DELTA CONVEYANCE DESIGN & CONSTRUCTION AUTHORITY

April 15, 2024

Delta Conveyance Design and Construction Authority
Board of Directors

Subject: ***Materials for the April 18, 2024 Regular Board Meeting***

Members of the Board:

The Delta Conveyance Design and Construction Authority (DCA) Board of Directors will have a Regular Board Meeting, scheduled for **Thursday, April 18th, 2024 at 1:30 p.m.** and will be a **hybrid** meeting. The Board will meet in closed session and anticipate opening the Regular Session at approximately **2:00 p.m**. Members of the public may attend the meeting in person or virtually. The call-in and video information, as well as meeting location is provided in the attached agenda. Meeting information will also be posted on the dcdca.org website.

Please note that the DCA continues to follow current State and Local COVID-19 guidelines and will comply with public health recommendations regarding public meetings and social distancing efforts. Any meeting changes or cancellation will be communicated.

Enclosed are the materials for the Board meeting in a PDF file, which has been bookmarked for your convenience.

Regards,

Graham Bradner
DCA Executive Director

DELTA CONVEYANCE DESIGN AND CONSTRUCTION AUTHORITY
BOARD OF DIRECTORS MEETING

REGULAR MEETING

Thursday, April 18th, 2024
1:30 p.m.
Hybrid (Teleconference) Meeting

DCDCA Boardroom
980 9th Street, Suite 100
Sacramento, CA 95814

TELECONFERENCE LOCATIONS:

1) Valley Water, 5700 Almaden Expressway, Headquarters Boardroom, San Jose, CA 95123

CONFERENCE ACCESS INFORMATION:
Phone Number: (669) 444-9171 Access Code: 87681496712#

Virtual Meeting Link: https://dcdca-org.zoom.us/j/87681496712?from=addon

Please join the meeting from your computer, tablet, or smartphone

Additional information about participating by telephone or via the remote meeting solution is available here: https://www.dcdca.org

AGENDA

Except as permitted by Government Code section 54953(f), Directors will attend the meeting from the DCDCA Boardroom or any of the teleconference locations. Members of the public may attend in person at these locations or remotely through the virtual meeting link above. Assistance to those wishing to participate in the meeting in person or remotely will be provided to those requiring accommodations for disabilities in compliance with the Americans with Disabilities Act of 1990. Interested person must request the accommodation as soon as possible in advance of the meeting by contacting the DCA support staff at (888) 853-8486 or info@dcdca.org. Members of the public may speak regarding items on the agenda during those items and when recognized by the Chair. Speakers are limited to three minutes each; however, the Chair may limit this time when reasonable based on the circumstances. Persons wishing to provide public comment remotely on Agenda Items are encouraged to complete a public comment request form at: https://tinyurl.com/dcapubliccomment by 2:15 pm or through the QR code below. In addition, members of the public may use the "raise hand" function (*9 if participating by telephone only) during the meeting to request the opportunity to speak. Additional information will be provided at the commencement of the meeting.

1. CALL TO ORDER

2. ROLL CALL – Any private remote meeting attendance will be noticed or approved at this time.

3. CLOSED SESSION
   (a) CONFERENCE WITH LEGAL COUNSEL
   Significant exposure to litigation pursuant to Government Code Section 54956.9(d)(2):
      i. *Tulare Lake Basin Water Storage District v. DWR*, Sacramento Superior Court, Case No. 24WM000006 (and related cases Nos. 24WM000008, 09, 10, 11, 12, 14, 17); *South Delta Water Agency v. DWR*, San Joaquin Superior Court, Case No. STK-CV-UCP-2024-0000816

4. OPEN REGULAR MEETING & PLEDGE OF ALLEGIANCE – At approximately 2:00p.m.

5. APPROVAL OF MINUTES:

   (a) March 08, 2024 Regular Meeting Minutes

6. DISCUSSION ITEMS

   (a) April Monthly Board Report

   Recommended Action: Information Only.

   (b) Sr. Leadership Spotlight, DCA Quality Manager, Ty Roberston

   Recommended Action: Information Only.

   (c) Presentation on the Bethany Alignment

   Recommended Action: Information Only.

   (d) Review and Adopt a Resolution Considering an Environmental Impact Report (State Clearinghouse No. 2020010227) for the Delta Conveyance Project, Making Responsible Agency Findings, Adopting a Mitigation Monitoring and Reporting Program, Adopting a Statement of Overriding Considerations, and Approving the Delta Conveyance Project

   Recommended Action: Adopt Resolution.

7. REPORTS AND ANNOUNCEMENTS

   (a) General Counsel's Report

   (b) Treasurer's Report

   (c) DCP Communications Report

   (d) DWR Environmental Manager's Report

   (e) Verbal Reports, if any

8. FUTURE AGENDA ITEMS

9. PUBLIC COMMENT

Members of the public may address the Authority on matters that are within the Authority's jurisdiction but not on the agenda at this time. Speakers are generally limited to three minutes each; however, the Chair may further limit this time when reasonable based on the circumstances. Persons wishing to speak may do so remotely through the electronic meeting link, by scanning the QR Code above, or teleconference number when recognized by the Chair. The DCA encourages public comments and requests that speakers present their remarks in a respectful manner, within established time limits, and focus on issues which directly affect the DCA or are within its jurisdiction.

10. ADJOURNMENT

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The Board of Directors meet bi-monthly, proposed next scheduled meetings:

May 16, 2024, Regular Board Meeting at 2:00 p.m. (1:30 p.m. if there is a closed session).

June 20, 2024, Regular Board Meeting at 2:00 p.m. (1:30 p.m. if there is a closed session).

BOARD OF DIRECTORS MEETING

MINUTES

REGULAR MEETING

Friday, March 8, 2024
1:00 p.m.
(Paragraph numbers coincide with agenda item numbers)

1. CALL TO ORDER

The regular meeting of the Delta Conveyance Design and Construction Authority (DCA) Board of Directors was called to order in person, by teleconference, and remotely - Conference Access Information: Phone Number: (669) 444-9171, Code: 84370256189#, https://dcdca-org.zoom.us/j/84370256189?from=addon at 1:00 pm.

2. ROLL CALL

Board members in attendance from the DCA Boardroom were Sarah Palmer and Gary Martin. Martin Milobar participated from Kern County Headquarters Boardroom, Miguel Luna participated from Metropolitan Water District Conference Room, Robert Cheng participated from Coachella Valley Water Admin. Conference Center, Alternate Director Dennis LaMoreaux sitting in for Adnan Anabtawi participated from Palmdale Water District Boardroom and Tony Estremera participated from Valley Water Headquarters Boardroom.

Alternate Directors in attendance remotely were Russel Lafevre, Bob Tincher and John Weed.

DCA staff members in attendance were Graham Bradner and Josh Nelson.

3. CLOSED SESSION

a) PUBLIC EMPLOYEE APPOINTMENT
(Government Code Section 54957)
Title: Executive Director

b) CONFERENCE WITH LABOR NEGOTIATORS
(Government Code Section 54957.6)
Agency designated representatives: Robert Cheng, Tony Estremera, Gary Martin
Contractor: Executive Director

c) CONFERENCE WITH LEGAL COUNSEL
Significant exposure to litigation pursuant to Government Code Section 54956.9(d)(2):

Tulare Lake Basin Water Storage District v. DWR, Sacramento Superior Court, Case No. 24WM000006 (and related cases Nos. 24WM000008, 09, 10, 11, 12, 14, 17); *South Delta Water Agency v. DWR*, San Joaquin Superior Court, Case No. STK-CV-UCP-2024-0000816

4. OPEN REGULAR MEETING & PLEDGE OF ALLEGIANCE

5. APPROVAL OF MINUTES: February 15, 2024, Regular Board Meeting

Recommendation: Approve the February 15, 2024, Regular Board Meeting Minutes

Motion to Approve Minutes from February 15, 2024, as

Noted:	Estremera
Second:	Martin
Yeas:	Palmer, Milobar, Martin, Luna, Estremera, Cheng, LaMoreaux
Nays:	None
Abstains:	None
Recusals:	None
Absent:	None
Summary:	7 Yeas; 0 Nays; 0 Abstain; 0 Absent. (Motion passed as MO 24-02-01).

6. DISCUSSION ITEMS:

a) Adopt Resolution Approving the Executive Director Services Agreement

Approve Resolution

Recommendation: Adopt Resolution Approving the Executive Director Services Agreement

Motion to Adopt Resolution Approving the Executive Director Services Agreement, as

Noted:	Estremera
Second:	Martin
Yeas:	Palmer, Milobar, Martin, Luna, Estremera, Cheng, LaMoreaux
Nays:	None
Abstains:	None
Recusals:	None
Absent:	None
Summary:	7 Yeas; 0 Nays; 0 Abstain; 0 Absent. (Motion passed as Resolution 24-03).

DCA General Counsel, Josh Nelson stated that the draft resolution and agreement were not included in the packet as it was conditioned on the Board's discussion and closed session. As a result of this discussion, the Board is prepared to move forward this item to adopt a resolution to approve an agreement with Bradner Consulting LLC for Executive Director Services. A copy of the agreement and resolution is on the screen and will be posted online and physical copies are available in the Board Chambers.

President Palmer stated that DCA has reappointed Graham Bradner as the Executive Director of the DCA through a unanimous vote on March 8th, 2024. The Board has been overly impressed by Mr. Bradner's leadership and work throughout the years. He has led a team to design a constructible project that supports water security goals. Mr. Bradner has been effective in guiding the team to find creative engineering responses to Delta Community concerns. Mr. Bradner has been selected though the public Procurement Process.

Mr. Bradner thanked the Board for their support.

No further comments or questions were received from the Board, nor were any public comment requests received.

7. STAFF REPORTS AND ANNOUNCEMENTS:

a. General Counsel's Report

DCA General Counsel, Josh Nelson, informed the Board that the annual Form 700s are due by April 2, 2024.

Director Martin asked if he would be notified if the form had not been submitted.

Ms. Rodriguez stated that she would notify members of the form.

No comments or questions were received from the Board, nor were any public comment requests received.

b. Verbal Reports

President Palmer stated that she has attended the Association of California Water Agencies (ACWA) Conference in Washington D.C. and represented Zone 7 and DCA. While at ACWA president Palmer connected with staff and officials. President Palmer was able to provide information to the ACWA attendees of the DCA project.

DCA Treasurer Katano Kasaine stated that it has been very critical and important to have Mr. Bradner work with their team.

Mr. Bradner stated that he appreciated Ms. Katano's comments.

President Palmer stated that there was an Ad Hoc Committee with Director Martin, Director Estremera and Director Cheng. This group worked hard and brought a great

recommendation. President Palmer also recognized Nina Hawk, Claudia Rodriguez and Mike Wuflestad for preparing everything for the board to consider.

No further comments or questions were received from the Board, nor were any public comment requests received.

8. FUTURE AGENDA ITEMS:
   No future agenda items requested.

9. PUBLIC COMMENT:
   No public comment requests.

10. ADJOURNMENT:
    President Palmer adjourned the meeting at 2:24 p.m., remotely-Conference Access Information: Phone Number: (669) 444-9171, Code: 84370256189#, https://dcdca-org.zoom.us/j/84370256189?from=addon

DELTA CONVEYANCE DESIGN & CONSTRUCTION AUTHORITY

Monthly Board Report

This document is fully interactive; use menus to navigate on-screen.

Agenda item 6a

APRIL 2024

(ACTIVITIES IN MARCH)

Section 1 | Work Performed (March 2024 Activities)

Program Management. The team continued program-wide support activities and implementation of the Program Management Information System.

- Continued processing invoices for FY23/24.
- Support vendors with invoice submission and contract amendment requests.
- Support contract managers with financial forecasting and cashflow projections.
- Continue development of master programmatic schedule.
- Continue implementation and training of SOPs/Management Plans.
- Continued work on FY24/25 Procurement Strategy development.
- Kicked-off the FY24/25 budget development process.

Administration. The Administrative team continued to support functions including IT support, in-person and virtual meetings and social media content/updates.

- Supported DCA Board of Directors and coordination of DCA events including preparation for remote Director participation for Board meetings per Brown Act requirements.
- DCA Website review and updates, pushed DCA updates via social media outlets, created reminders about resource materials.
- Coordination of DCA Change Board meetings/actions
- Activities supporting the development, coordination and live support for Program Management Plans Phase 2 project
- Continue FY23/24 contract management activities
- FY24/25 budget preparation activities.
- Execution and support of upcoming meetings and conferences.
- Project Management activities to improve audio and display in the DCA Board Room.
- Continue planning for Spring 2024 DCA alignment tours.
- Planning efforts for implementation of DCA Learning Management System.

Engineering. The engineering team primarily focused on supporting the Department of Water Resources (DWR) Delta Conveyance Office (DCO) permitting efforts while also continuing to develop and progress engineering studies.

- Continued responding to requests for information (RFIs) from DCO environmental team regarding permit applications.
- Continued preparing the Administrative Record for the Central and Eastern (C-E) Alignments and Bethany Reservoir Alternative Engineering Project Reports (EPRs).
- Continued evaluation of total program costs associated with the Bethany Reservoir Alternative, including evaluation of potential innovations that could reduce impacts, cost, schedule, or improve constructability.
- Continued developing reports documenting the coordination, engineering, and cost estimating for a potential community benefits project.
- Initiated work on the Project Engineering Report and Project Definition Report outlines.
- Continued to support communications and outreach efforts, including developing new and updated graphics and updating tour visualizations.
- Continued review of existing Delta-wide subsurface information
- Continued to support DCA programmatic planning activities.

Field Work. The field work team continued efforts to plan and conduct geotechnical and environmental investigations for evaluation of subsurface conditions and validation of parameters assumed during conceptual design.

- Continued TEP negotiations with landowners.
- Continued development of budget and scope for Spring 2024 and Summer/Fall 2024 investigation programs.
- Began planning and scheduling Spring 2024 investigation program.
- Completed analysis of data gathered during the Summer 2023 investigation program.
- Continued analysis of data gathered during the Fall 2023 investigation program.

Section 1 | One Month Look-Ahead (April 2024 Activities)

Program Management

- Continue processing invoices for FY23/24
- Continue development and processing of Task Orders, Task Order Amendments and Purchase Orders for FY23/24
- Support vendors with invoice submission and contract amendment requests
- Continue implementation and training of SOPs/Management Plans
- Support contract managers with financial forecasting and cashflow projections
- Continue development of master programmatic schedule
- Continue work on FY24/25 Procurement Strategy development
- Continue budget planning for FY24/25

Administration

- Continue support to DCA office including all Administrative, Facility and IT functions
- Continue support for DCA Board of Directors meetings and monthly report generation
- Continue coordination of DCA Change Control Board meetings/actions
- Continue support for stakeholder engagement and outreach efforts
- Continue to manage and coordinate content for Social Media outlets
- Continued support for the Organization Growth Implementation Plan
- Ongoing FY23/24 contract management activities
- Planning for 2024 DCA alignment tours
- Project Management and go-live of DCA Learning Management System including course creation
- Project Management activities to improve audio and display in the DCA Board Room
- FY24/25 Budget preparation activities
- FY24/25 Agreement, Task Order and Purchase Order preparation

Engineering

- Continue engineering support of permit activities as requested by DWR environmental team
- Continue developing updated total program costs associated with the Bethany Reservoir Alternative
- Continue performing engineering studies to evaluate conceptual design assumptions and consider refinements that could reduce construction effects
- Continue work on Project Engineering Report and initial Project Definition Report outlines.
- Continue supporting DCA programmatic activities.
- Continue supporting DCO's potential community benefits projects.
- Continue review of existing Delta-wide subsurface information.
- Provide engineering support to the planning of future Geotechnical Investigation Programs.

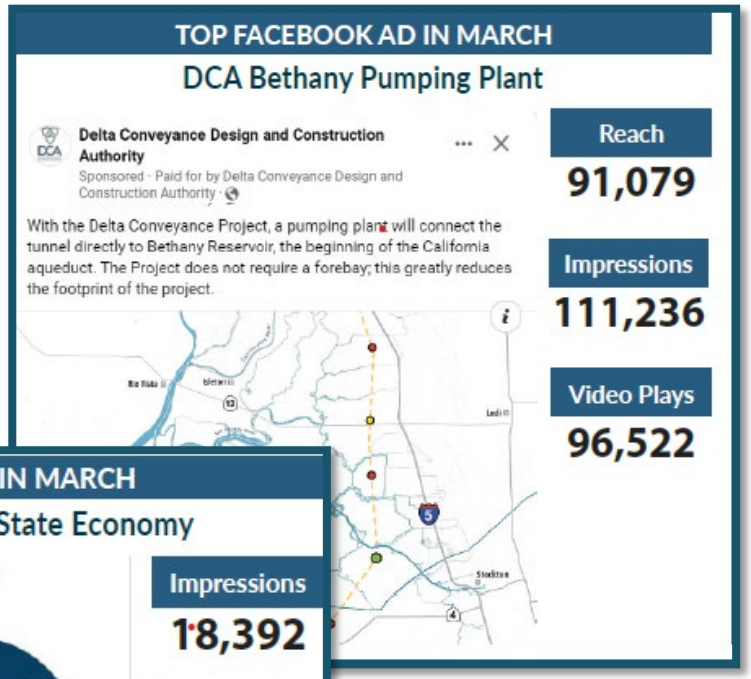
Field Work

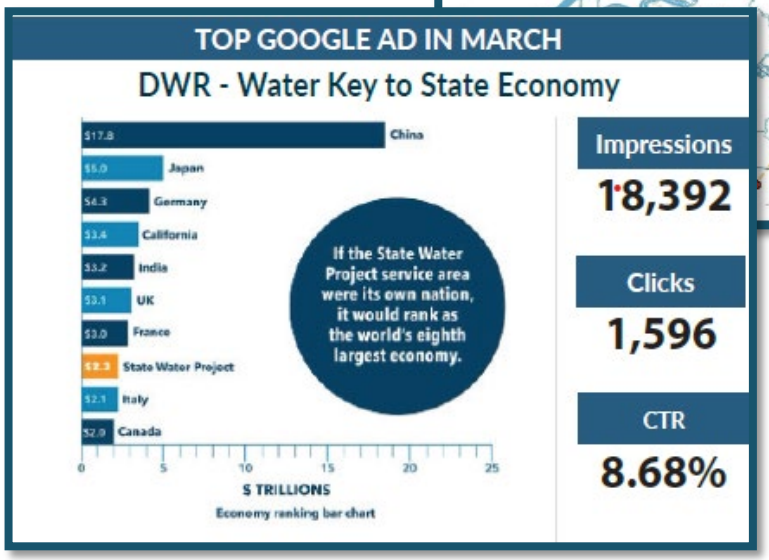
- Continue TEP negotiations with landowners.
- Finalize budget and scope for Spring 2024 and Summer/Fall 2024 investigation programs.
- Continue planning and scheduling of Spring 2024 investigation program.
- Complete analysis of data gathered during the Fall 2023 Investigation Programs.
- Continue coordination with landowners regarding property access for subsurface and site investigations and surveys.

Section 2 | Community Engagement

DCA Highlights

- Updated A Closer Look series of videos.
- Completed Desert Water Agency Facts Sheets and Social Media Graphics
- Drafted quarterly project update to PWA's and partner agencies.
- Began Spanish translation of info videos.





We're Connecting Everywhere!

SOCIAL MEDIA:

Total impressions: 270,121

Video Plays: 107,770

WEBSITE VIEWS:

Overview Page: 1,201

Document Library: 429

Section 3 | Budget

Budget. The FY23/24 DCA revised approved budget is $40.44M (Table 1). Our Estimate at Complete continues to be below the approved budget. Our projection is currently forecasting an Estimate at Completion budget of $36.0M (Table 1). The DCA has incurred $20.9M in expenditures through the end of March (details in Table 2) and has committed $34.8M (details in Table 3). Actual and planned cash flow curves are shown in Figure 2.

Table 1 | Monthly Budget Summary (FY 23/24)

	Original Budget	Current Budget	Current Commitments	Incurred to Date	EAC	Variance (Surplus)/Deficit
Program Management Office						
Executive Office	$ 5,382,983	$ 5,232,983	$ 2,885,637	$ 1,583,364	$ 2,979,730	$ (2,253,253)
Community Engagement	1,263,072	1,263,072	1,171,096	513,980	1,221,738	(41,334)
Program Controls	4,230,306	4,230,306	4,580,867	2,678,204	4,410,167	179,861
Administration	3,229,589	3,229,589	3,379,498	2,520,419	3,372,990	143,401
Procurement and Contract Administration	555,508	555,508	558,448	330,895	558,448	2,940
Property	570,364	570,364	600,013	292,348	606,013	35,649
Permitting Management	489,208	489,208	495,622	315,948	507,622	18,414
Health and Safety	488,585	488,585	390,980	283,838	390,980	(97,605)
Quality Management	391,560	391,560	393,640	252,992	433,640	42,080
Sustainability	84,344	84,344	264,240	194,785	294,240	209,896
Program Initation Office						
Engineering	$ 15,656,019	$ 15,656,019	$ 13,277,585	$ 7,478,484	$ 12,695,585	$ (2,960,434)
Fieldwork	7,613,466	8,101,016	6,677,647	4,482,552	8,378,847	277,831
Initiation Fieldwork Support	-	150,000	150,000	-	150,000	-
	$ 39,955,004	**$ 40,442,554**	**$ 34,825,274**	**$ 20,927,808**	**$ 36,000,000**	**$ (4,442,554)**

Section 3 | Budget *continued*

Table 2 | FY 23/24 Budget Detail

Work Breakdown Structure	Original Budget	Current Budget	Commitments	Pending Commitments	Actuals Received	Remaining Budget	% of Budget Remaining	Estimate at Completion	Variance (Surplus)/Deficit
Delta Conveyance	**$ 39,955,004**	**$ 40,442,554**	**$ 34,825,274**	**$ -**	**$ 20,927,808**	**$ 19,514,746**	**52%**	**$ 36,000,000**	**$ (4,442,554)**
Executive Office	**5,382,983**	**5,232,983**	**2,885,637**	**-**	**1,583,364**	**3,649,619**	**30%**	**2,979,730**	**(2,253,253)**
Executive Office	2,555,988	2,555,988	2,085,833	-	1,295,316	1,260,672	**51%**	1,963,833	(592,155)
Legal	525,000	525,000	496,109	-	160,100	364,900	**30%**	296,109	(228,891)
Audit	18,000	18,000	18,000	-	12,460	5,540	**69%**	18,000	-
Treasury	37,315	37,315	45,855	-	45,855	(8,540)	**123%**	45,855	8,540
Human Resources	246,680	246,680	239,840	-	69,634	177,046	**28%**	169,840	(76,840)
Undefined Allowance	2,000,000	1,850,000	-	-	-	1,850,000	**0%**	486,093	(1,363,907)
Community Engagement	**1,263,072**	**1,263,072**	**1,171,096**	**-**	**513,980**	**749,092**	**41%**	**1,221,738**	**(41,334)**
Management	406,072	406,072	441,573	-	223,274	182,798	**55%**	497,215	91,143
Community Coordination	250,000	250,000	-	-	-	250,000	**0%**	-	(250,000)
Outreach	607,000	607,000	729,523	-	290,706	316,294	**48%**	724,523	117,523
Program Controls	**4,230,306**	**4,230,306**	**4,580,867**	**-**	**2,678,204**	**1,552,102**	**63%**	**4,410,167**	**179,861**
Management	682,311	682,311	993,237	-	430,231	252,080	**63%**	947,537	265,226
Cost Management	823,085	823,085	819,180	-	536,586	286,499	**65%**	819,180	(3,905)
Schedule Management	1,367,850	1,367,850	1,161,980	-	557,317	810,533	**41%**	1,061,980	(305,870)
Document Management	436,560	436,560	443,120	-	285,404	151,156	**65%**	418,120	(18,440)
Governance	920,500	920,500	1,163,350	-	868,667	51,834	**94%**	1,163,350	242,850
Administration	**3,229,589**	**3,229,589**	**3,379,498**	**-**	**2,520,419**	**709,170**	**78%**	**3,372,990**	**143,401**
Management	917,760	917,760	919,680	-	672,425	245,335	**73%**	919,680	1,920
Facilities	1,420,461	1,420,461	1,434,900	-	1,139,070	281,391	**80%**	1,428,391	7,930
Information Technology	891,368	891,368	1,024,919	-	708,924	182,444	**80%**	1,024,919	133,551
Procurement and Contract Administration	**555,508**	**555,508**	**558,448**	**-**	**330,895**	**224,613**	**60%**	**558,448**	**2,940**
Procurement Management	555,508	555,508	558,448	-	330,895	224,613	**60%**	558,448	2,940

continued >

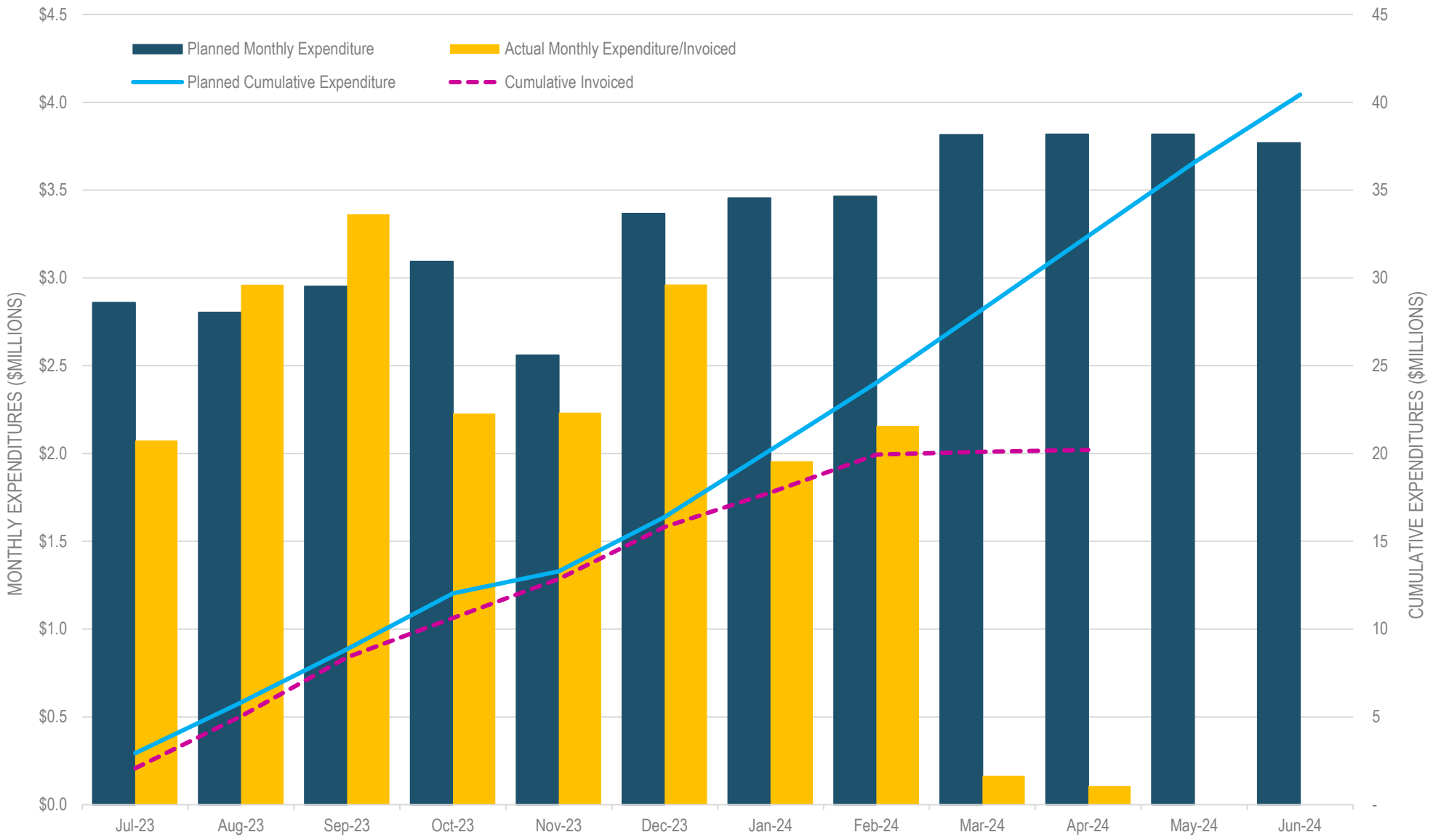
Section 3 | Budget *continued*

Table 2 | FY 23/24 Budget Detail

Work Breakdown Structure	Original Budget	Current Budget	Commitments	Pending Commitments	Actuals Received	Remaining Budget	% of Budget Remaining	Estimate at Completion	Variance (Surplus)/Deficit
Property	**570,364**	**570,364**	**600,013**	**-**	**292,348**	**278,016**	**51%**	**606,013**	**35,649**
Management	115,364	115,364	115,934	-	29,911	85,453	**26%**	141,934	26,570
Property Agents	355,000	355,000	384,079	-	210,437	144,563	**59%**	364,079	9,079
Temporary Entrance Permits	100,000	100,000	100,000	-	52,000	48,000	**52%**	100,000	-
Permitting Management	**489,208**	**489,208**	**495,622**	**-**	**315,948**	**173,260**	**65%**	**507,622**	**18,414**
Management	489,208	489,208	495,622	-	315,948	173,260	**65%**	507,622	18,414
Health and Safety	**488,585**	**488,585**	**390,980**	**-**	**283,838**	**204,747**	**58%**	**390,980**	**(97,605)**
Management	488,585	488,585	390,980	-	283,838	204,747	**58%**	390,980	(97,605)
Quality Management	**391,560**	**391,560**	**393,640**	**-**	**252,992**	**138,568**	**65%**	**433,640**	**42,080**
Management & Auditing	391,560	391,560	393,640	-	252,992	138,568	**65%**	433,640	42,080
Sustainability	**84,344**	**84,344**	**264,240**	**-**	**194,785**	**(110,441)**	**231%**	**294,240**	**209,896**
Management	84,344	84,344	264,240	-	194,785	(110,441)	**231%**	294,240	209,896
Engineering	**15,656,019**	**15,656,019**	**13,277,585**	**-**	**7,478,484**	**8,177,535**	**48%**	**12,695,585**	**(2,960,434)**
Management & Administration	1,019,495	1,019,495	1,107,831	-	774,783	244,712	**76%**	1,387,831	368,336
CEQA Engineering Support	941,432	941,432	415,479	-	306,382	635,050	**33%**	608,479	(332,953)
Facility Studies	8,831,836	8,831,836	10,145,819	-	6,397,319	2,434,517	**72%**	10,110,819	1,278,983
Project Definition Reports	4,863,256	4,863,256	1,608,456	-	-	4,863,256	**0%**	588,456	(4,274,800)
Fieldwork	**7,613,466**	**8,101,016**	**6,677,647**	**-**	**4,482,552**	**3,618,464**	**55%**	**8,378,847**	**277,831**
Management	1,379,135	1,379,135	1,185,351	-	605,313	773,822	**44%**	1,192,551	(186,584)
Geotechnical Work	5,800,000	6,287,550	4,987,108	-	3,614,037	2,673,513	**57%**	6,687,108	399,558
Environmental Monitoring	434,331	434,331	505,188	-	263,202	171,129	**61%**	499,188	64,857
Initiation	**-**	**150,000**	**150,000**	**-**	**-**	**150,000**	**0%**	**150,000**	**-**
Initiation Fieldwork Support	-	150,000	150,000	-	-	150,000	-	150,000	-

Section 3 | Budget *continued*

Figure 1 | FY 23/24 Cash Flow



Section 4 | Contracts *continued*

Table 3 | Contract Summary

Contract Description	Commitment Amount	Pending Commitments	Invoiced to Date	Percent Invoiced
180005 - e-Builder, Inc.	$ 153,861	$ -	$ 153,861	100%
180006 - Jacobs Engineering Group	$ 15,061,927	$ -	$ 8,291,788	55%
180008 - Hamner, Jewell & Associates	$ 50,798	$ -	$ 30,563	60%
180009 - Bender Rosenthal, Inc.	$ 303,385	$ -	$ 160,019	53%
180010 - Associated Right of Way Services, Inc.	$ 29,896	$ -	$ 19,855	66%
190005 - Baker Tilly US LLP	$ 299,014	$ -	$ 299,014	100%
190009 - Parsons	$ 8,427,221	$ -	$ 5,460,258	65%
190011 - GV/HI Park Tower Owner, LLC	$ 1,249,719	$ -	$ 1,034,580	83%
190014 - 110 Holdings dba Launch Consulting, LLC	$ 360,284	$ -	$ 213,591	59%
190019 - VMA Communications, Inc.	$ 902,900	$ -	$ 403,463	45%
190023 - JAMBO-Silvacom LTD	$ 37,714	$ -	$ 34,920	93%
200003 - Best Best & Krieger	$ 496,109	$ -	$ 160,100	32%
200013 - Metropolitan Water District of S. California	$ 507,816	$ -	$ 121,546	24%
200014 - Dept of Water Resources	$ 100,000	$ -	$ 52,000	52%
210018 - AECOM Technical Services	$ 5,849,820	$ -	$ 4,002,098	68%

continued >

Section 4 | Contracts *continued*

Table 3 | Contract Summary

Contract Description	Commitment Amount	Pending Commitments	Invoiced to Date	Percent Invoiced
220002 - Gwendolyn Buchholz, Permit Engineer Inc	$ 150,000	$ -	$ 97,250	65%
220008 - IRIS Intelligence, LLC	$ 36,790	$ -	$ -	0%
220009 - Alliant Insurance	$ 37,043	$ -	$ 37,043	100%
220015 - Consolidated Communications, Inc.	$ 36,000	$ -	$ 25,627	71%
220016 - AT&T	$ 58,165	$ -	$ 17,788	31%
230001 - Keogh Multimedia	$ 15,600	$ -	$ 2,535	16%
230007 - onPar Advisors LLC	$ 48,622	$ -	$ 48,622	100%
230009 - Caltronics Government Services	$ 37,650	$ -	$ 25,219	67%
230014 - Interagency Agreement	$ 150,000	$ -	$ -	0%
230015 - AVI-SPL LLC	$ 23,051	$ -	$ 13,051	57%
230016 - LuxBus America	$ 35,000	$ -	$ 14,468	41%
230034 - Bradner Consulting, LLC	$ 292,706	$ -	$ 147,917	51%
Agreements < $15k	$ 45,412	$ -	$ 31,865	70%

Section 4 | Contracts *continued*

Table 4 | Commitment Changes

There are no Commitment Changes for this period

Table 5 | S/DVBE Status (FY 23/24)

	Commitment Amount	Invoiced to Date	Percent Committed	Percent Invoiced
Delta Conveyance	$ 34,917,905	$ 18,048,201		
SBE Participation	**3,154,709**	**1,753,693**	**9.0%**	**9.7%**
DVBE Participation	**$ 50,000**	**$ 5,920**	**0.1%**	**0.0%**

Consultant	Current Commitment	Percent of Total Commitment	Invoiced to Date	Percent Invoiced SBE/DVBE	SBE/DVBE Status
Jacobs Engineering Group	**15,061,927**	**0.9%**	**8,291,788**	**0.9%**	
Anchor	50,000	0.3%	5,920	0.1%	SBE/DVBE
EETS	10,000	0.1%	7,995	0.1%	SBE
JMA	25,000	0.2%	34,303	0.4%	SBE
JASpezia	50,000	0.3%	26,182	0.3%	SBE
Parsons	**8,427,221**	**20.1%**	**5,460,258**	**19.0%**	
Chaves	1,695,080	20.1%	1,040,175	19.0%	SBE
Associated Right of Way Services	**29,896**	**100%**	**19,855**	**100%**	**SBE**
Bender Rosenthal, Inc.	**303,385**	**100%**	**160,019**	**100%**	**SBE**
Caltronics Government Services	**37,650**	**100%**	**25,219**	**100%**	**SBE**
Hamner, Jewell & Associates	**50,798**	**100%**	**30,563**	**100%**	**SBE**
VMA Communications	**902,900**	**100%**	**403,463**	**100%**	**SBE**

Table 6 | Contract Procurement Summary

WBS	Contract Type	Planning/ Estimated Value	Annual Budget (FY 2023/24)	Pending Contract Value	Anticipated Term	Procurement Method	Procurement Start	Target NTP Date	Status
Executive Director Services	Services & Consulting with Task Orders	$13M	TBD	TBD	5 year	Qualifications Based Selection	Jan-24	Apr-24	In Progress

continued >

Section 5 | Program Schedule

Schedule. The Program Management Office (PMO) continues to work on program support activities as planned. The Engineering team focused on finalizing the updated cost estimate and evaluating potential design innovations which could reduce program impacts, cost, or schedule, as well as supporting DCA programmatic activities, environmental and fieldwork efforts. The Fieldwork team focused on planning future investigation programs.

[1] % Complete – Based on qualitative assessment of factors that may include spend to date and anticipated progress vs actual progress, see Table 2 for detailed cost breakdown

On Schedule
Delayed

DELTA CONVEYANCE DESIGN & CONSTRUCTION AUTHORITY

Board Memo

Contact: Graham Bradner, Executive Director and Josh Nelson, General Counsel

Date: April 18, 2024 Board Meeting **Item No.** 6d

Subject:
Consider Adopting a Resolution Considering an Enviromental Impact Report (State Clearinghouse No. 2020010227) for the Delta Conveyance Project, Making Responsible Agency Findings, Adopting a Mitigation Monitoring and Reporting Program, Adopting a Statement of Overriding Considerations, and Approving the Delta Conveyance Project

Executive Summary:
Staff recommends that the Board adopt the enclosed Resolution Considering an Enviromental Impact Report (State Clearinghouse No. 2020010227) for the Delta Conveyance Project, Making Responsible Agency Findings, Adopting a Mitigation Monitoring and Reporting Program, Adopting a Statement of Overriding Considerations, and Approving the Delta Conveyance Project.

Detailed Report:
In December 2023, the Department of Water Resources (DWR) certified the Final Enviromental Impact Report (FEIR) for the Delta Conveyance Project (DCP). Despite this milestone, there remains additional necessary design, planning, and permitting work prior to DCP implementation and construction. In January 2024, the Board of Directors approved the Eighth Amendment to the Joint Exercise of Powers Agreement (JEPA) to extend the "Planning Phase" under that agreement through the conclusion of design, planning, and permitting work.

To assist DWR's continued work as part of the Planning Phase, DWR has requested that DCA undertake exploratory field investigations to inform planning and design work and other related DCP activities. This work is being completed under the FEIR, and the DCA must make responsible agency findings to review, consider, and approve the DCP. This item would make those necessary findings to allow DCA to conduct the planned field investigations and related DCP activities during the Planning Phase as directed by DWR.

Recommended Action:
Adopt the enclosed Resolution Considering an Enviromental Impact Report (State Clearinghouse No. 2020010227) for the Delta Conveyance Project, Making Responsible Agency Findings, Adopting a Mitigation Monitoring and Reporting Program, Adopting a Statement of Overriding Considerations, and Approving the Delta Conveyance Project.

Attachments:
Attachment 1 - Draft Resolution 24-xx

BOARD OF DIRECTORS OF THE DELTA CONVEYANCE DESIGN AND CONSTRUCTION AUTHORITY
RESOLUTION NO. 24-xx

Introduced by Director: XX
Seconded by Director: XX

Considering an Environmental Impact Report (State Clearinghouse No. 2020010227) for the Delta Conveyance Project, Making Responsible Agency Findings, Adopting a Mitigation Monitoring and Reporting Program, Adopting a Statement of Overriding Considerations, and Approving the Delta Conveyance Project

WHEREAS, the Delta Conveyance Project (the "Project") seeks to develop new diversion and conveyance facilities in the Sacramento-San Joaquin Delta ("Delta") to restore and protect the reliability of State Water Project ("SWP") water deliveries and, potentially, Central Valley Project ("CVP") water deliveries south of the Delta, consistent with the California Water Resilience Portfolio; and

WHEREAS, the Project involves the construction and future operation of new water intake facilities on the Sacramento River in the north Delta and a single main tunnel to divert and move water entering the north Delta from the Sacramento Valley watershed to existing SWP facilities in the south Delta, which would result in a dual conveyance system in the Delta, as set forth in greater detail in Section 5.2 of the California Department of Water Resources' ("DWR") CEQA Findings of Fact and Statement of Overriding Considerations, incorporated by reference and attached hereto as Attachment "A;" and

WHEREAS, the Project refers to the Bethany Reservoir alignment at 6,000 cubic feet per second conveyance capacity, identified as Alternative 5 in the Final EIR and approved by DWR, as set forth in Attachment "A;" and

WHEREAS, DWR served as lead agency for the environmental review, analysis, and approval of the Project pursuant to the requirements of the California Environmental Quality Act (Pub. Resources Code, § 21000, et seq.) ("CEQA") and the State CEQA Guidelines (Cal. Code Regs., tit. 14, § 15000, et seq.); and

WHEREAS, pursuant to CEQA and the State CEQA Guidelines, on December 21, 2023, DWR certified the Final Environmental Impact Report ("EIR") (State Clearinghouse No. 2020010227) for the Project, made written findings for the Project pursuant to State CEQA Guidelines section 15091, adopted a statement of overriding considerations for the Project pursuant to State CEQA Guidelines section 15093, adopted a mitigation monitoring and reporting program ("MMRP") for the Project, and approved the Bethany Reservoir alignment at 6,000 cubic feet per second conveyance capacity as the proposed project; and

WHEREAS, the Delta Conveyance Design and Construction Authority ("DCA") has been asked to issue various discretionary approvals needed to conduct exploratory field investigations to inform planning and design work related to the Project; and

WHEREAS, the DCA has limited approval authority over the Project and is thus a "responsible agency" for the Project under CEQA; and

WHEREAS, the DCA, at its agendized public meeting on April 18, 2024, independently reviewed and considered the Final EIR, all other related documents in the record before it, and the environmental effects of the Project as set forth in the Final EIR; and

WHEREAS, all the requirements of CEQA have been met, and the Final EIR prepared in connection with the Project is sufficiently detailed so that all of the potential effects of the Project on the environment and measures necessary to avoid or substantially lessen such effects have been evaluated in accordance with CEQA; and

WHEREAS, as contained herein, the DCA has endeavored in good faith to set forth the basis for its decision on the Project; and

WHEREAS, all of the findings and conclusions made by the DCA to this Resolution are based upon the oral and written evidence presented to it as a whole and not based solely on the information provided in this Resolution; and

WHEREAS, all other legal prerequisites to the adoption of this Resolution have occurred.

NOW, THEREFORE, the Board of Directors of the DCA does hereby RESOLVE, DETERMINE and ORDER as follows:

Section 1. Compliance with the California Environmental Quality Act. As the decision-making body for the DCA, and in the DCA's limited role as a responsible agency under CEQA, the Board of Directors has reviewed and considered the information contained in the Final EIR, the MMRP, and all supporting documentation, copies of which are on file at the DCA's office and are incorporated by reference as though set forth fully herein. Based on this review, the Board of Directors find that, as to those potential environmental impacts within the DCA's powers and authorities as a responsible agency, that the Final EIR and supporting environmental documentation contain a complete, adequate, and accurate reporting of those potential impacts, and that the Final EIR and supporting environmental documentation reflect the independent judgment and analysis of the Board of Directors. The Board of Directors further finds that there is no feasible project alternative or mitigation measures within the DCA's powers that would substantially lessen or avoid any significant effect that the Project may have on the environment. Consequently, the Board of Directors finds that no subsequent or supplemental EIR is required for the Project under State CEQA Guidelines sections 15162 or 15163.

Section 2. Findings on Environmental Impacts. The Board of Directors further find that the Final EIR, MMRP, and supporting documents have been completed in compliance with CEQA and the State CEQA Guidelines. The Board of Directors concurs with the environmental findings regarding the impacts associated with the Project made by DWR pursuant to State CEQA Guidelines section 15091, and the Board of Directors makes and adopts these findings, set forth in the document attached to this Resolution as Attachment "A," as though fully set forth herein.

Section 3. Statement of Overriding Considerations. In its limited role as a responsible agency under CEQA, and pursuant to State CEQA Guidelines section 15093, the Board of Directors further makes and adopts a Statement of Overriding Considerations, as set forth in Chapters 8 and 9 of the document attached hereto as Attachment "A," as though fully set forth herein. For the reasons set forth therein, in the Board of Directors' judgment, the benefits of the Project as approved by DWR outweigh the Project's significant and unavoidable impacts.

Section 4. Adoption of Mitigation Monitoring and Reporting Program. The Board of Directors hereby approves and adopts the MMRP prepared for the Project and approved by DWR, which is incorporated by reference as though set forth fully herein. A copy of the MMRP is attached to this Resolution as Attachment "B."

Section 5. Approval of Interim Geotechnical Program. The Board of Directors hereby approves the Executive Director's authority to issue task orders, contracts, expenditures, and other approvals necessary to undertake exploratory field investigations to inform planning and design work and other actions related to the Project as directed by DWR.

Section 6. Notice of Determination. The Board of Directors directs staff to file a Notice of Determination with the State Clearinghouse and the County Clerk of the Counties of Sacramento, San Joaquin, Contra Costa, Yolo, and Solano within five (5) working days of adoption of this Resolution.

Section 7. Custodian of Records. The documents and materials that constitute the record of proceedings on which this Resolution and the above findings have been based are located at the DCA's office, located at 980 9th St, Suite 2400, Sacramento, CA 95814. The custodian of these records is the DCA's Chief of Staff, Claudia Rodriguez.

This Resolution was passed and adopted this 18th day of April 2024, by the following vote:

Ayes:
Noes:
Absent:
Abstain:

_____
Sarah Palmer, Board President

Attest:

_____
Gary Martin, Secretary

ATTACHMENT A

FINDINGS

[attached behind this page]

DELTA CONVEYANCE PROJECT

CEQA FINDINGS OF FACT AND STATEMENT OF OVERRIDING CONSIDERATIONS

Contents

Chapter 1
Introduction

Under the California Environmental Quality Act (CEQA), a state or local public agency decision maker, before approving a project for which an environmental impact report (EIR) was prepared, must make certain findings with respect to each significant impact identified in the EIR. (See Pub. Resources Code, § 21081, subd. (a); see also Cal. Code Regs., tit. 14, div. 6, ch. 3 ("CEQA Guidelines"), § 15091, subd. (a).) Such findings are one of the primary means by which California public agencies satisfy what the California Supreme Court has called the "substantive mandate" of CEQA, by which such agencies must substantially lessen or avoid the occurrence of significant environmental impacts to the extent feasible. (See *Mountain Lion Foundation v. Fish & Game Com.* (1997) 16 Cal.4th 105, 134; Pub. Resources Code, § 21002.)

With regard to each significant impact, the agency decisionmaker must make at least one of the following findings:

> (1) Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect as identified in the final EIR;
>
> (2) Such changes or alterations are within the responsibility and jurisdiction of another public agency and not the agency making the finding. Such changes have been adopted by such other agency or can and should be adopted by such other agency.
>
> (3) Specific economic, legal, social, technological, or other considerations, including provision of employment opportunities for highly trained workers, make infeasible the mitigation measures or project alternatives identified in the final EIR.

(CEQA Guidelines, § 15091, subd. (a)(1)-(3).)

Additionally, the findings required under CEQA must be supported by substantial evidence. (CEQA Guidelines, § 15091, subd. (b).)

A typical set of CEQA findings identifies all adopted or rejected mitigation measures for the various significant environmental impacts of a proposed project. The findings then go on to explain why various project alternatives identified in EIRs are either infeasible or unnecessary to meet the substantive mandate of CEQA.

A related CEQA requirement is the need for the agency decision maker to adopt a "statement of overriding considerations" before approving any project with environmental effects that cannot feasibly be mitigated to a less than significant level. (Pub. Resources Code, § 21081, subd. (b); CEQA Guidelines, § 15093.) This separate requirement is not a substitute for the adoption of CEQA findings, but is an additional procedural step required as part of the project approval process. A statement of overriding considerations must identify "the specific economic, legal, social, technological, or other benefits, including region-wide or statewide environmental benefits, of [the] proposed project [that] outweigh the [project's] unavoidable adverse environmental effects," thereby rendering them "acceptable" to the decision maker. (CEQA Guidelines, § 15093, subd. (a).)

The document at hand is intended to satisfy both of the above-described CEQA requirements with respect to the project commonly known as the Delta Conveyance Project (the Project). As the CEQA lead agency, the California Department of Water Resources (DWR) has completed the Final

Environmental Impact Report (Final EIR) for the Project. As the final decision maker for DWR, the Director of DWR (Director) has certified the EIR pursuant to CEQA Guidelines section 15090 and is now in a position to consider approval of the Project.[1]

Through this document, including its attachments, the Director hereby issues both the CEQA Findings of Fact (Findings) and the Statement of Overriding Considerations necessary for the Project. The Director does so after having received, reviewed, and considered not only the Final EIR, but also the previously issued Draft Environmental Impact Report (Draft EIR), as well as public and agency comments on those documents and all other information in DWR's record of proceedings.

The tables included in Exhibit A (CEQA Findings of Fact for the Project's Significant and Unavoidable Impacts, Impacts that are Less Than Significant after Mitigation and Impacts that are Less Than Significant/No Impact), contain findings that explain all of the mitigation measures proposed in the Final EIR (including the Compensatory Mitigation Plan for Special-Status Species and Aquatic Resources) have been adopted and incorporated into the enforceable Mitigation Monitoring and Reporting Program (MMRP) for the Project. (See Pub. Resources Code, § 21081.6, subds. (a)(1) and (b).) Likewise, the environmental commitments including best management practices (BMPs) set forth in Appendix 3B, *Environmental Commitments and Best Management Practices*, of the Final EIR have been incorporated into the MMRP.

As part of the narrative portion of these findings, the Director explains why the other project alternatives analyzed in the Final EIR are being rejected. Each specific finding is supported by substantial evidence in the record of proceedings.

The Statement of Overriding Considerations, found near the end of this document, then identifies the specific economic, legal, social, technological, and other benefits of the Project that, in the Director's view, outweigh the Project's significant and unavoidable environmental impacts. To the extent that these Findings do not set forth in detail all of the evidence in support of the conclusions reached, readers seeking additional information are directed to the Final EIR and supporting evidence in the record of proceedings, which is hereby incorporated by reference.

In addition to these CEQA Findings and the Statement of Overriding Considerations, Exhibit B to these CEQA Findings sets forth the Director's Public Trust Findings for the Project. The Public Trust Findings consider the Project's potential effect on the public trust and the state's affirmative duty to preserve, so far as consistent with the public interest, the resources and values protected by the trust. While the Public Trust Findings constitute separate findings from the CEQA Findings, the CEQA Findings and overall record of proceedings provide further evidentiary support for the conclusions reached in the Public Trust Findings.

[1] Subsequent actions by other responsible agencies, such as the California Department of Fish and Wildlife, will also be required before Project construction and/or operation may commence. Before DWR commences any project operations, DWR and responsible agencies will take future discretionary actions identified in the EIR, and such future actions will be subject to CEQA.

Chapter 2
Record of Proceedings

For purposes of CEQA and these Findings, the Record of Proceedings for the Project consists of the following documents, at a minimum:

- The Notice of Preparation and all other public notices issued by DWR in conjunction with the Project.
- The Final EIR for the Project and any documents cited therein.
- All comments submitted by agencies or members of the public during the public comment period on the Draft EIR.
- All comments and correspondence submitted to DWR with respect to the Project, in addition to timely comments on the Draft EIR, including responses to the Notice of Preparation.
- The Mitigation Monitoring and Reporting Plan for the Project.
- All reports, studies, memoranda, maps, staff reports, or other planning documents in DWR's files relating to the Project prepared by DWR staff, consultants to DWR, and responsible or trustee agencies with respect to DWR's compliance with the requirements of CEQA and with respect to DWR's actions on the Project.
- All documents submitted to DWR by other public agencies or members of the public with respect to compliance with CEQA or with respect to the Project.
- Any minutes and/or verbatim transcripts of all public meetings held by DWR in connection with the Project.
- Any documentary or other evidence submitted to DWR regarding the Project.
- Matters of common knowledge to DWR, including, but not limited to federal, State, and local laws and regulations;
- Any documents expressly cited in the Final EIR, these findings, or the statement of overriding considerations in addition to those cited above; and
- Any other materials required to be in the record of proceedings by Public Resources Code section 21167.6, subdivision (e).

The custodian of the documents comprising the record of proceedings: Marcus Yee, DWR, Program Manager III for the Project, 1516 9th Street, Sacramento, CA 95814. Many project-related documents that comprise the record of proceedings are also available on DWR's websites for the Project: https://www.deltaconveyanceproject.com and https://water.ca.gov/deltaconveyance.

The Director of DWR has relied directly or indirectly on all the documents listed above in reaching a decision on the Project. Many of the documents listed above were prepared by, or submitted to, DWR during preparation of the EIR for the Project. Other documents reflect prior planning or legislative decisions with which the Director was aware in approving the Project. For that reason, such documents form part of the underlying factual basis for the Director's decisions relating to approval of the Project. (See Pub. Resources Code, § 21167.6, subd. (e)(10); *Browning-Ferris Industries v. City Council of City of San Jose* (1986) 181 Cal.App.3d 852, 866; *Stanislaus Audubon Society, Inc. v. County of Stanislaus* (1995) 33 Cal.App.4th 144, 155.)

Chapter 3
Recirculation

Under section 15088.5 of the CEQA Guidelines, recirculation of an EIR is required when "significant new information" is added to the EIR after public notice is given of the availability of the draft EIR for public review but prior to certification of the final EIR. The term "information" can include changes in the project or environmental setting, as well as additional data or other information. New information added to an EIR 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 (including a feasible project alternative) that the project's proponents have declined to implement. "Significant new information" requiring recirculation includes, for example, a disclosure showing that:

> (1) A new significant environmental impact would result from the project or from a new mitigation measure proposed to be implemented.
>
> (2) A substantial increase in the severity of an environmental impact would result unless mitigation measures are adopted that reduce the impact to a level of insignificance.
>
> (3) A feasible project alternative or mitigation measure considerably different from others previously analyzed would clearly lessen the significant environmental impacts of the project, but the project's proponents decline to adopt it.
>
> (4) The draft EIR was so fundamentally and basically inadequate and conclusory in nature that meaningful public review and comment were precluded.

(CEQA Guidelines, § 15088.5, subd. (a).)

Recirculation is not required where the new information added to the EIR merely clarifies or amplifies or makes insignificant modifications in an adequate EIR. The above standard is "not intend[ed] to promote endless rounds of revision and recirculation of EIR's [sic]. Recirculation was intended to be an exception, rather than the general rule." (*Laurel Heights Improvement Assn. v. Regents of the Univ. of Cal.* (1993) 6 Cal.4th 1112, 1132.)

CEQA case law emphasizes that "'[t]he CEQA reporting process is not designed to freeze the ultimate proposal in the precise mold of the initial project; indeed, new and unforeseen insights may emerge during investigation, evoking revision of the original proposal.'" (*Kings County Farm Bureau v. City of Hanford* (1990) 221 Cal.App.3d 692, 736-737; see also *River Valley Preservation Project v. Metropolitan Transit Development Bd.* (1995) 37 Cal.App.4th 154, 168, fn. 11.) "'CEQA compels an interactive process of assessment of environmental impacts and responsive project modification which must be genuine. It must be open to the public, premised upon a full and meaningful disclosure of the scope, purposes, and effect of a consistently described project, with flexibility to respond to unforeseen insights that emerge from the process.' [Citation.] In short, a project must be open for public discussion and subject to agency modification during the CEQA process." (*Concerned Citizens of Costa Mesa, Inc. v. 32nd Dist. Agricultural Assn.* (1986) 42 Cal.3d 929, 936.) Similarly, additional studies included in a final EIR that result in minor modifications or additions to analyses concerning significant impacts disclosed in a draft EIR do not constitute "significant new information" requiring recirculation of an EIR. (See *Mount Shasta Bioregional Ecology Center v. County of Siskiyou* (2012) 210 Cal.App.4th 184, 220-221 [incorporation of technical studies in a final

EIR disclosing additional locations affected by a significant noise impact identified in the draft EIR did not require recirculation].)

DWR recognizes that the Final EIR incorporates information obtained and produced after the Draft EIR was completed, and that the Final EIR contains additions, clarifications, and modifications, including data and information to further support the information presented in the EIR. Due to the challenges in making a document with strikeouts ADA compliant and to improve the overall readability of the Final EIR, the Final EIR includes a final clean version of the EIR including the additions, clarifications, and modifications made to the Draft EIR. The Final EIR summarizes the key additions, clarifications, and modifications made by DWR in Volume 2, Chapter 1, *Introduction and Approach to Responses to Comments*. Furthermore, a track change version of the EIR is available to other agencies and the public upon request. DWR has reviewed and considered the Final EIR including all new information included therein. DWR finds that the new information added in the Final EIR either provides additional discussion and analysis not required by CEQA that was included for informational purposes or otherwise clarifies or makes minor changes to the adequate Draft EIR.

As explained further in Exhibit C to these CEQA Findings, none of the new information constitutes significant new information requiring recirculation of the Draft EIR under CEQA. The new information added to the EIR does not involve a new significant environmental impact, a substantial increase in the severity of a previously identified significant environmental impact, or a feasible mitigation measure or alternative that is considerably different from others previously analyzed that would clearly lessen one or more significant environmental impacts of the Project and that DWR declines to adopt.

DWR finds that the changes and modifications made to the EIR after the Draft EIR was circulated for public review and comment do not individually or collectively constitute significant new information within the meaning of Public Resources Code section 21092.1 or CEQA Guidelines section 15088.5. No information indicates that the Draft EIR was inadequate or conclusory or that the public was deprived of a meaningful opportunity to review and comment on the Draft EIR. Thus, recirculation of the EIR is not required.

Chapter 4
Subsequent Review

Prior to reaching decisions on the Project, responsible agencies must consider the environmental effects of the project as shown in the EIR and determine whether a subsequent or supplemental EIR is required pursuant to CEQA Guidelines sections 15162 or 15163. Furthermore, the EIR evaluates Project operations based on the Project design and what was known and reasonably foreseeable when the EIR was prepared, but DWR acknowledges that: (1) operations will not occur for well over 15 to 20 years due, in part, to the time required to complete construction of the project, and (2) new information of substantial importance or substantial changes could occur with respect to Project design or the circumstances under which the Project is undertaken. Under these conditions, prior to the commencement of operations, DWR would evaluate whether subsequent CEQA review is required before undertaking any discretionary actions that may be required to change Project design or operational criteria such that they are sufficiently protective to environmental resources.

Chapter 5
Project Background

On April 29, 2019, Governor Newsom signed Executive Order N-10-19 directing the California Natural Resources Agency, California Environmental Protection Agency, and California Department of Food and Agriculture to develop a comprehensive strategy to build a climate-resilient water system and ensure healthy waterways through the twenty-first century. After a public input period, Governor Newsom released the *California Water Resilience Portfolio* on July 28, 2020. The *California Water Resilience Portfolio* identified a suite of complementary actions to ensure safe and resilient water supplies, flood protection, and healthy waterways for the state's communities, economy, and environment. One of the projects identified in the portfolio is new diversion and conveyance facilities in the Sacramento–San Joaquin Delta (Delta) to safeguard the State Water Project (SWP).

In response to Governor Newsom's water policy objectives, DWR as the owner and operator of the SWP, proposed to design and construct two diversion facilities, each at 3,000 cfs capacity, on the Sacramento River; a single tunnel for conveyance; tunnel shafts; and a pumping plant and appurtenant facilities. As discussed further below, DWR's Notice of Preparation (NOP) for the Project EIR identified the proposed project as either the central or eastern alignment with pumping facilities in the south Delta near Clifton Court Forebay. These alternatives are identified as Alternatives 1 and 3 in the Draft EIR. After the process of identifying and screening alternatives evaluated in the Draft EIR (see Final EIR, Volume I, Appendix 3A, *Identification of Water Conveyance Alternatives*) and after an initial evaluation of the alternatives selected for detailed analysis in the Draft EIR, DWR selected a different alternative as the proposed project to analyze in the Draft EIR. Specifically, based on engineering feasibility, conceptual design, constructability, and potential to reduce key environmental impacts on cultural resources, important farmland, wetlands and other waters of the United States, wildlife habitat, transportation, air quality, noise, and Delta community effects, DWR selected the Bethany Reservoir alignment at 6,000 cfs conveyance capacity as the proposed project, which is identified as Alternative 5 in the EIR and referred to herein as the Project. Unlike Alternatives 1 and 3, the Project proposes to discharge water directly to the Bethany Reservoir along the California Aqueduct.

The primary purpose of the SWP is to convey water to local and regional water suppliers across California that, in turn, supply end users engaged in the beneficial uses of that water; it serves as the foundation for local water supplies. The SWP supplies water to 27 million people in northern California, the Bay Area, the San Joaquin Valley, the Central Coast, and southern California. SWP water also irrigates about 750,000 acres of farmland, mainly in the San Joaquin Valley (Final EIR, Volume 1, Chapter 2, *Purpose and Project Objectives*, p. 2-1). Other SWP functions include flood management, water quality maintenance, power generation, recreation, and fish and wildlife enhancement. The SWP was designed to deliver up to nearly 4.2 million acre-feet of water per year, depending on hydrologic conditions. The SWP has long-term contracts to supply water to 29 public water agencies that distribute it to farms, homes, and industry. During the 1999 to 2008 period, SWP deliveries averaged 2.86 MAF per year (California Department of Water Resources 2002, 2008a). But total SWP deliveries averaged about 1.96-million-acre feet (MAF) of water per year from 2009 to 2018 (California Department of Water Resources 2020:18). Of the contracted water supply, approximately 70% goes to municipal and industrial users and 30% to agricultural users (Santa Clara Valley Water 2022). Water supply depends on rainfall, snowpack, runoff, water in

storage facilities, and pumping capacity from the Delta, as well as operational limits for fish and wildlife protection, water quality, and environmental and legal restrictions. The infrastructure that enables the conveyance, or movement, of California's water supply is critical to the health of California's economy.

Factors such as the continuing subsidence of lands, risk of seismic activity and levee failures within the Delta, sea level rise, precipitation change, warmer temperatures, and wider variations in hydrologic conditions associated with climate change threaten the reliability of the current SWP water conveyance system. Additionally, as explained in Final EIR, Volume 1, Chapter 1, *Introduction*, Section 1.2.3.4, *Regulatory Environment*, pumping restrictions applied by regulatory agencies to address water quality and aquatic species concerns at the south Delta diversion continue to prevent the SWP from reliably capturing water when it is available, especially from storm events. Constraints on groundwater use imposed by the Sustainable Groundwater Management Act of 2014 could also increase the need for reliable SWP surface water supplies over time.

DWR's proposal of the Project is informed by past efforts undertaken to address the long-standing issues the SWP faces, including those undertaken through the CALFED Bay-Delta Program, the Delta Risk Management Strategy, and the Bay Delta Conservation Plan/California WaterFix planning process. The need for new Delta water conveyance infrastructure to help achieve the State's coequal goals of "providing a more reliable water supply for California and protecting, restoring, and enhancing the Delta ecosystem" (Pub. Resources Code § 29702(a)) was recognized by the legislature when it adopted the Sacramento–San Joaquin Delta Reform Act of 2009 (Water Code § 85000 et seq., discussed in Final EIR, Volume 1, Chapter 1, *Introduction*, Section 1.2.3.1, *California Water Supply*, and Section 1.2.4.4, *The Bay Delta Conservation Plan and California WaterFix*).

5.1 Project Objectives

DWR's fundamental purpose in proposing to develop new diversion and conveyance facilities in the Delta is to restore and protect the reliability of SWP water deliveries and, potentially, Central Valley Project (CVP) water deliveries south of the Delta, consistent with the State's Water Resilience Portfolio in a cost-effective manner.

The above stated purpose, in turn, gives rise to several related objectives of the Project, as follows:

- To help address anticipated rising sea levels and other reasonably foreseeable consequences of climate change and extreme weather events.
- To minimize the potential for public health and safety impacts from reduced quantity and quality of SWP water deliveries, and potentially CVP water deliveries, south of the Delta as a result of a major earthquake that could cause breaching of Delta levees and the inundation of brackish water into the areas where existing SWP and CVP pumping plants operate in the southern Delta.
- To protect the ability of the SWP, and potentially the CVP, to deliver water when hydrologic conditions result in the availability of sufficient amounts of water, consistent with the requirements of state and federal law, including the California and federal Endangered Species Acts (CESA and ESA, respectively) and Delta Reform Act, as well as the terms and conditions of water delivery contracts and other existing applicable agreements.

- To provide operational flexibility to improve aquatic conditions in the Delta and better manage risks of further regulatory constraints on project operations.

5.2 Project Description[2]

The Project involves the construction and future operation of new water intake facilities on the Sacramento River in the north Delta and a single main tunnel to divert and move water entering the north Delta from the Sacramento Valley watershed to existing SWP facilities in the south Delta, which would result in a dual conveyance system in the Delta. The water intake facilities would divert water through state-of-the-art fish screens. The proposed north Delta intakes would operate in conjunction with the existing SWP intakes in the south Delta. The proposed intakes would augment the ability to capture excess flows and improve the flexibility of the SWP operations such as for meeting the State Water Board Decision 1641 Delta salinity requirements. The north Delta intakes would be used to capture additional excess flows when the south Delta exports are limited and not able to capture those flows.

Under the Project, two intakes (Intakes B and C as defined in the EIR) would together convey up to 6,000 cfs of water from the north Delta along an eastern alignment to the launch shaft at Lower Roberts Island. From Lower Roberts Island, the single below ground tunnel would follow a route to a location south of Clifton Court Forebay and terminate at the Bethany Complex. A map and a schematic diagram depicting the conveyance facilities associated with the Project are provided in Final EIR, Volume 1, Mapbook 3-3 as well as Figures 3-2 (Bethany Reservoir Alignment) and 3-30. The Project would entail the continued use of the SWP south Delta export facilities as the primary diversion location. The sections below provide details on key features of the Project along with a summary of Project features.

5.2.1 Intake Structure and Fish Screens

Intakes B and C on the east bank of the Sacramento River would divert water and convey it through a single main tunnel. Intake B would be just north of Hood, and Intake C would be between Hood and Courtland (see Final EIR, Volume 1, Mapbook 3-3, Sheets 2 and 3). Intakes B and C would each divert up to 3,000 cfs under the Project. Operated in a coordinated manner with the existing facilities, the north Delta facilities would provide flexibility to alter the location, amount, timing, and duration of diversions to help manage water quality in the Delta or when excess flows occur after all other applicable Delta outflow requirements are met.

At each intake, water would flow through cylindrical tee fish screens mounted on the intake structure to a sedimentation basin before reaching the intake outlet (tunnel inlet) shaft at each site. The intake outlet shaft would serve as the tunnel boring machine reception or maintenance shaft during construction and as the intake shaft and maintenance access during operation. These shafts would have an inside diameter of 83 feet. From the intake outlet shaft, water would flow into a single-bore main tunnel that connects the intakes to the Twin Cities Complex, from which the tunnel route would extend south on the Bethany Reservoir alignment.

[2] This information is derived from Chapter 3, *Description of the Proposed Project and Alternatives,* of the Final EIR and outlines key features of the Project. For more information on the Project components, see Chapter 3 of the Final EIR.

Intake features would include state-of-the-art cylindrical tee fish screens, intake structures, sedimentation basins, sediment drying lagoons, and flow control structures. Intakes would also include associated facilities to support construction and operation of the intakes. Fish screens installed on intake structures minimize aquatic species from being carried into the intake facilities along with the diverted water. The intake screens are designed to draw in water at reduced velocities to reduce potential effects to the subset of fish exposed to the intake screens.

The intake fish screens are part of an overall intake system that includes the screen units and an integrated screen cleaning system, piping, and flow control features. The "tee-shaped" screen units would consist of two fish screen cylinders installed on either side of a center manifold that would be connected to the facility's intake opening. Each intake fish screen would extend about 12 feet from the vertical face of the intake structure into the river. During diversion operations, water would flow from the Sacramento River through the fish screens and a 60-inch diameter pipe and discharge into the sedimentation basins. Control gates would regulate the flow through each screen unit to the sedimentation basin.

5.2.2 Construction of Intake Structures

Installing the intake facility would require construction of a temporary cofferdam for in-river portions of intake construction to divert water and aquatic organisms around the work site and create a dry work area. Portions of the cofferdam would consist of interlocking steel sheet piles installed using vibratory pile driving or, if necessary, a combination of vibratory and impact pile driving. Vibratory pile driving is a method by which the pile is vibrated into the soil beneath the site as opposed to being hammered in, as occurs in impact pile driving. Noise associated with the vibratory pile driving is considerably lower than noise associated with impact hammer pile driving. To minimize noise and other disturbances from pile driving, vibratory pile driving would be used to the extent possible where supported by additional geotechnical information, thus eliminating or minimizing impact pile driving. All pile driving would be restricted to the daytime hours between 7:00 a.m. and 7:00 p.m. and would not occur at night. It is estimated that the longest installation period (at Intake C) would be no more than 255 hours over a 5- or 6- week period, including time for handling and preliminary vibratory pile driving. Assuming 2 minutes of driving time for each sheet pile pair, impact drive time (as a subset of the total installation period) would be a cumulative total of 14 hours at Intake C with 3,000-cfs capacity, occurring over roughly 5 or 6 weeks. Each intake sheet pile construction period would be staggered by about 1 year (Delta Conveyance Design and Construction Authority 2022).

5.2.3 Sedimentation Basins and Drying Lagoons

Diverted water would contain sediment suspended in the river water, a portion of which would be collected in a concrete-lined sedimentation basin. A deep soil-cement-bentonite perimeter wall (cutoff wall) would serve to isolate the sediment basins from the local groundwater and the Sacramento River. Each intake would have one sedimentation basin divided into two cells by a turbidity curtain. Water would flow from the intake through the sedimentation basin and through a flow control structure with radial gates into the outlet channel and shaft structure that would be connected to the tunnel system.

The screen and intake design would allow sufficient flow velocities in diversion pipes to sweep sediment into the sedimentation basin and prevent it from settling in the piping system. Once the diverted water enters the sedimentation basins, larger sand and silt sediment particles would settle

while smaller silt and clay particles would be carried into the tunnel. A flow control structure with four large radial gates and one smaller gate would control the water level in the sedimentation basin and discharge flow into the intake outlet channel and outlet shaft. Tunnel and aqueduct velocity would be sufficient to transport these smaller particles to Bethany Reservoir.

Each intake would have four concrete-lined sediment drying lagoons, each approximately 15 feet deep, containing an average of 10 to 12 feet of water within its embankments when in use. Once a year, during the summer months, the sedimentation basin would be dredged, one half at a time, and sediment slurry discharged to drying lagoons, dewatered, and allowed to dry naturally. The sediment is anticipated to be composed of large silt and sand particles with minimal organic material. During dredging operations, sediment is expected to accumulate to a depth of about 1 foot, distributed over the floor of the drying lagoons. Water drained from the sediment drying lagoon outlet structures and underdrains would be pumped back into the sedimentation basin. The sediment remaining would be dried for 2 to 6 days, which would reduce its moisture content to a point at which the sediment can be removed and transported without creating dust. If sediment is dried to a level that would create dust, the dust would be controlled by application of water from on-site supplies. The dried sediment would be removed by truck for disposal at a permitted disposal site or used for beneficial uses off-site. The fill and drain/dry sequence would take about 7 to 8 days, which would approximately match the dredged material filling rate so continuous operation would be possible. On average, each drying lagoon would fill about once every 4 to 8 days and contain up to about 1,800 cubic yards of sediment. The volume of sediment collected would depend upon the volume, suspended sediment concentration, and flow rate of water diverted at the intake. Intake maintenance activities are described in Final EIR, Volume 1, Chapter 3, *Description of the Proposed Project and Alternatives,* Section 3.16.5, *Intake Maintenance Activities*.

5.2.4 Bethany Complex and Other facilities

The Project would use Intakes B and C to convey up to 6,000 cfs of water from the north Delta along an eastern alignment to the launch shaft at Lower Roberts Island. From Lower Roberts Island, the tunnel would follow a route to a location south of Clifton Court Forebay and terminate at the Bethany Complex. The Bethany Complex would include a pumping plant, a surge basin with reception shaft, a buried pipeline aqueduct system, and a discharge structure to convey water to Bethany Reservoir. The Bethany Complex would be constructed southeast of Clifton Court Forebay. The Bethany Complex includes the Bethany Reservoir Pumping Plant which would be needed to lift the water from the tunnel to Bethany Reservoir. The main tunnel from the intakes would terminate at a reception shaft within the surge basin on the north side of the Bethany Reservoir Pumping Plant. Water would enter the Bethany Reservoir Pumping Plant and be conveyed directly to Bethany Reservoir in an aqueduct system. The Bethany Reservoir Pumping Plant would include the Bethany Reservoir Surge Basin which would remain empty while the Bethany Reservoir Pumping Plant is operating. The Bethany Reservoir Aqueduct system would consist of four 15-foot-diameter parallel pipelines that would convey water from the Bethany Reservoir Pumping Plant to the Bethany Reservoir Discharge Structure, a distance of approximately 2.5 miles each. Two separate aqueduct reaches would require tunnels to carry each pipeline under existing features. The first reach would be under the Jones Pumping Plant discharge pipelines (about halfway from the Bethany Reservoir Pumping Plant to the discharge structure); at this location pipelines would run about 50 feet below ground surface for about 200 feet. Tunnels would also be needed under the existing conservation easement adjacent to Bethany Reservoir (at the last downstream reach of the aqueduct) for about 3,064 feet, ranging from 45 to 180 feet below ground surface. The aqueduct pipelines would

terminate near the bottom of four 55-foot-inside-diameter below ground vertical shafts at the Bethany Reservoir Discharge Structure. The pipelines would make a 90-degree bend upward inside the shafts, ending at the floor of the discharge structure and flowing through a concrete channel into Bethany Reservoir. Finally, the discharge structure portion of the Bethany Complex called the Bethany Reservoir Discharge Structure located near the bank of Bethany Reservoir includes the aqueduct conservation easement tunnel vertical exit shafts, contractor staging areas, and ancillary facilities. The proposed discharge structure site would be on a narrow strip of land between the conservation easement and Bethany Reservoir.

