/09/09	EPA 6010B	
Lead	18	2.5	"	"	"	"	"	"	
E-FL-C6-0.5 (CSB0147-23) Soil Sampled: 02/03/09 11:15 Received: 02/04/09 12:35									
Arsenic	4.8	1.0	mg/kg	4	CS00953	02/06/09	02/10/09	EPA 7060A	
Copper	34	1.0	"	1	"	"	02/09/09	EPA 6010B	
Lead	10	2.5	"	"	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

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Kleinfelder (Sacramento) 3077 Fite Circle Sacramento, CA 95827	Project: FL-019/020 Project Number: 94582 Project Manager: Sue Gardner	CLS Work Order #: CSB0147 COC #: 03288.89,03077

Metals by EPA 6000/7000 Series Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
E-FL-C7-0.5 (CSB0147-28) Soil Sampled: 02/03/09 12:05 Received: 02/04/09 12:35									
Arsenic	7.2	1.0	mg/kg	4	CS00953	02/06/09	02/10/09	EPA 7060A	
Copper	35	1.0	"	1	"	"	02/09/09	EPA 6010B	
Lead	14	2.5	"	"	"	"	"	"	
E-FL-C9-0.5 (CSB0147-31) Soil Sampled: 02/03/09 12:45 Received: 02/04/09 12:35									
Arsenic	18	1.0	mg/kg	4	CS00953	02/06/09	02/10/09	EPA 7060A	
Copper	42	1.0	"	1	"	"	02/09/09	EPA 6010B	
Lead	33	2.5	"	"	"	"	"	"	
E-FL-C10-0.5 (CSB0147-34) Soil Sampled: 02/03/09 13:00 Received: 02/04/09 12:35									
Arsenic	18	1.0	mg/kg	4	CS00953	02/06/09	02/10/09	EPA 7060A	
Copper	45	1.0	"	1	"	"	02/09/09	EPA 6010B	
Lead	43	2.5	"	"	"	"	"	"	
E-FL-C11-0.5 (CSB0147-37) Soil Sampled: 02/03/09 13:15 Received: 02/04/09 12:35									
Arsenic	14	1.0	mg/kg	4	CS00953	02/06/09	02/10/09	EPA 7060A	
Copper	40	1.0	"	1	"	"	02/09/09	EPA 6010B	
Lead	30	2.5	"	"	"	"	"	"	
E-FL-C8-0.5 (CSB0147-42) Soil Sampled: 02/04/09 08:40 Received: 02/04/09 12:35									
Arsenic	10	1.0	mg/kg	4	CS00953	02/06/09	02/10/09	EPA 7060A	
Copper	40	1.0	"	1	"	"	02/09/09	EPA 6010B	
Lead	21	2.5	"	"	"	"	"	"	
E-FL-C12-0.5 (CSB0147-47) Soil Sampled: 02/04/09 09:05 Received: 02/04/09 12:35									
Arsenic	11	1.0	mg/kg	4	CS00953	02/06/09	02/10/09	EPA 7060A	
Copper	38	1.0	"	1	"	"	02/09/09	EPA 6010B	
Lead	19	2.5	"	"	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

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Kleinfelder (Sacramento) 3077 Fite Circle Sacramento, CA 95827	Project: FL-019/020 Project Number: 94582 Project Manager: Sue Gardner	**CLS Work Order #: CSB0147** COC #: 03288.89.03077

Metals by EPA 6000/7000 Series Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
E-FL-C14-0.5 (CSB0147-52) Soil	**Sampled: 02/04/09 09:40**	**Received: 02/04/09 12:35**							
Arsenic	**11**	1.0	mg/kg	4	CS00953	02/06/09	02/10/09	EPA 7060A	
Copper	**37**	1.0	"	1	"	"	02/09/09	EPA 6010B	
Lead	**19**	2.5	"	"	"	"	"	"	
E-FL-C13-0.5 (CSB0147-57) Soil	**Sampled: 02/04/09 10:20**	**Received: 02/04/09 12:35**							
Arsenic	**8.1**	1.0	mg/kg	4	CS00953	02/06/09	02/10/09	EPA 7060A	
Copper	**32**	1.0	"	1	"	"	02/09/09	EPA 6010B	
Lead	**14**	2.5	"	"	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

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Kleinfelder (Sacramento) 3077 Fite Circle Sacramento, CA 95827	Project: FL-019/020 Project Number: 94582 Project Manager: Sue Gardner	CLS Work Order #: CSB0147 COC #: 03288,89,03077

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
E-FL-C1-0.5 (CSB0147-03) Soil Sampled: 02/03/09 09:10 Received: 02/04/09 12:35									
Aldrin	ND	5.0	µg/kg	5	CS00902	02/05/09	02/06/09	EPA 8081A	
alpha-BHC	ND	10	"	"	"	"	"	"	
beta-BHC	ND	50	"	"	"	"	"	"	
delta-BHC	ND	50	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	50	"	"	"	"	"	"	
Chlordane-technical	ND	100	"	"	"	"	"	"	
4,4'-DDD	ND	75	"	"	"	"	"	"	
4,4'-DDE	ND	75	"	"	"	"	"	"	
4,4'-DDT	ND	75	"	"	"	"	"	"	
Dieldrin	ND	5.0	"	"	"	"	"	"	
Endosulfan I	ND	75	"	"	"	"	"	"	
Endosulfan II	ND	75	"	"	"	"	"	"	
Endosulfan sulfate	ND	75	"	"	"	"	"	"	
Endrin	ND	75	"	"	"	"	"	"	
Endrin aldehyde	ND	75	"	"	"	"	"	"	
Heptachlor	ND	25	"	"	"	"	"	"	
Heptachlor epoxide	ND	10	"	"	"	"	"	"	
Methoxychlor	ND	75	"	"	"	"	"	"	
Mirex	ND	50	"	"	"	"	"	"	
Toxaphene	ND	100	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*76 %*		*46-139*	"	"	"	"	
Surrogate: Decachlorobiphenyl		*89 %*		*52-141*	"	"	"	"	
E-FL-C2-0.5 (CSB0147-06) Soil Sampled: 02/03/09 09:35 Received: 02/04/09 12:35									
Aldrin	ND	5.0	µg/kg	5	CS00902	02/05/09	02/06/09	EPA 8081A	
alpha-BHC	ND	10	"	"	"	"	"	"	
beta-BHC	ND	50	"	"	"	"	"	"	
delta-BHC	ND	50	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	50	"	"	"	"	"	"	
Chlordane-technical	ND	100	"	"	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

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Kleinfelder (Sacramento)	Project: FL-019/020	
3077 Fite Circle	Project Number: 94582	**CLS Work Order #: CSB0147**
Sacramento, CA 95827	Project Manager: Sue Gardner	COC #: 03288.89.03077

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
E-FL-C2-0.5 (CSB0147-06) Soil	**Sampled: 02/03/09 09:35**	**Received: 02/04/09 12:35**							
4,4'-DDD	ND	75	µg/kg	5	CS00902	"	02/06/09	EPA 8081A	
4,4'-DDE	ND	75	"	"	"	"	"	"	
4,4'-DDT	ND	75	"	"	"	"	"	"	
Dieldrin	ND	5.0	"	"	"	"	"	"	
Endosulfan I	ND	75	"	"	"	"	"	"	
Endosulfan II	ND	75	"	"	"	"	"	"	
Endosulfan sulfate	ND	75	"	"	"	"	"	"	
Endrin	ND	75	"	"	"	"	"	"	
Endrin aldehyde	ND	75	"	"	"	"	"	"	
Heptachlor	ND	25	"	"	"	"	"	"	
Heptachlor epoxide	ND	10	"	"	"	"	"	"	
Methoxychlor	ND	75	"	"	"	"	"	"	
Mirex	ND	50	"	"	"	"	"	"	
Toxaphene	ND	100	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*93 %*	*46-139*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*107 %*	*52-141*		"	"	"	"	
E-FL-C3-0.5 (CSB0147-10) Soil	**Sampled: 02/03/09 10:05**	**Received: 02/04/09 12:35**							
Aldrin	ND	2.0	µg/kg	2	CS00902	02/05/09	02/06/09	EPA 8081A	
alpha-BHC	ND	4.0	"	"	"	"	"	"	
beta-BHC	ND	20	"	"	"	"	"	"	
delta-BHC	ND	20	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	20	"	"	"	"	"	"	
Chlordane-technical	ND	40	"	"	"	"	"	"	
4,4'-DDD	ND	30	"	"	"	"	"	"	
4,4'-DDE	ND	30	"	"	"	"	"	"	
4,4'-DDT	ND	30	"	"	"	"	"	"	
Dieldrin	ND	2.0	"	"	"	"	"	"	
Endosulfan I	ND	30	"	"	"	"	"	"	
Endosulfan II	ND	30	"	"	"	"	"	"	

California Laboratory Services

Kleinfelder (Sacramento)	Project: FL-019/020	
3077 Fite Circle	Project Number: 94582	CLS Work Order #: CSB0147
Sacramento, CA 95827	Project Manager: Sue Gardner	COC #: 03288.89,03077

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
E-FL-C3-0.5 (CSB0147-10) Soil Sampled: 02/03/09 10:05 Received: 02/04/09 12:35									
Endosulfan sulfate	ND	30	µg/kg	2	CS00902	"	02/06/09	EPA 8081A	
Endrin	ND	30	"	"	"	"	"	"	
Endrin aldehyde	ND	30	"	"	"	"	"	"	
Heptachlor	ND	10	"	"	"	"	"	"	
Heptachlor epoxide	ND	4.0	"	"	"	"	"	"	
Methoxychlor	ND	30	"	"	"	"	"	"	
Mirex	ND	20	"	"	"	"	"	"	
Toxaphene	ND	40	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*77 %*	*46-139*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*88 %*	*52-141*		"	"	"	"	
E-FL-C4-0.5 (CSB0147-14) Soil Sampled: 02/03/09 10:35 Received: 02/04/09 12:35									
Aldrin	ND	2.0	µg/kg	2	CS00902	02/05/09	02/06/09	EPA 8081A	
alpha-BHC	ND	4.0	"	"	"	"	"	"	
beta-BHC	ND	20	"	"	"	"	"	"	
delta-BHC	ND	20	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	20	"	"	"	"	"	"	
Chlordane-technical	ND	40	"	"	"	"	"	"	
4,4'-DDD	ND	30	"	"	"	"	"	"	
4,4'-DDE	ND	30	"	"	"	"	"	"	
4,4'-DDT	ND	30	"	"	"	"	"	"	
Dieldrin	ND	2.0	"	"	"	"	"	"	
Endosulfan I	ND	30	"	"	"	"	"	"	
Endosulfan II	ND	30	"	"	"	"	"	"	
Endosulfan sulfate	ND	30	"	"	"	"	"	"	
Endrin	ND	30	"	"	"	"	"	"	
Endrin aldehyde	ND	30	"	"	"	"	"	"	
Heptachlor	ND	10	"	"	"	"	"	"	
Heptachlor epoxide	ND	4.0	"	"	"	"	"	"	
Methoxychlor	ND	30	"	"	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

Kleinfelder (Sacramento) 3077 Fite Circle Sacramento, CA 95827	Project: FL-019/020 Project Number: 94582 Project Manager: Sue Gardner	CLS Work Order #: CSB0147 COC #: 03288.89.03077

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
E-FL-C4-0.5 (CSB0147-14) Soil	**Sampled: 02/03/09 10:35**	**Received: 02/04/09 12:35**							
Mirex	ND	20	µg/kg	2	CS00902	"	02/06/09	EPA 8081A	
Toxaphene	ND	40	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*70 %*	*46-139*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*83 %*	*52-141*		"	"	"	"	
E-FL-C5-0.5 (CSB0147-19) Soil	**Sampled: 02/03/09 10:50**	**Received: 02/04/09 12:35**							
Aldrin	ND	2.0	µg/kg	2	CS00902	02/05/09	02/06/09	EPA 8081A	
alpha-BHC	ND	4.0	"	"	"	"	"	"	
beta-BHC	ND	20	"	"	"	"	"	"	
delta-BHC	ND	20	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	20	"	"	"	"	"	"	
Chlordane-technical	ND	40	"	"	"	"	"	"	
4,4'-DDD	ND	30	"	"	"	"	"	"	
4,4'-DDE	ND	30	"	"	"	"	"	"	
4,4'-DDT	ND	30	"	"	"	"	"	"	
Dieldrin	ND	2.0	"	"	"	"	"	"	
Endosulfan I	ND	30	"	"	"	"	"	"	
Endosulfan II	ND	30	"	"	"	"	"	"	
Endosulfan sulfate	ND	30	"	"	"	"	"	"	
Endrin	ND	30	"	"	"	"	"	"	
Endrin aldehyde	ND	30	"	"	"	"	"	"	
Heptachlor	ND	10	"	"	"	"	"	"	
Heptachlor epoxide	ND	4.0	"	"	"	"	"	"	
Methoxychlor	ND	30	"	"	"	"	"	"	
Mirex	ND	20	"	"	"	"	"	"	
Toxaphene	ND	40	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*63 %*	*46-139*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*88 %*	*52-141*		"	"	"	"	

CALIFORNIA LABORATORY SERVICES

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Kleinfelder (Sacramento)
3077 Fite Circle
Sacramento, CA 95827

Project: FL-019/020
Project Number: 94582
Project Manager: Sue Gardner

CLS Work Order #: CSB0147
COC #: 03288,89,03077

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
E-FL-C6-0.5 (CSB0147-23) Soil Sampled: 02/03/09 11:15 Received: 02/04/09 12:35									
Aldrin	ND	2.0	µg/kg	2	CS00902	02/05/09	02/06/09	EPA 8081A	
alpha-BHC	ND	4.0	"	"	"	"	"	"	
beta-BHC	ND	20	"	"	"	"	"	"	
delta-BHC	ND	20	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	20	"	"	"	"	"	"	
Chlordane-technical	ND	40	"	"	"	"	"	"	
4,4′-DDD	ND	30	"	"	"	"	"	"	
4,4′-DDE	ND	30	"	"	"	"	"	"	
4,4′-DDT	ND	30	"	"	"	"	"	"	
Dieldrin	ND	2.0	"	"	"	"	"	"	
Endosulfan I	ND	30	"	"	"	"	"	"	
Endosulfan II	ND	30	"	"	"	"	"	"	
Endosulfan sulfate	ND	30	"	"	"	"	"	"	
Endrin	ND	30	"	"	"	"	"	"	
Endrin aldehyde	ND	30	"	"	"	"	"	"	
Heptachlor	ND	10	"	"	"	"	"	"	
Heptachlor epoxide	ND	4.0	"	"	"	"	"	"	
Methoxychlor	ND	30	"	"	"	"	"	"	
Mirex	ND	20	"	"	"	"	"	"	
Toxaphene	ND	40	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*65 %*		*46-139*	"	"	"	"	
Surrogate: Decachlorobiphenyl		*83 %*		*52-141*	"	"	"	"	
E-FL-C7-0.5 (CSB0147-28) Soil Sampled: 02/03/09 12:05 Received: 02/04/09 12:35									
Aldrin	ND	2.0	µg/kg	2	CS00902	02/05/09	02/06/09	EPA 8081A	
alpha-BHC	ND	4.0	"	"	"	"	"	"	
beta-BHC	ND	20	"	"	"	"	"	"	
delta-BHC	ND	20	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	20	"	"	"	"	"	"	
Chlordane-technical	ND	40	"	"	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

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Kleinfelder (Sacramento) 3077 Fite Circle Sacramento, CA 95827	Project: FL-019/020 Project Number: 94582 Project Manager: Sue Gardner	CLS Work Order #: CSB0147 COC #: 03288.89.03077

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
E-FL-C7-0.5 (CSB0147-28) Soil	**Sampled: 02/03/09 12:05**	**Received: 02/04/09 12:35**							
4,4'-DDD	ND	30	µg/kg	2	CS00902	"	02/06/09	EPA 8081A	
4,4'-DDE	ND	30	"	"	"	"	"	"	
4,4'-DDT	ND	30	"	"	"	"	"	"	
Dieldrin	ND	2.0	"	"	"	"	"	"	
Endosulfan I	ND	30	"	"	"	"	"	"	
Endosulfan II	ND	30	"	"	"	"	"	"	
Endosulfan sulfate	ND	30	"	"	"	"	"	"	
Endrin	ND	30	"	"	"	"	"	"	
Endrin aldehyde	ND	30	"	"	"	"	"	"	
Heptachlor	ND	10	"	"	"	"	"	"	
Heptachlor epoxide	ND	4.0	"	"	"	"	"	"	
Methoxychlor	ND	30	"	"	"	"	"	"	
Mirex	ND	20	"	"	"	"	"	"	
Toxaphene	ND	40	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*58 %*	*46-139*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*86 %*	*52-141*		"	"	"	"	
E-FL-C9-0.5 (CSB0147-31) Soil	**Sampled: 02/03/09 12:45**	**Received: 02/04/09 12:35**							
Aldrin	ND	5.0	µg/kg	5	CS00902	02/05/09	02/06/09	EPA 8081A	
alpha-BHC	ND	10	"	"	"	"	"	"	
beta-BHC	ND	50	"	"	"	"	"	"	
delta-BHC	ND	50	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	50	"	"	"	"	"	"	
Chlordane-technical	ND	100	"	"	"	"	"	"	
4,4'-DDD	ND	75	"	"	"	"	"	"	
4,4'-DDE	ND	75	"	"	"	"	"	"	
4,4'-DDT	ND	75	"	"	"	"	"	"	
Dieldrin	ND	5.0	"	"	"	"	"	"	
Endosulfan I	ND	75	"	"	"	"	"	"	
Endosulfan II	ND	75	"	"	"	"	"	"	

Kleinfelder (Sacramento)
3077 Fite Circle
Sacramento, CA 95827

Project: FL-019/020
Project Number: 94582
Project Manager: Sue Gardner

CLS Work Order #: CSB0147
COC #: 03288.89,03077

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
E-FL-C9-0.5 (CSB0147-31) Soil Sampled: 02/03/09 12:45 Received: 02/04/09 12:35									
Endosulfan sulfate	ND	75	µg/kg	5	CS00902	"	02/06/09	EPA 8081A	
Endrin	ND	75	"	"	"	"	"	"	
Endrin aldehyde	ND	75	"	"	"	"	"	"	
Heptachlor	ND	25	"	"	"	"	"	"	
Heptachlor epoxide	ND	10	"	"	"	"	"	"	
Methoxychlor	ND	75	"	"	"	"	"	"	
Mirex	ND	50	"	"	"	"	"	"	
Toxaphene	ND	100	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*83 %*	*46-139*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*105 %*	*52-141*		"	"	"	"	
E-FL-C10-0.5 (CSB0147-34) Soil Sampled: 02/03/09 13:00 Received: 02/04/09 12:35									
Aldrin	ND	5.0	µg/kg	5	CS00902	02/05/09	02/06/09	EPA 8081A	
alpha-BHC	ND	10	"	"	"	"	"	"	
beta-BHC	ND	50	"	"	"	"	"	"	
delta-BHC	ND	50	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	50	"	"	"	"	"	"	
Chlordane-technical	ND	100	"	"	"	"	"	"	
4,4'-DDD	ND	75	"	"	"	"	"	"	
4,4'-DDE	ND	75	"	"	"	"	"	"	
4,4'-DDT	ND	75	"	"	"	"	"	"	
Dieldrin	ND	5.0	"	"	"	"	"	"	
Endosulfan I	ND	75	"	"	"	"	"	"	
Endosulfan II	ND	75	"	"	"	"	"	"	
Endosulfan sulfate	ND	75	"	"	"	"	"	"	
Endrin	ND	75	"	"	"	"	"	"	
Endrin aldehyde	ND	75	"	"	"	"	"	"	
Heptachlor	ND	25	"	"	"	"	"	"	
Heptachlor epoxide	ND	10	"	"	"	"	"	"	
Methoxychlor	ND	75	"	"	"	"	"	"	

Kleinfelder (Sacramento)
3077 Fite Circle
Sacramento, CA 95827

Project: FL-019/020
Project Number: 94582
Project Manager: Sue Gardner

CLS Work Order #: CSB0147
COC #: 03288.89,03077

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
E-FL-C10-0.5 (CSB0147-34) Soil Sampled: 02/03/09 13:00 Received: 02/04/09 12:35									
Mirex	ND	50	µg/kg	5	CS00902	"	02/06/09	EPA 8081A	
Toxaphene	ND	100	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*75 %*	*46-139*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*98 %*	*52-141*		"	"	"	"	
E-FL-C11-0.5 (CSB0147-37) Soil Sampled: 02/03/09 13:15 Received: 02/04/09 12:35									
Aldrin	ND	5.0	µg/kg	5	CS00902	02/05/09	02/06/09	EPA 8081A	
alpha-BHC	ND	10	"	"	"	"	"	"	
beta-BHC	ND	50	"	"	"	"	"	"	
delta-BHC	ND	50	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	50	"	"	"	"	"	"	
Chlordane-technical	ND	100	"	"	"	"	"	"	
4,4'-DDD	ND	75	"	"	"	"	"	"	
4,4'-DDE	ND	75	"	"	"	"	"	"	
4,4'-DDT	ND	75	"	"	"	"	"	"	
Dieldrin	ND	5.0	"	"	"	"	"	"	
Endosulfan I	ND	75	"	"	"	"	"	"	
Endosulfan II	ND	75	"	"	"	"	"	"	
Endosulfan sulfate	ND	75	"	"	"	"	"	"	
Endrin	ND	75	"	"	"	"	"	"	
Endrin aldehyde	ND	75	"	"	"	"	"	"	
Heptachlor	ND	25	"	"	"	"	"	"	
Heptachlor epoxide	ND	10	"	"	"	"	"	"	
Methoxychlor	ND	75	"	"	"	"	"	"	
Mirex	ND	50	"	"	"	"	"	"	
Toxaphene	ND	100	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*71 %*	*46-139*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*94 %*	*52-141*		"	"	"	"	

CALIFORNIA LABORATORY SERVICES

Kleinfelder (Sacramento)	Project: FL-019/020	
3077 Fite Circle	Project Number: 94582	CLS Work Order #: CSB0147
Sacramento, CA 95827	Project Manager: Sue Gardner	COC #: 03288.89.03077

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
E-FL-C8-0.5 (CSB0147-42) Soil Sampled: 02/04/09 08:40 Received: 02/04/09 12:35									
Aldrin	ND	2.0	µg/kg	2	CS00902	02/05/09	02/06/09	EPA 8081A	
alpha-BHC	ND	4.0	"	"	"	"	"	"	
beta-BHC	ND	20	"	"	"	"	"	"	
delta-BHC	ND	20	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	20	"	"	"	"	"	"	
Chlordane-technical	ND	40	"	"	"	"	"	"	
4,4′-DDD	ND	30	"	"	"	"	"	"	
4,4′-DDE	ND	30	"	"	"	"	"	"	
4,4′-DDT	ND	30	"	"	"	"	"	"	
Dieldrin	ND	2.0	"	"	"	"	"	"	
Endosulfan I	ND	30	"	"	"	"	"	"	
Endosulfan II	ND	30	"	"	"	"	"	"	
Endosulfan sulfate	ND	30	"	"	"	"	"	"	
Endrin	ND	30	"	"	"	"	"	"	
Endrin aldehyde	ND	30	"	"	"	"	"	"	
Heptachlor	ND	10	"	"	"	"	"	"	
Heptachlor epoxide	ND	4.0	"	"	"	"	"	"	
Methoxychlor	ND	30	"	"	"	"	"	"	
Mirex	ND	20	"	"	"	"	"	"	
Toxaphene	ND	40	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*81 %*	*46-139*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*96 %*	*52-141*		"	"	"	"	
E-FL-C12-0.5 (CSB0147-47) Soil Sampled: 02/04/09 09:05 Received: 02/04/09 12:35									
Aldrin	ND	2.0	µg/kg	2	CS00902	02/05/09	02/06/09	EPA 8081A	
alpha-BHC	ND	4.0	"	"	"	"	"	"	
beta-BHC	ND	20	"	"	"	"	"	"	
delta-BHC	ND	20	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	20	"	"	"	"	"	"	
Chlordane-technical	ND	40	"	"	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

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Kleinfelder (Sacramento) 3077 Fite Circle Sacramento, CA 95827	Project: FL-019/020 Project Number: 94582 Project Manager: Sue Gardner	CLS Work Order #: CSB0147 COC #: 03288.89.03077

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
E-FL-C12-0.5 (CSB0147-47) Soil Sampled: 02/04/09 09:05 Received: 02/04/09 12:35									
4,4'-DDD	ND	30	µg/kg	2	CS00902	"	02/06/09	EPA 8081A	
4,4'-DDE	ND	30	"	"	"	"	"	"	
4,4'-DDT	ND	30	"	"	"	"	"	"	
Dieldrin	ND	2.0	"	"	"	"	"	"	
Endosulfan I	ND	30	"	"	"	"	"	"	
Endosulfan II	ND	30	"	"	"	"	"	"	
Endosulfan sulfate	ND	30	"	"	"	"	"	"	
Endrin	ND	30	"	"	"	"	"	"	
Endrin aldehyde	ND	30	"	"	"	"	"	"	
Heptachlor	ND	10	"	"	"	"	"	"	
Heptachlor epoxide	ND	4.0	"	"	"	"	"	"	
Methoxychlor	ND	30	"	"	"	"	"	"	
Mirex	ND	20	"	"	"	"	"	"	
Toxaphene	ND	40	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*75 %*	*46-139*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*87 %*	*52-141*		"	"	"	"	
E-FL-C14-0.5 (CSB0147-52) Soil Sampled: 02/04/09 09:40 Received: 02/04/09 12:35									
Aldrin	ND	2.0	µg/kg	2	CS00902	02/05/09	02/06/09	EPA 8081A	
alpha-BHC	ND	4.0	"	"	"	"	"	"	
beta-BHC	ND	20	"	"	"	"	"	"	
delta-BHC	ND	20	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	20	"	"	"	"	"	"	
Chlordane-technical	ND	40	"	"	"	"	"	"	
4,4'-DDD	ND	30	"	"	"	"	"	"	
4,4'-DDE	ND	30	"	"	"	"	"	"	
4,4'-DDT	ND	30	"	"	"	"	"	"	
Dieldrin	ND	2.0	"	"	"	"	"	"	
Endosulfan I	ND	30	"	"	"	"	"	"	
Endosulfan II	ND	30	"	"	"	"	"	"	

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Kleinfelder (Sacramento)	Project: FL-019/020	
3077 Fite Circle	Project Number: 94582	CLS Work Order #: CSB0147
Sacramento, CA 95827	Project Manager: Sue Gardner	COC #: 03288.89.03077

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
E-FL-C14-0.5 (CSB0147-52) Soil	**Sampled: 02/04/09 09:40**	**Received: 02/04/09 12:35**							
Endosulfan sulfate	ND	30	µg/kg	2	CS00902	"	02/06/09	EPA 8081A	
Endrin	ND	30	"	"	"	"	"	"	
Endrin aldehyde	ND	30	"	"	"	"	"	"	
Heptachlor	ND	10	"	"	"	"	"	"	
Heptachlor epoxide	ND	4.0	"	"	"	"	"	"	
Methoxychlor	ND	30	"	"	"	"	"	"	
Mirex	ND	20	"	"	"	"	"	"	
Toxaphene	ND	40	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*80 %*	*46-139*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*98 %*	*52-141*		"	"	"	"	
E-FL-C13-0.5 (CSB0147-57) Soil	**Sampled: 02/04/09 10:20**	**Received: 02/04/09 12:35**							
Aldrin	ND	2.0	µg/kg	2	CS00902	02/05/09	02/06/09	EPA 8081A	
alpha-BHC	ND	4.0	"	"	"	"	"	"	
beta-BHC	ND	20	"	"	"	"	"	"	
delta-BHC	ND	20	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	20	"	"	"	"	"	"	
Chlordane-technical	ND	40	"	"	"	"	"	"	
4,4'-DDD	ND	30	"	"	"	"	"	"	
4,4'-DDE	ND	30	"	"	"	"	"	"	
4,4'-DDT	ND	30	"	"	"	"	"	"	
Dieldrin	ND	2.0	"	"	"	"	"	"	
Endosulfan I	ND	30	"	"	"	"	"	"	
Endosulfan II	ND	30	"	"	"	"	"	"	
Endosulfan sulfate	ND	30	"	"	"	"	"	"	
Endrin	ND	30	"	"	"	"	"	"	
Endrin aldehyde	ND	30	"	"	"	"	"	"	
Heptachlor	ND	10	"	"	"	"	"	"	
Heptachlor epoxide	ND	4.0	"	"	"	"	"	"	
Methoxychlor	ND	30	"	"	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

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Kleinfelder (Sacramento)
3077 Fite Circle
Sacramento, CA 95827

Project: FL-019/020
Project Number: 94582
Project Manager: Sue Gardner

CLS Work Order #: CSB0147
COC #: 03288.89.03077

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
E-FL-C13-0.5 (CSB0147-57) Soil	**Sampled: 02/04/09 10:20**	**Received: 02/04/09 12:35**							
Mirex	ND	20	µg/kg	2	CS00902	"	02/06/09	EPA 8081A	
Toxaphene	ND	40	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*72 %*	*46-139*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*86 %*	*52-141*		"	"	"	"	

CALIFORNIA LABORATORY SERVICES

 02/18/09 09:16

Kleinfelder (Sacramento)
3077 Fite Circle
Sacramento, CA 95827

Project: FL-019/020
Project Number: 94582
Project Manager: Sue Gardner

CLS Work Order #: CSB0147
COC #: 03288.89.03077

Chlorinated Herbicides by EPA Method 8151A - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CS01152 - EPA 8151A										
Blank (CS01152-BLK1)				Prepared: 02/11/09 Analyzed: 02/17/09						
2,4-D	ND	0.050	mg/kg							
Dalapon	ND	1.0	"							
2,4-DB	ND	0.10	"							
Dicamba	ND	0.010	"							
Dichloroprop	ND	0.10	"							
Dinoseb	ND	0.010	"							
MCPA	ND	2.0	"							
MCPP	ND	2.0	"							
Pentachlorophenol	ND	0.010	"							
2,4,5-T	ND	0.010	"							
2,4,5-TP (Silvex)	ND	0.010	"							
Surrogate: 2,4-DCAA	*0.0365*		*"*	*0.0500*		*73*	*50-150*			
LCS (CS01152-BS1)				Prepared: 02/11/09 Analyzed: 02/17/09						
Dicamba	0.0230	0.010	mg/kg	0.0250		92	50-150			
Dichloroprop	0.0295	0.10	"	0.0250		118	50-150			
Surrogate: 2,4-DCAA	*0.0420*		*"*	*0.0500*		*84*	*50-150*			
LCS Dup (CS01152-BSD1)				Prepared: 02/11/09 Analyzed: 02/17/09						
Dicamba	0.0204	0.010	mg/kg	0.0250		82	50-150	12	30	
Dichloroprop	0.0284	0.10	"	0.0250		114	50-150	4	30	
Surrogate: 2,4-DCAA	*0.0392*		*"*	*0.0500*		*78*	*50-150*			
Matrix Spike (CS01152-MS1)		Source: CSB0147-06		Prepared: 02/11/09 Analyzed: 02/17/09						
Dicamba	0.0190	0.010	mg/kg	0.0250	ND	76	50-150			
Dichloroprop	0.0255	0.10	"	0.0250	ND	102	50-150			
Surrogate: 2,4-DCAA	*0.0372*		*"*	*0.0500*		*74*	*50-150*			

CALIFORNIA LABORATORY SERVICES

02/18/09 09:16

Kleinfelder (Sacramento)
3077 Fite Circle
Sacramento, CA 95827

Project: FL-019/020
Project Number: 94582
Project Manager: Sue Gardner

CLS Work Order #: CSB0147
COC #: 03288,89,03077

Chlorinated Herbicides by EPA Method 8151A - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CS01152 - EPA 8151A										
Matrix Spike Dup (CS01152-MSD1)		**Source: CSB0147-06**		Prepared: 02/11/09	Analyzed: 02/17/09					
Dicamba	0.0154	0.010	mg/kg	0.0250	ND	61	50-150	21	30	
Dichloroprop	0.0190	0.10	"	0.0250	ND	76	50-150	29	30	
Surrogate: 2,4-DCAA	*0.0302*		"	*0.0500*		*60*	*50-150*			

CALIFORNIA LABORATORY SERVICES

02/18/09 09:16

Kleinfelder (Sacramento)
3077 Fite Circle
Sacramento, CA 95827

Project: FL-019/020
Project Number: 94582
Project Manager: Sue Gardner

CLS Work Order #: CSB0147
COC #: 03288,89,03077

Metals by EPA 6000/7000 Series Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CS00953 - EPA 3050B										
Blank (CS00953-BLK1)				Prepared: 02/06/09 Analyzed: 02/09/09						
Lead	ND	2.5	mg/kg							
Arsenic	ND	0.25	"							
Copper	ND	1.0	"							
LCS (CS00953-BS1)				Prepared: 02/06/09 Analyzed: 02/09/09						
Lead	9.24	2.5	mg/kg	10.0		92	75-125			
Arsenic	8.95	1.0	"	10.0		90	75-125			
Copper	9.17	1.0	"	10.0		92	75-125			
LCS Dup (CS00953-BSD1)				Prepared: 02/06/09 Analyzed: 02/09/09						
Lead	9.31	2.5	mg/kg	10.0		93	75-125	0.8	25	
Copper	9.15	1.0	"	10.0		92	75-125	0.2	25	
Arsenic	9.36	1.0	"	10.0		94	75-125	4	25	
Matrix Spike (CS00953-MS1)		Source: CSB0147-03		Prepared: 02/06/09 Analyzed: 02/09/09						
Lead	22.7	2.5	mg/kg	10.0	10.8	119	75-125			
Arsenic	12.7	1.0	"	10.0	4.13	85	75-125			
Copper	45.5	1.0	"	10.0	30.3	152	75-125			QM-5
Matrix Spike Dup (CS00953-MSD1)		Source: CSB0147-03		Prepared: 02/06/09 Analyzed: 02/09/09						
Lead	20.8	2.5	mg/kg	10.0	10.8	101	75-125	8	30	
Copper	41.7	1.0	"	10.0	30.3	114	75-125	9	30	
Arsenic	12.9	1.0	"	10.0	4.13	87	75-125	2	30	

CALIFORNIA LABORATORY SERVICES

 02/18/09 09:16

Kleinfelder (Sacramento)
3077 Fite Circle
Sacramento, CA 95827

Project: FL-019/020
Project Number: 94582
Project Manager: Sue Gardner

CLS Work Order #: CSB0147
COC #: 03288.89.03077

Organochlorine Pesticides by EPA Method 8081A - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CS00902 - LUFT-DHS GCNV										
Blank (CS00902-BLK1)				Prepared: 02/05/09 Analyzed: 02/06/09						
Aldrin	ND	1.0	µg/kg							
alpha-BHC	ND	2.0	"							
beta-BHC	ND	10	"							
delta-BHC	ND	10	"							
gamma-BHC (Lindane)	ND	10	"							
Chlordane-technical	ND	20	"							
4,4'-DDD	ND	15	"							
4,4'-DDE	ND	15	"							
4,4'-DDT	ND	15	"							
Dieldrin	ND	1.0	"							
Endosulfan I	ND	15	"							
Endosulfan II	ND	15	"							
Endosulfan sulfate	ND	15	"							
Endrin	ND	15	"							
Endrin aldehyde	ND	15	"							
Heptachlor	ND	5.0	"							
Heptachlor epoxide	ND	2.0	"							
Methoxychlor	ND	15	"							
Mirex	ND	10	"							
Toxaphene	ND	20	"							
Surrogate: Tetrachloro-meta-xylene	*5.41*		"	*8.33*		*65*	*46-139*			
Surrogate: Decachlorobiphenyl	*7.91*		"	*8.33*		*95*	*52-141*			
LCS (CS00902-BS1)				Prepared: 02/05/09 Analyzed: 02/06/09						
Aldrin	11.1	1.0	µg/kg	16.7		67	47-132			
gamma-BHC (Lindane)	11.2	10	"	16.7		67	56-133			
4,4'-DDT	13.4	15	"	16.7		80	46-137			
Dieldrin	13.4	1.0	"	16.7		80	44-143			
Endrin	15.2	15	"	16.7		91	30-147			
Heptachlor	11.0	5.0	"	16.7		66	33-148			
Surrogate: Tetrachloro-meta-xylene	*4.06*		"	*8.33*		*49*	*46-139*			

CALIFORNIA LABORATORY SERVICES

 02/18/09 09:16

Kleinfelder (Sacramento)	Project: FL-019/020	
3077 Fite Circle	Project Number: 94582	CLS Work Order #: CSB0147
Sacramento, CA 95827	Project Manager: Sue Gardner	COC #: 03288,89,03077

Organochlorine Pesticides by EPA Method 8081A - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CS00902 - LUFT-DHS GCNV										
LCS (CS00902-BS1)				Prepared: 02/05/09	Analyzed: 02/06/09					
Surrogate: Decachlorobiphenyl	*7.64*		*µg/kg*	*8.33*		*92*	*52-141*			
LCS Dup (CS00902-BSD1)				Prepared: 02/05/09	Analyzed: 02/06/09					
Aldrin	12.7	1.0	µg/kg	16.7		76	47-132	13	30	
gamma-BHC (Lindane)	12.6	1.0	"	16.7		75	56-133	11	30	
4,4'-DDT	13.3	1.5	"	16.7		80	46-137	0.5	30	
Dieldrin	13.6	1.0	"	16.7		82	44-143	2	30	
Endrin	15.3	1.5	"	16.7		92	30-147	0.9	30	
Heptachlor	12.5	5.0	"	16.7		75	53-148	13	30	
Surrogate: Tetrachloro-meta-xylene	*4.67*		"	*8.33*		*56*	*46-139*			
Surrogate: Decachlorobiphenyl	*9.07*		"	*8.33*		*109*	*52-141*			
Matrix Spike (CS00902-MS1)		Source: CSB0147-06		Prepared: 02/05/09	Analyzed: 02/06/09					
Aldrin	12.9	5.0	µg/kg	16.7	ND	77	47-138			
gamma-BHC (Lindane)	12.7	5.0	"	16.7	ND	76	38-144			
4,4'-DDT	13.9	7.5	"	16.7	ND	83	41-157			
Dieldrin	13.4	5.0	"	16.7	ND	81	46-155			
Endrin	13.5	7.5	"	16.7	ND	81	34-149			
Heptachlor	13.0	2.5	"	16.7	ND	78	36-155			
Surrogate: Tetrachloro-meta-xylene	*12.9*		"	*20.8*		*62*	*46-139*			
Surrogate: Decachlorobiphenyl	*19.2*		"	*20.8*		*92*	*52-141*			
Matrix Spike Dup (CS00902-MSD1)		Source: CSB0147-06		Prepared: 02/05/09	Analyzed: 02/06/09					
Aldrin	12.6	5.0	µg/kg	16.7	ND	76	47-138	2	35	
gamma-BHC (Lindane)	12.6	5.0	"	16.7	ND	75	38-144	1	35	
4,4'-DDT	13.9	7.5	"	16.7	ND	83	41-157	0.3	35	
Dieldrin	13.2	5.0	"	16.7	ND	79	46-155	2	35	
Endrin	13.5	7.5	"	16.7	ND	81	34-149	0.4	35	
Heptachlor	12.9	2.5	"	16.7	ND	77	36-155	1	35	
Surrogate: Tetrachloro-meta-xylene	*12.8*		"	*20.8*		*62*	*46-139*			
Surrogate: Decachlorobiphenyl	*17.4*		"	*20.8*		*84*	*52-141*			

CALIFORNIA LABORATORY SERVICES

02/18/09 09:16

Kleinfelder (Sacramento)	Project: FL-019/020	
3077 Fite Circle	Project Number: 94582	**CLS Work Order #: CSB0147**
Sacramento, CA 95827	Project Manager: Sue Gardner	COC #: 03288,89,03077

Notes and Definitions

QM-5	The spike recovery was outside acceptance limits for the MS and/or MSD due to matrix interference. The LCS and/or LCSD were within acceptance limits showing that the laboratory is in control and the data is acceptable.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

CALIFORNIA LABORATORY SERVICES

3249 Fitzgerald Road Rancho Cordova, CA 95742

February 26, 2009

CLS Work Order #: CSB0752
COC #: 03095

Sue Gardner
Kleinfelder (Sacramento)
3077 Fite Circle
Sacramento, CA 95827

Project Name: FL-036

Enclosed are the results of analyses for samples received by the laboratory on 02/19/09 12:29. Samples were analyzed pursuant to client request utilizing EPA or other ELAP approved methodologies. I certify that the results are in compliance both technically and for completeness.

Analytical results are attached to this letter. Please call if we can provide additional assistance.

