Dixon Main Drain and V-Drain Enlargement

SCH# 2007092033

Draft Environmental Impact Report

Prepared For
Dixon Regional Watershed Joint Powers Authority

October 2008

Prepared By
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DRAFT ENVIRONMENTAL IMPACT REPORT
Dixon Main Drain and V-Drain Enlargement

State Clearing House # 2007092033

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1. INTRODUCTION

1 INTRODUCTION

INTRODUCTION

The Dixon Main Drain and V-Drain Enlargement project Draft Environmental Impact Report (Draft EIR) was prepared in accordance with the California Environmental Quality Act of 1970, Pub. Res. Code §§ 21000-21178, as amended (CEQA) and the Guidelines for Implementation of the California Environmental Quality Act, Cal. Code Regs. title 14, §§ 15000-15387 (CEQA Guidelines). The Dixon Regional Watershed Joint Powers Authority (JPA) is the lead agency for the environmental review of the Dixon Main Drain and V-Drain Enlargement (proposed project) evaluated herein and has the principal responsibility for approving the project. As required by Section 15121 of the CEQA Guidelines, this EIR will (a) inform public agency decision-makers, and the public generally, of the significant environmental effects of the project, (b) identify possible ways to minimize the significant adverse environmental effects, and (c) describe reasonable and feasible project alternatives which reduce environmental effects. The public agency shall consider the information in the Draft EIR along with other information that may be presented to the agency.

PROJECT DESCRIPTION

The proposed project is located seven miles southeast of the City of Dixon in Solano County and includes the enlargement of the Dixon Main Drain (DMD), the enlargement of the V-Drain from Swan Road to the Reclamation District (RD) 2068 Intake Canal, the replacement of two 60-inch culverts along Swan Road with an engineered bridge or new culverts, the replacement of two agricultural weirs, and the relocation of a highline irrigation canal. In addition, the proposed project would include replacement of the screens on the existing trash rack at the RD 2068 intake canal, and additional new trash screening or fencing could be constructed on or around the RD 2068 intake pump station. For further detail regarding the proposed project, please refer to Chapter 3, Project Description.

PURPOSE OF THE EIR

As provided in the CEQA Guidelines Section 15021, public agencies are charged with the duty to avoid or minimize environmental damage where feasible. The public agency has an obligation to balance a variety of public objectives, including economic, environmental, and social issues.

CEQA requires the preparation of an EIR prior to approving any project that may have a significant effect on the environment. For the purposes of CEQA, the term *project* refers to the whole of an action, which has the potential for resulting in a direct physical change or a reasonably foreseeable indirect physical change in the environment (CEQA Guidelines Section 15378[a]). With respect to the proposed project, the JPA has determined that the proposed action

is a *project*, within the definition of CEQA, that has the potential to result in significant environmental effects.

The EIR is an informational document that apprises decision-makers and the general public of the potential significant environmental effects of a proposed project. An EIR must describe a reasonable range of feasible alternatives to the project and identify possible means to minimize the significant effects. The lead agency for the proposed project is required to consider the information in the EIR along with any other available information in deciding whether to approve the application. The basic requirements for an EIR include discussions of the environmental setting, environmental impacts, mitigation measures, alternatives, growth-inducing impacts, and cumulative impacts.

TYPE OF DOCUMENT

The CEQA Guidelines identify several types of EIRs, each applicable to different project circumstances. This EIR has been prepared as a project-level EIR, pursuant to CEQA Guidelines Section 15161, which examines the environmental impacts of a specific project. The project-level EIR should focus primarily on changes in the environment that result from the development of the project. All phases of the project, including planning, construction, and operation, should be included in the analysis.

EIR PROCESS

The EIR process begins with the decision by the lead agency to prepare an EIR, either during a preliminary review of a project or at the conclusion of an Initial Study. Once the decision is made to prepare an EIR, the lead agency sends a Notice of Preparation (NOP) to appropriate government agencies, and when required, to the State Clearinghouse (SCH) in the Office of Planning and Research (OPR), which will ensure that responsible State agencies reply within the required time. The SCH assigns an identification number to the project, which then becomes the identification number for all subsequent environmental documents on the project. Applicable agencies have 30 days to respond to the NOP indicating, at minimum, reasonable alternatives and mitigation measures they wish to have explored in the Draft EIR and whether the agency will be a responsible agency or a trustee agency for the project.

A NOP was prepared for the proposed project and released on September 11, 2007 for a 30-day review period (See Appendix A). A public scoping meeting was held on October 4, 2007. Comments provided by the public and public agencies in response to the NOP were received by the lead agency and are provided in Appendix B. In addition, an Initial Study was prepared to focus the scope of the Draft EIR (See Appendix A, as an attachment to the NOP).

As soon as the Draft EIR is completed, a notice of completion is filed with the OPR and public notice is published to inform interested parties that a Draft EIR is available for agency and/or public review and to provide information regarding location of drafts and any public meetings or hearings that are scheduled. The Draft EIR is circulated for a specified period, typically 45 days, during which time reviewers may make comments. The lead agency must evaluate and respond to comments in writing, describing the disposition of any significant environmental issues raised

and explaining in detail the reasons for not accepting any specific comments concerning major environmental issues. Should comments received result in the addition of significant new information to an EIR, after public notice is given, the revised EIR or affected chapters must be recirculated for another public review period with related comments and responses.

Once the lead agency is satisfied that the EIR has adequately addressed the pertinent issues in compliance with CEQA, a Final EIR will be prepared comprised of the Draft EIR, comments, responses to comments, and any errata and/or changes. The Final EIR is made available for review by the public and commenting agencies. Before approving a project, the lead agency shall certify that the Final EIR has been completed in compliance with CEQA and has been presented to the decision-making body of the lead agency and has been reviewed and considered by that body, and that the Final EIR reflects the lead agency's independent judgment and analysis.

In order to adopt the project, State law requires that the lead agency make several types of "findings." Findings are a recitation of the conclusions on particular issues, including documentation of the evidence in support of those conclusions. The required findings are as follows:

- Certification of the EIR (CEQA Guidelines Section 15090) – These findings support the adequacy of the EIR for decision-making purposes;
- Significant Impacts (CEQA Guidelines Section 15091) – These findings explain how the lead agency chose to address each identified significant impact, including the mitigation measures adopted or an explanation of why such measures are infeasible;
- Project Approval (CEQA Guidelines Section 15092) – These findings support the action to adopt the project; and
- Statement of Overriding Considerations (CEQA Guidelines Section 15093) – These findings document the lead agency's decision to adopt the project despite the fact that unavoidable impacts (if any) will result, due to other overriding benefits of the project.

SCOPE OF THE DRAFT EIR

State CEQA Guidelines Section 15126.2(a) states, in pertinent part:

> An EIR shall identify and focus on the significant environmental effects of the proposed project. In assessing the impact of a proposed project on the environment, the lead agency should normally limit its examination to changes in the existing physical conditions in the affected area as they exist at the time the notice of preparation is published, or where no notice of preparation is published, at the time environmental analysis is commenced.

Pursuant to these guidelines, the scope of this Draft EIR addresses specific issues and concerns identified as potentially significant. These issues were determined based on the preparation of an Initial Study, review of comments received on the NOP and review of testimony received at the scoping meeting. The Initial Study prepared for the proposed project concluded that several environmental issues would result in a less-than-significant impact. The complete text of the Initial Study is contained in Appendix A as an attachment to the NOP. Resources identified for study in this Draft EIR include the following:

- Land Use and Agricultural Resources;
- Biological Resources;
- Hydrology, Water Quality, and Drainage; and
- Public Services and Facilities.

The evaluation of effects is presented on a resource-by-resource basis in chapters 4.1 through 4.4. Each chapter is divided into the following four sections: Introduction, Existing Environmental Setting, Regulatory Context, and Impacts and Mitigation Measures.

Impacts that are determined to be significant in Chapter 4, and impacts for which feasible mitigation measures are not available to reduce those impacts to a less-than-significant level are identified as significant and unavoidable. Chapter 6 in the Draft EIR presents a discussion and comprehensive list of all significant and unavoidable impacts identified in Chapter 4.

COMMENTS RECEIVED ON THE NOTICE OF PREPARATION

Three comment letters were received during the open comment period on the NOP for the proposed project. A copy of each letter is provided in Appendix B of this Draft EIR. The following letters were authored by representatives of State agencies and other interested parties:

- Huitt, Christopher – Department of Water Resources
- Morgan, Scott – California Office of Planning and Research, State Clearinghouse
- Wineman, Edward S. – Resident

The following list, categorized by issue, summarizes the concerns expressed in the NOP comment letters:

Land Use and Agricultural Resources (Chapter 4.1)	*Concerns related to the proposed project:* • Construction of proposed project interfering with pastures located on adjacent property. • Relocation of irrigation ditch located on adjacent property.
Biological Resources (Chapter 4.2)	*Concerns related to the proposed project*: • Potential removal of trees on adjacent property. • Preservation of riparian corridors.
Hydrology and Water Quality (Chapter 4.3)	*Concerns related to the proposed project*: • Possible encroachment on the State Adopted Plan of Flood Control.

ORGANIZATION OF THE DRAFT EIR

The Draft EIR is organized into the following chapters:

Chapter 1 – Introduction
Provides an introduction and overview describing the intended use of the Draft EIR and the review and certification process, as well as summaries of the chapters included in the Draft EIR and summaries of the environmental issues and concerns received from the public and public agencies during the NOP review period.

Chapter 2 – Executive Summary
Summarizes the elements of the project and the environmental impacts that would result from implementation of the proposed project, describes proposed mitigation measures and indicates the level of significance of impacts after mitigation. Acknowledges alternatives that would reduce or avoid significant impacts.

Chapter 3 – Project Description
Provides a detailed description of the proposed project, including the project's location, background information, major objectives, and technical characteristics.

Chapter 4 – Environmental Setting, Impacts and Mitigation
Contains a project-level and cumulative analysis of environmental issue areas associated with the proposed project. Each environmental issue chapter contains an introduction and description of the existing environmental setting pertaining to that issue, identifies impacts and recommends appropriate mitigation measures.

Chapter 5 – Alternatives Analysis
Describes the alternatives to the proposed project, their respective environmental effects, and a determination of the environmentally superior alternative.

Chapter 6 – Statutorily Required Sections
Provides discussions required by CEQA regarding impacts that would result from the proposed project, including a summary of cumulative impacts, potential growth-inducing impacts, significant and unavoidable impacts, and significant irreversible changes to the environment.

Chapter 7 – References
Provides bibliographic information for all references and resources cited.

Chapter 8 – EIR Authors / Persons Consulted
Lists EIR and report authors who provided technical assistance in the preparation and review of the Draft EIR.

Appendices
Includes the NOP, comments received during the NOP comment period, the Initial Study, and all technical reports prepared for the proposed project.

2. EXECUTIVE SUMMARY

2 EXECUTIVE SUMMARY

INTRODUCTION

The Executive Summary chapter provides an overview of the Dixon Main Drain and V-Drain Enlargement project (described in detail in Chapter 3 – Project Description), and summarizes the conclusions of the environmental analysis, provided in detail in Chapter 4. This chapter also reviews the alternatives to the proposed project that are described in Chapter 5, Alternatives Analysis, and identifies the Environmentally Superior Alternative. Table 2-1, at the end of this chapter, provides a summary of the environmental effects of the proposed project identified in each technical chapter. The table contains the environmental impacts, the significance of the impacts, the proposed mitigation measures, and the significance of the impacts after the mitigation measures are implemented.

PROJECT DESCRIPTION AND LOCATION

The proposed project involves the enlargement of the Dixon Main Drain (DMD) and V-Drain channels to provide an increase in capacity of 375 cubic feet per second (cfs). The project consists of two primary elements, enlargement of the DMD along Swan Road at the abandoned railroad tracks to the DMD's easterly terminus at the V-Drain, and the enlargement of the existing V-Drain between Swan Road and the RD 2068 Intake Canal near Haas Slough. In addition, the project entails the replacement of two 60-inch culverts along Swan Road with an engineered bridge or new culverts, the replacement of two agricultural weirs, and the relocation of a highline irrigation canal.

The Dixon Main Drain would be enlarged to provide an increase in capacity of 375 cfs more than the DMD's existing capacity of 240 cfs, for a total DMD capacity of 615 cfs. This is expected to be achieved by excavating the channel to provide a bottom width of six feet, increasing the channel depth by approximately two feet, and reducing the side slope of the southern bank to a four-to-one (4:1) slope. The V-Drain is being designed for a target capacity of 1,518 cfs, which would include the existing capacity of 1,132 cfs, the additional 375 cfs, and 11 cfs for runoff from the local tributary areas. This is expected to be achieved by providing a bottom width of 40 to 50 feet (an approximately 20- to 30-foot increase), increasing the channel depth in some locations by approximately 1.5 feet, and reducing the side slope of the west bank to a four-to-one (4:1) slope. In addition, the V-Ditch outfall into the RD 2068 Intake Canal would be re-aligned to reduce erosion. Because the RD 2068 Intake Canal has a capacity that is at least 212 cfs greater than the target capacity of the V-Drain, improvements are not proposed to the RD 2068 Intake Canal.

Environmental Impacts and Mitigation

Under CEQA, a significant effect on the environment is defined as a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project, including land, air, water, mineral, flora, fauna, ambient noise, and objects of historic or aesthetic significance. Implementation of the proposed project could result in significant impacts on those resource areas listed below.

This Draft EIR discusses mitigation measures that could be implemented by the Dixon Regional Watershed Joint Powers Authority to reduce potential adverse impacts to a level that is considered less-than-significant. Such mitigation measures are noted in this Draft EIR and are found in the following sections: land use; biological resources; hydrology, water quality, and drainage; and public services and facilities. If an impact is determined to be significant, applicable mitigation measures are identified as appropriate. The mitigation measures are also summarized in Table 2-1, at the end of this chapter. The mitigation measures presented in the Draft EIR will form the basis of the Mitigation Monitoring Plan.

Land Use and Agricultural Resources

The Land Use and Agricultural Resources chapter evaluates the consistency of the proposed project with Solano County's adopted plans and policies. The evaluation is based upon a thorough review of the County's General Plan and Zoning Ordinance, as well as any other appropriate documents, to address consistency issues. The Land Use and Agricultural Resources chapter further assesses the compatibility of the proposed project with the surrounding land uses, both existing and proposed. In addition, the chapter assesses impacts related to the potential loss of farmland associated with the proposed project.

The Draft EIR determined that impacts related to the proposed project's incompatibility with current land uses would be less-than-significant because the project would be consistent with applicable County land use designations and policies, and would be consistent with the surrounding agricultural land uses. In addition, because the proposed project would increase the utility of surrounding agricultural lands by providing an increase in drainage capacity, the project would result in a less-than-significant impact to agricultural resources.

Biological Resources

The Biological Resources chapter of the Draft EIR summarizes the existing biological resources setting for the project area. A biological resources analysis was conducted for the proposed project. The biological resources analysis is based on data collected during field surveys of the proposed site and a review of existing literature, maps, and aerial photography pertaining to the biological resources of the area. Finally, the chapter identifies the biological resources-related permits required as part of the development process.

The Draft EIR found that implementation of the proposed project could result in impacts to the following biological resources: jurisdictional waters of the State/United States; non-anadromous fish; giant garter snake; Pacific pond turtle; white tailed kite; northern harrier; loss of Swainson's

hawk foraging habitat; burrowing owl nesting and foraging habitat; loggerhead shrike; tricolored blackbird; and other nesting passerine birds. However, implementation of recommended mitigation measures in the Draft EIR would reduce identified impacts to a less-than-significant level. In addition, the Draft EIR determined that impacts related to conflicts with the Solano County HCP or other local ordinances and cumulative biological resources impacts would be less-than-significant.

Hydrology, Water Quality, and Drainage

The Hydrology, Water Quality, and Drainage chapter summarizes setting information and identifies potential project-associated impacts pertaining to irrigation drainage, stormwater drainage, flooding, groundwater, seepage, and water quality. The analysis includes on-site as well as off-site infrastructure facilities.

The Draft EIR determined that the proposed project would result in significant impacts related to degradation of short-term and long-term water quality. Mitigation Measures included in the Draft EIR would reduce the said impacts to a less-than-significant level. In addition, the Draft EIR found that cumulative impacts related to degradation of water quality, impacts related to groundwater recharge, and impacts associated with the potential for increased stormwater flows to contribute to downstream flooding would be less-than-significant.

Public Services and Facilities

The Public Services and Facilities chapter of the Draft EIR summarizes setting information and identifies potential impacts to drainage patterns in the project vicinity. In addition, the chapter identifies potential impacts to natural gas facilities, which could be affected by cut and fill activities associated with the proposed project.

The Draft EIR found that implementation of the proposed project would result in a significant impact related to the short-term disruption of drainage patterns resulting from construction operations. Mitigation Measures included in the Draft EIR would reduce the impact to a less-than-significant level. The proposed project would have less-than-significant operational and cumulative impacts on drainage patterns in the project area.

Summary of Project Alternatives

The following summary provides brief descriptions of the three alternatives to the proposed project that are evaluated in this Draft EIR. For a more thorough discussion of project alternatives, please refer to Chapter 5, Alternatives Analysis.

No Project Alternative

The No Project Alternative would allow for the continued existence of the current drainage facilities and would not include the enlargement of the existing drains.

Main Drain/V-Drain Enlargement by 275 cfs Alternative

The Main Drain/V-Drain Enlargement by 275 cfs Alternative would expand the current capacity of both the Main Drain and V-Drain by 275 cfs. This Alternative would require the same peripheral infrastructure improvements as the proposed project, including the relocation of the highline canal, the removal/relocation of the agricultural weir, and the replacement of the culvert access road, as well as replacement of screens on the existing trash rack at the RD 2068 intake canal and, potentially, construction of new trash screening or fencing on or around the RD 2068 intake pump station. This alternative would decrease the total depth and width of the channel removal that would be required during construction activities and would result in a smaller total increase in drainage flows when compared to the proposed project.

Dixon New South Channel Alternative

The Dixon New South Channel Alternative would provide an alternate drainage route rather than expand the existing Main Drain and V-Drain. The Alternative would include the construction of a stormwater drainage channel that would start at the DMD at Swan Road and continue in a southerly direction, approximately 2.5 miles, along Bunker Station Road until, at the channel's southern terminus, the channel would empty into the Haas Slough. The channel would cross several roadways and an abandoned railroad track. Easements and/or rights-of-way would be required for construction, access, and maintenance of the channel. The width of the permanent right of way would be 100 feet. Excavated material would be placed alongside the channel.

The channel would have a 12-foot bottom width and be 6.5 feet deep, which would provide a capacity of 380 cfs. The channel would not be lined, but would be stabilized with California native grasses. At road crossings, the project would use three 66-inch culverts (or equivalent) with headwalls at the upstream and downstream ends.

Environmentally Superior Alternative

In order to assist the Lead Agency, an EIR is requested to identify the environmentally superior alternative from among the range of reasonable alternatives that are evaluated. In addition, §15126(d)(2) of the CEQA Guidelines states that "if the environmentally superior alternative is the 'no project' alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives."

For this project, the environmentally superior alternative would be the Main Drain/V-Drain Enlargement by 275 cfs Alternative. This alternative would result in similar impacts with regard to land use and agricultural resources, and a decrease in impacts associated with biological resources and hydrology, water quality, and drainage. The Main Drain/V-Drain Enlargement by 275 cfs Alternative would result in a lower total increase in drainage flow capacity and an increased impact with regard to public services and utilities. Though this Alternative would increase impacts to public services and utilities, the Alternative would be the environmentally superior alternative because implementation of the Alternative would decrease impacts to hydrology, water quality and drainage, and biological resources.

However, the Main Drain/V-Drain Enlargement by 275 cfs Alternative would not meet three of the five project objectives in that the Alternative would not provide a 375 cfs increase to the available drainage flows in the project area, would not enlarge the existing V-Drain to provide a capacity of 1,518 cfs, and would not reduce the 90 degree bend at the discharge from the V-Drain to the RD 2068 Intake Canal.

Summary of Impacts and Mitigation Measures

The following table (Table 2-1) summarizes the impacts identified in the technical environmental chapters of this Draft EIR. The proposed project impacts are identified for each technical environmental chapter (4.1 – 4.4) in the Draft EIR in Table 2-1, below. The level of significance of each impact, any mitigation measures required for each impact, and the resultant level of significance after mitigation are also presented in the table.

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

	Impact	Level of Significance Prior to Mitigation		Mitigation Measures	Level of Significance After Mitigation
4.1 Land Use and Agricultural Resources					
4.1-1	Impacts related to compatibility with surrounding land uses.	LS	*4.1-1*	*None required.*	N/A
4.1-2	Development of the proposed project would be inconsistent with Solano County plans, policies, or ordinances.	LS	*4.1-2*	*None required.*	N/A
4.1-3	Loss of agricultural land.	LS	*4.1-3*	*None required.*	N/A
4.1-4	Cumulative loss of agricultural land.	LS	*4.1-4*	*None required.*	N/A
4.1-5	Increases in the intensity of land uses in the region due to the proposed project and all other projects in the project area.	LS	*4.1-5*	*None required.*	N/A
4.2 Biological Resources					
4.2-1	Impacts to jurisdictional waters.	PS	*4.2-1(a)*	*Once the wetland delineation has been confirmed by the Corps, the extent of the Corps and RWQCB jurisdiction within the project area will be known, and the extent of impacts to waters of the United States/State can be ascertained If the Corps determines that there are areas of the project site subject to their jurisdiction, prior to filling any of these jurisdictional areas the project proponents shall obtain a permit from the Corps and RWQCB.*	LS

NI = *No Impact*; N/A = *Not Applicable*; LS = *Less-Than-Significant*; PS = *Potentially Significant;* S = *Significant*; SU = *Significant and Unavoidable*

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measures		Level of Significance After Mitigation
			Based on the confirmed map, jurisdictional wetland areas shall be avoided by the project where possible. Because full avoidance of waters of the United States is not possible, potential impacts shall be minimized to the extent feasible through changes to project design. In addition, during construction activities, Best Management Practices shall be utilized to protect preserved wetlands and ensure water quality in wetlands and other waters within the watershed. Utilization of BMPs shall include, but not be limited to, the installation of orange construction fencing and the use of straw wattles.	
		4.2-1(b)	*The proposed project will mitigate for impacts to waters of the United States/State by creating a minimum of two times the square footage of impacted wetlands and other waters in areas that are now considered to be upland. This is a two to one (2:1) (mitigation to impacts) ratio and is consistent with requirements set forth by the USACE and the RWQCB. The new wetlands and other waters shall resemble the wetlands and other waters affected by the project.*	
		4.2-1(c)	*Prior to the approval of Improvement Plans, a Streambed Alteration Agreement will be obtained*	

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		from the CDFG before any in-stream construction activities commence. The agreement will contain additional minimization and mitigation measures.	
4.2-2 Impacts to non-anadromous fish.	PS	*4.2-2* *Prior to construction, Section 7 consultation between the Corps and the U.S. Fish and Wildlife Service would be required to address potential impacts to Delta smelt. Avoidance measures would include a seasonal work window. In-water work would be allowed seasonally between May 1st and October 15th. Seasonal avoidance measures prescribed by the USFWS in an incidental take permit authorized for the project for Delta smelt would effectively reduce impacts to all non-anadromous fish that could occur within the project area. Implementation of this restricted work window between May 1st and October 15th for any channel work would reduce impacts to Delta smelt and other non-anadromous fish species to less-than-significant levels.* *As noted above, during construction activities, Best Management Practices shall be implemented to minimize water quality impacts downstream from the work areas. Temporary instream sediment traps will be installed immediately downstream from the construction area so that all suspended sediments in the water will be contained in order to reduce*	LS

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TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		impacts to fisheries habitat downstream. In addition, the existing pump station located at the southern extent of the project will be employed to further capture suspended sediments, thereby essentially eliminating any potential for downstream sedimentation impacts to fisheries habitat.	
4.2-3 Impacts to the giant garter snake.	PS	*4.2-3* *Prior to any construction activities, a formal habitat assessment for the giant garter snake that follows USFWS guidelines shall be prepared by a qualified biologist and submitted to the USFWS. If the USFWS determines that the project site does not provide suitable habitat for the giant garter snake, no further regard for this species would be required.* *If USFWS determines that the project site provides habitat for the giant garter snake formal consultation between the USACE and the USFWS, pursuant to Section 7 of FESA, would be necessary to obtain an "incidental take" for the project. In addition, if the USFWS determines that the project site provides habitat for the giant garter snake, any mitigation measures prescribed in the USFWS's Biological Opinion shall become conditions of project approval.*	LS

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TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
4.2-4 Impacts to Pacific pond turtle.	PS	*4.2-4(a)* *Turbidity barriers shall be installed around the construction areas to reduce impacts to pond turtles that may occur downstream. All Pacific pond turtles encountered during work activities in the channel would be salvaged, per CDFG approval, and relocated to preserved off-site habitats.* *4.2-4(b)* *Preconstruction surveys for Pacific pond turtles and their nests shall be conducted 30 days prior to any construction. If nest sites are located adjacent to a proposed work area, the nest site plus a 50-foot buffer around the nest site shall be fenced to avoid impacts to the eggs or hatchlings that over-winter at the nest site. In addition, if nest(s) are located during surveys, mothballs (naphthalene) should be sprinkled around the vicinity of the nest (not closer than 10 feet) to mask human scent and discourage predators.* *Construction at the nest site and within the 50-foot buffer area shall be delayed until the young leave the nest (this could be a period of many months) or as otherwise advised and directed by CDFG, the agency responsible for overseeing the protection of the pond turtle.* *4.2-4(c)* *Prior to any construction activities, translocation of any nestling pond turtles shall be completed by a*	LS

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		qualified biologist under the direction of CDFG. In addition, CDFG may require mitigation for any impacts to the turtle's habitat following completion of nesting. The project applicant shall implement any CDFG requirements that are included as conditions of project approval.	
4.2-5 Impacts to white-tailed kite and northern harrier.	PS	*4.2-5* *In order to avoid impacts to nesting raptors, a nesting surveys shall be conducted prior to commencing with construction work, if this work would commence between February 1st and August 31st .The raptor nesting surveys shall include examination of all trees within 500 feet of the entire project site, not just trees slated for removal. (These surveys would be conducted concurrently with the western burrowing owl surveys – see Mitigation Measure 4.2-7(a) below).* *If nesting raptors are identified during the surveys, the dripline of the nest tree must be fenced with orange construction fencing (provided the tree is on the project site), and a 200-foot radius around the nest tree must be staked with bright orange lath or other suitable staking. If the tree is located off the project site, then the buffer shall be demarcated per above where the buffer occurs on the project site. The size of the buffer may be altered if a qualified raptor biologist conducts behavioral*	LS

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TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measures		Level of Significance After Mitigation
			observations and determines the nesting raptors are well acclimated to disturbance. If this occurs, the raptor biologist shall prescribe a modified buffer that allows sufficient room to prevent undue disturbance/harassment to the nesting raptors. No construction or earth-moving activity shall occur within the established buffer until it is determined by a qualified raptor biologist that the young have fledged (that is, left the nest) and have attained sufficient flight skills to avoid project construction zones. This typically occurs by July 15th. This date may be earlier or later, and would have to be determined by a qualified raptor biologist. If a qualified biologist is not hired to watch the nesting raptors then the buffers shall be maintained in place through the month of August and work within the buffer can commence September 1st. *Implementation of this mitigation measure would reduce impacts to nesting raptors to a level considered less than significant.*	
4.2-6 Impacts to Swainson's hawk foraging habitat.	PS	*4.2-6(a)*	*Prior to the initiation of the proposed project, the applicant shall conduct nesting surveys for Swainson's hawk. (These surveys would be conducted concurrently with the western burrowing owl surveys – see Mitigation Measure 4.2-7(a) below).*	LS

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SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		4.2-6(b) *If Swainson's hawks are found to be nesting on or within the area of influence of the project (within 1,000 feet of the project) when the proposed project will be implemented, impacts to nesting Swainson's hawks would be regarded as significant. Accordingly, consultation with CDFG and mitigation compensation will be required. At that time, the necessity of acquiring a Fish and Game Section 2081 management authorization will be determined.* *4.2-6(c)* *If the CDFG requires mitigation for impacts to potential Swainson's hawk foraging habitat, the applicant may purchase mitigation credits commensurate with the acreage of impacts to foraging and/or nesting habitat at a CDFG approved Swainson's hawk mitigation bank, such as the Jenny Farms Conservation Bank, as approved by CDFG.*	
4.2-7 Impacts to burrowing owl nesting and foraging habitat.	PS	*4.2-7* *A protocol survey shall be conducted to assess the presence of burrowing owls on the project site. The project site and a 150 meter (approximately 500 ft.) buffer (where possible based on habitat) should be surveyed to assess the presence of burrowing owls and their habitat. The survey should be conducted in accordance with the survey requirements detailed in the California Department of Fish and*	LS

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		Game's Staff Report on Burrowing Owl Mitigation (CDFG 1995). Surveys shall be conducted in both breeding season (April 15-July 15) and non-breeding season (December-January), for a total of four surveys, to assess use of the project site by this species. *If burrowing owls are found on the project site during the non-breeding season (September 1 through January 31), impacts to burrowing owls will be avoided by establishing a fenced 160-foot buffer (50 meters) between the nest site (i.e., the active burrow) and any earth-moving activity or other disturbance on the project site.* *If burrowing owls are detected on the site during the breeding season (peak of the breeding season is April 15 through July 15), and appear to be engaged in nesting behavior, a fenced 250-foot buffer (75 meters) would be required between the nest site (i.e. the active burrows) and any earth-moving activity or other disturbance on the project site. This 250-foot buffer could be removed once it is determined by a qualified raptor biologist that that young have fledged (that is, left the nest). Typically, the young fledge by August 31st. This date may be earlier than August 31st, or later, and*	

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TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		would have to be determined by a qualified raptor biologist. *If the earlier surveys do not identify burrowing owls in the project area, preconstruction surveys will still be required. Preconstruction surveys of the project site shall be conducted no more than 30 days prior to ground disturbing activities. If more than 30 days lapse between the time of the preconstruction survey and the start of ground-disturbing activities, another preconstruction survey must be completed.* *If occupied burrows are found within 160 feet of the proposed project area during the non-breeding season, and may be impacted, passive relocation measures will be implemented according to the Burrowing Owl Consortium Guidelines (BOC 1993). Passive relocation shall not commence before September 30th and shall be completed prior to February 1st of any given year. These activities shall be approved by CDFG in advance. After passive relocation, the project site and vicinity will be monitored by a qualified biologist daily for one week and once per week for an additional two weeks to document where the relocated owls move. A report detailing the results*	

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TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		of the monitoring will be submitted to CDFG within two months of the relocation. *If burrowing owls were found occupying burrows on the project site, a qualified raptor biologist shall delineate the extent of burrowing owl habitat on the site. To mitigate impacts to burrowing owls, the applicant shall implement mitigation measures required by the CDFG. As approved by CDFG, the applicant could purchase mitigation credits at a CDFG-approved burrowing owl mitigation bank, such as the Jenny Farms Conservation Bank.*	
4.2-8 Impacts to loggerhead shrike, tricolored blackbird, and other nesting passerine birds.	PS	*4.2-8(a)* *If construction or earth-moving activities associated with the proposed project would commence between March 15th and August 31st, the applicant shall ensure that nesting surveys for special-status birds, such as the loggerhead shrike and the tricolored blackbird, are conducted 30 days prior to the commencement of construction activities. (These surveys would be conducted concurrently with the western burrowing owl surveys – see Mitigation Measure 4.2-7(a) above).* *4.2-8(b)* *If special-status birds, such as loggerhead shrike or tricolored blackbird, are identified within the project site during the nesting surveys, a 100-foot radius around the nest must be staked with orange*	LS

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TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		construction fencing or other suitable staking. Construction or earth-moving activities shall not occur within this 100-foot staked buffer until a qualified biologist has determined that the young have fledged and have attained sufficient flight skills to avoid project construction zones. This typically occurs by July 1st. This date could be earlier than July 1st, or later, and would have to be determined by a qualified ornithologist. The 100-foot protection buffer may also be adjusted to be smaller or larger by a qualified ornithologist, as necessary, to protect the nesting birds.	
		4.2-8(c) *If common (that is, not special-status) passerine birds (perching birds such as American robins, scrub jays, and northern mockingbird) are identified during the nesting surveys in any of the trees or shrubs proposed for removal, the removal shall be postponed until a qualified ornithologist has determined that the young have fledged and have attained sufficient flight skills to leave the project site. Typically, most passerine birds can be expected to complete nesting by July 1st, with young attaining sufficient flight skills by early July.*	
4.2-9 Impacts related to conflicts with local or regional policies or ordinances designed to protect or	LS	*4.2-9* *None required.*	N/A

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TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

	Impact	Level of Significance Prior to Mitigation		Mitigation Measures	Level of Significance After Mitigation
	enhance biological resources.				
4.2-10	Cumulative loss of biological resources in Solano County.	LS	*4.2-10*	*None required.*	N/A
	4.3 Hydrology, Water Quality, and Drainage				
4.3-1	Increased stormwater flows contributing to downstream flooding.	LS	*4.3-1*	*None required.*	N/A
4.3-2	Short-term construction-related impacts to surface water quality.	PS	*4.3-2*	*Prior to construction activities, the Dixon Regional Watershed Joint Powers Authority shall obtain coverage under the General Permit for Discharges of Storm Water Associated with Construction Activity (Construction General Permit), which pertains to pollution from grading and project construction. Compliance with the Permit requires the project applicant to file a Notice of Intent (NOI) with the State Water Resources Control Board (SWRCB) and prepare a Storm Water Pollution Prevention Plan (SWPPP) prior to construction. The SWPPP shall incorporate Best Management Practices (BMPs) in order to prevent, or reduce to the greatest extent feasible, adverse impacts to water quality from erosion and sedimentation for the review and approval of the RWQCB.*	LS
4.3-3	Long-term impacts to surface water quality.	LS	*4.3-3*	*None required.*	N/A
4.3-4	Impacts to groundwater recharge.	LS	*4.3-4*	*None required.*	N/A

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TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact		Level of Significance Prior to Mitigation	Mitigation Measures		Level of Significance After Mitigation
4.3-5	Cumulative impacts related to degradation of water quality.	LS	*4.3-5*	*None required.*	N/A
4.4 Public Services and Facilities					
4.4-1	Result in the short-term disruption of drainage patterns.	LS	*4.4-1*	*None required.*	N/A
4.4-2	Operational impacts on drainage patterns in the project vicinity.	LS	*4.4-2*	*None required.*	N/A
4.4-3	Impacts to Natural Gas Facilities.	PS	*4.4-3(a)*	*Prior to construction activities, the applicant shall perform necessary consultations with the Utilities Service Alliance (USA) regarding the location of any gas lines on-site. The improvement plans for the proposed project shall show the location of the existing natural gas supply lines. Should the relocation of any existing gas or electric facilities be required, the cost of these improvements shall be apportioned by existing agreements or negotiation. In order to avoid construction and/or operational conflicts. Plans shall be designed to the satisfaction of the permitting local agencies.*	LS
			4.4-3(b)	*Should consultations determine that gas lines exist on-site, the contractor shall prepare a site Health and Safety Plan. This plan will outline measures that will be employed to protect construction workers and the public from exposure to hazards during relocation and construction activities.*	

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TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

	Impact	Level of Significance Prior to Mitigation		Mitigation Measures	Level of Significance After Mitigation
				These measures could include, but would not be limited to, posting notices, limiting access to the site, air monitoring, watering, and installation of wind fences.	
4.4-4	Long-term impacts to drainage facilities from the proposed project in combination with existing and future developments in the area.	LS	*4.4-4*	*None required.*	N/A
Initial Study					
III.	Air Quality	PS	*III-1.*	*All material excavated or graded shall periodically be sufficiently watered to prevent excessive amounts of dust. Watering shall occur as necessary with complete coverage, preferably in the late morning and after work is done for the day.*	LS
			III-2.	*All areas with vehicle traffic shall be watered periodically for stabilization of dust emissions.*	
			III-3.	*The site shall be posted with a sign which includes the contact name and phone number for addressing concerns during construction.*	
			III-4.	*During construction, the project contractor shall maintain all construction vehicles in good operating order and shall not allow construction*	

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TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measures		Level of Significance After Mitigation
			vehicles to idle unnecessarily.	
V. Cultural Resources	PS	*V-5.*	*Should any buried cultural resources be discovered during construction activities, all work shall be halted in the vicinity of the find and a qualified archaeologist shall be consulted in order to determine whether the find in an isolated example or part of a more complex resource. Upon determining the significance of the resource, the consulting archaeologist, in coordination with the JPA, shall determine the appropriate actions to be taken. The appropriate measures may include as little as recording the resource with the California Archaeological Inventory database or as much as excavation, recordation, and preservation of the sites that have outstanding cultural or historic significance.*	LS
		V-6.	*Should human remains be found, then the Coroner's office shall be immediately contacted and all work halted until final disposition by the Coroner. Should the remains be determined to be of Native American descent, then the Native American Heritage Commission shall be consulted to determine the appropriate disposition of such remains.*	
VI. Geology and Soils	PS	*VI-7.*	*Prior to initiation of construction, the contractor shall submit to the JPA a Storm Water Pollution*	LS

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		Prevention Plan meeting the requirements of the State Water Resources Control Board NPDES General permit. This plan shall include an erosion control plan for the construction and post construction periods.	
		VI-8. *Disturbed areas on the channel side slopes shall be revegetated with native plants selected to hold the channel soils in place during high flows and flexible enough to flatten down to allow for less drag against the water flows. Disturbed areas outside the channel banks shall be revegetated. New vegetation in these areas shall be compatible with adjacent farming or grazing operations. The JPA shall review planting plans prior to approval of the design documents.*	
		VI-9. *The Contractor shall limit construction to the non-rainy season and to irrigation season. During irrigation season any sediment laden water from the drainage channel will enter the RD2068 Intake Canal and will be pumped to the RD2068 Irrigation Canal and used for irrigation, not discharged to the Slough downstream.*	
		VI-10. *Prior to approval of final design documents, the JPA shall review plans for drainage and storm*	

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TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		water runoff control systems and their component facilities to ensure that these systems and facilities are non-erosive in design. *VI-11.* *Grading, soil disturbance, or compaction shall not occur during periods of rain.*	

3. PROJECT DESCRIPTION

3 PROJECT DESCRIPTION

INTRODUCTION

This section provides a comprehensive description of the Dixon Main Drain and V-Drain Enlargement project (proposed project). In addition, the proposed project's background, objectives, and schedule are discussed.

BACKGROUND

As a result of the flooding in 1996–1997, the Dixon Resource Conservation District (RCD), Reclamation District (RD) 2068, the Maine Prairie Water District (MPWD), and the City of Dixon in cooperation with the Solano Water Agency, began a significant study of regional drainage needs with the goal of reducing flooding by reestablishing, at a minimum, the level of service originally constructed in the regional drainage facilities and increasing capacities where economically feasible and mutuality beneficial to the parties. The result of this cooperation was the Dixon Region Watershed Management Plan and a Memorandum of Understanding (MOU) between the Dixon RCD, RD 2068, MPWD, and City of Dixon. Since completion of the Study and the MOU, the parties completed construction of the Pond A and Lateral 1 improvements in 2004.

The parties also created the Dixon Regional Watershed Joint Powers Authority (JPA) to own, construct, and operate the regional drainage facilities contemplated in the Dixon Regional Watershed Management Plan. Currently, the JPA Board meets on an as needed basis to further implement the projects contemplated in the Dixon Regional Watershed Management Plan. The JPA Board hired the project engineer on August 17, 2005 and design began shortly thereafter. The JPA Board has identified the DMD and V-Drain as the preferred alignment and is currently engaged in the CEQA and Engineering process. The target completion date for the project is Fall 2009. The JPA has received a funding commitment of $1.32 million to design and construct the project or the project's alternative course.

PROJECT LOCATION

The project is located seven miles southeast of the City of Dixon in Solano County (See Figure 3-1, Regional Location Map, and Figure 3-2, Project Location Map) and includes the enlargement of the Dixon Main Drain (DMD), the enlargement of the V-Drain from Swan Road to the RD 2068 Intake Canal, the replacement of two 60-inch culverts along Swan Road with an engineered bridge or new culverts, the replacement of two agricultural weirs, and the relocation of an highline irrigation canal. In addition, the construction activities of the proposed project are described below.

Figure 3-1
Regional Location Map

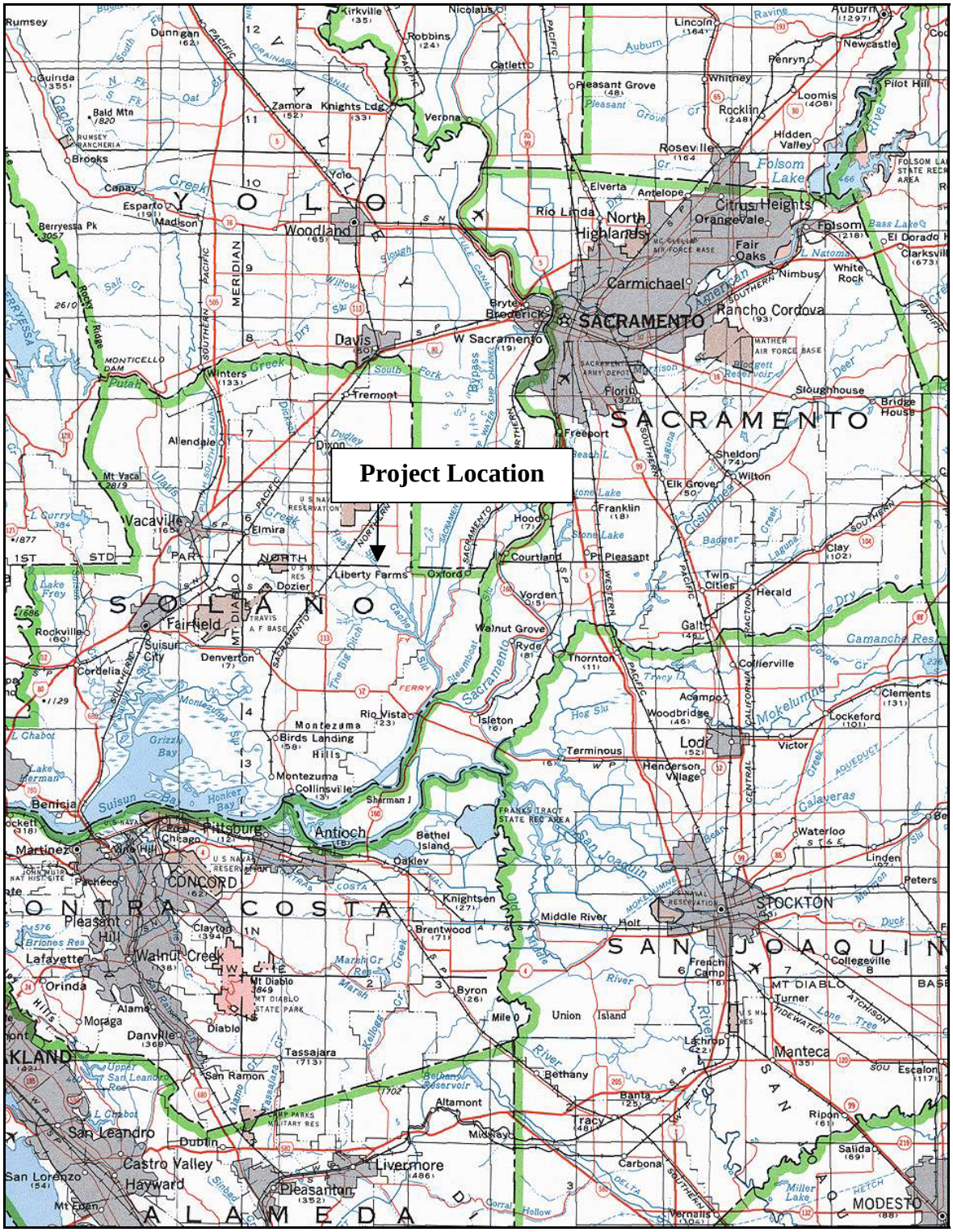
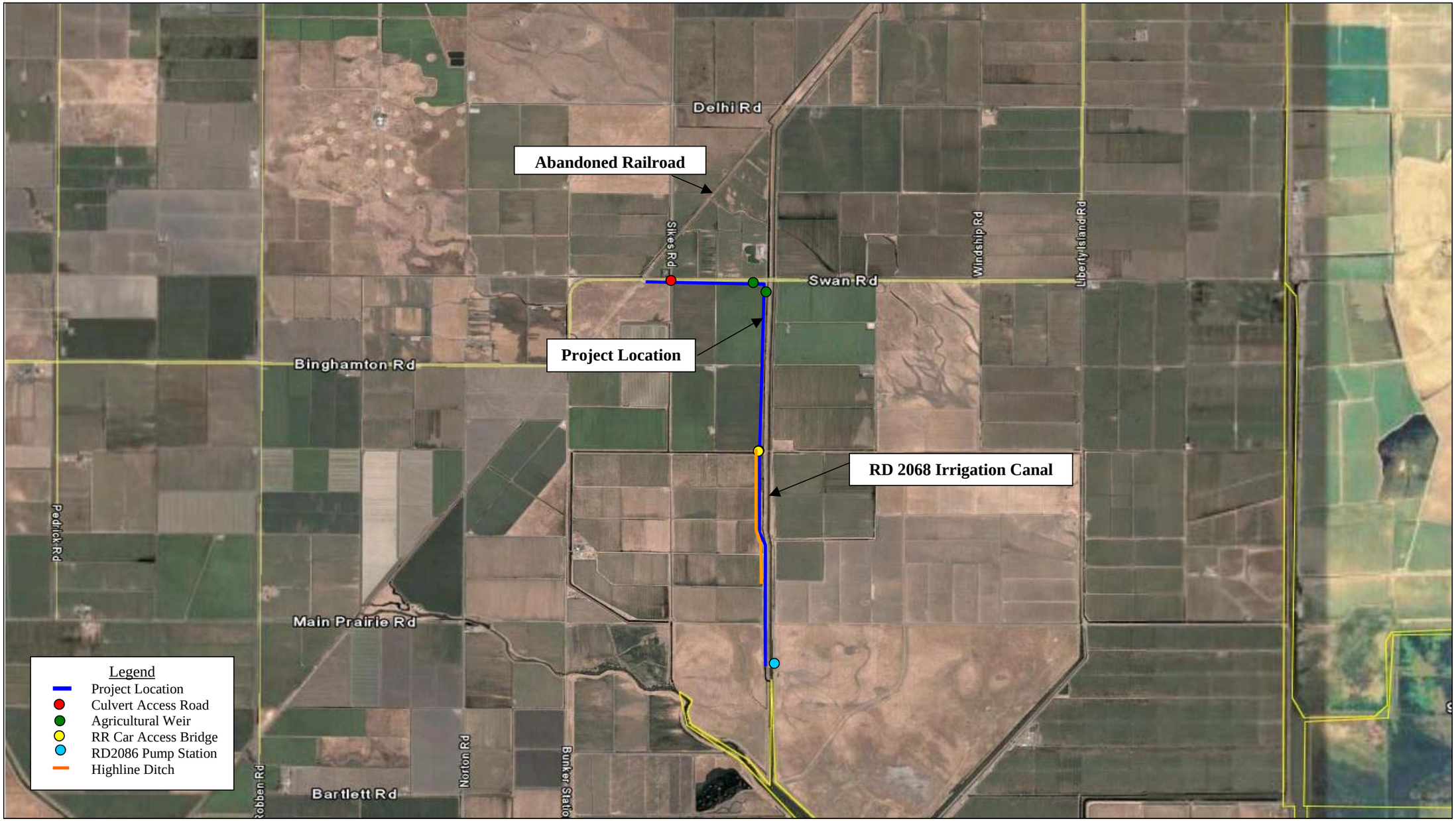


Figure 3-2
Project Map



Site Characteristics

The project site topography is essentially flat and located along existing constructed drainage systems. The surrounding areas primarily consist of mixed agricultural practices, which include, row crops, flooded irrigation, and cattle pastures. The proposed 0.6-mile DMD expansion would run parallel to Swan Road from near the abandoned railroad tracks to the DMD's easterly terminus at the V-Drain. The V-Drain enlargement would begin at the current confluence of the DMD and extend south to the RD 2068 Intake Canal, which exists directly east of the V-Drain. The Dixon Main Drain and V-Drain consist of grassland and seasonal wetland habitat onsite. Surrounding properties located to the southwest of the proposed project are prone to flooding during heavy rain events and the properties eventually drain into the DMD and V-Drain.

Project Components

Channel Enlargement

The proposed project involves the enlargement of the DMD and V-Drain channels to provide an increase in capacity of 375 cubic feet per second (cfs). The project consists of two primary elements, enlargement of the DMD along Swan Road at the abandoned railroad tracks to the DMD's easterly terminus at the V-Drain, and the enlargement of the existing V-Drain between Swan Road and the RD 2068 intake canal near Haas Slough. After the enlargement of the V-Drain, the connection between the V-Drain and the intake canal would be straightened, the far intake channel bank would be armored against erosion, and proper, as designed, channel inverts would be established at and around the point of connection.

The Dixon Main Drain would be enlarged to provide an increase in capacity of 375 cfs more than the DMD's existing capacity of 240 cfs, for a total DMD capacity of 615 cfs. This is expected to be achieved by excavating the channel to provide a bottom width of six feet, increasing the channel depth by approximately two feet, and reducing the side slope of the southern bank to a four-to-one (4:1) slope. The V-Drain is being designed for a target capacity of 1,518 cfs, which would include the existing capacity of 1,132 cfs, the additional 375 cfs, and 11 cfs for runoff from the local tributary areas. This is expected to be achieved by providing a bottom width of 40 to 50 feet (an approximately 20- to 30-foot increase), increasing the channel depth in some locations by approximately 1.5 feet, and reducing the side slope of the west bank to a four-to-one (4:1) slope. In addition, the V-Drain outfall into the RD 2068 Intake Canal would be re-aligned to reduce erosion. Because the RD 2068 Intake Canal has a capacity that is at least 212 cfs greater than the target capacity of the V-Drain, improvements are not proposed to the RD 2068 Intake Canal.

Figure 3-3
Culvert Access Road

Access Road Culvert Replacement

An access road that crosses the DMD to the adjacent property exists approximately one-quarter mile east of the abandoned railroad tracks (See Figure 3-3). The access road is constructed over two 60-inch culverts topped with base material. After the enlargement of the DMD, the culvert access road would be replaced with an engineered bridge (i.e., a flat bed rail car bridge with concrete abutments) or new culverts that would span across the newly widened DMD.

Weir System

At the eastern portion of the DMD along Swan Road and the northern portion of the V-Drain are two agricultural weirs that are used to raise the water level in the drains for irrigation water reuse purposes (Figure 3-4 and Figure 3-5, respectively). The enlargement of the DMD along Swan Road would require the removal and replacement of the agricultural weir in the DMD. The agricultural weir located in the V-Drain would be required to be removed and a new foundation for a replacement weir would be installed.

Bridge

Along the V-Drain is a flatbed railcar access bridge that crosses the V-Drain (See Figure 3-6). Removal of the access bridge is not anticipated to be included as part of the proposed project. The V-Drain would be enlarged from both upstream and downstream of the bridge. At the bridge, the size of the V-Drain may not be changed. The channel at the bridge and the transition sections above and below would be protected with suitable sized Rip-Rap for erosion and slope protection.

Highline Canal

West of the V-Drain from near the railcar bridge, continuing south for approximately three-quarters of a mile, is a highline ditch that is used for irrigation purposes. The enlargement of the V-Drain would require the relocation of the highline ditch. The highline ditch would be reconstructed west of the current location.

Trash Rack Improvement

The existing trash rack at the RD 2068 intake canal will not prevent accumulation of debris upstream of the connection of V-Drain and the RD 2068 intake channel during high flow events or when the bypass is at high stages. As part of the proposed project, the existing screens on the rack would be replaced with improved screens, which would be installed on the existing H-beam support structure. Additional new trash screening or fencing could be constructed on or around the RD 2068 intake pump station. The screens for this rack could be installed above the existing screens or could be attached to the existing concrete pump station structure.

Figure 3-4
Agricultural Weir

Figure 3-5
Agricultural Weir

Figure 3-6
Rail Car Access Bridge

Required Public Approvals

The Dixon Main Drain and V-Drain Enlargement project requires the following discretionary actions by the Dixon Regional Watershed JPA:

- Certification of the EIR;
- Approval of proposed alignment; and
- Authorization of the submittal of bids for the proposed project.

Project Objectives

The applicant proposes the Dixon Main Drain and V-Drain Enlargement project to achieve the following objectives:

- Reduce the local flooding caused by regional drainage flows in excess of the existing drainage capacity and contractual limits in the area of Sikes and Swan Roads;
- Reduce the regional watershed's impact on the properties located in the vicinity of Sikes and Swan Roads;
- Enlarge the existing DMD to provide an increase in capacity of 375 cubic feet per second (cfs), which would allow for an average capacity of 615 cfs;
- Enlarge the existing V-Drain to provide a capacity of 1,518 cfs; and
- Modify the existing V-Drain to reduce the 90-degree bend at the discharge from the V-Drain to the RD 2068 Intake Canal, in order to reduce erosion to the canal bank.

4. ENVIRONMENTAL SETTING, IMPACTS, AND MITIGATION

4.0 INTRODUCTION TO THE ANALYSIS

4.0 INTRODUCTION TO THE ANALYSIS

INTRODUCTION

Chapter 4 analyzes the potential impacts of the Dixon Main Drain and V-Drain Enlargement project (proposed project) on a range of environmental issue areas. Chapters 4.1 through 4.4 describe the focus of the analysis, references and other data sources for the analysis, the environmental setting as related to the specific issue, project-specific impacts and mitigation measures, and cumulative impacts of the proposed project for each issue area. The format of each of these sections is described below.

DETERMINATION OF SIGNIFICANCE

Under CEQA, a significant effect is defined as a substantial or potentially substantial adverse change in the environment (Public Resources Code §21068). The Guidelines implementing CEQA direct that this determination be based on scientific and factual data. The specific criteria for determining the significance of a particular impact are identified within the impact discussion in each section, and are consistent with significance criteria set forth in the CEQA Guidelines.

INITIAL STUDY

The Initial Study (See Appendix A) prepared for the Dixon Main Drain (DMD) and V-Drain Enlargement project as a part of this EIR includes a detailed environmental checklist addressing a range of technical environmental issues. For each technical environmental issue, the Initial Study identifies the level of impact for the proposed project. The Initial Study identifies the environmental effects as either "no impact," "less-than-significant," "less-than-significant with mitigation incorporated," and "potentially significant." The Initial Study provided the following conclusions:

The Initial Study concludes that the proposed project would have no impact or a less-than-significant impact on the following environmental issues:

- *Aesthetics (I a-d. p.7-8):* The proposed project would not have a substantial adverse effect on scenic resources, nor would the project substantially degrade the existing visual character of the site and the site's surroundings. Furthermore, the proposed project would not create a new source of substantial light or glare that would adversely affect day or nighttime views.

- *Air Quality (III e. p.16):* The proposed project would not create objectionable odors.

- *Biological Resources (IV f. p.13):* The proposed project would not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Conservation Community Plan, or other approved local, regional, or State habitat conservation plan.

- *Geology and Soils (VI ai-iv,c,d. p.18-20):* The proposed project site is not susceptible to fault rupture, seismic ground shaking, liquefaction, landslides, lateral spreading, or subsidence, nor is the project located on potentially expansive soils. Furthermore, the proposed project would not involve the need for use of sewer or septic systems; therefore, impacts related to septic systems would not occur.

- *Hazards and Hazardous Materials (VII c, e, f, h. p.21-23):* The proposed project site is not located within one-quarter mile of any schools; therefore, development of the proposed project would not result in exposure of schools to hazardous materials. The project site is also not located within an airport land use plan or within two miles of an airport, or located within an area where wildland fires occur. Therefore, the proposed project would not result in impacts pertaining to the aforementioned hazards. In addition, the proposed project would not impair implementation of an adopted emergency response plan or emergency evacuation plan.

- *Hydrology and Water Quality (VIII b,f-i. p.24-25):* The proposed project would not cause a substantial depletion of groundwater supplies, nor interfere with groundwater recharge causing a net deficit in aquifer volume or lowering of the local groundwater table level. In addition, the project would not locate housing or other structures within a 100-year floodplain and the project is designed to reduce flooding in the local area. Furthermore, the proposed project site is not located within an area subject to damage by seiche, tsunami, or mudflow. Therefore, implementation of the proposed project would not result in impacts relating to these phenomena.

- *Land Use (IX a,c. p.26):* The proposed project would not divide an existing community. The project would also not conflict with any applicable Habitat Conservation Plan or Natural Communities Conservation Plan.

- *Noise (XI a-f. p.28-29):* The proposed project would not generate noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies. Nor would the project generate a substantial temporary or permanent increase in ambient noise levels in the project vicinity above levels existing without the project. The proposed project would not expose people to generation of excessive groundborne vibration or groundborne noise levels nor would the project expose people to excessive noise levels associated with airport uses.

- *Population and Housing (XII a-c. p.30):* The proposed project would not induce population growth. The project would also not displace existing housing or people, because the site is not currently used for residential purposes.

- *Public Services (XIII a-d. p.31):* The proposed project would not induce population growth in the City of Dixon; therefore, the project would not require the provision of new or physically altered governmental facilities, including police and fire protection, and schools and parks.

- *Recreation (XIV a,b. p.32):* The proposed project would not induce population growth in the City of Dixon; therefore, the project would not require the provision of new parks or recreational facilities.

- *Transportation and Circulation (XV a-c, e-g. p.33-34):* The proposed project consists of improvements to a drainage channel; therefore, once construction of the improvements is completed, the project would not generate any increase in vehicle trips. In addition, the proposed drainage channel would not increase traffic hazards, result in inadequate emergency access, or inadequate parking capacity. The proposed project site is not located near an airport, so the proposed project would not result in a change in air traffic patterns.

The Initial Study includes mitigation measures to reduce to a less-than-significant level the potentially significant impacts for the following identified environmental issues:

- *Cultural Resources (V a-d. p.16-17):* Cultural and/or historical resources have not been identified in the area of the proposed project; however, construction of the proposed project would include earth-disturbing activities such as clearing and excavating, which could significantly affect any unidentified cultural resources. In addition, the proposed project site is adjacent to a natural drainage channel, which increases the likelihood of unearthing previously unknown cultural resources during site grading. Although the impact on cultural resources would be considered potentially significant, implementation of the included mitigation measures would reduce the impact to less-than-significant.

- *Geology and Soils (VI b. p.18-19):* The proposed project would involve the excavation of soil for construction of the drainage channel. This excavation, and grading, of the proposed project site would lead to temporarily exposed earth surfaces, which would render the surface soils vulnerable to the erosive effects of wind and rain. Although the impact from substantial soil erosion or the loss of topsoil would be considered potentially significant, implementation of the included mitigation measures would reduce the impact to less-than-significant.

- *Hazards and Hazardous Materials (VII a,b. p.21-22):* Gas and oil wells exist in the southern part of Solano County, many of which are connected to underground fuel lines. These fuel lines cross the proposed project area and could be damaged during construction of the drainage channel. Although the proposed project would be considered to have a potentially significant impact on hazards created by

damage to existing fuel lines, implementation of the included mitigation measure would reduce the impact to less-than-significant.