Table 1. Summary of Project Features

Characteristic	Description [a]
Alignment	Bethany Reservoir
Conveyance capacity	6,000 cubic feet per second
Number of Intakes	2; Intakes B and C at 3,000 cfs each
Tunnel from Intakes to Bethany Reservoir Pumping Plant	
Diameter	36 feet inside, 39 feet outside
Length	45 miles
Number of tunnel shafts	11 [b]
Launch shafts diameter	115 feet inside
Reception and maintenance shafts diameter	70 feet inside
Surge Basin reception shaft diameter	120 feet inside
Twin Cities Complex	Construction acres: 586 Permanent acres: 222
New Hope Tract Maintenance Shaft	Construction acres: 11 Permanent acres: 11
Canal Ranch Tract Maintenance Shaft	Construction acres: 11 Permanent acres: 11
Terminous Tract Reception Shaft	Construction acres: 13 Permanent acres: 13
King Island Maintenance Shaft	Construction acres: 12 Permanent acres: 12
Lower Roberts Island Double Launch Shaft site	Construction acres: 610 Permanent acres: 300
Upper Jones Tract Maintenance Shaft	Construction acres: 11 Permanent acres: 11
Union Island Maintenance Shaft	Construction acres: 14 Permanent acres: 14
Bethany Complex	
Bethany Reservoir Pumping Plant and Surge Basin site size (all facilities)	Construction acres: 213 Permanent acres: 184
Bethany Reservoir Pumping Plant pad site	1,166 foot wide x 1,260 feet long (approximately 34 acres)
Surge basin	815 feet wide x 815 feet long x 35 feet deep, approximately 15 acres

Characteristic	Description [a]
Bethany Reservoir Aqueduct	Four 15-foot-diameter parallel below-ground pipelines Approximately 14,900 linear feet each Construction acres: 128 acres Permanent acres: 68
Aqueduct tunnels	Four 20-foot-diameter parallel tunnels, two reaches
Bethany Reservoir Discharge Structure	Construction acres: 15 Permanent acres: 13
RTM Volumes and Storage	
Twin Cities Complex long-term RTM storage (approximate)	214 acres x 15 feet high
Lower Roberts Island long-term RTM storage (approximate)	189 acres x 15 feet high
Bethany Complex	No TBM RTM generated or stored
Total wet excavated RTM volume (for single main tunnel from intakes to Bethany Reservoir Surge Basin shaft)	14.4 million cubic yards

cfs = cubic feet per second; RTM = reusable tunnel material; TBM = tunnel boring machine. The height of the RTM storage stockpiles would decrease as the RTM subsides into the ground over time.

[a] Acreage estimates represent the permanent surface footprints of selected facilities. Overall Project acreage includes some facilities not listed, such as permanent access roads.

[b] Number of shafts for the main tunnel from intakes to Bethany Reservoir Surge Basin shaft, counting the double shaft at Twin Cities Complex and the double shaft at Lower Roberts Island each as one shaft.

5.2.5 Water Conveyance Operational Components

The proposed north Delta intakes would operate in conjunction with the existing SWP. Operations of the existing SWP facilities, and in coordination with CVP operations pursuant to the Coordinated Operations Agreement, will be governed by the applicable regulatory requirements specified under the State Water Board Water Quality Control Plan for the San Francisco Bay/Sacramento–San Joaquin Delta Estuary (Bay-Delta Plan) and assigned to the SWP in the applicable water right decision, applicable biological opinions under ESA, applicable incidental take permit under CESA, and U.S. Army Corps of Engineers (USACE) Clifton Court diversion limits. The operations of the proposed north Delta intakes would remain consistent with these existing regulatory requirements. The Project is seeking a new point of diversion be added to DWR's existing water rights, and is not seeking to expand water right quantity. In addition, diversions at the proposed north Delta intakes would be governed by new operational criteria specific to these intakes, such as the fish screen approach velocity requirements, bypass flow requirements, and pulse protection. These new criteria provide additional protections to the fish species over and above the protections from the state-of-the-art positive barrier fish screens included at the proposed intakes. A detailed table describing the proposed operational criteria is provided in Final EIR, Volume 1, Chapter 3, *Description of the Proposed Project and Alternatives,* Table 3-14. Additional detail for the proposed north Delta intakes is provided in Final EIR, Volume 1, Table 3-15 in Section 3.16.7, *Delta Conveyance Project Preliminary Proposed Operations Criteria*. Also, in Final EIR, Volume 1, Section 3.16.7, Figure 3-37 provides a visual depiction of maximum allowable diversions in winter/spring and expected diversions in summer/fall. Final EIR, Volume 1, Figure 3-38 provides a depiction of the north Delta diversion operations concepts to minimize potential effects to aquatic species.

5.2.6 Adaptive Management and Monitoring

Adaptive management for the Project, as required by the Delta Reform Act and described in Appendix 1B of the Delta Plan, would encompass three major phases: planning, implementation, and evaluation and response (Delta Stewardship Council 2015; Cal. Code Regs., title 23, § 5002(b)(4)). The adaptive management plans and programs would document all activities associated with the planning phase of adaptive management and describe the process to be followed during the implementation and evaluation and response phases. Project objectives were taken into consideration in identifying where adaptive management would be most effective and applicable for the project. As appropriate, mitigation measures identified in the Final EIR, such as implementation of the habitat creation and restoration actions in the Compensatory Mitigation Plan (CMP), would integrate the concept of adaptive management in mitigation plan design, stand-alone site and/or resources-specific adaptive management plans would be adopted if the project is approved. In addition, an Operations Adaptive Management and Monitoring Program would be used to monitor and consider the design and operation of the new north Delta intakes and determine whether they result in unanticipated effects that may warrant refinements in design, management, and/or operation. For more information see Final EIR, Volume 1, Chapter 3, *Description of the Proposed Project and Alternatives,* Section 3.18, *Adaptive Management and Monitoring Program*.

5.3 Environmental Review Process

5.3.1 Alternatives Development and Screening Process

The 2020 NOP identified the proposed project as a 6,000 cfs diversion capacity alternative, to be located on either a central or eastern alignment from intakes in the north Delta to pumping facilities in the south Delta near Clifton Court Forebay. The EIR analyses were initiated with this concept of the proposed project, and with the knowledge that additional engineering refinements, preliminary findings about key environmental impacts, and input from the public and other interested parties may result in future changes. As the development of the EIR progressed, the evaluation provided additional information about the environmental impacts associated with the project alternatives. The preliminary impact assessment found that the Bethany Reservoir alignment had the potential to reduce environmental effects as compared to other project alternatives (see Section 7.3, *Summary Comparison,* for a discussion and comparison of project alternatives). As a result, DWR identified the Bethany Reservoir alignment (Alternative 5) as the proposed project in the EIR.

DWR began the alternatives development process by revisiting the scoping comments received on the Bay Delta Conservation Plan (BDCP) and California WaterFix, as described in Final EIR, Volume 1, Chapter 1, *Introduction*. During the 2009 BDCP EIR/EIS scoping process, 1,051 comments were received related to the development of alternatives. After publishing the Draft BDCP EIR/EIS, based on the Habitat Conservation Plan/Natural Community Conservation Plan approach in December 2013, and after reviewing critical public and fish and wildlife agency comments on that document, the lead agencies introduced a new proposed action called the California WaterFix in a Partially Recirculated Draft EIR/Supplemental Draft EIS in July 2015.

While the BDCP and then California WaterFix had different project objectives, some of these alternative comments or suggestions were applicable to the Delta Conveyance Project. The 2020 Delta Conveyance Project NOP described a new proposed single-tunnel project and solicited

additional suggestions about potential alternatives during the public scoping period. This involved input from a large group of interested parties, an extensive evaluation of various options, and analysis of the environmental impacts that goes beyond the normal scope of a CEQA review. These processes were helpful in informing the public and gathering input on a project that would affect a very complex estuary and a statewide water supply system.

The Project underwent a public scoping period of 93 days from January 15 to April 17, 2020, where DWR received public comments from 2,000 individuals, organizations, and agencies on the scope of issues to be considered in the Draft EIR. Eight scoping meetings, which hosted a total of more than 700 attendees, were held throughout the state to provide information on the project and gather comments. The scoping period was originally scheduled for a period of 65 days ending on March 20, 2020, but was extended for an additional 28 days per the request of interested parties to allow for additional time to review project information, and to accommodate unprecedented circumstances related to the coronavirus disease 2019 (COVID-19) pandemic. During this period, the public was invited to participate in the earliest phase of the environmental review process and DWR accepted public comments on the proposed project as defined in the NOP. For more detailed information about the scoping process and relevant outreach efforts, please see Final EIR, Volume 1, Appendix 1A, *Scoping Summary Report*.

Following the 2020 NOP and consideration of scoping comments, DWR screened a range of alternatives and began evaluating potential impacts from constructing, operating, and maintaining conveyance facility alternatives. Contemporaneously, the engineering team continued to refine potential facility designs, construction approaches, and project operations to optimize the conveyance facility approach and evaluate options to further reduce environmental effects.

The screening process for the Delta Conveyance Project EIR focused on identifying alternatives to the proposed project, as defined in the NOP, and these alternatives were screened with the purpose and objectives of the proposed project in mind. The proposed project identified in the NOP and developed to specifically meet the stated project objectives, Dual Conveyance Central Tunnel Alignment or Dual Conveyance Eastern Tunnel Alignment, with a maximum 6,000 cfs capacity, was the basis against which alternatives were screened. The screening criteria were developed consistent with the legal requirements of CEQA and the project objectives included in the NOP published on January 15, 2020.

The alternatives were grouped into four categories of dual conveyance, isolated conveyance, through-Delta conveyance with proposed diversion facility, and through-Delta conveyance with no new diversion facilities. A fifth "other" category encompassed alternatives proposing other technologies, including capping the California Aqueduct, use of an aboveground "tube" to convey water, and desalination on barges in Monterey Bay. Not including the NOP identified alternatives (Dual Conveyance Central Tunnel Alignment with 6,000-cfs 35 capacity and Dual Conveyance Eastern Tunnel Alignment with 6,000-cfs capacity), a total of 21 alternatives were generated at this stage. In some cases, multiple similar proposals were combined and evaluated as one. Each of the screened alternatives is described in Final EIR, Volume 1, Appendix 3A, *Identification of Water Conveyance Alternatives*.

The 21 potential alternatives to the proposed project were screened through a two-level filtering process. Filter 1 assessed whether a proposed alternative could meet the project purpose and most of the project objectives. Alternatives that met two or more of the following four Filter 1 criteria summarizing the four project objectives were carried forward for screening under Filter 2. Final EIR,

Volume 1, Appendix 3A, Identification of Water Conveyance Alternatives, describes the following Filter 1 criteria in more detail.

- **Climate resiliency.** Addresses anticipated sea level rise and other reasonably foreseeable consequences of climate change and extreme weather events.
- **Seismic resiliency.** Minimizes health and safety risk to public from earthquake-caused reductions in water delivery quality and quantity from the SWP.
- **Water supply reliability.** Restores and protects the ability of the SWP to deliver water in compliance with regulatory limits and SWP contractual agreements.
- **Operational resiliency.** Provides operational flexibility to improve aquatic conditions and manage future regulatory constraints.

Filter 2 examined whether the remaining alternatives would avoid or lessen potential significant environmental impacts compared to the proposed project options identified in the NOP.

Of the 21 potential alternatives to the proposed project (identified in the NOP as Alternatives 1 and 3) that were evaluated as part of the screening process, 11 alternatives or groups were eliminated in Filter 1 (Final EIR, Volume 1, Appendix 3A, *Identification of Water Conveyance Alternatives*, Table 3A-2). The remaining alternatives were screened through Filter 2 to evaluate whether they had the potential to lessen environmental impacts compared to the two project options (Alternatives 1 and 3) identified in the NOP (Final EIR, Volume 1, Appendix 3A, *Identification of Water Conveyance Alternatives*, Table 3A-3). Only the Dual Conveyance Bethany Alignment alternative passed Filter 2 screening for its potential to avoid or reduce impacts compared to the proposed project identified in the NOP (Alternatives 1 and 3). To evaluate the potential for modifications to the capacity of the project options identified in the NOP to potentially avoid or reduce impacts, alternatives with capacities of 3,000 cfs (Alternatives 2b and 4b), 4,500 cfs (Alternatives 2c and 4c), and 7,500 cfs (Alternatives 2a and 4a) were also carried forward for analysis in the EIR. As a result, including the No Project alternative, the EIR evaluates ten proposed alternatives to the Project.

5.3.2 Release of, and Comments on, the Draft EIR

The Draft EIR for the Project was released for public review and comment on July 27, 2022. The public comment period for the Draft EIR was originally set for 92 days and scheduled to close on October 27, 2022. In response to requests from multiple commenters, DWR granted a 50-day extension to the public comment period, which closed at 5:00 p.m. Pacific Standard Time on December 16, 2022. The extension allowed a public comment period totaling 142 days.

DWR conducted three public hearings on September 13, September 22, and September 28, 2022, during different times of the day, during which DWR accepted verbal comments on the Draft EIR. In addition, DWR held two Tribal representatives meetings, on October 12 and December 7, 2022, for Tribal leadership, Tribal government representatives, and Tribal communities to provide verbal comments on the Draft EIR.

DWR received approximately 675 unique letters and communications from federal, state, and local/regional agencies; California Native American Tribal governments; elected officials; nongovernmental organizations; and members of the public. After reviewing letters and communications, DWR identified approximately 7,356 discrete comments.

The comments covered a broad range of environmental concerns and other issues. Major topic areas that elicited frequent comments included but were not limited to: the CEQA process, mitigation measures, and other project requirements; engagement with interested parties and the public outreach process; alternatives development, range and description, including alternative operations; implementation considerations; surface water quality and groundwater methodologies and impacts; fish and aquatic resources methodology and impacts; terrestrial biological resources methodology and impacts; Tribal cultural resources impacts; and air quality methodology and impacts.

5.3.3 Preparation of the Final EIR

To ensure time for comment letters sent by mail, DWR treated all comment letters received before January 1, 2023, as timely. As such, all comments received prior to January 1, 2023, are responded to in Final EIR, Volume 2. Any comments received on or after January 1, 2023, were considered late letters. While late letters have been reviewed and considered by DWR, DWR did not include late letters, or responses thereto, in the Final EIR. The responses to comments provided in Final EIR, Volume 2, represent DWR's best effort to review, consider, and address all timely comments on the Draft EIR and any supporting information provided by commenters.

Agency consultation and coordination activities, including Tribal consultation, continued during preparation of the Final EIR for the Project. DWR also continued to proactively engage interested agencies and the public throughout the CEQA processes including preparing informative websites and social media updates.

Chapter 6
Project Specific Findings on the Delta Conveyance Project Environmental Impacts

Within each of the resource area chapters, the Final EIR lays out the significant environmental impacts of the Project. Each such environmental impact has its ultimate CEQA determination, that is, whether it would be less than significant, could be mitigated to a less than significant level through the implementation of proposed mitigation, or significant and unavoidable. Attached to this document as Exhibit A are three Findings Tables. Table 1 identifies significant and unavoidable impacts, Table 2 identifies significant impacts that can be rendered less than significant with mitigation, and Table 3 identifies impacts that are less than significant or no impact before mitigation. Within the tables, the verb "substantially lessen" is understood to mean "mitigate, but not to a less than significant level," while the verb "avoid" is understood to mean "mitigated to a less than significant level." These tables do not attempt to describe the full analysis of each environmental impact contained in the Final EIR. Rather, such full analysis can be found within the Final EIR, which, as noted earlier, is incorporated by reference herein. In making these findings, the Director of DWR ratifies, adopts, and incorporates into these findings the analysis and explanation in the Final EIR, and ratifies, adopts, and incorporates in these findings the determinations and conclusions of those documents relating to environmental impacts and mitigation measures, except to the extent any such determinations and conclusions are specifically and expressly modified by Exhibit A to these Findings.

As noted above, all of the mitigation measures proposed in the Final EIR have been adopted and incorporated into the enforceable MMRP for the Project. (See Pub. Resources Code, § 21081.6, subds. (a)(1) and (b).) So too have both the generic and project-specific environmental commitments, and BMPs set forth in Final EIR, Volume 1, Appendix 3B, *Environmental Commitments and Best Management Practices*. No mitigation measures identified in the Final EIR have been rejected as infeasible as is permitted under CEQA Guidelines section 15091, subdivisions (a)(3) and (c).

6.1 Potentially Significant and Unavoidable Impacts

Mitigation measures are identified for most of the significant and unavoidable impacts, but the measures are not sufficient to reduce the impacts to less than significant levels. For one significant and unavoidable impact (Impact PALEO-2), there is no feasible mitigation available at all.

Other potential impacts are considered to be significant and unavoidable even though full implementation of recommended mitigation measures by other agencies or in cooperation with DWR would reduce the impacts to less than significant levels. This conservative characterization reflects the fact that several of these mitigation measures cannot be implemented by DWR by itself, but will be dependent on the reasonable cooperation of other agencies or entities. As explained in the Final EIR, if such cooperation is forthcoming, and DWR can work successfully with the other agencies or entities in question (e.g., by reaching written agreements where necessary), the impacts will ultimately be less than significant. But DWR has conservatively concluded in the EIR that these impacts will be significant and unavoidable.

Within Exhibit A to this document, Table 1 includes (1) all potentially significant and unavoidable impacts associated with the Project, (2) adopted feasible mitigation measures or environmental commitments, if available, intended to reduce the severity of such impacts, (3) characterization of significance of the impact after the adoption of appropriate mitigation measures or environmental commitments, if any, and (4) explanations of the nature of the impacts and the effectiveness of mitigation measures or environmental commitments.

Even though the impacts in Table 1 will remain significant and unavoidable, DWR has determined to approve the Project because the Project's benefits outweigh its significant unavoidable environmental impacts. CEQA provides that, where a proposed project would cause significant environmental impacts that cannot be avoided or substantially lessened, a public agency's decision maker, after adopting proper findings, may nevertheless approve the project if the decision maker first adopts a statement of overriding considerations. This latter document must set forth the specific reasons why the agency decision maker finds the project's benefits outweigh its significant unavoidable environmental impacts. The statement of overriding considerations for the Project is included in these Findings in Chapter 8, *Statement of Overriding Considerations*, below.

6.2 Potentially Significant Impacts Reduced to Less than Significant

As noted above, Table 2 within Exhibit A identifies significant impacts that can be reduced to less than significant levels through the adoption and implementation of feasible mitigation measures or environmental commitments. Table 2 includes: (1) all potentially significant impacts associated with the Project, (2) adopted mitigation measures or environmental commitments that DWR finds would avoid or substantially lessen such significant environmental impacts, (3) characterization of less than significance of the impact after the adoption of mitigation measures or environmental commitments, and (4) explanations of the nature of the impacts and the effectiveness of mitigation measures or environmental commitments.

6.3 Impacts that are Less than Significant or No Impact

Under CEQA, no mitigation measures are required for impacts that are less than significant. (Pub. Resources Code, § 21002; CEQA Guidelines, §§ 15126.4, subd. (a)(3), 15091.) Based on substantial evidence in the whole record of this proceeding, DWR finds that implementation of the Project will not result in any significant impacts to the impact areas identified in Table 3 within Exhibit A and that these impact areas, therefore, do not require mitigation. In some instances, the Project would have no impact in a particular area; these instances are noted in the table.

Chapter 7
Findings Regarding Alternatives to the Project

7.1 Basis for Alternatives-Feasibility Analysis

California Public Resources Code section 21002 provides that "public agencies should not approve projects as proposed if there are feasible alternatives or feasible mitigation measures available which would substantially lessen the significant environmental effects of such projects[.]" Where a lead agency has determined that, even after the adoption of all feasible mitigation measures, a project as proposed will still cause one or more significant environmental effects that cannot be substantially lessened or avoided, the agency, prior to approving the project as mitigated, must first determine whether, with respect to such impacts, there remain any project alternatives that are both (1) environmentally superior with respect to such significant, unavoidable effects and (2) feasible within the meaning of CEQA.

Under CEQA Guidelines section 15126.6, the alternatives to be discussed in detail in an EIR should be able to "feasibly attain most of the basic objectives of the project." (See also *In re Bay-Delta Programmatic Environmental Impact Report Coordinated Proceedings* (2008) 43 Cal.4th 1143, 1165-1166 ["[i]n the CALFED program, feasibility is strongly linked to achievement of each of the primary program objectives [¶] … [¶] a lead agency may structure its EIR alternative analysis around a reasonable definition of underlying purpose and need not study alternatives that cannot achieve that basic goal"].) For this reason, the project objectives described earlier in these Findings provided part of the policy framework by which DWR developed the alternatives analyzed in the EIR. In analyzing such alternatives in detail in the EIR, DWR took these objectives into account, while at the same time focusing on means of substantially lessening or avoiding significant environmental effects as required under CEQA.

The approach taken by DWR is consistent with the approach taken for other water conveyance projects in California as illustrated in the decision by the Second Appellate District in *California Water Impact Network v. City of San Buenaventura* (Jan. 4, 2023, Cal. Ct. App., B315362 [nonpub. opn.]) (CWIN). In CWIN, the City of Buenaventura (City) proposed and prepared an EIR for a seven-mile-long pipeline project to receive its contractual right to water from the SWP. (*Id.* at p. *1.) At the same time that the City was pursuing the pipeline project to connect to the SWP, the City was also pursuing and preparing an EIR for a separate project to increase local water sources including wastewater and groundwater treatment. (*Ibid.*) The purpose of the local water project was to increase the City's overall water supply. (*Ibid.*)

Petitioner argued the City piecemealed environmental review by preparing a separate EIR for the local water supply project and/or that the pipeline project had to include alternatives evaluating local water supply options. (*CWIN, supra*, at pp. *2, *4.) The court rejected both arguments. First, as to the piecemealing claim, the court acknowledged that both the pipeline project and the proposed local water supply project concerned the City's water supply. (*Id.* at p. *3.) However, the court held that the projects had independent utility because the projects involved "different source[s] of water, different infrastructure, and neither project [was] dependent on the completion of the other." (*Ibid.*) Second, the court concluded that the pipeline project EIR did not require local water supply

alternatives because a basic goal of the project was to "bring SWP water to the City… [and] [l]ocal water supply cannot meet the basic goal of bringing SWP water to the City." (*Id.* at p. *4.)

Of relevance to the Delta Conveyance Project, the petitioner in *CWIN* alleged that the project objectives were too narrow because one objective was to receive the City's SWP entitlements, which made "dependence on SWP water a fait accompli." (See *CWIN*, supra, at p. *3.) Petitioner asserted that the project objectives should have been drafted to more generally address the City's water supply and water quality needs and a narrow objective to receive SWP entitlements was improper. (*Ibid.*) The court rejected the petitioner's argument. Citing *San Diego Citizenry Group v. County of San Diego* (2013) 219 Cal.App.4th 1, 14, the court held that "CEQA does not restrict an agency's discretion to identify and pursue a particular project designed to meet a particular set of objectives. [Citation.] Thus, the City's stated objectives are valid even if it means dependence on the SWP is a fait accompli." (*CWIN*, supra, at p. *3.)

Similar to the City's objective in *CWIN* to pursue a project to receive SWP water, DWR is pursuing a project to restore and protect the reliability of SWP water deliveries. This fundamental purpose of the Project necessarily cannot be achieved by pursuing local water supply projects in other areas of the State or by projects that otherwise do not address the existing threats to SWP's reliability (e.g., sea level rise, seismicity, climate change and associated changes in weather patterns, and regulatory constraints). Therefore, the EIR properly focuses on evaluating project alternatives that would, to the extent potentially feasible, restore or protect the reliability of SWP water deliveries in consideration of these existing threats. (See *Yerba Buena Neighborhood Consortium, LLC v. Regents of the University of California* (2023) 95 Cal.App.5th 779, 712-717 [holding that CEQA did not require the Regents to consider an offsite alternative for a new hospital that "would not adequately meet the project's objectives"].)

While the EIR considers project alternatives unrelated to restoring or protecting the reliability of SWP water deliveries, as addressed in Final EIR, Volume 1, Appendix 3A, *Identification of Water Conveyance Alternatives*, DWR rejected those alternatives as part of the EIR's alternative screening process because they did not meet most of the basic project objectives. Based on the extensive alternatives screening process set forth in Final EIR, Volume 1, Appendix 3A, *Identification of Water Conveyance Alternatives*, DWR developed, and addressed in detail, nine (9) alternatives and a No Project Alternative.

Although an EIR must evaluate a reasonable range of *potentially* feasible alternatives, the lead agency decision maker ultimately determines whether such alternatives are *actually* feasible. (See *California Native Plant Society v. City of Santa Cruz* (2009) 177 Cal.App.4th 957, 981, 999 *(CNPS).)* "Feasible" is defined in CEQA as "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors." (Pub. Resources Code, § 21061.1; see CEQA Guidelines, § 15364 [adding "legal" factors].) As courts have noted, "[t]he 'feasibility of … alternatives must be evaluated within the context of the proposed project.'" (E.g., *Sustainability, Parks, Recycling & Wildlife Legal Def. Fund v. San Francisco Bay Conservation & Development Com.* (2014) 226 Cal.App.4th 905, 918 [omission in original].)

The determination of whether an alternative is actually feasible may be based on several grounds. One ground by which decision makers may reject an alternative as infeasible is that the alternative is inconsistent with project objectives or does not fully meet such objectives. (In re Bay-Delta Programmatic Environmental Impact Report Coordinated Proceedings (2008) 43 Cal.4th 1143, 1165-1166; *see also CNPS, supra,* 177 Cal.App.4th *at p. 1001 ["[*A]n alternative 'may be found infeasible on

the ground it is inconsistent with the project objectives as long as the finding is supported by substantial evidence in the record.'"]; *Save Panoche Valley v. San Benito County* (2013) 217 Cal.App.4th 503, 521-523; *Citizens for Open Government v. City of Lodi* (2012) 205 Cal.App.4th 296, 314-315.) Similarly, a decision maker may reject an alternative as infeasible if the decision maker concludes, after a "reasonable balancing of the relevant economic, environmental, social, and technological factors," that the alternative is undesirable from a policy standpoint. (*City of Del Mar v. City of San Diego* (1982) 133 Cal.App.3d 401, 417 (*City of Del Mar*); see also *Ctr. for Biological Diversity v. California Dep't of Conservation* (2019) 36 Cal.App.5th 210, 242; *CNPS, supra,* 177 Cal.App.4th at p. 1001; *San Diego Citizenry Group, supra,* 219 Cal.App.4th at pp. 17-18.) Thus, under these principles, even if a project alternative would avoid or substantially lessen any or all of the unavoidable significant environmental effects of a proposed project as mitigated, the decision makers may nevertheless reject the alternative for such reasons.

7.2 Alternatives Addressed in the EIR

The nine (9) alternatives analyzed in the Final EIR differ in the location, design, and capacity of conveyance facilities and improvements. With the exception of the CEQA No Project Alternative, each of the alternatives selected for detailed evaluation in the EIR involves some level of construction of conveyance facilities/improvements to the SWP. The following alternatives, as described in detail in Final EIR, Volume 1, Chapter 3, *Description of the Proposed Project and Alternatives*, were carried forward for detailed analysis in the Final EIR.

Alternatives (introduced in the Draft EIR):

- Alternative 1—Central Alignment, 6,000 cfs, Intakes B and C
- Alternative 2a—Central Alignment, 7,500 cfs, Intakes A, B, and C
- Alternative 2b—Central Alignment, 3,000 cfs, Intake C
- Alternative 2c—Central Alignment, 4,500 cfs, Intakes B and C
- Alternative 3—Eastern Alignment, 6,000 cfs, Intakes B and C
- Alternative 4a—Eastern Alignment, 7,500 cfs, Intakes A, B, and C
- Alternative 4b—Eastern Alignment, 3,000 cfs, Intake C
- Alternative 4c—Eastern Alignment, 4,500 cfs, Intakes B and C
- Alternative 5—Bethany Reservoir Alignment, 6,000 cfs, Intakes B and C (Project)

7.3 Summary Comparison

This summary comparison of significant and unavoidable impacts describes the severity and magnitude of the project alternatives relative to the Project. The comparison focuses on two factors: the number of relative impacts for each category (i.e., the number of impacts with a severity greater than, equal to, or less than the Project) and the drivers for the differences in severity. The number of impacts is used as a point of comparison because CEQA does not treat any category of environmental effect as being more important than any other category and the comparison of numbers provides an overall picture of the differences between the project alternatives and the

Project. The drivers are used in the comparison because they illuminate the fundamental differences between the impacts of the Project and those of the project alternatives.

The primary drivers that provide insights into the differences between alternatives are the number of intakes, the alignment, the length and diameter of the tunnel, the location of project facilities relative to sensitive receptors, and the presence or absence of the Southern Complex. Each of these drivers (except location relative to sensitive receptors) affects the amount of ground disturbance associated with the alternative and the size of launch shaft sites, including amount and locations of reusable tunnel material (RTM) stockpiles.

Table 2 below provides an overview of the differences in the number and severity of significant and unavoidable impacts relative to the proposed project and drivers for those differences. Table 3 below compares in more detail the severity and magnitude of the significant and unavoidable impacts of the project alternatives to the Project. The finding of significant and unavoidable is the same across all alternatives (except for Impact AQ-6, which has a significant and unavoidable finding only for Alternatives 2a and 4a), but the severity and magnitude of the impacts may differ by alternative. Where quantitative data are available to compare alternatives and define the magnitude of the impact, Table 3 below provides summary data, their unit of measure, and their source.

As shown in Tables 2 and 3 below, for five impacts, the Project has a lesser severity than all or most project alternatives because it would:

- Include only two intakes and no Southern Complex and would therefore affect fewer acres of important farmland (Impact AG-1).
- Not include the Bouldin Island launch and reception shaft, the Southern Complex on Byron Tract, or the Southern Complex west of Byron Highway and therefore would have lesser impacts on visual quality of public views (Impact AES-1) and scenic vistas (Impact AES-3). In addition, the Bethany Reservoir would be constructed in a location with existing water infrastructure and other facilities.
- Have an alignment that would affect fewer identified built-environment historical resources (Impact CUL-1) and archaeological resources (Impact CUL-3).

For those impacts for which the severity of all project alternatives is the same as the Project (Impacts CUL-2, CUL-4, CUL-5 and Impacts TCR-1 and TCR-2), the impacts were of a type that cannot be quantified because resources have not been inventoried or are important for reasons that cannot be quantified, including cultural heritage.

For Impact TRANS-1, an equal number of project alternatives had per employee vehicle miles traveled (VMT) greater than and less than the Project. The number of employees, and thus number of vehicle trips generated during construction, is influenced by the duration and intensity of construction, which differs among the alternatives. The location of the alignment also influences VMT, with features constructed in more rural locations requiring longer employee vehicle trips, and thus generating more VMT, than features proximate to urban areas.

As shown in Tables 2 and 3 below, for two impacts (Impact AG-2 and Impact PALEO-2), the Project has a greater severity than all or most project alternatives because it would:

- Have an alignment that would intersect with more acres of Williamson Act and Farmland Security Zone acres and therefore result in the conversion of more acres when compared to project alternatives.

- Have a longer tunnel alignment in geologic units with high sensitivity for paleontological resources and therefore have greater potential to disturb paleontological resources when compared to project alternatives.

The single impact for which the Project had a more severe impact than all but one of the project alternatives was related to the number of receptors who would be affected by an increase in ambient noise levels (Impact NOI-1). However, if improvements required to avoid significant impacts are accepted by all eligible property owners, impacts would be less than significant with mitigation.

A summarized comparison in Table 2 below of the multiple pollutants analyzed in Impact AQ-5 across multiple air districts and timeframes would not accurately reflect the differences for each of those factors. For example, while Alternatives 2a and 4a would generally result in higher concentrations of combustion pollutants, fugitive dust concentrations in the San Joaquin Valley Air Pollution Control District (SJVAPCD) under Alternative 5 would be higher than most other alternatives. This is because under Alternative 5, two launch shafts would be constructed at Lower Roberts Island, effectively doubling the amount of earthmoving and vehicles traveling on unpaved surfaces at this location, compared to all other proposed alternatives. Therefore, more detail is provided regarding Impact AQ-5 in Table 3 below.

Table 2. Overview of the Differences in the Number and Severity of Significant and Unavoidable Impacts Relative to the Project and the Drivers for Those Differences

Impact(s)	Number of Alternatives with Impact Severity Greater or Equal to the Project	Project Drivers
CUL-2, CUL-4, CUL-5, TCR-1, and TCR-2	All Project Alternatives = Project	• Severity cannot be distinguished because of uninventoried resources or resources that are important for reasons that cannot be quantified, including cultural heritage
AG-1, AES-1, AES-3, and CUL-3	All 8 Project Alternatives > Project	• Absence of Southern Complex • Absence of Bouldin Island launch and reception shaft, Southern Complex on Byron Tract, or Southern Complex west of Byron Highway • Presence of existing water infrastructure at Bethany Complex • Fewer intakes visible from State Route 160 • Fewer cultural resources in project footprint • Absence of Intake A
AES-2, AG-2, and AQ-6	2 Project Alternatives > Project	
CUL-1	5 Project Alternatives > Project	
TRANS-1	4 Project Alternatives > Project	• Duration and intensity of construction • Location of the alignment (e.g., rural locations requiring longer employee vehicle trips)
PALEO-2	3 Project Alternatives > Project	• Longer tunnel alignment requiring more disturbance of geologic with high sensitivity for paleontological resources
NOI-1	0 Project Alternatives > Project	• Construction near greater number of sensitive noise receptors

Note: Impact AQ-5 is not included in this table because of the complexity of comparing multiple pollutants, timeframes, and air districts across multiple alternatives.

Table 3. Comparison of Significant and Unavoidable Impacts of Project Alternatives Relative to the Project (P)

Potential Impact (includes units of measure when applicable)	Project Alternative 5, Bethany Reservoir Alignment, 6,000 cfs, Intakes B and C	Alternative 1, Central Alignment, 6,000 cfs, Intakes B and C	Alternative 2a, Central Alignment, 7,500 cfs, Intakes A, B, and C	Alternative 2b, Central Alignment, 3,000 cfs, Intake C	Alternative 2c, Central Alignment, 4,500 cfs, Intakes B and C	Alternative 3, Eastern Alignment, 6,000 cfs, Intakes B and C	Alternative 4a, Eastern Alignment, 7,500 cfs, Intakes A, B, and C	Alternative 4b, Eastern Alignment, 3,000 cfs, Intake C	Alternative 4c, Eastern Alignment, 4,500 cfs, Intakes B and C
Impact AG-1: Convert a Substantial Amount of Prime Farmland, Unique Farmland, Farmland of Local Importance, or Farmland of Statewide Importance as a Result of Construction of Water Conveyance Facilities (total acres) (Construction)	SU 2,340	Greater than P 3,793.5	Greater than P 4,124.40	Greater than P 3,308.50	Greater than P 3,661.80	Greater than P 3,464.70	Greater than P 3,819.50	Greater than P 2,943.70	Greater than P 3,318.30
Impact AG-2: Convert a Substantial Amount of Land Subject to Williamson Act Contract or under Contract in Farmland Security Zones to a Nonagricultural Use as a Result of Construction of Water Conveyance Facilities (acres converted) (Construction)	SU 1,217.80	Less than P 1,042.30	Greater than P 1,253.60	Less than P 881.30	Less than P 950.60	Less than P 1,142.50	Greater than P 1,355.20	Less than P 982.00	Less than P 1,051.20
Impact AES-1: Substantially Degrade the Existing Visual Character or Quality of Public Views (from Publicly Accessible Vantage Points) of the Construction Sites and Visible Permanent Facilities and Their Surroundings in Nonurbanized Areas (Construction and O&M)	SU	Greater than P	Greater than P	Greater than P	Greater than P	Greater than P	Greater than P	Greater than P	Greater than P
Impact AES-2: Substantially Damage Scenic Resources including, but Not Limited to, Trees, Rock Outcroppings, and Historic Buildings Visible from a State Scenic Highway (number of intakes) (Construction)	SU 2	Equal to P 2	Greater than P 3	Less than P 1	Equal to P 2	Equal to P 2	Greater than P 3	Less than P 1	Equal to P 2
Impact AES-3: Have Substantial Significant Impacts on Scenic Vistas (Construction and O&M)	SU	Greater than P	Greater than P	Greater than P	Greater than P	Greater than P	Greater than P	Greater than P	Greater than P
Impact AQ-5: Result in Exposure of Sensitive Receptors to Substantial Localized Criteria Pollutant Emissions (PM10) (highest project-level concentration in excess of the significant impact level [µg/m^3] across all timeframes [24-hour, annual] and standards [CAAQS, NAAQS]) (Construction)	SU (SMAQMD, 10) (SJVAPCD, 111) (BAAQMD, 22)	Equal to P (SMAQMD, 10) Less than P (SJVAPCD, 50) Greater than P (BAAQMD, 94)	Greater than P (SMAQMD, 13) Less than P (SJVAPCD, 55) Greater than P (BAAQMD, 94)	Less than P (SMAQMD, 9) Less than P (SJVAPCD, 37) Greater than P (BAAQMD, 94)	Less than P (SMAQMD, 9) Less than P (SJVAPCD, 45) Greater than P (BAAQMD, 94)	Greater than P (SMAQMD, 12) Equal to P (SJVAPCD, 111) Greater than P (BAAQMD, 94)	Greater than P (SMAQMD, 13) Equal to P (SJVAPCD, 111) Greater than P (BAAQMD, 94)	Less than P (SMAQMD, 9) Less than P (SJVAPCD, 109) Greater than P (BAAQMD, 94)	Greater than P (SMAQMD, 9) Less than P (SJVAPCD, 110) Greater than P (BAAQMD, 94)
Impact AQ-5: Result in Exposure of Sensitive Receptors to Substantial Localized Criteria Pollutant Emissions (PM2.5) (highest project-level concentration in excess of the significant impact level [µg/m^3] across all timeframes [24-hour, annual] and standards [CAAQS, NAAQS]) (Construction)	SU (SMAQMD, 1.0) (SJVAPCD, 9.3) (BAAQMD, 1.5)	Greater than P (SMAQMD, 1.4) Less than P (SJVAPCD, 2.8) Greater than P (BAAQMD, 8.6)	Greater than P (SMAQMD, 1.3) Less than P (SJVAPCD, 2.7) Greater than P (BAAQMD, 8.6)	Greater than P (SMAQMD, 1.3) Less than P (SJVAPCD, 2.5) Greater than P (BAAQMD, 8.6)	Less than P (SMAQMD, 0.9) Less than P (SJVAPCD, 2.3) Greater than P (BAAQMD, 8.6)	Greater than P (SMAQMD, 1.5) Equal to P (SJVAPCD, 9.3) Greater than P (BAAQMD, 8.6)	Greater than P (SMAQMD, 1.2) Equal to P (SJVAPCD, 9.3) Greater than P (BAAQMD, 8.6)	Greater than P (SMAQMD, 1.3) Equal to P (SJVAPCD, 9.3) Greater than P (BAAQMD, 8.6)	Less than P (SMAQMD, 0.9) Equal to P (SJVAPCD, 9.3) Greater than P (BAAQMD, 8.6)

Potential Impact (includes units of measure when applicable)	Project Alternative 5, Bethany Reservoir Alignment, 6,000 cfs, Intakes B and C	Alternative 1, Central Alignment, 6,000 cfs, Intakes B and C	Alternative 2a, Central Alignment, 7,500 cfs, Intakes A, B, and C	Alternative 2b, Central Alignment, 3,000 cfs, Intake C	Alternative 2c, Central Alignment, 4,500 cfs, Intakes B and C	Alternative 3, Eastern Alignment, 6,000 cfs, Intakes B and C	Alternative 4a, Eastern Alignment, 7,500 cfs, Intakes A, B, and C	Alternative 4b, Eastern Alignment, 3,000 cfs, Intake C	Alternative 4c, Eastern Alignment, 4,500 cfs, Intakes B and C
Impact AQ-5: Result in Exposure of Sensitive Receptors to Substantial Localized Criteria Pollutant Emissions (total 1-hour NO_2, NAAQS [µg/m^3]) (Construction)	SU (SJVAPCD) LTS (SMAQMD, BAAQMD)	SU (SJVAPCD) LTS (SMAQMD, BAAQMD)	SU (SJVAPCD) LTS (SMAQMD, BAAQMD)	SU (SJVAPCD) LTS (SMAQMD, BAAQMD)	SU (SJVAPCD) LTS (SMAQMD, BAAQMD)	LTS (SJVAPCD, SMAQMD, BAAQMD)	LTS (SJVAPCD, SMAQMD, BAAQMD)	LTS (SJVAPCD, SMAQMD, BAAQMD)	LTS (SJVAPCD, SMAQMD, BAAQMD)
	(SMAQMD, 134)	Less than P (SMAQMD, 133)	Greater than P (SMAQMD, 184)	Greater than P (SMAQMD, 143)	Less than P (SMAQMD, 133)	Less than P (SMAQMD, 133)	Greater than P (SMAQMD, 184)	Greater than P (SMAQMD, 143)	Less than P (SMAQMD, 133)
	(SJVAPCD, 218)	Greater than P (SJVAPCD, 243)	Greater than P (SJVAPCD, 243)	Greater than P (SJVAPCD, 243)	Greater than P (SJVAPCD, 243)	Less than P (SJVAPCD, 186)	Less than P (SJVAPCD, 186)	Less than P (SJVAPCD, 186)	Less than P (SJVAPCD, 186)
	(BAAQMD, 76)	Greater than P (BAAQMD, 80)	Greater than PP (BAAQMD, 80)	Greater than P (BAAQMD, 80)	Greater than P (BAAQMD, 80)	Greater than P (BAAQMD, 80)	Greater than P (BAAQMD, 80)	Greater than P (BAAQMD, 80)	Greater than P (BAAQMD, 80)
Impact AQ-6: Result in Exposure of Sensitive Receptors to Substantial Toxic Air Contaminant Emissions (maximum modeled excess cancer [potential cases per million] by air district) (Construction)	LTS	LTS	SU	LTS	LTS	LTS	SU	LTS	LTS
	(SMAQMD, 7)	Less than P (SMAQMD, 6)	Greater than P (SMAQMD, 16)	Less than P (SMAQMD, 4)	Less than P (SMAQMD, 2)	Less than P (SMAQMD, 6)	Greater than P (SMAQMD, 16)	Less than P (SMAQMD, 4)	Less than P (SMAQMD, 6)
	(SJVAPCD, 5)	Less than P (SJVAPCD, 2)	Less than P (SJVAPCD, 2)	Less than P (SJVAPCD, 2)	Greater than P (SJVAPCD, 6)	Less than P (SJVAPCD, 3)	Less than P (SJVAPCD, 3)	Less than P (SJVAPCD, 3)	Less than P (SJVAPCD, 3)
	(BAAQMD, 1)	Equal to P (BAAQMD, 1)	Greater than P (BAAQMD, 2)	Equal to P (BAAQMD, 1)	Equal to P (BAAQMD, 1)	Equal to P (BAAQMD, 1)	Greater than P (BAAQMD, 2)	Equal to P (BAAQMD, 1)	Equal to P (BAAQMD, 1)
	(YSAQMD, 1)	Equal to P (YSAQMD, 1)	Equal to P (YSAQMD, 1)	Equal to P (YSAQMD, 1)	Equal to P (YSAQMD, 1)	Equal to P (YSAQMD, 1)	Equal to P (YSAQMD, 1)	Equal to P (YSAQMD, 1)	Equal to P (YSAQMD, 1)
Impact CUL-1: Impacts on Built-Environment Historical Resources Resulting from Construction and Operation of the Project (number of resources) (Construction and O&M)	SU 6	Greater than P 10	Greater than P 13	Greater than P 8	Greater than P 10	Equal to P 6	Greater than P 9	Less than P 4	Equal to P 6
Impact CUL-2: Impacts on Unidentified and Unevaluated Built-Environment Historical Resources Resulting from Construction and Operation of the Project (number of resources) (Construction and O&M)	SU 88	Equal to P	Equal to P	Equal to P	Equal to P	Equal to P	Equal to P	Equal to P	Equal to P
Impact CUL-3: Impacts on Identified Archaeological Resources Resulting from the Project (number of resources) (Construction)	SU 8	Greater than P 25	Greater than P 26	Greater than P 22	Greater than P 23	Greater than P 15	Greater than P 17	Greater than P 13	Greater than P 15
Impact CUL-4: Impacts on Unidentified Archaeological Resources That May Be Encountered in the Course of the Project (Construction)	SU	Equal to P	Equal to P	Equal to P	Equal to P	Equal to P	Equal to P	Equal to P	Equal to P

Potential Impact (includes units of measure when applicable)	Project Alternative 5, Bethany Reservoir Alignment, 6,000 cfs, Intakes B and C	Alternative 1, Central Alignment, 6,000 cfs, Intakes B and C	Alternative 2a, Central Alignment, 7,500 cfs, Intakes A, B, and C	Alternative 2b, Central Alignment, 3,000 cfs, Intake C	Alternative 2c, Central Alignment, 4,500 cfs, Intakes B and C	Alternative 3, Eastern Alignment, 6,000 cfs, Intakes B and C	Alternative 4a, Eastern Alignment, 7,500 cfs, Intakes A, B, and C	Alternative 4b, Eastern Alignment, 3,000 cfs, Intake C	Alternative 4c, Eastern Alignment, 4,500 cfs, Intakes B and C
Impact CUL-5: Impacts on Buried Human Remains (Construction)	SU	Equal to P	Equal to P	Equal to P	Equal to P	Equal to P	Equal to P	Equal to P	Equal to P
Impact NOI-1: Generate a Substantial Temporary or Permanent Increase in Ambient Noise Levels in the Vicinity of the Project in Excess of Standards Established in the Local General Plan or Noise Ordinance, or Applicable Standards of Other Agencies (number of receptors) (Construction)	SU* 408	Less than P 316	Less than P 361	Less than P 74	Less than P 316	Less than P 363	Equal to P 408	Less than P 121	Less than P 363
Impact PALEO-2: Cause Destruction of a Unique Paleontological Resource as a Result of Tunnel Construction and Ground Improvement (million loose cubic yards as a result of tunneling) (Construction)	SU 14.4	Less than P 13.9	Greater than P 18.4	Less than P 7.5	Less than P 10.7	Greater than P 14.8	Greater than P 19.5	Less than P 7.9	Less than P 11.3
Impact TCR-1: Impacts on the Delta Tribal Cultural Landscape Tribal Cultural Resource Resulting from Construction, Operations, and Maintenance of the Project Alternatives (Construction and O&M)	SU	Equal to P	Equal to P	Equal to P	Equal to P	Equal to P	Equal to P	Equal to P	Equal to P
Impact TCR-2: Impacts on Individual Tribal Cultural Resources Resulting from Construction, Operations, and Maintenance of the Project Alternatives (Construction and O&M)	SU	Equal to P	Equal to P	Equal to P	Equal to P	Equal to P	Equal to P	Equal to P	Equal to P
Impact TRANS-1: Increased Average VMT Per Construction Employee versus Regional Average (average VMT per construction employee) (Construction)	SU 25.77	Less than P 25.68	Greater than P 25.82	Greater than P 27.02	Less than P 24.91	Less than P 24.38	Greater than P 26.33	Greater than P 27.57	Less than P 25.06

µg/m^3 = micrograms per cubic meter; BAAQMD = Bay Area Air Quality Management District; CAAQS = California ambient air quality standards; cfs = cubic feet per second; HI = hazard index; LTS = less than significant; NAAQS = national ambient air quality standards; NO_2 = nitrogen dioxide; NO_X = nitrogen oxides; O&M = operation and management; PM2.5 = particulate matter 2.5 microns in diameter or less; PM10 = particulate matter 10 microns in diameter or less; P = project; SJVAPCD = San Joaquin Valley Air Pollution Control District; SMAQMD = Sacramento Metropolitan Air Quality Management District; SU = significant and unavoidable; VMT = vehicle miles traveled; YSAQMD = Yolo-Solano Air Quality Management District. The metrics reported in this table are for project alternatives only without implementation of the Compensatory Mitigation Plan (CMP) because as disclosed in the EIR the impacts associated with the CMP would be the same across all alternatives.

7.4 Environmentally Superior Alternative

CEQA Guidelines section 15126.6 requires that each EIR identify the "environmentally superior alternative" among those considered. If the No Project Alternative is identified as environmentally superior, then the EIR must also identify the environmentally superior alternative among the other alternatives. (CEQA Guidelines, § 15126.6, subd. (e)(2).)

As discussed in the Final EIR, the No Project Alternative would not result in the construction or operational related impacts discussed for the project alternatives but could result in impacts within the SWP service area and within the Delta that would not occur under the project alternatives.

The Project would, overall, result in less severe environmental impacts than the proposed project options identified in the NOP as well as the other alternatives analyzed in the EIR. Therefore, the Project is considered the environmentally superior alternative because it would reduce the severity of adverse environmental effects across a broad range of environmental resources and would not result in any significant and unavoidable environmental impacts that could be avoided by other feasible alternatives evaluated in the EIR.

The following discussion describes what DWR regards as the environmental pros and cons among the various project alternatives analyzed in the Final EIR by synthesizing the analysis of several of the environmental impacts discussed in Chapters 7 through 32 of the Final EIR, Volume 1.

As described in Chapter 2, *Purpose and Project Objectives*, the project alternatives evaluated in the Final EIR have the following objectives.

- To help address anticipated rising sea levels and other reasonably foreseeable consequences of climate change and extreme weather events.
- To minimize the potential for public health and safety impacts from reduced quantity and quality of SWP water deliveries, and potentially CVP water deliveries, south of the Delta as a result of a major earthquake that could cause breaching of Delta levees and the inundation of brackish water into the areas where existing SWP and CVP pumping plants operate in the southern Delta.
- To protect the ability of the SWP, and potentially the CVP, to deliver water when hydrologic conditions result in the availability of sufficient amounts of water, consistent with the requirements of state and federal law, including the ESA, CESA and Delta Reform Act, as well as the terms and conditions of water delivery contracts and other existing applicable agreements.
- To provide operational flexibility to improve aquatic conditions in the Delta and better manage risks of further regulatory constraints on project operations.

The project alternatives would reduce reliance on diversion from the existing south Delta pumps. Diversions at the project's north Delta facilities would pass through state-of-the-art fish screens. Dual conveyance would provide operational flexibility that could reduce impacts of the SWP on aquatic species by, among other things, allowing operators to divert water at times and places—in either the north or the south—that protect those species at sensitive life stages.

Each project alternative involves a different set of environmental benefits and impacts. For example, the number of north Delta intakes associated with particular alternatives and the alignment of project features typically reflects a balance between localized construction-related, visual, and footprint-related impacts in the Delta against the system-wide environmental benefits associated

with improved reliability of SWP deliveries and meeting the project purpose and objectives. Alternatives with two intakes would involve fewer localized in-Delta impacts than alternatives with three intakes (Alternatives 2a and 4a). Other alternatives with two intakes (Alternatives 1, 2c, 3, 4c, and 5) or with one intake (Alternatives 2b and 4b) would similarly reduce localized, in-Delta impacts compared to alternatives with three intakes. However, alternatives with one intake (Alternatives 2b and 4b) would not have the water supply reliability benefits expected of alternatives with two or three intakes (Alternatives 1, 2a, 2c, 3, 4a, 4c, and 5).

Some of the environmental impacts related to temporary and permanent habitat or agricultural land conversion would be fewer for Alternatives 1, 2b, 2c, 3, 4b, 4c, and 5 than for Alternatives 2a or 4a, which would include three north Delta intakes. Alternatives with three intakes (Alternatives 2a and 4a) would result in the greatest number of acres of farmland conversion while alternatives with fewer intakes (Alternatives 1, 2b, 2c, 3, 4b, and 4c) or that would not involve construction of a new Southern Complex (Project) would have fewer acres of farmland conversion. Similarly, alternatives with three intakes (Alternatives 2a and 4a) would cause the greatest amount of conversion of Williamson Act contracted land compared to alternatives with one intake (Alternatives 2b and 4b), which would result in the least amount of conversion of Williamson Act contracted land. Alternative 4b would have relatively fewer terrestrial biological impacts, and for some other biological resources, would have the fewest quantified impacts of all alternatives (e.g., valley/foothill riparian, greater and lesser sandhill cranes) primarily due to having only one intake and the associated smaller reusable tunnel material impacts. Because the Project does not require construction of a new Southern Forebay and a new South Delta Pumping Plant, it would affect substantially fewer acres of wetlands compared to all other alternatives. The Project would also have substantially fewer impacts on state and federally regulated aquatic resources compared to the other project alternatives.

For some environmental resources analyzed, the project alignment and features drive the overall impacts in addition to the number of intakes. For cultural resources, alternatives on the central alignment (Alternatives 1, 2a, 2b, and 2c) affect a greater number of built-environment historical resources than alternatives on the eastern or Bethany Reservoir alignments (Alternatives 3, 4a, 4b, 4c, and 5). The central alignment alternatives (Alternatives 1, 2a, 2b, and 2c) would generally result in greater impacts on terrestrial biological resources relative to the eastern alignment alternatives (Alternatives 3, 4a, 4b, and 4c) and the Bethany Reservoir alignment alternative (Project), which is largely due to the improvements on Bouldin Island and road improvements throughout the central alignment. Among all alternatives, the Project would result in the least amount of converted farmland because it does not require construction of a new Southern Complex and Southern Forebay.

The construction of the Southern Complex for Alternatives 1, 2a, 2b, 2c, 3, 4a, 4b, and 4c is another important variable that contributes to localized impacts. Alternative 2a would result in the greatest impacts on terrestrial biological resources, which would be primarily due to the construction activities on Bouldin Island and the Southern Complex, whereas the Project, which does not require the construction of a forebay, would have the fewest impacts on terrestrial biological resources, wetlands, and waters of the United States. For cultural resources, the Project's Bethany Reservoir alignment would affect the fewest eligible built-environmental historical resources and fewest archaeological sites compared to all other project alternatives because it would not require construction of a new forebay. The Project would result in the fewest acres with land use incompatibilities compared to all other alternatives that require construction of the Southern Forebay at the Southern Complex.

There could also be some environmental benefits that would occur under all project alternatives because of the operational flexibility that would be possible with the north Delta intakes. The addition of north Delta intakes to the existing diversion facilities in the south would provide system operators the flexibility to divert water from the north or south depending on which is better for sensitive fish species at different times of year and under different hydrological conditions. Dual conveyance also allows flexibility in water diversions when regulatory restrictions limit the ability to divert water from either the north or south, thus enabling the goal of increasing water supply reliability.

All of the project alternatives would create temporary and permanent changes to the Delta environment from construction that in most cases would be mitigated to less-than-significant levels, although several impacts are considered significant and unavoidable. All of the project alternatives would also improve Delta roadways and bridges, and improve water supply infrastructure that is of statewide importance.

As described above, there are different sets of environmental tradeoffs among the project alternatives. Among the project alternatives evaluated in the Final EIR, the Project, on the Bethany Reservoir alignment, overall lessens impacts in relation to temporary and permanent effects on the Delta environment, including minimizing impacts on wetlands and other waters of the United States, agriculture (Impact AG-1), aesthetic (Impacts AES-1 and 3), and cultural and historical resources (Impact CUL-3). Therefore, of the project alternatives, the Project is considered the environmentally superior alternative.

7.5 Infeasibility of Alternatives Other than the Project

CEQA vests the final decision-making authority over a project with the designated lead agency decision-making body or official, who must act consistently with his or her agency's statutory function and powers. As the California Supreme Court stated in acknowledging the limits of its own review function, "[t]he wisdom of approving … any … project" is "a delicate task which requires a balancing of interests," and "is necessarily left to the sound discretion of the [public] officials and their constituents who are responsible for such decisions." (*Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal.3d 553, 576.)

As explained earlier, a decision maker's assessment of the "actual feasibility" of EIR alternatives can involve the "reasonable balancing of the relevant economic, environmental, social, and technological factors" associated with a proposed project. (*City of Del Mar, supra,* 133 Cal.App.3d at p. 417.) Based on such a balancing process, a decision maker may conclude that an alternative, being "undesirable" from a policy standpoint, is infeasible within the meaning of CEQA. (*CNPS, supra,* 177 Cal.App.4th at pp. 981, 999, 1001; *City of Del Mar, supra,* 133 Cal.App.3d at p. 417; *San Diego Citizenry Group, supra,* 219 Cal.App.4th at pp. 17-18; *Sustainability, Parks, Recycling & Wildlife Legal Def. Fund v. San Francisco Bay Conservation & Dev. Com.* (2014) 226 Cal.App.4th 905, 917-918.) In making such determinations, the decision maker may also consider the extent to which an alternative meets project objectives. (*CNPS, supra,* 177 Cal.App.4th at p. 1001 *["*[A]n alternative 'may be found infeasible on the ground it is inconsistent with the project objectives as long as the finding is supported by substantial evidence in the record.'"]; see also *Save Panoche Valley, supra,* 217 Cal.App.4th at pp. 521-523; and *Citizens for Open Government, supra,* 205 Cal.App.4th at pp. 314-

315.) Under these principles, a decision maker may reject an alternative as infeasible even if the alternative would avoid or substantially lessen one or more of the unavoidable significant environmental effects of a proposed project as mitigated.

"CEQA requires the decision-making agency to balance, as applicable, the economic, legal, social, technological, or other benefits, *including region-wide or statewide environmental benefits*, of a proposed project against its unavoidable environmental risks when determining whether to approve the project." (CEQA Guidelines, § 15093, subd. (a), italics added.) Thus, decision makers often find themselves balancing competing environmental considerations as well as competing economic and social considerations.

The Project and its alternatives indeed present all of these categories of competing considerations. DWR, through its Director, has therefore undertaken a deliberative process to balance such competing considerations against each other in light of project objectives and state and federal law. In addition to finding that the Project is the environmentally superior alternative (as discussed above in Section 7.4, *Environmentally Superior Alternative*), DWR rejects the other alternatives set forth in the EIR, and discussed further below, because the Director finds that there is substantial evidence, including evidence of economic, legal, social, technological, and other considerations described in this section and elsewhere in the record on these proceedings under CEQA Guidelines section 15091, subdivision (a)(3), that make the alternatives infeasible. Set forth below are the Director's conclusions with respect to each of the alternatives considered in the Final EIR.

As discussed above, the Project is considered the environmentally superior alternative.

Therefore, the discussion below mainly focuses on infeasibility related to the fundamental purpose and objectives and other feasibility or policy considerations.

7.5.1 Rejection of Alternative 1: 6,000 cfs Central Alignment with Intakes B and C

7.5.1.1 Fundamental Purpose and Objectives

The extent to which this alternative can achieve the project purpose and objectives is comparable to the Project because it has the same water conveyance capacity as the Project.

7.5.1.2 Other Feasibility/Policy Considerations

The Central Alignment's proximity to existing access road infrastructure is less ideal than the Eastern and Bethany alignments, which are accessible to Interstate 5. This could make access for construction more difficult and construction more laborious than on the Eastern or Bethany alignments.

This alternative includes the construction of a Southern Forebay, which inherently requires more construction and results in greater impacts than the Project, which does not require the construction of a Southern Forebay. More construction would result in a greater environmental footprint and potentially greater local community impacts.

Through its Director, DWR rejects Alternative 1 on each of the above grounds. The Director finds that each of the above reasons is a sufficient independent ground for rejecting Alternative 1 as infeasible.

7.5.2 Rejection of Alternative 2a: 7,500 cfs Central Alignment with Intakes A-C

7.5.2.1 Fundamental Purpose and Objectives

This alternative would have similar potential to achieve SWP water supply reliability as the Project. However, it would have additional benefits for the CVP because it has an additional intake that would provide capacity for CVP water deliveries.

7.5.2.2 Other Feasibility/Policy Considerations

Unlike the Project, Alternative 2a would have an additional significant and unavoidable impact: Impact AQ-6, *Result in Exposure of Sensitive Receptors to Substantial Toxic Air Contaminant Emissions*.

The Central Alignment's proximity to existing access road infrastructure is less ideal than the Eastern and Bethany alignments, which are accessible to Interstate 5. This could make access for construction more difficult and construction more laborious than on the Eastern or Bethany alignments.

Because this alternative involves the construction of an additional intake, it would result in greater impacts. These impacts include a greater environmental footprint and potentially greater local community impacts.

This alternative also includes the construction of a Southern Forebay, which inherently requires more construction and results in greater impacts than the Project, which does not require the construction of a Southern Forebay. More construction would result in a greater environmental footprint and potentially greater local community impacts.

Through its Director, DWR rejects Alternative 2a on each of the above grounds. The Director finds that each of the above reasons is a sufficient independent ground for rejecting Alternative 2a as infeasible.

7.5.3 Rejection of Alternative 2b: 3,000 cfs Central Alignment with Intake C

7.5.3.1 Fundamental Purpose and Objectives

This alternative would not achieve the Project's purpose of water supply reliability as effectively as the Project because it has one less intake and 3,000 cfs less capacity of water conveyance compared to the Project.

Alternative 2b would be less capable of meeting the Project's objective of addressing anticipated rising sea levels and other reasonably foreseeable consequences of climate change and extreme weather events. If salinity intrusion were to prevent the use of the existing south Delta pumps, Alternative 2b would have less conveyance capacity to be able to provide water supply reliability to the SWP when compared to the Project. Additionally, Alternative 2b would be less capable of protecting the SWP from future climatic change and mitigating system losses due to changing precipitation patterns and seasonal runoff due to climate change, compared to the Project, due to its lower maximum capacity. Alternative 2b would have less overall capacity to capture excess flows in

the system and divert periodic and significant excess flows when southern Delta pumping is currently restricted. Therefore, Alternative 2b would also be less capable of protecting the ability of the SWP to deliver water when hydrologic conditions result in the availability of sufficient amounts of water, compared to the Project.

In the event of catastrophic levee failures from seismic activities (which could temporarily disrupt water supply by ceasing diversions from the SWP's current point of diversion in the south Delta), Alternative 2b would be less capable of minimizing the potential for public health and safety impacts from reduced quantity and quality of SWP water deliveries south of the Delta, compared to the Project, due to its lower maximum capacity.

Because Alternative 2b has only one intake and a lower maximum capacity, it would also provide less operational flexibility to improve aquatic conditions in the Delta for sensitive fish species and less operational flexibility to better manage risks of further regulatory constraints on project operations.

7.5.3.2 Other Feasibility/Policy Considerations

The Central Alignment's proximity to existing access road infrastructure is less ideal than the Eastern and Bethany alignments, which are accessible to Interstate 5. This could make access for construction more difficult and construction more laborious than on the Eastern or Bethany alignments.

This alternative includes the construction of a Southern Forebay, which inherently requires more construction and results in greater impacts than the Project, which does not require the construction of a Southern Forebay. More construction would result in a greater environmental footprint and potentially greater local community impacts.

Through its Director, DWR rejects Alternative 2b on each of the above grounds. The Director finds that each of the above reasons is a sufficient independent ground for rejecting Alternative 2b as infeasible.

7.5.4 Rejection of Alternative 2c: 4,500 cfs Central Alignment with Intakes B and C

7.5.4.1 Fundamental Purpose and Objectives

This alternative would not achieve the project's purpose of water supply reliability as effectively as the Project because it has 1,500 cfs less capacity of water conveyance.

Alternative 2c would be less capable of meeting the Project's objective of addressing anticipated rising sea levels and other reasonably foreseeable consequences of climate change and extreme weather events. If salinity intrusion were to prevent the use of the existing south Delta pumps, Alternative 2c would have less conveyance capacity to be able to provide water supply reliability to the SWP when compared to the Project. Additionally, Alternative 2c would be less capable of protecting the SWP from future climatic change and mitigating system losses due to changing precipitation patterns and seasonal runoff due to climate change, compared to the Project, due to its lower maximum capacity. Alternative 2c would have less overall capacity to capture excess flows in the system and divert periodic and significant excess flows when southern Delta pumping is currently restricted. Therefore, Alternative 2c would also be less capable of protecting the ability of

the SWP to deliver water when hydrologic conditions result in the availability of sufficient amounts of water, compared to the Project.

In the event of catastrophic levee failures from seismic activities (which could temporarily disrupt water supply by ceasing diversions from the SWP's current point of diversion in the south Delta), Alternative 2c would be less capable of minimizing the potential for public health and safety impacts from reduced quantity and quality of SWP water deliveries south of the Delta, compared to the Project, due to its lower maximum capacity.

Because Alternative 2c has a lower maximum capacity, it would also provide less operational flexibility to improve aquatic conditions in the Delta and less operational flexibility to better manage risks of further regulatory constraints on project operations.

7.5.4.2 Other Feasibility/Policy Considerations

The Central Alignment's proximity to existing access road infrastructure is less ideal than the Eastern and Bethany alignments, which are accessible to Interstate 5. This could make access for construction more difficult and construction more laborious than on the Eastern or Bethany alignments.

This alternative includes the construction of a Southern Forebay, which inherently requires more construction and results in greater impacts than the Project, which does not require the construction of a Southern Forebay. More construction would result in a greater environmental footprint and potentially greater local community impacts.

Through its Director, DWR rejects Alternative 2c on each of the above grounds. The Director finds that each of the above reasons is a sufficient independent ground for rejecting Alternative 2c as infeasible.

7.5.5 Rejection of Alternative 3: 6,000 cfs Eastern Alignment with Intakes B and C

7.5.5.1 Fundamental Purpose and Objectives

The extent to which this alternative can achieve the project purpose and objectives is comparable to the Project because it has the same water conveyance capacity as the Project.

7.5.5.2 Other Feasibility/Policy Considerations

This alternative includes the construction of a Southern Forebay, which inherently requires more construction and results in greater impacts than the Project, which does not require the construction of a Southern Forebay. More construction would result in a greater environmental footprint and potentially greater local community impacts.

Through its Director, DWR rejects Alternative 3 on each of the above grounds. The Director finds that each of the above reasons is a sufficient independent ground for rejecting Alternative 3 as infeasible.

7.5.6 Rejection of Alternative 4a: 7,500 cfs Eastern Alignment with Intakes A-C

7.5.6.1 Fundamental Purpose and Objectives

This alternative would have similar potential to achieve SWP water supply reliability as the Project. However, it would have additional benefits for the CVP because it has an additional intake that would provide capacity for CVP water deliveries.

7.5.6.2 Other Feasibility/Policy Considerations

Unlike the proposed project, Alternative 4a would have an additional significant and unavoidable impact: Impact AQ-6, Result in Exposure of Sensitive Receptors to Substantial Toxic Air Contaminant Emissions.

Because this alternative involves the construction of an additional intake, it would result in greater impacts. These impacts include a greater environmental footprint and potentially greater local community impacts.

This alternative includes the construction of a Southern Forebay, which inherently requires more construction and results in greater impacts than the Project, which does not require the construction of a Southern Forebay. More construction would result in a greater environmental footprint and potentially greater local community impacts.

Through its Director, DWR rejects Alternative 4a on each of the above grounds. The Director finds that each of the above reasons is a sufficient independent ground for rejecting Alternative 4a as infeasible.

7.5.7 Rejection of Alternative 4b: 3,000 cfs Eastern Alignment with Intake C

7.5.7.1 Fundamental Purpose and Objectives

This alternative would not achieve the Project's purpose of water supply reliability as effectively as the Project because it has one less intake and 3,000 cfs less capacity of water conveyance compared to the Project.

Alternative 4b would be less capable of meeting the Project's objective of addressing anticipated rising sea levels and other reasonably foreseeable consequences of climate change and extreme weather events. If salinity intrusion were to prevent the use of the existing south Delta pumps, Alternative 4b would have less conveyance capacity to be able to provide water supply reliability to the SWP when compared to the Project. Additionally, Alternative 4b would be less capable of protecting the SWP from future climatic change and mitigating system losses due to changing precipitation patterns and seasonal runoff due to climate change, compared to the Project, due to its lower maximum capacity. Alternative 4b would have less overall capacity to capture excess flows in the system and divert periodic and significant excess flows when southern Delta pumping is currently restricted. Therefore, Alternative 4b would also be less capable of protecting the ability of the SWP to deliver water when hydrologic conditions result in the availability of sufficient amounts of water, compared to the Project.

In the event of catastrophic levee failures from seismic activities (which could temporarily disrupt water supply by ceasing diversions from the SWP's current point of diversion in the south Delta), Alternative 4b would be less capable of minimizing the potential for public health and safety impacts from reduced quantity and quality of SWP water deliveries south of the Delta, compared to the Project, due to its lower maximum capacity.

Because Alternative 4b has only one intake and a lower maximum capacity, it would also provide less operational flexibility to improve aquatic conditions in the Delta and less operational flexibility to better manage risks of further regulatory constraints on project operations.

7.5.7.2 Other Feasibility/Policy Considerations

This alternative includes the construction of a Southern Forebay, which inherently requires more construction and results in greater impacts than the Project, which does not require the construction of a Southern Forebay. More construction would result in a greater environmental footprint and potentially greater local community impacts.

Through its Director, DWR rejects Alternative 4b on each of the above grounds. The Director finds that each of the above reasons is a sufficient independent ground for rejecting Alternative 4b as infeasible.

7.5.8 Rejection of Alternative 4c: 4,500 cfs Eastern Alignment with Intakes B and C

7.5.8.1 Fundamental Purpose and Objectives

This alternative would not achieve the project's purpose of water supply reliability as effectively as the Project because it has 1,500 cfs less capacity of water conveyance.

Alternative 4c would be less capable of meeting the Project's objective of addressing anticipated rising sea levels and other reasonably foreseeable consequences of climate change and extreme weather events. If salinity intrusion were to prevent the use of the existing south Delta pumps, Alternative 4c would have less conveyance capacity to be able to provide water supply reliability to the SWP when compared to the Project. Additionally, Alternative 4c would be less capable of protecting the SWP from future climatic change and mitigating system losses due to changing precipitation patterns and seasonal runoff due to climate change, compared to the Project, due to its lower maximum capacity. Alternative 4c would have less overall capacity to capture excess flows in the system and divert periodic and significant excess flows when southern Delta pumping is currently restricted. Therefore, Alternative 4c would also be less capable of protecting the ability of the SWP to deliver water when hydrologic conditions result in the availability of sufficient amounts of water, compared to the Project.

In the event of catastrophic levee failures from seismic activities (which could temporarily disrupt water supply by ceasing diversions from the SWP's current point of diversion in the south Delta), Alternative 4c would be less capable of minimizing the potential for public health and safety impacts from reduced quantity and quality of SWP water deliveries south of the Delta, compared to the Project, due to its lower maximum capacity.

Because Alternative 4c has a lower maximum capacity, it would also provide less operational flexibility to improve aquatic conditions in the Delta and less operational flexibility to better manage risks of further regulatory constraints on project operations.

7.5.8.2 Other Feasibility/Policy Considerations

This alternative includes the construction of a Southern Forebay, which inherently requires more construction and results in greater impacts than the Project, which does not require the construction of a Southern Forebay. More construction would result in a greater environmental footprint and potentially greater local community impacts.

Through its Director, DWR rejects Alternative 4c on each of the above grounds. The Director finds that each of the above reasons is a sufficient independent ground for rejecting Alternative 4c as infeasible.

7.5.9 Rejection of No Project Alternative

7.5.9.1 Fundamental Purpose and Objectives

As described in Final EIR, Volume 1, Chapter 4, *Framework for the Environmental Analysis*, the No Project Alternative analyses evaluate a scenario that includes climate change and sea level rise, as well as projects that may occur within the SWP service area if the Delta Conveyance Project does not move forward.

The No Project Alternative fails to meet DWR's fundamental purpose of "restor[ing] and protect[ing] the reliability of SWP water deliveries and, potentially, CVP water deliveries south of the Delta consistent with the State's Water Resilience Portfolio (California Natural Resources Agency et al. 2020) by addressing the seismic risks, sea level rise, and other reasonably foreseeable consequences of climate change and extreme weather events in a cost effective manner." This alternative also fails to meet any of the four specific project objectives described in Chapter 2, *Purpose and Project Objectives*, of "help[ing] address anticipated rising sea levels and other reasonably foreseeable consequences of climate change and extreme weather events; and "minimiz[ing] the potential for public health and safety impacts from reduced quantity and quality of SWP water deliveries, and potentially CVP water deliveries, south of the Delta as a result of a major earthquake that could cause breaching of Delta levees and the inundation of brackish water into the areas where existing SWP and CVP pumping plants operate in the southern Delta"; and "protect[ing] the ability of the SWP, and potentially the CVP, to deliver water when hydrologic conditions result in the availability of sufficient amounts of water, consistent with the requirements of the state and federal law, including the ESA, CESA and Delta Reform Act, as well as the terms and conditions of water delivery contracts and other existing applicable agreements"; and "provid[ing] operational flexibility to improve aquatic conditions in the Delta and better manage risks of further regulatory constraints on project operations."

7.5.9.2 Other Feasibility/Policy Considerations

The No Project Alternative would leave the SWP system subject to potentially catastrophic consequences in the event of a major earthquake leading to levee breaks, inundation of Delta islands, and prolonged disruptions of exports that could require environmentally damaging emergency measures south of the Delta to provide water (California Department of Water Resources

2008b). Even in the absence of an event that catastrophically alters the hydrology of the Delta, climate change and anticipated sea level rise could be expected to gradually limit the operation of the SWP water pumps in the south Delta (California Department of Water Resources 2018). Consequently, additional releases from upstream reservoirs are expected to be necessary to provide the fresh water needed to meet current salinity standards (California Department of Water Resources 2018). While water users have previously relied on groundwater to supplement surface water supplies when operation of the SWP is limited by regulations to improve aquatic conditions, groundwater pumping is now managed under the Sustainable Groundwater Management Act requirements, which would have implications for meeting water supply demands depending on the designation of a groundwater basin Chapter 8, *Groundwater*, Section 8.3.2.1, *No Project Alternative*). As described in in the No Project Alternative discussions in Final EIR, Volume 1, Chapters 7 through 32, water managers in urban export areas could respond to diminished deliveries by taking other actions, such as the construction of recycled water facilities and desalination plants, that would create their own negative environmental effects, including consumption of large amounts of greenhouse gas-generating fossil fuels, brine discharge, and for desalinization plants, potential entrainment of aquatic species.

Through its Director, DWR rejects the No Project Alternative on each of the above grounds. The Director finds that each of the above reasons is a sufficient independent ground for rejecting the No Project Alternative as infeasible.