Sincerely,

James Liang, Ph.D.
Laboratory Director

CA DOHS ELAP Accreditation/Registration number 1233

CALIFORNIA LABORATORY SERVICES

02/26/09 09:14

Kleinfelder (Sacramento) 3077 Fite Circle Sacramento, CA 95827	Project: FL-036 Project Number: 94582 Project Manager: Sue Gardner	CLS Work Order #: CSB0752 COC #: 03095

94582 FL-036

CLS

John Pemberton / 8691

Date	Time	Sample ID				
02/13/09	925	E-FL-67-.5	Soil	1	8oz	x x
	945	E-FL-73-1.5				x x
	1015	E-FL-64-1.5				x x
	1022	E-FL-70-1.5				x x
	1055	E-FL-61-1.5				x x
	1109	E-FL-54-.5				x x
	1305	E-FL-47-1.5				x x
	[illegible]	E-FL-51-1.5				x x
	[illegible]	E-FL-44-1.5				
	[illegible]	E-FL-56-1.5				

Sue Gardner
3077 Fite Circle
Sacramento CA 95827
sgardner@kleinfelder.com

CHAIN OF CUSTODY

№ 03095

CALIFORNIA LABORATORY SERVICES

02/26/09 09:14

Kleinfelder (Sacramento) 3077 Fite Circle Sacramento, CA 95827	Project: FL-036 Project Number: 94582 Project Manager: Sue Gardner	CLS Work Order #: CSB0752 COC #: 03095

Metals by EPA 6000/7000 Series Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
E-FL-67-1.5 (CSB0752-01) Soil Sampled: 02/18/09 09:25 Received: 02/19/09 12:29									
Arsenic	7.3	1.0	mg/kg	4	CS01337	02/20/09	02/20/09	EPA 7060A	
Copper	27	1.0	"	1	"	"	02/20/09	EPA 6010B	
Lead	12	2.5	"	"	"	"	"	"	
E-FL-73-1.5 (CSB0752-02) Soil Sampled: 02/18/09 09:45 Received: 02/19/09 12:29									
Arsenic	8.6	1.0	mg/kg	4	CS01337	02/20/09	02/20/09	EPA 7060A	
Copper	26	1.0	"	1	"	"	02/20/09	EPA 6010B	
Lead	12	2.5	"	"	"	"	"	"	
E-FL-64-1.5 (CSB0752-03) Soil Sampled: 02/18/09 10:15 Received: 02/19/09 12:29									
Arsenic	33	2.0	mg/kg	8	CS01337	02/20/09	02/20/09	EPA 7060A	
Copper	39	1.0	"	1	"	"	02/20/09	EPA 6010B	
Lead	36	2.5	"	"	"	"	"	"	
E-FL-70-1.5 (CSB0752-04) Soil Sampled: 02/18/09 10:22 Received: 02/19/09 12:29									
Arsenic	13	1.0	mg/kg	4	CS01337	02/20/09	02/20/09	EPA 7060A	
Copper	39	1.0	"	1	"	"	02/20/09	EPA 6010B	
Lead	32	2.5	"	"	"	"	"	"	
E-FL-61-1.5 (CSB0752-05) Soil Sampled: 02/18/09 10:55 Received: 02/19/09 12:29									
Arsenic	13	1.0	mg/kg	4	CS01337	02/20/09	02/20/09	EPA 7060A	
Copper	41	1.0	"	1	"	"	02/20/09	EPA 6010B	
Lead	30	2.5	"	"	"	"	"	"	
E-FL-54-1.5 (CSB0752-06) Soil Sampled: 02/18/09 11:09 Received: 02/19/09 12:29									
Arsenic	36	2.0	mg/kg	8	CS01337	02/20/09	02/20/09	EPA 7060A	
Copper	42	1.0	"	1	"	"	02/20/09	EPA 6010B	
Lead	28	2.5	"	"	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

Kleinfelder (Sacramento)	Project: FL-036	
3077 Fite Circle	Project Number: 94582	CLS Work Order #: CSB0752
Sacramento, CA 95827	Project Manager: Sue Gardner	COC #: 03095

Metals by EPA 6000/7000 Series Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
E-FL-47-1.5 (CSB0752-07) Soil	**Sampled: 02/18/09 13:05**	**Received: 02/19/09 12:29**							
Arsenic	10	1.0	mg/kg	4	CS01337	02/20/09	02/20/09	EPA 7060A	
Copper	31	1.0	"	1	"	"	02/20/09	EPA 6010B	
Lead	14	2.5	"	"	"	"	"	"	
E-FL-51-1.5 (CSB0752-08) Soil	**Sampled: 02/18/09 13:45**	**Received: 02/19/09 12:29**							
Arsenic	9.0	1.0	mg/kg	4	CS01337	02/20/09	02/20/09	EPA 7060A	
Copper	29	1.0	"	1	"	"	02/20/09	EPA 6010B	
Lead	16	2.5	"	"	"	"	"	"	
E-FL-44-1.5 (CSB0752-09) Soil	**Sampled: 02/18/09 14:10**	**Received: 02/19/09 12:29**							
Arsenic	7.7	1.0	mg/kg	4	CS01337	02/20/09	02/20/09	EPA 7060A	
Copper	26	1.0	"	1	"	"	02/20/09	EPA 6010B	
Lead	13	2.5	"	"	"	"	"	"	
E-FL-56-1.5 (CSB0752-10) Soil	**Sampled: 02/18/09 14:25**	**Received: 02/19/09 12:29**							
Arsenic	9.5	1.0	mg/kg	4	CS01337	02/20/09	02/20/09	EPA 7060A	
Copper	38	1.0	"	1	"	"	02/20/09	EPA 6010B	
Lead	17	2.5	"	"	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

Kleinfelder (Sacramento)	Project: FL-036	
3077 Fite Circle	Project Number: 94582	CLS Work Order #: CSB0752
Sacramento, CA 95827	Project Manager: Sue Gardner	COC #: 03095

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
E-FL-67-1.5 (CSB0752-01) Soil Sampled: 02/18/09 09:25 Received: 02/19/09 12:29									
Aldrin	ND	5.0	µg/kg	5	CS01343	02/20/09	02/23/09	EPA 8081A	
alpha-BHC	ND	10	"	"	"	"	"	"	
beta-BHC	ND	50	"	"	"	"	"	"	
delta-BHC	ND	50	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	50	"	"	"	"	"	"	
Chlordane-technical	ND	100	"	"	"	"	"	"	
4,4'-DDD	ND	75	"	"	"	"	"	"	
4,4'-DDE	77	75	"	"	"	"	"	"	
4,4'-DDT	ND	75	"	"	"	"	"	"	
Dieldrin	ND	5.0	"	"	"	"	"	"	
Endosulfan I	ND	75	"	"	"	"	"	"	
Endosulfan II	ND	75	"	"	"	"	"	"	
Endosulfan sulfate	ND	75	"	"	"	"	"	"	
Endrin	ND	75	"	"	"	"	"	"	
Endrin aldehyde	ND	75	"	"	"	"	"	"	
Heptachlor	ND	25	"	"	"	"	"	"	
Heptachlor epoxide	ND	10	"	"	"	"	"	"	
Methoxychlor	ND	75	"	"	"	"	"	"	
Mirex	ND	50	"	"	"	"	"	"	
Toxaphene	ND	100	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*86 %*	*46-139*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*76 %*	*52-141*		"	"	"	"	
E-FL-73-1.5 (CSB0752-02) Soil Sampled: 02/18/09 09:45 Received: 02/19/09 12:29									
Aldrin	ND	5.0	µg/kg	5	CS01343	02/20/09	02/23/09	EPA 8081A	
alpha-BHC	ND	10	"	"	"	"	"	"	
beta-BHC	ND	50	"	"	"	"	"	"	
delta-BHC	ND	50	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	50	"	"	"	"	"	"	
Chlordane-technical	ND	100	"	"	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

02/26/09 09:14

Kleinfelder (Sacramento) 3077 Fite Circle Sacramento, CA 95827	Project: FL-036 Project Number: 94582 Project Manager: Sue Gardner	CLS Work Order #: CSB0752 COC #: 03095

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
E-FL-73-1.5 (CSB0752-02) Soil Sampled: 02/18/09 09:45 Received: 02/19/09 12:29									
4,4'-DDD	ND	75	µg/kg	5	CS01343	"	02/23/09	EPA 8081A	
4,4'-DDE	ND	75	"	"	"	"	"	"	
4,4'-DDT	ND	75	"	"	"	"	"	"	
Dieldrin	ND	5.0	"	"	"	"	"	"	
Endosulfan I	ND	75	"	"	"	"	"	"	
Endosulfan II	ND	75	"	"	"	"	"	"	
Endosulfan sulfate	ND	75	"	"	"	"	"	"	
Endrin	ND	75	"	"	"	"	"	"	
Endrin aldehyde	ND	75	"	"	"	"	"	"	
Heptachlor	ND	25	"	"	"	"	"	"	
Heptachlor epoxide	ND	10	"	"	"	"	"	"	
Methoxychlor	ND	75	"	"	"	"	"	"	
Mirex	ND	50	"	"	"	"	"	"	
Toxaphene	ND	100	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*91 %*	*46-139*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*102 %*	*52-141*		"	"	"	"	
E-FL-64-1.5 (CSB0752-03) Soil Sampled: 02/18/09 10:15 Received: 02/19/09 12:29									
Aldrin	ND	5.0	µg/kg	5	CS01343	02/20/09	02/23/09	EPA 8081A	
alpha-BHC	ND	10	"	"	"	"	"	"	
beta-BHC	ND	50	"	"	"	"	"	"	
delta-BHC	ND	50	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	50	"	"	"	"	"	"	
Chlordane-technical	ND	100	"	"	"	"	"	"	
4,4'-DDD	ND	75	"	"	"	"	"	"	
4,4'-DDE	ND	75	"	"	"	"	"	"	
4,4'-DDT	ND	75	"	"	"	"	"	"	
Dieldrin	ND	5.0	"	"	"	"	"	"	
Endosulfan I	ND	75	"	"	"	"	"	"	
Endosulfan II	ND	75	"	"	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

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Kleinfelder (Sacramento) 3077 Fite Circle Sacramento, CA 95827	Project: FL-036 Project Number: 94582 Project Manager: Sue Gardner	**CLS Work Order #: CSB0752** COC #: 03095

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
E-FL-64-1.5 (CSB0752-03) Soil Sampled: 02/18/09 10:15 Received: 02/19/09 12:29									
Endosulfan sulfate	ND	75	µg/kg	5	CS01343	"	02/23/09	EPA 8081A	
Endrin	ND	75	"	"	"	"	"	"	
Endrin aldehyde	ND	75	"	"	"	"	"	"	
Heptachlor	ND	25	"	"	"	"	"	"	
Heptachlor epoxide	ND	10	"	"	"	"	"	"	
Methoxychlor	ND	75	"	"	"	"	"	"	
Mirex	ND	50	"	"	"	"	"	"	
Toxaphene	ND	100	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*75 %*	*46-139*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*53 %*	*52-141*		"	"	"	"	
E-FL-70-1.5 (CSB0752-04) Soil Sampled: 02/18/09 10:22 Received: 02/19/09 12:29									
Aldrin	ND	5.0	µg/kg	5	CS01343	02/20/09	02/23/09	EPA 8081A	
alpha-BHC	ND	10	"	"	"	"	"	"	
beta-BHC	ND	50	"	"	"	"	"	"	
delta-BHC	ND	50	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	50	"	"	"	"	"	"	
Chlordane-technical	ND	100	"	"	"	"	"	"	
4,4′-DDD	ND	75	"	"	"	"	"	"	
4,4′-DDE	ND	75	"	"	"	"	"	"	
4,4′-DDT	ND	75	"	"	"	"	"	"	
Dieldrin	ND	5.0	"	"	"	"	"	"	
Endosulfan I	ND	75	"	"	"	"	"	"	
Endosulfan II	ND	75	"	"	"	"	"	"	
Endosulfan sulfate	ND	75	"	"	"	"	"	"	
Endrin	ND	75	"	"	"	"	"	"	
Endrin aldehyde	ND	75	"	"	"	"	"	"	
Heptachlor	ND	25	"	"	"	"	"	"	
Heptachlor epoxide	ND	10	"	"	"	"	"	"	
Methoxychlor	ND	75	"	"	"	"	"	"	

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Kleinfelder (Sacramento)
3077 Fite Circle
Sacramento, CA 95827

Project: FL-036
Project Number: 94582
Project Manager: Sue Gardner

CLS Work Order #: CSB0752
COC #: 03095

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
E-FL-70-1.5 (CSB0752-04) Soil Sampled: 02/18/09 10:22 Received: 02/19/09 12:29									
Mirex	ND	50	µg/kg	5	CS01343	"	02/23/09	EPA 8081A	
Toxaphene	ND	100	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*80 %*	*46-139*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*68 %*	*52-141*		"	"	"	"	
E-FL-61-1.5 (CSB0752-05) Soil Sampled: 02/18/09 10:55 Received: 02/19/09 12:29									
Aldrin	ND	5.0	µg/kg	5	CS01343	02/20/09	02/23/09	EPA 8081A	
alpha-BHC	ND	10	"	"	"	"	"	"	
beta-BHC	ND	50	"	"	"	"	"	"	
delta-BHC	ND	50	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	50	"	"	"	"	"	"	
Chlordane-technical	ND	100	"	"	"	"	"	"	
4,4'-DDD	ND	75	"	"	"	"	"	"	
4,4'-DDE	ND	75	"	"	"	"	"	"	
4,4'-DDT	ND	75	"	"	"	"	"	"	
Dieldrin	ND	5.0	"	"	"	"	"	"	
Endosulfan I	ND	75	"	"	"	"	"	"	
Endosulfan II	ND	75	"	"	"	"	"	"	
Endosulfan sulfate	ND	75	"	"	"	"	"	"	
Endrin	ND	75	"	"	"	"	"	"	
Endrin aldehyde	ND	75	"	"	"	"	"	"	
Heptachlor	ND	25	"	"	"	"	"	"	
Heptachlor epoxide	ND	10	"	"	"	"	"	"	
Methoxychlor	ND	75	"	"	"	"	"	"	
Mirex	ND	50	"	"	"	"	"	"	
Toxaphene	ND	100	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*92 %*	*46-139*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*86 %*	*52-141*		"	"	"	"	

Kleinfelder (Sacramento)	Project: FL-036	
3077 Fite Circle	Project Number: 94582	CLS Work Order #: CSB0752
Sacramento, CA 95827	Project Manager: Sue Gardner	COC #: 03095

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
E-FL-54-1.5 (CSB0752-06) Soil Sampled: 02/18/09 11:09 Received: 02/19/09 12:29									
Aldrin	ND	5.0	µg/kg	5	CS01377	02/23/09	02/24/09	EPA 8081A	
alpha-BHC	ND	10	"	"	"	"	"	"	
beta-BHC	ND	50	"	"	"	"	"	"	
delta-BHC	ND	50	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	50	"	"	"	"	"	"	
Chlordane-technical	ND	100	"	"	"	"	"	"	
4,4′-DDD	ND	75	"	"	"	"	"	"	
4,4′-DDE	ND	75	"	"	"	"	"	"	
4,4′-DDT	ND	75	"	"	"	"	"	"	
Dieldrin	ND	5.0	"	"	"	"	"	"	
Endosulfan I	ND	75	"	"	"	"	"	"	
Endosulfan II	ND	75	"	"	"	"	"	"	
Endosulfan sulfate	ND	75	"	"	"	"	"	"	
Endrin	ND	75	"	"	"	"	"	"	
Endrin aldehyde	ND	75	"	"	"	"	"	"	
Heptachlor	ND	25	"	"	"	"	"	"	
Heptachlor epoxide	ND	10	"	"	"	"	"	"	
Methoxychlor	ND	75	"	"	"	"	"	"	
Mirex	ND	50	"	"	"	"	"	"	
Toxaphene	ND	100	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*74 %*	*16-139*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*93 %*	*52-141*		"	"	"	"	
E-FL-47-1.5 (CSB0752-07) Soil Sampled: 02/18/09 13:05 Received: 02/19/09 12:29									
Aldrin	ND	5.0	µg/kg	5	CS01377	02/23/09	02/24/09	EPA 8081A	
alpha-BHC	ND	10	"	"	"	"	"	"	
beta-BHC	ND	50	"	"	"	"	"	"	
delta-BHC	ND	50	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	50	"	"	"	"	"	"	
Chlordane-technical	ND	100	"	"	"	"	"	"	

Kleinfelder (Sacramento) 3077 Fite Circle Sacramento, CA 95827	Project: FL-036 Project Number: 94582 Project Manager: Sue Gardner	CLS Work Order #: CSB0752 COC #: 03095

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
E-FL-47-1.5 (CSB0752-07) Soil Sampled: 02/18/09 13:05 Received: 02/19/09 12:29									
4,4'-DDD	ND	75	µg/kg	5	CS01377	"	02/24/09	EPA 8081A	
4,4'-DDE	ND	75	"	"	"	"	"	"	
4,4'-DDT	ND	75	"	"	"	"	"	"	
Dieldrin	ND	5.0	"	"	"	"	"	"	
Endosulfan I	ND	75	"	"	"	"	"	"	
Endosulfan II	ND	75	"	"	"	"	"	"	
Endosulfan sulfate	ND	75	"	"	"	"	"	"	
Endrin	ND	75	"	"	"	"	"	"	
Endrin aldehyde	ND	75	"	"	"	"	"	"	
Heptachlor	ND	25	"	"	"	"	"	"	
Heptachlor epoxide	ND	10	"	"	"	"	"	"	
Methoxychlor	ND	75	"	"	"	"	"	"	
Mirex	ND	50	"	"	"	"	"	"	
Toxaphene	ND	100	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*85 %*	*46-139*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*72 %*	*52-141*		"	"	"	"	
E-FL-51-1.5 (CSB0752-08) Soil Sampled: 02/18/09 13:45 Received: 02/19/09 12:29									
Aldrin	ND	5.0	µg/kg	5	CS01377	02/23/09	02/24/09	EPA 8081A	
alpha-BHC	ND	10	"	"	"	"	"	"	
beta-BHC	ND	50	"	"	"	"	"	"	
delta-BHC	ND	50	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	50	"	"	"	"	"	"	
Chlordane-technical	ND	100	"	"	"	"	"	"	
4,4'-DDD	ND	75	"	"	"	"	"	"	
4,4'-DDE	ND	75	"	"	"	"	"	"	
4,4'-DDT	ND	75	"	"	"	"	"	"	
Dieldrin	ND	5.0	"	"	"	"	"	"	
Endosulfan I	ND	75	"	"	"	"	"	"	
Endosulfan II	ND	75	"	"	"	"	"	"	

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Kleinfelder (Sacramento) 3077 Fite Circle Sacramento, CA 95827	Project: FL-036 Project Number: 94582 Project Manager: Sue Gardner	CLS Work Order #: CSB0752 COC #: 03095

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
E-FL-51-1.5 (CSB0752-08) Soil Sampled: 02/18/09 13:45 Received: 02/19/09 12:29									
Endosulfan sulfate	ND	75	µg/kg	5	CS01377	"	02/24/09	EPA 8081A	
Endrin	ND	75	"	"	"	"	"	"	
Endrin aldehyde	ND	75	"	"	"	"	"	"	
Heptachlor	ND	25	"	"	"	"	"	"	
Heptachlor epoxide	ND	10	"	"	"	"	"	"	
Methoxychlor	ND	75	"	"	"	"	"	"	
Mirex	ND	50	"	"	"	"	"	"	
Toxaphene	ND	100	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*89 %*		*46-139*	"	"	"	"	
Surrogate: Decachlorobiphenyl		*81 %*		*52-141*	"	"	"	"	
E-FL-44-1.5 (CSB0752-09) Soil Sampled: 02/18/09 14:10 Received: 02/19/09 12:29									
Aldrin	ND	5.0	µg/kg	5	CS01377	02/23/09	02/24/09	EPA 8081A	
alpha-BHC	ND	10	"	"	"	"	"	"	
beta-BHC	ND	50	"	"	"	"	"	"	
delta-BHC	ND	50	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	50	"	"	"	"	"	"	
Chlordane-technical	ND	100	"	"	"	"	"	"	
4,4´-DDD	ND	75	"	"	"	"	"	"	
4,4´-DDE	ND	75	"	"	"	"	"	"	
4,4´-DDT	ND	75	"	"	"	"	"	"	
Dieldrin	ND	5.0	"	"	"	"	"	"	
Endosulfan I	ND	75	"	"	"	"	"	"	
Endosulfan II	ND	75	"	"	"	"	"	"	
Endosulfan sulfate	ND	75	"	"	"	"	"	"	
Endrin	ND	75	"	"	"	"	"	"	
Endrin aldehyde	ND	75	"	"	"	"	"	"	
Heptachlor	ND	25	"	"	"	"	"	"	
Heptachlor epoxide	ND	10	"	"	"	"	"	"	
Methoxychlor	ND	75	"	"	"	"	"	"	

Kleinfelder (Sacramento)
3077 Fite Circle
Sacramento, CA 95827

Project: FL-036
Project Number: 94582
Project Manager: Sue Gardner

CLS Work Order #: CSB0752
COC #: 03095

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
E-FL-44-1.5 (CSB0752-09) Soil Sampled: 02/18/09 14:10 Received: 02/19/09 12:29									
Mirex	ND	50	µg/kg	5	CS01377	"	02/24/09	EPA 8081A	
Toxaphene	ND	100	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*42 %*	*46-139*		"	"	"	"	*QS-4*
Surrogate: Decachlorobiphenyl		*25 %*	*52-141*		"	"	"	"	*QS-4*
E-FL-56-1.5 (CSB0752-10) Soil Sampled: 02/18/09 14:25 Received: 02/19/09 12:29									
Aldrin	ND	5.0	µg/kg	5	CS01377	02/23/09	02/24/09	EPA 8081A	
alpha-BHC	ND	10	"	"	"	"	"	"	
beta-BHC	ND	50	"	"	"	"	"	"	
delta-BHC	ND	50	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	50	"	"	"	"	"	"	
Chlordane-technical	ND	100	"	"	"	"	"	"	
4,4'-DDD	ND	75	"	"	"	"	"	"	
4,4'-DDE	ND	75	"	"	"	"	"	"	
4,4'-DDT	ND	75	"	"	"	"	"	"	
Dieldrin	ND	5.0	"	"	"	"	"	"	
Endosulfan I	ND	75	"	"	"	"	"	"	
Endosulfan II	ND	75	"	"	"	"	"	"	
Endosulfan sulfate	ND	75	"	"	"	"	"	"	
Endrin	ND	75	"	"	"	"	"	"	
Endrin aldehyde	ND	75	"	"	"	"	"	"	
Heptachlor	ND	25	"	"	"	"	"	"	
Heptachlor epoxide	ND	10	"	"	"	"	"	"	
Methoxychlor	ND	75	"	"	"	"	"	"	
Mirex	ND	50	"	"	"	"	"	"	
Toxaphene	ND	100	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*107 %*	*46-139*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*104 %*	*52-141*		"	"	"	"	

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Kleinfelder (Sacramento)	Project: FL-036	
3077 Fite Circle	Project Number: 94582	**CLS Work Order #: CSB0752**
Sacramento, CA 95827	Project Manager: Sue Gardner	COC #: 03095

Metals by EPA 6000/7000 Series Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CS01337 - EPA 3050B										
Blank (CS01337-BLK1)				Prepared & Analyzed: 02/20/09						
Lead	ND	2.5	mg/kg							
Copper	ND	1.0	"							
Arsenic	ND	0.25	"							
LCS (CS01337-BS1)				Prepared & Analyzed: 02/20/09						
Lead	7.47	2.5	mg/kg	10.0		75	75-125			
Copper	8.93	1.0	"	10.0		89	75-125			
Arsenic	9.76	1.0	"	10.0		98	75-125			
LCS Dup (CS01337-BSD1)				Prepared & Analyzed: 02/20/09						
Lead	8.13	2.5	mg/kg	10.0		81	75-125	9	25	
Copper	9.11	1.0	"	10.0		91	75-125	2	25	
Arsenic	9.85	1.0	"	10.0		99	75-125	0.9	25	
Matrix Spike (CS01337-MS1)	Source: CSB0752-01			Prepared & Analyzed: 02/20/09						
Lead	22.7	2.5	mg/kg	10.0	12.1	107	75-125			
Arsenic	17.3	1.0	"	10.0	7.32	100	75-125			
Copper	39.2	1.0	"	10.0	26.6	126	75-125			QM-5
Matrix Spike Dup (CS01337-MSD1)	Source: CSB0752-01			Prepared & Analyzed: 02/20/09						
Lead	20.2	2.5	mg/kg	10.0	12.1	81	75-125	12	30	
Copper	35.8	1.0	"	10.0	26.6	92	75-125	9	30	
Arsenic	16.3	1.0	"	10.0	7.32	90	75-125	6	30	

CALIFORNIA LABORATORY SERVICES

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Kleinfelder (Sacramento)	Project: FL-036	
3077 Fite Circle	Project Number: 94582	CLS Work Order #: CSB0752
Sacramento, CA 95827	Project Manager: Sue Gardner	COC #: 03095

Organochlorine Pesticides by EPA Method 8081A - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CS01343 - LUFT-DHS GCNV										
Blank (CS01343-BLK1)				Prepared: 02/20/09 Analyzed: 02/23/09						
Aldrin	ND	1.0	µg/kg							
alpha-BHC	ND	2.0	"							
beta-BHC	ND	10	"							
delta-BHC	ND	10	"							
gamma-BHC (Lindane)	ND	10	"							
Chlordane-technical	ND	20	"							
4,4'-DDD	ND	15	"							
4,4'-DDE	ND	15	"							
4,4'-DDT	ND	15	"							
Dieldrin	ND	1.0	"							
Endosulfan I	ND	15	"							
Endosulfan II	ND	15	"							
Endosulfan sulfate	ND	15	"							
Endrin	ND	15	"							
Endrin aldehyde	ND	15	"							
Heptachlor	ND	5.0	"							
Heptachlor epoxide	ND	2.0	"							
Methoxychlor	ND	15	"							
Mirex	ND	10	"							
Toxaphene	ND	20	"							
Surrogate: Tetrachloro-meta-xylene	*9.96*		"	*8.33*		*120*	*46-139*			
Surrogate: Decachlorobiphenyl	*9.56*		"	*8.33*		*115*	*52-141*			
LCS (CS01343-BS1)				Prepared: 02/20/09 Analyzed: 02/23/09						
Aldrin	17.9	1.0	µg/kg	16.7		107	47-132			
gamma-BHC (Lindane)	17.3	10	"	16.7		104	56-133			
4,4'-DDT	17.2	15	"	16.7		103	46-137			
Dieldrin	16.5	1.0	"	16.7		99	44-143			
Endrin	19.6	15	"	16.7		118	30-147			
Heptachlor	17.7	5.0	"	16.7		106	33-148			
Surrogate: Tetrachloro-meta-xylene	*8.79*		"	*8.33*		*105*	*46-139*			

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Kleinfelder (Sacramento)
3077 Fite Circle
Sacramento, CA 95827

Project: FL-036
Project Number: 94582
Project Manager: Sue Gardner

CLS Work Order #: CSB0752
COC #: 03095

Organochlorine Pesticides by EPA Method 8081A - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CS01343 - LUFT-DHS GCNV										
LCS (CS01343-BS1)				Prepared: 02/20/09 Analyzed: 02/23/09						
Surrogate: Decachlorobiphenyl	*9.00*		µg/kg	*8.33*		*108*	*52-141*			
LCS Dup (CS01343-BSD1)				Prepared: 02/20/09 Analyzed: 02/23/09						
Aldrin	15.7	1.0	µg/kg	16.7		94	47-132	13	30	
gamma-BHC (Lindane)	14.8	10	"	16.7		89	56-133	15	30	
4,4'-DDT	16.1	15	"	16.7		96	46-137	7	30	
Dieldrin	15.0	1.0	"	16.7		90	44-143	10	30	
Endrin	17.6	15	"	16.7		106	30-147	11	30	
Heptachlor	15.6	5.0	"	16.7		94	33-148	12	30	
Surrogate: Tetrachloro-meta-xylene	*7.26*		"	*8.33*		*87*	*46-139*			
Surrogate: Decachlorobiphenyl	*8.76*		"	*8.33*		*105*	*52-141*			
Matrix Spike (CS01343-MS1)		Source: CSB0752-01		Prepared: 02/20/09 Analyzed: 02/23/09						
Aldrin	11.9	5.0	µg/kg	16.7	ND	71	47-138			
gamma-BHC (Lindane)	15.0	50	"	16.7	ND	90	38-144			
4,4'-DDT	80.6	75	"	16.7	70.8	59	41-157			
Dieldrin	16.5	5.0	"	16.7	ND	99	46-155			
Endrin	12.2	75	"	16.7	ND	73	34-149			
Heptachlor	12.1	25	"	16.7	ND	73	36-155			
Surrogate: Tetrachloro-meta-xylene	*15.1*		"	*20.8*		*72*	*46-139*			
Surrogate: Decachlorobiphenyl	*12.2*		"	*20.8*		*58*	*52-141*			
Matrix Spike Dup (CS01343-MSD1)		Source: CSB0752-01		Prepared: 02/20/09 Analyzed: 02/23/09						
Aldrin	10.3	5.0	µg/kg	16.7	ND	62	47-138	14	35	
gamma-BHC (Lindane)	13.3	50	"	16.7	ND	80	38-144	12	35	
4,4'-DDT	72.8	75	"	16.7	70.8	12	41-157	10	35	QM-5
Dieldrin	15.0	5.0	"	16.7	ND	90	46-155	10	35	
Endrin	10.6	75	"	16.7	ND	64	34-149	14	35	
Heptachlor	10.8	25	"	16.7	ND	65	36-155	12	35	
Surrogate: Tetrachloro-meta-xylene	*12.9*		"	*20.8*		*62*	*46-139*			
Surrogate: Decachlorobiphenyl	*10.8*		"	*20.8*		*52*	*52-111*			

CALIFORNIA LABORATORY SERVICES

 02/26/09 09:14

Kleinfelder (Sacramento) 3077 Fite Circle Sacramento, CA 95827	Project: FL-036 Project Number: 94582 Project Manager: Sue Gardner	CLS Work Order #: CSB0752 COC #: 03095

Organochlorine Pesticides by EPA Method 8081A - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CS01377 - LUFT-DHS GCNV										
Blank (CS01377-BLK1)				Prepared: 02/23/09 Analyzed: 02/24/09						
Aldrin	ND	1.0	µg/kg							
alpha-BHC	ND	2.0	"							
beta-BHC	ND	10	"							
delta-BHC	ND	10	"							
gamma-BHC (Lindane)	ND	10	"							
Chlordane-technical	ND	20	"							
4,4'-DDD	ND	15	"							
4,4'-DDE	ND	15	"							
4,4'-DDT	ND	15	"							
Dieldrin	ND	1.0	"							
Endosulfan I	ND	15	"							
Endosulfan II	ND	15	"							
Endosulfan sulfate	ND	15	"							
Endrin	ND	15	"							
Endrin aldehyde	ND	15	"							
Heptachlor	ND	5.0	"							
Heptachlor epoxide	ND	2.0	"							
Methoxychlor	ND	15	"							
Mirex	ND	10	"							
Toxaphene	ND	20	"							
Surrogate: Tetrachloro-meta-xylene	*7.39*		"	*8.33*		*89*	*46-139*			
Surrogate: Decachlorobiphenyl	*7.12*		"	*8.33*		*85*	*52-141*			
LCS (CS01377-BS1)				Prepared: 02/23/09 Analyzed: 02/24/09						
Aldrin	15.6	1.0	µg/kg	16.7		93	47-132			
gamma-BHC (Lindane)	15.8	10	"	16.7		95	56-133			
4,4'-DDT	9.26	15	"	16.7		56	46-137			
Dieldrin	15.7	1.0	"	16.7		94	44-143			
Endrin	15.0	15	"	16.7		90	30-147			
Heptachlor	12.5	5.0	"	16.7		75	33-148			
Surrogate: Tetrachloro-meta-xylene	*7.71*		"	*8.33*		*92*	*46-139*			

CALIFORNIA LABORATORY SERVICES

02/26/09 09:14

Kleinfelder (Sacramento) 3077 Fite Circle Sacramento, CA 95827	Project: FL-036 Project Number: 94582 Project Manager: Sue Gardner	CLS Work Order #: CSB0752 COC #: 03095

Organochlorine Pesticides by EPA Method 8081A - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CS01377 - LUFT-DHS GCNV										
LCS (CS01377-BS1)				Prepared: 02/23/09 Analyzed: 02/24/09						
Surrogate: Decachlorobiphenyl	*7.28*		*µg/kg*	*8.33*		*87*	*52-141*			
LCS Dup (CS01377-BSD1)				Prepared: 02/23/09 Analyzed: 02/24/09						
Aldrin	15.0	1.0	µg/kg	16.7		90	47-132	3	30	
gamma-BHC (Lindane)	15.3	10	"	16.7		92	56-133	3	30	
4,4'-DDT	9.88	15	"	16.7		59	46-137	6	30	
Dieldrin	15.6	1.0	"	16.7		93	44-143	1	30	
Endrin	14.9	15	"	16.7		90	30-147	0.5	30	
Heptachlor	12.3	5.0	"	16.7		74	33-148	1	30	
Surrogate: Tetrachloro-meta-xylene	*6.82*		"	*8.33*		*82*	*46-139*			
Surrogate: Decachlorobiphenyl	*6.67*		"	*8.33*		*80*	*52-141*			
Matrix Spike (CS01377-MS1)		Source: CSB0860-06		Prepared: 02/23/09 Analyzed: 02/24/09						
Aldrin	15.2	10	µg/kg	16.7	ND	91	47-138			
gamma-BHC (Lindane)	15.4	100	"	16.7	ND	92	38-144			
4,4'-DDT	14.2	150	"	16.7	ND	85	41-157			
Dieldrin	19.2	10	"	16.7	ND	115	46-155			
Endrin	15.2	150	"	16.7	ND	91	34-149			
Heptachlor	13.2	50	"	16.7	ND	79	36-155			
Surrogate: Tetrachloro-meta-xylene	*22.1*		"	*20.8*		*106*	*46-139*			
Surrogate: Decachlorobiphenyl	*24.5*		"	*20.8*		*118*	*52-141*			
Matrix Spike Dup (CS01377-MSD1)		Source: CSB0860-06		Prepared: 02/23/09 Analyzed: 02/24/09						
Aldrin	14.1	10	µg/kg	16.7	ND	84	47-138	8	35	
gamma-BHC (Lindane)	19.3	100	"	16.7	ND	116	38-144	23	35	
4,4'-DDT	13.5	150	"	16.7	ND	81	41-157	5	35	
Dieldrin	17.5	10	"	16.7	ND	105	46-155	9	35	
Endrin	13.6	150	"	16.7	ND	82	34-149	11	35	
Heptachlor	12.1	50	"	16.7	ND	72	36-155	9	35	
Surrogate: Tetrachloro-meta-xylene	*20.6*		"	*20.8*		*99*	*46-139*			
Surrogate: Decachlorobiphenyl	*18.6*		"	*20.8*		*89*	*52-141*			

Kleinfelder (Sacramento) 3077 Fite Circle Sacramento, CA 95827	Project: FL-036 Project Number: 94582 Project Manager: Sue Gardner	**CLS Work Order #: CSB0752** COC #: 03095

Notes and Definitions

QS-4	The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
QM-5	The spike recovery was outside acceptance limits for the MS and/or MSD due to matrix interference. The LCS and/or LCSD were within acceptance limits showing that the laboratory is in control and the data is acceptable.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

CALIFORNIA LABORATORY SERVICES

3249 Fitzgerald Road Rancho Cordova, CA 95742

July 17, 2009

CLS Work Order #: CSG0542
COC #: 02581,82

Sue Gardner
Kleinfelder (Sacramento)
3077 Fite Circle
Sacramento, CA 95827

Project Name: FL-036

Enclosed are the results of analyses for samples received by the laboratory on 07/14/09 15:30. Samples were analyzed pursuant to client request utilizing EPA or other ELAP approved methodologies. I certify that the results are in compliance both technically and for completeness.

Analytical results are attached to this letter. Please call if we can provide additional assistance.

Sincerely,

James Liang, Ph.D.
Laboratory Director

CA DOHS ELAP Accreditation/Registration number 1233

CALIFORNIA LABORATORY SERVICES

07/17/09 10:44

Kleinfelder (Sacramento) 3077 Fite Circle Sacramento, CA 95827	Project: FL-036 Project Number: 94582 Project Manager: Sue Gardner	CLS Work Order #: CSG0542 COC #: 025818 2

HAZP [illegible]

94582 FL-036

Report to Pan wee
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possible DI wet)

Kleinfelder (Sacramento)	Project: FL-036	
3077 Fite Circle	Project Number: 94582	CLS Work Order #: CSG0542
Sacramento, CA 95827	Project Manager: Sue Gardner	COC #: 02581.82

HAAP Phase II - SR3

94582 FL-036

CLS

Kleinfelder West

3077 Fite Circle

Sac, CA 95827

Sue Gardner

CALIFORNIA LABORATORY SERVICES

07/17/09 10:44

Kleinfelder (Sacramento) 3077 Fite Circle Sacramento, CA 95827	Project: FL-036 Project Number: 94582 Project Manager: Sue Gardner	CLS Work Order #: CSG0542 COC #: 02581.82

Metals by EPA 6000/7000 Series Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
E-FL-48-1.0 (CSG0542-01) Soil	**Sampled: 07/14/09 10:34**	**Received: 07/14/09 15:30**							
Arsenic	19	1.0	mg/kg	4	CS05234	07/15/09	07/16/09	EPA 7060A	
E-FL-49-1.0 (CSG0542-02) Soil	**Sampled: 07/14/09 10:42**	**Received: 07/14/09 15:30**							
Arsenic	15	1.0	mg/kg	4	CS05234	07/15/09	07/16/09	EPA 7060A	
E-FL-54-1.0 (CSG0542-03) Soil	**Sampled: 07/14/09 10:48**	**Received: 07/14/09 15:30**							
Arsenic	29	2.0	mg/kg	8	CS05234	07/15/09	07/16/09	EPA 7060A	
E-FL-55-1.0 (CSG0542-04) Soil	**Sampled: 07/14/09 10:54**	**Received: 07/14/09 15:30**							
Arsenic	19	1.0	mg/kg	4	CS05234	07/15/09	07/16/09	EPA 7060A	
E-FL-60-1.0 (CSG0542-05) Soil	**Sampled: 07/14/09 10:51**	**Received: 07/14/09 15:30**							
Arsenic	16	1.0	mg/kg	4	CS05234	07/15/09	07/16/09	EPA 7060A	
E-FL-61-1.0 (CSG0542-06) Soil	**Sampled: 07/14/09 11:12**	**Received: 07/14/09 15:30**							
Arsenic	18	1.0	mg/kg	4	CS05234	07/15/09	07/16/09	EPA 7060A	
E-FL-65-1.0 (CSG0542-07) Soil	**Sampled: 07/14/09 11:42**	**Received: 07/14/09 15:30**							
Arsenic	18	1.0	mg/kg	4	CS05234	07/15/09	07/16/09	EPA 7060A	
E-FL-66-1.0 (CSG0542-08) Soil	**Sampled: 07/14/09 11:17**	**Received: 07/14/09 15:30**							
Arsenic	28	2.0	mg/kg	8	CS05234	07/15/09	07/16/09	EPA 7060A	
E-FL-70-1.0 (CSG0542-09) Soil	**Sampled: 07/14/09 11:37**	**Received: 07/14/09 15:30**							
Arsenic	18	1.0	mg/kg	4	CS05234	07/15/09	07/16/09	EPA 7060A	

California Laboratory Services

07/17/09 10:44

Kleinfelder (Sacramento) 3077 Fite Circle Sacramento, CA 95827	Project: FL-036 Project Number: 94582 Project Manager: Sue Gardner	CLS Work Order #: CSG0542 COC #: 02581,82

Metals by EPA 6000/7000 Series Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
E-FL-71-1.0 (CSG0542-10) Soil	**Sampled: 07/14/09 11:22**	**Received: 07/14/09 15:30**							
Arsenic	28	2.0	mg/kg	8	CS05234	07/15/09	07/16/09	EPA 7060A	
E-FL-75-1.0 (CSG0542-11) Soil	**Sampled: 07/14/09 11:32**	**Received: 07/14/09 15:30**							
Arsenic	27	2.0	mg/kg	8	CS05234	07/15/09	07/16/09	EPA 7060A	
E-FL-76-1.0 (CSG0542-12) Soil	**Sampled: 07/14/09 11:26**	**Received: 07/14/09 15:30**							
Arsenic	5.9	1.0	mg/kg	4	CS05234	07/15/09	07/16/09	EPA 7060A	
E-FL-48-2.0 (CSG0542-13) Soil	**Sampled: 07/14/09 10:34**	**Received: 07/14/09 15:30**							
Arsenic	7.3	1.0	mg/kg	4	CS05234	07/15/09	07/16/09	EPA 7060A	
E-FL-49-2.0 (CSG0542-14) Soil	**Sampled: 07/14/09 10:42**	**Received: 07/14/09 15:30**							
Arsenic	8.5	1.0	mg/kg	4	CS05234	07/15/09	07/16/09	EPA 7060A	
E-FL-54-2.0 (CSG0542-15) Soil	**Sampled: 07/14/09 10:48**	**Received: 07/14/09 15:30**							
Arsenic	10	1.0	mg/kg	4	CS05234	07/15/09	07/16/09	EPA 7060A	
E-FL-55-2.0 (CSG0542-16) Soil	**Sampled: 07/14/09 10:54**	**Received: 07/14/09 15:30**							
Arsenic	11	1.0	mg/kg	4	CS05234	07/15/09	07/16/09	EPA 7060A	
E-FL-60-2.0 (CSG0542-17) Soil	**Sampled: 07/14/09 10:51**	**Received: 07/14/09 15:30**							
Arsenic	10	1.0	mg/kg	4	CS05234	07/15/09	07/16/09	EPA 7060A	
E-FL-61-2.0 (CSG0542-18) Soil	**Sampled: 07/14/09 11:12**	**Received: 07/14/09 15:30**							
Arsenic	11	1.0	mg/kg	4	CS05234	07/15/09	07/16/09	EPA 7060A	

CALIFORNIA LABORATORY SERVICES

07/17/09 10:44

Kleinfelder (Sacramento) 3077 Fite Circle Sacramento, CA 95827	Project: FL-036 Project Number: 94582 Project Manager: Sue Gardner	**CLS Work Order #: CSG0542** COC #: 02581.82

Metals by EPA 6000/7000 Series Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
E-FL-65-2.0 (CSG0542-19) Soil	**Sampled: 07/14/09 11:42**	**Received: 07/14/09 15:30**							
Arsenic	7.6	1.0	mg/kg	4	CS05234	07/15/09	07/16/09	EPA 7060A	
E-FL-66-2.0 (CSG0542-20) Soil	**Sampled: 07/14/09 11:17**	**Received: 07/14/09 15:30**							
Arsenic	9.4	1.0	mg/kg	4	CS05234	07/15/09	07/16/09	EPA 7060A	
E-FL-70-2.0 (CSG0542-21) Soil	**Sampled: 07/14/09 11:37**	**Received: 07/14/09 15:30**							
Arsenic	6.7	1.0	mg/kg	4	CS05235	07/15/09	07/16/09	EPA 7060A	
E-FL-71-2.0 (CSG0542-22) Soil	**Sampled: 07/14/09 11:22**	**Received: 07/14/09 15:30**							
Arsenic	5.7	1.0	mg/kg	4	CS05235	07/15/09	07/16/09	EPA 7060A	
E-FL-75-2.0 (CSG0542-23) Soil	**Sampled: 07/14/09 11:32**	**Received: 07/14/09 15:30**							
Arsenic	12	1.0	mg/kg	4	CS05235	07/15/09	07/16/09	EPA 7060A	
E-FL-76-2.0 (CSG0542-24) Soil	**Sampled: 07/14/09 11:26**	**Received: 07/14/09 15:30**							
Arsenic	4.7	1.0	mg/kg	4	CS05235	07/15/09	07/16/09	EPA 7060A	

CALIFORNIA LABORATORY SERVICES

 07/17/09 10:44

Kleinfelder (Sacramento)	Project: FL-036	
3077 Fite Circle	Project Number: 94582	CLS Work Order #: CSG0542
Sacramento, CA 95827	Project Manager: Sue Gardner	COC #: 02581.82

Metals by EPA 6000/7000 Series Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CS05234 - EPA 3050B										
Blank (CS05234-BLK1)				Prepared: 07/15/09 Analyzed: 07/16/09						
Arsenic	ND	0.25	mg/kg							
LCS (CS05234-BS1)				Prepared: 07/15/09 Analyzed: 07/16/09						
Arsenic	5.17	1.0	mg/kg	5.00		103	75-125			
LCS Dup (CS05234-BSD1)				Prepared: 07/15/09 Analyzed: 07/16/09						
Arsenic	5.21	1.0	mg/kg	5.00		104	75-125	0.9	25	
Matrix Spike (CS05234-MS1)	Source: CSG0542-01			Prepared: 07/15/09 Analyzed: 07/16/09						
Arsenic	21.2	1.0	mg/kg	5.00	18.8	48	75-125			QM-5
Matrix Spike Dup (CS05234-MSD1)	Source: CSG0542-01			Prepared: 07/15/09 Analyzed: 07/16/09						
Arsenic	21.6	1.0	mg/kg	5.00	18.8	56	75-125	2	30	QM-5
Batch CS05235 - EPA 3050B										
Blank (CS05235-BLK1)				Prepared: 07/15/09 Analyzed: 07/16/09						
Arsenic	ND	0.25	mg/kg							
LCS (CS05235-BS1)				Prepared: 07/15/09 Analyzed: 07/16/09						
Arsenic	4.97	1.0	mg/kg	5.00		99	75-125			
LCS Dup (CS05235-BSD1)				Prepared: 07/15/09 Analyzed: 07/16/09						
Arsenic	5.00	1.0	mg/kg	5.00		100	75-125	0.6	25	
Matrix Spike (CS05235-MS1)	Source: CSG0542-21			Prepared: 07/15/09 Analyzed: 07/16/09						
Arsenic	13.4	1.0	mg/kg	5.00	6.74	132	75-125			QM-5

CALIFORNIA LABORATORY SERVICES

07/17/09 10:44

Kleinfelder (Sacramento)	Project: FL-036	
3077 Fite Circle	Project Number: 94582	CLS Work Order #: CSG0542
Sacramento, CA 95827	Project Manager: Sue Gardner	COC #: 02581,82

Metals by EPA 6000/7000 Series Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CS05235 - EPA 3050B										
Matrix Spike Dup (CS05235-MSD1)	**Source: CSG0542-21**			Prepared: 07/15/09	Analyzed: 07/16/09					
Arsenic	13.0	1.0	mg/kg	5.00	6.74	126	75-125	2	30	QM-5

CALIFORNIA LABORATORY SERVICES

07/17/09 10:44

Kleinfelder (Sacramento)	Project: FL-036	
3077 Fite Circle	Project Number: 94582	CLS Work Order #: CSG0542
Sacramento, CA 95827	Project Manager: Sue Gardner	COC #: 02581.82

Notes and Definitions

QM-5	The spike recovery was outside acceptance limits for the MS and/or MSD due to matrix interference. The LCS and/or LCSD were within acceptance limits showing that the laboratory is in control and the data is acceptable.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

CALIFORNIA LABORATORY SERVICES

3249 Fitzgerald Road Rancho Cordova, CA 95742

July 21, 2009

CLS Work Order #: CSG0598
COC #: 03340

Sue Gardner
Kleinfelder (Sacramento)
3077 Fite Circle
Sacramento, CA 95827

Project Name: FL-036

Enclosed are the results of analyses for samples received by the laboratory on 07/15/09 15:00. Samples were analyzed pursuant to client request utilizing EPA or other ELAP approved methodologies. I certify that the results are in compliance both technically and for completeness.

Analytical results are attached to this letter. Please call if we can provide additional assistance.

Sincerely,

James Liang, Ph.D.
Laboratory Director

CA DOHS ELAP Accreditation/Registration number 1233

CALIFORNIA LABORATORY SERVICES

07/21/09 08:47

Kleinfelder (Sacramento) 3077 Fite Circle Sacramento, CA 95827	Project: FL-036 Project Number: 94582 Project Manager: Sue Gardner	CLS Work Order #: CSG0598 COC #: 03340

94582

CALIFORNIA LABORATORY SERVICES

 07/21/09 08:47

Kleinfelder (Sacramento)	Project: FL-036	
3077 Fite Circle	Project Number: 94582	CLS Work Order #: CSG0598
Sacramento, CA 95827	Project Manager: Sue Gardner	COC #: 03340

Metals by EPA 6000/7000 Series Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
E-FL-34-1.0 (CSG0598-01) Soil Sampled: 07/15/09 10:00 Received: 07/15/09 15:00									
Arsenic	17	1.0	mg/kg	4	CS05256	07/16/09	07/16/09	EPA 7060A	
E-FL-35-1.0 (CSG0598-02) Soil Sampled: 07/15/09 09:55 Received: 07/15/09 15:00									
Arsenic	18	1.0	mg/kg	4	CS05256	07/16/09	07/16/09	EPA 7060A	
E-FL-36-1.0 (CSG0598-03) Soil Sampled: 07/15/09 09:50 Received: 07/15/09 15:00									
Arsenic	27	2.0	mg/kg	8	CS05256	07/16/09	07/16/09	EPA 7060A	
E-FL-37-1.0 (CSG0598-04) Soil Sampled: 07/15/09 09:45 Received: 07/15/09 15:00									
Arsenic	30	2.0	mg/kg	8	CS05256	07/16/09	07/16/09	EPA 7060A	
E-FL-44-1.0 (CSG0598-05) Soil Sampled: 07/15/09 10:23 Received: 07/15/09 15:00									
Arsenic	12	1.0	mg/kg	4	CS05256	07/16/09	07/16/09	EPA 7060A	
E-FL-45-1.0 (CSG0598-06) Soil Sampled: 07/15/09 10:29 Received: 07/15/09 15:00									
Arsenic	23	2.0	mg/kg	8	CS05256	07/16/09	07/16/09	EPA 7060A	
E-FL-46-1.0 (CSG0598-07) Soil Sampled: 07/15/09 09:29 Received: 07/15/09 15:00									
Arsenic	25	2.0	mg/kg	8	CS05256	07/16/09	07/16/09	EPA 7060A	
E-FL-47-1.0 (CSG0598-08) Soil Sampled: 07/15/09 09:35 Received: 07/15/09 15:00									
Arsenic	32	2.0	mg/kg	8	CS05256	07/16/09	07/16/09	EPA 7060A	
E-FL-50-1.0 (CSG0598-09) Soil Sampled: 07/15/09 10:44 Received: 07/15/09 15:00									
Arsenic	15	1.0	mg/kg	4	CS05256	07/16/09	07/16/09	EPA 7060A	

CALIFORNIA LABORATORY SERVICES

 07/21/09 08:47

Kleinfelder (Sacramento)
3077 Fite Circle
Sacramento, CA 95827

Project: FL-036
Project Number: 94582
Project Manager: Sue Gardner

CLS Work Order #: CSG0598
COC #: 03340

Metals by EPA 6000/7000 Series Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
E-FL-51-1.0 (CSG0598-10) Soil Sampled: 07/15/09 10:36 Received: 07/15/09 15:00									
Arsenic	35	2.0	mg/kg	8	CS05256	07/16/09	07/16/09	EPA 7060A	
E-FL-52-1.0 (CSG0598-11) Soil Sampled: 07/15/09 09:23 Received: 07/15/09 15:00									
Arsenic	27	2.0	mg/kg	8	CS05256	07/16/09	07/16/09	EPA 7060A	
E-FL-53-1.0 (CSG0598-12) Soil Sampled: 07/15/09 09:17 Received: 07/15/09 15:00									
Arsenic	42	2.0	mg/kg	8	CS05256	07/16/09	07/16/09	EPA 7060A	
E-FL-SP-0.5 (CSG0598-13) Soil Sampled: 07/15/09 08:15 Received: 07/15/09 15:00									
Arsenic	11	1.0	mg/kg	4	CS05256	07/16/09	07/16/09	EPA 7060A	

CALIFORNIA LABORATORY SERVICES

07/21/09 08:47

Kleinfelder (Sacramento) 3077 Fite Circle Sacramento, CA 95827	Project: FL-036 Project Number: 94582 Project Manager: Sue Gardner	**CLS Work Order #: CSG0598** COC #: 03340

Metals by EPA 6000/7000 Series Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CS05256 - EPA 3050B										
Blank (CS05256-BLK1)				Prepared & Analyzed: 07/16/09						
Arsenic	ND	0.25	mg/kg							
LCS (CS05256-BS1)				Prepared & Analyzed: 07/16/09						
Arsenic	5.25	1.0	mg/kg	5.00		105	75-125			
LCS Dup (CS05256-BSD1)				Prepared & Analyzed: 07/16/09						
Arsenic	5.09	1.0	mg/kg	5.00		102	75-125	3	25	
Matrix Spike (CS05256-MS1)		Source: CSG0582-01		Prepared & Analyzed: 07/16/09						
Arsenic	29.2	2.0	mg/kg	5.00	27.4	36	75-125			QM-5
Matrix Spike Dup (CS05256-MSD1)		Source: CSG0582-01		Prepared & Analyzed: 07/16/09						
Arsenic	23.9	2.0	mg/kg	5.00	27.4	NR	75-125	20	30	QM-5

Kleinfelder (Sacramento)	Project: FL-036	
3077 Fite Circle	Project Number: 94582	CLS Work Order #: CSG0598
Sacramento, CA 95827	Project Manager: Sue Gardner	COC #: 03340

Notes and Definitions

QM-5	The spike recovery was outside acceptance limits for the MS and/or MSD due to matrix interference. The LCS and/or LCSD were within acceptance limits showing that the laboratory is in control and the data is acceptable.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

California Laboratory Services

3249 Fitzgerald Road Rancho Cordova, CA 95742

July 24, 2009

CLS Work Order #: CSG0866
COC #: 03044

Pam Wee
Kleinfelder (Sacramento)
3077 Fite Circle
Sacramento, CA 95827

Project Name: FL-036

Enclosed are the results of analyses for samples received by the laboratory on 07/22/09 15:45. Samples were analyzed pursuant to client request utilizing EPA or other ELAP approved methodologies. I certify that the results are in compliance both technically and for completeness.