- *Mineral Resources (X a,b. p.27):* The construction associated with the proposed project could interfere with the operations of the natural gas fuel lines, which would be considered a potentially significant impact to mineral resources. However, implementation of the included mitigation measure would reduce the impact to less-than-significant.

- *Transportation and Circulation (XV d. p.33-34):* The proposed project would include the construction of a drainage channel and expansion of an existing V-Drain, which would involve the use of construction equipment and the staging of construction equipment. This could create potential safety hazards to motor vehicles, bicyclists, and pedestrians and interfere with emergency access. Although the proposed project's impact on transportation hazards would be considered potentially significant, the implementation of the included mitigation measure would reduce the impact to less-than-significant.

All other sections containing potentially significant impacts have been included in this EIR for further analysis.

ISSUES ADDRESSED IN THIS DRAFT EIR

The Initial Study identified several environmental impacts as potentially significant and required further analysis. This EIR provides the additional analysis necessary to address the technical environmental impacts not fully resolved in the Initial Study. Consistent with the conclusions of the Initial Study, the following environmental issues are addressed in this chapter of the Draft EIR:

- Land Use and Agricultural Resources;
- Biological Resources;
- Hydrology, Water Quality, and Drainage; and
- Public Services and Facilities.

SECTION FORMAT

Each section in Chapter 4 addressing a specific environmental issue begins with an **introduction** describing the purpose of the section. The introduction is followed by a description of the project's **environmental setting** as the setting pertains to that particular issue. The setting description is followed by the **regulatory context** and the **impacts and mitigation measures** discussion. This discussion contains the **significance criteria**, followed by the **methods of analysis**. The **impact and mitigation** discussion includes impact statements prefaced by a number in bold-faced type. An explanation of each impact and an analysis of the impact's significance follow each impact statement. All mitigation measures pertinent to each individual impact follow directly after the impact statement (see below). The degree of relief provided by identified mitigation measures is also evaluated. An example of the format is shown below:

4.x-1 Statement of Impact

Discussion of impact for the proposed project in paragraph format.

Statement of ***level of significance*** of impact prior to mitigation is included at the end of each impact discussion.

Mitigation Measure(s)
Statement of *level of significance* after the mitigation is included immediately preceding mitigation measures.

4.x-1(a) *Recommended mitigation measure(s) presented in italics and numbered in consecutive order.*

4.x-1(b) *etc. etc.*

4.1 LAND USE AND AGRICULTURAL RESOURCES

4.1 LAND USE AND AGRICULTURAL RESOURCES

INTRODUCTION

The purpose of the Land Use and Agricultural Resources chapter is to examine the proposed project's compatibility with existing and planned land uses in the area and potential conflicts with agricultural land uses. In addition, consistency with applicable General Plan goals and policies is evaluated. Furthermore, the potential loss of farmland associated with the proposed project will be evaluated. Documents referenced to prepare this section include the *Solano County General Plan*[1] and the Solano County *Zoning Regulations*.[2]

EXISTING ENVIRONMENTAL SETTING

Section 15125 of the *CEQA Guidelines* states that "an EIR must include a description of the physical environmental conditions in the vicinity of the project […] and shall discuss any inconsistencies between the proposed project and applicable general plans and regional plans." The following provides the existing land uses on the project site, as well as the existing plans and policies that guide the development of the project site.

Existing Uses on the Project Site

The project site topography is essentially flat and located along existing drainage systems. The surrounding areas primarily consist of mixed agricultural practices, which include canals and ditches, irrigated row crops, and irrigated livestock pasture. The proposed 0.6-mile Dixon Main Drain (DMD) enlargement would run parallel to Swan Road from near the abandoned railroad tracks to the DMD's easterly terminus at the V-Drain. The V-Drain enlargement would begin at the current confluence of the DMD and extend south to the RD 2068 intake canal, which exists directly east of the V-Drain. Properties to the southwest are developed with livestock pastures and generally are isolated from the V-Drain and drain to areas south of the project site.

Current Solano County Land Use Designation and Zoning

Existing General Plan Land Use Designations

The 75,000-acre plain in the Dixon-Solano area is the dominant agricultural area surrounding the City of Dixon. The area is comprised of irrigated lands, predominantly Class I and II soils, and supports irrigated field, seed and truck crops.

The *Solano County General Plan* designates the area surrounding the proposed project area for Intensive Agricultural uses. Areas designated as Intensive Agricultural are composed generally of highly fertile soils brought into intensive production through irrigation. The areas designated by the General Plan as intensive agricultural reflect the need to avoid the loss through

urbanization of high-quality soils and croplands of significant economic importance and the need to preserve areas, which possess unique characteristics for the raising of specialty crops.

Existing Zoning Designations

The Solano County *Zoning Regulations* designate the proposed project site as Exclusive Agriculture, 40-acre minimum (A-40). Agricultural property in Solano County has been classified into two basic types: intensive and extensive. Lands designated A-40 fall under the intensive category, which indicates that the land has high quality soils, which are brought into intensive agricultural production through irrigation. Intensive agricultural lands are typically retained in parcel sizes of 40 to 80 acres, and are identified as Prime Farmland by the State Department of Land Conservation.

Agricultural Resources

The following describes the extent and quality of the agricultural resources present on the project site.

Farmland Classifications

The United States Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS) uses two systems to determine a soil's agricultural productivity: the Soil Capability Classification and the Storie Index Rating System. The "prime" soil classification of both systems indicates the absence of soil limitation, which if present, would require the application of management techniques (e.g., drainage, leveling, special fertilizing practices) to enhance production. The Farmland Mapping and Monitoring Program, part of the Division of Land Resource Protection, California Department of Conservation, uses the information from the USDA and the NRCS to create maps illustrating the types of farmland in the area.

Soil Capability Classification

The Soil Capability Classification System takes into consideration soil limitations, the risk of damage when soils are used, and the way in which soils respond to treatment. Capability classes range from Class I soils, which have few limitations for agriculture, to Class VIII soils, which are unsuitable for agriculture. Generally, as the rating of the capability classification system increases, the yields and profits are difficult to obtain. A general description of soil classification, as defined by the NRCS, is provided in Table 4.1-1, Soil Capability Classification.

Farmland Mapping and Monitoring Program

The Farmland Mapping and Monitoring Program (FMMP) was established in 1982 to continue the Important Farmland mapping efforts begun in 1975 by the U.S. Department of Agriculture, Soil Conservation Service (USDA-SCS). The intent of the USDA-SCS was to produce agriculture maps based on soil quality and land use across the nation. As part of the nationwide agricultural land use mapping effort, the USDA-SCS developed a series of definitions known as Land Inventory and Monitoring (LIM) criteria. The LIM criteria classified the land's suitability

Table 4.1-1
Soil Capability Classification

Class	Definition
I	Soils have few limitations that restrict their use.
II	Soils have moderate limitations that reduce the choice of plants, or that require special conservation practices.
III	Soils have severe limitations that reduce the choice of plants, require conservation practices, or both.
IV	Soils have very severe limitations that reduce the choice of plants, require very careful management, or both.
V	Soils are not likely to erode but have other limitations; impractical to remove that limit their use largely to pasture or range, woodland, or wildlife habitat.
VI	Soils have severe limitations that make them generally unsuited to cultivation and limit their use largely to pasture or range, woodland, or wildlife habitat.
VII	Soils have very severe limitations that make them unsuited to cultivation and that restrict their use largely to pasture or range, woodland, or wildlife habitat.
VIII	Soils and landforms have limitations that preclude their use for commercial plants and restrict their use to recreation, wildlife habitat, or water supply or to aesthetic purposes.

Source: USDA Soil Conservation Service, 1977.

for agricultural production; suitability included both the physical and chemical characteristics of soils and the actual land use. Important Farmland Maps are derived from the USDA-SCS soil survey maps using the LIM criteria.

Since 1980, the State of California has assisted the USDA-SCS with completing mapping in the State. The FMMP was created within the State Department of Conservation (DOC) to carry on the mapping activity on a continuing basis, and with a greater level of detail. The DOC applied a greater level of detail by modifying the LIM criteria for use in California. The LIM criteria in California utilizes the SCS and Storie Index Rating systems, but also considers physical conditions such as dependable water supply for agricultural production, soil temperature range, depth of the ground water table, flooding potential, rock fragment content and rooting depth.

Important Farmland Maps for California are compiled using the modified LIM criteria (as described above) and current land use information. The minimum mapping unit is 10 acres unless otherwise specified. Units of land smaller than 10 acres are incorporated into surrounding classifications. The Important Farmland Maps identify seven agriculture-related categories: prime farmland, farmland of statewide importance (statewide farmland), unique farmland, farmland of local importance (local farmland), grazing land, urban and built-up land (urban land), and other land. Each is summarized below, based on *A Guide to the Farmland Mapping and Monitoring Program, 2004 Edition*, prepared by the Department of Conservation.

Prime Farmland: Prime farmland is land with the best combination of physical and chemical features able to sustain the long-term production of agricultural crops. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields. The land must have been used for the production of irrigated crops at

some time during the two update cycles (a cycle is equivalent to two years) prior to the mapping date of 1998 (or since 1994).

Statewide Farmland: Farmland of Statewide Importance is land similar to prime farmland, but with minor shortcomings, such as greater slopes or with less ability to hold and store moisture. The land must have been used for the production or irrigated crops at sometime during the two update cycles prior to the mapping date (or since 1994).

Unique Farmland: Unique farmland is land of lesser quality soils used for the production of the State's leading agricultural crops. This land is usually irrigated, but may include non-irrigated orchards or vineyards, as found in some climatic zones in California. The land must have been cultivated at some time during the two update cycles prior to the mapping date (or since 1994).

Local Farmland: Farmland of Local Importance is land of importance to the local agricultural economy, as determined by each county's Board of Supervisors and a local advisory committee. The Solano County Board of Supervisors determined that Solano County does not have any Farmland of Local Importance.

Grazing Land: Grazing land is land on which the existing vegetation, whether grown naturally or through management, is suited to the grazing of livestock. The minimum mapping unit for this category is 40 acres.

Urban Land: Urban and built-up land is occupied with structures with a building density of at least one unit to one-half acre. Uses may include but are not limited to, residential, industrial, commercial, construction, institutional, public administration purposes, railroad yards, cemeteries, airports, golf courses, sanitary landfills, sewage treatment plants, water control structures, and other development purposes. Highways, railroads, and other transportation facilities are mapped as part of this unit, if they are part of a surrounding urban area.

Other Land: Other land is land that is not included in any other mapping categories. The following uses are generally included: rural development, brush timber, government land, strip mines, borrow pits, and a variety of other rural land uses.

Project Site Characteristics

According to the Solano County Soil Survey, the project site is made up of Capay clay (Cc), Clear Lake clay (CeA), 0 to 2 percent slopes, San Ysidro sandy loam (SeA), 0 to 2 percent slopes, and Antioch-San Ysidro complex (AoA), 0 to 2 percent slopes. The Solano County

Candidate Listing for Prime Farmland and Farmland of Statewide Importance lists Capay clay and Clear Lake clay, 0 to 2 percent slopes as being soils that meet the criteria for Prime Farmland.

REGULATORY CONTEXT

The following local regulations apply to land use issues associated with the proposed project.

Federal and State Requirements

Currently, Federal and State policies and/or mandates do not include regulations related to Land Use. Therefore, in addition to the thresholds of significance outlined in Appendix G of the CEQA Guidelines, the local policies and guidelines associated with Land Use as defined by Solano County will be utilized for this analysis.

Regional and Local Requirements

Solano County General Plan

California State Government Code Section 65300 requires each county and city, including charter cities, to adopt a comprehensive General Plan, which should be integrated and internally consistent with a compatible statement of goals, objectives, policies and programs to provide for a decision-making basis on physical development. Goals, objectives and programs established for each element of the General Plan must meet the existing and future needs and desires of the community. These goals, objectives and programs are specific, action-oriented and promoted during the life of the *Solano County General Plan* through December 31, 2010. California State Government Code Section 65301 allows flexibility in the formation of the General Plan which may be adopted either as a single document or as a group of related documents organized either by subject matter or by geographic section within the planning area. In addition, State law permits the inclusion of optional elements, which address needs, objectives, or requirements particular to that city or county.

The project site is located in Solano County, and is thus subject to the *Solano County General Plan*. The *Solano County General Plan* consists of 8 elements which include: 1) Land Use and Circulation; 2) Health and Safety (Seismic Safety, Safety, and Noise); 3) Resource Conservation and Open Space; 4) Housing; 5) Park and Recreation; 6) Energy; 7) Scenic Roadways; and 8) Source Reduction, Recycling, and Household Waste. It should be noted that the County is currently in the process of updating their General Plan; however, this EIR is based upon the existing adopted General Plan.

The Solano County *Land Use and Circulation Element,* adopted by the County in December 1980 and amended through December 2004, provides a long-range guide for the orderly growth and development in a manner which protects the County's agricultural and natural resources. The element consolidates existing area plans into a countywide *Land Use and Circulation Element.*

The Solano County *Land Use and Circulation Map* shows the land use pattern as one of city-centered growth with six urban areas distributed throughout the County. These areas are Vallejo/Benicia, Cordelia, Fairfield/Suisun, Vacaville, Dixon and Rio Vista. The separation of urban areas is provided by lands designated for intensive and extensive agricultural use. As previously mentioned, the area surrounding the proposed project is designated for Intensive Agricultural uses.

The Solano County *Land Use and Circulation Element* reflects the need to avoid the loss through urbanization of high-quality soils and croplands of significant economic importance and the need to preserve areas, which possess unique characteristics for the raising of specialty crops.

Approximately 173,000 acres have been designated for intensive agricultural use within the County. Essential intensive agricultural areas include lands in the Wolfskill area, Dixon Ridge area, Yolano area, the Delta Islands area, Pleasants Valley, Vaca Valley, Lagoon Valley, Paradise Valley, Suisun and Gordon Valley and Green Valley. The General Plan protects these areas from the intrusion of non-agricultural uses and further urban encroachment in order to preserve them exclusively for agricultural purposes.

The County sets forth the urbanization of agricultural lands to proceed in an orderly manner to reduce conflicts between urban and agricultural uses, discourage the future expansion of urban uses into essential, agriculturally productive areas, and reduce the speculative pressures brought on by uncertainty of the timing and direction of future urban growth. To accomplish orderly development the County encourages the formation of realistic sphere of influence lines to clearly define those areas intended for urbanization and supports taxation measures which encourage the retention of agricultural uses.

The Solano County *Land Use and Circulation Element* describes the following goals that provide the overall planning basis for future land use decisions:

- Provide for orderly growth which assures a harmonious relationship of land uses both rural and urban and maintains the distinctive character of each community in Solano County;
- Maintain and enhance environmental quality of Solano County as it relates to the use of land, water and air by managing and preserving the diverse natural resources of the County for the use and enrichment of the lives of present and future generations;
- Promote and ensure adequate housing in a satisfying environment for all citizens of Solano County;
- Establish a strong diversified economic base and provide for a wide choice of employment opportunities in a pleasant working environment;
- Obtain maximum benefit and efficient use of existing and future public facilities and services and provide opportunities for social and cultural activities and services for all residents of Solano County; and
- Provide and maintain a safe, economical and efficient circulation and transportation system to ensure adequate multi-modal movement of people and goods within, to and

from, the County while incurring the least social, economic and environmental harm to existing or planned activities and land uses.

The General Plan policies applicable to the proposed project are discussed further below in the Environmental Impacts section.

Impacts and Mitigation Measures

Standards of Significance

Land Use

For the purposes of this Draft EIR, impacts are considered significant if implementation of the proposed project would:

- Allow development of land uses that would be incompatible with existing surrounding land uses;
- Conflict with the other County plans, policy, or regulation; or
- Conflict with the Solano County Zoning Ordinance.

Agricultural Resources

An agricultural impact may be considered to be significant if implementation of the proposed project would do any of the following:

- Result in the conversion of prime farmland, unique farmland, or farmland of statewide importance to nonagricultural use or impairs the agricultural productivity of prime agricultural land;
- Adversely affect agricultural viability by placing incompatible, or potentially incompatible land uses near active agricultural areas;
- Adversely affect agricultural production; or
- Conflict with existing zoning for agricultural uses or a Williamson Act contract.

Method of Analysis

Land Use

The land use analysis is based on a qualitative comparison of existing and proposed uses on the site and the compatibility with existing and planned surrounding land uses as defined in the *Solano County General Plan* and the Solano County *Zoning Regulations*. In addition, the analysis evaluates the consistency of the project's proposed land uses with what is currently allowed for the project site under the General Plan and Zoning Regulations.

Agricultural Resources

The Agricultural Resources section utilized the *Solano County General Plan*. The section assesses the impacts of the project on agricultural resources by applying the standards of significance listed above to the proposed project. If the analysis determines that the proposed project would have significant impacts on agricultural resources, mitigation measures, if available, are recommended to reduce impacts.

Project Impacts and Mitigation Measures

4.1-1 Impacts related to compatibility with surrounding land uses.

The determination of compatibility of land uses typically relies on a general discussion of the types of adjacent uses to a proposed project and whether any sensitive receptors exist on nearby properties. For example, incompatibilities may exist when uses such as residences, parks, churches, and schools are located adjacent to more disruptive uses such as heavy industrial, major transportation corridors, and regional commercial centers where noise and traffic levels may be high. The identification of incompatible uses occurs if one land use is anticipated to be disruptive of the existing or planned use of an adjacent property.

The land uses surrounding the proposed project consist of rural roadways and agricultural land. The proposed project would not develop in close proximity to any existing residential or urban areas and the operational phase of the proposed project would not include the use of any machinery or maintenance that would be expected to conflict with the surrounding land uses. In addition, when developed, the proposed project would not be expected to be a source of new light, glare or noise.

The proposed project would increase the efficiency and capacity of existing drainage systems in the project area, and would further support the surrounding agricultural land uses. Therefore, the proposed project would be expected to be consistent with the project's agricultural surroundings and would have a ***less-than-significant*** impact with regard to compatibility with surrounding land uses.

Mitigation Measure(s)
None required.

4.1-2 Development of the proposed project would be inconsistent with Solano County plans, policies, or ordinances.

The *Solano County General Plan* designates the area surrounding the proposed project area for Intensive Agricultural uses. This designation is put in place to avoid the loss of important and unique agricultural farmland as a result of urbanization. The project consists of two primary elements, enlargement of the DMD along Swan Road at the abandoned railroad tracks to the DMD's easterly terminus at the V-Drain, and the enlargement of the existing V-Drain between Swan Road and the RD 2068 Intake Canal

near to Haas Slough. The development of the proposed project would improve existing drainage systems in the project area and would promote the existing agricultural nature of the project area.

The proposed project would support the goals and policies included in the General Plan by increasing the efficiency of public facilities and promoting the existing rural and agricultural nature of the proposed project area and supporting the Intensive Agricultural land use designation assigned by the *Solano County General Plan.*

The project area is currently zoned for A-40 Exclusive Agriculture (40 acre minimum.) The proposed project would include construction activities along existing roadways and expand an existing drainage system. These activities would not be expected to disrupt the agricultural activities in the vicinity of the proposed project. In addition, the proposed project would improve the existing drainage systems in the project area and would thus encourage existing agricultural activities through improving existing infrastructure.

The project as proposed would contribute positively to the agricultural nature of the surrounding land uses and the General Plan land use designation for the project site by providing increased drainage flows to the proposed project area. Therefore, because the proposed project would be consistent with the General Plan and the policies and ordinances of Solano County, a ***less-than-significant*** impact would result.

Mitigation Measure(s)
None required.

4.1-3 Loss of agricultural land.

The *Solano County General Plan* designates the proposed project site as Intensive Agricultural, and further designates the site as essential agricultural property, which indicates that the land is intended to be protected and maintained for long-term commercial agricultural uses, with the only allowable non-agricultural uses being those essential to, and supportive of, the primary agricultural uses. In addition, the proposed project site is considered to be Prime Farmland. However, the project is intended to promote the existing rural and agricultural nature of the project area by resulting in an increase in the efficiency and capacity of drainage flows in the proposed project vicinity. Therefore, the project would provide beneficial long-term effects for surrounding agricultural land uses. Therefore, the proposed project would have a ***less-than-significant*** impact related to the loss of agricultural land.

Mitigation Measure(s)
None required.

Cumulative Impacts – Land Use and Agricultural Resources

The following discussion of impacts is based on the implementation of the proposed project in combination with other proposed and pending projects in the region.

4.1-4 Cumulative loss of agricultural land.

The proposed project would develop along existing roadways and expand already existing drainage areas to provide increased drainage capabilities in the proposed project area. As mentioned in Impact 4.1-3, the project is intended to promote the existing rural and agricultural nature of the project area by resulting in an increase in the efficiency and capacity of drainage flows in the proposed project vicinity, and the project would provide beneficial long-term effects for surrounding agricultural land uses. The Solano County Zoning Regulations state that non-agricultural uses essential to, and supportive of, primary agricultural uses in the County are allowable in agricultural districts. Because the project would be supportive of the surrounding agricultural uses and would provide long-term benefits, the project would be expected to have a ***less-than-significant*** impact in regard to the cumulative loss of agricultural land.

Mitigation Measure(s)
None required.

4.1-5 Increases in the intensity of land uses in the region due to the proposed project and all other projects in the project area.

As discussed above, the proposed project was found to result in less-than-significant impacts with regard to consistency with the Solano County General Plan and would not be expected to result in any land use conflicts. In fact, the proposed enlargement of the DMD and V-Drain systems would result in increased drainage flows in the proposed project vicinity, providing a beneficial long-term effect for surrounding land uses. Therefore, the long-term cumulative impacts that would result from the proposed project associated with drainage would be ***less-than-significant***.

Mitigation Measure(s)
None required.

Endnotes

[1] Solano County, *Solano County General Plan*, 1980 (amended through 2004).
[2] Solano County Department of Environmental Management, *Solano County Zoning Regulations*, February 8, 2002.

4.2 BIOLOGICAL RESOURCES

4.2 BIOLOGICAL RESOURCES

INTRODUCTION

This chapter of the EIR evaluates potential biological resource impacts associated with the implementation of the Dixon Main Drain and V-Drain Enlargement project (proposed project) and includes a discussion of the mitigation measures necessary to reduce impacts to a less-than-significant level where applicable. The Biological Resources chapter was prepared for the proposed project on September 18, 2008 by Monk & Associates. The assessment is based on data collected during field surveys of the proposed site and a review of existing literature, maps, and aerial photography pertaining to the biological resources of the area.

EXISTING ENVIRONMENTAL SETTING

The following section describes habitat types and associated wildlife, special-status species that occur or have the potential to occur on the project site, and the plant and wildlife species observed on the project site.

Stormwater Drainage Channel and Irrigation Ditch Habitat

The Dixon Main Drain (DMD) and V-Drain are large trapezoidal stormwater/irrigation drainage ditches characterized by an open water low-flow channel with steep banks on both sides. Emergent wetland vegetation grows along the edges of the channel and in intermittent patches within the channel. The dominant species growing along the bottom of the channel include broad-leaved cattail (*Typha latifolia*), hard-stem tule (*Schoenoplectus acutus* ssp. *occidentalis*), tall flatsedge (*Cyperus eragrostis*), curly dock (*Rumex crispus*), and giant bur-reed (*Sparganium eurycarpum eurycarpum*). The dominant species growing along the banks of the channel include broad-leaf peppergrass (*Lepidium latifolium*), common California aster (*Symphyotrichum chilensis*), California loosestrife (*Lythrum californicum*), perennial smartweed (*Persicaria punctata*), woolly sedge (*Carex lanuginosa*), sprangletop (*Leptochloa fascicularis, L. uninervia*), Dallis grass (*Paspalum dilatatum*), and Philadelphia fleabane (*Erigeron philadelphicus*). However, like all man-made ditches in the region, this channel is subjected to on-going maintenance activities to remove accumulated sediments and vegetation to accommodate more efficient water flows. This stormwater/irrigation drainage channel appears to be subject to extreme fluctuations in water level depending on stormwater runoff from upstream watersheds.

High flows exceed the capacity of the low-flow channel, flooding the floodplain benches along the drainage channel. These floodplain benches support wetland vegetation, particularly in the topographic low areas. The wetland areas are dominated by cattails, tule, tall flatsedge, water plantain (*Alisma plantago-aquatica*), creeping spikerush (*Eleocharis macrostachya*), and water primrose (*Ludwigia* sp.). During extremely high flows, water overflows the steep banks on the channel, as evidenced by debris deposited approximately 20 feet above the open water channel.

Tree species that grow sporadically along the upper edge of the banks of the drainage channel and in a small patch in the very southern end of the channel include Northern California black walnut (*Juglans californica* var. *hindsii*), narrow-leaved willow (*Salix exigua*), Fremont cottonwood (*Populus fremontii fremontii*), and valley oak (*Quercus lobata*). While these tree species are typically referred to as "riparian" species if they grow in proximity to water/creeks, the sporadic occurrence of these species on the project site does not create a true riparian community.

A large irrigation canal exists to the east and several smaller irrigation ditches occur to the west of the stormwater drainage channel. The primary purpose of the delivery irrigation ditches is to provide water to the agricultural fields and irrigated pastureland in the area and to remove excess irrigation water from the fields via tailwater ditches. Supply ditches are usually temporary features that are excavated on a year-to-year basis and are tailored to the crop species they are meant to support. The tailwater ditches are more permanent, and support species commonly found in wetlands. In the project area, the tailwater ditches support cattail, hard-stem tule, and willow (*Salix* sp.) saplings. The smaller irrigation ditches support hydrophytic vegetation (plants adapted to inundated conditions), including tall flatsedge (*Cyperus eragrostis*), broad-leaf peppergrass (*Lepidium latifolium*), annual beard grass (*Polypogon monspeliensis*), Bermuda grass (*Cynodon dactylon*), barnyard grass (*Echinochloa crus-galli*), and curly dock (*Rumex obtusifolius*). Although this vegetation performs a valuable function in natural wetlands (for example, filtering the water, and providing wildlife with food and cover), vegetation restricts the flow of water through agricultural ditches; hence, the growth of this vegetation is frequently controlled (i.e., vegetation is often cut back, physically removed, or treated with herbicides).

Bird species, including mallard (*Anas platyrhynchos*), great blue heron (*Ardea herodias*), great egret (*Ardea alba*), long-eared owl (*Asio otus*), black phoebe (*Sayornis nigricans*), song sparrow (*Melospiza melodia*), savannah sparrow (*Passerculus sandwichensis*), and white-crowned sparrow (*Zonotrichia leucophrys*) were observed foraging along the drainage channel within the project area. The trees along the canal provide suitable nesting habitat for a host of species that breed locally, and several small nests of passerines, also known as songbirds, were observed. Large patches of Himalayan blackberry (*Rubus discolor*) and hard-stem tule along the channel provide suitable nesting habitat for red-winged blackbird (*Agelaius phoeniceus*) and marsh wren (*Cistothorus palustris*), and other common bird species. The dense patches of Himalayan blackberry also provide cover habitat for a variety of wildlife such as California quail (*Callipepla californica*), and the ring-necked pheasant (*Phasianus colchicus*). Other wildlife species observed along the channel include Pacific pond turtle (*Actinemys marmorata*), which is a California designated "species of special concern," and Pacific tree frogs (*Hyla regilla*). Abundant crayfish (*Procambarus clarkii*) in the channel provide prey for raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), and other opportunistic mammals. Muskrat (*Ondatra zibethicus*) and American beaver (*Castor canadensis*) both occur along the drainage channel, as evidenced by burrows and dens along the banks, and beaver gnaw marks on branches at the top-of-bank. River otter (*Lutra canadensis*) also occur in the project area, as evidenced by "slides" on the banks.

Ruderal Habitat

Ruderal habitat consists of plant species adapted to continuous disturbance. Many of the plant species found within the project area are non-native species. Within the project area, this habitat occurs along the top of ditch banks, along the graded road to the east of the drainage channel, and in upland areas adjacent to fields. Common ruderal species in the project area include Queen Anne's lace (*Daucus carrota*), milk thistle (*Silybum marianum*), white-stem filaree (*Erodium moschatum*), horseweed (*Conyza canadensis*), black mustard (*Brassica nigra*), Italian ryegrass (*Lolium multiflorum*), bindweed (*Convolvulus arvensis*), wild oats (*Avena barbata, A. fatua*), ripgut grass, (*Bromus diandrus*), sweet fennel (*Foeniculum vulgare*), purple and yellow star thistle (*Centaurea calcitrapa* and *C. solstitialis*), smooth and rough cat's ear (*Hypochaeris glabra* and *H. radicata*), and bristly ox-tongue (*Helminthotheca echioides*). Coyote (*Canis lotor*), red fox (*Vulpes vulpes*), raccoon, and skunk also use the uplands along the canals as movement corridors.

Agrestal and Pastoral Habitat

The fields to the west of the project area support vegetation communities that are classified as agrestal (croplands) and pastoral (grazing land). The fields are highly disturbed habitats that are the result of long-term ground manipulation and/or cultivation. The communities are dominated by plant species well adapted to grazing of livestock or disturbance associated with cultivation. The main crop grown in the agricultural fields is alfalfa (*Medicago sativa*), thus these fields require regular ground disturbance for both cultivation (disking activities) and harvesting practices. The remaining fields are used for cattle grazing.

Resident birds such as western meadowlark (*Sturnella neglecta*), mourning dove (*Zenaida macroura*), and American crow (*Corvus brachyrhynchos*) commonly occur in open areas around the fields. Northern harriers (*Circus cyaneus*) forage over ruderal habitats and adjacent fields within the project area looking for small mammals that are common in these fields such as the California meadow vole (*Microtus californicus*) and western harvest mouse (*Reithrodontomys megalotis*). These rodents also serve as prey for various other raptor species, including red-tailed hawk (*Buteo jamaicensis*) and white-tailed kite (*Elanus leucurus*), both common in the project area.

Migratory bird species also use agrestal communities, particularly in the winter months after crops are harvested. Waterfowl and shorebirds often land in agricultural fields in the winter months en route to and from nesting grounds. Flooded conditions provide foraging opportunities for shorebirds probing for invertebrates in the substrate. Waterfowl often feed on leftover crops that are incidentally discarded during and after harvesting.

Special-Status Species

For purposes of this analysis, special-status species are plants and animals that are legally protected under the California and Federal Endangered Species Acts (CESA and FESA, respectively) or other regulations, and species that are considered rare by the scientific community (for example, the CNPS). Special-status species are defined as:

- Plants and animals that are listed or proposed for listing as threatened or endangered under the CESA (Fish and Game Code §2050 *et seq.*; 14 CCR §670.1 *et seq.*) or the

FESA (50 CFR 17.12 for plants; 50 CFR 17.11 for animals; various notices in the Federal Register [FR] for proposed species);

- Plants and animals that are candidates for possible future listing as threatened or endangered under the FESA (50 CFR 17; FR Vol. 64, No. 205, pages 57533-57547, October 25, 1999); and under the CESA (California Fish and Game Code §2068);

- Plants and animals that meet the definition of endangered, rare, or threatened under the California Environmental Quality Act (CEQA) (14 CCR §15380) that may include species not found on either State or Federal Endangered Species lists;

- Plants occurring on Lists 1A, 1B, 2, 3, and 4 of CNPS' *Electronic Inventory* (CNPS 2001). The California Department of Fish and Game (CDFG) recognizes that Lists 1A, 1B, and 2 of the CNPS inventory contain plants that, in the majority of cases, would qualify for State listing, and CDFG requests their inclusion in EIRs. Plants occurring on CNPS Lists 3 and 4 are "plants about which more information is necessary," and "plants of limited distribution," respectively (CNPS 2001). Such plants may be included as special-status species on a case by case basis due to local significance or recent biological information;

- Migratory nongame birds of management concern listed by U.S. Fish and Wildlife Service (Migratory Nongame Birds of Management Concern in the United States: The list 1995; Office of Migratory Bird Management; Washington D.C.; Sept. 1995);

- Animals that are designated as "species of special concern" by CDFG (2006); and

- Animal species that are "fully protected" in California (Fish and Game Codes 3511, 4700, 5050, and 5515).

In the paragraphs below, further definitions of legal status are provided as they pertain to the special-status species discussed in this chapter.

Federal Endangered or Threatened Species

A species listed as Endangered or Threatened under the FESA is protected from unauthorized "take" (that is, harass, harm, pursue, hunt, shoot, trap) of that species. If it is necessary to take a Federal listed Endangered or Threatened species as part of an otherwise lawful activity, it would be necessary to receive permission from the USFWS prior to initiating the take.

State Threatened Species

A species listed as Threatened under the state Endangered Species Act (§2050 of California Fish and Game Code) is protected from unauthorized "take" (that is, harass, pursue, hunt, shoot, trap) of that species. If it is necessary to "take" a state listed Threatened species as part of an otherwise

lawful activity, it would be necessary to receive permission from CDFG prior to initiating the "take."

California Species of Special Concern

These are species in which their California breeding populations are seriously declining and extirpation from all or a portion of their range is possible. This designation affords no legally mandated protection; however, pursuant to the CEQA Guidelines (14 CCR §15380), some species of special concern could be considered "rare." Pursuant to its rarity status, any unmitigated impacts to rare species could be considered a "significant effect on the environment" (§15382). Thus, species of special concern must be considered in any project that will, or is currently, undergoing CEQA review, and/or that must obtain an environmental permit(s) from a public agency.

CNPS List Species

The California Native Plant Society (CNPS) maintains an inventory of special status plant species. This inventory has four lists of plants with varying rarity. These lists are: List 1, List 2, List 3, and List 4. Although plants on these lists have no formal legal protection (unless they are also state or federal listed species), the California Department of Fish and Game requests the inclusion of List 1 species in environmental documents. In addition, other state and local agencies may request the inclusion of species on other lists as well. List 1 species have the highest priority: List 1A species are thought to be extinct, and List 1B species are known to still exist but are considered "rare, threatened, and endangered in California and elsewhere." All of the plants constituting List 1B meet the definitions of Section 1901, Chapter 10 (Native Plant Protection Act) or Sections 2062 and 2067 (California Endangered Species Act) of the CDFG Code, and are eligible for state listing (CNPS 2001). List 2 species are rare in California, but more common elsewhere. Lists 3 and 4 contain species about which there is some concern, and are review and watch lists, respectively. Additionally, in 2006 CNPS updated their lists to include "threat code extensions" for each list. For example, List 1B species would now be categorized as List 1B.1, List 1B.2, or List 1B.3. These threat codes are defined as follows: .1 is considered "seriously endangered in California (over 80% of occurrences threatened/high degree and immediacy of threat)"; .2 is "fairly endangered in California (20-80% of occurrences threatened)"; .3 is "not very endangered in California (less than 20% of occurrences threatened or no current threats known)."

Under the CEQA review process, only CNPS List 1 and 2 species are considered since these are the only CNPS species that meet CEQA's definition of "rare" or "endangered." Impacts to List 3 and 4 species are not regarded as significant pursuant to CEQA.

Fully Protected Birds

Fully protected birds, such as the white-tailed kite and golden eagle, are protected under California Fish and Game Code (§3511). Fully protected birds may not be "taken" or possessed (i.e., kept in captivity) at any time.

Protected Amphibians

Under Title 14 of the California Code of Regulations (14 CCR 41), protected amphibians, such as the California tiger salamander, may only be taken under special permit from California Department of Fish and Game issued pursuant to Sections 650 and 670.7 of these regulations.

Potential Special-Status Plants on the Project Site

Prior to conducting 2007 special-status plant surveys on the project site, Monk & Associates, Inc., searched the California Natural Diversity Database (CNDDB) (RareFind 3.1 Application) for occurrences of special-status plants within a ten-mile radius of the project site. From this research, Monk & Associates, Inc. produced a list of 10 special-status plant species that have potential to occur within the project region. Table 4.2-1 lists the 10 special-status plant species. Drawings, photographs, and written descriptions of all special-status plants were reviewed prior to or during the survey period.

Special-status plant species were not observed on the project site during Monk & Associates, Inc.'s special-status plant species surveys. Due to the project site's history of disturbance, a large number of non-native species were observed during the field surveys. Native species also occur; however, their total percent cover and frequency is much lower than the non-native species present. Overall, a total of 143 plant species were identified on the project site. Of these 143 species, 65 plants (or 45 percent) were native, and 78 plants (or 55 percent) were non-native. The special-status plant species for which surveys were conducted on the project site due to the presence of suitable habitat are discussed below. All other special-status plants were dismissed due to an absence of suitable habitat (for example, chaparral or serpentinite soils were not found onsite).

Delta tule pea

Delta tule pea (*Lathyrus jepsonii* var. *jepsonii*) is a perennial member of the pea family. The delta tule pea is on the CNPS List 1B.2. The delta tule pea does not have State or federal status. Delta tule pea is found in coastal and estuarine marshes (including the Delta) inland to Stockton. The delta tule pea has a very low probability of growing along the banks of the DMD and V-Drain. This species was not observed during appropriately-timed focused surveys.

Mason's lilaeopsis

Mason's lilaeopsis (*Lilaeopsis masonii*) is a small, perennial member of the carrot or parsley family. The Mason's lilaeopsis is designated by California as rare. The Mason's lilaeopsis does not have special federal status, and is on CNPS List 1B.1. Mason's lilaeopsis is found only in the San Francisco Estuary and Bay Delta of California. Mason's lilaeopsis grows in intertidal marshes and along stream banks. Although listed as rare, the Mason's lilaeopsis can be locally abundant, and has been reported from numerous locations in the Delta. This species was not observed during appropriately-timed focused surveys.

Table 4.2-1
Special-Status Plant Species Known within 10 Miles of the Proposed Project

Family Taxon Common Name	Status*	Flowering Period	Habitat	Area Locations	Probability on Project Site
Poaceae					
Neostapfia colusana Colusa grass	Fed: FT State: CE CNPS: List 1B.1	May-August	Vernal pools. Elevation 5-200 meters.	Record for this species located 5.8 miles southwest of the project site. (Occurrence No. 19)	None. No suitable vernal pool habitat present on the project site.
Orcuttia inaequalis San Joaquin Valley Orcutt grass	Fed: FT State: CE CNPS: List 1B.1	April-September	Vernal pools. Elevation 10-755 meters.	On CNPS 9 quad list.	None. No suitable vernal pool habitat present on the project site.
Tuctoria mucronata Compton's tuctoria	Fed: FE State: CE CNPS: List 1B.1	April-August	Vernal pools and valley and foothill grasslands (mesic).	Record for this species located 6 miles southwest of the project site. (Occurrence No. 1)	None. No suitable habitat is present on the project site.
Polemoniaceae					
Navarretia leucocephala bakeri Baker's navarretia	Fed: - State: - CNPS: List 1B	April-July	Cismontane woodland; lower montane coniferous forest; meadows and seeps; valley and foothill grassland; vernal pools (mesic). Elevation 5-1740 meters.	Record for this species located 3.1 miles southwest of the project site. (Occurrence No. 38)	None. No woodland or coniferous forest habitat present on the project site..
Ranunculaceae					
Delphinium recurvatum Recurved larkspur	Fed: -- State: - CNPS: List 1B.2	March-June	Chenopod scrub; cismontane woodland; valley and foothill grassland; [alkaline]. Elevation 3-750 meters.	On CNPS 9 quad list.	None. No suitable habitat is present on the project site.
Myosurus minimus apus Little mousetail	Fed: -- State: - CNPS: List 3.1	March-June	Valley and foothill grasslands, vernal pools (alkaline). Elevation 20-640 meters.	On CNPS 9 quad list.	None. No suitable habitat is present on the project site.
Scrophulariaceae					
Cordylanthus mollis hispidus Hispid bird's-beak	Fed: -- State: - CNPS: List 1B.1	June-September	Meadows (alkaline); playas.	On CNPS 9 quad list.	None. No suitable habitat is present on the project site.

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Table 4.2-1 (continued)
Special-Status Plant Species Known within 10 Miles of the Proposed Project

Family Taxon Common Name	Status*	Flowering Period	Habitat	Area Locations	Probability on Project Site
Cordylanthus mollis mollis Soft bird's-beak	Fed: FE State: CR CNPS: List 1B.2	July-November	Coastal salt marshes. Elevation 0-3 meters.	On CNPS 9 quad list.	None. No suitable salt marsh habitat present on the project site.
Gratiola heterosepala Bogg's Lake hedge-hyssop	Fed: - State: CE CNPS: List 1B.2	April-August	Marshes and swamps (lake margins); vernal pools (clay). Elevations 10-2,375 meters.	Record for this species located 3.7 miles southwest of the project site. (Occurrence No. 92)	None. Although marginally suitable habitat is present on the project site, this species was not present during appropriately-timed surveys.
Limosella subulata Southern mudwort	Fed: - State: - CNPS: List 2.1	May-August	Riparian scrub, freshwater and brackish marsh. Usually on mud bank in marshy or scrubby areas. Known in CA from several occurrences in the Delta. Elevation 0-3 meters.	Record for this species located 5.3 miles southwest of the project site. (Occurrence No. 22)	None. Although marginally suitable habitat is present on the project site, this species was not present during appropriately-timed surveys.

***Status**
FE - Federal Endangered
FT - Federal Threatened
FPE - Federal Proposed Endangered
FPT - Federal Proposed Threatened
FC - Federal Candidate
CE - California Endangered
CT - California Threatened
CR - California Rare
CC - California Candidate
CSC - California Species of Special Concern

CNPS:
List 1A - Presumed extinct in California
List 1B - Plants rare, threatened, or endangered in California and elsewhere
List 1B.1 - Seriously endangered in California (over 80% occurrences threatened/ high degree and immediacy of threat)
List 1B.2 - Fairly endangered in California (20-80% occurrences threatened)
List 1B.3 - Not very endangered in California (<20% of occurrences threatened or no current threats known)
List 2 - Plants rare, threatened, or endangered in California, but more common elsewhere
List 2.1 - Seriously endangered in California, but more common elsewhere
List 2.2 - Fairly endangered in California, but more common elsewhere
List 2.3 - Not very endangered in California, but more common elsewhere
List 3 - Plants about which we need more information (Review List)
List 3.1 - Plants about which we need more information (Review List) Seriously endangered in California
List 3.2 - Plants about which we need more information (Review List) Fairly endangered in California
List 4 - Plants of limited distribution - a watch list

Source: *Biological Resource Analysis Dixon V-Drain Improvement Project*, Monk & Associates, Inc.

Rose-mallow

Rose-mallow (*Hibiscus lasiocarpus*) is a perennial member of the mallow family. Rose-mallow does not have State or federal status, but is on the CNPS List 2.2. Rose-mallow grows on riverbanks and in marshes in the Sacramento Valley and Delta region. This species was not observed during appropriately-timed focused surveys.

Southern mudwort

Southern mudwort (*Limosella subulata*) does not have State or federal status, but is on the CNPS List 2.1. This small, annual member of the figwort family (Scrophulariaceae) is found in riparian scrub, freshwater and brackish water marsh usually on mud banks in marshy or scrubby areas. Southern mudwort is found in the Delta at elevations of approximately zero to 10 feet. Southern mudwort has a very low probability of occurring within the DMD and V-Drain. This species was not observed during appropriately-timed focused surveys.

Suisun marsh aster

The Suisun marsh aster (*Symphyotrichum lentum*) is a perennial member of the aster family that can grow to three or four feet tall. The Suisun marsh aster does not have special federal status or State status. The Suisun marsh aster is on CNPS List 1B.2. The Suisun marsh aster can be found in fresh to brackish marshes in the San Francisco Estuary. Potential habitat on the project site for this species is restricted to the edges of the V-Drain, although the Suisun marsh aster is highly marginal habitat. This species was not observed during appropriately-timed focused surveys.

Suisun thistle

Suisun thistle (*Cirsium hydrophilum var. hydrophilum*) is a federally endangered species. The Suisun thistle does not have State status. The Suisun thistle is also on CNPS List 1B.1. This perennial herb in the aster family (Asteraceae) has slender, erect stems that are three to 4.5 feet tall and well-branched above. Pale lavender-rose flower heads, one inch long, grow singly or in loose groups. Flowers appear between July and September. This species was not observed during appropriately-timed focused surveys.

Saline clover

Saline clover (*Trifolium depauperatum* var. *hydrophilum*) is a CNPS List 1B.2 species. Saline clover does not have State or federal status. Saline clover is an annual herb that blooms from April through June and is found in marshes, swamps, mesic and alkaline valley and foothill grasslands, and vernal pools. On the project site, potential habitat for Saline clover is restricted to the edges of the V-Drain. The species was not observed during appropriately-timed focused surveys.

Potential Special-Status Animals on the Project Site

Special-status animals considered for the V-Drain project are based on a review of CNDDB records for the project site and the surrounding areas, and the experience of Monk & Associates Inc. related to working in similar habitats to those found on the project site. Below is the legal status and brief habitat descriptions for special-status animal species known to occur in the project vicinity. These special-status wildlife species are also discussed in Table 4.2-2.

Potential Special-Status Fish Species in the Project Region

The following list of eight special status fish species may migrate into the DMD and V-Drain project area for periods during their life cycles:

- Delta smelt (*Hypomesus transpacificus*);
- Green sturgeon (*Acipenser medirostris*);
- Longfin smelt (*Spirinichus thaleichthys*);
- Sacramento splittail (*Pogonichthys macrolepidotus*);
- Steelhead (*Oncorhynchus mykiss*);
- Sacramento spring-run Chinook salmon (*Oncorhynchus tshawytscha*);
- Sacramento fall/late fall run Chinook salmon (*Oncorhynchus tshawytscha*); and
- Sacramento winter-run Chinook salmon (*Oncorhynchus tshawytscha*).

Provided below is a summary of the status and general habitat requirements of each of the above eight special-status fish species.

According to Monk & Associates, Inc.'s field surveys, the following species were determined not to have any probability to occur within the proposed project site: Conservancy fairy shrimp; vernal pool fairy shrimp; midvalley fairy shrimp; vernal pool tadpole shrimp; California linderiella; valley elderberry longhorn beetle; Delta green ground beetle; Ricksecker's water scavenger beetle; California tiger salamander; and tricolored blackbird. The remaining special-status species that were determined to have a low to moderate probability to occur within the project site are discussed below.

Delta Smelt

Delta smelt (*Hypomesus transpacificus*) are listed as threatened under both the State and federal Endangered Species Acts. The U.S. Fish and Wildlife Service (USFWS) administers federal protective measures for this species. The project site is located within designated Critical Habitat for this species. Delta smelt are endemic to the upper Sacramento-San Joaquin estuary. They occur primarily in open, surface waters of Suisun Bay, in the Sacramento River upstream to Isleton, and in the San Joaquin River. Since the early 1980s, they have been most abundant in the northwestern Delta in the channel of the Sacramento River.

Table 4.2-2
Special-Status Wildlife Species Known within 10 Miles of the Proposed Project

Species	*Status	Habitat	Closest Locations	Probability on Project Site
INVERTEBRATES				
Conservancy fairy shrimp *Branchinecta conservatio*	Fed: FE State: - Other:	Endemic to the northern parts of the Central Valley. Prefers larger, turbid vernal pools located in alluvial swales.	Record for this species located 5.9 miles southwest of the project site. (Occurrence No. 11)	None. No vernal pools within project area.
Vernal pool fairy shrimp *Branchinecta lynchi*	Fed: FT State: - Other:	Endemic to the grasslands of the Central Valley, central coast mountains, and south coast mountains. Inhabit static rainfilled/ vernal pools, small, clear water sandstone-depression pools and grassed swale, earth slump, or basalt-flow depression.	Record for this species located 1.6 miles southwest of the project site. (Occurrence No. 330)	None. No vernal pools within project area.
Midvalley fairy shrimp *Branchinecta mesovallensis*	Fed: -- State: - Other:	Grassy vernal pool habitats of the Central Valley.	Record for this species located 3.7 miles northwest of the project site. (Occurrence No. 32)	None. No vernal pools within project area.
Vernal pool tadpole shrimp *Lepidurus packardi*	Fed: FE State: - Other:	Inhabits vernal pools with turbid and/or silty water. Mud substrate typical.	Record for this species located 3.3 miles southwest of the project site. (Occurrence No. 99)	None. No vernal pools within project area.

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Table 4.2-2 (continued)
Special-Status Wildlife Species Known within 10-Miles of the Proposed Project

Species	*Status	Habitat	Closest Locations	Probability on Project Site
California linderiella *Linderiella occidentalis*	Fed: -- State: - Other: -	Seasonal pools in unplowed grasslands with old alluvial soils underlain by hardpan or in sandstone depressions. Water in the pools has very low alkalinity and conductivity.	Record for this species located 0.3 miles west of the project site. (Occurrence No. 204)	None. No vernal pools within project area.
INSECTS				
Valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	Fed: FT State: - Other:	Riparian and other habitats with blue elderberries (Sambucus mexicana). Prefers shrubs with stems 1 to 5 inches in diameter.	Record for this species located 7.6 miles north of the project site. (Occurrence No. 80)	None. No blue elderberry have been observed on the project site.
Delta green ground beetle *Elaphrus viridis*	Fed: FT State: - Other:	Found on the margins of vernal pools between Jepson Prairie and Travis Air Force Base. Prefers a sandy mud substrate with scattered, low vegetation.	Record for this species located 4.5 miles southwest of the project site. (Occurrence No. 2)	None. No vernal pools within project area.
Ricksecker's water scavenger beetle *Hydrochara rickseckeri*	Fed: -- State: - Other:	Found in calm, shallow water of ponds, streams, marshes, or lakes. Only known from immediate San Francisco Bay area.	Record for this species located 5.2 miles southwest of the project site. (Occurrence No. 13)	None. No vernal pools within project area.

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Table 4.2-2 (continued)
Special-Status Wildlife Species Known within 10-Miles of the Proposed Project

Species	*Status	Habitat	Closest Locations	Probability on Project Site
FISH				
Delta smelt *Hypomesus transpacificus*	Fed: FT State: CT Other:	Endemic to the Sacramento-San Joaquin Delta. Occurs seasonally in Suisun and San Pablo bays. Spawning usually occurs in dead end sloughs and shallow channels.	Record for this species located 0.6 miles southeast of the project site. Project is located within the designated critical habitat for this species.	Moderate. The lower reaches of the V-Drain provide suitable habitat for this species.
Sacramento splittail *Pogonichthys macrolepidotus*	Fed: State: CSC Other:	Endemic to the lakes and rivers of the Central Valley; now confined to the delta, Suisun Bay, and associated marshes. Inhabits slow moving river sections and dead-end sloughs. Needs flooded vegetation for spawning.	Record for this species located 9.8 miles east of the project site. (Occurrence No. 1)	Low. The lower reaches of the V-Drain provide suitable habitat for this species.
AMPHIBIANS				
California tiger salamander *Ambystoma californiense*	Fed: FT State: CSC Other:	Found in grassland habitats of the valleys and foothills. Requires burrows for aestivation and standing water until late spring (May) for larvae to metamorphose.	Record for this species located 5.4 miles southwest of the project site. (Occurrence No. 547)	None. The project site does not contain habitat for this species.

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Table 4.2-2 (continued)
Special-Status Wildlife Species Known within 10-Miles of the Proposed Project

Species	*Status	Habitat	Closest Locations	Probability on Project Site
REPTILES				
Giant garter snake *Thamnophis gigas*	Fed: FT State: CT Other:	Inhabits freshwater marshes and low gradient streams. Also found in drainage canals and irrigation ditches.	Record for this species located 0.67 miles east of the project site. (Occurrence No. 79)	None. Surveys conduced by the USGS demonstrated a negative presence of this species.
BIRDS				
White-tailed kite *Elanus leucurus*	Fed: State: Other: *	Found in lower foothills and valley margins with scattered oaks and along river bottomlands or marshes adjacent to oak woodlands. Nests in trees with dense tops.	Record for this species located 5.4 miles north of the project site. (Occurrence No. 48)	Moderate. The project site contains potential nesting and foraging.
Swainson's hawk *Buteo swainsoni*	Fed: - State: CT Other: *	Migratory and resident raptor that breeds in open areas with scattered trees. Prefers riparian and sparse oak woodland habitats for nesting. Requires nearby grasslands, grain fields, or alfalfa for foraging.	Record for this species located 2.1 miles southwest of the project site. (Occurrence No. 1477). Multiple occurrences within a 10-mile radius.	Low. There is a small number of low quality potential nest trees along the V-Drain. No Swainson's hawk have been observed in project area during field surveys.

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Table 4.2-2 (continued)
Special-Status Wildlife Species Known within 10-Miles of the Proposed Project

Species	*Status	Habitat	Closest Locations	Probability on Project Site
Western burrowing owl *Athene cunicularia hypugaea*	Fed: -- State: CSC Other: *	Found in open, dry annual or perennial grasslands, deserts and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	Record for this species located immediately north of the project site along Swan Road (Occurrence No. 173) and west of the project area along Bunker Road (Occurrence No. 381). Multiple occurrences within a 10-mile radius.	Moderate. Potential nesting habitat on the upper banks of the V-Drain.
Tricolored blackbird *Agelaius tricolor*	Fed: -- State: CSC Other: *	Colonial nester in dense cattails, tules, brambles or other dense vegetation. Requires open water, dense vegetation, and open grassy areas for foraging.	Record for this species located 6.3 miles southwest of the project site. (Occurrence No.107)	None. Tricolored blackbird have not been observed on the project site.
***Status** FE - Federal Endangered FT - Federal Threatened FPE - Federal Proposed Endangered FPT - Federal Proposed Threatened FC - Federal Candidate FPD - Federally Proposed for delisting	State: CE - California Endangered CT - California Threatened CR - California Rare CC - California Candidate CSC - California Species of Special Concern		*Other: Most birds have protection under the Migratory Bird Treaty Act. Raptors and their nests are protected by provisions of the California Fish and Game Code. A few species, such as the monarch butterfly and "California Fully Protected Animals," may be protected by policies of the CDFG.	

Source: *Biological Resource Analysis Dixon V-Drain Improvement Project*, Monk & Associates, Inc.

Delta smelt spawn in freshwater but at other times can tolerate salinity up to approximately 10 to 12 parts per thousand (ppt), a level considered to be approximately one-third that of ocean water. Most spawning occurs in dead-end sloughs and shallow edge-waters of the channels in the upper Delta and in the Sacramento River above Rio Vista. Spawning occurs between February and June. Delta smelt spawn at one year of age and most adults die after spawning. They generally reach a maximum size of approximately two to three inches. After hatching, larvae drift downstream with the currents and congregate in the zone where out-flowing freshwater mixes with incoming seawater. They feed primarily on zooplankton.

Delta smelt populations have fluctuated greatly in the past. Their short lives and relatively low fertility make populations susceptible to depression following periods when conditions are unfavorable, such as during droughts. The Delta smelt population fell to very low levels in the early 1980s. The declines have been attributed to reduction in Delta outflow in some years, excessively high outflow in other years, entrainment losses to water diversions, changes in food organisms, toxic substances, loss of genetic integrity, and habitat destruction (particularly loss of shallow water habitat). Surveys conducted in 2005 show populations at a record low. Toxins, invasive species, and water exports are believed to be the most likely reasons for the relatively recent steep decline in Delta smelt population.

The closest sampling station for the Delta Smelt Project is Station 716, which is located approximately six miles southeast of the project site in Cache Slough. Delta smelt are occasionally captured by the CDFG at the survey station.

Green Sturgeon

The southern population of green sturgeon (*Acipenser medirostris*) was listed as threatened under the federal Endangered Species Act on April 7, 2006 (71 FR 17757) and is designated as a California "species of special concern." The Sacramento River supports the southernmost spawning population of green sturgeon. The green sturgeon is anadromous, but the green sturgeon is the most marine-oriented of the sturgeon species and has been found in near shore marine waters from Mexico to the Bering Sea.

Adult green sturgeon typically migrate upstream into rivers between late February and late July. Spawning occurs from March to July, with peak spawning from mid-April to mid-June. Little is known about the specific spawning habitat preferences of green sturgeon. In the Central Valley, spawning occurs in the Sacramento River upstream of Hamilton City, perhaps as far upstream as Keswick Dam, and possibly in the lower Feather River. Little is known about movements, habitat use, and feeding habits of green sturgeon. Green sturgeon have been salvaged at State and federal fish collection facilities every month, indicating that they are present in the Delta year-round. Juveniles and adults are reported to feed on benthic invertebrates, including shrimp and amphipods, and small fish.

Spawning does not occur in the project vicinity; therefore, impacts to eggs or larvae are not expected from the proposed project. Adult migration through the Delta is generally restricted to larger rivers; therefore, adults are not expected to occur in the project area or vicinity where they

may be affected; however, a small number of green sturgeon juveniles may occur in the project area.

Longfin Smelt

Longfin smelt (*Spirinichus thaleichthys*) is a California species of special concern. This fish does not have federal status. This status designation does not provide direct protections for the species pursuant to the California Endangered Species Act (CESA) or the Federal Endangered Species Act (FESA). In wet years they are distributed more toward San Pablo Bay and in dry years more toward the west Delta. Peak spawning occurs between February and April in upper Suisun Bay and the lower and middle Delta. The project area is outside the primary distribution area of longfin smelt in the Sacramento-San Joaquin Delta.

Larval longfin smelt are generally collected below Medford Island in the San Joaquin River and below Rio Vista on the Sacramento River, indicating that spawning rarely occurs above these locations. The proposed project is located well upstream of Rio Vista, and longfin smelt eggs and larvae are generally not expected to occur in the vicinity of the project.

Sacramento Splittail

Sacramento splittail (*Pogonichthys macrolepidotus*) is a California species of special concern. The Sacramento splittail does not have federal status. They were listed as threatened by the USFWS in February 1999. Splittail are large minnows that live for up to seven years and reach lengths of 12 inches or more. The species is found only in California's Central Valley. Their range in the Central Valley has been restricted since the arrival of Europeans and their abundance has declined, particularly during drought periods. Decline in abundance has been attributed to changed estuarine hydraulics (especially reduced outflows) modification of spawning habitat, climatic variation, toxic substances, introduced species, predation, and exploitation.

Splittail are primarily found in freshwater and appear to prefer shallow water habitat in slow-moving sections of rivers and sloughs. Splittail are currently most abundant in and around Suisun Marsh. Historic distribution included the Sacramento River as far as Redding, including lower reaches of the Feather and American rivers, and the San Joaquin River as far south as the present site of Friant Dam.

Splittail spawn in the lower reaches of rivers, dead-end sloughs and in larger sloughs such as Montezuma Slough. Spawning peaks between February and April in the upper delta. Larvae initially remain in proximity to spawning sites and move into deeper water as they mature. Splittail are presently found primarily in the Delta, Suisun Bay, Suisun Marsh, and other parts of the Sacramento-San Joaquin estuary.

Sacramento splittail may be found in Haas Slough, but are unlikely to occur in the highly modified DMD and V-Drain. The project site is unlikely to provide suitable habitat for Sacramento splittail because highly variable water level and temperature ranges due to irrigation activity and stormwater runoff likely exceed the range suitable for the species.

Steelhead - Central Valley Evolutionarily Significant Unit (ESU)

Steelhead (*Oncorhynchus mykiss*) in the San Joaquin drainage are included by the National Marine Fisheries Service (NMFS) in the Central Valley ESU and are listed as threatened. The steelhead does not have special State status. The project site is not located within USFWS designated critical habitat for the Central Valley ESU. The nearest Critical Habitat for this species is approximately 12 miles west of the project site in Ulatis Creek and Alamo Creek west of Vacaville, California. Adult steelhead migrate upstream to spawning habitat in the tributaries during the winter and early spring. Steelhead smolts migrate from rearing areas in the tributaries to the ocean primarily in the spring.