7.5.10 Alternatives Considered but Rejected from Further Consideration

7.5.10.1 Fundamental Purpose and Objectives

As discussed above in Section 5.3.1, *Alternatives Development and Screening Process*, DWR identified and screened a range of alternatives based on the project purpose and objectives, as defined in the NOP. The screening criteria were developed consistent with the legal requirements of CEQA and the project objectives included in the NOP published on January 15, 2020. The following alternatives did not pass the first of two screening filters and were rejected, as they do not meet most of the project's objectives:

- Dual Conveyance Tunnel with New Intakes at Fremont Weir and Decker Island
- Dual Conveyance with New Intakes at Decker Island
- Isolated Conveyance New Intakes at Fremont Weir and Decker Island
- Isolated Conveyance with San Joaquin River intake
- Western Delta Intake Concept
- SolAgra Water Solution
- Portfolio-Based Proposed including Water Conveyance Facilities
- Through-Delta Conveyance No New Diversion Facility (with Barriers)
- Through-Delta Conveyance with No New Diversion Facility—New Fish Handling Facilities at Clifton Court Forebay
- Portfolio Approach without Water Conveyance Facilities

- Integration of Water Conveyance with Other Projects

7.5.10.2 Other Feasibility/Policy Considerations

The following alternatives passed the first filter but did not pass the second filter, as they do not avoid or substantially lessen impacts compared to the alternatives evaluated in the EIR:

- Dual Conveyance East Canal
- Dual Conveyance West Canal
- Dual Conveyance with New Intakes at Sacramento Weir
- Isolated Conveyance Tunnel with Sacramento River Intakes
    - Isolated Conveyance West Canal with Sacramento River Intakes
    - Isolated Conveyance East Canal with Sacramento River Intakes
    - Isolated Conveyance East Canal with Feather River Intakes
- A Water Plan for All of California
- Alternative locations for diversion facilities along the Sacramento River in the north Delta

For the foregoing reasons, DWR rejects all the alternatives to the Project considered in the EIR, including the alternatives considered but rejected from further consideration in the EIR, as infeasible. As explained above, these alternatives would have greater environmental impacts compared to the Project and/or would not meet the project goals or objectives, or would not achieve them to the same degree as the Project, and/or are found to be infeasible on the basis of additional grounds discussed above. DWR further finds that, out of all of the alternatives considered, the Project strikes the optimal balance between attainment of project goals and objectives, competing environmental and economic impacts and benefits, and best achieves the coequal goals set forth in the Delta Reform Act of providing a more reliable water supply for California and protecting, restoring, and enhancing the Delta ecosystem.

Chapter 8
Statement of Overriding Considerations

California Public Resources Code section 21081, subdivision (b), and CEQA Guidelines section 15093 provide that, when a public agency decision maker approves a project that will have significant, unavoidable environmental impacts identified in a final EIR, the decision maker must state in writing the reasons to support his, her, or its action based on the completed EIR and/or other information in the administrative record.

The Project's significant and potentially significant and unavoidable impacts, as described in the Final EIR are listed below prefaced by their identification number from the Final EIR. As explained in the Final EIR, several impacts have the potential to be less than significant after mitigation is implemented; however, due to uncertainty associated with the timing, nature, or need for other parties to participate in certain mitigation actions, DWR concluded the impact remain significant and unavoidable.

- Impact AG-1: Convert a Substantial Amount of Prime Farmland, Unique Farmland, Farmland of Local Importance, or Farmland of Statewide Importance as a Result of Construction of Water Conveyance Facilities
- Impact AG-2: Convert a Substantial Amount of Land Subject to Williamson Act Contract or under Contract in Farmland Security Zones to a Nonagricultural Use as a Result of Construction of Water Conveyance Facilities
- Impact AES-1: Substantially Degrade the Existing Visual Character or Quality of Public Views (from Publicly Accessible Vantage Points) of the Construction Sites and Visible Permanent Facilities and Their Surroundings in Nonurbanized Areas
- Impact AES-2: Substantially Damage Scenic Resources including, but Not Limited to, Trees, Rock Outcroppings, and Historic Buildings Visible from a State Scenic Highway
- Impact AES-3: Have Substantial Significant Impacts on Scenic Vistas
- Impact CUL-1: Impacts on Built-Environment Historical Resources Resulting from Construction and Operation of the Project
- Impact CUL-2: Impacts on Unidentified and Unevaluated Built-Environment Historical Resources Resulting from Construction and Operation of the Project
- Impact CUL-3: Impacts on Identified Archaeological Resources Resulting from the Project
- Impact CUL-4: Impacts on Unidentified Archaeological Resources That May Be Encountered in the Course of the Project
- Impact CUL-5: Impacts on Buried Human Remains
- Impact TRANS-1: Increased Average VMT Per Construction Employee versus Regional Average
- Impact AQ-5: Result in Exposure of Sensitive Receptors to Substantial Localized Criteria Pollutant Emissions

- Impact NOI-1: Generate a Substantial Temporary or Permanent Increase in Ambient Noise Levels in the Vicinity of the Project in Excess of Standards Established in the Local General Plan or Noise Ordinance, or Applicable Standards of Other Agencies
- Impact PALEO-2: Cause Destruction of a Unique Paleontological Resource as a Result of Tunnel Construction and Ground Improvement
- Impact TCR-1: Impacts on the Delta Tribal Cultural Landscape Tribal Cultural Resource Resulting from Construction, Operations, and Maintenance of the Project Alternatives
- Impact TCR-2: Impacts on Individual Tribal Cultural Resources Resulting from Construction, Operations, and Maintenance of the Project Alternatives

In the Director's judgment, the benefits of the Project, as set forth below, outweigh these significant and unavoidable impacts. The following statement identifies the reasons why, in the Director's judgment, the benefits of the Project as approved outweigh its significant and unavoidable impacts. Any one of these reasons is sufficient to justify approval of the Project. Thus, even if a court were to conclude that not every reason is supported by substantial evidence, each additional reason would alone be sufficient to support the Director's determination. (See *Habitat and Watershed Caretakers v. City of Santa Cruz* (2013) 213 Cal.App.4th 1277, 1307-1308.) The substantial evidence supporting the various benefits can be found in the preceding findings, which are incorporated by reference into this section, and in the documents found above in Chapter 2, *Record of Proceedings*, as defined on pp. 2-1–2-2 herein.

The Project will improve California's water conveyance system in response to increased risks to water supply reliability as a result of, for example, risks from seismicity and climate change. The SWP supplies water to 27 million people in northern California, the Bay Area, the San Joaquin Valley, the Central Coast, and southern California. SWP water also irrigates about 750,000 acres of farmland, mainly in the San Joaquin Valley (Final EIR, Volume 1, Chapter 2, *Purpose and Project Objectives*, p. 2-1). The Delta has long been an important resource for California, providing municipal, industrial, agricultural and recreational uses, fish and wildlife habitat, and water supply to large portions of the State. By several key criteria, however, such as declines in populations of several fish species, seismic risk to levees and the Delta infrastructure, continuing land subsidence, and rising sea level, the Delta is now widely considered to be in crisis. The Legislature formally recognized this when it enacted a comprehensive package of water bills in 2009, including the Delta Reform Act: "The Sacramento-San Joaquin Delta watershed and California's water infrastructure are in crisis and existing Delta policies are not sustainable. Resolving the crisis requires fundamental reorganization of the state's management of Delta watershed resources." (California Water Code, § 85001, subd. (a).)

State policy regarding the Delta is summarized in the Delta Reform Act, which states: "[I]t is the intent of the Legislature to provide for the sustainable management of the Sacramento-San Joaquin Delta ecosystem, to provide for a more reliable water supply for the state, to protect and enhance the quality of water supply from the Delta . . . ." (*Id.*, § 85001, subd. (c)).

The Delta "serves Californians concurrently as both the hub of the California water system and the most valuable estuary and wetland ecosystem on the west coast of North and South America." (*Id*., § 85002.) For the Delta to continue to maintain these functions, the Legislature has determined that an improved water conveyance system is necessary. (*Id.*, § 85020, sub. (f); see also *id*., §§ 85304, 85320.) As discussed in Final EIR, Volume 1, Chapter 1, *Introduction*, Section 1.2.4, *Prior Delta Conveyance Planning Efforts*, the need for an improved conveyance system was identified based on

years of scientific study, extensive data gathered from various agencies and experts, and an elaborate process that involved agency and interested party input as well as robust public involvement.

Interested parties have recognized an urgent need, for both environmental and economic reasons, to improve and modernize the existing SWP conveyance system in the Delta, which was designed and built long before the advent of many current environmental laws, including the ESA, Clean Water Act (CWA), and CEQA (Final EIR, Volume 1, Chapter 1, *Introduction*, Section 1.2.4.4, *The Bay Delta Conservation Plan and California WaterFix*). Other factors, such as those described in the *Delta Risk Management Strategy (DRMS)* (California Department of Water Resources 2009), including the continuing subsidence of lands within the Delta, increasing risk of seismic activity and levee failures, and sea level rise and potentially wider variations in hydraulic conditions associated with climate change, serve to further exacerbate these conflicts. By adding redundancy to the Delta's water conveyance infrastructure through additional points of diversion in the North Delta, the project minimizes the risks associated with seismic threats to the current Delta water infrastructure and prevents or mitigates potentially significant economic losses to the state. Change to the existing conveyance system is necessary if California is to "[a]chieve the two coequal goals [for the Delta] of providing a more reliable water supply for California and protecting, restoring, and enhancing the Delta ecosystem." (Pub. Resources Code, § 29702, subd. (a).)

The Director finds that, of all of the alternatives considered in the EIR, the Project most fully implements DWR's fundamental purpose to restore and protect the reliability of SWP water deliveries south of the Delta consistent with the State's Water Resilience Portfolio in a cost-effective manner and DWR's related objectives to address seismic risk, climate change, and regulatory constraints, and to attain operational flexibility consistent with statutory and contractual obligations. The Project will specifically result in the following benefits:

8.1 Restore and Protect the Reliability of SWP Water Deliveries South of the Delta by Addressing Seismic Risks

A seismic event could cause major damage to property, infrastructure, and the environment that could affect the entire state. The current SWP system relies heavily on natural channels within the Delta to convey water and is extremely vulnerable to seismic events because most land in the central Delta has subsided well below sea level. Many of the related Delta islands are currently below sea level due to factors including subsidence of underlying organic soils, with this subsidence expected to continue at a generalized rate of approximately 0.25 to 0.5 inch per year until the organic content is largely depleted (Deverel et al. 2016:5). If levees fail because of a seismic event, seawater intrusion from the western Delta could create salinity conditions that could require ceasing diversions from the SWP's current point of diversion in the south Delta. The Project would provide a water supply reliability benefit associated with earthquake risk that is not captured in Project modeling, as Project implementation would avoid having the SWP shut down or severely limit operations because of one or more levee breeches in the Delta. The capability of the Project to continue operations would improve the ability of SWP Delta facilities to function after a seismic event by operating diversion facilities north of existing SWP facilities. The operations of the project

would allow continued water supply diversions should south Delta export facilities become inoperable.

The probabilities of moderate to large earthquake events, and related damage to or failure of Delta area levees, are generally high and increasing over time. According to the United States Geological Survey (USGS), there is a 72 percent chance of a 6.7 or greater magnitude earthquake occurring in the Bay Area by 2043 (U.S. Geological Survey 2016:1). A major earthquake event could result in breaching or failure of existing levees within the Delta, with a substantial number of these structures exhibiting moderate to high failure probabilities (California Department of Water Resources 2009:10). This could result in significant amounts of saltwater being drawn into the Delta region, raising salinity levels and crippling the state's ability to deliver fresh water because of the location of the SWP's primary diversion in the south Delta. Of the over 1,100 miles of Delta levees, many are not in a condition to withstand significant shaking (Final EIR, Volume 1, Chapter 1, *Introduction*, Section 1.2.3.3, *Delta Levee Risk*). DWR has invested millions of dollars to reinforce many Delta levees through the Delta Levees Special Flood Control Projects and Delta Levees Maintenance Subventions programs and will continue to do so. However, even with levee improvements, the extensive Delta levee system will remain vulnerable to a major earthquake (Final EIR, Volume 1, Chapter 1, *Introduction*, Section 1.2.3.3, *Delta Levee Risk*). An earthquake could cause a possible outage in water supply delivery lasting anywhere from several months to several years to perform necessary levee repairs and restore salinity levels to where the SWP could resume normal operations. DWR has estimated that it may take 25 to 34 months to complete repairs of levees after a major seismic event in the Delta (California Department of Water Resources 2009:10). Cessation of SWP operations of this magnitude would have catastrophic social and economic effects, including a loss of water necessary for public health and safety (Final EIR, Volume 1, Chapter 1, *Introduction*, Section 1.2.3.1, *California Water Supply*). Each year without "A Big One," the risk of disruption from a major earthquake significantly increases. The Pacific Ocean's plate moves 50 millimeters per year making California overdue for a major earthquake event (California Department of Water Resources 2023a). Although no one can definitively say exactly when a major seismic event would occur, experts agree that it is not a matter of "if," but a matter of "when" (U.S. Geological Survey 2016). The Project would allow continued water deliveries and operational flexibility in the event of a catastrophic levee failure from seismic activity that could temporarily disrupt water supply or affect water quality.

8.2 Restore and Protect the Reliability of SWP Water Deliveries South of the Delta by Addressing Reasonably Foreseeable Consequences of Climate Change and Extreme Weather Events

The Project is part of the state's strategy in adapting the SWP water supply to climate change. As described in Final EIR, Volume 1, Chapter 30, *Climate Change*, projected future conditions under climate change, such as higher average temperature and more extreme variability in annual precipitation patterns, is anticipated to further diminish overall water supply and reliability of water delivery. Climate change is already taking a toll on California's water supplies in the form of more frequent and more severe droughts. A warmer atmosphere would modify precipitation and runoff patterns and affect extreme hydrologic events like floods and droughts. It is anticipated that droughts would increase in severity and duration, resulting in periods of critical dryness, further

reducing Delta inflows during these dry periods. At the same time, associated increases in the frequency and severity of flashy storms in the cool season could increase high-flow events and flood risk in the Delta. These trends clearly point to the need for alternate methods of water diversion and conveyance to effectively respond to changing water flow regimes under future climate change. In this context, DWR considers capture and conveyance in the Delta as important potential adaptations in protecting the SWP from future climatic change and mitigating system losses due to changing precipitation patterns and seasonal runoff. Having alternative points of diversion in the north Delta would increase resiliency in managing combined effects of sea level rise, including potential impacts on Delta morphology, and changes to timing and quantity of seasonal runoff. As water demand and supply challenges continue to increase, the Project is designed to enhance resilience to climate change impacts and ensure safe and reliable water deliveries continue far into the future (California Department of Water Resources 2023b). As described in Final EIR, Volume 1, Appendix 30A, *CalSim 3 Results Sensitivity to 2040 Climate Change and Sea Level Projections*, the Project would be able to operate to substantially lessen climate change impacts on SWP supplies under a drier climate with less long-term average precipitation when hydrologic conditions and the operational criteria allow diversions while meeting regulatory requirements for the protection of water quality and sensitive fish in the Delta.

As discussed in Final EIR, Volume 1, Chapter 30, *Climate Change*, the Project would make California's water system more resilient by augmenting the ability to capture increased winter flows and high flows from flashy storms to supply water during dry months. The Project provides an alternative diversion point in the north Delta for Delta exports, adding management flexibility and increases in SWP deliveries during long-term average, dry, and critical water years. The inability of the existing SWP to divert periodic and significant excess flows when southern Delta pumping is currently restricted represents a substantial lost opportunity to provide critically needed water supplies at a time when inflow to the Delta far exceeds that needed to meet biological and water quality regulatory objectives. When there are excess flows in the system, the north Delta intakes would be used to capture additional excess flows when the south Delta exports are limited and not able to capture those flows.

For instance, if the Project had been operational during the big storms in winter 2021-2022, DWR could have captured and moved about 236,000 acre-feet of water (California Department of Water Resources 2022), which is equivalent to approximately 40 percent of total SWP exports in water year 2022.

In October 2021, when high storm flows came and went quickly, the existing infrastructure and requirements for SWP operations limited the ability to capture these flows. In other words, the current configuration of the SWP is not sufficient to capture high and flashy flows, like those from the October 2021 storm. Additionally, in December 2021 and January 2022, to protect sensitive fish from getting pulled into less habitable parts of the Delta, pumping of water from the south Delta was limited, even when there was an abundant amount of water in the north Delta from storm events (California Department of Water Resources 2022).

The inability of the SWP to divert these excess flows represents a substantial lost opportunity to help recover from multiple years of drought. If the Delta Conveyance Project had been operational during those storms, the SWP would have been able to capture more water, while still meeting water quality standards and protecting sensitive fish, and move and store this much-needed water for later use in the summer or fall.

8.3 Restore and Protect the Reliability of SWP Water Deliveries South of the Delta by Addressing Sea Level Rise

Global mean sea level has risen approximately 7.87 inches (0.2 meters) from 1901 to 2018, affecting high tide events and salinity levels in the Delta (Final EIR, Volume 1, Chapter 30, *Climate Change*, pp. 30-6–30-7). It is "virtually certain" that substantial sea level rise will occur by the end of the century, although the rate and degree of increase remains uncertain (e.g., at the San Francisco Bay, the 50th percentile change in projected sea level rise by 2100 under the Representative Concentration Pathway 8.5 (high emissions) modeling scenario is 2.5 feet, but it is 1.6 feet under the RCP 2.6 modeling scenario) (California Natural Resources Agency and Ocean Protection Council 2018:57). The Project would operate under different sea level rise conditions and would allow adaptation to sea level rise and potential changes in hydrologic conditions associated with climate change. As described in Final EIR, Volume 1, Appendix 6A, *Water Supply 2040 Analysis*, indicate that long-term average annual SWP deliveries under the future No Project Alternative under the 2040 scenario, which includes sea level rise of 1.8 feet at the San Francisco Bay—considered extreme for the year 2040 (California Natural Resources Agency and Ocean Protection Council 2018:57)—could decline by approximately 236,000 acre-feet compared to existing conditions and that implementing the Project under the 2040 scenario would increase long-term average annual SWP deliveries by approximately 287,000 acre-feet compared to existing conditions. This analysis shows that the Project would improve SWP water supply reliability under current and future conditions, including extreme high sea level rise.

In addition, the Project is being built with consideration of climate change by designing according to modeled conditions and thus is expected to have a low level of risk for direct climate change effects such as sea level rise. The Project would likely remain functional well into the future, when salinity intrusion may prevent use of the south Delta pumps. As described in Final EIR, Volume 1, Appendix 5A, *Modeling Technical Appendix*, studies demonstrate that the proposed north Delta intakes would not be vulnerable to saltwater intrusion even with an extreme high sea level rise of up to 10.2 feet at Golden Gate Bridge in the San Francisco Bay. Therefore, even in the face of extreme sea level rise, the north Delta intakes would continue to be operable. Additionally, compounding effects of climate change, including increasing stress on supply to meet demand under warmer temperatures, or increasing need for water releases to maintain water quality requirements, may affect the long-term reliability of Delta exports (Delta Stewardship Council 2021:5-55–5-58). By adding intakes along the Sacramento River (where they are less vulnerable to sea level rise compared to the existing south Delta export facilities), the Project allows for operational flexibility to respond to changing conditions in the Delta (Final EIR, Volume 1, Chapter 30, *Climate Change*, p. 30-26). This increased flexibility would allow managers in the SWP system more options for adaptively managing resources to optimize benefits across water uses and provide more reliable water supplies that would benefit areas receiving deliveries (Final EIR, Volume 1, Chapter 30, *Climate Change*, p. 30-26).

8.4 Protect and Benefit California's Economy

8.4.1 Benefits of Project Operations to the State's Economy

Water supplied by the SWP has benefits for the entire state and has helped California become the fifth largest economy in the world, and the Project will provide protections and benefits to California's economy. California cities that receive water from the Delta, including areas within the Bay Area and Silicon Valley, as well as Central and Southern California, produce hundreds of billions of dollars' worth of goods and services each year. A functioning water delivery system—one that can maximize reliable supplies within regulatory limits and withstand the impacts of climate change and earthquakes—is critical to business growth and job creation. Despite statewide efforts to improve water conservation, recycling, groundwater management, and build the resilience of local water systems across the state, the SWP remains a critical component to California's water system and serves as a foundation for important local water supplies and resiliency programs. While water conservation and local water supply options have made and are anticipated to continue to make significant strides into the future, the Project is critical to protect the reliability of the SWP as an important water stabilization source for the State. Participating public water agencies' existing and continued activities to improve local self-reliance and to use California's water resources efficiently and sustainably are important components of their water supply portfolios, but these actions cannot wholly replace SWP supplies (California Natural Resources Agency et al. 2020:113). The Project is one component of the statewide portfolio approach needed to meet California's overall water management needs and failure to protect the SWP from future changes would put California's water supply and economy at risk.

In the absence of the Project, the negative economic impact of water export cutbacks would be felt statewide. Drought conditions in recent years have already demonstrated that existing, and reasonably foreseeable future, local sources, particularly in areas such as Southern California, will not be able to sustain over the long term in the face of shortages from supplies such as the SWP. Given the high cost of securing water to keep up with demand satisfied through Delta exports, there is a statewide economic benefit extending to potentially billions of dollars, depending on export levels in the future without the Project. Increasing the reliability of water deliveries can reduce costs to water providers and users in the SWP service areas if they are able to use the SWP supply to avoid more costly supplies.

In addition, California is the agricultural powerhouse of the United States—leading all other states in farm income. Improved agricultural water supply and reliability can keep land in production and would support more stable (and potentially larger) agricultural acreage, enable broader crop selection, and reduce cost and risk associated with uncertain water deliveries. During dry and critical water conditions, additional supply can reduce land idling and reduce the cost of replacement supply (Final EIR, Volume 1, Chapter 17, *Socioeconomics*, p. 17-88). More reliable agricultural water supply would also benefit the local farm economy, including seasonal and permanent on-farm employment, and will protect employment in industries closely associated with agricultural production such as food processing, agricultural inputs, and transportation (Final EIR, Volume 1, Chapter 17, *Socioeconomics*, p. 17-88).

The community character of rural regions receiving SWP water supply is closely tied to agriculture, so improvements in water supply reliability could support the current social activities and character. The range of agricultural water supply likely provided by the Project would not induce

new agricultural production, but the improved reliability would contribute to and reinforce existing economic and social patterns and institutions. Greater stability of the local economy would also benefit local government fiscal conditions (Final EIR, Volume 1, Chapter 17, *Socioeconomics*, p. 17-88).

The increased amount and reliability of urban water supply is expected to be used to accommodate population and economic growth that the urban regions are already planning for and to offset other, more costly supplies that would otherwise be used or developed. Final EIR, Volume 1, Chapter 31, *Growth Inducement*, Section 31.2.3.3, *Indirect Growth Inducement Effects Associated with Stabilized Water Deliveries*, describes how the water deliveries will accommodate existing or already planned uses (Final EIR, Volume 1, Chapter 17, *Socioeconomics*, p. 17-88).

8.4.2 Benefits of Project Construction to the State's Economy

Public infrastructure projects such as the Project are essential to many facets of the economy, typically providing a substantial socioeconomic benefit. The construction of the Project will create 3,086 new construction jobs during the peak construction year (Final EIR, Volume 1, Chapter 17, *Socioeconomics*, p. 17-61), and will generate revenue in a range of other sectors due to multiplier effects as spending made locally in connection to Project construction moves through the Delta economy and other regions of California. For example, new earned revenue by businesses and workers are in some portion spent back into local economies which will stimulate additional spending in the form of new hires, more pay for workers, renovations, or other goods or services. It is anticipated that the majority of these new jobs would be filled from within the existing labor force in the region. The construction of the Project is therefore likely to result in a substantial number of new jobs and economic activity, much of which will be concentrated in the Delta region.

8.5 Provide SWP Operational Flexibility and Better Manage Risks of Further Regulatory Constraints on Project Operations

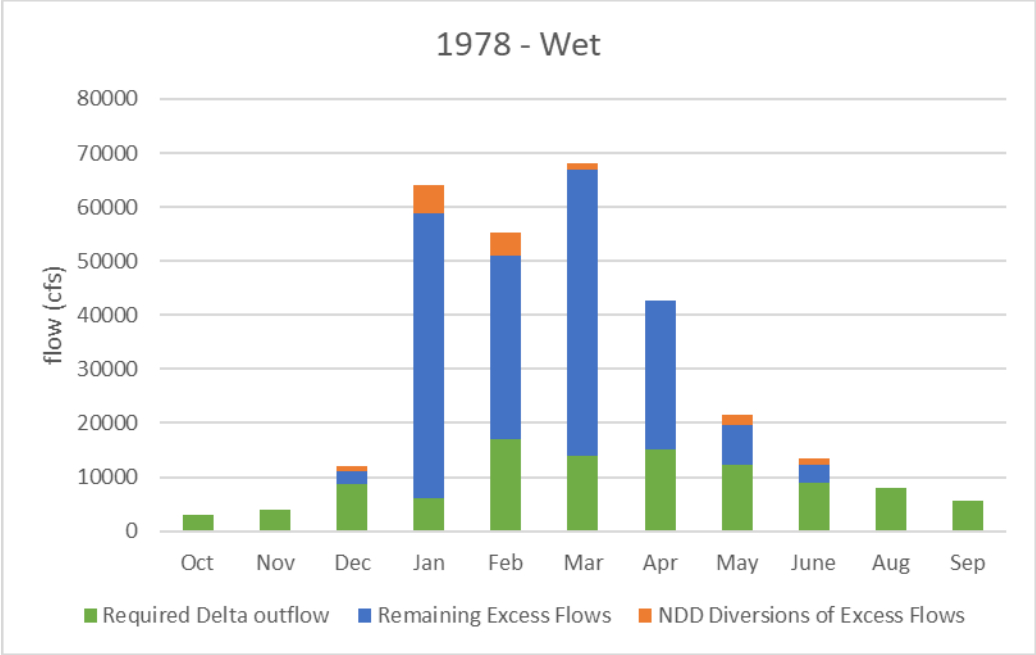
Since the SWP became operational, SWP operations have changed largely in response to regulatory changes intended to better protect fish and wildlife resources in the Delta, as described in Final EIR, Volume 1, Chapter 1, *Introduction*, Section 1.2.3.4, *Regulatory Environment*. In recent years, water diversions at the existing south Delta facilities have been limited during certain times of the year to protect aquatic resources, which has considerably reduced the long-term average amounts of water conveyed through the south Delta and has resulted in overall reduced and less reliable water supply for SWP users. These pumping restrictions applied by regulatory agencies to address water quality and aquatic species concerns at the south Delta diversion continue to prevent the SWP from reliably capturing water when it is available, especially from storm events. Constraints on groundwater use imposed by the Sustainable Groundwater Management Act of 2014 could also increase the need for reliable SWP surface water supplies over time.

As described in Final EIR, Volume 1, Chapter 6, *Water Supply*, modeled long-term average annual SWP deliveries under the Project would increase by 15% when compared to existing conditions. Additionally, analyses in Final EIR, Volume 1, Appendix 6A, *Water Supply 2040 Analysis*, indicate that long-term average annual SWP deliveries under the future No Project Alternative under the 2040

scenario could decline by approximately 236,000 acre-feet compared to existing conditions and that implementing the Project under the 2040 scenario conditions—including extreme high sea level rise of 1.8 feet at the San Francisco Bay—would increase long-term average annual SWP deliveries by approximately 287,000 acre-feet compared to existing conditions. These analyses show that the Project would improve SWP water supply reliability under current and future conditions. Further, increased delivery may simply restore average contract deliveries that have been affected because of regulatory rules and operational agreements or could be used to supplement or reduce groundwater use under the Sustainable Groundwater Management Act.

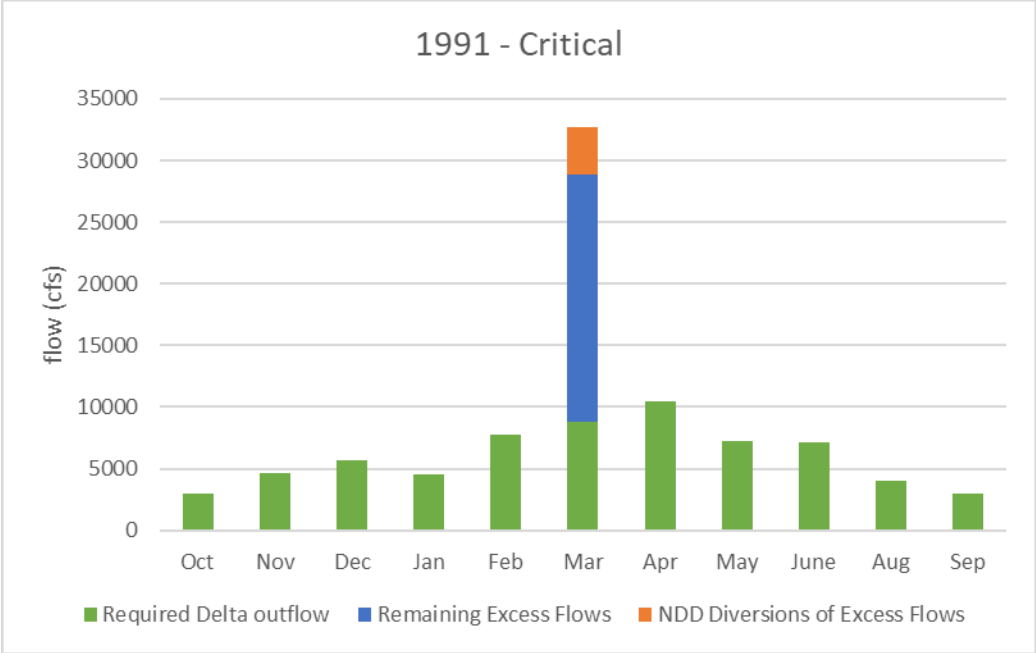
The Project will increase the options available to SWP operators to more effectively balance the Bay-Delta system in real-time to protect all beneficial uses of water whether for water supply, water quality, or fishery protection purposes. The proposed intakes would augment the ability to capture excess flows and improve the flexibility of the SWP operations, such as for meeting the State Water Board D-1641 Delta salinity requirements. For example, during the late spring, summer, and fall, when the SWP is typically operating to meet State Water Board D-1641 salinity requirements in the Delta, both the existing south Delta intakes and the proposed north Delta intakes would be operated together to meet these salinity requirements. The south Delta exports and the north Delta diversions would be balanced and adjusted to meet the State Water Board D-1641 salinity requirements at the western Delta stations on the Sacramento and San Joaquin Rivers (e.g., increasing salinity at Jersey Point would cause a shift in diversions from south Delta to north Delta, whereas increasing salinity at Emmaton would cause a shift from north Delta to south Delta). This operation is expected to result in a more efficient system operation where less water would be required to meet the same water quality standards and result in additional water that could either remain in storage or be exported.

Additionally, the below figures, based on substantial evidence in the administrative record, also demonstrate how the project would operate during certain hydrologic conditions by diverting excess water during high-flow events and help provide a more reliable water supply responsive to changing weather conditions and rainfall patterns. These diversion examples created by DWR demonstrate the frequency and magnitude of diversions that could occur when excess flows occur after all other applicable Delta outflow requirements are met. These series of figures also demonstrate that there may be sufficient water in the river to divert at different times within each water year type and across all water year types, including critical years.



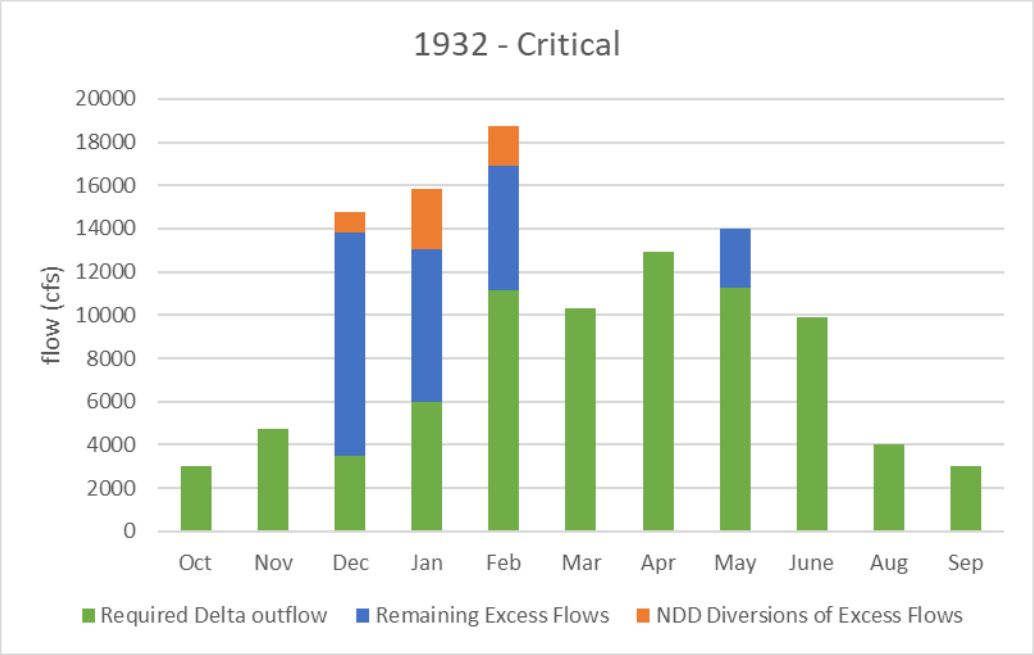
Note: Required outflow includes water to meet minimum required Delta outflows, X2, and salinity, including carriage water for wheeling and transfers.

Figure 1: 1978 – Wet Water Year Type and Operations of North Delta Diversions



Note: Required outflow includes water to meet minimum required Delta outflows, X2, and salinity requirements, including carriage water for wheeling and transfers.

Figure 2: 1991 – Critical Water Year Type and Operations of North Delta Diversions



Note: Required outflow includes water to meet minimum required Delta outflows, X2, and salinity, including carriage water for wheeling and transfers.

Figure 3: 1932 – Critical Water Year Type and Operations of North Delta Diversions

Furthermore, the addition of the north Delta intakes would also provide operational flexibility that could improve conditions for aquatic species by, among other things, allowing operators to divert water at times and places—in either the north or the south—that protect those species at sensitive life stages. Use of the north Delta intakes to improve conditions for sensitive aquatic species in the southern Delta could occur when reducing south Delta exports at Clifton Court Forebay would benefit sensitive fish species in the south Delta without causing fish effects at the proposed north Delta intakes. In this circumstance, use of the north Delta intakes would result in further reduction in south Delta SWP exports beyond the reduction that would otherwise have occurred based on the permitted south Delta regulatory criteria. For example, if the south Delta criteria allow 3,500-cfs SWP exports at Clifton Court Forebay and if there is a circumstance that would be beneficial to sensitive aquatic protection to instead divert a portion of the exports from the proposed north Delta intakes, then SWP exports at south Delta export facilities would be less than 3,500 cfs, and the remaining allowable exports would be diverted from the north Delta. This procedure, which could be used under limited circumstances (and decisions to shift would be in coordination with regulatory agencies), would provide increased flexibility to meet water supply and aquatic species needs.

Chapter 9
Summary of Conclusions

By this Statement of Overriding Considerations, the Director of DWR finds that the remaining significant and unavoidable environmental impacts of the Project, summarized herein, are acceptable in light of the environmental, economic, legal, social, technological, and/or other considerations set forth herein, because the benefits of the Project outweigh its significant and unavoidable environmental impacts.

The Director declares that DWR has adopted all feasible mitigation measures to reduce the Project's environmental impacts; considered the entire administrative record, including the Final EIR; and weighed the Project's benefits against its environmental impacts. After doing so, the Director has determined that the Project's benefits outweigh its environmental impacts, and deems them acceptable, consistent with CEQA Guidelines section 15093.

Chapter 10
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Exhibit A

CEQA Findings of Fact for the Project's Significant and Unavoidable Impacts, Impacts that are Less Than Significant after Mitigation and Impacts that are Less Than Significant/No Impact

Table 1: CEQA Findings of Fact for Significant and Unavoidable Project Impacts

Potential Project Impact	Impact Conclusions Before Mitigation- CEQA	Adopted Mitigation Measures	Impact Conclusion After Mitigation- CEQA	Findings of Fact
Agricultural Resources				
Impact AG-1: Convert a Substantial Amount of Prime Farmland, Unique Farmland, Farmland of Local Importance, or Farmland of Statewide Importance as a Result of Construction of Water Conveyance Facilities	Significant	MM AG-1: Preserve Agricultural Land	Significant and Unavoidable	Mitigation Measure AG-1: Preserve Agricultural Land would reduce the extent of the remaining impacts that could not be avoided through careful project planning. However, these impacts would remain significant and unavoidable after implementation of the mitigation measures because conservation of agricultural farmland through acquisition of agricultural conservation easements, even at a ratio of 1:1 or greater, would not avoid a net loss of Important Farmland in the study area. Findings: Changes or alterations have been required in, or incorporated into, the project that substantially lessen, but do not avoid, the significant environmental effect as identified in the Final EIR. Impacts are therefore significant and unavoidable despite the adoption of feasible mitigation measures.
Impact AG-2: Convert a Substantial Amount of Land Subject to Williamson Act Contract or under Contract in Farmland Security Zones to a Nonagricultural Use as a Result of Construction of Water Conveyance Facilities	Significant	MM AG-1: Preserve Agricultural Land	Significant and Unavoidable	Project facilities would result in permanent conversion of around 1,100 acres of land under Williamson Act contract. There is projected to be temporary or permanent conversion of approximately 39 acres of agricultural land within a Farmland Security Zone under the Project. The permanent impacts on land under contract with Farmland Security Zone would be associated with the shaft sites and new overhead power transmission lines, while the temporary impacts would result from work associated with geotechnical exploration sites and underground installation of utility lines. DWR would comply with all applicable provisions of California Government Code Sections 51290–51295 as they pertain to acquiring lands subject to Williamson Act contract. Findings: Changes or alterations have been required in, or incorporated into, the project that substantially lessen, but do not avoid, the significant environmental effect as identified in the Final EIR. Impacts are therefore significant and unavoidable despite the adoption of feasible mitigation measures.
Aesthetics and Visual Resources				
Impact AES-1: Substantially Degrade the Existing Visual Character or Quality of Public Views (from Publicly Accessible Vantage Points) of the Construction Sites and Visible Permanent Facilities and Their Surroundings in Nonurbanized Areas	Significant	MM AES-1a: Install Visual Barriers between Construction Work Areas and Sensitive Receptors MM AES-1b: Apply Aesthetic Design Treatments to Project Structures MM AES-1c: Implement Best Management Practices in Project Landscaping Plan	Significant and Unavoidable	Construction of the Project would substantially affect the existing visual quality and character present in the study area from public roads, residences, and areas of visual effect in the vicinity of project sites. Contributing to this impact would include the long-term nature of facility construction at all of the major project sites and visibility of heavy construction equipment in the proximity to sensitive vantage points; removal of residences and agricultural buildings; removal of riparian vegetation and other mature vegetation or landscape plantings; earthmoving and grading that result in changes to topography in areas that are predominantly flat, as well as dust generation; addition of large-scale industrial-looking structures (e.g., intakes, pumping plants, discharge structures and related facilities); remaining presence of large-scale reusable tunnel material (RTM) area landscape effects; and introduction of tall lattice steel transmission towers. Because of the combined effect of multiple and concurrent

Potential Project Impact	Impact Conclusions Before Mitigation- CEQA	Adopted Mitigation Measures	Impact Conclusion After Mitigation- CEQA	Findings of Fact
				construction sites on localized views, the length of time construction would occur, and the changes permanent facilities would have on multiple short- and long-range views in the study area and high viewer sensitivity, this impact is considered to be significant at several sites, as shown in Table 18- 14. This conclusion also takes into consideration the Project's visual effects in a large Delta landscape. Although in a regional context the Project would affect a relatively small portion of the Delta limited to the distinct and discrete project sites, construction and permanent facility changes in visual quality and character would be substantially reduced in a number of locations in the study area. Findings: Changes or alterations have been required in, or incorporated into, the project that substantially lessen, but do not avoid, the significant environmental effect as identified in the Final EIR. Impacts are therefore significant and unavoidable despite the adoption of feasible mitigation measures.
Impact AES-2: Substantially Damage Scenic Resources including, but Not Limited to, Trees, Rock Outcroppings, and Historic Buildings Visible from a State Scenic Highway	Significant	MM AES-1b: Apply Aesthetic Design Treatments to Project Structures MM AES-1c: Implement Best Management Practices in Project Landscaping Plan	Significant and Unavoidable	Because visual elements associated with the Project would conflict with the existing forms, patterns, colors, and textures along State Route (SR) 160; would dominate riverfront views available from SR 160; and would alter broad views and the general nature of the visual experience presently available from SR 160 (thereby permanently damaging the scenic resources along a state scenic highway), these impacts are considered significant. Mitigation Measures AES-1b: Apply Aesthetic Design Treatments to Project Structures and AES-1c: Implement Best Management Practices in Project Landscaping Plan would help reduce these impacts through the application of aesthetic design treatments to all structures, to the extent feasible. However, impacts on visual resources resulting from damage to scenic resources that may be viewed from a state scenic highway would not be reduced to a less-than-significant level because even with Mitigation Measures AES-1b and AES-1c 17 the overall view from SR 160 to the location of intakes would change from open agricultural land to a large industrial-type facility. There would be noticeable to very noticeable changes to the visual character of a state scenic highway viewshed that do not blend or are not in keeping with the existing visual environment based upon the viewer's location in the landscape relative to the visible change. Thus, overall, this impact would be significant and unavoidable. Findings: Changes or alterations have been required in, or incorporated into, the project that substantially lessen, but do not avoid, the significant environmental effect as identified in the Final EIR. Impacts are therefore significant and unavoidable despite the adoption of feasible mitigation measures.
Impact AES-3: Have Substantial Significant Impacts on Scenic Vistas	Significant	MM AES-1a: Install Visual Barriers between Construction Work Areas and Sensitive Receptors MM AES-1b: Apply Aesthetic Design Treatments to Project Structures MM AES-1c: Implement Best Management Practices in Project Landscaping Plan	Significant and Unavoidable	The Project would include some facilities or components that would result in significant and unavoidable impacts on existing visual quality and character within the study area including scenic vistas. Mitigation Measures AES-1a: Install Visual Barriers between Construction Work Areas and Sensitive Receptors, AES-1b: Apply Aesthetic Design Treatments to Project Structures, and AES-1c: Implement Best Management Practices in Project Landscaping Plan would reduce scenic vista impacts in the same way described for effects on visual quality and character. Overall, not all impacts would be reduced to a less-than-significant level because, although environmental commitments and mitigation measures would reduce some aspects of the impact on scenic vistas, these measures would only partially reduce effects for the same reasons described for Impact AES-1. Findings: Changes or alterations have been required in, or incorporated into, the project that substantially lessen, but do not avoid, the significant environmental effect as identified in the Final EIR. Impacts are therefore significant and unavoidable despite the adoption of feasible mitigation measures.

Potential Project Impact	Impact Conclusions Before Mitigation- CEQA	Adopted Mitigation Measures	Impact Conclusion After Mitigation- CEQA	Findings of Fact
Cultural Resources				
Impact CUL-1: Impacts on Built-Environment Historical Resources Resulting from Construction and Operation of the Project	Significant	MM CUL-1a: Avoid Impacts on Built-Environment Historical Resources through Project Design MM CUL-1b: Prepare and Implement a Built-Environment Treatment Plan in Consultation with Interested Parties	Significant and Unavoidable	Construction of project features may require physical alteration of 7 built-environment historical resources. Construction may also result in changes to the setting of 7 built-environment historical resources. Both material alterations to the integrity of materials, design, or workmanship, as well as material alterations to the integrity of setting, feeling, or association would impact the historical resource by removing character-defining features of the resource or altering the resource's character, resulting in an impairment of the resource's ability to convey its significance. For these reasons this would be a significant impact. Mitigation Measure CUL-1a: Avoid Impacts on Built-Environment Historical Resources through Project Design and Mitigation Measure CUL-1b: Prepare and Implement a Built Environment Treatment Plan in Consultation with Interested Parties may mitigate these effects but cannot guarantee they would be entirely avoided. The scale of the Project and the constraints imposed by other environmental resources would make avoidance of all significant impacts unlikely. For these reasons, even with MM CUL-1a and MM CUL-1b, this impact would be significant and unavoidable. All mitigation will be completed under the oversight of individuals who meet the Secretary of the Interior Professional Qualifications Standards and have demonstrable experience conducting the recommended measures (MM CUL-1a and MM CUL-1b). Findings: Changes or alterations have been required in, or incorporated into, the project that substantially lessen, but do not avoid, the significant environmental effect as identified in the Final EIR. Impacts are therefore significant and unavoidable despite the adoption of feasible mitigation measures.
Impact CUL-2: Impacts on Unidentified and Unevaluated Built-Environment Historical Resources Resulting from Construction and Operation of the Project	Significant	MM CUL-2: Conduct a Survey of Inaccessible Properties to Assess Eligibility and Determine Whether These Properties Will Be Adversely Affected by the Project	Significant and Unavoidable	Construction of project facilities may require the alteration of built-environment historical resources. Construction may also result in material alterations to the integrity of feeling, setting, or association. Changes to the setting would be material alterations because they would either remove the resource or alter the resource's character, resulting in a diminishment of the resource's ability to convey its significance. For these reasons this would be a significant impact. Mitigation Measure CUL-2: Conduct a Survey of Inaccessible Properties to Assess Eligibility and Determine Whether These Properties Will Be Adversely Affected by the Project may mitigate these impacts, but cannot guarantee they would be entirely avoided. The scale of the Project and the constraints imposed by other environmental resources make avoidance of all significant impacts unlikely. For these reasons, even with MM CUL-2, this impact would be significant and unavoidable. Findings: Changes or alterations have been required in, or incorporated into, the project that substantially lessen, but do not avoid, the significant environmental effect as identified in the Final EIR. Impacts are therefore significant and unavoidable despite the adoption of feasible mitigation measures.
Impact CUL-3: Impacts on Identified Archaeological Resources Resulting from the Project	Significant	MM CUL-3a: Prepare and Implement an Archaeological Resources Management Plan MM CUL-3b: Conduct Cultural Resources Sensitivity Training MM CUL-3c: Implement Archaeological Protocols for Field Investigations	Significant and Unavoidable	Field investigations and construction of conveyance facilities would affect identified archaeological resources that occur in the footprint of the Project. This impact would be significant because construction would materially alter or destroy the spatial associations between these resources and their archaeological data, which has the potential to yield information useful in archaeological research and is the basis for the significance of these resources. Identified but currently inaccessible resources may also be significant under other California Register of Historical Resources (CRHR) criteria. Mitigation Measure CUL-3a: Prepare and Implement an Archaeological Resources Management Plan, Mitigation Measure CUL-3b: Conduct Cultural Resources Sensitivity Training, and Mitigation Measure CUL-3c: Implement Archaeological Protocols for Field Investigations would mitigate this impact by training personnel and recovering scientifically important material prior to construction through the sensitive area, but would not guarantee that all of the scientifically consequential

Potential Project Impact	Impact Conclusions Before Mitigation- CEQA	Adopted Mitigation Measures	Impact Conclusion After Mitigation- CEQA	Findings of Fact
				information would be retrieved because feasible archaeological excavation typically only retrieves a sample of the deposit, and portions of the site with consequential information may remain after treatment. Construction could damage these remaining portions of the deposit. Therefore, even with mitigation, this impact would be significant and unavoidable. Findings: Changes or alterations have been required in, or incorporated into, the project that substantially lessen, but do not avoid, the significant environmental effect as identified in the Final EIR. Impacts are therefore significant and unavoidable despite the adoption of feasible mitigation measures.
Impact CUL-4: Impacts on Unidentified Archaeological Resources That May Be Encountered in the Course of the Project	Significant	MM CUL-3a: Prepare and Implement an Archaeological Resources Management Plan MM CUL-3b: Conduct Cultural Resources Sensitivity Training MM CUL-3c: Implement Archaeological Protocols for Field Investigations	Significant and Unavoidable	Construction has the potential to disturb previously unidentified archaeological resources qualifying as historical resources or unique archaeological resources. Because direct excavation, compaction, or other disturbance may disrupt the spatial associations that contain scientifically useful information, these activities would alter the potential basis for eligibility, thus materially altering the resource and resulting in a significant impact. Because these resources would not be identified prior to construction, they cannot be recorded, and impacts cannot be managed through construction treatment. Mitigation Measures CUL-3a: Prepare and Implement an Archaeological Resources Management Plan, CUL-3b: Conduct Cultural Resources Sensitivity Training, and CUL-3c: Implement Archaeological Protocols for Field Investigations would reduce the potential for this impact by implementing monitoring and discovery protocols and providing training to all personnel involved in ground-disturbing activities. However, because archaeological resources may not be identified through these measures prior to disturbance, the effect cannot be entirely avoided. Therefore, this impact would remain significant and unavoidable because resource locations and extents are unknown. Findings: Changes or alterations have been required in, or incorporated into, the project that substantially lessen, but do not avoid, the significant environmental effect as identified in the Final EIR. Impacts are therefore significant and unavoidable despite the adoption of feasible mitigation measures.
Impact CUL-5: Impacts on Buried Human Remains	Significant	MM CUL-3a: Prepare and Implement an Archaeological Resources Management Plan MM CUL-3b: Conduct Cultural Resources Sensitivity Training MM CUL-3c: Implement Archaeological Protocols for Field Investigations MM CUL-5: Follow State and Federal Law Governing Human Remains If Such Resources Are Discovered during Construction	Significant and Unavoidable	The study area is sensitive for buried human remains. Construction would require ground-disturbing work that may damage previously unidentified human remains, resulting in direct effects on these resources. Disturbance of human remains, including remains interred outside of cemeteries, is considered a significant impact in the CEQA Appendix G checklist; therefore, any disturbance of such remains would be a significant impact. Mitigation Measures CUL-3a: Prepare and Implement an Archaeological Resources Management Plan, CUL-3b: Conduct Cultural Resources Sensitivity Training, and CUL-3c: Implement Archaeological Protocols for Field Investigations would reduce the potential for this impact and its severity by implementing monitoring and discovery protocols and providing training to all personnel involved in ground-disturbing activities, but not to a less-than-significant level because they would not guarantee that buried human remains could be discovered and treated in advance of construction; the scale of construction makes it technically and economically infeasible to perform the level of sampling necessary to identify all such buried human remains prior to construction. Therefore, this impact, even with mitigation, would be significant and unavoidable. Findings: Changes or alterations have been required in, or incorporated into, the project that substantially lessen, but do not avoid, the significant environmental effect as identified in the Final EIR. Impacts are therefore significant and unavoidable despite the adoption of feasible mitigation measures.

Potential Project Impact	Impact Conclusions Before Mitigation- CEQA	Adopted Mitigation Measures	Impact Conclusion After Mitigation- CEQA	Findings of Fact
Transportation				
Impact TRANS-1: Increased Average VMT Per Construction Employee versus Regional Average	Significant	MM TRANS-1: Implement Site-Specific Construction Transportation Demand Management Plan and Transportation Management Plan	Significant and Unavoidable	Construction of the Project would result in additional vehicle miles traveled (VMT) to the regional transportation system and increase the total amount of driving and distances traveled for home-based work trips when compared to the regional average of 22.5 miles per day. This increase would be a temporary but long-term and a substantial VMT impact because conveyance facility construction employee VMT would exceed the regional VMT average over the course of the construction time period for Project facilities. This level of carpool participation is a goal that may not be achieved because construction workers will be drawn from the region in a manner that may not be conducive to large-scale carpooling or vanpooling. Because of the logistics of requiring construction workers to carpool/vanpool near their place of residence to project construction sites, and the uncertainty that this goal would be achieved, Impact TRANS-1 is considered significant and unavoidable with mitigation. Findings: Changes or alterations have been required in, or incorporated into, the project that substantially lessen, but do not avoid, the significant environmental effect as identified in the Final EIR. Impacts are therefore significant and unavoidable despite the adoption of feasible mitigation measures.
Air Quality and Greenhouse Gases				
Impact AQ-5: Result in Exposure of Sensitive Receptors to Substantial Localized Criteria Pollutant Emissions	Significant	MM AQ-5: Avoid Public Exposure to Localized Particulate Matter and Nitrogen Dioxide Concentrations	Significant and Unavoidable	The impact would be significant under CEQA for the Project because construction could contribute to existing violations or create new violations of the particulate matter (PM) that is 2.5 microns in diameter and smaller (PM2.5) and particulate matter that is 10 microns in diameter and smaller (PM10) standards. Construction of the Project would generate maximum 1-hour nitrogen dioxide (NO_2) concentrations above the National Ambient Air Quality Standards (NAAQS). No other violations of the ambient air quality standards would result during project construction. Likewise, off-site construction traffic would not contribute to a localized violation of the California ambient air quality standards (CAAQS) or national ambient air quality standards (NAAQS) at intersections throughout the transportation network. Emissions from long-term Operation & Maintenance activities would not cause or contribute to violations of the CAAQS and NAAQS. Environmental Commitments EC-7: Off-Road Heavy-Duty Engines through EC-13: DWR Best Management Practices to Reduce Greenhouse Gas (GHG) Emissions would minimize construction emissions through implementation of the on-site controls. However, exceedances of the significant impact levels (SILs) and ambient air quality standards would still occur, and the project would contribute a significant level of localized air pollution within the local air quality study area. Mitigation Measure AQ-5: Avoid Public Exposure to Localized Particulate Matter and Nitrogen Dioxide Concentrations is required to reduce potential public exposure to elevated ambient concentrations of PM and NO2 during construction. As discussed above, the predicted results presented in Tables 23-55 through 23-58 are conservative because they combine worst-case meteorological conditions with the highest daily and annual construction emissions estimates. Mitigation Measure AQ-5 requires additional PM and NO2 modeling to provide a more refined estimate of hourly and annual concentrations that are expected to occur during the construction period. If the refined modeling predicts an exceedance of the SIL or violation of the NO2 NAAQS, the measure requires DWR to conduct ambient air quality monitoring during

Potential Project Impact	Impact Conclusions Before Mitigation- CEQA	Adopted Mitigation Measures	Impact Conclusion After Mitigation- CEQA	Findings of Fact
				construction. Results of the monitoring would be used to inform decision-making on further actions to reduce pollutant concentrations. While these actions would lower exposure to project-generated air pollution, it may not be feasible to completely eliminate all localized exceedances of the SILs and ambient air quality standards. Accordingly, this impact is determined to be significant and unavoidable. Findings: Changes or alterations have been required in, or incorporated into, the project that substantially lessen, but do not avoid, the significant environmental effect as identified in the Final EIR. Impacts are therefore significant and unavoidable despite the adoption of feasible mitigation measures.
Noise and Vibration				
Impact NOI-1: Generate a Substantial Temporary or Permanent Increase in Ambient Noise Levels in the Vicinity of the Project in Excess of Standards Established in the Local General Plan or Noise Ordinance, or Applicable Standards of Other Agencies	Significant	MM NOI-1: Develop and Implement a Noise Control Plan	Significant and Unavoidable	Construction-related noise would exceed daytime and nighttime noise level criteria at intakes, shaft sites, the Bethany Complex, and associated infrastructure under the Project. Depending on facility location relative to noise-sensitive receptors, the duration of daytime criteria exceedance would vary from 1 week to up to 14 years on a nonconsecutive basis. The duration of nighttime criteria exceedance would vary from 1 week to 5 months on a nonconsecutive basis. The exceedance of daytime and nighttime noise level criteria for these durations would result in a significant impact. Mitigation Measure NOI-1: Develop and Implement a Noise Control Plan would reduce noise levels through pre-construction actions, sound-level monitoring, best noise control practices, and installation of noise barriers. Mitigation Measure NOI-1 would reduce the severity of this impact to less-than-significant levels if property owners elect to participate in the sound insulation program to reduce noise impacts. DWR cannot ensure that property owners will voluntarily participate in the program and accept sound insulation improvements. If a property owner does not elect to participate in the sound insulation program, the impact would remain significant and unavoidable. Conservatively, the impact due to construction noise is determined to be significant and unavoidable after mitigation. However, if improvements required to avoid significant impacts are accepted by all eligible property owners, impacts would be less than significant with mitigation. Findings: Changes or alterations have been required in, or incorporated into, the project that substantially lessen, but do not avoid, the significant environmental effect as identified in the Final EIR. Impacts are therefore significant and unavoidable despite the adoption of feasible mitigation measures.
Paleontological Resources				
Impact PALEO-2: Cause Destruction of a Unique Paleontological Resource as a Result of Tunnel Construction and Ground Improvement	Significant	No feasible mitigation is available to address this impact.	Significant and Unavoidable	Construction of water conveyance facilities could cause the destruction of unique paleontological resources because tunneling would occur in geologic units with high sensitivity for paleontological resources: the Modesto and Riverbank Formations. The Project could destroy unique paleontological resources, with varying degrees of magnitude (Table 28-11). Excavation using the tunnel boring machine (TBM) for the tunnels could destroy unique paleontological resources because tunneling would involve large-scale ground disturbance that would not be accessible to monitors and would occur in geologic units sensitive for paleontological resources. This tunneling would occur at depths greater than 100 feet and therefore the geologic units affected would not be accessible to paleontologists and any fossils would not be available for scientific study. It cannot, however, be known whether paleontological resources would be present because paleontological resources are not distributed evenly throughout a geologic unit. Nevertheless, given the volume of material excavated by tunneling (Table 28-4) that would occur in the Modesto and Riverbank Formations, which are both sensitive for paleontological resources, and the consistency of the

Potential Project Impact	Impact Conclusions Before Mitigation- CEQA	Adopted Mitigation Measures	Impact Conclusion After Mitigation- CEQA	Findings of Fact
				reusable tunnel material (RTM) generated by the TBM (i.e., too fine to contain macrofossils), tunneling could result in a significant impact. No mitigation is available to address this impact. The impacts of tunneling would therefore be significant and unavoidable. Ground improvement would consist of in-situ mixing of amendments, such as cement grout, into the subsurface to improve stability. If this improvement occurs in the Modesto or Riverbank Formations and paleontological resources are present, ground improvement would damage or destroy these resources because the activity cannot be viewed or stopped by a paleontological monitor. No mitigation is available to address this impact. The impacts of ground improvement would therefore be significant and unavoidable. Findings: Impacts are significant and unavoidable and no feasible mitigation measures have been identified.
Tribal Cultural Resources				
Impact TCR-1: Impacts on the Delta Tribal Cultural Landscape Tribal Cultural Resource Resulting from Construction, Operations, and Maintenance of the Project Alternatives	Significant	MM TCR-1a: Avoidance of Impacts on Tribal Cultural Resources MM TCR-1b: Plans for the Management of Tribal Cultural Resources MM TCR-1c: Implement Measures to Restore and Enhance the Physical, Spiritual, and Ceremonial Qualities of Affected Tribal Cultural Resources MM TCR-1d: Incorporate Tribal Knowledge into Compensatory Mitigation Planning (Restoration)	Significant and Unavoidable	Project construction and operational activities would impair character-defining features that qualify the Delta Tribal Cultural Landscape (TCL) for listing in the CRHR. The Project would materially impair affiliated Tribes' ability to physically, spiritually, or ceremonially experience these character-defining features: the Delta as a holistic place that is a Tribal homeland and place of origin, terrestrial and aquatic plant and animal species habitats that are part of the Delta's ecosystem and the heritage of Tribes, ethnohistorical locations that are sacred places and historically important, archaeological sites, and views and vistas of and from the Delta that are sacred and important to the heritage of Tribes. While other chapters have identified mitigation measures to address project effects on several of the natural resources that also qualify as character-defining features for the Tribal cultural resource (such as the Compensatory Mitigation Plan) these are aimed at satisfying certain regulatory requirements for ecological conservation and may not mitigate for the impacts to Tribal cultural resources. DWR will coordinate with Tribes to incorporate Tribal values into compensatory mitigation; however, these measures may not reduce the impacts to a less-than-significant level. Because the project would materially impair character-defining features of the Delta TCL, and project commitments and mitigation measures would not fully avoid or reduce such impacts, the impact on the Delta TCL would be significant. DWR has identified four measures for mitigating this impact: Mitigation Measures TCR-1a: Avoidance of Impacts on Tribal Cultural Resources, TCR-1b: Plans for the Management of Tribal Cultural Resources, TCR-1c: Implement Measures to Restore and Enhance the Physical, Spiritual, and Ceremonial Qualities of Affected Tribal Cultural Resources, and TCR-1d: Incorporate Tribal Knowledge into Compensatory Mitigation Planning (Restoration). Application of these mitigation measures has the potential to reduce the impact on character-defining features of the Delta TCL because they could restore affiliated Tribes' ability to physically, spiritually, and ceremonially experience the materially impaired qualities of the features. However, there may be instances where even with the mitigation measures described above, the impacts would not be mitigated to a less-than-significant level. There may also be instances where the project components would permanently damage a character-defining feature of the Delta TCL, such as where ground disturbance and construction of a project feature would occur in an ethnohistoric location, disturb an archaeological site, or a facility would block an important view. Project impacts would remain significant and unavoidable after implementation of Mitigation Measures TCR-1a, TCR-1b, TCR-1c, and TCR-1d because complete avoidance or protection is unlikely and operations and maintenance of the intakes and tunnels may still materially impair the Tribal experience of the spiritual qualities of the Delta TCL even with the efforts to repair or restore the Tribal experience. DWR will continue to consult with affiliated Tribes throughout implementation of Mitigation

Potential Project Impact	Impact Conclusions Before Mitigation- CEQA	Adopted Mitigation Measures	Impact Conclusion After Mitigation- CEQA	Findings of Fact
				Measures TCR-1a, TCR-1b, and TCR-1c, and TCR-1d to minimize and mitigate the project's significant impacts on the Delta TCL. Findings: Changes or alterations have been required in, or incorporated into, the project that mitigate, but *not* to a less than significant level, the significant environmental effect as identified in the Final EIR. Impacts are therefore significant and unavoidable despite the adoption of feasible mitigation measures.
Impact TCR-2: Impacts on Individual Tribal Cultural Resources Resulting from Construction, Operations, and Maintenance of the Project Alternatives	Significant	MM TCR-1a: Avoidance of Impacts on Tribal Cultural Resources MMTCR-1b: Plans for the Management of Tribal Cultural Resources MM TCR-1c: Implement Measures to Restore and Enhance the Physical, Spiritual, and Ceremonial Qualities of Affected Tribal Cultural Resources MM TCR-1d: Incorporate Tribal Knowledge into Compensatory Mitigation Planning (Restoration) MM TCR-2: Perform an Assessment of Significance, Known Attributes, and Integrity for Individual CRHR Eligibility	Significant and Unavoidable	The precise nature of the impact on an individual Tribal cultural resource is not currently known because DWR has not identified any individual Tribal cultural resources at this time; therefore, the features that make an individual resource eligible for California Register of Historical Resources (CRHR) listing, its significance, attributes and location, and integrity have not been established. In general, DWR anticipates that if an individual resource is identified, the project has the potential to materially impair an affiliated Tribes' ability to physically, ceremonially, or spiritually experience the resource. If the conclusion of implementing Mitigation Measure TCR-2: Perform an Assessment of Significance, Known Attributes, and Integrity for Individual CRHR Eligibility is that DWR finds a character-defining feature or other resource that is individually eligible, application of Mitigation Measures TCR-1a, TCR-1b, and TCR-1c, and TCR-1d could reduce the impact on any individually eligible Tribal cultural resources, because they could restore affiliated Tribes' ability to physically, spiritually, and ceremonially experience the materially impaired qualities of the features. However, there may be instances where even with the mitigation measures described above, the impacts would not be mitigated to a less-than-significant level. There may also be instances where the project components would permanently damage an individual Tribal cultural resource, such as where ground disturbance and construction of a project feature would disturb an individually eligible ethnohistoric location or a facility would block an important view that is a character-defining feature of an individual Tribal cultural resource. Project impacts on individual Tribal cultural resources would remain significant and unavoidable after implementation of Mitigation Measures TCR-1a, TCR-1b, TCR-1c, TCR-1d, and TCR-2, because complete avoidance or protection is unlikely. DWR will continue to consult with affiliated Tribes throughout implementation of mitigation measures to minimize and mitigate the project's significant impacts on the Delta Tribal Cultural Landscape, as well as refine DWR's understanding of the character-defining features, or other features, that may be individual Tribal cultural resources. Findings: Changes or alterations have been required in, or incorporated into, the project, that mitigate, but *not* to a less than significant level, the significant environmental effect as identified in the Final EIR. Impacts are therefore significant and unavoidable despite the adoption of feasible mitigation measures.

Table 2: CEQA Findings of Fact for the Project's Less-than-Significant Impacts after Mitigation

Potential Project Impact	Impact Conclusions Before Mitigation- CEQA	Proposed Mitigation	Impact Conclusion After Mitigation- CEQA	Findings of Fact
Water Quality				
Impact WQ-6: Effects on Mercury Resulting from Facility Operations and Maintenance	Less Than Significant for the Project; Potentially Significant for Implementation of the CMP	MM WQ-6: Develop and Implement a Mercury Management and Monitoring Plan	Less Than Significant	The Project would not cause additional exceedance of applicable water quality criteria or objectives by frequency, magnitude, and geographic extent that would cause significant impacts on any beneficial uses of waters in the study area. Because mercury concentrations are not expected to increase substantially, no long-term water quality degradation that would result in substantially increased risk for significant impacts on beneficial uses would occur. Furthermore, changes in long-term methylmercury concentrations that may occur in study area waterbodies would not make existing CWA Section 303(d) impairments measurably worse, or increase levels of mercury by frequency, magnitude, and geographic extent to cause measurably higher body burdens of mercury in aquatic organisms, thereby substantially increasing the health risks to wildlife (including fish) or humans consuming those organisms. Thus, the impact of the Project on mercury concentrations would be less than significant. While the Project would not result in significant water quality effects associated with mercury, there could be significant impacts with the implementation of the CMP. Those impacts could be reduced to a less-than-significant level with Mitigation Measure WQ-6. Findings: Changes or alterations have been required in, or incorporated into, the project that avoid the significant environmental effect as identified in the Final EIR. Impacts will be less than significant with mitigation.
Soils				
Impact SOILS-5: Have Soils Incapable of Adequately Supporting the Use of Septic Tanks or Alternative Wastewater Disposal Systems Where Sewers Are Not Available for the Disposal of Wastewater	Significant	MM SOILS-5: Conduct Site-Specific Soil Analysis and Construct Alternative Wastewater Disposal System as Required	Less Than Significant	Potential impacts of the use of septic tanks or alternative wastewater disposal systems would occur during construction and operations and maintenance. If a conventional disposal system were to be constructed on soils with a rating of very limited for septic tank absorption fields, use of the system could contaminate surface water and groundwater and create objectionable odors during operations and maintenance. The water contamination could raise the risk of disease transmission and human exposure to pathogens. The impact would be significant. However, county planning and building departments typically require on-site soil percolation tests and other analyses to determine site suitability and type of system appropriate to the site. Along with compliance with county requirements, implementation of Mitigation Measure SOILS-5: Conduct Site-Specific Soil Analysis and Construct Alternative Wastewater Disposal System as Required, would reduce the impact to a less-than-significant level. Findings: Changes or alterations have been required in, or incorporated into, the project that avoid the significant environmental effect as identified in the Final EIR. Impacts will be less than significant with mitigation.
Fish and Aquatic Resources				
Impact AQUA-1: Effects of Construction of Water Conveyance Facilities on Fish and Aquatic Species	Significant	MM AQUA-1a: Develop and Implement an Underwater Sound Control and Abatement Plan MM AQUA-1b: Develop and Implement a Barge Operations Plan MM AQUA-1c: Develop and Implement a Fish Rescue and Salvage Plan MM WQ-6: Develop and Implement a Mercury Management and Monitoring Plan CMP-23: Tidal Perennial Habitat Restoration for Construction Impacts on Habitat for Fish and Aquatic Resources	Less Than Significant	Construction impacts on fish and aquatic species potentially would be significant because there would be the potential for spatial and temporal overlap with appreciable proportions of some of the species of management concern's populations (e.g., adult steelhead; Table 12A-9 in Appendix 12A) as well as loss of aquatic habitat. To address these impacts, the project will include Mitigation Measures AQUA-1a: Develop and Implement an Underwater Sound Control and Abatement Plan, AQUA-1b: Develop and Implement a Barge Operations Plan, AQUA-1c: Develop and Implement a Fish Rescue and Salvage Plan, and Mitigation Measure CMP: Compensatory Mitigation Plan, specifically CMP-23: Tidal Perennial Habitat Restoration for Construction Impacts on Habitat for Fish and Aquatic Resources and CMP-24: Channel Margin Habitat Restoration for Construction Impacts on Habitat for Fish and Aquatic Resources (Attachment 3F.1, Compensatory Mitigation Design Guidelines, Table 3F.1-3). Mitigation

Potential Project Impact	Impact Conclusions Before Mitigation- CEQA	Proposed Mitigation	Impact Conclusion After Mitigation- CEQA	Findings of Fact
		CMP-24: Channel Margin Habitat Restoration for Construction Impacts on Habitat for Fish and Aquatic Resources		Measure AQUA-1a: Develop and Implement an Underwater Sound Control and Abatement Plan includes limiting pile-driving timing consistent with EC-14 and controlling or abating underwater noise generated during impact pile driving, for example, by starting impact pile driving at lower levels of intensity to allow fish to leave the area before the intensity is increased. Construction impacts on fish and aquatic species would be less than significant with mitigation. Findings: Changes or alterations have been required in, or incorporated into, the project that avoid the significant environmental effect as identified in the Final EIR. Impacts will be less than significant with mitigation.
Impact AQUA-2: Effects of Operations and Maintenance of Water Conveyance Facilities on Sacramento River Winter-Run Chinook Salmon	Significant	CMP-25: Tidal Habitat Restoration to Mitigate North Delta Hydrodynamic Effects on Chinook Salmon Juveniles CMP-26: Channel Margin Habitat Restoration for Operations Impacts on Chinook Salmon Juveniles	Less Than Significant	The available information generally indicates that diversion at the North Delta Diversion (NDD) would negatively affect winter-run Chinook salmon through flow-survival and habitat impacts. The Sacramento River is the main migration pathway through the Delta for juvenile winter-run and therefore a large proportion of the population would potentially be exposed to negative impacts. To address the significance of the impacts, Mitigation Measure CMP: Compensatory Mitigation Plan would be implemented, specifically CMP-25: Tidal Habitat Restoration to Mitigate North Delta Hydrodynamic Effects on Chinook Salmon Juveniles and CMP-26: Channel Margin Habitat Restoration or Operations Impacts on Chinook Salmon Juveniles (Attachment 3F.1, Table 3F.1-3). This mitigation would reduce negative hydrodynamic effects such as flow reversals in the Sacramento River at Georgiana Slough (CMP-25) and reduced effects from reduced inundation of riparian/wetland benches as a result of NDD operations (CMP-26). The mitigation thereby would reduce potential for negative effects on winter-run Chinook salmon through-Delta survival as a result of factors such as flow-related changes in migration speed and probability of entering the low-survival interior Delta migration pathway and restoring new bench habitat at elevations that would be inundated under reduced flows downstream of the north Delta intakes. The impact of operations and maintenance of the Project would be less than significant with mitigation. Findings: Changes or alterations have been required in, or incorporated into, the project that avoid the significant environmental effect as identified in the Final EIR. Impacts will be less than significant with mitigation.
Impact AQUA-3: Effects of Operations and Maintenance of Water Conveyance Facilities on Central Valley Spring-Run Chinook Salmon	Significant	CMP-25: Tidal Habitat Restoration to Mitigate North Delta Hydrodynamic Effects on Chinook Salmon Juveniles CMP-26: Channel Margin Habitat Restoration for Operations Impacts on Chinook Salmon Juveniles	Less Than Significant	Recent research for two spring-run Chinook salmon populations in the Central Valley indicates that the majority of returning adults emigrated as yearlings (Cordoleani et al. 2021), which migrate beginning in fall and therefore have the potential to overlap periods of greater north Delta diversions with greater potential effects on through-Delta survival as shown by the Perry et al. (2018) modeling results. As a result, and although there is uncertainty in biological impacts because of the variability in flow-survival statistical relationships (see discussion for winter-run Chinook salmon), population abundance is low relative to historical values (Appendix 12A) and it is concluded that the operations and maintenance impact of the Project would be significant for spring-run Chinook salmon. Compensatory mitigation to be implemented for the winter-run Chinook salmon significant impact discussed above in Impact AQUA-2 (i.e., Mitigation Measure CMP: Compensatory Mitigation Plan, specifically CMP-25: Tidal Habitat Restoration to Mitigate North Delta Hydrodynamic Effects on Chinook Salmon Juveniles and CMP-26: Channel Margin Habitat Restoration for Operations Impacts on Chinook Salmon Juveniles [Attachment 3F.1, Table 3F.1-3]) would also be applied to spring-run Chinook salmon to mitigate hydrodynamic effects such as flow reversals in the Sacramento River at Georgiana Slough (CMP-25) and effects from reduced inundation of riparian/wetland benches

Potential Project Impact	Impact Conclusions Before Mitigation- CEQA	Proposed Mitigation	Impact Conclusion After Mitigation- CEQA	Findings of Fact
				as a result of North Delta Diversion operations (CMP-26). The impact would be less than significant with mitigation. Findings: Changes or alterations have been required in, or incorporated into, the project that avoid the significant environmental effect as identified in the Final EIR. Impacts will be less than significant with mitigation.
Impact AQUA-5: Effects of Operations and Maintenance of Water Conveyance Facilities on Central Valley Steelhead	Significant	MM CMP: Compensatory Mitigation Plan	Less Than Significant	As discussed by National Marine Fisheries Service (2016:19), Central Valley steelhead is in danger of extinction, with very low levels of natural production. Available data and studies for steelhead are limited relative to Chinook salmon and so there is some uncertainty in potential effects. As previously noted for winter-run Chinook salmon, there is uncertainty in the biological impacts because of the variability in flow-survival statistical relationships. However, per the significance criteria (Section 12.3.2, Thresholds of Significance), the potential for negative effects of the north Delta intakes (e.g., up to 4% less through-Delta migration survival per the Perry et al. model implemented for juvenile Chinook salmon) and the population status (Appendix 12A) leads to the conclusion that the impact would be significant. Compensatory mitigation (tidal perennial habitat restoration and channel margin restoration) described in Appendix 3F, and as previously discussed for winter-run Chinook salmon would be implemented to reduce the impact to less than significant. Findings: Changes or alterations have been required in, or incorporated into, the project that avoid the significant environmental effect as identified in the Final EIR. Impacts will be less than significant with mitigation.
Impact AQUA-6: Effects of Operations and Maintenance of Water Conveyance Facilities on Delta Smelt	Significant	MM CMP: Compensatory Mitigation Plan CMP-27: Tidal Habitat Restoration for Operations Impacts on Delta Smelt	Less Than Significant	There is generally somewhat less Delta outflow under the Project than existing conditions during spring–fall as a result of less outflow being needed for meeting Delta salinity requirements. There is considerable uncertainty in the potential for negative effects to delta smelt food availability, predation, and recruitment as a result of these changes in Delta outflow, which are within the existing parameters of current regulations (e.g., D-1641; federal and state water project permits). Given the existing all-time low abundance indices of delta smelt (Appendix 12A), the impacts are concluded to be significant. Tidal habitat restoration of approximately 1,100 to 1,400 acres under Mitigation Measure CMP: Compensatory Mitigation Plan, specifically CMP-27 (Attachment 3F-1, Table 3F.1-3), would mitigate these impacts. Restoration would increase the extent of suitable delta smelt habitat (e.g., intertidal and subtidal habitat; California Department of Fish and Game 2011) with appropriate parameters (e.g., turbidity) providing habitat for occupancy (e.g., Sommer and Mejia 2013) or higher food availability in the vicinity (e.g., Hammock et al. 2019b). The impact would be less than significant with mitigation. Findings: Changes or alterations have been required in, or incorporated into, the project that avoid the significant environmental effect as identified in the Final EIR. Impacts will be less than significant with mitigation.
Impact AQUA-7: Effects of Operations and Maintenance of Water Conveyance Facilities on Longfin Smelt	Significant	MM CMP: Compensatory Mitigation Plan CMP-28: Tidal Habitat Restoration for Operations Impacts on Longfin Smelt	Less Than Significant	In general, the analyses of the operations and maintenance impacts of the Project suggested minor impacts on longfin smelt, relative to existing conditions, including near-field effects of the north Delta intakes, south Delta entrainment, and very little potential for negative effects on food availability as a result of differences in spring Delta outflow. Any such impacts would not be significant because they are minor and would affect only a very small proportion of the longfin smelt population. The analyses of flow-related effects (differences in Delta outflow) on longfin smelt abundance suggested more potential for negative effects under the Project (i.e., mean difference of 2%–10% less depending on water year type) and a potentially significant impact given that they represent a population-level impact. There is uncertainty in the impact, however, given the appreciably greater variability of longfin smelt abundance index estimates

Potential Project Impact	Impact Conclusions Before Mitigation- CEQA	Proposed Mitigation	Impact Conclusion After Mitigation- CEQA	Findings of Fact
				for a given alternative relative to the difference from existing conditions. Operations of the Project would be consistent with all applicable regulations to limit the potential for negative effects on fish and aquatic resources, including the existing spring outflow measures required by the California Department of Fish and Wildlife Incidental Take Permit (ITP). Nevertheless, the uncertain negative outflow-related effect is considered significant in light of the species' California Endangered Species Act-listed status and low population abundance indices (Appendix 12A). As such, the Project would implement approximately 135.2acres of compensatory mitigation (Mitigation Measure CMP: Compensatory Mitigation Plan, specifically CMP-28: Tidal Habitat Restoration for Operations Impacts on Longfin Smelt [Attachment 3F.1, Table 3F.1-3]). Tidal habitat would expand the diversity, quantity, and quality of longfin smelt rearing and refuge habitat consistent with recent tidal habitat mitigation required for outflow impacts to the species and would therefore reduce the potential effects caused by reduced outflow. As shown by multiple recent tidal habitat restoration projects in the Delta, there are potential feasible opportunities for tidal habitat restoration directly applicable to longfin smelt, with demonstrated presence of longfin smelt. This tidal habitat restoration mitigation would reduce the impact to a less-than-significant level; therefore, the impact would be less than significant with mitigation. Findings: Changes or alterations have been required in, or incorporated into, the project that avoid the significant environmental effect as identified in the Final EIR. Impacts will be less than significant with mitigation.
Terrestrial Biological Resources				
Impact BIO-1: Impacts of the Project on the Tidal Perennial Aquatic Natural Community	Significant	MM CMP: Compensatory Mitigation Plan	Less Than Significant	The Project would cause the removal, conversion, and temporary disturbance of tidal perennial aquatic natural community due to project construction and maintenance. The temporary disturbances of tidal perennial aquatic habitat would be reduced by Environmental Commitments EC-1: Conduct Worker Awareness Training; EC-2: Develop and Implement Hazardous Materials Management Plans; EC-3: Develop and Implement Spill Prevention, Containment, and Countermeasure Plans; and EC-14: Construction Best Management Practices for Biological Resources (Appendix 3B). Even with these environmental commitments, however, the loss of tidal perennial aquatic community from construction and potential impacts from maintenance activities would be significant. Mitigation Measure CMP: Compensatory Mitigation Plan would offset permanent and temporary loss of tidal perennial aquatic habitat. Therefore, the impacts on the tidal perennial aquatic community from the Project would be less than significant with mitigation. Findings: Changes or alterations have been required in, or incorporated into, the project that avoid the significant environmental effect as identified in the Final EIR. Impacts will be less than significant with mitigation.
Impact BIO-2: Impacts of the Project on Tidal Freshwater Emergent Wetlands	Significant	MM CMP: Compensatory Mitigation Plan MM BIO-2a: Avoid or Minimize Impacts on Special-Status Natural Communities and Special-Status Plants MM BIO-2b: Avoid and Minimize Impacts on Terrestrial Biological Resources from Maintenance Activities MM BIO-2c: Electrical Power Line Support Placement	Less Than Significant	The Project would cause the removal, conversion, and temporary disturbance of tidal freshwater emergent wetlands due to project construction and maintenance. Temporary disturbances and indirect impacts on tidal freshwater emergent wetlands would be reduced by Environmental Commitments EC-1: Conduct Worker Awareness Training; EC-2: Develop and Implement Hazardous Materials Management Plans; EC-3: Develop and Implement Spill Prevention, Containment, and Countermeasure Plans; and EC-14: Construction Best Management Practices for Biological Resources. Even with these environmental commitments, however, the loss of tidal freshwater emergent wetlands from construction and potential impacts from maintenance activities would be significant. Mitigation Measure BIO-2a: Avoid or Minimize Impacts on Special-Status Natural Communities and Special-Status Plants would reduce impacts on tidal freshwater emergent wetlands during project construction. Mitigation Measure BIO-2b: Avoid and Minimize Impacts on Terrestrial Biological Resources from Maintenance Activities would reduce impacts on tidal freshwater emergent wetland during

Potential Project Impact	Impact Conclusions Before Mitigation- CEQA	Proposed Mitigation	Impact Conclusion After Mitigation- CEQA	Findings of Fact
				project maintenance. Mitigation Measure BIO-2c: Electrical Power Line Support Placement would minimize impacts on tidal freshwater emergent wetlands from electric power line installation. Mitigation Measure CMP: Compensatory Mitigation Plan would offset permanent and temporary loss of tidal freshwater emergent wetland. Therefore, the impacts on tidal freshwater emergent wetland from the Project would be less than significant with mitigation. Findings: Changes or alterations have been required in, or incorporated into, the project that avoid the significant environmental effect as identified in the Final EIR. Impacts will be less than significant with mitigation.
Impact BIO-3: Impacts of the Project on Valley/Foothill Riparian Habitat	Significant	MM CMP: Compensatory Mitigation Plan MM BIO-2a: Avoid or Minimize Impacts on Special-Status Natural Communities and Special-Status Plants	Less Than Significant	Constructing the Project would cause the removal, conversion, and temporary disturbance of valley/foothill riparian habitat. Maintenance activities could result in periodic temporary disturbances to valley/foothill riparian habitat. Temporary disturbances and indirect impacts on valley/foothill riparian habitat would be reduced by Environmental Commitments EC-1: Conduct Worker Awareness Training and EC-14: Construction Best Management Practices for Biological Resources. Even with these environmental commitments, however, the loss of valley/foothill riparian habitat from construction and potential impacts from maintenance activities would be significant. Mitigation Measure BIO-2a: Avoid or Minimize Impacts on Special-Status Natural Communities and Special-Status Plants would reduce impacts on valley/foothill riparian habitat during project construction. Mitigation Measure BIO-2b: Avoid and Minimize Impacts on Terrestrial Biological Resources from Maintenance Activities would reduce impacts on valley/foothill riparian habitat during project maintenance. Mitigation Measure BIO-2c: Electrical Power Line Support Placement would minimize impacts on valley/foothill riparian habitat from electric power line installation. Mitigation Measure CMP: Compensatory Mitigation Plan would offset permanent and temporary loss of valley/foothill riparian habitat. Therefore, the impacts on valley/foothill riparian habitat from the Project would be less than significant with mitigation. Findings: Changes or alterations have been required in, or incorporated into, the project that avoid the significant environmental effect as identified in the Final EIR. Impacts will be less than significant with mitigation.
Impact BIO-4: Impacts of the Project on the Nontidal Perennial Aquatic Natural Community	Significant	MM CMP: Compensatory Mitigation Plan MM BIO-2a: Avoid or Minimize Impacts on Special-Status Natural Communities and Special-Status Plants	Less Than Significant	Constructing the Project would cause the removal, conversion, and temporary disturbance of nontidal aquatic perennial habitat. Maintenance activities could result in periodic temporary disturbances to nontidal perennial aquatic habitat. Temporary disturbances and indirect impacts on nontidal perennial aquatic habitat would be reduced by Environmental Commitments EC-1: Conduct Worker Awareness Training; EC-2: Develop and Implement Hazardous Materials Management Plans; EC-3: Develop and Implement Spill Prevention, Containment, and Countermeasure Plans; and EC-14: Construction Best Management Practices for Biological Resources. Even with these environmental commitments, however, the loss of nontidal perennial aquatic habitat from construction and potential impacts from maintenance activities would be significant. Mitigation Measure BIO-2a: Avoid or Minimize Impacts on Special-Status Natural Communities and Special-Status Plants would mitigate impacts on nontidal perennial aquatic habitat by identifying locations where special-status natural communities and special-status plants would be avoided. Under Mitigation Measure CMP: Compensatory Mitigation Plan, nontidal perennial aquatic habitat would be created or acquired and permanently protected to compensate for project impacts from project construction to ensure no significant loss of nontidal perennial aquatic habitat functions and values. Therefore, the impacts on nontidal perennial aquatic habitat from the Project would be less than significant with mitigation.