Analytical results are attached to this letter. Please call if we can provide additional assistance.

Sincerely,

James Liang, Ph.D.
Laboratory Director

CA DOHS ELAP Accreditation/Registration number 1233

CALIFORNIA LABORATORY SERVICES

07/24/09 12:33

Kleinfelder (Sacramento) 3077 Fite Circle Sacramento, CA 95827	Project: FL-036 Project Number: 94582 Project Manager: Pam Wee	**CLS Work Order #: CSG0866** COC #: 03044

CALIFORNIA LABORATORY SERVICES

07/24/09 12:33

Kleinfelder (Sacramento) 3077 Fite Circle Sacramento, CA 95827	Project: FL-036 Project Number: 94582 Project Manager: Pam Wee	**CLS Work Order #: CSG0866** COC #: 03044

Metals by EPA 6000/7000 Series Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
E-FL-72-2.0 (CSG0866-01) Soil	**Sampled: 07/22/09 10:42**	**Received: 07/22/09 15:45**							
Arsenic	5.7	1.0	mg/kg	10	CS05442	07/23/09	07/24/09	EPA 6020	
E-FL-67-2.0 (CSG0866-02) Soil	**Sampled: 07/22/09 10:34**	**Received: 07/22/09 15:45**							
Arsenic	5.5	1.0	mg/kg	10	CS05442	07/23/09	07/24/09	EPA 6020	
E-FL-77-2.0 (CSG0866-03) Soil	**Sampled: 07/22/09 10:25**	**Received: 07/22/09 15:45**							
Arsenic	5.4	1.0	mg/kg	10	CS05442	07/23/09	07/24/09	EPA 6020	
E-FL-78-2.0 (CSG0866-04) Soil	**Sampled: 07/22/09 11:39**	**Received: 07/22/09 15:45**							
Arsenic	5.6	1.0	mg/kg	10	CS05442	07/23/09	07/24/09	EPA 6020	
E-FL-62-2.0 (CSG0866-05) Soil	**Sampled: 07/22/09 11:51**	**Received: 07/22/09 15:45**							
Arsenic	6.3	1.0	mg/kg	10	CS05442	07/23/09	07/24/09	EPA 6020	
E-FL-56-2.0 (CSG0866-06) Soil	**Sampled: 07/22/09 12:03**	**Received: 07/22/09 15:45**							
Arsenic	5.7	1.0	mg/kg	10	CS05442	07/23/09	07/24/09	EPA 6020	
E-FL-57-2.0 (CSG0866-07) Soil	**Sampled: 07/22/09 12:15**	**Received: 07/22/09 15:45**							
Arsenic	6.3	1.0	mg/kg	10	CS05442	07/23/09	07/24/09	EPA 6020	
E-FL-74-2.0 (CSG0866-08) Soil	**Sampled: 07/22/09 12:54**	**Received: 07/22/09 15:45**							
Arsenic	6.9	1.0	mg/kg	10	CS05442	07/23/09	07/24/09	EPA 6020	
E-FL-73-2.0 (CSG0866-09) Soil	**Sampled: 07/22/09 13:23**	**Received: 07/22/09 15:45**							
Arsenic	11	1.0	mg/kg	10	CS05442	07/23/09	07/24/09	EPA 6020	

California Laboratory Services

07/24/09 12:33

Kleinfelder (Sacramento) 3077 Fite Circle Sacramento, CA 95827	Project: FL-036 Project Number: 94582 Project Manager: Pam Wee	CLS Work Order #: CSG0866 COC #: 03044

Metals by EPA 6000/7000 Series Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
E-FL-69-2.0 (CSG0866-10) Soil	**Sampled: 07/22/09 13:05**	**Received: 07/22/09 15:45**							
Arsenic	9.2	1.0	mg/kg	10	CS05442	07/23/09	07/24/09	EPA 6020	
E-FL-68-2.0 (CSG0866-11) Soil	**Sampled: 07/22/09 13:14**	**Received: 07/22/09 15:45**							
Arsenic	7.2	1.0	mg/kg	10	CS05442	07/23/09	07/24/09	EPA 6020	
E-FL-63-2.0 (CSG0866-12) Soil	**Sampled: 07/22/09 14:13**	**Received: 07/22/09 15:45**							
Arsenic	6.9	1.0	mg/kg	10	CS05442	07/23/09	07/24/09	EPA 6020	
E-FL-64-2.0 (CSG0866-13) Soil	**Sampled: 07/22/09 13:42**	**Received: 07/22/09 15:45**							
Arsenic	7.3	1.0	mg/kg	10	CS05442	07/23/09	07/24/09	EPA 6020	
E-FL-58-2.0 (CSG0866-14) Soil	**Sampled: 07/22/09 14:02**	**Received: 07/22/09 15:45**							
Arsenic	6.3	1.0	mg/kg	10	CS05442	07/23/09	07/24/09	EPA 6020	
E-FL-59-2.0 (CSG0866-15) Soil	**Sampled: 07/22/09 13:51**	**Received: 07/22/09 15:45**							
Arsenic	7.5	1.0	mg/kg	10	CS05442	07/23/09	07/24/09	EPA 6020	

CALIFORNIA LABORATORY SERVICES

07/24/09 12:33

Kleinfelder (Sacramento) 3077 Fite Circle Sacramento, CA 95827	Project: FL-036 Project Number: 94582 Project Manager: Pam Wee	CLS Work Order #: CSG0866 COC #: 03044

Metals by EPA 6000/7000 Series Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CS05442 - EPA 3050B										
Blank (CS05442-BLK1)				Prepared: 07/23/09 Analyzed: 07/24/09						
Arsenic	ND	0.10	mg/kg							
LCS (CS05442-BS1)				Prepared: 07/23/09 Analyzed: 07/24/09						
Arsenic	4.15	0.10	mg/kg	5.00		83	75-125			
LCS Dup (CS05442-BSD1)				Prepared: 07/23/09 Analyzed: 07/24/09						
Arsenic	4.15	0.10	mg/kg	5.00		83	75-125	0.02	25	
Matrix Spike (CS05442-MS1)	Source: CSG0866-01			Prepared: 07/23/09 Analyzed: 07/24/09						
Arsenic	8.86	1.0	mg/kg	5.00	5.73	63	75-125			QM-5
Matrix Spike Dup (CS05442-MSD1)	Source: CSG0866-01			Prepared: 07/23/09 Analyzed: 07/24/09						
Arsenic	9.79	1.0	mg/kg	5.00	5.73	81	75-125	10	30	

CALIFORNIA LABORATORY SERVICES

07/24/09 12:33

Kleinfelder (Sacramento) 3077 Fite Circle Sacramento, CA 95827	Project: FL-036 Project Number: 94582 Project Manager: Pam Wee	**CLS Work Order #: CSG0866** COC #: 03044

Notes and Definitions

QM-5	The spike recovery was outside acceptance limits for the MS and/or MSD due to matrix interference. The LCS and/or LCSD were within acceptance limits showing that the laboratory is in control and the data is acceptable.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

CALIFORNIA LABORATORY SERVICES

3249 Fitzgerald Road Rancho Cordova, CA 95742

July 24, 2009

CLS Work Order #: CSG0867
COC #: 03130

Pam Wee
Kleinfelder (Sacramento)
3077 Fite Circle
Sacramento, CA 95827

Project Name: FL-036

Enclosed are the results of analyses for samples received by the laboratory on 07/22/09 15:45. Samples were analyzed pursuant to client request utilizing EPA or other ELAP approved methodologies. I certify that the results are in compliance both technically and for completeness.

Analytical results are attached to this letter. Please call if we can provide additional assistance.

Sincerely.

James Liang, Ph.D.
Laboratory Director

CA DOHS ELAP Accreditation/Registration number 1233

CALIFORNIA LABORATORY SERVICES

07/24/09 12:35

Kleinfelder (Sacramento) 3077 Fite Circle Sacramento, CA 95827	Project: FL-036 Project Number: 94582 Project Manager: Pam Wee	**CLS Work Order #: CSG0867** COC #: 03130

California Laboratory Services

 07/24/09 12:35

Kleinfelder (Sacramento) 3077 Fite Circle Sacramento, CA 95827	Project: FL-036 Project Number: 94582 Project Manager: Pam Wee	CLS Work Order #: CSG0867 COC #: 03130

Metals by EPA 6000/7000 Series Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
E-FL-72-1.0 (CSG0867-01) Soil	**Sampled: 07/22/09 10:42**	**Received: 07/22/09 15:45**							
Arsenic	6.3	1.0	mg/kg	10	CS05443	07/23/09	07/23/09	EPA 6020	
E-FL-67-1.0 (CSG0867-02) Soil	**Sampled: 07/22/09 10:34**	**Received: 07/22/09 15:45**							
Arsenic	9.9	1.0	mg/kg	10	CS05443	07/23/09	07/23/09	EPA 6020	
E-FL-77-1.0 (CSG0867-03) Soil	**Sampled: 07/22/09 10:25**	**Received: 07/22/09 15:45**							
Arsenic	9.3	1.0	mg/kg	10	CS05443	07/23/09	07/23/09	EPA 6020	
E-FL-78-1.0 (CSG0867-04) Soil	**Sampled: 07/22/09 11:39**	**Received: 07/22/09 15:45**							
Arsenic	8.5	1.0	mg/kg	10	CS05443	07/23/09	07/23/09	EPA 6020	
E-FL-62-1.0 (CSG0867-05) Soil	**Sampled: 07/22/09 11:51**	**Received: 07/22/09 15:45**							
Arsenic	13	1.0	mg/kg	10	CS05443	07/23/09	07/23/09	EPA 6020	
E-FL-56-1.0 (CSG0867-06) Soil	**Sampled: 07/22/09 12:03**	**Received: 07/22/09 15:45**							
Arsenic	8.8	1.0	mg/kg	10	CS05443	07/23/09	07/23/09	EPA 6020	
E-FL-57-1.0 (CSG0867-07) Soil	**Sampled: 07/22/09 12:15**	**Received: 07/22/09 15:45**							
Arsenic	25	1.0	mg/kg	10	CS05443	07/23/09	07/23/09	EPA 6020	
E-FL-74-1.0 (CSG0867-08) Soil	**Sampled: 07/22/09 12:54**	**Received: 07/22/09 15:45**							
Arsenic	23	1.0	mg/kg	10	CS05443	07/23/09	07/23/09	EPA 6020	
E-FL-73-1.0 (CSG0867-09) Soil	**Sampled: 07/22/09 13:23**	**Received: 07/22/09 15:45**							
Arsenic	20	1.0	mg/kg	10	CS05443	07/23/09	07/23/09	EPA 6020	

CALIFORNIA LABORATORY SERVICES

Kleinfelder (Sacramento)
3077 Fite Circle
Sacramento, CA 95827

Project: FL-036
Project Number: 94582
Project Manager: Pam Wee

CLS Work Order #: CSG0867
COC #: 03130

Metals by EPA 6000/7000 Series Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
E-FL-69-1.0 (CSG0867-10) Soil Sampled: 07/22/09 13:05 Received: 07/22/09 15:45									
Arsenic	30	1.0	mg/kg	10	CS05443	07/23/09	07/23/09	EPA 6020	
E-FL-68-1.0 (CSG0867-11) Soil Sampled: 07/22/09 13:14 Received: 07/22/09 15:45									
Arsenic	19	1.0	mg/kg	10	CS05443	07/23/09	07/23/09	EPA 6020	
E-FL-63-1.0 (CSG0867-12) Soil Sampled: 07/22/09 14:13 Received: 07/22/09 15:45									
Arsenic	25	1.0	mg/kg	10	CS05443	07/23/09	07/23/09	EPA 6020	
E-FL-64-1.0 (CSG0867-13) Soil Sampled: 07/22/09 13:42 Received: 07/22/09 15:45									
Arsenic	43	1.0	mg/kg	10	CS05443	07/23/09	07/23/09	EPA 6020	
E-FL-58-1.0 (CSG0867-14) Soil Sampled: 07/22/09 14:02 Received: 07/22/09 15:45									
Arsenic	16	1.0	mg/kg	10	CS05443	07/23/09	07/23/09	EPA 6020	
E-FL-59-1.0 (CSG0867-15) Soil Sampled: 07/22/09 13:51 Received: 07/22/09 15:45									
Arsenic	29	1.0	mg/kg	10	CS05443	07/23/09	07/23/09	EPA 6020	
E-FL-72-S (CSG0867-16) Soil Sampled: 07/22/09 10:42 Received: 07/22/09 15:45									
Arsenic	11	1.0	mg/kg	10	CS05443	07/23/09	07/23/09	EPA 6020	
E-FL-57-S (CSG0867-17) Soil Sampled: 07/22/09 12:15 Received: 07/22/09 15:45									
Arsenic	24	1.0	mg/kg	10	CS05443	07/23/09	07/23/09	EPA 6020	
E-FL-58-S (CSG0867-18) Soil Sampled: 07/22/09 14:02 Received: 07/22/09 15:45									
Arsenic	31	1.0	mg/kg	10	CS05443	07/23/09	07/23/09	EPA 6020	

California Laboratory Services

Kleinfelder (Sacramento) 3077 Fite Circle Sacramento, CA 95827	Project: FL-036 Project Number: 94582 Project Manager: Pam Wee	CLS Work Order #: CSG0867 COC #: 03130

Metals by EPA 6000/7000 Series Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CS05443 - EPA 3050B										
Blank (CS05443-BLK1)				Prepared & Analyzed: 07/23/09						
Arsenic	ND	0.10	mg/kg							
LCS (CS05443-BS1)				Prepared & Analyzed: 07/23/09						
Arsenic	4.24	0.10	mg/kg	5.00		85	75-125			
LCS Dup (CS05443-BSD1)				Prepared & Analyzed: 07/23/09						
Arsenic	4.27	0.10	mg/kg	5.00		85	75-125	0.8	25	
Matrix Spike (CS05443-MS1)		Source: CSG0867-01		Prepared & Analyzed: 07/23/09						
Arsenic	10.4	1.0	mg/kg	5.00	6.34	81	75-125			
Matrix Spike Dup (CS05443-MSD1)		Source: CSG0867-01		Prepared & Analyzed: 07/23/09						
Arsenic	10.2	1.0	mg/kg	5.00	6.34	77	75-125	2	30	

Kleinfelder (Sacramento)	Project: FL-036	
3077 Fite Circle	Project Number: 94582	CLS Work Order #: CSG0867
Sacramento, CA 95827	Project Manager: Pam Wee	COC #: 03130

Notes and Definitions

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

Appendix C

ProUCL Output

General UCL Statistics for Data Sets with Non-Detects

User Selected Options			
From File	C:\Documents and Settings\DDickey\My Documents\00_Work\01_Sites\Snakes\2nd_round\SoSutter_ProUCL.wst		
Full Precision	OFF		
Confidence Coefficient	95%		
Number of Bootstrap Operations	2000		

Dieldrin

General Statistics			
Number of Valid Data	22	Number of Detected Data	1
Number of Distinct Detected Data	1	Number of Non-Detect Data	21
		Percent Non-Detects	95.45%

Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!
It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV)

The data set for variable Dieldrin was not processed!

Toxaphene

General Statistics			
Number of Valid Data	22	Number of Detected Data	4
Number of Distinct Detected Data	4	Number of Non-Detect Data	18
		Percent Non-Detects	81.82%
Raw Statistics		Log-transformed Statistics	
Minimum Detected	36	Minimum Detected	3.584
Maximum Detected	190	Maximum Detected	5.247
Mean of Detected	123.8	Mean of Detected	4.628
SD of Detected	74.07	SD of Detected	0.777
Minimum Non-Detect	20	Minimum Non-Detect	2.996
Maximum Non-Detect	20	Maximum Non-Detect	2.996

Warning: There are only 4 Distinct Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics			
Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.891	Shapiro Wilk Test Statistic	0.878
5% Shapiro Wilk Critical Value	0.748	5% Shapiro Wilk Critical Value	0.748
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	30.68	Mean	2.725
SD	52.92	SD	0.964
95% DL/2 (t) UCL	50.1	95% H-Stat (DL/2) UCL	27.51
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	1.653
		SD in Log Scale	2.005
		Mean in Original Scale	27.6
		SD in Original Scale	54.6
		95% Percentile Bootstrap UCL	47.85
		95% BCA Bootstrap UCL	53.77
Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.863	Data appear Normal at 5% Significance Level	
Theta Star	143.5		
nu star	6.901		
A-D Test Statistic	0.385	Nonparametric Statistics	
5% A-D Critical Value	0.66	Kaplan-Meier (KM) Method	

K-S Test Statistic	0.66	Mean	51.95
5% K-S Critical Value	0.397	SD	43.52
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	10.71
		95% KM (t) UCL	70.39
Assuming Gamma Distribution		95% KM (z) UCL	69.58
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	86.24
Minimum	36	95% KM (bootstrap t) UCL	61.95
Maximum	1190	95% KM (BCA) UCL	181.4
Mean	500	95% KM (Percentile Bootstrap) UCL	180.9
Median	430.1	95% KM (Chebyshev) UCL	98.65
SD	375.5	97.5% KM (Chebyshev) UCL	118.9
k star	1.229	99% KM (Chebyshev) UCL	158.5
Theta star	407		
Nu star	54.06	Potential UCLs to Use	
AppChi2	38.16	95% KM (t) UCL	70.39
95% Gamma Approximate UCL	708.2	95% KM (Percentile Bootstrap) UCL	180.9
95% Adjusted Gamma UCL	N/A		

Note: DL/2 is not a recommended method

General UCL Statistics for Data Sets with Non-Detects

User Selected Options	
From File	C:\Documents and Settings\DDickey\My Documents\00_Work\01_Sites\Snakes\2nd_round\Novak_ProUCL.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Toxaphene

General Statistics			
Number of Valid Data	53	Number of Detected Data	33
Number of Distinct Detected Data	14	Number of Non-Detect Data	20
		Percent Non-Detects	37 74%
Raw Statistics		Log-transformed Statistics	
Minimum Detected	23	Minimum Detected	3.135
Maximum Detected	220	Maximum Detected	5.394
Mean of Detected	130.2	Mean of Detected	4.797
SD of Detected	43.54	SD of Detected	0.432
Minimum Non-Detect	100	Minimum Non-Detect	4 605
Maximum Non-Detect	100	Maximum Non-Detect	4 605
UCL Statistics			
Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.949	Shapiro Wilk Test Statistic	0.825
5% Shapiro Wilk Critical Value	0.931	5% Shapiro Wilk Critical Value	0.931
Data appear Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	99.96	Mean	4.463
SD	52.04	SD	0 55
95% DL/2 (t) UCL	111.9	95% H-Stat (DL/2) UCL	109
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	104 2	Mean in Log Scale	4.518
SD	51 24	SD in Log Scale	0.524
95% MLE (t) UCL	116	Mean in Original Scale	103.7
95% MLE (Tiku) UCL	118.1	SD in Original Scale	49.39
		95% Percentile Bootstrap UCL	114.3
		95% BCA Bootstrap UCL	115 4
Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	6.487	Data appear Normal at 5% Significance Level	
Theta Star	20.08		
nu star	428.1		
A-D Test Statistic	1.034	Nonparametric Statistics	
5% A-D Critical Value	0.748	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.748	Mean	102.6
5% K-S Critical Value	0.153	SD	51 25
Data not Gamma Distributed at 5% Significance Level		SE of Mean	8 775
		95% KM (t) UCL	117 3
Assuming Gamma Distribution		95% KM (z) UCL	117
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	119
Minimum	23	95% KM (bootstrap t) UCL	118.1
Maximum	220	95% KM (BCA) UCL	119
Mean	125.3	95% KM (Percentile Bootstrap) UCL	118.7
Median	130	95% KM (Chebyshev) UCL	140.9
SD	38.82	97 5% KM (Chebyshev) UCL	157.4
k star	8.101	99% KM (Chebyshev) UCL	189.9
Theta star	15.47		
Nu star	858.7	Potential UCLs to Use	
AppChi2	791.7	95% KM (t) UCL	117.3
95% Gamma Approximate UCL	135.9	95% KM (Percentile Bootstrap) UCL	118.7
95% Adjusted Gamma UCL	136.3		

Note: DL/2 is not a recommended method.

General UCL Statistics for Data Sets with Non-Detects

User Selected Options	
From File	C:\Documents and Settings\DDickey\My Documents\00_Work\01_Sites\Snakes\2nd_round\Huff_ProUCL.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Dieldrin

General Statistics			
Number of Valid Data	19	Number of Detected Data	9
Number of Distinct Detected Data	8	Number of Non-Detect Data	10
		Percent Non-Detects	52.63%
Raw Statistics		Log-transformed Statistics	
Minimum Detected	20	Minimum Detected	2.996
Maximum Detected	100	Maximum Detected	4.605
Mean of Detected	49.22	Mean of Detected	3.775
SD of Detected	25.16	SD of Detected	0.537
Minimum Non-Detect	5	Minimum Non-Detect	1.609
Maximum Non-Detect	5	Maximum Non-Detect	1.609

Warning: There are only 9 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics			
Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.933	Shapiro Wilk Test Statistic	0.945
5% Shapiro Wilk Critical Value	0.829	5% Shapiro Wilk Critical Value	0.829
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	24.63	Mean	2.27
SD	29.25	SD	1.509
95% DL/2 (t) UCL	36.27	95% H-Stat (DL/2) UCL	81.32
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	4.798	Mean in Log Scale	2.943
SD	50.27	SD in Log Scale	0.966
95% MLE (t) UCL	24.8	Mean in Original Scale	28.64
95% MLE (Tiku) UCL	30.11	SD in Original Scale	26.37
		95% Percentile Bootstrap UCL	38.32
		95% BCA Bootstrap UCL	39.67
Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	2.927	Data appear Normal at 5% Significance Level	
Theta Star	16.82		
nu star	52.68		
A-D Test Statistic	0.229	Nonparametric Statistics	
5% A-D Critical Value	0.724	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.724	Mean	33.84
5% K-S Critical Value	0.28	SD	21.9
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	5.328
		95% KM (t) UCL	43.08
Assuming Gamma Distribution		95% KM (z) UCL	42.61
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	42.79
Minimum	8.771	95% KM (bootstrap t) UCL	46.61
Maximum	100	95% KM (BCA) UCL	49.74
Mean	51.01	95% KM (Percentile Bootstrap) UCL	46.47
Median	52	95% KM (Chebyshev) UCL	57.07

SD	24.05	97.5% KM (Chebyshev) UCL	67.11
k star	3.151	99% KM (Chebyshev) UCL	86.85
Theta star	16.19		
Nu star	119.7	Potential UCLs to Use	
AppChi2	95.47	95% KM (t) UCL	43.08
95% Gamma Approximate UCL	63.98	95% KM (Percentile Bootstrap) UCL	46.47
95% Adjusted Gamma UCL	65.27		
Note: DL/2 is not a recommended method.			

Arsenic

General Statistics			
Number of Valid Observations	81	Number of Distinct Observations	46
Raw Statistics		Log-transformed Statistics	
Minimum	4.7	Minimum of Log Data	1.548
Maximum	43	Maximum of Log Data	3.761
Mean	16.33	Mean of log Data	2.601
Median	12	SD of log Data	0.627
SD	10.22		
Coefficient of Variation	0.626		
Skewness	0.824		
Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.171	Lilliefors Test Statistic	0.115
Lilliefors Critical Value	0.0984	Lilliefors Critical Value	0.0984
Data not Normal at 5% Significance Level		*Data not Lognormal at 5% Significance Level*	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	18.22	95% H-UCL	18.78
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	21.74
95% Adjusted-CLT UCL	18.31	97.5% Chebyshev (MVUE) UCL	24.06
95% Modified-t UCL	18.24	99% Chebyshev (MVUE) UCL	28.64
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	2.659	Data do not follow a Discernable Distribution (0.05)	
Theta Star	6.143		
MLE of Mean	16.33		
MLE of Standard Deviation	10.02		
nu star	430.8		
Approximate Chi Square Value (.05)	383.7	Nonparametric Statistics	
Adjusted Level of Significance	0.047	95% CLT UCL	18.2
Adjusted Chi Square Value	382.9	95% Jackknife UCL	18.22
		95% Standard Bootstrap UCL	18.2
Anderson-Darling Test Statistic	1.957	95% Bootstrap-t UCL	18.34
Anderson-Darling 5% Critical Value	0.76	95% Hall's Bootstrap UCL	18.29
Kolmogorov-Smirnov Test Statistic	0.139	95% Percentile Bootstrap UCL	18.19
Kolmogorov-Smirnov 5% Critical Value	0.1	95% BCA Bootstrap UCL	18.32
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	21.29
		97.5% Chebyshev(Mean, Sd) UCL	23.43
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	27.64
95% Approximate Gamma UCL	18.34		
95% Adjusted Gamma UCL	18.38		
Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	21.29

APPENDIX D

Responses to Comments
California Environmental Protection Agency
Office of Environmental Health Hazard Assessment
Natomas Levee Improvement Program Borrow Site Environmental Conditions

This document presents Kleinfelder's responses to comments received from the California Environmental Protection Agency Office of Environmental Health Hazard Assessment (OEHHA) regarding Kleinfelder's August 12, 2009 Borrow Site Environmental Conditions report. The comments were received in a letter dated October 1, 2009 from James C. Carlisle addressed to John Bassett of the Sacramento Area Flood Control Agency. A copy of the letter follows these responses. The comments were not listed individually, so for convenience comment numbers are annotated in the margin of the attached letter for reference. The responses will be incorporated into a revised report as appropriate.

Comment Number	Location in Comment Letter	Response
1.	Page 1, last paragraph	a) The analytical data, sample location maps, and laboratory data will be incorporated into the revised final report. b) Details of modifications that were made to the default assumptions underlying development of environmental and human health screening levels are described in Section 5.3, pages 26 and 27. Also refer to the responses to Comment 11, below.
2.	Page 3; Comparison of soil concentrations to screening levels	a) Pesticide residue concentrations in soil were initially compared to residential ESLs in order to identify constituents that warranted further evaluation of human health risk. The screening values listed in Table 1 of the comment letter are the default ESLs for the respective populations. However, for both dieldrin and toxaphene, the default ESLs are based on aquatic habitat goals. Because the purpose of Section 4 is to evaluate human health risk, the residential direct exposure values are more appropriate for this purpose. Section 4.2 of the report will be revised to clarify this. b) There are no residential populations present on the three borrow sites; however, there will be construction workers present during construction activities. Consequently, further evaluation of human health risk for those constituents exceeding residential screening values were made by comparison to construction worker screening values. Section 4.3 of the report will be revised to clarify this. c) Pesticide residues were detected at concentrations exceeding the construction worker direct exposure screening value only in soil samples from the Huffstutler borrow site. Management or mitigation of arsenic residues detected at the Huffstutler site is recommended for potential construction worker direct contact exposure over the project duration (i.e. chronic). Management or mitigation is also recommended for potential construction worker short duration exposure (i.e. acute) to particulates (fugitive dusts). Management of fugitive dust to the recommended level will

Comment Number	Location in Comment Letter	Response
		also be protective of construction workers for exposure to pesticide residues in fugitive dust. Evaluation of possible effects on off-site resident populations is discussed in Section 4.3 and in the response to Comment 3, below.
3.	Page 3; Ambiguity regarding assumptions and development of project-specific airborne dust standards.	a) In the reviewed version of the report, the airborne pesticide residue concentrations to which a construction worker could be exposed were calculated using the construction scenario-specific particle emission factor (PEF, equivalent to 1 mg/m^3 respirable particulates) as the assumed ambient dust concentration during construction; the calculated concentrations were compared to the OSHA PELs for airborne pesticide residues. The same calculation was also performed using the OSHA PEL for Particulate NOS (5 mg/m^3) as the assumed ambient dust concentration. As described in Section 4.5, the airborne pesticide residue concentrations resulting from fugitive dust emissions at or below the OSHA Particulate NOS PEL are less than the corresponding OSHA airborne pesticide residue PELs. Because the PEF (which is less than the OSHA PEL) is not an enforceable standard, and because the concentrations calculated using the OSHA Particulate NOS PEL, which is an enforceable standard, are less than the corresponding OSHA pesticide residue PELs, use of the PEF is unnecessary and potentially confusing. The report will be revised to eliminate references to the PEF in relation to airborne particulate concentrations during construction. b) OSHA PELs aren't appropriate for protection of residential populations. Applicable residential ambient air screening levels (OEHHA RELs or USEPA Region 9 RSLs if RELs aren't available) for pesticide residues are several orders of magnitude lower than the corresponding OSHA PELs. During construction on the Huffstutler Property, enforcement of the OSHA Particulate NOS PEL may not limit airborne arsenic concentrations caused by fugitive dust emissions to a concentration below the OEHHA REL. Consequently, a site-specific Fenceline Particulate NOS standard was calculated for the Huffstutler Property to limit arsenic emitted in fugitive dust during construction to a concentration below the OEHHA REL. Section 4.5.2 of the report will be revised to clarify this. c) After construction is completed, pesticide residue concentrations that may be found in fugitive dust emissions during future agricultural operations are expected to be lower than current concentrations. This is because 1) the topsoil stripped from the Huffstutler Property will be encapsulated; and 2) topsoil stripped from the other borrow sites will be effectively homogenized during stockpiling and re-spreading. The text will be revised to clarify future concentrations of

Comment Number	Location in Comment Letter	Response
		soil that may be emitted as fugitive dusts. Additionally, estimates of ambient air concentrations during future land use scenarios will be based upon the conservative construction-scenario PEF.
4.	Page 4; Multipathway human health risks and hazards	a) At South Sutter and the Novak sites, arsenic was present at concentrations equivalent to background concentrations. Therefore, only one residual pesticide required evaluation at each of these sites. In the absence of multiple constituents, additive risk does not require evaluation at these sites. b) At the Huffstutler site, arsenic concentrations were greater than construction worker screening values for a cancer risk of 1×10^{-6} and greater than background concentrations. The maximum detected concentration of dieldrin was an order of magnitude less than the construction worker cancer screening level for a cancer risk of 1×10^{-6}. Therefore, management or mitigation of construction worker exposure to soils containing arsenic was recommended. Because the risk of exposure is expected to be managed or mitigated, further evaluation of cancer risk through calculation of additive risks was not judged to be necessary for the Huffstutler site.
5.	Page 4, Last paragraph; Infiltration into groundwater	a) Toxaphene and dieldrin are known to bind tightly to soil matrices and are relatively immobile. The vertical extents of toxaphene and dieldrin were delineated to below detection limits during borrow site characterization. Neither was detected at depths greater than 1 foot below ground surface (1 foot bgs). Both of these OCPs have been banned from general use for more than twenty years, yet neither has migrated in detectable concentrations below the depth of tillage (approximately 1 foot bgs) during that time. If either is migrating in the subsurface, the migration rate is so low as to be undetectable. The analytical data from borrow site characterization will be included in the revised report. Additional data will be collected during preparation of the Tier I Ecological Risk Assessment; these data may include extraction and analysis of soil samples using the DI-WET method or groundwater sampling and analysis. b) During construction, topsoil will be stripped from all three properties to below the vertical extent of OCPs. Topsoil that contains OCPs at concentrations exceeding site-specific screening levels for soil leaching will not be respread. This will be clarified in the revised report. c) Dieldrin concentrations in topsoil from the Huffstutler Property exceed the project-specific screening level for preventing soil leaching. Topsoil from the Huffstutler Property will be incorporated into the seepage berm and covered with at least one foot of clean soil. The impermeable blanket layer underlying the seepage berm will isolate topsoil within the berm from

Comment Number	Location in Comment Letter	Response
		the underlying groundwater. Toxaphene concentrations in topsoil from the South Sutter and Novak Properties do not exceed the site-specific screening level, and consequently are judged not to pose a threat to groundwater. Topsoils from these sites will be respread after construction. This will be clarified in the revised report.
6.	Page 4, Bullet 1 at bottom of page; Documentation of concentrations	a) Analytical data will be provided.
7.	Page 5, Bullet 1; Conduct an expanded risk assessment because maximum site concentrations raise concerns of risk	a) An expanded human health risk assessment was judged to be unnecessary because in this screening level evaluation, constituent concentrations at two sites did not exceed screening levels for the potentially exposed population, construction workers. Where concentrations exceeded construction worker screening levels, mitigation or management of the risk of exposure was recommended. An expanded human health risk assessment is unlikely to significantly alter the recommendation to manage or mitigate exposure at the one site (Huffstutler).
8.	Page 5, Bullet 2; Discuss construction worker chronic exposure to arsenic in dust	a) Construction worker chronic exposure to fugitive dusts was evaluated through comparison of site concentrations to SFBRWQCB ESLs for construction worker direct exposure. The ESLs incorporate chronic exposure to dusts under a construction worker scenario. This will be clarified in the revised report.
	Page 5, Bullet 3; Explain how dust standard is protective of off-site residents	a) The revised report will expand upon and clarify how the Fenceline Particulate NOS is protective of off-site residential exposure to fugitive dusts.
	Page 5, Bullet 4; Differential in dust generation rates	a) The revised report will use the construction worker scenario PEF to calculate the risk of exposure under future land use that includes agricultural operations.]
9.	Page 5, Bullet 5; Additivity of organochlorine pesticides (OCPs)	a) See response to Comment # 4 above for a discussion of the accounting for additivity.

Comment Number	Location in Comment Letter	Response
10.	Page 5 Ecological Risk Assessment ¶1	a) The full DEIR contains considerable additional information that should address commenter's concern over the lack of appropriate background information. The updated report (an appendix to the DEIR) will incorporate and/or appropriately reference this information (including, but not limited to: land use, habitat, occurrence of surface water and wetlands, soils and geology, hydrology and geohydrology, ecological resources, and cover type). b) Additional information concerning the soil sampling protocols and analytical techniques will be provided in the final document, including soil sample location maps, analyte and method lists, as well as the complete analytical data reports. c) A more complete Tier I Ecological Risk Assessment will be performed prior to any work performed.
11.	Page 6 Screening-level Evaluation of Ecological Risks ¶1	a) The use of SFBRWQCB ESLs appears to be confusing, and additional clarification will be added. b) There was one modification made to the published screening values as described in the draft submittal. This modification was to the organic carbon partition coefficient (K_{oc}) for toxaphene. i) Toxaphene is not a single compound, but a complex mixture and published K_{oc} values vary, likely because the toxaphene formulations used in historical published values varied. The K_{oc} value used in the report was identified from the latest (April 2009) USEPA Regional Screening Level (RSL) table of physical and chemical constants. This K_{oc} value was subjected to nationwide peer review and public comments and represents the most up-to-date understanding of the fate and transport of toxaphene under normal conditions. The ESL documentation indicates that when the K_{oc} of a compound is greater than or equal to 30,000 cm^3/g, the compound is considered immobile in subsurface soil (SFBRWQCB 2008). In such cases, the document indicates that the screening level should be set at the theoretical soil saturation level, instead of calculating a screening level using the SESOIL model. For toxaphene, the soil saturation level presented in the ESL document is 93 mg/kg (SFBRWQCB 2008, Table G). It could be reasonably asserted, as the reviewer has (refer to response 11.c, below), that the K_{oc} of 99,300 cm^3/g is a high value. However, if the K_{oc} value exceeds 30,000 cm^3/g, which seems reasonable given the literature values, then use of the saturation limit for the screening level is warranted. It could also reasonably be asserted that 93 mg/kg may be a high value for the soil saturation limit. However, the 95UCL on the mean toxaphene concentration is 0.118 mg/kg for the Novak Property, and 0.70 mg/kg for the

Comment Number	Location in Comment Letter	Response
		South Sutter Property. Neither of these values is within two orders of magnitude of the soil saturation limit value given in the ESL document. Given these facts, it seems reasonable to conclude that toxaphene concentrations in topsoil at these two sites do not pose a risk of leaching to groundwater. c) The reviewer noted that in practice toxaphene was typically applied with a hydrocarbon solvent (e.g., xylene), and that such a solvent would increase the mobility of toxaphene in soil. i) While the original pesticide product may have included a hydrocarbon solvent, its impact on the migration of toxaphene in soil at the site probably was minimal as demonstrated by the limited vertical extent of detectable toxaphene in surface soils. The environmental persistence, and consequently the residence time, of a hydrocarbon solvent in surface soils is likely limited compared to the low biodegradation potential and non-volatility of toxaphene. Therefore, a recently-applied toxaphene pesticide formulation may have a K_{oc} represented by the middle range value used for the published ESL screening values. However, the K_{oc} for residual toxaphene present at the site is more likely to be equivalent to the higher K_{oc} value used by the USEPA in the April 2009 RSL tables. d) The reviewer suggests sampling groundwater at the borrow sites. Groundwater sampling will be performed as part of the completion of the Tier I Ecological Risk Assessment.
12.	Page 6 Screening-level Evaluation of Ecological Risks ¶2 (and Page 7 top three bullets)	a) The nature of these comments leads the reviewer to recommend a more complete ecological risk assessment. As stated above, a more complete Tier I Ecological Risk Assessment will be performed prior to any work performed. b) Further, the reviewer seems to have the impression that borrow soils will be re-spread at Huffstutler property, which is not planned. Thus, the language of the report will be changed to make this more clear.
13.	Page 7 Screening-level Evaluation of Ecological Risks Bullet 4	a) The reviewer indicates that the ultimate structure and nature of the levees and the location of the borrow soil therein is unclear in the document. The reviewer did not have the rest of the DEIR available for the review, hence the confusion. Additional explanation will be provided to clarify the potentialities discussed by the reviewer.

Responses to Comments
California Environmental Protection Agency
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Comment Number	Location in Comment Letter	Response
14.	Page 7 Screening-level Evaluation of Ecological Risks ¶1	a) The reviewer is of the opinion that if borrow soils are re-spread as surface soil, and then additional analytical testing should be done. While the comment is understandable, the soils will ultimately be buried and covered; thus, the suggested testing would not be necessary. Additionally, the full ecological risk assessment will deal with this issue.
15.	Page 7 Ecological Risk Summary ¶1	a) The reviewer requests additional ecological risk assessment. Such assessment will be performed.

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Linda S. Adams
Secretary for Environmental Protection

Arnold Schwarzenegger
Governor

October 1, 2009

Mr. John Bassett
Sacramento Area Flood Control Agency
1007 7th Street, 7th floor
Sacramento, CA 95814

Dear Mr. Basssett:

Following is OEHHA's review of the Natomas Levee Improvement Program Borrow Site Environmental Conditions prepared by Kleinfelder, Inc. dated August 12, 2009:

Introduction

As part of the Natomas Levee Improvement Program (NLIP), levee improvements are proposed to be constructed on three properties: the South Sutter/Thornton (South Sutter), Novak, and Huffstutler / Johnson Trust (Huffstutler) properties. Kleinfelder assessed the environmental conditions at the three properties and reported their findings in the document entitled "Borrow Site Environmental Conditions South Sutter/Thornton Property (APN 201-0250-015, 201-0270-002, -037) Novak Property (APN 225-0090-040) Huffstutler/Johnson Trust Property (APN 225-0110-019, -020, -037), Sacramento County, California, August 12, 200". We reviewed this document for the Sacramento Area Flood Control Agency (SAFCA).

The properties are also proposed for use as sources of borrow soil during construction of the NLIP improvements. The NLIP encompasses approximately 45 perimeter miles of terrain with some interior reach. The Garden Highway is at the western and southern borders, the Natomas Cross Canal is at the northern border, and the East Levee Road and Natomas Road form the eastern border.

Organochlorine pesticides (OCPs) and arsenic, lead, and copper were detected in soil samples from the properties (based on the report text; no laboratory data sheets are provided). Some soil samples contained concentrations that exceed some default environmental and human health risk screening levels. Where the default assumptions incorporated into development of published regulatory screening levels were inappropriate for site conditions, the default assumptions were modified to more accurately reflect site-specific conditions, where possible. No details of these modifications were provided.

Kleinfelder further evaluated the detected pesticide residues considering existing site conditions, proposed NLIP construction activities, and post-improvement land use. Based on these factors, Kleinfelder concluded the following:

- Concentrations of the OCP toxaphene that were detected in soil samples from the South Sutter and Novak properties do not currently pose ecological or human health risks requiring mitigation
- It is unlikely that these conditions pose a threat to neighboring properties.
- Ordinary dust control and worker personal hygiene practices required during construction activities will mitigate exposure of on-site construction workers, consistent with usual occupational health and safety requirements, and prevent undue exposure of nearby off-site receptors.
- Evaluation of levee improvement construction activities, including use of the South Sutter and Novak properties for borrow soil, indicates that the work will not create health risks requiring mitigation or exacerbate existing environmental conditions, and may improve upon existing environmental conditions.
- The proposed post-construction land use for the South Sutter and Novak properties is expected to reduce ecological or human health risks relative to current conditions.
- Concentrations of arsenic and the OCP dieldrin detected in soil samples from the Huffstutler property do not currently pose human health risks on the site requiring mitigation or remediation.
- It is unlikely that current conditions threaten neighboring properties.
- The detected pesticide residue concentrations on the site are not inconsistent with accepted agricultural practices.
- Detected residues may present a long-term potential for ecological risk and are not appropriate for land uses that provide habitat for ecological receptors.
- With appropriate controls, levee improvement construction activities (which include use of the Huffstutler property for borrow soil) are not expected to pose risks requiring mitigation or remediation or exacerbate existing environmental conditions, and may improve environmental conditions.
- Because the proposed land use for the Huffstutler property after construction will provide habitat for ecological receptors, the pesticide residues in the topsoil likely would pose excess ecological risks. The ecological risk posed by arsenic and dieldrin could be mitigated through removal and encapsulation by using the soil to construct the proposed seepage berm.

Human Health Risk Assessment

Kleinfelder compared average and maximum detected concentrations of arsenic, dieldrin and toxaphene to human-health-based screening levels. All three chemicals of potential concern exceed one or more screening levels (indicated by **bold** font in Table 1).

Table 1: Soil screening evaluation for ingestion and dermal uptake (mg/kg)

	Arsenic	Dieldrin	Toxaphene
Huffstutler mean	**18.5**	**0.025**	ND
Huffstutler maximum	**43**	**0.1**	ND
Novak mean	**8.2**	ND	**0.12**	2
Novak maximum	**10**	ND	**0.22**
South Sutter mean	**7.6**	0.001	**0.035**
South Sutter maximum	**11**	**0.006**	**0.19**
Residential CHHSL*	0.07	0.034	0.46
Commercial CHHSL	0.24	0.35	1.8
Residential ESL**	0.39	0.0023	0.00042
Commercial ESL	1.6	0.0023	0.00042
Construction ESL	15	1.6	22

* California human health screening level
** San Francisco Bay Regional Water Quality Control environmental screening level

There is some ambiguity in the report about the airborne dust level anticipated during the work. The table on page 19 shows airborne concentrations of arsenic, dieldrin and toxaphene based on the DTSC particle emission factor (PEF) which predicts an ambient air dust concentrations of 1 mg/m^3, while the paragraph under the table on page 19 discusses an air standard of 5 mg/m^3 based on the OSHA permissible exposure level (PEL) for dust. We therefore analyzed the airborne soil exposure pathway and corresponding human health risk estimates (results in
Table 2). 3

Table 2: On-site concentrations of airborne soil particles & health-based limits

	Maximum soil concentration (mg/kg)	Predicted airborne concentration (ug/m^3) based on		OEHHA REL	RWQCB ESL
		DTSC PEF	OSHA PEL for dust	(ug/m^3)	(ug/m^3)
Arsenic	43	0.043*	0.215	0.015	0.00057
Dieldrin	0.1	0.0001	0.0005		0.00053

oxaphene	0.22	0.00022	0.0011	0.0076

*Note: The value in the table on page 19 is incorrect. This is the corrected value.