The major factor influencing steelhead populations in the Sacramento-San Joaquin River system is loss of habitat due to construction of impassable dams on the major tributaries. Juvenile steelhead reside in nursery streams for one to two years before migrating to the ocean and suitable coldwater habitat exists primarily upstream of the present dam sites.

Steelhead could be found in Haas Slough but are unlikely to occur in the highly modified DMD and V-Drain. The project site is unlikely to provide suitable habitat for this species as highly variable water level and temperature ranges due to irrigation activity and stormwater runoff likely exceed the range suitable for the species. Additionally, the DMD and V-Drain do not provide or connect to suitable breeding habitat.

Chinook Salmon - Central Valley Spring Run

Chinook salmon (Central Valley spring run) (*Oncorhynchus tshawytscha*) are listed under both CESA and FESA as threatened. Spring-run Chinook salmon historically inhabited the upper reaches of tributaries to the San Joaquin River and other Central Valley streams. They are now extirpated from all tributaries of the San Joaquin River Basin, representing a large portion of the historic range and abundance within the Central Valley ESU.

The Central Valley ESU includes all naturally spawned populations of spring-run Chinook salmon in the Sacramento River and the Sacramento River's tributaries in California. The only streams in the Central Valley currently considered to have wild spring-run Chinook salmon populations are Mill and Deer Creeks, and possibly Butte Creek, which are all tributaries of the Sacramento River. Most of the spring-run salmon in the Central Valley originate from the Feather River and Butte Creek Hatcheries. Much of this production is released off station in the Sacramento River Delta and San Francisco Bay.

Chinook salmon could be found in Haas Slough but are unlikely to occur in the highly modified V-Drain and DMD. The project site is unlikely to provide suitable habitat for this species as highly variable water level and temperature ranges due to irrigation activity and stormwater runoff likely exceed the range suitable for the species. Additionally, the DMD and V-Drain do not provide or connect to suitable breeding habitat.

Chinook Salmon - Central Valley Fall/Late Fall Run

Chinook salmon (Central Valley fall/late fall run) (*Oncorhynchus tshawytscha*) are designated as California species of special concern. The species of special concern designation does not provide legal protection pursuant to CESA. The Chinook salmon does not have special federal status.

On September 16, 1999, NMFS determined that listing the Central Valley fall/late fall run Chinook salmon was not warranted for this Evolutionary Significant Unit (ESU). The ESU includes all naturally spawned populations of fall-run Chinook salmon in the Sacramento and San Joaquin River Basins and their tributaries, east of Carquinez Strait.

Adult fall-run Chinook salmon migrate from the ocean to upstream spawning areas in the late summer and fall. In the San Joaquin River system, adults migrate somewhat later than those in the Sacramento River system, generally reaching spawning areas between September and December. Eggs incubate until March. Fall-run fry generally emerge from the streambed from December through March and rear in the river for a short period. Some fry may rear as far downstream as the Delta, particularly in wet years. Fall-run juveniles emigrate as smolts from April through June. A small percentage of fall-run juveniles exist (approximately five percent), which may not emigrate until the fall or winter following hatching. Fall-run chinook salmon would be expected to occur in the vicinity of the proposed project only during periods when they are migrating between the ocean and habitat in tributary streams and during the late winter and early spring when fry may be rearing in the vicinity.

Chinook salmon could be found in Haas Slough but are unlikely to occur in the highly modified DMD and V-Drain. The project site is unlikely to provide suitable habitat for this species as highly variable water level and temperature ranges due to irrigation activity and stormwater runoff likely exceed the range suitable for the species. Additionally, the V-Drain does not connect to or provide suitable breeding habitat.

Chinook Salmon - Sacramento Winter Run

Chinook salmon (Sacramento winter run) (*Oncorhynchus tshawytscha*) are listed as endangered under both FESA and CESA. Sacramento River winter-run Chinook salmon were listed as a federally-threatened species on April 6, 1990. Critical habitat for Sacramento winter-run Chinook was designated on June 16, 1993, the project site is not within designated critical habitat. Sacramento winter-run Chinook were re-classified as an endangered species on January 4, 1994. The status applies to all Sacramento River winter run Chinook salmon, wherever found.

Historically, winter-run Chinook salmon inhabited the Upper Sacramento River and the River's tributaries, the McCloud, Pit, and Little Sacramento rivers. Construction of Shasta Dam in the 1940s eliminated access to all historic spawning habitats for winter-run salmon in the Sacramento River Basin. A single spawning population persists in the main stem of the Sacramento River immediately downstream of Keswick Dam.

Adult winter-run salmon migrate up the Sacramento River to spawn from December through May, and peak spawning occurs from May to June. Fry are known to pass by the Red Bluff Diversion Dam from mid-September to Mid-October. Winter-run Chinook juveniles emigrate from the upper Sacramento River as smolts from January through May. Peak migration of smolts through the Delta is primarily from January through March.

Chinook salmon may be found in Haas Slough, but are unlikely to occur in the highly modified DMD and V-Drain. The project site is unlikely to provide suitable habitat for this species as highly variable water level and temperature ranges due to irrigation activity and stormwater runoff likely exceed the range suitable for the species. Additionally, the DMD and V-Drain do not provide or connect to suitable breeding habitat.

Potentially Occurring Special-Status Invertebrates Within the Project Region

Valley Elderberry Longhorn Beetle

The valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) was designated as threatened in the beetle's entire range on August 8, 1980 (Federal Register 45: 52803-52807). Critical habitat was designated for this species at the same time. The DMD and V-Drain are not located within the designated critical habitat area. The valley elderberry longhorn beetle does not have any State status.

The valley elderberry longhorn beetle is a medium-sized (approximately one inch long) beetle. The forewings of the female are dark metallic green with red margins, whereas those of the male are primarily red with dark green spots. This beetle is associated with elderberry trees (*Sambucus* spp.) in California's Central Valley during the beetle's entire life cycle. In the Central Valley, the elderberry tree is associated with riparian forests, which occur along rivers and streams. In order to serve as habitat, the shrubs must have stems that are one inch or greater in diameter at ground level. The adults emerge from pupation inside the wood of these trees in the spring as their flowers begin to open. The exit holes made by the emerging adults are distinctive, small, oval openings. Often these holes are the only indication that the beetles occur in an area. The adults eat the elderberry foliage until about June when they mate. The females lay eggs in crevices in the bark. Upon hatching, the larvae begin to tunnel into the tree where they will spend one to two years eating the interior wood, which is their sole food source.

Historically the beetle ranged throughout the Central Valley. However, recent surveys have revealed the beetle to persist only in scattered localities along the Sacramento, American, San Joaquin, Kings, Kaweah, and Tule rivers and their tributaries.

The closest known record for this species is located approximately eight miles north of the project site (CNDDB Occurrence No. 80). Surveys for blue elderberry shrubs, which were conducted concurrently with special-status plant surveys, did not find the shrubs to be present on-site; therefore, they are not included further in the discussion.

Potentially Occurring Special-Status Reptiles Within the Project Area

Giant Garter Snake

The giant garter snake (*Thamnophis gigas*) was federally listed as threatened in the snake's entire range on October 20, 1993 (Federal Register 58: 54053-54066). Giant garter snake is also listed as threatened under the California Endangered Species Act. The USFWS has not designated critical habitat for this species as of August 2007. The USFWS is expected to designate critical habitat for this snake in the near future.

The giant garter snake is one of the largest garter snakes, reaching a total length of at least 63 inches. Dorsal background coloration varies from brownish to olive with a checkered pattern of black spots, separated by a yellow dorsal stripe and two light colored lateral stripes.

Giant garter snakes feed primarily on small fishes, tadpoles, and frogs. Habitat requirements consist of (1) adequate water during the snake's active season (early-spring through mid-fall) to provide food and cover; (2) emergent, herbaceous wetland vegetation, such as cattails and bulrushes, for escape cover and foraging habitat during the active season; (3) grassy banks and openings in waterside vegetation for basking; and (4) higher elevation uplands for cover and refuge from flood waters during the snake's dormant season in the winter. The giant garter snake inhabits small mammal burrows and other soil crevices above prevailing flood elevations throughout the snake's winter dormancy period. Giant garter snakes typically select burrows with sunny exposure along south and west facing slopes. The breeding season extends through March and April, and females give birth to live young from late July through early September. Sexual maturity occurs at an average of three years for males and five years for females.

The giant garter snake inhabits agricultural wetlands and other waterways such as irrigation and drainage canals, sloughs, ponds, small lakes, low gradient streams, and adjacent uplands in the Central Valley. Because of the direct loss of natural habitat, the giant garter snake relies heavily on rice fields in the Sacramento Valley, but also uses managed marsh areas in Federal National Wildlife Refuges and State Wildlife Areas. Only a few recent sightings of giant garter snakes in the San Joaquin Valley have been recorded, but many records exist for the Sacramento Valley.

Giant garter snakes are typically absent from larger rivers because of lack of suitable habitat and emergent vegetative cover, and from wetlands with sand, gravel, or rock substrates. Riparian woodlands typically do not provide suitable habitat because of excessive shade, lack of basking sites, and absence of prey populations. However, some riparian woodlands do provide good habitat. Giant garter snakes can inhabit water bodies that contain predatory fish. When appropriate cover is available they appear to be able to survive even when numerous predators share the same habitats. Additionally, lack of prey will eliminate the potential for giant garter snake presence. California's major rivers have been highly channelized, removing oxbows and backwater areas that probably at one time provided suitable habitat.

The closest known record for the giant garter snake is on the northern edge of the proposed project site. One adult snake was found where the V-Drain crosses Swan Road. This record dates from 1987 (CNDDB Occurrence No. 79). The U.S. Geological Survey Western Ecological

Research Center conducted species-specific surveys in 2004 and 2005 at many locations in eastern Solano County, including two historic locations near Liberty Farms, in the area of the project site, and giant garter snakes were not found. The *Giant Garter Snake 5-Year Review: Summary and Evaluation* report prepared by the USFWS in September of 2006 states that "this species may no longer occur in Solano County."

Pacific Pond Turtle

The Pacific pond turtle (*Actinemys marmorata*) is a State "species of special concern," but does not have special federal status. The Pacific pond turtle is a habitat generalist, inhabiting a wide range of fresh and brackish, permanent and intermittent water bodies from sea level to approximately 4,500 feet above sea level. Typically, this species is found in ponds, marshes, ditches, streams, and rivers that have rocky or muddy bottoms. This species has been observed within the project site.

Potentially Occurring Special-Status Birds Within the Project Area

Northern Harrier

The northern harrier (*Circus cyaneus*) is a State "species of special concern." This raptor is also protected under California Fish and Game Code §3503.5 that protects nesting raptors and their eggs/young. The northern harrier is also protected from direct take under the Migratory Bird Treaty Act (50 CFR 10.13). Northern harriers build grass-lined nests on the ground within dense, low-lying vegetation in a variety of habitats, though they are typically found nesting in grassland or marsh habitats. They usually nest on level to near level ground.

This species is a common visitor to areas around the DMD and V-Drain. Suitable foraging and nesting habitat occurs within the project area. Hence, preconstruction nesting surveys would need to be conducted to confirm or negate whether this species could be impacted during construction.

Swainson's Hawk

The Swainson's hawk (*Buteo swainsoni*) is listed as threatened under the California Endangered Species Act (CESA). This raptor is also protected pursuant to Title 14 of the California Code of Regulations. While the Swainson's hawk does not have special federal status, the hawk is protected from direct take under the Federal Migratory Bird Treaty Act of 1918 (16 U.S.C. 703-711). Swainson's hawks, their nests, eggs, and young are also protected under California Fish and Game Code (§3503, §3503.5, §3513, and §3800). Pursuant to CEQA, the Swainson's hawk would be considered rare, and impacts to the hawk's nest sites or hunting habitat would likely be regarded as significant based upon guidelines provided for this raptor.

The closest record for this species is located approximately 2.5 miles southeast of the project site (CNDDB Occurrence No. 1148). Young have fledged (that is, left the nest) from this nest several years in a row. The most recent monitoring of this nest in 2005 determined that one young fledged that year (CNDDB records).

Swainson's hawks inhabit open to semi-open areas at low to middle elevations in valleys, dry meadows, foothills, and level uplands. Swainson's hawks nest almost exclusively in trees and will nest in almost any tree species that is at least 10 feet tall. Nests are constructed in isolated trees that are dead or alive along drainages and in wetlands, or in windbreaks in fields and around farmsteads. Swainson's hawks occasionally nest in shrubs, on telephone poles, and on the ground. In the Central Valley of California, the majority of Swainson's hawk nests and territories are associated with riparian systems and nests are commonly found in cottonwoods and oaks. They have also been documented nesting in eucalyptus (*Eucalyptus* spp.), black walnut (*Juglans hindsii*), black locust (*Robinia pseudoacacia*), almond (*Prunus dulcis*), Osage orange (*Maclura pomifera*), Arizona cypress (*Cupressus arizonica*) and pine (*Pinus* spp.) (CNDDB records).

Foraging habitats include alfalfa fields, fallow fields, beet, tomato, and other low-growing row or field crops, dry-land and irrigated pasture, and rice land when not flooded (CDFG 1994). The Swainson's hawk generally forages in open habitats with short vegetation containing small mammals, reptiles, birds, and insects. The hawk's primary prey in the Central Valley is California meadow vole. Agricultural areas are often preferred over more natural grassland habitats due to larger prey populations. In addition, agricultural practices (planting, maintenance, harvesting, disking) allow for access to prey, and likely increase foraging success of Swainson's hawks by flushing prey. During the nesting season, Swainson's hawks usually forage within two miles of the nest. Swainson's hawks do not require habitats that contain many perches because the hawks most often search for prey aerially; therefore, the hawks can occupy habitats with few perches other than the nest tree.

The site survey conducted by Monk & Associates, Inc. found that suitable Swainson's hawk foraging habitat occurs within the project area.

Western Burrowing Owl

The western burrowing owl (*Athene cunicularia hypugaea*) is a California "species of special concern." The owl's nest, eggs, and young are protected under the California Fish and Game Code (§3503, §3503.5, and §3800). In addition, the burrowing owl is protected from direct take under the Migratory Bird Treaty Act (50 CFR 10.13). Based upon this species' rarity status, any unmitigated impacts to rare species would be considered a "significant effect on the environment" pursuant to §21068 of the CEQA Statutes and §15382 of the CEQA Guidelines.

Burrowing owl habitat is usually found in annual and perennial grasslands, characterized by low-growing vegetation. Often, the burrowing owl utilizes rodent burrows, typically ground squirrel burrows, for nesting and cover. They may also on occasion dig their own burrows, or use man-made objects such as concrete culverts or rip-rap piles for cover. They exhibit high site fidelity, reusing burrows year after year. Occupancy of suitable burrowing owl habitat can be verified at a site by observation of these owls during the spring and summer months or, alternatively, the owl's molted feathers, cast pellets, prey remains, eggshell fragments, or excrement (white wash) at or near a burrow. Burrowing owls typically are not observed in grasslands with tall vegetation or wooded areas because the vegetation obscures their ability to detect avian and terrestrial predators. Because burrowing owls spend the majority of their time sitting at the entrances of

their burrows, grazed grasslands seem to be their preferred habitat because the owls are able to view the world at 360 degrees without obstructions.

The closest known record for burrowing owl is located immediately adjacent on the northern edge of the project area along Swan Road (CNDDB Occurrence No. 173). Two adult burrowing owls were observed in burrows along the northern side of Swan Road. In addition, suitable foraging and nesting habitat occurs on and adjacent to the project area.

White-tailed Kite

The white-tailed kite (*Elanus caeruleus*) is fully protected pursuant to the California Fish and Game Code. Fully protected birds may not be "taken" or possessed (i.e., kept in captivity) at any time (§3511). In addition, the white-tailed kite is protected under the federal Migratory Bird Treaty Act (50 CFR 10.13). The white-tailed kite is typically found foraging in grassland, marsh, or cultivated fields where dense-topped trees or shrubs for nesting and perching exist. They nest in a wide variety of trees of moderate height and sometimes in tall bushes, such as coyote bush (*Baccharis pilularis*). Suitable foraging and nesting habitat occurs in the project area.

Loggerhead Shrike

The loggerhead shrike (*Lanius ludovicianus*) is a California "species of special concern." The loggerhead shrike is also protected under the federal Migratory Bird Treaty Act and California Fish and Game Code sections (§3503 and 3800) that protect birds, their nests, eggs, and young. This small, predaceous bird of open and often arid habitats prefers areas with scattered shrubs, trees, posts, fences, utility lines, and other acceptable perching locations. The loggerhead shrike typically constructs a stick nest on a stable branch in a densely foliated tree or shrub. Suitable foraging and nesting habitat for this species occurs in the project area.

Tricolored Blackbird

The tricolored blackbird (*Agelaius tricolor*) is a State "species of special concern." The tricolored blackbird does not have federal status. A gregarious species, the tricolored blackbird is typically found near freshwater, particularly near marsh habitat. Loss of wetland habitats is regarded as the principal factor responsible for this species population decline. Nesting colonies are typically found in stands of cattail (*Typha* spp.) and bulrush (*Scirpus* spp.), although they are also known to utilize blackberry patches (*Rubus* sp.) and thistle clumps (*Cirsium* spp. and *Cynara* spp.) adjacent to water. Flooded lands, margins of ponds, and grassy fields in summer and winter provide typical foraging habitat for this species. The Himalayan blackberry bushes onsite provide suitable nesting habitat for tricolored blackbirds.

Plant and Wildlife Species Occurring On-Site

A complete list of plant and wildlife species observed on the project site is presented in Table 4.2-3. Nomenclature used for plant names follows *The Jepson Manual* and changes made to this manual as published on the Jepson Interchange Project website.[1]

Table 4.2-3 Plant and Wildlife Species Observed Within the Proposed Project Area	
PLANTS	
ANGIOSPERMS - DICOTS	
Amaranthaceae	
**Amaranthus albu*	Tumble pigweed
Anacardiaceae	
Toxicodendron diversilobum	Western poison-oak
Apiaceae	
**Daucus carrota*	Queen Anne's lace
**Foeniculum vulgare*	sweet fennel
Hydrocotyle verticillata	Whorled penny-wort
Asclepiadaceae	
Asclepias fascicularis Whorled penny-wort	Whorled penny-wort
Asteraceae	
**Carduus pycnocephalus*	Italian thistle
**Centaurea calcitrapa*	Purple star-thistle
**Centaurea solstitialis*	Yellow star-thistle
Centromadia fitchii	Fitch's spikeweed
**Cichorium intybus*	Chicory
**Cirsium vulgare*	bull thistle
Conyza canadensis	Horseweed
Eclipta prostrata	Yerba de tajo
Erigeron philadelphicus	Philadelphia fleabane
Euthamia occidentalis	Western goldenrod
Grindelia camporum camporum	Great Valley gumweed
Helenium puberulum	Sneezeweed
**Helminthotheca echioides*	bristly ox-tongue
Hemizonia congesta luzulifolia	White hayfield tarweed
**Hypochaeris glabra*	Smooth cat's-ear
**Hypochaeris radicata*	rough cat's-ear
**Lactuca saligna*	Willow lettuce
**Lactuca serriola*	prickly lettuce
Layia chrysanthemoides	Smooth tidy-tips
**Senecio vulgaris*	Common groundsel
**Silybum marianum*	Milk thistle
**Sonchus asper asper*	Prickly sow-thistle
**Sonchus oleraceus*	common sow-thistle
Symphyotrichum chilensis	Common California aster
Symphyotrichum subulatum ligulatum	Annual saltmarsh aster
**Taraxacum officinale*	Dandelion
**Tragopogon porrifolius*	Salsify
Xanthium spinosum	Spiny cocklebur
Xanthium strumarium	Cocklebur
Boraginaceae	
Amsinckia menziesii	Fiddleneck
Heliotropium curassavicum	Heliotrope
Brassicaceae	
**Brassica nigra*	Black mustard
**Lepidium latifolium*	Broad-leaf peppergrass
**Sinapis arvensis*	Charlock

Continued on Next Page

Table 4.2-3 (continued) Plant and Wildlife Species Observed Within the Proposed Project Area	
Caryophyllaceae	
**Spergularia rubra* Ruby sand-spurrey	Charlock
Chenopodiaceae	
Atriplex triangularis	Spearscale
**Chenopodium sp.*	Goosefoot
**Salsola tragus*	Russian thistle
Convolvulaceae	
**Convolvulus arvensis*	Bindweed
Cressa truxillensis	Alkali weed
Fabaceae	
**Lotus corniculatus*	birdfoot trefoil
**Medicago polymorpha*	California burclover
**Medicago sativa*	Alfalfa
**Melilotus alba*	White sweet clover
**Melilotus indica*	Sour clover
**Trifolium dubium*	Little hop clover
**Trifolium fragiferum*	Strawberry clover
WILDLIFE	
Invertebrates	
Red swamp crayfish	*Procambarus clarkii*
Fish	
Common carp	*Cyprinus carpio*
Amphibians	
Pacific tree frog	*Hyla regilla*
Reptiles	
Pacific pond turtle (=western pond turtle)	*Actinemys marmorata (=Clemmys m.)*
Birds	
Great blue heron	*Ardea herodias*
Great egret	*Ardea alba*
Snowy egret	*Egretta thula*
Turkey vulture	*Cathartes aura*
Mallard	*Anas platyrhynchos*
White-tailed kite	*Elanus leucurus*
Northern harrier	*Circus cyaneus*
Red-tailed hawk	*Buteo jamaicensis*
Ring-necked pheasant	*Phasianus colchicus*
Killdeer	*Charadrius vociferus*
Long-eared owl	*Asio otus*
Black phoebe	*Sayornis nigricans*
American crow	*Corvus brachyrhynchos*
Marsh wren	*Cistothorus palustris*
Savannah sparrow	*Passerculus sandwichensis*
Song sparrow	*Melospiza melodia*
White-crowned sparrow	*Zonotrichia leucophrys*
Red-winged blackbird	*Agelaius phoeniceus*
Western meadowlark	*Sturnella neglecta*
Mammals	
Black-tailed hare	*Lepus californicus*
Botta's pocket gopher	*Thomomys bottae*

Continued on Next Page

Table 4.2-3 (continued) Plant and Wildlife Species Observed Within the Proposed Project Area	
American beaver	*Castor canadensis*
Muskrat	*Ondatra zibethicus*
Coyote	*Canis latrans*
Raccoon	*Procyon lotor*
Southwestern river otter	*Lontra canadensis sonorae*
Striped skunk	*Mephitis mephitis*
* Indicates a non-native species. Source: *Biological Resource Analysis Dixon V-Drain Improvement Project*, Monk & Associates, Inc.	

REGULATORY CONTEXT

The following is a description of federal, State, and local environmental laws and policies that are relevant to the California Environmental Quality Act (CEQA) review process.

Federal Regulations

Federal Endangered Species Act (ESA)

The ESA protects fish and wildlife species and their habitats that have been identified by the USFWS or National Marine Fisheries Service (NOAA Fisheries) as threatened or endangered. *Endangered* refers to species, subspecies, or distinct population segments that are in danger of extinction through all or a significant portion of their range. *Threatened* refers to species, subspecies, or distinct population segments that are likely to become endangered in the near future.

In general, NOAA Fisheries is responsible for protection of ESA-listed marine species and anadromous fishes, whereas other listed species are under USFWS jurisdiction. Provisions of Sections 7, 9, and 10 of the ESA are relevant to the project and are summarized below.

Section 7: Authorization Process for Federal Actions

Section 7 of ESA provides a means for authorizing *take* of threatened and endangered species by federal agencies. Under Section 7, the federal agency conducting, funding, or permitting an action (i.e., the federal lead agency) must consult with the USFWS or NOAA Fisheries, as appropriate, to ensure that the proposed action will not jeopardize endangered or threatened species or destroy or adversely modify designated critical habitat. If a proposed action "may affect" a listed species or designated critical habitat, the lead agency is required to prepare a biological assessment evaluating the nature and severity of the expected effect. In response, USFWS or NOAA Fisheries issues a biological opinion, with a determination that the proposed action:

- May jeopardize the continued existence of one or more listed species (jeopardy finding) or result in the destruction or adverse modification of critical habitat (adverse modification finding); or

- Will not jeopardize the continued existence of any listed species or result in adverse modification of critical habitat.

The biological opinion issued by USFWS or NOAA Fisheries may stipulate discretionary "reasonable and prudent" conservation measures. If the proposed action would not jeopardize a listed species, the USFWS or NOAA Fisheries issues an incidental take statement to authorize the proposed action.

Section 9: Prohibitions

Section 9 of the ESA prohibits the take of any fish or wildlife species listed under ESA as endangered. Take of threatened species also is prohibited under Section 9, unless otherwise authorized by federal regulations. *Take* is defined by the ESA as meaning "[to] harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." *Harm* is defined as "any act that kills or injures the species, including significant habitat modification." In addition, Section 9 prohibits removing, digging up, cutting, and maliciously damaging or destroying federally listed plants on sites under federal jurisdiction.

Section 10: Non-Federal Actions

When federal context is not present (i.e., federal permits will not be issued), proponents of a project affecting a listed species must consult with the USFWS and apply for an incidental-take permit under ESA Section 10, which requires the applicant to submit a conservation plan that specifies project impacts and mitigation measures.

The only federally listed species that has potential to occur within the project site and that could be impacted by the proposed project is Delta smelt. The project site is within USFWS designated critical habitat for the Delta smelt, and enhancement of the V-Drain could result in impacts to Delta smelt and critical habitat for this species. Consultation with USFWS will be required for this project regarding impacts to Delta smelt. In the Impacts and Mitigation Measures section of this chapter, mitigation measures that were developed to protect Delta smelt to the maximum extent possible are discussed. These mitigation measures would reduce the project's impact on Delta smelt to a less-than-significant level, pursuant to CEQA.

Federal Clean Water Act (CWA)

The CWA was enacted as an amendment to the federal Water Pollution Control Act of 1972, which outlined the basic structure for regulating discharges of pollutants to waters of the United States. The CWA serves as the primary federal law protecting the quality of the nation's surface waters, including lakes, rivers, and coastal wetlands. Brief summaries of specific sections of the CWA are provided below:

- Water Quality Certification (Section 401). Under Section 401, applicants for a federal license or permit to conduct activities that may result in the discharge of a pollutant into waters of the United States must obtain certification from the state in which the discharge would originate or, if appropriate, from the interstate water pollution control agency with

jurisdiction over affected waters at the point where the discharge would originate. Therefore, all projects that have a federal component and that may affect state water quality (including projects that require federal agency approval, such as issuance of a Section 404 permit) must also comply with Section 401.

- Permits for Stormwater Discharge (Section 402). Section 402 regulates construction-related stormwater discharges to surface waters through the National Pollutant Discharge Elimination System (NPDES) program, administered by the federal Environmental Protection Agency (EPA). In California, the State Water Resources Control Board (SWRCB) is authorized by the EPA to oversee the NPDES program through the Regional Water Quality Control Boards (RWQCBs). The program corridor and vicinity are under the jurisdiction of the Central Valley RWQCB.

- Permits for Fill Placement in Waters and Wetlands (Section 404). Section 404 regulates the discharge of dredged and fill materials into waters of the United States. Applicants must obtain a permit from the U.S. Army Corps of Engineers (USACE) for all discharges of dredged or fill material into waters of the United States, including wetlands, before proceeding with a proposed activity. USACE may issue an individual permit evaluated on a case-by-case basis or a general permit evaluated at a program level for a series of related activities.

Executive Order 13186 (Federal Migratory Bird Treaty Act)

The Migratory Bird Treaty Act (MBTA) (16 U.S. Government Code [USC] 703– 711) prohibits the take of any migratory bird or any part, nest, or eggs of any such bird. Under the act, *take* is defined as the action of or attempt to "pursue, hunt, shoot, capture, collect, or kill." This act applies to all persons and agencies in the United States, including federal agencies. Executive Order 13186 for conservation of migratory birds (January 11, 2001) requires that any project with federal involvement address impacts of federal actions on migratory birds. The order is designed to assist federal agencies in their efforts to comply with the MBTA and does not constitute any legal authorization to take migratory birds. The order also requires federal agencies to work with the USFWS to develop a memorandum of understanding (MOU). Protocols developed under the MOU must promote the conservation of migratory bird populations through the following means:

- Avoid and minimize, to the extent practicable, adverse impacts on migratory bird resources when conducting agency actions;
- Restore and enhance habitat of migratory birds, as practicable; and
- Prevent or abate the pollution or detrimental alteration of the environment for the benefit of migratory birds, as practicable.

State

California Environmental Quality Act (CEQA)

CEQA is the regulatory framework by which California public agencies identify and mitigate significant environmental impacts. A project normally is considered to result in a significant environmental impact on biological resources if the project substantially affects a rare or endangered species or the habitat of that species, substantially interferes with the movement of resident or migratory fish or wildlife, or substantially diminishes habitat for fish, wildlife, or plants. The State CEQA Guidelines define *rare*, *threatened*, or *endangered* species as those listed under CESA and ESA, as well as any other species that meets the criteria of the resource agencies or local agencies (e.g., DFG-designated species of special concern, CNPS-listed species).

State Water Resources Control Board (SWRCB) / California Regional Water Quality Control Board (RWQCB)

The SWRCB and RWQCB regulate activities in "waters of the State" (which includes wetlands) through Section 401 of the Clean Water Act. While the USACE administers permitting programs that authorize impacts to waters of the United States, including wetlands, and other waters, any USACE permit authorized for a proposed project would be invalid unless the permit is a Nationwide Permit (NWP) that has been certified for use in California by the SWRCB, or if the RWQCB has issued a project specific certification or waiver of water quality. Certification of NWPs requires a finding by the SWRCB that the activities permitted by the NWP will not violate water quality standards individually or cumulatively over the term of the issued NWP (the term is typically for five years). Certification must be consistent with the requirements of the federal Clean Water Act, the California Environmental Quality Act, the California Endangered Species Act, and the SWRCB's mandate to protect beneficial uses of waters of the State. Any denied (i.e., not certified) NWPs, and all Individual Corps permits, would require a project specific RWQCB certification or waiver of water quality.

Additionally, if a proposed project would impact waters of the State, including wetlands, and the project applicant cannot demonstrate that the project is unable to avoid these adverse impacts, water quality certification will most likely be denied. Section 401 Certification may also be denied based on significant adverse impacts to waters of the United States, including wetlands. The RWQCB has also adopted the USACE policy that there shall be "no net loss" of wetlands. Thus, prior to certifying water quality, the RWQCB will impose avoidance mitigation requirements on project proponents that impact waters of the State.

California Endangered Species Act (CESA)

California implemented the CESA in 1984. The act prohibits the *take* of endangered and threatened species; however, habitat destruction is not included in the state's definition of *take*. Under the CESA, *take* is defined as an activity that would directly or indirectly kill an individual of a species, but the definition does not include harm or harass. Section 2090 requires state

agencies to comply with endangered species protection and recovery and to promote conservation of these species. The DFG administers the act and authorizes *take* through Section 2081 agreements (except for species designated as fully protected). Regarding rare plant species, the CESA defers to the California Native Plant Protection Act of 1977, which prohibits importing, taking, and selling rare and endangered plants. State-listed plants are protected mainly in cases where State agencies are involved in projects under CEQA. In these cases, plants listed as rare under the California Native Plant Protection Act are not protected under CESA but can be protected under CEQA.

California Department of Fish and Game Code

Streambed Alteration Agreement

The CDFG has jurisdictional authority over wetland resources associated with rivers, streams, and lakes under the CDFG Code Section 1600 et seq. The CDFG has the authority to regulate all work under the jurisdiction of the State of California that would substantially divert, obstruct, or change the natural flow of a river, stream, or lake; substantially change the bed, channel, or bank of a river, stream, or lake; or use material from a streambed.

In practice, the CDFG marks jurisdictional limits at the top of the stream or lake bank or the outer edge of the riparian vegetation, where present, and sometimes extends the limits to the edge of the 100-year floodplain. Because riparian habitats do not always support wetland hydrology or hydric soils, wetland boundaries, as defined by Section 404, sometimes include only portions of the riparian habitat adjacent to a river, stream, or lake. Therefore, jurisdictional boundaries under Section 1600 may encompass a larger area than those regulated under Section 404.

The CDFG enters into a streambed alteration agreement with an applicant and can impose conditions on the agreement to ensure that net loss of wetland values or acreage will not be incurred. The streambed alteration agreement is not a permit, but rather a mutual agreement between the CDFG and the applicant. If a streambed alteration agreement is determined to be necessary, all conditions that are attached to the agreement are implemented as part of a project. The conditions would be clearly identified in the construction plans and specifications and would be monitored during and after construction to ensure compliance.

Fully Protected Species

The CDFG Code provides protection from take for a variety of species, referred to as *fully protected species*. Section 5050 lists protected amphibians and reptiles. Section 3515 prohibits take of fully protected fish species. Eggs and nests of all birds are protected under Section 3503, nesting birds (including raptors and passerines) under Sections 3503.5 and 3513, birds of prey under Section 3503.5, and fully protected birds under Section 3511. Migratory non-game birds are protected under Section 3800. Mammals are protected under Section 4700. The CDFG Code defines *take* as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." Except for take related to scientific research, all take of fully protected species is prohibited. The only State fully protected species that could occur in the project area is white-

tailed kite. Suitable habitat for this species is limited to riparian vegetation along Haas Slough, the DMD, and the V-Drain.

In addition, CDFG has prepared a *Staff Report Regarding Mitigation for Impacts to Swainson's Hawks in the Central Valley of California* that prescribes avoidance and mitigation guidelines for impacts to Swainson's hawk nesting and foraging habitats. This document emphatically presents the case that unmitigated impacts within 10 miles of any active nesting territory would be contrary to protections afforded to Swainson's hawks through CEQA (14 CCR §15380). The mitigation guidelines further state that acceptable mitigation to offset impacts to Swainson's hawk foraging habitat can be met by Fee Title acquisition of Swainson's hawk habitat, or by acquisition of conservation easements over lands that can be managed for this hawk species. Any land acquired through Fee Title would have to be donated to a qualified conservation organization for management. In addition to providing Habitat Management Lands, applicants would be assessed a management fee (endowment) for the long-term management of the Habitat Management Lands by the conservation organization.

Sections 3503 and 3503.5

Section 3503 of the CDFG Code prohibits the killing of birds or the destruction of bird nests. Section 3503.5 prohibits the killing of raptor species and the destruction of raptor nests. Suitable tree-, shrub-, and ground-nesting migratory birds could occur along each segment in the project area.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act, Water Code § 13260, requires that "any person discharging waste, or proposing to discharge waste, within any region that could affect the waters of the State to file a report of discharge" with the RWQCB through an application for waste discharge (Water Code Section 13260[a][1]. The term "waters of the State" is defined as any surface water or groundwater, including saline waters, within the boundaries of the State (Water Code § 13050[e]). It should be noted that pursuant to the Porter-Cologne Water Quality Control Act, the RWQCB also regulates "isolated wetlands," or those wetlands considered to be outside of the jurisdiction of the USACE, pursuant to the SWANCC decision.

The RWQCB generally considers filling in waters of the State to constitute "pollution." Pollution is defined as an alteration of the quality of the waters of the State by waste that unreasonably affects the water's beneficial uses (Water Code §13050(1)). The RWQCB screening to determine if a project should be regulated pursuant to the Porter-Cologne Water Quality Control Act is if the action could result in any "threat" to water quality.

Federal Endangered or Threatened Species

A species listed as Endangered or Threatened under the FESA is protected from unauthorized "take" (that is, harass, harm, pursue, hunt, shoot, trap) of that species. If necessary to take a Federal listed Endangered or Threatened species as part of an otherwise lawful activity, the

proposed project would be necessary to receive permission from the USFWS prior to initiating the take.

State Threatened Species

A species listed as Threatened under the state Endangered Species Act (§2050 of California Fish and Game Code) is protected from unauthorized "take" (that is, harass, pursue, hunt, shoot, trap) of that species. If "take" is necessary, a state listed Threatened species as part of an otherwise lawful activity, the project would be required to receive permission from CDFG prior to initiating the "take."

California Species of Special Concern

California Species of Special Concern are species in which their California breeding populations are seriously declining and extirpation from all or a portion of their range is possible. The California Species of Special Concern designation does not afford legally mandated protection; however, pursuant to the CEQA Guidelines (14 CCR §15380), some species of special concern could be considered "rare." Pursuant to the rarity status of these species, any unmitigated impacts to rare species could be considered a "significant effect on the environment" (§15382). Thus, species of special concern must be considered in any project that will, or is currently, undergoing CEQA review, and/or that must obtain an environmental permit(s) from a public agency.

CNPS List Species

The California Native Plant Society (CNPS) maintains an inventory of special status plant species. The inventory has four lists of plants with varying rarity. These lists are: List 1, List 2, List 3, and List 4. Although plants on these lists do not have formal legal protection (unless they are also State or federal listed species), the CDFG requests the inclusion of List 1 species in environmental documents. In addition, other State and local agencies may request the inclusion of species on other lists as well. List 1 species have the highest priority: List 1A species are thought to be extinct, and List 1B species are known to still exist but are considered "rare, threatened, and endangered in California and elsewhere." All of the plants constituting List 1B meet the definitions of Section 1901, Chapter 10 (Native Plant Protection Act) or Sections 2062 and 2067 (California Endangered Species Act) of the CDFG Code, and are eligible for state listing (CNPS 2001). List 2 species are rare in California, but more common elsewhere. Lists 3 and 4 contain species of concern, and are review and watch lists, respectively. Additionally, in 2006 CNPS updated their lists to include "threat code extensions" for each list. For example, List 1B species would now be categorized as List 1B.1, List 1B.2, or List 1B.3. These threat codes are defined as follows: .1 is considered "seriously endangered in California (over 80% of occurrences threatened/high degree and immediacy of threat)"; .2 is "fairly endangered in California (20-80% of occurrences threatened)"; .3 is "not very endangered in California (less than 20% of occurrences threatened or no current threats known)."

Under the CEQA review process, only CNPS List 1 and 2 species are considered because these are the only CNPS species that meet CEQA's definition of "rare" or "endangered." Impacts to List 3 and 4 species are not regarded as significant, pursuant to CEQA.

Fully Protected Birds

Fully protected birds, such as the white-tailed kite and golden eagle, are protected under California Fish and Game Code (§3511). Fully protected birds may not be "taken" or possessed (i.e., kept in captivity) at any time.

Protected Amphibians

Under Title 14 of the California Code of Regulations (14 CCR 41), protected amphibians, such as the California tiger salamander, may only be taken under special permit from CDFG issued pursuant to Sections 650 and 670.7 of these regulations.

Local

Solano County General Plan

In addition to federal and State regulations, the Solano County General Plan Land Use Element identifies the following goals and policies to provide further protection to biological resources within the County:

Marsh and Wetland Habitat

Policy 2 Protect marsh waterways, managed and natural wetlands, tidal marshes, seasonal marshes, and lowland grasslands, which are critical habitats for marsh-related wildlife.

Policy 3 Continue existing uses in upland grasslands and cultivated area surrounding the critical habits of the Suisun Marsh in order to protect the marsh and preserve valuable marsh-related wildlife habitats. Where feasible, enhance the value of the upland grasslands and cultivated lands as habitat for marsh-related wildlife.

Policy 4 Limit agriculture within the Primary Management Area of the Suisun Marsh to activities compatible with, or intended for, the maintenance or improvement of wildlife habitat.

Policy 5 Maintain agricultural uses consistent with protection of the Suisun Marsh, such as grazing and grain production, within the Secondary Management Area.

Draft Solano Multispecies Habitat Conservation Plan (Solano HCP)

In March 1999, the USFWS, in accordance with Section 7 of the FESA, issued a Biological Opinion regarding the Solano Project Water Service Contract Renewal between the Bureau of Reclamation and the Solano County Water Agency (SCWA). The contract provides for continued delivery of Solano Project water throughout the SCWA contract service area. SCWA delivers Solano Project water in accordance with its eight Member Agency contracts, which includes the City of Suisun City. The Bureau of Reclamation, SCWA, and the member agencies have agreed to implement conservation measures to ensure the protection of threatened and

endangered species and their habitat within the SCWA contract service area. As a condition of the Biological Opinion, SCWA and SCWA's member agencies are required to prepare a Habitat Conservation Plan (HCP), per Section 10(a)1(B) of the FESA, in order to obtain authorization for incidental "take" of listed species that may be impacted by activities associated with future water use in the Solano Project contract service area.

The Solano HCP has expanded the scope of the Biological Opinion requirements to comply with the State's Natural Communities Conservation Planning Act (NCCPA) of 2002 and includes additional voluntary plan participants and additional species for incidental take coverage. These additional species include federally listed fish species under the jurisdiction of the National Marine Fisheries Service (NOAA Fisheries) and species listed as threatened or endangered under the State's Endangered Species Act. The HCP also addresses other species of concern (i.e., species recognized by groups such as the CDFG and the CNPS as having declining or vulnerable populations, but not officially listed as threatened or endangered species). 77 species are proposed to be covered under the Solano HCP. The purpose of the HCP is to promote conservation of biological diversity consistent with the recognition of private property rights, providing for a healthy economic environment for the citizens, agriculture, and industries, and ongoing maintenance and operation of public and private facilities in Solano County.

The Solano Multi-Species HCP establishes a framework for complying with State and federal endangered species regulations while accommodating future urban growth, infrastructure development, and ongoing operation and maintenance activities associated with flood control, irrigation facilities, and other public infrastructure. The HCP will account for all activities undertaken by or under the permitting authority and control of the Plan participants within Solano County, of which the City of Dixon is a plan participant. Therefore, the proposed project would be subject to appropriate HCP conservation measures. However, the Solano HCP is currently in draft form, and has not yet been adopted.

The Solano HCP includes the proposed project area in Zone 2, which is the "Special Districts Zone." This zone is defined as existing boundaries of the participating special districts (Fairfield-Suisun Sewer District, Vallejo Sanitation and Flood Control District, Reclamation District 2068, Maine Prairie Water District, Solano Irrigation District, Solano County Water Agency, Dixon Resource Conservation District, and Dixon Regional Watershed Joint Powers Authority). Covered activities within this zone are primarily related to the operation and maintenance of the special district facilities. Maintenance of the existing facilities within the Plan Participants contract service area is needed to protect the integrity of existing infrastructure such as roads, parks and trails, water control structures (pipes, conduits, culverts, etc.), pump stations, reservoirs, levees, canals, and distribution systems. Routine maintenance activities are required so that existing facilities/structures can operate efficiently and safely. Examples of such routine activities include: removal of sediment, vegetation, and debris from culverts, drains, canals, flood control channels, and reservoirs; replacement of utilities; backfilling of gullies and holes caused by soil erosion; trimming of over-grown or over-hanging vegetation and/or use of herbicides on trails, canal maintenance roads, or embankments to prevent excess growth of weeds and for fire control; and the use of rodenticides to prevent damage from burrowing animals. Construction, operation, and maintenance projects carried out by Plan Participants, include non-federal transportation and flood control projects, pipelines, irrigation canals and

associated facilities, water treatment facilities, school expansions, and park/recreation area and trail development inside designated urban boundaries and service areas.

Impacts and Mitigation Measures

Standards of Significance

For the purposes of this EIR, impacts are considered significant if implementation of the proposed project would do any one or more of the following:

- Have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of an endangered, rare, or threatened species, or eliminate important examples of the major periods of California history or prehistory (CEQA Guidelines Section 15065[a]);
- Adversely affect, either directly or through habitat modification, any endangered, threatened or rare species, as listed in Title 14 of the California Code of Regulations (Sections 670.5) or in Title 50, Code of Regulations (Sections 17.11 or 17.12) or their habitats (including but not limited to plants, fish, insects, animals, and birds);
- Have a substantial adverse impact, either directly or through habitat modification, on any species identified as a candidate, sensitive or special-status species in local or regional plans, policies, or regulations or by the CDFG or USFWS, including CNPS plants listed as 1B;
- Have a substantial adverse impact on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulation or by the CDFG or USFWS;
- Adversely affect federally protected wetlands (including but not limited to, marsh, vernal pool, coastal, etc.) either individually or in combination with the known or probable impacts of other activities through direct removal, filling, hydrological interruption, or other means;
- Have a substantial adverse effect on significant ecological resources including:
    - Wetland areas including vernal pools;
    - Large areas of non-fragmented natural communities that support endangered, threatened or rare species;
    - Wildlife movement zones, including but not limited to, non-fragmented stream environment zones, avian and mammalian routes, and known concentration areas of waterfowl within the Pacific Flyway;
- Interfere substantially with the movement of any resident or migratory fish or wildlife species or with established resident or migratory wildlife corridors, or impede the use of wildlife nursery sites;
- Conflict with any local or regional policies or ordinances designed to protect or enhance biological resources, such as a tree preservation policy or ordinance;
- Substantially fragment, eliminate or otherwise disrupt foraging areas, access to food sources, range and/or movement;

- Disrupt critical time periods (i.e., nesting and breeding) for fish and other wildlife species; or
- Conflict with local, State, or federal resource conservation plans, goals, or regulations that would result in a physical impact on the environment.

An evaluation of whether or not a potential impact on biological resources is significant must consider both the resource itself and how that resource fits into a regional or local context. Substantial impacts would be those that would diminish or result in the loss of an important biological resource, or those that would obviously conflict with local, state, or federal resource conservation plans, goals, or regulations. Impacts are sometimes locally important, but not significant according to CEQA. The reason for this is that although the impacts would result in an adverse alteration of existing conditions, they would not substantially diminish or result in the permanent loss of a defined important resource on a population-wide or region-wide basis.

Method of Analysis

Monk & Associates, Inc. conducted a search of the most recent version of the CNDDB for historic and recent records of special-status plant and animal species (threatened, endangered, rare) known to occur in the region of the project site. In addition, Monk & Associates, Inc. searched all special-status species records, compiled special-status species into tables, and examined all known record locations for special-status species to determine if special-status species could occur on the project site or within an area of affect. Monk & Associates, Inc. also reviewed the CNPS *Inventory of Rare and Endangered Vascular Plants of California* (CNPS 2001) for records of special-status plants known in the region of the project site.

Monk & Associates, Inc. biologists, Mr. Geoff Thomas and Ms. Hope Kingma, conducted a general survey of the project site on February 20, 2007 to record biological resources and to assess the likelihood of agency regulated areas on the project site. The survey involved searching all habitats on the site and recording all plant and wildlife species observed. Potential habitats on or adjacent to the project site that could support special-status species were noted. Surveys for special-status plants on the project site were conducted by Monk & Associates, Inc. biologists, Ms. Stephanie Tornberg and Ms. Erin Hanlon on April 6, May 4, July 6, and September 6, 2007. In addition, on July 6, 2007, Monk & Associates, Inc. biologists, Mr. Thomas, Ms. Tornberg, and Ms. Hanlon, conducted a preliminary wetland delineation on the project site.

Special-Status Plant Species

Special-status plant surveys were conducted by Monk & Associates, Inc. biologists, Ms. Tornberg and Ms. Hanlon, on April 6, May 4, July 6, and September 6, 2007. The surveys followed CDFG and CNPS published survey guidelines.

In accordance with these guidelines, special-status surveys were conducted at the proper time of year when special-status and locally significant plants are both evident and identifiable. The surveys were floristic in nature with every plant observed identified to species, subspecies, or variety as necessary to determine their rarity status. In addition, the field surveys were conducted

in a manner that is consistent with conservation ethics and accepted plant collection and documentation techniques.

Project Impacts and Mitigation Measures

4.2-1 Impacts to jurisdictional waters.

The proposed project may result in impacts to areas that are likely within the Corps' and RWQCB jurisdiction pursuant to Sections 404 and 401 of the Clean Water Act, respectively, and areas potentially within the CDFG's jurisdiction pursuant to Section 1602 of Fish and Game Code. Areas subject to potential jurisdiction by the Corps and RWQCB include the V-Drain, adjacent wetlands and potentially the larger agricultural impoundments on the project site. Areas subject to potential jurisdiction by the CDFG are the channel, bed, and bank of the V-Drain and the DMD.

Monk & Associates' biologists conducted a preliminary wetland delineation of the project site. While this delineation has been submitted to the Corps for verification, the jurisdictional determination has not been confirmed to date. Consequently, the extent of impacts that would occur to "waters of the United States/State" and to CDFG jurisdictional areas resulting from the proposed project is unknown at this writing; however, such impacts would be regarded as ***potentially significant***.

Mitigation Measure(s)
The following mitigation measures would reduce the above impact to a *less-than-significant* level.

4.2-1(a) *Once the wetland delineation has been confirmed by the Corps, the extent of the Corps and RWQCB jurisdiction within the project area will be known, and the extent of impacts to waters of the United States/State can be ascertained. If the Corps determines that there are areas of the project site subject to their jurisdiction, prior to filling any of these jurisdictional areas the project proponents shall obtain a permit from the Corps and RWQCB.*

Based on the confirmed map, jurisdictional wetland areas shall be avoided by the project where possible. Because full avoidance of waters of the United States is not possible, potential impacts shall be minimized to the extent feasible through changes to project design. In addition, during construction activities, Best Management Practices shall be utilized to protect preserved wetlands and ensure water quality in wetlands and other waters within the watershed. Utilization of BMPs shall include, but not be limited to, the installation of orange construction fencing and the use of straw wattles.

4.2-1(b) *The proposed project will mitigate for impacts to waters of the United States/State by creating a minimum of two times the square footage of*

impacted wetlands and other waters in areas that are now considered to be upland. This is a two to one (2:1) (mitigation to impacts) ratio and is consistent with requirements set forth by the USACE and the RWQCB. The new wetlands and other waters shall resemble the wetlands and other waters affected by the project.

4.2-1(c) *Prior to the approval of Improvement Plans, a Streambed Alteration Agreement will be obtained from the CDFG before any in-stream construction activities commence. The agreement will contain additional minimization and mitigation measures.*

4.2-2 Impacts to non-anadromous fish.

Delta smelt are listed as threatened under both the State and Federal Endangered Species Acts. The project site is within USFWS designated critical habitat for the Delta smelt (USFWS 1995). This smelt species occurs primarily in open, surface waters of Suisun Bay, in the Sacramento River upstream to Isleton, and in the San Joaquin River downstream of the Mossdale sampling station. Accordingly, while a small likelihood exists that Delta smelt could occur in the vicinity of the project site, they would most likely not be impacted by the proposed project.

Longfin smelt is a California species of special concern. Distribution of longfin smelt is centered in the west Delta, Suisun Bay, and San Pablo Bay. Longfin smelt eggs and larvae are generally not expected to occur in the vicinity of the project. Thus, impacts to this species from the proposed project are not expected to occur.

Sacramento splittail are a California species of special concern. Splittail are presently found primarily in the Delta, Suisun Bay, Suisun Marsh, and other parts of the Sacramento-San Joaquin estuary.

The biological assessment of the proposed project site determined that delta smelt, longfin smelt, and Sacramento splittail have the potential to occur on-site. Accordingly, because there is a small likelihood these three fish species could be in the vicinity of the project site, without mitigation measures the project could result in a ***potentially significant impact*** to these species.

Mitigation Measure(s)
The following mitigation measures would reduce the above impact to a *less-than-significant* level.

4.2-2 *Prior to construction, Section 7 consultation between the Corps and the U.S. Fish and Wildlife Service would be required to address potential impacts to Delta smelt. Avoidance measures would include a seasonal work window. In-water work would be allowed seasonally between May 1st and October 15th. Seasonal avoidance measures prescribed by the USFWS in an incidental take permit authorized for the project for Delta*

smelt would effectively reduce impacts to all non-anadromous fish that could occur within the project area. Implementation of this restricted work window between May 1st and October 15th for any channel work would reduce impacts to Delta smelt and other non-anadromous fish species to less-than-significant levels.

As noted above, during construction activities, Best Management Practices shall be implemented to minimize water quality impacts downstream from the work areas. Temporary instream sediment traps will be installed immediately downstream from the construction area so that all suspended sediments in the water will be contained in order to reduce impacts to fisheries habitat downstream. In addition, the existing pump station located at the southern extent of the project will be employed to further capture suspended sediments, thereby essentially eliminating any potential for downstream sedimentation impacts to fisheries habitat.

4.2-3 Impacts to the giant garter snake.

The closest known record for the giant garter snake is on the northern edge of the project site. One adult snake was found where the DMD, which parallels Swan Road, enters the V-Drain. The U.S. Geological Survey Western Ecological Research Center conducted species-specific surveys in 2004 and 2005 at many locations in eastern Solano County, including two historic locations near Liberty Farms (project site area). During these surveys, giant garter snakes were not found. In addition, the *Giant Garter Snake 5-Year Review: Summary and Evaluation* report prepared by the USFWS in September of 2006 states, "[…] this species may no longer occur in Solano County." However, because the DMD and V-Drain provide suitable habitat conditions for the giant garter snake, the work activities related to the proposed project could result in a ***potentially significant*** impact to the giant garter snake.

Mitigation Measure(s)

The following mitigation measures would reduce the above impact to a *less-than-significant* level.

4.2-3 *Prior to any construction activities, a formal habitat assessment for the giant garter snake that follows USFWS guidelines shall be prepared by a qualified biologist and submitted to the USFWS. If the USFWS determines that the project site does not provide suitable habitat for the giant garter snake, no further regard for this species would be required.*

If USFWS determines that the project site provides habitat for the giant garter snake formal consultation between the USACE and the USFWS, pursuant to Section 7 of FESA, would be necessary to obtain an "incidental take" for the project. In addition, if the USFWS determines that the project site provides habitat for the giant garter snake, any

mitigation measures prescribed in the USFWS's Biological Opinion shall become conditions of project approval.

4.2-4 Impacts to Pacific pond turtle.

The Pacific pond turtle is a California species of special concern that is known to occur in the project area. Monk & Associates, Inc. observed this turtle on-site. The proposed project would result in impacts to aquatic habitat occupied by this species and could also impact potentially occupied upland burrowing/nesting habitat. Impacts to individual Pacific pond turtles or their eggs or young would be considered a ***potentially significant*** impact.

Mitigation Measure(s)
The following mitigation measures would reduce the above impact to a *less-than-significant* level.

4.2-4(a) *Turbidity barriers shall be installed around the construction areas to reduce impacts to pond turtles that may occur downstream. All Pacific pond turtles encountered during work activities in the channel would be salvaged, per CDFG approval, and relocated to preserved off-site habitats.*

4.2-4(b) *Preconstruction surveys for Pacific pond turtles and their nests shall be conducted 30 days prior to any construction. If nest sites are located adjacent to a proposed work area, the nest site plus a 50-foot buffer around the nest site shall be fenced to avoid impacts to the eggs or hatchlings that over-winter at the nest site. In addition, if nest(s) are located during surveys, mothballs (naphthalene) should be sprinkled around the vicinity of the nest (not closer than 10 feet) to mask human scent and discourage predators.*

Construction at the nest site and within the 50-foot buffer area shall be delayed until the young leave the nest (this could be a period of many months) or as otherwise advised and directed by CDFG, the agency responsible for overseeing the protection of the pond turtle.

4.2-4(c) *Prior to any construction activities, translocation of any nestling pond turtles shall be completed by a qualified biologist under the direction of CDFG. In addition, CDFG may require mitigation for any impacts to the turtle's habitat following completion of nesting. The project applicant shall implement any CDFG requirements that are included as conditions of project approval.*

4.2-5 Impacts to white-tailed kite and northern harrier.

According to the biological resource analysis prepared by Monk & Associates, the northern harrier and the white-tailed kite have been observed foraging over the proposed

project site. Whether or not these species nest on the project site is unknown, but the trees and shrubs on the project site and adjacent to the project site provide suitable nesting habitat for the white-tailed kite, and the ruderal grassland provides suitable nesting habitat for the northern harrier. The proposed project would include construction activities that could result in direct impacts to nesting habitat, disturbance to nesting birds, and possibly death of adults and/or young. Therefore, ***potentially significant*** impacts to white-tailed kite and northern harrier could result.

Mitigation Measure(s)
The following mitigation measure would reduce the above impact to a *less-than-significant* level.

4.2-5 *In order to avoid impacts to nesting raptors, a nesting surveys shall be conducted prior to commencing with construction work, if this work would commence between February 1st and August 31st .The raptor nesting surveys shall include examination of all trees within 500 feet of the entire project site, not just trees slated for removal. (These surveys would be conducted concurrently with the western burrowing owl surveys – see Mitigation Measure 4.2-7(a) below).*

If nesting raptors are identified during the surveys, the dripline of the nest tree must be fenced with orange construction fencing (provided the tree is on the project site), and a 200-foot radius around the nest tree must be staked with bright orange lath or other suitable staking. If the tree is located off the project site, then the buffer shall be demarcated per above where the buffer occurs on the project site. The size of the buffer may be altered if a qualified raptor biologist conducts behavioral observations and determines the nesting raptors are well acclimated to disturbance. If this occurs, the raptor biologist shall prescribe a modified buffer that allows sufficient room to prevent undue disturbance/harassment to the nesting raptors. No construction or earth-moving activity shall occur within the established buffer until it is determined by a qualified raptor biologist that the young have fledged (that is, left the nest) and have attained sufficient flight skills to avoid project construction zones. This typically occurs by July 15th. This date may be earlier or later, and would have to be determined by a qualified raptor biologist. If a qualified biologist is not hired to watch the nesting raptors then the buffers shall be maintained in place through the month of August and work within the buffer can commence September 1st.

Implementation of this mitigation measure would reduce impacts to nesting raptors to a level considered less than significant.

4.2-6 Impacts to Swainson's hawk foraging habitat.

The closest nesting record for the Swainson's hawk is located approximately 2.5 miles southeast of the proposed project site. The trees within the proposed project site are not of

suitable size or species to support a pair of nesting Swainson's hawks. Hence, impacts to Swainson's hawk nesting habitat are not expected to result from implementation of the project. However, because Swainson's hawks are known to nest within two to three miles of the project site, the site is considered by CDFG to be within the "defined foraging area" for this species. Therefore, should construction activities associated with the proposed project disturb the foraging habitat, the project would have a ***potentially significant*** impact on Swainson's hawks.

Mitigation Measure(s)
The following mitigation measures would reduce the above impact to a *less-than-significant* level.

4.2-6(a) *Prior to the initiation of the proposed project, the applicant shall conduct nesting surveys for Swainson's hawk. (These surveys would be conducted concurrently with the western burrowing owl surveys – see Mitigation Measure 4.2-7(a) below).*

4.2-6(b) *If Swainson's hawks are found to be nesting on or within the area of influence of the project (within 1,000 feet of the project) when the proposed project will be implemented, impacts to nesting Swainson's hawks would be regarded as significant. Accordingly, consultation with CDFG and mitigation compensation will be required. At that time, the necessity of acquiring a Fish and Game Section 2081 management authorization will be determined.*

4.2-6(c) *If the CDFG requires mitigation for impacts to potential Swainson's hawk foraging habitat, the applicant may purchase mitigation credits commensurate with the acreage of impacts to foraging and/or nesting habitat at a CDFG approved Swainson's hawk mitigation bank, such as the Jenny Farms Conservation Bank, as approved by CDFG.*

4.2-7 Impacts to burrowing owl nesting and foraging habitat.