Potential Project Impact	Impact Conclusions Before Mitigation- CEQA	Proposed Mitigation	Impact Conclusion After Mitigation- CEQA	Findings of Fact
				Findings: Changes or alterations have been required in, or incorporated into, the project that avoid the significant environmental effect as identified in the Final EIR. Impacts will be less than significant with mitigation.
Impact BIO-5: Impacts of the Project on Nontidal Freshwater Perennial Emergent Wetland	Significant	MM CMP: Compensatory Mitigation Plan MM BIO-2a: Avoid or Minimize Impacts on Special-Status Natural Communities and Special-Status Plants	Less Than Significant	Constructing the Project would cause the removal, conversion, and temporary disturbance of nontidal freshwater perennial emergent wetlands. Maintenance activities could result in periodic temporary disturbances to this community. Temporary disturbances and indirect impacts on nontidal freshwater perennial emergent wetland would be reduced by Environmental Commitments EC-1: Conduct Worker Awareness Training; EC-2: Develop and Implement Hazardous Materials Management Plans; EC-3: Develop and Implement Spill Prevention, Containment, and Countermeasure Plans; and Environmental Commitment EC-14: Construction Best Management Practices for Biological Resources. Even with these environmental commitments, however, the loss of nontidal freshwater perennial emergent wetland from construction and potential impacts from maintenance activities would be significant. Mitigation Measure BIO-2a: Avoid or Minimize Impacts on Special-Status Natural Communities and Special-Status Plants would mitigate impacts on nontidal freshwater emergent wetlands by identifying locations where special-status natural communities and special-status plants would be avoided or where measures to minimize impact would be implemented. Under Mitigation Measure CMP: Compensatory Mitigation Plan, nontidal perennial emergent wetlands would be created or acquired and permanently protected to compensate for project impacts from project construction and ensure no significant loss of nontidal perennial aquatic habitat functions and values. Therefore, the impacts on nontidal freshwater perennial emergent wetland from the Project would be less than significant with mitigation. Findings: Changes or alterations have been required in, or incorporated into, the project that avoid the significant environmental effect as identified in the Final EIR. Impacts will be less than significant with mitigation.
Impact BIO-7: Impacts of the Project on Alkaline Seasonal Wetland Complex	Significant	MM CMP: Compensatory Mitigation Plan MM BIO-2a: Avoid or Minimize Impacts on Special-Status Natural Communities and Special-Status Plants MM BIO-2b: Avoid and Minimize Impacts on Terrestrial Biological Resources from Maintenance Activities MM BIO-2c: Electrical Power Line Support Placement	Less Than Significant	Project construction and maintenance would remove, convert, or temporarily disturb alkaline seasonal wetland complex. Temporary disturbances and indirect impacts on alkaline seasonal wetland complex would be reduced by Environmental Commitments EC-1: Conduct Worker Awareness Training; EC-2: Develop and Implement Hazardous Materials Management Plans; EC-3: Develop and Implement Spill Prevention, Containment, and Countermeasure Plans; and EC-14: Construction Best Management Practices for Biological Resources. Even with these environmental commitments, however, the loss of alkaline seasonal wetland complex from construction and potential impacts from maintenance activities would be significant. Mitigation Measure BIO-2a: Avoid or Minimize Impacts on Special-Status Natural Communities and Special-Status Plants would reduce impacts on alkaline seasonal wetlands during project construction. Mitigation Measure BIO-2b: Avoid and Minimize Impacts on Terrestrial Biological Resources from Maintenance Activities would reduce impacts on alkaline seasonal wetlands during project maintenance. Mitigation Measure BIO-2c: Electrical Power Line Support Placement would minimize impacts on alkaline seasonal wetland from electric power line installation. Under Mitigation Measure CMP: Compensatory Mitigation Plan, alkaline seasonal wetland complex would be created or acquired and permanently protected to compensate for project impacts from project construction and ensure no significant loss of nontidal perennial aquatic habitat functions and values. The total acreage to be conserved would be based on the criteria presented in the CMP. Therefore, the impacts on alkaline seasonal wetland complex from the Project would be less than significant with mitigation. Findings: Changes or alterations have been required in, or incorporated into, the project that avoid the significant environmental effect as identified in the Final EIR. Impacts will be less than significant with mitigation.

Potential Project Impact	Impact Conclusions Before Mitigation- CEQA	Proposed Mitigation	Impact Conclusion After Mitigation- CEQA	Findings of Fact
Impact BIO-8: Impacts of the Project on Vernal Pool Complex	Significant	MM CMP: Compensatory Mitigation Plan MM BIO-2a: Avoid or Minimize Impacts on Special-Status Natural Communities and Special-Status Plants MM BIO-2b: Avoid and Minimize Impacts on Terrestrial Biological Resources from Maintenance Activities	Less Than Significant	Constructing the Project would cause the removal, conversion, and temporary disturbance of vernal pool complex. Maintenance activities could result in periodic temporary disturbances to this community. Temporary disturbances and indirect impacts on vernal pool complex would be reduced by Environmental Commitments EC-1: Conduct Worker Awareness Training; EC-2: Develop and Implement Hazardous Materials Management Plans; EC-3: Develop and Implement Spill Prevention, Containment, and Countermeasure Plans; and EC-14: Construction Best Management Practices for Biological Resources. Even with these environmental commitments, however, the loss of vernal pool complex from construction and potential impacts from maintenance activities would be significant. Mitigation Measure BIO-2a: Avoid or Minimize Impacts on Special-Status Natural Communities and Special-Status Plants would reduce impacts on vernal pool complex during project construction. Mitigation Measure BIO-2b: Avoid and Minimize Impacts on Terrestrial Biological Resources from Maintenance Activities would reduce impacts on vernal pool complex during project maintenance. As described in Appendix 3F and Attachment 3F.1, under Mitigation Measure CMP: Compensatory Mitigation Plan, vernal pool complex would be created or acquired and permanently protected to compensate for project impacts from project construction and ensure no significant loss of vernal pool complex functions and values. The total acreage to be conserved would be based on the criteria presented in the CMP. Therefore, the impacts on vernal pool complex from the Project would be less than significant with mitigation. Findings: Changes or alterations have been required in, or incorporated into, the project that avoid the significant environmental effect as identified in the Final EIR. Impacts will be less than significant with mitigation.
Impact BIO-9: Impacts of the Project on Special-Status Vernal Pool Plants	Significant	MM CMP: Compensatory Mitigation Plan MM BIO-2a: Avoid or Minimize Impacts on Special-Status Natural Communities and Special-Status Plants MM BIO-2b: Avoid and Minimize Impacts on Terrestrial Biological Resources from Maintenance Activities	Less Than Significant	Temporary disturbances and indirect impacts on special-status vernal pool plants would be reduced by Environmental Commitment EC-14: Construction Best Management Practices for Biological Resources. Even with this environmental commitment, however, the effects on vernal pool plants from construction and potential impacts from maintenance activities would be significant. Mitigation Measure BIO-2a: Avoid or Minimize Impacts on Special-Status Natural Communities and Special-Status Plants would reduce impacts on special-status vernal pool plants during project construction. Mitigation Measure BIO-2b: Avoid and Minimize Impacts on Terrestrial Biological Resources from Maintenance Activities would reduce impacts on special-status vernal pool plants during project maintenance. Under Mitigation Measure CMP: Compensatory Mitigation Plan, habitat for special-status vernal pool plants would be created and permanently protected or mitigation credits would be acquired to compensate for project impacts and ensure no significant loss of habitat, as described in Appendix 3F and Attachment 3F.1. Therefore, the Project's impacts on special-status vernal pool plants would be less than significant with mitigation. Findings: Changes or alterations have been required in, or incorporated into, the project that avoid the significant environmental effect as identified in the Final EIR. Impacts will be less than significant with mitigation.
Impact BIO-10: Impacts of the Project on Special-Status Alkaline Seasonal Wetland Complex Plants	Significant	MM CMP: Compensatory Mitigation Plan MM BIO-2a: Avoid or Minimize Impacts on Special-Status Natural Communities and Special-Status Plants MM BIO-2b: Avoid and Minimize Impacts on Terrestrial Biological Resources from Maintenance Activities	Less Than Significant	Temporary disturbances and indirect impacts special-status alkaline seasonal wetland complex plants would be reduced by Environmental Commitment EC-14: Construction Best Management Practices for Biological Resources. Even with this environmental commitment, however, the loss of alkaline wetland plants from construction and potential impacts from maintenance activities would be significant. Mitigation Measure BIO-2a: Avoid or Minimize Impacts on Special-Status Natural Communities and Special-Status Plants, would reduce impacts on special-status alkaline seasonal wetland complex plants during project construction. Mitigation Measure BIO-2b: Avoid and Minimize Impacts on Terrestrial Biological Resources from Maintenance Activities would reduce impacts on special-status alkaline seasonal wetland complex plants during project maintenance. Under Mitigation Measure CMP:

Potential Project Impact	Impact Conclusions Before Mitigation- CEQA	Proposed Mitigation	Impact Conclusion After Mitigation- CEQA	Findings of Fact
				Compensatory Mitigation Plan, habitat for special-status alkaline seasonal wetland plants would be created and permanently protected or mitigation credits would be acquired to compensate for project impacts and ensure no significant loss of habitat, as described in Appendix 3F and Attachment 3F.1. Therefore, the project's impacts on special-status alkaline seasonal wetland plants would be less than significant with mitigation. Findings: Changes or alterations have been required in, or incorporated into, the project that avoid the significant environmental effect as identified in the Final EIR. Impacts will be less than significant with mitigation.
Impact BIO-11: Impacts of the Project on Special-Status Grassland Plants	Significant	MM CMP: Compensatory Mitigation Plan MM BIO-2a: Avoid or Minimize Impacts on Special-Status Natural Communities and Special-Status Plants MM BIO-2b: Avoid and Minimize Impacts on Terrestrial Biological Resources from Maintenance Activities	Less Than Significant	Temporary disturbances and indirect impacts on special-status grassland plants would be reduced by Environmental Commitment EC-14: Construction Best Management Practices for Biological Resources. Even with this environmental commitment, however, the loss of grassland plants from construction and potential impacts from maintenance activities would be significant. Mitigation Measure BIO-2a: Avoid or Minimize Impacts on Special-Status Natural Communities and Special-Status Plants would reduce impacts on special-status grassland plants during project construction. Mitigation Measure BIO-2b: Avoid and Minimize Impacts on Terrestrial Biological Resources from Maintenance Activities would reduce impacts on special-status grassland plants during project maintenance. Under Mitigation Measure CMP: Compensatory Mitigation Plan, habitat for special-status grassland plants would be created and permanently protected or mitigation credits would be acquired to compensate for project impacts and to ensure no significant loss of habitat. Therefore, the Project's impacts on special-status grassland plants would be less than significant with mitigation. Findings: Changes or alterations have been required in, or incorporated into, the project that avoid the significant environmental effect as identified in the Final EIR. Impacts will be less than significant with mitigation.
Impact BIO-12: Impacts of the Project on Tidal Freshwater Emergent Wetland Plants	Significant	MM CMP: Compensatory Mitigation Plan MM BIO-2a: Avoid or Minimize Impacts on Special-Status Natural Communities and Special-Status Plants MM BIO-2b: Avoid and Minimize Impacts on Terrestrial Biological Resources from Maintenance Activities	Less Than Significant	Temporary disturbances and indirect impacts on special-status tidal freshwater emergent wetland plants would be reduced by Environmental Commitment EC-14: Construction Best Management Practices for Biological. Even with this environmental commitment, however, the loss of tidal freshwater emergent plants from construction and potential impacts from maintenance activities would be significant. Mitigation Measure BIO-2a: Avoid or Minimize Impacts on Special-Status Natural Communities and Special-Status Plants would reduce impacts on special-status tidal freshwater emergent wetland species during project construction. Mitigation Measure BIO-2b: Avoid and Minimize Impacts on Terrestrial Biological Resources from Maintenance Activities would reduce impacts on tidal freshwater emergent wetland during project maintenance. Under Mitigation Measure CMP: Compensatory Mitigation Plan (Appendix 3F, Section 3F.3.2.5; Attachment 3F.1, Table 3F.1-2, CMP-2: Tidal Freshwater Emergent Wetland, and Table 3F.1-3, CMP-9: Special-Status Plants), habitat for special-status tidal freshwater emergent wetland plants would be created or acquired and permanently protected to compensate for project impacts and ensure no significant loss of special-status tidal perennial aquatic wetland habitat functions and values. Therefore, project impacts on special-status tidal freshwater emergent wetland plants would be less than significant with mitigation. Findings: Changes or alterations have been required in, or incorporated into, the project that avoid the significant environmental effect as identified in the Final EIR. Impacts will be less than significant with mitigation.
Impact BIO-13: Impacts of the Project on Special-Status Nontidal Perennial Aquatic Plants	Significant	MM CMP: Compensatory Mitigation Plan MM BIO-2a: Avoid or Minimize Impacts on Special-Status Natural Communities and Special-Status Plants	Less Than Significant	Temporary disturbances and indirect impacts of nontidal perennial aquatic habitat would be reduced by Environmental Commitment EC-14: Construction Best Management Practices for Biological Resources. Even with this environmental commitment, however, the loss nontidal

Potential Project Impact	Impact Conclusions Before Mitigation- CEQA	Proposed Mitigation	Impact Conclusion After Mitigation- CEQA	Findings of Fact
		MM BIO-2b: Avoid and Minimize Impacts on Terrestrial Biological Resources from Maintenance Activities		perennial aquatic plants from construction and potential impacts from maintenance activities would be significant. Mitigation Measure BIO-2a: Avoid or Minimize Impacts on Special-Status Natural Communities and Special-Status Plants would reduce impacts on special-status nontidal perennial aquatic plants during project construction. Mitigation Measure BIO-2b: Avoid and Minimize Impacts on Terrestrial Biological Resources from Maintenance Activities would reduce impacts on special-status nontidal perennial aquatic plants during project maintenance. Under Mitigation Measure CMP: Compensatory Mitigation Plan, habitat for special-status nontidal perennial aquatic plants would be created or acquired and permanently protected to compensate for project impacts and ensure no significant loss of special-status nontidal perennial aquatic plants or their habitat functions and values. The project impacts on these special-status nontidal perennial aquatic plants would be less than significant with mitigation. Findings: Changes or alterations have been required in, or incorporated into, the project that avoid the significant environmental effect as identified in the Final EIR. Impacts will be less than significant with mitigation.
Impact BIO-14: Impacts of the Project on Vernal Pool Aquatic Invertebrates	Significant	MM CMP: Compensatory Mitigation Plan MM BIO-2b: Avoid and Minimize Impacts on Terrestrial Biological Resources from Maintenance Activities MM BIO-14: Avoid and Minimize Impacts on Vernal Pool Aquatic Invertebrates and Critical Habitat for Vernal Pool Fairy Shrimp	Less Than Significant	The impacts on vernal pool aquatic invertebrates from the Project would be less than significant with mitigation because the measures would replace lost habitat and reduce direct effects on the species, including habitat disturbance, by avoiding and minimizing activities during construction and maintenance that could adversely affect habitat, which include establishing non-disturbance buffers around pools with construction fencing, by surveying suitable habitat for vernal pool fairy shrimp and vernal pool tadpole shrimp, and by avoiding adverse modification of critical habitat and indirect effects on vernal pool aquatic invertebrate habitat through work area redesigns, to the extent practicable. Findings: Changes or alterations have been required in, or incorporated into, the project that avoid the significant environmental effect as identified in the Final EIR. Impacts will be less than significant with mitigation.
Impact BIO-16: Impacts of the Project on Vernal Pool Terrestrial Invertebrates	Significant	MM CMP: Compensatory Mitigation Plan MM BIO-2b: Avoid and Minimize Impacts on Terrestrial Biological Resources from Maintenance Activities MM BIO-14: Avoid and Minimize Impacts on Vernal Pool Aquatic Invertebrates and Critical Habitat for Vernal Pool Fairy Shrimp	Less Than Significant	The impacts on vernal pool terrestrial invertebrates from the Project would be less than significant with mitigation because mitigation measures would replace lost habitat and reduce direct effects on the species, including habitat disturbance, by avoiding and minimizing activities during construction and maintenance that could adversely affect habitat, which include establishing non-disturbance buffers around habitat with construction fencing, and by avoiding indirect effects on vernal pool habitat to the extent practicable. Findings: Changes or alterations have been required in, or incorporated into, the project that avoid the significant environmental effect as identified in the Final EIR. Impacts will be less than significant with mitigation.
Impact BIO-18: Impacts of the Project on Valley Elderberry Longhorn Beetle	Significant	MM CMP: Compensatory Mitigation Plan CMP-18a: Sandhill Crane Roosting Habitat CMP-18b: Sandhill Crane Foraging Habitat CMP-19a: Swainson's Hawk Nesting Habitat CMP-19b: Swainson's Hawk Foraging Habitat CMP-22a: Tricolored Blackbird Nesting Habitat CMP-22b: Tricolored Blackbird Breeding Foraging Habitat MM BIO-2b: Avoid and Minimize Impacts on Terrestrial Biological Resources from Maintenance Activities	Less Than Significant	The impacts on valley elderberry longhorn beetle from the Project would be less than significant with mitigation because these mitigation measures would replace lost habitat and reduce direct effects on the species, including habitat disturbance, by avoiding and minimizing activities that could injure or kill valley elderberry longhorn beetle, which includes establishing non-disturbance buffers around shrubs with construction fencing, limiting trimming of shrubs to stems less likely to contain larvae (<1 inch in diameter) and during periods when trimming is less likely to affect the vigor of shrubs, and avoiding work to the extent possible during the species active season when they are in flight around shrubs and dispersing. Findings: Changes or alterations have been required in, or incorporated into, the project that avoid the significant environmental effect as identified in the Final EIR. Impacts will be less than significant with mitigation.

Potential Project Impact	Impact Conclusions Before Mitigation- CEQA	Proposed Mitigation	Impact Conclusion After Mitigation- CEQA	Findings of Fact
		MM BIO-18: Avoid and Minimize Impacts on Valley Elderberry Longhorn Beetle		
Impact BIO-20: Impacts of the Project on Curved-Foot Hygrotus Diving Beetle	Significant	MM CMP: Compensatory Mitigation Plan MM BIO-2b: Avoid and Minimize Impacts on Terrestrial Biological Resources from Maintenance Activities MM BIO-14: Avoid and Minimize Impacts on Vernal Pool Aquatic Invertebrates and Critical Habitat for Vernal Pool Fairy Shrimp	Less Than Significant	The impacts on curved-foot hygrotus beetle from the Project would be less than significant with mitigation because these mitigation measures would reduce direct effects on the species, including habitat disturbance, by avoiding and minimizing activities during construction and maintenance that could adversely affect habitat, establishing non-disturbance buffers around aquatic habitat with construction fencing and by implementing protective measures during maintenance activities. Findings: Changes or alterations have been required in, or incorporated into, the project that avoid the significant environmental effect as identified in the Final EIR. Impacts will be less than significant with mitigation.
Impact BIO-21: Impacts of the Project on Crotch Bumble Bee	Significant	MM CMP: Compensatory Mitigation Plan MM BIO-2b: Avoid and Minimize Impacts on Terrestrial Biological Resources from Maintenance Activities MM BIO-21: Avoid and Minimize Impacts on Crotch Bumble Bee	Less Than Significant	The impacts on Crotch bumble bee from the Project would be less than significant with mitigation because these mitigation measures would replace lost habitat and reduce direct effects on the species, including habitat disturbance, by identifying and avoiding potential habitat to the extent possible during maintenance and construction activities through establishing avoidance buffers, by temporarily delaying work where colonies are identified, and replanting areas of disturbed habitat with suitable foraging plants. Findings: Changes or alterations have been required in, or incorporated into, the project that avoid the significant environmental effect as identified in the Final EIR. Impacts will be less than significant with mitigation.
Impact BIO-22: Impacts of the Project on California Tiger Salamander	Significant	MM CMP: Compensatory Mitigation Plan MM AES-4b: Minimize Fugitive Light from Portable Sources Used for Construction MM BIO-2b: Avoid and Minimize Impacts on Terrestrial Biological Resources from Maintenance Activities MM BIO-22a: Avoid and Minimize Impacts on California Tiger Salamander MM BIO-22b: Avoid and Minimize Operational Traffic Impacts on Wildlife	Less Than Significant	The impacts on California tiger salamander from the Project would be less than significant with mitigation because these mitigation measures would replace lost habitat and reduce direct effects on the species, including habitat disturbance, by designing lighting that avoids spillover into habitats and thus avoiding disrupting dispersal movements; by avoiding construction and maintenance activities in and adjacent to habitat to the extent possible; timing construction activities, installing exclusion fencing, conducting preconstruction surveys, and other protective measures to avoid and minimize the potential for injury and mortality; and by putting in place traffic control measures at DWR facilities during operations to minimize the potential for vehicle strikes. Findings: Changes or alterations have been required in, or incorporated into, the project that avoid the significant environmental effect as identified in the Final EIR. Impacts will be less than significant with mitigation.
Impact BIO-23: Impacts of the Project on Western Spadefoot Toad	Significant	MM CMP: Compensatory Mitigation Plan MM AES-4b: Minimize Fugitive Light from Portable Sources Used for Construction MM BIO-2b: Avoid and Minimize Impacts on Terrestrial Biological Resources from Maintenance Activities MM BIO-22b: Avoid and Minimize Operational Traffic Impacts on Wildlife MM BIO-23: Avoid and Minimize Impacts on Western Spadefoot Toad	Less Than Significant	The impacts on western spadefoot toad from the Project would be less than significant with mitigation because these mitigation measures would replace lost habitat and reduce direct effects on the species, including habitat disturbance, by designing lighting that avoids spillover into habitats, thus avoiding disrupting dispersal movements; by avoiding construction and maintenance activities in and adjacent to habitat to the extent possible; timing construction activities, installing exclusion fencing, conducting preconstruction surveys, and other protective measures to avoid and minimize the potential for injury and mortality; and by putting in place traffic control measures at DWR facilities during operations to minimize the potential for vehicle strikes. Findings: Changes or alterations have been required in, or incorporated into, the project that avoid the significant environmental effect as identified in the Final EIR. Impacts will be less than significant with mitigation.

Potential Project Impact	Impact Conclusions Before Mitigation- CEQA	Proposed Mitigation	Impact Conclusion After Mitigation- CEQA	Findings of Fact
Impact BIO-24: Impacts of the Project on California Red-Legged Frog	Significant	MM CMP: Compensatory Mitigation Plan MM AES-4b: Minimize Fugitive Light from Portable Sources Used for Construction MM BIO-2b: Avoid and Minimize Impacts on Terrestrial Biological Resources from Maintenance Activities MM BIO-22b: Avoid and Minimize Operational Traffic Impacts on Wildlife MM BIO-24a: Avoid and Minimize Impacts on California Red-Legged Frog and Critical Habitat MM BIO-24b: Compensate for Impacts on California Red-Legged Frog Habitat Connectivity	Less Than Significant	The impacts on California red-legged frog from the Project would be less than significant with mitigation because these mitigation measures would replace lost habitat and reduce direct effects on the species, including habitat disturbance, by designing lighting that avoids spillover into habitats and thus avoiding potential increases in predation and disrupting normal behaviors; by avoiding construction and maintenance activities in and adjacent to habitat to the extent possible; timing construction activities, installing exclusion fencing, conducting preconstruction surveys, and other protective measures to avoid and minimize the potential for injury and mortality; and by putting in place traffic control measures at DWR facilities during operations to minimize the potential for vehicle strikes. Findings: Changes or alterations have been required in, or incorporated into, the project that avoid the significant environmental effect as identified in the Final EIR. Impacts will be less than significant with mitigation.
Impact BIO-25: Impacts of the Project on Western Pond Turtle	Significant	MM CMP: Compensatory Mitigation Plan MM BIO-2b: Avoid and Minimize Impacts on Terrestrial Biological Resources from Maintenance Activities MM BIO-22b: Avoid and Minimize Operational Traffic Impacts on Wildlife MM BIO-25: Avoid and Minimize Impacts on Western Pond Turtle MM WQ-6 Develop and Implement a Mercury Management and Monitoring Plan	Less Than Significant	The impacts on western pond turtle from the Project would be less than significant with mitigation because these mitigation measures would replace lost habitat and reduce direct effects on the species, including habitat disturbance, by avoiding construction and maintenance activities in and adjacent to habitat to the extent possible; timing construction activities, installing exclusion fencing, conducting preconstruction surveys, and other protective measures to avoid and minimize the potential for injury and mortality; and by putting in place traffic control measures at DWR facilities during operations to minimize the potential for vehicle strikes. Findings: Changes or alterations have been required in, or incorporated into, the project that avoid the significant environmental effect as identified in the Final EIR. Impacts will be less than significant with mitigation.
Impact BIO-26: Impacts of the Project on Coast Horned Lizard	Significant	MM CMP: Compensatory Mitigation Plan MM BIO-2b: Avoid and Minimize Impacts on Terrestrial Biological Resources from Maintenance Activities MM BIO-22b: Avoid and Minimize Operational Traffic Impacts on Wildlife MM BIO-26: Avoid and Minimize Impacts on Special-Status Reptiles	Less Than Significant	The impacts on coast horned lizard from the Project would be less than significant with mitigation because these mitigation measures would replace lost habitat and reduce direct effects on the species, including habitat disturbance, by avoiding construction and maintenance activities in and adjacent to habitat to the extent possible; timing construction activities, conducting preconstruction surveys, and other protective measures to avoid and minimize the potential for injury and mortality; and by putting in place traffic control measures at DWR facilities during operations to minimize the potential for vehicle strikes. Findings: Changes or alterations have been required in, or incorporated into, the project that avoid the significant environmental effect as identified in the Final EIR. Impacts will be less than significant with mitigation.
Impact BIO-27: Impacts of the Project on Northern California Legless Lizard	Significant	MM CMP: Compensatory Mitigation Plan MM BIO-2b: Avoid and Minimize Impacts on Terrestrial Biological Resources from Maintenance Activities MM BIO-22b: Avoid and Minimize Operational Traffic Impacts on Wildlife MM BIO-26: Avoid and Minimize Impacts on Special-Status Reptiles	Less Than Significant	The impacts on Northern California legless lizard from the Project would be less than significant with mitigation because these mitigation measures would replace lost habitat and reduce direct effects on the species, including habitat disturbance, by avoiding construction and maintenance activities in and adjacent to habitat to the extent possible; timing construction activities, installing exclusion fencing, conducting preconstruction surveys, and other protective measures to avoid and minimize the potential for injury and mortality; and by putting in place traffic control measures at DWR facilities during operations to minimize the potential for vehicle strikes. Findings: Changes or alterations have been required in, or incorporated into, the project that avoid the significant environmental effect as identified in the Final EIR. Impacts will be less than significant with mitigation.
Impact BIO-28: Impacts of the Project on California Glossy Snake	Significant	MM CMP: Compensatory Mitigation Plan	Less Than Significant	The impacts on California glossy snake from the Project would be less than significant with mitigation because these mitigation measures would reduce direct effects on the species,

Potential Project Impact	Impact Conclusions Before Mitigation- CEQA	Proposed Mitigation	Impact Conclusion After Mitigation- CEQA	Findings of Fact
		MM BIO-2b: Avoid and Minimize Impacts on Terrestrial Biological Resources from Maintenance Activities MM BIO-22b: Avoid and Minimize Operational Traffic Impacts on Wildlife MM BIO-26: Avoid and Minimize Impacts on Special-Status Reptiles		including habitat disturbance, by avoiding construction and maintenance activities in and adjacent to habitat to the extent possible; timing construction activities, conducting preconstruction surveys, and other protective measures to avoid and minimize the potential for injury and mortality; and by putting in place traffic control measures at DWR facilities during operations to minimize the potential for vehicle strikes. Findings: Changes or alterations have been required in, or incorporated into, the project that avoid the significant environmental effect as identified in the Final EIR. Impacts will be less than significant with mitigation.
Impact BIO-29: Impacts of the Project on San Joaquin Coachwhip	Significant	MM CMP: Compensatory Mitigation Plan MM BIO-2b: Avoid and Minimize Impacts on Terrestrial Biological Resources from Maintenance Activities MM BIO-22b: Avoid and Minimize Operational Traffic Impacts on Wildlife MM BIO-26: Avoid and Minimize Impacts on Special-Status Reptiles	Less Than Significant	The impacts on San Joaquin coachwhip from the Project would be less than significant with mitigation because these mitigation measures would replace lost habitat with habitat potentially suitable and reduce direct effects on the species, including habitat disturbance, by avoiding construction and maintenance activities in and adjacent to habitat to the extent possible; timing construction activities, installing exclusion fencing, conducting preconstruction surveys, and other protective measures to avoid and minimize the potential for injury and mortality; and by putting in place traffic control measures at DWR facilities during operations to minimize the potential for vehicle strikes. Findings: Changes or alterations have been required in, or incorporated into, the project that avoid the significant environmental effect as identified in the Final EIR. Impacts will be less than significant with mitigation.
Impact BIO-30: Impacts of the Project on Giant Garter Snake	Significant	MM CMP: Compensatory Mitigation Plan MM BIO-2b: Avoid and Minimize Impacts on Terrestrial Biological Resources from Maintenance Activities MM BIO-22b: Avoid and Minimize Operational Traffic Impacts on Wildlife MM BIO-30: Avoid and Minimize Impacts on Giant Garter Snake MM WQ-6 Develop and Implement a Mercury Management and Monitoring Plan	Less Than Significant	The impacts on giant garter snake from the Project would be less than significant with mitigation because these mitigation measures would replace lost habitat and reduce direct effects on the species, including habitat disturbance, by avoiding construction and maintenance activities in and adjacent to habitat to the extent possible; timing construction activities, installing exclusion fencing, conducting preconstruction surveys, and other protective measures to avoid and minimize the potential for injury and mortality; and by putting in place traffic control measures at DWR facilities during operations to minimize the potential for vehicle strikes. Findings: Changes or alterations have been required in, or incorporated into, the project that avoid the significant environmental effect as identified in the Final EIR. Impacts will be less than significant with mitigation.
Impact BIO-31: Impacts of the Project on Western Yellow-Billed Cuckoo	Significant	MM CMP: Compensatory Mitigation Plan MM AES-4b: Minimize Fugitive Light from Portable Sources Used for Construction MM AES-4c: Install Visual Barriers along Access Routes, Where Necessary, to Prevent Light Spill from Truck Headlights toward Residences MM NOI-1: Develop and Implement a Noise Control Plan MM BIO-2b: Avoid and Minimize Impacts on Terrestrial Biological Resources from Maintenance Activities MM BIO-2c: Electrical Power Line Support Placement MM BIO-31: Avoid and Minimize Impacts on Western Yellow-Billed Cuckoo	Less Than Significant	The impacts on western yellow-billed cuckoo from the Project would be less than significant with mitigation because the mitigation measures would replace lost habitat and reduce direct effects on the species, including habitat, noise, and visual disturbances, by providing environmental awareness training to construction personnel, by implementing protective measures during maintenance activities, and species-specific avoidance measures during construction. Findings: Changes or alterations have been required in, or incorporated into, the project that avoid the significant environmental effect as identified in the Final EIR. Impacts will be less than significant with mitigation.
Impact BIO-32: Impacts of the Project on California Black Rail	Significant	MM CMP: Compensatory Mitigation Plan MM AES-4b: Minimize Fugitive Light from Portable Sources Used for Construction	Less Than Significant	The impacts on California black rail from the Project would be less than significant with mitigation because the mitigation measures would replace lost habitat and reduce direct effects on the species, including habitat, noise, and visual disturbances, by providing environmental

Potential Project Impact	Impact Conclusions Before Mitigation- CEQA	Proposed Mitigation	Impact Conclusion After Mitigation- CEQA	Findings of Fact
		MM AES-4c: Install Visual Barriers along Access Routes, Where Necessary, to Prevent Light Spill from Truck Headlights toward Residences MM NOI-1: Develop and Implement a Noise Control Plan		awareness training to construction personnel, by implementing protective measures during maintenance activities, and species-specific avoidance measures during construction. Findings: Changes or alterations have been required in, or incorporated into, the project that avoid the significant environmental effect as identified in the Final EIR. Impacts will be less than significant with mitigation.
Impact BIO-33: Impacts of the Project on Greater Sandhill Crane and Lesser Sandhill Crane	Significant	MM CMP: Compensatory Mitigation Plan MM AES-4b: Minimize Fugitive Light from Portable Sources Used for Construction MM AES-4c: Install Visual Barriers along Access Routes, Where Necessary, to Prevent Light Spill from Truck Headlights toward Residences MM NOI-1: Develop and Implement a Noise Control Plan MM BIO-2b: Avoid and Minimize Impacts on Terrestrial Biological Resources from Maintenance Activities MM BIO-2c: Electrical Power Line Support Placement MM BIO-33: Avoid and Minimize Disturbance of Sandhill Cranes	Less Than Significant	Construction, operations, and maintenance of the water conveyance facilities for the Project could result in impacts on greater sandhill crane and lesser sandhill crane through the permanent and temporary loss of known roost sites and modeled foraging habitat and the potential disruption of normal behaviors. The temporary loss of habitat and potential impacts of the disruption of normal behaviors from project construction would be reduced by Environmental Commitments EC-1: Conduct Worker Awareness Training; EC-2: Develop and Implement Hazardous Materials Management Plans; EC-3: Develop and Implement Spill Prevention, Containment, and Countermeasure Plans; EC-11: Fugitive Dust Control; and EC-14: Construction Best Management Practices for Biological Resources (Appendix 3B); however, even with these commitments, the loss of habitat from the construction of the Project, and the potential for the disruption of normal behaviors from construction, operations, and maintenance activities on greater sandhill crane and lesser sandhill crane would be significant. The CMP would be required to offset the loss of roosting and foraging habitat by creating roosting and foraging habitat and protecting agricultural foraging habitat for sandhill cranes (Appendix 3F, Attachment 3F.1, Table 3F.1-3, CMP-18a: Sandhill Crane Roosting Habitat, and CMP-18b: Sandhill Crane Foraging Habitat), which would reduce the impact associated with habitat loss to less than significant. Because the greater sandhill crane is listed as "fully protected" under the California Fish and Game Code Section 3511, activities that would result in "take" as defined by Section 86 of the Fish and Game Code (i.e., "to hunt, pursue, catch, capture, or kill, or attempt to" undertake these activities) are prohibited. The Project has been designed to avoid any activities that would result in actions considered "take" of greater sandhill crane. The Project would use existing power lines or underground conduit to the extent possible for the purpose of avoiding potential injury or direct mortality of the greater sandhill crane and all new aboveground lines would be located outside of the roost sites or foraging habitat for greater sandhill crane. Mitigation Measure BIO-2c: Electrical Power Line Support Placement, which requires that project lines installed on existing poles or towers be placed in the same vertical prism as existing lines where feasible, as determined by project engineers in coordination with utility providers, and that all project lines within 3 miles of greater sandhill crane roost sites be fitted with bird flight diverters that are visible under all conditions and based on APLIC or more current guidance (Avian Power Line Interaction Committee 2006, 2012), would minimize any additional potential collisions of greater or lesser sandhill cranes from the Project. Mitigation Measures NOI-1: Develop and Implement a Noise Control Plan (Chapter 24); BIO-2b: Avoid and Minimize Impacts on Biological Resources from Maintenance Activities; AES-4b: Minimize Fugitive Light from Portable Sources Used for Construction; AES-4c: Install Visual Barriers along Access Routes, Where Necessary, to Prevent Light Spill from Truck Headlights toward Residences (Chapter 18); and BIO-33: Avoid and Minimize Disturbance of Sandhill Cranes would mitigate the impacts on greater sandhill crane and lesser sandhill crane to a less-than-significant level. Therefore, the project impacts on greater sandhill crane and lesser sandhill crane would be less than significant with mitigation because these measures would reduce direct impacts on these species and compensate for lost habitat. Mitigation measures would reduce direct impacts in the following ways: (1) implementing protective measures during maintenance activities, which would include assessing work areas for habitat and conducting surveys where appropriate and delaying maintenance activities (either by season or time of day); (2) designing lighting that avoids spillover into habitat; (3) reducing noise impacts through time-of-day restrictions on construction and noise-attenuating measures where feasible, as determined by the contractor;

Potential Project Impact	Impact Conclusions Before Mitigation- CEQA	Proposed Mitigation	Impact Conclusion After Mitigation- CEQA	Findings of Fact
				and (4) avoiding and minimizing disturbance of roosting and foraging cranes by conducting surveys and work outside of the winter crane season (September 15 through March 15). Mitigation measures would also establish roosting and foraging habitat to compensate for disturbance and displacement of sandhill cranes during construction. The feasibility of mitigation measures will be determined by the contractor in coordination with a qualified wildlife biologist. Findings: Changes or alterations have been required in, or incorporated into, the project that avoid the significant environmental effect as identified in the Final EIR. Impacts will be less than significant with mitigation.
Impact BIO-34: Impacts of the Project on California Least Tern	Significant	MM CMP: Compensatory Mitigation Plan MM AES-4b: Minimize Fugitive Light from Portable Sources Used for Construction MM AES-4c: Install Visual Barriers along Access Routes, Where Necessary, to Prevent Light Spill from Truck Headlights toward Residences MM NOI-1: Develop and Implement a Noise Control Plan MM BIO-2b: Avoid and Minimize Impacts on Terrestrial Biological Resources from Maintenance Activities MM BIO-2c: Electrical Power Line Support Placement MM BIO-34: Avoid California Least Tern Nesting Colonies and Minimize Indirect Effects on Colonies	Less Than Significant	The impacts on California least tern from the Project would be less than significant with mitigation because the mitigation measures would reduce direct effects on the species, including habitat, noise, and visual disturbances, by providing environmental awareness training to construction personnel, by implementing protective measures during maintenance activities, and species-specific avoidance measures for the species during construction. Findings: Changes or alterations have been required in, or incorporated into, the project that avoid the significant environmental effect as identified in the Final EIR. Impacts will be less than significant with mitigation.
Impact BIO-35: Impacts of the Project on Cormorants, Herons, and Egrets	Significant	MM CMP: Compensatory Mitigation Plan MM AES-4b: Minimize Fugitive Light from Portable Sources Used for Construction MM AES-4c: Install Visual Barriers along Access Routes, Where Necessary, to Prevent Light Spill from Truck Headlights toward Residences MM NOI-1: Develop and Implement a Noise Control Plan MM BIO-2b: Avoid and Minimize Impacts on Terrestrial Biological Resources from Maintenance Activities MM BIO-2c: Electrical Power Line Support Placement MM BIO-35: Avoid and Minimize Impacts on Cormorant, Heron, and Egret Rookeries	Less Than Significant	The impacts on cormorants, herons, and egrets from the Project would be less than significant with mitigation because the mitigation measures would replace lost habitat, reduce direct effects on the species, including habitat, noise, and visual disturbances, by providing environmental awareness training to construction personnel, by implementing protective measures during maintenance activities, and avoidance measures for cormorant, heron, or egret rookeries during construction. Findings: Changes or alterations have been required in, or incorporated into, the project that avoid the significant environmental effect as identified in the Final EIR. Impacts will be less than significant with mitigation.
Impact BIO-36: Impacts of the Project on Osprey, White-Tailed Kite, Cooper's Hawk, and Other Nesting Raptors	Significant	MM CMP: Compensatory Mitigation Plan MM AES-4b: Minimize Fugitive Light from Portable Sources Used for Construction MM AES-4c: Install Visual Barriers along Access Routes, Where Necessary, to Prevent Light Spill from Truck Headlights toward Residences MM NOI-1: Develop and Implement a Noise Control Plan MM BIO-2b: Avoid and Minimize Impacts on Terrestrial Biological Resources from Maintenance Activities MM BIO-2c: Electrical Power Line Support Placement MM BIO-36a: Conduct Nesting Surveys for Special-Status and Non–Special-Status Birds and Raptors and	Less Than Significant	The impacts on special-status and non–special-status raptors from the Project would be less than significant with mitigation because the mitigation measures would replace lost habitat, reduce direct effects on the species, including habitat, noise, and visual disturbances, by providing environmental awareness training to construction personnel, by implementing protective measures during maintenance activities, and avoidance measures for raptors during construction. Findings: Changes or alterations have been required in, or incorporated into, the project that avoid the significant environmental effect as identified in the Final EIR. Impacts will be less than significant with mitigation.

Potential Project Impact	Impact Conclusions Before Mitigation- CEQA	Proposed Mitigation	Impact Conclusion After Mitigation- CEQA	Findings of Fact
		Implement Protective Measures to Avoid Disturbance of Nesting Birds and Raptors MM BIO-36b: Conduct Preconstruction Surveys and Implement Protective Measures to Avoid Disturbance of White-Tailed Kite		
Impact BIO-37: Impacts of the Project on Golden Eagle and Ferruginous Hawk	Significant	MM CMP: Compensatory Mitigation Plan MM AES-4b: Minimize Fugitive Light from Portable Sources Used for Construction MM AES-4c: Install Visual Barriers along Access Routes, Where Necessary, to Prevent Light Spill from Truck Headlights toward Residences MM NOI-1: Develop and Implement a Noise Control Plan MM BIO-2b: Avoid and Minimize Impacts on Terrestrial Biological Resources from Maintenance Activities MM BIO-2c: Electrical Power Line Support Placement MM BIO-37: Conduct Surveys for Golden Eagle and Avoid Disturbance of Occupied Nests	Less Than Significant	The impacts on ferruginous hawk and golden eagle from the Project would be less than significant with mitigation because the mitigation measures would replace lost habitat, reduce direct effects on the species, including habitat, noise, and visual disturbances, by providing environmental awareness training to construction personnel, by implementing protective measures during maintenance activities, and avoidance measures to avoid take of golden eagles, as defined by Section 86 of the California Fish and Game Code during construction. Findings: Changes or alterations have been required in, or incorporated into, the project that avoid the significant environmental effect as identified in the Final EIR. Impacts will be less than significant with mitigation.
Impact BIO-38: Impacts of the Project on Ground-Nesting Grassland Birds	Significant	MM CMP: Compensatory Mitigation Plan MM AES-4b: Minimize Fugitive Light from Portable Sources Used for Construction MM AES-4c: Install Visual Barriers along Access Routes, Where Necessary, to Prevent Light Spill from Truck Headlights toward Residences MM NOI-1: Develop and Implement a Noise Control Plan MM BIO-2b: Avoid and Minimize Impacts on Terrestrial Biological Resources from Maintenance Activities MM BIO-2c: Electrical Power Line Support Placement MM BIO-36a: Conduct Nesting Surveys for Special-Status and Non–Special-Status Birds and Raptors and Implement Protective Measures to Avoid Disturbance of Nesting Birds and Raptors	Less Than Significant	The impacts on northern harrier, short-eared owl, California horned lark, and grasshopper sparrow from the Project would be less than significant with mitigation because the mitigation measures would reduce direct effects on the species, including habitat, noise, and visual disturbances, by providing environmental awareness training to construction personnel, by implementing protective measures during maintenance activities, and avoidance measures for nesting birds during construction. Findings: Changes or alterations have been required in, or incorporated into, the project that avoid the significant environmental effect as identified in the Final EIR. Impacts will be less than significant with mitigation.
Impact BIO-39: Impacts of the Project on Swainson's Hawk	Significant	MM CMP: Compensatory Mitigation Plan MM AES-4b: Minimize Fugitive Light from Portable Sources Used for Construction MM AES-4c: Install Visual Barriers along Access Routes, Where Necessary, to Prevent Light Spill from Truck Headlights toward Residences MM NOI-1: Develop and Implement a Noise Control Plan MM BIO-2b: Avoid and Minimize Impacts on Terrestrial Biological Resources from Maintenance Activities MM BIO-2c: Electrical Power Line Support Placement MM BIO-39: Conduct Preconstruction Surveys and Implement Protective Measures to Minimize Disturbance of Swainson's Hawk	Less Than Significant	The impacts on Swainson's hawk from the Project would be less than significant with mitigation because the mitigation measure would replace lost habitat, reduce direct effects on the species, including habitat, noise, and visual disturbances, by providing environmental awareness training to construction personnel, by implementing protective measures during maintenance activities, and avoidance measures for nesting Swainson's hawk during construction. Findings: Changes or alterations have been required in, or incorporated into, the project that avoid the significant environmental effect as identified in the Final EIR. Impacts will be less than significant with mitigation.

Potential Project Impact	Impact Conclusions Before Mitigation- CEQA	Proposed Mitigation	Impact Conclusion After Mitigation- CEQA	Findings of Fact
Impact BIO-40: Impacts of the Project on Burrowing Owl	Significant	MM CMP: Compensatory Mitigation Plan MM AES-4b: Minimize Fugitive Light from Portable Sources Used for Construction MM AES-4c: Install Visual Barriers along Access Routes, Where Necessary, to Prevent Light Spill from Truck Headlights toward Residences MM NOI-1: Develop and Implement a Noise Control Plan MM BIO-2b: Avoid and Minimize Impacts on Terrestrial Biological Resources from Maintenance Activities MM BIO-2c: Electrical Power Line Support Placement MM BIO-22b: Avoid and Minimize Operational Traffic Impacts on Wildlife MM BIO-40: Conduct Surveys and Minimize Impacts on Burrowing Owl	Less Than Significant	The impacts on burrowing owl from the Project would be less than significant with mitigation because the mitigation measures would reduce direct effects on the species, including habitat, noise, and visual disturbances, by providing environmental awareness training to construction personnel, by implementing protective measures during maintenance activities, and avoidance measures for burrowing owl during construction. Findings: Changes or alterations have been required in, or incorporated into, the project that avoid the significant environmental effect as identified in the Final EIR. Impacts will be less than significant with mitigation.
Impact BIO-41: Impacts of the Project on Other Nesting Special-Status and Non–Special-Status Birds	Significant	MM CMP: Compensatory Mitigation Plan MM AES-4b: Minimize Fugitive Light from Portable Sources Used for Construction MM AES-4c: Install Visual Barriers along Access Routes, Where Necessary, to Prevent Light Spill from Truck Headlights toward Residences MM NOI-1: Develop and Implement a Noise Control Plan MM BIO-2b: Avoid and Minimize Impacts on Terrestrial Biological Resources from Maintenance Activities MM BIO-2c: Electrical Power Line Support Placement MM BIO-36a: Conduct Nesting Surveys for Special-Status and Non–Special-Status Birds and Raptors and Implement Protective Measures to Avoid Disturbance of Nesting Birds and Raptors	Less Than Significant	The impacts on special-status and non–special-status bird species from the Project would be less than significant with mitigation because the mitigation measures would replace lost habitat, reduce direct effects on these species, including habitat, noise, and visual disturbances, by providing environmental awareness training to construction personnel, by implementing protective measures during maintenance activities, and avoidance measures for nesting birds during construction. Findings: Changes or alterations have been required in, or incorporated into, the project that avoid the significant environmental effect as identified in the Final EIR. Impacts will be less than significant with mitigation.
Impact BIO-42: Impacts of the Project on Least Bell's Vireo	Significant	MM CMP: Compensatory Mitigation Plan MM AES-4b: Minimize Fugitive Light from Portable Sources Used for Construction MM AES-4c: Install Visual Barriers along Access Routes, Where Necessary, to Prevent Light Spill from Truck Headlights toward Residences MM NOI-1: Develop and Implement a Noise Control Plan MM BIO-2b: Avoid and Minimize Impacts on Terrestrial Biological Resources from Maintenance Activities MM BIO-2c: Electrical Power Line Support Placement MM BIO-42: Conduct Surveys and Minimize Impacts on Least Bell's Vireo	Less Than Significant	The impacts on least Bell's vireo from the Project would be less than significant with mitigation because the mitigation measures would replace lost habitat and reduce direct effects on the species, including habitat, noise, and visual disturbances, by providing environmental awareness training to construction personnel, by implementing protective measures during maintenance activities, and avoidance measures for least Bell's vireo during construction. Findings: Changes or alterations have been required in, or incorporated into, the project that avoid the significant environmental effect as identified in the Final EIR. Impacts will be less than significant with mitigation.
Impact BIO-44: Impacts of the Project on Tricolored Blackbird	Significant	MM CMP: Compensatory Mitigation Plan MM AES-4b: Minimize Fugitive Light from Portable Sources Used for Construction	Less Than Significant	The impacts on tricolored blackbird from the Project would be less than significant with mitigation because the mitigation measures would replace lost habitat, reduce direct effects on the species, including habitat, noise, and visual disturbances, by providing environmental awareness training to construction personnel, by implementing protective measures during maintenance activities, and avoidance measures for tricolored blackbird during construction.

Potential Project Impact	Impact Conclusions Before Mitigation- CEQA	Proposed Mitigation	Impact Conclusion After Mitigation- CEQA	Findings of Fact
		MM AES-4c: Install Visual Barriers along Access Routes, Where Necessary, to Prevent Light Spill from Truck Headlights toward Residences MM NOI-1: Develop and Implement a Noise Control Plan MM BIO-2b: Avoid and Minimize Impacts on Terrestrial Biological Resources from Maintenance Activities MM BIO-2c: Electrical Power Line Support Placement MM BIO-44: Conduct Preconstruction Surveys and Implement Protective Measures to Avoid Disturbance of Tricolored Blackbird		Findings: Changes or alterations have been required in, or incorporated into, the project that avoid the significant environmental effect as identified in the Final EIR. Impacts will be less than significant with mitigation.
Impact BIO-45: Impacts of the Project on Bats	Significant	MM CMP: Compensatory Mitigation Plan MM AES-4b: Minimize Fugitive Light from Portable Sources Used for Construction MM BIO-2b: Avoid and Minimize Impacts on Terrestrial Biological Resources from Maintenance Activities MM BIO-45a: Compensate for the Loss of Bat Roosting Habitat on Bridges and Overpasses MM BIO-45b: Avoid and Minimize Impacts on Roosting Bats	Less Than Significant	The impacts on bats from the Project would be less than significant with mitigation because these measures would replace lost habitat and reduce direct effects on the species (including habitat modification) by (1) implementing protective measures during maintenance activities, which would include assessing work areas for habitat and conducting surveys for bats where appropriate and delaying maintenance activities where possible; (2) designing lighting that avoids spillover into habitats and choosing light sources less disruptive to wildlife and thus avoiding disrupting roost sites and foraging activity; and (3) prior to and during construction, identifying occupied roosts and implementing construction activities such that the avoid disrupting roosts, in particular maternal roosts, and establishing protective buffers around roosts. Findings: Changes or alterations have been required in, or incorporated into, the project that avoid the significant environmental effect as identified in the Final EIR. Impacts will be less than significant with mitigation.
Impact BIO-46: Impacts of the Project on San Joaquin Kit Fox	Significant	MM CMP: Compensatory Mitigation Plan MM BIO-2b: Avoid and Minimize Impacts on Terrestrial Biological Resources from Maintenance Activities MM BIO-22b: Avoid and Minimize Operational Traffic Impacts on Wildlife MM BIO-46: Conduct Preconstruction Survey for San Joaquin Kit Fox and Implement Avoidance and Minimization Measures	Less Than Significant	The impacts on San Joaquin kit fox from the Project would be less than significant with mitigation because the mitigation measures would reduce direct effects on the species by (1) implementing protective measures during maintenance activities, which would include conducting den surveys where appropriate and avoiding certain activities where possible, and (2) implementing traffic controls on facility access roads during operations, which would minimize the potential for vehicle strikes if San Joaquin kit fox is present in these areas. Findings: Changes or alterations have been required in, or incorporated into, the project that avoid the significant environmental effect as identified in the Final EIR. Impacts will be less than significant with mitigation.
Impact BIO-47: Impacts of the Project on American Badger	Significant	MM CMP: Compensatory Mitigation Plan MM BIO-2b: Avoid and Minimize Impacts on Terrestrial Biological Resources from Maintenance Activities MM BIO-22b: Avoid and Minimize Operational Traffic Impacts on Wildlife MM BIO-47: Conduct Preconstruction Survey for American Badger and Implement Avoidance and Minimization Measures	Less Than Significant	The impacts on American badger from the Project would be less than significant with mitigation because the mitigation measures would replace lost habitat and reduce direct effects on the species, including habitat disturbance, by (1) implementing protective measures during maintenance activities, which would include assessing work areas for habitat and conducting dens surveys where appropriate and avoiding certain activities where possible, (2) implementing traffic controls on facility access roads during operations, which would minimize the potential for vehicle strikes, and (3) implementing avoidance measures for active dens during construction. Findings: Changes or alterations have been required in, or incorporated into, the project that avoid the significant environmental effect as identified in the Final EIR. Impacts will be less than significant with mitigation.
Impact BIO-48: Impacts of the Project on San Joaquin Pocket Mouse	Significant	MM CMP: Compensatory Mitigation Plan	Less Than Significant	The impacts on San Joaquin pocket mouse from the Project would be less than significant with mitigation because these measures would replace lost habitat and reduce direct effects on the species, including habitat disturbance, by implementing protective measures during

Potential Project Impact	Impact Conclusions Before Mitigation- CEQA	Proposed Mitigation	Impact Conclusion After Mitigation- CEQA	Findings of Fact
		MM BIO-2b: Avoid and Minimize Impacts on Terrestrial Biological Resources from Maintenance Activities MM BIO-22b: Avoid and Minimize Operational Traffic Impacts on Wildlife		maintenance activities, which would include assessing work areas for potential habitat, and by implementing traffic controls on facility access roads during operations, which would minimize the potential for vehicle strikes. Findings: Changes or alterations have been required in, or incorporated into, the project that avoid the significant environmental effect as identified in the Final EIR. Impacts will be less than significant with mitigation.
Impact BIO-51: Substantial Adverse Effect on State- or Federally Protected Wetlands and Other Waters through Direct Removal, Filling, Hydrological Interruption, or Other Means	Significant	MM CMP: Compensatory Mitigation Plan MM BIO-2b: Avoid and Minimize Impacts on Terrestrial Biological Resources from Maintenance Activities	Less Than Significant	The impact of discharge of fill into aquatic resources would be reduced to less than significant because the mitigation measures would avoid a net loss in aquatic resources and avoid and minimize periodic, temporary discharges of fill material into aquatic resources by assessing maintenance work areas for aquatic resources, establishing non-disturbance buffers around aquatic resources, training maintenance staff on the need to avoid the discharge of fill material into aquatic resources, and having a biological monitor present, where applicable. Findings: Changes or alterations have been required in, or incorporated into, the project that avoid the significant environmental effect as identified in the Final EIR. Impacts will be less than significant with mitigation.
Impact BIO-53: Interfere Substantially with the Movement of Any Native Resident or Migratory Fish or Wildlife Species or with Established Native Resident or Migratory Wildlife Corridors, or Impede the Use of Native Wildlife Nursery Sites	Significant	MM CMP: Compensatory Mitigation Plan MM AES-4b: Minimize Fugitive Light from Portable Sources Used for Construction MM AES-4c: Install Visual Barriers along Access Routes, Where Necessary, to Prevent Light Spill from Truck Headlights toward Residences MM BIO-2b: Avoid and Minimize Impacts on Terrestrial Biological Resources from Maintenance Activities MM BIO-22b: Avoid and Minimize Operational Traffic Impacts on Wildlife MM BIO-53: Avoid and Minimize Impacts on Terrestrial Wildlife Connectivity and Movement	Less Than Significant	The impacts on wildlife connectivity resources, habitat connectivity, and wildlife movement from the Project would be less than significant with mitigation because the mitigation measures would compensate for impacts on wildlife habitat and avoid and minimize habitat and species impacts that potentially could disrupt species movement and habitat selection, habitat access, and wildlife behavior, resulting in impacts on wildlife connectivity. These measures would avoid and minimize habitat and species impacts that could cause potential for injury, mortality, disruption of normal behaviors and disturbances to habitat that potentially may disrupt species movement, habitat selection, habitat access, and wildlife behavior, resulting in impacts on wildlife connectivity, by training construction staff on protecting habitat and species, reporting requirements, and the ramifications for not following these measures; implementing spill prevention and containment plans that would avoid material spills that could affect habitat and wildlife; preventing erosion and sedimentation of habitats and stormwater pollution, which may affect habitat and wildlife; preventing dust emissions that may impact habitat and wildlife; implementing construction BMPs and having a biological monitor present to ensure that non disturbance buffers and associated construction fencing are intact and all other protective measures are being implemented where applicable to protect habitat and wildlife; reducing fugitive light and lighting impacts that may disrupt nocturnal wildlife behavior and habitat selection; implementing environmental review and avoidance of habitat and wildlife impacts during maintenance activities; limiting vehicle speeds and implementing traffic control measures on DWR roads during operations to reduce species movement disruptions and vehicle-related mortality; and ensuring that the project prevents impacts on and facilitates habitat connectivity and safe wildlife movement. Findings: Changes or alterations have been required in, or incorporated into, the project that avoid the significant environmental effect as identified in the Final EIR. Impacts will be less than significant with mitigation.
Impact BIO-54: Conflict with the Provisions of an Adopted Habitat Conservation Plan, Natural Community Conservation Plan, or Other Approved Local, Regional, or State Habitat Conservation Plan	Significant	MM CMP: Compensatory Mitigation Plan MM BIO-2a: Avoid or Minimize Impacts on Special-Status Natural Communities and Special-Status Plants MM BIO-14: Avoid and Minimize Impacts on Vernal Pool Aquatic Invertebrates and Critical Habitat for Vernal Pool Fairy Shrimp MM BIO-18: Avoid and	Less Than Significant	Because the Project would only remove a small proportion of available lands for conservation, and thus not obstruct the plans' conservation goals, and with the mitigation measures to avoid and minimize impacts on covered species and habitats, the impact on an adopted HCP, NCCP, or other approved local, regional, or state habitat conservation plan would be less than significant with mitigation.

Potential Project Impact	Impact Conclusions Before Mitigation- CEQA	Proposed Mitigation	Impact Conclusion After Mitigation- CEQA	Findings of Fact
		Minimize Impacts on Valley Elderberry Longhorn Beetle MM BIO-22a: Avoid and Minimize Impacts on California Tiger Salamander MM BIO-24a: Avoid and Minimize Impacts on California Red-Legged Frog and Critical Habitat MM BIO-25: Avoid and Minimize Impacts on Western Pond Turtle MM BIO-26: Avoid and Minimize Impacts on Special-Status Reptiles MM BIO-30: Avoid and Minimize Impacts on Giant Garter Snake MM BIO-31: Avoid and Minimize Impacts on Western Yellow-Billed Cuckoo MM BIO-32: Conduct Preconstruction Surveys and Implement Protective Measures to Avoid Disturbance of California Black Rail MM BIO-33: Minimize Disturbance of Sandhill Cranes MM BIO-35: Avoid and Minimize Impacts on Cormorant, Heron, and Egret Rookeries MM BIO-36a: Conduct Nesting Surveys for Special-Status and Non–Special-Status Birds and Implement Protective Measures to Avoid Disturbance of Nesting Birds and Raptors MM BIO-36b: Conduct Preconstruction Surveys and Implement Protective Measures to Avoid Disturbance of White-Tailed Kite MM BIO-39: Conduct Preconstruction Surveys and Implement Protective Measures to Minimize Disturbance of Swainson's Hawk MM BIO-40: Conduct Surveys and Minimize Impacts on Burrowing Owl MM BIO-44: Conduct Preconstruction Surveys and Implement Protective Measures to Avoid Disturbance of Tricolored Blackbird MM BIO-47: Conduct Preconstruction Survey for American Badger and Implement Avoidance and Minimization Measures MM AG-1: Preserve Agricultural Land		Findings: Changes or alterations have been required in, or incorporated into, the project that avoid the significant environmental effect as identified in the Final EIR. Impacts will be less than significant with mitigation.
Impact BIO-55: Conflict with Any Local Policies or Ordinances Protecting Biological Resources, Such as a Tree Preservation Policy or Ordinance	Significant	MM CMP: Compensatory Mitigation Plan	Less Than Significant	The temporary loss of habitats from project construction would be reduced by Environmental Commitments EC-1: Conduct Worker Awareness Training; EC-2: Develop and Implement Hazardous Materials Management Plans; EC-3: Develop and Implement Spill Prevention, Containment, and Countermeasure Plans; and EC-14: Construction Best Management Practices for Biological Resources (Appendix 3B). Even with these commitments, however, the permanent loss of habitat from the construction of the alternatives would be significant. The CMP would be required to offset the loss of wetlands, riparian, and habitat for special-status species (Appendix 3F), which would reduce impacts on these resources and thus the conflicts with local policies and ordinances to less than significant. Findings: Changes or alterations have been required in, or incorporated into, the project that avoid the significant environmental effect as identified in the Final EIR. Impacts will be less than significant with mitigation.
Impact BIO-56: Substantial Adverse Effects on Fish and Wildlife Resources	Significant	MM BIO-2b: Avoid and Minimize Impacts on Terrestrial Biological Resources from Maintenance Activities	Less Than Significant	The impacts on rivers, streams, and lakes, and associated communities, subject to the notification requirements of California Fish and Game Code 1600 et seq. would be less than

Potential Project Impact	Impact Conclusions Before Mitigation- CEQA	Proposed Mitigation	Impact Conclusion After Mitigation- CEQA	Findings of Fact
Regulated under California Fish and Game Code Section 1600 et seq		MM AQUA-1a: Develop and Implement an Underwater Sound Control and Abatement Plan MM AQUA-1b: Develop and Implement a Barge Operations Plan MM AQUA-1c: Develop and Implement a Fish Rescue and Salvage Plan MM BIO-2a: Avoid or Minimize Impacts on Special-Status Natural Communities and Special-Status Plants MM BIO-2b: Avoid and Minimize Impacts on Terrestrial Biological Resources from Maintenance Activities MM BIO-18: Avoid and Minimize Impacts on Valley Elderberry Longhorn Beetle MM BIO-22a: Avoid and Minimize Impacts on California Tiger Salamander MM BIO-24a: Avoid and Minimize Impacts on California Red-Legged Frog and Critical Habitat MM BIO-25: Avoid and Minimize Impacts on Western Pond Turtle MM BIO-26: Avoid and Minimize Impacts on Special-Status Reptiles MM BIO-30: Avoid and Minimize Impacts on Giant Garter Snake MM BIO-31: Avoid and Minimize Impacts on Western Yellow-Billed Cuckoo MM BIO-32: Conduct Preconstruction Surveys and Implement Protective Measures to Avoid Disturbance of California Black Rail MM BIO-33: Minimize Disturbance of Sandhill Cranes MM BIO-35: Avoid and Minimize Impacts on Cormorant, Heron, and Egret Rookeries MM BIO-36a: Conduct Nesting Surveys for Special-Status and Non–Special-Status Birds and Implement Protective Measures to Avoid Disturbance of Nesting Birds and Raptors MM BIO-36b: Conduct Preconstruction Surveys and Implement Protective Measures to Avoid Disturbance of White-Tailed Kite MM BIO-39: Conduct Preconstruction Surveys and Implement Protective Measures to Minimize Disturbance of Swainson's Hawk MM BIO-40: Conduct Surveys and Minimize Impacts on Burrowing Owl MM BIO-44: Conduct Preconstruction Surveys and Implement Protective Measures to Avoid Disturbance of Tricolored Blackbird MM BIO-45b: Avoid and Minimize Impacts on Roosting Bats MM BIO-46: Conduct Preconstruction Survey for San Joaquin Kit Fox and Implement Avoidance and Minimization Measures MM BIO-47: Conduct Preconstruction Survey for American Badger and Implement Avoidance and Minimization Measures		significant because the mitigation measures would provide for compensatory mitigation to offset impacts on habitat that support fish and wildlife species, including rare plants, and would require steps to avoid and minimize effects on these species by establishing work windows to minimize the level of construction activities during sensitive time periods (e.g., migration, nesting), by establishing non-disturbance buffers to protect sensitive resources, by conducting preconstruction surveys to avoid occupied areas to the extent practicable, and by having biological monitors present to ensure measures are implemented and that direct effects on species are avoided and minimized. Findings: Changes or alterations have been required in, or incorporated into, the project that avoid the significant environmental effect as identified in the Final EIR. Impacts will be less than significant with mitigation.
Agricultural Resources				

Potential Project Impact	Impact Conclusions Before Mitigation- CEQA	Proposed Mitigation	Impact Conclusion After Mitigation- CEQA	Findings of Fact
Impact AG-3: Other Impacts on Agriculture as a Result of Constructing and Operating the Water Conveyance Facilities Prompting Conversion of Prime Farmland, Unique Farmland, Farmland of Local Importance, or Farmland of Statewide Importance	Significant	MM AG-3: Replacement or Relocation of Affected Infrastructure Supporting Agricultural Properties MM GW-1: Maintain Groundwater Supplies in Affected Areas	Less than Significant	Construction and operation of the Project's water conveyance facilities could indirectly affect agriculture within the study area through changes in groundwater elevation in localized areas affecting crop yields, disruption of agricultural infrastructure such as irrigation and drainage facilities, and operation-related changes in salinity affecting the water quality of irrigation water applied to crops. The potential for impacts resulting from changes in groundwater elevations during construction and operation would be minimized by design elements such placement of seepage cutoff wall placements around the north Delta intakes where such issues are most likely to arise. Implementation of these design elements to prevent changes in groundwater elevations that may affect neighboring properties, including farmland, would be tracked through groundwater monitoring programs. Furthermore, with Mitigation Measure GW-1: Maintain Groundwater Supplies in Affected Areas, identified in Chapter 8, the effects of temporary dewatering associated with the project are not anticipated to adversely disrupt agricultural operations in the vicinity of the intake sites that would result in conversion of Important Farmland to nonagricultural use. DWR considered how construction work for the project could affect local infrastructure supporting agricultural properties, including drainage and irrigation facilities. Such disruptions could result in the areas serviced by this infrastructure being fallowed. During project planning, known infrastructure used to serve agricultural properties were avoided to the greatest extent possible; however, the presence of additional infrastructure (e.g., buried pipelines that are not visible on aerial imagery and not identified in publicly available maps) may be revealed during future site level investigations. Although these disruptions may last only for the duration of project construction activity at a particular work area, such disruptions may persist for 7 to 15 years, depending on the facility being constructed. The effect would be permanent if the disruption to the infrastructure remains after construction is complete. This impact would be potentially significant. Mitigation Measure AG-3: Replacement or Relocation of Affected Infrastructure Supporting Agricultural Properties would require that any agricultural infrastructure that is disrupted by construction activities would be relocated or replaced to support continued agricultural activities; otherwise, the affected landowner would be fully compensated for any financial losses resulting from the disruption. Furthermore, as required under Mitigation Measure BIO-2c: Electrical Power Line Support Placement, the installation of power transition and distribution lines and necessary appurtenances within agricultural areas would require that DWR incorporate BMPs, where feasible, to minimize crop damage, reduce agricultural land impacts, and reduce the potential for interference with farm machinery. The impact would be less than significant with mitigation. Findings: Changes or alterations have been required in, or incorporated into, the project that avoid the significant environmental effect as identified in the Final EIR. Impacts will be less than significant with mitigation.
Aesthetics and Visual Resources				
Impact AES-4: Create New Sources of Substantial Light or Glare That Would Adversely Affect Daytime or Nighttime Views of the Construction Areas or Permanent Facilities	Significant	MM AES-1b: Apply Aesthetic Design Treatments to Project Structures MM AES-1c: Implement Best Management Practices in Project Landscaping Plan MM AES-4a: Limit Construction Outside of Daylight Hours within 0.25 Mile of Residents at the Intakes MM AES-4b: Minimize Fugitive Light from Portable Sources Used for Construction	Less Than Significant	Once construction is completed and the project is in operation, the Project facilities would use limited nighttime lighting. Sources of glare would be blocked by levees, reduced by distance, or fleeting to motorists. Any building materials that would have potential to reflect glare would have a matte or nonreflective finish that would reduce or inhibit glare. Therefore, permanent, postconstruction impacts of light and glare attributable to the project would be less than significant.