Table 2 shows that predicted airborne concentrations of dieldrin and toxaphene do not exceed ambient air screening levels. However, the maximum arsenic concentration found on the Huffstutler property is predicted to exceed the ambient air screening level and the OEHHA REL whether the PEF or the PEL is used as the basis for airborne dust. If average or UCL concentrations are used, the exposure estimates would be lower, but still above the REL for arsenic. 3

Multipathway human health risks and hazards

Table 3 shows that all calculated hazard quotients are below the threshold of 1.0. Risk estimates corresponding to the maximum arsenic concentration exceed 10^{-6}. Although there are no current on-site residents, subsequent agricultural operations could involve residential use.

Table 3: Multipathway Risks and Hazard Quotients*** 4

		Construction*		Residential*	
	concentration	Risk**	HQ	Risk**	HQ
Arsenic	43 ppm	4.80E-6	0.53	5.50E-5	0.29
Dieldrin	0.1 ppm	8.80E-8		1.40E-6	
Toxaphene	0.22 ppm	1.50E-8		2.70E-7	
sum		4.90E-6		5.67E-5	

*Based on estimated total dose (oral + dermal + inhalation) using PEA equations, excluding food pathways.
** 1.0 E-6 is the same as 1×10^{-6} or one chance in a million
*** Other carcinogenic organochlorine pesticides may add to the total risks.

Infiltration into groundwater

Evaluation of the risk associated with groundwater contamination is vague in the report. A soil profile, water table depth and chemical analysis of groundwater would better address the risk 5 due to infiltration. Please discuss the potential impact of excavation at the borrow sites on groundwater infiltration at those locations.

Human health issues and concerns that need to be addressed

- This report does not contain sufficient documentation to enable OEHHA to verify the results and conclusions. Upper confidence limits on arithmetic mean concentrations, 6 which are often used to calculate exposure point concentrations, were not provided in the report.

- OEHHA has estimated risks and hazards from exposure to maximum detected levels of
  borrow site contaminants by multiple routes. While we do not consider these estimates to 7
  be the final word on the subject, they do raise some concerns that should be addressed in
  an expanded risk assessment.

- Please discuss the airborne arsenic concentrations for construction workers in light of chronic arsenic toxicity. Please clarify which dust level will be achieved and the proposed mechanism to ensure compliance with whichever standard is to be applied.

- Please explain how a fenceline standard of 1 mg/m^3 applied during construction and 8
  during subsequent agricultural operations will protect adjacent residents.

- Although the residual concentrations during subsequent agricultural operations may be different, it seems unlikely that dust generation during agricultural operations (e.g. disking) will be 1/1000 of that during construction. Please explain.

- Organochlorine pesticides may act in an additive manner. Screening out chemicals
  because they do not exceed ESLs ignores this additivity and is inconsistent with OEHHA 9
  guidance. Please ensure that the sum of the ratios of the concentrations of OCPs to their
  CHHSLs or ESLs to not exceed unity.

Ecological risk assessment

The ecological assessment in the report is incomplete considering the proposed land conversion to ecological habitats. Additional information would help to characterize these sites including land area, the number and horizontal spacing of soil samples, depth of water table and the presence of any temporal wetlands. Conversion of historic (and pre-regulatory) agricultural land to ecological habitat merits a thorough consideration of chemicals of potential ecological concern. Fish and wildlife species may be more sensitive to several agricultural chemicals than humans. The presence of chlorinated herbicides (atrazine), oganophosphates (diazinon),
carbamates (carbofuran), pyrethroids, and the historical organochlorine, mirex, would be 10
significant in ecological risk assessment (see DTSC 1996[1]). Terrestrial organisms are exposed to soil contaminants through dietary items, drinking from local pools, surface contact and burrowing (i.e., ingestion, inhalation and dermal exposure). Aquatic organisms (including amphibians) are also exposed to these contaminants through respiration, dermal contact and ingestion. The chemicals considered in the report could enter surface waters through soil runoff, leaching or particulate air transport (dust). The soil contaminants can also enter landward aquatic environments such as vernal pools, ephemeral streams or other temporal wetlands.

[1] California Department of Toxic Substances Control. 1996. Guidance for Ecological Risk Assessment at Hazardous Waste Sites and Permitted Facilities. Part A: Overview. Sacramento, July.

Screening-level evaluation of ecological risks

The ecological assessment in the report considered environmental screening levels (ESLs) for soil from several sources (Table 4). The consultants chose to use ESLs developed by USEPA through the Resource Conservation and Recovery Act (RCRA) as the project-specific ESLs. We agree that this was an appropriate selection of screening levels. However, the calculation of a separate set of ESLs to evaluate the risk associated with chemicals leaching into surface waters is puzzling. The consultants recalculated the ESLs developed by SFBRWQCB[2] using alternate values for the constant that estimates the mobility of a chemical in soil, K_{oc}. For toxaphene, the substituted k_{oc} (99,300 cm^3/g) was much larger than that used by the SFBRWQCB (4,900 cm^3/g). 11
Although both of these values fall within the range of K_{oc} values reported by ATSDR[3] (300, 4,900 and 100,000 cm^3/g), the value used by the consultants is at the extreme of the range and results in a much higher (i.e., less conservative) ESL for toxaphene (93 mg/kg compared to the previous from 0.00042 mg/kg). ATSDR notes that the K_{oc} values for toxaphene are based on the pure technical mixture while the agricultural application typically included a hydrocarbon solvent (e.g., xylene) that would increase mobility in soil. While the SFBRWQCB ESL may be highly conservative, the recalculated ESL may not capture the true risk. Analysis of groundwater at the borrow sites would clarify the risk associated with toxaphene leaching.

Table 4: Soil screening evaluation for ecological receptors (mg/kg)

	Arsenic	Dieldrin	Toxaphene
Huffstutler mean	**18.5**	**0.025**	ND
Huffstutler maximum	**43**	**0.1**	ND
Novak mean	8.2	ND	**0.12**
Novak maximum	10	ND	**0.22**
South Sutter mean	7.6	0.001	0.035
South Sutter maximum	11	**0.006**	**0.19**
SFBRWQCB ESLs	1.6	0.0023	0.0004
USEPA RCRA ESLs	5.7	0.0024	0.119
Eco SSL: Avian	43	0.022	na
Eco SSL: Plants	18	na	na
Project-specific soil ESL	11.3	0.0024	0.119
Project-specific ESL for leaching [1]	11.3	0.0033	93

[1] Recalculations of SFBRWQCB ESLs

As shown in Table 4, each of the borrow sites contain soil that exceeds the project-specific ESLs 12
for at least one chemical:

[2] San Francisco Regional Water Quality Control Board

[3] ATSDR. 1996. Toxicological Profile for Toxaphene. Agency for Toxic Substances and Disease Registry, Division of Toxicology, Atlanta, GA.

- The **Huffstutler site** was the most problematic with significantly elevated soil concentrations of **dieldrin** and **arsenic**. This finding supports expanded testing after stockpiled soil from this site is re-spread on **this or any other site (including seepage berms)**. Potential leaching of arsenic or dieldrin to surface waters or wetlands could also be 12 considered here. A full ecological risk assessment may be beneficial at this site.
- The **Novak site** contained elevated concentrations of **toxaphene** within the top 12 inches of soil.
- The **South Sutter site** surface soil had elevated **toxaphene** concentrations and one sample contained a **dieldrin** concentration above the project-specific ESL.
- The potential availability of soil contaminants to ecological receptors at the **levee site** is unclear. Dieldrin and arsenic in soil could be taken up by plants at the levee site and thus introduced into the food web. Invertebrates and small mammals may attempt to burrow into landward berms. Underseepage and permeable berms could result in small landward pools of 13 water containing dissolved and particulate contaminants. Additionally, soil runoff from the levee site could transport contaminants to surface waters or nearby wetlands. Careful planning at the levee site could minimize potential risk of exposure. However, sufficient detail was not provided to review potential ecological risks at the levee site.

Accurate estimation of ecological risk due to soil contamination at these sites is dependent on the accuracy of the site characterization, including the evaluation of all potential chemicals of ecological concern. The chemicals considered in this report are persistent in the environment. 14 Mobilization of these chemicals could have a lasting ecological impact. These findings support expanded testing after stockpiled soil is re-spread on the sites.

Ecological Risk Summary

OEHHA has evaluated the ecological assessment included in the report. While we do not consider this evaluation to be the final word on the subject, we suggest that additional ecological risk assessment of the soil contamination is needed. The report did not fully characterize the site including full consideration of chemicals of potential ecological concern. The potential for 15 contamination of surface waters and wetlands merits further consideration. Sampling groundwater and any current wetlands on the sites would shed light on leaching potential. Follow-up testing of levee runoff into surface waters or wetlands would identify any need to better secure the soil at the levee site.

Yours Truly,

James C. Carlisle, Senior Toxicologist
Integrated Risk Assessment Branch

Appendix C

Air Quality Modeling Results

(Updated from Phase 4a DEIS/DEIR Version to Include Summary of Phase 3 Project Emissions)

PHASE 2 NLIP Emissions Summary

Unmitigated 2008 Emissions

Sutter County	Worst-Case lb/day			Tons/year			Sacramento County	Worst-Case lb/day			Tons/year		
	ROG	NOX	PM10	ROG	NOX	PM10		ROG	NOX	PM10	ROG	NOX	PM10
NCC	58	317	184	4	22	80	East Levee	12	62	389	1	3	21
East Levee	110	555	3499	5	28	189	Elkhorn Canal	27	118	180	1	6	4
TOTAL	168.9	871.7	3683.0	9.3	49.7	269.2	TOTAL	39.3	180.0	568.9	1.8	9.2	25.1

Mitigated 2008 Emissions

Sutter County	Worst-Case lb/day			Tons/year			Sacramento County	Worst-Case lb/day			Tons/year		
	ROG	NOX	PM10	ROG	NOX	PM10		ROG	NOX	PM10	ROG	NOX	PM10
% Reduction	5%	20%	75%	5%	20%	75%	% Reduction	5%	20%	75%	5%	20%	75%
TOTAL	160.4	697.4	920.7	8.8	39.8	67.3	TOTAL	37.3	144.0	142.2	1.7	7.4	6.3
Threshold	25	25	80	25	25	-		-	85	-	25	25	100
Significant?	Y	Y	Y	N	Y	-		-	Y	Y*	N	N	N

Unmitigated 2010 Emissions

No Phase 2 NCC work would occur in 2010, 15% of all other Phase 2 work could occur in 2010 in Sutter County and 15% could occur in Sacramento County

Sutter County	Worst-Case lb/day			Tons/year			Sacramento County	Worst-Case lb/day			Tons/year		
	ROG	NOX	PM10	ROG	NOX	PM10		ROG	NOX	PM10	ROG	NOX	PM10
NCC	0	0	0	0	0	0	East Levee	2	9	58	0	0	3
East Levee	17	83	525	1	4	28	Elkhorn Canal	4	18	27	0	1	1
TOTAL	16.6	83.2	524.8	0.8	4.2	28.4	TOTAL	5.9	27.0	85.3	0.3	1.4	3.8

Mitigated 2010 Emissions

Sutter County	Worst-Case lb/day			Tons/year			Sacramento County	Worst-Case lb/day			Tons/year		
	ROG	NOX	PM10	ROG	NOX	PM10		ROG	NOX	PM10	ROG	NOX	PM10
% Reduction	5%	20%	75%	5%	20%	75%	% Reduction	5%	20%	75%	5%	20%	75%
TOTAL	15.7	66.6	131.2	0.7	3.3	7.1	TOTAL	5.6	21.6	21.3	0.2	1.1	0.9

PHASE 3 NLIP Emissions Summary

Unmitigated 2009 Emissions (100% could occur in 2010)

Sutter County	Case ROG	Case NOX	Case PM10	Tons/year ROG	Tons/year NOX	Tons/year PM10	Tons/year CO2
NCC	20.1	105.7	183.6	3.5	25.1	117.4	1430.3
SEL	41.5	252.1	3360.8	3.0	18.2	244.0	494.5
PGCC	16.9	158.8	341.0	1.3	11.4	15.7	816.1
TOTAL	78.5	516.6	3885.4	7.8	54.7	377.1	2740.9

Sacramento County	Case ROG	Case NOX	Case PM10	Tons/year ROG	Tons/year NOX	Tons/year PM10	Tons/year CO2
SEL	58.3	353.7	4714.4	4.2	25.5	342.0	693.7
Elkhorn GGS	8.8	75.1	113.0	0.8	7.2	14.9	602.0
NEMDC	31.1	194.6	305.7	1.3	8.4	12.8	581.1
TOTAL	98.2	623.4	5133.1	6.3	41.2	356.0	1876.8

Mitigated 2009 Emissions (100% could occur in 2010)

Sutter County	Case ROG	Case NOX	Case PM10	Tons/year ROG	Tons/year NOX	Tons/year PM10	Tons/year CO2
% Reduction	0.1	0.2	0.8	0.1	0.2	0.8	-
TOTAL	74.6	413.3	971.4	7.4	43.7	94.3	2740.9
Threshold	25.0	25.0	80.0	25.0	25.0	-	-
Significant?	Y	Y	Y	N	Y	-	-

Sacramento County	Case ROG	Case NOX	Case PM10	Tons/year ROG	Tons/year NOX	Tons/year PM10	Tons/year CO2
% Reduction	0.1	0.2	0.8	0.1	0.2	0.8	-
TOTAL	93.3	498.7	1283.3	6.0	33.0	89.0	1876.8
Threshold	-	85.0	-	25.0	25.0	100.0	-
Significant?	-	Y	Y	N	Y	N	-

*PM10 emissions would likely result in or substantially contribute to a violation of the CAAQS (50 ug/m3)

*Post-construction mitigation fee payment

N

Raise-In-Place Alternative

Unmitigated 2010 Emissions

Sutter County	Worst-Case lb/day ROG	Worst-Case lb/day NOX	Worst-Case lb/day PM10	Worst-Case TPY ROG	Worst-Case TPY NOX	Worst-Case TPY PM10	Worst-Case TPY CO2
TOTAL	43.2	284.1	2137.0	4.3	30.1	207.4	1507.5

Sacramento County	Worst-Case lb/day ROG	Worst-Case lb/day NOX	Worst-Case lb/day PM10	Worst-Case TPY ROG	Worst-Case TPY NOX	Worst-Case TPY PM10	Worst-Case TPY CO2
TOTAL	54.0	342.9	2823.2	3.4	22.2	195.8	1029.5

Mitigated 2010 Emissions

Sutter County	Worst-Case lb/day ROG	Worst-Case lb/day NOX	Worst-Case lb/day PM10	Worst-Case TPY ROG	Worst-Case TPY NOX	Worst-Case TPY PM10	Worst-Case TPY CO2
% Reduction	0.1	0.2	0.8	0.1	0.2	0.8 -	
TOTAL	41.0	227.3	534.2	4.1	24.0	51.9 -	
Threshold	25.0	25.0	80.0	25.0	25.0 -		-
Significant?	Y	Y	Y	N	N	-	-

Sacramento County	Worst-Case lb/day ROG	Worst-Case lb/day NOX	Worst-Case lb/day PM10	Worst-Case TPY ROG	Worst-Case TPY NOX	Worst-Case TPY PM10	Worst-Case TPY CO2
% Reduction	0.1	0.2	0.8	0.1	0.2	0.8 -	
TOTAL	51.3	274.3	705.8	3.3	17.8	49.0 -	
Threshold	-	85.0 -		25.0	25.0	100.0 -	
Significant?	-	Y	Y	N	N	N	-

SEL Phase 4a

*2010 calendar year comprises reach 10-15 work to occur over 8 months (April - Nov)

ALL WORK FOR SEL 10-15 TO OCCUR IN SACRAMENTO COUNTY

	ROG	NOX	PM10	CO2	Unit	Quantity	Unit	ROG	NOX	PM10	CO2	Unit	Distance (miles/round-trip)	# of Haul Loads	Total Miles Traveled	Total Miles Traveled/Day	Time frame	Conversion Factor	
[1]Site Preparation (concurrent with 2,3)						0	yd3						1.0	0.0	540.0	10.0	54.0	days	
														*assumes haul load=14 yd3		*assumes haul trucks drive length of levee each day			
Mobile Sources																			
Haul Truck(s)	1.10	14.47	0.56	1855.42	g/mile	10	trucks	1.3	17.2	0.7	2208.9	lb/yr						0.00220462	lb/gram
Haul Truck(s)	11.78	8.18	0.02	223.55	g/trip	540	trips	14.0	9.7	0.0	266.1	lb/yr						0.00220462	lb/gram
Water Truck(s)	0.10	1.27	0.05	183.47	lb/day	2		10.8	137.2	5.4	17654.8	lb/yr							
Scraper(s)	0.46	4.36	0.18	409.54	lb/day	6		150.5	1413.0	57.1	132692.2	lb/yr							
Loader(s)	0.43	3.33	0.19	307.16	lb/day	2		46.2	359.7	20.8	33173.0	lb/yr							
Grader(s)	0.49	3.79	0.22	346.97	lb/day	2		52.8	409.8	23.7	37473.2	lb/yr							
Chipper(s)	0.63	4.94	0.28	443.67	lb/day	4		135.9	1067.0	61.3	95833.2	lb/yr							
Crawler Tractor(s)	0.52	4.87	0.20	369.73	lb/day	2		56.3	526.2	22.0	39930.5	lb/yr							
Employee Trips	0.02	0.03	0.00	39.26	lb/day/emp	68	employees	84.5	106.5	14.7	144144.4	lb/yr							
Fugitive Sources																			
Travel on unpaved roads	-	-	0.90	-	lb/VMT	0	trucks	-	-	-	-	lb/yr							
Travel on paved roads	-	-	0.28	-	lb/VMT	10	trucks	-	-	82,340.7	-	lb/yr							
Total								552.2	4046.3	82546.3	503376.3	lb/yr						2000	lb/ton
Total								10.2	74.9	1528.6	9321.8	lb/day							
[2]Removal of Landside Structures and Other Facilities (concurrent with 1,3)						0	yd3						1.0	0.0	1152.0	24.0	48.0	days	
														*assumes haul load=14 yd3		*assumes haul trucks drive length of levee each day			
Mobile Sources																			
Haul Truck(s)	1.10	14.47	0.56	1855.42	g/mile	24	trucks	2.8	36.7	1.4	4712.3	lb/yr						0.00220462	lb/gram
Haul Truck(s)	11.78	8.18	0.02	223.55	g/trip	1152	trips	29.9	20.8	0.0	567.8	lb/yr						0.00220462	lb/gram
Excavator(s)	0.42	3.22	0.19	324.22	lb/day	2		40.7	309.6	18.4	31125.3	lb/yr							
Loader(s)	0.43	3.33	0.19	307.16	lb/day	1		20.5	159.9	9.2	14743.6	lb/yr							
Employee Trips	0.02	0.03	0.00	39.26	lb/day/emp	68	employees	75.1	94.7	13.1	128128.3	lb/yr							
Fugitive Sources																			
Travel on unpaved roads	-	-	0.90	-	lb/VMT	0	trucks	-	-	-	-	lb/yr							
Travel on paved roads	-	-	0.28	-	lb/VMT	24	trucks	-	-	374,741.8	-	lb/yr							
Total								169.0	621.6	374784.0	179277.2	lb/yr						2000	lb/ton
Total								3.5	13.0	7808.0	3734.9	lb/day							
[3]Excavate Stability Berm (concurrent with 1,2)						0	yd3	Transported by haul truck					1.0	0.0	168.0	12.0	14.0	days	
					Reusable Fill	185000	yd3	Transported by scraper					0.1	13214.3	1321.4	94.4	14.0	days	
Mobile Sources																			
Haul Truck(s)	1.10	14.47	0.56	1855.42	g/mile	12	trucks	0.4	5.4	0.2	687.2	lb/yr						0.00220462	lb/gram
Haul Truck(s)	11.78	8.18	0.02	223.55	g/trip	24	trips	0.6	0.4	0.0	11.8	lb/yr						0.00220462	lb/gram
Excavator(s)	0.42	3.22	0.19	324.22	lb/day	10		59.4	451.5	26.9	45391.1	lb/yr		*assumes haul load=14 yd3					
Scraper(s)	0.46	4.36	0.18	409.54	lb/day	5		32.5	305.3	12.3	28668.1	lb/yr							
Bulldozers	0.46	4.06	0.17	330.60	lb/day	4		25.6	227.3	9.7	18793.5	lb/yr							
Grader(s)	0.49	3.79	0.22	346.97	lb/day	4		27.4	212.5	12.3	19430.6	lb/yr							
Water Truck(s)	0.10	1.27	0.05	163.47	lb/day	2		2.8	35.6	1.4	4577.2	lb/yr							
Employee Trips	0.02	0.03	0.00	39.26	lb/day/emp	68	employees	21.9	27.6	3.8	37370.8	lb/yr							
Fugitive Sources																			
Travel on unpaved roads	-	-	0.90	-	lb/VMT	1405	VMT/yr	-	-	1261.7	-	lb/yr	*assumes that material hauling is along 50% paved and 50% unpaved haul routes, scraper hauling is on 100% unpa						
Travel on paved roads	-	-	0.28	-	lb/VMT	84	VMT/yr	-	-	47.4	-	lb/yr	*assumes that material hauling is along 50% paved and 50% unpaved haul routes						
Material Handling													Tons/yd3 (gravel/sand)	Tons/day					
Material loading at borrow	-	-	0.04	-	lb/ton			-	-	9386.4	-	lb/yr	1.25	16517.86					
Material unloading at levee	-	-	0.005	-	lb/ton			-	-	1214.1	-	lb/yr	1.25	16517.86					
Bulldozing	-	-	0.41	-	lb/hr	8	hrs/day	-	-	46.0	-	lb/yr							
Total								170.7	1265.5	12022.2	154930.1	lb/yr						2000	lb/ton
Total								12.2	90.4	858.7	11066.4	lb/day							
[4]Construction of Adjacent Levee Raise & Seepage Berms (concurrent with 5,6,7)					Fisherman's Lake	4009000	yd3	Includes borrow from Reaches 10-15					4.0	286357.1	1145428.6	8181.6	140.0	days	
					Commercial Source	63200	yd3	Includes borrow from Reaches 10-15, assumes 1.25 tons per yd3					30.0	4514.3	135428.6	967.3	140.0	days	
					Krumenacher and Twin Rivers	350000	yd3	Includes borrow from Reaches 10-15					10.0	25000.0	250000.0	1785.7	140.0	days	
														*assumes haul load=14 yd3					
Mobile Sources																			

Source																			
Haul Truck(s)	1.10	14.47	0.56	1855.42	g/mile	190	trucks	3722.6	48825.6	1900.1	6261973.6	lb/yr							0.00220462 lb/gram
Haul Truck(s)	11.78	8.18	0.02	223.55	g/trip	315871	trips	8203.3	5696.4	11.1	155675.2	lb/yr							0.00220462 lb/gram
Water Truck(s)	0.10	1.27	0.05	163.47	lb/day	5		70.0	889.0	35.0	114429.0	lb/yr							
Scraper(s)	0.48	4.36	0.18	409.54	lb/day	10		650.3	6105.5	246.7	573361.3	lb/yr							
Loader(s)	0.43	3.33	0.19	307.16	lb/day	10		598.3	4663.2	269.4	430020.7	lb/yr							
Bulldozer(s)	0.46	4.06	0.17	335.60	lb/day	25		1602.6	14205.2	605.8	1174592.4	lb/yr							
Compactor(s)	0.29	1.80	0.09	244.59	lb/day	8		320.5	2014.1	95.8	273939.2	lb/yr							
Grader(s)	0.49	3.79	0.22	346.97	lb/day	8		548.0	4249.7	246.1	388611.3	lb/yr							
Excavator(s)	0.42	3.22	0.19	324.22	lb/day	10		594.1	4514.6	268.8	453910.7	lb/yr							
Employee Trips	0.02	0.03	0.00	39.26	lb/day/emp	75	employees	241.5	304.5	42.0	412177.5	lb/yr							
Fugitive Sources																			
Travel on unpaved roads	-	-	0.90	-	lb/VMT	765429	VMT/yr	-	-	687,135.0	-	lb/yr	*assumes that material hauling is along 50% paved and 50% unpaved haul routes						
Travel on paved roads	-	-	0.28	-	lb/VMT	765429	VMT/yr	-	-	216,138.3	-	lb/yr	*assumes that material hauling is along 50% paved and 50% unpaved haul routes						
Material Handling													Tons/yd3 (gravel/sand)	Tons/day					
Material loading at borrow	-	-	0.04	-	lb/ton			-	-	206,612.8	-	lb/yr	1.25	35358.93					
Material unloading at levee	-	-	0.005	-	lb/ton			-	-	26,723.8	-	lb/yr	1.25	35358.93					
Bulldozing	-	-	0.41		lb/hr	8	hrs/day	-	-	459.99	-	lb/yr							
Total								16551.3	91467.9	1140790.8	10238690.9	lb/yr							2000 lb/ton
Total								118.2	653.3	8148.5	73133.5	lb/day							
					Fisherman's Lake	0	yd3	Includes borrow from Reaches 10-15					1.0	8.0	480.0	8.0	60.0	days	
[5] Cutoff Wall Construction (concurrent with 4,6,7)					Commercial Source	0	yd3	Includes borrow from Reaches 10-15					30.0	0.0	14400.0	240.0	60.0	days	
Haul Truck(s)	1.10	14.47	0.56	1855.42	g/mile	8	trucks	36.2	474.6	18.5	60866.7	lb/yr							0.00220462 lb/gram
Haul Truck(s)	11.78	8.18	0.02	223.55	g/trip	480	trips	12.5	8.7	0.0	236.6	lb/yr							0.00220462 lb/gram
Loader(s)	0.43	3.33	0.19	307.16	lb/day	6		153.9	1199.1	69.3	110576.8	lb/yr							
Bulldozer(s)	0.46	4.06	0.17	335.60	lb/day	25		686.8	6088.0	259.6	503396.7	lb/yr							
Pallet Loader(s) (Forklifts)	0.66	4.01	0.37	341.29	lb/day	6		239.2	1442.5	133.2	122863.1	lb/yr							
Generator(s)	0.29	3.78	0.11	420.92	lb/day	6		104.2	1361.4	41.0	151531.1	lb/yr							
Pump(s)	0.76	4.91	0.40	420.92	lb/day	6		274.5	1768.2	142.4	151531.1	lb/yr							
Pickup(s)	0.02	0.03	0.00	39.26	lb/day	8		11.0	13.9	1.9	18842.4	lb/yr							
Excavator(s)	0.42	3.22	0.19	324.22	lb/day	6		152.8	1160.9	69.1	116719.9	lb/yr							
Employee Trips	0.02	0.03	0.00	39.26	lb/day/emp	75	employees	103.5	130.5	18.0	176647.5	lb/yr							
Fugitive Sources																			
Travel on unpaved roads	-	-	0.90	-	lb/VMT	240	VMT/yr	-	-	215.5	-	lb/yr							
Travel on paved roads	-	-	0.28	-	lb/VMT	240	VMT/yr	-	-	67.8	-	lb/yr							
Total								1774.5	13647.7	1036.3	1413211.9	lb/yr							2000 lb/ton
Total								29.6	227.5	17.3	23553.5	lb/day							
[6, 7]Reconstruct Garden Hwy/Install Surface Drainage (concurrent with [4,5])						0	yd3						1.0	6.0	162.0	6.0	27.0	days	
													*assumes haul load=14 yd3 *assumes haul trucks drive 10 miles each day						
Mobile Sources																			
Haul Truck(s)	1.10	14.47	0.56	1855.42	g/mile	6	trucks	0.4	5.2	0.2	662.7	lb/yr							0.00220462 lb/gram
Haul Truck(s)	11.78	8.18	0.02	223.55	g/trip	162	trips	4.2	2.9	0.0	79.8	lb/yr							0.00220462 lb/gram
Backhoe(s)	0.21	1.38	0.07	312.85	lb/day	2		11.1	74.3	3.5	16893.7	lb/yr							
Drill Rig(s)	0.20	2.34	0.08	426.61	lb/day	1		5.5	63.1	2.3	11518.4	lb/yr							
Roller(s)	0.65	3.99	0.35	318.53	lb/day	2		35.1	215.3	18.7	17200.8	lb/yr							
Paver(s)	0.84	4.94	0.44	352.66	lb/day	1		22.6	133.4	11.8	9521.9	lb/yr							
Off-Highway Truck(s)	0.30	2.76	0.10	324.22	lb/day	3		24.0	223.7	8.4	26262.0	lb/yr							
Employee Trips	0.02	0.03	0.00	39.26	lb/day/emp	75	employees	46.6	58.7	8.1	79491.4	lb/yr							0.00220462 lb/gram
Fugitive Sources																			
Travel on unpaved roads	-	-	0.90	-	lb/VMT	0	VMT/yr	-	-	-	-	lb/yr							
Travel on paved roads	-	-	0.28	-	lb/VMT	26244	VMT/yr	-	-	7,410.7	-	lb/yr							
Total								149.5	776.6	7463.6	161630.7	lb/yr							2000 lb/ton
Total								5.5	28.8	276.4	5986.3	lb/day							
[8]Groundwater Well Replacement						0	yd3						10.0	180.0	37800.0	1800.0	21.0	days	
													*assumes haul load=14 yd3 *assumes trucks drive 5 miles/day						
Mobile Sources																			
Drill Rig	0.20	2.34	0.08	426.61	lb/day	1		4.3	49.1	1.8	8958.8	lb/yr							0.00220462 lb/gram
Generator(s)	0.29	3.78	0.11	420.92	lb/day	1		6.1	79.4	2.4	8839.3	lb/yr							0.00220462 lb/gram
Pump(s)	0.76	4.91	0.40	420.92	lb/day	1		16.0	103.1	8.3	8839.3	lb/yr							
Crane	0.25	2.41	0.09	244.59	lb/day	1		5.2	50.5	2.0	5136.4	lb/yr							
Truck	0.30	2.76	0.10	324.22	lb/day	1		6.2	58.0	2.2	6808.7	lb/yr							
Water Truck(s)	0.10	1.27	0.05	163.47	lb/day	1		2.1	26.7	1.1	3432.9	lb/yr							
Fugitive Sources																			
Travel on unpaved roads	-	-	0.28	-	lb/VMT	0	VMT/yr	-	-	-	-	lb/yr							
Travel on paved roads	-	-	0.00	-	lb/VMT	37800	VMT/yr	-	-	60.4	-	lb/yr							

Total								**53.8**	**443.3**	**86.4**		**38582.4**	lb/yr							2000	lb/ton
Total								**2.6**	**21.1**	**4.1**		**1837.3**	lb/day								
Offsite Restoration/Demobilization						0	yd3							4.0	6.0	816.0	24.0	34.0	days		
															*assumes haul load=14 yd3		*assumes trucks drive 5 miles/day				
Mobile Sources																					
Haul Truck(s)	1.10	14.47	0.56	1655.42	g/mile	6	trucks	2.0	26.0	1.0		3337.6	lb/yr							0.00220462	lb/gram
Haul Truck(s)	11.79	8.18	0.02	220.56	g/hr	204	trips	5.3	3.7	0.0		100.5	lb/yr							0.00220462	lb/gram
Off-Highway Truck(s)	0.30	2.76	0.10	324.22	lb/day	6		60.5	563.4	21.2		66141.3	lb/yr								
Water Truck(s)	0.10	1.27	0.05	163.47	lb/day	6		20.4	259.1	10.2		33347.9	lb/yr								
Employee Trips	0.02	0.03	0.00	39.26	lb/day/emp	60	employees	46.9	59.2	8.2		80080.2	lb/yr								
Fugitive Sources																					
Travel on unpaved roads	-	-	0.90	-	lb/VMT	4896	VMT/yr	-	-		4,395.2	-	lb/yr								
Travel on paved roads	-	-	0.28	-	lb/VMT	0	VMT/yr	-	-		-	-	lb/yr								
Total								**195.6**	**1474.7**	**4456.9**		**183007.8**	lb/yr							2000	lb/ton
Total								**5.8**	**43.4**	**131.1**		**5382.6**	lb/day								
2010 calendar year																					
Total from SEL								**9.8**	**56.9**	**811.6**		**6436.4**	**TPY**	to occur during 2010 calendar year							
Total from SEL								**153.3**	**909.6**	**8442.2**		-	**Worst-case lb/day**		*assumes some phases will be conducted concurrently						

*These calculations represent worst-case emissions from construction activities associated with Sacramento East Levee work

NCC Phase 4a

*2010 calendar year comprises reach 10-15 work to occur over 8 months (April - Nov)

ALL WORK FOR NCC TO OCCUR IN SUTTER COUNTY

Phases 1-7: Cutoff Wall Construction, Phases 8-11: Levee Raise Construction

	ROG	NOX	PM10	CO2	Unit	Quantity	Unit	ROG	NOX	PM10	CO2	Unit	Distance (miles/round-trip)	# of Haul Loads	Total Miles Traveled	Total Miles Traveled/Day	Time frame	Conversion Factor
[1]Site Preparation						0	yd3						1.0	0.0	2.0	1.0	2.0	days
Mobile Sources														*assumes haul load=14 yd3		*assumes haul trucks drive length of levee each day		
Haul Truck(s)	1.10	14.47	0.56	1655.42	g/mile	1	trucks	0.0	0.1	0.0	8.2	lb/yr						0.00220462 lb/gram
Haul Truck(s)	11.78	8.18	0.02	223.55	g/trip	2	trips	0.1	0.0	0.0	1.0	lb/yr						0.00220462 lb/gram
Water Truck(s)	0.10	1.27	0.03	163.47	lb/day	1		0.2	2.5	0.1	326.9	lb/yr						
Scraper(s)	0.46	4.36	0.18	409.54	lb/day	1		0.9	8.7	0.4	819.1	lb/yr						
Loader(s)	0.43	3.33	0.18	307.18	lb/day	1		0.9	6.7	0.4	614.3	lb/yr						
Employee Trips	0.02	0.03	0.00	39.26	lb/day/emp	15	employees	0.7	0.9	0.1	1177.7	lb/yr						
Fugitive Sources																		
Travel on unpaved roads	-	-	0.90	-	lb/VMT	1	trucks	-	-	1.8	-	lb/yr						
Travel on paved roads	-	-	0.28	-	lb/VMT	1	trucks	-	-	1.1	-	lb/yr						
Total								2.7	18.9	3.9	2947.3	lb/yr						2000 lb/ton
Total								1.4	9.4	1.9	1473.6	lb/day						
[2]Levee Degrading						0	yd3						1.0	0.0	0.0	0.0	3.0	days
Mobile Sources														*assumes haul load=14 yd3		*assumes haul trucks drive length of levee each day		
Scraper(s)	0.46	4.36	0.18	409.54	lb/day	1		1.4	13.1	0.5	1228.6	lb/yr						
Bulldozers	0.46	4.06	0.17	335.60	lb/day	1		1.4	12.2	0.5	1006.8	lb/yr						
Loader(s)	0.43	3.33	0.18	307.18	lb/day	1		1.3	10.0	0.6	921.5	lb/yr						
Employee Trips	0.02	0.03	0.00	39.26	lb/day/emp	15	employees	1.0	1.3	0.2	1766.5	lb/yr						
Total								5.1	36.6	1.8	4923.4	lb/yr						2000 lb/ton
Total								1.7	12.2	0.6	1641.1	lb/day						
[3]Pipeline Removal						0	yd3						4.0	0.0	12.0	4.0	3.0	days
Mobile Sources																		
Haul Truck(s)	1.10	14.47	0.56	1655.42	g/mile	1	trucks	0.0	0.4	0.0	49.1	lb/yr						0.00220462 lb/gram
Haul Truck(s)	11.78	8.18	0.02	223.55	g/trip	2	trips	0.1	0.0	0.0	1.0	lb/yr						0.00220462 lb/gram
Excavator(s)	0.42	3.22	0.18	324.22	lb/day	1		1.3	9.7	0.6	972.7	lb/yr		*assumes haul load=14 yd3				
Employee Trips	0.02	0.03	0.00	39.26	lb/day/emp	15	employees	1.0	1.3	0.2	1766.5	lb/yr						
Fugitive Sources																		
Travel on unpaved roads	-	-	0.90	-	lb/VMT	6	VMT/yr	-	-	5.4	-	lb/yr	*assumes that material hauling is along 50% paved and 50% unpaved haul routes, scraper hauling is on 100% un					
Travel on paved roads	-	-	0.28	-	lb/VMT	6	VMT/yr	-	-	3.4	-	lb/yr	*assumes that material hauling is along 50% paved and 50% unpaved haul routes					
Total								2.4	11.4	9.5	2789.2	lb/yr						2000 lb/ton
Total								0.8	3.8	3.2	929.7	lb/day						
					Borrow Site	3750	yd3						4.0	267.9	1071.4	89.3	12.0	days
[4] Cutoff Wall Construction					Commercial Source	150	yd3						30.0	10.7	321.4	26.8	12.0	days
Haul Truck(s)	1.10	14.47	0.56	1655.42	g/mile	1	trucks	3.4	44.4	1.7	5697.5	lb/yr						0.00220462 lb/gram
Haul Truck(s)	11.78	8.18	0.02	223.55	g/trip	279	trips	7.2	5.0	0.0	137.3	lb/yr						0.00220462 lb/gram
Loader(s)	0.43	3.33	0.18	307.18	lb/day	1		5.1	40.0	2.3	3685.9	lb/yr						
Pallet Loader(s) [Forklifts]	0.66	4.01	0.37	341.29	lb/day	1		8.0	48.1	4.4	4095.4	lb/yr						
Generator(s)	0.29	3.78	0.11	420.92	lb/day	2		6.9	90.8	2.7	10102.1	lb/yr						
Pump(s)	0.76	4.91	0.40	420.92	lb/day	2		18.3	117.9	9.5	10102.1	lb/yr						
Pickup(s)	0.02	0.03	0.00	39.26	lb/day	3		0.8	1.0	0.1	1413.2	lb/yr						
Excavator(s)	0.42	3.22	0.18	324.22	lb/day	1		5.1	38.7	2.3	3890.7	lb/yr						
Employee Trips	0.02	0.03	0.00	39.26	lb/day/emp	15	employees	4.1	5.2	0.7	7065.9	lb/yr						
Fugitive Sources																		
Travel on unpaved roads	-	-	0.90	-	lb/VMT	536	VMT/yr	-	-	480.9	-	lb/yr						
Travel on paved roads	-	-	0.28	-	lb/VMT	536	VMT/yr	-	-	151.3	-	lb/yr						
Total								59.0	391.1	656.1	46190.0	lb/yr						2000 lb/ton
Total								4.9	32.6	54.7	3849.2	lb/day						
[5]Levee Crown Reconstruction						0	yd3						4.0	0.0	0.0	0.0	6.0	days

Mobile Sources																				
Water Truck(s)	0.10	1.27	0.05	163.47	lb/day	1		0.6	7.6	0.3		980.6	lb/yr							
Scraper(s)	0.46	4.36	0.18	409.54	lb/day	1		2.8	26.2	1.1		2457.3	lb/yr							
Roller(s)	0.65	3.99	0.35	318.53	lb/day	2		7.8	47.8	4.2		3822.4	lb/yr							
Employee Trips	0.02	0.03	0.00	39.26	lb/day/emp	15	employees	2.1	2.6	0.4		3533.0	lb/yr							
Total								13.3	84.2	5.9		10793.4	lb/yr							2000 lb/ton
Total								2.2	14.0	1.0		1798.9	lb/day							
[6]Borrow Site Excavation						0	yd3							4.0	0.0		72.0 12.0	6.0	days	
Mobile Sources																				
Haul Truck(s)	1.10	14.47	0.56	1655.42	g/mile	3	trucks	0.2	2.3	0.1		294.5	lb/yr							0.00220462 lb/gram
Haul Truck(s)	11.78	8.18	0.02	223.55	g/trip	18	trips	0.5	0.3	0.0		8.9	lb/yr							0.00220462 lb/gram
Water Truck(s)	0.10	1.27	0.05	163.47	lb/day	1		0.6	7.6	0.3		980.6	lb/yr							
Excavator(s)	0.42	3.22	0.19	324.22	lb/day	1		2.5	19.3	1.2		1945.3	lb/yr		*assumes haul load=14 yd3					
Employee Trips	0.02	0.03	0.00	39.26	lb/day/emp	15	employees	2.1	2.6	0.4		3533.0	lb/yr							
Fugitive Sources																				
Travel on unpaved roads	-	-	1.10	-	lb/VMT	36	VMT/yr	-	-	39.7		-	lb/yr	*assumes that material hauling is along 50% paved and 50% unpaved haul routes, scraper hauling is on 100% un						
Travel on paved roads	-	-	0.52	-	lb/VMT	36	VMT/yr	-	-	37.5		-	lb/yr	*assumes that material hauling is along 50% paved and 50% unpaved haul routes						
Total								5.9	32.2	79.1		6762.5	lb/yr							2000 lb/ton
Total								1.0	5.4	13.2		1127.1	lb/day							
[7]Site Restoration/Demobilization						0	yd3							4.0	1.0	8.0	4.0	2.0	days	
Mobile Sources															*assumes haul load=14 yd3 *assumes trucks drive 5 miles/day					
Haul Truck(s)	1.10	14.47	0.56	1655.42	g/mile	1	trucks	0.0	0.3	0.0		32.7	lb/yr							0.00220462 lb/gram
Haul Truck(s)	11.78	8.18	0.02	223.55	g/trip	2	trips	0.1	0.0	0.0		1.0	lb/yr							0.00220462 lb/gram
Off-Highway Truck(s)	0.30	2.76	0.10	324.22	lb/day	2		1.2	11.0	0.4		1296.9	lb/yr							
Water Truck(s)	0.10	1.27	0.05	163.47	lb/day	1		0.2	2.5	0.1		326.9	lb/yr							
Employee Trips	0.02	0.03	0.00	39.26	lb/day/emp	15	employees	0.7	0.9	0.1		1177.7	lb/yr							
Fugitive Sources																				
Travel on unpaved roads	-	-	1.10	-	lb/VMT	8	VMT/yr	-	-		8.8	-	lb/yr							
Travel on paved roads	-	-	0.52	-	lb/VMT	0	VMT/yr	-	-		-	-	lb/yr							
Total								3.3	25.8	9.5		2835.2	lb/yr							2000 lb/ton
Total								1.7	12.9	4.7		1417.6	lb/day							
[8]Levee Raising (Levee Raise Component)						0	yd3							1.0	0.0	0.0	0.0	10.0	days	
																		80.0	days	
Water Truck(s)	0.10	1.27	0.05	163.47	lb/day	1		1.0	12.7	0.6		1634.7	lb/yr							
Loader(s)	0.43	3.33	0.19	307.16	lb/day	1		4.3	33.3	1.9		3071.6	lb/yr							
Roller(s)	0.65	3.99	0.35	318.53	lb/day	4		220.8	1355.7	117.9		108301.5	lb/yr							
Bulldozer(s)	0.46	4.06	0.17	335.60	lb/day	1		38.9	345.0	14.7		28525.8	lb/yr							
Employee Trips	0.02	0.03	0.00	39.26	lb/day/emp	20	employees	39.1	49.3	6.8		66733.5	lb/yr							0.00220462 lb/gram
Total								304.1	1796.0	141.9		208267.1	lb/yr							2000 lb/ton
Total								3.6	21.1	1.7		2450.2	lb/day							
[9]Borrow Site Excavation (Levee Raise Component)					Brookfield Site	33000	yd3							4.0	2357.1	9428.6	785.7	12.0	days	
Mobile Sources															*assumes haul load=14 yd3					
Haul Truck(s)	1.10	14.47	0.56	1655.42	g/mile	10	trucks	22.9	300.7	11.7		38567.6	lb/yr							0.00220462 lb/gram
Haul Truck(s)	11.78	8.18	0.02	223.55	g/trip	2357	trips	61.2	42.5	0.1		1161.7	lb/yr							0.00220462 lb/gram
Water Truck(s)	0.10	1.27	0.05	163.47	lb/day	1		1.2	15.2	0.6		1961.6	lb/yr							
Bulldozer(s)	0.46	4.06	0.17	335.60	lb/day	1		5.5	48.7	2.1		4027.2	lb/yr							
Excavator(s)	0.42	3.22	0.19	324.22	lb/day	1		5.1	38.7	2.3		3890.7	lb/yr		*assumes haul load=14 yd3					
Employee Trips	0.02	0.03	0.00	39.26	lb/day/emp	20	employees	5.5	7.0	1.0		9421.2	lb/yr							
Fugitive Sources																				
Travel on unpaved roads	-	-	0.90	-	lb/VMT	4714	VMT/yr	-	-		4,232.1	-	lb/yr	*assumes that material hauling is along 50% paved and 50% unpaved haul routes						
Travel on paved roads	-	-	0.28	-	lb/VMT	4714	VMT/yr	-	-		1,331.2	-	lb/yr	*assumes that material hauling is along 50% paved and 50% unpaved haul routes						
Material Handling														Tons/yd3 (gravel/sand)	Tons/day					
Material loading at borrow	-	-	0.04	-	lb/ton			-	-		1,674.3	-	lb/yr	1.25	3437.50					
Material unloading at levee	-	-	0.005	-	lb/ton			-	-		216.6	-	lb/yr	1.25	3437.50					
Bulldozing	-	-	0.41		lb/hr	8	hrs/day	-	-		39.43	-	lb/yr							
Total								101.5	452.8	7511.3		59030.0	lb/yr							2000 lb/ton
Total								8.5	37.7	625.9		4919.2	lb/day							