Suitable nesting habitat for western burrowing owl occurs on-site. The western burrowing owl is a State species of special concern. This owl is protected pursuant to the Federal Migratory Bird Treaty Act and the California Fish and Game Code §3503, 3503.5, 3800, 3513. The burrowing owl has not been identified nesting on the project site. However, because this owl and ground squirrels are known to occur in the area, and thus could nest or reside in the project area in the future, impacts to western burrowing owl would be considered to be ***potentially significant.***

Mitigation Measure(s)
The following mitigation measures would reduce the above impact to a *less-than-significant* level.

4.2-7 *A protocol survey shall be conducted to assess the presence of burrowing owls on the project site. The project site and a 150 meter (approximately 500 ft.) buffer (where possible based on habitat) should be surveyed to assess the presence of burrowing owls and their habitat. The survey should be conducted in accordance with the survey requirements detailed in the California Department of Fish and Game's Staff Report on Burrowing Owl Mitigation (CDFG 1995). Surveys shall be conducted in both breeding season (April 15-July 15) and non-breeding season (December-January), for a total of four surveys, to assess use of the project site by this species.*

If burrowing owls are found on the project site during the non-breeding season (September 1 through January 31), impacts to burrowing owls will be avoided by establishing a fenced 160-foot buffer (50 meters) between the nest site (i.e., the active burrow) and any earth-moving activity or other disturbance on the project site.

If burrowing owls are detected on the site during the breeding season (peak of the breeding season is April 15 through July 15), and appear to be engaged in nesting behavior, a fenced 250-foot buffer (75 meters) would be required between the nest site (i.e. the active burrows) and any earth-moving activity or other disturbance on the project site. This 250-foot buffer could be removed once it is determined by a qualified raptor biologist that that young have fledged (that is, left the nest). Typically, the young fledge by August 31st. This date may be earlier than August 31st, or later, and would have to be determined by a qualified raptor biologist.

If the earlier surveys do not identify burrowing owls in the project area, preconstruction surveys will still be required. Preconstruction surveys of the project site shall be conducted no more than 30 days prior to ground disturbing activities. If more than 30 days lapse between the time of the preconstruction survey and the start of ground-disturbing activities, another preconstruction survey must be completed.

If occupied burrows are found within 160 feet of the proposed project area during the non-breeding season, and may be impacted, passive relocation measures will be implemented according to the Burrowing Owl Consortium Guidelines (BOC 1993). Passive relocation shall not commence before September 30th and shall be completed prior to February 1st of any given year. These activities shall be approved by CDFG in advance. After passive relocation, the project site and vicinity will be monitored by a qualified biologist daily for one week and once per week for an additional two weeks to document where the relocated owls move. A report detailing the results of the monitoring will be submitted to CDFG within two months of the relocation.

If burrowing owls were found occupying burrows on the project site, a qualified raptor biologist shall delineate the extent of burrowing owl habitat on the site. To mitigate impacts to burrowing owls, the applicant shall implement mitigation measures required by the CDFG. As approved by CDFG, the applicant could purchase mitigation credits at a CDFG-approved burrowing owl mitigation bank, such as the Jenny Farms Conservation Bank.

4.2-8 Impacts to loggerhead shrike, tricolored blackbird, and other nesting passerine birds.

According to the biological resource analysis prepared by Monk & Associates, suitable foraging and nesting habitat for the loggerhead shrike and tricolored blackbird occurs in the vicinity of the proposed project. Impacts to unoccupied nesting habitats for these species would not be considered significant because other local and regional nesting habitats that could be used in subsequent nesting seasons are available for use by these species. However, because suitable habitat for the loggerhead shrike, tricolored blackbird, and other nesting passerine birds exist on-site, and construction activities associated with the project could directly impact nesting birds, a ***potentially significant*** impact would result.

Mitigation Measure(s)

The following mitigation measures would reduce the above impact to a *less-than-significant* level.

4.2-8(a) *If construction or earth-moving activities associated with the proposed project would commence between March 15th and August 31st, the applicant shall ensure that nesting surveys for special-status birds, such as the loggerhead shrike and the tricolored blackbird, are conducted 30 days prior to the commencement of construction activities. (These surveys would be conducted concurrently with the western burrowing owl surveys – see Mitigation Measure 4.2-7(a) above).*

4.2-8(b) *If special-status birds, such as loggerhead shrike or tricolored blackbird, are identified within the project site during the nesting surveys, a 100-foot radius around the nest must be staked with orange construction fencing or other suitable staking. Construction or earth-moving activities shall not occur within this 100-foot staked buffer until a qualified biologist has determined that the young have fledged and have attained sufficient flight skills to avoid project construction zones. This typically occurs by July 1st. This date could be earlier than July 1st, or later, and would have to be determined by a qualified ornithologist. The 100-foot protection buffer may also be adjusted to be smaller or larger by a qualified ornithologist, as necessary, to protect the nesting birds.*

4.2-8(c) *If common (that is, not special-status) passerine birds (perching birds such as American robins, scrub jays, and northern mockingbird) are identified during the nesting surveys in any of the trees or shrubs proposed for removal, the removal shall be postponed until a qualified ornithologist has determined that the young have fledged and have attained sufficient flight skills to leave the project site. Typically, most passerine birds can be expected to complete nesting by July 1st, with young attaining sufficient flight skills by early July.*

4.2-9 Impacts related to conflicts with local or regional policies or ordinances designed to protect or enhance biological resources.

The Solano County General Plan includes adopted policies regarding the protection of natural resources in Solano County. In addition, several agencies have participated in the drafting of the Solano HCP, which is intended to provide an effective framework to protect natural resources in the County, while improving and streamlining the environmental permitting process for impacts on endangered species.

While limited vegetation exists on-site and the site provides habitat for a number of animals, the mitigation included in this document would ensure that that proposed project would comply with the General Plan policies. As discussed above, jurisdictions throughout Solano County are participating in the development of the Solano County HCP. The HCP is currently in draft form, and has not yet been formally adopted by any jurisdictions. Because the HCP has not been adopted, the plan does not represent a formal policy within the County. Furthermore, the proposed project would not adversely impact the ability of local jurisdictions to implement the HCP in the future. Therefore, because the proposed project is not currently required to comply with the HCP, and would not adversely affect future implementation of the HCP, a ***less-than-significant*** impact would occur.

Mitigation Measure(s)
None required.

Cumulative Impacts and Mitigation Measures

4.2-10 Cumulative loss of biological resources in Solano County.

"Cumulative impacts" refers to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts (CEQA Guidelines 15355). The individual effects may be changes resulting from a single project or a number of separate projects. The cumulative impact from several projects is the change in the environment that results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects (CEQA Guidelines 15355).

As noted above, the proposed project would have potentially significant impacts to recognized jurisdictional waters, as well as a number of special-status animal species. The establishment of mitigation measures, such as those recommended in this Draft EIR, would adequately address these impacts. With the mitigation measures in place, the proposed project would not have substantial adverse impacts to the populations of the special-status species and sensitive habitats; therefore, a ***less-than-significant*** cumulative impact would result.

Mitigation Measure(s)
None required.

Endnotes

[1] Jepson Interchange Project, http://ucjeps.berkeley.edu/interchange/index.html.

4.3 HYDROLOGY, WATER QUALITY, AND DRAINAGE

4.3 HYDROLOGY, WATER QUALITY, AND DRAINAGE

INTRODUCTION

This chapter of the EIR describes existing drainage and water resources for the project site. Additionally, this section evaluates potential impacts on irrigation drainage, stormwater drainage, flooding, groundwater, seepage, and water quality. The Hydrology, Water Quality, and Drainage chapter is based primarily on the *Solano County General Plan,*[1] and the Conceptual Design report prepared by West Yost Associates.[2]

EXISTING ENVIRONMENTAL SETTING

The project lies within the Sacramento Valley between the Coast Ranges and the Sacramento River. The climate of this area is characterized by hot, dry summers and cool, wet winters. The temperature range is approximately 30 to 100 degrees Fahrenheit. Annual average rainfall in this region is around 16 inches and occurs primarily between November and March.

The following sections describe the existing regional, local and project site drainage and flooding as wells as water quality in the project site vicinity.

Regional Drainage

The Dixon Drain System is within the Sacramento River watershed. The Sacramento River drains the northern central portion of California. The watershed includes the eastern slopes of the Coast Ranges, Mt. Shasta, the western slopes of the southernmost region of the Cascades, and the Northern section of the Sierra Nevada. The Sacramento River carries 31 percent of California's total runoff water.

Regional Flooding

The main threat for catastrophic flooding in the region is from the Sacramento River. Flood protection from the Sacramento River is provided by a series of storage and flood control systems. The Yolo Bypass is an area of land that is designed to convey excess flood waters from the Sacramento River in order to reduce the risk of flooding.

Local Drainage

The local drainage system consists of a 70-mile long system of ditches designed to accommodate flows from historic Dickinson Creek and Dudley Creek watersheds, as well as runoff from adjacent fields while preventing or attenuating the flooding of agricultural lands. The Dixon Drain System is composed of four segments with the following three distinct watersheds: the Putah Creek Watershed, the Yolo Bypass Watershed, and the Dickinson-Dudley Creek

Watershed. The Dixon Main Drain (DMD) is a network of ditches, which drains the land within the Dixon Resource Conservation District (RCD), south of Dixon, and discharges into the RD 2068 intake canal south of Swan Road near Sikes Road. Runoff from the City of Dixon is conveyed by the DMD system. The Dixon Drain system has played an important role in bringing agricultural land that was previously drainage-impaired into production and reducing crop damage from seasonal flooding.

Local Flooding

The area in Solano County south of the City of Dixon lies within the Sacramento Valley subsection of the Great Central Valley of California. Flooding occurs during heavy periods of rain and the major flood hazards areas are located in the historic Dickinson Creek and Dudley Creek watersheds.

Project Drainage

The proposed project includes 0.6 miles of the DMD that runs parallel to Swan Road from near the abandoned Union Pacific Railroad tracks to the DMD's easterly terminus at the V-Drain. The V-Drain begins at the current confluence of the DMD and extends south to the RD 2068 intake canal, which exists directly east of the V-Drain. The existing capacity of the DMD ranges from 198 cubic feet per second (cfs) to 316 cfs. The existing capacity of the V-Drain ranges from 673 cfs to over 1,900 cfs.

Project Flooding

Areas adjacent to the proposed project are susceptible to localized flooding during heavy periods of rain. The proposed project is intended to help attenuate the existing flooding of agricultural lands located upstream of the proposed project.

Water Quality Considerations

Water quality considerations at the project site consist of surface water, seepage, and groundwater.

<u>Surface Water</u>

The surrounding and upstream land uses are contributors of agricultural runoff, which affects the surface water quality in the area. The areas surrounding the proposed project include a mixture of agricultural uses. Runoff from agricultural areas is generally characterized by constituents such as sediment, fertilizers, chemicals, and animal waste. Agricultural runoff may contain bacteria, high nutrient content, and dissolved solids. In addition, water quality impacts from upstream construction are of particular concern. Grading for construction activity removes vegetation, and exposes soil to wind and water erosion. The erosion can result in sediment that flows to surface waters.

Seepage

Seepage is the lateral movement of irrigation water through fields or an area outside of the normally flooded area. Elevated concentrations of herbicides and pesticides from agricultural runoff could be found in agricultural drains and could potentially exceed existing levels found in receiving waters. Therefore, seepage could potentially be the source of herbicides and pesticides currently found in agricultural runoff. Currently, seepage is regarded as an important contributor to pesticide loading in Sacramento Valley waterways.

Groundwater

The proposed project is located within the Solano Groundwater Subbasin. The Solano Groundwater sub-basin elevation is relatively stable with fluctuations occurring during drought years followed by a natural return in elevation during wet years. According to the Dixon General Plan, the Solano groundwater basin is considered to be of very good quality and provides adequate supply for uses of both agriculture and domestic water.

REGULATORY CONTEXT

The following is a description of federal, State, and local environmental laws and policies that are relevant to hydrology, water quality, and drainage.

Federal

Clean Water Act

In 1972 the Federal Water Pollution Control Act was enacted. As amended in 1977, this law became commonly known as the Clean Water Act (CWA). The Act established the basic structure for regulating discharges of pollutants into the waters of the United States. The CWA gave the Environmental Protection Agency (EPA) the authority to implement pollution control programs such as setting wastewater standards for industry. The CWA also continued requirements to set water quality standards for all contaminants in surface waters. The National Pollutant Discharge Elimination System (NPDES) permit system was established under the federal CWA to regulate municipal and industrial discharges to surface waters of the U.S. Each NPDES permit contains limits on allowable concentrations and mass emissions of pollutants contained in the discharge. Sections 401 and 402 of the CWA contain general requirements regarding NPDES permits. Section 307 of the CWA describes the factors that EPA must consider in setting effluent limits for priority pollutants.

Section 401

Section 401 of the CWA requires that an applicant pursuing a federal permit to conduct any activity that may result in a discharge of a pollutant obtain a Water Quality Certification (or waiver). Water Quality Certifications are issued by the RWQCBs in California. Under the CWA, the state (RWQCB) must issue or waive Section 401 Water Quality Certification for the Project to be permitted under Section 404. Water Quality Certification requires the evaluation of water

quality considerations associated with dredging or placement of fill materials into waters of the United States and imposes project-specific conditions on development. A Section 401 waiver establishes standard conditions that apply to any project that qualifies for a waiver.

Section 402

The 1972 amendments to the Federal Water Pollution Control Act established the National Pollutant Discharge Elimination System (NPDES) permit program to control discharges of pollutants from point sources (Section 402). The 1987 amendments to the CWA created a new section of the CWA devoted to stormwater permitting (Section 402[p]). EPA has granted the State of California primacy in administering and enforcing the provisions of CWA and NPDES. NPDES is the primary federal program that regulates point source and non-point source discharges to waters of the United States.

Section 404

In 1972, amendments to the Federal Water Pollution Control Act added what is commonly called Section 404 authority (33 U.S.C. 1344) to the program. The Secretary of the Army, acting through the Chief of Engineers, is authorized to issue permits, after notice and opportunity for public hearings, for the discharge of dredged or fill material into waters of the United States at specified disposal sites. Selection of such sites must be in accordance with guidelines developed by the Environmental Protection Agency (EPA) in conjunction with the Secretary of the Army; these guidelines are known as the 404(b)(1) Guidelines. The discharge of all other pollutants into waters of the U. S. is regulated under Section 402 of the Act.

Construction Site Runoff Management

In accordance with NPDES regulations, in order to minimize the potential effects of construction runoff on receiving water quality, the State requires that any construction activity affecting one acre or more must obtain a General Construction Activity Stormwater Permit. Permit applicants are required to prepare a Stormwater Pollution Prevention Plan (SWPPP) and implement Best Management Practices (BMPs) to reduce construction effects on receiving water quality by implementing erosion control measures.

Federal Emergency Management Agency (FEMA)

The Federal Emergency Management Agency (FEMA) is responsible for determining flood elevations and floodplain boundaries based on U.S. Army Corps of Engineers studies. FEMA is also responsible for distributing the Flood Insurance Rate Maps (FIRMS), which are used in the National Flood Insurance Program (NFIP). These maps identify the locations of special flood hazard areas, including the 100-year floodplains.

FEMA allows non-residential development in the floodplain; however, construction activities are restricted within the flood hazard areas, depending upon the potential for flooding within each area. Federal regulations governing development in a floodplain are set forth in Title 44, Part 60 of the Code of Federal Regulations (CFR). These standards are implemented at the State level

through construction codes and local ordinances; however, these regulations only apply to residential and non-residential structure improvements. Although roadway construction or modification is not explicitly addressed in the FEMA regulations, the California Department of Transportation (Caltrans) has also adopted criteria and standards for roadway drainage systems and projects situated within designated floodplains. Standards that apply to floodplain issues are based on federal regulations (Title 23, Part 650 of the CFR). At the State level, roadway design must comply with drainage standards included in Chapters 800-890 of the Caltrans Highway Design Manual.

CFR Section 60.3(c)(10) restricts cumulative development from increasing the water surface elevation of the base flood by more than one foot within the floodplain.

State

Porter-Cologne Water Quality Control Act of 1969

Porter-Cologne established the SWRCB and divided the State into nine regional basins, each with an RWQCB. The SWRCB is the primary state agency responsible for protecting the quality of the state's surface and groundwater supplies. Porter-Cologne authorizes the SWRCB to draft state policies regarding water quality in accordance with Section 303 of the Clean Water Act (CWA). In addition, Porter-Cologne authorizes the SWRCB to issue waste discharge requirements (WDRs) for projects that would discharge to state waters. Porter-Cologne requires that the SWRCB or the RWQCB adopt water quality control plans (basin plans) for the protection of water quality.

- A basin plan must identify beneficial uses of water to be protected;
- Establish water quality objectives for the reasonable protection of the beneficial uses; and
- Establish a program of implementation for achieving the water quality objectives.

Basin plans also provide the technical basis for determining waste discharge requirements, taking enforcement actions, and evaluating clean water grant proposals. Basin plans are updated and reviewed every three years in accordance with Article 3 of the Porter-Cologne and Section 303(c) of the CWA. The Central Valley RWQCB (CVRWQCB), which has jurisdiction over the Dixon area, adopted the most recent amendments to the basin plan in September 1998.

California Regional Water Quality Control Board, Central Valley Region—Basin Plan

Water quality in streams and aquifers of the region is guided and regulated by the CVRWQCB basin plan (CVRWQCB 1998). State policy for water quality control is directed at achieving the highest water quality consistent with the maximum benefit to the people of the state. To develop water quality standards consistent with the uses of a water body, the CVRWQCB attempts to classify historical, present, and future beneficial uses as part of its basin plan.

Central Valley Flood Protection Board (formerly Reclamation Board)

Haas Slough area levees are under the jurisdiction of the Central Valley Flood Protection Board (CVFPB); therefore, the proposed project may require an encroachment permit from the CVFPB. The CVFPB would evaluate the proposed project for effects on the levees and on the discharge (flow) into Haas Slough. Reclamation District (RD) 2098 maintains these levees and will be advised of the proposed project.

California Department of Fish and Game

The California Department of Fish and Game (CDFG) has jurisdictional authority over wetland resources associated with rivers, streams, and lakes under the CDFG Code Section 1600 et seq. The CDFG has the authority to regulate all work under the jurisdiction of the State of California that would substantially divert, obstruct, or change the natural flow of a river, stream, or lake; substantially change the bed, channel, or bank of a river, stream, or lake; or use material from a streambed.

Local

Dixon Resource Conservation District

The Dixon RCD was originally formed to construct, operate, and maintain the Dixon Drain. The Dixon Drain is a 70-mile long system of ditches designed to prevent or alleviate the flooding of agricultural lands. The Dixon RCD oversees the operation and maintenance of the Dixon Drain, financed by a tax levied on all landowners within the District. The Dixon Drain, originally designed to remove only winter water, also collects irrigation tailwater in the spring and summer.

Dixon Regional Drainage Committee

The Dixon Regional Drainage Committee (DRDC) was composed of the Dixon RCD Board of Directors, the City of Dixon, the Maine Prairie Water District (MPWD), and RD 2068, with assistance from the Solano County Water Agency. The City of Dixon, the Dixon RCD Board of Directors, the Maine Prairie Water District (MPWD), and Reclamation District (RD) 2068 have formed the Dixon Regional Watershed Joint Powers Authority (JPA), which has replaced the DRDC, for the planning and future construction of substantial improvements to the Dixon RCD and the RD 2068 drainage systems.

The agencies included in the JPA cooperate in the planning and future construction of substantial improvements to the Dixon RCD and the RD 2068 and RD 2098 drainage systems, including new and enlarged channels. These improvements are intended to accommodate additional water from recent and new development and reduce localized flooding. The Dixon RCD will continue to maintain the sections of ditch not within the jurisdiction of the other agencies.

Impacts and Mitigation Measures

Standards of Significance

For the purposes of this EIR, impacts are considered significant if implementation of the proposed project would:

- Violate any water quality standards or waste discharge requirements;
- Substantially affect drainage characteristics of the area in a manner which would result in substantial erosion or siltation on- or off-site;
- Result in a change in absorption rates or drainage patterns that would substantially increase the rate and amount of onsite or offsite surface runoff, or expose downstream locations to increased risk of flooding; or
- Substantially degrade groundwater or surface water quality as a result of construction or operation of the project by exceeding adopted RWQCB Basin Plan water quality objectives, applicable NPDES permit requirements, or local standards.

Method of Analysis

Potential impacts associated with hydrology, water quality, and drainage resulting from implementation of the proposed project are assessed based on the predicted change from existing conditions. The change, if any, is then compared to the above standards of significance to determine the extent of the impact. Any significant impacts are either reduced to a less-than-significant level by mitigation measures or remain significant and unavoidable.

Project Impacts and Mitigation Measures

4.3-1 Increased stormwater flow rates contributing to downstream flooding.

The proposed project consists of two primary elements: enlargement of the DMD along Swan Road at the abandoned railroad tracks to the DMD's easterly terminus at the V-Drain, and the enlargement of the existing V-Drain between Swan Road and the RD 2068 Intake Canal near to Haas Slough. The project would increase the capacity of the DMD channel to 615 cfs and the capacity of the V-Drain would be increased to 1,518 cfs.

The DMD would be enlarged to provide an increase in capacity of 375 cfs more than the DMD's existing capacity of 240 cfs. This is expected to be achieved by excavating the channel to provide a bottom width of six feet, increasing the channel depth by approximately two feet, and reducing the side slope of the southern bank to a four-to-one (4:1) slope. The north bank would not be changed.

The V-Drain is being designed for a target capacity of 1,518 cfs, which would include the existing capacity of 1,132 cfs, the additional 375 cfs, and 11 cfs for runoff from the local tributary areas. This is expected to be achieved by providing a bottom width of 40 to 50 feet (an approximately 20- to 30-foot increase), increasing the channel depth in some

locations by approximately 1.5 feet, and reducing the side slope of the west bank to a four-to-one (4:1) slope. In addition, the V-Ditch outfall into the RD 2068 Intake Canal would be re-aligned to reduce erosion. Because the RD 2068 Intake Canal has a capacity that is at least 212 cfs greater than the target capacity of the V-Drain, improvements are not proposed to the RD 2068 Intake Canal.

The main objective of the proposed project is to reduce flooding in the adjacent agricultural areas. As a result, the proposed project would result in increased capacity of 375 cfs and 386 cfs in the DMD and V-Drain, respectively, which would allow larger peak-flow volumes of water downstream. Higher downstream peak-flow volumes could lead to flooding downstream of the project site. The potential downstream impacts include changes in water surface elevations for the areas downstream of the project site for the 2-year, 10-year, and 100-year storm events. However, according to West Yost & Associates the receiving waters have the capacity to accept the increased peak flows.

The incorporation of new drainage improvements, including the realignment of the V-Drain outfall, is anticipated to reduce the chance of flooding in the areas surrounding the project site. The final design of the drainage system is not yet complete; however, the proposed project would be reviewed by the RWQCB ensure that implementation of the proposed project would not result in flooding in the receiving waters. Therefore, a ***less-than-significant*** impact would result from implementation of the proposed project.

Mitigation Measure(s)
None required.

4.3-2 Short-term construction-related impacts to surface water quality.

The development of the proposed project would involve the enlargement of the DMD and V-Drain, which would require grading, excavation, and other construction-related activities that would distribute on-site soils in and around the drainage channels. All of these activities have the potential to affect water quality by contributing to localized violations of water quality standards.

The proposed project would include construction activities, such as grading, excavation, and trenching for site improvements and would result in disturbance of soils at the project site. Construction site runoff can contain soil particles and sediments from these activities. Dust from construction sites can also be transported to other nearby locations, where the dust can enter runoff or water bodies. Spills or leaks from heavy equipment, machinery, or staging areas could be entrained by stormwater. Sediment from graded or excavated surface materials could result in water quality degradation if runoff containing the sediment enters stormwater in sufficient quantities to exceed water quality standards. However, impacts from construction-related activities would generally be short-term and of limited duration. A survey of the bottom of the RD 2068 intake canal will be conducted to determine the level of sediment in the canal. If the survey shows significant accumulation of sediment in the canal, removal of the sediment would be included as part of the proposed project.

In addition, it should be noted that during heavy rains, the initial flush of the DMD and the V-Drain would allow sediment buildup in the channel to be carried downstream; however, sediment would travel from the DMD to the V-Drain, then to the intake channel, and would be captured before reaching Haas Slough. Therefore, although the enlargement of the V-Drain would decrease the velocity of runoff in the channel, the sediment buildup would not be anticipated to travel to Haas Slough.

The proposed project may be subject to a Streambed Alteration Agreement, as the project would increase the capacity of existing channels. The Streambed Alteration Agreement requires that any person, State or Local governmental agency, or public utility to notify the Department of Fish and Game before beginning an activity that will substantially modify a river, stream, or lake. In addition, Section 404 of the CWA establishes a program to regulate the discharge of dredged or fill material into waters of the United States, including wetlands. Activities in waters of the United States regulated under this program include fill for development and water resource projects, such as dams and levees.

Although impacts from construction-related activities would generally be short-term and of limited duration, surface water quality could be impacted; therefore, a ***potentially significant*** impact would result.

Mitigation Measure(s)
Implementation of the following mitigation measure would reduce the above impact to a *less-than-significant* level.

4.3-2 *Prior to construction activities, the Dixon Regional Watershed JPA shall obtain coverage under the General Permit for Discharges of Storm Water Associated with Construction Activity (Construction General Permit), which pertains to pollution from grading and project construction. Compliance with the Permit requires the project applicant to file a Notice of Intent (NOI) with the State Water Resources Control Board (SWRCB) and prepare a Storm Water Pollution Prevention Plan (SWPPP) prior to construction. The SWPPP shall incorporate Best Management Practices (BMPs) in order to prevent, or reduce to the greatest extent feasible, adverse impacts to water quality from erosion and sedimentation for the review and approval of the RWQCB.*

4.3-3 Long-term impacts to surface water quality.

The following is a description of long-term water quality impacts that are relevant to agricultural runoff, RD 2068 intake canal, and sediment accumulation.

Agricultural Runoff

As mentioned previously, the surrounding land uses largely affect surface water quality with non-point source discharges contributing contaminants to surface waters. The area

surrounding the proposed project includes a mixture of agricultural uses and associated constituents, which include sediment, fertilizers, chemicals, animal waste, bacteria, high nutrient content, and dissolved solids. The proposed project is located in an agricultural area and existing drainage would contain the above constituents. The implementation of the proposed project would only increase the capacity of the DMD and V-Drain, and is not anticipated to generate additional contaminants to run-off.

RD 2068 Intake Canal

The proposed increased capacity of the DMD and V-Drain, along with the existing alignment of the V-Drain outfall into the RD 2068 intake canal would contribute to additional erosion of the eastern bank of the RD 2068 intake canal. The project proposes a re-alignment of the V-Drain to lessen the impacts of erosion to the eastern bank of the RD 2068 intake canal. The implementation of the proposed project would not contribute to additional erosion, rather the project would reduce impacts.

Sediment

The DMD has an existing average capacity of 240 cfs and the V-Drain has an average existing capacity of 1,132 cfs. The enlargement of the drainage channel is anticipated to decrease the agricultural runoff velocity in the channels. The decrease in velocity would likely occur in low-flow periods. During heavy rains, the initial flush of the DMD and the V-Drain would allow sediment buildup in the channel to be carried downstream; however, the sediment would travel from the DMD to the V-Drain, then to the intake channel, and would be captured by the RD 2086 pump before reaching Haas Slough. Therefore, although the enlargement of the V-Drain would decrease the velocity of runoff in the channel, the sediment buildup would not be anticipated to travel to Haas Slough. In addition, the proposed 4:1 slopes would significantly reduce the potential for erosion of the channel, resulting in a decrease in sediment buildup.

Conclusion

The proposed project would not generate additional agricultural constituents, which include sediment, fertilizers, pesticides, animal waste, bacteria, and high nutrient content, and additional erosion to the eastern bank of the RD 2068 intake canal; thus, the proposed project would not generate additional long-term impacts to surface water quality. In addition, the proposed project would not contribute to the transport of sediment to Haas Slough. Therefore, a ***less-than-significant*** impact would occur.

Mitigation Measure(s)
None required.

4.3-4 Impacts to groundwater recharge.

As discussed earlier, the proposed project is located within the Solano Groundwater Sub-basin. The Solano Groundwater Sub-basin elevation is relatively stable with fluctuations occurring during drought years followed by a natural return in elevation during wet years. The Solano Groundwater Sub-basin is considered to be good quality and provides for both agriculture and domestic water supply.

The implementation of the proposed project includes the enlargement of the DMD and V-Drain. The enlargement of the DMD would include excavating the channel to provide a bottom width of six feet, increasing the channel depth by approximately two feet, and reducing the side slope of the southern bank to a four-to-one (4:1) slope. The V-Drain enlargement would include increasing the bottom width by 20 to 30 feet, for a bottom width of 40 to 50 feet, increasing the channel depth in some locations by approximately 1.5 feet, and reducing the side slope of the west bank to a four-to-one (4:1) slope. The widening of the channels would expose additional surface area to surface water, allowing for increased groundwater recharge. Because the proposed project would not impede groundwater percolation, a ***less-than-significant*** impact would occur.

Mitigation Measure(s)
None required.

Cumulative Impacts and Mitigation Measures

As defined in Section 15355 of the State CEQA Guidelines, "cumulative impacts" refer to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts. The individual effects may be changes resulting from a single project or a number of separate projects. The cumulative impact from several projects is the change in the environment that results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects (CEQA Guidelines 15355).

An assessment of cumulative impacts should consider both impacts identified as significant, as well as those impacts identified as less-than-significant for individual projects that may become significant in a collective sense when considering the co-occurrence of multiple projects.

4.3-5 Cumulative impacts related to degradation of water quality.

Construction of the proposed project would contribute to short-term water quality impacts. The proposed project includes project-specific mitigation measures identified for Impact Statements 4.2-2 and 4.3-3 to reduce impacts to a less-than-significant level. In addition, projects similar to the DMD and V-Drain Enlargement project that could be constructed in the future would be required to implement BMPs comparable to the BMPs identified for the proposed project, which would ensure that impacts to water quality would not be cumulatively considerable.

Furthermore, the implementation of the proposed project would not contribute to additional flooding, as the purpose of the project is to reduce flooding in agricultural areas. Individual projects would be reviewed by the RWQCB on an individual basis for consistency prior to implementation of the project, and would not be cumulatively considerable.

With implementation of proper BMPs, this project and other future projects would not result in cumulative adverse changes to the water quality of local drainage systems. As a result, the cumulative impact from the proposed project on water quality would be considered ***less-than significant***.

Mitigation Measure(s)
None required.

Endnotes

[1] Solano County, *Solano County General Plan*, 1980 (amended through 2004).
[2] West Yost Associates, *Conceptual Design of the New South Channel, Enlarging the Dixon Main Drain and V-Drain, and the Three-mile Extension*, June 22, 2006.

4.4 PUBLIC SERVICES AND FACILITIES

4.4 PUBLIC SERVICES AND FACILITIES

INTRODUCTION

The Public Services and Facilities chapter of the EIR describes the public services and facilities provided in Solano County as they relate to the proposed project. The Initial Study for the EIR (Appendix A, as an attachment to the NOP) determined that all project-related impacts with the exception of potential impacts to drainage facilities in the proposed project area would be less-than-significant; therefore, discussion in this chapter is limited to issues related to drainage. Documents referenced to prepare this section include the *Solano County General Plan*[1] and the Conceptual Design Report prepared by West Yost Associates.[2]

EXISTING ENVIRONMENTAL SETTING

This section presents the existing drainage as well as the existing gas utilities in the proposed project area.

Drainage

The project is located on an alluvial fan formed by Putah Creek, located north of the City of Dixon. Drainage in the project area follows the courses of the Dixon and Dudley Creeks, by way of canals and sloughs, to the Sacramento River. The canals, operated by the Dixon Resource Conservation District (RCD) transport runoff from the urban and agricultural areas into a drainage canal operated by Reclamation District 2068, which then delivers the runoff to the Sacramento River, via the Haas and Cache Sloughs. The current agreement between the City and the Dixon RCD limits runoff allowed into the system at the Dixon Main Drain (DMD).

The DMD along Swan Road at the abandoned railroad tracks to the DMD's easterly terminus at the V-Drain currently has a capacity of 240 cubic feet per second (cfs). The bottom width of the drainage channel currently ranges from four to six feet.

The DMD connects to the V-Drain, which is situated between Swan Road and the RD 2068 Intake Canal near the Haas Slough. The V-Drain currently maintains an average capacity of 1,132 cfs and is approximately 13 to 22 feet wide. The V-Drain empties into the RD 2068 Intake Canal, which transports drainage flows into Haas Slough.

The RD 2068 Intake Canal has a total capacity of 1,730 cfs and contains adequate capacity to support the increased capacity associated with the DMD and V-Drain Enlargement project.

Gas Utilities

Solano County supports a number of natural gas wells throughout the County as well as associated natural gas supply lines. The natural gas supply for the County originates in several major California gas fields, some of which are located in the eastern portion of the County in the general vicinity of the proposed project area. In addition, the County is traversed by a number of major gas and oil transmission lines, which serve the Bay area. The majority of the lines in the vicinity of the proposed project are privately owned.

REGULATORY CONTEXT

Existing policies, laws, and regulations that would apply to the proposed project are summarized below.

State

Central Valley Flood Protection Board (formerly Reclamation Board)

Haas Slough area levees are under the jurisdiction of the Central Valley Flood Protection Board (CVFPB); therefore, the proposed project could require an encroachment permit from the CVFPB. The CVFPB would evaluate the proposed project for effects on the levees and on the discharge (flow) into Haas Slough.

Local

Dixon Resource Conservation District

The Dixon Resource Conservation District (RCD) was originally formed to construct, operate, and maintain the Dixon Drain. The Dixon Drain is a 70-mile long system of ditches designed to prevent or alleviate the flooding of agricultural lands. The Dixon RCD oversees the operation and maintenance of the Dixon Drain, financed by a tax levied on all landowners within the District. The Dixon Drain, originally designed to remove only winter water, also collects irrigation tailwater in the spring and summer.

Dixon Regional Drainage Committee

The Dixon Regional Drainage Committee (DRDC) was composed of the Dixon RCD Board of Directors, the City of Dixon, the Maine Prairie Water District (MPWD), and Reclamation District (RD) 2068, with assistance from the Solano County Water Agency. The City of Dixon, the Dixon RCD Board of Directors, the Maine Prairie Water District (MPWD), and Reclamation District (RD) 2068 have formed the Dixon Regional Watershed Joint Powers Authority (JPA), which has replaced the DRDC, for the planning and future construction of substantial improvements to the Dixon RCD and the RD 2068 and RD 2098 drainage systems.

The agencies included in the JPA cooperate in the planning and future construction of substantial improvements to the Dixon RCD and the RD 2068 drainage systems, including new and enlarged

channels. These improvements are intended to accommodate additional water from recent and new development and reduce localized flooding. The Dixon RCD will continue to maintain the sections of ditch not within the jurisdiction of the other agencies.

IMPACTS AND MITIGATION MEASURES

Standards of Significance

An impact to the public services and utilities of the proposed project area would be considered significant if the proposed project would:

- Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the likely release of hazardous materials into the environment; or
- Result in the degradation of existing stormwater drainage infrastructure.

Method of Analysis

The Impacts and Mitigation Measures section evaluates the impacts of the proposed project on the existing drainage facilities that would occur if the project is developed as currently proposed. Impact significance is determined by comparing project conditions to the existing conditions.

Project Impacts and Mitigation Measures

4.4-1 Result in the short-term disruption of drainage patterns.

The proposed project would involve an enlargement of the DMD and the V-Drain near Swan Road and the RD 2068 Intake Canal. The completion of the proposed project would include several components such as the replacement of the access road with an engineered bridge, the removal and replacement of the two agricultural weirs located along Swan Road and the northern portion of the V-Drain, and the relocation of the highline ditch located west of the V-Drain from near the railcar bridge and extending south three-quarters of a mile to a location west of the ditch's current location. In addition, the proposed project could include replacement of screens on the existing trash rack at the RD 2068 intake canal and, potentially, construction of new trash screening or fencing on or around the RD 2068 intake pump station. It should be noted that during heavy rains, the initial flush of the DMD and the V-Drain would allow sediment buildup in the channel to be carried downstream; however, the sediment would travel from the DMD to the V-Drain, then to the intake channel, and would be captured below Haas Slough. Therefore, although the enlargement of the V-Drain would decrease the velocity of runoff in the channel, the sediment buildup would not be anticipated to travel to Haas Slough.

The construction of the proposed project would involve substantial earthmoving operations. The enlargement of the channel, as well as the peripheral improvements such

as the replacement of the weir system and highline ditch, associated with the proposed project would result in a temporary disruption of existing drainage flows. Consistent with Mitigation Measures 4.2-1(a) and 4.2-1(c) in Chapter 4.2, Biology, which require that the applicant obtain permits from the Corps and RWQCB if any areas of the project site are subject to their jurisdiction, and a Streambed Alteration Agreement from CDFG before the commencement of any in-stream construction activities, the applicant would be required to maintain adequate diversion of flows. Therefore, impacts related to the short-term disruption of drainage patterns would be ***less-than-significant***.

Mitigation Measure(s)
None required.

4.4-2 Operational impacts on drainage patterns in the project vicinity.

The proposed project would expand the current capacity of the DMD from 240 cfs to 615 cfs and the capacity of the V-Drain from 1,132 cfs to 1,518 cfs. The proposed project would also include necessary peripheral infrastructure improvements such as the relocation of two agricultural weirs, a highline ditch and the removal and replacement of a bridge crossing. The existing bridge crossing over the V-Drain would not be disturbed.

Once completed, the proposed project would increase the capacity of the Main Drain and V-Drain by 375 cfs, providing a regional drainage benefit. Because the development of the proposed project would relocate surrounding improvements, such as the agricultural weirs, highline ditch and bridge crossing, the development of the proposed project would not be expected to result in any detrimental operational impacts to drainage and would be expected to improve drainage flows in the project area. Therefore, the operational impacts associated with the development of the proposed project would be expected to be ***less-than-significant***.

Mitigation Measure(s)
None Required.

4.4-3 Impacts to Natural Gas Facilities

Natural gas wells exist in Solano County. These wells have pipelines that traverse the County underground, including in the immediate vicinity of the proposed project. The proposed enlargement of the DMD and V-Drain, as well as improvements such as the relocation of the highline ditch and other earthmoving activities associated with the proposed project, would involve cut and fill activities that could potentially impact existing natural gas facilities. Therefore, the construction of the proposed project could interfere the operations of the natural gas pipelines, which would be considered a ***potentially significant*** impact.

Mitigation Measure(s)
Implementation of the following mitigation measures would reduce the above impact to a *less-than-significant* level.

4.4-3(a) *Prior to construction activities, the applicant shall perform necessary consultations with the Utilities Service Alliance (USA) regarding the location of any gas lines on-site. The improvement plans for the proposed project shall show the location of the existing natural gas supply lines. Should the relocation of any existing gas or electric facilities be required, the cost of these improvements shall be apportioned by existing agreements or negotiation. In order to avoid construction and/or operational conflicts. Plans shall be designed to the satisfaction of the permitting local agencies.*

4.4-3(b) *Should consultations determine that gas lines exist on-site, the contractor shall prepare a site Health and Safety Plan. This plan will outline measures that will be employed to protect construction workers and the public from exposure to hazards during relocation and construction activities. These measures could include, but would not be limited to, posting notices, limiting access to the site, air monitoring, watering, and installation of wind fences.*

Cumulative Impacts and Mitigation Measures

4.4-4 Long-term impacts to drainage facilities from the proposed project in combination with existing and future developments in the area.

Implementation of the proposed project would increase the drainage carrying capacity of the DMD and V-Drain connecting to the RD 2068 intake canal at Haas Slough. The improvements associated with the proposed project would provide for increased drainage flows in the long-term cumulative scenario.

Therefore, because the proposed project would have a positive contribution to the drainage facilities in Solano County and the intake canal at Haas Slough has adequate capacity, the proposed project would be expected to have a ***less-than-significant*** impact on drainage facilities.

Mitigation Measure(s)
None Required.

Endnotes

[1] Solano County, *Solano County General Plan*, 1980 (amended through 2004).
[2] West Yost Associates, *Conceptual Design of the New South Channel, Enlarging the Dixon Main Drain and V-Drain, and the Three-Mile Extension*, June 22, 2006.

5. ALTERNATIVES

5 ALTERNATIVES

INTRODUCTION

The primary intent of the alternatives evaluation in an EIR, as stated in Section 15126.6(a) of the CEQA Guidelines, is to "[…] describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives [...]."

The following are the project objectives:

- Reduce the local flooding caused by regional drainage flows in excess of the existing drainage capacity and contractual limits in the area of Sikes and Swan Roads;
- Reduce the regional watershed's impact on the properties located in the vicinity of Sikes and Swan Roads;
- Enlarge the existing Dixon Main Drain (DMD) to provide an increase in capacity of 375 cubic feet per second (cfs), which would allow for an average capacity of 615 cfs;
- Enlarge the existing V-Drain to provide a capacity of 1,518 cfs; and
- Modify the existing V-Drain to reduce the 90-degree bend at the discharge from the V-Drain to the RD 2068 Intake Canal, in order to reduce erosion to the canal bank.

Section 15126.6 (a) of the CEQA Guidelines states that "[…] An EIR need not consider every conceivable alternative to a project. Rather it must consider a reasonable range of potentially feasible alternatives that will foster informed decision-making and public participation. An EIR is not required to consider alternatives which are infeasible." Furthermore, Section 15126.6 (f) states that "[…] The range of alternatives required in an EIR is governed by a "rule of reason" that requires the EIR to set forth only those alternatives necessary to permit a reasoned choice […]."

The CEQA Guidelines (§15126.6 [e][1]) state that a 'no project' alternative should be evaluated along with its impact. Specifically, the Guidelines state:

> The specific alternative of the "no project" shall also be evaluated along with its impact. The purpose of describing and analyzing a no project alternative is to allow decision makers to compare the impacts of approving the Proposed Project with the impacts of not approving the Proposed Project. The no project alternative analysis is not the baseline for determining whether the Proposed Project's environmental impacts may be significant, unless it is identical to the existing environmental setting analysis which does establish that baseline.

Lastly, Section 15126.6 (d) of the CEQA Guidelines states that "[…] If an alternative would cause one or more significant effects in addition to those that would be caused by the project as proposed, the significant effects of the alternative shall be discussed, but in less detail than the significant effects of the project as proposed."

Selection of Alternatives

Alternatives that are included and evaluated in this EIR must be feasible alternatives. According to the CEQA Guidelines Section 15126.6(f), "[…] the alternatives shall be limited to ones that would avoid or substantially lessen any of the significant effects of the project […]." Therefore, as all impacts in the DEIR have been reduced to a less-than-significant level, the alternatives analysis will only evaluate those alternatives that might further reduce the less-than-significant impact.

In addition, Section 15126.6(f)(1) states that the feasibility of an alternative may be determined based on a variety of factors including, but not limited to, site suitability, economic viability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries, and site accessibility and control.

Alternatives Considered and Eliminated From Further Analysis

Consistent with CEQA, primary consideration was given to alternatives that could reduce significant impacts, while still meeting most of the project objectives. Those alternatives that would have impacts identical to or more severe than the proposed project, and/or that would not meet any or most of the project objectives were rejected from further consideration. The rejected alternatives are discussed below.

Main Drain/V-Drain Enlargement by 494 cfs

This alternative would include the enlargement of the same portions of the Main Drain and V-Drain as the proposed project, but would include an enlargement by 494 cfs flow. This alternative was rejected because the additional enlargement of flow would result in an increased project footprint and area of impact when compared to the proposed project and would not result in the reduction of any of the project-related environmental impacts.

Alternatives Considered in this EIR

This section provides a description of the alternatives to the proposed project analyzed in this Draft EIR and evaluates the anticipated environmental effects of those alternatives.

No Project Alternative

The No Project Alternative would allow for the continued existence of the current drainage facilities and would not include the enlargement of the existing drains. While the No Project Alternative would not meet the project objectives, CEQA requires that a "no project" alternative

be analyzed in order to provide a comparative example for the proposed project. It should be noted that in the case of the DMD and V-Drain Enlargement Project, the No Project Alternative would result in future projects located upstream of the DMD and V-Drain being required to alleviate the flooding issues that the proposed project is designed to rectify.

Environmental Effects

Land Use and Agricultural Resources

The No Project Alternative would not result in the enlargement of the Main Drain or V-Drain facility. The expansion associated with the proposed project would be expected to improve drainage flows in the project area and reduce localized flooding to support neighboring agricultural land uses. The DEIR determined that the proposed project would not create any new conflicts with existing land use designations or surrounding land uses. Therefore, the No Project Alternative would result in similar impacts as the proposed project with regard to land use. However, the expansion of the DMD and V-Drain would include the loss of adjacent agricultural lands; thus the No Project would have fewer impacts to agricultural resources.

Biological Resources

The No Project Alternative would not result in the enlargement of the drainage facilities. Therefore, existing biological resources onsite and in the immediate vicinity of the site would not be adversely impacted. The No Project Alternative would therefore not have an impact on biological resources; and would have fewer impacts as compared to the proposed project.

Hydrology, Water Quality, and Drainage

Construction of the proposed project would result in an increase to the current drainage capacity of the DMD and V-Drain. The proposed project would provide an advantageous effect to drainage in the proposed project vicinity. In addition, the proposed project is designed to reduce erosion at an existing bend and existing channel banks in the drainage canal. Should the project not be implemented, the existing erosion related to the current design would remain and the transport of sediment to Haas Slough would not be expected to increase. However, the proposed project could result in impacts to water quality as a result of in-channel construction activities. Therefore, the No Project Alternative would be expected to have slightly fewer short-term hydrological impacts as compared to the proposed project, but could have potentially negative long-term impacts.

Public Services and Facilities

The No Project Alternative would not result in the enlargement of the existing Main Drain and V-Drain facilities. As a result, the long-term impacts associated with the No Project Alternative would be greater than those associated with the proposed project. Though the development of the proposed project would result in short-term changes in drainage patterns as a result of construction activities, and would potentially impact natural gas facilities, these impacts would be temporary in nature and would not be considered to be as significant as the positive impacts associated with the increase in drainage flow and reduction in localized flooding that would be

associated with the proposed project. Therefore, the No Project Alternative would result in greater impacts to public services and facilities than the construction of the proposed Main Drain and V-Drain Enlargement.

Main Drain/V-Drain Enlargement by 275 cfs Alternative

The Main Drain/V-Drain Enlargement by 275 cfs Alternative would expand the current capacity of both the Main Drain and V-Drain by 275 cfs. This Alternative would require the same peripheral infrastructure improvements as the proposed project, including the relocation of the highline canal, the removal/relocation of the agricultural weir, and the replacement of the culvert access road, as well as replacement of screens on the existing trash rack at the RD 2068 intake canal and, potentially, construction of new trash screening or fencing on or around the RD 2068 intake pump station. This alternative would decrease the total depth and width of the channel removal that would be required during construction activities and would result in a smaller total increase in drainage flows when compared to the proposed project.

Environmental Effects

Land Use and Agricultural Resources

The Main Drain/V-Drain Enlargement by 275 cfs Alternative would result in a similar total development footprint as the proposed project and would result in the same level of impacts associated with land use conflicts and compatibility with surrounding land uses. Both the proposed project and the Main Drain/V-Drain Enlargement by 275 cfs Alternative would increase the total drainage flows in the vicinity (though the Alternative would increase drainage flows to a lesser extent), encouraging agricultural activities through increased drainage flows. Therefore, the Main Drain/V-Drain Enlargement by 275 cfs Alternative would result in similar impacts to land use when compared to those associated with the proposed project. A similar amount of agricultural land would be converted to non-agricultural uses; therefore, impacts to agricultural resources would be the same for both the Alternative and the proposed project.

Biological Resources

The Main Drain/V-Drain Enlargement by 275 cfs Alternative would result in similar construction activities as the proposed project. In addition, the overall footprint associated with this Alternative would be similar the proposed project. Because this Alternative would involve in-channel work similar to the proposed project, construction related impacts to water quality and increases in sedimentation would be similar. Therefore, this Alternative would be expected to result in similar total impacts with regard to Non-Anadromous fish species and the Pacific Pond Turtle. Because the total footprint of the proposed project would be similar, and because the improvements associated with the proposed project would also be required for this Alternative, the impacts to other non-aquatic species would be similar to those associated with the proposed project. In addition, impacts to jurisdictional waters would remain with this Alternative. Therefore, because the Main Drain/V-Drain Enlargement by 275 cfs Alternative would decrease the impacts associated with sedimentation in the project vicinity, the impacts associated with this Alternative would be fewer than the proposed project.

Hydrology, Water Quality, and Drainage

Construction of the proposed project would result in an increase to the current drainage capacity of the DMD and V-Drain. The Main Drain/V-Drain Enlargement by 275 cfs Alternative would increase the current capacity, though to a lesser extent than the proposed project. Under this Alternative, operational impacts associated with the deposit of sediment to Haas Slough would be similar to conditions under both the proposed project and the No Project Alternative. However, impacts to water quality as a result of construction activities would be similar to the proposed project, as the Alternative would also involve in-channel work. Therefore, the Main Drain/V-Drain Enlargement by 275 cfs Alternative would be expected to have similar impacts with regard to hydrology, as compared to the proposed project.

Public Services and Facilities

The Main Drain/V-Drain Enlargement by 275 cfs Alternative would result in the enlargement of existing facilities and increased drainage flows in the project vicinity (though to a lesser extent than the proposed project). Similar to the proposed project, this Alternative would result in short term changes in drainage patterns as a result of construction activities. However, it should be noted that this Alternative would involve a decrease the total depth and width of the cannel as compared to the proposed project. As a result, the Alternative would not require as long to construct and impacts associated with the changes in drainage patterns would be expected to be fewer than those associated with the proposed project. In addition, the Alternative would also result in potential impacts to natural gas facilities. However, these impacts would be temporary in nature and would not be expected to have a significant long-term impact after the implementation of mitigation measures in either scenario. Therefore, because the proposed project would result in an increase by 375 cfs of flow capacity, the Main Drain/V-Drain Enlargement by 275 cfs Alternative would be expected to offer a smaller total benefit with regard to public service and facilities than the proposed project. Therefore, the Alternative would result in more environmental impacts than the proposed project.

Dixon New South Channel Alternative

The Dixon New South Channel Alternative would provide an alternate drainage route rather than expand the existing Main Drain and V-Drains. The Alternative would include the construction of a stormwater drainage channel that would start at the DMD at Swan Road and continue in a southerly direction, approximately 2.5 miles, along Bunker Station Road until, at the channel's southern terminus, the channel would empty into the Haas Slough. The channel would cross several roadways and an abandoned railroad track. Easements and/or rights-of-way would be required for construction, access, and maintenance of the channel. The width of the permanent right of way would be 100 feet. Excavated material would be placed alongside the channel.

The channel would have a 12-foot bottom width and be 6.5 feet deep, which would provide a capacity of 380 cfs. The channel would not be lined, but would be stabilized with California native grasses to the extent practical. At road crossings, the project would use three 66-inch culverts (or equivalent) with headwalls at the upstream and downstream ends.

Environmental Effects

Land Use and Agricultural Resources

The Dixon New South Channel Alternative would be constructed in an agricultural area and would not be expected to result in any impacts with regard to the division of existing communities or conflicts with applicable habitat plans. However, the New South Channel would encroach upon existing agricultural land and would require the acquisition of applicable easements, resulting in temporary disruption of farming activities as a result of construction and maintenance of the channel. Therefore, the New South Channel Alternative would be expected to have a greater impact with regard to land use than the proposed project. In addition, the Alternative would require the conversion of significantly more agricultural land to non-agricultural uses; therefore, the Alternative would increase impacts to agricultural resources.

Biological Resources

The Dixon New South Channel Alternative would involve the disturbance of a number of habitats, including agricultural land, irrigation ditches, seasonal wetlands, Valley Oak Riparian areas and aquatic habitats. A number of special-status species are known to exist in the vicinity of the New South Channel area, including 15 special-status plant species as well as 13 special-status animal species. Because this Alternative would include the creation of a new drainage channel, the biological impacts associated with this Alternative would be greater than those associated with the enlargement of the existing Main Drain/V-Drain system. Therefore, the impacts to biological resources associated with this Alternative would be greater than those associated with the proposed project.

Hydrology, Water Quality, and Drainage

The Dixon New South Channel Alternative would expand the capacity of the drainage system by 380 cfs. This total increase in drainage facilities is comparable to the 375 cfs increase associated with the proposed project, resulting in similar benefits from both the proposed project and the Dixon New South Channel Alternative with regard to drainage supplies. The Dixon New South Channel Alternative would include the construction of a new channel where one does not currently exist. Construction and operation of the new channel could result in impacts to existing drainage patterns, as well as potential water quality issues. Because the Dixon New South Channel Alternative would create a new channel where one does not currently exist, the Alternative would be expected to result in a greater net change in existing drainage patterns than the enlargement of the existing Main Drain and V-Drain channels associated with the proposed project. Therefore, both the potential benefits and adverse impacts to hydrology would be greater than those associated with the proposed project.

Public Services and Facilities

The Dixon New South Channel Alternative would expand the capacity of the drainage system by 380 cfs. This total increase in drainage facilities is comparable to the 375 cfs increase associated with the proposed project, resulting in similar benefits from both the proposed project and the Dixon New South Channel Alternative with regard to drainage supplies. In addition, both the proposed project and the Dixon New South Channel Alternative would be expected to result in similar impacts with regard to temporary changes in drainage patterns. Therefore, because the Dixon New South Channel Alternative would provide comparable increases drainage capacity and similar construction-related impacts when compared to the proposed project, the impacts would be similar. However, the potential exists that construction activities would result in the disruption of unidentified utilities within the potential right-of-way for the Dixon New South Channel, which could result in additional impacts to public services and facilities.

Environmentally Superior Alternative

In order to assist the Lead Agency, an EIR is requested to identify the environmentally superior alternative from among the range of reasonable alternatives that are evaluated. In addition, §15126(d)(2) of the CEQA Guidelines states that "if the environmentally superior alternative is the 'no project' alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives."

For this project, the environmentally superior alternative would be the Main Drain/V-Drain Enlargement by 275 cfs Alternative. This alternative would result in similar impacts with regard to land use and agricultural resources, and a decrease in impacts associated with biological resources and hydrology, water quality, and drainage. The Main Drain/V-Drain Enlargement by 275 cfs Alternative would result in a lower total increase in drainage flow capacity and an increased impact with regard to public services and utilities. Thus, although this Alternative would increase impacts to public services and utilities, the Main Drain/V-Drain Enlargement by 275 cfs Alternative would be considered the environmentally superior alternative because implementation of this Alternative would decrease impacts to hydrology, water quality, and drainage, and biological resources.

6. STATUTORILY REQUIRED SECTIONS

6 STATUTORILY REQUIRED SECTIONS

INTRODUCTION

The Statutorily Required Sections chapter includes brief discussions regarding those topics required to be included in an EIR, pursuant to the *CEQA Guidelines*, Section 15126.2. The chapter includes a discussion of the proposed project's potential to induce economic or population growth, and in addition, the chapter includes lists of significant irreversible environmental changes, cumulative impacts, and significant and unavoidable impacts that would be caused by the proposed project.

GROWTH INDUCEMENT

An EIR must discuss the ways in which a proposed project could foster economic or population growth or the construction of additional housing in the vicinity of the project, and how that growth will, in turn, affect the surrounding environment (*CEQA Guidelines*, Section 15126.2[d]). Growth can be induced in a number of ways, including through the elimination of obstacles to growth, or through the stimulation of economic activity within the region. The discussion of the removal of obstacles to growth relates directly to the removal of infrastructure limitations or regulatory constraints that could result in growth unforeseen at the time of project approval.

A number of issues must be considered when assessing the growth-inducing effects of improvements, such as the proposed project. These include the following:

> **Elimination of Obstacles to Growth**: The extent to which infrastructure capacity provided from the proposed project would allow additional development in surrounding areas; and
>
> **Economic Effects**: the extent to which the proposed project could cause increased activity in the local or regional economy.

Development of the Dixon Main Drain (DMD) and V-Drain Enlargement project site would result in improvements to the existing drainage facilities in the vicinity of the proposed project. The improvements to the drainage system would increase the efficiency and capacity of the drainage system, and would further support the surrounding agricultural land uses. However, the proposed project would not create any new drainage facilities that would expand coverage to new areas. Therefore, the proposed project would not be expected to result in increased development in the area and would not be expected to have growth-inducing impacts.

SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL EFFECTS

The *CEQA Guidelines,* Section 15126.2(c), require that this EIR consider significant irreversible environmental changes which would be caused by the proposed project should the project be implemented. An impact would be determined to be a significant and irreversible change in the environment if:

- The proposed project would involve a large commitment of nonrenewable resources; or
- The proposed project would involve uses in which irreversible damage to the environment and sensitive habitats would result.

The proposed project would not result in or contribute to any irreversible environmental changes.

CUMULATIVE IMPACTS

An EIR must discuss the "cumulative impacts" of a project when the project's incremental effect will be cumulatively considerable. This means that the incremental effects of the individual project would be considerable when viewed in connection with the effects of other current projects, and the effects of probable future projects (*CEQA Guidelines*, Section 15065[c]).

The *CEQA Guidelines*, Section 15355, defines cumulative impacts as "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts." This Section further states, "Individual effects may be changes resulting from a single project or a number of separate projects." "The cumulative impact from several projects is [defined as] the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time."

Section 15130(a)(3) states also that an EIR may determine that a project's contribution to a significant cumulative impact will be rendered less than cumulatively considerable, and thus not significant, if a project is required to implement or fund the project's fair share of a mitigation measure or measures designed to alleviate the cumulative impact.

Finally, Section 15130(b) indicates that the level of detail of the cumulative analysis need not be as great as for the project impact analyses, that the analysis should reflect the severity of the impacts and their likelihood of occurrence, and that the analysis should be focused, practical, and reasonable.

To be adequate, a discussion of cumulative effects must include the following elements:

(1) Either (a) a list of past, present and probable future projects, including, if necessary, those outside the agency's control, or (b) a summary of projections contained in an adopted general plan or related planning document, or in a prior certified EIR, which described or

evaluated regional or area-wide conditions contributing to the cumulative impact, provide that such documents are reference and made available for public inspection at a specified location;

(2) A summary of the individual projects' environmental effects, with specific reference to additional information and stating where such information is available; and

(3) A reasonable analysis of all of the relevant projects' cumulative impacts, with an examination of reasonable, feasible options for mitigating or avoiding the project's contribution to such effects (Section 15130[b]).

For some projects, the only feasible mitigation measures will involve the adoption of ordinances or regulations, rather than the imposition of conditions on a project-by-project basis (Section 15130[c]).

As used above, the terms "past, present and probable future projects" include existing approved, planned, or budgeted projects; projects which are currently under construction; and projects requiring an agency approval for an application which has been received at the time of NOP release. (Section 15130[b][1][B][2]).