Potential Project Impact	Impact Conclusions Before Mitigation- CEQA	Proposed Mitigation	Impact Conclusion After Mitigation- CEQA	Findings of Fact
		MM AES-4c: Install Visual Barriers along Access Routes, Where Necessary, to Prevent Light Spill from Truck Headlights toward Residences		Findings: Changes or alterations have been required in, or incorporated into, the project that avoid the significant environmental effect as identified in the Final EIR. Impacts will be less than significant with mitigation.
Transportation				
Impact TRANS-3: Substantially Increase Hazards from a Geometric Design Feature (e.g., Sharp Curves or Dangerous Intersections) or Incompatible Uses (e.g., Farm Equipment)[1]	Significant	MM TRANS-1: Implement Site-Specific Construction Transportation Demand Management Plan and Transportation Management Plan	Less Than Significant	Construction of the Project would increase the amount of traffic generated by construction employees using the road system in the study area. This increase in traffic from construction workers and other construction materials delivery traffic could create the potential for traffic safety hazards related to increasing the number of trucks and construction equipment operating with commuters, farming operations, and recreational users in areas adjacent to construction sites. Even with the circulation system improvements and park-and-ride lots, the amount of additional construction-related traffic on Delta roadways and the duration of construction activities at conveyance facility sites would increase the potential for traffic safety hazards as a result of conflicts between construction and vehicle traffic. This impact is considered significant because of the potential for construction traffic hazards at multiple construction sites, road improvement locations, and bridges. The traffic management plan (TMP) actions in Mitigation Measure TRANS-1: Implement Site-Specific Construction Transportation Demand Management Plan and Transportation Management Plan combined with the circulation system improvements provided as part of the Project would reduce this impact to a less-than-significant level by providing specific actions and coordination with local agencies to reduce potential safety conditions at identified locations. (Final EIR, pp. 20-59 (line 37) to 20-60 (line 10).) Findings: Changes or alterations have been required in, or incorporated into, the project that avoid the significant environmental effect as identified in the Final EIR. Impacts will be less than significant with mitigation. (Final EIR, p. 20-60 (lines 5-10).)
Impact TRANS-4: Result in Inadequate Emergency Access	Significant	MM TRANS-1: Implement Site-Specific Construction Transportation Demand Management Plan and Transportation Management Plan	Less Than Significant	Construction of the Project would increase the potential for emergency access conflicts in the vicinity of construction sites at multiple locations and would increase the potential for emergency vehicle delays on roadways used to access construction sites or in the vicinity of proposed roadway improvements. Even with the roadway and access road improvements incorporated into the Project, this potential is considered to be a significant impact because (1) a substantial increase in the volume of additional construction-related vehicle trips would occur on the regional transportation system and on Delta roadways during the construction period, and (2) up to 18 access points have the potential to experience emergency vehicle access delay due to ingress and egress of construction vehicles and roadway and bridge construction for the Project. The traffic management plan (TMP) actions in Mitigation Measure TRANS-1: Implement Site-Specific Construction Transportation Demand Management Plan and Transportation Management Plan would reduce this impact to a less-than-significant level by providing specific actions and coordination with emergency responders at construction sites to maintain adequate emergency access in the vicinity of construction sites. Findings: Changes or alterations have been required in, or incorporated into, the project that avoid the significant environmental effect as identified in the Final EIR. Impacts will be less than significant with mitigation.
Air Quality and Greenhouse Gases				
Impact AQ-1: Result in Impacts on Regional Air Quality within the	Significant	MM AQ-1: Offset Construction-Generated Criteria Pollutants in the Sacramento Valley Air Basin	Less Than Significant	Impacts associated with fugitive dust emissions would be minimized through a dust control plan (Environmental Commitment EC-11: Fugitive Dust Control) and BMPs at new concrete batch plants (Environmental Commitment EC-12: On-Site Concrete Batching Plants). Exhaust-

[1] The corrections identified above summarize and restate the determinations and conclusions as articulated in the Final EIR, and as incorporated by reference into the DCP CEQA Findings adopted by DWR on December 21, 2023, for Impact Trans-3 and Rec-2. This has been updated on March 21, 2024, per the Errata to the CEQA Findings of Fact for the Delta Conveyance Project.

Potential Project Impact	Impact Conclusions Before Mitigation- CEQA	Proposed Mitigation	Impact Conclusion After Mitigation- CEQA	Findings of Fact
Sacramento Metropolitan Air Quality Management District				related pollutants would be reduced through use of zero-emissions equipment and vehicles (where feasible), renewable diesel, Tier 4 diesel engines, newer on-road and marine engines, and other BMPs, as required by Environmental Commitments EC-7: Off-Road Heavy-Duty Engines through EC-10: Marine Vessels and EC-13: DWR Best Management Practices to Reduce GHG Emissions. These environmental commitments would minimize air quality impacts through application of on-site controls to reduce construction emissions; however, even with these commitments, exceedances of SMAQMD's thresholds would occur, and the project would contribute a significant level of regional NOX and particulate matter pollution within the SVAB. Findings: Changes or alterations have been required in, or incorporated into, the project that avoid the significant environmental effect as identified in the Final EIR. Impacts will be less than significant with mitigation.
Impact AQ-2: Result in Impacts on Regional Air Quality within the San Joaquin Valley Air Pollution Control District	Significant	MM AQ-2: Offset Construction-Generated Criteria Pollutants in the San Joaquin Valley Air Basin	Less Than Significant	Based on the performance of current incentive programs and reasonably foreseeable future growth, SJVAPCD has confirmed that enough emissions reduction credits would be available to offset emissions generated by the project for all years in excess of SJVAPCD's thresholds (McLaughlin pers. comm.). Because SJVAPCD's thresholds were established to prevent emissions from new projects in the SJVAB from contributing to CAAQS or NAAQS violations, mitigating emissions below the threshold levels would avoid potential conflicts with the ambient air quality plans and ensure that project construction would not contribute a significant level of air pollution such that regional air quality within the SJVAB would be degraded. Accordingly, the impact would be less than significant with mitigation. Findings: Changes or alterations have been required in, or incorporated into, the project that avoid the significant environmental effect as identified in the Final EIR. Impacts will be less than significant with mitigation.
Impact AQ-3: Result in Impacts on Regional Air Quality within the Bay Area Air Quality Management District	Significant	MM AQ-3: Offset Construction-Generated Criteria Pollutants in the San Francisco Bay Area Air Basin	Less Than Significant	Based on the performance of current incentive programs and reasonably foreseeable future growth, BAAQMD has confirmed that Mitigation Measure AQ-3: Offset Construction-Generated Criteria Pollutants in the San Francisco Bay Area Air Basin is technically feasible (Kirk pers. comm.). Because BAAQMD's thresholds were established to prevent emissions from new projects in the SFBAAB from contributing to CAAQS or NAAQS violations, mitigating emissions below the threshold levels would avoid potential conflicts with the ambient air quality plans and ensure that project construction would not contribute a significant level of air pollution such that regional air quality within the SFBAAB would be degraded. Accordingly, the impact would be less than significant with mitigation. Findings: Changes or alterations have been required in, or incorporated into, the project that avoid the significant environmental effect as identified in the Final EIR. Impacts will be less than significant with mitigation.
Impact AQ-9: Result in Impacts on Global Climate Change from Construction and O&M	Significant	MM AQ-9: Develop and Implement a GHG Reduction Plan to Reduce GHG Emissions from Construction and Net CVP Operational Pumping to Net Zero	Less Than Significant	The CEQA Guidelines generally offer two paths to evaluating GHG emissions impacts in CEQA documents: • Projects can tier off a plan or similar document for the reduction of GHG emissions (as defined in CEQA Guidelines § 15183.5(b)) where the plan addresses GHG emissions for a range of project types within a geographic area. • Projects can evaluate and determine significance by calculating GHG emissions and assessing their significance using a performance standard (CEQA Guidelines § 15064.4). As discussed in Section 23.3.2, Thresholds of Significance, this analysis uses both evaluation pathways to appropriately consider the planning and regulatory frameworks most applicable to the project's emissions sources.

Potential Project Impact	Impact Conclusions Before Mitigation- CEQA	Proposed Mitigation	Impact Conclusion After Mitigation- CEQA	Findings of Fact
				O&M and SWP pumping activities are covered by DWR's Update 2020, which was prepared by DWR to provide a departmental strategy for meeting the State's 2030 and 2045 emissions reduction goals articulated in SB 32 and EO B-55-18 (and subsequently, AB 1279), respectively. Update 2020 is a plan for the reduction of GHG emissions and as such, GHG emissions from project O&M and SWP pumping activities are eligible to tier from the environmental document (California Department of Water Resources 2020b) for Update 2020 to evaluate project-level significance. Construction of the Project is not covered by DWR's Update 2020 and, therefore, is not eligible for tiering to evaluate whether project-level GHG emissions would result in a significant impact under CEQA. Accordingly, this analysis evaluates the significance of GHG emissions resulting from construction and displaced purchases of CVP electricity against a net zero threshold. As discussed in Section 23.3.2, Thresholds of Significance, a net zero threshold was selected by DWR given the project's long-term implementation timeframe and in recognition of scientific evidence that concludes carbon neutrality must be achieved by mid-century to avoid the most severe climate change impacts. While by different mechanisms, both pathways assess the Project against the larger threshold of carbon neutrality by 2045 (or earlier), as discussed below, which is consistent with the State's long-term climate change goal and emissions reduction trajectory (AB 1279 and EO B-55-18). The Project would not affect DWR's established emissions reduction goals or baseline (1990) emissions and therefore would not result in a change in total DWR emissions that would be considered significant. The Project would not conflict with any of DWR's specific action GHG emissions reduction measures and implements all applicable project-level GHG emissions reduction measures as set forth in Update 2020. The Project is, therefore, consistent with the analysis performed in Update 2020. Findings: Changes or alterations have been required in, or incorporated into, the project that avoid the significant environmental effect as identified in the Final EIR. Impacts will be less than significant with mitigation.
Impact AQ-10: Result in Impacts on Global Climate Change from Land Use Change	Significant	MM CMP: Compensatory Mitigation Plan	Less Than Significant	The impact would be less than significant under CEQA for the Project because cumulative emissions from land use change are projected to decrease relative to baseline by 2070. Initial construction activities would result in GHG increases early in project implementation. The Project would achieve a yearly net negative emissions rate approximately 4 to 6 years after groundbreaking, and a cumulative net negative GHG impact 15 to 28 years later. As shown in Table 23-76, cumulative net reductions projected through 2070 are estimated to range from 16,235 to 30,150 metric tons CO2e for the Project. Because cumulative GHG emissions from land use change would not exceed net zero, the project would not result in a significant impact on GHG emissions or impede DWR's or the state's ability to achieve their GHG reduction goals. Findings: Changes or alterations have been required in, or incorporated into, the project that avoid the significant environmental effect as identified in the Final EIR. Impacts will be less than significant with mitigation.
Hazards, Hazardous Materials, and Wildfire				
Impact HAZ-2: Create a Significant Hazard to the Public or the Environment through Reasonably Foreseeable Upset and Accident Conditions Involving the	Significant	MM HAZ-2: Perform a Phase I Environmental Site Assessment Prior to Construction Activities and Remediate	Less Than Significant	Overall, considering the potential for release of hazardous materials during construction, operations and maintenance of the Project, the potential exists for accidental spills and exposure to hazardous materials to occur. The environmental commitments could partially reduce impacts related to hazardous materials but not to a less-than-significant level because of

Potential Project Impact	Impact Conclusions Before Mitigation- CEQA	Proposed Mitigation	Impact Conclusion After Mitigation- CEQA	Findings of Fact
Release of Hazardous Materials into the Environment				the uncertainty that exists about the locations and nature of potential hazardous materials sites and the potential for construction worker and public exposure to hazardous materials. Implementing Mitigation Measure HAZ-2: Perform a Phase I Environmental Site Assessment Prior to Construction Activities and Remediate would include a Phase I environmental site assessment before construction, the identification and evaluation of potential sites of concern within the construction footprint, and the development of a remediation plan before construction and operations commence. This would reduce all impacts related to accidental release of hazardous materials into the environment to a less-than-significant level with mitigation. Findings: Changes or alterations have been required in, or incorporated into, the project that avoid the significant environmental effect as identified in the Final EIR. Impacts will be less than significant with mitigation.
Impact HAZ-4: Be Located on a Site That Is Included on a List of Hazardous Materials Sites Compiled Pursuant to Government Code Section 65962.5 and, as a Result, Create a Substantial Hazard to the Public or the Environment	Significant	MM HAZ-2: Perform a Phase I Environmental Site Assessment Prior to Construction Activities and Remediate	Less Than Significant	The Project would construct facilities on or near known Cortese List sites. Ground-disturbing activities and dewatering at or near sites that have not been fully remediated could expose workers and the public to contaminated soil and/or groundwater resulting in adverse health effects. The potential for exposure during construction would be a significant impact because of the proximity of these sites to Project and the potential for hazardous materials exposure during site excavation and grading. Operations and maintenance activities of the Project would not result in employee exposure because a plan (e.g., Environmental Site Assessment) for remediating hazardous sites would be implemented prior to project operations. Mitigation Measure HAZ-2: Perform a Phase I Environmental Site Assessment Prior to Construction Activities and Remediate would reduce the potential for significant impacts to a less-than-significant level by requiring preconstruction investigations and remediation to reduce the potential for encountering contaminants and other hazardous materials at construction sites. Findings: Changes or alterations have been required in, or incorporated into, the project that avoid the significant environmental effect as identified in the Final EIR. Impacts will be less than significant with mitigation.
Impact HAZ-5: Result in a Safety Hazard Associated with an Airport or Private Airstrip	Significant	MM HAZ-5: Wildlife Hazards Management Plan and Wildlife Deterrents	Less Than Significant	Airspace safety hazards occur when project components, such as buildings or construction equipment, encroach on the airspace of an airport runway. The locations of airports within 2 miles of the Project are shown on Figure 25-5. Eleven airports are within 2 miles of the construction footprint. No aspect of the Project would include equipment or structures that would be taller than 200 feet. Also pursuant to the State Aeronautics Act, DWR would adhere to FAA and Caltrans recommendations and comply with the recommendations of the OE/AAA. In areas where the project intersects with the Byron Airport influence area, construction of structures more than 100 feet above ground level could cause an obstruction or hazard to air navigation. However, construction would not introduce equipment or temporary structures in locations that could obstruct an airport or conflict with airport land uses. In addition, consultation with the Contra Costa Airport Land Use Commission would ensure that potential impacts of airspace interference would be reduced. As such, impacts on airports within 2 miles of the construction footprint due to construction of the Project would be less than significant. Findings: Changes or alterations have been required in, or incorporated into, the project that avoid the significant environmental effect as identified in the Final EIR. Impacts will be less than significant with mitigation.
Impact HAZ-6: Impair Implementation of or Physically Interfere with an Adopted Emergency Response Plan or Emergency Evacuation Plan	Significant	MM TRANS-1: Implement Site-Specific Construction Transportation Demand Management Plan and Transportation Management Plan	Less Than Significant	With Mitigation Measure TRANS-1, additional evaluations and discussions with local agencies would be required during the design phase to determine the most appropriate method to coordinate between project-provided emergency response services at the construction sites and integration with local agencies. Because project construction would not take place without

Potential Project Impact	Impact Conclusions Before Mitigation- CEQA	Proposed Mitigation	Impact Conclusion After Mitigation- CEQA	Findings of Fact
				a Transportation Demand Management Plan and good-faith coordination with local agencies on appropriate emergency response services, impacts from construction or operations and maintenance of any of the alternatives would be reduced to less than significant with mitigation. Findings: Changes or alterations have been required in, or incorporated into, the project that avoid the significant environmental effect as identified in the Final EIR. Impacts will be less than significant with mitigation.
Public Health				
Impact PH-1: Increase in Vector-Borne Diseases	Significant	MM PH-1a: Avoid Creating Areas of Standing Water During Preconstruction Future Field Investigations and Project Construction MM PH-1b: Develop and Implement a Mosquito Management Plan for Compensatory Mitigation Sites on Bouldin Island and at I-5 Ponds	Less Than Significant	Operation and maintenance of the water conveyance facilities would not be expected to result in the creation of potentially suitable mosquito breeding habitat and thus would not likely increase the public's exposure to vector-borne diseases in the study area relative to existing conditions. Mitigation Measure PH-1a: Avoid Creating Areas of Standing Water During Preconstruction, Field Investigations, and Project Construction would minimize the potential for any impact on public health related to increasing suitable vector habitat within the study area during construction and reduce this impact to a less-than-significant level by reducing suitable mosquito habitat at Project facilities. Findings: Changes or alterations have been required in, or incorporated into, the project that avoid the significant environmental effect as identified in the Final EIR. Impacts will be less than significant with mitigation.
Paleontological Resources				
Impact PALEO-1: Cause Destruction of a Unique Paleontological Resource as a Result of Surface Ground Disturbance	Significant	MM PALEO-1a: Prepare and Implement a Monitoring and Mitigation Plan for Paleontological Resources MM PALEO-1b: Educate Construction Personnel in Recognizing Fossil Material	Less Than Significant	The potential for destruction of unique paleontological resources, as defined in Section 28.3.2, Thresholds of Significance, in those portions of the study area affected by project construction would constitute a significant impact under CEQA because excavation for project facilities would occur in locations known to be sensitive for paleontological resources and localized project excavation would be considerable. Mitigation Measures PALEO-1a: Prepare and Implement a Monitoring and Mitigation Plan for Paleontological Resources, and PALEO-1b: Educate Construction Personnel in Recognizing Fossil Material would reduce the impacts to a less-than-significant level by ensuring that a qualified professional paleontologist would develop a monitoring and mitigation plan and determine which activities would occur in units sensitive for paleontological resources; educating construction personnel in recognizing paleontological resources; and having qualified monitors in place to monitor for paleontological resources and temporarily stop construction (per the PRMMP) should paleontological resources be discovered. For excavation at the tunnel shafts where in situ monitoring cannot occur, the shaft spoils would be monitored. The level of impact for all alignment alternatives would be similar but would vary in magnitude based on the amount of excavation that would occur (Table 28-4). In summary, the impacts of surface-related ground disturbance would be less than significant with mitigation. Findings: Changes or alterations have been required in, or incorporated into, the project that avoid the significant environmental effect as identified in the Final EIR. Impacts will be less than significant with mitigation.

Table 3: Project Impacts that are Less-than-Significant/No Impact Before Mitigation

Potential Project Impact	Impact Conclusions Before Mitigation- CEQA
Flood Protection	
Impact FP-1: Cause a Substantial Increase in Water Surface Elevations of the Sacramento River between the American River Confluence and Sutter Slough	Less than Significant
Impact FP-2: 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 That Would Result in Flooding On- or Off-Site or Impede or Redirect Flood Flows	Less than Significant
Groundwater	
Impact GW-1: Changes in Stream Gains or Losses in Various Interconnected Stream Reaches	Less than Significant
Impact GW-2: Changes in Groundwater Elevations	Less than Significant
Impact GW-3: Reduction in Groundwater Levels Affecting Supply Wells	Less than Significant
Impact GW-4: Changes to Long-Term Change in Groundwater Storage	Less than Significant
Impact GW-5: Increases in Groundwater Elevations near Project Intake Facilities Affecting Agricultural Drainage	Less than Significant
Impact GW-6: Damage to Major Conveyance Facilities Resulting from Land Subsidence	Less than Significant
Impact GW-7: Degradation of Groundwater Quality	Less than Significant
Water Quality	
Impact WQ-1: Impacts on Water Quality Resulting from Construction of the Water Conveyance Facilities	Less than Significant
Impact WQ-2: Effects on Boron Resulting from Facility Operations and Maintenance	Less than Significant
Impact WQ-3: Effects on Bromide Resulting from Facility Operations and Maintenance	Less than Significant
Impact WQ-4: Effects on Chloride Resulting from Facility Operations and Maintenance	Less than Significant
Impact WQ-5: Effects on Electrical Conductivity Resulting from Facility Operations and Maintenance	Less than Significant
Impact WQ-7: Effects on Nutrients Resulting from Facility Operations and Maintenance	Less than Significant
Impact WQ-8: Effects on Organic Carbon Resulting from Facility Operations and Maintenance	Less than Significant
Impact WQ-9: Effects on Dissolved Oxygen Resulting from Facility Operations and Maintenance	Less than Significant
Impact WQ-10: Effects on Selenium Resulting from Facility Operations and Maintenance	Less than Significant
Impact WQ-11: Effects on Pesticides Resulting from Facility Operations and Maintenance	Less than Significant
Impact WQ-12: Effects on Trace Metals Resulting from Facility Operations and Maintenance	Less than Significant
Impact WQ-13: Effects on Turbidity/Total Suspended Solids Resulting from Facility Operations and Maintenance	Less than Significant
Impact WQ-14: Effects on Cyanobacteria Harmful Algal Blooms Resulting from Facility Operations and Maintenance	Less than Significant
Impact WQ-15: Risk of Release of Pollutants from Inundation of Project Facilities	Less than Significant
Impact WQ-16: Effects on Drainage Patterns as a Result of Project Facilities	Less than Significant
Impact WQ-17: Consistency with Water Quality Control Plans	No Impact
Geology and Seismicity	
Impact GEO-1: Loss of Property, Personal Injury, or Death from Structural Failure Resulting from Rupture of a Known Earthquake Fault or Based on Other Substantial Evidence of a Known Fault	Less than Significant
Impact GEO-2: Loss of Property, Personal Injury, or Death from Strong Earthquake-Induced Ground Shaking	Less than Significant
Impact GEO-3: Loss of Property, Personal Injury, or Death from Earthquake-Induced Ground Failure, including Liquefaction and Related Ground Effects	Less than Significant
Impact GEO-4: Loss of Property, Personal Injury, or Death from Ground Settlement, Slope Instability, or Other Ground Failure	Less than Significant

Potential Project Impact	Impact Conclusions Before Mitigation- CEQA
Impact GEO-5: Loss of Property, Personal Injury, or Death from Structural Failure Resulting from Project-Related Ground Motions	Less than Significant
Impact GEO-6: Loss of Property, Personal Injury, or Death from Seiche or Tsunami	Less than Significant
Soils	
Impact SOILS-1: Accelerated Soil Erosion Caused by Vegetation Removal and Other Disturbances as a Result of Constructing the Proposed Water Conveyance Facilities	Less than Significant
Impact SOILS-2: Loss of Topsoil from Excavation, Overcovering, and Inundation as a Result of Constructing the Proposed Water Conveyance Facilities	Less than Significant
Impact SOILS-3: Property Loss, Personal Injury, or Death from Instability, Failure, and Damage as a Result of Constructing the Proposed Water Conveyance Facilities on or in Soils Subject to Subsidence	Less than Significant
Impact SOILS-4: Risk to Life and Property as a Result of Constructing the Proposed Water Conveyance Facilities in Areas of Expansive or Corrosive Soils	Less than Significant
Fish and Aquatic Resources	
Impact AQUA-4: Effects of Operations and Maintenance of Water Conveyance Facilities on Central Valley Fall-Run/Late Fall–Run Chinook Salmon	Less than Significant
Impact AQUA-8: Effects of Operations and Maintenance of Water Conveyance Facilities on Southern DPS Green Sturgeon	Less than Significant
Impact AQUA-9: Effects of Operations and Maintenance of Water Conveyance Facilities on White Sturgeon	Less than Significant
Impact AQUA-10: Effects of Operations and Maintenance of Water Conveyance Facilities on Pacific Lamprey and River Lamprey	Less than Significant
Impact AQUA-11: Effects of Operations and Maintenance of Water Conveyance Facilities on Native Minnows (Sacramento Hitch, Sacramento Splittail, Hardhead, and Central California Roach)	Less than Significant
Impact AQUA-12: Effects of Operations and Maintenance of Water Conveyance Facilities on Starry Flounder	Less than Significant
Impact AQUA-13: Effects of Operations and Maintenance of Water Conveyance Facilities on Northern Anchovy	Less than Significant
Impact AQUA-14: Effects of Operations and Maintenance of Water Conveyance Facilities on Striped Bass	Less than Significant
Impact AQUA-15: Effects of Operations and Maintenance of Water Conveyance Facilities on American Shad	Less than Significant
Impact AQUA-16: Effects of Operations and Maintenance of Water Conveyance Facilities on Threadfin Shad	Less than Significant
Impact AQUA-17: Effects of Operations and Maintenance of Water Conveyance Facilities on Black Bass	Less than Significant
Impact AQUA-18: Effects of Operations and Maintenance of Water Conveyance Facilities on California Bay Shrimp	Less than Significant
Impact AQUA-19: Effects of Operations and Maintenance of Water Conveyance Facilities on Southern Resident Killer Whale	Less than Significant
Impact AQUA-20: Effects of Construction of Water Conveyance Facilities on California Sea Lion	Less than Significant
Terrestrial Biological Resources	
Impact BIO-6: Impacts of the Project on Nontidal Brackish Emergent Wetland	No Impact
Impact BIO-15: Impacts of the Project on Conservancy Fairy Shrimp	No Impact
Impact BIO-17: Impacts of the Project on Sacramento and Antioch Dunes Anthicid Beetles	No Impact
Impact BIO-19: Impacts of the Project on Delta Green Ground Beetle	No Impact
Impact BIO-43: Impacts of the Project on Suisun Song Sparrow and Saltmarsh Common Yellowthroat	No Impact
Impact BIO-49: Impacts of the Project on Salt Marsh Harvest Mouse	No Impact
Impact BIO-50: Impacts of the Project on Riparian Brush Rabbit	No Impact
Impact BIO-52: Impacts of Invasive Species Resulting from Project Construction and Operations on Established Vegetation	Less than Significant
Impact BIO-57: Impacts of the Project on Monarch Butterfly	Less than Significant
Land Use	
Impact LU-1: Displacement of Existing Structures and Residences and Effects on Population and Housing	Less than Significant
Impact LU-2: Incompatibility with Applicable Land Use Designations, Goals, and Policies, Adopted for the Purpose of Avoiding or Mitigating an Environmental Effect as a Result of the Project	Less than Significant

Potential Project Impact	Impact Conclusions Before Mitigation- CEQA
Impact LU-3: Create Physical Structures Adjacent to and through a Portion of an Existing Community that Would Physically Divide the Community as a Result of the Project	No Impact
Recreation	
Impact REC-1: 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	Less than Significant
Impact REC-2: Include Recreational Facilities or Require the Construction or Expansion of Recreational Facilities That Might Have an Adverse Physical Effect on the Environment[2]	Less than Significant (Final EIR, p. 16-29 (lines 1-3).)
Transportation	
Impact TRANS-2: Conflict with a Program, Plan, Ordinance, or Policy Addressing the Circulation System	Less than Significant
Impact TRANS-5: Potential Effects on Marine Navigation Caused by Construction, Operation, and Maintenance of Intakes	Less than Significant
Public Services and Utilities	
Impact UT-1: Result in Substantial Physical Impacts Associated with the Provision of, or the Need for, New or Physically Altered Governmental Facilities, the Construction of Which Could Cause Significant Environmental Impacts on Public Services Including Police Protection, Fire Protection, Public Schools, and Other Public Facilities (e.g., Libraries, Hospitals)	Less than Significant
Impact UT-2: Require or Result in the Relocation or Construction of New or Expanded Service System Infrastructure, the Construction or Relocation of Which Could Cause Significant Environmental Impacts for Any Service Systems Such as Water, Wastewater Treatment, Stormwater Drainage, Electric Power Facilities, Natural Gas Facilities, and Telecommunications Facilities	Less than Significant
Impact UT-3: Exceed the Capacity of the Wastewater Treatment Provider(s) that Would Serve the Alternative's Anticipated Demand in Addition to the Provider's Existing Commitments	Less than Significant
Impact UT-4: Generate Solid Waste in Excess of Federal, State or Local Standards, or Be in Excess of the Capacity of Local Infrastructure, or Otherwise Impair the Attainment of Solid Waste Reduction Goals	Less than Significant
Energy	
Impact ENG-1: Result in Substantial Significant Environmental Impacts Due to Wasteful, Inefficient, or Unnecessary Consumption of Energy Resources during Project Construction or Operation	Less than Significant
Impact ENG-2: Conflict with or Obstruct Any State/Local Plan, Goal, Objective, or Policy for Renewable Energy or Energy Efficiency	No Impact
Air Quality and Greenhouse Gases	
Impact AQ-4: Result in Impacts on Air Quality within the Yolo-Solano Air Quality Management District	Less than Significant
Impact AQ-6: Result in Exposure of Sensitive Receptors to Substantial Toxic Air Contaminant Emissions	Less than Significant
Impact AQ-7: Result in Exposure of Sensitive Receptors to Asbestos, Lead-Based Paint, or Fungal Spores That Cause Valley Fever	Less than Significant
Impact AQ-8: Result in Exposure of Sensitive Receptors to Substantial Odor Emissions	Less than Significant
Impact AQ-10: Result in Impacts on Global Climate Change from Land Use Change	Less than Significant
Noise and Vibration	
Impact NOI-2: Generate Excessive Groundborne Vibration or Groundborne Noise Levels	Less than Significant
Impact NOI-3: Place Project-Related Activities in the Vicinity of a Private Airstrip or an Airport Land Use Plan, or, Where Such a Plan Has Not Been Adopted, within 2 Miles of a Public Airport or Public Use Airport, Resulting in Exposure of People Residing or Working in the Project Area to Excessive Noise Levels	No Impact
Hazards, Hazardous Materials, and Wildfire	
Impact HAZ-1: Create a Substantial Hazard to the Public or the Environment through the Routine Transport, Use, or Disposal of Hazardous Materials	Less than Significant

[2] The corrections identified above summarize and restate the determinations and conclusions as articulated in the Final EIR, and as incorporated by reference into the DCP CEQA Findings adopted by DWR on December 21, 2023, for Impact Trans-3 and Rec-2. This has been updated on March 21, 2024, per the Errata to the CEQA Findings of Fact for the Delta Conveyance Project.

Potential Project Impact	Impact Conclusions Before Mitigation- CEQA
Impact HAZ-3: Expose Sensitive Receptors at an Existing or Proposed School Located within 0.25 Mile of Project Facilities to Hazardous Materials, Substances, or Waste	No Impact
Impact HAZ-5: Result in a Safety Hazard Associated with an Airport or Private Airstrip	Less than Significant
Impact HAZ-7: Expose People or Structures, Either Directly or Indirectly, to a Substantial Risk of Loss, Injury, or Death Involving Wildland Fires	Less than Significant
Public Health	
Impact PH-2: Exceedance(s) of Water Quality Criteria for Constituents of Concern Such That Drinking Water Quality May Be Affected	Less than Significant
Impact PH-3: Substantial Mobilization of or Increase in Constituents Known to Bioaccumulate	Less than Significant
Impact PH-4: Adversely Affect Public Health Due to Exposing Sensitive Receptors to New Sources of EMF	Less than Significant
Impact PH-5: Impact Public Health Due to an Increase in Microcystis Bloom Formation	Less than Significant
Mineral Resources	
Impact MIN-1: Loss of Availability of Locally Important Natural Gas Wells as a Result of the Project	No Impact
Impact MIN-2: Loss of Availability of Extraction Potential from Natural Gas Fields as a Result of the Project	No Impact
Impact MIN-3: Loss of Availability of Locally Important Aggregate Resources (Mines and MRZs) as a Result of the Project	No Impact
Impact MIN-4: Loss of Availability of Locally Important Aggregate Resources as a Result of the Project	No Impact

Exhibit B

Findings Regarding the Public Trust Doctrine

A. Introduction

Actions by state agencies involving the planning and allocation of water resources, including but not limited to actions involving nonnavigable tributaries[1] and groundwater[2] that impact public trust uses on navigable waters, implicate the common law "public trust doctrine."[3] "The range of public trust uses is broad, encompassing not just navigation, commerce, and fishing, but also the public right to hunt, bathe or swim. Furthermore, the concept of a public use is flexible, accommodating changing public needs."[4] "For example, an increasingly important public use is the preservation of trust lands 'in their natural state…'"[5]

The doctrine "is an affirmation of the duty of the state to protect the people's common heritage of streams, lakes, marshlands and tidelands, surrendering that right of protection only in rare cases when the abandonment of that right is consistent with the purposes of the trust."[6] "[T]raceable to Roman law," the doctrine "rests on several related concepts. First, that the public rights of commerce, navigation, fishery, and recreation are so intrinsically important and vital to free citizens that their unfettered availability to all is essential in a democratic society…"[7] Second, "certain interests are so particularly the gifts of nature's bounty that they ought to be reserved for the whole of the populace." [8] "Finally, there is often a recognition … that certain uses have a peculiarly public nature that makes their adaptation to private use inappropriate." [9] For example, it is "thought to be incumbent upon the government to regulate water uses for the general benefit of the community and to take account thereby of the public nature and the interdependency which the physical quality of the resource implies."[10]

Importantly, the public doctrine does not operate as an absolute protection of the resources that come under its ambit.[11] Under the doctrine, "[t]he state has an affirmative duty to take the public

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[1] *National Audubon Society v. Superior Court* (1983) 33 Cal.3d 419, 437 (*National Audubon*) [holding the public trust doctrine protects navigable waters "from harm caused by diversion of nonnavigable tributaries"].
[2] *Env't L. Found. v. State Water Res. Control Bd.* (2018) 26 Cal.App.5th 844, 859 ["[T]he public trust doctrine applies if extraction of groundwater adversely impacts a navigable waterway to which the public trust doctrine does apply."].
[3] *National Audubon*, *supra*, 33 Cal.3d at p. 446; *Env't L. Found*., *supra*, 26. Cal.App.5th at p. 859 [the "determinative fact" in evaluating whether a state agency action implicates the public trust doctrine "is the impact of the activity on the public trust resource"].
[4] *San Francisco Baykeeper, Inc. v. State Lands Com*. (2015) 242 Cal.App.4th 202, 233 (*SF Baykeeper*), citing *City of Berkeley v. Superior Court* (1980) 26 Cal.3d 515, 521, and *National Audubon*, *supra*, 33 Cal.3d at p. 434.
[5] *SF Baykeeper*, *supra*, 242 Cal.App.4th at p. 233, quoting *National Audubon*, *supra*, 33 Cal.3d at pp. 434-435.
[6] *Id.* at p. 441.
[7] *Zack's Inc. v. City of Sausalito* (2008) 165 Cal.App.4th 1163, 1175-1176 (*Zack's*), citing *Martin v. Waddell* (1842) 41 U.S. 367, 413-414.
[8] *Zack's, supra,* 65 Cal.App.4th at p. 1176, quoting Sax, *The Public Trust Doctrine in Natural Resource Law: Effective Judicial Intervention* (1970) 68 Mich. L.Rev. 471, 484–485.
[9] *Ibid.*
[10] *Ibid.*
[11] *Santa Barbara Channelkeeper v. City of San Buenaventura* (2018) 19 Cal.App.5th 1176, 1186 ["[P]ublic trust interests, like other interests in water use in California, are not absolute."].

trust into account in the planning and allocation of water resources, and to protect public trust uses whenever *feasible*."[12] "[B]oth the public trust doctrine and the water rights system embody important precepts which make the law more responsive to the diverse needs and interests involved in the planning and allocation of water resources. To embrace one system of thought and reject the other would lead to an unbalanced structure, one which would either decry as a breach of trust appropriations essential to the economic development of this state, or deny any duty to protect or even consider the values promoted by the public trust."[13] Thus, "[a]s a matter of practical necessity[,] the state may have to approve appropriations despite foreseeable harm to public trust uses. In so doing, however, the state must bear in mind its duty as trustee to consider the effect of the taking on the public trust," and "to preserve, so far as consistent with the *public interest*, the uses protected by the trust."[14]

Similar principles apply to agency actions affecting fish and wildlife in California. Indeed, in addition to the common law public trust doctrine, there is "a public trust duty derived from statute, specifically [California] Fish and Game Code section 711.7, pertaining to fish and wildlife."[15] The California Supreme Court observed that "[t]here is doubtless an overlap between the two public trust doctrines—the protection of water resources is intertwined with the protection of wildlife," though "the duty of government agencies to protect wildlife is primarily statutory."[16] "[W]hatever its historical derivation, it is clear that the public trust doctrine encompasses the protection of undomesticated birds and wildlife. They are natural resources of inestimable value to the community as a whole."[17]

In addition, it is the policy of the "state that all state agencies … shall seek to conserve endangered species and threatened species and shall utilize their authority in furtherance of the purposes of the" California Endangered Species Act.[18] State agencies should not approve projects that would jeopardize the continued existence of any endangered species or threatened species if there are reasonable and prudent alternatives available consistent with conserving the species or its habitat that would prevent jeopardy.[19]

Although the legal principles set forth above are well established, "[t]here is no set 'procedural matrix' for determining state compliance with the public trust doctrine."[20] While "the public trust doctrine operates independently of CEQA[,]"[21] courts have recognized that CEQA review that includes an adequate public trust analysis can satisfy the public trust doctrine.[22] Notably, CEQA

[12] *National Audubon*, *supra*, 33 Cal.3d at p. 446, italics added; *State Water Res. Control Bd. Cases* (2006) 136 Cal.App.4th 674, 778 [in determining whether it is "feasible" to protect public trust values, an agency "must determine whether protection of those values, or what level of protection, is 'consistent with the public interest'"].
[13] *Id.* at p. 445.
[14] *Id.* at pp. 446-447, italics added.
[15] *Environmental Protection and Information Center v. California Dept. of Forestry & Fire Protection* (2008) 44 Cal.4th 459, 515.
[16] *Ibid.*
[17] *Center for Biological Diversity, Inc. v. FPL Group, Inc.* (2008) 166 Cal.App.4th 1349, 1363.
[18] Cal. Fish & G. Code, § 2055.
[19] Cal. Fish & G. Code, § 2053.
[20] *SF Baykeeper*, *supra*, 242 Cal.App.4th at p. 234, quoting *Citizens for East Shore Parks v. California State Lands Commission* (2011) 202 Cal.App.4th 549, 576 (*Citizens for East Shore Parks*).
[21] *World Bus. Acad. v. California State Lands Com* (2018) 24 Cal.App.5th 476, 510 (*World Bus.*).
[22] See *San Francisco Baykeeper, Inc. v. State Lands Com.* (2018) 29 Cal.App.5th 562, 581 (*SF Baykeeper II*); see also *Citizens for East Shore Parks*, *supra*, 202 Cal.App.4th at pp. 576-577 [stating that "*National Audubon* and *Carstens* indicate evaluating project impacts within a regulatory scheme like CEQA is sufficient 'consideration' for public

requires the imposition of "feasible alternatives or mitigation measures available that would substantially lessen any significant effects that the project would have on the environment[,]"[23] including those on water-related resources, such as aquatic and terrestrial species and their habitats.

Here, the Final Environmental Impact Report (EIR), as certified by DWR, sets forth sufficient analyses to satisfy the public trust doctrines. Therefore, the Final EIR will assist both the State Water Resources Control Board (Board) and the California Department of Fish and Wildlife (CDFW), as CEQA responsible agencies, to satisfy, as applicable, obligations under the common law public trust doctrine and the statutory public trust doctrine aimed at protecting wildlife and fish species. [24]

Finally, the state is the trustee of the public trust for the benefit of the people.[25] In *National Audubon*, the California Supreme Court held that a "responsible body" must take the public trust into account and, there, identified the Board as the appropriate agency.[26] Here, DWR's approval of the Delta Conveyance Project Alternative 5, Bethany Reservoir Alignment, (hereafter referred to as the "Project") does not constitutes the allocation of water resources. Moreover, DWR may not commence construction of the Project unless the Board issues an order approving a new point of diversion of the State Water Project (SWP).[27] Therefore, DWR's approval of the Project does not allow changes in allocation of water resources or physical Project construction with the potential to affect public trust uses and resources.[28] For this reason, DWR acknowledges that DWR may not be the state agency with the common law fiduciary duty to make public trust findings on the Project. Nevertheless, DWR has exercised its discretion to provide these findings with the understanding that, even if they are not required of DWR, the analysis should assist the Board and CDFW to satisfy, as applicable, obligations under the common law public trust doctrine as well as the statutory public trust doctrine aimed at protecting wildlife and fish species.

B. Compliance with Public Trust Doctrines

DWR as CEQA lead agency has developed environmental commitments, best management practices, compensatory mitigation, and mitigation measures intended to, as required by CEQA, reduce otherwise "significant environmental effects" of the Project, including potential Project effects on public trust uses and resources, to less-than-significant levels whenever feasible. As demonstrated in Volume 1 of the Final EIR and discussed further in responses to comments in Volume 2 of the Final EIR, Project effects that are less than significant or have been mitigated to a less-than-significant level include, but are not limited to, effects on the following public trust uses and

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trust purposes"], citing *National Audubon*, *supra*, 33 Cal.3d at p. 446, fn. 27, and *Carstens v. Cal. Coastal Com.* (1986) 182 Cal.App.3d 277, 289-291 (*Carstens*); but see *SF Baykeeper*, *supra*, 242 Cal.App.4th at p. 242 [holding the State Lands Commission failed to satisfy the public trust doctrine where it did not affirmatively take the public trust into account "in the context of a CEQA review or otherwise"].

[23] CEQA Guidelines, § 15021, subd. (a)(2); see also *id.*, § 15002, subd. (a)(3).

[24] See *SF Baykeeper II*, *supra*, 29 Cal.App.5th at p. 581 [upholding express public trust findings made by the State Lands Commission for leases authorizing a private lessee to mine sand from the San Francisco Bay where the findings were supported by substantial evidence in the project's EIR].

[25] *National Audubon*, *supra*, 33 Cal.3d at p. 434.

[26] *Id*. at pp. 447-448.

[27] Wat. Code, § 85088.

[28] Compare *Env't L. Found*., *supra*, 26. Cal.App.5th at p. 852 [holding that both the Board and County of Siskiyou had a "common law duty to consider the public trust interests before allowing groundwater extraction that potentially harms a navigable waterway"].)

resources: navigation, fish and aquatic resources, terrestrial biological resources, water-related recreation, and water quality.

As demonstrated in the EIR, substantial evidence supports the conclusion that all potential project impacts on navigation, fish and aquatic resources, terrestrial biological resources, water-related recreation, and water quality are less than significant or can be mitigated to less-than-significant levels, thereby resulting in protection of the public trust resources. However, the Project will result in several significant and unavoidable environmental impacts. Specifically, the EIR concludes that the Project will result in the following sixteen significant and unavoidable environmental impacts:

- Impact AG-1: Convert a Substantial Amount of Prime Farmland, Unique Farmland, Farmland of Local Importance, or Farmland of Statewide Importance as a Result of Construction of Water Conveyance Facilities
- Impact AG-2: Convert a Substantial Amount of Land Subject to Williamson Act Contract or under Contract in Farmland Security Zones to a Nonagricultural Use as a Result of Construction of Water Conveyance Facilities
- Impact AES-1: Substantially Degrade the Existing Visual Character or Quality of Public Views (from Publicly Accessible Vantage Points) of the Construction Sites and Visible Permanent Facilities and Their Surroundings in Nonurbanized Areas
- Impact AES-2: Substantially Damage Scenic Resources including, but Not Limited to, Trees, Rock Outcroppings, and Historic Buildings Visible from a State Scenic Highway
- Impact AES-3: Have Substantial Adverse Impacts on Scenic Vistas
- Impact CUL-1: Impacts on Eligible Built-Environment Historical Resources from Construction and Operation of the Project
- Impact CUL-2: Impacts on Unidentified and Unevaluated Built-Environment Historical Resources Resulting from Construction and Operation of the Project
- Impact CUL-3: Impacts on Identified Archaeological Resources Resulting from the Project
- Impact CUL-4: Impacts on Unidentified Archaeological Resources That May Be Encountered in the Course of the Project
- Impact CUL-5: Impacts on Buried Human Remains
- Impact TRANS-1: Increased Average VMT Per Construction Employee versus Regional Average
- Impact AQ-5: Result in Exposure of Sensitive Receptors to Substantial Localized Criteria Pollutant Emissions
- Impact NOI-1: Generate a Substantial Temporary or Permanent Increase in Ambient Noise Levels in the Vicinity of the Project in Excess of Standards Established in the Local General Plan or Noise Ordinance, or Applicable Standards of Other Agencies
- Impact PALEO-2: Cause Destruction of a Unique Paleontological Resource as a Result of Tunnel Construction and Ground Improvement
- Impact TCR-1: Impacts on the Delta Tribal Cultural Landscape Tribal Cultural Resource Resulting from Construction, Operations, and Maintenance of the Project Alternatives
- Impact TCR-2: Impacts on Individual Tribal Cultural Resources Resulting from Construction, Operations, and Maintenance of the Project Alternatives

After implementation of feasible CEQA mitigation measures, the Project will result in the sixteen significant and unavoidable environmental impacts listed above. While DWR has concluded that these sixteen significant and unavoidable environmental impacts do not constitute direct impacts on public trust resources and values, DWR has nevertheless considered the potential for these impacts to affect public trust resources and values. DWR recognizes that the significant and unavoidable impacts of the Project may have indirect effects on public trust values. Ultimately, however, these significant impacts are tradeoffs that must be considered in the context of the public interests advanced by the Project.[29]

The mitigation measures set forth in the EIR will reduce the above-listed significant and unavoidable impacts of the Project to the extent feasible, taking into account economic, environmental, legal, social, and technological factors. However, no feasible mitigation measures or alternatives have been identified that avoid or substantially lessen these environmental impacts. DWR has also carefully considered each of these significant and unavoidable impacts of the Project and their potential to affect public trust resources. As discussed further below, these impacts do not render the Project inconsistent with the public trust doctrine.

C. The Delta Conveyance Project is in the Public Interest Despite the Occurrence of the Above Significant Unavoidable Effects

1. The Delta Conveyance Project Strengthens California's Ability to Protect Water Resources

On April 29, 2019, Governor Newsom signed Executive Order N-10-19 directing the California Natural Resources Agency, California Environmental Protection Agency, and California Department of Food and Agriculture to develop a comprehensive strategy to build a climate-resilient water system and ensure healthy waterways through the twenty-first century. After a public input period, Governor Newsom released the *California Water Resilience Portfolio* on July 28, 2020. The *California Water Resilience Portfolio* identifies a suite of complementary actions to ensure safe and resilient water supplies, flood protection and healthy waterways for the state's communities, economy, and environment. One of the projects identified in the portfolio is new diversion and conveyance facilities in the Delta to safeguard the SWP.

Factors such as the continuing subsidence of lands, risk of seismic activity and levee failures within the Delta, sea level rise, precipitation change, warmer temperatures, and wider variations in hydrologic conditions associated with climate change threaten the reliability of the current SWP water conveyance system. Additionally, pumping restrictions applied by regulatory agencies to address water quality and aquatic species concerns at the south Delta diversion continue to prevent the SWP from reliably capturing water when it is available, especially from large storm events.

Protecting the reliability of SWP water deliveries is critically important. Approximately 27 million Californians receive clean, affordable water that flows through the SWP infrastructure in the Delta. Water supplied by the SWP has benefits for the entire state and has helped California become the fifth largest economy in the world. Planning a future for California while not protecting the SWP from future changes would put California's water supply and economy at risk.

[29] See, e.g., *World Bus., supra,* 24 Cal.App.5th at p. 509 [upholding State Lands Commission's consideration of its public trust obligations in approving lease extensions for a nuclear power plant because the record showed that the Commission "balance[ed] the public trust rights to navigation, fisheries, and environmental protection against the public need for efficient electrical production"].

The Project is part of the state's strategy in adapting the SWP water supply to climate change. It protects against future water supply losses caused by reasonably foreseeable consequences of climate change and extreme weather events, sea level rise, and seismic risks. It also helps ensure that the SWP can capture, move, and store water to capitalize on large, but infrequent, storm events.

2. Water Resources Will Be Put to Beneficial Use to the Fullest Extent of Which They Are Capable While Protecting Public Trust Values to the Extent Feasible

The guiding principle of California's water law and policy is contained in Article X, Section 2, of the California Constitution. This section requires that all uses of the state's water be both reasonable and beneficial. It places a significant limitation on water rights by prohibiting the waste, unreasonable use, unreasonable method of use, or unreasonable method of diversion of water.[30] Additionally, a hallmark of the common law public trust doctrine is that projects impacting navigable waterways must have a connection to water-related activities that provide benefits to the public statewide, and not sacrifice public benefit for private or purely local advantage.[31] By implementing measures for increased reliability of water delivery, along with associated environmental commitments, compensatory mitigation, and mitigation measures set forth in the EIR, the Project will meet the state's responsibilities under the common law public trust doctrine and Article X, Section 2, of the California Constitution that water resources be put to beneficial use to the fullest extent of which they are capable while protecting public trust values to the extent feasible.

3. The Delta Conveyance Project Furthers State Policies Set Forth in the Delta Reform Act of 2009

Approval of the proposed new points of diversion would serve the public interest by furthering state policies set forth in the Delta Reform Act of 2009. The Delta Reform Act identifies "the two coequal goals of providing a more reliable water supply for California and protecting, restoring, and enhancing the Delta ecosystem."[32] As the Legislature explicitly recognized, "the Sacramento-San Joaquin Delta … serves Californians concurrently as both the hub of the California water system and the most valuable estuary and wetland ecosystem on the west coast of North and South America."[33] "The economies of major regions of the state depend on the ability to use water within the Delta watershed or to import water from the Delta watershed. More than two-thirds of the residents of the state and more than two million acres of highly productive farmland receive water exported from the Delta watershed."[34] The Project should make SWP water deliveries more dependable, thus providing a more stable business environment for the economies of those areas, including major industries such as high technology, agriculture, manufacturing, and service sectors.

D. Conclusion

The Project is grounded in concepts of efficiency and public benefit and uses best available science for design and implementation. As mitigated, the Project will not result in significant impacts to navigation, fish and aquatic resources, terrestrial biological resources, water-related recreation,

[30] Cal. Const., art. X, § 2; Cal. Wat. Code, § 1240.
[31] *National Audubon*, *supra*, 33 Cal.3d at pp. 434-441; *The Public Trust Doctrine*, State Lands Commission, page 9, available at http://archives.slc.ca.gov/Meeting_Summaries/2001_Documents/09-17-01/Items/091701R88.pdf.
[32] Cal. Pub. Resources Code, § 29702, subd. (a).
[33] Cal. Wat. Code, § 85002.
[34] *Id.*, § 85004, subd. (a).

water quality, or other public trust resources and values. However, the Project will result in the above-listed significant and unavoidable environmental impacts.

DWR has taken public trust resources and values into account in considering the merits, and impacts, of the Project. Notwithstanding the Project's significant and unavoidable environmental impacts, the Project is in the public's and State's best interests due to its many public benefits as discussed above and further elaborated in the EIR, CEQA Findings of Fact, and Statement of Overriding Considerations. The Project reflects a proper balancing of public trust values with the public interests that will be served by the Project. In approving the Project, DWR has imposed environmental commitments, best management practices, compensatory mitigation, and mitigation measures identified in the EIR that will protect, to the extent feasible consistent with the public interest,[35] public trust resources and values including, but not limited to, the public rights to navigation, fish and aquatic resources, terrestrial biological resources, water-related recreation, and water quality. Therefore, as demonstrated herein and by supporting evidence in the project files, the Project is consistent with the public trust doctrine.

Furthermore, rights to use water are subject to the Board's obligation under the public trust doctrine as trustee of certain resources for Californians. The Board is charged with the comprehensive planning and allocation of water resources in California.[36] Any change in purpose, place of use, or point of diversion requires approval by the Board.

Before the Board issues a permit, it must take into account all prior rights and the availability of water in the basin. The Board considers, too, the flows needed to preserve in-stream uses such as recreation and fish and wildlife habitat.[37] DWR, as the permit applicant, will follow the process set forth in the Board's regulations, which includes public notice and a hearing process to address objections. The EIR prepared for the Project should provide sufficient environmental documentation to support action by the Board. A key finding the Board must make before a permit can be issued is that the applicant's use is in the public interest, which is an overriding concern in all Board decisions.

Implementation of projects that are consistent with the Bay-Delta Plan's water quality objectives generally satisfy the state's public trust obligations addressed by the Bay-Delta Plan's objectives and program of implementation.[38] The Board will have a chance to evaluate the Project's consistency with Bay-Delta Plan water quality objectives and public trust compliance after DWR submits a petition for additional points of diversion for the Project. The Project is also subject to the continuing authority of the Board in accordance with law and in the interest of the public welfare to protect public trust uses and to prevent waste, unreasonable use, unreasonable method of use, or

[35] *State Water Res. Control Bd. Cases, supra,* 136 Cal.App.4th at p. 778 [in determining whether it is "feasible" to protect public trust values, an agency "must determine whether protection of those values, or what level of protection, is 'consistent with the public interest'"].
[36] Robie, *Effective Implementation of the Public Trust Doctrine in California Water Resources Decision-Making: A View From the Bench* (2012) 45 U.C. Davis L. Rev. 1155, 1161, quoting *National Audubon*, *supra*, 33 Cal.3d at p. 449.
[37] See, e.g., Cal. Wat. Code, § 85806.
[38] *State Water Res. Control Bd. Cases*, *supra*, 136 Cal.App.4th at pp. 778-779 [rejecting that the Board, in a water rights proceeding, "was obligated under the public trust doctrine to implement more generous flow objectives" than required by the Bay-Delta Plan. In adopting the Bay-Delta Plan, "[i]t was for the Board in its discretion and judgment to balance all of the[] competing interests in adopting water quality objectives and formulating a program of implementation to achieve those objectives."].

unreasonable method of diversion of water.[39] Should the Board modify the existing water quality objectives in the future in consideration of its public trust obligations or otherwise, the Project would be required to operate consistent with all applicable water quality objectives.

[39] *Stanford Vina Ranch Irrigation Co. v. State* (2020) 50 Cal.App.5th 976, 1005, fn. 9 ["[T]he public trust doctrine exists 'alongside the rule of reasonableness.' [Citation.] [The Board may rely on] [e]ach doctrine independently [to] limit[] the private use of water in this state."]; *Env't L. Found., supra,* 26 Cal.App.5th at p. 862 ["the Board's authority to protect the public trust is independent of and not bounded by the limitations on the Board's authority to oversee the permit and license system"]; *United States v. State Water Res. Control Bd*. (1986) 182 Cal.App.3d 82, 150, citing *National Audubon*, *supra*, 33 Cal.3d at p. 447; see also *Santa Clarita Water Co. v. Lyons* (1984) 161 Cal.App.3d 450, 462 [The "Board has exclusive control … over appropriation of water"]; see also State Water Board Water Right Revised Decision 1641 (2000), p. 148 ["The continuing authority of the Board also may be exercised by imposing further limitations on the diversion and use of water by the permittee in order to protect public trust uses."].

Exhibit C
Final EIR Modifications

DWR made minor edits throughout Volume 1 of the Final EIR, such as modifications to punctuation and correction of misspellings and typos. In addition, DWR made minor formatting changes throughout Volume 1 of the Final EIR, such as modification to headings, corrections to page numbers, and corrections of formatting issues found in graphs, charts, and tables. Minor edits or formatting changes to the Draft EIR reflected in Volume 1 of the Final EIR do not result in any new significant environmental impacts or a substantial increase in the severity of an environmental impact that was previously analyzed in the Draft EIR.

In addition to grammar and formatting changes, new information was added to the Final EIR to clarify, amplify (i.e., expands in stating or describing, as by details or illustrations; clarifies by expanding), or makes insignificant modifications to discussion and analysis in the Draft EIR. Key modifications included in the Volume 1 of the Final EIR are identified in the table below with a summary regarding why the modifications do not result in the disclosure of a new significant impact, result in an increase in the severity or magnitude of an impact, or do not result in the need for additional required mitigation to which DWR is unwilling to commit. The Final EIR provides further information regarding modifications that occurred between the Draft EIR and the Final EIR. This information can be found in Final EIR, Volume 2, Common Response 1, CEQA Process, General Approach to Analysis, and Other Environmental Review Issues, which explains CEQA recirculation requirements and why the information and modifications contained in the Final EIR do not meet recirculation requirements either individually or collectively; Final EIR, Volume 2, Common Response 3, Alternatives Development and Description, which also describes some of the substantive project description refinements included in the table below and why they do not trigger the need for recirculating the Draft EIR; Final EIR, Volume 2, Common Response 11, Terrestrial Biological Resources and Compensatory Mitigation Plan, which describes refinements to the Compensatory Mitigation Plan; and Final EIR, Volume 2, Common Response 15, Air Quality and Greenhouse Gases, which describes refinements to air quality modeling and assumptions. Individual responses to comments in Volume 2, Chapter 4, Response to Comments Tables, also address refinements made to the Draft EIR in response to those individual comments where applicable. The summary table below cites relevant sections of Volume 1 of the Final EIR where appropriate.

Modification	Modification Consideration
Clarifications to Table 1-1, Summary of Potential Agencies and Review, Approval, or Other Responsibilities, in Addition to Those under CEQA in Final EIR, Volume 1, Chapter 1, *Introduction*.	The clarifying text added to Table 1-1 is about different agencies and their potential roles and responsibilities. The table was not used in the impact analysis. Therefore, the added information merely amplifies discussion in the Draft EIR and does not constitute significant new information requiring recirculation under CEQA Guidelines Section 15088.5.
Clarifications to use of sedimentation basins and drying lagoons for all alternatives during operations in Final EIR, Volume 1, Chapter 3, *Description of the Proposed Project and Alternatives*, Section 3.4.1.2, *Sedimentation Basins and Drying Lagoons*.	The inclusion of the information regarding the sedimentation basins and drying lagoons further clarifies how the sedimentation basins and drying lagoons would operate and the duration in which operation would occur. These clarifications complement and amplify the information previously included in Draft EIR Chapter 3, *Description of the Proposed Project and Alternatives*, and evaluated throughout the EIR and do not materially change the description of the sedimentation basins and drying lagoons. The added information does not result in a new or more severe impact requiring additional analysis, change impact conclusions presented in the Draft EIR, or require additional mitigation measures to which DWR is unwilling to commit. Therefore, the new information does not constitute significant new information requiring recirculation under CEQA Guidelines Section 15088.5.
Inclusion of undergrounding of 1.9 miles of SCADA lines between Freeport and north of Intake A across from Clarksburg consistent with description in Final EIR, Volume 1, Chapter 3, *Description of the Proposed Project and Alternatives*, Section 3.4.11, *SCADA Facilities*, clarifying that some of the SCADA lines would be undergrounded along existing roads and project access routes (as shown in Figure 3-14).	The Draft EIR stated that wherever possible, underground SCADA routes would be located along existing roads and project access routes. The Draft EIR evaluated the type and magnitude of impacts associated with installing SCADA lines underground, as well overhead. As described in Final EIR, Volume 2, Common Response 3, *Alternatives Development and Description*, the alignment between Freeport and north of Intake A across from Clarksburg was included in the study areas in the Draft EIR and undergrounding the alignment would result in highly localized, temporary, and minor soil disturbances and would require the use of similar construction equipment and construction trips as already included in the EIR evaluation for all resources. The inclusion of this information in the Final EIR complements the description in the Draft EIR that SCADA lines would be undergrounded where appropriate . The new information does not represent new or more severe impacts requiring additional analysis, change impact conclusions presented in the Draft EIR, or require additional mitigation measures to which DWR is unwilling to commit. Therefore, the new information does not constitute significant new information requiring recirculation under CEQA Guidelines Section 15088.5.
Clarification of the use of non-specular material for aboveground power lines in Final EIR, Volume 1, Chapter 3, *Description of the Proposed Project and Alternatives*, Section 3.4.10, *Electrical Facilities*.	The inclusion of the information regarding non-specular material further clarifies the type of materials used for above power lines. Non-specular material is material that reflects light diffusely and evenly or scatters light. The inclusion of the use of this material complements the information previously included in Draft EIR Chapter 3, *Description of the Proposed Project and Alternatives*, and evaluated throughout the EIR and do not materially change the description of the aboveground power lines. The added information does not

Modification	Modification Consideration
	represent new or more severe impacts requiring additional analysis, change impact conclusions presented in the Draft EIR, or require additional mitigation measures to which DWR is unwilling to commit. Therefore, the information does not constitute significant new information requiring recirculation under CEQA Guidelines Section 15088.5.
Refinements to location and acreage of temporary uses within the overall footprint at the Southern Complex where the Southern Complex is discussed in Final EIR, Volume 1, Chapter 3, *Description of the Proposed Project and Alternatives*, for alternatives (except Alternative 5).	Chapter 3, *Description of the Proposed Project and Alternatives,* was updated to more accurately reflect the types of activities that would occur within the construction area. As an example, the area required for reusable tunnel material (RTM) storage decreased between the Draft and Final EIR based on new estimates provided by the project engineers. However, these changes would not affect the land area required to construct and operate the project or the resulting environmental impacts that may result from land conversion. In addition, small refinements to the project's footprint would result in minor differences in total acreages reported in the Draft and Final EIR. These small refinements would not affect the magnitude or significance of environmental impacts reported in the Draft EIR. The added information does not result in a new or more severe impact requiring additional analysis, change impact conclusions presented in the Draft EIR, or require additional mitigation measures to which DWR is unwilling to commit. Therefore, the information does not constitute significant new information requiring recirculation under CEQA Guidelines Section 15088.5.
Reconfiguring of Bethany Reservoir Pumping Plant and Surge Basin facilities primarily within the Bethany Complex footprint for Alternative 5 to allow approximately 35 acres to remain undisturbed within the footprint of these facilities, as described in Final EIR, Volume 1, Chapter 3, *Description of the Proposed Project and Alternatives*, Section 3.14.1, *Bethany Complex*, and Final EIR, Volume 2, Common Response 3, *Alternatives Development and Description*.	As identified in Chapter 3, *Description of the Proposed Project and Alternatives,* and further described in Common Response 3, *Alternatives Development and Description*, the reconfiguration of the Bethany Complex in the Final EIR would not create new surface impacts relative to the Draft EIR, require additional mitigation measures, or result in a change to any of the evaluations or impact conclusions contained in the Draft EIR related to any resource analyzed in the EIR. Furthermore, the operation of the facilities under the reconfigured Bethany Complex in the Final EIR would be the same as described in the Draft EIR and there would be no changes to any operation-related impacts. Specifically, the two driveways located outside the original footprint evaluated in the Draft EIR of the Bethany Complex would not result in impacts greater or of a different type than disclosed in the Draft EIR, given the minimal area disturbed by the two driveways, and the change in disturbance type at the Bethany Complex, from temporary surface impacts in the Draft EIR to permanent surface impacts in the Final EIR, would not change the severity or magnitude of the impacts already disclosed in the resource chapters of the EIR (i.e., Chapters 7 through 32). Therefore, the reconfiguration does not constitute significant new information requiring recirculation under CEQA Guidelines Section 15088.5.

Modification	Modification Consideration
Inclusion of broader discussion and clarifications of access road and rehabilitation in Final EIR, Volume 1, Chapter 3, *Description of the Proposed Project and Alternatives*, Section 3.4.7, *Access Roads*.	The inclusion of the access road information further clarifies the location and timing of road rehabilitation. These clarifications complement the descriptions of road rehabilitation previously included in Draft EIR Chapter 3, *Description of the Proposed Project and Alternatives*, and evaluated throughout the EIR and do not materially change the description of the road rehabilitation or the analyses. The added information does not represent new or more severe impacts requiring additional analysis, change impact conclusions presented in the Draft EIR, or require additional mitigation measures to which DWR is unwilling to commit. Therefore, the information does not constitute significant new information requiring recirculation under CEQA Guidelines Section 15088.5.
Inclusion of left-turn merge lane along 1 mile of Twin Cities Road 44 feet wide with three 12-foot-wide paved lanes in Final EIR, Volume 1, Appendix 3D, *Intakes, Roads, and Shafts Summary Tables*	The addition of the left-turn merge lane would not cause additional or more severe traffic impacts because it would improve, rather than worsen, traffic flow on Twin Cities Road. It would allow through traffic to pass without waiting for vehicles turning left to clear and not affect vehicle miles traveled (VMT) or conflict with a program, plan, ordinance, or policy addressing the circulation system because it is a roadway improvement that would not increase VMT beyond that already analyzed in the Draft EIR for construction and operation. Pursuant to required Mitigation Measure TRANS-1, first responders would pass through the area during construction, and, after construction, first responders would be able to use the left-turn merge lane. Other environmental resources would not be affected by the construction of the left-turn merge lane beyond the type and severity of impacts evaluated and disclosed in the Draft EIR because the left-turn merge lane would primarily be located within the boundaries of the Twin Cities Road road-widening improvements proposed under the project alternatives along existing road section(s). A highly limited and minimal additional area of disturbance (i.e., 1.5 acres) in a disturbed area located primarily within the existing road right-of-way would occur. Any known or unknown environmental resources that could occur in this strip of disturbed land have been considered in Chapters 7 through 32 of the EIR because this area is within the study area included for environmental resources. Mitigation measures identified in the EIR related to permanent disturbances would be implemented and the permanent disturbance of this additional limited area of 1.5 acres would not substantially increase the severity of impacts analyzed in the Draft EIR. Therefore, this highly limited and minimal additional area of disturbance would not constitute a substantial increase in severity of impacts disclosed in the Draft EIR. The construction of the left-turn merge lane would take place concurrently with other construction activities associated with the project alternatives at Twin Cities Road and would not result in an increase in air quality emissions beyond what was already analyzed

Modification	Modification Consideration
	in the Draft EIR because the same type and duration of equipment use would occur. The added information regarding the left-turn merge lane does not result in a new or more severe impact requiring additional analysis, change impact conclusions presented in the Draft EIR, or require additional mitigation measures to which DWR is unwilling to commit. Therefore, the addition of the left-turn merge lane does not constitute significant new information requiring recirculation under CEQA Guidelines Section 15088.5.
Some refinements were made to the project description in Final EIR, Volume 1, Chapter 3, *Description of the Proposed Project and Alternatives*, to clarify operations in Section 3.16.3, *Integration of North Delta Intakes with South Delta Facilities*.	The operations description was revised to further clarify that DWR would divert excess flows in winter and spring and is not proposing to change upstream reservoir operations. Final EIR, Volume 2, Common Response 1, *CEQA Process, General Approach to Analysis, and Other Environmental Review Issues*, describes the scope of the analysis contained in the Final EIR, including areas upstream of the north Delta intakes. Final EIR, Volume 2, Common Response 3, *Alternatives Development and Description*, also explicitly responds to the concerns about upstream operations. Final EIR, Volume 2, Common Response 3 also responds to comments requesting analysis under Temporary Urgency Change Orders. The operation of the project gives the state the opportunity to capture high flows during periods of excess flows, up to what is permitted under the existing DWR water rights. Diversions at the proposed north Delta intakes would mostly occur in the winter and spring, when the conditions described above are most likely to occur. Because the project would operate this way (i.e., capture high flows on top of what can be diverted in the south Delta), DWR does not anticipate use of the proposed north Delta diversion during dry conditions where the south Delta would not be operating at capacity, such as times when a Temporary Urgency Change Order is in place. These clarifications in Final EIR, Volume 1, Chapter 3, *Description of the Proposed Project and Alternatives*, and further described in Final EIR, Volume 2, Common Response 3 complement the descriptions of operations previously included in Draft EIR Chapter 3; operations modeled using CalSim 3; and operations evaluated throughout the EIR. The added information regarding operations does not result in a new or more severe impact requiring additional analysis, change impact conclusions presented in the Draft EIR, or require additional mitigation measures to which DWR is unwilling to commit. Therefore, the information does not constitute significant new information requiring recirculation under CEQA Guidelines Section 15088.5.
Inclusion of figures based on DSM2 modeling results in Final EIR, Volume 1, Chapter 5, *Surface Water*, regarding reverse flows in the Sacramento River near Freeport.	The inclusion of these graphs is to graphically depict DSM2 model results provided in Final EIR, Volume 1, Appendix 5A, Modeling Technical Appendix, Section C, *One Dimensional Delta Hydrodynamics and Water Quality Modeling Results*, Attachment 1, *DSM2 Model Results for Existing Conditions and Alternatives at 2020*. This supports the information that was previously included in the Draft EIR regarding reverse flows in the Sacramento River

Modification	Modification Consideration
	near Freeport and complements the modeled data included in Draft EIR and Final EIR. Therefore, the new figures merely clarify/amplify the discussion in the Draft EIR and does not constitute significant new information requiring recirculation under CEQA Guidelines Section 15088.5.
Refinements to Final EIR, Volume 1, Chapter 8, *Groundwater*, Impact GW-4 regarding the discussion of operation groundwater modeling results related to groundwater storage to clarify the meaning of the modeling results; inclusion of electrical conductivity in Mitigation Measure GW-1.	Refinements were made to Mitigation Measure GW-1, which now includes a provision to also monitor for changes in electrical conductivity (EC) at the same wells that would be used to monitor for changes in groundwater elevations. The EC monitoring would occur over the same period as for monitoring groundwater elevations. The addition of EC monitoring to Mitigation Measure GW-1 was not made because of a new groundwater significance finding between the Draft and Final EIR, as explained in Final EIR, Volume 2, Common Response 10, *Surface Water Quality and Groundwater Resources*, but rather to support the less-than-significant impact determination regarding groundwater quality. Changes to mitigation measures that do not increase the severity of the environmental impacts disclosed in the draft EIR do not constitute significant new information requiring recirculation under CEQA Guidelines Section 15088.5. (*Yerba Buena Neighborhood Consortium, LLC v. Regents of Univ. of California* (2023) 95 Cal. App. 5th 779, 808.)
Clarifications to Impact GW-1, Impact GW-2, and Impact GW-3 in Final EIR, Volume 1, Chapter 8, *Groundwater*, regarding use of Mitigation Measure GW-1.	The wording of Impacts GW-1, GW-2, and GW-3 in EIR Chapter 8, *Groundwater*, was revised to make it clearer that the impacts on groundwater resources described in the Draft EIR are less than significant before the implementation of the monitoring and response measures described in Mitigation Measure GW-1. Therefore, the new information merely clarifies/amplifies the discussion in the Draft EIR and does not constitute significant new information requiring recirculation under CEQA Guidelines Section 15088.5.
Clarification of methodology in Final EIR, Volume 1, Chapter 9, *Water Quality.*	Clarifying information was included in Section 9.3.1, *Methods for Analysis*, of Chapter 9, *Water Quality*, to clarify the source, organization, aggregation of water quality data used in the impact analyses. The methodology for determining impacts was not modified and impact analyses and determinations were not modified as a result of the clarification. As described in Final EIR, Volume 2, Common Response 10, *Surface Water Quality and Groundwater Resources*, the historical, reconstructed water year types on the California Data Exchange Center website were used to aggregate the modeling results because these are publicly available and widely referenced in research and analysis related to the Delta. The presentation of average constituent levels by water year type is informational and the impact conclusions are based on all modeled changes, particularly those represented in the exceedance plots containing modeling output for the entire 93-year simulation period, as well as modeled changes in frequency of exceedance of water quality objectives. Therefore,

Modification	Modification Consideration
	the new information merely clarifies/amplifies the discussion in the Draft EIR and does not constitute significant new information requiring recirculation under CEQA Guidelines Section 15088.5.
Inclusion of Mitigation Measure WQ-4 in Final EIR, Volume 1, Chapter 9, *Water Quality*, and Appendix 9M, *Contra Costa Water District Interconnection Facility Mitigation Measure*, regarding the Contra Costa Water District Interconnection Facility, to further reduce the less-than-significant impacts on chloride discussed in Impact WQ-4.	Mitigation Measure WQ-4: *Contra Costa Water District Interconnection Facility* has been included in the Final EIR to further reduce less-than-significant impacts on chloride previously disclosed under Impact WQ-4: *Effects on Chloride Resulting from Facility Operations and Maintenance* in Chapter 9, *Water Quality*. Changes to, or addition of, mitigation measures that do not increase the severity of the environmental impacts disclosed in the Draft EIR do not constitute significant new information requiring recirculation under CEQA Guidelines Section 15088.5. (*Yerba Buena Neighborhood Consortium, LLC v. Regents of Univ. of California* (2023) 95 Cal. App. 5th 779, 808.) Appendix 9M, *Contract Costa Water District Interconnection Facility Mitigation Measure*, was included in the Final EIR to provide an evaluation of the environmental impacts of constructing and operating the interconnection facility. All environmental resources are analyzed in Appendix 9M. Impacts on most resources are determined to be less than significant or less than significant with mitigation incorporated. However, project impacts identified as significant and unavoidable in the Draft EIR (e.g., agricultural resources, traffic, cultural resources, Tribal Cultural Resources) would remain significant and unavoidable with implementation of Mitigation Measure WQ-4 as disclosed in Appendix 9M. Although significant and unavoidable impacts would occur, there would not be a substantial increase in the severity of significance given the location of Mitigation Measure WQ-4, the limited duration of construction, and the relatively small area of disturbance during construction. The evaluation of the new mitigation measure concluded that implementing the measure would not result in any new significant impacts or substantially increase the severity of impacts not already disclosed in the Draft EIR, nor would it require additional mitigation measures that DWR is unwilling to implement. Therefore, the new mitigation measure does not constitute significant new information requiring recirculation under CEQA Guidelines Section 15088.5.
Additional clarifications regarding construction methods and geotechnical investigations in Final EIR, Volume 1, Chapter 10, *Geology and Seismicity*, Section 10.3.1.1, *Process and Methods of Review for Geology and Seismicity*, to provide details on Delta Conveyance Design and Construction Authority	Information was added to Final EIR, Volume 1, Chapter 10, *Geology and Seismicity*, Section 10.3.1.1, *Process and Methods of Review for Geology and Seismicity,* to clarify the types of information used in the analysis, how that information was used, and how new and future data would be used in the design process. As described in the section, available geological and geotechnical information was reviewed and considered in the EPR screening analyses to understand subsurface geology and groundwater conditions related to preliminary

Modification	Modification Consideration
(DCA) activities and design criteria.	design criteria and the need for specific construction methods. Additional information gained during geotechnical investigations that occurred during preparation of the DCA Engineering Project Reports (EPRs) and EIR further validated the geotechnical assumptions and construction methods that were used for the conceptual designs of each facility in the EPRs. Additional geological and geotechnical investigations would be conducted during the design phase to further develop design criteria and provide geotechnical design parameters for proposed facilities. These clarifications regarding how DCA will conduct geotechnical investigations and use information gained to inform activities and design criteria as well as construction methods complement the descriptions of the construction methods provided in Final EIR, Volume 1, Chapter 3, *Description of the Proposed Project and Alternatives*, and evaluated throughout the EIR and do not materially change the description of the construction methods or the analyses based on the construction methods. Furthermore, this information is not used in the impact analysis in Final EIR, Volume 1, Chapter 10 or elsewhere. Therefore, the new information merely clarifies/amplifies the discussion in the Draft EIR and does not constitute significant new information requiring recirculation under CEQA Guidelines Section 15088.5.
Inclusion of juvenile Chinook salmon screen passage time analysis at 19°C in Final EIR, Volume 1, Chapter 12, *Fish and Aquatic Resources*, Impact AQUA-2, which further supports the impact determination of less than significant with mitigation incorporated.	The inclusion of this new information in the discussion of Impact AQUA-2 augments the original analysis in the Draft EIR, which was focused on screen passage at 12°C. The new information complements the analysis previously performed on screen passage and further supports the previous impact determination of less than significant with mitigation incorporated. CMP-25: *Tidal Habitat Restoration to Mitigate North Delta Hydrodynamic Effects on Chinook Salmon Juveniles* and CMP-26: *Channel Margin Habitat Restoration for Operations Impacts on Chinook Salmon Juveniles*, as described in Attachment 3F.1, *Compensatory Mitigation Design Parameters,* are still required and no changes to the mitigation were made because of this new information. The new information merely confirms previous conclusions, and thus does not constitute significant new information requiring recirculation under CEQA Guidelines Section 15088.5. (See *San Francisco Baykeeper v. California State Lands Commission* (2015) 242 Cal.App.4th 202, 224-225 [new modeling confirming earlier conclusion about effects of mining on Bay environment did not trigger recirculation]; *Beverly Hills Unified School Dist. v. Los Angeles County Metropolitan Transportation Commission* (2015) 241 Cal.App.4th 627, 660-666 [Final EIR containing substantial amounts of new information, including numerous new seismic studies did not trigger recirculation].)