[10] Finish Grading (Levee Raise Component)						0	yd3							0.0	0.0	0.0	0.0	2.0	days
Mobile Sources															*assumes haul load=14 yd3 *assumes haul trucks drive 10 miles each day				
Off-Highway Truck(s)	0.30	2.76	0.10	324.22	lb/day	1		0.6	5.5	0.2		648.4	lb/yr						
Grader(s)	0.49	3.79	0.22	346.97	lb/day	1		1.0	7.6	0.4		693.9	lb/yr						
Water Truck(s)	0.10	1.27	0.05	163.47	lb/day	1		0.2	2.5	0.1		326.9	lb/yr						
Employee Trips	0.02	0.03	0.00	39.26	lb/day/emp	20	employees	0.9	1.2	0.2		1570.2	lb/yr						
Total								**2.7**	**16.8**	**0.9**		**3239.5**	**lb/yr**						2000 lb/ton
Total								**1.3**	**8.4**	**0.5**		**1619.8**	**lb/day**						
[11]Operating Road Construction (Levee Raise Component)						0	yd3							4.0	10.0	40.0	20.0	2.0	days
Mobile Sources															*assumes haul load=14 yd3 *assumes haul trucks drive 10 miles each day				
Haul Truck(s)	1.10	14.47	0.56	1855.42	g/mile	5	trucks	0.1	1.3	0.0		163.6	lb/yr						0.00220462 lb/gram
Haul Truck(s)	11.78	8.18	0.02	223.55	0.00	10	trips	0.3	0.2	0.0		4.9	lb/yr						0.00220462 lb/gram
Compactor(s)	0.29	1.80	0.09	244.59	lb/day	2		1.1	7.2	0.3		978.4	lb/yr						
Grader(s)	0.49	3.79	0.22	346.97	lb/day	1		1.0	7.6	0.4		693.9	lb/yr						
Employee Trips	0.02	0.03	0.00	39.26	lb/day/emp	20	employees	0.9	1.2	0.2		1570.2	lb/yr						0.00220462 lb/gram
Fugitive Sources																			
Travel on unpaved roads	-	-	1.10	-	lb/VMT	20	VMT/yr	-	-		22.1	-	lb/yr						
Travel on paved roads	-	-	0.52	-	lb/VMT	20	VMT/yr	-	-		10.4	-	lb/yr						
Total								**3.4**	**17.4**	**33.5**		**3411.1**	**lb/yr**						2000 lb/ton
Total								**1.7**	**8.7**	**16.7**		**1705.5**	**lb/day**						
2010 calendar year																			
Total from NCC								**0.3**	**1.4**	**4.2**		**175.6**	**TPY**	to occur during 2010 calendar year					
Total from NCC								**12.0**	**58.9**	**627.6**		**-**	**Worst-case lb/day**		*assumes some phases will be conducted concurrently				

*These calculations represent worst-case emissions from construction activities associated with South Natomas Cross Canal work

Riverside Canal Phase 4a

*2010 calendar year comprises reach 10-15 work to occur over 8 months (April - Nov)

ALL WORK FOR RIVERSIDE CANAL TO OCCUR IN SACRAMENTO COUNTY

	ROG	NOX	PM10	CO2	Unit	Quantity	Unit	ROG	NOX	PM10	CO2	Unit	Distance (miles/round-trip)	# of Haul Loads	Total Miles Traveled	Total Miles Traveled/Day	Time frame	Conversion Factor	
[1]Clearing, Grubbing, Stripping						90000	yd3						1.0	6428.6	6428.6	214.3	30.0	days	
														*assumes haul load=14 yd3					
Mobile Sources																			
Haul Truck(s)	1.10	14.47	0.56	1655.42	g/mile	25	trucks	15.6	205.0	8.0	26296.1	lb/yr						0.00220462	lb/gram
Haul Truck(s)	11.78	8.18	0.02	223.55	g/trip	6429	trips	167.0	115.9	0.2	3158.3	lb/yr						0.00220462	lb/gram
Water Truck(s)	0.10	1.27	0.05	163.47	lb/day	2		6.0	76.2	3.0	9808.2	lb/yr							
Bulldozers	0.46	4.06	0.17	335.60	lb/day	4		54.9	487.0	20.8	40271.7	lb/yr							
Loader(s)	0.43	3.30	0.19	307.16	lb/day	4		51.3	399.7	23.1	36858.9	lb/yr							
Employee Trips	0.02	0.03	0.00	39.26	lb/day/emp	40	employees	27.6	34.8	4.8	47106.0	lb/yr							
Total								139.8	997.7	51.7	134044.9	lb/yr						2000	lb/ton
Total								4.7	33.3	1.7	4468.2	lb/day							
[2]Water Control Facility Construction						0	yd3						0.0	0.0	0.0	0.0	17.0	days	
														*assumes haul load=14 yd3					
Mobile Sources																			
Compactor(s)	0.29	1.80	0.09	244.59	lb/day	2		9.7	61.1	2.9	8316.0	lb/yr							
Backhoe(s)	0.21	1.38	0.07	312.85	lb/day	2		7.0	46.8	2.2	10636.8	lb/yr							
Generator(s)	0.29	3.78	0.11	420.92	lb/day	2		9.8	128.6	3.9	14311.3	lb/yr							
Pump(s)	0.76	4.91	0.40	420.92	lb/day	1		13.0	83.5	6.7	7155.6	lb/yr							
Off-Highway Truck(s)	0.30	2.76	0.10	324.22	lb/day	4		20.2	187.8	7.1	22047.1	lb/yr							
Employee Trips	0.02	0.03	0.00	39.26	lb/day/emp	40	employees	15.6	19.7	2.7	26693.4	lb/yr							
Total								75.3	527.5	25.5	89160.2	lb/yr						2000	lb/ton
Total								4.4	31.0	1.5	5244.7	lb/day							
[3]Embankment and Access Road Construction						Fishermans Lake 410000	yd3	Transported by haul truck					4.0	29285.7	117142.9	1802.2	65.0	days	
Mobile Sources																			
Haul Truck(s)	1.10	14.47	0.56	1655.42	g/mile	30	trucks	284.9	3736.2	145.4	479173.0	lb/yr						0.00220462	lb/gram
Haul Truck(s)	11.78	8.18	0.02	223.55	g/trip	29286	trips	760.6	528.1	1.0	14433.3	lb/yr						0.00220462	lb/gram
Roller(s)	0.65	3.96	0.35	318.53	lb/day	4		168.9	1036.7	90.2	82818.6	lb/yr							
Bulldozers	0.46	4.06	0.17	335.60	lb/day	2		59.5	527.6	22.5	43627.7	lb/yr							
Grader(s)	0.40	3.79	0.22	346.87	lb/day	2		63.6	493.3	28.6	45106.7	lb/yr							
Water Truck(s)	0.10	1.27	0.05	163.47	lb/day	2		13.0	165.1	6.5	21251.1	lb/yr							
Employee Trips	0.02	0.03	0.00	39.26	lb/day/emp	40	employees	59.8	75.4	10.4	102063.0	lb/yr							
Fugitive Sources																			
Travel on unpaved roads	-	-	0.90	-	lb/VMT	58571	VMT/yr	-	-	52580.3	-	lb/yr	*assumes that material hauling is along 50% paved and 50% unpaved haul routes, except hauling is on 100% unpaved routes						
Travel on paved roads	-	-	0.28	-	lb/VMT	58571	VMT/yr	-	-	33078.3	-	lb/yr	*assumes that material hauling is along 50% paved and 50% unpaved haul routes						
Material Handling													Tons/yd3 (gravel/sand)	Tons/day					
Material loading at borrow	-	-	0.04	-	lb/ton			-	-	20802.3	-	lb/yr	1.25	7884.62					
Material unloading at levee	-	-	0.005	-	lb/ton			-	-	0.0	-	lb/yr	1.25	7884.62					
Bulldozing	-	-	0.41	-	lb/hr	8	hrs/day	-	-	213.6	-	lb/yr							
Total								1410.2	6562.4	106979.1	788473.6	lb/yr						2000	lb/ton
Total								21.7	101.0	1645.8	12130.4	lb/day							
						Fisherman's Lake 0	yd3						4.0	0.0	0.0	0.0	3.0	days	
[4]Canal Lining						Commercial Source 100	yd3						30.0	7.1	214.3	71.4	3.0	days	
														*assumes haul load=14 yd3					
Mobile Sources																			
Haul Truck(s)	1.10	14.47	0.56	1655.42	g/mile	2	trucks	0.5	6.8	0.3	876.5	lb/yr						0.00220462	lb/gram
Haul Truck(s)	11.78	8.18	0.02	223.55	g/trip	7	trips	0.2	0.1	0.0	3.5	lb/yr						0.00220462	lb/gram
Pump(s)	0.76	4.91	0.40	420.92	lb/day	2		4.6	29.5	2.4	2525.5	lb/yr							
Off-Highway Truck(s)	0.30	2.76	0.10	324.22	lb/day	4		3.6	33.1	1.2	3890.7	lb/yr							
Employee Trips	0.02	0.03	0.00	39.26	lb/day/emp	40	employees	2.8	3.5	0.5	4710.6	lb/yr							
Fugitive Sources																			
Travel on unpaved roads	-	-	0.90	-	lb/VMT	107	VMT/yr	-	-	96.2	-	lb/yr	*assumes that material hauling is along 50% paved and 50% unpaved haul routes						
Travel on paved roads	-	-	0.28	-	lb/VMT	107	VMT/yr	-	-	30.3	-	lb/yr	*assumes that material hauling is along 50% paved and 50% unpaved haul routes						
Total								11.6	73.1	130.8	12006.8	lb/yr						2000	lb/ton
Total								3.9	24.4	43.6	4002.3	lb/day							

[5,6,7] Irrigation Interconnections, Erosion Control, Irrigation Canal Abandonment				Fisherman's Lake		0	yd3						1.0	0.0	0.0	0.0	20.0	days
Grader(s)	0.49	3.79	0.23	346.97	lb/day	5		48.9	379.4	22.0	34697.4	lb/yr						
Water Truck(s)	0.10	1.27	0.05	163.47	lb/day	8		16.0	203.2	8.0	26155.2	lb/yr						
Excavator(s)	0.42	3.22	0.19	326.22	lb/day	10		84.9	644.9	38.4	64844.4	lb/yr						
Off-Highway Truck(s)	0.30	2.79	0.10	324.22	lb/day	3		17.8	165.7	6.2	19453.3	lb/yr						
Loader(s)	0.43	3.33	0.19	307.16	lb/day	2		17.1	133.2	7.7	12286.3	lb/yr						
Compactor(s)	0.29	1.80	0.09	244.59	lb/day	2		11.4	71.9	3.4	9783.5	lb/yr						
Employee Trips	0.02	0.03	0.00	39.26	lb/day/emp	40	employees	18.4	23.2	3.2	31404.0	lb/yr						
Total								214.5	1621.6	88.9	198624.2	lb/yr						2000 lb/ton
Total								10.7	81.1	4.4	9931.2	lb/day						
[8]Site Restoration/Demobilization				Commercial Source		10800	yd3						30.0	771.4	23142.9	680.7	34.0	days
Mobile Sources														*assumes haul load=14 yd3 *assumes trucks drive 5 miles/day				
Haul Truck(s)	1.10	14.47	0.56	1653.42	g/mile	5	trucks	56.3	738.1	28.7	94665.9	lb/yr						0.00220462 lb/gram
Haul Truck(s)	11.79	8.16	0.02	220.55	g/trip	771	trips	20.0	13.9	0.0	380.2	lb/yr						0.00220462 lb/gram
Loader(s)	0.43	3.33	0.19	307.16	lb/day	1		14.5	113.2	6.5	10443.4	lb/yr						
Water Truck(s)	0.10	1.27	0.05	163.47	lb/day	1		3.4	43.2	1.7	5558.0	lb/yr						
Employee Trips	0.02	0.03	0.00	39.26	lb/day/emp	40	employees	31.3	39.4	5.4	53386.8	lb/yr						
Fugitive Sources																		
Travel on unpaved roads	-	-	0.90	-	lb/VMT	11571	VMT/yr	-	-	10,387.8	-	lb/yr						
Travel on paved roads	-	-	0.28	-	lb/VMT	11571	VMT/yr	-	-	3,267.5	-	lb/yr						
Total								140.1	1061.2	13704.3	164434.2	lb/yr						2000 lb/ton
Total								4.1	31.2	403.1	4836.3	lb/day						
2010 calendar year																		
Total from Riverside Canal								1.0	5.4	60.5	693.4	TPY	to occur during 2010 calendar year					
Total from Riverside Canal								21.7	101.0	1645.8	-	Worst-case lb/day						

*These calculations represent worst-case emissions from construction activities associated with Riverside Canal work

Pump Plant Work

*2010 calendar year comprises reach 15-18 work to occur over 8 months (April - Nov)

ALL WORK FOR PUMPING PLANTS TO OCCUR IN SACRAMENTO COUNTY

Riverside, Plant 3, and Plant 5

	ROG	NOX	PM10	CO2	Unit	Quantity	Unit	ROG	NOX	PM10	CO2	Unit	Distance (miles/round-trip)	# of Haul Loads	Total Miles Traveled	Total Miles Traveled/ Day	Time frame	Conversion Factor
[1] Riverside Pipeline Relocation, Pumping House Relocation, Channel Realignment					Fisherman's Lake	0	yd3						1.0	0.0	0.0	0.0	40.0	days
Grader(s)	0.49	3.79	0.22	346.97	lb/day	5		97.9	758.9	43.9	69394.9	lb/yr						
Water Truck(s)	0.10	1.27	0.05	163.47	lb/day	8		32.0	406.4	16.0	52310.4	lb/yr						
Excavator(s)	0.42	3.22	0.19	324.22	lb/day	10		169.7	1289.9	76.8	129688.8	lb/yr						
Off-Highway Truck(s)	0.30	2.76	0.10	324.22	lb/day	3		35.6	331.4	12.4	38906.7	lb/yr						
Loader(s)	0.43	3.33	0.19	307.16	lb/day	2		34.2	266.5	15.4	24572.6	lb/yr						
Compactor(s)	0.29	1.80	0.09	244.59	lb/day	2		22.9	143.9	6.8	19567.1	lb/yr						
Employee Trips	0.02	0.03	0.00	39.26	lb/day/employ	15	employees	13.8	17.4	2.4	23553.0	lb/yr						
Total								**406.1**	**3214.3**	**173.8**	**357993.4**	lb/yr						2000 lb/ton
Total								**10.2**	**80.4**	**4.3**	**8949.8**	lb/day						
[2] #3 Pipeline Relocation, Pumping House Relocation, Channel Realignment					Fisherman's Lake	0	yd3						1.0	0.0	0.0	0.0	40.0	days
Grader(s)	0.49	3.79	0.22	346.97	lb/day	5		97.9	758.9	43.9	69394.9	lb/yr						
Water Truck(s)	0.10	1.27	0.05	163.47	lb/day	8		32.0	406.4	16.0	52310.4	lb/yr						
Excavator(s)	0.42	3.22	0.19	324.22	lb/day	10		169.7	1289.9	76.8	129688.8	lb/yr						
Off-Highway Truck(s)	0.30	2.76	0.10	324.22	lb/day	3		35.6	331.4	12.4	38906.7	lb/yr						
Loader(s)	0.43	3.33	0.19	307.16	lb/day	2		34.2	266.5	15.4	24572.6	lb/yr						
Compactor(s)	0.29	1.80	0.09	244.59	lb/day	2		22.9	143.9	6.8	19567.1	lb/yr						
Employee Trips	0.02	0.03	0.00	39.26	lb/day/employ	15	employees	13.8	17.4	2.4	23553.0	lb/yr						
Total								**406.1**	**3214.3**	**173.8**	**357993.4**	lb/yr						2000 lb/ton
Total								**10.2**	**80.4**	**4.3**	**8949.8**	lb/day						
[3] #5 Pipeline Relocation, Pumping House Relocation, Channel Realignment					Fisherman's Lake	0	yd3						1.0	0.0	0.0	0.0	40.0	days
Grader(s)	0.49	3.79	0.22	346.97	lb/day	5		97.9	758.9	43.9	69394.9	lb/yr						
Water Truck(s)	0.10	1.27	0.05	163.47	lb/day	8		32.0	406.4	16.0	52310.4	lb/yr						
Excavator(s)	0.42	3.22	0.19	324.22	lb/day	10		169.7	1289.9	76.8	129688.8	lb/yr						
Off-Highway Truck(s)	0.30	2.76	0.10	324.22	lb/day	3		35.6	331.4	12.4	38906.7	lb/yr						
Loader(s)	0.43	3.33	0.19	307.16	lb/day	2		34.2	266.5	15.4	24572.6	lb/yr						
Compactor(s)	0.29	1.80	0.09	244.59	lb/day	2		22.9	143.9	6.8	19567.1	lb/yr						
Employee Trips	0.02	0.03	0.00	39.26	lb/day/employ	15	employees	13.8	17.4	2.4	23553.0	lb/yr						
Total								**406.1**	**3214.3**	**173.8**	**357993.4**	lb/yr						2000 lb/ton
Total								**10.2**	**80.4**	**4.3**	**8949.8**	lb/day						
2010 calendar year																		
Total from Pumping Plants								**0.6**	**4.8**	**0.3**	**537.0**	**TPY**	to occur during 2010 calendar year					
Total from Pumping Plants								**20.3**	**160.7**	**8.7**	**-**	**Worst-case lb/day**						

Borrowsite Excavation

*2010 calendar year comprises reach 10-15 work to occur over 8 months (April - Nov)

ALL WORK FOR BORROW SITES TO OCCUR IN SACRAMENTO COUNTY

Fishermans Lake, I-5 Area, Habitat Conservation and Restoration

	ROG	NOX	PM10	CO2	Unit	Quantity	Unit	ROG	NOX	PM10	CO2	Unit	Distance (miles/round-trip)	# of Haul Loads	Total Miles Traveled	Total Miles Traveled/ Day	Time frame	Conversion Factor
[1] Borrow Site Excavation					Fisherman's Lake	500	acres	includes borrow from Reaches 10-15					0.0	0.0	0.0	0.0	140.0	days
					I-5 Area	452	acres						**all hauling accounted for under other components of Phase 4a.					
Mobile Sources																		
Water Truck(s)	0.10	1.27	0.05	163.47	lb/day	2		28.0	355.6	14.0	45771.6	lb/yr						
Loader(s)	0.43	3.33	0.19	307.16	lb/day	2		119.7	932.6	53.9	86004.1	lb/yr						
Bulldozer(s)	0.46	4.06	0.17	335.60	lb/day	2		128.2	1136.4	48.5	93967.4	lb/yr						
Excavator(s)	0.42	3.22	0.19	324.22	lb/day	2		118.8	902.9	53.8	90782.1	lb/yr						
Employee Trips	0.02	0.03	0.00	39.26	lb/day/employ	20	employees	64.4	81.2	11.2	109914.0	lb/yr						
Fugitive Sources																		
Disturbed Acreage	-	-	10.00	-	lb/acre	68	lb/day	-	-	9,520.0	-	lb/yr						
Material Handling																		
Bulldozing	-	-	0.41		lb/hr	8	hrs/day	-	-	459.99	-	lb/yr						
Total								**459.1**	**3408.8**	**10161.3**	**426439.3**	lb/yr						2000 lb/ton
Total								**3.3**	**24.3**	**72.6**	**3046.0**	lb/day						
[2] Habitat Conservation, Borrow Site Restoration					Fisherman's Lake	0	yd3						0.0	0.0	0.0	0.0	30.0	days
Bulldozer(s)	0.46	4.06	0.17	335.60	lb/day	1		13.7	121.8	5.2	10067.9	lb/yr						
Water Truck(s)	0.10	1.27	0.05	163.47	lb/day	1		3.0	38.1	1.5	4904.1	lb/yr						
Excavator(s)	0.42	3.22	0.19	324.22	lb/day	1		12.7	96.7	5.8	9726.7	lb/yr						
Off-Highway Truck(s)	0.30	2.76	0.10	324.22	lb/day	1		8.9	82.8	3.1	9726.7	lb/yr						
Employee Trips	0.02	0.03	0.00	39.26	lb/day/employ	10	employees	6.9	8.7	1.2	11776.5	lb/yr						
Total								**45.3**	**348.1**	**16.8**	**46201.9**	lb/yr						2000 lb/ton
Total								**1.5**	**11.6**	**0.6**	**1540.1**	lb/day						
2010 calendar year																		
Total from Borrow Site Work								0.3	1.9	5.1	256.3	TPY	to occur during 2010 calendar year					
Total from Borrow Site Work								3.3	24.3	72.6	-	Worst-case lb/day						

Phase 4a Summary

*2010 calendar year comprises reach 10-15 work to occur over 8 months (April - Nov)

Fishermans Lake, I-5 Area, Habitat Conservation and Restoration

	ROG	NOX	PM10	CO2	Unit		
Total from SEL	9.8	56.9	811.6	6436.4	TPY	to occur during 2010 calendar year	
Total from SEL	153.3	909.6	8442.2	-	Worst-case lb/day	*assumes some phases will be conducted concurrently	
Total from NCC	0.3	1.4	4.2	175.6	TPY	to occur during 2010 calendar year	
Total from NCC	12.0	58.9	627.6	-	Worst-case lb/day	*assumes some phases will be conducted concurrently	
Total from Riverside Canal	1.0	5.4	60.5	693.4	TPY	to occur during 2010 calendar year	
Total from Riverside Canal	21.7	101.0	1645.8	-	Worst-case lb/day		
Total from Pumping Plants	0.6	4.8	0.3	537.0	TPY	to occur during 2010 calendar year	
Total from Pumping Plants	20.3	160.7	8.7	-	Worst-case lb/day		
Total from Borrow Site Work	0.3	1.9	5.1	236.3	TPY	to occur during 2010 calendar year	
Total from Borrow Site Work	3.3	24.3	72.6	-	Worst-case lb/day		
Total Phase 4a Sac Co	11.7	69.0	877.4	7903.0	TPY	to occur during 2010 calendar year	
Total Phase 4a Sac Co	198.6	1195.6	10169.3	-	Worst-case lb/day		
Total Phase 4a Sut Co	0.3	1.4	4.2	175.6	TPY	to occur during 2010 calendar year	
Total Phase 4a Sut Co	12.0	58.9	627.6	-	Worst-case lb/day		
Total Phase 4a	11.9	70.4	881.7	8078.6	TPY	to occur during 2010 calendar year	
Total Phase 4a	210.6	1254.5	10796.9	-	Worst-case lb/day		
Mitigation Reductions	5%	20%	75%	-			
Mitigated Phase 4a Sac Co	11.1	55.2	219.4	7903.0	TPY	to occur during 2010 calendar year	
Mitigated Phase 4a Sac Co	188.7	956.5	2542.3	-	Worst-case lb/day		
Mitigated Phase 4a Sut Co	0.2	1.2	1.1	175.6	TPY	to occur during 2010 calendar year	
Mitigated Phase 4a Sut Co	11.4	47.1	156.9	-	Worst-case lb/day		
Total Mitigated Phase 4a	11.3	56.3	220.4	8078.6	TPY	to occur during 2010 calendar year	
Total Mitigated Phase 4a	200.1	1003.6	2699.2	-	Worst-case lb/day		

SEL Phase 4a

Raise in Place Alternative

*2010 calendar year comprises reach 10-15 work to occur over 8 months (April - Nov)

ALL WORK FOR SEL 10-15 TO OCCUR IN SACRAMENTO COUNTY

	ROG	NOX	PM10	CO2	Unit	Quantity	Unit	ROG	NOX	PM10	CO2	Unit	Distance (miles/round-trip)	# of Haul Loads	Total Miles Traveled	Total Miles Traveled/Day	Time frame	Conversion Factor
[1]Site Preparation (concurrent with 2,3)						0	yd3						1.0	0.0	540.0	10.0	54.0	days
														*assumes haul load=14 yd3		*assumes haul trucks drive length of levee each day		
Mobile Sources																		
Haul Truck(s)	1.10	14.47	0.56	1855.42	g/mile	10	trucks	1.3	17.2	0.7	2208.9	lb/yr						0.00220462 lb/gram
Haul Truck(s)	11.78	8.18	0.02	223.55	g/trip	540	trips	14.0	9.7	0.0	266.1	lb/yr						0.00220462 lb/gram
Water Truck(s)	0.10	1.27	0.05	183.47	lb/day	2		10.8	137.2	5.4	17654.8	lb/yr						
Scraper(s)	0.46	4.36	0.18	409.54	lb/day	6		150.5	1413.0	57.1	132692.2	lb/yr						
Loader(s)	0.43	3.33	0.19	307.16	lb/day	2		46.2	359.7	20.6	33173.0	lb/yr						
Grader(s)	0.49	3.79	0.22	346.87	lb/day	2		52.8	409.6	23.7	37473.2	lb/yr						
Chipper(s)	0.63	4.94	0.28	443.87	lb/day	4		135.9	1067.0	61.3	95603.2	lb/yr						
Crawler Tractor(s)	0.53	4.87	0.20	369.73	lb/day	2		56.3	526.2	22.0	39930.5	lb/yr						
Employee Trips	0.02	0.03	0.00	39.26	lb/day/emp	68	employees	84.5	106.5	14.7	144144.4	lb/yr						
Fugitive Sources																		
Travel on unpaved roads	-	-	0.90	-	lb/VMT	0	trucks	-	-	-	-	lb/yr						
Travel on paved roads	-	-	0.28	-	lb/VMT	10	trucks	-	-	82,340.7	-	lb/yr						
Total								552.2	4046.3	82546.3	503376.3	lb/yr						2000 lb/ton
Total								10.2	74.9	1528.6	9321.8	lb/day						
[2]Removal of Landside Structures and Other Facilities (concurrent with 1,3)						0	yd3						1.0	0.0	1152.0	24.0	48.0	days
														*assumes haul load=14 yd3		*assumes haul trucks drive length of levee each day		
Mobile Sources																		
Haul Truck(s)	1.10	14.47	0.56	1855.42	g/mile	24	trucks	2.8	36.7	1.4	4712.3	lb/yr						0.00220462 lb/gram
Haul Truck(s)	11.78	8.18	0.02	223.55	g/trip	1152	trips	29.9	20.8	0.0	567.8	lb/yr						0.00220462 lb/gram
Excavator(s)	0.42	3.22	0.19	324.22	lb/day	2		40.7	309.6	18.4	31125.3	lb/yr						
Loader(s)	0.43	3.33	0.19	307.16	lb/day	1		20.5	159.9	9.2	14743.6	lb/yr						
Employee Trips	0.02	0.03	0.00	39.26	lb/day/emp	68	employees	75.1	94.7	13.1	128128.3	lb/yr						
Fugitive Sources																		
Travel on unpaved roads	-	-	0.90	-	lb/VMT	0	trucks	-	-	-	-	lb/yr						
Travel on paved roads	-	-	0.28	-	lb/VMT	24	trucks	-	-	374,741.8	-	lb/yr						
Total								169.0	621.6	374784.0	179277.2	lb/yr						2000 lb/ton
Total								3.5	13.0	7808.0	3734.9	lb/day						
[3]Excavate Stability Berm (concurrent with 1,2)						0	yd3	Transported by haul truck					1.0	0.0	168.0	12.0	14.0	days
Mobile Sources					Reusable Fill	351000	yd3	Transported by scraper					0.1	25071.4	2507.1	179.1	14.0	days
Haul Truck(s)	1.10	14.47	0.56	1855.42	g/mile	12	trucks	0.4	5.4	0.2	687.2	lb/yr						0.00220462 lb/gram
Haul Truck(s)	11.78	8.18	0.02	223.55	g/trip	24	trips	0.6	0.4	0.0	11.8	lb/yr						0.00220462 lb/gram
Excavator(s)	0.42	3.22	0.19	324.22	lb/day	10		59.4	451.5	26.9	45391.1	lb/yr		*assumes haul load=14 yd3				
Scraper(s)	0.46	4.36	0.18	409.54	lb/day	5		32.5	305.3	12.3	28668.1	lb/yr						
Bulldozers	0.46	4.06	0.17	335.60	lb/day	4		25.6	227.3	9.7	18793.5	lb/yr						
Grader(s)	0.49	3.79	0.22	346.87	lb/day	4		27.4	212.5	12.3	19430.6	lb/yr						
Water Truck(s)	0.10	1.27	0.05	183.47	lb/day	2		2.8	35.6	1.4	4577.2	lb/yr						
Employee Trips	0.02	0.03	0.00	39.26	lb/day/emp	68	employees	21.9	27.6	3.6	37370.8	lb/yr						
Fugitive Sources																		
Travel on unpaved roads	-	-	0.90	-	lb/VMT	2591	VMT/yr	-	-	2326.1	-	lb/yr	*assumes that material hauling is along 50% paved and 50% unpaved haul routes, scraper hauling is on 100% unpaved routes					
Travel on paved roads	-	-	0.28	-	lb/VMT	84	VMT/yr	-	-	47.4	-	lb/yr	*assumes that material hauling is along 50% paved and 50% unpaved haul routes					
Material Handling													Tons/yd3 (gravel/sand)	Tons/day				
Material loading at borrow	-	-	0.04	-	lb/ton			-	-	17808.8	-	lb/yr	1.25	31339.29				
Material unloading at levee	-	-	0.005	-	lb/ton			-	-	2303.4	-	lb/yr	1.25	31339.29				
Bulldozing	-	-	0.41	-	lb/hr	8	hrs/day	-	-	46.0	-	lb/yr						
Total								170.7	1265.5	22598.4	154930.1	lb/yr						2000 lb/ton
Total								12.2	90.4	1614.2	11066.4	lb/day						
[4]Construction of Adjacent Levee Raise & Seepage Berms (concurrent with 5,6,7)					Fisherman's Lake	3173000	yd3	Includes borrow from Reaches 10-15					4.0	226642.9	906571.4	6475.5	140.0	days
					Commercial Source	103040	yd3	Includes borrow from Reaches 10-15, assumes 1.25 tons per yd3					30.0	7360.0	220800.0	1577.1	140.0	days
														*assumes haul load=14 yd3				
Mobile Sources																		
Haul Truck(s)	1.10	14.47	0.56	1855.42	g/mile	190	trucks	2741.4	35956.7	1399.3	4611514.6	lb/yr						0.00220462 lb/gram
Haul Truck(s)	11.78	8.18	0.02	223.55	g/trip	234003	trips	6077.2	4220.0	8.3	115326.6	lb/yr						0.00220462 lb/gram
Water Truck(s)	0.10	1.27	0.05	183.47	lb/day	5		70.0	889.0	35.0	114429.0	lb/yr						

Scraper(s)	0.46	4.36	0.18	409.54	lb/day	10		650.3	6105.5	246.7	573361.3	lb/yr						
Loader(s)	0.43	3.33	0.19	307.16	lb/day	10		598.3	4663.2	269.4	430020.7	lb/yr						
Bulldozer(s)	0.46	4.06	0.17	335.60	lb/day	25		1602.6	14205.2	605.8	1174592.4	lb/yr						
Compactor(s)	0.29	1.80	0.09	244.59	lb/day	8		320.5	2014.1	95.8	273939.2	lb/yr						
Grader(s)	0.49	3.79	0.22	348.67	lb/day	8		548.0	4249.7	246.1	388611.3	lb/yr						
Excavator(s)	0.42	3.22	0.19	324.22	lb/day	10		594.1	4514.6	268.6	453910.7	lb/yr						
Employee Trips	0.02	0.03	0.00	39.26	lb/day/emp	75	employees	241.5	304.5	42.0	412177.5	lb/yr						
Fugitive Sources																		
Travel on unpaved roads	-	-	0.90	-	lb/VMT	563686	VMT/yr	-	-	506,027.9	-	lb/yr	*assumes that material hauling is along 50% paved and 50% unpaved haul routes					
Travel on paved roads	-	-	0.28	-	lb/VMT	674096	VMT/yr	-	-	190,345.3	-	lb/yr	*assumes that material hauling is along 50% paved and 50% unpaved haul routes					
Material Handling													Tons/yd3 (gravel/sand)	Tons/day				
Material loading at borrow	-	-	0.04	-	lb/ton			-	-	166,217.7	-	lb/yr	1.25	29250.36				
Material unloading at levee	-	-	0.005	-	lb/ton			-	-	21,499.0	-	lb/yr	1.25	29250.36				
Bulldozing	-	-	0.41		lb/hr	8	hrs/day	-	-	459.90	-	lb/yr						
Total								13444.0	77122.6	887767.1	8547883.5	lb/yr						2000 lb/ton
Total								96.0	550.9	6341.2	61056.3	lb/day						
					Fisherman's Lake	0	yd3	Includes borrow from Reaches 10-15					1.0	6.0	480.0	6.0	60.0	days
[5] Cutoff Wall Construction (concurrent with 4,6,7)					Commercial Source	0	yd3	Includes borrow from Reaches 10-15					30.0	0.0	14400.0	240.0	60.0	days
Haul Truck(s)	1.10	14.47	0.56	1855.42	g/mile	8	trucks	36.2	474.6	18.5	60866.7	lb/yr						0.00220462 lb/gram
Haul Truck(s)	11.78	8.18	0.02	223.55	g/trip	480	trips	12.5	8.7	0.0	236.6	lb/yr						0.00220462 lb/gram
Loader(s)	0.43	3.33	0.19	307.16	lb/day	6		153.9	1199.1	69.3	110576.8	lb/yr						
Bulldozer(s)	0.46	4.06	0.17	335.60	lb/day	25		686.8	6088.0	259.6	503396.7	lb/yr						
Pallet Loader(s) [Forklifts]	0.68	4.01	0.37	341.29	lb/day	6		239.2	1442.5	133.2	122863.1	lb/yr						
Generator(s)	0.29	3.76	0.11	420.92	lb/day	6		104.2	1361.4	41.0	151531.1	lb/yr						
Pump(s)	0.78	4.91	0.40	420.92	lb/day	6		274.5	1768.2	142.4	151531.1	lb/yr						
Pickup(s)	0.02	0.03	0.00	39.26	lb/day	8		11.0	13.9	1.9	18842.4	lb/yr						
Excavator(s)	0.42	3.22	0.19	324.22	lb/day	6		152.8	1160.9	69.1	116719.9	lb/yr						
Employee Trips	0.02	0.03	0.00	39.26	lb/day/emp	75	employees	103.5	130.5	18.0	176647.5	lb/yr						
Fugitive Sources																		
Travel on unpaved roads	-	-	0.90	-	lb/VMT	240	VMT/yr	-	-	215.5	-	lb/yr						
Travel on paved roads	-	-	0.28	-	lb/VMT	240	VMT/yr	-	-	67.6	-	lb/yr						
Total								1774.6	13647.7	1036.3	1413211.9	lb/yr						2000 lb/ton
Total								29.6	227.5	17.3	23553.5	lb/day						
[6, 7]Reconstruct Garden Hwy/Install Surface Drainage (concurrent with [4,5])						0	yd3						1.0	6.0	162.0	6.0	27.0	days
Mobile Sources														*assumes haul load=14 yd3 *assumes haul trucks drive 10 miles each day				
Haul Truck(s)	1.10	14.47	0.56	1855.42	g/mile	6	trucks	0.4	5.2	0.2	662.7	lb/yr						0.00220462 lb/gram
Haul Truck(s)	11.78	8.18	0.02	223.55	g/trip	162	trips	4.2	2.9	0.0	79.6	lb/yr						0.00220462 lb/gram
Backhoe(s)	0.21	1.39	0.07	312.85	lb/day	2		11.1	74.3	3.5	16893.7	lb/yr						
Drill Rig(s)	0.20	2.34	0.08	428.61	lb/day	1		5.5	63.1	2.3	11518.4	lb/yr						
Roller(s)	0.63	3.89	0.35	318.53	lb/day	2		35.1	215.3	18.7	17200.8	lb/yr						
Paver(s)	0.84	4.84	0.44	352.66	lb/day	1		22.6	133.4	11.8	9521.9	lb/yr						
Off-Highway Truck(s)	0.30	2.76	0.10	324.22	lb/day	3		24.0	223.7	8.4	26262.0	lb/yr						
Employee Trips	0.02	0.03	0.00	39.26	lb/day/emp	75	employees	46.6	58.7	8.1	79491.4	lb/yr						0.00220462 lb/gram
Fugitive Sources																		
Travel on unpaved roads	-	-	0.90	-	lb/VMT	0	VMT/yr	-	-	-	-	lb/yr						
Travel on paved roads	-	-	0.28	-	lb/VMT	26244	VMT/yr	-	-	7,410.7	-	lb/yr						
Total								149.5	776.6	7463.6	161630.7	lb/yr						2000 lb/ton
Total								5.5	28.8	276.4	5986.3	lb/day						
[8]Site Restoration/Demobilization						0	yd3						4.0	6.0	816.0	24.0	34.0	days
Mobile Sources														*assumes haul load=14 yd3 *assumes trucks drive 5 miles/day				
Haul Truck(s)	1.10	14.47	0.56	1855.42	g/mile	6	trucks	2.0	26.0	1.0	3337.8	lb/yr						0.00220462 lb/gram
Haul Truck(s)	11.78	8.18	0.02	223.55	g/trip	204	trips	5.3	3.7	0.0	100.5	lb/yr						0.00220462 lb/gram
Off-Highway Truck(s)	0.30	2.76	0.10	324.22	lb/day	6		60.5	563.4	21.2	66141.3	lb/yr						
Water Truck(s)	0.10	1.27	0.05	163.47	lb/day	6		20.4	259.1	10.2	33347.9	lb/yr						
Employee Trips	0.02	0.03	0.00	39.26	lb/day/emp	60	employees	46.9	59.2	8.2	80080.2	lb/yr						
Fugitive Sources																		
Travel on unpaved roads	-	-	0.90	-	lb/VMT	4896	VMT/yr	-	-	4,395.2	-	lb/yr						
Travel on paved roads	-	-	0.28	-	lb/VMT	0	VMT/yr	-	-	-	-	lb/yr						
Total								195.6	1474.7	4466.9	183007.8	lb/yr						2000 lb/ton
Total								5.8	43.4	131.1	5382.6	lb/day						
2010 calendar year																		
Total from SEL								8.2	49.5	690.3	5571.7	TPY	to occur during 2010 calendar year					

Total from SEL		131.1	807.1	6634.9	-	**Worst-case lb/day**	*assumes some phases will be conducted concurrently

*These calculations represent worst-case emissions from construction activities associated with Sacramento East Levee work

Phase 4a Alternative Comparison Summary

Alternative 1

Total Phase 4a Sac Co	11.7	69.0	877.4	7903.0	TPY	to occur during 2010 calendar year
Total Phase 4a Sac Co	198.6	1195.6	10169.3	-	Worst-case lb/day	
Total Phase 4a Sut Co	0.3	1.4	4.2	175.6	TPY	to occur during 2010 calendar year
Total Phase 4a Sut Co	12.0	58.9	627.6	-	Worst-case lb/day	
Total Phase 4a	11.9	70.4	881.7	8078.6	TPY	to occur during 2010 calendar year
Total Phase 4a	210.6	1254.5	10796.9	-	Worst-case lb/day	
Mitigation Reductions	5%	20%	75%	-		
Mitigated Phase 4a Sac Co	11.1	55.2	219.4	7903.0	TPY	to occur during 2010 calendar year
Mitigated Phase 4a Sac Co	188.7	956.5	2542.3	-	Worst-case lb/day	
Mitigated Phase 4a Sut Co	0.2	1.2	1.1	175.6	TPY	to occur during 2010 calendar year
Mitigated Phase 4a Sut Co	11.4	47.1	156.9	-	Worst-case lb/day	
Total Mitigated Phase 4a	11.3	56.3	220.4	8078.6	TPY	to occur during 2010 calendar year
Total Mitigated Phase 4a	200.1	1003.6	2699.2	-	Worst-case lb/day	

Alternative 2

Total Phase 4a Sac Co	10.1	61.6	756.2	7038.3	TPY	to occur during 2010 calendar year
Total Phase 4a Sac Co	176.4	1093.1	8362.0	0.0	Worst-case lb/day	
Total Phase 4a Sut Co	0.3	1.4	4.2	175.6	TPY	to occur during 2010 calendar year
Total Phase 4a Sut Co	12.0	58.9	627.6	-	Worst-case lb/day	
Total Phase 4a	10.3	63.0	760.4	7213.9	TPY	to occur during 2010 calendar year
Total Phase 4a	188.5	1152.0	8989.6	-	Worst-case lb/day	
Mitigation Reductions	5%	20%	75%	-		
Mitigated Phase 4a Sac Co	9.6	49.3	189.0	7038.3	TPY	to occur during 2010 calendar year
Mitigated Phase 4a Sac Co	167.6	874.5	2090.5	-	Worst-case lb/day	
Mitigated Phase 4a Sut Co	0.2	1.2	1.1	175.6	TPY	to occur during 2010 calendar year
Mitigated Phase 4a Sut Co	11.4	47.1	156.9	-	Worst-case lb/day	
Total Mitigated Phase 4a	9.8	50.4	190.1	7213.9	TPY	to occur during 2010 calendar year
Total Mitigated Phase 4a	179.0	921.6	2247.4	-	Worst-case lb/day	

TIPS FOR USE:

1. For both residential and non-residential acreage entries EXCLUDE ONLY undisturbed (not graded) Open Space.
2. Append this calculation sheet to the environmental document.
3. Unmitigated NOx (lbs/day) and duration (days) should be consistent with URBEMIS results.

Construction Emissons Mitigation Fee Calculation

PART 1: PROJECT INFORMATION

Project Name:	SAFCA - Phase 4 - 2010 NLIP Construction Emissions within SMAQMD's Jurisdiction
Control/Application #:	

Note: Enter information only in blue bordered cells

Single Family Dwelling Units:			
Multi Family Dwelling Units:		Total Residential Acreage:	
Non-residential Square Feet:		Total Non-residential Acreage:	

PART 2: EMISSIONS INFORMATION

Year	Activity Phase	NOx (lbs/day) unmitigated	NOx (lbs/day) mitigated*	NOx over threshold (lbs/day)	duration (days)	Total significant NOx (lbs)
2010	SEL	909.57	727.65	642.65	140	89971.36
2010	Riverside	100.96	80.77	0	65	0.00
2010	Pumping Plants	160.71	128.57	43.57	40	1742.85
2010	Borrow Site Activity	24.35	19.48	0	30	0.00
	Total project Nox over threshold (lbs)		*91714.21*			
	Total project Nox over threshold (tons)		*45.86*			

PART 3: MITIGATION FEE RESULTS

TOTAL MITIGATION FEE ($16,000/TON)**	***$733,714***
Administrative Fee (5%)	***$36,686***
TOTAL MITIGATION FEE	***$770,399***

>>> *Fee is to be paid to the SMAQMD prior to any ground disturbance either in total or on a by acre basis.*

Mitigation Fee ($/acre)	-

* Assumes a construction mitigation plan which achieves a 20% reduction in NOx from on-site, off-road equipment.