Cumulative Impacts

The following cumulative impacts are identified in Chapter 4 of this Draft EIR:

Land Use and Agricultural Resources

Cumulative impacts related to land use and agricultural resources are discussed in Chapter 4.1, Impacts 4.1-4 and 4.1-5. The land use and agricultural resources impact analysis discusses the proposed project's consistency with surrounding agricultural land uses and local plans and policies. Because the proposed project would develop along existing roadways and expand already existing drainage areas to provide increased drainage capabilities in the proposed project area, the project would result in increased drainage flows in the project vicinity, providing a beneficial long-term effect for surrounding agricultural land uses. Therefore, the analysis concludes that the proposed project's cumulative contribution to the loss of agricultural land and the project's consistency with existing plans and policies would be less-than-significant.

Biological Resources

Cumulative impacts related to biological resources are discussed in Chapter 4.2, Impact 4.2-9. The Draft EIR determined that although the proposed project would have potentially significant impacts to recognized jurisdictional waters, as well as a number of special status animal species, the establishment of mitigation requirements recommended in the Draft EIR would adequately address the impacts and, with these measures in place, the proposed project would not have substantial adverse effects to the populations of special-status species or sensitive habitats. Therefore, less-than-significant cumulative impacts would result.

Hydrology, Water Quality, and Drainage

Cumulative impacts regarding hydrology and water quality are discussed in Chapter 4.3, Impact 4.3-5. The Draft EIR determined that construction of the proposed project would contribute to short-term water quality impacts; however, the proposed project includes project-specific mitigation measures to reduce impacts to a less-than-significant level, and future projects would be required to implement Best Management Practices (BMPs) comparable to the BMPs identified for this project, which would ensure that impacts to water quality would not be cumulatively considerable. With implementation of proper BMPs, the proposed project and other future projects would not result in cumulative adverse changes to the water quality of local drainage systems, and a less-than significant cumulative impact would result.

Public Services and Facilities

Cumulative impacts regarding public services and facilities are discussed in Chapter 4.4, Impact 4.4-3. The Draft EIR determined that the proposed project would contribute toward the expansion of existing drainage systems in the vicinity of the proposed project and the improvement of public facilities in the long-term cumulative condition. The Draft EIR concluded that cumulative impacts associated with public services and facilities would be less-than-significant.

Significant and Unavoidable Adverse Impacts

Impacts that have been identified would be less-than-significant after incorporation of appropriate mitigation measures. Impacts that cannot be feasibly mitigated to a less-than-significant level would remain significant and unavoidable adverse impacts.

As determined in this Draft EIR, the proposed project would not result in any significant and unavoidable impacts.

7. REFERENCES

7 REFERENCES

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H.T. Harvey & Associates, *Dixon Agricultural Drainage Biotic Evaluation,* August 12, 2002.

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West Yost Associates, *Conceptual Design of the New South Channel, Enlarging the Dixon Main Drain and V-Drain, and the Three-Mile Extension,* June 22, 2006.

West Yost Associates, *Draft New South Channel Conceptual Design,* December 2002.

8. EIR AUTHORS / PERSONS CONSULTED

8 EIR AUTHORS/PERSONS CONSULTED

Raney

C. Timothy Raney, AICP	President
Cindy Gnos, AICP	Vice President
Nick Pappani	Division Manger
Rod Stinson	Assistant Division Manager
Antonio Garza	Associate
Ariel Calvert	Associate
David Lee	Associate
Sam Coulson	Associate

Dixon Regional Watershed Joint Powers Authority

John Currey	Dixon Resource Conservation District
Mike Hardesty	Reclamation District 2068
Royce Cunningham	City of Dixon
Meda Benefield	Maine Prairie Water District

Monk & Associates, Inc.

Geoff Thomas	Senior Biologist

West Yost

Mary Young, P.E.	Senior Engineer
Doug Moore, P.E.	Engineering Manager

APPENDIX A

DATE: September 11, 2007

TO: Responsible Agencies, Trustee Agencies, and Interested Persons

FROM: Dixon Regional Watershed Joint Powers Authority

SUBJECT: NOTICE OF PREPARATION OF AN ENVIRONMENTAL IMPACT REPORT FOR THE PROPOSED DIXON MAIN DRAIN V-DRAIN ENLARGEMENT

The Dixon Regional Watershed Joint Powers Authority (JPA) is the lead agency for the preparation of an Environmental Impact Report (EIR) for the proposed Dixon Main Drain and V-Drain Enlargement Project (proposed project). The Dixon Regional Watershed JPA has determined that an EIR must be prepared for the proposed project. The Dixon Regional Watershed JPA has directed the preparation of this EIR in compliance with the California Environmental Quality Act (CEQA). Attached is an Initial Study that has been prepared to determine the scope of the EIR.

Once a decision is made to prepare an EIR, the lead agency must prepare a NOP to inform all responsible and trustee agencies that an EIR will be prepared (CEQA Guidelines Section 15082). The purpose of the NOP is to provide agencies with sufficient information describing both the proposed project and the potential environmental effects to enable the agencies to make a meaningful response as to the scope and content of the information to be included in the EIR. The Dixon Regional Watershed JPA is also soliciting comments on the scope of the EIR from interested persons.

SCOPING MEETING

A public scoping meeting will be held regarding the proposed EIR for the Dixon Main Drain V-Drain Enlargement Project on October 4, 2007 at 6:00 pm. The meeting will take place at Senior Multi-use Center 201 South 5th Street, Dixon. Written comments may also be submitted as described at the end of this document.

PROJECT DESCRIPTION

Background

As a result of past flooding and the analysis of the flooding in 1996–1997, the Dixon Resource Conservation District (RCD), Reclamation District (RD) 2068, the Maine Prairie Water District (MPWD), and the City of Dixon in cooperation with the Solano County Water Agency began a significant study of regional drainage needs with the goal of reducing flooding by reestablishing, at a minimum, the level of service originally constructed in the regional drainage facilities and increasing capacities where economically feasible and mutuality beneficial to the parties. The

result of this cooperation was the Dixon Region Watershed Management Plan and a Memorandum of Understanding (MOU) between the Dixon RCD, RD 2068, MPWD, and City of Dixon. Since completion of the Study and the MOU, the parties completed construction of the Pond A and Lateral 1 improvements in 2004.

The parties also created the Dixon Regional Watershed Joint Powers Authority (JPA) to own, construct, and operate the regional drainage facilities contemplated in the Dixon Regional Watershed Management Plan. Currently, the JPA Board meets on an as needed basis to further implement the projects contemplated in the Dixon Regional Watershed Management Plan. The Dixon Main Drain V-Drain Project is the keystone to addressing the regional drainage issues. The JPA Board hired the project engineer on August 17, 2005 and design began shortly thereafter. The JPA Board has identified the preferred alignment and is currently engaged in the CEQA and Engineering process. The target completion date is Fall 2009. The JPA has received a funding commitment of $1.32 million to design and construct the Dixon Main Drain V-Drain Enlargement Project.

Project Location and Setting

The project is located seven miles southeast of the City of Dixon in Solano County (See Figure 1, Regional Location Map, and Figure 2, Project Map) and anticipates the enlargement of the Dixon Main Drain, the enlargement of the V-Drain from Swan Road to the RD2068 Intake Canal, the replacement of two 60-inch culverts along Swan Road with new culverts or an engineered bridge, the replacement of an agricultural weir, the relocation of an highline irrigation canal, and other such improvements necessary to complete the project. The construction activities of the proposed project are described in the Project Components section below.

The project site topography is essentially flat and located along existing constructed drainage systems. The surrounding areas primarily consist of mixed agricultural practices, which include, canals and ditches, irrigated row crops, and irrigated livestock pasture. The proposed 0.6-mile Dixon Main Drain enlargement would run parallel to Swan Road from near the abandoned railroad tracks to the Dixon Main Drain's easterly terminus at the V-Drain. The V-Drain enlargement would begin at the current confluence of the Dixon Main Drain and extend south to the RD 2068 Intake Canal, which exists directly east of the V-Drain. Surrounding properties are leveled and developed for irrigated agricultural production, and drain into the V Drain. Properties to the southwest are developed for livestock pastures and generally are isolated from the V Drain and drain to areas south of the project.

Project Entitlements

The entitlements requested with this application include approval of:

- Certification of the EIR;
- Approval of proposed alignment; and
- Authorization of the submittal of bids for the proposed project.

Project Components

The proposed project involves the enlargement of the Dixon Main Drain (DMD) and V-Drain channels to provide an increase in capacity of 375 cubic feet per second (cfs). The project consists of two primary elements, enlargement of the Dixon Main Drain along Swan Road from the abandoned railroad tracks to the DMD's easterly terminus at the V-Drain, and the enlargement of the existing V-Drain between Swan Road and the RD 2068 Intake Canal 0.7 miles north of Haas Slough.

The Dixon Main Drain would be enlarged to have a capacity increase of 375 cfs over the existing average capacity of 240 cfs. This would be achieved by excavating the channel to provide a bottom width of eight to 15 feet (approximately five feet wider than existing), increasing the channel depth about two feet, and reducing the side slope of the southern bank to a four-horizontal to one-vertical slope. The V-Drain is being designed for a target capacity of 1,518 cfs, which includes the average existing capacity of 1,132 cfs, the increase of 375 cfs, and 11 cfs for runoff from the local tributary areas. It is expected this would be achieved by providing a bottom width of 30 to 40 feet (approximately 10 to 20 feet wider than existing) increasing the channel depth in some locations by about 1.5 feet, and reducing the western side slope of the west bank to four-horizontal to one-vertical slope. The RD 2068 Intake Canal has a capacity that is at least 212 cfs greater than the target capacity of the V-Drain, thus improvements are not proposed for the Intake Canal.

Access Road Culvert Replacement

The proposed project would require the removal of the two existing culverts and a concrete headwall due to the deepening and widening of the Dixon Main Drain. An existing access road is constructed over the two 60-inch culverts topped with base material. After the enlargement of the Dixon Main Drain, it is expected, the culverts at the access road would be replaced with either an engineered bridge (i.e., flat bed rail car) that would span across the newly widened Dixon Main Drain or with two new culverts and a concrete headwall.

Erosion Reduction

At the discharge from the V-Drain to the RD 2068 Intake Canal, the existing V-Drain makes a 90 degree bend, which causes erosion of the RD 2068 canal bank. The V-Drain would be modified to reduce the degree of this bend and reduce the erosion potential.

Directly south of where the V-Drain connects with the RD 2068 Intake Canal is a dead end channel. This channel continues south for about 0.6 miles. In order to facilitate the excavation required to reduce the degree of the bend in the V-Drain, a temporary culvert crossing will be constructed in the dead end channel. This temporary crossing will allow the contractor to haul the material excavated at the junction of the V-Drain and the RD 2068 Intake Canal and place it on the west side of the V-Drain.

Weir System

At the eastern portion of the Dixon Main Drain along Swan Road and the northern portion of the V-Drain are two agricultural weirs that are used to raise the water level in the drains for irrigation purposes. The enlargement of these drains would require the removal and replacement of one or both of these agricultural weirs. It is anticipated that these weirs will be replaced as a component of this project.

Bridge

Along the V-Drain is a flatbed railcar access bridge that crosses the V-Drain. The proposed project may not require the removal of the access bridge. In this event, the V-Drain would be enlarged from both upstream and downstream of the bridge. At the bridge, the size of the V-Drain would not be changed. The channel at the bridge and the transition sections above and below would be protected with suitable sized Rip-Rap for erosion and slope protection.

Highline Canal

West of the V-Drain from near the railcar bridge, continuing south for approximately one-half mile is a highline ditch that is used for irrigation purposes. The enlargement of the V-Drain would require the relocation of the highline ditch. The highline ditch would be reconstructed west of its current location.

Trash Rack Replacement and Sediment Removal

The existing trash rack at the RD 2068 Intake Canal is not designed to accommodate the increased storm water flows and associated debris. As part of this project, the existing screens on the rack could be replaced with new screens, which could be installed on the existing H-beam supports. A new supplemental trash rack could be constructed around the RD 2068 intake pump station.

A survey of the bottom of the RD 2068 Intake Canal will be conducted to determine the level of sediment in the canal. If the survey shows significant accumulation of sediment in the canal, removal of the sediment would be included as part of the proposed project.

ENVIRONMENTAL EFFECTS

As identified in the attached Initial Study, the environmental analysis for the proposed project will focus on the following technical environmental issues:

Land Use/Agricultural Resources

The Land Use and Agricultural Resources chapter will evaluate the consistency of the proposed project with the County of Solano adopted plans and policies. The evaluation will be based upon a thorough review of the County's General Plan and Zoning Ordinance, as well as any other appropriate documents, to address consistency issues. The Land Use chapter will further assess

the compatibility of the proposed project with the surrounding land uses, both existing and proposed.

Biological Resources

The Biological Resources chapter of the EIR will summarize the existing biological resource setting for the project area. A record search of the California Natural Diversity Database (CNDDB) will be conducted to determine the potential of the project area to support rare, threatened, endangered, or otherwise unique species that are recognized by conservation organizations (e.g. California Native Plant Society). In addition, an assessment of the potential of Waters of the United States to occur on-site will be conducted for the project area, particularly where the drainage ditch occurs. Field studies will be conducted and will focus on identifying potential habitats for special-status species and wetlands. This biological resource section of the EIR will evaluate the data, compare the results with identified thresholds of significance, identify impacts, and if applicable, develop mitigation measures and monitoring strategies in order to reduce impacts. The appropriate agencies such as Department of Fish and Game and the U.S. Army Corps of Engineers will be consulted. In addition, the chapter will identify the necessary permits related to biological resources.

Hydrology and Water Quality

The Hydrology and Water Quality chapter will summarize setting information and identify potential impacts resulting from the project to irrigation drainage, storm water drainage, flooding, groundwater, seepage, and water quality. Consideration will include on-site as well as off-site infrastructure facilities. Consultation with the appropriate County and other agencies in order to address the impacts will also be included. The chapter will include an analysis of the existing setting, identification of the thresholds of significance, identification of impacts, and, if applicable, the development of mitigation measures and monitoring strategies.

Public Services and Utilities

The Public Services and Utilities chapter will summarize setting information and identify potential new demand for services on water supply, storm water drainage, sewage systems, solid waste disposal, roads, electric power, and natural gas. Consultation with the appropriate County and other agencies in order to address public services and utilities will also be used to prepare this chapter. This chapter will include an analysis of the existing setting, identification of the thresholds of significance, identification of impacts, and, if applicable, the development of mitigation measures and monitoring strategies.

Discussion of Cumulative Impacts

In accordance with Section 15130 of the CEQA Guidelines, an analysis of the cumulative impacts associated with the project will be undertaken and discussed. In addition, pursuant to CEQA Section 21100(B)(5), the analysis will address the potential for growth-inducing impacts of the proposed project focusing on whether there would be a removal of any impediments to growth associated with the proposed project.

Discussion of Alternatives

In accordance with Section 15126.6(a) of the CEQA Guidelines, several project alternatives, including the No Project Alternative, may be analyzed. The alternatives analysis will "describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives." The analysis will include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the proposed project. The significant effects of the alternatives will be discussed, but in less detail than the significant effects of the proposed project. The discussion will also identify and analyze the "environmentally superior alternative."

SUBMITTING COMMENTS

To ensure that the full range of issues related to the proposed project is addressed and all significant issues are identified, written comments are invited from all interested parties. Written comments will be used to identify potential concerns that are pertinent to the proposed project's environmental impacts, as well as to identify considerable potential alternatives. Comments concerning the proposed CEQA analysis for the Dixon Main Drain and V-Drain Enlargement project should be directed to the name and address below:

John S. Currey
1170 N. Lincoln Street, Suite 110
Dixon, CA 95620

Written comments are due to the Dixon Regional Watershed JPA at the location addressed above by 5:00 p.m. on October 17, 2007.

Figure 1
Regional Location Map

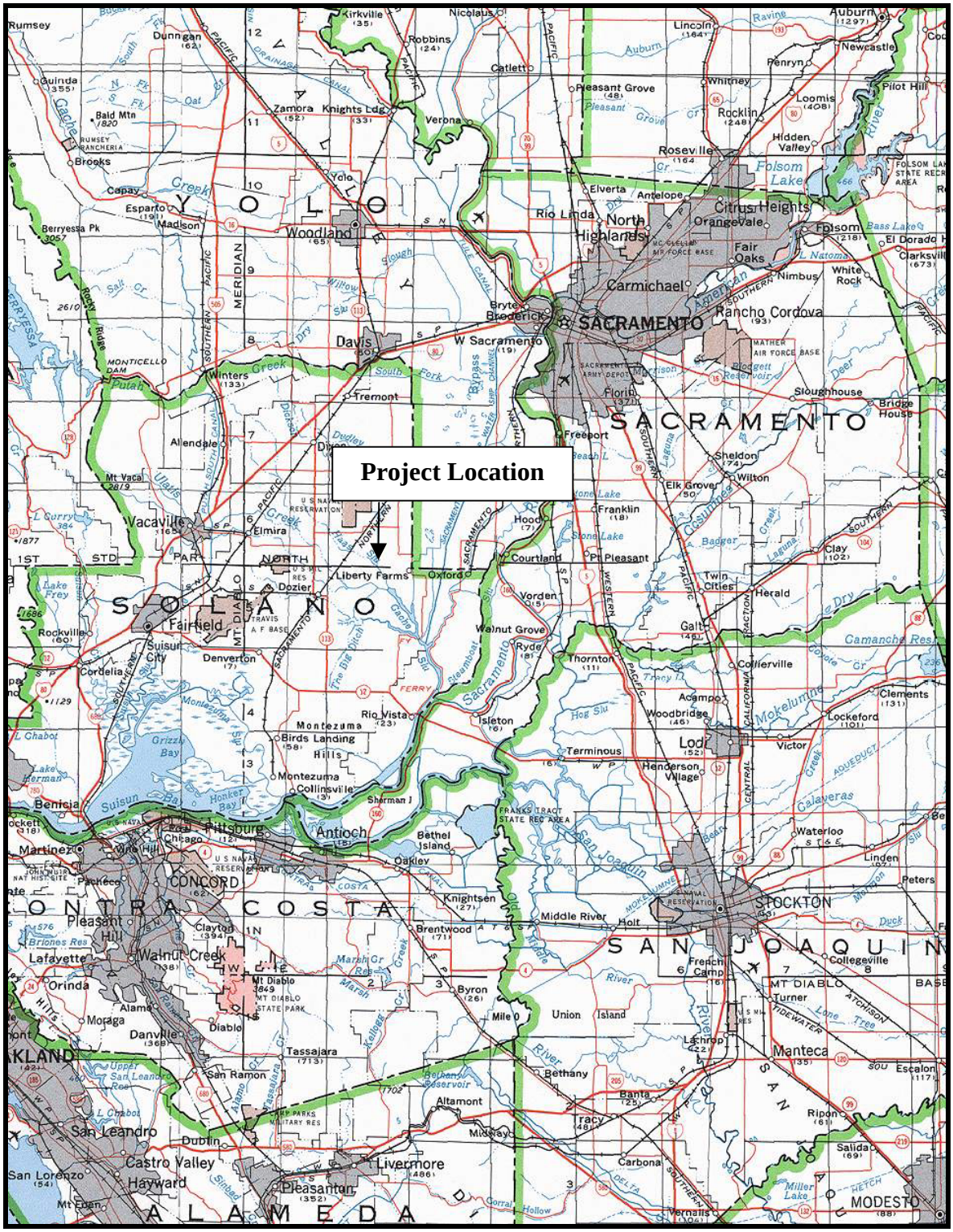
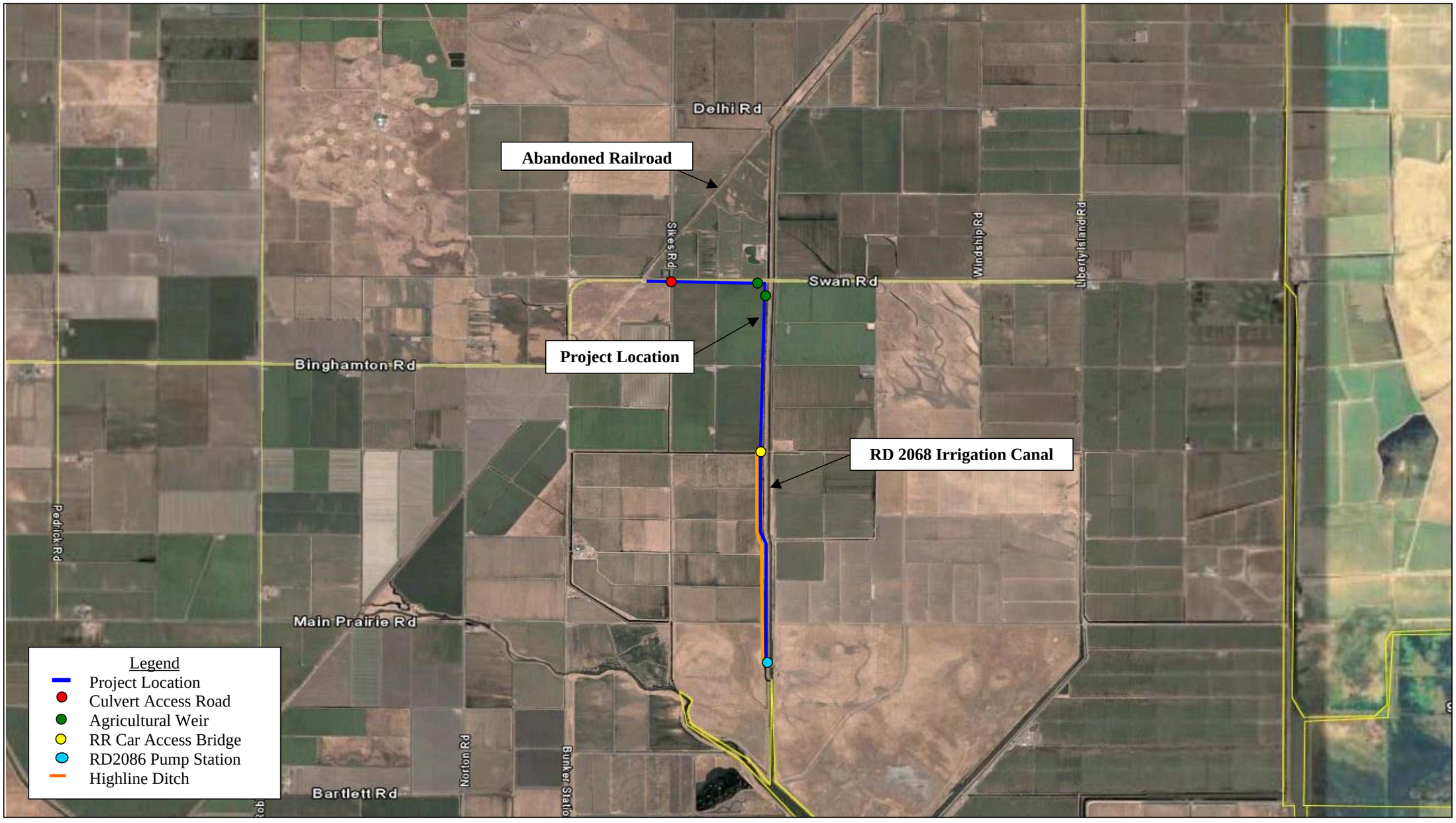


Figure 2
Project Map



Prepared for the
Dixon Regional Watershed Joint
Powers Authority

DRAFT

Dixon Main Drain and V-Drain Enlargement Project Initial Study

September 2007

RP&M
Raney Planning & Management, Inc.

TABLE OF CONTENTS

INITIAL STUDY

I. BACKGROUND

1. Project Title: Dixon Main Drain and V-Drain Enlargement Project

2. Lead Agency Name: Dixon Regional Watershed Joint Powers Authority

3. Contact Person and Phone Number: John S. Currey
1170 N. Lincoln Street, Suite 110
Dixon, CA 95620
(707) 678-1655 ext. 105

4. Project Location: Swan Road to the RD 2068 Intake Canal
Solano County

5. Project Sponsor's Name: Dixon Regional Watershed Joint Powers Authority (JPA)

6. Project Description Summary:

The project is located seven miles southeast of the City of Dixon in Solano County (See Figure 1, Regional Location Map, and Figure 2, Project Location Map). The proposed project includes the enlargement of the Dixon Main Drain, the enlargement of the V-Drain from Swan Road to the RD 2068 Intake Canal, the replacement of two 60-inch culverts along Swan Road with an engineered bridge (i.e., flatbed rail car) or reconstruction of the culverts and a concrete headwall, the removal of two agricultural weirs and replacement of one or both agricultural weirs, the relocation of a highline ditch and the replacement of the trash rack and sediment removal. The applicant is requesting approval of the following entitlements from the Dixon Regional Watershed JPA:

- Certification of the EIR;
- Approval of proposed alignment; and
- Authorization of the submittal of bids for the proposed project.

Figure 1
Regional Location Map

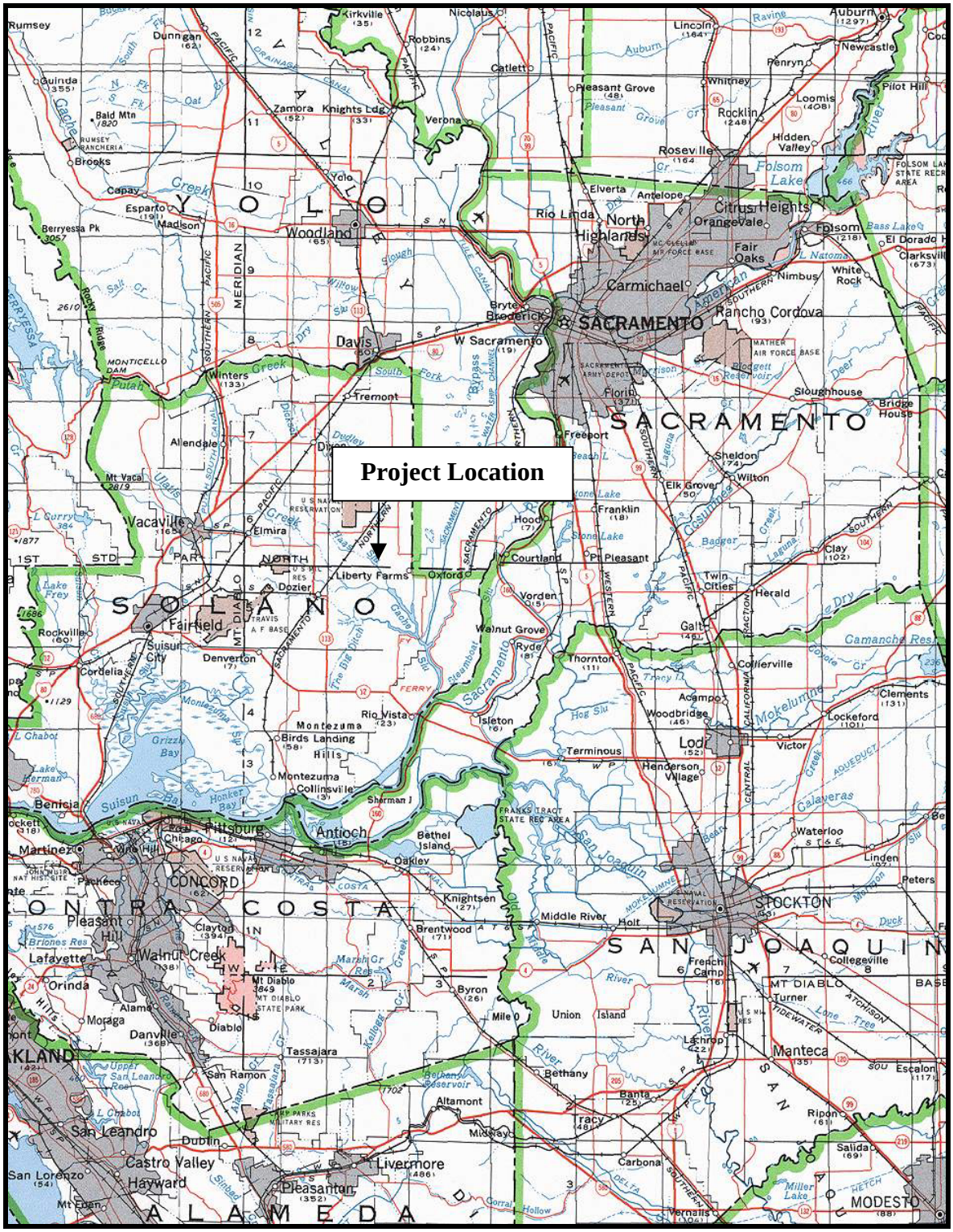
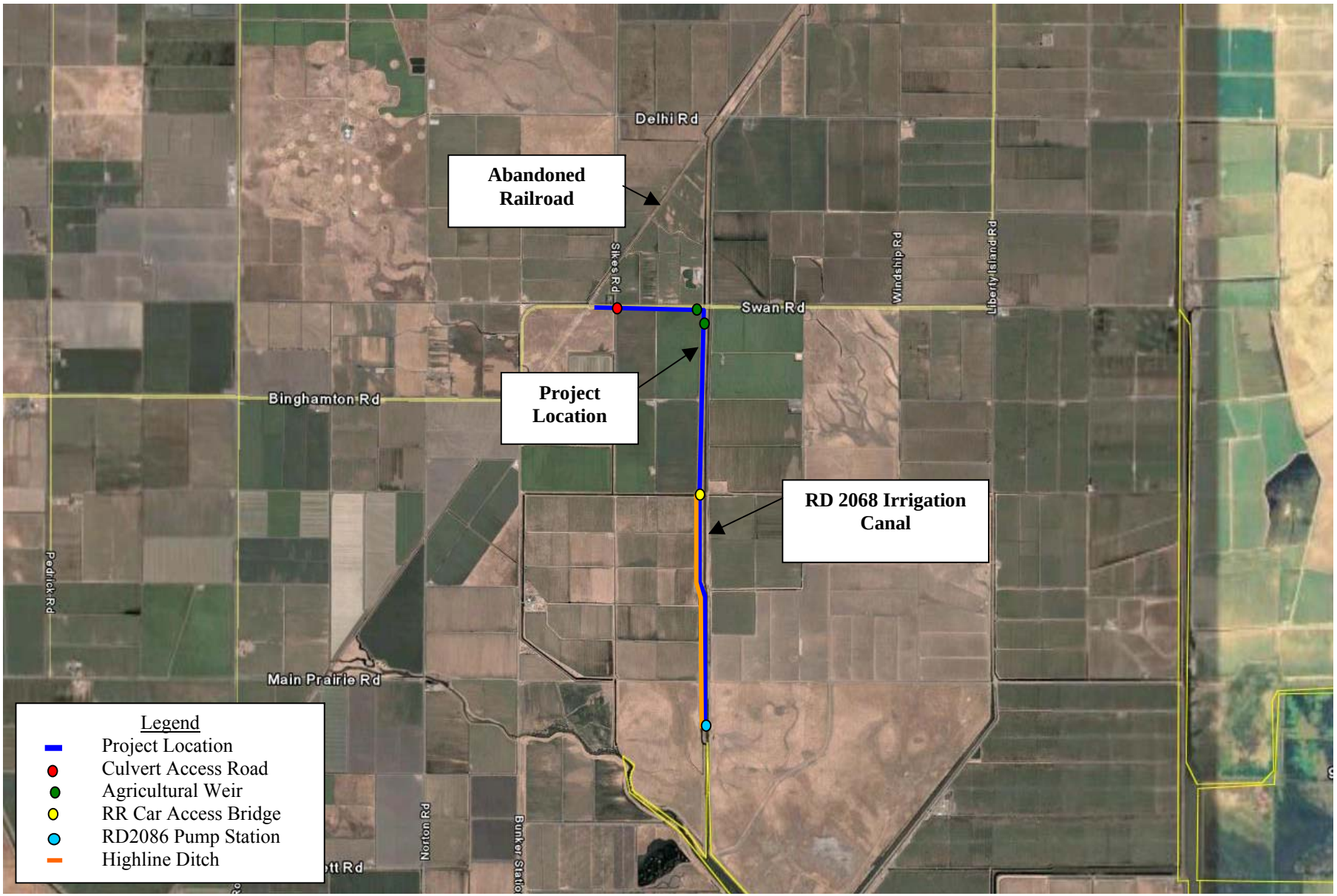


Figure 2
Project Map



II. ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would potentially be affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

	Aesthetics	X	**Agriculture**		**Air Quality**
X	**Biological Resources**		**Cultural Resources**		**Geology/Soils**
X	**Hazards & Hazardous Materials**	X	**Hydrology/Water Quality**	X	**Land Use/Planning**
	Mineral Resources		**Noise**		**Population/Housing**
	Public Services		**Recreation**		**Transportation/Circulation**
X	**Utilities/Service Systems**	X	**Mandatory Findings of Significance**		

III. DETERMINATION

On the basis of this initial study:

□ I find that the Proposed Project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

□ I find that although the Proposed Project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the applicant. A MITIGATED NEGATIVE DECLARATION will be prepared.

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

□ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant impact unless mitigated" on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

□ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Signature	Date
John S. Currey	Dixon Regional Watershed JPA
Printed Name	For

IV. INTRODUCTION AND BACKGROUND

This Initial Study provides an environmental analysis pursuant to the California Environmental Quality Act (CEQA) for the proposed Dixon Main Drain and V-Drain Enlargement Project (proposed project).

In 1998, West Yost & Associates (WYA) prepared a county-wide flood control master plan for the Solano County Water Agency (SCWA) that identified all the flooding problems in the County. In that master plan, the Dixon area was identified for receiving flood control improvements because of the high frequency and severity of flooding, and because the flooding in this area compromises human safety and damages public works, infrastructure, and property.

As a result of past flooding and the analysis of the flooding in 1996–1997, the Dixon Resource Conservation District (RCD), Reclamation District (RD) 2068, the Maine Prairie Water District (MPWD), and the City of Dixon in cooperation with the Solano County Water Agency, began a significant study of regional drainage needs with the goal of reducing flooding by reestablishing, at a minimum, the level of service originally constructed in the regional drainage facilities and increasing capacities where economically feasible and mutuality beneficial to the parties. The result of this cooperation was the Dixon Region Watershed Management Plan and a Memorandum of Understanding (MOU) between the Dixon RCD, RD 2068, MPWD, and City of Dixon. Since completion of the Study and the MOU, the parties completed construction of the Pond A and Lateral 1 improvements in 2004.

The parties also created the Dixon Regional Watershed Joint Powers Authority (JPA) to own, construct and operate the regional drainage facilities contemplated in the Dixon Regional Watershed Management Plan. Currently, the JPA Board meets on an as needed basis to further implement the projects contemplated in the Dixon Regional Watershed Management Plan.

V. PROJECT DESCRIPTION

Site Characteristics

The project site topography is essentially flat and located along existing drainage systems. The surrounding areas primarily consist of mixed agricultural practices, which include, canals and ditches, irrigated row crops, and irrigated livestock pasture. The proposed 0.6-mile Dixon Main Drain enlargement would run parallel to Swan Road from near the abandoned railroad tracks to the Dixon Main Drain's easterly terminus at the V-Drain. The V-Drain enlargement would begin at the current confluence of the Dixon Main Drain and extend south to the RD 2068 Intake Canal, which exists directly east of the V-Drain. The Dixon Main Drain and V-Drain on-site habitats consist of grassland and seasonal wetland. Properties located to the southwest of the proposed project are prone to flooding during heavy rain events and the properties eventually drain into the Main Drain and V-Drain.

Proposed Project

The proposed project involves the enlargement of the Dixon Main Drain (DMD) and V-Drain channels to provide an increase in capacity of 375 cubic feet per second (cfs). The project consists of two primary elements, enlargement of the Dixon Main Drain along Swan Road from the abandoned railroad tracks to the DMD's easterly terminus at the V-Drain, and the

enlargement of the existing V-Drain between Swan Road and the RD 2068 Intake Canal 0.7 miles north of Haas Slough.

The Dixon Main Drain would be enlarged to have a capacity increase of 375 cfs over the existing average capacity of 240 cfs. This is expected to be achieved by excavating the channel to provide a bottom width to between eight to 15 feet (approximately five feet wider than existing), increasing the channel depth approximately two feet, and reducing the side slope of the southern bank to a four-horizontal to one-vertical slope. The V-Drain is being designed for a target capacity of 1,518 cfs, which includes the average existing capacity of 1,132 cfs, the increase of 375 cfs, and 11 cfs for runoff from the local tributary areas. This is expected to be achieved by providing a bottom width of 30 to 40 feet (approximately 10 to 20 feet wider than existing) increasing the channel depth in some locations by approximately 1.5 feet, and reducing the western side slope of the west bank to four-horizontal to one-vertical slope (4:1). The RD 2068 Intake Canal has a capacity that is at least 212 cfs greater than the target capacity of the V-Drain, thus improvements are not proposed for the Intake Canal.

Access Road Culvert Replacement

The proposed project would require the removal of the two existing culverts and a concrete headwall due to the deepening and widening of the Dixon Main Drain. An existing access road is constructed over the two 60-inch culverts topped with base material. After the enlargement of the Dixon Main Drain it is expected that the culverts at the access road would be replaced with either an engineered bridge (i.e., flat bed rail car) that would span across the newly widened Dixon Main Drain or with two new culverts and a concrete headwall.

Erosion Reduction

At the discharge from the V-Drain to the RD 2068 Intake Canal, the existing V-Drain makes a 90 degree bend, which causes erosion of the RD 2068 canal bank. The V-Drain would be modified to reduce the degree of this bend and reduce the erosion potential.

Directly south of where the V-Drain connects with the RD 2068 Intake Canal is a dead end channel. This channel continues south for about 0.6 miles. In order to facilitate the excavation required to reduce the degree of the bend in the V-Drain, a temporary culvert crossing will be constructed in the dead end channel. This temporary crossing will allow the contractor to haul the material excavated at the junction of the V-Drain and the RD 2068 Intake Canal and place it on the west side of the V-Drain.

Weir System

At the eastern portion of the Dixon Main Drain along Swan Road and the northern portion of the V-Drain are two agricultural weirs that are used to raise the water level in the drains for irrigation purposes. The enlargement of the Dixon Main Drain along Swan Road would require the removal and replacement of one or both of these agricultural weirs.

Bridge

Along the V-Drain, is a flatbed railcar access bridge that crosses the V-Drain. The proposed project may not require the removal of the access bridge. In this event, the V-Drain would be enlarged from both upstream and downstream of the bridge. At the bridge, the size of the V-

Drain would not be changed. The channel at the bridge and the transition sections above and below would be protected with suitable sized Rip-Rap for erosion and slope protection.

Highline Canal

West of the V-Drain from near the railcar bridge, continuing south for approximately one-half mile is a highline ditch that is used for irrigation purposes. The enlargement of the V-Drain would require the relocation of the highline ditch. The highline ditch would be reconstructed west of the ditch's current location.

Trash Rack Replacement and Sediment Removal

The existing trash rack at the RD 2068 Intake Canal is not designed to accommodate the increased storm water flows and associated debris. As part of this project, the existing screens on the rack would be replaced with new screens, which would be installed on the existing H-beam supports. A new supplemental trash rack would be constructed around the RD2068 intake pump station.

A survey of the bottom of the RD 2068 Intake Canal would be conducted to determine the level of sediment in the canal. If the survey shows significant accumulation of sediment in the canal, removal of the sediment would be included as part of the proposed project.

VI. ENVIRONMENTAL CHECKLIST

Introduction

The following Checklist contains the environmental checklist form presented in Appendix G of the CEQA Guidelines. The checklist form is used to describe the impacts of the proposed project. A discussion follows each environmental issue identified in the checklist. Included in each discussion are project-specific mitigation measures recommended as appropriate and made a part of the proposed project.

For this checklist, the following designations are used:

Potentially Significant Impact: An impact that could be significant, and for which no mitigation has been identified. If any potentially significant impacts are identified, an EIR must be prepared.

Less-Than-Significant With Mitigation Incorporated: An impact for which mitigation has been identified to reduce the impact to a less-than-significant level.

Less-Than-Significant Impact: Any impact that would not be considered significant under CEQA relative to existing standards.

No Impact: The project would not have any impact.

Issues		Potentially Significant Impact	Less-Than-Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
I.	**AESTHETICS.** *Would the project:*				
	a. Have a substantial adverse effect on a scenic vista?	□	□	□	x
	b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway?	□	□	□	x
	c. Substantially degrade the existing visual character or quality of the site and its surroundings?	□	□	x	□
	d. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	□	□	□	x

Discussion

a,b. The proposed project site is not within an area designated as a scenic vista, is not located within viewing distance of a State scenic highway, and does not contain any scenic resources. In addition, the proposed project would not significantly change the appearance of the site. Therefore, development of the project site would result in ***no impact*** to scenic vistas, State scenic highways, or scenic resources.

c. The proposed project would include development along existing roadways and the enlargement of an already-existing drainage line. The project area is undeveloped agricultural land with few remaining aesthetic resources and would not be significantly impacted by the enlargement of such a channel. Therefore, a ***less-than-significant*** impact would occur.

d. The proposed project consists of enlargement of drainage channels and does not include any facilities that could create new sources of light or glare. Therefore, development of the proposed project would result in ***no impact*** regarding light or glare.

Issues		Potentially Significant Impact	Less-Than-Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
II.	**AGRICULTURAL RESOURCES:** *In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1977) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. Would the project:*				
	a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping Program of the California Resources Agency, to non-agricultural use?	x	□	□	□
	b. Conflict with existing zoning for agricultural use, or a Williamson Act contract?	x	□	□	□
	c. Involve other changes in the existing environment which, due to their location or nature, could individually or cumulatively result in loss of Farmland to non-agricultural use?	x	□	□	□

Discussion

a-c. The areas surrounding the proposed project are currently undeveloped and have historically been dedicated to agricultural uses. Most of the project area has been classified by the California Department of Conservation as "Prime Farmland" according to the latest Solano County Important Farmland Map (2000). The property south of Swan Road, east of Bunker Station Road and north of the abandoned Sacramento Northern Railroad tracks has been classified as Grazing Land. Additionally, some Unique Farmland may exist in the project vicinity. The proposed project would involve construction activities in close proximity to these areas and may convert farmland to non-farmland uses or interfere with farmland operations. Therefore, the loss of land used for agriculture production is considered a ***potentially significant*** impact. Impacts on agricultural resources will be further considered in the EIR.

Issues	Potentially Significant Impact	Less-Than-Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
III. AIR QUALITY. *Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:*				
a. Conflict with or obstruct implementation of the applicable air quality plan?	□	x	□	□
b. Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	□	x	□	□
c. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	□	x	□	□
d. Expose sensitive receptors to substantial pollutant concentrations?	□	x	□	□
e. Create objectionable odors affecting a substantial number of people?	□	□	□	x

Discussion

a-d. The proposed project consists of the enlargement of the Dixon Main Drain and V-Drain. The proposed project does not include any mechanical components. Construction activities associated with the proposed project could have a significant short-term effect on air quality. As the channel is excavated and soil is moved, some dust may enter the air. The soil would be placed immediately adjacent to the channel and little to no hauling of the soil by truck would be required. The excavation of the channel would, however, require heavy construction equipment that would create carbon monoxide (CO) pollutants. The operation of the construction equipment would have temporary effects on air quality.

Air quality is governed at both the federal, state and local level. The proposed project is located within the Sacramento Valley Air Basin (SVAB) and is within the Yolo/Solano Air Quality Management District (YSAQMD). Both the Environmental Protection Agency and the California Air Resources Board (CARB) have identified the SVAB as non-attainment for ozone (O_3) and particulate matters (PM_{10}).

The YSAQMD has been designated as non-attainment for O_3 and PM_{10}. The YSAQMD non-attainment status for O_3 is categorized as "serious" with respect to the state air quality standards, and "severe" with respect to federal air quality standards. The federal and state PM_{10} categorization is unclassified.

Ozone. The federal O_3 standard is violated occasionally in some parts of the Sacramento Valley; therefore, the air basin is non-attainment for O_3. Levels of O_3 in the area have also exceeded the state standard regularly over the past five years, including within the YSAQMD. In the YSAQMD the formation of O_3 is most common from April through October. O_3 is not emitted into the atmosphere but is instead formed through a complex series of reactions in the atmosphere. The reactions involve combining reactive organic gases (ROGs) and nitrogen oxides (NO_x) in the presence of sunlight.

ROGs are emitted from both combustion and organic solvent evaporation. Half of ROG emissions are attributable to mobile sources (vehicles), while area sources and point sources accounted for the remainder. NO_x are formed solely from combustion. Ninety percent of NO_x emissions result from mobile sources and 10 percent from stationary sources. The primary sources of ROGs and NO_x include power plants, automobiles, the petroleum industry, pesticides, and organic solvents.

Particulate Matter. PM_{10} refers to particulates with an aerometric diameter equal to or less than ten microns. The sources of PM_{10} are many. Included among them are fume-producing industries, agriculture, motor vehicle combustion, tire wear, and wind-raised particles. A primary source within the district is the soot generated from agricultural burning.

Carbon Monoxide. The YSAQMD is an attainment area for CO. CO is an odorless, colorless toxic gas and is a byproduct of incomplete combustion. Motor vehicles and industrial sources are the primary sources of CO in the YSAQMD.

Development of the proposed project would result in a temporary increase in air contaminants due to construction activities associated with the excavation. Dust would be generated by equipment and vehicles during excavation of the Dixon Main Drain along Swan Road, as well as during the enlargement of the V-Drain channel. The excavation of the channels would not require the transportation of soil because the proposed project would involve the placement of the soil immediately adjacent to the channel. However, fugitive dust would be emitted as a result of wind erosion of the exposed earth surfaces. Construction activities would result in increased dustfall and locally elevated levels of total suspended particulates. Excavation and construction equipment required to construct the proposed drainage channel would also generate exhaust emissions (ROG and NO_x).

The proposed project would include excavation and soil removal. As soil is disturbed, some of the soil would become particulate matter in the air. Additionally, construction vehicles would add ROG and NO_x emissions. Therefore, the temporary construction impacts associated with the development of this drainage channel would be considered a ***potentially significant*** impact on air quality.

Mitigation Measure(s)

To ensure that construction air quality impacts would be reduced to a *less-than-significant* level, the following mitigation measures are required:

III-1. All material excavated or graded shall periodically be sufficiently watered to prevent excessive amounts of dust. Watering shall occur as necessary with complete coverage, preferably in the late morning and after work is done for the day.

III-2. All areas with vehicle traffic shall be watered periodically for stabilization of dust emissions.

III-3. The site shall be posted with a sign which includes the contact name and phone number for addressing concerns during construction.

III-4. During construction, the project contractor shall maintain all construction vehicles in good operating order and shall not allow construction vehicles to idle unnecessarily.

e. The proposed project consists of the enlargement of the existing stormwater drainage channels and does not include any facilities that could generate odors. Therefore, development of the proposed project would result in ***no impact*** regarding odors.

Issues		Potentially Significant Impact	Less-Than-Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
IV.	**BIOLOGICAL RESOURCES.** *Would the project:*				
a.	Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	x	□	□	□
b.	Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	x	□	□	□
c.	Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	x	□	□	□
d	Interfere substantially with the movement of any resident or migratory fish or wildlife species or with established resident or migratory wildlife corridors, or impede the use of wildlife nursery sites?	x	□	□	□
e.	Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	x	□	□	□
f.	Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Conservation Community Plan, or other approved local, regional, or State habitat conservation plan?	x	□	□	□

Discussion

a-e. Jones & Stokes botanist/wetland ecologist Lisa Webber and wildlife biologist Angela Alcala conducted a biological reconnaissance survey of the project site on November 4, 2005. The survey was conducted by driving along existing paved and unpaved roads and stopping at regular intervals to document habitat types and sensitive biological resources.

The Jones & Stokes report found that several sites along the proposed Dixon Main Drain and V-Drain enlargement project areas are in close contact with annual grassland and seasonal wetland habitats. The report indicates that the Haas Slough, which traverses the southern edge of the proposed project area and connects to the RD 2068 Intake Canal, qualifies as Potential Waters of the U.S. Several other ditches in the project vicinity, including the Lateral B, V-1 and V-3 Drains, as well as the canal east of Bunker Station Road, the Dixon Main Drain and V-Drain connect to the Haas Slough; and are therefore considered to be Potential Waters of the U.S. These ditches and canals have the potential to include seasonal wetlands that also connect to the Haas Slough.

A query of the California Natural Diversity Database was performed to identify special-status plant species potentially occurring in the project vicinity. In addition, the California Native Plant Society Inventory was used to identify and assess additional species occurring in Solano County. The query determined that the seasonal wetlands on the proposed project site could potentially support a number of special-status plant species.

The Jones & Stokes report concluded that the proposed project area supported the following special-status animal species:

- Valley Elderberry Longhorn Beetle;
- Vernal Pool Fairy Shrimp;
- California Tiger Salamander;
- Giant Garter Snake;
- Burrowing Owl;
- Swainson's Hawk; and
- Delta Smelt.

Additional surveys would be needed to definitively determine the presence/absence of individuals of and/or habitat for several of the species listed above.

Conclusion

The enlargement of the Dixon Main Drain the V-Drain may result in potentially significant impacts to the above-identified animal species, as well as special-status plant species, that may exist within seasonal wetlands on the proposed project site. In addition, the development of the proposed project could also potentially impact habitats within the jurisdiction of the U.S. Army Corps of Engineers.

Therefore, the construction of the proposed project could interfere with any, or all, of these species and would have a ***potentially significant*** impact on these species and their habitat. Impacts to Biological Resources will be further studied in the EIR.

f. Solano County Water Agency is in the process of preparing a Habitat Conservation Plan, with the participation of several agencies. In order to determine whether the proposed project would conflict with the provisions of Solano County Habitat Conservation Plan further analysis is needed. Therefore, a ***potentially significant*** impact would occur and impacts to the Habitat Conservation Plan will be further studied in the EIR.

Issues			Potentially Significant Impact	Less-Than-Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
V.	**CULTURAL RESOURCES.** *Would the project:*					
	a.	Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?	□	x	□	□
	b.	Cause a substantial adverse change in the significance of a unique archaeological resource pursuant to Section 15064.5?	□	x	□	□
	c.	Directly or indirectly destroy a unique paleontological resource on site or unique geologic features?	□	x	□	□
	d.	Disturb any human remains, including those interred outside of formal cemeteries?	□	x	□	□

Discussion

a-d. The proposed project consists of the enlargement of a stormwater drainage channel. Construction of the proposed project would include earth-disturbing activities such as clearing and excavating, which could significantly affect any unidentified cultural resources.

The proposed project is located in a territory where the ethnographic Patwin are believed to have lived. Euro-American settlement began in 1852, followed by formation of the town of Dixon sometime after 1868. Several residential and non-residential structures located within the City limits possess historic significance. A Cultural Resources Inventory was performed for the Storm Drain Report which includes area of overlap with the proposed project.

Cultural and/or historical resources have not been identified in the project area. However, the site is adjacent to a natural drainage channel. The presence of waterways increases the likelihood of the presence of cultural resources that could be unearthed during site grading. Discovery of previously unknown cultural resources on the project site could result in a ***potentially significant*** impact.

Mitigation Measure(s)
To ensure that the impacts to cultural resources would be reduced to a *less-than-significant* level, the following mitigation measures are required:

V-5. *Should any buried cultural resources be discovered during construction activities, all work shall be halted in the vicinity of the find and a qualified archaeologist shall be consulted in order to determine whether the find is an isolated example or part of a more complex resource. Upon determining the significance of the resource, the consulting archaeologist, in coordination with the JPA, shall*

determine the appropriate actions to be taken. The appropriate measures may include as little as recording the resource with the California Archaeological Inventory database or as much as excavation, recordation, and preservation of the sites that have outstanding cultural or historic significance.

V-6. *Should human remains be found, then the Coroner's office shall be immediately contacted and all work halted until final disposition by the Coroner. Should the remains be determined to be of Native American descent, then the Native American Heritage Commission shall be consulted to determine the appropriate disposition of such remains.*

Issues	Potentially Significant Impact	Less-Than-Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
VI. GEOLOGY AND SOILS. *Would the project:*				
a. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:	□	□	x	□
i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area based on other substantial evidence of a known fault?	□	□	x	□
ii. Strong seismic ground shaking?	□	□	x	□
iii. Seismic-related ground failure, including liquefaction?	□	□	x	□
iv. Landslides?	□	□	x	□
b. Result in substantial soil erosion or the loss of topsoil?	□	x	□	□
c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	□	□	x	□
d. Be located on expansive soil, as defined in Table 18-1B of the Uniform Building Code?	□	□	x	□
e. Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	□	□	□	x

Discussion

a,c. The project area is not within an earthquake fault delineated on an Alquist-Priolo Earthquake Fault Map. According to the Alquist-Priolo Earthquake Fault Map for the region, three active faults exist within Solano County: the Green Valley Fault, the Cordelia Fault, and the Concord Fault. All three of these faults are on the western edge of Solano County and would not impact the project. The project area is generally flat and would not be susceptible to landslides.

The proposed project consists of construction of an enlargement of the Dixon Main Drain channel and the enlargement of the V-Drain. Structures would not be constructed on the

project site. People would rarely visit the site; therefore, they would not be exposed to any seismic activity, landslides, or other seismic phenomena. A possibility exists for seismic activity to damage the walls of the channel, which could impede the flow of the channel and cause flooding. However, with regular maintenance, the channel would be clear of obstructions and the flow would not be impeded. Therefore, the proposed project would have a ***less-than-significant*** impact.

b. The proposed project involves the excavation of soil to widen and deepen the existing channel. Channel construction excavation will temporarily remove vegetation from the channel. Under the existing conditions vegetation is removed from the channel periodically as needed to maintain the flow capacity of the channel. Construction equipment operating adjacent to the channel would lead to temporarily exposed earth surfaces, which would render the surface soils vulnerable to the erosive effects from wind and rain. Therefore, impact from soil erosion resulting from grading and excavation of the project area would be considered ***potentially significant***.

Mitigation Measure(s)
Implementation of the following mitigation measures would reduce the above impact to a *less-than significant* level.

VI-7. *Prior to initiation of construction, the contractor shall submit to the JPA a Storm Water Pollution Prevention Plan meeting the requirements of the State Water Resources Control Board NPDES General permit. This plan shall include an erosion control plan for the construction and post construction periods.*

VI-8. *Disturbed areas on the channel side slopes shall be revegetated with native plants selected to hold the channel soils in place during high flows and flexible enough to flatten down to allow for less drag against the water flows. Disturbed areas outside the channel banks shall be revegetated. New vegetation in these areas shall be compatible with adjacent farming or grazing operations. The JPA shall review planting plans prior to approval of the design documents.*

VI-9. *The Contractor shall limit construction to the non-rainy season and to irrigation season. During irrigation season any sediment laden water from the drainage channel will enter the RD2068 Intake Canal and will be pumped to the RD2068 Irrigation Canal and used for irrigation, not discharged to the Slough downstream.*

VI-10. *Prior to approval of final design documents, the JPA shall review plans for drainage and storm water runoff control systems and their component facilities to ensure that these systems and facilities are non-erosive in design.*

VI-11. *Grading, soil disturbance, or compaction shall not occur during periods of rain.*

d. The proposed project would not include the construction any buildings. Expanding and contracting soils would have minimal impacts on the proposed channel. Therefore, the impact would be ***less-than-significant***.

e. The proposed project involves the enlargement of the Dixon Main Drain channel and the enlargement of the existing V-Drain. The proposed project would not involve the need for use of sewer or septic systems. Therefore, ***no impact*** would result.

Issues		Potentially Significant Impact	Less-Than-Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
VII.	**HAZARDS AND HAZARDOUS MATERIALS.** *Would the project:*				
a.	Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	□	□	x	□
b.	Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the likely release of hazardous materials into the environment?	x	□	□	□
c.	Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	□	□	□	x
d.	Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	□	□	□	x
e.	For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	□	□	□	x
f.	For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	□	□	□	x
g.	Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	□	□	□	x
h.	Expose people or structures to the risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	□	□	□	x

Discussion

a. The proposed project consists of construction and operation of an enlargement of the Dixon Main Drain south of Swan Road and the enlargement of the V-Drain from Swan Road to Haas Slough. The operation of the channel would not involve the routine transportation, use, or disposal of hazardous materials. However, implementation of the project would result in the exposure of additional surface water that could potentially be used as a breeding ground for vectors. The proposed project is located in an agricultural area and the Solano County Mosquito Abatement District (SCMAD) is a special district responsible for mosquito abatement throughout the incorporated and unincorporated areas of Solano County. Because Solano County is responsible for overall vector control, the proposed project would result in a ***less-than-significant*** impact.

b. The proposed project consists of construction and operation of an enlargement of the Dixon Main Drain south of Swan Road and the enlargement of the V-Drain from Swan Road to Haas Slough. The operation of the channel would not involve the routine transportation, use, or disposal of hazardous materials. However, during construction, construction workers could be exposed to pesticides used in nearby fields. While the channel is planned to parallel local roads, construction of the channel may involve the neighboring fields. Some of these fields have been sprayed with pesticides and disturbing the soil may expose the workers to the pesticides that have entered the soil.

However, a site survey of the project area showed that most of the land is being used for pasture, and pastures are not typically sprayed with pesticides. Additionally, the construction activities would take place along the edges of the properties where pesticides are less likely to be sprayed, making exposure less likely. Furthermore, application of pesticides is under the regulations of the Solano County Agriculture Department. Because pesticides would be applied to the satisfaction of the Solano County Agricultural Department, a less-than-significant impact would occur.

Natural gas wells exist in Solano County. These wells have pipelines that traverse the County underground, including in the immediate vicinity of the proposed project. The construction of the proposed project could interfere the operations of the natural gas pipelines, which would be considered a ***potentially significant*** impact. Impacts to pipelines will be further studied in the Public Services chapter of the EIR.

c. Schools are not located within one-quarter mile of the proposed project area. Therefore, development of the proposed project would result in ***no impact*** to exposure of schools to hazardous materials.

d. The project site is not included on a list of hazardous materials sites complied pursuant to Government Code Section 65962.5. Therefore, ***no impact*** would result from construction of the drainage channel on the proposed project site.

e,f. Neither public nor private airports are located within two miles of the proposed project. Therefore, development of the proposed project would result in ***no impact*** regarding safety issues related to airport use.

g. The proposed project consists of construction of a drainage channel and does not include any structures or facilities which could impair implementation of, or physically interfere with an adopted emergency response plan or emergency evacuation plan. The proposed project would, therefore, result in ***no impact*** on responses to emergencies.

h. The project area is rural farmland. Wildlands do not exist in or near the project area. Furthermore, the proposed drainage channel would not contain any mechanical components that could trigger wildland fires. Therefore, development of the proposed project would result in ***no impact*** regarding exposure to wildland fires.