Modification	Modification Consideration
Clarifications and additions of factors explaining patterns in north Delta exports and south Delta exports; clarification of footnotes in summary tables of results; and clarification of 5% significance threshold value used for impact analyses in Final EIR, Volume 1, Chapter 12, Fish and Aquatic Resources.	These clarifications further explain or add to the information regarding patterns in north Delta exports, tables of results, or the use of 5% significance threshold value. They complement the information that was previously provided in the Draft EIR and do not modify the methodology(ies) used for determining impacts or modify impact determinations. Therefore, the new information merely clarifies/amplifies the discussion in the Draft EIR and does not constitute significant new information requiring recirculation under CEQA Guidelines Section 15088.5.
Inclusion of Impact AQUA-20 in Final EIR, Volume 1, Chapter 12, *Fish and Aquatic Resources*, regarding California sea lions, which discloses a less-than-significant impact.	The purpose of the analysis contained in the EIR is to disclose and evaluate potentially significant impacts. DWR did not address California sea lions in the Draft EIR because the study area is not within the traditional breeding or nonbreeding range of the population and therefore DWR had not previously identified potential effects on California sea lions as a potentially significant impact. DWR included an analysis of potential impacts on California sea lions in Chapter 12, *Fish and Aquatic Resources,* of the Final EIR, Volume 1, because of public comment. As disclosed in Chapter 12 of the Final EIR, Volume 1, the project would not result in a population-level effect on the species because the project would not permanently impede potential movement or foraging by individuals through the study area, and the study area is not within the traditional breeding or nonbreeding range for the population. Because few, if any, individuals would be affected during construction or operation of the project, the impact under CEQA is less than significant. Recirculation is required where the Final EIR discloses a new significant environmental impact of a project that was not analyzed in the Draft EIR. New information included in a Final EIR explaining why an impact alleged by a commenter is less than significant does not constitute significant new information requiring recirculation under CEQA Guidelines Section 15088.5.
Refinements to Final EIR, Volume 1, Chapter 13, *Terrestrial Biological Resources*, including: adding specificity to Mitigation Measure BIO-53 to address design specifications, monitoring, and adaptive management; clarifying that if California Department of Fish and Wildlife (CDFW) develops guidance for sandhill crane surveys and work windows DWR will use the guidance; clarifying tricolored blackbird analysis in Impact BIO-44.	As described below, the added information for habitat connectivity, sandhill cranes, and tricolored blackbird, does not represent new or more severe impacts requiring additional analysis, change impact conclusions presented in the Draft EIR, or require additional mitigation measures to which DWR is unwilling to commit. Therefore, the information does not constitute significant new information requiring recirculation under CEQA Guidelines Section 15088.5. Mitigation Measure BIO-53 was revised to further clarify the wildlife crossing and connectivity specialist credentials, how the specialist will contribute to the project design phase to ensure adequate wildlife crossing and connectivity element design and outcomes, more detailed wildlife connectivity enhancement measures, and operational monitoring

Modification	Modification Consideration
	and adaptive management for connectivity and crossings. These modifications provide additional detail to Mitigation Measure BIO-53 but, as described in Final EIR, Volume 2, Common Response 11, *Terrestrial Biological Resources and Compensatory Mitigation Plan*, do not result in a change to an impact determination. The change to the mitigation measure does not trigger recirculation because it does not introduce new mitigation to which DWR is unwilling to commit. Changes to, or addition of, mitigation measures that do not increase the severity of the environmental impacts disclosed in the draft EIR do not constitute significant new information requiring recirculation under CEQA Guidelines Section 15088.5. (*Yerba Buena Neighborhood Consortium, LLC v. Regents of Univ. of California* (2023) 95 Cal. App. 5th 779, 808.) Clarification was added to Impact BIO-33 regarding the potential for sandhill cranes to arrive earlier than September 15 and stay later than March 15 because the construction of the project will occur for many years. DWR added text explaining that if CDFW develops guidance regarding sandhill crane surveys and work windows, DWR will adjust survey dates and dates included in mitigation measures to minimize potential impacts on sandhill cranes. Changes to, or addition of, mitigation measures that do not increase the severity of the environmental impacts disclosed in the draft EIR do not constitute significant new information requiring recirculation under CEQA Guidelines Section 15088.5. (*Yerba Buena Neighborhood Consortium, LLC v. Regents of Univ. of California* (2023) 95 Cal. App. 5th 779, 808.). Impact BIO-44, Appendix 3F, *Compensatory Mitigation Plan for Special-Status Species and Aquatic Resources*, and Attachment 3F.1, *Compensatory Mitigation Design Parameters*, have been modified to recognize breeding foraging habitat loss as a potential impact on tricolored blackbird and propose mitigation to compensate for this impact. Because many non-breeding foraging and roosting habitat types also serve as breeding foraging types, this change will also protect those habitat types. The revision to Attachment 3F.1 does not result in a change in impact determination for tricolored blackbird identified in Final EIR, Volume 1, Chapter 13, *Terrestrial Biological Resources*, but adds additional mitigation to further reduce potential adverse effects on tricolored blackbird that were previously disclosed in the Draft EIR. Mitigation Measure BIO-44 has been revised to include surveys during the nonbreeding season (August 1–March 14) 1 year prior to the start of construction and then the year of construction to establish use of roosting habitat. Mitigation Measure BIO-44 includes the commitment that three surveys will be conducted within 15 days prior to nighttime construction, with one of the surveys within 5 days prior

Modification	Modification Consideration
	to the start of nighttime construction and the establishment of a 300-foot nondisturbance buffer around occupied roost sites. This revision does not result in a change in impact determination for tricolored blackbird identified in Final EIR, Volume 1, Chapter 13. Although Impact BIO-44 was updated, the additional information merely confirms previous conclusions, and thus does not constitute significant new information requiring recirculation under CEQA Guidelines Section 15088.5. (See *San Francisco Baykeeper v. California State Lands Commission* (2015) 242 Cal.App.4th 202, 224-225 [new modeling confirming earlier conclusion about effects of mining on Bay environment did not trigger recirculation]; *Beverly Hills Unified School Dist. v. Los Angeles County Metropolitan Transportation Commission* (2015) 241 Cal.App.4th 627, 660-666 [Final EIR containing substantial amounts of new information, including numerous new seismic studies did not trigger recirculation].) Furthermore, changes to, or addition of, mitigation measures that do not increase the severity of the environmental impacts disclosed in the draft EIR do not constitute significant new information requiring recirculation under CEQA Guidelines Section 15088.5. (*Yerba Buena Neighborhood Consortium, LLC v. Regents of Univ. of California* (2023) 95 Cal. App. 5th 779, 808.)
Inclusion of monarch butterfly in Final EIR, Volume 1, Chapter 13, *Terrestrial Biological Resources*, because it is a U.S. Fish and Wildlife candidate species being considered for listing, which discloses a less-than-significant impact, and removal of western bumble bee from Chapter 13 and associated appendices because a recent California Department of Fish and Wildlife publication shows the species' known range is outside of the study area.	The purpose of the analysis contained in the EIR is to disclose and evaluate potentially significant impacts. DWR had not previously identified potential effects on monarch butterflies as a potentially significant impact because overwintering habitat, which is limited for the species, would not be affected by the project and there are no known overwintering populations within 10 miles of the study area. The Final EIR includes Impact BIO-57, which evaluates the monarch butterfly because it is a U.S. Fish and Wildlife candidate species being considered for listing and may be listed in the near future. The analysis determines impacts on monarch butterfly to be less than significant. Recirculation is required where the Final EIR discloses a new significant environmental impact of a project that was not analyzed in the draft EIR. New information included in a Final EIR explaining why an impact is less than significant does not constitute significant new information requiring recirculation under CEQA Guidelines Section 15088.5. The Final EIR removed western bumble bee from Impact BIO-21 because recent California Department of Fish and Wildlife publication shows the species' known range is outside of the study area. Similarly, CMP-29 was refined to restrict compensatory mitigation to mitigate for habitat for Crotch bumble bee. This revision does not trigger the need for recirculation because it does not introduce a new significant impact, cause a substantial increase in the severity of an environmental impact, or require additional mitigation measures to which DWR is unwilling to commit. Therefore, the information does not

Modification	Modification Consideration
	constitute significant new information requiring recirculation under CEQA Guidelines Section 15088.5.
Clarifications in Final EIR, Volume 1, Chapter 16, *Recreation*, regarding location of I-5 ponds in existing conditions and clarifying details regarding I-5 ponds in Impact REC-1 and Impact REC-2.	Information was previously included regarding the I-5 ponds in Chapter 16, *Recreation*. Clarifying and additional text regarding these areas as they relate to recreation and implementation of the Compensatory Management Plan was included in Final EIR, Volume 1, Chapter 16 in the impact analysis. This revision does not trigger the need for recirculation because it does not introduce a new significant impact, cause a substantial increase in the severity of an environmental impact, or require additional mitigation measures to which DWR is unwilling to commit. Therefore, the information does not constitute significant new information requiring recirculation under CEQA Guidelines Section 15088.5.
Clarifications in Final EIR, Volume 1, Chapter 14, *Land Use*, regarding locations of existing easements.	Clarification was added to Final EIR, Volume 1, Chapter 14, *Land Use*, explaining that although the land use study area overlaps with conservation easements, this overlap is not an impact on land use and therefore is not addressed in the land use chapter. The impacts on the natural communities and species habitats within the study area, including within conservation easements, are quantified and analyzed in Final EIR, Volume 1, Chapter 13, *Terrestrial Biological Resources*. Therefore, the new information merely clarifies/amplifies the discussion in the Draft EIR and does not constitute significant new information requiring recirculation under CEQA Guidelines Section 15088.5.
Refinements to air quality and greenhouse gas (GHG) modeling based on engineering clarifications (e.g., off-road equipment type and horsepower, duration of marine vessel use); to use newer versions of analysis models (e.g., CalEEMod version 2022.1.1.3, eGRID2021); and to more accurately capture project description components (e.g., barges), including clarifications regarding modeling results and analysis in Final EIR, Volume 1, Chapter 23, *Air Quality and Greenhouse Gases*, and accompanying appendices.	Refinements to air quality modeling and the resulting updates are provided in Final EIR, Volume 1, Chapter 23, *Air Quality and Greenhouse Gases*, and accompanying appendices. Where appropriate, specific modeling assumptions were updated to account for the most recent engineering data and ensure alignment of the air quality analysis with the project description contained in Final EIR, Volume 1, Chapter 3, *Description of the Proposed Project and Alternatives*. Analysis modeling was also updated to use newer versions of California Emissions Estimator Model (CalEEMod) and eGRID. While both of these models were updated after the close of the public comment period for the Draft EIR, DWR elected to revise the analysis in the Final EIR to confirm that use of the newer model versions would not change any of the impact conclusions reached in the Draft EIR. Additional targeted refinements were also made to the analysis in response to specific public comments, including corrected association of equipment emission factors by horsepower, accounting of transmission and distribution losses during construction, and expansion of DWR's commitment of engine electrification. The level of transparency and documentation provided by the Draft EIR and the Final EIR is equivalent to, and in some cases exceeds, what is often provided for CEQA documents where models such as

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	CalEEMod are exclusively used to quantify emissions. As demonstrated throughout Chapter 23 and the supporting appendices of the Final EIR, and further detailed in Final EIR, Volume 2, Common Response 15, *Air Quality and Greenhouse Gases*, the refinements to air quality and greenhouse gas (GHG) modeling confirm previous conclusions and impact determinations presented in the Draft EIR, and thus does not constitute significant new information requiring recirculation under CEQA Guidelines Section 15088.5. (See *San Francisco Baykeeper v. California State Lands Commission* (2015) 242 Cal.App.4th 202, 224-225 [new modeling confirming earlier conclusion about effects of mining on Bay environment did not trigger recirculation]; *Beverly Hills Unified School Dist. v. Los Angeles County Metropolitan Transportation Commission* (2015) 241 Cal.App.4th 627, 660-666 [Final EIR containing substantial amounts of new information, including numerous new seismic studies did not trigger recirculation].)
Inclusion of clarifying information regarding pumping energy usage in Final EIR, Volume 1, Chapter 22, *Energy*.	Revisions have been made to some of the energy use data reported in Final EIR, Volume 1, Chapter 22, *Energy*, including energy required to construct and operate the Delta Conveyance Project. The revisions reflect the most recent estimates of equipment needed to construct the Delta Conveyance Project and resulting energy consumption and updates to the energy needed to operate the project. The revised information would not result in a change to the CEQA impact conclusions reported in Chapter 22. Therefore, the new information merely clarifies/amplifies the discussion in the Draft EIR and does not constitute significant new information requiring recirculation under CEQA Guidelines Section 15088.5.
Clarifications in mitigation measures and environmental commitments/best management practices throughout the EIR, including Final EIR, Volume 1, Appendix 3B, *Environmental Commitments and Best Management Practices*, to provide more clarity regarding the activities, location, timing, roles, or responsibilities, based on technical review.	As described in Final EIR, Volume 2, Common Response 1, *CEQA Process, General Approach to Analysis, and Other Environmental Review Issues*, DWR has refined some mitigation measures to clarify the mechanisms for and timing of implementation of environmental protections, including refinements in Appendix 3F, *Compensatory Mitigation plan for Special-Status Species and Aquatic Resources*. These refinements to mitigation measures would not cause any new significant environmental impact or substantially increase the severity of a previously disclosed environmental impact. All refinements to mitigation have been included to further enhance or improve environmental protections. Refinements made to environmental commitments were for permit consistency or to address public comments. These refinements included adding refueling specification (Environmental Commitments EC-2 and EC-3); requiring that the tops and bottoms of spoils disposal areas be rounded and slope faces contoured (Environmental Commitment EC-4a); further specifying erosion control materials (Environmental Commitment EC-4a); reinforcing state priorities for zero-emission equipment, providing further detail on diesel equipment, and limiting the age of marine vessels used for intake construction (Environmental

Modification	Modification Consideration
	Commitments EC-7, EC-8, and EC-10); removing reference to studying on-site concrete batching since this analysis was already performed and the project has been designed to maximize use of on-site batch plants (Environmental Commitment EC-13); and adding further specificity to construction BMPs for biological resources (Environmental Commitment EC-14). As with mitigation measures, all refinements have been included to further enhance or improve environmental protections and would not cause new significant environmental impacts or substantially increase the severity of a previously disclosed environmental impact. Changes to, or addition of, mitigation measures that do not increase the severity of the environmental impacts disclosed in the draft EIR do not constitute significant new information requiring recirculation under CEQA Guidelines Section 15088.5. (*Yerba Buena Neighborhood Consortium, LLC v. Regents of Univ. of California* (2023) 95 Cal. App. 5th 779, 808.)
Compensatory mitigation refinements in Final EIR, Volume 1, Appendix 3F, *Compensatory Mitigation Plan for Special-Status Species and Aquatic Resources*, and throughout the EIR as appropriate; Refinements to design commitments and guidelines for special-status plants California tiger salamander, tricolored blackbird, Swainson's hawk, and the addition of design commitments for Crotch bumble bee. Additional refinements to the CMP include the inclusion of mitigation measure ratios, the 10% stay-ahead commitment to mitigation; clarifications that mitigation sites will be designed, managed, and maintained to provide habitat requirements for a diversity of targeted wildlife species; removal of tidal habitat restoration on Bouldin Island; and clarification regarding potential locations of grassland mitigation, in addition to the initial mitigation sites and other site protection instruments.	Final EIR, Volume 2, Common Response 11, *Terrestrial Biological Resources and Compensatory Mitigation Plan*, describes the revisions that have been made to the CMP and associated resource-related modifications. As discussed in Final EIR, Volume 2, Common Response 11, in the section titled *Revisions to the Compensatory Mitigation Plan*, these revisions do not result in a change to any impact conclusions or require additional mitigation measures to which DWR is unwilling to commit. For terrestrial biological resources, no changes to an CEQA impact determination or mitigation measure are necessary because the CMP revisions either add specificity to an existing measure, provide additional mitigation for a species beyond what is required to reach a determination of a less-than-significant impact, or are located within areas that have already been identified as compensatory mitigation locations, as described in the *Biological Resources* section of Final EIR, Volume 2, Common Response 11. For other resources, CMP revisions cause minimal change to a resource, do not affect a resource, or lessen the impact on a resource, as described in the *Other Resources* section of Final EIR, Volume 2, Common Response 11. The following changes to the CMP do not trigger recirculation because changes to, or addition of, mitigation measures that do not increase the severity of the environmental impacts disclosed in the draft EIR do not constitute significant new information requiring recirculation under CEQA Guidelines Section 15088.5. (*Yerba Buena Neighborhood Consortium, LLC v. Regents of Univ. of California* (2023) 95 Cal. App. 5th 779, 808.) **Refinements to Design Commitments and Guidelines** Final EIR, Volume 2, Common Response 11 describes the following refinements that were

Modification	Modification Consideration
	made to the design commitments and guidelines in the CMP, Attachment 3F.1, and why they would not result in a change to any impact conclusions or require additional mitigation measures: CMP-0: *General Design Guidelines* was updated to provide more detail about DWR's commitment to compensate for habitat impacts that could occur as a result of the CMP; Additional detail was added to CMP-9 to better define suitable habitat and to clarify conditions of propagation of seed as mitigation for special-status plants; for California tiger salamander, CMP-13 was modified to require that mitigation habitat will be located adjacent or connected to occupied upland or aquatic habitat; for tricolored blackbird, CMP-22a was revised to define high and very high-quality breeding season foraging habitat and CMP-22b was modified to add compensation for impacts on breeding season foraging habitat at a ratio of 1:1, which would consist of the creation or enhancement of grassland, vernal pool complex, alkaline seasonal wetland, or suitable cultivated lands or the implementation of a site protection instrument; for Swainson's hawk, CMP-19 was modified to revise the land cover and crop types included in the very high, high, and moderate categories of foraging habitat value types. Furthermore, CMP-29 was added; it describes compensation design guidelines specific to Crotch bumble bee to further clarify how grassland mitigation will support Crotch bumble bee to compensate for potential impacts on the species and its habitat. **Additional Revisions to the CMP** As described in Final EIR, Volume 2, Common Response 11, the CMP was also updated to include the following revisions: The addition of mitigation ratios developed in consultation with CDFW and USFWS through the project permitting process; additional language to describe in more detail the sequence and timing of mitigation implementation including the 10% stay-ahead commitment for mitigation; further detail to clarify the commitment by DWR that compensation lands will be managed to provide habitat for multiple species and to clarify the conversions of existing land cover to created, enhanced, or unchanged habitat in comparison with existing land cover; the removal of tidal habitat restoration on Bouldin Island; and the potential for additional grassland mitigation to occur in construction areas identified as permanent (affected for greater than 1 year) impacts.

Modification	Modification Consideration
Clarifications regarding water transfers in Appendix 3H, *Non-Project Water Transfer Analysis for Delta Conveyance*, and additions to Final EIR, Volume 1, Chapter 9, *Water Quality*, and Chapter 12, Fish and Aquatic Resources, methods sections.	Appendix 3H, *Non-Project Water Transfer Analysis for Delta Conveyance*, was revised by adding clarifying text regarding how water transfers were considered in the EIR, which supports the statements in the EIR and responses to comments on the EIR. The additional text clarifies that the Delta Conveyance Project would not facilitate additional exports because the available capacity of the current SWP facilities to be used for transfers is not fully utilized. The explanation of carriage water in Appendix 3H was expanded to better clarify how carriage water requirements are determined as part of a water transfer. Both Final EIR, Volume 1, Chapter 9, *Water Quality*, and Final EIR, Volume 1, Chapter 12, *Fish and Aquatic Resources*, were updated to better explain how transfers through the Delta Conveyance Project facilities would not adversely affect water quality or aquatic resources or change the impact findings made for each resource topic. The added information does not result in a new or more severe impact requiring additional analysis, change impact conclusions presented in the Draft EIR, or require additional mitigation measures to which DWR is unwilling to commit. Therefore, the information does not constitute significant new information requiring recirculation under CEQA Guidelines Section 15088.5.

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ATTACHMENT B

Mitigation Monitoring and Reporting Program

[attached behind this page]

DELTA CONVEYANCE PROJECT

MITIGATION MONITORING AND REPORTING PROGRAM

December 2023

California Department of Water Resources. 2023. *Delta Conveyance Project Mitigation Monitoring and Reporting Program.* December. (ICF 103653.0.003.) Sacramento, CA. Prepared by ICF, Sacramento, CA.

This document meets the requirements of Assembly Bill 434, 2017. This requires State agencies to make all electronic documents and data accessible to people with disabilities in a manner comparable to those without disabilities. This includes the requirement that they should be able to be read with screen readers.

Contents

Acronyms, Initialisms, and Abbreviations

Term	Definition
°	degree
°F	degrees Fahrenheit
µg/m^3	micrograms per cubic meter
2017 Framework	USFWS's 2017 *Framework for Assessing Impacts on Valley Elderberry Longhorn Beetle (*Desmocerus californicus dimorphus*)*
ACR	American Carbon Registry
AI-A	area of impact for archaeological resources
AI-BE	area of impact for built-environment resources
ANAB	ANSI National Accreditation Board
ANSI	American National Standards Institute
APLIC	Avian Power Line Interaction Committee
ARMP	Archaeological Resources Management Plan
ATS	Active Treatment Systems
BAAQMD	Bay Area Air Quality Management District
BACT	best available control technology
Banks Pumping Plant	Harvey O. Banks Pumping Plant
BETP	built-environment treatment plan
BMP	best management practice
CAAQS	California ambient air quality standards
Cal. Code Regs., CCR	California Code of Regulations
Cal/OSHA	California Division of Occupational Safety and Health
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CDFW	California Department of Fish and Wildlife
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
cfs	cubic feet per second
CGP	Construction General Permit
CHRIS	California Historical Resources Information System
CMP	Compensatory Mitigation Plan
CNDDB	California Natural Diversity Database
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
CPT	cone penetration test
CRHR	California Register of Historical Resources

Term	Definition
CSMP	Construction Site Monitoring Program
CVP	Central Valley Project
dB	decibel
dBA	A-weighted decibel
Delta	Sacramento–San Joaquin Delta
Delta TCL	Sacramento–San Joaquin Delta Tribal Cultural Landscape
DPR	California Department of Parks and Recreation
DTSC	California Department of Toxic Substances Control
DWR	California Department of Water Resources
EC	electrical conductivity
EIR	Environmental Impact Report
EPA	U.S. Environmental Protection Agency
ERC	emission reduction credit
ERT	electrical resistivity tomography
ESA	federal Endangered Species Act
EV	electric vehicle
FMU	future mitigation unit
FR	*Federal Register*
GHG	greenhouse gas
GIS	geographic information system
GPS	global positioning system
HABS	Historic American Building Survey
HAER	Historic American Engineering Record
HALS	Historic American Landscape Survey
HDLEVIP	Heavy-Duty Low-Emission Vehicle Incentive Program
HMMP	hazardous materials management plan
HVAC	heating, ventilation, and air conditioning
I-	Interstate
Jones Pumping Plant	C. W. “Bill” Jones Pumping Plant
km	kilometer
L_{eq}	equivalent sound level
LID	low-impact development
LiDAR	light detection and ranging
LUP	linear underground/overhead construction project
MLD	most likely descendant
MM	Mitigation Measure
MMMP	Mercury Management and Monitoring Plan
MMRP	Mitigation Monitoring and Reporting Program
MOU	memorandum of understanding
MVCD	mosquito vector control district

Term	Definition
NAAQS	national ambient air quality standards
NAHC	Native American Heritage Commission
NAL	Numeric Action Level
NAVD88	North American Vertical Datum of 1988
NDD	north Delta diversion
NEL	numeric effluent limitation
NMFS	National Marine Fisheries Service
NO_2	nitrogen dioxide
NO_X	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
NTU	nephelometric turbidity unit
NWR	National Wildlife Refuge
NWS	National Weather Service
PCB	polychlorinated biphenyl
PG&E	Pacific Gas and Electric Company
PIP	Phased Identification Procedure
Plan	GHG Reduction Plan
PM	particulate matter
PM10	particulate matter 10 microns in diameter or less
PM2.5	particulate matter 2.5 microns in diameter or less
ppt	parts per thousand
PPV	peak particle velocity
PRMMP	Paleontological Resources Monitoring and Mitigation Plan
project, DCP	Delta Conveyance Project
PRS	paleontological resources specialist
QSD	Qualified SWPPP Developer
QSP	Qualified SWPPP Practitioner
Reclamation	U.S. Department of the Interior Bureau of Reclamation
REPP	Renewable Energy Procurement Plan
RPS	Renewables Portfolio Standard
RTM	reusable tunnel material
RWQCB	Regional Water Quality Control Board
SB	Senate Bill
SCADA	supervisory control and data acquisition
SECAT	Sacramento Emergency Clean Air Transportation
$SEL_{cumulative}$	cumulative sound exposure level
SF_6 Switchgear Regulation	Regulation for Reducing Sulfur Hexafluoride Emissions from Gas Insulated Switchgear
SFBAAB	San Francisco Bay Area Air Basin

Term	Definition
SFNA	Sacramento Federal Nonattainment Area
SIL	significant impact level
SJVAB	San Joaquin Valley Air Basin
SJVAPCD	San Joaquin Valley Air Pollution Control District
SLM	sound-level meter
SMAQMD	Sacramento Metropolitan Air Quality Management District
SMARTS	Stormwater Multiple Application and Report Tracking System
SMUD	Sacramento Municipal Utility District
SPCCP	spill prevention, containment, and countermeasure plan; spill prevention, control, and countermeasure plan
SPL	sound pressure level
SR	State Route
State Water Board	State Water Resources Control Board
study area	environmental setting and potential environmental impact area
SVAB	Sacramento Valley Air Basin
SVP	Society of Vertebrate Paleontology
SWP	State Water Project
SWPPP	stormwater pollution prevention plan
TCRMP	Tribal Cultural Resources Management Plan
TDM	transportation demand management
TEK	Tribal Ecological Knowledge
TMDL	total maximum daily load
TMP	traffic management plans
Tribes	California Native American Tribes
UC	University of California
USACE	U.S. Army Corps of Engineers
USC	United States Code
USCG	U.S. Coast Guard
USFWS, FWS	U.S. Fish and Wildlife Service
UST	underground storage tank
UV	ultraviolet
VERA	Voluntary Emissions Reduction Agreement
VMT	vehicle miles traveled
VOC	volatile organic compound
WCG	Wildlife Crossing Guild
WQCP	water quality control plan
ZEV	zero-emission vehicle

Chapter 1
Introduction

1.1 Purpose and Objectives

In December 2023, the California Department of Water Resources (DWR) as the state lead agency pursuant to the California Environmental Quality Act (CEQA), issued a Final Environmental Impact Report (EIR) for the Delta Conveyance Project. The Final EIR satisfies the requirement of CEQA and is the basis for DWR's decision regarding the approval of the Delta Conveyance Project (project). In their decision, the DWR selected Alternative 5, the Bethany Reservoir alignment alternative (proposed project). This Mitigation Monitoring and Reporting Program (MMRP) has been prepared for this alternative.

Table 1, *Delta Conveyance Project: Mitigation Monitoring and Reporting Program*, of the MMRP describes mitigation measures from the Final EIR that will mitigate potentially significant impacts of this alternative. These measures were developed by DWR in consultation with appropriate agencies, as well as with input from the public, to meet the requirements of CEQA. The mitigation measures in Table 1 are conditions of approval that DWR is required to comply with as it implements the alternative.

Alternative 5 incorporates environmental commitments and best management practices (BMPs) identified in the Final EIR (included in the MMRP as Table 2, *Delta Conveyance Project: Environmental Commitments*). A complete list of the environmental commitments and the associated resources areas is available in Table 3B-1, *Summary of Environmental Commitments*, in Appendix 3B, *Environmental Commitments and Best Management Practices*, in Volume 1 of the Final EIR. In addition, the regulatory requirements, including permitting and coordination with regulatory agencies, for many project-related activities provide additional assurance that potential adverse environmental impacts will not occur. The following agencies are included as part of the CEQA process or various permitting, consultation, right-of-way, utility relocations, or roadway improvements processes.

- California Department of Boating and Waterways
- California Department of Fish and Wildlife
- California Department of Parks and Recreation
- California Department of Transportation
- Central Valley Flood Protection Board
- Central Valley Regional Water Quality Control Board
- Delta Conveyance Design and Construction Authority
- Participating State Water Project Contractors
- Port of Stockton
- Regional Air Pollution Control Districts, California Air Resources Board
- Sacramento, San Joaquin, Contra Costa, Yolo, Alameda Counties

- State Lands Commission
- State Water Resources Control Board
- Various Levee Maintenance and Reclamation Districts

Like the mitigation measures listed in Table 1, the project environmental commitments/BMPs and compliance with regulatory requirements are a condition of approval; DWR is responsible for ensuring they are implemented during design, construction, and operation. The environmental commitments/BMPs that are part of Alternative 5 are listed in Table 2 and described in Appendix 3B in Volume 1 of the Final EIR. Table 3, *Delta Conveyance Project: Compensatory Mitigation Plan*, includes the Compensatory Mitigation Plan (CMP), which would compensate for the loss of natural communities, habitats for terrestrial and aquatic species, and aquatic resources, as described in Appendix 3F, *Compensatory Mitigation Plan for Special-Status Species and Aquatic Resources*, in Volume 1 of the Final EIR. The CMP measures are mitigation for impacts identified in the Final EIR and not part of the project description. The CMP measures are conditions of approval of the alternative and DWR's commitment to implementing the CMP is legally enforceable.

If there are changes to the proposed project, DWR would determine whether the changes require subsequent CEQA compliance (Public Resources Code § 21166; CEQA Guidelines §§ 15162–15164). Compliance with the MMRP will be documented contemporaneously throughout the life of the project, and a report (or reports) will be completed demonstrating how the measures of the MMRP were implemented.

Chapter 2
Mitigation Monitoring and Reporting Program

The environmental effects of the project will result in impacts considered potentially significant under CEQA. Where required, mitigation measures that will reduce or eliminate potentially significant environmental impacts are described in Chapters 7 through 32 of Volume 1 of the Final EIR. The specific provisions contained in this MMRP are presented in tables and include mitigation measures organized by environmental issue and topical areas addressed in the Final EIR. In collaboration with the appropriate agencies, DWR may refine the means by which mitigation measures are implemented, as long as the alternative means will be equally or more effective. If a mitigation measure is altered, DWR would determine whether the changes require subsequent CEQA compliance (Public Resources Code § 21166; CEQA Guidelines §§15162–15164). Compliance with the MMRP will be documented contemporaneously throughout the life of the project, and a report (or reports) will be completed demonstrating how the measures of the MMRP were implemented.

Table 1 describes implementation and monitoring procedural guidance, responsibilities, and timing for each mitigation measure identified in the Final EIR.

Table 1 includes the following components.

- **Mitigation Measure and Title:** Provides the mitigation measure, and monitoring and reporting requirements as identified in the Final EIR. These are presented in alphabetical order.
- **Mitigation Text:** Text of specific requirements of the measure, as written in the Final EIR.
- **Timing:** Provides the phase during which the mitigation measure will be implemented.
    - **Preconstruction:** Activities that follow the adoption of the Final EIR, precede construction, and serve as clearance for construction to begin.
    - **Construction:** Activities that occur during construction.
    - **Postconstruction:** Activities that directly follow construction or are a result of construction, and do not relate to ongoing operations.
    - **Operations:** Activities related to the management of the facilities or surrounding land.
- **Implementation Action:** Identifies the types of action required to implement the measure.
- **Reporting Schedule:** Identifies the timing and the frequency of reporting, if required.
- **Implementing Party:** The entity that would directly implement a mitigation measure, monitoring, and reporting. This included agencies or entities that would be funded to implement certain measures and would be under the direction of DWR. As an example, monitoring will generally be delegated as described under Section 2.1, Roles and Responsibilities, with oversight provided by the DWR during construction. Monitoring includes activities prior to design, during design, during construction, and after construction.
- **Implementing Mechanism:** The condition that requires implementation of the measure, typically a condition of the design document, construction contract, regulatory requirement, memorandum of agreement (MOU), or a plan.

- **Participating or Permitting Organizations:** Identifies the entities that may have responsibility related to implementing, monitoring and reporting, if monitoring and reporting is required.
- **Impact Number and Impact Title:** Provides the impact number and description of the impact requiring mitigation as identified in the Final EIR.

This MMRP has been prepared for Alternative 5. Table 1 does not include mitigation measures that are associated with project alternatives other than Alternative 5. These mitigation measures are as follows.

- Mitigation Measure AQ-6: *Avoid Residential Exposure to Localized Diesel Particulate Matter* for Alternatives 2a and 4a.
- Mitigation Measure FP-1: *Phased Construction of the Proposed North Delta Intakes* for Alternatives 2a and 4a.
- Mitigation Measure HAZ-5: *Wildlife Hazards Management Plan and Wildlife Deterrents* for Alternatives 1, 2a, 2b, 2c, 3, 4a, 4b, and 4c.

Table 2 describes implementation and monitoring procedural guidance, responsibilities, and timing for each environmental commitment/BMP identified in Volume 1, Appendix 3B of the Final EIR. Environmental commitments are those actions that are incorporated into the engineering or design of the project and are intended to avoid, reduce, or minimize general environmental impacts not specific to a particular potential significant resource impact. BMPs are standard construction practices or design elements that are incorporated into the project description to generally address the construction process environmental concerns that typically occur for most construction actions. For the purposes of this project, BMPs are considered to be part of the environmental commitments and are identified in Table 2.

Table 2 includes the following components.

- **Environmental Commitment Number and Title:** Provides the environmental commitment number and title as identified in the Final EIR.
- **Key Features:** Identifies the actions required to implement the environmental commitment, including any required agreements and/or conditions.
- **Timing:** Provides the phase during which the environmental commitment will be implemented.
    - **Preconstruction:** Activities that follow the adoption of the Final EIR, precede construction, and serve as clearance for construction to begin.
    - **Construction:** Activities that occur during construction.
    - **Postconstruction:** Activities that directly follow construction or are a result of construction, and do not relate to ongoing operations.
    - **Operations:** Activities related to the management of the facilities or surrounding land.
- **Implementation Action:** Identifies the types of action required to implement the measure.
- **Reporting Schedule:** Identifies the timing and the frequency of reporting, if required.

- **Implementing Party:** The entity that would directly implement an environmental commitment, including monitoring and reporting. This included agencies or entities that would be funded to implement certain measures and would be under the direction of DWR. As an example, monitoring will generally be the delegated as described under Section 2.1, with oversight provided by the DWR during construction.
- **Implementing Mechanism:** The condition that requires implementation of the measure, typically a condition of the design documents, construction contract, regulatory requirement, MOU, or a plan.
- **Participating or Permitting Organizations:** Identifies the entities that may have responsibility related to implementing, monitoring and/or reporting, if monitoring and/or reporting is required.

Table 3 describes implementation and monitoring procedural guidance, responsibilities, and timing for compensatory mitigation as identified in Appendix 3F of the Final EIR.

Table 3 includes the following components.

- **Compensatory Mitigation Design Commitments and Guidelines:** Provides the specific CMP number for the relevant compensatory mitigation design commitment and guideline, as identified in the Final EIR.
- **Compensatory Mitigation Plan Habitat:** Provides the CMP habitat addressed.
- **Compensatory Mitigation Plan Text:** Text of specific requirements of the measure, as written in the Final EIR.
- **Timing:** Provides the phase during which the compensatory measure will be implemented.
    - **Preconstruction:** Activities that follow the adoption of the Final EIR, precede construction, and serve as clearance for construction to begin.
    - **Construction:** Activities that occur during construction.
    - **Postconstruction:** Activities that directly follow construction or are a result of construction, and do not relate to ongoing operations.
    - **Prior to operations:** Activities that precede operations, such as the mitigation for an operational effect.
    - **Operations:** Activities related to the management of the facilities or surrounding land.
- **Implementing Mechanism:** The condition that requires implementation of the measure, typically a condition of the design documents, construction contract, regulatory requirement, MOU, or a plan. For example, many of these measures will be implemented either by enforceable contracts with construction contractors, or by delegation under an MOU between DWR and the implementing entity.
- **Participating or Permitting Organizations:** Identifies the entities that may have responsibility related to implementing, monitoring and/or reporting, if monitoring and/or reporting is required.
- **Impact Number and Impact Title:** Provides the impact number and description of the impact requiring mitigation, as identified in the Final EIR.

2.1 Roles and Responsibilities

As the state lead agency and proponent of this project, DWR is responsible for ensuring implementation of all mitigation measures, environmental commitments (including BMPs) and compensatory mitigation through its own actions, those of its contractor(s), and actions taken in cooperation with other agencies and entities. DWR is ultimately accountable for the overall administration of the MMRP and for assisting relevant individuals and parties in their oversight and reporting responsibilities. The responsibilities of implementation, monitoring, and reporting will be extended to several entities as discussed in this MMRP; however, DWR will bear the primary responsibility for verifying that the mitigation measures are implemented. When project work is undertaken by DWR's contractor(s), the contractor(s) shall directly implement the mitigation measures, environmental commitments, and compensatory mitigation that are pertinent to its scope of work. The contractor(s) shall monitor construction activities to ensure that the mitigation measures, environmental commitments, and compensatory mitigation are being properly implemented and accurately report its activity and results to the DWR. DWR will check the contractor's/contractors' activity, reports, and effectiveness of all activities. The primary parties for implementation, monitoring, and reporting as described in the MMRP include the following.

- **DWR:** DWR is the party responsible for the implementation of and compliance with all measures identified in the EIR. While DWR retains responsibility for the implementation and reporting on mitigation measures, environmental commitments, and compensatory mitigation as specified in this MMRP, activities may be carried out by a DWR employee or delegated to a DWR-approved contractor. DWR responsibilities may also include certain measures outside of the scope of the contractor(s) such as future studies or operations-phase implementation. In addition, oversight of implementation and reporting may be provided by DWR contractor(s) or employees as lead agency representatives to facilitate regulatory oversight agency coordination and compliance during implementation and reporting.
- **Contractor(s):** The contractor/contractors, as required by mitigation measures, environmental commitments, and compensatory mitigation, are resource area experts that will be responsible for implementing or monitoring the mitigation measures, environmental commitments, and compensatory mitigation specified in this MMRP. This may include:
    - Design Contractors
    - Environmental Contractors
    - Project Management Contractors
    - Construction Management Contractors
    - Construction Contractors

  Contractors may perform the expert roles described in greater detail in this section. A decision about the appropriate contractor(s) for each measure will be made by DWR.
- **Archaeologist/ Architectural Historian:** The archaeologist/qualified architectural historian is responsible for implementing mitigation measures related to archaeological resources in compliance with the terms and conditions outlined in the MMRP.
- **Biological Monitor/Construction Biological Monitors:** Biological monitor(s) will be approved by and report directly to the project biologist. The biological monitor(s) will be present on site within a reasonable monitoring distance during all ground-disturbing activities that have the potential to affect biological resources as directed by the project biologist and will be the

principal agent(s) in the direct implementation of the MMRP and compliance assurance during activities in areas that may impact sensitive species or sensitive species habitat.

- **Designated/Project Biologist:** The designated biologist or project biologist are approved by U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW), as necessary, with sufficient education and experience to direct the Biological Monitors and implement project activities on behalf of DWR.
- **Mitigation/Environmental Manager:** Mitigation managers are responsible for overseeing implementation and reporting of monitoring mitigation measures, environmental commitments, and compensatory mitigation and will be responsible for reporting the status to DWR in accordance with this MMRP.
- **Culturally Affiliated Tribe:** Tribes that are culturally affiliated with the Sacramento–San Joaquin Delta (Delta) and that have participated in consultation with DWR during the development of the Tribal Cultural Resources mitigation measures. Tribal participation in implementation of mitigation measures is at the discretion of the Tribe.
- **Tribal Monitor(s):** Tribal Monitors will be designated by culturally affiliated Tribes and will be responsible for the identification and documentation of potential Tribal Cultural Resources. Tribal Monitors will be permitted on site, within a reasonable monitoring distance during ground-disturbing activities, for culturally sensitive areas identified and determined through consultation between culturally affiliated Tribes and DWR.
- **Construction Manager:** The construction manager is responsible for direct implementation of the MMRP as assigned by DWR. Provides direction to Construction Personnel and implements portions of the MMRP in coordination with the Mitigation/Environmental Manager.
- **Noise Expert:** The noise expert is responsible for implementing mitigation measures related to acoustics and sensitive receptors for noise in compliance with the terms and conditions outlined in the MMRP.
- **Project Engineers/Project Engineering Design Team:** The project engineers/project engineering design team is responsible for reviewing and revaluating project plans and designs as required by the MMRP as part of the preconstruction activities.
- **Construction Personnel:** Staff employed by contractor(s) to complete construction and postconstruction activities. Construction personnel are responsible for completing training and following guidance for sensitive resources.
- **Paleontological Resource Specialist/Qualified Professional Paleontologist:** The paleontological resource specialist/qualified professional paleontologist is responsible for implementing mitigation measures related to paleontological resources in compliance with the terms and conditions outlined in the MMRP and the Paleontological Resource Monitoring and Mitigation Plan (PRMMP).
- **Professional Geologist:** The professional geologist is responsible for reviewing and revaluating project plans and designs as required by the MMRP.
- **Qualified Biologists:** The qualified biologists are responsible for implementing mitigation measures related to biological resources with specialized experience in wildlife, water quality, methylmercury cycling and its biological effects, and/or refuges.
- **Qualified SWPPP Developer (QSD)/Qualified SWPPP Practitioner (QSP):** The QSD/QSP is responsible for implementing all elements of the Storm Water Pollution Prevention Plan, including monitoring and evaluation.

Chapter 3
Mitigation Monitoring and Reporting Program Tables

3.1 Table 1. Delta Conveyance Project: Mitigation Monitoring and Reporting Program

MM #	Title	Mitigation Measure Text	Timing	Implementation Action	Reporting Schedule	Implementation Party	Implementation Mechanism	Participating or Permitting Organizations	Impact # and Impact Title
MM AES-1a	Install Visual Barriers between Construction Work Areas and Sensitive Receptors	To reduce the impact on sensitive receptors from the change in existing visual quality, DWR will require installation of temporary visual barriers at the construction work areas with direct line-of-sight from sensitive receptors (i.e., residents and recreational areas). Barriers will be placed to obscure views of work areas where construction activity and equipment would be disruptive and lower the existing visual quality. These efforts will include the following actions and performance standards to be applied to the extent feasible and practicable. a. The visual barriers will be placed to protect residents and recreational areas that are within 0.25 mile of a project construction site in an urban area and 0.50 mile of a project construction site in a rural area. b. The visual barrier may include chain link fencing with privacy slats, fencing with windscreen material, silt fence, wood or concrete barrier, or other similar barrier. c. The visual barrier will be a minimum of 6 feet high to help maintain the privacy of residents and block long-term ground-level views toward construction activities. The visual barriers would reduce the effects associated with visible construction activities. The visual barriers are an effective means of reducing the visibility of active construction work areas, thereby minimizing the impact on existing localized visual quality.	Construction	Contract Requirements	None	Contractor(s)	Condition of Design Documents and Construction Contract	N/A	Impact AES-1: Substantially Degrade the Existing Visual Character or Quality of Public Views (from Publicly Accessible Vantage Points) of the Construction Sites and Visible Permanent Facilities and Their Surroundings in Nonurbanized Areas; Impact AES-3: Have substantial Significant Impacts on Scenic Vistas
MM AES-1b	Apply Aesthetic Design Treatments to Project Structures	1. DWR will require aesthetic design treatments to minimize the impact on existing visual quality and character in the study area associated with the introduction of water conveyance structures. a. DWR will require evaluation of similar, local, well-designed water conveyance structures, including those with historic value and use these features as design precedent to develop designs for the intake facilities, pumping plants, control structures, fish screens, and bridges so that the resultant design will complement the natural landscape, be aesthetically pleasing, and minimize the effects of visual intrusion of project facilities on the landscape, to the extent feasible. The following minimum performance standards will apply. i. The height of new structures will be minimized as feasible and consistent with building code requirements. In addition, the visual intrusion of ancillary features (e.g., antennas or other equipment) will be minimized through proper siting. ii. New structures that warrant painting will be painted with a shade that is two to three shades darker than the general surrounding area, unless aesthetic design treatments indicate another color selection with the intent to specifically improve aesthetics. Otherwise, colors shall be chosen from the Bureau of Land Management Standard Environmental Colors Chart CC-001: April 2014. Because color selection will vary by location, DWR, working with the facility designers, will employ the use of color panels evaluated from key observation points during common lighting conditions (front versus backlighting) to aid in the appropriate color selection. DWR will select colors for the coloring of the most prevalent season. Panels will be a minimum of 3 feet by 2 feet in dimension and will be evaluated from various distances, but within 1,000 feet, to ensure the best possible color selection. Refer to https://blmwyomingvisual.anl.gov/mitigation/federal/index.cfm for more information on this technique and other best management practices and techniques for visual screening.	Preconstruction; Construction; Operations	Contract Requirements; Design	None	Contractor(s); DWR	Condition of Design Documents and Construction Contract	PG&E; SMUD; Other power utility providers	Impact AES-1: Substantially Degrade the Existing Visual Character or Quality of Public Views (from Publicly Accessible Vantage Points) of the Construction Sites and Visible Permanent Facilities and Their Surroundings in Nonurbanized Areas; Impact AES-2: Substantially Damage Scenic Resources including, but Not Limited to, Trees, Rock Outcroppings, and Historic Buildings Visible from a State Scenic Highway; Impact AES-3: Have substantial Significant Impacts on Scenic Vistas; Impact AES-4: Create New Sources of Substantial Light or Glare That Would Adversely Affect Daytime or Nighttime Views of the Construction Areas or Permanent Facilities

MM #	Title	Mitigation Measure Text	Timing	Implementation Action	Reporting Schedule	Implementation Party	Implementation Mechanism	Participating or Permitting Organizations	Impact # and Impact Title
		a) All paints used for the color panels and structures will be color matched directly from the physical color chart, rather than from any digital or color-reproduced versions of the color chart. b) Paints will be of a dull, flat, or satin finish only. Appropriate paint type will be selected for the finished structures to ensure long-term durability of the painted surfaces. c) DWR will maintain the paint color over time. iii. In consultation with Pacific Gas and Electric Company (PG&E), SMUD, and other power utility providers on the study area, DWR will require the design of the project's permanent transmission poles to incorporate the following measures to be consistent with equipment and structures used by these utilities. a) Transmission poles will be power providers standard lattice towers and will be galvanized steel or other required treatment to make the structures visually consistent with other similar towers in the visual landscape. b) Finishes will be selected for their ability to achieve the correct color selection, durability, and environmental safety. iv. DWR will require aesthetic design features consistent with technological and building code requirements at concrete or shotcrete structures that are highly visible to the public. These features may include, but not be limited to, mimicking natural material (e.g., stone or rock surfacing) and integral color, in the same theme, to reduce visibility and to better blend with the landscape. v. DWR will require evaluation of bridge crossing designs using lattice steel, consistent with other bridges in the Delta and implement where site conditions can accommodate a lattice steel structure. Such a structure would be less visually confining than concrete structures, provide better visual access to points beyond, allow light to travel through the structure, and may appear less like a visual barrier within the landscape. vi. DWR will require that visible pipelines, guardrails, and non-safety signs will be of a material or color that helps surfaces to blend better with the surroundings. These elements will be constructed with low-sheen and nonreflective surface materials to reduce potential for glare, and the use of glossy paints or surfaces would be avoided. This measure and the aesthetic design treatments for alternative structures would help minimize the impact on visual quality from the development of the water conveyance structures in the study area, using techniques that make the structures blend into the surrounding environment.							
MM AES-1c	Implement Best Management Practices in Project Landscaping Plan	1. DWR will require application of additional landscape treatments and use best management practices as part of the post-project reclamation effort to restore and maintain local character, improve aesthetics, and reduce the visual scale of the proposed water conveyance elements in the study area. a. In addition to the guidance set forth in the environmental commitments, DWR will require utilization of landscaping to minimize such impacts consisting of, but not limited to, native vegetation and trees. In addition, native trees, shrubs, and grasslands native to the study area will be planted to preserve the visual integrity of the landscape (including views from scenic vistas and scenic roadways) provide habitat conditions suitable for native vegetation and wildlife, and ensure that a maximum number and variety of well-adapted plants are maintained. b. DWR will require the following practices in implementing the project landscaping plan. i. Design and implement low-impact development (LID) measures that disperse and reduce runoff by using such features as vegetated buffer	Preconstruction; Construction; Postconstruction	Contract Requirements; Design	None	Contractor(s); DWR	Condition of Design Documents and Construction Contract	CDFW; Caltrans; Local building and permitting agencies	Impact AES-1: Substantially Degrade the Existing Visual Character or Quality of Public Views (from Publicly Accessible Vantage Points) of the Construction Sites and Visible Permanent Facilities and Their Surroundings in Nonurbanized Areas; Impact AES-2: Substantially Damage Scenic Resources including, but Not Limited to, Trees, Rock Outcroppings, and

MM #	Title	Mitigation Measure Text	Timing	Implementation Action	Reporting Schedule	Implementation Party	Implementation Mechanism	Participating or Permitting Organizations	Impact # and Impact Title
		strips between paved areas that catch and infiltrate runoff, bioswales, cisterns, and detention basins. In addition, DWR will evaluate the potential use of pervious paving to improve infiltration and to reduce the amount of surface runoff from entering waterways and the stormwater system. ii. Vegetative accents and screening will be used to aid in a perceived reduction in the scale and mass of the built features, while accentuating the design treatments that will be applied to built features. Plant selection will be species native to the Delta and based on the plants' abilities to screen built features and provide aesthetic accents. iii. Vegetative accents and screening will be used to aid in screening substations located within 0.25 mile of residences in an urban area or within 0.50 mile of residences in a rural area. Plant selection will be species native to the Delta and based on the plants' abilities to screen features and provide aesthetic accents. iv. Vegetative accents and screening will be used to aid in screening and shading park-and-ride lots. Plant selection will be species native to the Delta and based on the plants' abilities to screen features and provide aesthetic accents. v. Landscape berms, combined with tree and shrub plantings, will be used to help screen built features from existing viewpoints by allowing for additional height. The landscape berms will be constructed to have a more natural form, as opposed to one that is highly regular and levee-like. The berms will be seeded with a native meadow erosion-control seed mix and be planted to comply with directions set forth below. a) Plantings will be native and indigenous to the area, and no invasive plant species will be used under any conditions. If indigenous plantings are not available, DWR will coordinate with the California Department of Fish and Wildlife to use a mutually acceptable plant mix palette. b) The species list will include trees, shrubs, and an herbaceous understory of varying heights, as well as both evergreen and deciduous types. Plant variety will increase the effectiveness of revegetated areas by providing multiple layers, seasonality, diverse habitat, and reduced susceptibility to disease. vi. Revegetation in areas affected by bridge construction will incorporate native trees and shrubs to replace trees and shrubs that were removed due to bridge construction. vii. The use of native grass and wildflower seed in erosion-control measures will be required where such a measure would improve aesthetics. a) Wildflowers will provide seasonal interest to areas where trees and shrubs are removed, or grading has occurred. b) Species will be chosen that are native and indigenous to the study area and for their appropriateness to the surrounding habitat. For example, upland grass and wildflower species will be chosen for drier, upland areas and wetter grass species will be chosen for wetland areas. c) If not appropriate to the surrounding habitat, wildflowers will not be included in the seed mix. d) Under no circumstances will invasive plant species be used in any erosion-control measures. viii. Under no circumstances will any invasive plant species be used at any location.							Historic Buildings Visible from a State Scenic Highway; Impact AES-3: Have substantial Significant Impacts on Scenic Vistas; Impact AES-4: Create New Sources of Substantial Light or Glare That Would Adversely Affect Daytime or Nighttime Views of the Construction Areas or Permanent Facilities

MM #	Title	Mitigation Measure Text	Timing	Implementation Action	Reporting Schedule	Implementation Party	Implementation Mechanism	Participating or Permitting Organizations	Impact # and Impact Title
		ix. Vegetation will be planted immediately following completion of each project element of the Delta Conveyance Project. x. Design of the landscaping plan will maximize the use of planting zones that do not need irrigation, such as seeding with a native grassland and wildflower meadow mix, which reduces or eliminates the need for a permanent irrigation system. xi. If an irrigation system is required, an irrigation and maintenance program will be implemented during the plant establishment period and carried on, as needed, to ensure plant survival. Areas that are irrigated will use a smart watering system that evaluates the existing site conditions and plant material against weather conditions to avoid overwatering of such areas. To avoid undue water flows, the irrigation system will be managed in such a manner that any broken spray heads, pipes, or other components are fixed within 1 to 2 days, or the zone or system will be shut down until it can be repaired. xii. These measures will not be implemented in sensitive habitats or locations with sensitive species. Each area where mitigation would be implemented will be surveyed prior to installation of mitigation to ensure that no sensitive habitats or sensitive species are present. This measure will reduce the impacts on local visual quality and the overall visual quality of the study area from the presence of project water conveyance facilities by introducing a more natural visual appearance around these facilities akin to the natural surroundings in the Delta.							
MM AES-4a	Limit Construction Outside of Daylight Hours within 0.25 Mile of Residents at the Intakes	1. Within occupational safety standards, DWR will minimize the impact of nighttime construction light and glare on residences within 0.25 mile of the intake construction sites by limiting non-tunnel-related surface construction, except for periodic continuous concrete pours at the intakes and tunnel shafts, after daylight hours (which vary according to season), minimizing the use of high-wattage lighting sources to operate in the dark, and minimizing introduction of new nighttime light and glare sources in these areas. a. DWR will establish a construction hotline, which will enable residents to report any construction violation including construction activities outside of daylight hours. b. This measure, while taking into account occupational safety requirements, will reduce the use of nighttime lighting and provide residents the means to report any observed deviation from the mitigation requirements.	Construction	Contract Requirements	As needed	Contractor(s); DWR	Condition of Design Documents and Construction Contract	N/A	Impact AES-4: Create New Sources of Substantial Light or Glare That Would Adversely Affect Daytime or Nighttime Views of the Construction Areas or Permanent Facilities
MM AES-4b	Minimize Fugitive Light from Portable Sources Used for Construction	1. DWR will minimize fugitive light, or light trespass, and glare from portable lighting sources used during construction by adhering to the following practices, at a minimum. a. Portable lights will be operated at the lowest feasible wattage and height. b. All lights will be screened and directed down toward work activities and away from the night sky and nearby residents to the maximum extent safely possible. c. The number of nighttime lights used will be minimized to the greatest extent feasible, given safety considerations. This measure will reduce—to the extent governed by site-specific safety and fisheries protection requirements—the overall amount of new daytime and nighttime light and glare introduced to the project vicinity during construction.	Construction	Contract Requirements	As needed	Contractor(s); DWR	Condition of Design Documents and Construction Contract	N/A	Impact AES-4: Create New Sources of Substantial Light or Glare That Would Adversely Affect Daytime or Nighttime Views of the Construction Areas or Permanent Facilities; Impact BIO-22: Impacts of the Project on California Tiger Salamander; Impact BIO-23: Impacts of the Project on Western Spadefoot Toad; Impact BIO-24: Impacts of the Project on California Red-Legged Frog; Impact BIO-31: Impacts of the Project on Western Yellow- Billed Cuckoo; Impact BIO-32: Impacts of the Project on the California Black Rail;

MM #	Title	Mitigation Measure Text	Timing	Implementation Action	Reporting Schedule	Implementation Party	Implementation Mechanism	Participating or Permitting Organizations	Impact # and Impact Title
									Impact BIO-33: Impacts of the Project on Greater Sandhill Crane and Lesser Sandhill Crane; Impact BIO-34: Impacts of the Project on California Least Tern; Impact BIO-35: Impacts of the Project on Cormorants, Herons, and Egrets; Impact BIO 36: Impacts of the Project on Osprey, White-Tailed Kite, Coopers Hawk, and Other Nesting Raptors; Impact BIO-37: Impacts of the Project on Golden Eagle and Ferruginous Hawk; Impact BIO-38: Impacts of the Project on Ground-Nesting Grassland Birds; Impact BIO-39: Impacts of the Project on Swainson's Hawk; Impact BIO-40: Impacts of the Project on Burrowing Owl; Impact BIO-41: Impacts of the Project on Other Nesting Special-Status and Non-Special- Status Birds; Impact BIO-42: Impact of the Project on Least Bell's Vireo; Impact BIO-44: Impacts of the Project on Tricolored Blackbird; Impact BIO-45: Impacts of the Project on Bats; Impact BIO-53: Interfere Substantially with the Movement of Any Native Resident or Migratory Fish or Wildlife Species or with Established Native Resident or Migratory Wildlife Corridors, or Impede the Use of Native Wildlife Nursery Sites

MM #	Title	Mitigation Measure Text	Timing	Implementation Action	Reporting Schedule	Implementation Party	Implementation Mechanism	Participating or Permitting Organizations	Impact # and Impact Title
MM AES-4c	Install Visual Barriers along Access Routes, Where Necessary, to Prevent Light Spill from Truck Headlights toward Residences	1. DWR will evaluate construction routes and identify portions of access routes where the use of visual barriers would minimize the introduction of new light and glare from construction truck headlights and the impact on nearby residents. Access routes could include SR 160, Hood-Franklin Road, West Walnut Grove Road, Mountain House Road, South Holt Road, Byron Highway, West Bethany Road, and various levee roads. a. DWR will install a visual barrier along portions of access routes where screening would prevent excessive light spill toward residents from truck headlights being used during nighttime construction activities. DWR will also coordinate with local recreational interested parties to protect sensitive nighttime recreational resources, such as nighttime fishing spots, from construction truck headlight light spill. These visual barriers will meet the following performance criteria. i. The visual barrier will be a minimum of 5 feet high and will provide a continuous surface impenetrable by light. This height may be obtained by installing a temporary structure, such as fencing (e.g., chain link with privacy slats) or a semi-permanent structure, such as a concrete barrier (e.g., a roadway median barrier or architectural concrete wall system) retrofitted with an approved visual screen, if necessary, to meet the required height. ii. The visual barriers will be of a material or have a color treatment appropriate for the location and traffic safety requirements. The use of glossy materials will be avoided. This measure will minimize the extent of construction truck headlight glare intruding into nearby residential areas.	Preconstruction; Construction	Contract Requirements; Design	As needed	Contractor(s)	Condition of Design Documents and Construction Contract	N/A	Impact AES-4: Create New Sources of Substantial Light or Glare That Would Adversely Affect Daytime or Nighttime Views of the Construction Areas or Permanent Facilities; Impact BIO-31: Impacts of the Project on Western Yellow- Billed Cuckoo; Impact BIO-32: Impacts of the Project on the California Black Rail; Impact BIO-33: Impacts of the Project on Greater Sandhill Crane and Lesser Sandhill Crane; Impact BIO-34: Impacts of the Project on California Least Tern; Impact BIO-35: Impacts of the Project on Cormorants, Herons, and Egrets; Impact BIO-36: Impacts of the Project on Osprey, White-Tailed Kite, Coopers Hawk, and Other Nesting Raptors; Impact BIO-37: Impacts of the Project on Golden Eagle and Ferruginous Hawk; Impact BIO-38: Impacts of the Project on Ground-Nesting Grassland Birds; Impact BIO-39: Impacts of the Project on Swainson's Hawk; Impact BIO-40: Impacts of the Project on Burrowing Owl; Impact BIO-41: Impacts of the Project on Other Nesting Special-Status and Non-Special- Status Birds; Impact BIO-42: Impact of the Project on Least Bell's Vireo; Impact BIO-44: Impacts of the Project on Tricolored Blackbird; Impact BIO-53: Interfere Substantially with the Movement of Any Native Resident or Migratory Fish or Wildlife Species or with Established Native Resident or Migratory Wildlife Corridors, or Impede the Use of Native Wildlife Nursery Sites

MM #	Title	Mitigation Measure Text	Timing	Implementation Action	Reporting Schedule	Implementation Party	Implementation Mechanism	Participating or Permitting Organizations	Impact # and Impact Title
MM AG-1	Preserve Agricultural Land	1. Permanently converted Important Farmland will be mitigated at an acreage ratio of at least 1:1. This mitigation ratio will be achieved through a combination of acquisition and dedication of agricultural land, acquisition of development rights or conservation easements to permanently protect agricultural land, or payment of in-lieu fees to fully fund the acquisition and maintenance of such real property interests by a third party. To the extent feasible, any rights to land acquired for the purpose of mitigation of agricultural land conversion will be of equal or better farmland quality than the land that was permanently converted. Therefore, impacts on Prime Farmland will be mitigated through protection of Prime Farmland; impacts on Farmland of Statewide Importance will be mitigated through protection of Prime Farmland or Farmland of Statewide Importance; impacts on Farmland of Local Importance will be mitigated through protection of Prime Farmland, Farmland of Statewide Importance, or Farmland of Local Importance. Because Unique Farmland is land used to grow a crop considered by the State of California to be an agricultural product of economic importance, mitigation for impacts on Unique Farmland will be targeted at lands that are also mapped as Unique Farmland. a. Preservation of agricultural lands will be within the Delta counties (i.e., Sacramento, San Joaquin, Contra Costa, Alameda, Solano, and Yolo). b. Any agricultural conservation easements acquired pursuant to this mitigation strategy will be held by a qualified organization that has the legal and technical ability to hold and administer agricultural conservation easements for the purpose of conserving and maintaining lands in agricultural production. 1. DWR will also consider an optional approach of funding farm improvements to enhance the productivity of the lower-quality farmland, consistent with Agricultural Land Stewardship Consideration A2.	Preconstruction; Construction	Acquisition; Funding	As needed	DWR	Condition of MOU	California Department of Conservation; Local agricultural agencies and organizations	Impact AG-1: Convert a Substantial Amount of Prime Farmland, Unique Farmland, Farmland of Local Importance, or Farmland of Statewide Importance as a Result of Construction of Water Conveyance Facilities; Impact AG-2: Convert a Substantial Amount of Land Subject to Williamson Act Contract or under Contract in Farmland Security Zones to a Nonagricultural Use as a Result of Construction of Water Conveyance Facilities; Impact BIO-54: Conflict with the Provisions of an Adopted Habitat Conservation Plan, Natural Community Conservation Plan, or Other Approved Local, Regional, or State Habitat Conservation Plan
MM AG-3	Replacement or Relocation of Affected Infrastructure Supporting Agricultural Properties	1. To the extent feasible, project designs will be modified to avoid any conflicts with irrigation or drainage infrastructure servicing farmland located outside the construction footprint for the project. DWR will consult with the neighboring landowners and agricultural operators to require that construction of the project facilities adequately avoids the impact on agricultural infrastructure servicing their properties, based on their understanding of local site conditions. If such impacts cannot be avoided through a redesign of local project design elements, DWR will implement at least one of the following options: ○ Provide new water wells until diversion connection is reestablished. ○ Relocate and/or replace wells, pipelines, power lines, drainage systems and other infrastructure that are needed to support ongoing agricultural uses. In the event that none of the above options is feasible, as part of a negotiated settlement process, DWR will compensate owners for production losses attributable to reductions in water supply from affected diversions, losses associated with disruption in drainage facilities, and losses associated with other infrastructure disruptions.	Preconstruction	Design; Acquisition; Funding	As needed	Contractor(s); DWR	Condition Prior to Resource Impacts or Disturbance	Local irrigation and reclamation districts	Impact AG-3: Other Impacts on Agriculture as a Result of Constructing and Operating the Water Conveyance Facilities Prompting Conversion of Prime Farmland, Unique Farmland, Farmland of Local Importance, or Farmland of Statewide Importance
MM AQ-1	Offset Construction-Generated Criteria Pollutants in the Sacramento Valley Air Basin	**Performance Standard** Prior to issuance of construction contracts, DWR will enter into a memorandum of understanding (MOU) with SMAQMD or develop an alternative or complementary mitigation program (as discussed below) to reduce NO_X and PM10. Emissions above the federal *de minimis* thresholds[1] will be reduced to net zero (0). Emissions not above the *de minimis* thresholds, but above SMAQMD's thresholds, will be reduced to quantities below the air district's thresholds. Emissions generated by project construction have been quantified as part of this	Preconstruction; Operations	Contract Requirements; Compliance Reporting	Annually	Contractor(s); DWR	Condition Prior to Resource Impacts or Disturbance; Condition of MOU	SMAQMD	Impact AQ-1: Result in Impacts on Air Quality within the Sacramento Metropolitan Air Quality Management District

[1] Federal *de minimis* thresholds are triggered if the project is subject to general conformity.

MM #	Title	Mitigation Measure Text	Timing	Implementation Action	Reporting Schedule	Implementation Party	Implementation Mechanism	Participating or Permitting Organizations	Impact # and Impact Title

Final EIR. Although this inventory could be used exclusively to inform the required mitigation commitment, the methods used to quantify emissions in the Final EIR were conservative. They also do not account for any additional reductions that may be achieved by future state and federal regulations that reduce the emissions intensity of equipment and vehicles, nor do they account for reduction strategies that may be implemented by DWR pursuant to other mitigation measures (e.g., Mitigation Measure AQ-9). Accordingly, this Final EIR likely overestimates actual emissions that would be generated by construction of the project. DWR may, therefore, reanalyze criteria pollutant emissions from construction of the project to update the required reduction commitment to achieve performance standard.

An updated emissions analysis conducted for the project will be performed using approved emissions models and methods available at the time of the reanalysis. The analysis must use the latest available engineering data for the project, inclusive of any required environmental commitments or emissions reduction strategies. Consistent with the methodology used in this Final EIR, emissions factors may account for enacted regulations that will influence future year emissions intensities (e.g., fuel efficiency standards for on-road vehicles).

Mitigation Agreement with SMAQMD

1. DWR will enter into an MOU with SMAQMD to reduce NO_X and PM10 according to the performance standard described above.
   a. The mitigation offset fee amount will be determined at the time of mitigation to fund one or more emissions reduction projects. NOx reduction projects must occur within the SFNA[2] (or in a nearby area of equal or higher nonattainment classification, as allowed under 40 CFR 93.158(2)). SMAQMD will require an additional administrative fee of no less than 5% of the total offset fee. The mitigation offset fee will be determined by DWR and SMAQMD based on the type of projects available at the time of mitigation. This fee is intended to fund emissions reduction projects to achieve reductions. Documentation of payment will be provided to DWR or its designated representative.
   b. The MOU will include details regarding the annual calculation of required offsets DWR must achieve, funds to be paid, administrative fees, and the timing of the emissions reduction projects. Reduction projects may be administrated through SMAQMD's HDLEVIP, which include the Carl Moyer and Sacramento Emergency Clean Air Transportation (SECAT) Programs. The HDLEVIP and associated incentive programs are managed and implemented by SMAQMD on behalf of all air districts within the SFNA. Example projects funded through the Carl Moyer Program include the following.
      - Independent Construction Caterpillar 633D Scraper Tier 2 Engine Repower
      - Kiewit Pacific Construction Caterpillar 16G Grader Diesel Catalyst Retrofit
      - Commercial Low-Emission Propane Generator
      - American Engineering & Asphalt Caterpillar 825C Compactor Tier 2 Engine Repower
      - B&D Geerts Construction Caterpillar 826C Compactor Tier 1 Engine Repower

      The SECAT program differs from the Carl Moyer Program in that it can only fund projects for on-road vehicles. However, the SECAT program can also finance operational emissions reductions, including facility modifications and out-of-cycle replacements; the Carl Moyer Program is only available to fund the incremental capital costs of control measures.

[2] The SFNA includes all of Sacramento and Yolo Counties and portions of Placer, El Dorado, Solano, and Sutter Counties. This area is designated a nonattainment area for the federal 8-hour ozone standard (see Table 23-5 of the Final EIR).

MM #	Title	Mitigation Measure Text	Timing	Implementation Action	Reporting Schedule	Implementation Party	Implementation Mechanism	Participating or Permitting Organizations	Impact # and Impact Title
		c. Acceptance of the mitigation fee by SMAQMD will serve as an acknowledgment and commitment by SMAQMD to: (1) implement an emissions reduction project(s) within a timeframe to be determined based on the type of project(s) selected after receipt of the mitigation fee designed to achieve the emissions reduction objectives; and (2) provide documentation to DWR or its designated representative describing the project(s) funded by the mitigation fee, including the amount of emissions reduced (tons per year) from the emissions reduction project(s). To qualify under this mitigation measure, the specific emissions reduction project(s) must result in emissions reductions in the SVAB/SFNA (or in a nearby area of equal or higher nonattainment classification, as allowed under 40 CFR 93.158(2)) that are real, surplus, quantifiable, enforceable, and will not otherwise be achieved through compliance with existing regulatory requirements or any other legal requirement. Funding will need to be received prior to contracting with participants and should allow enough time to receive and process applications to fund and implement off-site reduction projects prior to commencement of the project activities that are being offset. This will roughly equate to one year prior to the required mitigation; additional lead time may be necessary depending on the level of off-site emissions reductions required for a specific year. **Alternative or Complementary Mitigation Program** Should DWR be unable to enter what they regard as a satisfactory agreement with SMAQMD, or should DWR enter an agreement with SMAQMD but find themselves unable to meet the performance standards established above, DWR will develop an alternative or complementary off-site mitigation program to reduce NO_X and PM10 emissions according to the performance standard described above. DWR will establish a program to fund emissions reduction projects through grants, ERCs, or similar mechanisms. DWR may identify emissions reduction projects through consultation with SMAQMD, other regional air districts, CARB, CEC, local governments, transit agencies, or others, as needed. Potential projects could include but are not limited to the following. • Alternative fuel, low-emissions school buses, transit buses, and other vehicles. • Diesel engine retrofits and repowers. • Locomotive retrofits and repowers. • Electric vehicle or lawn equipment rebates. • Electric vehicle charging stations and plug-ins. • Video-teleconferencing systems for local businesses. • Telecommuting start-up costs for local businesses. As part of its alternative or complementary off-site mitigation program, DWR will develop pollutant-specific formulas to monetize, calculate, and achieve emissions reductions in a cost-effective manner. Payments can be allocated to emissions reductions projects in a grant-like manner. DWR will document the fee schedule basis, such as consistency with the CARB's Carl Moyer Program cost-effectiveness limits and capital recovery factors. DWR will conduct annual reporting to verify and document that emissions reductions projects achieve a 1:1 reduction with construction emissions to ensure claimed offsets meet the required performance standard. Each report should describe the projects that were funded over the prior year, identify emissions reduction realized by the funded projects, document compliance with mitigation requirements, and identify corrective actions (if any) needed to ensure the offsetting program achieves the performance standards for NOx and PM10. DWR will retain a third-party expert to assist with its review and approval of the annual reports. Annual reports will be finalized and posted on DWR's website by December 31 of the following year.							