** Or the $/ton of NOx cost-effectiveness value in effect at the time the fee is collected.

Phase 2, 3, 4a 2010 Work Summary

*2010 calendar year comprises reach 10-15 work to occur over 8 months (April - Nov)

	ROG	NOX	PM10	CO2	Unit	
Sacramento County						
Total Mitigated Phase 2	0.2	1.1	0.9	-*	TPY	15% of remaining Phase 2 work to occur during 2010 in Sac Co
Total Mitigated Phase 2	5.6	21.6	21.3	-*	Worst-case lb/day	
Total Mitigated Phase 3	6.0	33.0	89.0	1876.8	TPY	100% to occur during 2010 calendar year
Total Mitigated Phase 3	93.3	498.7	1283.3	-	Worst-case lb/day	
Total Mitigated Phase 4a	11.1	55.2	219.4	7903.0	TPY	100% to occur during 2010 calendar year
Total Mitigated Phase 4a	188.7	956.5	2542.3	-	Worst-case lb/day	
Total Mitigated 2010	**17.4**	**89.3**	**309.3**	**9779.8**	**TPY**	
Total Mitigated 2010	**287.6**	**1476.8**	**3846.9**		**Worst-case lb/day**	
Threshold TPY	25	25	100	-		* CO2 emissions not calculated under Phase 2 EIS
Exceed Threshold?	N	Y	Y	-		
Threshold lb/day	-	85	-	-		
Exceed Threshold?	-	Y	-	-		
Sutter County						
Total Mitigated Phase 2	0.7	3.3	7.1	-*	TPY	15% of remaining Phase 2 work to occur during 2010 in Sut Co
Total Mitigated Phase 2	15.7	66.6	131.2	-*	Worst-case lb/day	
Total Mitigated Phase 3	7.4	43.7	94.3	2740.9	TPY	100% to occur during 2010 calendar year
Total Mitigated Phase 3	74.6	413.3	971.4	-	Worst-case lb/day	
Total Mitigated Phase 4a	0.2	1.2	1.1	175.6	TPY	100% to occur during 2010 calendar year
Total Mitigated Phase 4a	11.4	47.1	156.9	-	Worst-case lb/day	
Total Mitigated 2010	**8.4**	**48.2**	**102.4**	**2916.5**	**TPY**	
Total Mitigated 2010	**101.8**	**526.9**	**1259.5**	**-**	**Worst-case lb/day**	
Threshold TPY	25	25	-	-		* CO2 emissions not calculated under Phase 2 EIS
Exceed Threshold?	N	Y	-	-		
Threshold lb/day	25	25	80	-		
Exceed Threshold?	Y	Y	Y	-		

Conformity: Regionally Significant Thresholds Calculations

2006 Estimated Annual Average Emissions

SACRAMENTO COUNTY

ROG	CO	NOX	PM10	
64.4	**365.95**	**81.78**	**44.43**	ton/day
23506.00	133571.8	29849.70	16216.95	tpy
2350.60	13357.18	2984.97	1621.70	10% of total

SUTTER COUNTY

ROG	CO	NOX	PM10	
10.34	**43.06**	**20.27**	**14.45**	ton/day
3774.10	15716.90	7398.55	5274.25	tpy
377.41	1571.69	739.86	527.43	10% of total

Equipment Type	Emission Rates for Year 2009									
	ROG	NOX	PM10	CO2	Unit	ROG	NOX	PM10	CO2	Unit
Employee Light-Duty Trucks	0.026	0.033	0.004	39.231	lb/day/employee					
Haul Trucks	1.19	15.82	0.62	1847.96	g/mile	12.14	8.36	0.02	229.92	g/trip
Backhoes	0.2213	1.4909	0.0779	312.8458	lb/day					
Bore/Drill Rigs	0.2148	2.7743	0.0877	426.6079	lb/day					
Concrete/Industrial Saws	0.5200	3.3866	0.2001	415.2317	lb/day					
Cranes	0.2729	2.6974	0.1045	244.5885	lb/day					
Crawler Tractors	0.5212	4.8719	0.2034	369.7268	lb/day					
Crushing/Proc. Equipment	0.6892	5.4543	0.3030	443.6719	lb/day					
Dozer	0.4924	4.4337	0.1889	335.5979	lb/day					
Excavator	0.4846	3.7349	0.2166	324.2221	lb/day					
Forklifts, Rough Terrain	0.7685	4.5324	0.4144	341.2863	lb/day					
Grader	0.5486	4.2871	0.2425	346.9745	lb/day					
Loaders, Rubber Tired	0.4801	3.7667	0.2122	307.1577	lb/day					
Off-Highway Trucks	0.3245	3.1661	0.1170	324.2222	lb/day					
Other Construction Equip.	0.6859	4.3122	0.3678	352.6626	lb/day					
Pavers	0.9293	5.4283	0.4711	352.6623	lb/day					
Paving Equipment	0.7885	4.6169	0.3992	301.4696	lb/day					
Rollers	0.7364	4.4281	0.3800	318.5338	lb/day					
Scraper	0.5061	4.8366	0.1955	409.5437	lb/day					
Signal Boards	2.0363	4.6463	0.4849	443.6722	lb/day					
Skid Steer Loaders	1.2375	3.1296	0.3184	312.8459	lb/day					
Surfacing Equipment	0.2415	2.6507	0.0953	255.9647	lb/day					
Tractors	0.2213	1.4909	0.0779	312.8458	lb/day					
Trenchers	1.1030	6.5422	0.5508	426.6081	lb/day					
Water Trucks	0.11	1.39	0.05	162.82	lb/day					
Fugitive Dust			10		lb/acre/day					

Assumptions: Emission factors from the Road Construction Emissions Model, Version 6.3 (SMAQMD 2008) for model year 2009 which assumes equipment operates 8hrs/day

Equipment Type	Emission Rates for Year 2010									
	ROG	NOX	PM10	CO2	Unit	ROG	NOX	PM10	CO2	Unit
Employee Light-Duty Trucks	0.023	0.029	0.004	39.255	lb/day/employee					
Haul Trucks	1.10	14.47	0.56	1855.42	g/mile	11.78	8.18	0.02	223.55	g/trip
Backhoes	0.2057	1.3752	0.0650	312.8457	lb/day					
Bore/Drill Rigs	0.2041	2.3385	0.0841	426.6076	lb/day					
Compactor	0.2862	1.7983	0.0856	244.5886	lb/day					
Concrete/Industrial Saws	0.5051	3.2230	0.1580	415.2317	lb/day					
Cranes	0.2472	2.4061	0.0929	244.5885	lb/day					
Crawler Tractors	0.5212	4.8719	0.2034	369.7268	lb/day					
Crushing/Proc. Equipment	0.6290	4.9396	0.2837	443.6723	lb/day					
Dozer	0.4579	4.0586	0.1731	335.5978	lb/day					

Excavator	0.4244	3.2247	0.1920	324.2219	lb/day
Forklifts, Rough Terrain	0.6643	4.0071	0.3701	341.2864	lb/day
Generator	0.2894	3.7816	0.1139	420.9198	lb/day
Grader	0.4893	3.7944	0.2197	346.9744	lb/day
Loaders, Rubber Tired	0.4274	3.3309	0.1924	307.1577	lb/day
Off-Highway Trucks	0.2966	2.7615	0.1037	324.2222	lb/day
Other Construction Equip.	0.5774	3.7753	0.3236	352.6627	lb/day
Pavers	0.8357	4.9393	0.4357	352.6628	lb/day
Paving Equipment	0.7097	4.2031	0.3702	301.4698	lb/day
Pump	0.7626	4.9115	0.3956	420.9197	lb/day
Rollers	0.6495	3.9873	0.3469	318.5338	lb/day
Scraper	0.4645	4.3611	0.1762	409.5438	lb/day
Signal Boards	1.8307	4.5214	0.4462	443.6723	lb/day
Skid Steer Loaders	0.9654	3.0209	0.2663	312.8459	lb/day
Surfacing Equipment	0.2142	2.3732	0.0856	255.9648	lb/day
Tractors	0.2057	1.3752	0.0650	312.8457	lb/day
Trenchers	0.9928	5.9689	0.5107	426.6079	lb/day
Water Trucks	0.10	1.27	0.05	163.47	lb/day
Fugitive Dust			10		lb/acre/day

Assumptions: Emission factors from the Road Construction Emissions Model, Version 6.3 (SMAQMD 2008) for model year 2010 which assumes equipment operates 8hrs/day

Travel on Unpaved Haul Roads (Heavy Duty Trucks):

E(lbs/VMT)=(k)(s/12)^a (W/3)^b	*AP-42 12/03, 13.2.2-4 eq 1a	
Where:	**PM10**	
k=Particle Size Multiplier:	1.5	*AP-42 12/03 Table 13.2.2-2; PM10 emissions; industrial roads
s=Silt Content:	4.3	*AP-42 12/03 Table 13.2.2-1, service road
empirical constants		
a	0.9	*AP-42 12/03 Table 13.2.2-2; PM10 emissions; industrial roads
b	0.45	*AP-42 12/03 Table 13.2.2-2; PM10 emissions; industrial roads
W=Vehicle Weight:	11.375	((2+1.25 T/cy*15 cy truck capacity) + 2)/2 (average weight of loaded and unloaded haul truck; assumed empty truck weighs 2 tons)
	1.08	lbs/VMT

E(ext)= E[(365-P)/365]	*AP-42 12/03 12.2.2-4 eq 2	
Where:		
P=# days/yr with >=0.01 in. precip	63	CALIFORNIA (June 2005)
	0.90	lbs/VMT

Travel on Paved Haul Roads (Heavy Duty Trucks):

E(lbs/VMT)=(k) (sL/2)^.65 (W/3)^1.5 - (	*AP-42 12/03, 13.2.1-4 eq 1	
Where:	**PM10**	
k=Particle Size Multiplier (lb/VMT)	0.016	*AP-42 12/03 Table 13.2.1-1; PM10 emissions; industrial roads
sL=road surface silt loading (g/m2)	8.2	*AP-42 12/03 Table 13.2.1-4; quarry roads

W=Vehicle Weight:	11.375	((2+1.25 T/cy*15 cy truck capacity) + 2)/2 (average weight of loaded and unloaded haul truck; assumed empty truck weighs 2 tons)
C=exhaust, break, tire wear (lb/VMT)	0.00047	*AP-42 12/03 Table 13.2.1-2; PM10 emissions
	0.30	lbs/VMT
E(ext)= E[1-(P/4N)]	*AP-42 12/03 13.2.1 eq 2	
Where:		
P=# days/yr with >=0.01 in. precip	63	*AP-42 12/03 Figure 13.2.2-1 for Sacramento Co/NOAA Technical Memorandum NWS WR-272; CLIMATE OF SACRAMENTO,
N=number of days in averaging period	365	
	0.28	lbs/VMT
Fugitive Dust Source Emissions		
	(lb/acre/day)	
Disturbance Area	60.71	
Assumptions: SMAQMD emission factor of 60.71 lbs/acre/day (SMAQMD 1994).		
Aggregate Storage Piles		
4. loadout of material through batch or drop operations (AP-42 12/03, chapt. 13.2.4).		
E(lb/ton)=(k)(0.0032)(U/5)^1.3 /(M/2)^1	*AP-42 12/03, 13.2.4-3 eq 1	
Where:	**PM10**	
k=Particle Size Multiplier:	0.35	*AP-42 12/03 13.2.4-3; PM10 emissions
U=mean wind speed (mph)	8	(http://www.wrcc.dri.edu/htmlfiles/westwind.final.html#CALIFORNIA)
M=moisture content (%):	2.4	*AP-42 7/98 Table 11.9-3, haul truck
	0.002	lbs/ton
Batch Loading at Borrow Area		
E(TSP<15 um)=(.119/(M^0.9))	*AP-42 7/98, Table 11.9-1	
Where:	**PM10**	
M=moisture content (%):	2.4	*AP-42 7/98 Table 11.9-3, haul truck
	0.05	lb/ton
E(TSP<10um)=(E(TSP<15 um)*S)	*AP-42 7/98, Table 11.9-1	
S=scaling factor	0.75	*AP-42 7/98 Table 11.9-3, haul truck
	0.04	lb/ton
Truck Unloading		
E(TSP<15 um)	**PM10**	
Where:	**0.007**	lb/ton *AP-42 7/98 Table 11.9-4, end dump truck unloading (batch drop)
E(TSP<10um)=(E(TSP<15 um)*S)	*AP-42 7/98, Table 11.9-1	
S=scaling factor	0.75	*AP-42 7/98 Table 11.9-1, haul truck
	0.005	lb/ton
Bulldozing	**PM10**	
E(TSP<15 um)=(18.6(s)^1.5)/(M^1.4)	*AP-42 7/98, Table 11.9-1	
Where:		

M=moisture content (%):	7.9	*AP-42 7/98 Table 11.9-3, bulldozer	
s=silt content (%)	6.9	*AP-42 7/98 Table 11.9-3, bulldozer	
	18.67	lb/hr	
*E(TSP<10um)=(E(TSP<15 um)*S)*	*AP-42 7/98, Table 11.9-1		
S=scaling factor	0.75	*AP-42 7/98 Table 11.9-1, bulldozer	
	14.00	lb/hr	
Scraper Unloading	**PM10**		
E(TSP<15 um)	**0.04**	lb/ton	*AP-42 7/98 Table 11.9-4, scraper unloading
*E(TSP<10um)=(E(TSP<15 um)*S)*	*AP-42 7/98, Table 11.9-1		
S=scaling factor	0.75	*AP-42 7/98 Table 11.9-1, bulldozer/haul truck	
	0.03	lb/ton	

APPENDIX D

USACE and SAFCA Responses to Comments on Previous NLIP Environmental Documents

D1 Phase 2 FEIR Master Response: Hydraulic Impacts on the NLIP

2 MASTER RESPONSES TO COMMENTS ON THE DRAFT EIR

2.1 INTRODUCTION

The following discussion presents responses to environmental issues raised in multiple comments. These responses have been titled, "master responses," because they address numerous comments concerning the same or very similar topics. These responses are organized by topic to provide a more comprehensive response than may be possible in responding to individual comments. Table 2-1 lists each issue addressed in a master response.

Table 2-1
List of Master Responses

Master Response Number	Title
1	Hydraulic Impacts of the NLIP
2	Biological Resources and Habitat Mitigation
3	Temporary Construction Impacts on Traffic Safety, Noise, and Other Nuisances
4	Utilities Relocation

All individual comments on environmental issues along with individual responses to these comments are presented in Chapter 3, "Individual Responses to Comments on the Draft EIR." In that chapter, the reader is referred back to these master responses as appropriate.

2.2 MASTER RESPONSE 1: HYDRAULIC IMPACTS OF THE NLIP

2.2.1 INTRODUCTION

In response to several comments received on the DEIR that question whether SAFCA's approach to evaluating hydraulic impacts is reasonable, SAFCA has prepared the following master response.

2.2.2 DETERMINING THE SIGNIFICANCE OF HYDRAULIC IMPACTS

CEQA requires lead agencies to determine whether "the proposed project [would] expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam" (State CEQA Guidelines, Appendix G, Section VIII, i). SAFCA has historically made this determination by evaluating the potential effects of its levee improvement projects on water surface elevations in the stream and river channels in the project area and in the larger watershed within which the project is situated. This approach was used to evaluate the flood related impacts of the Natomas Levee Improvement Program (NLIP). Specifically, SAFCA's engineering consultant, MBK Engineers, used a UNET hydraulic computer model to compare existing conditions in the waterways surrounding the Natomas Basin and in the larger Sacramento River Flood Control Project (SRFCP) with and without the project. The analysis consisted of calibrating the hydraulic model to historic flood events using high-water marks and stream gage data, modeling the "with" and "without" project condition under several flood scenarios, and determining whether the proposed project would produce a significant difference in the relevant water surface elevations.

The results of this analysis were initially presented in Chapter 4.4, "Hydrology and Hydraulics," and Appendix C, "Hydraulic Modeling Results," of the program-level EIR on Local Funding Mechanisms for Comprehensive Flood Control Improvements for the Sacramento Area, which was certified by the SAFCA Board of Directors in February 2007. Using the same methodology, the analysis was performed again and presented in Chapter 3.4, "Hydrology and Hydraulics," of the DEIR for the NLIP Landside Improvements Project. In both cases, the modeling showed that the proposed NLIP improvements would not increase the "1957" water surface profiles that serve as the minimum design standard for all reaches of the SRFCP and would not substantially increase the 100-year or "200-year" water surface elevations in any urban areas upstream or downstream of the project study area. On this basis, both EIRs concluded that the NLIP improvements would not cause any significant hydraulic impacts.

A surface water elevation increase of 0.1 foot was used as a threshold for determining potential a significant impact because it represents a minimum change from existing conditions. As discussed on pages 3.4-6 and 3.4-7 of the DEIR, a 0.0 foot increase in both the "1957," "100-year," and "200-year" water surface profiles would result with implementation of the NLIP Landside Levee Improvement Project.

2.2.3 THE EIR'S TWO-THRESHOLD APPROACH IS CONSISTENT WITH THE FRAMEWORK HISTORICALLY USED TO MANAGE THE SRFCP

The perimeter levee system around the Natomas Basin is part of a larger integrated system of levees, dams, and bypass channels known as the SRFCP that encompasses five historic flood basins in the Sacramento Valley (Colusa, Sutter, Feather, Yolo and American Flood Basins) and the subbasins contained therein. Planning, design, and construction of the SRFCP has been ongoing since the early 1900s under the leadership of the U.S. Army Corps of Engineers (USACE) and the State of California (state), with local levee and reclamation districts playing the principal role in operating and maintaining the system.

Initially, the river channel and bypass levees in each segment of the system were constructed based on a standard geometry. The levees were designed with a predetermined freeboard allowance tied to specified flows and associated water surface profiles generally matched to observed conditions during the 1907 and 1909 floods. Over time, the standard freeboard allowance of each levee section was increased because of numerous levee failures. The minimum standard levee changed from a levee with a top width of 10 feet to one with a top width of 20 feet. In addition, the design flows were modified substantially on the Feather and American Rivers. This was the result of floods that occurred after 1909, which demonstrated these rivers could produce substantially greater flows than occurred during the 1907 and 1909 floods. Because numerous levee failures occurred along the Feather River levees between 1920 and 1934, the levees were set back and enlarged to accommodate greater flows. These changes were summarized in design memorandums, which define the minimum freeboard requirements for each segment of the SRFCP, collectively referred to as the "1957 profile." Over the years, the system capacity of the SRFCP was also greatly expanded by the construction of five major multiple-purpose reservoirs (Shasta, Black Butte, Oroville, New Bullards Bar, and Folsom Reservoirs) containing 2.7 million acre-feet of dedicated flood space.

The record floods of 1986 and 1997 triggered additional system modifications. Although these floods were significantly larger than the 1907 and 1909 floods, the availability of reservoir storage largely prevented flows in the system from exceeding the design of the SRFCP. Nevertheless, numerous project levees experienced unexpectedly severe stress and some failed. This experience caused the USACE, the state, and their local partners to perform a series of geotechnical evaluations on the SRFCP's levees and to adopt new, more rigorous levee design standards for urban areas, including standards for seepage through and under project levees. To meet these new standards, USACE, the state, and local flood control agencies have made substantial investments in addressing identified deficiencies in levees throughout the SRFCP and in improving the level of flood protection provided by the levees, particularly in urban areas.

Although the SRFCP and its design standards have evolved over the years based on experience, new engineering tools and analysis, and changes in public policy, this evolution has occurred within a system management framework that has allowed necessary adaptations to the system without undermining its basic operational principles. These principles are discussed below.

The SRFCP is not intended to provide a uniform level of flood protection (statistical probability of flooding) to the various subbasins within the protected area. Rather, each subbasin is protected by levees that at least meet the SRFCP's minimum geometrical standards, including freeboard reflecting the water surface profile prescribed for that segment of the system. Each subbasin's protection is dependent on the fitness of its own levees and not on the condition (or failure) of any other subbasin's levees. Accordingly, each subbasin has the right to keep its levees in the fittest possible condition to ensure that these levees will perform as reliably as possible in a flood.

2.2.4 Effect of the NLIP on SRFCP Function and Operations

Even the most modest levee-tending activity, such as eradicating rodent burrows, has the potential to trigger a "transfer of risk," at least in theory. Yet there are currently no data and modeling tools available to quantify such transfers of risk and assess their significance. One of the SRFCP's most important accomplishments is to avoid this problem by relying on the more practical and measurable indicator of a change in water surface elevation, using this measure as the guideline for evaluating the effects of levee-tending activity. Because the SRFCP is designed to operate as an integrated system based on prescribed water surface elevations, the "transfer of risk" that may occur when a subbasin improves the fitness of its levees is not considered to adversely affect the performance of the SRFCP with respect to other subbasins as long as the improvement activity does not alter any water surface elevations designed by the SRFCP. Under this water surface elevation guideline, levee and reclamation districts can operate and maintain their levees (and thus reduce flood damages without engaging in overly complex "transfer of risk" arguments) unless there is evidence that their levee fitness activities will cause a change in a relevant design water surface profile. If the activities of these levee and reclamation districts would produce a significant adverse change in a water surface profile prescribed by the SFRCP, then the district would be expected to offset the adverse impact.

It is clear that levee-tending activities involving physical changes in the geometry of the river channel are the activities most likely to cause changes in water surface elevations prescribed by the SRFCP. These types of activities include placement of fill or construction of structures in the floodway, construction of new levees, relocation of existing levees, excavation within the floodway, construction of large berms for protecting riverbanks, raising an existing levee (waterside raise), construction of a new bypass, and planting of vegetation within the floodway. Improvement activities on the land side of a levee also require evaluation. Such activities include placing a slurry wall in a levee, adding a seepage berm to a levee, placing a field of seepage relief wells along a levee, raising a levee (landside raise), widening a levee (increase top width), and relocating a seepage ditch.

Three design water surface elevations should be considered when determining whether a levee-tending activity would result in an adverse impact to a SRFCP levee. First, the elevations prescribed for each segment of the SRFCP must be considered. These elevations are referred to as the "1957 profile" and they define the minimum freeboard requirements for each segment of the SRFCP. Second, because of the participation of virtually all communities protected by segments of the SRFCP in the National Flood Insurance Program, the 100-year water surface profile must be considered. Third, because the California Legislature has now established "200-year" flood protection as the appropriate standard of flood protection for all urban areas within the SRFCP, the "200-year" water surface profile must also be considered. (Statutes of 2008, Chapter 364 [adding Water Code Section 9602(i)]).

In determining whether a proposed improvement or activity could result in changes to these water surface profiles, the standard analysis procedure is to use hydrologic and hydraulic computer modeling tools such as, HEC-1, HEC-2, UNET, HEC-RAS, RMA2, FESWMS, etc. The analysis consists of calibrating the hydraulic model to historic flood events using high-water marks and stream gage data. The calibration activity is normally conducted on systemwide instead of a site-specific basis. However, data available for computer model calibration can be sparse or nonexistent. In addition, assumptions must be made regarding reservoir operations. Because all of the reservoirs that contribute to the operation of the SRFCP (Shasta, Black Butte, Oroville, New Bullards Bar and Folsom) are governed by water control manuals issued by USACE, current reservoir operations are assumed to continue except where it is reasonably foreseeable that the current operation could change (as in the case of Folsom Dam and Reservoir, where Congress has directed USACE to formalize the variable space storage operation that has been in effect by agreement between SAFCA and the U.S. Bureau of Reclamation since 1995).

Once the model is calibrated, the "with project" condition is compared to the "without project" condition under several flow conditions (1957 profile, 100-year FEMA flood, and "200-year" urban flood) to determine whether a difference exists in water surface elevations under these different conditions. This analysis is complicated because, for the 100-year flood and "200-year" flood, it involves assumptions about the performance of project levees under flow conditions that exceed the minimum design of the SRFCP and thus involve the possibility of levee failure. As noted above, the design of the SRFCP was not historically based on assumed levee failures. On the contrary, the design assumed no levee failures but included five engineered diversions and one natural overflow diversion. The natural diversion is to Butte Basin, which is upstream from the SRFCP levees. This diversion did not include flow easements because Butte Basin is a historic flood basin. The five engineered diversions include two diversions to Butte Basin (Moulton and Colusa Weirs), one diversion to the Sutter Bypass (Tisdale Weir), and two diversions to the Yolo Bypass (Fremont and Sacramento Weirs). All of the engineered diversions included the acquisition of property rights to support the diversions. The deliberate planning, construction, and maintenance of the diversions assured that they would function during flood conditions and serve as reliable features of the flood project.

The historic record of SRFCP levees under high flow conditions does not reveal a direct relationship between river stage and levee performance, particularly given the potential for flood fighting activities to influence this relationship. This greatly complicates the challenge of establishing reasonable assumptions on which to conduct hydraulic modeling evaluations. Most hydraulic modeling efforts make the simplifying assumption that a levee fails when the water surface reaches a defined elevation. The most common failure scenarios consider the following:

(a) Assume levee fails when water level exceeds top of levee by 0.5 feet.
(b) Assume levee fails when water level reaches top of levee.
(c) Assume levee fails when water exceeds design stage by 1.5 feet.
(d) Assume levee fails when design stage is exceeded.

The performance of the Reclamation District (RD) 784 levee on the Yuba River highlights the problems associated with these scenarios. This levee has never been overtopped; however, during the 1955 flood, the water surface level reached to within 0.5 feet of the top of the levee and the levee did not fail. Although not quite reaching the limit described by scenario (b), the water surface did exceed the levels specified by scenarios (c) and (d). These scenarios would have incorrectly assumed a levee failure and overestimated the beneficial effect of a levee failure to adjacent or downstream areas during the 1955 flood. During the 1986 flood, the maximum water level was approximately 4.5 feet below the top of the levee; however, the levee failed after the peak stage when the water level was approximately 6.6 feet below the top of the levee. All of the above scenarios would have assumed no levee failure. Because the levee failure occurred approximately 24 hours after the peak stage, the adjacent or downstream areas did not receive any benefit in peak stage reduction. During the 1997 flood, the maximum water level was 2.5 feet below the top of levee and the levee did not fail. Scenario (d) would have assumed a levee failure and would have overestimated the benefit a levee failure would have provided to the adjacent or downstream areas.

The only documented SRFCP levee overtopping that did not result in a levee failure occurred in 1995, when the Cache Creek levees were overtopped by approximately 0.1 to 0.2 feet and did not fail. An extensive flood fight was conducted by the California Department of Water Resources (DWR) forces to save the levee during this event. There were many instances in 1986 and 1997 when a levee did not fail even though scenarios (c) and (d), above, would have predicted failures. These locations were primarily along Feather River, American River, and Yolo Bypass areas in 1997, and Sacramento River, American River, and Yolo Bypass areas in 1986. Extensive flood fight activities took place during these floods. Flood flows were near or exceeded SRFCP design levels during these floods. It is interesting to note that current USACE design criteria would not find these areas to have "certifiable" levees.

In short, the historic record does not reveal a direct relationship between river stage and levee failure, particularly given the potential for flood fighting activities to influence this relationship. The state holds flood fighting schools annually before the start of the flood season. Participants at the training learn how to construct a temporary levee raise, provide protection to the levee from overtopping and wind and wave attack, and learn how to deal with underseepage (boils).

For purposes of evaluating the hydraulic effects of the NLIP, SAFCA employed levee failure scenario (a), because it is reasonable, practical, is easily understood, and because a sensitivity analysis indicated that the estimated hydraulic characteristics would be the same for each of the level failure scenarios analyzed. In addition, because the NLIP improvements are based on a levee design profile calculated assuming that SRFCP levees do not fail when overtopped, SAFCA added a "no levee failure" scenario to the modeling effort. In each case, the hydraulic modeling study assumed that all SRFCP levees in nonurban areas would be raised to their design heights (designated freeboard above the SRFCP design water surface profile) as part of the state's ongoing levee repair program. Several of these levees overtopped in the 100-year and "200-year" modeling runs. In scenario (d), it was assumed that this overtopping would result in a levee breach with water leaving the adjacent river channel through the breach. In the "no levee failure" scenario, the overtopped levee was assumed to act as a weir, allowing water to leave the adjacent river channel over the top of the levee without a breach occurring. None of the existing NLIP levees failed under either of these scenarios. Accordingly, in both cases it was determined that increasing the height of the NLIP levees would not increase the 1957 water surface profiles in any project reach and would not increase the 100-year or "200-year" water surface elevations in any urban areas upstream or downstream of the project study area.

2.2.5 The Approach Used in the NLIP Has Been Adopted by the State Legislature

In September 2007, the state legislature enacted the Central Valley Flood Protection Act of 2008 (Act), Water Code Section 9600 et seq., which was signed into law by the governor in October 2007. The Act is based on the following findings:

- The Central Valley of California is experiencing unprecedented development, resulting in the conversion of historically agricultural lands and communities to densely populated residential and urban centers.
- The legislature recognizes that by their nature, levees, which are earthen embankments typically founded on fluvial deposits, cannot offer complete protection from flooding, but can decrease its frequency.
- The legislature recognizes that the level of flood protection afforded rural and agricultural lands by the original flood control system would not be adequate to protect those lands if they are developed for urban uses, and that a dichotomous system of flood protection for urban and rural lands has developed through many years of practice.
- The legislature further recognizes that levees built to reclaim and protect agricultural land may be inadequate to protect urban development unless those levees are significantly improved.
- Cities and counties rely upon federal floodplain information when approving developments, but the information available is often out of date and the flood risk may be greater than that indicated using available federal information.
- The legislature recognizes that the current federal flood standard is not sufficient to protect urban and urbanizing areas within flood prone areas throughout the Central Valley.

(Statutes of 2007, Chapter 364, Section 9.)

Based on these findings, the Act embraces a new flood protection standard for urban areas (defined as "developed areas in which there are 10,000 residents or more") located in levee protected floodplains in the Central Valley. This new "urban level of flood protection" is defined as "the level of protection that is necessary to withstand flooding that has a 1-in-200 chance of occurring in any given year using criteria consistent with, or developed by, the Department of Water Resources." (Statutes of 2007, Chapter 364 [adding Water Code Section 9602(i)]).

Consistent with this new state standard, the legislature also approved "the project features necessary to provide a 200-year level of flood protection along the American and Sacramento Rivers and within the Natomas Basin as described in the final engineer's report dated April 19, 2007, adopted by the Sacramento Area Flood Control Agency." (Statutes of 2007, Chapter 641 [amending Water Code Section 12670.14(b)]) Moreover, in connection with this approval, the legislature adopted the following findings and declarations (Statutes of 2007, Chapter 641, Section 1[k]):

> As evidenced by the environmental impact reports certified in connection with these projects, including the hydrology and hydraulics impact analysis set forth in the environmental impact report prepared by the Sacramento Area Flood Control Agency with regard to local funding mechanisms for comprehensive flood control improvements for the Sacramento area dated February 2007, the increase in flood protection associated with improving the American and Sacramento River levees and modifying Folsom Dam will be accomplished without altering or otherwise impairing the design flows and water surface elevations prescribed as part of the Sacramento River Flood Control Project. Accordingly, these improvements will not result in significant adverse hydraulic impacts to the lands protected by the Sacramento River Flood Control Project. Thus, it is not necessary or appropriate to require these projects to include hydraulic mitigation.
>
> The projects authorized in Section 12670.14 of the Water Code will increase the ability of the existing flood control system in the lower Sacramento Valley to protect heavily urbanized areas within the City of Sacramento and the Counties of Sacramento and Sutter against very rare floods without altering the design flows and water surface elevations prescribed as part of the Sacramento River Flood Control Project or impairing the capacity of other segments of the Sacramento River Flood Control Project to contain these design flows and to maintain water surface elevations. Accordingly, the projects authorized in that section will not result in significant adverse hydraulic impacts to the lands protected by the Sacramento River Flood Control Project and neither the Reclamation Board nor any other state agency shall require the authorized projects to include hydraulic mitigation for these protected lands.

SAFCA's hydraulic impact analysis assumes that portions of the levees on the west side of the Sacramento River opposite the Natomas Basin will be raised to meet the minimum freeboard requirements of the SRFCP but not the more rigorous standard for urban development adopted by the state legislature. This assumption is consistent with the current agricultural zoning of the subbasin protected by these levees and with the standards adopted by the legislature in connection with the Central Valley Flood Protection Act, which tie the prospects for urban development in SRFCP subbasins to achievement of at least a "200-year" level of flood protection within the next two decades. (Statutes of 2008, Chapter 364, Sections 1–6.)

Efforts to meet this standard in existing urban and urbanizing SRFCP subbasins (Sacramento, including Natomas; West Sacramento, including Southport; Marysville, including Reclamation District 784 [Plumas Lakes]; and Yuba City, possibly including Live Oak) demonstrate the enormous cost and difficulty of this undertaking, even in areas that start with a substantial urban population. As a practical matter, it is not reasonably foreseeable that the subbasin across from Natomas, which has virtually no population base and a very large levee perimeter that would have to be upgraded, could meet this challenge. Accordingly, it is reasonable for SAFCA's hydraulic modeling evaluation to assume that the levees protecting this area will be raised to meet the minimum standards of the SRFCP but not the more demanding urban protection standard that has been adopted by the state legislature.

2.2.6 "200-YEAR" FLOOD CRITERIA AND FREEBOARD REQUIREMENTS

The design of the NLIP calls for the Natomas levees to be strengthened to minimize the risk of levee failure caused by the potential for through- and underseepage generated by the water surface elevations around the Natomas Basin that would result from a "200-year" flood event in the Sacramento-Feather and American River watersheds (assuming no levee failures across or upstream from the project area). Although this water surface elevation would be contained by the current perimeter levee system, the NLIP also calls for the levees to have 3 feet of freeboard above this design water surface elevation. This freeboard requirement originates in the regulations of the Federal Emergency Management Agency and the engineering practice of DWR, which has been mandated to develop design standards for providing a "200-year" level of flood protection for urban areas protected by levees in the Central Valley.

This freeboard requirement is intended to address hypothetical uncertainties in levee performance and hydrology and hydraulics. However, its more critical purpose is to address the potential for wind and wave run-up generated by conditions produced by the "200-year" design water surface elevations. An analysis prepared for SAFCA by Mead & Hunt indicates that under reasonably foreseeable wind conditions, this water surface elevation could generate waves up to 2.5 feet in height along the reach of the east levee of the Sacramento River extending from the mouth of the Natomas Cross Canal to Powerline Road. Without the freeboard called for in the NLIP design, these waves could overtop the levee and potentially cause its failure. Thus, the freeboard is needed to ensure safe containment of the "200-year" design flood.

Although it is conceivable that this freeboard could also serve to contain river flows in excess of the "200-year" design, the potential to experience sustained water surface elevations above this level is considered extremely unlikely, speculative at best, and not reasonably foreseeable. While the "200-year" design conservatively assumes no upstream levee failures, it is unreasonable to extend this "no levee failure" assumption to even more extreme flood events. If the upstream levees are assumed to fail in floods greater than the "200-year" event, then the "200-year" "no levee failure" elevation likely represents a worst-case scenario for the Sacramento River channel and the Natomas Cross Canal. For example, SAFCA's modeling shows that a "500-year" flood with upstream levee failures would produce water surface profiles in the Sacramento River channel that would be about 1 foot lower than the NLIP "200-year" design profile, and thus well within the current height of the levee, because the assumed failures allow flood waters to be stored in the upstream floodplains rather than having to be conveyed through the system during peak flow periods.

2.2.7 IMPACTS ON GARDEN HIGHWAY RESIDENCES

The discussion presented in Section 2.2.4 demonstrates that implementation of the NLIP would not cause the SRFCP operations to be altered, therefore, the principal risks of flood damage to existing Garden Highway residences would continue to be either inundation by the water surface elevations that are unchanged by the NLIP or damage by the wind and wave run-up generated during these water surface elevations. In either event, the risk of damage is the same under the "with" and "without" project conditions. Moreover, if under the "without" project conditions, these wind and wave conditions were to fail the Garden Highway levee, some waterside residences could be engulfed by the resulting levee breach, while the rest of these residences would become uninhabitable once the Natomas Basin became fully inundated. Given the severity of the storm that would be required to create these conditions, this inundation would likely last for several weeks, if not months. Interior roadways would be unusable and the landside of the Garden Highway would likely be destabilized by ponded water and wind and wave action. Portions of the roadway would slough away and the entire road would become impassable, leaving Garden Highway residents with no land-based access to their homes. These conditions would be alleviated by the project because the freeboard added to the Sacramento River east levee would prevent a potential wind- and wave-induced levee failure.

2.2.8 CONSIDERATION OF USE OF YOLO AND SACRAMENTO BYPASS SYSTEMS TO CONVEY FLOOD WATERS

SAFCA has given extensive consideration to the feasibility of improving flood water conveyance through the Yolo and Sacramento Bypass systems. In 2003, SAFCA made substantial investments in hydraulic studies and analyses of the improvements that would be required to move more flood water into and through the Yolo Bypass during large flood events in the Sacramento-Feather River watershed to reduce flows and water surface elevations in the Sacramento River channel downstream of the Fremont weir.

The Lower Sacramento River Regional Project Initial Report (SAFCA 2003) indicated that this could be accomplished by widening the Fremont weir, setting back the levees on the east side of the Yolo Bypass, discharging flows into the Sacramento Deep Water Ship Channel and eliminating low elevation levees at the lower end of the Yolo Bypass. However, these improvements would be extremely costly and time consuming to implement; they would occur entirely outside SAFCA's jurisdiction, and would require extraordinary cooperation among affected federal, state, and local interests; and they would not resolve the seepage problems affecting the Sacramento River east levee and the Natomas Cross Canal south levee. For these reasons, as explained in Section 7.1.2.3, "Alternatives Considered but Rejected from Further Consideration," of the DEIR on Local Funding Mechanisms for Comprehensive Flood Control Improvements for the Sacramento Area, SAFCA concluded that this alternative would not achieve the objectives of the NLIP and, therefore, it was not carried forward for further analysis. Nevertheless, regionally oriented improvements to the Yolo and Sacramento Bypass systems are of long-term interest to SAFCA, independent of the NLIP, and SAFCA fully intends to cooperate with any federal, state, or local initiative that has the potential to move such improvements forward.

2.3 MASTER RESPONSE 2: BIOLOGICAL RESOURCES AND HABITAT MITIGATION

Several commenters state that the DEIR does not provide sufficient detail regarding impacts to Swainson's hawks and giant garter snake (GGS) and mitigation for such impacts. This master response is intended to provide more detail of specific impacts and habitat creation and enhancement commitments related to these species for 2008 project activities. Project components to be implemented in 2009–2010 are addressed at a programmatic level in the DEIR, because sufficient detail is not available at this time to address them at a project level. However, the approach used here for 2008 will be repeated for 2009–2010 in subsequent project-level CEQA analyses.

2.3.1 GIANT GARTER SNAKE

In 2008, a total of 243.5 acres of potentially suitable habitat for giant garter snake (240 acres of rice, 1.5 acres of irrigation/drainage canal and ditch, and 2 acres of upland) is anticipated to be permanently lost as a result of project implementation. In addition, a total of 116 acres would be temporarily disturbed (40 acres of rice used for borrow and converted to managed marsh, 1 acre of canal, and 75 acres of upland). To compensate for the habitat effects in 2008, a total of 83 acres of habitat would be created (40 acres of managed marsh, 24 acres of irrigation/drainage canal, and 19 acres of upland adjacent to canals), and 160 acres of existing rice land would be preserved as indicated in Table 2-2.

Table 2-27 of the DEIR has been updated to reflect these acreages.

D2 Phase 3 FEIR Master Response: Sacramento River East Levee Prism and Master Response: 24/7 Cutoff Wall Construction

designed to be stable and resistant to erosion and extrusion into the sand and gravel layers adjacent to the cutoff wall. Therefore, no groundwater quality issues would be associated with construction of the cutoff walls.

2.2.2 MASTER RESPONSE: SACRAMENTO RIVER EAST LEVEE PRISM

Several comment letters stated that the Phase 3 DEIS/DEIR did not provide enough information to fully explain the levee prism concept, the adjacent setback levee footprint, and potential construction-related impacts to vegetation and improvements. SAFCA has prepared the following response regarding the levee prism.

Plate 4 shows a typical profile view of the existing levee along the east side of the Sacramento River in comparison to the adjacent setback levee proposed for the Phase 3 Project (Reaches 5A–9B). The prism for the existing levee consists of:

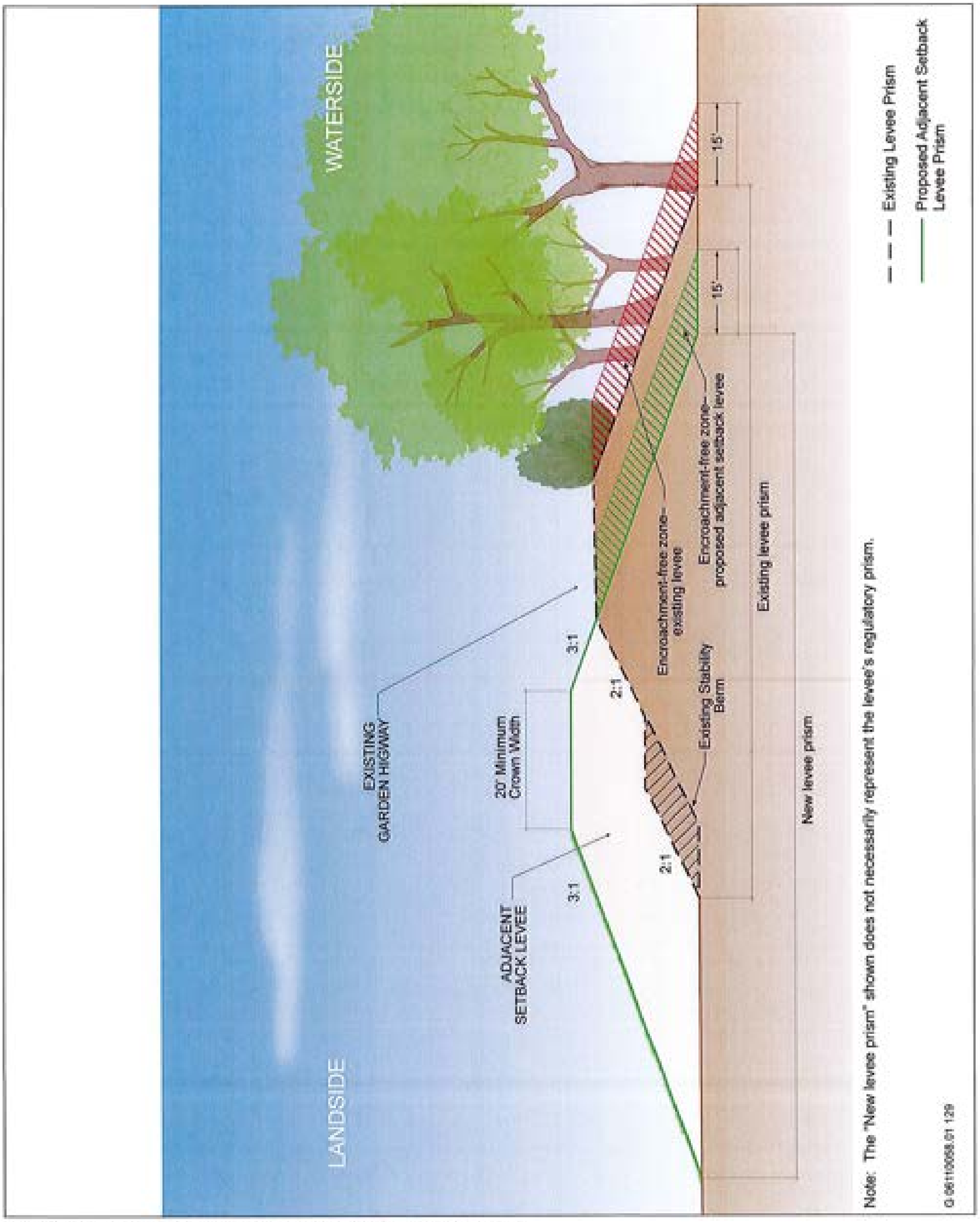
- the levee crown (a minimum of 20 feet wide), on which the Garden Highway currently sits;
- a landside levee slope, typically 2H:1V
- a landside stability berm; and
- a waterside slope that is defined by a projected 3H:1V slope from the waterside hinge point of the levee crown that may or may not be exposed depending upon natural ground surfaces and property improvements, such as construction fill for foundations and driveways.

The prism of the proposed adjacent setback levee would consist of:

- a minimum 20-foot crown,
- a 3H:1V landside slope from the hinge point of the levee crown,
- an exposed upper waterside slope from the hinge point of the adjacent levee crown to the landside of Garden Highway, and
- the continuation of a projected (non-exposed) minimum 3H:1V waterside slope through the existing levee to a point that would be set back a minimum of 15 feet from the existing waterside toe.

The setting back of the Sacramento River east levee under the Proposed Action would provide the USACE-required 15 feet of clearance of encroachments (including vegetation greater than 2 inches in diameter) from the theoretical waterside toe of the new adjacent setback levee. As shown on **Plate 4**, this approach would shift the encroachment-free zone landward, potentially reducing the extent to which USACE, the State, SAFCA, and RD 1000 would require the removal of existing encroachments to meet this requirement under the Levee Raise-in-Place Alternative. The impact of the removal of waterside vegetation greater than 2 inches that would potentially occur in the event of that the adjacent setback levee would not be constructed was analyzed in the Phase 3 DEIS/DEIR under Impact 4.8-a, "Loss of Woodland Habitats," under the Levee Raise-in-Place Alternative. This loss was estimated to be up to 22 acres for Reaches 5A–9B.

As described in Section 2.3.5, "Additional Actions to Meet FEMA, USACE, and State Design Requirements: Encroachment Management," of the Phase 3 DEIS/DEIR, the adjacent setback levee proposed as part of the Phase 3 Project would be designed to significantly reduce conflicts between waterside encroachments and applicable USACE levee operation and maintenance requirements. However, the full extent of this reduction cannot be known until the proposed levee improvements are completed, and USACE, the State, SAFCA, and RD 1000 have inspected and evaluated whether there are any encroachments that affect the integrity of the levee. Section 1.4.2.1,



Source: Adapted by EDAW in 2009 based on data provided by HDR in 2009

Levee Prism Concept for the Sacramento River East Levee **Plate 4**

"Encroachment," in the Phase 3 DEIS/DEIR has been revised to reflect the fact that removal of any encroachments that could be identified as threatening levee integrity would be subject to future environmental review. See Chapter 4.0, "Revisions to the DEIS/DEIR," of this FEIR for the text revision.

2.2.5 Master Response: 24/7 Cutoff Wall Construction

Numerous comment letters expressed concern about 24 hour-per-day, 7 days-per-week (24/7) construction activities associated with cutoff wall construction. Specifically, commenters requested a more detailed engineering explanation of why 24/7 cutoff wall construction work would be necessary, consideration of using multiple pieces of equipment at once to increase the productivity rate, resident relocation allowances, anticipated duration of potential relocation for residents within 500 feet of construction, and that SAFCA appears to be placing a higher priority on speed rather than environmental impacts. SAFCA has prepared the following response to these concerns.

Normal hours for construction would be from 6:00 a.m. to 8:00 p.m. as stated in the Phase 3 DEIS/DEIR. Installation of cutoff walls during night hours (from 8:00 p.m. to 6:00 a.m.) would be necessary to maintain the construction schedule and install a quality cutoff wall. The 24/7 construction is required due to regional and national demand for the long-stick excavators and deep soil mixing equipment that are needed for cutoff wall construction, the relatively short levee construction window (May 1 through November 1), the potential for wall imperfections that result from sand in the slurry trench settling to the bottom when work progress is interrupted, and the requirement that the cutoff wall be allowed to cure for at least 4 weeks before completing construction of the encapsulating adjacent levee.

It is anticipated that the 24/7 cutoff wall construction would occur Monday through Saturday, with Sunday reserved for equipment maintenance. However, if unanticipated events occur, cutoff wall construction could also be conducted on Sundays. Lights and power generators would be used during nighttime construction hours. Additional equipment would include cutoff wall rigs, excavators, generators, pumps, support vehicles, and other ancillary equipment. The cutoff wall would be installed in several headings. The number and locations of the headings would be dependent on the project schedule and contractor preference. Each cutoff wall rig would move continuously along the proposed alignment to ensure an uninterrupted cutoff wall and to reduce prolonged disturbance to adjacent residences. Each cutoff wall rig can move between 50 and 100 feet horizontally during a twelve-hour work shift.

As stated in the Phase 3 DEIS/DEIR, residents in or near the affected work area would be afforded the opportunity, at SAFCA's expense, to temporarily relocate to a nearby hotel for as long as the 24/7 schedule persists within 500 feet of their residence (see Mitigation Measure 4.14-a, "Implement Noise-Reducing Construction Practices, Prepare a Noise Control Plan, and Monitor and Record Construction Noise Near Sensitive Receptors"). The 500-foot distance was determined to be the distance at which models indicate that noise levels from cutoff wall construction equipment (deep soil mixing equipment or long-stick excavators) would be at or below 60 dBA L_{dn}, which is the standard for exterior night time noise levels established by Sacramento County and the City of Sacramento, as stated in Section 4.14, "Noise," of the Phase 3 DEIS/DEIR. Based on this distance of 500 feet from construction equipment, in the worst case, residents in the vicinity of cutoff wall construction could be affected by round-the-clock construction for approximately one week as the cutoff wall is installed along the levee.