Issues		Potentially Significant Impact	Less-Than-Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
VIII. HYDROLOGY AND WATER QUALITY. *Would the project:*					
a.	Violate any water quality standards or waste discharge requirements?	x	□	□	□
b.	Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (i.e., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	□	□	x	□
c.	Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	x	□	□	□
d.	Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	x	□	□	□
e.	Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	x	□	□	□
f.	Place housing within a 100-year floodplain, as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	□	□	□	x
g.	Place within a 100-year floodplain structures which would impede or redirect flood flows?	□	□	□	x
h.	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?	□	□	□	x
i.	Inundation by seiche, tsunami, or mudflow?	□	□	□	x

Discussion

a. The proposed project is just one segment of the drainage channel system in Solano County. The proposed project consists of a drainage channel that would convey stormwater to the Haas Slough. The drainage channel modifications could interfere with water quality of Haas Slough. The proposed project could require a National Pollutant Discharge Elimination System (NPDES) permit and potentially a U.S. Army Corps of Engineers permit for the channel and for constructing a new outfall into Haas Slough. The potential degradation of water quality in Haas Slough from the proposed project is a ***potentially significant*** impact and will be discussed in the EIR.

b. The proposed drainage channel modifications would not create new demands upon the water supply and would help to contain and direct excess stormwater. Consequently, the project would not substantially deplete groundwater supplies or interfere substantially with groundwater recharge. The proposed project, therefore, would result in ***less-than-significant*** impact on groundwater supplies.

c-e. The proposed project would be part of the existing regional stormwater drainage channel system operated by the proponent's member agencies. The Dixon Main Drain empties in to the V-Drain which discharges to the RD 2068 Intake Canal which discharges to Haas Slough. The proposed project would enlarge the drainage system along Swan Road and enlarge the V-Drain from Swan Road to the RD 2068 Intake Canal. These modifications to the drainage system could result is a ***potentially significant*** impact which will be discussed in the EIR.

f-h. The proposed project consists of the enlargement of the Dixon Main Drain and V-Drain. Housing or other structures are not associated with the proposed project. In addition, the proposed project is designed to reduce flooding in the local area. Therefore, the proposed project would result in ***no impact*** related to placement of housing in a 100-year flood plain.

i. A seiche is an oscillation of the surface of a landlocked body of water. A tsunami a great sea wave. The proposed project is not near any large body of water or ocean to be affected by tsunamis or seiches. Mudflows would be caused by rain along a hill or slope. While the project area does receive substantial amounts of rainfall, the project area is relatively flat. The project site is not located within an area that would be affected by a seiche, tsunami, or mudflow; therefore, ***no impact*** would occur.

Issues			Potentially Significant Impact	Less-Than-Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
IX.	**LAND USE AND PLANNING.** *Would the project:*					
	a.	Physically divide an established community?	□	□	□	x
	b.	Conflict with any applicable land use plans, policies, or regulations of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	x	□	□	□
	c.	Conflict with any applicable habitat conservation plan or natural communities conservation plan?	x	□	□	□

Discussion

a. The proposed project would include the construction of a drainage channel on agricultural land in a rural area where established communities do not exist, and the proposed project would not divide an existing community. Therefore, the proposed project would have ***no impact*** related to dividing an established community.

b,c. The proposed project would require the acquisition of easements for the construction and maintenance of the channel. The easements could encroach upon agricultural farmland. Construction and maintenance activities could temporarily interfere with farming operations on farmland along the channel. Additionally, Solano County Water Agency is in the process of preparing a Habitat Conservation Plan. In order to determine whether the proposed project would conflict with the provisions of Solano County Habitat Conservation Plan further analysis is needed. Therefore, the proposed project could have a ***potentially significant*** impact on land use near the project area. Impacts to Land Use and Planning will be further studied in the EIR.

Issues		Potentially Significant Impact	Less-Than-Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
X.	**MINERAL RESOURCES.** *Would the project:*				
a.	Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	□	□	x	□
b.	Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	□	□	x	□

Discussion

a,b. According to the Solano County General Plan, the proposed project site is not located within a MRZ-2 zone, which is defined as areas where adequate information indicates that significant mineral (aggregate) deposits are present or where it is judged that there is a high likelihood for their presence. Additionally, the construction associated with the proposed project would not interfere with possible future mining operations; therefore, a ***less-than-significant*** impact would occur to mineral resources.

Issues		Potentially Significant Impact	Less-Than-Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
XI.	**NOISE.** *Would the project result in:*				
a.	Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	□	□	x	□
b.	Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	□	□	x	□
c.	A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	□	□	□	x
d.	A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	□	□	x	□
e.	For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	□	□	□	x
f.	For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	□	□	□	x

Discussion

a,b,d. The proposed project area is a rural area without significant communities or other sensitive receptors. During construction, the proposed project could result in temporary elevation of the ambient noise levels in the project vicinity above existing levels during construction. However, the proposed project area does not have sensitive receptors that would be impacted from construction noise associated with the proposed project. Therefore, the proposed project would have a ***less-than-significant*** impact.

c. The proposed project consists of an enlargement of the Dixon Main Drain and the enlargement of the existing V-Drain between Swan Road and Haas Slough, and would not include any mechanical components or generate vehicular traffic, which could be a source of noise. Therefore, the proposed project would not result in a permanent increase in ambient noise or vibration levels over that which currently exists, and ***no impact*** would

occur.

e,f. The project site is not located within two miles of the airport and is not within an area covered by an existing airport land use plan. Therefore, development of the project site would result in ***no impact*** regarding airport noise generation.

Issues		Potentially Significant Impact	Less-Than-Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
XII.	**POPULATION AND HOUSING.** *Would the project:*				
a.	Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (e.g., through projects in an undeveloped area or extension of major infrastructure)?	□	□	□	x
b.	Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	□	□	□	x
c.	Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	□	□	□	x

Discussion

a. The enlargement of the Dixon Main Drain and the V-Drain would only provide additional capacity for agricultural run-off and would not directly or indirectly induce growth. Therefore, the proposed project would have ***no impact*** on growth inducement.

b,c. The project area is currently vacant or in agricultural production and does not include any existing residential structures. Therefore, development of the proposed project would result in ***no impact*** regarding displacement of persons and construction of replacement housing.

Issues	Potentially Significant Impact	Less-Than-Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
XIII. PUBLIC SERVICES. *Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:*				
a. Fire protection?	□	□	□	x
b. Police protection?	□	□	□	x
c. Schools?	□	□	□	x
d. Parks?	□	□	□	x

Discussion

a-b. The proposed project would not construct new facilities in the area that would necessitate the increase of fire or police protection. Service ratios for police and fire protection would not change nor would the project alter the response times for police or fire protection services. The proposed project would not relocate people to the project vicinity by constructing residential or commercial structures. Therefore, the proposed project would result in ***no impact*** with respect to police and fire services.

c-d. The proposed project would not affect the need for schools or parks. The proposed project would not add to the existing population requiring the increase of parks or schools in the area. Therefore, the proposed project would have ***no impact*** with respect to the provision of parks or schools.

Issues		Potentially Significant Impact	Less-Than-Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
XIV. RECREATION. *Would the project:*					
	a. Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	□	□	□	x
	b. Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	□	□	□	x

Discussion

a,b. The proposed project would improve the storm drainage channel system and does not consist of the construction of any residential or commercial structures. The proposed project would result in ***no impact*** related to recreational facilities.

Issues		Potentially Significant Impact	Less-Than-Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
XV.	**TRANSPORTATION AND CIRCULATION.** *Would the project:*				
a.	Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?	□	□	□	x
b.	Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?	□	□	□	x
c.	Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	□	□	□	x
d.	Substantially increase hazards due to a design features (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	□	□	x	□
e.	Result in inadequate emergency access?	□	□	□	x
f.	Result in inadequate parking capacity?	□	□	□	x
g.	Conflict with adopted policies supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	□	□	□	x

Discussion

a,b. The proposed project would not generate additional traffic to the area, as the project would not have residential or commercial uses. Additionally, the proposed project would not generate additional traffic that would exceed the level of service standard established by Solano County; therefore, the proposed project would have ***no impact*** related to street capacity or congestion.

c. The proposed project would require no changes to existing regional air traffic activity, and the project site is not located near an airport. Therefore, development of the proposed project would result in ***no impact*** to air traffic.

d. The proposed project includes an enlargement of the drainage channel along Swan Road and the enlargement of the existing V-Drain between Swan Road and RD 2068 intake canal. Construction of the drainage channel would involve the use of construction

equipment and the staging of construction equipment. The proposed construction operations would occur within the drainage channel easements or on private property. Staging would not occur on public roads and road closures would not be necessary to facilitate the construction of the proposed project. Therefore, the impact would be considered ***less-than-significant***.

e-g. The proposed project consists of improvements to the drainage channel. With the exception of occasional routine maintenance travel trips, the proposed project would not generate any increase in vehicle trips. The proposed drainage channel would not increase traffic hazards, result in inadequate emergency access, or inadequate parking capacity. The proposed project would result in ***no impact*** related to increased traffic.

Issues		Potentially Significant Impact	Less-Than-Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
XVI. UTILITIES AND SERVICE SYSTEMS. *Would the project:*					
	a. Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	□	□	□	x
	b. Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	□	□	□	x
	c. Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	x	□	□	□
	d. Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	□	□	□	x
	e. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	□	□	□	x
	f. Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	□	□	□	x
	g. Comply with federal, state, and local statutes and regulations related to solid waste?	□	□	□	x

Discussion

a,b,e. The proposed project consists of the enlargement of existing drainage channels. The channels are not connected to wastewater treatment facilities, and water from the channels would not flow into a wastewater treatment system. Therefore, the proposed project would have ***no impact*** on wastewater treatment facilities.

c. The proposed project involves the enlargement of the Dixon Main Drain and the enlargement of the V-Drain, which would empty into Haas Slough. It would not be anticipated that the capacity of the slough would be exceeded; however, the potential for

inadequate capacity would be considered a ***potentially significant*** impact and will be addressed in the EIR.

d. The project would not add to the population in the area and would, therefore, not increase demand on existing water supplies. Therefore, the proposed project would have ***no impact*** on existing entitlements and resources.

f,g. The proposed project consists of expanding existing drainage channels. The facilities would not generate solid waste; therefore ***no impact*** would occur as a result of the proposed project.

Issues		Potentially Significant Impact	Less-Than-Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
XVII. MANDATORY FINDINGS OF SIGNIFICANCE.					
a.	Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	x	□	□	□
b.	Does the project have the potential to achieve short-term, to the disadvantage of long-term, environmental goals?	x	□	□	□
c.	Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	x	□	□	□
d.	Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	x	□	□	□

Discussion

a-d. Implementation of the proposed project could result in ***potentially significant*** adverse environmental effects. Therefore, agriculture, biological resources, public utility conflicts, and drainage impacts will be further analyzed in the EIR.

APPENDIX B

STATE OF CALIFORNIA -- THE RESOURCES AGENCY
ARNOLD SCHWARZENEGGER, Governor

DEPARTMENT OF WATER RESOURCES
1416 NINTH STREET, P.O. BOX 942836
SACRAMENTO, CA 942360001
(916) 653-5791

September 4, 2007

John S. Currey
Dixon Regional Watershed Joint Powers Authority
1170 North Lincoln Street, Suite 110
Dixon, California 95620

Dixon Main Drain V-Drain Enlargement
State Clearinghouse (SCH) Number: 2007092033

The project corresponding to the subject SCH identification number has come to our attention. The limited project description suggests your project may be an encroachment on the State Adopted Plan of Flood Control. You may refer to the California Code of Regulations, Title 23 and Designated Floodway maps at http://recbd.ca.gov/. Please be advised that your county office also has copies of the Board's designated floodways for your review. If indeed your project encroaches on an adopted food control plan, you will need to obtain an encroachment permit from the Reclamation Board prior to initiating any activities. The attached Fact Sheet explains the permitting process. Please note that the permitting process may take as much as 45 to 60 days to process. Also note that a condition of the permit requires the securing all of the appropriate additional permits before initiating work. This information is provided so that you may plan accordingly.

If after careful evaluation, it is your assessment that your project is not within the authority of the Reclamation Board, you may disregard this notice. For further information, please contact me at (916) 574-1249.

Sincerely,

Christopher Huitt
Staff Environmental Scientist
Floodway Protection Section

Enclosure

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

SEP 2 1 2007

Encroachment Permits Fact Sheet

Basis for Authority

State law (Water Code Sections 8534, 8608, 8609, and 8710 – 8723) tasks the Reclamation Board with enforcing appropriate standards for the construction, maintenance, and protection of adopted flood control plans. Regulations implementing these directives are found in California Code of Regulations (CCR) Title 23, Division 1.

Area of Reclamation Board Jurisdiction

The adopted plan of flood control under the jurisdiction and authority of the Reclamation Board includes the Sacramento and San Joaquin Rivers and their tributaries and distributaries and the designated floodways.

Streams regulated by the Reclamation Board can be found in Title 23 Section 112. Information on designated floodways can be found on the Reclamation Board's website at http://recbd.ca.gov/designated_floodway/ and CCR Title 23 Sections 101 - 107.

Regulatory Process

The Reclamation Board ensures the integrity of the flood control system through a permit process (Water Code Section 8710). A permit must be obtained prior to initiating any activity, including excavation and construction, removal or planting of landscaping within floodways, levees, and 10 feet landward of the landside levee toes. Additionally, activities located outside of the adopted plan of flood control but which may foreseeable interfere with the functioning or operation of the plan of flood control is also subject to a permit of the Reclamation Board.

Details regarding the permitting process and the regulations can be found on the Reclamation Board's website at http://recbd.ca.gov/ under "Frequently Asked Questions" and "Regulations," respectively. The application form and the accompanying environmental questionnaire can be found on the Reclamation Board's website at http://recbd.ca.gov/forms.cfm.

Application Review Process

Applications when deemed complete will undergo technical and environmental review by Reclamation Board and/or Department of Water Resources staff.

Technical Review

A technical review is conducted of the application to ensure consistency with the regulatory standards designed to ensure the function and structural integrity of the adopted plan of flood control for the protection of public welfare and safety. Standards and permitted uses of designated floodways are found in CCR Title 23 Sections 107 and Article 8 (Sections 111 to 137). The permit contains 12 standard conditions and additional special conditions may be placed on the permit as the situation warrants. Special conditions, for example, may include mitigation for the hydraulic impacts of the project by reducing or eliminating the additional flood risk to third parties that may caused by the project.

Additional information may be requested in support of the technical review of

your application pursuant to CCR Title 23 Section 8(b)(4). This information may include but not limited to geotechnical exploration, soil testing, hydraulic or sediment transport studies, and other analyses may be required at any time prior to a determination on the application.

Environmental Review

A determination on an encroachment application is a discretionary action by the Reclamation Board and its staff and subject to the provisions of the California Environmental Quality Act (CEQA) (Public Resources Code 21000 et seq.). Additional environmental considerations are placed on the issuance of the encroachment permit by Water Code Section 8608 and the corresponding implementing regulations (California Code of Regulations – CCR Title 23 Sections 10 and 16).

In most cases, the Reclamation Board will be assuming the role of a "responsible agency" within the meaning of CEQA. In these situations, the application must include a certified CEQA document by the "lead agency" [CCR Title 23 Section 8(b)(2)]. We emphasize that such a document must include within its project description and environmental assessment of the activities for which are being considered under the permit.

Encroachment applications will also undergo a review by an interagency Environmental Review Committee (ERC) pursuant to CCR Title 23 Section 10. Review of your application will be facilitated by providing as much additional environmental information as pertinent and available to the applicant at the time of submission of the encroachment application.

These additional documentations may include the following documentation:

- California Department of Fish and Game Streambed Alteration Notification (http://www.dfg.ca.gov/1600/),
- Clean Water Act Section 404 applications, and Rivers and Harbors Section 10 application (US Army Corp of Engineers),
- Clean Water Act Section 401 Water Quality Certification, and
- . corresponding determinations by the respective regulatory agencies to the aforementioned applications, including Biological Opinions, if available at the time of submission of your application.

The submission of this information, if pertinent to your application, will expedite review and prevent overlapping requirements. This information should be made available as a supplement to your application as it becomes available. Transmittal information should reference the application number provided by the Reclamation Board.

In some limited situations, such as for minor projects, there may be no other agency with approval authority over the project, other than the encroachment permit by Reclamation Board. In these limited instances, the Reclamation Board

may choose to serve as the "lead agency" within the meaning of CEQA and in most cases the projects are of such a nature that a categorical or statutory exemption will apply. The Reclamation Board cannot invest staff resources to prepare complex environmental documentation.

Additional information may be requested in support of the environmental review of your application pursuant to CCR Title 23 Section 8(b)(4). This information may include biological surveys or other environmental surveys and may be required at anytime prior to a determination on the application.

STATE OF CALIFORNIA

GOVERNOR'S OFFICE *of* PLANNING AND RESEARCH

STATE CLEARINGHOUSE AND PLANNING UNIT

ARNOLD SCHWARZENEGGER
GOVERNOR

CYNTHIA BRYANT
DIRECTOR

Notice of Preparation

September 11, 2007

SEP 1 1 2007

To: Reviewing Agencies

Re: Dixon Main Drain V-Drain Enlargement
SCH# 2007092033

Attached for your review and comment is the Notice of Preparation (NOP) for the Dixon Main Drain V-Drain Enlargement draft Environmental Impact Report (EIR).

Responsible agencies must transmit their comments on the scope and content of the NOP, focusing on specific information related to their own statutory responsibility, within 30 days of receipt of the NOP from the Lead Agency. This is a courtesy notice provided by the State Clearinghouse with a reminder for you to comment in a timely manner. We encourage other agencies to also respond to this notice and express their concerns early in the environmental review process.

Please direct your comments to:

John S. Currey
Dixon Regional Watershed Joint Powers Authority
1170 N. Lincoln Street, Suite 110
Dixon, CA 95620

with a copy to the State Clearinghouse in the Office of Planning and Research. Please refer to the SCH number noted above in all correspondence concerning this project.

If you have any questions about the environmental document review process, please call the State Clearinghouse at (916) 445-0613.

Sincerely,

Scott Morgan
Project Analyst, State Clearinghouse

Attachments
cc: Lead Agency

Document Details Report
State Clearinghouse Data Base

SCH# 2007092033
Project Title Dixon Main Drain V-Drain Enlargement
Lead Agency Dixon Regional Watershed Joint Powers Authority

Type NOP Notice of Preparation

Description The proposed project includes the enlargement of the Dixon Main Drain, the enlargement of the V-Drain from Swan Road to the RD 2068 Intake Canal, the replacement of two 60-inch culverts along Swan Road with an engineered bridge (i.e., flatbed rail car) or reconstruction of the culverts and a concrete headwall, the removal of two agricultural weirs and replacement of one or both agricultural weirs, the relocation of a highline ditch and the replacement of the trash rack and sediment removal.

Lead Agency Contact

Name John S. Currey
Agency Dixon Regional Watershed Joint Powers Authority
Phone 707 678-1655 x105 **Fax**
email
Address 1170 N. Lincoln Street, Suite 110
City Dixon **State** CA **Zip** 95620

Project Location

County Solano
City Dixon
Region
Cross Streets Swan Road
Parcel No.
Township 6N **Range** 2E **Section** 15... **Base** MDBM

Proximity to:

Highways
Airports
Railways
Waterways Haas Slough, Duck Slough
Schools
Land Use The Dixon Main Drain and V-Drain as well as the RD2068 intake canal are currently in operation.

Project Issues Agricultural Land; Biological Resources; Drainage/Absorption; Flood Plain/Flooding; Sewer Capacity; Soil Erosion/Compaction/Grading; Toxic/Hazardous; Vegetation; Water Quality; Water Supply; Wetland/Riparian; Landuse; Cumulative Effects; Growth Inducing

Reviewing Agencies Resources Agency; Office of Historic Preservation; Department of Parks and Recreation; Reclamation Board; Department of Water Resources; Department of Fish and Game, Region 3; Delta Protection Commission; Native American Heritage Commission; Public Utilities Commission; Caltrans, District 4; State Water Resources Control Board, Clean Water Program; State Water Resources Control Board, Division of Water Rights; Regional Water Quality Control Bd., Region 5 (Sacramento)

Date Received 09/11/2007 **Start of Review** 09/11/2007 **End of Review** 10/10/2007

Note: Blanks in data fields result from insufficient

SCH# 2007092033

Resources Agency

- [ ] Resources Agency
  Nadell Gayou
- [ ] Dept. of Boating & Waterways
  David Johnson
- [ ] California Coastal Commission
  Elizabeth A. Fuchs
- [ ] Colorado River Board
  Gerald R. Zimmerman
- [ ] Dept. of Conservation
  Sharon Howell
- [ ] California Energy Commission
  Paul Richins
- [ ] Cal Fire
  Allen Robertson
- [ ] Office of Historic Preservation
  Wayne Donaldson
- [ ] Dept of Parks & Recreation
  Environmental Stewardship Section
- [ ] Reclamation Board
  DeeDee Jones
- [ ] S.F. Bay Conservation & Dev't. Comm.
  Steve McAdam
- [ ] Dept. of Water Resources
  Resources Agency
  Nadell Gayou
- [ ] _____
  Conservancy

Fish and Game

- [ ] Depart. of Fish & Game
  Scott Flint
  Environmental Services Division
- [ ] Fish & Game Region 1
  Donald Koch
- [ ] Fish & Game Region 1E
  Laurie Harnsberger
- [ ] Fish & Game Region 2
  Banky Curtis
- [ ] Fish & Game Region 3
  Robert Floerke
- [ ] Fish & Game Region 4
  Julie Vance
- [ ] Fish & Game Region 5
  Don Chadwick
  Habitat Conservation Program
- [ ] Fish & Game Region 6
  Gabrina Gatchel
  Habitat Conservation Program
- [ ] Fish & Game Region 6 I/M
  Gabrina Getchel
  Inyo/Mono, Habitat Conservation Program
- [ ] Dept. of Fish & Game M
  George Isaac
  Marine Region

Other Departments

- [ ] Food & Agriculture
  Steve Shaffer
  Dept. of Food and Agriculture
- [ ] Depart. of General Services
  Public School Construction
- [ ] Dept. of General Services
  Robert Sleppy
  Environmental Services Section
- [ ] Dept. of Health Services
  Veronica Malloy
  Dept. of Health/Drinking Water

Independent Commissions,Boards

- [ ] Delta Protection Commission
  Debby Eddy
- [ ] Office of Emergency Services
  Dennis Castrillo
- [ ] Governor's Office of Planning & Research
  State Clearinghouse
- [ ] Native American Heritage Comm.
  Debbie Treadway
- [ ] Public Utilities Commission
  Ken Lewis
- [ ] Santa Monica Bay Restoration
  Guangyu Wang
- [ ] State Lands Commission
  Jean Sarino
- [ ] Tahoe Regional Planning Agency (TRPA)
  Cherry Jacques

Business, Trans & Housing

- [ ] Caltrans - Division of Aeronautics
  Sandy Hesnard
- [ ] Caltrans - Planning
  Terri Pencovic
- [ ] California Highway Patrol
  Shirley Kelly
  Office of Special Projects
- [ ] Housing & Community Development
  Lisa Nichols
  Housing Policy Division

Dept. of Transportation

- [ ] Caltrans, District 1
  Rex Jackman
- [ ] Caltrans, District 2
  Marcelino Gonzalez
- [ ] Caltrans, District 3
  Jeff Pulverman
- [ ] Caltrans, District 4
  Tim Sable
- [ ] Caltrans, District 5
  David Murray
- [ ] Caltrans, District 6
  Marc Birnbaum
- [ ] Caltrans, District 7
  Cheryl J. Powell
- [ ] Caltrans, District 8
  Dan Kopulsky
- [ ] Caltrans, District 9
  Gayle Rosander
- [ ] Caltrans, District 10
  Tom Dumas
- [ ] Caltrans, District 11
  Mario Orso
- [ ] Caltrans, District 12
  Ryan P. Chamberlain

Cal EPA

Air Resources Board

- [ ] Airport Projects
  Jim Lerner
- [ ] Transportation Projects
  Ravi Ramalingam
- [ ] Industrial Projects
  Mike Tollstrup

- [ ] California Integrated Waste Management Board
  Sue O'Leary
- [ ] State Water Resources Control Board
  Regional Programs Unit
  Division of Financial Assistance
- [ ] State Water Resources Control Board
  Student Intern, 401 Water Quality Certification Unit
  Division of Water Quality
- [ ] State Water Resouces Control Board
  Steven Herrera
  Division of Water Rights
- [ ] Dept. of Toxic Substances Control
  CEQA Tracking Center
- [ ] Department of Pesticide Regulation

Regional Water Quality Control Board (RWQCB)

- [ ] RWQCB 1
  Cathleen Hudson
  North Coast Region (1)
- [ ] RWQCB 2
  Environmental Document Coordinator
  San Francisco Bay Region (2)
- [ ] RWQCB 3
  Central Coast Region (3)
- [ ] RWQCB 4
  Teresa Rodgers
  Los Angeles Region (4)
- [ ] RWQCB 5S
  Central Valley Region (5)
  - [ ] RWQCB 5F
    Central Valley Region (5)
    Fresno Branch Office
  - [ ] RWQCB 5R
    Central Valley Region (5)
    Redding Branch Office
- [ ] RWQCB 6
  Lahontan Region (6)
  - [ ] RWQCB 6V
    Lahontan Region (6)
    Victorville Branch Office
- [ ] RWQCB 7
  Colorado River Basin Region (7)
- [ ] RWQCB 8
  Santa Ana Region (8)
- [ ] RWQCB 9
  San Diego Region (9)

- [ ] Other _____

Last Updated on 09/11/07

Notice of Completion & Environmental Document Transmittal

For Hand Delivery/Street Address: 1400 Tenth Street, Sacramento, CA 95814

SCH # 2007092033

Project Title:

Dixon Main Drain V-Drain Enlargement

Lead Agency: Dixon Regional Watershed Joint Powers Authority | Contact Person: John S. Currey

Street Address: 1170 N. Lincoln Street, Suite 110 | Phone: (707) 678-1655 ext. 105

City: Dixon | Zip: 95620 | County: Solano

Project Location:

County: Solano | City/Nearest Community: Dixon

Cross Streets: Swan Road | Zip code: 95620

Assessor's Parcel No: | Section: 15, 16, 21, 22, 27, 28, 33, 34 | Twp: 6 N | Range: 2 E | Base: MDBM

Within 2 miles: State Hwy#: N/A | Waterways: Haas Slough, Duck Slough

Airports: N/A | Railways: N/A | Schools: N/A

RECEIVED
SEP 11 2007
STATE CLEARING HOUSE

Document Type:

CEQA:
- ☒ NOP
- ☐ Early Cons
- ☐ Neg Dec
- ☐ Mit Neg Dec
- ☐ Draft EIR
- ☐ Supplement to EIR
- ☐ Subsequent EIR
- ☐ Other:

NEPA:
- ☐ NOI
- ☐ EA
- ☐ Draft EIS
- ☐ FONSI

Other:
- ☐ Joint Document
- ☐ Final Document
- ☐ Other:

Local Action Type:
- ☐ General Plan Update
- ☐ General Plan Amendment
- ☐ General Plan Element
- ☐ Community Plan
- ☐ Specific Plan
- ☐ Master Plan
- ☐ Planned Unit Development
- ☐ Site Plan
- ☐ Rezone
- ☐ Prezone
- ☐ Use Permit
- ☐ Land Division (Subdivision, etc.)
- ☐ Annexation
- ☐ Redevelopment
- ☐ Coastal Permit
- ☒ Other: Approval of proposed alignment; Authorization of the submittal of bids for the proposed project

Development Type:
- ☐ Residential: *Units* _____ *Acres* _____
- ☐ Office: *Sq.ft.* _____ *Acres* _____ *Employees* _____
- ☐ Commercial: *Sq.ft.* _____ *Acres* _____ *Employees* _____
- ☐ Industrial: *Sq.ft.* _____ *Acres* _____ *Employees* _____
- ☐ Educational _____
- ☐ Recreational _____

Total Acres: (approx.) _____

- ☐ Water Facilities: *Type* _____ *MGD* _____
- ☐ Transportation: *Type* _____
- ☐ Mining: *Mineral* _____
- ☐ Power: *Type* _____ *MW* _____
- ☐ Waste Treatment: *Type* _____ *MGD* _____
- ☐ Hazardous Waste: *Type* _____
- ☒ Other: Enlargement of existing drainage facility

Project Issues That May Have A Significant Or Potentially Significant Impact:
- ☐ Aesthetic/Visual
- ☒ Agricultural Land
- ☐ Air Quality
- ☐ Archeological/Historical
- ☒ Biological Resources
- ☐ Coastal Zone
- ☒ Drainage/Absorption
- ☐ Economic/Jobs
- ☐ Fiscal
- ☒ Flood Plain/Flooding
- ☐ Forest Land/Fire Hazard
- ☐ Geologic/Seismic
- ☐ Minerals
- ☐ Noise
- ☐ Population/Housing Balance
- ☐ Public Services/Facilities
- ☐ Recreation/Parks
- ☐ Schools/Universities
- ☐ Septic Systems
- ☒ Sewer Capacity
- ☒ Soil Erosion/Compaction/Grading
- ☐ Solid Waste
- ☒ Toxic/Hazardous
- ☐ Traffic/Circulation
- ☒ Vegetation
- ☒ Water Quality
- ☒ Water Supply/Groundwater
- ☒ Wetland/Riparian
- ☒ Growth Inducement
- ☒ Land Use
- ☒ Cumulative Effects
- ☐ Other:

Present Land Use/Zoning/General Plan Designation: The Dixon Main Drain and V-Drain as well as the RD2068 intake canal are currently in operation.

Project Description: (*please use a separate page if necessary*) The proposed project includes the enlargement of the Dixon Main Drain, the enlargement of the V-Drain from Swan Road to the RD 2068 Intake Canal, the replacement of two 60-inch culverts along Swan Road with an engineered bridge (i.e., flatbed rail car) or reconstruction of the culverts and a concrete headwall, the removal of two agricultural weirs and replacement of one or both agricultural weirs, the relocation of a highline ditch and the replacement of the trash rack and sediment removal.

Edward S. Wineman
Post Office Box 109
Santa Maria, California 93456

October 1, 2007

John S Currey, AFM
District Manager
Dixon Regional Watershed Joint Powers Authority
1170 North Lincoln Street Ste 110
Dixon CA 95620

Re: Dixon Main Drain/V-drain Enlargement Project

Dear John

I am in receipt of your letter dated September 24, 2007, in which you mention our "wish list" for the project referred to above. I would like to clarify that regarding Item #4, I have no authority over this matter. You will have to reach an agreement with Christopher & William Wineman as it affects property that they own.

I have spoken with Johannah Bradley regarding Item #3. In my opinion, she is willing to work out a solution regarding the extra dirt. She mentioned that she would like to see a bridge crossing placed south of the south line of Section 27. For your reference, her contact information is as follows:

Johannah Bradley
350 Cameron
Santa Maria, CA 93455
805-937-3371

In so much that the project affects my property, I have no objection to the proposed design of your project. What was discussed in our meeting on September 21, 2007, and confirmed in your recent letter, is satisfactory with me. However, I wish to mention a few small concerns that I have at this time:

1. My irrigation ditch will have to be moved further west. The gates and pipes will have to be replaced so that I can continue to irrigate my pastures both during and after construction.

2. My pastures will have to be fenced along the east side so that the livestock can be kept out of the construction area.

3. I would like to see any trees removed because of the construction replanted or replaced with new ones.

4. You mentioned that the slope of the bank of the V-ditch would be designed so that it could be traveled with machinery and mowed when necessary. I would like to see this area kept fenced from livestock and left unmowed so that a wildlife habitat could exist. Perhaps some protective cover could be planted for quail. The money saved by not mowing could be used to purchase supplemental feed for the birds. If you want an idea of what this would look like, the first 1000 feet or so south of the bridges has not been grazed by livestock for more than five years.

This sums up my comments and suggestions at this time. I look forward to working with you to get this project rolling.

Sincerely,

Edward S Wineman

APPENDIX C

WEST YOST
ASSOCIATES
Consulting Engineers

June 22, 2006

Mr. John Currey
Secretary, Dixon Watershed Joint Powers Authority
Dixon Resource Conservation District
1170 North Lincoln Street, Suite 110
Dixon CA 95620

Project No.: 298-00-05-01

SUBJECT: Conceptual Design of the New South Channel, Enlarging the Dixon Main Drain and V-Drain, and the Three Mile Extension

Dear John:

West Yost Associates is pleased to present this conceptual design report (CDR). The City of Dixon (City), the Dixon Resource Conservation District, Reclamation District 2068, and the Main Prairie Water District have created the Dixon Regional Watershed Joint Powers Authority (JPA). The first project to be constructed by the JPA is the New South Channel (NSC, as identified in the JPA document) or a comparable channel. The goal of this CDR was to update the cost estimates for the NSC and evaluate an alternative alignment. The alternative alignment evaluated is enlarging the Dixon Main Drain and V-Drain (DMDVD). By comparing the NSC with the alternative alignment, this CDR is intended to identify a preferred alignment so that the project can proceed into detailed design.

This CDR presents sizing calculations and analysis of two different flow rates for both proposed alignments. A capacity of 375 cfs represents the flow rate identified in the JPA document that could be constructed with a grant of $1.1 million from the City (based on a cost estimate prepared in 2002). A capacity of 494 cfs is the flow rate needed south of Swan Road for the JPA recommended Eastside Drainage Project.

Lastly, this CDR is intended to present the final sizing calculations for the Three Mile Extension (3ME), based on regional planning work competed previously.

The locations of the Dixon Regional Watershed channels, including the 3ME, the NSC, the Dixon Main Drain (DMD), the RD 2068 V-Drain, the RD 2068 Intake Canal, and Hass Slough are shown on Figure 1. This CDR includes the following sections:

1. Spreadsheet analysis of the NSC for a capacity of 375 cfs and a capacity of 494 cfs.

1260 Lake Boulevard, Suite 240 Davis, California 95616 Phone 530 756-5905 Fax 530 756-5991 email: mail@westyost.com

2. Spreadsheet analysis of enlarging the Dixon Main Drain and V-Drain (DMDVD Alignment) as an alternative to the NSC for a capacity increase of 375 cfs and an increase of 494 cfs.
3. Evaluation of the capacity of the V-Drain under the railroad car bridge.
4. Spreadsheet analysis of the 3ME consistent with the JPA Recommended Eastside Drainage Project.
5. Cost estimates.
6. XP-SWMM modeling results.
7. A summary of environmental issues.
8. A comparison of alternatives and an alignment recommendation.
9. Outstanding issues.

SPREADSHEET ANALYSIS - NSC CAPACITY OF 375 CFS AND 494 CFS

NSC Capacity 375

Presented in Table 1 are calculations using Manning's equation to size the NSC for a capacity of just over 375 cfs. As shown, the channel would have a bottom width of 10 feet, side slopes of 4H:1V, a depth of 6.5 feet (water depth of 6 feet and a freeboard of 0.5 feet), a slope of 0.000497 ft/ft, and a Manning's n value of 0.040. This n-value is reasonable for a channel that will have standing water (from high tides) like the NSC will for much of its length. For this channel, the culvert crossings would include triple 60-inch culverts (or a hydraulically equivalent structure), with headwalls encasing the bell end of the pipe in the upstream headwall.

The material excavated from this channel would be stockpiled adjacent to the channel. The cross sectional area of the channel is 234 square feet. The stockpile would be 10 feet tall, with 2H:1V side slopes, and an 8-foot top width. The cross sectional area of the stockpile is about 280 square feet. The stockpile area is 20 percent larger than the channel area because the stockpile would not be compacted. The stockpile would be interrupted at road crossings and/or other possible locations. There would be a maintenance road 12 feet wide between the channel and the stockpile.

NSC Capacity 494 cfs

Presented in Table 2 are calculations using Manning's equation to size the NSC for a capacity of just over 494 cfs. In this case, the bottom width would be 18 feet instead of 10 feet, but the other channel dimensions would be the same as for the 375 cfs channel. The culvert crossings would include four 60-inch culverts (or a hydraulically equivalent structure). The stockpile would be 10 feet tall, with 2H:1V side slopes, and a 15-foot top width.

SPREADSHEET ANALYSIS - ENLARGING DIXON MAIN DRAIN AND V-DRAIN (DMDVD) TO AN INCREASED CAPACITY OF 375 CFS AND 494 CFS

DMDVD Capacity 375

Presented in Table 3 is a spreadsheet analysis of enlarging the Dixon Main Drain and V-Drain (DMDVD) Alignment to provide an increase in capacity of 375 cfs. In Table 3, the yellow lines represent culverts and the white lines represent open channels. This spreadsheet analysis assumes constant hydraulic grade line slopes along the entire lengths of DMD and V-Drain. It also excludes head losses at the culverts and at the railroad car bridge. Nevertheless, it represents a reasonable analysis for comparison with the spreadsheet analysis of the NSC.

Dixon Main Drain

For this spreadsheet analysis, the DMD was divided into three segments between the Swan Road Culverts and the V-Drain. With a Manning's n value of 0.040, the existing capacities of these segments were 198 cfs, 209 cfs, and 316 cfs (from upstream to downstream), with an average capacity of 240 cfs.

These capacities are reasonably consistent with the contractual discharge of 252 cfs from DRCD to RD 2068 at the end of the DMD. The capacities would be very close to the DRCD-RD 2068 contractual limit if a Manning's n value of 0.030 was used, however, it is not known what n-value was used in the original planning of the DMD. The value of 0.040 was used for this analysis to reflect the conditions that may actually occur (summertime flows that allow for significant weed growth) and to provide an equivalent comparison with the previous planning work for the NSC.

For planning the enlargement of the DMD, a target capacity of 615 cfs was used for the entire length of channel between the Swan Road Culverts and the V-Drain. This target capacity is 375 cfs greater than the average existing capacity of 240 cfs. There is very little additional tributary area along this reach of the DMD, so it is reasonable to provide a consistent capacity along this reach of channel. This increase in capacity would be achieved by providing a bottom width of 6 to 8 feet, increasing the channel depth by about 2 feet, and reducing the side slope of the south bank to 4H:1V. The north bank (next to Swan Road) would not be changed. The details of the channel enlargement are presented in Table 3.

V-Drain

For this spreadsheet analysis, the V-Drain was divided into eight segments between the Swan Road Culverts and the RD 2068 intake canal. With a Manning's n value of 0.040, the existing capacities of these segments ranged from 673 cfs to over 1,900 cfs, with an average capacity of 1,132 cfs.

For planning of the enlargement of the V-Drain, a target capacity of 1,518 cfs was used for the entire length of the V-Drain. This target capacity includes the average capacity of 1,132 cfs, the increase of 375 cfs, and 11 cfs for the runoff from the local tributary areas. This is not intended to place a limit on the runoff from the adjacent properties to 11 CFS. This increase in capacity would be achieved by providing a bottom width of 26 to 40 feet, increasing the channel depth at some locations by up to about 1.5 feet, and reducing the side slope of the west bank to 4H:1V.

The east bank (next to the RD 2068 Main Canal) would not be excavated. The details of the channel enlargement are presented in Table 3.

RD 2068 Intake Canal

The existing capacity of the RD 2068 Intake Canal ranges from about 1,730 cfs to over 4,000 cfs. This capacity is at least 212 cfs greater than the target capacity for the V-Drain, and would provide more than adequate capacity for the additional tributary area of less than 1.5 square miles. Consequently, based on this spreadsheet capacity analysis, no improvements would be required for the intake canal. At the discharge from the V-Drain to the Intake Canal, the V-Drain makes a 90 degree bend, which causes erosion of the channel bank and levee on the east side of the Intake Canal. The degree of the bend would be reduced significantly to reduce the erosion of east channel bank/levee.

DMD VD Capacity 494 cfs

Presented in Table 4 is a spreadsheet analysis for enlarging the DMDVD Alignment to provide an increase in capacity of 494 cfs. In Table 4, the yellow lines represent culverts and the white lines represent open channels.

Dixon Main Drain

For planning this enlargement of the DMD, a target capacity of 734 cfs was used for the entire length of channel between the Swan Road Culverts and the V-Drain. This target capacity is 494 cfs greater than the average existing capacity of 240 cfs. This increase in capacity would be achieved by providing a bottom width of 7.5 to 12.5 feet, increasing the channel depth by about 2 feet, and reducing the side slope of the south bank to 4H:1V. The north bank (next to Swan Road) would not be changed. The details of the channel enlargement are presented in Table 4.

V-Drain

For planning the enlargement of the V-Drain, a target capacity of 1,637 cfs was used for the entire length of the V-Drain. This target capacity includes the average capacity of 1,132 cfs, the increase of 494 cfs, and 11 cfs for the runoff from the local tributary areas. This increase in capacity would be achieved by providing a bottom width of 31 to 45 feet, increasing the channel depth at some locations by up to about 1.5 feet, and reducing the side slope of the west bank to 4H:1V. The east bank (next to the RD 2068 Main Canal) would not be changed. The details of the channel enlargement are presented in Table 4.

RD 2068 Intake Canal

The existing capacity of the RD 2068 intake canal ranges from about 1,730 cfs to over 4,000 cfs. Consequently, based on this spreadsheet capacity analysis, no improvements would be required for the intake canal. However, the degree of the bend in the V-drain at the discharge into the intake canal would be reduced significantly.

CAPACITY OF THE V-DRAIN UNDER THE RAILROAD CAR BRIDGE

The location of the existing private railroad car bridge over the V-drain is shown on Figure 1. Cross sections of the V-Drain at the upstream and downstream ends of the bridge are shown in Figure 2. Also shown on Figure 2 is a cross section of the V-Drain about 200 feet downstream of the bridge. The cross sectional area under the bridge is about 286 square feet.

Presented in Table 5 is a summary of the estimated head loss through the railroad car bridge along the V-Drain for flow rates of 1,132 cfs (average existing capacity of the V-Drain), 1,518 cfs (an increased capacity of 375 cfs), and 1,637 cfs (an increased capacity of 494 cfs). This analysis includes an entrance loss (based on a K_e of 0.2), a friction loss for flow under the bridge (with a Manning's n of 0.040) and an exit loss (based on K_{ex} of 1.0). Under existing conditions, for a flow rate of 1,132 cfs, the head loss under the bridge would be about 0.2 feet. For a flow rate of 1,518 cfs, and the V-Drain enlarged for this increased flow, the head loss for the bridge would be about 0.4 feet. For a flow rate of 1,637 cfs, and the V-Drain enlarged for this increased flow, the head loss for the bridge would be about 0.5 feet.

The available head loss for the hydraulic grade line along the length of the V-drain is about 6.5 feet. Even at a flow rate of 1,637 cfs, the head loss through this bridge represents less than 10 percent of the available head. This headloss could be included in the spreadsheet capacity analyses presented above without significantly changing the findings of the analyses.

As shown in Table 5, the water velocity for this range of flows ranges 4.0 to 5.7 feet per second. This velocity exceeds the typical maximum flow rate for earth lined channels of about 4 to 5 feet per second. The sides of the channel under the bridge are concrete, and can withstand this higher velocity. The channel bottom should be over excavated and riprap should be placed to prevent erosion of the channel bottom.

Consequently, it is concluded that the bridge provides adequate conveyance capacity for the range of flows that are under consideration, and the bridge does not need to be replaced.

SPREADSHEET ANALYSIS - 3ME CONSISTENT WITH THE JPA RECOMMENDED EASTSIDE DRAINAGE PROJECT

Presented in Table 6 is a spreadsheet analysis of the 3ME that is consistent with the planning of the JPA Recommended Eastside Drainage Project. In Table 6, the yellow lines represent culverts and the white lines represent open channels. As shown, targeted channel capacities range from 344 cfs to 474 cfs. The actual channel capacities rage from 343 cfs to over 500 cfs. This channel would have bottom widths of 4 to 12 feet, side slopes of about 2H:1V on the east side (along Sikes Road) and 4H:1V on the west side. The channel would have depths of 6 to 7 feet. The actual channel capacities exceed the target capacities somewhat to ensure that the channel continues to get larger moving downstream as additional areas drain into the channel.

The culverts upstream of Radio Station Road would be double barrel 72-inch RCP culverts (or an equivalent other structure if adequate cover is not available). The Radio Station Road and downstream culverts would be triple 72-inch RCP culverts (or an equivalent structure). Conspan Bridge structures were also considered for this channel, but the cost for the bridges was about

5 percent higher than for the pipes. A cost differential of 5 percent is within the error of this level of cost estimating. Consequently, if there are reasons to shift to the Conspan bridges as the project progresses through detailed design, the cost differential would not be significant.

COST ESTIMATES

Construction and total capital cost estimates for the NSC with capacities of 375 cfs and 494 cfs are presented in Tables 7 and 8. As shown in Table 7, the total estimated capital cost for the NSC with a capacity of 375 cfs is $1.55 million. As shown in Table 8, the total estimated capital cost for the NSC with a capacity of 494 cfs is $1.81 million. These cost estimates include costs for construction of the channel and culverts, a sediment basin, and revegetation of the disturbed areas. The cost estimated does not include contingency (to be consistent with the agreement in the JPA document).

Construction and total capital cost estimates for the DMDVD Alignment with increases in capacity of 375 cfs and 494 cfs are presented in Tables 9 and 10. As shown in Table 9, the total capital cost for an increase in capacity of 375 cfs is $1.74 million. As shown in Table 10, the total capital cost for an increase of capacity of 494 cfs is $1.90 million. These cost estimates include costs for construction of the channel and culverts, a sediment basin, and revegetation of the disturbed areas. The cost estimated does not include contingency (to be consistent with the agreement in the JPA document).

Both the NSC and the DMDVD alignments cross existing underground transmission pipelines for oil, fuel and gas and other utilities. The NSC alignment crosses these utilities at the old railroad crossing and the DMDVD alignment crosses them at Swan Road. The depth of the existing pipelines at the crossings cannot be determined from the available as built information, so the extent of any conflicts cannot be determined at this time. Both alignments also cross smaller existing utilities. Existing utilities will need to be located in the in field in order to determine the extent of the conflict with the proposed channels. An allowance of $80,000 for Existing Facilities Conflicts is included in the cost estimate for both alignments. This cost could increase or decrease depending on the actual depth of the existing facilities at the crossing. Because the major potential for conflict for both alignments is with the same transmission pipelines, it has been assumed that the cost will be the same with both alignments.

Attachment A presents a cost comparison for use of multi-barrel 60-inch RCPs versus using Conspan precast bridges. As shown by this analysis, the cost of the Conspan bridges is about 6 to 21 percent lower than 60-inch RCPs. Attachment A also compares the cost of using multi barrel corrugated metal pipe (CMP) versus multi barrel RCPs. As discussed in Attachment A the initial construction cost with CMPs is 20 to 29 percent lower than RCPs, however the CMPs will most likely require replacement at least once over the project's design life. When replacement cost is included, the CMP option is actually 15 to 20 percent higher than the CMP.

These cost estimates for the DMDVD Alignment include costs for purchasing easements in addition to the existing easements. At this time, documentation of the width of existing easements for the DMD has not been located, and it has been assumed that an easement over the entire channel will be required. For the V-Drain, the existing easement covers both the main canal and the V-Drain (Mike Hardesty, December 28, 2005), and includes:

- For 1 mile south of Swan Road, the easement is 182.5 feet. The width of the main canal, from toe to toe is about 180 feet, so it has been assumed that the easement covers the main canal, and does not cover the V-Drain. For this reach, it has been assumed that an easement covering the entire V-Drain and stockpile will be needed.
- From 1.0 to 1.75 miles south of Swan Road, the easement gradually increases in width from 182.5 to 280 feet. In this reach, the main canal and the V-drain have a combined width of about 250 feet. For this reach, it has been assumed that, on the average, there is an easement covering the eastern 50 feet of the V-drain, and an additional easement is needed.
- From 1.75 miles south of Swan Road to about the RD 2068 pumping plant, the easement width is 280 feet. In this reach, the main canal and the V-drain have a combined width of about 250 to 270 feet. In this reach, it has been assumed that the existing easement covers 100 feet of the V-Drain, and an additional easement is needed.
- South of the RD 2068 pumping plant, the easement width is 250 feet. The intake canal and levee range in width from about 200 to 240 feet. For this reach, it has been assumed that the existing easement covers 30 feet of the V-Drain, and an additional easement is needed.

At this time, RD 2068 may own easements beyond those identified above, but documentation of additional easements has not yet been located. The unit cost for acquiring easement was estimated to be $7,000 per acre. No appraisals of property valves were done for either alignment.

The level of accuracy for cost estimates in the planning stages of a project is plus or minus 20 percent. In these estimates several factors contribute to the level of accuracy. As stated above, the extent of conflicts with existing utilities cannot be determined at this time. The height of groundwater in the different areas has not been verified through geotechnical investigation, so assumptions made in the estimates as to the amount of wet and dry excavation will have an impact on the estimated cost. Also, additional easement documentation may be located for the V-Drain. Cost of construction will fluctuate with the economy as will the cost of land and easement acquisition.

The estimated cost of the DMDVD Alignment is 11 percent higher than the estimated cost of the NSC for capacities of 375 cfs and 5 percent higher for capacities of 494 cfs. The difference in cost between the two alignments falls within the level of accuracy of the estimate; therefore, the project cost for the two alignments is essentially the same.

Presented in Table 11 are construction and total capital cost estimates for the 3ME. As shown, the estimated construction cost is $790,000 and the estimated capital cost is $1.28 million. The construction cost includes an $80,000 allowance for relocating one half to one mile of existing gas feeder pipeline. The actual cost for this work could increase or decrease. The pipeline will need to be located in the field in order to determine the extent of any conflicts. It is also possible that the owner of the pipeline would be obligated to relocate it (or a section of it) free of charge. The total capital cost includes $252,000 for purchase of easements. If existing easements can be documented and if the easements are adequate for enlarging the channel, then this cost would be reduced.

The project costs for the DMDVD, the NSC, and the 3ME could be reduced by eliminating the wingwalls/headwalls from the project designs.

XP-SWMM MODEL RESULTS

Preliminary modeling results for the DMDVD Alignment are presented in Attachment B. These results include profiles of the DMD, V-Drain, and RD 2068 Intake Canal (from the Swan Road Culverts to Hass Slough).

- Attachment B1 presents a profile for existing conditions with a steady state flow of 240 cfs in the DMD and a steady state flow of 775 cfs in the V-Drain. A tail water elevation in Hass Slough of 8.5 feet was assumed, which represents a very high tide, but not flooding of the Yolo Bypass. A Manning's n value of 0.040 was used. As shown, at this flow rate the walkway over the V-Drain would have been overtopped by about 1.5 feet. The private railroad car bridge would have had about 1.6 feet of freeboard.
- Attachment B2 presents a profile for existing conditions with a steady state flow of 240 cfs in the DMD and a steady state flow of 1,132 cfs in the V-Drain. A tail water elevation in Hass Slough of 8.5 feet was assumed. A Manning's n value of 0.040 was used. As shown, at this flow rate the walkway over the V-Drain would have been overtopped by about 2.6 feet. The private railroad car bridge would have had about 0.4 feet of freeboard.
- Attachment B3 presents a profile for the DMDVD Alignment with the capacity increased by 375 cfs, with a steady state flow of 615 cfs in the DMD and a steady state flow of 1,518 cfs in the V-Drain. A tail water elevation in Hass Slough of 8.5 feet was assumed. A Manning's n value of 0.040 was used. As shown, at this flow rate the walkway over the V-Drain would have been overtopped by about 0.6 feet. The private railroad car bridge would have had less than 0.1 foot of freeboard.

ENVIRONMENTAL ISSUES

An evaluation of potential biological resources was prepared by Jones and Stokes to help determine if the NSC or DMDVD alignments would present significantly different potential biological impacts. In the *Biological Resource Evaluation for the New South Channel Project* (December 2005) it was determined that for most biological/permitting issues, the alignments are not significantly different. However, there is potential vernal pool fairy shrimp habitat along the NSC Alignment and none along the DMDVD Alignment. Similarly, it was determined that there is potential California tiger salamander habitat along the NSC Alignment and none along the DMDVD Alignment. These are minor differences in potential habitat, the actual presence of the species was not determined. It was concluded that given the level of evaluation, in terms of biological resources, the DMDVD Alignment and the NSC Alignment are not significantly different.

COMPARISON OF NSC AND DMDVD ALIGNMENT

A comparison of the NSC and DMDVD are presented in Table 12. As discussed above, the costs for the two alignments are essentially the same.

Based on cost and other technical issues such as channel performance and biological issues there is no clearly preferred alignment. Several of issues are the same with both alignments but the issue will affect different landowners or entities. An example of this is the difficulty of acquiring right-of-way.

Please call if you have any questions or comments.

Sincerely,

WEST YOST ASSOCIATES

Douglas T. Moore
Principal Engineer

DTM:nmp

attachments

ATTACHMENT A

Comparison of BridgeTek Conspan Bridge Systems with Multi-Barrel Culverts

Provided in A1 through A6 are cost comparison of BridgeTek Conspan Bridge Systems with multi-barrel 60-inch culverts. These comparisons are discussed below.

- Table A1 – This table provides a comparison for a 32-foot road crossing using triple 60-inch RCP culverts versus a single 6-foot by 14-foot Conspan Bridge.

  The cost of culverts is based on $5 per inch diameter per lineal foot. Also included is the cost for cast in place headwalls. As shown, the total cost for the pipe crossing is $52,800. Twin 72-inch pipes were also considered, but they would not provide quite the same capacity as triple 60-inch pipes, may present problems achieving adequate cover, and would only cost slightly less than the equivalent Conspan unit.

  The selected Conspan bridge structure provides about the same flow area (for all Conspan bridges, it was assumed that the bridge footings would be buried 1 foot deep) as the triple culverts, but because the Conspan unit is a single barrel, the capacity of the Conspan unit would be about 10 percent greater than the RCP culverts (typical of all the Conspan units in these comparisons). As shown, the cost for the Conspan unit is about $49,700, which is about 6 percent lower than the cost of the pipe crossing. However, at this level of analysis, this cost differential is essentially insignificant.

  Table A1 also shows initial construction cost if corrugated metal pipe (CMP) is used in place of RCP. The cost of CMP pipe is based on approximately $3 per inch diameter per lineal foot. Construction costs using CMP are about 20% less than RCP. However, the life expectancy of CMP is less than half that of RCP. The CMP will most likely require replacement at least once over the projects' design life. If the cost of pipe replacement in present dollars is included, the cost of the CMP alternative is 15% greater than that of the RCP alternative.

- Table A2 – This table provides a comparison for an 80-foot road crossing using triple 60-inch RCP culverts versus a single 6-foot by 14-foot Conspan bridge. As shown, the cost for the Conspan unit is about 7 percent lower than the cost of the pipe crossing. However, at this level of analysis, this cost differential is essentially insignificant. If CMP is used initial construction cost is reduced by 27%, however, CMP will most likely require replacement at least once over the projects' design life. If the cost of pipe replacement in present dollars is included, the cost of the CMP alternative is 20% greater than that of the RCP alternative.

- Table A3 – This table provides a comparison for a 32-foot road crossing using five 60-inch RCP culverts versus a single 7-foot by 20-foot Conspan bridge. As shown, the cost for the Conspan unit is about 6 percent lower than the cost of the pipe crossing. However, at this level of analysis, this cost differential is essentially insignificant. If CMP is used initial construction cost is reduced by 21%, however, CMP will most likely require replacement at least once over the projects' design life. If the cost of pipe replacement in present dollars is included, the cost of the CMP alternative is 15% greater than that of the RCP alternative.

- Table A4 – This table provides a comparison for an 80-foot road crossing using five 60-inch RCP culverts versus a single 7-foot by 20-foot Conspan bridge. As shown, the cost for the Conspan unit is about 15 percent lower than the cost of the pipe crossing. If CMP is used initial construction cost is reduced by 28%, however, CMP will most likely require replacement at least once over the projects' design life. If the cost of

pipe replacement in present dollars is included, the cost of the CMP alternative is 20% greater than that of the RCP alternative.

- Table A5 – This table provides a comparison for a 32-foot road crossing using six 60-inch RCP culverts versus a single 7-foot by 24-foot Conspan bridge. As shown, the cost for the Conspan unit is about 13 percent lower than the cost of the pipe crossing. If CMP is used initial construction cost is reduced by 22%, however, CMP will most likely require replacement at least once over the projects' design life. If the cost of pipe replacement in present dollars is included, the cost of the CMP alternative is 16% greater than that of the RCP alternative.
- Table A6 – This table provides a comparison for an 80-foot road crossing using six 60-inch RCP culverts versus a single 7-foot by 24-foot Conspan bridge. As shown, the cost for the Conspan unit is about 21 percent lower than the cost of the pipe crossing. If CMP is used initial construction cost is reduced by 29%, however, CMP will most likely require replacement at least once over the projects' design life. If the cost of pipe replacement in present dollars is included, the cost of the CMP alternative is 21% greater than that of the RCP alternative.

Use of Conspan bridges appears to provide a moderate cost savings (6 to 20 percent) over use of equivalent area RCP pipes. Additionally, the Conspan bridge units would provide slightly more capacity than the pipe systems since the Conspan Bridge units are a single barrel (versus multi-barrels).

Use of Railroad car bridges was considered in the December 2002 *New South Channel Conceptual Design Report* prepared for the Solano County Water Agency, and it was concluded that use of Railroad car bridges was not cost efficient in comparison to piped systems. Based on updated railroad car bridge costs, the previous conclusion appears to still be valid.

Based on this analysis, Conspan Bridge units have been included in the conceptual design of the NSC and DMDVD and have been included in the NSC and DMDVD cost estimates.