MM #	Title	Mitigation Measure Text	Timing	Implementation Action	Reporting Schedule	Implementation Party	Implementation Mechanism	Participating or Permitting Organizations	Impact # and Impact Title
MM AQ-2	Offset Construction-Generated Criteria Pollutants in the San Joaquin Valley Air Basin	**Performance Standard** Prior to issuance of construction contracts, DWR will enter into a VERA with the SJVAPCD or develop an alternative or complementary mitigation program (as discussed below) to reduce NO_X and PM10. Emissions above the federal *de minimis* thresholds[3] will be reduced to net zero (0). Emissions not above the *de minimis* thresholds, but above SJVAPCD's thresholds, will be reduced to quantities below the air district's thresholds. Emissions generated by project construction have been quantified as part of this Final EIR. Although this inventory could be used exclusively to inform the required mitigation commitment, the methods used to quantify emissions in the Final EIR were conservative. They also do not account for any additional reductions that may be achieved by future state and federal regulations that reduce the emissions intensity of equipment and vehicles, nor do they account for reduction strategies that may be implemented by DWR pursuant to other mitigation measures (e.g., Mitigation Measure AQ-9). Accordingly, this Final EIR likely overestimates actual emissions that would be generated by construction of the project. DWR may, therefore, reanalyze criteria pollutant emissions from construction of the project to update the required reduction commitment to achieve performance standard. An updated emissions analysis conducted for the project will be performed using approved emissions models and methods available at the time of the reanalysis. The analysis must use the latest available engineering data for the project, inclusive of any required environmental commitments or emissions reduction strategies. Consistent with the methodology used in this Final EIR, emissions factors may account for enacted regulations that will influence future year emissions intensities (e.g., fuel efficiency standards for on-road vehicles). **Mitigation Agreement with SJVAPCD** 1. DWR will enter into a VERA with the SJVAPCD to reduce NO_X and PM10 according to the performance standard described above. a. The mitigation offset fee amount will be determined at the time of mitigation to fund one or more emissions reduction projects within the SJVAB (or in a nearby area of equal or higher nonattainment classification, as allowed under 40 CFR 93.158(2)). SJVAPCD will require an additional administrative fee of no less than 4% of the total offset fee. The mitigation offset fee will be determined by DWR and SJVAPCD based on the type of projects available at the time of mitigation. This fee is intended to fund emissions reduction projects to achieve reductions. Documentation showing receipt of payment will be provided to DWR or its designated representative. b. The VERA will include details regarding the annual calculation of required offsets DWR must achieve, funds to be paid, administrative fee, and the timing of the emissions reduction projects. SJVAPCD's VERA is implemented through District Incentive Programs, which fund grants and projects to achieve emissions reductions in the SJVAB. Example programs funded through the VERA include the following. • On-Road Truck Voucher Program • Burn Clean Program • Heavy Duty Engine Program • Cordless Zero-Emission Commercial Lawn & Garden Equipment Demonstration Program • Statewide School Bus Retrofit Program c. Acceptance of the offset fee by SJVAPCD will serve as an acknowledgment and commitment by SJVAPCD to: (1) implement an emissions reduction project(s) within a timeframe to be determined based on the type of	Preconstruction; Operations	Contract Requirements; Compliance Reporting	As needed	DWR	Condition Prior to Resource Impacts or Disturbance; Condition of MOU	SJVAPCD	Impact AQ-2 Result in Impacts on Regional Air Quality within the San Joaquin Valley Air Pollution Control District

[3] Federal *de minimis* thresholds are triggered if the project is subject to general conformity.

MM #	Title	Mitigation Measure Text	Timing	Implementation Action	Reporting Schedule	Implementation Party	Implementation Mechanism	Participating or Permitting Organizations	Impact # and Impact Title
		project(s) selected after receipt of the mitigation fee designed to achieve the emissions reduction objectives; and (2) provide documentation to DWR or its designated representative describing the project(s) funded by the mitigation fee, including the amount of emissions reduced (tons per year) from the emissions reduction project(s). To qualify under this mitigation measure, the specific emissions reduction project(s) must result in emissions reductions in the SJVAB (or in a nearby area of equal or higher nonattainment classification, as allowed under 40 CFR 93.158(2)) that are real, surplus, quantifiable, enforceable, and will not otherwise be achieved through compliance with existing regulatory requirements or any other legal requirement. Funding will need to be received prior to contracting with participants and should allow enough time to receive and process applications to fund and implement off-site reduction projects prior to commencement of the project activities that are being offset. This will roughly equate to 1 year prior to the required mitigation; additional lead time may be necessary depending on the level of off-site emissions reductions required for a specific year. **Alternative or Complementary Mitigation Program** Should DWR be unable to enter what they regard as a satisfactory agreement with SJVAPCD, or should DWR enter an agreement with SJVAPCD but find themselves unable to meet the performance standards established above, DWR will develop an alternative or complementary off-site mitigation program to reduce NO_X and PM10 emissions according to the performance standard described above. DWR will establish a program to fund emissions reduction projects through grants, ERCs, or similar mechanisms. DWR may identify emissions reduction projects through consultation with SJVAPCD, other regional air districts, CARB, CEC, local governments, transit agencies, or others, as needed. Potential projects could include but are not limited to the following. • Alternative fuel, low-emissions school buses, transit buses, and other vehicles. • Diesel engine retrofits and repowers. • Locomotive retrofits and repowers. • Electric vehicle or lawn equipment rebates. • Electric vehicle charging stations and plug-ins. • Video-teleconferencing systems for local businesses. • Telecommuting start-up costs for local businesses. As part of its alternative or complementary off-site mitigation program, DWR will develop pollutant-specific formulas to monetize, calculate, and achieve emissions reductions in a cost-effective manner. Payments can be allocated to emissions reductions projects in a grant-like manner. DWR will document the fee schedule basis, such as consistency with the CARB's Carl Moyer Program cost-effectiveness limits and capital recovery factors. DWR will conduct annual reporting to verify and document that emissions reductions projects achieve a 1:1 reduction with construction emissions to ensure claimed offsets meet the required performance standard. Each report should describe the projects that were funded over the prior year, identify emissions reduction realized by the funded projects, document compliance with mitigation requirements, and identify corrective actions (if any) needed to ensure the offsetting program achieves the performance standards for NOx and PM10. DWR will retain a third-party expert to assist with its review and approval of the annual reports. Annual reports will be finalized and posted on DWR's website by December 31 of the following year.							

MM #	Title	Mitigation Measure Text	Timing	Implementation Action	Reporting Schedule	Implementation Party	Implementation Mechanism	Participating or Permitting Organizations	Impact # and Impact Title
MM AQ-3	Offset Construction-Generated Criteria Pollutants in the San Francisco Bay Area Air Basin	**Performance Standard** Prior to issuance of construction contracts, DWR will enter into an MOU with the Bay Area Clean Air Foundation (Foundation), a public nonprofit and supporting organization for the BAAQMD, or develop an alternative or complementary mitigation program (as discussed below) to reduce NO_X. Emissions above the federal *de minimis* thresholds[4] will be reduced to net zero (0). Emissions not above the *de minimis* thresholds, but above BAAQMD's thresholds, will be reduced to quantities below the air district's thresholds. Emissions generated by project construction have been quantified as part of this Final EIR. Although this inventory could be used exclusively to inform the required mitigation commitment, the methods used to quantify emissions in the Final EIR were conservative. They also do not account for any additional reductions that may be achieved by future state and federal regulations that reduce the emissions intensity of equipment and vehicles, nor do they account for reduction strategies that may be implemented by DWR pursuant to other mitigation measures (e.g., Mitigation Measure AQ-9). Accordingly, this Final EIR likely overestimates actual emissions that would be generated by construction of the project. DWR may, therefore, reanalyze criteria pollutant emissions from construction of the project to update the required reduction commitment to achieve performance standard. An updated emissions analysis conducted for the project will be performed using approved emissions models and methods available at the time of the reanalysis. The analysis must use the latest available engineering data for the project, inclusive of any required environmental commitments or emissions reduction strategies. Consistent with the methodology used in this Final EIR, emissions factors may account for enacted regulations that will influence future year emissions intensities (e.g., fuel efficiency standards for on-road vehicles). **Mitigation Agreement with Bay Area Clean Air Foundation** 1. DWR will enter into an MOU with the (Clean Air) Foundation to reduce NO_X according to the performance standard described above. a. The mitigation offset fee amount will be determined at the time of mitigation to fund one or more emissions reduction projects within the SFBAAB. The Foundation will require an additional administrative fee of no less than 5% of the total offset fee. The mitigation offset fee will be determined by the Foundation based on the type of projects available at the time of mitigation. This fee is intended to fund emissions reduction projects to achieve reductions. Documentation of payment will be provided to DWR or its designated representative. b. The MOU will include details regarding the annual calculation of required offsets DWR must achieve, funds to be paid, administrative fee, and the timing of the emissions reduction projects. Acceptance of this fee by the Foundation will serve as an acknowledgment and commitment by the Foundation to (1) implement an emissions reduction project(s) within a timeframe to be determined based on the type of project(s) selected after receipt of the mitigation fee designed to achieve the emissions reduction objectives; and (2) provide documentation to DWR or its designated representative describing the project(s) funded by the mitigation fee, including the amount of emissions reduced (tons per year) from the emissions reduction project(s). To qualify under this mitigation measure, the specific emissions reduction project(s) must result in emissions reductions in the SFBAAB that are real, surplus, quantifiable, enforceable, and will not otherwise be achieved through compliance with existing regulatory requirements or any other legal requirement. Funding will need to be received prior to contracting with participants and should allow enough time to receive and process applications to fund off-site reduction	Preconstruction; Operations	Contract Requirements; Compliance Reporting	As needed	DWR	Condition Prior to Resource Impacts or Disturbance; Condition of MOU	BAAQMD; Clean Air Foundation	Impact AQ-3 Result in Impacts on Regional Air Quality within the Bay Area Air Quality Management District

[4] Federal *de minimis* thresholds are triggered if the project is subject to general conformity.

MM #	Title	Mitigation Measure Text	Timing	Implementation Action	Reporting Schedule	Implementation Party	Implementation Mechanism	Participating or Permitting Organizations	Impact # and Impact Title
		projects prior to commencement of the project activities that are being offset. This will roughly equate to 1 year prior to the required mitigation; additional lead time may be necessary depending on the level of off-site emissions reductions required for a specific year. **Alternative or Complementary Mitigation Program** Should DWR be unable to enter what they regard as a satisfactory agreement with the Foundation, or should DWR enter an agreement with the Foundation but find themselves unable to meet the performance standards established above, DWR will develop an alternative or complementary off-site mitigation program to reduce NO_X emissions according to the performance standard described above. DWR will establish a program to fund emissions reduction projects through grants, ERCs, or similar mechanisms. DWR may identify emissions reduction projects through consultation with BAAQMD, other regional air districts, CARB, CEC, local governments, transit agencies, or others, as needed. Potential projects could include but are not limited to the following. • Alternative fuel, low-emissions school buses, transit buses, and other vehicles. • Diesel engine retrofits and repowers. • Locomotive retrofits and repowers. • Electric vehicle or lawn equipment rebates. • Electric vehicle charging stations and plug-ins. • Video-teleconferencing systems for local businesses. • Telecommuting start-up costs for local businesses. As part of its alternative or complementary off-site mitigation program, DWR will develop pollutant-specific formulas to monetize, calculate, and achieve emissions reductions in a cost-effective manner. Payments can be allocated to emissions reductions projects in a grant-like manner. DWR will document the fee schedule basis, such as consistency with the CARB's Carl Moyer Program cost-effectiveness limits and capital recovery factors. DWR will conduct annual reporting to verify and document that emissions reductions projects achieve a 1:1 reduction with construction emissions to ensure claimed offsets meet the required performance standard. Each report should describe the projects that were funded over the prior year, identify emissions reduction realized by the funded projects, document compliance with mitigation requirements, and identify corrective actions (if any) needed to ensure the offsetting program achieves the performance standards for NOx. DWR will retain a third-party expert to assist with its review and approval of the annual reports. Annual reports will be finalized and posted on DWR's website by December 31 of the following year.							
MM AQ-5	Avoid Public Exposure to Localized Particulate Matter and Nitrogen Dioxide Concentrations	1. DWR will employ a tiered approach to reduce ambient exposure to localized PM and NO_2 concentrations. The approach will be taken in the following way. a. Conduct refined PM and NO_2 concentration modeling at locations identified in the air quality analysis as exceeding the SIL or ambient air quality standards (as appliable, depending on background concentrations). NO_2 modeling will be refined by using seasonal and diurnal hourly background NO_2 concentration data for the local air quality study area. In addition, ozone data from the same hourly meteorological period will be used to perform a Tier 3 analysis of 1-hour NO_2 using the EPA's ozone limiting method. The refined PM modeling (both PM2.5 and PM10) will be performed using local site-specific representative data collected for silt loading and soil moisture content. The measurement will be completed using specific test methods as described in EPA AP-42 Appendix C.1. *Procedures for Sampling Surface/Bulk Dust Loading* and EPA AP-42 Appendix C.2. *Procedures for Laboratory Analysis of Surface/Bulk Dust Loading Samples*. These site-specific silt loading and soil moisture measurements will be used to determine emissions estimates for use in the refined PM concentration modeling. b. If the refined modeling shows an exceedance of the SIL or ambient air quality standards (as appliable), DWR will conduct real-time air quality	Construction	Compliance Reporting; Monitoring	Monthly	Contractor(s); DWR	Condition of Compliance Reporting	N/A	Impact AQ-5 Result in Exposure of Sensitive Receptors to Substantial Local Criteria Pollutant Emissions

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		monitoring for PM and/or NO_2 during construction at locations identified in the refined modeling as potentially exceeding the SIL or ambient air quality standards (as appliable, depending on background concentrations). The monitoring will be conducted according to the following requirements. i. **Background Monitoring During Construction:** DWR will identify representative background PM and/or NO_2 air quality monitors in coordination with the local air district. CARB and air districts maintain a network of air quality monitoring sites designed to monitor background concentrations within the air district. Project construction features must be within the spatial scale[5] of representativeness for the selected monitors. DWR will identify background monitoring stations based on their proximity to project construction features and registered spatial scale. DWR will confirm with the local air district that the selected stations are representative of ambient air quality for the study area(s). DWR will also confirm with the station administrator (CARB or local air district) that the selected monitoring stations will operate during construction of those features for which the background concentrations will be applied and real-time monitoring results will be accessible to DWR. In the event that there are no CARB or air district monitoring stations within an appropriate distance of project construction features (as determined through consultation with the local air district), or those stations will not operate during project construction and/or real-time data would not be available to DWR, DWR will consult with the local air district to identify alternative monitoring stations, which may include establishment of a DWR operated background station. Any alternative monitoring station used to collect background monitoring data must meet the network design criteria for ambient air quality monitoring defined in 40 CFR Part 58, Appendix D. DWR must obtain confirmation from the local air district that the alternative monitoring station(s) meet these design standards. ii. **On-Site Construction Monitoring:** Downwind monitoring during construction will be conducted by DWR in the prevailing downwind direction from the construction activity at the fence line location. The location of the monitor may be moved from time to time to follow changes in active construction. DWR will use a monitoring method that is equivalent to the method used at the background station (e.g., Federal Reference Method). This will allow real-time differences in PM concentrations to be determined through a comparison of the construction monitoring data collected by DWR to the background monitoring maintained by the air district. The difference in concentrations between the monitoring results represents the incremental project contribution for comparison to the SILs. iii. **Increment:** If the real-time construction monitoring concentration is found to be within 80% of the 24-hour PM10 CAAQS (50 $\mu g/m^3$) or 24-hour PM2.5 NAAQS (35 $\mu g/m^3$), and the real-time hourly increment (construction minus background) concentrations are found to be within 80% of the 24-hour PM10 SIL (5 $\mu g/m^3$) or 24-hour PM2.5 SIL (1.2 $\mu g/m^3$), then DWR will take corrective action to reduce incremental concentrations to acceptable levels (i.e., 24-hour PM10 CAAQS [50 $\mu g/m^3$] or 24-hour PM2.5 NAAQS [35 $\mu g/m^3$]). Likewise, if the real-time construction monitoring concentration is found to be within 80% of the 1-hour NO_2 CAAQS (188 $\mu g/m^3$), then DWR will take corrective action to reduce total concentrations to acceptable							

[5] 40 CFR Part 58, Appendix D defines spatial scale as the "physical dimensions of the air parcel nearest to a monitoring site throughout which actual pollutant concentrations are reasonably similar." The six scales are microscale (several meters to 100 meters), middle scale (100 meters to 0.5 kilometer), neighborhood scale (0.5 kilometer to 4.0 kilometers), urban scale (4.0 kilometers to 50 kilometers), regional scale (tens to hundreds of kilometers), and national and global scales.

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		levels (i.e., 24-hour PM10 CAAQS [50 µg/m^3] or 24-hour PM2.5 NAAQS [35 µg/m^3]). All feasible actions necessary to reduce concentrations to an acceptable level, including but not limited to potentially limiting construction activity during adverse meteorological conditions (e.g., during high wind events), relocating construction activity during the adverse period, or taking additional corrective activities to limit emissions (e.g., temporary covering of portions of the storage piles, reducing equipment operation). iv. **Timing:** DWR will select the background monitoring station(s) prior to obtaining the authority to construct permit for the construction activities. Background monitoring (i) and on-site construction monitoring (ii) will occur daily over the entire duration of construction activities. v. **Reporting:** DWR will conduct monthly reviews of the concentration data and maintain a record of data throughout construction. If the measured increment concentrations attributable to on-site construction activities exceed the performance standard (SIL or ambient air quality standard), DWR will report this information to the local air district and describe the action(s) taken to reduce the increment concentrations (as described under [iii]).							
MM AQ-9	Develop and Implement a GHG Reduction Plan to Reduce GHG Emissions from Construction and Net CVP Operational Pumping to Net Zero	Prior to issuance of the first construction or grading permit for the project, DWR will retain a qualified consultant to develop a GHG Reduction Plan (Plan) to mitigate GHG emissions resulting from construction and displaced purchases of CVP electricity to net zero. Net additional GHG emissions from construction and displaced purchases of CVP electricity have been quantified as part of this Final EIR and total between 398,106 and 629,346 metric tons CO_2e, depending on the alternative. Construction of the compensatory mitigation restoration sites is predicted to generate an additional 3,883 metric tons CO_2e. This yields a reduction commitment of up to 633,229 metric tons CO_2e needed to meet the net zero performance standard. The net zero performance standard may be achieved based on actual emissions calculations, as described below. The reduction commitment may therefore change based on project activities and adoption of new state regulations. Notably, if CARB's amendments to the Regulation for Reducing Sulfur Hexafluoride Emissions from Gas Insulated Switchgear (SF_6 Switchgear Regulation) are not adopted, DWR must reduce annual ongoing SF_6 from electrical transmission beyond 2045. This is further discussed below. Required content for the Plan is identified in Section A below, including potential GHG reduction strategies to achieve the net zero performance standard. Monitoring, reporting, and enforcement requirements for future implementation of the Plan are outlined in Section B. **A. Required Plan Contents** 1) *Emissions Quantities and Reduction Commitments:* GHG emissions from construction and displaced purchases of CVP electricity must be mitigated to net zero on a continual basis throughout construction and operations. This will require DWR to constantly "stay ahead" of the estimated emissions through early investment in GHG reduction efforts prior to construction (to ensure mitigation of unavoidable initial construction GHG emissions) and advanced planning for GHG reductions so that throughout the construction and operational period, the net effect of project emissions and this mitigation is that the project will not result in any increase in GHG emissions over baseline conditions. Since some of the planning will rely on the estimated GHG reduction value of future actions during construction and operation, there may be some need for "catch up" GHG reductions if emissions are higher than expected or reduction results are lower than expected. Conversely, if emissions are lower than expected or reduction results are higher than expected, there may be some building up of "forward credits" for the next phase of construction and/or operations.	Preconstruction; Construction	Contract Requirements; Compliance Reporting	Annually	Contractor(s); DWR	Condition Prior to Resource Impacts or Disturbance; Condition of Design Documents and Construction Contract	N/A	Impact AQ-9: Develop and Implement a GHG Reduction Plan to Reduce GHG Emissions from Construction and Net CVP Operational Pumping to Net Zero

MM #	Title	Mitigation Measure Text	Timing	Implementation Action	Reporting Schedule	Implementation Party	Implementation Mechanism	Participating or Permitting Organizations	Impact # and Impact Title
		2) *Plan Development:* Developing a fixed and rigid implementation strategy up-front to cover 12 to 14 years of construction, depending on the alternative, followed by project operation will be restrictive and will potentially preclude DWR from pursing future reduction technologies that could be economically or environmentally superior to options that are currently available. Given the constraints associated with developing a fixed and rigid reduction plan to cover all project emissions, the Plan may be developed and implemented over multiple phases. A phased approach provides increased implementation and management flexibility. It also enhances Plan quality as lessons learned during initial phases are applied to future reduction efforts. The first phase of the Plan must address no fewer than the first 5 years of construction. The Plan will be amended to provide implementation details for subsequent phases according to the requirements in Section B below. The Plan will identify the amount of GHG emissions anticipated in the covered phase, as well as emissions from prior phases (if applicable) and the projected total net emissions of the project. This Final EIR presents an estimate of annual GHG emissions generated by project construction and displaced purchases of CVP electricity. Although this inventory could be used exclusively to inform the required mitigation commitment, the methods used to quantify emissions in the Final EIR were conservative. They also do not account for any GHG reduction strategies that may be implemented by DWR pursuant to this measure. Accordingly, this Final EIR likely overestimates actual GHG emissions that would be generated by the project. DWR may therefore reanalyze GHG emissions for any phase of the project to update the required reduction commitment to achieve net zero. An updated emissions analysis conducted for the Plan will be performed using approved emissions models and methods available at the time of the reanalysis. The analysis must use the latest available engineering data for the project, inclusive of any required environmental commitments or GHG emissions reduction strategies. Consistent with the methodology used in this Final EIR, emissions factors may account for enacted regulations that will influence future year emissions intensities (e.g., fuel efficiency standards for on-road vehicles). Emissions from displaced purchases of CVP electricity will be derived by subtracting the project total energy consumption from what would have been generated by the system without implementation of the project, and then multiplying the net change in energy consumption by the statewide grid average emissions intensity. 3) *GHG Reduction Strategies:* Each phase of the Plan will identify the GHG reduction strategies that will be implemented during that phase to achieve the net zero performance standard. Strategies that could be used in formulating the Plan are summarized below. GHG reduction strategies must be verifiable and feasible to implement. The Plan will identify the entity responsible for implementing each strategy (if not DWR) and the estimated GHG reduction that will be achieved by implementation of the strategy. If the selected strategies are shown to exceed total net emissions of that phase, the estimated surplus can be applied as a credit in future phase(s), as explained in Section B.1. Environmental commitments (Section A.3a) are required project design features that must be incorporated into the Plan. Following environmental commitments, DWR will prioritize selected strategies as: (1) on-site construction strategies (Section A.3b); (2) off-site strategies (Section A.3c); and (3) GHG credits (Section A.3d). The order of priority for the location of selected strategies will be: (1) within the project right-of-way; (2) within communities surrounding the water conveyance alignment (e.g., Hood); (3) throughout California's Central Valley and Northern California; (4) in the State of California; (5) in the United States; and (6) outside of the United							

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States. If using off-site strategies or GHG credits, the Plan must present substantial evidence to explain why higher priority strategies were deemed infeasible as defined under CEQA.

It is possible that some of the strategies could independently achieve the net zero performance standard for the project. Various combinations of strategies could also be pursued to optimize total costs or community co-benefits. DWR will be responsible for determining the overall mix of strategies necessary to ensure the performance standard to mitigate the significant GHG impact is met.

The list of strategies presented in this section is not exclusive. DWR may include additional or new strategies to reduce GHG emissions to the extent that they become commercially available and cost effective and earn a track-record for reliability in real-world conditions. This may include new equipment and vehicle systems (e.g., autonomous construction equipment, fuel-cells), new energy systems (e.g., battery storage), or other technologies (e.g., carbon capture and storage).

a. Environmental Commitments: All phases of the Plan must incorporate the following environmental commitments. Refer to Appendix 3B, *Environmental Commitments and Best Management Practice*, for measure descriptions and Chapter 3, *Description of the Proposed Project and Alternatives*.
   - *i.* EC-7: *Off-Road Heavy-Duty Engines*
   - *ii.* EC-8: *On-Road Haul Trucks*
   - *iii.* EC-9: *On-Site Locomotives*
   - *iv.* EC-10: *Marine Vessels*
   - *v.* EC-13: *DWR Best Management Practices to Reduce GHG Emissions*
   - *vi.* Install electric vehicle (EV) charging stations at employee park-and-ride lots (see Chapter 3, Section 3.4.13, *Park-and-Ride Lots*).
   - *vii.* Require electric shuttles and buses to transport employees from the park-and-ride lots to construction sites (see Chapter 3, Section 3.4.13).

b. On-Site Construction Strategies: Strategies to reduce on-site construction emissions may include but are not limited to the following.
   - *i.* *Purchase Zero-Carbon Electricity:* Enter into a power purchase agreement, where feasible, with utilities that provide electricity service to the study area to purchase construction electricity from renewable sources. Renewable sources must be zero-carbon energy sources (e.g., wind, solar, hydro) and may not be accounted to utility RPS goals.
   - *ii.* *Optimize Delivery Logistics:* Utilize freight instead of on-road haul trucks to deliver construction materials and equipment, if feasible.

c. Off-Site Strategies: Off-site strategies to reduce emissions may include but are not limited to the following.
   - *i.* *Support Community Building Energy Efficiency Improvements:* In coordination with local utilities, fund or contribute to an energy efficiency improvement program to achieve reductions in residential and commercial natural gas and electricity usage. Potential building improvements may include energy efficient appliances, energy efficient boilers, installation of alternative water heaters in place of natural gas storage tank heaters, installation of induction cooktops in place of gas ranges, or installation of cool roofs or green roofs.
   - *ii.* *Support Community Renewable Energy Projects:* In coordination with local utilities, fund or contribute to community solar, wind,

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		or other renewable energy projects or programs. This could include providing funding to support utility programs that will allow homeowners to install solar photovoltaic systems at zero or minimal up-front cost. All projects installed under this measure must be designed for high performance (e.g., optimal full-sun location, solar orientation) and additive to utility RPS goals. *iii.* *Support Energy Decarbonization Projects:* In coordination with local utilities, fund or contribute to community infrastructure projects (e.g., retirement of natural gas facilities) to support decarbonization of the electric power sector. *iv.* *Support Community Transit Programs:* In coordination with local transit providers, fund or contribute to programs to increase the use of public transit (e.g., increased transit frequency, reduced transit fares). *v.* *Support Community Pedestrian Network Improvements:* In coordination with local authorities, fund or contribute to programs to increase sidewalk coverage to improve pedestrian access and interconnectivity of the pedestrian network. *vi.* *Support Community Bicycle Network Improvements:* In coordination with local authorities, fund or contribute to programs to construct or improve bicycle lane facilities (Class I, II, or IV) or bicycle boulevards. *vii.* *Support Community Carshare or Bikeshare Programs:* In coordination with local authorities, fund or contribute to the deployment of neighborhood/city conventional or electric carshare or bikeshare programs. *viii.* *Support Transportation Decarbonization Projects:* In coordination with local authorities, utilities, or transit providers, fund or contribute to community infrastructure projects (e.g., electric-transit buses, EV infrastructure) to support decarbonization of the transportation sector. *ix.* *Support Biomass Waste Digestion and Conversion Facilities:* Fund or contribute financing to facility development either through power purchase agreements or up-front project financing. Projects should be awarded through a competitive bidding process and chosen for GHG reduction and other environmental benefits to the project area. Projects could provide a range of final products: electricity generation, compressed natural gas for transportation fuels, and pipeline quality biomethane. Renewable electricity generation may not be accounted to RPS goals. *x.* Support Agriculture Waste Conversion Development: Fund or contribute financing to the re-commissioning of thermal chemical conversion facilities to process collected agricultural biomass residues. Project funding should provide incentives to farmers in the project area to deliver agricultural wastes to existing facilities. *xi.* *Increase Renewable Energy Purchases for Operations:* Increase renewable energy purchases under DWR's REPP) to reduce project emissions. The REPP identifies the quantity of renewable electricity resources that DWR will purchase each year to achieve the GHG emissions reduction goals laid out in its Update 2020. *xii.* *Support Tidal Wetland Inundation Projects:* Expand the number of subsidence reversal and/or carbon sequestration projects currently being undertaken by DWR on Sherman and Twitchell Islands. Existing research at the Twitchell Wetlands Research Facility demonstrates that wetland restoration can sequester 25 tons of carbon per acre per year. Measure funding could be used to finance permanent wetlands for waterfowl or rice cultivation,							

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creating co-benefits for wildlife and local farmers.

xiii. *Support Urban Tree Planting:* In coordination with local authorities, fund, contribute to, or implement a program to expand urban tree planting. The program should prioritize native tree species that require minimal water and maintenance, low-biogenic VOC emitting tree species, and low-allergen tree species. All trees should be appropriately distanced from buildings, especially in high fire areas.

xiv. *Conserve Agricultural Lands:* In coordination with local authorities, fund a program to protect agricultural lands from conversion to urban or rural residential development.

b. GHG Credits: A GHG credit enables development projects to compensate for their GHG emissions and associated environmental impacts by financing reductions in GHG emissions elsewhere. GHG credits derived from completed prior actions are referred to as "GHG offsets" or "carbon offsets." GHG credits derived from future contracted actions are referred to as "GHG future credits" or "GHG future mitigation units" (FMUs). GHG credits (including offsets) are classified as either compliance credits or voluntary credits. Compliance offsets can be purchased by covered entities subject to the cap-and-trade regulation to meet predetermined regulatory targets (to date, the cap-and-trade regulation only allows the use of GHG offsets, not GHG future credits). Voluntary offsets or voluntary GHG future credits are not associated with the cap-and-trade regulation and are purchased with the intent to voluntarily meet carbon neutral or other environmental obligations.

As of June 2021, DWR has 59,552 credits registered with the American Carbon Registry (ACR).[6] One credit is equal to a GHG reduction or GHG removal enhancement of 1 metric ton of CO_2e. All GHG credits must be created through a CARB-approved registry. These registries are currently the ACR, Climate Action Reserve, and Verra, although additional registries may be accredited by CARB in the future. These registries use robust accounting protocols for all GHG credits created for their exchange, including the six currently approved CARB protocols. This mitigation measure specifically requires GHG credits created for the project to originate from a CARB-approved protocol or a protocol that is equal to or more rigorous than CARB requirements under 17 Cal. Code Regs. Section 95972. The selected protocol must demonstrate that the reduction of GHG emissions are real, permanent, quantifiable, verifiable, enforceable, and additional. Definitions of these terms from 17 Cal. Code Regs. Section 95802(a) are provided below (the original text used the term *offset*, which has been replaced in the text below with the generic term *GHG credit*, as this measure allows for use of both offsets and FMUs).

- **Real:** GHG reductions or GHG enhancements result from a demonstrable action or set of actions, and are quantified using appropriate, accurate, and conservative methodologies that account for all GHG emissions sources, GHG sinks, and GHG reservoirs within the [GHG credit] project boundary and account for uncertainty and the potential for activity-shifting leakage and market-shifting leakage.
- **Additional:** GHG reductions or removals that exceed any GHG reduction or removals otherwise required by law, regulation, or legally binding mandate, and that exceed any GHG reductions or removals that would otherwise occur in a conservative business-

[6] Of the 59,552 issued credits, 7,147 credits were issued to the ACR controlled buffer pool. Credits issued to the buffer pool cannot be used as project mitigation.

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		as-usual scenario. ○ **Permanent:** GHG reductions and GHG removal enhancements are not reversible, or when GHG reductions and GHG removal enhancements may be reversible, mechanisms are in place to replace any reversed GHG emissions reductions and GHG removal enhancements to ensure that all credited reductions endure for at least 100 years. ○ **Quantifiable:** The ability to accurately measure and calculate GHG reductions or GHG removal enhancements relative to a project baseline in a reliable and replicable manner for all GHG emissions sources, GHG sinks, or GHG reservoirs included within the [GHG credit] project boundary, while accounting for uncertainty and activity-shifting leakage and market-shifting leakage. ○ **Verified:** A [GHG credit] project report assertion is well documented and transparent such that it lends itself to an objective review by an accredited verification body. ○ **Enforceable:** The authority for CARB to hold a particular party liable and to take appropriate action if any of the provisions of this article are violated. Note that this definition of enforceability is specific to the cap-and-trade regulation, where CARB holds enforcement authority, but this measure will employ GHG credits from the voluntary market, where CARB has no enforcement authority. Applying the definition to this mitigation measure means that GHG reductions must be owned by a single entity and be backed by a legal instrument or contract that defines exclusive ownership. GHG credits may be in the form of GHG offsets for prior reductions of GHG emissions verified through protocols or FMUs for future committed GHG emissions meeting protocols. Because emissions reductions from GHG offsets have already occurred, their benefits are immediate and can be used to compensate for an equivalent quantity of project-generated emissions at any time. GHG credits from FMUs must be funded and implemented within 5 years of project GHG emissions to qualify as a GHG credit under this measure (i.e., there can only be a maximum of 5 years lag between project emissions and their real-world reductions through funding an FMU in advance and implementing the FMU on the ground). Any use of FMUs that result in a time lag between project emissions and their reduction by GHG credits from FMUs must be compensated through a pro-rated surcharge of additional FMUs proportional to the effect of the delay. Since emissions of CO_2 in the atmosphere reach their peak radiative forcing within 10 years, a surcharge of 10% for every year of lag between project emissions and their reduction through an FMU will be added to the GHG credit requirement (i.e., 1.10 FMUs will be required to mitigate 1 metric ton of project GHG emissions generated in the year prior to funding and implementation of the FMU). Consistent with the priorities outlined above in Section A.2, GHG credits from reduction projects in geographies closest to the water conveyance alignment (i.e., Sacramento and Central Valley) will be prioritized before projects in larger geographies (i.e., Southern California, California, United States, internationally). DWR will inform brokers of the required geographic prioritization for the procurement of GHG credits. GHG credits from reduction projects identified in the Sacramento and Central Valley that are of equal or lesser cost compared to the settlement price of the latest cap-and-trade auction must be included in the transaction. GHG credits from reduction projects in larger geographies may be purchased if adequate credits							

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cannot be found in the Sacramento and Central Valley or they exceed the price maximum identified above. The economic and geographic analysis undertaken to inform the selection of GHG credits must be provided as part of the required documentation discussed below in Section B.3.

All GHG credits will be verified by an independent verifier accredited by the ANSI National Accreditation Board (ANAB) or CARB, or an expert with equivalent qualifications to the extent necessary to assist with the verification. Following the standards and requirements established by the accreditation board (ANAB or CARB), the verifier will certify the following.

- GHG credits conform to a CARB-approved protocol or a protocol that is equal to or more rigorous than CARB requirements under 17 Cal. Code Regs. Section 95972. Verification of the latter requires certification that the credits meet or exceed the standards in 17 Cal. Code Regs. Section 95972.
- GHG credits are real, permanent, quantifiable, verifiable, enforceable, and additional, as defined in this measure.
- GHG credits were purchased according to the geographic prioritization standard defined in this measure.

Verification of GHG offsets must occur as part of the certification process for compliance with the accounting protocol. Because FMUs are GHG credits that will result from future projects, additional verification must occur beyond initial certification. Verification for FMUs must include initial certification and independent verification every 5 years over the duration of the FMU generating the GHG credits. The verification will examine both the GHG credit realization on the ground and its progress toward delivering future GHG credits. DWR will retain an independent verifier meeting the qualifications described above to certify reductions achieved by FMUs are achieved following completion of the future reduction project.

B. Implementation and Enforcement

1) *Phased Analysis and Plan Amendments:* As described above in Section A.1, the Plan may be developed and implemented over multiple phases. Prior to the start of each phase, DWR will update the Plan to calculate the amount of GHG emissions anticipated in the covered phase, as well as emissions from prior phases (if applicable) and the projected total net emissions of the project. The Plan will identify the specific GHG reduction strategies that will be implemented to meet the net zero performance standard for the covered phase and quantify the expected reductions that will be achieved by each strategy. All emissions and reductions will be quantified in accordance with the requirements outlined in Section A.1.

DWR will retain a qualified professional firm where the supervising staff has at least 10 years of experience performing air quality and GHG analysis to assist with its review and approval of the Plan. Subsequent amendments to the Plan will identify reductions that have been achieved during prior phases and determine if those reductions exceed emissions generated by the project. If the GHG reduction strategies implemented by DWR result in a surplus of reductions above the net zero performance standard, the balance of those reductions may be credited to subsequent phases.

The final phase of the Plan must address operational emissions following construction, accounting for regulations adopted at that time that will reduce project emissions. Specifically, DWR will confirm statewide emissions from electricity transmission will achieve carbon neutrality no later than December 31, 2045, pursuant to SB 100 and the SF_6 Switchgear Regulation (or subsequent regulations). If GHG emissions from displaced purchases of CVP electricity are expected to persist beyond 2045, DWR will

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		calculate the amount of GHG emissions anticipated until the industry achieves carbon neutrality. The final Plan will identify GHG reduction strategies that will be implemented by DWR to meet the net zero performance standard for these emissions. 2) *Timing and Execution:* DWR will prepare the Plan (or first phase of the Plan) prior to issuance of the first construction or grading permit for the project. If DWR elects to use a phased approach, the first phase of the Plan must identify the expected future phases and schedule for amending the Plan to cover future phases. Environmental Commitments and selected on-site construction strategies will be included in construction permits (as appliable) and contractor bid packages/agreements. Selected off-site strategies will be completed or operational before completion of the applicable phase. If GHG credits are pursued, DWR will enter the necessary contract(s) to purchase credits prior to the start of each phase. All credits must be retired before completion of the applicable phase. 3) *Reporting:* DWR will conduct annual reporting to verify and document that selected strategies achieve sufficient emissions reductions to mitigate project emissions to net zero. Each report should describe the GHG reduction strategies that were implemented over the prior year, summarize past, current, and anticipated project phasing, document compliance with Plan requirements, and identify corrective actions (if any) needed to ensure the Plan achieves the net zero performance standard. If GHG credits have been purchased to reduce emissions for the reporting year, the annual report must include copies of the offset retirement verification. DWR will retain a qualified professional firm where the supervising staff has at least 10 years of experience performing air quality and GHG analysis to assist with its review and approval of the annual reports. Annual reports will be finalized and posted on DWR's website by December 31 of the following year.							
MM AQUA-1a	Develop and Implement an Underwater Sound Control and Abatement Plan	DWR will implement an underwater sound control and abatement plan outlining specific measures such as changing the time of activities, best practices, and equipment that will be used to avoid and minimize the effects of underwater construction noise on fish, particularly the underwater noise effects associated with impact pile driving activities. The underwater sound control and abatement plan will be provided to the appropriate fish and wildlife agencies for their review and approval prior to any in-water impact pile driving activities. The plan will evaluate the potential effects of underwater noise on fish using applicable and interim underwater noise thresholds established for disturbance and injury of fish (California Department of Transportation 2020:4-24–4-31). The thresholds include the following. 1. Injury threshold for fish of all sizes includes a peak sound pressure level (SPL) of 206 decibels (dB) relative to 1 micropascal. 2. Injury threshold for fish less than 2 grams is 183 dB relative to 1 micropascal cumulative sound exposure level ($SEL_{cumulative}$), and 187 dB relative to 1 micropascal $SEL_{cumulative}$ for fish greater than or equal to 2 grams. 3. Disturbance threshold for fish of all sizes is 150 dB root mean square relative to 1 micropascal. The specific number of pilings that will be driven per day with an impact pile driver, and thus the number of pile strikes per day, will be defined as part of the design of project elements that require pilings; initial assumptions are presented in Tables 12-5, 12-6, 12-7, and 12-8. The sound control and abatement plan will restrict in-water work to the in-water work windows specified in Environmental Commitment EC-14 (Appendix 3B) and approved by NMFS/USFWS/CDFW. There would be rest periods without pile driving at night.	Preconstruction; Construction	Contract Requirements	As needed	Contractor(s)	Condition of Design Documents and Construction Contract	CDFW; NMFS; USFWS	Impact AQUA-1: Effects of Construction of Water Conveyance Facilities on Fish and Aquatic Species; Impact AQUA-20: Effects of Construction of Water Conveyance Facilities on California Sea Lion; Impact BIO-56: Substantial Adverse Effects on Fish and Wildlife Resources Regulated under California Fish and Game Code Section 1600 et seq.

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		The underwater noise generated by impact pile driving will be abated using the best available and practicable methods. Examples of such methods include the use of vibratory rather than impact pile driving equipment; use of an impact pile driver to proof piles initially placed with a vibratory pile driver; noise attenuation with pile caps (e.g., wood or micarta), bubble curtains, air-filled fabric barriers, or isolation piles; or installation of piling-specific cofferdams. Specific techniques to be used will be selected based on site-specific conditions. In addition to primarily using vibratory pile driving methods and establishing protocols for attenuating underwater noise levels produced during in-water construction activities, DWR will develop and implement operational protocols for when impact pile driving is necessary. These operational protocols will be used to minimize the effects of impact pile driving on fish and sea lions and will include the following. 1. Monitoring[7] the in-water work area for the presence of sea lions or for fish that may be showing signs of distress or injury as a result of pile driving activities and stopping work when sea lions are detected or when distressed or injured fish are observed, for example, if injured fish are seen floating near the surface. Work will be allowed to restart per guidance of the monitor. 2. Initiating impact pile driving with a "soft-start," where feasible, such that pile strikes are initiated at reduced impact and increase to full impact over several strikes to provide fish an opportunity to move out of the area. 3. Restricting impact pile driving activities to specific times of the day and for a specific duration to be determined through coordination with the fish and wildlife agencies. 4. If more than one pile driving rig is employed, ensuring pile driving activities are initiated in a way that provides an escape route and avoid "trapping" fish between pile drivers in waters exposed to underwater noise levels that could potentially cause injury. Where impact pile driving is required, prior to starting pile driving and during the pile driving, DWR will monitor underwater sound levels and require compliance with underwater noise thresholds at a distance appropriate (per guidance of the monitor) for protection of the species (e.g., 183 dB $SEL_{cumulative}$ for fish less than 2 grams, 187 dB $SEL_{cumulative}$ for fish greater than 2 grams), based on the results from calculations to be provided in the underwater sound control and abatement plan. If such monitoring shows that noise could exceed applicable thresholds, physical or operational attenuation methods will be implemented to ensure compliance with these thresholds.							
MM AQUA-1b	Develop and Implement a Barge Operations Plan	DWR will require that any construction contractor proposing to use barges (to perform construction or to transport materials or equipment) develop a barge operations plan, to be approved by NMFS, USFWS, and CDFW. Each plan will be developed and submitted by the construction contractors per standard DWR contract specifications. Each barge operations plan will be part of a comprehensive traffic control plan coordinated with the U.S. Coast Guard for large channels. The barge operations plan will address the following topics. 1. Bottom scour from propeller wash. 2. Bank erosion or loss of submerged or emergent vegetation from propeller wash and/or excessive wake. 3. Accidental material spillage. 4. Sediment and benthic community disturbance from accidental or intentional barge grounding or deployment of barge spuds (extendable shafts for temporarily maintaining barge position) or anchors, including a timeline for addressing grounding to minimize risk from potential channel blockage. 5. Hazardous materials spills (e.g., fuel, oil, hydraulic fluids).	Preconstruction; Construction	Contract Requirements; Compliance Reporting	As needed	Biological Monitor; Contractor(s)	Condition of Design Documents and Construction Contract; Condition of Regulatory Permit	CDFW; NMFS; Central Valley RWQCB; USCG; USFWS	Impact AQUA-1: Effects of Construction of Water Conveyance Facilities on Fish and Aquatic Species; Impact AQUA-20: Effects of Construction of Water Conveyance Facilities on California Sea Lion; Impact BIO-56: Substantial Adverse Effects on Fish and Wildlife Resources Regulated under California Fish and Game Code Section 1600 et seq.

[7] Monitoring will be conducted by a NMFS-/USFWS-/CDFW-approved monitor. If distress or injury are observed, the incident will be reported to NMFS/USFWS/CDFW.

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		The barge operations plan will serve as a guide to barge operations and to a biological monitor who will evaluate barge operations daily during construction with respect to the stated performance measures outlined in this mitigation measure (see *Performance Measures* below). This plan, when approved by the DWR and other resource agencies, will be read by barge operators and a physical copy of the plan kept aboard all vessels operating at the construction sites. **Sensitive Resources** The barge operations plan is intended to protect fish and aquatic resources in the vicinity of barge operations. The plan will be developed to avoid barge-related effects on listed species of fish; if avoidance is not possible, the plan will include provisions to minimize effects on fish and aquatic resources as described under the *Avoidance Measures*, *Environmental Training*, and *Approach and Departure Protocol* sections below. The sensitive resources potentially affected by barge maneuvering and anchoring in affected areas are listed below. 6. Sediments that could cause turbidity or changes in bathymetry if disturbed. 7. Bottom-dwelling (benthic) invertebrates that provide a prey base for fish. 8. Riparian vegetation that provides shade, cover, habitat structure, and organic nutrients to the aquatic environment. 9. Submerged aquatic vegetation that provides habitat structure and primary (plant) production. **Responsibilities** Construction contractors operating barges in the process of constructing the water conveyance facilities will be responsible for the following. 10. Operate vessels safely to prevent significant impacts on aquatic resources of the Delta. 11. Read, understand, and follow the barge operations plan. 12. Report to the project biological monitor any vessel grounding or other deviations from the barge operations plan that could have resulted in the disturbance of bottom sediments, damage to riverbanks, or loss of submerged, emergent, or riparian vegetation. 13. Immediately report material fuel or oil spills to the CDFW Office of Spill Prevention and Response, the project biological monitor, and DWR. 14. Follow all other relevant plans, including the hazardous materials management plan, stormwater pollution prevention plan (SWPPP), and spill prevention, control, and countermeasure plan (SPCCP). 15. Observe state laws regarding monitoring and control of invasive species when introducing new watercraft to the Delta. The biological monitor will be responsible for the following. 16. Observe barge operation activities including loading and unloading. 17. Provide same-day reports to DWR on any observed problems with barge operations. 18. Provide annual reports to DWR, summarizing monitoring observations during each construction year, including an evaluation of the plan performance measures. The annual report will also include descriptions and representative photographs and/or videos of conditions of riverbanks and vegetation. 19. Visit each site requiring barges to determine the extent of emergent and riparian vegetation, bank conditions, and general site conditions during the growing season prior to initiation of construction, during construction, and then annually for up to 5 years after construction. 20. Monitor construction including observation of barge arrival, loading, and unloading; departure of barges at each active site and the condition of both riverbanks at each site; pile driving; and other in-water construction activity as directed by DWR.							

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		Avoidance Measures The following avoidance measures will be implemented to ensure that the goal of avoiding impacts on aquatic resources from tugboat and barge operations will be achieved: training of tug boat operators; limiting vessel speed to minimize the effects of wake impinging on unarmored or vegetated banks and the potential for vessel wake to strand small fish; limiting the direction and/or velocity of propeller wash to prevent bottom scour and loss of aquatic vegetation; and prevention of spillage of materials and fluids from vessels. If deviations from the identified environmental training, approach and departure protocol, and performance measures are required to maintain the safety of vessels and crew, at the earliest practicable convenience, the biological monitor will be informed of the circumstances and any apparent impacts on water quality, habitats, fish, or wildlife. Any such impacts will be brought to the attention of the applicable fish and wildlife agency to ascertain and implement appropriate actions. *Environmental Training* All pilots operating at intake construction and geotechnical exploration sites will be required to read and follow the barge operations plan and to keep a physical copy of the plan aboard and accessible. All pilots responsible for operating a vessel at the intake sites will read the barge operations plan and sign an affidavit as provided in the plan. *Approach and Departure Protocol* DWR will require that construction contractors develop and implement a protocol for site approach and departure to ensure the following. 21. Vessel operators will obey all federal and state navigation regulations that apply to the Delta. 22. All vessels will approach and depart from sites at dead slow in order to reduce vessel wake and propeller wash. 23. To minimize bottom disturbance, anchors and barge spuds will be used to secure vessels only when it is not possible to tie up. 24. Barge anchoring will be preplanned. Anchors will be lowered into place and not be allowed to drag across the channel bed. 25. Vessel operators will limit vessel speed as necessary to maintain wake heights of less than 2 feet at shore. 26. Vessel operators will avoid pushing stationary vessels up against fixed structures for extended periods, because this could result in excessive directed propeller wash impinging on a single location. Barges will be tied up whenever possible to avoid the necessity of maintaining stationary position by tugboat or by the use of barge spuds. 27. Barges will not be anchored where they will ground during low tides. 28. All vessels will obey U.S. Coast Guard regulations related to the prevention, notification, and cleanup of hazardous materials spills. 29. All vessels will keep an oil spill containment kit and spill prevention and response plan onboard. 30. In the event of a fuel spill, CDFW Office of Spills Prevention and Response will be contacted immediately at 800-852-7550 or 800-OILS-911 (800-645-7911) to report the spill. 31. When transporting loose materials (e.g., sand, aggregate), barges will use deck walls or other features to prevent loose materials from blowing or washing off the deck. *Performance Measures* Performance will be assessed based on the results of the biological monitoring reports. The assessment will evaluate observations for the following indicators of impacts. • **Emergent vegetation loss.** The extent and dominant species of emergent							

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vegetation will be determined and mapped by a global positioning system (GPS) unit at and cross-channel from each of the intake sites during the growing seasons prior to, during, and after construction. Extent will be mapped as linear coverage along the site and opposite banks. In the event that the linear extent of emergent vegetation is found to have decreased by 20% or more following construction (or as otherwise conditioned by applicable CDFW streambed alteration agreements), the position and nature of the change will be evaluated for the probability that the loss was due to barge grounding, propeller wash, or other effects related to barge operations. Adequate performance will be achieved if the linear extent of riparian and emergent vegetation following construction is at least 80% of the preconstruction extent (or as otherwise conditioned by applicable CDFW streambed alteration agreements), not including areas that will be lost to construction activities (e.g., footprint impacts) and that will be mitigated with previously described measures (Mitigation Measure CMP: *Compensatory Mitigation Plan*, specifically CMP-23: *Tidal Perennial Habitat Restoration for Construction Impacts on Habitat for Fish and Aquatic Resources* and CMP-24: *Channel Margin Habitat Restoration for Construction Impacts on Habitat for Fish and Aquatic Resources* [Attachment 3F.1, Table 3F.1-3]). Compensatory mitigation to replace lost emergent vegetation at a ratio approved through coordination with the appropriate agencies will be undertaken should the performance standards be exceeded.

- **Bank erosion.** The linear extent of bank erosion will be mapped by GPS at each of the intake sites prior to, during, and after construction. Photos and written descriptions will be recorded for each area of eroded bank to describe the extent of the erosion. In the event that the linear extent of eroded bank is found to have increased by 20% or more following construction as a result of barge operations (and not other construction impacts; see above in *Emergent Vegetation Loss*), the position and nature of the change will be evaluated by guidance from the fisheries monitor for the probability (low, moderate, or high) that the erosion was due to barge grounding, propeller wash, or other effects related to barge operations.
- **Cargo containment.** The biological monitor will note the use of deck walls or other appropriate containment during loading and unloading of materials from a barge at each site. Adequate performance will be achieved if appropriate measures are in use during each observed loading and unloading. In the unlikely event that an accidental spill occurs despite appropriate containment measures, the barge crew will describe the type, amount, and location of the spill to the biological monitor as soon as practicable and safe. The biological monitor will make observations at the site of the material spill and evaluate the potential impacts of the spill on biological resources. This will help the biological monitor evaluate whether mitigation is required and will be included in the annual monitoring report. Any such impacts will be brought to the attention of the applicable fish and wildlife agency to ascertain and implement appropriate actions within 24 hours.
- **Fuels spill prevention.** Vessels operating in accordance with the SPCCP and all applicable federal, state, and local safety and environmental laws and policies governing commercial vessel and barge operations will be considered to be performing adequately with regard to fuel spill prevention.
- **Barge grounding.** Barges are not to be grounded or anchored where falling tides are reasonably expected to cause grounding during a low tide. Barge grounding has the potential to disturb bottom sediments and benthic organisms, as well as creating a temporary obstacle to fish passage. Performance will be considered adequate if no cases of vessel grounding occur.

Contingency Measures

In the event that the performance measures are not met, DWR will coordinate with NMFS, USFWS, CDFW, and Central Valley Regional Water Quality Control Board to determine appropriate rectification or compensation for impacts on aquatic resources.

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MM AQUA-1c	Develop and Implement a Fish Rescue and Salvage Plan	Fish rescue operations will occur at any in-water construction site where isolation of fish may occur. Fish rescue and salvage plans will be developed by DWR or its contractors and will include detailed procedures for fish rescue and salvage to minimize the number of fish subject to stranding during placement and removal of cofferdams. The plans will be approved by NMFS, USFWS, and CDFW. The plans will identify the appropriate procedures for removing fish from construction zones and preventing fish from reentering construction zones prior to dewatering and other construction activities. A draft plan will be submitted to the fish and wildlife agencies for review and approval. An authorization letter from NMFS, USFWS, and CDFW will be required before in-water construction activities with the potential for stranding fish can proceed. Construction activities include placement of cofferdams and training walls that isolate construction areas and minimize significant impacts on aquatic species and habitat during construction activities. However, aquatic species can become trapped within the cofferdam or behind the training walls and will need to be rescued or salvaged prior to dewatering. All fish rescue and salvage operations will be conducted under the guidance of a qualified fish biologist[8] and in accordance with required permits. Each fish rescue plan will identify the appropriate procedures for excluding fish from the construction zones, and procedures for removing fish, should they become trapped. The primary procedure will be to herd fish out of the partially enclosed work area with seines (nets) and/or dip nets, followed by collection and removal of any remaining fish once the work area is fully enclosed; electrofishing techniques may also be authorized. It is critical that fish rescue and salvage operations begin as soon as possible and be completed within 48 hours after isolation of a construction area to minimize potential predation and adverse water quality impacts (high water temperature, low dissolved oxygen) associated with confinement. The cofferdam will be installed to block off the construction area before fish removal activities occur, except for a small area left open to allow fish to be herded out of the area to be enclosed. Capture, release, and relocation measures will be consistent with the general guidelines and procedures set forth in Part IX of the most recent edition of the *California Salmonid Stream Habitat Restoration Manual* (California Department of Fish and Game 2010) to minimize impacts on listed species of fish and their habitat. All fish rescue and salvage operations will be conducted under the guidance of a fish biologist meeting the qualification requirements described under *Qualifications of Fish Rescue Personnel*. The following description includes detailed fish collection, holding, handling, and release procedures of the plan. Unless otherwise required by project permits, the construction contractor will provide the following. 1. A minimum 7-day notice to the appropriate fish and wildlife agencies, prior to an anticipated activity that could result in isolating fish, such as installation of a cofferdam. 2. Unrestricted access for the appropriate fish and wildlife agency personnel to the construction site for the duration of the fish rescue plan. 3. A work site that is accessible and safe for fish rescue workers. 4. Safety training for fish rescue workers before accessing the work site. 5. Cessation of construction activities in the vicinity (as agreed upon by the contractor, DWR, and the fisheries monitor) of the fish rescue from the time the fish rescue begins until completion. **Qualifications of Fish Rescue Personnel** Personnel active in fish rescue efforts will include at least one person with a 4-year college degree in fisheries or biology, or a related degree. This person also must have at least 2 years of professional experience in fisheries field surveys and fish capture	Preconstruction; Construction	Contract Requirements; Compliance Reporting	Prior to construction	Qualified Biologist; Contractor(s); DWR	Condition of Design Documents and Construction Contract; Agency Requirement	CDFW; NMFS; USFWS	Impact AQUA-1: Effects of Construction of Water Conveyance Facilities on Fish and Aquatic Species; Impact BIO-56: Substantial Adverse Effects on Fish and Wildlife Resources Regulated under California Fish and Game Code Section 1600 et seq.

[8] The qualified fish biologist will have necessary fish collection permits; will be approved by NMFS, USFWS, and CDFW; and will have experience in identifying and handling Delta fish species. The fish rescue and salvage crew overseen by the qualified fish biologist will also have experience in handling Delta fish species.

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		and handling procedures. The person will have completed an electrofishing training course such as Principles and Techniques of Electrofishing (USFWS, National Conservation Training Center), or similar course, if electrofishing is used. To avoid and minimize the risk of injury to fish, attempts to seine and/or net fish will precede the use of electrofishing equipment. **Seining and Dipnetting** Fish rescue and salvage operations will begin prior to or immediately after completing the cofferdam. As discussed above, fish will be herded from the construction area before installing the last sections of the cofferdam. Fish exclusion and/or rescue activities may need to be conducted incrementally in coordination with cofferdam placement to minimize the number of fish subjected to prolonged confinement and stressful conditions associated with crowding, capture, and handling. If the enclosed area is wadable (less than ~3 feet deep), fish can be herded out of the cofferdam enclosure by dragging a seine (net) through the enclosure, starting from the enclosed end and continuing to the cofferdam opening. It may also be possible to herd fish in deeper water with nets using divers or rafts as necessary. Depending on conditions, this process may need to be conducted several times. After completing this fish herding process, the net or an exclusion screen will be positioned at the cofferdam opening to prevent fish from reentering the enclosure while the final section of the cofferdam is installed. The net or screen mesh will be no greater than 0.125 inch, with the bottom edge of the net (lead line) securely weighted down to prevent fish from entering the area by moving under the net. Screens will be checked periodically and cleaned of debris to permit free flow of water. After installing the last sections of the cofferdam or training wall, remaining fish in the enclosed area will be removed using seines, dip nets, electrofishing techniques, or a combination of these depending on site conditions. Following each sweep of a seine through the enclosure, the fish rescue team will do the following. 6. Carefully bring the ends of the net together and pull in the wings, ensuring the lead line is kept as close to the substrate as possible. 7. Slowly turn the seine bag inside out to reveal captured fish, ensuring fish remain in the water as long as possible before transfer to an aerated container. 8. Follow the procedures outlined below in *Electrofishing*, and relocate fish to a predetermined release site. Dipnetting is best suited for very small, shallow pools in which fish are concentrated and easily collected. Dip nets will be made of soft (nonabrasive) nylon material and small mesh size (0.125 inch) to collect small fish. **Electrofishing** After conducting the herding and netting operations described above, electrofishing may be necessary to remove as many fish as possible from the enclosure. Electrofishing will be conducted in accordance with NMFS electrofishing guidelines (National Marine Fisheries Service 2000) and other appropriate fish and wildlife agency guidelines. Electrofishing will be conducted by one or two 3- to 4-person teams, with each team having an electrofishing unit operator and two or three netters. At least three passes will be made through the enclosed areas to remove as many fish as possible. Fish initially will be placed in 5-gallon buckets filled with river water. Following completion of each pass, the electrofishing team will do the following. 9. Transfer fish into 5-gallon buckets filled with clean river water at ambient temperature. 10. Hold fish in 5-gallon buckets equipped with a lid and an aerator, and add fresh river water or small amounts of ice to the fish buckets if the water temperature in the buckets becomes more than 2°F warmer than ambient river waters. 11. Maintain a healthy environment for captured fish, including low densities in holding containers to avoid effects of overcrowding.							

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		12. Use water-to-water transfers whenever possible. 13. Release fish at predetermined locations as specified in the fish rescue and salvage plans approved by NMFS, USFWS, and CDFW. 14. Segregate larger fish from smaller fish to minimize the risk of predation and physical damage to smaller fish from larger fish. 15. Limit holding time to about 10 minutes, if possible. 16. Avoid handling fish during processing unless absolutely necessary; use wet hands or dip nets if handling is needed. 17. Handle fish with hands that are free of potentially harmful products, including but not limited to sunscreen, lotion, and insect repellent. 18. Avoid anesthetizing or measuring fish. 19. Note the date, time, and location of collection; species; number of fish; approximate age (e.g., young-of-the-year, yearling, adult); fish condition (dead, visibly injured, healthy); and water temperature. 20. If positive identification of fish cannot be made without handling the fish, note this and release fish without handling. 21. In notes, indicate the level of accuracy of visual estimates to allow appropriate reporting to the appropriate fish and wildlife agencies (e.g., "Approx. 10–20 young-of-the-year steelhead"). 22. Release fish in appropriate habitat either upstream or downstream of the enclosure, noting release date, time, and location. 23. Stop efforts and immediately contact the appropriate fish and wildlife agencies if mortality or injury occurs during relocation of listed species. 24. Place dead fish of listed species in sealed plastic bags with labels indicating species, location, date, and time of collection, and store them on ice. 25. Freeze collected dead fish of listed species as soon as possible and provide the frozen specimens to the appropriate fish and wildlife agencies, as specified in the permits. 26. Release rescued fish at sites either upstream or downstream of the construction area that are similar in temperature to the area from which fish were rescued, contain ample habitat, and have a low likelihood of fish reentering the construction area or being impinged on exclusion nets/screens. **Final Inspections and Reporting** The fish rescue team will notify the contractor when the fish rescue has been completed and construction can recommence. The results of the fish rescue and salvage operations (including date, time, location, comments, method of capture, fish species, number of fish, approximate age, condition, release location, and release time) will be reported to the appropriate fish and wildlife agencies, as specified in the pertinent permits.						
MM BIO-2a	Avoid or Minimize Impacts on Special-Status Natural Communities and Special-Status Plants	DWR will conduct preconstruction surveys for special-status natural communities and special-status plants within and up to 250-feet of all project sites (based on the sensitivity or rarity of potential resources that may be present, as determined by a qualified biologist). Surveys will be conducted from locations where access allows in areas of potential suitable habitat, as identified in the habitat models and by additional assessments conducted during the planning for work in a given area. The purposes of these surveys will be to (1) identify and map any special-status natural communities present, (2) determine whether the locations of special-status plants identified in previous record searches or surveys are extant, (3) identify any new special-status plant occurrences, (4) cover any portions of the study area not previously surveyed, and (5) identify where mitigation measures will be implemented to avoid or offset impacts from surface construction. The extent of mitigation for direct loss of, or indirect effects on, special-status plants will be based on these survey results. All surveys for special-status natural communities and special-status plants will be conducted by qualified biologists with experience identifying special-status plants that have the potential to occur in the project site	Preconstruction; Construction	Contract Requirements; Surveying	As needed	Biological Monitor; Qualified Biologist; DWR	Condition of Design Documents and Construction Contract	N/A	Impact BIO-2: Impacts of the Project on Tidal Freshwater Emergent Wetlands; Impact BIO-3: Impacts of the Project on Valley/Foothill Riparian Habitat; Impact BIO-4: Impacts of the Project on the Nontidal Perennial Aquatic Natural Community; Impact BIO-5: Impacts of the Project on Nontidal Freshwater Perennial Emergent Wetland; Impact BIO-7: Impacts of the Project on

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		following Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed and Candidate Plants (U.S. Fish and Wildlife Service 1996) and Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities (California Department of Fish and Wildlife 2018b:1–12), or the most current versions of these protocols. The surveys will be floristic in nature and conducted in a manner that maximizes the likelihood of locating special-status plant species or special-status natural communities that may be present (i.e., during the appropriate season and at an appropriate level of ground coverage). Locations of special-status plants in construction areas will be recorded using a GPS unit and flagged. DWR will evaluate all project activities for their impacts on special-status natural communities and special-status plants and avoid or minimize impacts on special-status natural communities and special-status plants that occur on project sites by establishing non-disturbance buffers where feasible. For diamond-petaled California poppy and caper-fruited tropidocarpum, which are quite rare and on the verge of extinction, a 100-foot non-disturbance buffer will be established around the plant occurrence. Impacts on other special-status plant species and natural communities will be avoided to the extent feasible. Regarding other special-status plant species and natural communities, construction activities will avoid the plant occurrence by establishing non-disturbance buffers of 50 to 100 feet, based on the sensitivity or rarity of the resource and the size of the buffer required to avoid significant impacts on the resource, as determined by a qualified biologist. Where non-disturbance buffers are not feasible (i.e., because the plant occurrence is within a surface construction impact footprint), reduced buffers will be established by a biological monitor and protective barriers and/or fencing will be installed under the supervision of the biological monitor. During construction, the biological monitor will conduct regular site visits to inspect the protective barrier and resource. Where special-status natural communities or special-status plants are removed, compensatory mitigation for impacts on special-status plants and natural communities will be implemented as described in Appendix 3F, Attachment 3F-1, Compensatory Mitigation Design Guidelines, CMP-9: Special-Status Plants.							Alkaline Seasonal Wetland Complex; Impact BIO-8: Impacts of the Project on Vernal Pool Complex; Impact BIO-9: Impacts of the Project on Vernal Pool Plants; Impact BIO-10: Impacts of the Project on Special-Status Alkaline Seasonal Wetland Complex Plants; Impact BIO-11: Impacts of the Project on Special-Status Grassland Plants; Impact BIO-12: Impacts of the Project on Tidal Freshwater Emergent Wetland Plants; Impact BIO-13: Impacts of the Project on Special-Status Nontidal Perennial Aquatic Plants; Impact BIO-54: Conflict with the Provisions of an Adopted Habitat Conservation Plan, Natural Community Conservation Plan, or Other Approved Local, Regional, or State Habitat Conservation Plan; Impact BIO-56: Substantial Adverse Effects on Fish and Wildlife Resources Regulated under California Fish and Game Code Section 1600 et seq.
MM BIO-2b	Avoid and Minimize Impacts on Terrestrial Biological Resources from Maintenance Activities	DWR will implement the following process and measures to avoid and minimize potential impacts on terrestrial biological resources when surface maintenance activities occur at DWR project facilities. Consistent with current DWR environmental clearance review procedures, qualified biologists will implement the following measures to avoid and minimize impacts on sensitive species, sensitive natural communities, and sensitive vegetation alliances during project maintenance activities. Additional measures may be developed for site-specific conditions or specific biological resources and implemented, as necessary. If additional permits and approvals are determined to be necessary through the environmental clearance review, then the conditions of those permits and approvals will supersede the measures listed below. 1. Prior to the start of maintenance activities, a qualified team of biologists will conduct an environmental review of the potential for maintenance to affect sensitive resources. Using occurrence databases, aerial imagery, and prior knowledge of maintenance areas, a qualified team of biologists will evaluate the potential for suitable habitat for special-status species, sensitive natural communities, and/or cultural resources to occur in the maintenance footprint. A site visit may be conducted to verify whether sensitive resources have the potential to be present within the maintenance area. Based on the results of the desktop review and/or site visit, the following avoidance measures may be required, as appropriate for the timing, location, and nature of the maintenance activity.	Operations	Contract Requirements; Compliance Reporting; Design; Surveying; Training	As needed	Qualified Biologist; DWR	Condition of Compliance Reporting	CDFW; NMFS; USFWS	Impact BIO-2: Impacts of the Project on Tidal Freshwater Emergent Wetlands; Impact BIO-3: Impacts of the Project on Valley/Foothill Riparian Habitat; Impact BIO-7: Impacts of the Project on Alkaline Seasonal Wetland Complex; Impact BIO-8: Impacts of the Project on Vernal Pool Complex; Impact BIO-9: Impacts of the Project on Vernal Pool Plants; Impact BIO-10: Impacts of the Project on Special-Status Alkaline Seasonal Wetland Complex Plants; Impact BIO-11: Impacts of the Project on Special-Status Grassland Plants; Impact

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		a. Depending on the timing (see Appendix 13B for species-specific timing and suitable habitat definitions), location, and nature of the maintenance activity, a preconstruction survey may be required as determined by a qualified team of biologists to determine potential presence of suitable habitat for sensitive species prior to the start of maintenance activities. Surveys will be conducted by a qualified biologist with experience identifying the resources in question using standard survey protocols and during appropriate timeframes specific to each sensitive resource. Surveys and monitoring will be conducted from locations where access allows. b. Appropriate non-disturbance buffers may be applied around sensitive biological resources and habitat identified as determined by a qualified team of biologists during the environmental clearance review or preconstruction surveys. Non-disturbance buffers will be established by a qualified biologist and will take into consideration the nature of the maintenance activity, the sensitivity of the species, site-specific conditions, and applicable state and federal recommendations. See Mitigation Measures BIO-2a through BIO-50 for appropriate species-specific buffers. Maintenance activities will avoid impacts on rodent burrows, wetlands, or other areas that may provide potential habitat to avoid impacts on sensitive biological resources except when work in these habitats is required to ensure safety and integrity of facilities. Areas to be avoided will be flagged. Debris or cut vegetation will not be left where it may enter aquatic habitat. Non-disturbance buffers may be removed after a qualified biologist determines the sensitive resource is no longer present or at risk of impacts due to maintenance activities. c. Appropriate work windows and weather restrictions may be applied to avoid impacts on sensitive biological resources identified during the environmental clearance review or preconstruction survey. d. A Worker Awareness Training may be required if sensitive natural resources are present. DWR will provide training to maintenance personnel on the importance of protecting sensitive natural resources (e.g., special-status fish species, wildlife species, plant species, and designated critical and/or suitable habitats for these species). Preconstruction training will be conducted so that maintenance personnel are aware of their responsibilities and the importance of compliance. Construction personnel will be educated on the types of sensitive resources in the project area and the measures required to avoid and minimize impacts on these resources. Materials covered in the training program will include environmental rules and regulations for the specific site requirements for limiting activities to approved work areas, timing restrictions, and avoidance of sensitive resource areas. A record of personnel that completed the environmental training will be kept. Operations and maintenance personnel may also be required to complete the existing DWR environmental trainings at regular intervals, such as the Employee Environmental Responsibility training. e. Qualified biologists will monitor maintenance activities in areas identified during the environmental clearance review and preconstruction surveys as having special-status fish, wildlife, and plant species and their habitats, designated critical habitat, and sensitive natural communities. f. Any wildlife that is encountered within the maintenance area will be avoided and allowed to move out of harm's way of its own accord. g. Vegetation removal will be kept to the minimum necessary to accomplish maintenance need. h. Spill prevention measures, described under Environmental Commitment EC-3: Develop and Implement Spill Prevention, Containment, and Countermeasure Plans, will be implemented to prevent and respond to petroleum product discharges into wetlands or waters of the United States and State.							BIO-12: Impacts of the Project on Tidal Freshwater Emergent Wetland Plants; Impact BIO-13: Impacts of the Project on Special-Status Nontidal Perennial Aquatic Plants; Impact BIO-14: Impacts of the Project on Vernal Pool Aquatic Invertebrates; Impact BIO-16: Impacts of the Project on Vernal Pool Terrestrial Invertebrates; Impact BIO-18 Impacts of the Project on Valley Elderberry Longhorn Beetle; Impact BIO-20: Impacts of the Project on Curved-Foot Hygrotus Diving Beetle; Impact BIO-21: Impacts of the Project on Crotch and Western Bumble Bees; Impact Bio-22: Impacts of the Project on California Tiger Salamander; Impact Bio-23: Impacts of the Project on Western Spadefoot Toad; Impact Bio-24: Impacts of the Project on California Red-Legged Frog; Impact Bio-25: Impacts of the Project on Western Pond Turtle; Impact Bio-26: Impacts of the Project on Coast Horned Lizard; Impact Bio-27: Impacts of the Project on Northern California Legless Lizard; Impact BIO-28: Impacts of the Project on the California Glossy Snake; Impact BIO-29: Impacts of the San Joaquin Coachwhip; Impact BIO-30: Impact of the Project on the Giant Garter Snake; Impact BIO-31: Impacts of the Project on Western Yellow- Billed Cuckoo; Impact BIO-32: Impacts of the Project on the California Black Rail; Impact BIO-33: Impacts of the Project on Greater Sandhill Crane and Lesser

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		i. Maintenance vehicles will observe a maximum speed limit of 15 miles per hour on un-paved non-public access roads where it is safe to do so, and 30 miles per hour on paved non-public access roads. j. All ingress/egress at the project site will be restricted to those routes identified in the project plans and description. Cross-country access routes will be clearly marked in the field with appropriate flagging and signs. k. All vehicle parking will be restricted to established areas, existing roads, or other suitable areas. l. To prevent harassment, injury, or mortality of sensitive wildlife, no pets will be permitted in the maintenance area. m. Plastic monofilament netting or similar material will not be used for erosion control, because smaller wildlife may become entangled or trapped in it. Acceptable substitutes include burlap-wrapped straw wattles, coconut coir matting or tackified hydroseeding compounds. n. Rodenticides and herbicides will be used in accordance with the manufacturer recommended uses and applications and in such a manner as to prevent primary or secondary poisoning of special-status fish, wildlife, and plant species and depletion of prey populations upon which they depend. Broadcast baiting will be avoided on all project-related and mitigation lands. Rodenticides will not be used on compensatory mitigation lands. All uses of such compounds will observe label and other restrictions mandated by EPA, the California Department of Pesticide Regulation, and other appropriate state and federal regulations, as well as additional project-related restrictions imposed by USFWS, NMFS, and/or CDFW. If rodent control must be conducted in San Joaquin kit fox habitat, zinc phosphide should be used because of its proven lower risk to kit fox. Use of pesticides may be limited in other resource-specific instances as well, for example foraging habitat that is managed for tricolored blackbird (Attachment 3F-1, CMP-22b: Tricolored Blackbird Breeding Foraging Habitat). In addition, the method of rodent control will comply with those discussed in the 4(d) rule published in the final listing rule for California tiger salamander (69 Federal Register [FR] 47211–47248).							Sandhill Crane; Impact BIO-34: Impacts of the Project on California Least Tern; Impact BIO-35: Impacts of the Project on Cormorants, Herons, and Egrets; Impact Bio 36: Impacts of the Project on Osprey, White-Tailed Kite, Coopers Hawk, and Other Nesting Raptors; Impact Bio-37: Impacts of the Project on Golden Eagle and Ferruginous Hawk; Impact Bio-38: Impacts of the Project on Ground-Nesting Grassland Birds; Impact Bio-39: Impacts of the Project on Swainson's Hawk; Impact BIO-40: Impacts of the Project on Burrowing Owl; Impact BIO-41: Impacts of the Project on Other Nesting Special-Status and Non-Special- Status Birds; Impact BIO-42: Impact of the Project on Least Bell's Vireo; Impact BIO-44: Impacts of the Project on Tricolored Blackbird; Impact BIO-45: Impacts of the Project on Bats; Impact BIO-46: Impacts of the Project on San Joaquin Kit Fox; Impact BIO-47: Impacts of the Project on American Badger; Impact BIO-48: Impact of the Project on the San Joaquin Pocket Mouse; Impact BIO-51: Substantial Adverse Effect on State or Federally Protected Wetlands and Other Waters though Direct Removal, Filling, Hydrological Interruption, or Other Means; Impact BIO-53: Interfere Substantially with the Movement of Any Native Resident or Migratory Fish or Wildlife Species or with Established Native Resident or Migratory Wildlife Corridors, or Impede the Use of Native