The 500-foot distance is modeled based on the assumption that sensitive receptors are located in the line-of-sight from the noise source. Additional reductions in noise levels would come from natural sound barriers, such as existing levees or other structures, including dwellings. For example, cutoff walls along the Sacramento River east levee would be constructed on the land side of the levee at an elevation below the crown of the levee. Therefore, the existing levee would provide some shielding to residents on the water side of the Garden Highway, reducing exterior noise levels at 500 feet by an additional 10–12 dB below the predicted level of 60 dBA L_{dn}. This estimate is based on the assumption that cutoff wall construction equipment would generate noise at the level of 10 feet above ground surface, and the height of the existing levee is 25 feet above ground surface. Waterside residences would be out of the line-of-sight of this equipment.

Residences located adjacent to the NEMDC west levee, where cutoff wall construction would also be conducted as part of the Phase 3 Project, would not be shielded by the existing levee because construction would take place on top of the degraded levee. However, for residents not located immediately adjacent to the levee, intervening building façades and ground absorption would significantly reduce noise levels, and residents located at or beyond 500 feet from construction would likely experience noise levels below the exterior noise standard of 60 dBA L_{dn} due to these obstructions and the increasing distance from the noise source.

D3 Phase 3 FEIR: U.S. Environmental Protection Agency Letter and USACE/SAFCA Response

F2

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

April 3, 2009

Ms. Elizabeth Holland
Planning Division
Sacramento District
U.S. Army Corps of Engineers
1325 J Street
Sacramento, California 95814-2922

Subject: Draft Environmental Impact Statement (DEIS) for the Natomas Levee Improvement Program, Phase 3 Landside Improvements Project (CEQ# 20090040)

The U.S. Environmental Protection Agency (EPA) has reviewed the above-referenced document pursuant to the National Environmental Policy Act (NEPA), Council on Environmental Quality (CEQ) regulations (40 CFR Parts 1500-1508), and our NEPA review authority under Section 309 of the Clean Air Act.

EPA previously reviewed the DEIS and Final EIS (FEIS) for 408 Permission and 404 Permit to Sacramento Area Flood Control Agency (SAFCA) for the Phase 2 Landside Improvements Project and programmatic evaluation of the entire Natomas Levee Improvement Program (NLIP). We provided comments to the U.S. Army Corps of Engineers (Corps) on August 4, 2008 and December 11, 2008, expressing concerns because of our inability to determine whether or not the preferred alternative represents the Least Environmentally Damaging Practicable Alternative (LEDPA). We also expressed concern with the residual flood risk to development in a floodplain protected by levees, and the indirect and cumulative environmental effects of planned development facilitated by this levee project. F2-1

We continue to have concerns regarding the residual flood risk and the potential indirect and cumulative impacts of future development. We recommend implementation of the Natomas Basin flood safety plan (pps. 2-40 to 2-41) as soon as possible and prior to approval of additional development, so that new development does not compromise the flood-damage-and-risk-reduction achievements of this project. F2-2

While we commend efforts to avoid and fully compensate for the loss of riparian woodland, Giant garter snake habitat, wetlands, and Swainson's hawk habitat; we continue to have concerns with 371.48 acres of temporary effects and 36.75 acres of permanent effects on waters of the United States (US) for all four phases of the Natomas Levee Improvement Program (2008 – 2010) (p. ES-12, Phase 2 FEIS, November 2008). We recommend continued close consultation and collaboration with the U.S. Fish and F2-3

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Wildlife Service, California Department of Fish and Game, The Natomas Basin Conservancy, SAFCA, and Sacramento Area Council of Governments to ensure effects on woodlands, threatened and sensitive species habitat, and waters of the US are avoided and minimized. F2-3 Cont'd

Phases 1 to 4 of the Natomas Landside Improvement Project constitute an "early implementation project" to improve Natomas Basin perimeter levees to meet the 100-year flood protection design criteria adopted by the Federal Emergency Management Agency. The remaining segments of the perimeter levee system would be improved by the Corps to provide flood protection that would meet California standards for the "200-year" flood stage surface water elevation. The Corps plans to seek Congressional authorization for this additional work based on a General Re-evaluation Report for the American River Common Features Project to be presented to Congress in 2010 (p. ES-3). As a reasonably foreseeable future action, the Corps' proposed "200-year" levee improvement project should be included in the evaluation of cumulative effects in the FEIS for the NLIP Phase 3 Landside Improvements Project. F2-4

Based on the above concerns, we have rated this DEIS as Environmental Concerns – Insufficient Information (EC-2) (see enclosed "*Summary of Rating Definitions*"). We appreciate the opportunity to review this DEIS. When the FEIS is released for public review, please send one hard copy and a CD ROM to the address above (mail code: CED-2). If you have any questions, please contact me at (415) 972-3521, or contact Laura Fujii, the lead reviewer for this project. Laura can be reached at (415) 972-3852 or fujii.laura@epa.gov. F2-5

Sincerely,

Kathleen M. Goforth

Kathleen M. Goforth, Manager
Environmental Review Office
Communities and Ecosystems Division

Enclosures: Summary of Rating Definitions

cc: Ken Sanchez, U.S. Fish and Wildlife Service
Robert Solecki, Central Valley RWQCB
Jeff Drongesen, California Department of Fish and Game
John Bassett, Sacramento Area Flood Control Agency

2

U.S. Environmental Protection Agency Rating System for
Draft Environmental Impact Statements
Definitions and Follow-Up Action*

Environmental Impact of the Action

LO – Lack of Objections
The U.S. Environmental Protection Agency (EPA) review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

EC – Environmental Concerns
EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce these impacts.

EO – Environmental Objections
EPA review has identified significant environmental impacts that should be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no-action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

EU – Environmentally Unsatisfactory
EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potential unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the Council on Environmental Quality (CEQ).

Adequacy of the Impact Statement

Category 1 – Adequate
EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis of data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

Category 2 – Insufficient Information
The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses or discussion should be included in the final EIS.

Category 3 – Inadequate
EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the National Environmental Policy Act and or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

* From EPA Manual 1640 Policy and Procedures for the Review of Federal Actions Impacting the Environment. February, 1987.

F2-1 USACE and SAFCA received U.S. Environmental Protection Agency's (EPA's) referenced comment letters (dated August 4 and December 11, 2008) on the Phase 2 EIS. Responses were provided in the Phase 2 FEIS (USACE 2008) and Record of Decision (ROD) (USACE 2009), respectively, which are in the record and were considered by USACE and SAFCA in their decision-making on the Phase 2 Project; the content of the letters was also considered during preparation of this FEIR.

F2-2 Sacramento and Sutter County and the City of Sacramento have developed and are administering flood safety plans affecting the Natomas Basin within their respective jurisdictions. These plans will be updated as additional development in the Natomas Basin is approved.

Section 2.5.1, "Residual Risk of Flooding," in the Phase 3 DEIS/DEIR describes SAFCA's ongoing efforts to manage the residual risk of flooding in the Natomas Basin, which would remain even with achievement of a "200-year" level of flood risk reduction. As noted in Section 2.5.1, these efforts include providing the state with a safety plan (including a flood preparedness plan, levee patrol plan, flood-fight plan, and evacuation plan). Additionally, SAFCA has implemented a development impact fee program with the objective of avoiding any substantial increase in the expected damage due to an uncontrolled flood as new development proceeds in the floodplain. The revenue generated by the fee program will be used to implement flood risk reduction measures on an ongoing basis and to further reduce flood risk as new development occurs in the floodplain (see also Response to Comment L3-9).

F2-3 The Natomas Levee Improvement Program (NLIP) includes habitat conservation components as part of each project phase, as well as mitigation measures to avoid and minimize impacts to sensitive habitats and species. For example, Mitigation Measure 4.6-b, "Restore, Replace, or Rehabilitate Degraded SRA Habitat Function and Comply with Section 7 of the Federal Endangered Species Act, Section 1602 of the California Fish and Game Code, and Section 2081 of the California Endangered Species Act Permit Conditions," requires restoration, replacement or rehabilitation of degraded SRA habitat function and compliance with Section 7 of the Federal Endangered Species Act, Section 1602 of the California Fish and Game Code, and Section 2081 of the California Endangered Species Act Permit conditions; and Mitigation Measure 4.7-a, "Minimize Effects on Jurisdictional Waters of the United States, Complete Detailed Design of Habitat Creation Components and Secure Management Agreements to Ensure Compensation of Waters Filled, and Comply with Section 404, Section 401, Section 10, and Section 1602, Permit Processes," requires minimization of effects on jurisdictional Waters of the United States, completion of detailed design of habitat creation components and securing management agreements to ensure compensation of waters filled, and compliance with Section 404, Section 401, Section 10, and Section 1602, permit processes. SAFCA will continue to consult and collaborate closely with Federal, state, regional, and local agencies (including USACE, the U.S. Fish and Wildlife Service [USFWS], the California Department of Fish and Game [DFG], and The Natomas Basin Conservancy [TNBC]) on developing and implementing these measures. SAFCA is working closely with USACE on impacts to Waters of the United States for the NLIP through several NEPA documents covering Clean Water Act Section 404 approval, as well as several permit applications to fill Waters of the United States. SAFCA is also working closely with USFWS, the National Marine Fisheries Service (NMFS), DFG, and TNBC to ensure biological effects are avoided and/or minimized to the extent practicable.

Chapter 7.0, "Consultation and Coordination," of the Phase 3 DEIS/DEIR describes the consultation activities between USACE, SAFCA, USFWS, and DFG that have taken place in connection with the NLIP. Additionally, SAFCA has collaborated with TNBC on the planning, design, and long-term management of the NLIP's proposed habitat conservation components. This has involved multiple meetings and negotiations with the resource agencies and other Natomas Basin land managers such as Reclamation District (RD) 1000, and is ongoing. SAFCA has also coordinated with the Sacramento Area Council of Governments (SACOG), which endorsed SAFCA's White Paper in April 2006 (available on SAFCA's Web site at www.safca.org), to discuss the regional implications of providing improved flood damage reduction to the Natomas Basin. USACE and SAFCA will continue to work collaboratively with USFWS, DFG, TNBC, and SACOG.

F2-4 The Phase 1 Project, which was analyzed in the Local Funding EIR (SAFCA 2007a), has been constructed. The Phase 2, 3, and 4 Projects were fully analyzed in the Phase 2 EIR (SAFCA 2007b) and Phase 2 EIS (USACE 2008), and constitute the remainder of the NLIP Landside Improvements Project. This project-levee EIR is tiered from the above-mentioned documents and involves a portion of that bigger project. As described in Chapter 2.0, "Alternatives," in the Phase 3 DEIS/DEIR, where repairs are required in the Natomas Basin perimeter levee to address 100-year levee height deficiencies, SAFCA would repair the levee to meet the desired minimum of 3 feet of levee height above the "200-year" design water surface profile, thereby laying the groundwork for completion of "200-year" flood risk reduction over time. As part of the Phase 3 Project, the Sacramento River east levee improvements would be constructed with a levee crown at least 3 feet above the "200-year" design water surface profile. The existing height of the NEMDC west levee between Elkhorn Boulevard and Northgate Boulevard is anticipated to meet the "200-year" height requirement. Under SAFCA's approach, this would leave only a minor amount of work for USACE to complete the "200-year' improvements, primarily along the American River north levee and the NEMDC west levee between Elkhorn Boulevard and Sankey Road. These remaining repairs would make a minor contribution to the significant cumulative impacts that have been identified for the NLIP, as discussed in Chapter 5.0, "Cumulative and Growth-Inducing Impacts, and Other Statutory Requirements," in the Phase 3 DEIS/DEIR.

F2-5 Comment noted; a copy of the FEIR, and subsequently the FEIS to be prepared by USACE, will be provided to EPA as requested.

D4 Phase 3 FEIR: California Department of Fish and Game Letter and USACE/SAFCA Response

California Natural Resources Agency
ARNOLD SCHWARZENEGGER, Governor
DEPARTMENT OF FISH AND GAME
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April 9, 2009

John Bassett
Sacramento Area Flood Control Agency
1007 Seventh Street, 7th Floor
Sacramento, CA 95814

Subject: Comments on the Sacramento Area Flood Control Agency's February 2009, Draft Environmental Impact Report on the Natomas Levee Improvement Program Phase 3 Landside Improvement Project

Dear Mr. Bassett:

The California Department of Fish and Game (DFG) has reviewed the Sacramento Area Flood Control Agency's (SAFCA) February 2009, Draft Environmental Impact Report on the proposed Natomas Levee Improvement Program Phase 3 Landside Improvement Project (DEIR/EIS). As described in the DEIR/EIS, the project objectives include: 1) provide at least a 100-year level of flood protection to the Natomas Basin as quickly as possible, 2) provide "200-year" protection to the Natomas Basin over time, and 3) avoid any substantial increase in expected annual damages as new development occurs in the Basin. S5-1

The DFG is providing comments on the DEIR/EIS as a trustee agency and a responsible agency. As trustee for the State's fish and wildlife resources, the DFG has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and the habitat necessary for biologically sustainable populations of such species. In this capacity the DFG administers the California Endangered Species Act (CESA), the Native Plant Protection Act (NPPA), and other provisions of the California Fish and Game Code that afford protection to the State's fish and wildlife public trust resources. As a responsible agency the DFG will review a Lake and Stream Alteration Agreement notification package for components of the proposed project.

Enforceable Mitigation Measures

CEQA Guidelines §§15126.4 (a)(1)(B) states that formulation of mitigation measures should not be deferred until some future time. Table ES-2 lists a number of mitigation measures for fisheries and aquatic resources (i.e. mitigation measures 4.6a and 4.7a), terrestrial biological resources (i.e. mitigation measures 4.8a, 4.8b, 4.9a, 4.9c, and 4.9f) that rely on future approvals or agreements with the Wildlife Agencies. These entities are entrusted with carrying out the Natomas Basin Habitat Conservation Program's (NBHCP's) permit conditions, Natomas Basin Conservancy (NBC), and agencies entrusted with providing public safety (Federal Aviation Administration (FAA) approval over mitigation on proposed borrow site / Sacramento Airport buffer lands), as a means S5-2

Conserving California's Wildlife Since 1870 to bring identified significant environmental effects to below a level that is significant. As there is no guarantee that these approvals or cooperation with all of the above entities will ultimately occur, the DFG believes the above mitigation measures are potentially unenforceable and may not bring the impacts to fisheries and aquatic resources to below a level that is significant. S5-2 Cont'd

Mitigation measures should establish performance standards to evaluate the success of the proposed mitigation, provide a range of options to achieve the performance standards, and must commit the lead agency to successful completion of the mitigation. Mitigation measures should also describe when the mitigation measure will be implemented and explain why the measure is feasible. The DFG recommends the mitigation measures summarized in Table ES-2, include measures that are enforceable and do not defer mitigation details to some future time. The DEIR/EIS should identify the following items: how each measure will be carried out; who will perform the measures; when the measures will be performed; the performance standards and mechanisms for achieving success; and an assured source of funding to acquire and manage identified mitigation lands. The DEIR/EIS could describe a range of enforceable mitigation measures that will be implemented in instances where approval and cooperation with the entities identified above either does or does not occur. S5-3

<u>CESA</u>

As we have done for previous phases of this project, the Department anticipates issuing an Incidental Take Permit (ITP) for this phase under the provisions of the California Endangered Species Act. Issuance of an ITP is subject to CEQA documentation. Because of this, it is critical that the CEQA analysis and the identification of specific mitigation measures be as thorough as possible in the EIR in order for us to be able to rely on the existing environmental document when making our CEQA findings for the ITP. The DFG may only issue a CESA permit if it is determined that impacts associated with the authorized take of the species are minimized, fully mitigated, and that adequate funding has been ensured to implement the mitigation measures. The DFG may only issue a CESA permit if it determines that issuance of the permit will not jeopardize the continued existence of the species. This determination will be made based on the best scientific information available and shall include consideration of the species capability to survive and reproduce, including the species known population trends and known threats to the species. Issuance of a CESA permit may take up to 180 days from receipt of an application for take authorization. S5-4

<u>Potential Impacts to Special-Status Plant Species</u>

The DEIR/EIS states that three special-status plant species have the potential to occur within the project area, including Rose Mallow (*Hibiscus lasiocarpus*), Delta Tule Pea (*Lathyrus jepsonii* var. *jepsonii*), and Sanford's Arrowhead (*Sagittaria sanfordii*). The DEIR/EIS states: "no surveys have been conducted to confirm that the species in question are present in these habitats; however, surveys for special-status plants within the Phase 3 Project area will be conducted during the appropriate time for identification in 2009, before project construction". The DFG recommends focused rare-plant surveys be conducted at the appropriate time of year to identify any special-status plants which may be present within the project area. The results of these floristic S5-5 surveys need to be evaluated in the final EIR/EIS along with appropriate minimization and mitigation measures. Compliance with CEQA is predicated on a complete and accurate description of the existing site conditions that will be altered if the proposed project is approved. Without a complete and accurate description of the existing plant flora in and around the project site the DEIR/EIS likely provides an incomplete analysis of project-related environmental impacts. S5-5 Cont'd

Mitigation measure 4.9a of the DEIR/EIS states: "if special-status plants are present in areas that cannot be avoided... affected plants may potentially be transplanted to the GGS/Drainage Canal, if feasible". The DFG has found transplantation of herbaceous plants is typically unsuccessful and should be considered experimental. Mitigation measures for any potentially unavoidable impacts to special-status plants should include additional measures to increase the chances of survival for the population in question. If special-status plants cannot be avoided during project activities, seed should be collected and propagated at a DFG approved nursery facility in order to provide additional plantings at an approved mitigation site. Additionally, a mitigation plan approved by the DFG should be developed, which includes a planting plan, monitoring plan, success criteria, and a remediation plan in the event that success criteria are not met. These mitigation sites should be permanently protected and managed in perpetuity. S5-6

Impacts to Swainson's Hawk and Other Raptor Species

The DFG is concerned with potential impacts to raptor nesting behavior not currently addressed in the DEIR/DEIS. Page 2-25 of the DEIR/DEIS describes construction activities including the 24/7 construction of cutoff walls before the start of flood season (November 1), as well as an estimated 900-1,000 haul trips per day to deliver fill material to construct reaches 5A-9B of the Sacramento River east levee. The DFG believes that each of these activities could potentially result in significant impacts to nesting raptors including nest abandonment, starvation of young, and/or reduced health and vigor of eggs or nestlings that could result in death.

The final EIR/EIS should identify the potential impacts to nesting raptors associated with 24-hour construction schedules along riparian zones such as the Sacramento River, which contains a higher density of nesting raptors than elsewhere in the Natomas Basin. In its current form the DEIR/DEIS does not explore the potential impacts of nighttime construction activities on nesting raptors such as: high-intensity lighting, operation of heavy equipment or the presence of construction personnel at all hours of the night. Furthermore, construction at night poses additional complications for the effectiveness of biological monitors in ensuring that appropriate buffer zones are in place around active nests and that birds do not abandon their nest. The final EIR/EIS should include feasible mitigation measures that reduce these impacts to below a level of significance. S5-7

Mitigation measure 4.9f states: "surveys for nesting birds shall be conducted before project activities are initiated during the nesting season (March 1-July 31)". The DFG recommends that nesting bird surveys be conducted until September 15th, in accord with current DFG survey protocols for nesting birds. Additionally, mitigation measure 4.9f states: "the biologist shall conduct preconstruction surveys to identify active nests S5-8 within 0.25-mile of construction areas, in accordance with DFG guidelines". Current DFG guidelines require preconstruction surveys be conducted within 0.5-miles of construction areas, with a 0.25-mile construction buffer zone placed around any active nest that is identified. S5-8 Cont'd

Northern Harrier

The Northern Harrier (*Circus cyaneus*) (NOHA) is listed in California as a Species of Special Concern, and is protected from take by Fish and Game section 3503.5. The DEIR/EIS does not provide a discussion of potential impacts to these ground nesting raptors associated with construction and borrow site activities and does not consider avoidance or mitigation measures to avoid "take" or lessen potential impacts to below a level that is significant. The DFG recommends that the DEIR/EIS provide a discussion of the project's potential to impact NOHA, and include measures to avoid take of these birds, and their nests and eggs. S5-9

We appreciate your consideration of our comments. DFG personnel are available for consultation regarding biological resources and strategies to minimize impacts. If you have questions please contact Patrick Moeszinger, Environmental Scientist, at 916-358-2850 or Jeff Drongesen, Senior Environmental Scientist, at 916-358-2919.

Sincerely,

Kent Smith
Habitat Conservation Program Manager

cc: Patrick Moeszinger
Jeff Drongesen
Kent Smith
Department of Fish and Game
North Central Region

USFWS
2800 Cottage Way, W-2606
Sacramento, CA 95825

S5-1 Comment noted; DFG is providing comments as a trustee agency and responsible agency under CEQA.

S5-2 **Table 3-2** includes permits and other resource agency coordination activities for current and future NLIP project construction phases.

Table 3-2
NLIP Resource Agency Coordination

Agency	Regulatory Permit/Issue	Status
Programmatic		
USFWS/NMFS	Programmatic Biological Opinion	Issued October 2008
NMFS	Concurrence of Determination of Not Likely to Adversely Affect	January 2009
DFG, RWQCB, USACE, and USFWS	Long Term Management Plan Approval	Under Review
Phase 2 Project		
USACE	Section 408 Permission	Issued January 2009
USACE	Section 404 Permit	Issued January 2009
RWQCB	Section 401 Water Quality Certification	Issued January 2009
DFG	2081 Incidental-Take Authorization	Expected April 2009
DFG	1602 Streambed Alteration Agreement	Signed and issued January 2009
USFWS/NMFS	Biological Opinion	Issued October 9, 2008
Sacramento County	SMARA Exemption	February 2009
Sutter County	SMARA Exemption	February 2009
DFG, RWQCB, USACE, and USFWS	MMP	Under review
SWRCB	Section 402 NPDES Permit	Notice of Intent filed March 2009
Phase 3 Project[2]		
USACE	Section 408 Permission	Under review
USACE	Section 404 Permit	Under review
USACE	Section 10 Permit	Under review
RWQCB	Section 401 Water Quality Certification	In preparation
DFG	2081 Incidental Take Authorization	In preparation
DFG	1602 Streambed Alteration Agreement	In preparation
USFWS/NMFS	Biological Opinion	Biological Assessment under review

Table 3-2 NLIP Resource Agency Coordination		
Agency	Regulatory Permit/Issue	Status
Sacramento County	SMARA Exemption	In preparation
Sutter County	SMARA Exemption	In preparation
DFG, RWQCB, USACE, and USFWS	MMP	In preparation
SWRCB	Section 402 NPDES Permit	In preparation
Phase 4a Project		
USACE	Section 408 Permission	Anticipated January 2010
USACE	Section 404 Permit	Anticipated January 2010
USACE	Section 10 Permit	Anticipated January 2010
RWQCB	Section 401 Water Quality Certification	Anticipated January 2010
DFG	2081 Incidental Take Authorization	Anticipated January 2010
DFG	1602 Streambed Alteration Agreement	Anticipated January 2010
USFWS/NMFS	Biological Opinion	Anticipated November 2009
Sacramento County	SMARA Exemptions or Permit	In preparation
DFG, RWQCB, USACE, and USFWS	MMP	Anticipated January 2010
SWRCB	Section 402 NPDES Permit	Anticipated January 2010
Phase 4b and 4c Projects – Anticipated 2010-2012		

Notes: USFWS = U.S. Fish and Wildlife Service; NMFS = National Marine Fisheries Service; DFG = California Department of Fish and Game; RWQCB = Regional Water Quality Control Board; USACE = U.S. Army Corps of Engineers; SMARA = Surface Mining and Reclamation Act; MMP = Mitigation and Monitoring Plan; SWRCB = State Water Resources Control Board; NPDES = National Pollutant Discharge Elimination System

[1] Although Phase 1 Project permitting requirements were fulfilled, they are not included in this table because construction is complete.

[2] The Phase 3 Project permits have been separated into 3 subphases (a, b, and c); status listed in table refers to the Phase 3a permit.

Source: Data compiled by EDAW in 2009

It is common to receive permits from these agencies, in their capacities as responsible agencies, after an FEIR is certified. The BOs and incidental take permit, which will contain specific conditions to protect species at a higher performance standard than exists under CEQA ("take" versus no substantial effect), specify that implementation is the responsibility of SAFCA, and establish measurable parameters (performance standards) and actions that SAFCA will be required to implement if the parameters are not met. USFWS, NMFS, and DFG permits include specific and stringent performance standards. These agency documents are not studies, but permits with legally binding and enforceable terms and conditions. If SAFCA does not receive permits from these agencies, SAFCA simply cannot implement the Proposed Action. Permit terms in USFWS, NMFS, and DFG permits are enforceable and must be complied with by SAFCA. The established mitigation in the Phase 3 DEIS/DEIR does not constitute impermissible "deferred mitigation" and meets CEQA requirements for effective and legally adequate mitigation. The following discussion provides additional supportive information.

Impacts to wildlife habitat from project construction would be compensated for through a Natomas Basinwide habitat creation, enhancement, and preservation component as part of the NLIP (See Section 2.3.3, "Habitat Conservation Components," in the Phase 3 DEIS/DEIR). These components include creation and/or preservation of managed grasslands, aquatic habitat, uplands, woodlands, field crops, and rice that function as wildlife habitat. This conservation strategy is designed to offset impacts to habitat and to contribute towards long-term viability of the giant garter snake, valley elderberry longhorn beetle, Swainson's hawk, and other nesting raptors and songbirds. Therefore, these conservation components are not "mitigation measures;" rather, they are part of the Proposed Action. Nevertheless, these aspects of the Phase 3 Project will still meet the same requirements of enforceability and approval by permitting agencies as they would if they were mitigation measures. The conservation strategy was designed to meet all the requirements of mitigation specified in the State CEQA Guidelines.

As stated in State CEQA Guidelines (Section 15126.4[a][1][B]), "formulation of mitigation measures should not be deferred until some future time. However, measures may specify performance standards which would mitigate the significant effect of the project and which may be accomplished in more than one specified way." Hence, mitigation measures commonly are adopted in which the agency commits to achieving a performance standard and the mitigation measure lists options and alternatives for achieving the performance standard, some or all of which may be selected for implementation as part of a future, specific mitigation or management plan.

S5-3 Section 2.3.3, "Habitat Conservation Components," in the Phase 3 DEIS/DEIR includes performance criteria for assessing the success of conservation components along with how and when assessment monitoring would be carried out for aquatic habitat, rice and field crops, managed grasslands, and woodlands.

Further description of these conservation components and how they are expected to function can be found in Sections 4.8, "Vegetation and Wildlife," and 4.9, "Special-Status Terrestrial Species," in the Phase 3 DEIS/DEIR under the Proposed Action. Construction details for the proposed GGS/Drainage Canal can be found in Appendix H of the Phase 3 DEIS/DEIR along with dates for completion.

See also Section 2.3.3.6, "Long-Term Management of Habitat Components," in the Phase 3 DEIS/DEIR for a description of land protection and management mechanisms for long-term management of conservation components. Construction of conservation components and assessment monitoring will be carried out by SAFCA or its contractors.

The Draft NLIP Landside Improvements Project Programmatic Long-Term Management Plan (LTMP) and the NLIP Phase 3 Mitigation and Monitoring Plan (MMP) provide further details for ensuring that habitat improvement and compensation sites are managed, monitored, and maintained in perpetuity. The completion of these documents is expected by June 2009. Funding agreements for proposed parties responsible for management are detailed in the LTMP and MMP. Before project construction that could affect agency-regulated habitat can begin, permits must be issued by the applicable resource/regulatory agencies, and the LTMP and MMP documents are subject to their approval. Management responsibilities and protection obligations under these plans will be held by USFWS, DFG, SAFCA, TNBC, Sacramento County, Sacramento County Airport System (SCAS), the Natomas Central Mutual Water Company (NCMWC), and RD 1000.

S5-4 SAFCA acknowledges the Proposed Action could result in take of giant garter snake and Swainson's hawk, and that a California Endangered Species Act (CESA) 2081 Permit is required for these species. SAFCA will fully comply with the CESA permitting process, including necessary compensation/mitigation for impacts to state-listed species, funding for said compensation/mitigation, and the amount of time potentially required for issuing a permit.

S5-5 Mitigation Measure 4.9-a, "Conduct Focused Surveys for Special-Status Plants, Minimize Effects, and Develop Detailed Design of Created Habitat and Management Agreements to Ensure Compensation for Loss of Habitat, and Implement all Management Agreements," in the Phase 3 DEIS/DEIR includes conducting plant surveys at the appropriate time of year to identify any special-status species in the area, ensures no net loss of special-status species if they are found, and includes consultation with appropriate regulatory agencies including DFG. These surveys are planned for the appropriate blooming season in June/July 2009, which is after the FEIR is completed. DFG will be notified of all results of the special-status plant surveys when the surveys are conducted.

Preconstruction surveys must take place immediately prior to construction activities. When preconstruction surveys are coupled with specific actions to be taken if the species are found, and there are specific performance standards established, then the mitigation is adequate under CEQA.

S5-6 SAFCA understands that transplanting herbaceous plants can be unsuccessful. If surveys indicate that special-status plants would be lost as a result of project implementation, Mitigation Measure 4.9-a, "Conduct Focused Surveys for Special-Status Plants, Minimize Effects, and Develop Detailed Design of Created Habitat and Management Agreements to Ensure Compensation for Loss of Habitat, and Implement all Management Agreements," is revised to include the following: SAFCA commits to implement additional measures to increase the chance of success for establishment of special-status plant populations in created habitats, such as seed collection and propagation at a DFG-approved nursery to provide additional plantings and conducting transplantation during the dormant season, if feasible, to an approved site. SAFCA will develop a mitigation plan to be approved by DFG, and mitigation lands will be protected and managed in perpetuity, as recommended. See Chapter 4.0, "Revisions to the DEIS/DEIR," of this FEIR for the text revision.

S5-7 Mitigation Measure 4.9-f, "Minimize Potential Impacts on Swainson's Hawk and Other Special-Status Birds Foraging and Nesting Habitat, Monitor Active Nests during Construction, Develop and Implement a Management Plan in Consultation with DFG, Obtain Incidental Take Authorization, and Implement Mitigation Measure 4.8-a, [Minimize Effects on Woodland Habitat, Complete Detailed Design of Woodland Creation and Management Agreements to Ensure Compensation for Loss of Quantity and Quality of Habitat, Implement all Agreements, and Comply with the DFG Section 1602 Permit Process]," in the Phase 3 DEIS/DEIR is intended to (1) be encompassing enough to mitigate any and all construction activities, day or night, (2) provide for monitoring to identify any unanticipated nest disturbance, and (3) provide flexibility to determine an appropriate course of action in consultation with DFG if unanticipated effects occur. This measure addresses any impacts that may occur from 24/7 construction and haul trips.

S5-8 Mitigation Measure 4.9-f, "Minimize Potential Impacts on Swainson's Hawk and Other Special-Status Birds Foraging and Nesting Habitat, Monitor Active Nests during Construction, Develop and Implement a Management Plan in Consultation with DFG, Obtain Incidental Take Authorization, and Implement Mitigation Measure 4.8-a, [Minimize Effects on Woodland Habitat, Complete Detailed Design of Woodland Creation and Management Agreements to Ensure Compensation for Loss of Quantity and Quality of Habitat, Implement all Agreements, and Comply with the DFG Section 1602 Permit Process]," in the Phase 3 DEIS/DEIR has been revised to reflect these updates to DFG protocol for nesting raptors. See Chapter 4.0, "Revisions to the DEIS/DEIR," of this FEIR for the text revision.

S5-9 The northern harrier is discussed as a special-status species in Section 3.3.9.2, "Special-Status Wildlife Species," and in Table 3.9-2 in the Phase 3 DEIS/DEIR. Impacts 4.7-a, "Impacts on Jurisdictional Waters of the United States," and 4.9-f, "Impacts on Swainson's Hawk and Other Special-Status Birds," in the Phase 3 DEIS/DEIR describe and evaluate the Phase 3 Project's potential impacts to potential nesting habitat for Swainson's hawk and other special-status birds, including grasslands, croplands, and marsh. To provide additional clarification, northern harrier will be specifically identified in Impact 4.9-f as a special-status bird. See Chapter 4.0, "Revisions to the DEIS/DEIR," of this FEIR for the text revision.

Mitigation Measure 4.9-f, "Minimize Potential Impacts on Swainson's Hawk and Other Special-Status Birds Foraging and Nesting Habitat, Monitor Active Nests during Construction, Develop and Implement a Management Plan in Consultation with DFG, Obtain Incidental Take Authorization, and Implement Mitigation Measure 4.8-a, [Minimize Effects on Woodland Habitat, Complete Detailed Design of Woodland Creation and Management Agreements to Ensure Compensation for Loss of Quantity and Quality of Habitat, Implement all Agreements, and Comply with the DFG Section 1602 Permit Process]," provides measures that cover surveys and avoidance for all nesting special-status birds, including the northern harrier. Focused transect surveys will be used to survey for northern harrier nests. If an occupied nest is found, this measure requires developing an appropriate buffer that minimizes potential disturbance of the nest to be determined by the biologist and in coordination with DFG.

APPENDIX E

Correspondence between SAFCA and Javed Siddiqui:

Letter to Javed Siddiqui from SAFCA dated October 16, 2009 and

Letters to SAFCA from Javed Siddiqui dated June 16 and July 22, 2009

SAFCA
Sacramento
Area Flood
Control
Agency

October 16, 2009

Siddiqui Family Partnership
Attn: Javed Siddiqui
1808 J Street
Sacramento, CA 95811

Subject: Response to June 16 and July 22, 2009 Letters on the Natomas Levee Improvement Program

Dear Javed:

This letter is in response to your letters dated June 16, 2009 and July 22, 2009 requesting information on SAFCA's Natomas Levee Improvement Program (NLIP) along with a request for specific engineering data and analysis in the vicinity of your properties located along the Sacramento River east levee between Interstate 5 and Powerline Road (see enclosed Figure 1).

We appreciate your support for the project, as expressed in your letters, and your understanding that, as required by the State, SAFCA needs to design the project to meet engineering standards for the 200-year flood event.

Our engineering team has been collecting and analyzing geotechnical data along the Sacramento River east levee in the vicinity of your properties as part of the overall NLIP design effort and has developed a preliminary footprint for the project. Stein Buer, SAFCA's Executive Director, Tim Washburn, SAFCA's Director of Planning, and I have discussed this information with you during numerous telephone conversations and meetings, including those of May 13, 2008, June 18, 2009, June 25, 2009, and September 30, 2009.

We have also shared engineering data and analyses on a preliminary basis as the reports have been developed. This letter transmits this data to you, although some of it is still in draft form, so that you may conduct your own review and analysis of the information. We have previously provided to you three (3) boxes of engineering studies and analyses, the contents of which are listed in Table 1. Those reports define the deficiencies that must be corrected and the improvement alternatives evaluated as part of the design process. Our design consultants have previously transmitted to you several electronic files that provide the topographic and property boundary information SAFCA has developed for the area of the project along your properties. These maps are listed in Table 2.

Office 916-874-7606
FAX 916-874-8289

1007 - 7th Street, 7th Floor
Sacramento, CA 95814-3407

As discussed above, please note that many of these reports are still in draft form and have not yet undergone final review by the U.S. Army Corps of Engineers, the Central Valley Flood Protection Board and the State Department of Water Resources. The final reports, and recommendations for levee repairs, may change as a result of those reviews.

Also enclosed in this transmittal is a summary of the proposed flood control improvements affecting your properties along the Sacramento River east levee.

I am sending Mr. Mark Wasser, who has indicated he is representing you with regard to NLIP land acquisitions, a copy of this letter at his request. Please contact me at (916) 874-8731 or bassettj@saccounty.net if we can provide additional information or if you would like to discuss the reports or our responses.

Very truly yours,

SACRAMENTO AREA FLOOD CONTROL AGENCY

John A. Bassett
Director of Engineering
Design Construction Maintenance

Enc.

cc: Mark Wasser
Tim Washburn
M. Holly Gilchrist

Encl

Siddiqui Family Partnership	1808 J Street Sacramento, CA 95811 Tel: (916) 441-6708 Fax: (916) 441-5336

June 16, 2009

John Bassett, P.E.
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Fax: (916) 874-8289
Washburnt@saccounty.net

Dear John and Tim,

. Although SAFCA had issued a resolution of necessity on 3 of our parcels, we have not been provided the information supporting the resolution or the decision to place a seepage levee versus a slurry wall or the proposed design drawings. We are seeking the information to allow us an opportunity to understand and appreciate SAFCA's proposed design. I am requesting copies of engineering reports, engineering plans and all pertinent information developed or obtained by SAFCA on our property including the following items:

1. 100-yr and 200-yr water surface profiles with respect to top elevation of existing Garden Highway, starting from Interstate 5, south to Power Line Road.
2. A set of improvement plans including plan profile, of proposed levee, cross sections thru site and details.
3. Plans for maintaining access and utilities to the remainder property, (ie. Relocation of utilities, well, pumps, etc.)
4. All soil boring data used for design, (including copy of Geotechnical reports for the properties). We had previously requested deeper soil boring up to 200 depths at intervals required by Corp of Engineers along our frontage.
5. Topographic survey showing existing boundary, easements, road right-of-way, utilities, tree trunks, driplines and tree species.
6. Slope stability analysis for existing landside levee slope 2:1 versus proposed 3:1. Maximum permissible slope would be determined from analysis and depends upon material type, seepage, etc...
7. Seepage analysis to justify why a seepage berm is being used instead of a slurry wall previously suggested in the Levee Evaluation Report.
8. Unit cost of seepage berm levee vs. unit cost of a 70' deep slurry wall.
9. Cost benefit analysis. Cost evaluation and resulting savings from using seepage berms vs slurry wall.
10. Arborist Report.

Siddiqui Family Partnership	1808 J Street Sacramento, CA 95811 Tel: (916) 441-6708 Fax: (916) 441-5336

July 22, 2009

John Bassett, P.E.
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Washburnt@saccounty.net

Dear John and Tim:

I draw your attention to my letter to you dated June 16, 2009 (copy attached), and my email to you dated July 14, 2009.

I fully support SAFCA's effort related to flood protection for the Natomas Basin and am eager to learn the design details proposed for the levee Improvements adjacent to our property and also upstream and downstream from our property. I understand that the design has not been finalized yet and additional testing /analysis are being performed to determine the most suitable design; however it is my understanding that SAFCA is leaning towards a seepage berm alternative as opposed to a slurry cut off wall and /or relief wells. I wish to emphasize the importance of implementing a smart design in accordance with current industry standards and practices that adequately provides the safety to the desired 200-year level of flood protection currently being sought by FEMA and SAFCA. The preferred design method should be the one which has been previously implemented to strengthen the Sacramento levee systems and has proven to be successful under similar Geotechnical conditions. The design method should be in the best of public interest.

I am anxious to receive copies of SAFCA'S design assumptions, limitations, supporting calculations , analysis, and studies/reports developed to justify the seepage berm alternative versus slurry wall/cut-off wall and/or or relief wells alternative. I am requesting the following design documents. (Any documents that overlap the request of June 16th do not need to be duplicated if they have been furnished separately – no documents received to date):

1. Calculated factor of safety with respect to the embankment slope stability including global slope stability and supporting calculations for rationale and justification of preferred seepage berm versus slurry wall/cut-off wall and/or or relief wells alternative.

2. Calculated factor of safety against the risk of under-seepage exit gradient achieved at the levee toe and supporting calculations for rationale and justification of the proposed seepage berm versus slurry wall/cut off wall and/or relief wells alternative.

3. Calculated factor of safety for the landside slope stability including global slope stability and supporting calculations / analysis for proposed seepage berm versus slurry wall/cut off wall and/or relief wells alternative.

4. Analysis of seismic vulnerability of the levee system and calculated safety factors under various conditions including 200-year ground motions using typical summer and winter water surface elevations and supporting calculations that justify the preferred seepage berm versus slurry wall/cut off wall and/or relief wells alternative.

5. Analysis for erosion potential under various conditions and calculated factor of safety of the levee system including that from the expected 200-year water surface elevations and supporting calculations that justify the preferred seepage berm versus slurry wall/cut-off wall and/ or relief wells alternative.

6. Analysis for settlement potential under various conditions for the levee system and supporting calculations that justify the preferred seepage berm versus slurry wall/cut off wall and/ or relief wells alternative.

7. Along reaches other than that of our property where the soil characteristics are similar to those of our property and where land is not plentiful, what other equivalent smart engineering designs are being proposed for the strengthening /raising of the levee.

8. Recommended X-section details of the adjacent levee and how it is tied/keyed to the existing Garden Highway levee, with analysis to show that the Garden Highway levee is competent for the proposed use.

9. Risk-based geotechnical analysis method, if utilized, both for the 500 ft. berm as well as for the slurry wall/cut off wall and/or relief well alternative.

10. Number and location of soil borings at regular interval and their depths that were obtained to complete the final design for the proposed levee strengthening to satisfy the new standard operating procedure and Geotechnical levee practice guidelines for design.

11. Cost benefit analysis performed for the preferred alternative that includes consideration of the following factors:

    a. The long term loss of tax base to the County resulting from taking approximately 500 feet strip of land.

    b. The loss of income from the yearly assessments collected by Reclamation District 1000 from the 500' strip of land.

    c. The increased expenditure for yearly maintenance from the taking of approximately 500' strip.

    d. The reduction in the yearly assessment income to SAFCA assessments from losing of the approximate 500' strip of land from the assessment roll.

    e. Loss of potential income to the property owners which would be derived from the long term development potential of the strip which will never be developed.

    f. Loss of the beautiful and healthy Oak trees, heritage trees, habitat and other cultural resources within the footprint of the approximately 500' strip and how will this be adequately mitigated.

    g. The additional cost of replacing what will be lost and destroyed forever by the enlarged footprint of the proposed levee and where will this money come from in perpetuity.

It is my understanding that the information requested was planned to be generated as a part of the decision making process to substantiate seepage berm design method.

I am seeking the basis and justification of the adjacent levee/ seepage berm versus the levee raise and slurry wall treatment recommended in the Natomas Levee Evaluation Study dated July 14, 2006.

Please let me know the date when the above requested information is to be made available.

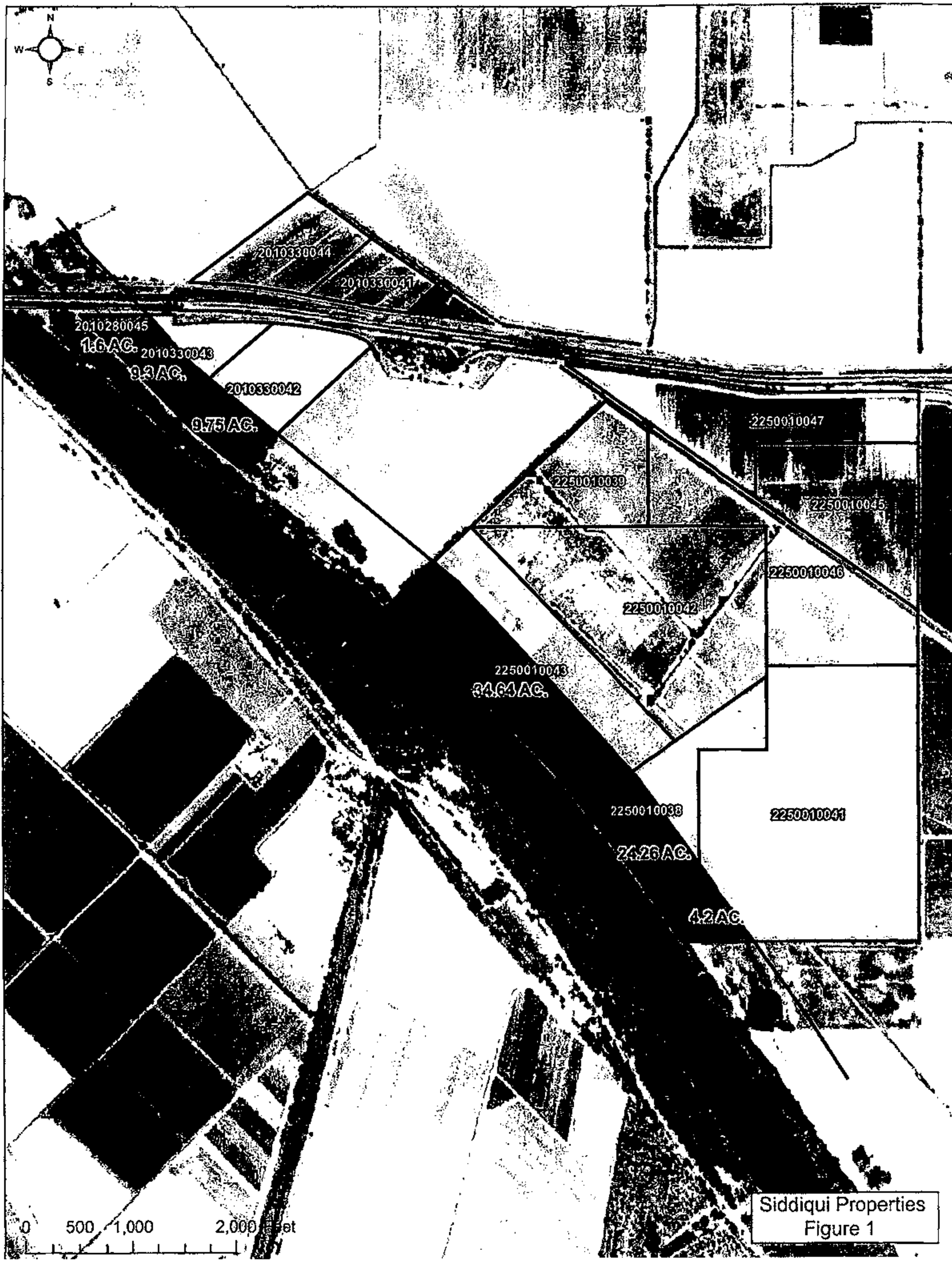
Thank You,

Very Truly Yours,

Javed T Siddiqui

Javed T. Siddiqui, P.E.
SIDDIQUI FAMILY PARTNERSHIP

Encl.