Table A1. Cost Comparison of Triple 60-inch Culverts with a 6-foot by 14-foot BridgeTek Conspan System for a 32-foot Road Crossing

Item	Unit	Unit Cost, dollars	Quantity	Cost, dollars
Triple 60-Inch Concrete Culvert for a 32-foot Road Crossing				
60-inch RCP (including pavement replacement)	LF	300.00	96	28,800
Headwall	LF	12,000.00	2	24,000
Subtotal				52,800
Triple 60-Inch CMP Culvert for a 32-foot Road Crossing				
60-inch RCP (including pavement replacement)	LF	190.00	96	18,240
Headwall	LF	12,000.00	2	24,000
Subtotal				42,240
BridgeTech Conspan 6' x 14' Bridge, Length = 32 feet (effective flow area is equal to triple 60-inch culverts)	Lump Sum	22,600.00	1	22,600
BridgeTech Conspan 6' x 14' wingwalls	LF	8,600.00	2	17,200
Strip footing for bridge and wingwalls	LF	50.00	64	3,200
Excavation	CY	10.00	171	1,707
Pavement Replacement	SF	8.00	624	4,992
Subtotal				49,699

Table A2. Cost Comparison of Triple 60-inch Culverts with a 6-foot by 14-foot BridgeTek Conspan System for a 80-foot Road Crossing

Item	Unit	Unit Cost, dollars	Quantity	Cost, dollars
Triple 60-Inch Concrete Culvert for a 32-foot Road Crossing				
60-inch RCP (including pavement replacement)	LF	300.00	240	72,000
Headwall	LF	12,000.00	2	24,000
Subtotal				96,000
Triple 60-Inch CMP Culvert for a 32-foot Road Crossing				
60-inch CMP (including pavement replacement)	LF	190.00	240	45,600
Headwall	LF	12,000.00	2	24,000
Subtotal				69,600
BridgeTech Conspan 6' x 14' Bridge, Length = 32 feet (effective flow area is equal to triple 60-inch culverts)	Lump Sum	53,900.00	1	53,900
BridgeTech Conspan 6' x 14' wingwalls	LF	8,600.00	2	17,200
Strip footing for bridge and wingwalls	LF	50.00	200	10,000
Excavation	CY	10.00	356	3,556
Pavement Replacement	SF	8.00	624	4,992
Subtotal				89,648

Table A3. Cost Comparison of Five 60-inch Culverts with a 7-foot by 20-foot BridgeTek Conspan System for a 32-foot Road Crossing

Item	Unit	Unit Cost, dollars	Quantity	Cost, dollars
Triple 60-Inch Concrete Culvert for a 32 foot Road Crossing				
60-inch RCP (including pavement replacement)	LF	300.00	160	48,000
Headwall	LF	18,000.00	2	36,000
Subtotal				84,000
Triple 60-Inch CMP Culvert for a 32 foot Road Crossing				
60-inch CMP (including pavement replacement)	LF	190.00	160	30,400
Headwall	LF	18,000.00	2	36,000
Subtotal				66,400
BridgeTech Conspan 7' x 20' Bridge, Length = 32 feet (effective flow area is equal to five 60-inch culverts)	Lump Sum	29,200.00	1	29,200
BridgeTech Conspan 7' x 20' wignwalls	LF	18,000.00	2	36,000
Strip footing for bridge and wingwalls	LF	50.00	100	5,000
Excavation	CY	10.00	213	2,133
Pavement Replacement	SF	8.00	780	6,240
Subtotal				78,573

Table A4. Cost Comparison of Five 60-inch Culverts with a 7-foot by 20-foot BridgeTek Conspan System for a 80-foot Road Crossing

Item	Unit	Unit Cost, dollars	Quantity	Cost, dollars
Triple 60-Inch Culvert for a 32 foot Road Crossing				
60-inch RCP (including pavement replacement)	LF	300.00	400	120,000
Headwall	LF	18,000.00	2	36,000
Subtotal				156,000
Triple 60-Inch Culvert for a 32 foot Road Crossing				
60-inch CMP (including pavement replacement)	LF	190.00	400	76,000
Headwall	LF	18,000.00	2	36,000
Subtotal				112,000
BridgeTech Conspan 7' x 20' Bridge, Length = 80 feet (effective flow area is equal to five 60-inch culverts)	Lump Sum	73,000.00	1	73,000
BridgeTech Conspan 6' x 14' wignwalls	LF	18,000.00	2	36,000
Strip footing for bridge and wingwalls	LF	50.00	200	10,000
Excavation	CY	10.00	640	6,400
Pavement Replacement	SF	8.00	780	6,240
Subtotal				131,640

Table A5. Cost Comparison of Six 60-inch Culverts with a 7-foot by 24-foot BridgeTek Conspan System for a 32-foot Road Crossing

Item	Unit	Unit Cost, dollars	Quantity	Cost, dollars
Triple 60-Inch Concrete Culvert for a 32 foot Road Crossing				
60-inch RCP (including pavement replacement)	LF	300.00	192	57,600
Headwall	LF	20,000.00	2	40,000
Subtotal				97,600
Triple 60-Inch CMP Culvert for a 32 foot Road Crossing				
60-inch CMP (including pavement replacement)	LF	190.00	192	36,480
Headwall	LF	20,000.00	2	40,000
Subtotal				76,480
BridgeTech Conspan 7' x 24' Bridge, Length = 32 feet (effective flow area is equal to six 60-inch culverts)	Lump Sum	32,300.00	1	32,300
BridgeTech Conspan 7' x 24' wignwalls	Each	19,000.00	2	38,000
Strip footing for bridge and wingwalls	LF	50.00	100	5,000
Excavation	CY	10.00	242	2,418
Pavement Replacement	SF	8.00	884	7,072
Subtotal				84,790

Table A6. Cost Comparison of five 60-inch Culverts with a 7-foot by 24-foot BridgeTek Conspan System for a 80-foot Road Crossing

Item	Unit	Unit Cost, dollars	Quantity	Cost, dollars
Triple 60-Inch Concrete Culvert for a 32 foot Road Crossing				
60-inch RCP (including pavement replacement)	LF	300.00	480	144,000
Headwall	LF	18,000	2	36,000
Subtotal				180,000
Triple 60-Inch CMP Culvert for a 32 foot Road Crossing				
60-inch CMP (including pavement replacement)	LF	190.00	480	91,200
Headwall	LF	18,000	2	36,000
Subtotal				127,200
BridgeTech Conspan 7' x 24' Bridge, Length = 80 feet (effective flow area is equal to six 60-inch culverts)	Lump Sum	80,800	1	80,800
BridgeTech Conspan 7' x 24' wignwalls	Each	19,000	2	38,000
Strip footing for bridge and wingwalls	LF	50	200	10,000
Excavation	CY	10.00	604	6,044
Pavement Replacement	SF	8.00	884	7,072
Subtotal				141,916

ATTACHMENT B

Preliminary Model Results

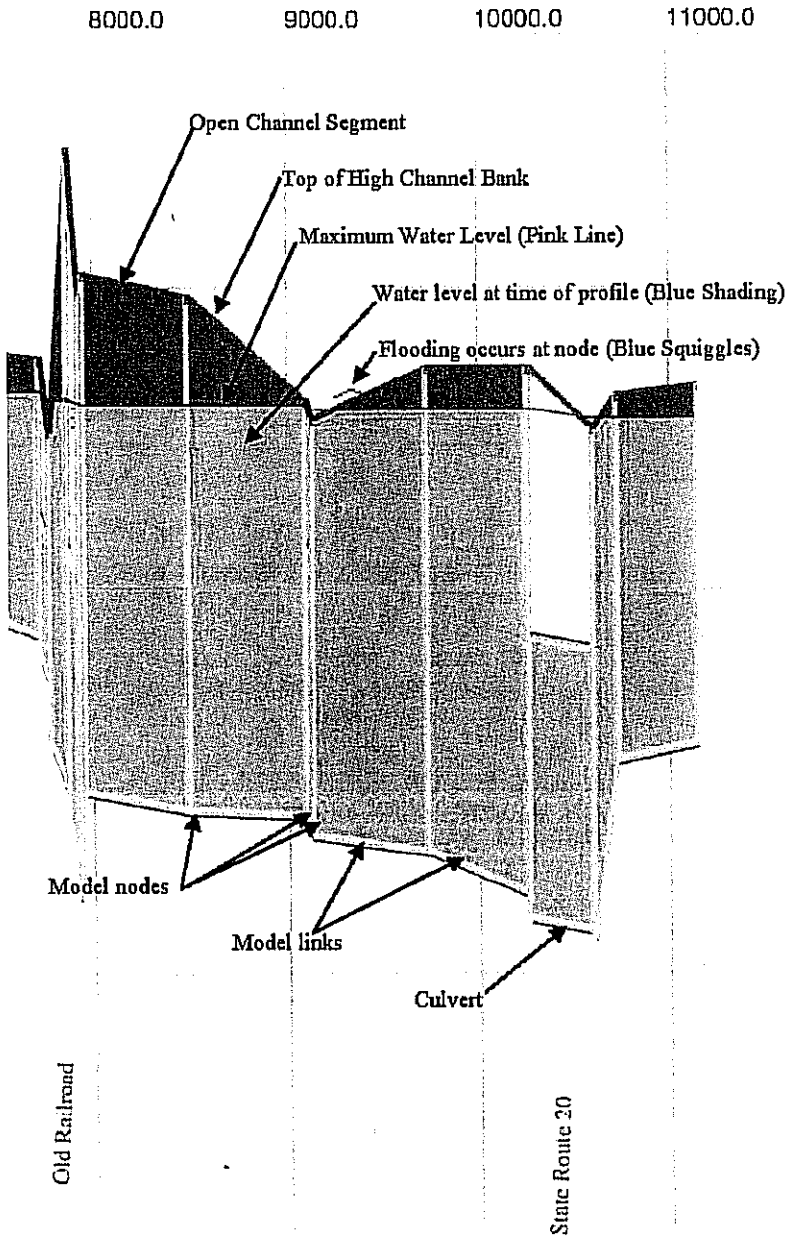


Table 1. Spreadsheet Analysis of NSC for a Capacity of 375 cfs.

Required Channel Variables			
Channel bottom width, feet	10		
Left Side Slopes (H:V)	4.00	:	1
Right Side Slopes (H:V)	4.00	:	1
Channel Slope, ft/ft	0.000497		
Manning's n	0.040		
Estimated Depth, feet	6.00		
Channel Results			
Flow Area, square feet	204		
Wet Perimeter, feet	59.5		
Hydraulic Radius, feet	3.43		
Velocity, feet/second	1.89		
Flow, cfs	385		
Top Width, feet	58		
Culverts			
Culvert Crossing	Triple 60-Inch		
Area of Single 60-Inch, square feet	19.6		
Area of Triple 60-Inch, square feet	58.8		
Velocity, feet/second	6.4		
Headloss, feet	0.8		

Table 2. Spreadsheet Analysis of NSC for a Capacity of 494 cfs.

Required Channel Variables			
Channel bottom width, feet	18		
Left Side Slopes (H:V)	4.00	:	1
Right Side Slopes (H:V)	4.00	:	1
Channel Slope, ft/ft	0.000497		
Manning's n	0.040		
Estimated Depth, feet	6.00		
Channel Results			
Flow Area, square feet	252		
Wet Perimeter, feet	67.5		
Hydraulic Radius, feet	3.73		
Velocity, feet/second	2.00		
Flow, cfs	504		
Top Width, feet	66		
Culverts			
Culvert Crossing	Four 60-Inch		
Area of Single 60-Inch, square feet	19.6		
Area of Triple 60-Inch, square feet	78.4		
Velocity, feet/second	6.3		
Headloss, feet	0.8		

Table 5. Evaluation of Headloss Through Existing Railroad Car Bridge over the V-Drain

Flow Condition	Flow Rate, cfs	Water Velocity under Bridge, fps	Friction Loss HGL Slope	Friction Loss, feet	Entrance Loss (Ke =0.2)	Water Velocity at Section 515, fps	Exit Loss (Kex = 1)	Total Head Loss for Bridge
Average Existing Capacity	1132	3.95	0.0011	0.022	0.049	2.40	0.153	0.20
Plus 375	1507	5.26	0.0019	0.038	0.086	2.50	0.333	0.42
Plus 494	1626	5.68	0.0022	0.044	0.100	2.50	0.404	0.51

Table 7. Preliminary Cost Estimate for the New South Channel with a Capacity of 375 cfs

Item	Unit	Unit Cost, dollars	Quantity	Cost, dollars
1. BridgeTech Conspan 6' x 14' Bridge (effective flow area is equal to triple 60-inch culverts)	LF	895	56	50,120
2. Channel from Swan Road to Abandoned RR Tressle (2,500 feet)	CY	3.50	21,667	75,833
3. Channel from RR Tressle to Binghampton Road (1,300 feet)	CY	3.50	11,267	39,433
4. BridgeTech Conspan 6' x 14' Bridge (effective flow area is equal to triple 60-inch culverts)	LF	895	32	28,640
5. Channel Just East of Bunker Station Road (1,900 feet)	CY	3.50	16,467	57,633
6. BridgeTech Conspan 6' x 14' Bridge (effective flow area is equal to triple 60-inch culverts)	LF	895	32	28,640
7. Channel Just West of Bunker Station Road (4,600 feet)	CY	3.50	39,867	139,533
8. BridgeTech Conspan 6' x 14' Bridge (effective flow area is equal to triple 60-inch culverts)	LF	895	32	28,640
9. Channel to Hass Slough Access Road (3,200 feet, wet excavation)	CY	6.00	26,000	156,000
10. Connect to Hass Slough (wet excavation)	CY	6.00	1,733	10,400
11. Headwalls/Wingwalls	Each	12,000	8	96,000
12. Existing Facilities Conflicts	Lump Sum	80,000	1	80,000
13. Sediment Basin	CY	3.50	26,000	91,000
14. Vegetative Erosion Control	Acre	2,000	41	81,180
Subtotal (rounded up)				970,000
Right of Way	Acre	7,000	41	284,131
Environmental Evaluation/Mitigation and Permitting @ 10 %				97,000
Engineering, Administration, Legal @ 20 %				194,000
Total (rounded up)				1,550,000

Table 8. Preliminary Cost Estimate for the New South Channel with a Capacity of 494 cfs

Item	Unit	Unit Cost, dollars	Quantity	Cost, dollars
1. BridgeTech Conspan 7' x 14' Bridge (effective flow area is equal to five 60-inch culverts)	LF	1,070	56	59,920
2. Channel from Swan Road to Abandoned RR Tressle (2,500 feet)	CY	3.50	26,481	92,685
3. Channel from RR Tressle to Binghampton Road (1,300 feet)	CY	3.50	13,770	48,196
4. BridgeTech Conspan 7' x 14' Bridge (effective flow area is equal to five 60-inch culverts)	LF	1,070	32	34,240
5. Channel Just East of Bunker Station Road (1,900 feet)	CY	3.50	20,126	70,441
6. BridgeTech Conspan 7' x 14' Bridge (effective flow area is equal to five 60-inch culverts)	LF	1,070	32	34,240
7. Channel Just West of Bunker Station Road (4,600 feet)	CY	3.50	48,726	170,541
8. BridgeTech Conspan 7' x 14' Bridge (effective flow area is equal to five 60-inch culverts)	LF	1,070	32	34,240
9. Channel to Hass Slough Access Road (3,200 feet, wet excavation)	CY	6.00	31,778	190,667
10. Connect to Hass Slough (wet excavation)		6.00	2,119	12,711
11. Headwalls/Wingwalls	Each	15,000	8	120,000
12. Existing Facilities Conflicts	Lump Sum	80,000	1	80,000
13. Sediment Basin	CY	3.50	31,778	111,222
14. Vegetative Erosion Control	Acre	2,000	45	89,198
Subtotal (rounded up)				1,150,000
Right of Way	Acre	7,000	45	312,194
Environmental Evaluation/Mitigation and Permitting @ 10 %				115,000
Engineering, Administration, Legal @ 20 %				230,000
Total (rounded up)				1,810,000

Table 9. Preliminary Cost Estimate for the DMDVD Alignment with a Capacity Increase of of 375 cfs

Item	Unit	Unit Cost, dollars	Quantity	Cost, dollars
Dixon Main Drain Improvements				
1. BridgeTech Conspan 7' x 20' Bridge at Swan Road (effective flow area is equal to five 60-inch culverts)	LF	1,200	64	76,800
2. BridgeTech Conspan 7' x 20' Bridge at Private Road (effective flow area is equal to five 60-inch culverts)	CY	1,200	32	38,400
3. Channel Excavation from Swan Road to V-Drain (dry excavation)	CY	3.50	20,500	71,750
4. Headwalls/Wingwalls	Each	18,000	4	72,000
5. Relocate Existing Private Pump	Each	5,000	1	5,000
6. Existing Facilities Conflicts	Lump Sum	80,000	1	80,000
7. Vegetative Erosion Control	acre	2,000	5.9	11,800
DMD Construction Cost (rounded up)				360,000
V-Drain Improvements				
8. Channel Excavation (Assumed 50% dry excavation)	CY	3.50	46,700	163,450
9. Channel Excavation (Assumed 50% wet excavation)	CY	6.00	46,700	280,200
10. Check Dam in V-Drain near Swan Road	Lump Sum	20,000	1	20,000
11. Sediment Basin	CY	3.50	30,000	105,000
12. Sediment Basin Inlet and Outlet (BridgeTech Conspan 6' x 14' Bridge, no headwalls)	LF	895	48	42,960
13. Reconstruct Irrigation Channel	CY	5	20,000	100,000
14. Vegetative Erosion Control	Acre	2,000	54	108,000
V-Drain Construction Cost				820,000
Construction Cost Total				1,180,000
DMD Right-of-Way/Easement	acre	7,000	5.3	37,100
V-Drain Right-of-Way/Easement	Acre	7,000	23.5	164,500
Environmental Evaluation/Mitigation and Permitting @ 10 %				118,000
Engineering, Administration, Legal @ 20 %				236,000
Total (rounded up)				1,740,000

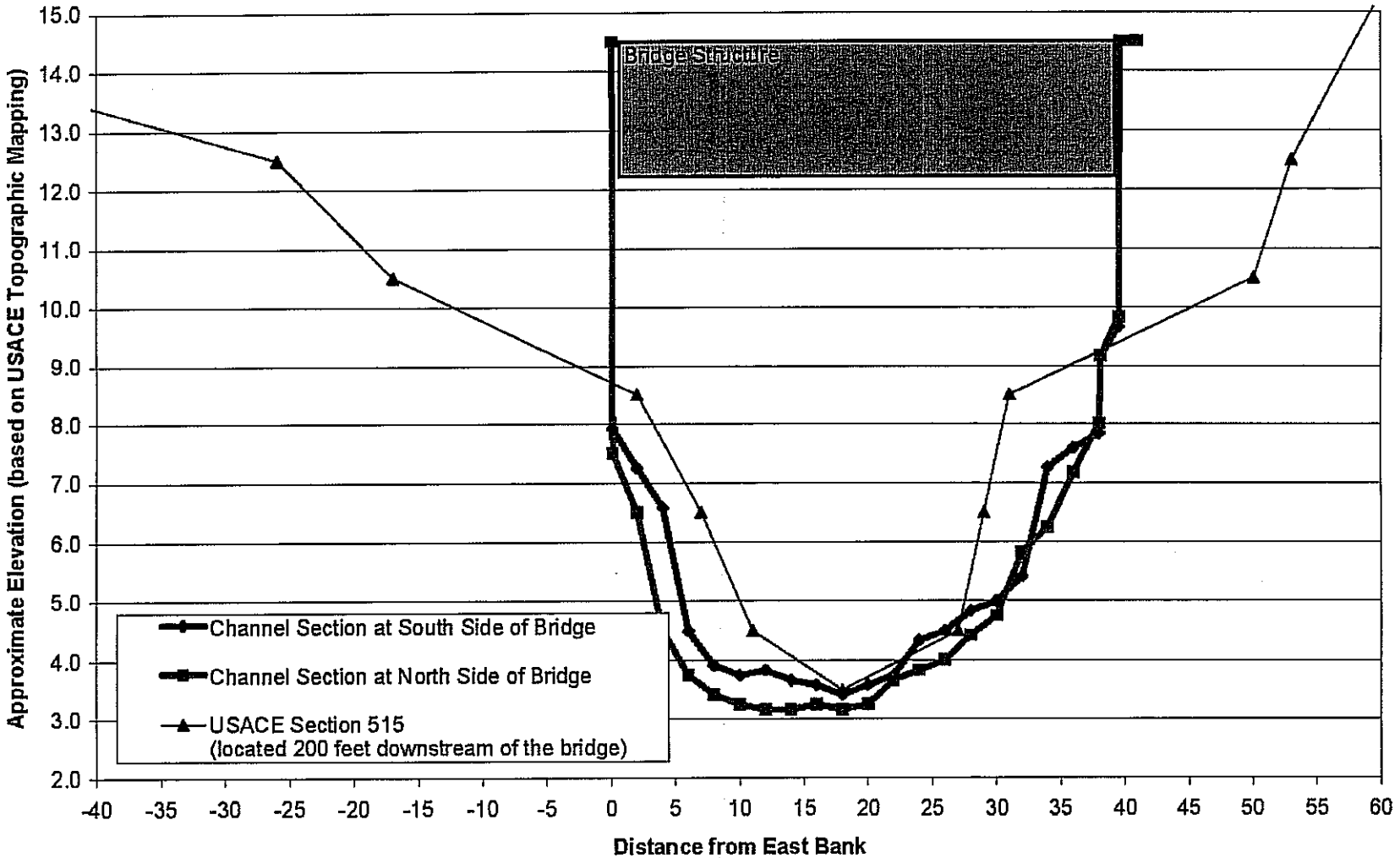
Table 10. Preliminary Cost Estimate for the DMDVD Alignment with a Capacity Increase of of 494 cfs

Item	Unit	Unit Cost, dollars	Quantity	Cost, dollars
Dixon Main Drain Improvements				
1. BridgeTech Conspan 7' x 24' Bridge at Swan Road (effective flow area is equal to six 60-inch culverts)	LF	1,300	64	83,200
2. BridgeTech Conspan 7' x 24' Bridge at Private Road (effective flow area is equal to six 60-inch culverts)	CY	1,300	32	41,600
3. Channel Excavation from Swan Road to V-Drain (dry excavation)	CY	3.50	24,900	87,150
4. Headwalls/Wingwalls	Each	19,000	4	76,000
5. Relocate Existing Private Pump	Each	5,000	1	5,000
6. Existing Facilities Conflicts	Lump Sum	80,000	1	80,000
7. Vegetative Erosion Control	acre	2,000	6.5	13,000
DMD Construction Cost				390,000
V-Drain Improvements				
8. Channel Excavation (Assumed 50% dry excavation)	CY	3.50	58,400	204,400
9. Channel Excavation (Assumed 50% wet excavation)	CY	6.00	58,400	350,400
10. Check Dam in V-Drain near Swan Road	Lump Sum	20,000	1	20,000
11. Sediment Basin	CY	3.50	35,000	122,500
12. Sediment Basin Inlet and Outlet (BridgeTech Conspan 6' x 14' Bridge, no headwalls)	LF	895	48	42,960
13. Reconstruct Irrigation Channel	CY	5	20,000	100,000
14. Vegetative Erosion Control	Acre	2,000	34.1	68,200
V-Drain Construction Cost				910,000
Construction Cost Total				1,300,000
DMD Right-of-Way/Easement	acre	7,000	5.6	39,200
V-Drain Right-of-Way/Easement	Acre	7,000	23.6	165,200
Environmental Evaluation/Mitigation and Permitting @ 10 %				130,000
Engineering, Administration, Legal @ 20 %				260,000
Total (rounded up)				1,900,000

Table 11. Preliminary Cost Estimate for the Three Mile Extension

Item	Unit	Unit Cost, dollars	Quantity	Cost, dollars
1. Twin 72-Inch Culverts	LF	456	128	58,337
2. Triple 72-Inch Culverts	CY	360	288	103,680
3. Headwalls for Twin Culverts	Each	14,000	4	56,000
4. Headwalls for Triple Culverts	Each	16,000	6	96,000
5. Channel Excavation	CY	3.50	61,300	214,550
6. Relocate Existing Irrigation Channel	CY	5.00	6,000	30,000
7. Field Drains	Each	1,000	8	8,000
8. Existing Facilities Conflicts	Lump Sum	80,000	1	80,000
9. Vegetative Erosion Control	Acre	2,000	36	72,000
10. Contingency at 10 percent	Lump Sum	71,857	1	71,857
Subtotal (rounded up)				790,000
Right of Way	Acre	7,000	36	252,000
Environmental Evaluation/Mitigation and Permitting @ 10 %				79,000
Engineering, Administration, Legal @ 20 %				158,000
Total (rounded up)				1,280,000

Figure 2. Railroad Car Bridge Over the V-Drain



Dixon Main Drain and V-Drain Enlargement

SCH# 2007092033

Final Environmental Impact Report

Prepared For
Dixon Regional Watershed Joint Powers Authority

February 2009

Prepared By
Raney

RANEY
PLANNING & MANAGEMENT, INC.

FINAL ENVIRONMENTAL IMPACT REPORT
Dixon Main Drain and V-Drain Enlargement

State Clearing House # 2007092033

Lead Agency

Dixon Regional Watershed Joint Powers Authority
1170 N. Lincoln Street, Suite 110
Dixon, CA 95620

Contact:
John Currey
(707) 678-1655

Prepared By

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(916) 372-6100

Contact:
Cindy Gnos, AICP
Vice President

Rod Stinson
Assistant Division Manager

February 2009

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CHAPTER **PAGE**

1. Introduction and List of Commenters

1 INTRODUCTION AND LIST OF COMMENTERS

1.0 INTRODUCTION

This Final Environmental Impact Report (FEIR) contains public and agency comments received during the public review period of the Dixon Main Drain and V-Drain Enlargement Draft Environmental Impact Report (DEIR). This document has been prepared by the Dixon Regional Watershed Joint Powers Authority (JPA), as lead agency, in accordance with the California Environmental Quality Act (CEQA) and Guidelines (Section 15132). Chapter 1 discusses the background of the DEIR, organization of the FEIR, and lists the comment letters received.

1.1 BACKGROUND

The Dixon Main Drain and V-Drain Enlargement Draft EIR contained the following environmental analysis sections:

- Land Use and Agricultural Uses;
- Biological Resources;
- Hydrology, Water Quality, and Drainage;
- Public Services and Utilities;
- Alternatives; and
- Statutorily Required Sections.

The JPA used several methods to solicit public input on the DEIR. Methods included the distribution of a Notice of Preparation on October 4, 2008, a public scoping meeting on October 4, 2007, and the distribution of the DEIR for a 45-day comment period from October 3, 2008 to November 17, 2008. The DEIR was distributed to applicable public agencies, responsible agencies, and interested individuals. Copies of the document were made available at the public counter of the Dixon Regional Watershed JPA, located at 1170 N. Lincoln Street, Suite 110, Dixon, California.

1.2 ORGANIZATION OF THE FINAL EIR

The FEIR is organized into the following chapters:

1. Introduction and List of Commenters
Chapter 1 provides an introduction and overview of the document, describing the background and organization of the FEIR. Chapter 1 also provides a list of commenters who submitted letters in response to the DEIR.

2. Responses to Comments
Chapter 2 presents all of the comment letters received, and responses to each comment. Each

comment letter received has been numbered at the top and then bracketed to indicate how the letter has been divided into individual comments. Each comment is given a number with the letter number appearing first, followed by the comment number. For example, the first comment in Letter 1 would have the following format: 1-1.

3. Mitigation Monitoring Plan
The Mitigation Monitoring Plan in Chapter 3 includes a description of the requirements of the California Environmental Quality Act. The intent of the Mitigation Monitoring Plan is to prescribe and enforce the proper and successful implementation of the mitigation measures as identified within the Environmental Impact Report for this project.

1.3 LIST OF COMMENTERS

The following comment letters were received during the comment period for the Dixon Main Drain and V-Drain Enlargement DEIR:

1.4 RECIRCULATION

The California Environmental Quality Act requires recirculation of an EIR when significant new information is added to the EIR after public notice is given of the availability of the DEIR for public review, but before circulation (Section 15088.5). New information is not "significant" unless the EIR is changed in a way that deprives the public of a meaningful opportunity to comment upon a substantial adverse environmental effect of the project or a feasible way to mitigate or avoid such an effect (Section 15088.5).

Because this FEIR did not result in the identification of any new significant environmental impacts, or a substantial increase in the severity of an environmental impact, this FEIR does not contain "significant new information," and recirculation of the DEIR is not required prior to approval.

2. Responses to Comments

2 RESPONSES TO COMMENTS

This chapter includes responses to each of the two comment letters received on the Dixon Main Drain and V-Drain Enlargement Draft Environmental Impact Report (EIR). Each bracketed comment letter is followed by numbered responses to each bracketed comment.

Letter 1

12 November 2008

RECEIVED
NOV 14 2008
By

Dixon Regional Watershed JPA
C/O John Currey,
1170 N. Lincoln St, Ste.110
Dixon, CA 95620

Dear Mr. Currey,

1-1 Thank you for your prompt delivery of the Dixon Main Drain Draft E I R. I am very much in favor of private property rights without a number of restrictions.

1-2 My concern with the enlargement of the drainage area is the unnecessarily wide easement. On the phone you mentioned you could mow weeds instead of spraying herbicides with the wider easement. In my experience mowing just drags weeds and weed seeds from one property to another while spraying doesn't spread noxious weed seeds.

1-3 Another concern is that mowing could kill nesting pheasants, a prized hunting bird in the area. Often the pheasant hide in the weeds and mowing could kill or maim them.

1-4 I do not object to increasing the size of the ditch, I do however object to the width of the easement. Please reconsider the plan.

Sincerely,

Eleanor Truocchio

Eleanor Truocchio
2485 Bull Cyn. Rd.
Santa Maria, CA 93454
(805) 925-1615

LETTER 1: ELEANOR TRUOCCHIO

Response to Comment 1-1

The comment provides an introduction to the letter and does not address the adequacy of the Draft EIR. The commenter's concerns in regards to private property rights will be forwarded to the decisionmakers for their consideration.

Response to Comment 1-2

The comment does not address the adequacy of the Draft EIR. The commenter raises concern regarding the width of the easement. The JPA has taken a number of factors into consideration in the project design, including minimizing the impacts to adjacent property owners, long-term maintenance, as well as the potential agency permitting and mitigation requirements

The channel cross section was designed so that the channel can be reasonably maintained. The side slopes are at 4 horizontal to 1 vertical to permit mowing of the banks, thus minimizing maintenance with an excavator and the spraying of chemical herbicides. The portion of the channel that is upstream of tidal influence has a low flow channel. This low flow channel minimizes the normal condition wetted perimeter thereby reducing weed pressures and enabling the majority of the channel to dry out sufficiently to allow mowing. This channel cross section configuration will significantly reduce the long-term maintenance cost of the channel as well as allowing better maintenance access. The cross section is designed to reduce erosion potential and increase the probability of establishing grass cover above the water line. In addition, the 4:1 slopes are typically viewed more favorably by the permitting and regulatory agencies and may minimize the need for additional biological mitigation.

The commenter further notes the difference between spraying and mowing weeds. The commenter does not raise concerns about the adequacy of the Draft EIR, but rather the maintenance and operation of the proposed project. These concerns will be forwarded to the decision makers for their consideration.

Response to Comment 1-3

Pheasants are not a protected species; therefore, the Draft EIR did not address impacts to pheasants. The commenter's concerns in regards to the impacts of mowing on nesting pheasants will be forwarded to the decisionmakers for their consideration.

Response to Comment 1-4

The comment expresses support of the project but identifies concerns regarding the width of the easement. The comment does not address the adequacy of the Draft EIR and will be forwarded to the decisionmakers for their consideration.

Edward S. Wineman
Post Office Box 109
Santa Maria, California 93456

Letter 2

RECEIVED
OCT 29 2008
By

October 27, 2008

John F Currey, District Manager
Dixon Resource Conservation District
1170 North Lincoln, Suite 110
Dixon, CA 95620

Re: Dixon Main Drain and V-Drain Project

Dear John:

In my past conversations with you, I have, at various times, requested a copy of the construction design details for the Dixon Main Drain Project. So far, I have not received this from you, the engineers nor anyone else involved with the project. Recently, I received a notice of intent to appraise along with a project map from Garland and Associates. This map outlines the existing easements and the additional area that you wish to acquire for the proposed ditch.

2-1

After reviewing the map and considering other information that I do have regarding the project, I see no justifiable reason for the new easement to be the width that is indicated on the project map. I feel that the proposed 4 to 1 bank slope (which is supposed to be for mowing equipment to operate) is a complete waste of usable land. The ditch bank should be no wider than a slope that is safe for construction purposes in order to maximize the land that will still be usable for agricultural purposes once the ditches are in place. Currently, I run over 1000 head of livestock in the pastures adjacent to the existing and proposed ditch. These animals have been and can easily continue to graze the ditch banks even if they are built at a much steeper slope than what has been proposed.

I see no reason to continue negotiating with the District regarding other matters related to the project easement, until you are willing to address and resolve this issue to my satisfaction.

Sincerely,

Edward S Wineman

LETTER 2: EDWARD S. WINEMAN

Response to Comment 2-1

The commenter notes that construction design details have been requested of the District but not received. The commenter further raises concerns regarding the width of the easement that is required in order to accommodate the bank slope. The commenter notes that the easement should be minimized to maximize agricultural use. The Draft EIR addresses agricultural resources in Chapter 4.1. The Draft EIR concludes that the proposed project would result in a less-than-significant impact related to the loss of agricultural land. The commenter's concerns do not directly address the adequacy of the Draft EIR; however, they are important for the decisionmakers to consider and will be forwarded.

3. Mitigation Monitoring Plan

3 MITIGATION MONITORING PLAN

3.0 INTRODUCTION

Section 15097 of the California Environmental Quality Act (CEQA) requires all state and local agencies to establish monitoring or reporting programs for projects approved by a public agency whenever approval involves the adoption of either a "mitigated negative declaration" or specified environmental findings related to environmental impact reports.

The following is the Mitigation Monitoring Plan (MMP) for the Dixon Main Drain and V-Drain Enlargement project. The project as approved includes mitigation measures. The intent of the MMP is to prescribe and enforce a means for properly and successfully implementing the mitigation measures as identified within the Environmental Impact Report for this project. Unless otherwise noted, the cost of implementing the mitigation measures as prescribed by this MMP shall be funded by the Dixon Regional Watershed Joint Powers Authority (JPA).

3.1 MITIGATION MONITORING PLAN

The MMP contained herein is intended to satisfy the requirements of CEQA as they relate to the Environmental Impact Report for the Dixon Main Drain and V-Drain Enlargement project prepared by the Dixon Regional Watershed Joint Powers Authority (JPA). This MMP is intended to be used by JPA staff and mitigation monitoring personnel to ensure compliance with mitigation measures during project implementation. Mitigation measures identified in this MMP were developed in the Environmental Impact Report prepared for the proposed project.

The Dixon Main Drain and V-Drain Enlargement project Environmental Impact Report presents a detailed set of mitigation measures that will be implemented throughout the lifetime of the project. Mitigation is defined by CEQA as a measure which:

- Avoids the impact altogether by not taking a certain action or parts of an action;
- Minimizes impacts by limiting the degree or magnitude of the action and its implementation;
- Rectifies the impact by repairing, rehabilitating, or restoring the impacted environment;
- Reduces or eliminates the impact over time by preservation and maintenance operations during the life of the project; or
- Compensates for the impact by replacing or providing substitute resources or environments.

The intent of the MMP is to ensure the effective implementation and enforcement of adopted mitigation measures and permit conditions. The MMP will provide for monitoring of

construction activities as necessary and in-the-field identification and resolution of environmental concerns.

Monitoring and documenting the implementation of mitigation measures will be coordinated by the JPA. The table attached to this report identifies the mitigation measure, the monitoring action for the mitigation measure, the responsible party for the monitoring action, and timing of the monitoring action. The contractor will be responsible for fully understanding and effectively implementing the mitigation measures contained within the MMP. The JPA will be responsible for ensuring compliance.

During construction of the project, the JPA and project contractor will coordinate with the local, State, and federal agencies who are responsible for mitigation measure compliance. The project contractor will report to the JPA and will be thoroughly familiar with permit conditions and the MMP. In addition, the project contractor will be familiar with construction contract requirements, construction schedules, standard construction practices, and mitigation techniques. In order to track the status of mitigation measure implementation, field-monitoring activities will be documented on compliance monitoring report worksheets. The time commitment of the contractor will vary depending on the intensity and location of construction. Aided by the attached table, the inspector will be responsible for the following activities:

- On-site, day-to-day monitoring of construction activities;
- Reviewing construction plans and equipment staging/access plans to ensure conformance with adopted mitigation measures;
- Ensuring contractor knowledge of and compliance with the MMP;
- Verifying the accuracy and adequacy of contract wording;
- Having the authority to require correction of activities that violate mitigation measures, securing compliance with the MMP;
- Acting in the role of contact for property owners or any other affected persons who wish to register observations of violations of project permit conditions or mitigation. Upon receiving any complaints, the project contractor shall immediately contact the JPA. The JPA shall be responsible for verifying any such observations and for developing any necessary corrective actions in consultation with the construction representative and the any applicable local, State, or federal agencies;
- Obtaining assistance as necessary from technical experts in order to develop site-specific procedures for implementing the mitigation measures; and
- Maintaining a log of all significant interactions, violations of permit conditions or mitigation measures, and necessary corrective measures.

3.2 MITIGATION MONITORING PLAN

The following plan indicates the mitigation measure number, the impact the measure is designed to address, the mitigation, the monitoring agency, implementation schedule, and an area for sign-off indicating compliance.

MITIGATION MONITORING PLAN DIXON MAIN DRAIN AND V-DRAIN ENLARGEMENT						
Impact Number	**Impact**	**Mitigation Measure**		**Monitoring Agency**	**Implementation Schedule**	**Sign-off**
4.2 Biological Resources						
4.2-1	Impacts to jurisdictional waters.	*4.2-1(a)*	*Once the wetland delineation has been confirmed by the Corps, the extent of the Corps and RWQCB jurisdiction within the project area will be known, and the extent of impacts to waters of the United States/State can be ascertained. If the Corps determines that there are areas of the project site subject to their jurisdiction, prior to filling any of these jurisdictional areas the project proponents shall obtain a permit from the Corps and RWQCB.* *Based on the confirmed map, jurisdictional wetland areas shall be avoided by the project where possible. Because full avoidance of waters of the United States is not possible, potential impacts shall be minimized to the extent feasible through changes to project design. In addition, during construction activities, Best Management Practices shall be utilized to protect preserved wetlands and ensure water quality in wetlands and other waters within the watershed. Utilization of BMPs shall include, but not be limited to, the*	U.S. Corps of Engineers (USACE) Regional Water Quality Control Bureau (RWQCB) Dixon Regional Watershed Joint Powers Authority (JPA)	Prior to filling jurisdictional wetlands and during construction activities.	

MITIGATION MONITORING PLAN DIXON MAIN DRAIN AND V-DRAIN ENLARGEMENT						
Impact Number	**Impact**	**Mitigation Measure**		**Monitoring Agency**	**Implementation Schedule**	**Sign-off**
			installation of orange construction fencing and the use of straw wattles.			
		4.2-1(b)	*The proposed project will mitigate for impacts to waters of the United States/State by creating a minimum of two times the square footage of impacted wetlands and other waters in areas that are now considered to be upland. This is a two to one (2:1) (mitigation to impacts) ratio and is consistent with requirements set forth by the USACE and the RWQCB. The new wetlands and other waters shall resemble the wetlands and other waters affected by the project.*	USACE RWQCB	Prior to filling jurisdictional wetlands.	
		4.2-1(c)	*Prior to the approval of Improvement Plans, a Streambed Alteration Agreement will be obtained from the CDFG before any in-stream construction activities commence. The agreement will contain additional minimization and mitigation measures.*	CDFG	Prior to approval of Improvement Plans.	
4.2-2	Impacts to non-anadromous fish.	*4.2-2*	*Prior to construction, Section 7 consultation between the Corps and the U.S. Fish and Wildlife Service would be required to address potential impacts to Delta smelt. Avoidance measures would include a seasonal work window. In-*	USACE U.S. Fish and Wildlife Service (USFWS)	Prior to and during construction activities.	

MITIGATION MONITORING PLAN DIXON MAIN DRAIN AND V-DRAIN ENLARGEMENT					
Impact Number	**Impact**	**Mitigation Measure**	**Monitoring Agency**	**Implementation Schedule**	**Sign-off**
		water work would be allowed seasonally between May 1st and October 15th. Seasonal avoidance measures prescribed by the USFWS in an incidental take permit authorized for the project for Delta smelt would effectively reduce impacts to all non-anadromous fish that could occur within the project area. Implementation of this restricted work window between May 1st and October 15th for any channel work would reduce impacts to Delta smelt and other non-anadromous fish species to less-than-significant levels. *As noted above, during construction activities, Best Management Practices shall be implemented to minimize water quality impacts downstream from the work areas. Temporary instream sediment traps will be installed immediately downstream from the construction area so that all suspended sediments in the water will be contained in order to reduce impacts to fisheries habitat downstream. In addition, the existing pump station located at the southern extent of the project will be employed to further capture suspended*			

MITIGATION MONITORING PLAN DIXON MAIN DRAIN AND V-DRAIN ENLARGEMENT					
Impact Number	**Impact**	**Mitigation Measure**	**Monitoring Agency**	**Implementation Schedule**	**Sign-off**
		sediments, thereby essentially eliminating any potential for downstream sedimentation impacts to fisheries habitat.			
4.2-3	Impacts to the giant garter snake.	*4.2-3* *Prior to any construction activities, a formal habitat assessment for the giant garter snake that follows USFWS guidelines shall be prepared by a qualified biologist and submitted to the USFWS. If the USFWS determines that the project site does not provide suitable habitat for the giant garter snake, no further regard for this species would be required.* *If USFWS determines that the project site provides habitat for the giant garter snake formal consultation between the USACE and the USFWS, pursuant to Section 7 of FESA, would be necessary to obtain an "incidental take" for the project. In addition, if the USFWS determines that the project site provides habitat for the giant garter snake, any mitigation measures prescribed in the USFWS's Biological Opinion shall become conditions of project approval.*	USFWS	Prior to construction activities.	
4.2-4	Impacts to Pacific pond turtle.	*4.2-4(a)* *Turbidity barriers shall be installed around the construction areas to reduce*	CDFG	Prior to and during	

MITIGATION MONITORING PLAN
DIXON MAIN DRAIN AND V-DRAIN ENLARGEMENT

Impact Number	Impact	Mitigation Measure	Monitoring Agency	Implementation Schedule	Sign-off
		impacts to pond turtles that may occur downstream. All Pacific pond turtles encountered during work activities in the channel would be salvaged, per CDFG approval, and relocated to preserved off-site habitats.		construction activities.	
		4.2-4(b) *Preconstruction surveys for Pacific pond turtles and their nests shall be conducted 30 days prior to any construction. If nest sites are located adjacent to a proposed work area, the nest site plus a 50-foot buffer around the nest site shall be fenced to avoid impacts to the eggs or hatchlings that over-winter at the nest site. In addition, if nest(s) are located during surveys, mothballs (naphthalene) should be sprinkled around the vicinity of the nest (not closer than 10 feet) to mask human scent and discourage predators.* *Construction at the nest site and within the 50-foot buffer area shall be delayed until the young leave the nest (this could be a period of many months) or as otherwise advised and directed by CDFG, the agency responsible for overseeing the protection of the pond turtle.*	CDFG	30 days prior to construction activities.	

MITIGATION MONITORING PLAN DIXON MAIN DRAIN AND V-DRAIN ENLARGEMENT						
Impact Number	**Impact**	**Mitigation Measure**		**Monitoring Agency**	**Implementation Schedule**	**Sign-off**
		4.2-4(c)	*Prior to any construction activities, translocation of any nestling pond turtles shall be completed by a qualified biologist under the direction of CDFG. In addition, CDFG may require mitigation for any impacts to the turtle's habitat following completion of nesting. The project applicant shall implement any CDFG requirements that are included as conditions of project approval.*	CDFG	Prior to construction activities.	
4.2-5	Impacts to white-tailed kite and northern harrier.	*4.2-5*	*In order to avoid impacts to nesting raptors, a nesting surveys shall be conducted prior to commencing with construction work, if this work would commence between February 1st and August 31st .The raptor nesting surveys shall include examination of all trees within 500 feet of the entire project site, not just trees slated for removal. (These surveys would be conducted concurrently with the western burrowing owl surveys – see Mitigation Measure 4.2-7(a) below).* *If nesting raptors are identified during the surveys, the dripline of the nest tree must be fenced with orange construction fencing (provided the tree is on the project site), and a 200-foot radius around the nest tree must be staked with bright orange lath or other suitable*	CDFG	Prior to and during construction activities.	

MITIGATION MONITORING PLAN DIXON MAIN DRAIN AND V-DRAIN ENLARGEMENT					
Impact Number	**Impact**	**Mitigation Measure**	**Monitoring Agency**	**Implementation Schedule**	**Sign-off**
		staking. If the tree is located off the project site, then the buffer shall be demarcated per above where the buffer occurs on the project site. The size of the buffer may be altered if a qualified raptor biologist conducts behavioral observations and determines the nesting raptors are well acclimated to disturbance. If this occurs, the raptor biologist shall prescribe a modified buffer that allows sufficient room to prevent undue disturbance/harassment to the nesting raptors. No construction or earth-moving activity shall occur within the established buffer until it is determined by a qualified raptor biologist that the young have fledged (that is, left the nest) and have attained sufficient flight skills to avoid project construction zones. This typically occurs by July 15th. This date may be earlier or later, and would have to be determined by a qualified raptor biologist. If a qualified biologist is not hired to watch the nesting raptors then the buffers shall be maintained in place through the month of August and work within the buffer can commence September 1st.			

MITIGATION MONITORING PLAN
DIXON MAIN DRAIN AND V-DRAIN ENLARGEMENT

Impact Number	Impact	Mitigation Measure		Monitoring Agency	Implementation Schedule	Sign-off
4.2-6	Impacts to Swainson's hawk foraging habitat.	*4.2-6(a)*	*Prior to the initiation of the proposed project, the applicant shall conduct nesting surveys for Swainson's hawk. (These surveys would be conducted concurrently with the western burrowing owl surveys – see Mitigation Measure 4.2-7(a) below).*	CDFG	Prior to construction activities.	
		4.2-6(b)	*If Swainson's hawks are found to be nesting on or within the area of influence of the project (within 1,000 feet of the project) when the proposed project will be implemented, impacts to nesting Swainson's hawks would be regarded as significant. Accordingly, consultation with CDFG and mitigation compensation will be required. At that time, the necessity of acquiring a Fish and Game Section 2081 management authorization will be determined.*	CDFG	Prior to construction activities.	
		4.2-6(c)	*If the CDFG requires mitigation for impacts to potential Swainson's hawk foraging habitat, the applicant may purchase mitigation credits commensurate with the acreage of impacts to foraging and/or nesting habitat at a CDFG approved Swainson's hawk mitigation bank, such as the Jenny*	CDFG	Prior to construction activities.	

MITIGATION MONITORING PLAN DIXON MAIN DRAIN AND V-DRAIN ENLARGEMENT						
Impact Number	**Impact**	**Mitigation Measure**		**Monitoring Agency**	**Implementation Schedule**	**Sign-off**
			Farms Conservation Bank, as approved by CDFG.			
4.2-7	Impacts to burrowing owl nesting and foraging habitat.	*4.2-7*	*A protocol survey shall be conducted to assess the presence of burrowing owls on the project site. The project site and a 150 meter (approximately 500 ft.) buffer (where possible based on habitat) should be surveyed to assess the presence of burrowing owls and their habitat. The survey should be conducted in accordance with the survey requirements detailed in the California Department of Fish and Game's Staff Report on Burrowing Owl Mitigation (CDFG 1995). Surveys shall be conducted in both breeding season (April 15-July 15) and non-breeding season (December-January), for a total of four surveys, to assess use of the project site by this species.* *If burrowing owls are found on the project site during the non-breeding season (September 1 through January 31), impacts to burrowing owls will be avoided by establishing a fenced 160-foot buffer (50 meters) between the nest site (i.e., the active burrow) and any earth-moving activity or other disturbance on*	CDFG	Prior to construction activities.	

MITIGATION MONITORING PLAN DIXON MAIN DRAIN AND V-DRAIN ENLARGEMENT					
Impact Number	**Impact**	**Mitigation Measure**	**Monitoring Agency**	**Implementation Schedule**	**Sign-off**
		the project site. *If burrowing owls are detected on the site during the breeding season (peak of the breeding season is April 15 through July 15), and appear to be engaged in nesting behavior, a fenced 250-foot buffer (75 meters) would be required between the nest site (i.e. the active burrows) and any earth-moving activity or other disturbance on the project site. This 250-foot buffer could be removed once it is determined by a qualified raptor biologist that that young have fledged (that is, left the nest). Typically, the young fledge by August 31st. This date may be earlier than August 31st, or later, and would have to be determined by a qualified raptor biologist.* *If the earlier surveys do not identify burrowing owls in the project area, preconstruction surveys will still be required. Preconstruction surveys of the project site shall be conducted no more than 30 days prior to ground disturbing activities. If more than 30 days lapse between the time of the preconstruction survey and the start of ground-disturbing*			

MITIGATION MONITORING PLAN DIXON MAIN DRAIN AND V-DRAIN ENLARGEMENT					
Impact Number	**Impact**	**Mitigation Measure**	**Monitoring Agency**	**Implementation Schedule**	**Sign-off**
		activities, another preconstruction survey must be completed. *If occupied burrows are found within 160 feet of the proposed project area during the non-breeding season, and may be impacted, passive relocation measures will be implemented according to the Burrowing Owl Consortium Guidelines (BOC 1993). Passive relocation shall not commence before September 30th and shall be completed prior to February 1st of any given year. These activities shall be approved by CDFG in advance. After passive relocation, the project site and vicinity will be monitored by a qualified biologist daily for one week and once per week for an additional two weeks to document where the relocated owls move. A report detailing the results of the monitoring will be submitted to CDFG within two months of the relocation.* *If burrowing owls were found occupying burrows on the project site, a qualified raptor biologist shall delineate the extent of burrowing owl habitat on the site. To mitigate impacts to burrowing owls, the applicant shall implement mitigation*			

MITIGATION MONITORING PLAN DIXON MAIN DRAIN AND V-DRAIN ENLARGEMENT						
Impact Number	**Impact**	**Mitigation Measure**		**Monitoring Agency**	**Implementation Schedule**	**Sign-off**
			measures required by the CDFG. As approved by CDFG, the applicant could purchase mitigation credits at a CDFG-approved burrowing owl mitigation bank, such as the Jenny Farms Conservation Bank.			
4.2-8	Impacts to loggerhead shrike, tricolored blackbird, and other nesting passerine birds.	*4.2-8(a)*	*If construction or earth-moving activities associated with the proposed project would commence between March 15th and August 31st, the applicant shall ensure that nesting surveys for special-status birds, such as the loggerhead shrike and the tricolored blackbird, are conducted 30 days prior to the commencement of construction activities. (These surveys would be conducted concurrently with the western burrowing owl surveys – see Mitigation Measure 4.2-7(a) above).*	CDFG	30 days prior to construction activities.	
		4.2-8(b)	*If special-status birds, such as loggerhead shrike or tricolored blackbird, are identified within the project site during the nesting surveys, a 100-foot radius around the nest must be staked with orange construction fencing or other suitable staking. Construction or earth-moving activities shall not occur*	CDFG	During construction activities.	

MITIGATION MONITORING PLAN DIXON MAIN DRAIN AND V-DRAIN ENLARGEMENT					
Impact Number	**Impact**	**Mitigation Measure**	**Monitoring Agency**	**Implementation Schedule**	**Sign-off**
		within this 100-foot staked buffer until a qualified biologist has determined that the young have fledged and have attained sufficient flight skills to avoid project construction zones. This typically occurs by July 1st. This date could be earlier than July 1st, or later, and would have to be determined by a qualified ornithologist. The 100-foot protection buffer may also be adjusted to be smaller or larger by a qualified ornithologist, as necessary, to protect the nesting birds.			
		4.2-8(c) *If common (that is, not special-status) passerine birds (perching birds such as American robins, scrub jays, and northern mockingbird) are identified during the nesting surveys in any of the trees or shrubs proposed for removal, the removal shall be postponed until a qualified ornithologist has determined that the young have fledged and have attained sufficient flight skills to leave the project site. Typically, most passerine birds can be expected to complete nesting by July 1st, with young attaining sufficient flight skills by early July.*	JPA	During construction activities.	

MITIGATION MONITORING PLAN
DIXON MAIN DRAIN AND V-DRAIN ENLARGEMENT

Impact Number	Impact	Mitigation Measure	Monitoring Agency	Implementation Schedule	Sign-off
4.3 Hydrology, Water Quality and Drainage					
4.3-2	Short-term construction-related impacts to surface water quality.	*4.3-2* *Prior to construction activities, the Dixon Regional Watershed JPA shall obtain coverage under the General Permit for Discharges of Storm Water Associated with Construction Activity (Construction General Permit), which pertains to pollution from grading and project construction. Compliance with the Permit requires the project applicant to file a Notice of Intent (NOI) with the State Water Resources Control Board (SWRCB) and prepare a Storm Water Pollution Prevention Plan (SWPPP) prior to construction. The SWPPP shall incorporate Best Management Practices (BMPs) in order to prevent, or reduce to the greatest extent feasible, adverse impacts to water quality from erosion and sedimentation for the review and approval of the RWQCB.*	State Water Resources Control Board (SWRCB) RWQCB	Prior to construction activities.	
4.4 Public Services and Facilities					
4.4-3	Result in the short-term disruption of drainage patterns.	*4.4-3(a)* *Prior to construction activities, the applicant shall perform necessary consultations with the Utilities Service Alliance (USA) regarding the location of any gas lines on-site. The improvement*	Utilities Service Alliance (USA)	Prior to construction activities.	

MITIGATION MONITORING PLAN DIXON MAIN DRAIN AND V-DRAIN ENLARGEMENT						
Impact Number	**Impact**	**Mitigation Measure**		**Monitoring Agency**	**Implementation Schedule**	**Sign-off**
			plans for the proposed project shall show the location of the existing natural gas supply lines. Should the relocation of any existing gas or electric facilities be required, the cost of these improvements shall be apportioned by existing agreements or negotiation. In order to avoid construction and/or operational conflicts. Plans shall be designed to the satisfaction of the permitting local agencies.			
		4.4-3(b)	*Should consultations determine that gas lines exist on-site, the contractor shall prepare a site Health and Safety Plan. This plan will outline measures that will be employed to protect construction workers and the public from exposure to hazards during relocation and construction activities. These measures could include, but would not be limited to, posting notices, limiting access to the site, air monitoring, watering, and installation of wind fences.*	JPA	Prior to and during construction activities.	
Initial Study						
III. (a-d)	Impacts to Air Quality.	*III-1.*	*All material excavated or graded shall periodically be sufficiently watered to*	JPA	During construction	

MITIGATION MONITORING PLAN
DIXON MAIN DRAIN AND V-DRAIN ENLARGEMENT

Impact Number	Impact	Mitigation Measure		Monitoring Agency	Implementation Schedule	Sign-off
			prevent excessive amounts of dust. Watering shall occur as necessary with complete coverage, preferably in the late morning and after work is done for the day.	YSAQMD	activities.	
		III-2.	*All areas with vehicle traffic shall be watered periodically for stabilization of dust emissions.*			
		III-3.	*The site shall be posted with a sign which includes the contact name and phone number for addressing concerns during construction.*			
		III-4.	*During construction, the project contractor shall maintain all construction vehicles in good operating order and shall not allow construction vehicles to idle unnecessarily.*			
V. (a-d)	Impacts to Cultural Resources.	*V-5.*	*Should any buried cultural resources be discovered during construction activities, all work shall be halted in the vicinity of the find and a qualified archaeologist shall be consulted in order to determine whether the find in an isolated example or part of a more complex resource. Upon determining the significance of the resource, the consulting archaeologist, in coordination*	JPA	During construction activities.	

MITIGATION MONITORING PLAN
DIXON MAIN DRAIN AND V-DRAIN ENLARGEMENT

Impact Number	Impact	Mitigation Measure	Monitoring Agency	Implementation Schedule	Sign-off
		with the JPA, shall determine the appropriate actions to be taken. The appropriate measures may include as little as recording the resource with the California Archaeological Inventory database or as much as excavation, recordation, and preservation of the sites that have outstanding cultural or historic significance.			
		V-6. *Should human remains be found, then the Coroner's office shall be immediately contacted and all work halted until final disposition by the Coroner. Should the remains be determined to be of Native American descent, then the Native American Heritage Commission shall be consulted to determine the appropriate disposition of such remains.*	JPA County Coroner	During construction activities.	
VI. (b)	Impacts related to erosion.	*VI-7.* *Prior to initiation of construction, the contractor shall submit to the JPA a Storm Water Pollution Prevention Plan meeting the requirements of the State Water Resources Control Board NPDES General permit. This plan shall include an erosion control plan for the construction and post construction periods.*	JPA	Prior to and during construction activities.	

MITIGATION MONITORING PLAN DIXON MAIN DRAIN AND V-DRAIN ENLARGEMENT					
Impact Number	**Impact**	**Mitigation Measure**	**Monitoring Agency**	**Implementation Schedule**	**Sign-off**
		VI-8. *Disturbed areas on the channel side slopes shall be revegetated with native plants selected to hold the channel soils in place during high flows and flexible enough to flatten down to allow for less drag against the water flows. Disturbed areas outside the channel banks shall be revegetated. New vegetation in these areas shall be compatible with adjacent farming or grazing operations. The JPA shall review planting plans prior to approval of the design documents.*	JPA	Following construction activities.	
		VI-9. *The Contractor shall limit construction to the non-rainy season and to irrigation season. During irrigation season any sediment laden water from the drainage channel will enter the RD2068 Intake Canal and will be pumped to the RD2068 Irrigation Canal and used for irrigation, not discharged to the Slough downstream.*	JPA	During construction activities.	
		VI-10. *Prior to approval of final design documents, the JPA shall review plans for drainage and storm water runoff control systems and their component facilities to ensure that these systems and facilities are non-erosive in design.*	JPA	Prior to approval of final design.	

MITIGATION MONITORING PLAN DIXON MAIN DRAIN AND V-DRAIN ENLARGEMENT					
Impact Number	**Impact**	**Mitigation Measure**	**Monitoring Agency**	**Implementation Schedule**	**Sign-off**
		VI-11. *Grading, soil disturbance, or compaction shall not occur during periods of rain.*	JPA	During construction activities.	

RESOLUTION NO. 02-2009

A RESOLUTION OF THE BOARD OF DIRECTORS OF THE DIXON REGIONAL WATERSHED JOINT POWERS AUTHORITY CERTIFYING THE ENVIRONMENTAL IMPACTS REPORT AND ADOPTING FINDINGS PURSUANT TO THE CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA) FOR THE APPROVAL OF THE PROJECT DIXON MAIN DRAIN AND V-DRAIN ENLARGEMENT

WHEREAS, the Dixon Regional Watershed Joint Powers Authority (the "DRWJPA") currently owns and operates the Dixon Main Drain and V-Drain; and

WHEREAS, the DRWJPA is considering the enlargement of the Dixon Main Drain and V-Drain (the "Project"); and

WHEREAS, the DRWJPA caused an Environmental Impact Report (EIR) on the Project to be prepared pursuant to the California Environmental Quality Act, Public Resources Code Section 21000 *et seq.* (CEQA), and the CEQA Guidelines, Code of California Regulations, Title XIV, Section 15000 *et seq.*; and

WHEREAS, on February 25, 2009, DRWJPA held a noticed public hearing on the Project and all interested parties expressing a desire to comment or object were heard and:

WHEREAS, DRWJPA has considered the staff report and the public testimony received during public hearing held on this matter on February 25, 2009;

NOW, THEREFORE, BE IT RESOLVED AS FOLLOWS:

Section 1. The Board of Directors of DRWJPA finds that the Environmental Impact Report for Dixon Main Drain and V-Drain Enlargement Project (herein EIR) which consists of the Draft EIR and the Final EIR (Response to Comments) (collectively the "EIR") has been completed in accordance with the requirements of the California Environmental Quality Act (CEQA) and the State CEQA Guidelines.

Section 2. The Board of Directors of DRWJPA certifies that the EIR was prepared, published, circulated and reviewed in accordance with the requirements of CEQA and the State CEQA Guidelines, and constitutes an adequate, accurate, objective and complete Final Environmental Impact Report in full compliance with the requirements of CEQA and the State CEQA Guidelines.

Section 3. The Board of Directors of DRWJPA certifies that the EIR has been presented to it, that the Board of Directors of DRWJPA has reviewed the EIR and has considered the information contained in the EIR prior to acting on the Project, and that the EIR reflects the Board of Directors of DRWJPA's independent judgment and analysis.

Section 4. Pursuant to CEQA Guidelines Sections 15091, and in support of its approval of the Project, the Board of Directors of DRWJPA adopts the attached Findings of Fact in support of approval of the Project as set forth in the attached Exhibit A of this Resolution.

Section 5. Pursuant to CEQA section 21081.6 and CEQA Guidelines section 15091, and in support of its approval of the proposed project, the Board of Directors of DRWJPA adopts the Mitigation Monitoring Plan to require all reasonably feasible mitigation measures be implemented by means of Project conditions, agreements, or other measures, as set forth in the Mitigation Monitoring Plan, attached as Exhibit B of this Resolution.

Section 6. The Board of Directors of DRWJPA directs that, upon approval of the Project, a notice of determination shall be filed with the County Clerk of Solano County, pursuant to the provisions of CEQA section 21152 and with the State Office of Planning and Research, pursuant to the provisions of CEQA section 21152.1.

Section 7. Pursuant to Guidelines section 15091(e), the documents and other materials that constitute the record of proceedings upon which the Board of Directors of DRWJPA has based its decision are located in and may be obtained from, the Office of the Dixon Regional Watershed Joint Powers Authority at 1170 N. Lincoln Street, Suite 110, Dixon, California.

PASSED AND ADOPTED by the Board of Directors of the Dixon Region Watershed Joint Powers Authority this 25th day of February 2009, by the following vote:

AYES; Rick Martinez, Tom Bors, Ross Rasmussen, Gene Robben, Jack Batchelor, Mort Triplett, Pat Negroni, Rick Fuller

NOES:

ABSENT/ABSTAIN: John Pitto

ATTEST:

EXHIBIT A

CEQA Findings of Fact for the Dixon Main Drain and V-Drain Enlargement Project

Description of the Project

The project is located seven miles southeast of the City of Dixon in Solano County and includes the enlargement of the Dixon Main Drain (DMD), the enlargement of the V-Drain from Swan Road to the RD 2068 Intake Canal, the replacement of two 60-inch culverts along Swan Road with an engineered bridge or new culverts, the replacement of two agricultural weirs, and the relocation of a highline irrigation canal.

Findings Required Under CEQA

1. Procedural Findings

The Dixon Regional Watershed Joint Powers Authority Board finds as follows:

Based on the Initial Study conducted for Dixon Main Drain and V-Drain Enlargement Project, SCH # 2007092033 (Project), the DRWJPA Board determined, based on substantial evidence, that the Project may have a significant effect on the environment, and an Environmental Impact Report (EIR) was prepared for the Project. The EIR was prepared, noticed, published, circulated, reviewed, and completed in full compliance with the California Environmental Quality Act (Public Resources Code §21000 *et seq.* (CEQA), and the CEQA Guidelines (14 California Code of Regulations §15000 *et seq.*), as follows:

a. A Notice of Preparation of the Draft EIR was filed with the Office of Planning and Research and each responsible and trustee agency September 11, 2007 and was circulated for public comments from September 11, 2007 through October 10, 2007.

b. A Notice of Availability (NOA) and copies of the Draft EIR were distributed to the Office of Planning and Research on October 3, 2008 to those public agencies that have jurisdiction by law with respect to the Project, or which exercise authority over resources that may be affected by the Project, and to other interested parties and agencies as required by law. The comments of such persons and agencies were sought.

c. An official 45-day public comment period for the Draft EIR was established by the Office of Planning and Research. The public comment period began on October 3, 2008 and ended on November 17, 2008.

d. A Notice of Availability (NOA) of the Draft EIR was mailed to all interested groups, organizations, and individuals who had previously requested notice in writing prior to October 3, 2008. The NOA stated that the DRWJPA had completed the Draft EIR and that copies were available at the at the office of DRWJPA, 1170 N.

Lincoln Street, Suite 110, Dixon, California 95620. The letter also indicated that the official 45-day public review period for the Draft EIR would end on November 17, 2008.

e. A public notice of availability was posted in the office of the Solano County Clerk on October 3, 2008.

f. The Final EIR was prepared following closure of the public comment period. The Final EIR contains all comments received on the Draft EIR, DRWJPA's written responses to the significant environmental points raised in those comments, and the Mitigation Monitoring Plan.

2. Record of Proceedings

The following information is incorporated by reference and made part of the record supporting these findings:

a. The Draft and Final EIR and all documents relied upon or incorporated by reference.

b. The Solano County General Plan, 1980 and all updates.

c. The Mitigation Monitoring Plan for the Project.

d. All records of decision, staff reports, memoranda, maps, exhibits, letters, synopses of meetings, and other documents approved, reviewed, relied upon, or prepared by any boards, officials, consultants, or staff relating to the Project.

3. Findings

CEQA requires that the lead agency adopt mitigation measures or alternatives, where feasible, to substantially lessen or avoid significant environmental impacts that would otherwise occur. Mitigation measures or alternatives are not required, however, where such changes are infeasible or where the responsibility for the project lies with some other agency (CEQA Guidelines, § 15091, sub. (a), (b)).

With respect to a project for which significant impacts are not avoided or substantially lessened, a public agency, after adopting proper findings, may nevertheless approve the project if the agency first adopts a statement of overriding considerations setting forth the specific reasons why the agency found that the project's "benefits" rendered "acceptable" its "unavoidable adverse environmental effects." (CEQA Guidelines, §§ 15093, 15043, sub. (b); see also, Pub. Resources Code § 21081, sub. (b).)

In seeking to effectuate the substantive policy of CEQA to substantially lessen or avoid significant environmental effects to the extent feasible, an agency, in adopting findings, need not necessarily address the feasibility of *both* mitigation measures and environmentally superior alternatives when contemplating approval of a proposed project with significant impacts. Where a significant impact can be mitigated to an "acceptable"

level solely by the adoption of feasible mitigation measures, the agency, in drafting its findings, has no obligation to consider the feasibility of any environmentally superior alternative that could also substantially lessen or avoid that same impact — even if the alternative would render the impact less severe than would the proposed project as mitigated. (*Laurel Hills Homeowners Association v. City Council* (1978) 83 Cal.App.3d 515, 521; *see also Kings County Farm Bureau v. City of Hanford* (1990) 221 Cal.App.3d 692, 730-731; and *Laurel Heights Improvement Association v. Regents of the University of California ("Laurel Heights I")* (1988) 47 Cal.3d 376, 400-403.)

In support of its approval of the Project, the Joint Powers Authority Board makes the following findings for each of the significant environmental effects and alternatives of the Project identified in the EIR pursuant to Section 21080 of CEQA and section 15091 of the CEQA Guidelines:

A. Significant or Potentially Significant Impacts Mitigated to a Less Than Significant Level.

The following significant and potentially significant environmental impacts of the Project, including cumulative impacts, are being mitigated to a less than significant level and are set out below. Pursuant to section 21081(a)(1) of CEQA and section 15091(a)(1) of the CEQA Guidelines, as to each such impact, the Joint Powers Authority Board, based on the evidence in the record before it, finds that changes or alterations incorporated into the Project by means of conditions or otherwise, mitigate, avoid or substantially lessen these significant or potentially significant environmental impacts of the Project to a less than significant level. The basis for the finding for each identified impact is set forth below.

Biological Resources

4.2-1 Impacts to jurisdictional waters. The proposed project involves construction activities within areas that may include jurisdictional waters. Without mitigation, this is a *potentially significant impact.*

Mitigation Measure (From MMP): The following mitigation measures have been adopted to address this impact:

4.2-1(a) Once the wetland delineation has been confirmed by the Corps, the extent of the Corps and RWQCB jurisdiction within the project area will be known, and the extent of impacts to waters of the United States/State can be ascertained. If the Corps determines that there are areas of the project site subject to their jurisdiction, prior to filling any of these jurisdictional areas the project proponents shall obtain a permit from the Corps and RWQCB.

Based on the confirmed map, jurisdictional wetland areas shall be avoided by the project where possible. Because full avoidance of waters of the United States is not possible, potential impacts shall be minimized to the extent feasible through changes to project design. In

addition, during construction activities, Best Management Practices shall be utilized to protect preserved wetlands and ensure water quality in wetlands and other waters within the watershed. Utilization of BMPs shall include, but not be limited to, the installation of orange construction fencing and the use of straw wattles.

4.2-1(b) The proposed project will mitigate for impacts to waters of the United States/State by creating a minimum of two times the square footage of impacted wetlands and other waters in areas that are now considered to be upland. This is a two to one (2:1) (mitigation to impacts) ratio and is consistent with requirements set forth by the USACE and the RWQCB. The new wetlands and other waters shall resemble the wetlands and other waters affected by the project.

4.2-1(c) Prior to the approval of Improvement Plans, a Streambed Alteration Agreement will be obtained from the CDFG before any in-stream construction activities commence. The agreement will contain additional minimization and mitigation measures.

Finding: The proposed project shall minimize impacts to jurisdictional waters to the extent feasible. Where full avoidance is not possible, impacts will be mitigated at a 2:1 ratio consistent with the requirements of the United States Army Corps of Engineers and the Regional Water Quality Control Board. Furthermore, a Streambed Alteration Agreement will be acquired from the California Department of Fish and Game prior to implementation of the improvement plans. With implementation of the mitigation measures, this impact is reduced to a *less than significant* level.

4.2-2 Impacts to non-anadromous fish. Construction of the proposed project would involve activities within and adjacent to waterways that could contain non-anadromous fish. Without mitigation, this is a significant impact.

Mitigation Measure (From MMP): The following mitigation measure has been adopted to address this impact:

4.2-2 Prior to construction, Section 7 consultation between the Corps and the U.S. Fish and Wildlife Service would be required to address potential impacts to Delta smelt. Avoidance measures would include a seasonal work window. In-water work would be allowed seasonally between May 1st and October 15th. Seasonal avoidance measures prescribed by the USFWS in an incidental take permit authorized for the project for Delta smelt would effectively reduce impacts to all non-anadromous fish that could occur within the project area. Implementation of this restricted work window between May 1st and October 15th for any channel work would reduce impacts to Delta smelt and other non-anadromous fish species to less-than-significant levels.

As noted above, during construction activities, Best Management Practices shall be implemented to minimize water quality impacts downstream from the work areas. Temporary instream sediment traps will be installed immediately downstream from the construction area so that all suspended sediments in the water will be contained in order to reduce impacts to fisheries habitat downstream. In addition, the existing pump station located at the southern extent of the project will be employed to further capture suspended sediments, thereby essentially eliminating any potential for downstream sedimentation impacts to fisheries habitat.

Finding: The proposed project would conduct a Section 7 consultation with the United States Fish and Wildlife Service to ensure that impacts to Delta smelt do not occur. In addition, work would occur within a designated time frame, and employ Best Management Practices to reduce the potential for impacts to non-anadromous fish, either directly or through sedimentation of waterways. With implementation of the mitigation measure, this impact is reduced to a *less than significant* level.

4.2-3 Impacts to the giant garter snake. Construction of the proposed project would occur within the potential habitat of the giant garter snake, which could result in adverse impacts to the giant garter snake. Without mitigation, this is a *potentially significant impact.*

Mitigation Measure (From MMP): The following mitigation measure has been adopted to address this impact:

4.2-3 Prior to any construction activities, a formal habitat assessment for the giant garter snake that follows USFWS guidelines shall be prepared by a qualified biologist and submitted to the USFWS. If the USFWS determines that the project site does not provide suitable habitat for the giant garter snake, no further regard for this species would be required.

If USFWS determines that the project site provides habitat for the giant garter snake formal consultation between the USACE and the USFWS, pursuant to Section 7 of FESA, would be necessary to obtain an "incidental take" for the project. In addition, if the USFWS determines that the project site provides habitat for the giant garter snake, any mitigation measures prescribed in the USFWS's Biological Opinion shall become conditions of project approval.

Finding: A formal habitat assessment shall be conducted prior to construction, if the project site contains habitat for the giant garter snake a Section 7 consultation shall be conducted. The project shall implement any mitigation resulting from the consultation, and shall obtain an "incidental

take" permit. With implementation of the mitigation measures, this impact is reduced to a *less than significant* level.

4.2-4 Impacts to Pacific pond turtle. Construction of the proposed project could result in adverse impacts to the Pacific pond turtle. Without mitigation, this is a *potentially significant impact.*

Mitigation Measure (From MMP): The following mitigation measures have been adopted to address this impact:

4.2-4(a) Turbidity barriers shall be installed around the construction areas to reduce impacts to pond turtles that may occur downstream. All Pacific pond turtles encountered during work activities in the channel would be salvaged, per CDFG approval, and relocated to preserved off-site habitats.

4.2-4(b) Preconstruction surveys for Pacific pond turtles and their nests shall be conducted 30 days prior to any construction. If nest sites are located adjacent to a proposed work area, the nest site plus a 50-foot buffer around the nest site shall be fenced to avoid impacts to the eggs or hatchlings that over-winter at the nest site. In addition, if nest(s) are located during surveys, mothballs (naphthalene) should be sprinkled around the vicinity of the nest (not closer than 10 feet) to mask human scent and discourage predators.

Construction at the nest site and within the 50-foot buffer area shall be delayed until the young leave the nest (this could be a period of many months) or as otherwise advised and directed by CDFG, the agency responsible for overseeing the protection of the pond turtle.

4.2-4(c) Prior to any construction activities, translocation of any nestling pond turtles shall be completed by a qualified biologist under the direction of CDFG. In addition, CDFG may require mitigation for any impacts to the turtle's habitat following completion of nesting. The project applicant shall implement any CDFG requirements that are included as conditions of project approval.

Finding: The proposed project shall conduct surveys for Pacific pond turtles prior to construction activities, and implement measures to preserve any turtles encountered. With implementation of the mitigation measure, this impact is reduced to a *less than significant* level.

4.2-5 Impacts to white-tailed kite and northern harrier. Construction activities have the potential to adversely affect the nesting activities of the white-tailed kite and northern harrier. Without mitigation, this is a *potentially significant impact.*

Mitigation Measure (From MMP): The following mitigation measure has been adopted to address this impact:

4.2-5 *In order to avoid impacts to nesting raptors, a nesting surveys shall be conducted prior to commencing with construction work, if this work would commence between February 1st and August 31st. The raptor nesting surveys shall include examination of all trees within 500 feet of the entire project site, not just trees slated for removal. (These surveys would be conducted concurrently with the western burrowing owl surveys – see Mitigation Measure 4.2-7(a) below).*

If nesting raptors are identified during the surveys, the dripline of the nest tree must be fenced with orange construction fencing (provided the tree is on the project site), and a 200-foot radius around the nest tree must be staked with bright orange lath or other suitable staking. If the tree is located off the project site, then the buffer shall be demarcated per above where the buffer occurs on the project site. The size of the buffer may be altered if a qualified raptor biologist conducts behavioral observations and determines the nesting raptors are well acclimated to disturbance. If this occurs, the raptor biologist shall prescribe a modified buffer that allows sufficient room to prevent undue disturbance/ harassment to the nesting raptors. No construction or earth-moving activity shall occur within the established buffer until it is determined by a qualified raptor biologist that the young have fledged (that is, left the nest) and have attained sufficient flight skills to avoid project construction zones. This typically occurs by July 15th. This date may be earlier or later, and would have to be determined by a qualified raptor biologist. If a qualified biologist is not hired to watch the nesting raptors then the buffers shall be maintained in place through the month of August and work within the buffer can commence September 1st.

Finding: Nesting surveys shall be conducted prior to construction activities. Avoidance measures shall be implemented as outlined in the above mitigation if any nesting raptors are identified. With implementation of the mitigation measure, this impact is reduced to a *less than significant* level.

4.2-6 Impacts to Swainson's hawk foraging habitat. The proposed project would potentially involve the conversion of lands that currently serve as Swainson's hawk foraging habitat. Without mitigation, this is a *potentially significant* impact.

Mitigation Measure (From MMP): The following mitigation measures have been adopted to address this impact:

4.2-6(a) *Prior to the initiation of the proposed project, the applicant shall conduct nesting surveys for Swainson's hawk. (These surveys would be conducted concurrently with the western burrowing owl surveys – see Mitigation Measure 4.2-7(a) below).*

4.2-6(b) *If Swainson's hawks are found to be nesting on or within the area of influence of the project (within 1,000 feet of the project) when the proposed project will be implemented, impacts to nesting Swainson's hawks would be regarded as significant. Accordingly, consultation with CDFG and mitigation compensation will be required. At that time, the necessity of acquiring a Fish and Game Section 2081 management authorization will be determined.*

4.2-6(c) *If the CDFG requires mitigation for impacts to potential Swainson's hawk foraging habitat, the applicant may purchase mitigation credits commensurate with the acreage of impacts to foraging and/or nesting habitat at a CDFG approved Swainson's hawk mitigation bank, such as the Jenny Farms Conservation Bank, as approved by CDFG.*

Finding: Swainson's hawk nesting surveys shall be conducted prior to project activities. If nesting sites are identified, CDFG shall be consulted to ensure adequate mitigation. Furthermore, impacts to foraging habitat shall be mitigated in compliance with CDFG guidelines. With implementation of the mitigation measure, this impact is reduced to a *less than significant* level.

4.2-7 Impacts to burrowing owl nesting and foraging habitat. Construction activities could adversely affect burrowing owls. Without mitigation, this is a *potentially significant impact.*

Mitigation Measure (From MMP): The following mitigation measure has been adopted to address this impact:

4.2-7 *A protocol survey shall be conducted to assess the presence of burrowing owls on the project site. The project site and a 150 meter (approximately 500 ft.) buffer (where possible based on habitat) should be surveyed to assess the presence of burrowing owls and their habitat. The survey should be conducted in accordance with the survey requirements detailed in the California Department of Fish and Game's Staff Report on Burrowing Owl Mitigation (CDFG 1995). Surveys shall be conducted in both breeding season (April 15-July 15) and non-breeding season (December-January), for a total of four surveys, to assess use of the project site by this species.*

If burrowing owls are found on the project site during the non-breeding season (September 1 through January 31), impacts to burrowing owls will be avoided by establishing a fenced 160-foot buffer (50 meters) between the nest site (i.e., the active burrow) and any earth-moving activity or other disturbance on the project site.

If burrowing owls are detected on the site during the breeding season (peak of the breeding season is April 15 through July 15), and appear

to be engaged in nesting behavior, a fenced 250-foot buffer (75 meters) would be required between the nest site (i.e. the active burrows) and any earth-moving activity or other disturbance on the project site. This 250-foot buffer could be removed once it is determined by a qualified raptor biologist that that young have fledged (that is, left the nest). Typically, the young fledge by August 31st. This date may be earlier than August 31st, or later, and would have to be determined by a qualified raptor biologist.

If the earlier surveys do not identify burrowing owls in the project area, preconstruction surveys will still be required. Preconstruction surveys of the project site shall be conducted no more than 30 days prior to ground disturbing activities. If more than 30 days lapse between the time of the preconstruction survey and the start of ground-disturbing activities, another preconstruction survey must be completed.

If occupied burrows are found within 160 feet of the proposed project area during the non-breeding season, and may be impacted, passive relocation measures will be implemented according to the Burrowing Owl Consortium Guidelines (BOC 1993). Passive relocation shall not commence before September 30th and shall be completed prior to February 1st of any given year. These activities shall be approved by CDFG in advance. After passive relocation, the project site and vicinity will be monitored by a qualified biologist daily for one week and once per week for an additional two weeks to document where the relocated owls move. A report detailing the results of the monitoring will be submitted to CDFG within two months of the relocation.

If burrowing owls were found occupying burrows on the project site, a qualified raptor biologist shall delineate the extent of burrowing owl habitat on the site. To mitigate impacts to burrowing owls, the applicant shall implement mitigation measures required by the CDFG. As approved by CDFG, the applicant could purchase mitigation credits at a CDFG-approved burrowing owl mitigation bank, such as the Jenny Farms Conservation Bank.

Finding: Surveys for burrowing owls shall be conducted during both the breeding and non-breeding seasons prior to project activities. Avoidance measures shall be implemented for any burrowing owl nests as outlined in the above mitigation. Furthermore, any impacts to nests or foraging habitat shall be mitigated in conformance with CDFG requirements. With implementation of the mitigation measures, this impact is reduced to a *less than significant* level.

4.2-8 Impacts to loggerhead shrike, tricolored blackbird, and other nesting passerine birds. Construction of the proposed project could result in adverse impacts to nesting passerine birds. Without mitigation, this is a potentially significant impact.

Mitigation Measure (From MMP): The following mitigation measures have been adopted to address this impact:

4.2-8(a) If construction or earth-moving activities associated with the proposed project would commence between March 15th and August 31st, the applicant shall ensure that nesting surveys for special-status birds, such as the loggerhead shrike and the tricolored blackbird, are conducted 30 days prior to the commencement of construction activities. (These surveys would be conducted concurrently with the western burrowing owl surveys – see Mitigation Measure 4.2-7(a) above).

4.2-8(b) If special-status birds, such as loggerhead shrike or tricolored blackbird, are identified within the project site during the nesting surveys, a 100-foot radius around the nest must be staked with orange construction fencing or other suitable staking. Construction or earth-moving activities shall not occur within this 100-foot staked buffer until a qualified biologist has determined that the young have fledged and have attained sufficient flight skills to avoid project construction zones. This typically occurs by July 1st. This date could be earlier than July 1st, or later, and would have to be determined by a qualified ornithologist. The 100-foot protection buffer may also be adjusted to be smaller or larger by a qualified ornithologist, as necessary, to protect the nesting birds.

4.2-8(c) If common (that is, not special-status) passerine birds (perching birds such as American robins, scrub jays, and northern mockingbird) are identified during the nesting surveys in any of the trees or shrubs proposed for removal, the removal shall be postponed until a qualified ornithologist has determined that the young have fledged and have attained sufficient flight skills to leave the project site. Typically, most passerine birds can be expected to complete nesting by July 1st, with young attaining sufficient flight skills by early July.

Finding: Nesting surveys for passerine birds shall be conducted prior to commencement of construction activities. If nesting passerine birds are identified, avoidance measures shall be implemented until such time as the young have fledged. With implementation of the mitigation measures, this impact is reduced to a *less than significant* level.

Hydrology and Water Quality

4.3-1 Short-term construction-related impacts to surface water quality. Construction activities associated with implementation of the proposed project could result in adverse impacts to surface water quality. Without mitigation, this is a *potentially significant impact.*

Mitigation Measure (From MMP): The following mitigation measure has been adopted to address this impact:

4.3-2 Prior to construction activities, the Dixon Regional Watershed JPA shall obtain coverage under the General Permit for Discharges of Storm Water Associated with Construction Activity (Construction General Permit), which pertains to pollution from grading and project construction. Compliance with the Permit requires the project applicant to file a Notice of Intent (NOI) with the State Water Resources Control Board (SWRCB) and prepare a Storm Water Pollution Prevention Plan (SWPPP) prior to construction. The SWPPP shall incorporate Best Management Practices (BMPs) in order to prevent, or reduce to the greatest extent feasible, adverse impacts to water quality from erosion and sedimentation for the review and approval of the RWQCB.

Finding: An NPDES Construction General Permit shall be acquired prior to construction activities. Implementation of the measures required to obtain the Permit would ensure that adverse impacts to water quality from erosion and sedimentation are reduced to the greatest extent feasible. With implementation of the mitigation measures, this impact is reduced to a *less than significant* level.

4.4-3 Impacts to Natural Gas Facilities. Implementation of the proposed project could result in short-term disruption of natural gas transmission. Without mitigation, this is a *potentially significant* impact.

Mitigation Measure (From MMP): The following mitigation measures have been adopted to address this impact:

4.4-3(a) Prior to construction activities, the applicant shall perform necessary consultations with the Utilities Service Alliance (USA) regarding the location of any gas lines on-site. The improvement plans for the proposed project shall show the location of the existing natural gas supply lines. Should the relocation of any existing gas or electric facilities be required, the cost of these improvements shall be apportioned by existing agreements or negotiation. In order to avoid construction and/or operational conflicts. Plans shall be designed to the satisfaction of the permitting local agencies.

4.4-3(b) Should consultations determine that gas lines exist on-site, the contractor shall prepare a site Health and Safety Plan. This plan will

outline measures that will be employed to protect construction workers and the public from exposure to hazards during relocation and construction activities. These measures could include, but would not be limited to, posting notices, limiting access to the site, air monitoring, watering, and installation of wind fences.

Finding: Consultation with the Utility Service Alliance shall occur prior to construction activities. If relocation is necessary, relocation plans and activities shall be conducted to the satisfaction of the applicable local agency. In addition, a Health and Safety Plan shall be prepared outlining measures designed to ensure that the public and construction workers are protected from hazards posed by conducting construction activities in proximity to natural gas lines. With implementation of the mitigation measures, this impact is reduced to a *less than significant* level.

Initial Study

III. (a-d) Impacts to Air Quality. Implementation of the proposed project would result in construction-related vehicle emissions and dust creation. Without mitigation, this is a *potentially significant* impact.

Mitigation Measure (From MMP): The following mitigation measures have been adopted to address this impact:

III-1. *All material excavated or graded shall periodically be sufficiently watered to prevent excessive amounts of dust. Watering shall occur as necessary with complete coverage, preferably in the late morning and after work is done for the day.*

III-2. *All areas with vehicle traffic shall be watered periodically for stabilization of dust emissions.*

III-3. *The site shall be posted with a sign which includes the contact name and phone number for addressing concerns during construction.*

III-4. *During construction, the project contractor shall maintain all construction vehicles in good operating order and shall not allow construction vehicles to idle unnecessarily.*

Finding: All material excavated or graded shall periodically be sufficiently watered to prevent excessive amounts of dust and all areas with vehicle traffic shall be watered periodically for stabilization of dust emissions. In addition, the site shall be posted with a sign which includes the contact name and phone number for addressing concerns during construction and the project contractor shall maintain all construction vehicles in good operating order and shall not allow construction vehicles to idle unnecessarily. With

implementation of the mitigation measures, this impact is reduced to a *less than significant* level.

V. (a-d) Impacts to Cultural Resources. Implementation of the proposed project would involve excavation and grading which could result in adverse impacts to unknown cultural resources. Without mitigation, this is a *potentially significant* impact.

Mitigation Measure (From MMP): The following mitigation measures have been adopted to address this impact:

V-5. *Should any buried cultural resources be discovered during construction activities, all work shall be halted in the vicinity of the find and a qualified archaeologist shall be consulted in order to determine whether the find in an isolated example or part of a more complex resource. Upon determining the significance of the resource, the consulting archaeologist, in coordination with the JPA, shall determine the appropriate actions to be taken. The appropriate measures may include as little as recording the resource with the California Archaeological Inventory database or as much as excavation, recordation, and preservation of the sites that have outstanding cultural or historic significance.*

V-6. *Should human remains be found, then the Coroner's office shall be immediately contacted and all work halted until final disposition by the Coroner. Should the remains be determined to be of Native American descent, then the Native American Heritage Commission shall be consulted to determine the appropriate disposition of such remains.*

Finding: During construction activities, should any buried cultural resources be discovered, all work shall be halted in the vicinity of the find and a qualified archaeologist shall be consulted in order to determine whether the find in an isolated example or part of a more complex resource, and the consulting archaeologist, in coordination with the JPA, shall determine the appropriate actions to be taken. In addition, should human remains be found, the Coroner's office shall be immediately contacted and all work halted until final disposition by the Coroner. If the remains are of Native American descent, the Native American Heritage Commission shall be consulted. With implementation of the mitigation measures, this impact is reduced to a *less than significant* level.

VI. (b) Impacts to Soil Erosion. Implementation of the proposed project could result in an increase in soil erosion by exposing loose soils to wind and rain. Without mitigation, this is a *potentially significant* impact.

Mitigation Measure (From MMP): The following mitigation measures have been adopted to address this impact:

VI-7. *Prior to initiation of construction, the contractor shall submit to the JPA a Storm Water Pollution Prevention Plan meeting the requirements of the State Water Resources Control Board NPDES General permit. This plan shall include an erosion control plan for the construction and post construction periods.*

VI-8. *Disturbed areas on the channel side slopes shall be revegetated with native plants selected to hold the channel soils in place during high flows and flexible enough to flatten down to allow for less drag against the water flows. Disturbed areas outside the channel banks shall be revegetated. New vegetation in these areas shall be compatible with adjacent farming or grazing operations. The JPA shall review planting plans prior to approval of the design documents.*

VI-9. *The Contractor shall limit construction to the non-rainy season and to irrigation season. During irrigation season any sediment laden water from the drainage channel will enter the RD2068 Intake Canal and will be pumped to the RD2068 Irrigation Canal and used for irrigation, not discharged to the Slough downstream.*

VI-10. *Prior to approval of final design documents, the JPA shall review plans for drainage and storm water runoff control systems and their component facilities to ensure that these systems and facilities are non-erosive in design.*

VI-11. *Grading, soil disturbance, or compaction shall not occur during periods of rain.*

Finding: The contractor shall submit to the JPA a Storm Water Pollution Prevention Plan meeting the requirements of the State Water Resources Control Board NPDES General permit and including an erosion control plan for construction and post construction periods. Disturbed areas on the channel side slopes and outside the channel banks shall be revegetated. New vegetation in these areas shall be compatible with adjacent farming or grazing operations. In addition, the Contractor shall limit construction to the non-rainy season and irrigation season, and grading, soil disturbance, or compaction shall not occur during periods of rain. Furthermore, prior to approval of final design documents, the JPA shall review plans for drainage and storm water runoff control systems and their component facilities to ensure that these systems and facilities are non-erosive in design. With implementation of the mitigation measures, this impact is reduced to a *less than significant* level.

B. Significant and Unavoidable Impacts.

The proposed project would not result in any significant and unavoidable impacts.

C. Findings Related to the Relationship Between Local Short-Term Uses of the Environment and Maintenance and Enhancement of Long-Term Productivity.

Based on the EIR and the entire record before the DRWJPA, the Joint Powers Authority Board makes the following findings with respect to the project's balancing of local short term uses of the environment and the maintenance of long term productivity:

- As the project is implemented, certain impacts would occur on a short-term level. Such short-term impacts are discussed above. Measures have been incorporated in the project to mitigate these potential impacts.

- As a water conveyance facility, the project would not result in the long-term commitment of resources to operate the project including water, natural gas, fossil fuels, and electricity. Some resources would be required to maintain the facility; however, such an impact is not considered to be adverse.

Therefore, with implementation of the required mitigation, implementation of the Project would not result in short-term or long-term adverse impacts.

D. Project Alternatives.

The Joint Powers Authority Board has considered the Project alternatives presented and analyzed in the EIR and presented during the comment period and public hearing process. Some of these alternatives have the potential to avoid or reduce certain significant or potentially significant environmental impacts, as set forth below. The Dixon Regional Watershed Joint Power Authority Board finds, based on specific economic, legal, social, technological, or other considerations, that these alternatives are infeasible and would not achieve most of the project objectives. Each alternative and the facts supporting the finding of infeasibility of each alternative are set forth below.

Alternatives Considered and Dismissed from Further Consideration

Main Drain/V-Drain Enlargement by 494 cfs

This alternative would include the enlargement of the same portions of the Main Drain and V-Drain as the proposed project, but would include an enlargement by 494 cfs flow. This alternative was rejected because the additional enlargement of flow would result in an increased project footprint and area of impact when compared to the proposed project and would not result in the reduction of any of the project-related environmental impacts.

Summary of Alternatives Considered

No Project – No Build Alternative

Section 1526.6(e)(1) of the CEQA Guidelines requires that a "no project alternative" be evaluated in comparison to the proposed project. The No Project – No

Build Alternative is defined continued existence of the current drainage facilities and would not include the enlargement of the existing drains.

Facts in Support of Finding of Infeasibility

The No Project – No Build Alternative would not meet any of the project objectives.

Main Drain/V-Drain Enlargement by 275 cfs Alternative

The Main Drain/V-Drain Enlargement by 275 cfs Alternative would expand the current capacity of both the Main Drain and V-Drain by 275 cfs. This Alternative would require the same peripheral infrastructure improvements as the proposed project, including the relocation of the highline canal, the removal/relocation of the agricultural weir, and the replacement of the culvert access road, as well as replacement of screens on the existing trash rack at the RD 2068 intake canal and, potentially, construction of new trash screening or fencing on or around the RD 2068 intake pump station. This alternative would decrease the total depth and width of the channel removal that would be required during construction activities and would result in a smaller total increase in drainage flows when compared to the proposed project.

Facts in Support of Finding of Infeasibility

The Main Drain/V-Drain Enlargement by 275 cfs Alternative would decrease sedimentation impacts, but would result in increased impacts (compared to the proposed project) by providing a smaller total benefit. As the proposed project would mitigate all impacts to a less-than-significant level, the reduction in sedimentation would not outweigh the reduced benefits in the area of public services.

Dixon New South Channel Alternative

The Dixon New South Channel Alternative would provide an alternate drainage route rather than expand the existing Main Drain and V-Drains. The Alternative would include the construction of a stormwater drainage channel that would start at the DMD at Swan Road and continue in a southerly direction, approximately 2.5 miles, along Bunker Station Road until, at the channel's southern terminus, the channel would empty into the Haas Slough. The channel would cross several roadways and an abandoned railroad track. Easements and/or rights-of-way would be required for construction, access, and maintenance of the channel. The width of the permanent right of way would be 100 feet. Excavated material would be placed alongside the channel.

The channel would have a 12-foot bottom width and be 6.5 feet deep, which would provide a capacity of 380 cfs. The channel would not be lined, but would be stabilized with California native grasses to the extent practical. At road crossings, the project would use three 66-inch culverts (or equivalent) with headwalls at the upstream and downstream ends.

Facts in Support of Finding of Infeasibility

The Dixon New South Channel Alternative would provide greater drainage flow. However, the alternative would have a large new footprint, and would result in substantially more construction activities. As a result, environmental impacts would increase in a number of categories including agricultural resources, hydrology, biological resources, and public services. Therefore, the increase in environmental impacts would outweigh the potential public benefit associated with the alternative.

EXHIBIT B

Mitigation Monitoring Plan

3 MITIGATION MONITORING PLAN

3.0 INTRODUCTION

Section 15097 of the California Environmental Quality Act (CEQA) requires all state and local agencies to establish monitoring or reporting programs for projects approved by a public agency whenever approval involves the adoption of either a "mitigated negative declaration" or specified environmental findings related to environmental impact reports.

The following is the Mitigation Monitoring Plan (MMP) for the Dixon Main Drain and V-Drain Enlargement project. The project as approved includes mitigation measures. The intent of the MMP is to prescribe and enforce a means for properly and successfully implementing the mitigation measures as identified within the Environmental Impact Report for this project. Unless otherwise noted, the cost of implementing the mitigation measures as prescribed by this MMP shall be funded by the Dixon Regional Watershed Joint Powers Authority (JPA).

3.1 MITIGATION MONITORING PLAN

The MMP contained herein is intended to satisfy the requirements of CEQA as they relate to the Environmental Impact Report for the Dixon Main Drain and V-Drain Enlargement project prepared by the Dixon Regional Watershed Joint Powers Authority (JPA). This MMP is intended to be used by JPA staff and mitigation monitoring personnel to ensure compliance with mitigation measures during project implementation. Mitigation measures identified in this MMP were developed in the Environmental Impact Report prepared for the proposed project.

The Dixon Main Drain and V-Drain Enlargement project Environmental Impact Report presents a detailed set of mitigation measures that will be implemented throughout the lifetime of the project. Mitigation is defined by CEQA as a measure which:

- Avoids the impact altogether by not taking a certain action or parts of an action;
- Minimizes impacts by limiting the degree or magnitude of the action and its implementation;
- Rectifies the impact by repairing, rehabilitating, or restoring the impacted environment;
- Reduces or eliminates the impact over time by preservation and maintenance operations during the life of the project; or
- Compensates for the impact by replacing or providing substitute resources or environments.

The intent of the MMP is to ensure the effective implementation and enforcement of adopted mitigation measures and permit conditions. The MMP will provide for monitoring of

construction activities as necessary and in-the-field identification and resolution of environmental concerns.

Monitoring and documenting the implementation of mitigation measures will be coordinated by the JPA. The table attached to this report identifies the mitigation measure, the monitoring action for the mitigation measure, the responsible party for the monitoring action, and timing of the monitoring action. The contractor will be responsible for fully understanding and effectively implementing the mitigation measures contained within the MMP. The JPA will be responsible for ensuring compliance.

During construction of the project, the JPA and project contractor will coordinate with the local, State, and federal agencies who are responsible for mitigation measure compliance. The project contractor will report to the JPA and will be thoroughly familiar with permit conditions and the MMP. In addition, the project contractor will be familiar with construction contract requirements, construction schedules, standard construction practices, and mitigation techniques. In order to track the status of mitigation measure implementation, field-monitoring activities will be documented on compliance monitoring report worksheets. The time commitment of the contractor will vary depending on the intensity and location of construction. Aided by the attached table, the inspector will be responsible for the following activities:

- On-site, day-to-day monitoring of construction activities;
- Reviewing construction plans and equipment staging/access plans to ensure conformance with adopted mitigation measures;
- Ensuring contractor knowledge of and compliance with the MMP;
- Verifying the accuracy and adequacy of contract wording;
- Having the authority to require correction of activities that violate mitigation measures, securing compliance with the MMP;
- Acting in the role of contact for property owners or any other affected persons who wish to register observations of violations of project permit conditions or mitigation. Upon receiving any complaints, the project contractor shall immediately contact the JPA. The JPA shall be responsible for verifying any such observations and for developing any necessary corrective actions in consultation with the construction representative and the any applicable local, State, or federal agencies;
- Obtaining assistance as necessary from technical experts in order to develop site-specific procedures for implementing the mitigation measures; and
- Maintaining a log of all significant interactions, violations of permit conditions or mitigation measures, and necessary corrective measures.

3.2 MITIGATION MONITORING PLAN

The following plan indicates the mitigation measure number, the impact the measure is designed to address, the mitigation, the monitoring agency, implementation schedule, and an area for sign-off indicating compliance.

MITIGATION MONITORING PLAN DIXON MAIN DRAIN AND V-DRAIN ENLARGEMENT						
Impact Number	**Impact**	**Mitigation Measure**		**Monitoring Agency**	**Implementation Schedule**	**Sign-off**
		4.2 Biological Resources				
4.2-1	Impacts to jurisdictional waters.	*4.2-1(a)*	*Once the wetland delineation has been confirmed by the Corps, the extent of the Corps and RWQCB jurisdiction within the project area will be known, and the extent of impacts to waters of the United States/State can be ascertained. If the Corps determines that there are areas of the project site subject to their jurisdiction, prior to filling any of these jurisdictional areas the project proponents shall obtain a permit from the Corps and RWQCB.* *Based on the confirmed map, jurisdictional wetland areas shall be avoided by the project where possible. Because full avoidance of waters of the United States is not possible, potential impacts shall be minimized to the extent feasible through changes to project design. In addition, during construction activities, Best Management Practices shall be utilized to protect preserved wetlands and ensure water quality in wetlands and other waters within the watershed. Utilization of BMPs shall include, but not be limited to, the*	U.S. Corps of Engineers (USACE) Regional Water Quality Control Bureau (RWQCB) Dixon Regional Watershed Joint Powers Authority (JPA)	Prior to filling jurisdictional wetlands and during construction activities.	

MITIGATION MONITORING PLAN
DIXON MAIN DRAIN AND V-DRAIN ENLARGEMENT

Impact Number	Impact	Mitigation Measure		Monitoring Agency	Implementation Schedule	Sign-off
			installation of orange construction fencing and the use of straw wattles.			
		4.2-1(b)	*The proposed project will mitigate for impacts to waters of the United States/State by creating a minimum of two times the square footage of impacted wetlands and other waters in areas that are now considered to be upland. This is a two to one (2:1) (mitigation to impacts) ratio and is consistent with requirements set forth by the USACE and the RWQCB. The new wetlands and other waters shall resemble the wetlands and other waters affected by the project.*	USACE RWQCB	Prior to filling jurisdictional wetlands.	
		4.2-1(c)	*Prior to the approval of Improvement Plans, a Streambed Alteration Agreement will be obtained from the CDFG before any in-stream construction activities commence. The agreement will contain additional minimization and mitigation measures.*	CDFG	Prior to approval of Improvement Plans.	
4.2-2	Impacts to non-anadromous fish.	*4.2-2*	*Prior to construction, Section 7 consultation between the Corps and the U.S. Fish and Wildlife Service would be required to address potential impacts to Delta smelt. Avoidance measures would include a seasonal work window. In-*	USACE U.S. Fish and Wildlife Service (USFWS)	Prior to and during construction activities.	

MITIGATION MONITORING PLAN
DIXON MAIN DRAIN AND V-DRAIN ENLARGEMENT

Impact Number	Impact	Mitigation Measure	Monitoring Agency	Implementation Schedule	Sign-off
		water work would be allowed seasonally between May 1st and October 15th. Seasonal avoidance measures prescribed by the USFWS in an incidental take permit authorized for the project for Delta smelt would effectively reduce impacts to all non-anadromous fish that could occur within the project area. Implementation of this restricted work window between May 1st and October 15th for any channel work would reduce impacts to Delta smelt and other non-anadromous fish species to less-than-significant levels. *As noted above, during construction activities, Best Management Practices shall be implemented to minimize water quality impacts downstream from the work areas. Temporary instream sediment traps will be installed immediately downstream from the construction area so that all suspended sediments in the water will be contained in order to reduce impacts to fisheries habitat downstream. In addition, the existing pump station located at the southern extent of the project will be employed to further capture suspended*			

MITIGATION MONITORING PLAN DIXON MAIN DRAIN AND V-DRAIN ENLARGEMENT						
Impact Number	**Impact**	**Mitigation Measure**		**Monitoring Agency**	**Implementation Schedule**	**Sign-off**
			sediments, thereby essentially eliminating any potential for downstream sedimentation impacts to fisheries habitat.			
4.2-3	Impacts to the giant garter snake.	*4.2-3*	*Prior to any construction activities, a formal habitat assessment for the giant garter snake that follows USFWS guidelines shall be prepared by a qualified biologist and submitted to the USFWS. If the USFWS determines that the project site does not provide suitable habitat for the giant garter snake, no further regard for this species would be required.* *If USFWS determines that the project site provides habitat for the giant garter snake formal consultation between the USACE and the USFWS, pursuant to Section 7 of FESA, would be necessary to obtain an "incidental take" for the project. In addition, if the USFWS determines that the project site provides habitat for the giant garter snake, any mitigation measures prescribed in the USFWS's Biological Opinion shall become conditions of project approval.*	USFWS	Prior to construction activities.	
4.2-4	Impacts to Pacific pond turtle.	*4.2-4(a)*	*Turbidity barriers shall be installed around the construction areas to reduce*	CDFG	Prior to and during	

MITIGATION MONITORING PLAN DIXON MAIN DRAIN AND V-DRAIN ENLARGEMENT					
Impact Number	**Impact**	**Mitigation Measure**	**Monitoring Agency**	**Implementation Schedule**	**Sign-off**
		impacts to pond turtles that may occur downstream. All Pacific pond turtles encountered during work activities in the channel would be salvaged, per CDFG approval, and relocated to preserved off-site habitats.		construction activities.	
		4.2-4(b) *Preconstruction surveys for Pacific pond turtles and their nests shall be conducted 30 days prior to any construction. If nest sites are located adjacent to a proposed work area, the nest site plus a 50-foot buffer around the nest site shall be fenced to avoid impacts to the eggs or hatchlings that over-winter at the nest site. In addition, if nest(s) are located during surveys, mothballs (naphthalene) should be sprinkled around the vicinity of the nest (not closer than 10 feet) to mask human scent and discourage predators.* *Construction at the nest site and within the 50-foot buffer area shall be delayed until the young leave the nest (this could be a period of many months) or as otherwise advised and directed by CDFG, the agency responsible for overseeing the protection of the pond turtle.*	CDFG	30 days prior to construction activities.	

MITIGATION MONITORING PLAN DIXON MAIN DRAIN AND V-DRAIN ENLARGEMENT						
Impact Number	**Impact**	**Mitigation Measure**		**Monitoring Agency**	**Implementation Schedule**	**Sign-off**
		4.2-4(c)	*Prior to any construction activities, translocation of any nestling pond turtles shall be completed by a qualified biologist under the direction of CDFG. In addition, CDFG may require mitigation for any impacts to the turtle's habitat following completion of nesting. The project applicant shall implement any CDFG requirements that are included as conditions of project approval.*	CDFG	Prior to construction activities.	
4.2-5	Impacts to white-tailed kite and northern harrier.	*4.2-5*	*In order to avoid impacts to nesting raptors, a nesting surveys shall be conducted prior to commencing with construction work, if this work would commence between February 1st and August 31st .The raptor nesting surveys shall include examination of all trees within 500 feet of the entire project site, not just trees slated for removal. (These surveys would be conducted concurrently with the western burrowing owl surveys – see Mitigation Measure 4.2-7(a) below). If nesting raptors are identified during the surveys, the dripline of the nest tree must be fenced with orange construction fencing (provided the tree is on the project site), and a 200-foot radius around the nest tree must be staked with bright orange lath or other suitable*	CDFG	Prior to and during construction activities.	

MITIGATION MONITORING PLAN DIXON MAIN DRAIN AND V-DRAIN ENLARGEMENT					
Impact Number	**Impact**	**Mitigation Measure**	**Monitoring Agency**	**Implementation Schedule**	**Sign-off**
		staking. If the tree is located off the project site, then the buffer shall be demarcated per above where the buffer occurs on the project site. The size of the buffer may be altered if a qualified raptor biologist conducts behavioral observations and determines the nesting raptors are well acclimated to disturbance. If this occurs, the raptor biologist shall prescribe a modified buffer that allows sufficient room to prevent undue disturbance/harassment to the nesting raptors. No construction or earth-moving activity shall occur within the established buffer until it is determined by a qualified raptor biologist that the young have fledged (that is, left the nest) and have attained sufficient flight skills to avoid project construction zones. This typically occurs by July 15th. This date may be earlier or later, and would have to be determined by a qualified raptor biologist. If a qualified biologist is not hired to watch the nesting raptors then the buffers shall be maintained in place through the month of August and work within the buffer can commence September 1st.			

MITIGATION MONITORING PLAN
DIXON MAIN DRAIN AND V-DRAIN ENLARGEMENT

Impact Number	Impact	Mitigation Measure		Monitoring Agency	Implementation Schedule	Sign-off
4.2-6	Impacts to Swainson's hawk foraging habitat.	*4.2-6(a)*	*Prior to the initiation of the proposed project, the applicant shall conduct nesting surveys for Swainson's hawk. (These surveys would be conducted concurrently with the western burrowing owl surveys – see Mitigation Measure 4.2-7(a) below).*	CDFG	Prior to construction activities.	
		4.2-6(b)	*If Swainson's hawks are found to be nesting on or within the area of influence of the project (within 1,000 feet of the project) when the proposed project will be implemented, impacts to nesting Swainson's hawks would be regarded as significant. Accordingly, consultation with CDFG and mitigation compensation will be required. At that time, the necessity of acquiring a Fish and Game Section 2081 management authorization will be determined.*	CDFG	Prior to construction activities.	
		4.2-6(c)	*If the CDFG requires mitigation for impacts to potential Swainson's hawk foraging habitat, the applicant may purchase mitigation credits commensurate with the acreage of impacts to foraging and/or nesting habitat at a CDFG approved Swainson's hawk mitigation bank, such as the Jenny*	CDFG	Prior to construction activities.	

MITIGATION MONITORING PLAN DIXON MAIN DRAIN AND V-DRAIN ENLARGEMENT						
Impact Number	**Impact**	**Mitigation Measure**		**Monitoring Agency**	**Implementation Schedule**	**Sign-off**
			Farms Conservation Bank, as approved by CDFG.			
4.2-7	Impacts to burrowing owl nesting and foraging habitat.	*4.2-7*	*A protocol survey shall be conducted to assess the presence of burrowing owls on the project site. The project site and a 150 meter (approximately 500 ft.) buffer (where possible based on habitat) should be surveyed to assess the presence of burrowing owls and their habitat. The survey should be conducted in accordance with the survey requirements detailed in the California Department of Fish and Game's Staff Report on Burrowing Owl Mitigation (CDFG 1995). Surveys shall be conducted in both breeding season (April 15-July 15) and non-breeding season (December-January), for a total of four surveys, to assess use of the project site by this species.* *If burrowing owls are found on the project site during the non-breeding season (September 1 through January 31), impacts to burrowing owls will be avoided by establishing a fenced 160-foot buffer (50 meters) between the nest site (i.e., the active burrow) and any earth-moving activity or other disturbance on*	CDFG	Prior to construction activities.	

MITIGATION MONITORING PLAN DIXON MAIN DRAIN AND V-DRAIN ENLARGEMENT					
Impact Number	**Impact**	**Mitigation Measure**	**Monitoring Agency**	**Implementation Schedule**	**Sign-off**
		the project site. *If burrowing owls are detected on the site during the breeding season (peak of the breeding season is April 15 through July 15), and appear to be engaged in nesting behavior, a fenced 250-foot buffer (75 meters) would be required between the nest site (i.e. the active burrows) and any earth-moving activity or other disturbance on the project site. This 250-foot buffer could be removed once it is determined by a qualified raptor biologist that that young have fledged (that is, left the nest). Typically, the young fledge by August 31st. This date may be earlier than August 31st, or later, and would have to be determined by a qualified raptor biologist.* *If the earlier surveys do not identify burrowing owls in the project area, preconstruction surveys will still be required. Preconstruction surveys of the project site shall be conducted no more than 30 days prior to ground disturbing activities. If more than 30 days lapse between the time of the preconstruction survey and the start of ground-disturbing*			

MITIGATION MONITORING PLAN DIXON MAIN DRAIN AND V-DRAIN ENLARGEMENT					
Impact Number	**Impact**	**Mitigation Measure**	**Monitoring Agency**	**Implementation Schedule**	**Sign-off**
		activities, another preconstruction survey must be completed. *If occupied burrows are found within 160 feet of the proposed project area during the non-breeding season, and may be impacted, passive relocation measures will be implemented according to the Burrowing Owl Consortium Guidelines (BOC 1993). Passive relocation shall not commence before September 30th and shall be completed prior to February 1st of any given year. These activities shall be approved by CDFG in advance. After passive relocation, the project site and vicinity will be monitored by a qualified biologist daily for one week and once per week for an additional two weeks to document where the relocated owls move. A report detailing the results of the monitoring will be submitted to CDFG within two months of the relocation.* *If burrowing owls were found occupying burrows on the project site, a qualified raptor biologist shall delineate the extent of burrowing owl habitat on the site. To mitigate impacts to burrowing owls, the applicant shall implement mitigation*			

MITIGATION MONITORING PLAN DIXON MAIN DRAIN AND V-DRAIN ENLARGEMENT						
Impact Number	**Impact**		**Mitigation Measure**	**Monitoring Agency**	**Implementation Schedule**	**Sign-off**
			measures required by the CDFG. As approved by CDFG, the applicant could purchase mitigation credits at a CDFG-approved burrowing owl mitigation bank, such as the Jenny Farms Conservation Bank.			
4.2-8	Impacts to loggerhead shrike, tricolored blackbird, and other nesting passerine birds.	*4.2-8(a)*	*If construction or earth-moving activities associated with the proposed project would commence between March 15th and August 31st, the applicant shall ensure that nesting surveys for special-status birds, such as the loggerhead shrike and the tricolored blackbird, are conducted 30 days prior to the commencement of construction activities. (These surveys would be conducted concurrently with the western burrowing owl surveys – see Mitigation Measure 4.2-7(a) above).*	CDFG	30 days prior to construction activities.	
		4.2-8(b)	*If special-status birds, such as loggerhead shrike or tricolored blackbird, are identified within the project site during the nesting surveys, a 100-foot radius around the nest must be staked with orange construction fencing or other suitable staking. Construction or earth-moving activities shall not occur*	CDFG	During construction activities.	

MITIGATION MONITORING PLAN
DIXON MAIN DRAIN AND V-DRAIN ENLARGEMENT

Impact Number	Impact	Mitigation Measure	Monitoring Agency	Implementation Schedule	Sign-off
		within this 100-foot staked buffer until a qualified biologist has determined that the young have fledged and have attained sufficient flight skills to avoid project construction zones. This typically occurs by July 1st. This date could be earlier than July 1st, or later, and would have to be determined by a qualified ornithologist. The 100-foot protection buffer may also be adjusted to be smaller or larger by a qualified ornithologist, as necessary, to protect the nesting birds.			
		4.2-8(c) *If common (that is, not special-status) passerine birds (perching birds such as American robins, scrub jays, and northern mockingbird) are identified during the nesting surveys in any of the trees or shrubs proposed for removal, the removal shall be postponed until a qualified ornithologist has determined that the young have fledged and have attained sufficient flight skills to leave the project site. Typically, most passerine birds can be expected to complete nesting by July 1st, with young attaining sufficient flight skills by early July.*	JPA	During construction activities.	

MITIGATION MONITORING PLAN
DIXON MAIN DRAIN AND V-DRAIN ENLARGEMENT

Impact Number	Impact	Mitigation Measure		Monitoring Agency	Implementation Schedule	Sign-off
			4.3 Hydrology, Water Quality and Drainage			
4.3-2	Short-term construction-related impacts to surface water quality.	*4.3-2*	*Prior to construction activities, the Dixon Regional Watershed JPA shall obtain coverage under the General Permit for Discharges of Storm Water Associated with Construction Activity (Construction General Permit), which pertains to pollution from grading and project construction. Compliance with the Permit requires the project applicant to file a Notice of Intent (NOI) with the State Water Resources Control Board (SWRCB) and prepare a Storm Water Pollution Prevention Plan (SWPPP) prior to construction. The SWPPP shall incorporate Best Management Practices (BMPs) in order to prevent, or reduce to the greatest extent feasible, adverse impacts to water quality from erosion and sedimentation for the review and approval of the RWQCB.*	State Water Resources Control Board (SWRCB) RWQCB	Prior to construction activities.	
			4.4 Public Services and Facilities			
4.4-3	Result in the short-term disruption of drainage patterns.	*4.4-3(a)*	*Prior to construction activities, the applicant shall perform necessary consultations with the Utilities Service Alliance (USA) regarding the location of any gas lines on-site. The improvement*	Utilities Service Alliance (USA)	Prior to construction activities.	

MITIGATION MONITORING PLAN DIXON MAIN DRAIN AND V-DRAIN ENLARGEMENT						
Impact Number	**Impact**		**Mitigation Measure**	**Monitoring Agency**	**Implementation Schedule**	**Sign-off**
			plans for the proposed project shall show the location of the existing natural gas supply lines. Should the relocation of any existing gas or electric facilities be required, the cost of these improvements shall be apportioned by existing agreements or negotiation. In order to avoid construction and/or operational conflicts. Plans shall be designed to the satisfaction of the permitting local agencies.			
		4.4-3(b)	*Should consultations determine that gas lines exist on-site, the contractor shall prepare a site Health and Safety Plan. This plan will outline measures that will be employed to protect construction workers and the public from exposure to hazards during relocation and construction activities. These measures could include, but would not be limited to, posting notices, limiting access to the site, air monitoring, watering, and installation of wind fences.*	JPA	Prior to and during construction activities.	
Initial Study						
III. (a-d)	Impacts to Air Quality.	*III-1.*	*All material excavated or graded shall periodically be sufficiently watered to*	JPA	During construction	

MITIGATION MONITORING PLAN
DIXON MAIN DRAIN AND V-DRAIN ENLARGEMENT

Impact Number	Impact		Mitigation Measure	Monitoring Agency	Implementation Schedule	Sign-off
			prevent excessive amounts of dust. Watering shall occur as necessary with complete coverage, preferably in the late morning and after work is done for the day.	YSAQMD	activities.	
		III-2.	*All areas with vehicle traffic shall be watered periodically for stabilization of dust emissions.*			
		III-3.	*The site shall be posted with a sign which includes the contact name and phone number for addressing concerns during construction.*			
		III-4.	*During construction, the project contractor shall maintain all construction vehicles in good operating order and shall not allow construction vehicles to idle unnecessarily.*			
V. (a-d)	Impacts to Cultural Resources.	*V-5.*	*Should any buried cultural resources be discovered during construction activities, all work shall be halted in the vicinity of the find and a qualified archaeologist shall be consulted in order to determine whether the find in an isolated example or part of a more complex resource. Upon determining the significance of the resource, the consulting archaeologist, in coordination*	JPA	During construction activities.	

MITIGATION MONITORING PLAN
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Impact Number	Impact	Mitigation Measure	Monitoring Agency	Implementation Schedule	Sign-off
		with the JPA, shall determine the appropriate actions to be taken. The appropriate measures may include as little as recording the resource with the California Archaeological Inventory database or as much as excavation, recordation, and preservation of the sites that have outstanding cultural or historic significance.			
		V-6. *Should human remains be found, then the Coroner's office shall be immediately contacted and all work halted until final disposition by the Coroner. Should the remains be determined to be of Native American descent, then the Native American Heritage Commission shall be consulted to determine the appropriate disposition of such remains.*	JPA County Coroner	During construction activities.	
VI. (b)	Impacts related to erosion.	*VI-7.* *Prior to initiation of construction, the contractor shall submit to the JPA a Storm Water Pollution Prevention Plan meeting the requirements of the State Water Resources Control Board NPDES General permit. This plan shall include an erosion control plan for the construction and post construction periods.*	JPA	Prior to and during construction activities.	

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Impact Number	Impact	Mitigation Measure		Monitoring Agency	Implementation Schedule	Sign-off
		VI-8.	*Disturbed areas on the channel side slopes shall be revegetated with native plants selected to hold the channel soils in place during high flows and flexible enough to flatten down to allow for less drag against the water flows. Disturbed areas outside the channel banks shall be revegetated. New vegetation in these areas shall be compatible with adjacent farming or grazing operations. The JPA shall review planting plans prior to approval of the design documents.*	JPA	Following construction activities.	
		VI-9.	*The Contractor shall limit construction to the non-rainy season and to irrigation season. During irrigation season any sediment laden water from the drainage channel will enter the RD2068 Intake Canal and will be pumped to the RD2068 Irrigation Canal and used for irrigation, not discharged to the Slough downstream.*	JPA	During construction activities.	
		VI-10.	*Prior to approval of final design documents, the JPA shall review plans for drainage and storm water runoff control systems and their component facilities to ensure that these systems and facilities are non-erosive in design.*	JPA	Prior to approval of final design.	

MITIGATION MONITORING PLAN DIXON MAIN DRAIN AND V-DRAIN ENLARGEMENT					
Impact Number	**Impact**	**Mitigation Measure**	**Monitoring Agency**	**Implementation Schedule**	**Sign-off**
		VI-11. Grading, soil disturbance, or compaction shall not occur during periods of rain.	JPA	During construction activities.	

RESOLUTION NO. 01-2009

RESOLUTION OF THE DIXON REGIONAL WATERSHED JOINT POWERS AGENCY BOARD ESTABLISHING A POLICY AND PROCEDURE FOR THE PAYMENT OF AGENCY EXPENSES

WHEREAS, the Agency Board desires to establish a budgetary and expenditure policy and procedure to facilitate approval of a budget and the payment of Agency expenses; and

WHEREAS, the full Board of the Agency desires to provide for the payment of Agency expenses consistent with the Agency's adopted budget, between Board meetings;

NOW, THEREFORE, the Board of Directors of the Dixon Regional watershed Joint Powers Agency does resolve as follows:

Section 1. Budget. The Board of Directors shall annually consider and adopt a budget for the Agency, in a manner consistent with the Joint Powers Agreement establishing the Agency.

Section 2. Approval of Expenditures

A., There is hereby established a Finance Committee which shall be made up of the Agency Chair and two other Board members, appointed by the Board. If the Board establishes an Executive Committee, the Executive Committee may serve as the Finance Committee. This Finance Committee may approve claims for payment and other expenditures of funds provided that the claim or expenditure is part of the adopted Budget.

B. Expenditures or claims that are not contained within an adopted Budget or that exceed **$0.00** shall require action of the Agency Board.

C. All orders for payment of money, notes, or other evidences of indebtedness issued in the name of or payable to the Agency shall be signed by the two members of the Finance Committee.

Passed and Adopted this 21 day of January, 2009 by the following roll call vote:

AYES: Rick Martinez, Mort Tripleff, John Pitto, Jack Batchelor, Ross Rasmussen, Tom Bors, Gene Robben, Pat Negroni

NOES:

ABSENT:

Chair

ATTEST

Secretary