Siddiqui Properties
Figure 1

Table 1

Natomas Levee Improvement Program
Siddiqui Family Partnership
Kleinfelder Documents Requested / Furnished

September 21, 2009

Item	Kleinfelder Document	Date Furnished	Progress of Reports for SFP
SFP Letter Dated 6-16-09			
1 thru 3	n/a		
4	SR2 Draft GDR - 2-18-09	08/07/09	
4	SR2 Supplemental Draft GDR - 7-8-09	08/07/09	
4	SR3 Draft GDR		Document scheduled to publish 9-28-09
5	n/a		
6	SR2 Revised Draft AA - 7-8-09	08/07/09	
6	SR3 Draft AA	09/02/09	
7	SR2 Draft BOD		Approximate publish date 10-30-09
7	SR3 Draft BOD		Approximate publish date 10-30-09
8 thru 11	n/a		
12	SR2 Revised Draft AA - 7-8-09	08/07/09	
12	SR3 Draft AA	09/02/09	
SFP Letter Dated 7-22-09			
1, 2, 3, 4, 5	SR2 Revised Draft AA - 7-8-09	08/07/09	
1, 3, 4, 5, 5	SR3 Draft AA	09/02/09	
6	SR2 Draft BOD		Approximate publish date 10-30-09
6	SR3 Draft BOD		Approximate publish date 10-30-09
7 thru 9	n/a		
10	SR2 Draft GDR - 2-18-09	08/07/09	
10	SR2 Supplemental Draft GDR - 7-8-09	08/07/09	
10	SR3 Draft GDR		Document scheduled to publish 9-28-09
11 a thru g	n/a		

Table 2

Topographic and Property Boundary Data Provided by Psomas

Item	Description of Data	Date Sent	Format
1	Preliminary Topographic Mapping	9/16/2008	AutoCad
2	Topographic Mapping Without Existing Easements	6/15/2009	AutoCad
3	Topographic Mapping With Existing Easements	7/27/2009	AutoCad

Summary of Design Analyses
Sacramento River East Levee Reach 9B and Reach 10
(Siddiqui Properties)

The following information summarizes SAFCA's Natomas Levee Improvement Program (NLIP) improvements along the Sacramento River east levee (SREL) and presents specific engineering data and analyses regarding the design of the NLIP improvements in the vicinity of the Siddiqui properties along the SREL between Interstate 5 and Powerline Road (see Figure 1).

As shown in Figure 1, the northern Siddiqui property along the SREL consists of Sacramento County Assessor's Parcel Numbers (APNs) 201-0280-045, 201-0330-042 and -043. The southern Siddiqui property consists of Sacramento County APNs 225-0010-038, -039, -041, -042, -043, -045, -046, and -047.

For the northern Siddiqui properties in SREL Reach 9B, the preliminary design of the project includes an adjacent levee with a cutoff wall along parcel 045 and transitions into a 300 foot-wide seepage berm along parcels 043 and 042. The reason for the transition from a cutoff wall to the seepage berm is that the required depth for a cutoff wall increases from about 78 feet (near I-5) to a minimum of 120 feet through the southern end of these parcels. The cost of a cutoff wall significantly increases for wall depths greater than 80 feet and becomes cost prohibitive for walls deeper than 120 feet. In addition to the footprint for the project features, the project will include a 50 foot-wide operation and maintenance corridor and a 20 foot-wide utility corridor. Figure 2 is a plan view showing the project footprint in this reach. Figure 3 shows cross sections of this reach with both the cutoff wall and seepage berm configurations. As an alternative to the 300 foot-wide berm, SAFCA also investigated a 100 foot-wide seepage berm with pressure relief wells along the toe of the berm. Figure 4 shows a plan view and cross section of this configuration. However, SAFCA concluded that the operation, maintenance and drainage considerations associated with pressure relief wells makes this configuration undesirable.

For the southern Siddiqui properties in SREL Reach 10, where the levee improvement project will primarily impact APNs 225-0010-043, 225-0010-038 and 225-0010-041, the preliminary design of the project includes an adjacent levee with a 300 foot-wide seepage berm, as measured from the landside toe of the adjacent levee. A cutoff wall for this reach was determined to be infeasible because the depth would be a minimum of 115 feet and could extend to 125 feet or more in depth. The levee in this reach has also been identified as being vulnerable to seismic failure. In levee reaches that are vulnerable to seismic failure, a seepage berm is the preferred solution because it helps to buttress the levee and is functionally less sensitive to ground movement. In addition to the footprint for the project features, the project will include a 50 foot-wide operation and maintenance corridor and a 20 foot-wide utility corridor. Figure 5 is a plan view showing the project footprint in this reach. Figure 6 includes a cross section for the seepage berm in this reach.

An option to the adjacent levee raise in Reach 9B and Reach 10 is a fix-in-place levee raise where the necessary levee height is met through raising the existing levee embankment to the necessary elevations. The same seepage remediation options were evaluated with the raise-in-place alternative as were discussed for the adjacent levee option. Figures 7 and 8 show plan views of the raise-in-place alternatives for Reaches 9B and 10, respectively. Figure 9 shows typical cross sections of the raise-in-place alternative with seepage berms and cutoff walls for Reach 9B. Reach 10 would include similar seepage control measures as discussed above, i.e. the 300 foot-wide seepage berm.

Attached to this summary are copies of the engineering reports that define the SREL deficiencies that must be corrected and the improvement alternatives that were evaluated as part of the design process. These reports are listed in Table 1. Table 1 includes a column that references the data request list included in the attached July 22, 2009 letter to SAFCA. Our design consultants have previously transmitted several electronic files that provided maps of the topographic and property boundary information SAFCA has developed for the area of the project affecting the Siddiqui properties. These maps are listed in Table 2. As discussed above, please note that many of these reports are still in draft form and have not yet undergone final review by the U.S. Army Corps of Engineers, the Central Valley Flood Protection Board and the State Department of Water Resources. The final reports, and recommendations for levee repairs, may change as a result of those reviews.

In addition to the design information, the attached July 22, 2009 letter to SAFCA requested copies of any cost-benefit analyses that have been performed for a variety of items, which are listed and discussed below. Please note that the discussions are based on a hypothetical 500 foot-wide strip of land that may need to be acquired for construction, operation and maintenance of the NLIP. The actual acquisition area is still being determined.

a. The long term loss of tax base to the County resulting from the acquisition of an approximately 500 foot strip of land.

    Response – The existing land and structures on the northern and southern Siddiqui properties generated approximately $9,709 in County of Sacramento property taxes and direct levies from SCWA 13 and CSA 1 Lights for the 2008-2009 tax year. Assuming that the structures within a 500 foot wide strip along the levee are removed, and reducing the assessed acreage from 266 acres to approximately 182 acres (a reduction of 84 acres), it is estimated that the new annual County property taxes and direct levies from SCWA 13 and CSA 1 Lights would be $6,723. Assuming that no replacement structures are rebuilt on the remainder of the properties, this would result in a reduction of $2,985.

b. The loss of income from the yearly maintenance assessments collected by RD 1000 from the 500 foot strip of land.

    Response – The existing RD 1000 assessments for the northern and southern Siddiqui properties are based on RD 1000 agricultural parcel rates and the acreages of the parcels. The 2008-2009 assessments for the properties total $4,584. Reducing the acreage by the 84 acres within the 500 foot strip would result in a new estimated RD 1000 assessment of $3,142 for the remainder parcels. How much of this would result in a reduction to RD 1000 assessment revenue depends on who will own the fee title interest in the property. If the land were owned by RD 1000, they would not assess themselves. If the land were owned by SAFCA, per §51200 of the Water Code, the land would continue to be subject to an RD 1000 assessment.

c. The increased expenditure for yearly maintenance from the acquisition of the 500 foot strip of land.

   Response – Within the area of the 500 foot strip portion of your properties, RD 1000 already maintains an approximately 30 foot wide strip of land along the landside slope and maintenance area of the levee, totaling approximately 15 acres. The construction of the raised adjacent levee and seepage berm would add approximately 68 acres to the area of the RD 1000 maintenance activities. SAFCA is working with RD 1000 to determine the additional cost to maintain the NLIP improvements. Once these costs are determined, SAFCA will enter into an agreement with RD 1000 to reimburse them for the additional costs.

   The cost to maintain the project features will be funded through a combination of the RD 1000 and SAFCA assessment districts.

d. The reduction in the annual assessment revenue to SAFCA from the loss of the 500 foot strip of land as assessable property.

   Response – The existing land and structures on the properties generated approximately $756 in SAFCA Operations and Maintenance District assessments and $2,062 in Consolidated Capital Assessment District (CCAD) assessments for the FY 2008-2009 tax year. Assuming that the structures within a 500 foot-wide strip along the levee are removed, and reducing the assessed acreage by approximately 84 acres within the 500 foot-wide strip, we estimate that the reduction in annual assessment revenue to SAFCA for the O&M District would be $238 and the CCAD would be $1,739.

e. The loss of potential income to property owners which would be derived from the long term development potential of the 500 foot strip of land that will never be developed.

   Response – State and Federal laws govern the appraisal and property acquisition process that SAFCA must follow. The appraisal of your properties will take into consideration the factors allowed under State and Federal law, including highest and best use of the property. The real estate appraiser will establish the fair market value of the acquisition area. The future income inherent in a property is a component of the fair market value of the property. To establish the fair market value, the appraiser will review the existing land use, zoning, and general plans and correlate them to your parcel. The appraiser will also review the Sacramento Area Council of Governments "Blueprint", the Natomas Joint Vision planning documents, the Natomas Basin Habitat Conservation Plan. Finally, the appraiser will review the market to determine whether there are similar properties that recently sold and what effect they may have on the valuation of your property.

f. The loss of oak trees, heritage trees, habitat and other cultural resources within the footprint of the 500 foot strip and how this will be adequately mitigated.

Response – For your properties in Sacramento River East Levee Reach 9B, the impacts on these resources were evaluated as part of the NLIP Phase 3 EIS/EIR. For your properties in SREL Reach 10, the impacts on these resources are evaluated in the NLIP Phase 4a draft EIS/EIR. Any loss of habitat will be mitigated pursuant to those documents.

g. The additional cost of replacing the improvements that will be lost by the enlarged footprint of the proposed levee and the source of this funding.

Response – In the area of the Sacramento River east levee along your properties, four basic project alternatives were considered including: 1) raise levee in place with cutoff wall; 2) raise levee in place with seepage berm; 3) construct raised adjacent levee with cutoff wall; and 4) construct raised adjacent levee with seepage berm. Figures 7, 8 and 9 show the project footprints for the first and second alternatives. Figures 2, 3, 5 and 6 show the project footprints for the third and fourth alternatives.

As shown in Figure 9, Alternative 1, the raise-levee-in-place-with-cutoff-wall alternative, would result in a levee footprint approximately 127 feet wide as measured from the centerline of Garden Highway. The raise-levee-in-place-with-cutoff-wall alternative was not preferred because of the significant impacts of closing the Garden Highway and because of the significant amount of waterside vegetation and encroachments that would need to be removed to comply with the USACE's new ETL on levee vegetation. In addition, the cutoff wall was determined to be infeasible due to high cost and the seismic vulnerability of this reach.

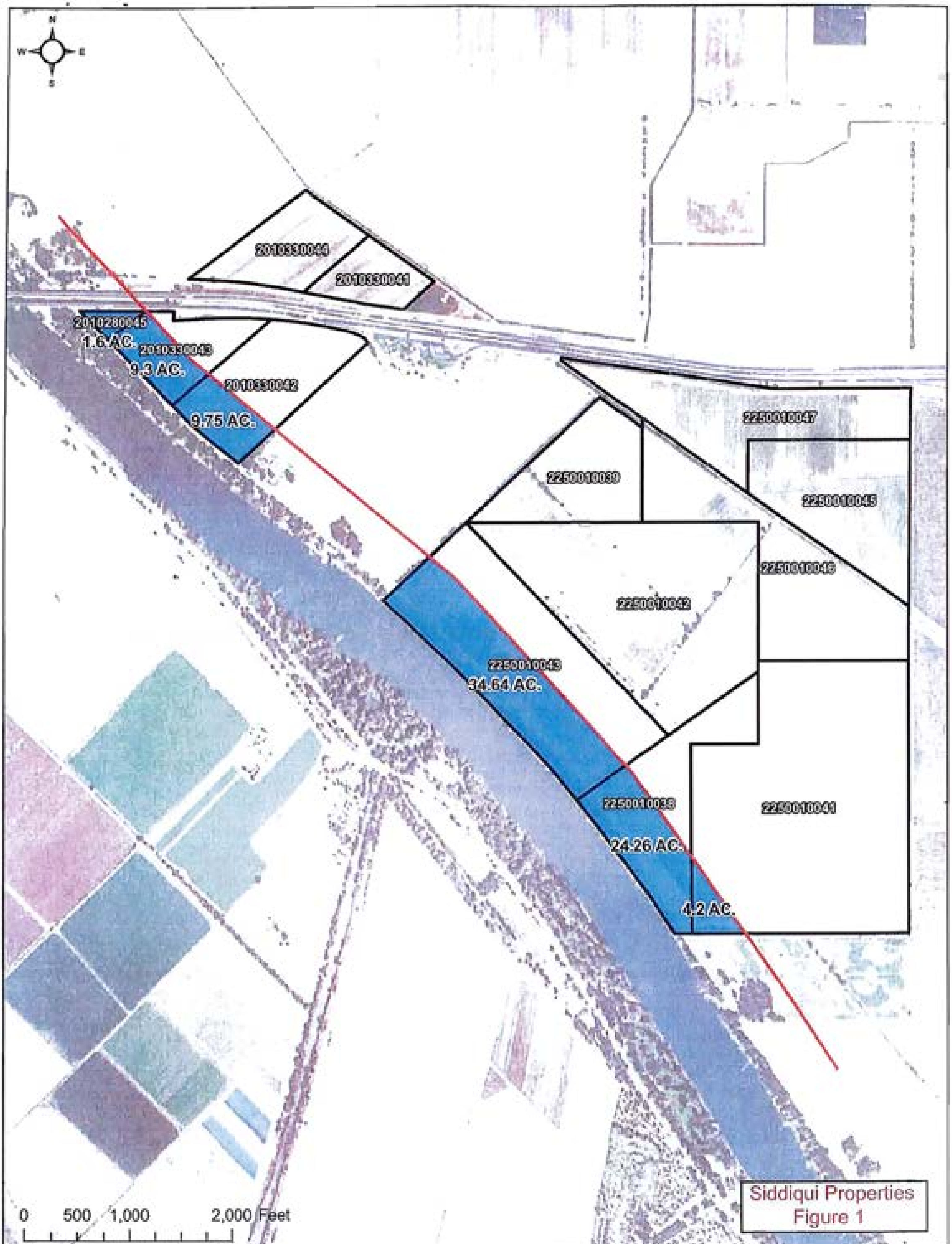
As is also shown in Figure 9, Alternative 2, the raise-levee-in-place-with-seepage-berm alternative, would result in a levee footprint approximately 415 feet wide as measured from the centerline of Garden Highway. The raise-levee-in-place-with-seepage-berm alternative was not preferred because of the significant impacts of closing the Garden Highway and because of the significant amount of waterside vegetation and encroachments that would need to be removed to comply with the USACE's new ETL. The seismic vulnerability of a raised levee so near the river channel also influenced this analysis.

As shown in Figure 3, Alternative 3, the raised-adjacent-levee-with-cutoff-wall alternative, would result in a levee footprint approximately 126 feet wide as measured from the centerline of Garden Highway. The raised-adjacent-levee-with-cutoff-wall alternative was not preferred because the cutoff wall was determined to be infeasible due to high cost and the seismic vulnerability of this reach.

As is also shown in Figure 9, Alternative 4, the raised-adjacent-levee-with-seepage-berm alternative, would result in a levee footprint approximately 415 feet wide as measured from the centerline of Garden Highway. The raised-adjacent-levee-with-seepage-berm alternative is the preferred alternative because the adjacent levee reduces the need for removal of waterside vegetation and the seepage berm is stable under seismic acceleration.

A comparison of the acquisition limits shows that a range of 127 to 415 feet is needed to accommodate the raise-levee-in-place alternatives and that a range of 126 to 414 feet is needed to accommodate the raised-adjacent-levee alternatives. The raise-levee-in-place alternatives require a wider footprint because it is assumed that if significant lengths of the Garden Highway were to be raised and reconstructed, the new road section would be built to current standards which would require two 12 foot-wide travel lanes, 5 foot-wide paved shoulders, and 3 foot-wide aggregate base backing strips. The comparison demonstrates that the preferred alternative does not result in a wider levee footprint.

In answer to the last part of the question, funding for the NLIP will come from SAFCA's Consolidated Capital Assessment District approved by the assessees in April 2007 and State funds provided by Proposition 1E passed by the voters in November 2006.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Siddiqui Properties
Figure 1

NOTE 1: THE DESIGN AT THIS AREA IS BEING COORDINATED WITH CALTRANS. THE LEVEE LOCATION AND PROJECT LIMITS MAY CHANGE BASED ON FEEDBACK FROM CALTRANS.

PLAN VIEW

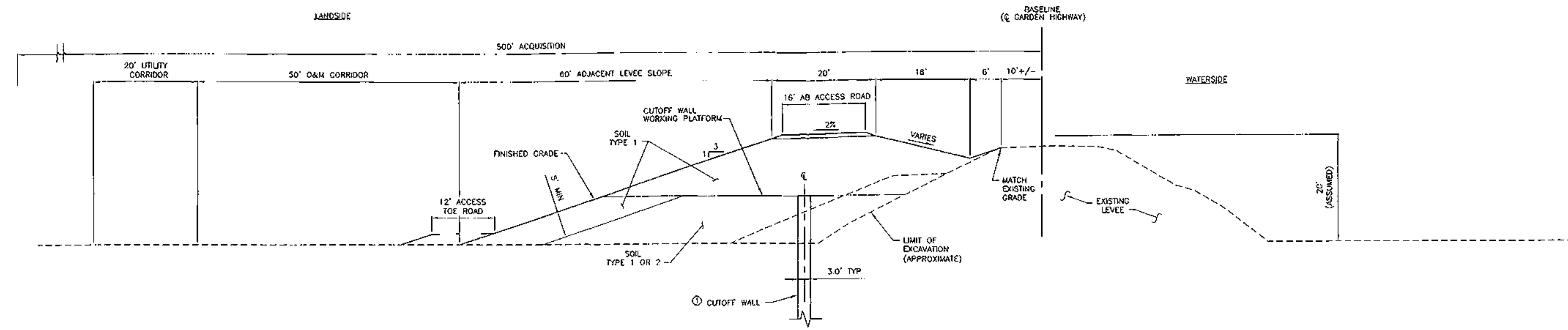
SCALE: 1" = 100'

HDR

SACRAMENTO AREA FLOOD CONTROL AGENCY
NATOMAS LEVEE IMPROVEMENT PROGRAM

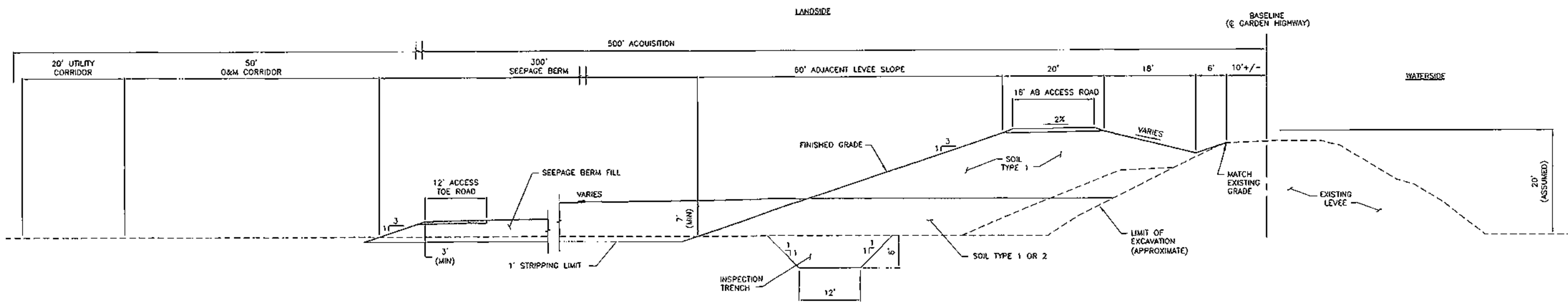
PROPOSED DESIGN REACH 9B
PLAN VIEW

FIGURE 2



ADJACENT LEVEE RAISE WITH CUTOFF WALL, TYP

N.T.S.



ADJACENT LEVEE RAISE WITH 300' SEEPAGE BERM, TYP

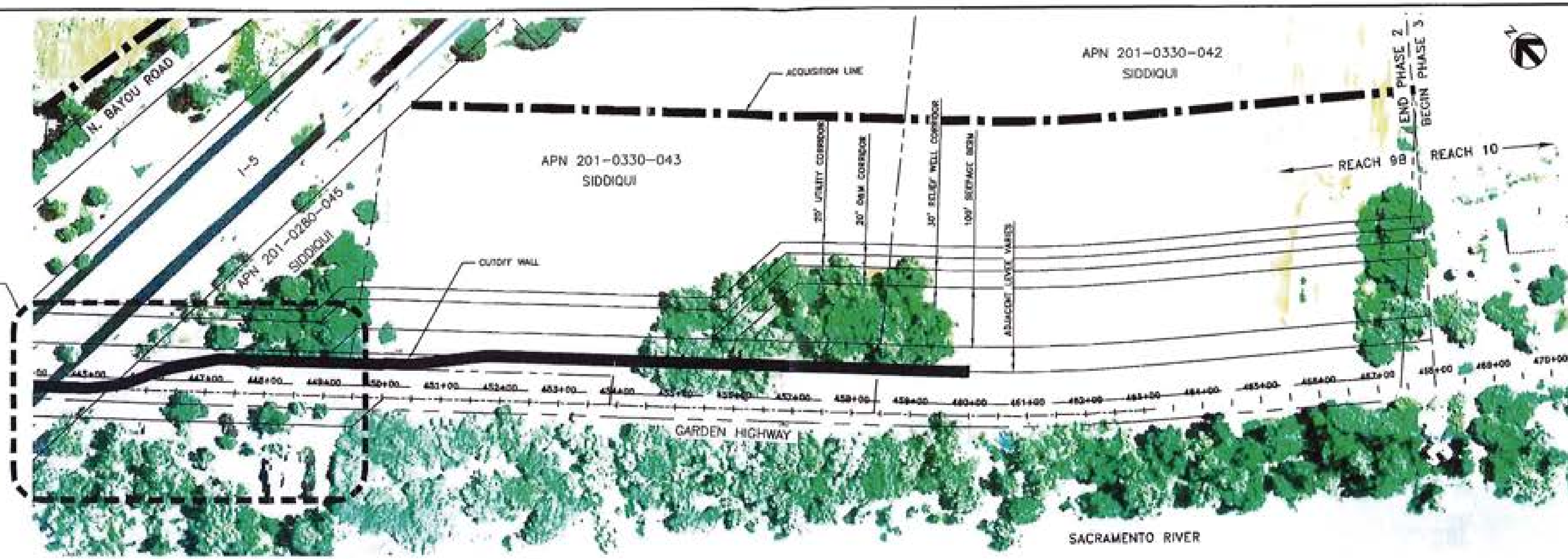
N.T.S.

HDR

SACRAMENTO AREA FLOOD CONTROL AGENCY
NATOMAS LEVEE IMPROVEMENT PROGRAM

PROPOSED DESIGN REACH 9B
TYPICAL CROSS SECTIONS

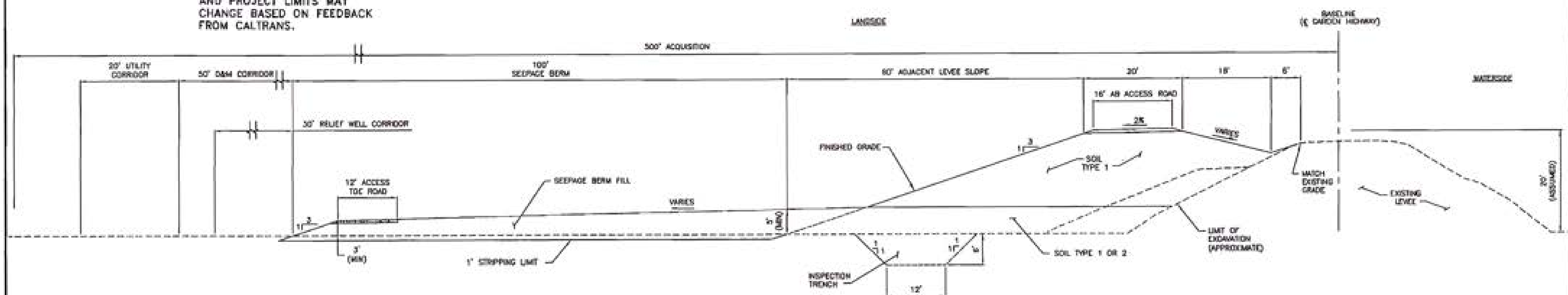
FIGURE
3



NOTE 1: THE DESIGN AT THIS AREA IS BEING COORDINATED WITH CALTRANS. THE LEVEE LOCATION AND PROJECT LIMITS MAY CHANGE BASED ON FEEDBACK FROM CALTRANS.

PLAN VIEW

SCALE: 1" = 100'



ADJACENT LEVEE RAISE WITH 100' SEEPAGE BERM AND RELIEF WELLS, TYP

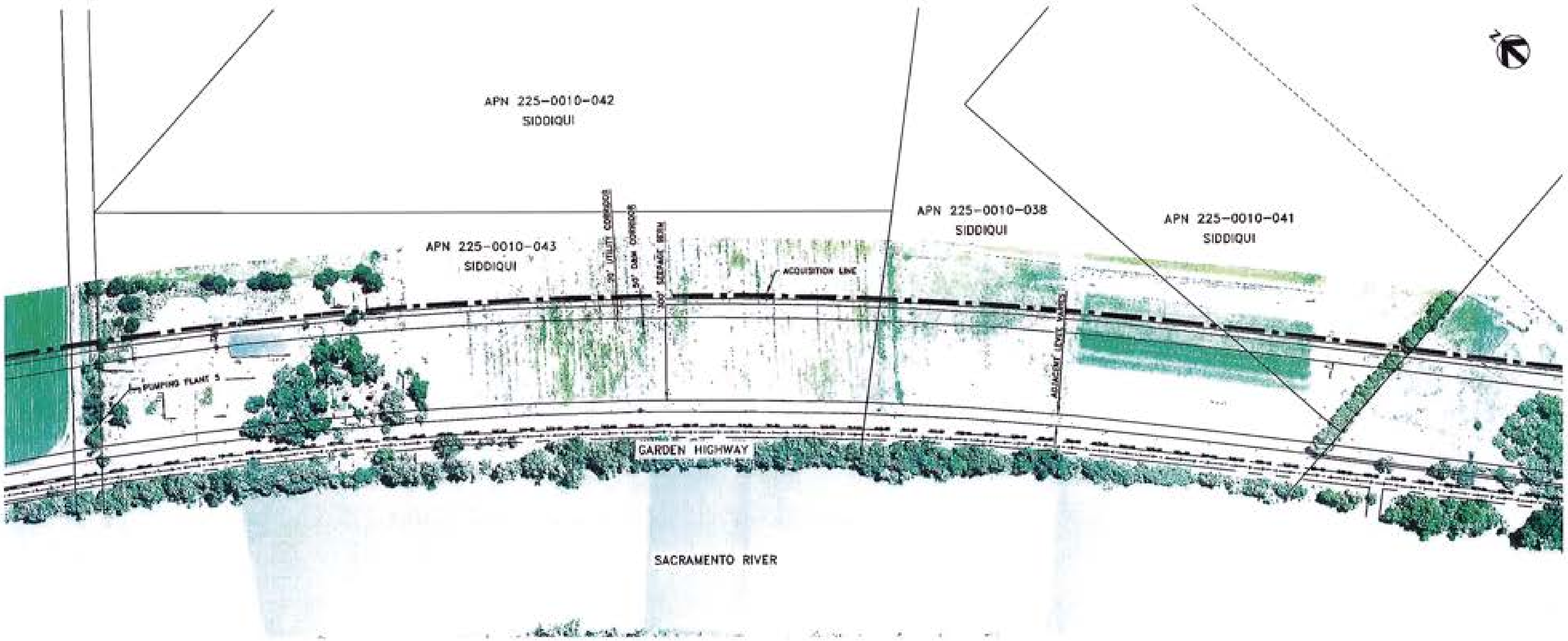
N.T.S.

HDR

SACRAMENTO AREA FLOOD CONTROL AGENCY
NATOMAS LEVEE IMPROVEMENT PROGRAM

ALTERNATIVE DESIGN REACH 9B
PLAN VIEW WITH TYPICAL CROSS SECTION

FIGURE 4



PLAN VIEW
SCALE: 1" = 200'

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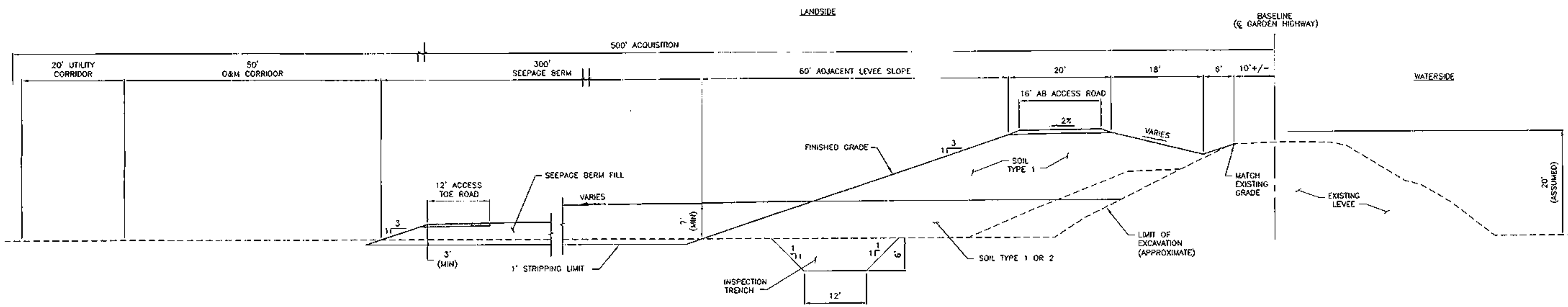
HDR

SACRAMENTO AREA FLOOD CONTROL AGENCY
NATOMAS LEVEE IMPROVEMENT PROGRAM

PROPOSED DESIGN REACH 10 PLAN VIEW	FIGURE 5



ADJACENT LEVEE RAISE WITH 300' SEEPAGE BERM, TYP

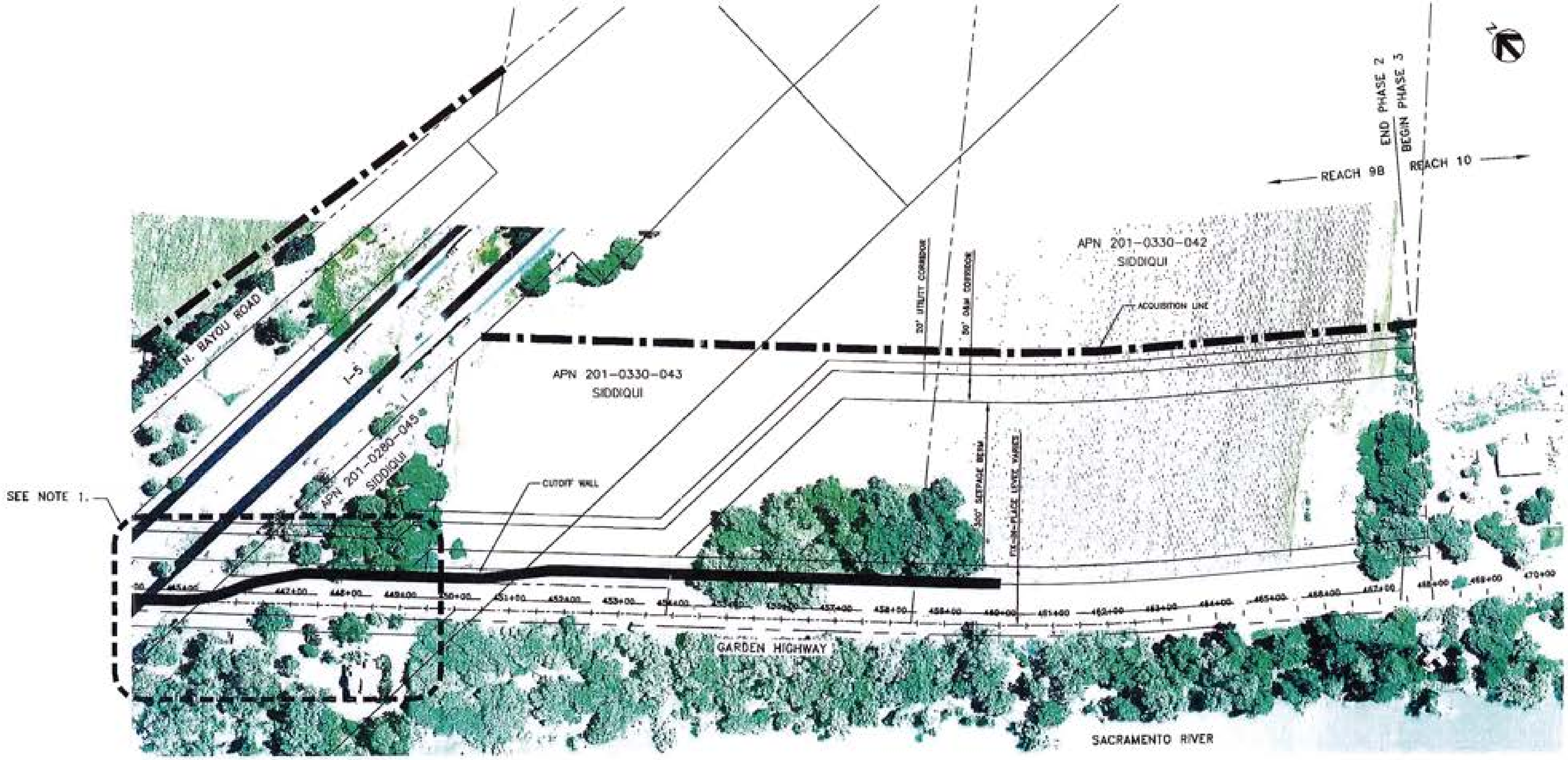
N.T.S.

HDR

SACRAMENTO AREA FLOOD CONTROL AGENCY
NATOMAS LEVEE IMPROVEMENT PROGRAM

PROPOSED DESIGN REACH 10
TYPICAL CROSS SECTIONS

FIGURE 6



NOTE 1: THE DESIGN AT THIS AREA IS BEING COORDINATED WITH CALTRANS. THE LEVEE LOCATION AND PROJECT LIMITS MAY CHANGE BASED ON FEEDBACK FROM CALTRANS.

PLAN VIEW

SCALE: 1" = 100'

HDR

SACRAMENTO AREA FLOOD CONTROL AGENCY NATOMAS LEVEE IMPROVEMENT PROGRAM	
FIX-IN-PLACE OPTION REACH 9B PLAN VIEW	FIGURE 7

PLAN VIEW

SCALE: 1" = 200'

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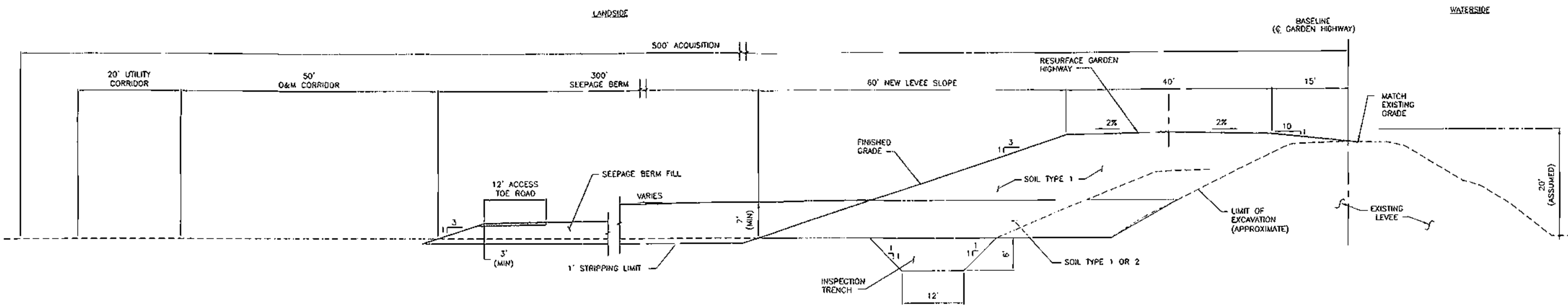
HDR

SACRAMENTO AREA FLOOD CONTROL AGENCY
NATOMAS LEVEE IMPROVEMENT PROGRAM

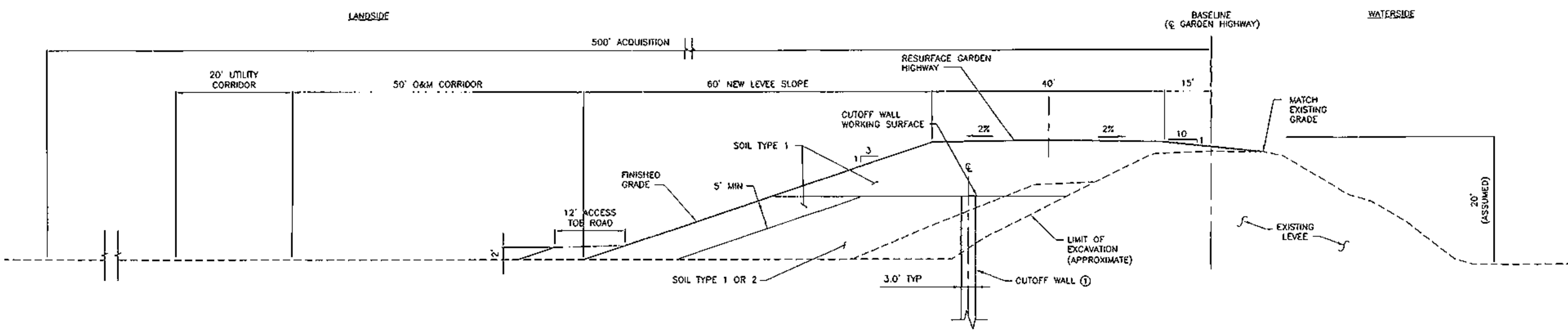
FIX-IN-PLACE OPTION REACH 10
PLAN VIEW

FIGURE
8



IN-PLACE LEVEE RAISE WITH 300' SEEPAGE BERM, TYP

N.T.S.



IN-PLACE LEVEE RAISE WITH CUTOFF WALL, TYP

N.T.S.

NOTES

① MINIMUM CUTOFF WALL DEPTH IS 120'

HDR

SACRAMENTO AREA FLOOD CONTROL AGENCY
NATOMAS LEVEE IMPROVEMENT PROGRAM

FIX-IN-PLACE OPTION REACH 9B
FIX-IN-PLACE TYPICAL CROSS SECTIONS

FIGURE 9

Siddiqui Family Partnership

1808 J Street
Sacramento, CA 95811
Tel: (916) 441-6708
Fax: (916) 441-5336

July 22, 2009

John Bassett, P.E.
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Fax: (916) 874-8289
bassettj@saccounty.net

Tim Washburn, P.E.
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Washburnt@saccounty.net

Dear John and Tim:

I draw your attention to my letter to you dated June 16, 2009 (copy attached), and my email to you dated July 14, 2009.

I fully support SAFCA's effort related to flood protection for the Natomas Basin and am eager to learn the design details proposed for the levee Improvements adjacent to our property and also upstream and downstream from our property. I understand that the design has not been finalized yet and additional testing /analysis are being performed to determine the most suitable design; however it is my understanding that SAFCA is leaning towards a seepage berm alternative as opposed to a slurry cut off wall and /or relief wells. I wish to emphasize the importance of implementing a smart design in accordance with current industry standards and practices that adequately provides the safety to the desired 200-year level of flood protection currently being sought by FEMA and SAFCA. The preferred design method should be the one which has been previously implemented to strengthen the Sacramento levee systems and has proven to be successful under similar Geotechnical conditions. The design method should be in the best of public interest.

I am anxious to receive copies of SAFCA'S design assumptions, limitations, supporting calculations , analysis, and studies/reports developed to justify the seepage berm alternative versus slurry wall/cut-off wall and/or or relief wells alternative. I am requesting the following design documents. (Any documents that overlap the request of June 16th do not need to be duplicated if they have been furnished separately – no documents received to date):

1. Calculated factor of safety with respect to the embankment slope stability including global slope stability and supporting calculations for rationale and justification of preferred seepage berm versus slurry wall/cut-off wall and/or or relief wells alternative.

2. Calculated factor of safety against the risk of under-seepage exit gradient achieved at the levee toe and supporting calculations for rationale and justification of the proposed seepage berm versus slurry wall/cut off wall and/or relief wells alternative.

3. Calculated factor of safety for the landside slope stability including global slope stability and supporting calculations / analysis for proposed seepage berm versus slurry wall/cut off wall and/or relief wells alternative.

4. Analysis of seismic vulnerability of the levee system and calculated safety factors under various conditions including 200-year ground motions using typical summer and winter water surface elevations and supporting calculations that justify the preferred seepage berm versus slurry wall/cut off wall and/or relief wells alternative.

5. Analysis for erosion potential under various conditions and calculated factor of safety of the levee system including that from the expected 200-year water surface elevations and supporting calculations that justify the preferred seepage berm versus slurry wall/cut-off wall and/ or relief wells alternative.

6. Analysis for settlement potential under various conditions for the levee system and supporting calculations that justify the preferred seepage berm versus slurry wall/cut off wall and/ or relief wells alternative.

7. Along reaches other than that of our property where the soil characteristics are similar to those of our property and where land is not plentiful, what other equivalent smart engineering designs are being proposed for the strengthening /raising of the levee.

8. Recommended X-section details of the adjacent levee and how it is tied/keyed to the existing Garden Highway levee, with analysis to show that the Garden Highway levee is competent for the proposed use.

9. Risk-based geotechnical analysis method, if utilized, both for the 500 ft. berm as well as for the slurry wall/cut off wall and/or relief well alternative.

10. Number and location of soil borings at regular interval and their depths that were obtained to complete the final design for the proposed levee strengthening to satisfy the new standard operating procedure and Geotechnical levee practice guidelines for design.

11. Cost benefit analysis performed for the preferred alternative that includes consideration of the following factors:

    a. The long term loss of tax base to the County resulting from taking approximately 500 feet strip of land.

    b. The loss of income from the yearly assessments collected by Reclamation District 1000 from the 500' strip of land.

    c. The increased expenditure for yearly maintenance from the taking of approximately 500' strip.

    d. The reduction in the yearly assessment income to SAFCA assessments from losing of the approximate 500' strip of land from the assessment roll.

    e. Loss of potential income to the property owners which would be derived from the long term development potential of the strip which will never be developed.

    f. Loss of the beautiful and healthy Oak trees, heritage trees, habitat and other cultural resources within the footprint of the approximately 500' strip and how will this be adequately mitigated.

    g. The additional cost of replacing what will be lost and destroyed forever by the enlarged footprint of the proposed levee and where will this money come from in perpetuity.

It is my understanding that the information requested was planned to be generated as a part of the decision making process to substantiate seepage berm design method.

I am seeking the basis and justification of the adjacent levee/ seepage berm versus the levee raise and slurry wall treatment recommended in the Natomas Levee Evaluation Study dated July 14, 2006.

Please let me know the date when the above requested information is to be made available.

Thank You,

Very Truly Yours,

Javed T Siddiqui

Javed T. Siddiqui, P.E.
SIDDIQUI FAMILY PARTNERSHIP

Encl.

Encl

Siddiqui Family Partnership	1808 J Street Sacramento, CA 95811 Tel: (916) 441-6708 Fax: (916) 441-5336

June 16, 2009

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Washburnt@saccounty.net

Dear John and Tim,

. Although SAFCA had issued a resolution of necessity on 3 of our parcels, we have not been provided the information supporting the resolution or the decision to place a seepage levee versus a slurry wall or the proposed design drawings. We are seeking the information to allow us an opportunity to understand and appreciate SAFCA's proposed design. I am requesting copies of engineering reports, engineering plans and all pertinent information developed or obtained by SAFCA on our property including the following items:

1. 100-yr and 200-yr water surface profiles with respect to top elevation of existing Garden Highway, starting from Interstate 5, south to Power Line Road.
2. A set of improvement plans including plan profile, of proposed levee, cross sections thru site and details.
3. Plans for maintaining access and utilities to the remainder property, (ie. Relocation of utilities, well, pumps, etc.)
4. All soil boring data used for design, (including copy of Geotechnical reports for the properties). We had previously requested deeper soil boring up to 200 depths at intervals required by Corp of Engineers along our frontage.
5. Topographic survey showing existing boundary, easements, road right-of-way, utilities, tree trunks, driplines and tree species.
6. Slope stability analysis for existing landside levee slope 2:1 versus proposed 3:1. Maximum permissible slope would be determined from analysis and depends upon material type, seepage, etc...
7. Seepage analysis to justify why a seepage berm is being used instead of a slurry wall previously suggested in the Levee Evaluation Report.
8. Unit cost of seepage berm levee vs. unit cost of a 70' deep slurry wall.
9. Cost benefit analysis. Cost evaluation and resulting savings from using seepage berms vs slurry wall.
10. Arborist Report.

11. Inventory of all features on our parcels, which will require mitigation, eg. Lost trees, artifacts, giant garter snake, historic structures, etc., and an estimate of mitigation costs.

12. Final problem identification report and recommendations for levee strengthening and recommended stabilization techniques.

I am hopeful that we can receive this information from you as soon as possible.

I believe that the long term economic benefits to public will outweigh the notion that land acquisition and use as seepage berm is cheaper. Land lost to seepage berm will be lost forever. The productivity from soil and the resulting economic benefits year after are better than the continued annual expense of maintenance and loss of revenues to the public.

Thank you.

Very truly yours,

Javed T. Siddiqui

Javed T. Siddiqui, P.E.

SIDDIQUI FAMILY PARTNERSHIP