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									Wildlife Nursery Sites; Impact BIO-56: Substantial Adverse Effects on Fish and Wildlife Resources Regulated under California Fish and Game Code Section 1600 et seq.; Impact BIO-57: Impacts of the Project on Monarch Butterfly
MM BIO-2c	Electrical Power Line Support Placement	1. DWR will contract with electric utilities to provide primary power to designated locations for project construction and operation. DWR will coordinate with electric utilities to design and construct power transmission and distribution lines and the locations of necessary appurtenances such as supports and substations to avoid sensitive terrestrial and aquatic habitat by up to 250 feet to the maximum extent feasible and to minimize take and encumbrance of agricultural lands. Non-disturbance buffers will be determined by a qualified biologist in coordination with the electric utility provider and the size of the buffer will depend on the rarity and sensitivity of the resource as identified by the qualified biologist. In cases where sensitive habitat cannot be feasibly avoided, disturbance will be minimized to the greatest degree feasible, and disturbed areas will be returned as near as reasonably and practically feasible to preconstruction conditions by reestablishing surface conditions through carefully grading, reconstructing features such as irrigation and drainage facilities, and replanting vegetation and crops and/or compensating farmers for crops losses. This will be accomplished through an agreement with the utility providers. This measure relies, in part, on coordination and cooperation with all appropriate utility providers and local agencies to integrate with other construction projects and minimize disturbances. 2. DWR will coordinate with electric utilities to design tower and pole placement and location of substations to avoid existing structures (e.g., agricultural irrigation infrastructure) by 50 feet. In cases where existing structures and improvements cannot be feasibly avoided, and clearances less than 50 feet are allowable (under Cal/OSHA Title 8 regulations and/or any requirements of the utility provider), DWR will relocate structures and improvements or compensate the owner for the loss, and will return temporarily disturbed areas to preconstruction conditions (as described in Mitigation Measure AG-1: *Preserve Agricultural Land* and Mitigation Measure AG-3: *Replacement or Relocation of Affected Infrastructure Supporting Agricultural Properties*). Where poles or towers are to be constructed in agricultural areas, DWR will require incorporation of the following BMPs where feasible. a. Select means and methods of construction to minimize crop damage. b. Use single-pole structures instead of H-frame or other multiple-pole structures to reduce the potential for interference with farm machinery, reduce land impacts, and minimize weed encroachment issues. c. Locate lines adjacent to roads and existing property lines to reduce property take and encumbrance. d. Use transmission structures with longer spans to clear longer sections of fields or sensitive areas where feasible. Longer spans may not be feasible in areas where aerial spraying and seeding is common. In areas where aerial spraying and seeding are common, install highly visible markers on the shield wires above the conductors. e. Minimize the use of guy wires, and keep guy wires out of crop and hay lands. Place highly visible shield guards on guy wires in farm vehicle and equipment traffic areas. f. Locate new transmission lines along existing transmission line corridors.	Preconstruction	Contract Requirements; Design	As needed	DWR	Condition Prior to Resource Impacts or Disturbance; Condition of Design Documents and Construction Contract	PG&E; SMUD; Other power utility providers	Impact BIO-2: Impacts of the Project on Tidal Freshwater Emergent Wetlands; Impact BIO-3: Impacts of the Project on Valley/Foothill Riparian Habitat; Impact BIO-7: Impacts of the Project on Alkaline Seasonal Wetland Complex; Impact BIO-31: Impacts of the Project on Western Yellow- Billed Cuckoo; Impact BIO-32: Impacts of the Project on the California Black Rail; Impact BIO-33: Impacts of the Project on Greater Sandhill Crane and Lesser Sandhill Crane; Impact BIO-34: Impacts of the Project on California Least Tern; Impact BIO-35: Impacts of the Project on Cormorants, Herons, and Egrets; Impact BIO 36: Impacts of the Project on Osprey, White-Tailed Kite, Coopers Hawk, and Other Nesting Raptors; Impact BIO-37: Impacts of the Project on Golden Eagle and Ferruginous Hawk; Impact BIO-38: Impacts of the Project on Ground-Nesting Grassland Birds; Impact BIO-39: Impacts of the Project on Swainson's Hawk; Impact BIO-40: Impacts of the Project on Burrowing Owl; Impact BIO-41: Impacts of the Project on Other Nesting Special-Status and Non-Special- Status Birds; Impact BIO-42: Impact of the Project on Least Bell's Vireo; Impact BIO-44:

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		g. Locate new powerlines on existing poles on same vertical plane as the existing wires.							Impacts of the Project on Tricolored Blackbird
		3. As part of and prior to approval of construction, DWR will work with electric utilities to ensure incorporation of bird and raptor-safe design in accordance with the applicable recommendations presented by the Avian Power Line Interaction Committee (APLIC) in *Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006* (Avian Power Line Interaction Committee 2006) and *Reducing Avian Collisions with Power Lines: State of the Art in 2012* (Avian Power Line Interaction Committee 2012), or with more current guidance if it becomes available. Applicable APLIC recommendations include, but are not limited to: a. Ensuring sufficient spacing of phase conductors to prevent bird electrocution. b. Minimizing the use of guywires. Where the use of guywires is unavoidable, demarcating guywires using the best available methods to minimize avian collisions (e.g., line markers). c. Reusing or co-locating new transmission facilities and other ancillary facilities with existing facilities and disturbed areas to minimize habitat impacts and avoid potential collisions. d. Configuring lines to reduce vertical spread of lines and/or decreasing the span length if such options are feasible. e. Marking lines to increase the visibility of lines and reduce the potential for collision. 4. DWR will work with electric utilities to mark all aboveground project lines and towers with bird flight diverters that are visible under all conditions (e.g., glow-in-the-dark markers, near-UV line markers). Bird flight diverters will be installed with the following conditions: a. If a new project line will be placed on poles or towers with existing lines that have bird diverters installed, bird diverters will not be required on the new project lines if the new project lines can be placed within the same vertical prism as the existing lines. b. If a new project line will be placed on poles or towers with existing lines but cannot be placed within the same vertical prism as the existing lines (e.g., a new project SCADA line that will be placed on a transmission tower with existing transmission lines), bird diverters will be required on both the new and existing lines. DWR will work with electric utilities to: c. Select the most effective and appropriate bird flight diverter for minimizing collisions based on APLIC recommendations (Avian Power Line Interaction Committee 2006, 2012), or more current guidance if available. d. Install bird flight diverters in a configuration, frequency, and spacing consistent with APLIC recommendations (Avian Power Line Interaction Committee 2006, 2012), or more current guidance if available. e. Periodically inspect and replace bird flight diverters as needed until or unless the project or existing line is removed.							
MM BIO-14	Avoid and Minimize Impacts on Vernal Pool Aquatic Invertebrates and Critical Habitat for Vernal Pool Fairy Shrimp	The following measures will be required only for surface construction and restoration activities occurring in suitable habitat for vernal pool aquatic invertebrates as defined in Appendix 13B, Section 13B.32, *Vernal Pool Fairy Shrimp*, Section 13B.33, *Midvalley Fairy Shrimp*, Section 13B.34, *California Linderiella*, Section 13B.35, *Vernal Pool Tadpole Shrimp*, Section 13B.36, *Hairy Water Flea*, and Section 13B.41, *Ricksecker's Water Scavenger Beetle*, and by additional assessments conducted during the planning for work in a given area. Surveys and monitoring will be conducted from locations where access allows. As properties become accessible for initiating project activities, planning level surveys will be conducted to assess the suitability of modeled habitat and, where suitable, conduct protocol-level surveys for vernal pool fairy shrimp and vernal pool	Preconstruction; Construction	Surveying; Design; Contract Requirements; Compliance Reporting	As needed	Biological Monitor; Qualified Biologist; Contractor(s)	Condition of Design Documents and Construction Contract; Condition of Compliance Reporting	USFWS	Impact BIO-14: Impacts of the Project on Vernal Pool Aquatic Invertebrates; Impact BIO-16: Impacts of the Project on Vernal Pool Terrestrial Invertebrates; Impact BIO-20: Impacts of the Project on Curved-Foot Hygrotus Diving Beetle; Impact BIO-54: Conflict with the

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		tadpole shrimp. To the extent practicable, work areas will be designed to avoid habitat for vernal pool aquatic invertebrates and critical habitat for vernal pool fairy shrimp. Where practicable, the project will be planned and designed to avoid ground-disturbing activities or alterations to hydrology within 250 feet of vernal pool aquatic invertebrate habitat. Where activities need to occur within 250 feet of habitat, those work areas will be assessed for their potential to alter the hydrology of the pool habitat such that the hydroperiod of the pool will no longer support the species. Where the USFWS agrees that any changes to the hydroperiod will not permanently affect habitat functionality, compensatory mitigation would not be required. To the extent practicable, DWR will minimize impacts on critical habitat for vernal pool fairy shrimp. To achieve this, project construction will occur at least 250 feet from vernal pool fairy shrimp critical habitat containing the primary constituent elements defined below unless it is determined through USFWS review that the activities within the buffer will not substantially modify the primary constituent elements of vernal pool fairy shrimp critical habitat. Primary constituent elements for vernal pool fairy shrimp are defined as follows (70 FR 46924–46998). a. Topographic features characterized by mounds and swales and depressions within a matrix of surrounding uplands that result in complexes of continuously, or intermittently, flowing surface water in the swales connecting the pools described below, providing for dispersal and promoting hydroperiods of adequate length in the pools. b. Depressional features including isolated vernal pools with underlying restrictive soil layers that become inundated during winter rains and that continuously hold water for a minimum of 18 days, in all but the driest years, thereby providing adequate water for incubation, maturation, and reproduction. As these features are inundated on a seasonal basis, they do not promote the development of obligate wetland vegetation habitats typical of permanently flooded emergent wetlands. c. Sources of food, expected to be detritus occurring in the pools, contributed by overland flow from the pools' watershed, or the results of biological processes within the pools themselves, such as single-celled bacteria, algae, and dead organic matter, to provide for feeding. d. Structure within the pools described above, consisting of organic and inorganic materials, such as living and dead plants from plant species adapted to seasonally inundated environments, rocks, and other inorganic debris that may be washed, blown, or otherwise transported into the pools, that provide shelter. For suitable aquatic habitat for vernal pool fairy shrimp and vernal pool tadpole shrimp that will be affected by the project, protocol-level surveys for these species will be conducted to determine whether they are present or where time does not allow for surveys to be completed (e.g., dry years, timely access), the suitable habitat will be assumed to be occupied. Surveys will be conducted according to the most recent USFWS guidelines by USFWS-approved biologists with the appropriate recovery permit under Section 10(a)(1)(A) of the ESA. Project elements will be designed to avoid direct and indirect effects on vernal pool aquatic invertebrate habitat to the extent practicable. Where avoidance is not possible, and construction occurs within 250 feet of vernal pool crustacean habitat, construction BMPs, as described in Environmental Commitment 14: *Construction Best Management Practices for Biological Resources* will be implemented to ensure that construction activities minimize effects on the habitat. Construction BMPs include protective fencing installed around vernal pool aquatic invertebrate habitat with signage identifying these areas as containing sensitive biological resources. A biological monitor will ensure that fencing and BMPs are maintained for the duration of construction and that construction personnel are provided the necessary worker awareness training.							Provisions of an Adopted Habitat Conservation Plan, Natural Community Conservation Plan, or Other Approved Local, Regional, or State Habitat Conservation Plan

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MM BIO-18	Avoid and Minimize Impacts on Valley Elderberry Longhorn Beetle	The following measures will be required only for surface construction and restoration activities occurring in suitable habitat for valley elderberry longhorn beetle as defined in Appendix 13B, Section 13B.39, *Valley Elderberry Longhorn Beetle*, and by additional assessments conducted during the planning for work in a given area. Surveys and monitoring will be conducted from locations where access allows. As properties become accessible for initiating project activities, DWR will require surveys for elderberry shrubs to be conducted in construction areas by a USFWS-approved biologist. Elderberry shrubs will be avoided to the maximum extent practicable. Complete avoidance (i.e., no adverse effects) will be assumed when a buffer of at least 165 feet is established and maintained around elderberry shrubs containing stems measuring 1 inch or greater in diameter at ground level (U.S. Fish and Wildlife Service 2017a:10, 11). Elderberry shrubs that have stems measuring 1 inch or greater in diameter at ground level determined or assumed to be occupied, according to the criteria in the 2017 Framework or the most recent available guidance at that time, that are identified within project footprints that cannot be avoided (i.e., those in the project footprint) will be transplanted to conservation areas identified in the CMP. Transplanting will follow the guidance outlined in USFWS's 2017 *Framework for Assessing Impacts on Valley Elderberry Longhorn Beetle (*Desmocerus californicus dimorphus*)* (2017 Framework) or the most recent available guidance at that time. For shrubs not directly affected by construction but that occur within 165 feet of ground-disturbing activities, the following measures, which come from the USFWS 2017 Framework, will be implemented to avoid or substantially reduce the impact consistent with the recommendations by a USFWS-approved biologist. 1. Fencing. All areas to be avoided during construction activities will be fenced and flagged as close to construction limits as feasible. 2. Avoidance area. Activities that may damage or kill an elderberry shrub (e.g., trenching, paving, etc.) may need an avoidance area of at least 20 feet from the drip-line, depending on the type of activity. 3. Timing. As much as feasible, all activities that occur within 165 feet of an elderberry shrub, will be conducted outside of the flight season of the species (March to July). 4. Trimming. Trimming may remove or destroy valley elderberry longhorn beetle eggs and/or larvae and may reduce the health and vigor of the elderberry shrub. In order to avoid and minimize adverse effects on valley elderberry longhorn beetle, trimming will occur between November 1 and February 1 and will avoid the removal of any branches or stems that are ≥ 1 inch in diameter. Measures to address regular or largescale maintenance (trimming) should be established in consultation with USFWS. 5. Chemical usage. Herbicides will not be used within the drip-line of an elderberry shrub. Insecticides will not be used within 100 feet of an elderberry shrub. All chemicals will be applied using a backpack sprayer or similar direct-application method.	Preconstruction; Construction	Surveying; Contract Requirements; Compliance Reporting	As needed	Qualified Biologist; Contractor(s); DWR	Condition of Design Documents and Construction Contract; Condition of Compliance Reporting	CDFW; USFWS	Impact BIO-18 Impacts of the Project on Valley Elderberry Longhorn Beetle; Impact BIO-54: Conflict with the Provisions of an Adopted Habitat Conservation Plan, Natural Community Conservation Plan, or Other Approved Local, Regional, or State Habitat Conservation Plan; Impact BIO-56: Substantial Adverse Effects on Fish and Wildlife Resources Regulated under California Fish and Game Code Section 1600 et seq.
MM BIO-21	Avoid and Minimize Impacts on Crotch Bumble Bees	As properties become accessible for initiating project and restoration activities, DWR will require site-level surveys to determine whether Crotch bumble bee is present. If suitable habitat for Crotch bumble bee, as defined in Appendix 13B, Section 13B.45, *Crotch Bumble Bee*, and by additional assessments conducted during the planning for work in a given area, is identified within construction or restoration areas, and if these areas will have surface ground disturbance during the active season (approximately February 1 through October 31), the following measures will be implemented. Surveys and monitoring will be conducted from locations where access allows. 1. The ground disturbance footprint will be surveyed for foraging individuals and nests by a qualified biologist(s) familiar with the identification and life histories	Preconstruction; Construction	Surveying; Monitoring; Contract Requirements; Compliance Reporting	As needed	Qualified Biologist; DWR	Condition of Design Documents and Construction Contract; Condition of Compliance Reporting	CDFW	Impact BIO-21: Impacts of the Project on Crotch and Western Bumble Bees; Impact BIO-57: Impacts of the Project on Monarch Butterfly

MM #	Title	Mitigation Measure Text	Timing	Implementation Action	Reporting Schedule	Implementation Party	Implementation Mechanism	Participating or Permitting Organizations	Impact # and Impact Title
		of Crotch bumble bee. a. Preconstruction Surveys. A total of three preconstruction surveys will be conducted prior to any ground-disturbing project activities or vegetation removal that will take place during the active season for Crotch bumble bee (approximately February 1 through October 31).[9] Each preconstruction survey will, ideally, be spaced 2 to 4 weeks apart, with the last preconstruction survey (i.e., clearance survey) taking place within 72 hours prior to construction activity. The qualified biologist will perform meandering transects through the planned construction footprint, plus a 50-foot buffer where accessible, at least an hour after sunrise and at least two hours before sunset, though ideally between 9:00 a.m. and 1:00 p.m., to visually survey the area for bumble bee activity. The duration of the survey will be the minimum amount of time necessary to adequately survey the area, or 30 minutes, whichever is longer. b. If a suspected or confirmed Crotch bumble bee is identified during any of these surveys, the qualified biologist will notify CDFW within 48 hours. 2. If only foraging Crotch bumble bee is observed (i.e., no nest is found), construction activities can proceed without a full-time qualified biologist; however, if there is a lapse in initial construction disturbance more than 2 weeks, an additional clearance survey will be repeated prior to ground disturbance. If a Crotch bumble bee nest is found, a qualified biologist will provide biological construction monitoring as long as needed to ensure implementation of applicable measures below. 3. If a nest is discovered within the construction or restoration area, a non-disturbance buffer of 50 feet will be established around the nest until the nest senesces or becomes inactive and is no longer in use, as determined by the qualified biologist or until the project activities in the project area are complete, whichever is first. The nest location will be recorded with GPS and will be reported to CDFW within 48 hours of finding the nest. 4. If implementation of a 50-foot non-disturbance buffer is not possible but disturbance of the nest can be avoided, a buffer of the greatest distance possible will be established in coordination with CDFW, and ground disturbance can proceed under supervision of the qualified biologist. 5. If the nest cannot be avoided and will be lost, an attempt will be made to relocate the nest. A qualified biologist will attempt to relocate the nest to a suitable location outside the project footprint. Nest relocation will follow the general guidelines described by Xerces Society for relocating an entire nest and substrate (Xerces Society 2022). A bumble bee nest relocation plan will be prepared and submitted to CDFW for approval prior to ground disturbance. The relocation plan will describe the following. a. How the bumble bee nest will be relocated. b. Who will conduct the relocation. c. Where potential relocation sites will be located (i.e., as close to the existing location as feasible and have access to suitable foraging habitat to sustain the nest through the nesting season). d. Suitable habitat requirements. e. Methods of monitoring the relocated nest. 6. If a suitable, nearby location for nest relocation cannot be identified, an off-site location will be chosen in coordination with the CDFW. 7. Once relocated, the nest will be monitored for 1 week. Monitoring of an active nest can be conducted using a motion-detecting wildlife trail camera or daily by a qualified biologist based on site-specific conditions, weather, and species behaviors. 8. If monitoring suggests the nest relocation was successful (i.e., it is not							

[9] The active season for Crotch bumble bee within the Central Valley may be further refined depending on the location, elevation, seasonal rainfall, average ambient air temperatures, and local seasonal weather conditions per California Department of Fish and Wildlife 2023.

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		immediately abandoned following relocation, bees are observed returning to the relocated nest following foraging activity, and it is continued to be used at least 1 week following relocation), no further measures will be required. 9. If monitoring finds nest relocation to be unsuccessful, as determined through premature absence of bee activity, DWR will create or enhance and protect suitable foraging and nesting habitat at a ratio of 1:1 for the lost suitable habitat associated with the nest (i.e., 1 acre of created or enhanced and protected habitat to 1 acre of permanently lost habitat). Lost suitable habitat is defined as habitat that is suitable for foraging, nesting, or overwintering within a 1.8-kilometer buffer[10] around the lost nest that is permanently affected. 10. If biological monitoring or surveys find a recently deceased Crotch bumble bee within the project area, CDFW will be notified and the carcass will be salvaged, photographed, and appropriately recorded (e.g., date, collection location) and stored for shipment to CDFW Wildlife Health Lab. 11. Temporarily disturbed grassland identified as suitable bumble bee habitat by a qualified biologist will be revegetated using a seed mix combination that includes nectar- and pollen-producing plants commonly used as a food source by Crotch bumble bee. Perennial flowers constitute the major forage resource for bumble bees (Jennersten et al. 1992; Dramstad and Fry 1995), therefore, these plants will be incorporated into the seed mix, as applicable for the existing habitat conditions. Nectar- and pollen-producing plants that may be used by Crotch bumble bee include the genera *Asclepias*, *Chaenactis*, *Lupinus*, *Phacelia*, and *Salvia* or the families *Fabaceae*, *Apocynaceae*, *Asteraceae*, *Lamiaceae*, *Hydrophyllaceae*, *Plantaginaceae*, *Onagraceae*, *Papaveraceae*, *Polygonaceae*, *Boraginaceae*, including nonnative, noninvasive flowering plants. Bumble bee survey considerations have been published by CDFW (California Department of Fish and Wildlife 2023). Currently, there are no CDFW-approved survey protocols specific to Crotch bumble bee. Therefore, with the above measures, DWR proposes to use a project-specific methodology (above) that is consistent with the CDFW's *Survey Considerations for California Endangered Species Act (CESA) Candidate Bumble Bee Species* (California Department of Fish and Wildlife 2023), which includes the following major components: surveyors must be knowledgeable about the identification and biology of Crotch bumble bees; surveys must be conducted at the appropriate time of year and under temperature conditions when bumble bees are active; and suitable nesting and foraging habitat must be surveyed prior to ground disturbance. Surveys would include the potential for non-lethal capture by permitted biologists if necessary to facilitate identification. If a survey methodology is developed specifically for determining presence or absence of Crotch bumble bee and is approved by CDFW, that methodology will be used.							
MM BIO-22a	Avoid and Minimize Impacts on California Tiger Salamander	The following measures for California tiger salamander will be required only for surface construction activities occurring within suitable habitat as defined in Appendix 13B, Section 13B.47, *California Tiger Salamander*, and by additional assessments conducted during the planning for work in a given area. Surveys and monitoring will be conducted from locations where access allows. During project implementation and prior to project construction, DWR will implement the following measures. 1. When each site is available for surveys a USFWS- and CDFW-approved biologist will then delineate California tiger salamander habitat at each project site, based on the definition of suitable habitat, including both aquatic and upland habitat. The criteria used for assessing suitable habitat have been adopted from the primary constituent elements identified in the 2005 critical habitat designation for the Central Valley distinct population segment of California tiger salamander (70 FR 49390). Habitat deemed suitable will include at least one of the following:	Preconstruction; Construction	Compliance Reporting; Surveying; Monitoring	1. 30 days prior to any ground disturbing activity 2. Immediately if observed 3. 24 hours of all capture, handling, and relocation 4. 24 hours after injury or death	Qualified Biologist; Contractor(s); DWR	Condition of Design Documents and Construction Contract; Condition of Compliance Reporting	CDFW; USFWS	Impact BIO-22: Impacts of the Project on California Tiger Salamander; Impact BIO-53: Interfere Substantially with the Movement of Any Native Resident or Migratory Fish or Wildlife Species or with Established Native Resident or Migratory Wildlife Corridors, or Impede the Use of Native Wildlife Nursery Sites; Impact BIO-54: Conflict with the Provisions of an Adopted Habitat

[10] The 1.8-kilometer buffer is based on the suitable habitat necessary to support a viable population of bumble bees (Darvill et al. 2012; Goulson 2010).

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		a. Aquatic—Standing bodies of fresh water (including natural and human-made [e.g., stock]) ponds, vernal pools, and other ephemeral or permanent waterbodies that typically support inundation during winter rains and hold water for a minimum of 12 weeks in a year of average rainfall.' b. Upland—Upland habitats within 1.3 miles of suitable aquatic habitat that contain small mammal burrows or other underground habitat that California tiger salamander depend upon for food, shelter, and protection from the elements and predation. Accessible upland dispersal habitat between occupied locations that allow for movement between such sites. 2. Once habitat has been delineated, the USFWS- and CDFW-approved biologist may use preconstruction surveys performed using a method approved by USFWS and CDFW to determine presence of the species on the project site to enable further determination of compensatory mitigation requirements. In the event of a dry year, the aquatic habitat will be evaluated based on general suitability (e.g., evidence of suitable ponding depths, proximity to occurrences) and the habitat will be assumed to represent occupied habitat. In areas where ground disturbance will occur, grasses within suitable upland habitat will be mowed within 24 hours of clearance surveys to allow the biologist to see and survey for California tiger salamander and burrows. Clearance surveys are surveys that are conducted immediately before ground-disturbing activities to find and relocate California tiger salamander outside of the work area; additional information on clearance surveys is described in measure 11. Light mowing equipment will be used and will only occur during the day in dry conditions when California tiger salamander is unlikely to be aboveground. 3. To the greatest extent possible, identified and delineated habitat will be completely avoided. For areas verified as being suitable for California tiger salamander and that can't be avoided, the following measures will be implemented. 4. To the extent practicable, initial ground-disturbing activities will not be conducted between November 1 and March 31, or extended to April 30 during wet years, in areas identified during the planning stages as providing suitable California tiger salamander habitat, to avoid the period when they are most likely to be moving through upland areas. Once clearance surveys have been conducted, exclusionary fence is in place, the area has been surveyed, and initial ground disturbance has occurred, work within the disturbed area can occur outside the construction window (defined as April 1 through October 31 or, during wet years, May 1 through October 31). 5. If aquatic habitat is identified by the designated biologist(s) within the project area southwest of Byron Highway, DWR will restrict construction activities to beyond 300 feet of breeding habitat, during the breeding season (November 1 through March 31, or extended to April 30 during wet years). Where aquatic habitat cannot be avoided by 300 feet during the breeding season, DWR will notify and coordinate with CDFW to implement site-specific avoidance and minimization measures. Where construction takes place in aquatic habitat, activities will not be initiated until after the habitat is no longer ponding water or until a USFWS- and CDFW-approved biologist has conducted clearance surveys of the aquatic habitat for presence of California tiger salamander and results have been submitted to the agencies. No work or dewatering will be allowed in occupied habitat. If a work site is to be temporarily dewatered by pumping, intakes will be completely screened with wire mesh not larger than 5 millimeters to prevent larger aquatic species from entering the pump system. 6. Ground-disturbing activities will be designed to minimize or eliminate effects on rodent burrows that may provide suitable cover habitat for California tiger salamander. Surface-disturbing activities will avoid areas with a high concentration of burrows to the greatest extent practicable. In addition, when a concentration of burrows is present in a work site, the area plus a 50-foot buffer will be staked or flagged to ensure that work crews are aware of their location							Conservation Plan, Natural Community Conservation Plan, or Other Approved Local, Regional, or State Habitat Conservation Plan; Impact BIO-56: Substantial Adverse Effects on Fish and Wildlife Resources Regulated under California Fish and Game Code Section 1600 et seq.

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		and to facilitate avoidance of the area. 7. All initial ground disturbance or vegetation removal (clearing) will be limited to periods of no or low rainfall (less than 0.08 inch per 24-hour period and less than 40% chance of rain). DWR will avoid clearance work during rainfall events between sunset and sunrise. Clearing activities within California tiger salamander habitat will cease 24 hours prior to a 40% or greater forecast of rain from the closest National Weather Service (NWS) weather station. Clearing may continue 24 hours after the rain ceases, if no more than 0.5 inch of precipitation is in the 72-hour forecast. If clearing must continue when rain is forecast (greater than 40% chance of rain), a USFWS- and CDFW-approved biologist will survey the work site before clearing begins each day rain is forecast. If rain exceeds 0.5 inch during a 24-hour period, clearing will cease until the NWS forecasts no further rain. If this measure cannot be implemented as written or modifications to this timing are pursued, DWR will notify and coordinate with the agencies based on site conditions and expected risks to California tiger salamander. For a given site that has exclusion fencing in place and all surface soil disturbance completed (i.e., no burrows present), these restrictions would no longer apply. If there is a lapse in construction in a work area for 7 days or more due to weather conditions, clearance surveys will be reconducted as described in California tiger salamander measure 11. 8. To the extent practicable, earthmoving and construction activities will cease no less than 30 minutes before sunset and will not begin again until no less than 30 minutes after sunrise within 300 feet of California tiger salamander habitat. Except when necessary for driver or pedestrian safety, to the greatest extent practicable, artificial lighting at a work site will be prohibited during the hours of darkness. 9. At least 30 days prior to any ground-disturbing activities, DWR will prepare and submit a relocation plan for USFWS's and CDFW's written approval. The relocation plan will contain the name(s) of the USFWS- and CDFW-approved biologist(s) to relocate California tiger salamanders, the method of relocation (if different than described), a map, and a description of the proposed release site(s) within 300 feet of the work area or at a distance otherwise agreed to by USFWS and CDFW, and written permission from the landowner to use their land as a relocation site. The relocation plan will also include methods for searching for California tiger salamander (i.e., clearance surveys) in the work areas to avoid and minimize the potential for injury and mortality. Generally, work areas will be attempted to be cleared of California tiger salamanders by placing pit fall traps along the inside of the exclusion fence (i.e., within work areas) or by hand-excavating mammal burrows. Methods will be selected based on site specific conditions in a given work area and will be approved by USFWS and CDFW. Any California tiger salamanders found will be relocated according to the agency-approved relocation plan and will follow the handling protocols outlined below. 10. When there is California tiger salamander habitat within 300 feet of construction activities, exclusion fencing will be installed along the perimeter of construction sites to protect California tiger salamander habitat and minimize the potential for salamanders to enter the construction work area. The perimeter of construction sites within 300 feet of California tiger salamander habitat will be fenced with fencing material suitable for excluding amphibians by no more than 14 days prior to the start of construction activities (e.g., staging, vegetation removal, grading) in a given area. The placement of exclusion fencing will be determined, in part, by the locations of suitable habitat for the species (defined above). A conceptual fencing plan will be submitted to USFWS and CDFW prior to the start of construction and the exclusion fencing will be shown on the final construction plans. DWR will include the amphibian exclusion fence specifications including installation and maintenance criteria in the bid solicitation package special provisions. The amphibian exclusion fencing will remain in place for the duration of construction and will be regularly							

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inspected and fully maintained. The biological monitor and construction manager will be responsible for checking the exclusion fencing around the work areas each day of construction for wildlife trapped inside and to ensure that they are intact and upright. This will be especially critical during times of inclement weather that could damage the fencing. Repairs to the amphibian exclusion fence will be made within 24 hours of discovery of a breach. Where construction access is necessary, gates will be installed in the exclusion fence and fencing will be installed to direct animals away from the work area to the extent practicable (e.g., fencing will flare out and turn back toward suitable habitat).

11. Clearance surveys will be conducted by a USFWS- and CDFW-approved biologist immediately prior to the initiation of any ground-disturbing activities or vegetation clearing, including immediately prior to exclusion fence installation, in areas identified as having suitable California tiger salamander habitat. These surveys will consist of walking surveys within the work sites and investigating suitable aquatic and upland habitat including potential refugia habitat such as small woody debris, refuse, burrow entrances, etc., that are not directly disturbed by project activities. If there is a lapse in construction in a work area for 7 days or more, these surveys will be repeated before activities resume.
12. The USFWS- and CDFW-approved biologist will conduct clearance surveys within the construction work area at the beginning of each day and regularly throughout the workday when construction activities are occurring that may result in take of California tiger salamander. Surveys will be conducted in the same manner as the preconstruction surveys.
13. If a California tiger salamander is observed at any point within a work area, the USFWS- and CDFW-approved biologist will implement the following species observation and handling protocol. Only USFWS- and CDFW-approved biologists will participate in activities associated with the capture, handling, and monitoring of California tiger salamanders. If a California tiger salamander is encountered in a construction or restoration area, activities within a minimum of 10 feet of the individual will cease immediately and the construction manager and USFWS- and CDFW-approved biologist will be notified to observe and follow within 10 feet of the individual to ensure it has safely left the area. A larger protective buffer may be established, depending on site-specific conditions such as the use of heavy equipment, as determined by the USFWS- and CDFW-approved biologist. The California tiger salamander will be allowed to leave the area of its own volition, and work may resume when it is no longer in harm's way. All personnel on-site will be notified of the finding and no work will occur within a minimum of 10 feet of the California tiger salamander, or larger buffer depending on site-specific conditions, without a USFWS- and CDFW-approved biologist present. If the salamander does not move out of the area on its own, and it is determined by the approved biologist, in coordination with the construction manager, that relocating the California tiger salamander is necessary, these steps will be followed:
    a. Prior to handling and relocation, the USFWS- and CDFW-approved biologist will take precautions to prevent introduction of amphibian diseases in accordance with the *Interim Guidance on Site Assessment and Field Surveys for Determining Presence or a Negative Finding of the California Tiger Salamander* (U.S. Fish and Wildlife Service 2003), or the most up-to-date guidance available at the time. Disinfecting equipment and clothing is especially important when biologists are coming to the action area to handle amphibians after working in other aquatic habitats. California tiger salamanders will also be handled and assessed according to the *Restraint and Handling of Live Amphibians* (U.S. Geological Survey National Wildlife Health Center 2001), or the most up-to-date guidance available at the time.
    b. California tiger salamanders will be captured by hand, dipnet, or other

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USFWS- and CDFW-approved methodology, transported, and relocated to nearby suitable habitat outside of the work area and released as soon as practicable the same day of capture. Following the conditions of the relocation plan described in measure 9, individuals will be relocated outside of the exclusion fencing and no more than 300 feet outside of the work area to areas with an active rodent burrow or burrow system (unless otherwise approved by USFWS). Holding/transporting containers and dipnets will be thoroughly cleaned, disinfected, and rinsed with fresh water prior to use within the action area. USFWS and CDFW will be notified within 24 hours of all capture, handling, and relocation efforts. USFWS- and CDFW-approved biologists will wear clean, new disposable surgical style (nitrile, etc.) gloves and/or ensure that their hands are free of soaps, oils, creams, lotions, repellents, or solvents of any sort while capturing and relocating individuals. To avoid transferring disease or pathogens in handling of the amphibians, USFWS- and CDFW-approved biologists will follow the Declining Amphibian Populations Task Force's "Code of Practice" or the most recent guidance.

c. If an injured California tiger salamander is encountered and the USFWS- and CDFW-approved biologist determines the injury is minor or healing and the salamander is likely to survive, the salamander will be released immediately, consistent with the preapproved relocation plan as described in measure 9. The California tiger salamander will be monitored until it is determined that it is not imperiled by predators or other dangers.

d. If the USFWS- and CDFW-approved biologist determines that the California tiger salamander has major or serious injuries because of activities at the work site, the USFWS- and CDFW-approved biologist, or designee, will immediately take it to a USFWS- and CDFW-approved facility. If taken into captivity, the individual will not be released into the wild unless it has been kept in quarantine and the release is authorized by USFWS. DWR will bear any costs associated with the care or treatment of such injured California tiger salamanders. The circumstances of the injury, the procedure followed, and the final disposition of the injured animal will be documented in a written incident report. Notification to USFWS and CDFW of an injured or dead California tiger salamander in the project area will be reported within 24 hours and will include details such as whether or not its condition resulted from activities related to the proposed project. In addition, the USFWS- and CDFW-approved biologist will follow up with USFWS and CDFW in writing within 2 calendar days of the finding. Written notification to USFWS and CDFW will include the following information: the species, number of animals taken or injured, sex (if known), date, time, location of the incident or of the finding of a dead or injured animal, how the individual was taken, photographs of the specific animal, the names of the persons who observed the take or found the animal, and any other pertinent information. Dead specimens will be preserved, as appropriate, and held in a secure location until instructions are received from USFWS regarding the disposition of the specimen.

14. The USFWS- and CDFW-approved biologist will have the authority to stop activities at the work site if they determine that any of avoidance and minimization measures are not being fulfilled.
15. If the exclusion fence is compromised during the rainy season, when California tiger salamanders are likely to be active, the fence will be repaired and a survey will be conducted immediately preceding construction activity that occurs in modeled or suitable California tiger salamander habitat, as determined by a USFWS- and CDFW-approved biologist, or in advance of any activity that may result in take of the species. The biologist will search along exclusion fences, and beneath vehicles each morning before the vehicles are moved. The survey will include a careful inspection of all potential hiding spots, such as along exclusion fencing; large, downed woody debris; and the perimeter of ponds,

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		wetlands, and riparian areas. Any California tiger salamanders found will be captured and relocated according to the USFWS/CDFW-approved relocation plan. 16. If work must be conducted at night within 300 feet of California tiger salamander habitat, all lighting will be directed away and shielded from California tiger salamander habitat outside the construction area to minimize light spillover to the greatest extent possible. If light spillover into adjacent California tiger salamander habitat occurs, a USFWS- and CDFW-approved biologist will be present during night work to survey for burrows and emerging California tiger salamanders in areas illuminated by construction lighting. If California tiger salamander is found aboveground the USFWS- and CDFW-approved biologist has the authority to terminate the project activities until the light is directed away from the burrows, the California tiger salamander moves out of the illuminated area, or the California tiger salamander is relocated out of the illuminated area by the USFWS- and CDFW-approved biologist. 17. If requested before, during, or upon completion of ground disturbance and construction activities where suitable California tiger salamander habitat is present, DWR will require that USFWS and CDFW can access and inspect the work site for compliance with the description of the project and avoidance and minimization measures, and to evaluate effects on the California tiger salamander and its habitat. A USFWS- and CDFW-approved biologist will be on-site during all activities that may result in take of California tiger salamander.							
MM Bio-22b	Avoid and Minimize Operational Traffic Impacts on Wildlife	DWR will implement the following measures to avoid and minimize wildlife-vehicle collisions on DWR facility access roads. 1. Vehicles will observe a maximum speed limit of 15 miles per hour on unpaved non-public DWR access roads where it is safe to do so. Vehicles will observe a maximum speed limit of 30 miles per hour on paved, non-public DWR access roads. Speed limits will be posted in both directions. 2. To extent practicable, traffic control structures, such as speed bumps, will be utilized to reduce speeds. 3. Wildlife crossing signs will be posted in both directions on new or widened access roads that overlap with habitat for special-status wildlife, to the extent practicable.	Preconstruction; Construction; Operations	Contract Requirements	None	Contractor(s); DWR	Condition of Design Documents and Construction Contract	N/A	Impact BIO-22: Impacts of the Project on California Tiger Salamander; Impact BIO-23: Impacts of the Project on Western Spadefoot Toad; Impact BIO-24: Impacts of the Project on California Red-Legged Frog; Impact BIO-25: Impacts of the Project on Western Pond Turtle; Impact BIO-26: Impacts of the Project on Coast Horned Lizard; Impact BIO-27: Impacts of the Project on Northern California Legless Lizard; Impact BIO-28: Impacts of the Project on the California Glossy Snake; Impact BIO-29: Impacts of the San Joaquin Coachwhip; Impact BIO-30: Impact of the Project on the Giant Garter Snake; Impact BIO-40: Impacts of the Project on Burrowing Owl; Impact BIO-46: Impacts of the Project on San Joaquin Kit Fox; Impact BIO-47: Impacts of the Project on American Badger; Impact BIO-48: Impact of the Project on the San Joaquin Pocket Mouse; Impact BIO-53:

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									Interfere Substantially with the Movement of Any Native Resident or Migratory Fish or Wildlife Species or with Established Native Resident or Migratory Wildlife Corridors, or Impede the Use of Native Wildlife Nursery Sites
MM BIO-23	Avoid and Minimize Impacts on Western Spadefoot Toad	The following measures for western spadefoot toad will be required only for surface construction activities occurring within suitable habitat as defined in Appendix 13B, Section 13B.48 and by additional assessments conducted during the planning for work in a given area. Surveys and monitoring will be conducted from locations where access allows. As properties become accessible for initiating project activities within areas of modeled western spadefoot toad habitat, the suitability of the modeled habitat will be assessed on the ground by a biologist qualified to identify aquatic and upland habitat for the species. For areas verified as being suitable for western spadefoot toad, the following measures will be implemented. 1. Except for limited vegetation clearing necessary to minimize effects on nesting birds, initial suitable upland habitat clearance and disturbance will not be conducted between November 1 and March 31, with the period extending to April 30 during wet years. Once the initial ground disturbance has occurred, the area has been surveyed, and exclusionary fencing is in place, work in the disturbed area can occur outside the construction window (defined as April 1 through October 31 or, during wet years, May 1 through October 31). 2. Where construction or restoration activities take place in aquatic habitat, activities will not be initiated until after the habitat is no longer ponding water or until a biologist has surveyed the aquatic habitat for presence of western spadefoot toad larvae. No work or dewatering will be allowed in occupied habitat. If a work site is to be temporarily dewatered by pumping, intakes will be completely screened with wire mesh not larger than 5 millimeters to prevent larger aquatic species from entering the pump system. 3. Ground-disturbing activities will be designed to minimize or eliminate effects on rodent burrows that may provide suitable upland habitat for western spadefoot toad. Surface-disturbing activities will avoid areas with a high concentration of burrows to the greatest extent practicable. In addition, when a concentration of burrows is present in a work site, the area plus a 50-foot buffer will be staked or flagged to ensure that work crews are aware of their location and to facilitate avoidance of the area. 4. All initial ground disturbance or vegetation removal (clearing) will be limited to periods of no or low rainfall (less than 0.08 inch per 24-hour period and less than 40% chance of rain). To the extent practicable, clearing activities within western spadefoot toad habitat will cease 24 hours prior to a 40% or greater forecast of rain from the closest NWS weather station. Clearing may continue 24 hours after the rain ceases, if no more than 0.5 inch of precipitation is in the 72-hour forecast. If clearing must continue when rain is forecast (greater than 40% chance of rain), a qualified biologist will survey the work site before clearing begins each day rain is forecast. If rain exceeds 0.5 inch during a 24-hour period, clearing will cease until the NWS forecasts no further rain. For a given site that has exclusion fencing in place and all surface soil disturbance completed (i.e., no burrows present), these restrictions would no longer apply. 5. To the extent feasible, as determined by the contractor in coordination with the qualified biologist, earthmoving and construction activities will cease no less than 30 minutes before sunset and will not begin again until no less than 30	Preconstruction; Construction	Compliance Reporting; Surveying; Monitoring	Immediately if encountered	Biological Monitor; Qualified Biologist; Contractor(s)	Condition of Design Documents and Construction Contract	CDFW	Impact BIO-23: Impacts of the Project on Western Spadefoot Toad

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minutes after sunrise within 300 feet of western spadefoot toad habitat. Suitability of aquatic and upland habitat characteristics will be determined by the qualified biologist consistent with the description of suitable habitat defined in Appendix 13B, Section 13B.48, *Western Spadefoot* and by additional assessments conducted prior to ground disturbance. Except when necessary for driver or pedestrian safety, to the greatest extent practicable, artificial lighting at a work site will be prohibited during the hours of darkness.

6. When there is western spadefoot habitat within 300 feet of construction activities, exclusion fencing will be installed along the perimeter of construction sites to protect western spadefoot habitat and minimize the potential for toads to enter the construction work area. The perimeter of construction and restoration sites within western spadefoot toad habitat will be fenced with fencing material suitable for excluding amphibians by no more than 14 days prior to the start of construction activities (e.g., staging, vegetation removal, grading) in a given area. DWR will include the amphibian exclusion fence specifications including installation and maintenance criteria in the bid solicitation package special provisions. The amphibian exclusion fencing will remain in place for the duration of construction and will be regularly inspected and fully maintained. A biological monitor and construction manager will be responsible for checking the exclusion fencing around the work areas each day of construction for wildlife trapped inside and to ensure that they are intact and upright. This will be especially critical during times of inclement weather that can damage the fencing. Repairs to the amphibian exclusion fence will be made within 24 hours of discovery of a breach. Where construction access is necessary, gates will be installed in the exclusion fence and fencing will direct animals away from the work area to the extent practicable (e.g., fencing will flare out and turn back toward suitable habitat).
7. Preconstruction surveys will be conducted by a qualified biologist immediately prior to the initiation of any ground-disturbing activities or vegetation clearing, including immediately prior to exclusion fence installation, in areas identified as having suitable western spadefoot toad habitat. These surveys will consist of walking surveys within the work sites and investigating suitable aquatic and upland habitat including potential refugia habitat such as small woody debris, refuse, burrow entrances, etc., that are not directly disturbed by project activities. If there is a lapse in construction in a work area for 7 days or more, these surveys will be repeated before activities resume.
8. If the exclusion fence is compromised during the rainy season, a survey will be conducted immediately preceding construction activity that occurs in suitable western spadefoot toad habitat, or in advance of any activity that may result in take of the species. The biologist will search along exclusion fences, and beneath vehicles each morning before the vehicles are moved. Surveys will be conducted in the same manner as the preconstruction surveys.
9. If a western spadefoot toad is encountered in a construction or restoration area, activities within a minimum of 10 feet of the individual will cease immediately, the construction manager and biological monitor will be notified, and the biological monitor will observe and follow the individual within 10 feet to ensure it has safely left the area. A larger protective buffer may be established, depending on site-specific conditions such as the use of heavy equipment, or other activities that may cause harm to the individual, as determined by the biological monitor. All personnel on-site will be notified of the finding and at no time will work occur within a minimum of 10 feet of the toad, or larger buffer depending on site-specific conditions, without a biological monitor present. The toad will be allowed to leave the area of its own volition, and work may resume when it is no longer in harm's way. If the toad does not move out of the area on its own, and it is determined by the biologist that relocating is necessary, these steps will be followed:
    a. Prior to handling and relocation, the biologist will take precautions to prevent introduction of amphibian diseases by following guidance in *The*

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		Declining Amphibian Task Force Fieldwork Code of Practice (U.S. Fish and Wildlife Service 2019:1) or the most up-to-date guidance available at the time. Western spadefoot toads will also be handled and assessed according to the *Restraint and Handling of Live Amphibians* (U.S. Geological Survey National Wildlife Health Center 2001) or the most up-to-date guidance available at the time. b. Western spadefoot toads will be captured by hand, dipnet, or other CDFW-approved methodology, transported, and relocated to nearby suitable habitat outside of the work area and released as soon as practicable the same day of capture.							
MM BIO-24a	Avoid and Minimize Impacts on California Red-Legged Frog and Critical Habitat	The following measures for California red-legged frog will be required for surface construction activities occurring within suitable habitat as defined in Appendix 13B, Section 13B.49, *California Red-Legged Frog*, and by additional assessments conducted during project implementation and prior to project construction in a given area. Surveys and monitoring will be conducted from locations where access allows. To the extent feasible, DWR will minimize impacts on critical habitat for California red-legged frog containing the primary constituent elements listed below. 1. Aquatic Breeding Habitat. Standing bodies of fresh water (with salinities less than 4.5 parts per thousand [ppt]), including: natural and human-made (e.g., stock) ponds, slow-moving streams or pools within streams, and other ephemeral or permanent waterbodies that typically become inundated during winter rains and hold water for a minimum of 20 weeks in all but the driest of years. 2. Non-Breeding Aquatic Habitat. Freshwater pond and stream habitats, as described above, that may or may not hold water long enough for the species to complete its aquatic life cycle but that do provide for shelter, foraging, predator avoidance, and aquatic dispersal for juvenile and adult California red-legged frogs. Other wetland habitats that would be considered to meet these criteria include, but are not limited to: plunge pools within intermittent creeks, seeps, quiet water refugia during high water flows, and springs of sufficient flow to withstand short-term dry periods. 3. Upland Habitat. Upland areas adjacent to or surrounding breeding and non-breeding aquatic and riparian up to a distance of 1 mile in most cases (i.e., depending on surrounding landscape and dispersal barriers) including various vegetational series such as grassland, woodland, forest, wetland, or riparian areas that provide shelter, forage, and predator avoidance. Upland features are also essential in that they are needed to maintain the hydrologic, geographic, topographic, ecological, and edaphic features that support and surround the aquatic, wetland, or riparian habitat. These upland features contribute to the filling and drying of the wetland or riparian habitat and are responsible for maintaining suitable periods of pool inundation for larval frogs and their food sources, and provide breeding, non-breeding, feeding, and sheltering habitat for juvenile and adult frogs (e.g., shelter, shade, moisture, cooler temperatures, a prey base, foraging opportunities, and areas for predator avoidance). Upland habitat can include structural features such as boulders, rocks and organic debris (e.g., downed trees, logs), as well as small mammal burrows and moist leaf litter. 4. Dispersal Habitat. Accessible upland or riparian habitat within and between occupied or previously occupied sites that are located within 1 mile of each other, and that support movement between such sites. Dispersal habitat includes various natural habitats and altered habitats such as agricultural fields, which do not contain barriers to dispersal. Dispersal habitat does not include moderate- to high-density urban or industrial developments with large expanses of asphalt or concrete, nor does it include large lakes or reservoirs over 50 acres in size, or other areas that do not contain those features identified in primary constituent elements 1, 2, or 3 as essential to the conservation of the	Preconstruction; Construction	Compliance Reporting; Surveying; Monitoring	1. 15 days prior to any ground disturbing activity 2. Immediately if observed 3. 24 hours of all capture, handling, and relocation 4. 24 hours after injury or death	Biological Monitor; Qualified Biologist; Construction Manager; Contractor(s)	Condition of Design Documents and Construction Contract; Condition of Compliance Reporting	CDFW; USFWS	Impact BIO-24: Impacts of the Project on California Red-Legged Frog; Impact BIO-53: Interfere Substantially with the Movement of Any Native Resident or Migratory Fish or Wildlife Species or with Established Native Resident or Migratory Wildlife Corridors, or Impede the Use of Native Wildlife Nursery Sites; Impact BIO-54: Conflict with the Provisions of an Adopted Habitat Conservation Plan, Natural Community Conservation Plan, or Other Approved Local, Regional, or State Habitat Conservation Plan; Impact BIO-56: Substantial Adverse Effects on Fish and Wildlife Resources Regulated under California Fish and Game Code Section 1600 et seq.

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		species. During project implementation and prior to project construction, DWR will implement the following measures. 5. When each site is available for surveys, biologist approved by USFWS, will then delineate California red-legged frog habitat at each project site, based on an agreed-upon definition of suitable habitat, including both aquatic and upland habitat. 6. Once habitat has been delineated, the qualified biologist may conduct surveys performed using a method approved by USFWS to determine presence of the species on the project site to enable further determination of compensatory mitigation requirements. In the event of a dry year, the aquatic habitat will be evaluated based on general suitability (e.g., evidence of suitable ponding depths, proximity to occurrences) and the habitat will be assumed to represent occupied habitat. 7. To the greatest extent possible, identified and delineated habitat will be completely avoided. For areas verified as being suitable for California red-legged frog and that can't be avoided, the following measures will be implemented. 8. To the extent practicable, initial ground-disturbing activities will not be conducted between September 1 and April 30, to avoid the wet season which encompasses breeding as well as potential upland migration before and after. Once the area has been surveyed, initial ground disturbance has occurred, and exclusionary fencing is in place, the seasonal restriction would not apply. 9. Ground-disturbing activities will be designed to minimize or eliminate effects on rodent burrows that may provide suitable cover habitat for California red-legged frog. Surface-disturbing activities will avoid areas with a high concentration of burrows to the greatest extent practicable. In addition, when a concentration of burrows is present in a work site, the area will be staked or flagged to ensure that work crews are aware of their location and to facilitate avoidance of the area. 10. All initial ground disturbance or vegetation removal (clearing) will be limited to periods of no or low rainfall (less than 0.08 inch per 24-hour period and less than 40% chance of rain). To the extent practicable, clearing activities within California red-legged frog habitat will cease 24 hours prior to a 40% or greater forecast of rain from the closest NWS weather station. Clearing may continue 24 hours after the rain ceases, if no more than 0.5 inch of precipitation is in the 72-hour forecast. If clearing must continue when rain is forecast (i.e., greater than 40% chance of rain), a USFWS-approved biologist will survey the work site before clearing begins each day rain is forecast. If rain exceeds 0.5 inch during a 24-hour period, clearing will cease until the NWS forecasts no further rain. Modifications to this timing may be approved by USFWS based on site conditions and expected risks to California red-legged frog. For a given site that has exclusion fencing in place and all surface soil disturbance completed (i.e., no burrows present), these restrictions would no longer apply. 11. To the maximum extent practicable, nighttime construction will be minimized or avoided when working in suitable California red-legged frog habitat. To the greatest extent practicable, earthmoving and construction activities will cease no less than 30 minutes before sunset and will not begin again prior to no less than 30 minutes after sunrise. Except when necessary for driver or pedestrian safety, artificial lighting at a work site will be prohibited during the hours of darkness when working in suitable California red-legged frog habitat. 12. If work must be conducted at night within 300 feet of California red-legged frog habitat, all lighting will be directed away and shielded from California red-legged frog habitat outside the construction area to minimize light spillover to the greatest extent possible. If light spillover into adjacent California red-legged frog habitat occurs, a USFWS-approved biologist will be present during night work to survey for California red-legged frogs in areas illuminated by							

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		construction lighting. If California red-legged frog is found to be illuminated, the USFWS-approved biologist has the authority to terminate the project activities until the light is directed away from the frog's location, or the California red-legged frog moves out of the illuminated area. 13. At least 15 days prior to any ground disturbance activities, DWR will prepare and submit a relocation plan for USFWS's written approval. The relocation plan will contain the name(s) of the USFWS-approved biologist(s) to relocate California red-legged frogs, the method of relocation (if different than described), a map, and a description of the proposed release site(s) outside of exclusion fencing and within 300 feet of the work area or at a distance otherwise agreed to by USFWS, and written permission from the landowner to use their land as a relocation site 14. When there is California red-legged frog habitat within 300 feet of construction activities, exclusion fencing will be installed along the perimeter of construction sites to protect California red-legged frog habitat and minimize the potential for frogs to enter the construction work area. The perimeter of construction sites will be fenced with fencing material suitable for excluding amphibians by no more than 14 days prior to the start of construction. The placement of exclusion fencing will be determined, in part, by the locations of suitable habitat for the species. A conceptual fencing plan will be submitted to USFWS prior to the start of construction and the California red-legged frog exclusion fencing will be shown on the final construction plans. DWR will include the amphibian exclusion fence specifications including installation and maintenance criteria in the bid solicitation package special provisions. The amphibian exclusion fencing will remain in place for the duration of construction and will be regularly inspected and fully maintained. The biological monitor and construction manager will be responsible for checking the exclusion fencing around the work areas each day of construction for wildlife trapped inside and to ensure that they are intact and upright. This will be especially critical during times of inclement weather that can damage the fencing. Repairs to the amphibian exclusion fence will be made within 24 hours of discovery of a breach. Where construction access is necessary, gates will be installed in the exclusion fence and fencing will direct animals away from the work area to the extent practicable (e.g., fencing will flare out and turn back toward suitable habitat). 15. Preconstruction surveys will be conducted by a USFWS-approved biologist immediately prior to the initiation of any ground-disturbing activities or vegetation clearing, including immediately prior to exclusion fence installation, in areas identified as having suitable California red-legged frog habitat. These surveys will consist of walking the work site limits. The USFWS-approved biologist will investigate all potential areas that could be used by the California red-legged frog for feeding, breeding, sheltering, movement, or other essential behaviors. If there is a lapse in construction in a work area for 7 days or more, these surveys will be repeated before activities resume. 16. The USFWS-approved biologist will conduct clearance surveys at the beginning of each day and regularly throughout the workday when construction activities are occurring that may result in take of California red-legged frog. These surveys will consist of walking surveys within the work sites and investigating suitable aquatic and upland habitat including potential refugia habitat such as small woody debris, refuse, and burrow entrances, that are not directly disturbed by project activities. 17. If a California red-legged frog is encountered at any point within a construction or restoration area, activities within a minimum of 10 feet of the individual will cease immediately, the construction manager and USFWS-approved biologist will be notified, and the USFWS-approved biologist will observe and follow within 10 feet of the individual to ensure it has safely left the area. A larger protective buffer may be established, depending on site-specific conditions such as the use of heavy equipment, or other activities that may cause harm to the individual, as determined by the USFWS-approved biologist. The frog will be							

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		allowed to leave the area of its own volition, and work may resume when it is no longer in harm's way. All personnel on-site will be notified of the finding and at no time will work occur within a minimum of 10 feet of the frog, or larger protective buffer depending on site-specific conditions, without a USFWS-approved biologist present. If the frog does not move out of the area on its own, and it is determined by the USFWS-approved biologist, in coordination with the construction manager, that relocating the frog is necessary, these steps will be followed: a. Prior to handling and relocation, the biologist will take precautions to prevent introduction of amphibian diseases by following guidance in The Declining Amphibian Task Force Fieldwork Code of Practice (U.S. Fish and Wildlife Service 2019:1), or the most up-to-date guidance available at that time. California red-legged frogs will also be handled and assessed according to the Restraint and Handling of Live Amphibians (U.S. Geological Survey National Wildlife Health Center 2001), or the most up-to-date guidance available at that time. b. California red-legged frogs will be captured by hand, dipnet, or other USFWS-approved methodology, transported, and relocated to nearby suitable habitat outside but within 300 feet of the work area, or at a distance otherwise specified in the relocation plan described in measure 13, and released as soon as practicable the same day of capture per the relocation plan. Holding/transporting containers and dipnets will be thoroughly cleaned, disinfected, and rinsed with fresh water prior to use within construction areas. USFWS will be notified within 24 hours of all capture, handling, and relocation efforts. USFWS-approved biologists will wear clean, new disposable surgical style (latex, nitrile, etc.) gloves and/or ensure that their hands are free of soaps, oils, creams, lotions, repellents, or solvents of any sort while capturing and relocating individuals. To avoid transferring disease or pathogens in handling of the amphibians, USFWS-approved biologists will follow the Declining Amphibian Populations Task Force's "Code of Practice" or the most up to date, agency-accepted guidance. c. If an injured California red-legged frog is encountered and the USFWS-approved biologist determines the injury is minor or healing and the frog is likely to survive, the frog will be released immediately, consistent with the preapproved relocation plan as described above. The frog will be monitored until it is determined that it is not imperiled by predators or other dangers. d. If the USFWS-approved biologist determines that the frog has major or serious injuries because of activities at the work site, the USFWS-approved biologist, or designee, will immediately take it to a USFWS-approved facility. If taken into captivity, the individual will not be released into the wild unless it has been kept in quarantine and the release is authorized by USFWS. DWR will bear any costs associated with the care or treatment of such injured frogs. The circumstances of the injury, the procedure followed, and the final disposition of the injured animal will be documented in a written incident report. Notification to USFWS of an injured or dead California red-legged frog in the project area will be reported within 24 hours and will include details such as whether or not its condition resulted from activities related to the proposed project. In addition, the USFWS-approved biologist will follow up with USFWS in writing within 2 calendar days of the finding. Written notification to USFWS will include the following information: the species, number of animals taken or injured, sex (if known), date, time, location of the incident or of the finding of a dead or injured animal, how the individual was taken, photographs of the specific animal, the names of the persons who observed the take or found the animal, and any other pertinent information. Dead specimens will be preserved, as appropriate, and held in a secure location							

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		until instructions are received from USFWS regarding the disposition of the specimen. 18. Work within suitable aquatic habitats will not begin until the habitat is dry or has been adequately surveyed and dewatered. Aquatic habitats that must be dewatered will be surveyed for California red-legged frogs prior to dewatering. Dewatering pumps will be screened with wire mesh not larger than 5 millimeters to prevent larvae from entering the pump. The biological monitor will be present during dewatering. Any California red-legged frogs found will be relocated per the relocation plan.							
MM BIO-24b	Compensate for Impacts on California Red-Legged Frog Habitat Connectivity	To mitigate for impacts on California red-legged frog habitat connectivity resulting from the construction of the access roads and rail spur leading to the Southern Forebay (Alternatives 1, 2a, 2b, 2c, 3, 4a, 4b, and 4c) and the construction of a new crossing on Mountain House Creek, a widened section of Byron Highway crossing over an unnamed channel near the new Lindemann Road interchange (Alternative 5), and a widened section of Mountain House Road over two unnamed creeks, DWR will design and construct crossings (i.e., culverts or bridges) on Brushy Creek, Italian Slough, Mountain House Creek, and the unnamed channels crossing Byron Highway and Mountain House Road that meet the following performance standards. 1. Completely span suitable California red-legged frog aquatic habitat. 2. Maintain natural channel substrates, or similar materials, at road and rail spur crossings over California red-legged frog habitat. 3. Size the constructed crossings to include upland habitat on at least one side of each channel that is above the bank full width to allow for terrestrial movement and refugia from bank full flows. New and widened road segments will be designed and constructed on the new access road to Bethany Reservoir, Byron Highway, Mountain House Road, Grant Line Road, and Lindemann Road with the following features: 4. New and widened access road segments will avoid installing curbs, to the extent practicable. If curbs must be installed, curbs will be designed with sloping sides less than 30 degrees (Clevenger and Huijser 2011:156) to allow amphibian movement across the road. 5. New and widened access road segments will avoid installing median barriers (i.e., k-rails), to the extent practicable. If median barriers cannot be avoided due to public safety concerns, barriers will be outfitted with small openings at ground level to allow amphibian passage.	Preconstruction; Construction; Operations	Contract Requirements; Design; Construction	As needed	Contractor(s)	Condition Prior to Resource Impacts or Disturbance; Condition of Design Documents and Construction Contract	CDFW	Impact BIO-24: Impacts of the Project on California Red-Legged Frog; Impact BIO-53: Interfere Substantially with the Movement of Any Native Resident or Migratory Fish or Wildlife Species or with Established Native Resident or Migratory Wildlife Corridors, or Impede the Use of Native Wildlife Nursery Sites
MM BIO-25	Avoid and Minimize Impacts on Western Pond Turtle	The following measures for western pond turtle will be required only for surface construction occurring within 300 feet of suitable habitat as defined in Appendix 13B, Section 13B.50, *Western Pond Turtle*, and by additional assessments conducted during project implementation and prior to project construction in a given area. A qualified biologist will conduct a field evaluation of suitable upland or aquatic habitat for western pond turtles for all surface construction activities that occur within western pond turtle habitat. Surveys and monitoring will be conducted from locations where access allows. If the project does not fully avoid effects on suitable habitat, the following measures will be required. 1. No more than 14 days prior to the start of construction activities in a given area, exclusion fencing will be installed between the work area and adjacent suitable aquatic habitat. Where openings need to be maintained, such as on the levee road, fencing will be installed to direct turtles away from the work area to the extent practicable (e.g., fencing will flare out and turn back toward the river and adjacent riparian). Fencing will be installed prior to the start of the nesting season (March) and remain in place for the duration of construction. Fencing may be moved or reconfigured to facilitate construction. The biological monitor and construction manager will be responsible for checking the exclusion fencing around the work areas each day of construction to ensure that they are intact and upright. Repairs to the exclusion fence will be made within 24 hours of discovery of damage. Where construction access is necessary, gates will be	Preconstruction; Construction	Surveying; Contract Requirements; Compliance Reporting	1. Immediately if observed 2. 24 hours of all capture, handling, and relocation	Biological Monitor; Construction Manager; Qualified Biologist; Contractor(s)	Condition of Design Documents and Construction Contract; Condition of Compliance Reporting	CDFW	Impact BIO-25: Impacts of the Project on Western Pond Turtle; Impact BIO-54: Conflict with the Provisions of an Adopted Habitat Conservation Plan, Natural Community Conservation Plan, or Other Approved Local, Regional, or State Habitat Conservation Plan; Impact BIO-56: Substantial Adverse Effects on Fish and Wildlife Resources Regulated under California Fish and Game Code Section 1600 et seq.

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		installed in the exclusion fence and fencing will direct animals away from the work area to the extent practicable (e.g., fencing will flare out and turn back toward suitable habitat). 2. Preconstruction surveys will be conducted by a qualified biologist immediately prior to the initiation of any ground-disturbing activities or vegetation clearing, including exclusion fence installation, in areas identified as having suitable western pond turtle habitat. If there is a lapse in construction in a work area for 7 days or more, these surveys will be repeated before activities resume. 3. The qualified biologist will conduct clearance surveys at the beginning of each day and regularly throughout the workday when construction activities are occurring that may result in take of western pond turtle. If a turtle is observed, the qualified biologist will implement the following species observation and handling protocol. Only qualified biologists will participate in activities associated with the capture, handling, and monitoring of western pond turtles. If a western pond turtle is encountered in a construction or restoration area, activities within a minimum of 10 feet of the individual will cease immediately, the construction manager and qualified biologist will be notified, and the qualified biologist will observe and follow within 10 feet of the individual to ensure it has safely left the area. A larger protective buffer may be established, depending on site-specific conditions such as the use of heavy equipment, or other activities that may cause harm to the individual, as determined by the qualified biologist. The turtle will be allowed to leave the area of its own volition, and work may resume when it is no longer in harm's way. All personnel on-site will be notified of the finding and at no time will work occur within a minimum of 10 feet of the turtle, or larger buffer depending on site-specific conditions, without a qualified biologist present. If the turtle does not move out of the area on its own, and it is determined by the qualified biologist, in coordination with the construction manager that relocating the turtle is necessary, relocation will be done in coordination with CDFW. Any handling of turtles will be done by a biologist with a valid memorandum of understanding from CDFW authorizing the capture and relocation of turtles and as determined during coordination with CDFW. Biologists will wear clean, new disposable surgical style (nitrile, etc.) gloves while handling and relocating individuals. 4. If a work site is to be temporarily dewatered by pumping, intakes will be completely screened with wire mesh not larger than 5 millimeters to prevent juvenile pond turtle and other aquatic species from entering the pump system. Any turtles found in the dewatered area will be relocated in coordination with CDFW to the nearest aquatic habitat by a biologist authorized to relocate turtles.							
MM BIO-26	Avoid and Minimize Impacts on Special-Status Reptiles	The following measures will be required only for surface construction and restoration activities occurring in suitable habitat for special-status reptiles as defined in Appendix 13B, Section 13B.51, *Coast Horned Lizard*, Section 13B.52, *Northern California Legless Lizard*, Section 13B.53, *California Glossy Snake*, and Section 13B.54, *San Joaquin Coachwhip*, and by additional assessments conducted during project implementation and prior to project construction in a given area. Surveys and monitoring will be conducted from locations where access allows. 1. During project implementation and prior to project construction, DWR will direct a qualified biologist to conduct a habitat assessment in modeled habitat for coast horned lizard, Northern California legless lizard, California glossy snake, and San Joaquin coachwhip to confirm these areas contain suitable habitat for the species as defined above. 2. Where suitable habitat exists, the qualified biologist will conduct a preconstruction survey for special-status reptiles immediately prior to the start of vegetation clearing or ground-disturbing activities. If there is a lapse in construction in a work area for 7 days or more, these surveys will be repeated before activities resume. 3. If a special-status reptile is found in a construction or restoration area, activities	Preconstruction; Construction	Surveying; Monitoring; Contract Requirements	1. Immediately if observed 2. 24 hours of all capture, handling, and relocation	Construction Manager; Qualified Biologist; Contractor(s)	Condition of Design Documents and Construction Contract	CDFW	Impact BIO-26: Impacts of the Project on Coast Horned Lizard; Impact BIO-27: Impacts of the Project on Northern California Legless Lizard; Impact BIO-28: Impacts of the Project on the California Glossy Snake; Impact BIO-29: Impacts of the San Joaquin Coachwhip; Impact BIO-54: Conflict with the Provisions of an Adopted Habitat Conservation Plan, Natural Community Conservation Plan, or Other Approved Local, Regional, or State Habitat

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		within a minimum of 10 feet of the individual will cease immediately, the construction manager and qualified biologist will be notified, and the qualified biologist will observe and follow the individual within 10 feet to ensure it has safely left the area. A larger protective buffer may be established, depending on site-specific conditions such as the use of heavy equipment, or other activities that may cause harm to the individual, as determined by the qualified biologist. The biologist will first attempt to allow the individual to move out of harm's way on its own, but if it does not move out of the area on its own and it is determined by the qualified biologist, in coordination with the construction manager, that relocating the individual is necessary, the individual will be captured by the biologist and relocated to the nearest suitable habitat outside of the work area, as determined in consultation with CDFW. 4. Vehicles that are parked near suitable habitat for these species overnight or for more than 1 hour during the day, will be inspected to ensure no reptiles have taken refuge beneath the tires prior to moving the vehicles. 5. To the extent feasible, as determined by the contractor, work in areas with suitable habitat should not be conducted during periods of cold and hot temperatures (below 67 degrees Fahrenheit [°F] and above 100°F), because these species would generally be relatively inactive during these periods and could be taking cover in loose soil, in burrows or crevices, or under structures such as rocks or logs. This will reduce the likelihood of special-status reptiles being injured or killed by ground-disturbing activities. 6. The qualified biologist will have the authority to stop activities at the work site if they determine that any of the avoidance and minimization measures are not being fulfilled.							Conservation Plan; Impact BIO-56: Substantial Adverse Effects on Fish and Wildlife Resources Regulated under California Fish and Game Code Section 1600 et seq.
MM BIO-30	Avoid and Minimize Impacts on Giant Garter Snake	The following measures for giant garter snake will only be required for surface construction and restoration activities occurring within suitable habitat as defined in Appendix 13B, Section 13B.55, *Giant Garter Snake*, and by additional assessments conducted during project implementation and prior to project construction in a given area. Surveys and monitoring will be conducted from locations where access allows. During project implementation and prior to project construction, DWR, in agreement with CDFW and USFWS, will perform the following measures. 1. When each site is available for surveys, a USFWS- and CDFW-approved biologist will then delineate giant garter snake habitat at each project site, including both aquatic and upland habitat. 2. Once habitat has been delineated, the biologist may use giant garter snake preconstruction surveys performed using a method approved by USFWS to determine presence of the species on the project site to enable further determination of compensatory mitigation requirements. 3. For sites where such preconstruction surveys are performed, the surveys will conform to established protocols for giant garter snake surveys and all occurrence data gathered will be reported to the CNDDB and USFWS to add to the understanding of populations and occurrences for the species in the Delta. 4. To the greatest extent feasible, and determined by the contractor in coordination with the USFWS- and CDFW-approved biologist, identified and delineated habitat will be completely avoided. If the construction or restoration activity does not fully avoid effects on suitable habitat, the following measures will be implemented. 5. Initiate construction and clear suitable habitat in the summer months, between May 1 and October 1, and avoid giant garter snake habitat during periods of brumation (between October 1 and May 1). Suitability of aquatic and upland habitat characteristics will be determined by the biologist consistent with the description of suitable habitat defined in Appendix 13B, Section 13B.55. Once a construction site has been cleared and exclusionary fencing is in place, work within the cleared area can occur between October 1 and May 1. 6. To the extent practicable, as determined by project engineers and contractors,	Preconstruction; Construction	Surveys; Monitoring; Compliance Reporting	1. 30 days prior to any ground disturbing activity 2. Prior to construction 3. Immediately if observed 4. Prior to burrow collapse	Biological Monitor; Construction Manager; Qualified Biologist; Contractor(s)	Condition of Compliance Reporting	CDFW; USFWS	Impact BIO-30: Impact of the Project on the Giant Garter Snake; Impact BIO-54: Conflict with the Provisions of an Adopted Habitat Conservation Plan, Natural Community Conservation Plan, or Other Approved Local, Regional, or State Habitat Conservation Plan; Impact BIO-56: Substantial Adverse Effects on Fish and Wildlife Resources Regulated under California Fish and Game Code Section 1600 et seq.

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		in coordination with the USFWS- and CDFW-approved biologist, conduct all activities within paved roads, farm roads, road shoulders, and similarly disturbed and compacted areas; confine ground disturbance and habitat removal to the minimal area necessary to facilitate construction activities. 7. At least 30 days prior to any ground-disturbing activities, DWR will prepare and submit a relocation plan for USFWS's and CDFW's written approval. The relocation plan will contain the name(s) of the biologist(s) to relocate giant garter snakes, the method of relocation (if different than described), a map, and a description of the proposed release site(s) within 300 feet of the work area or at a distance otherwise agreed to by USFWS and CDFW, and written permission from the landowner to use their land as a relocation site. 8. When there is giant garter snake habitat within 200 feet of construction activities, exclusion fencing will be installed along the perimeter of construction sites to protect giant garter snake habitat and minimize the potential for snakes to enter the construction work area. The perimeter of construction sites (except for work sites within areas of open water, like the Sacramento River) within or adjacent to giant garter snake habitat will be fenced with exclusion fencing by no more than 14 days prior to the start of construction activities (e.g., staging, vegetation removal, grading) in a given area. The placement of exclusion fencing will be determined, in part, by the locations of suitable habitat for the species. A conceptual fencing plan will be submitted to USFWS and CDFW prior to the start of construction and the exclusion fencing will be shown on the final construction plans. DWR will include the exclusion fence specifications including installation and maintenance criteria in the bid solicitation package special provisions. The exclusion fencing will remain in place for the duration of construction and will be regularly inspected and fully maintained. The biological monitor and construction manager will be responsible for checking the exclusion fencing around the work areas each day of construction to ensure that they are intact and upright. This will be especially critical during times of inclement weather that can damage the fencing. Repairs to the exclusion fence will be made within 24 hours of discovery of a breach. Where construction access is necessary, gates will be installed in the exclusion fence and fencing will direct animals away from the work area to the extent practicable (e.g., fencing will flare out and turn back toward suitable habitat). 9. Immediately prior to the initiation of any vegetation clearing, ground-disturbing activities, and exclusion fence installation, the USFWS- and CDFW-approved biologist will conduct clearance surveys of suitable aquatic and upland habitat in the entire work site for the presence of giant garter snakes. Beginning no more than 7 days prior to initiating ground-disturbing activities during the active season (May 1 to October 1), the biologist will conduct 2 days of walking clearance surveys within each construction site and a 3-foot boundary surrounding the exclusion fencing, where access allows. The final clearance survey will occur within 24 hours preceding exclusion barrier installation. If there is a lapse in construction in a work area for 7 days or more, these surveys will be repeated before activities resume. 10. If exclusionary fencing is found to be compromised, a survey of the exclusion fencing and the area inside the fencing will be conducted immediately preceding construction activity that occurs in delineated giant garter snake habitat or in advance of any activity that may result in take of the species. The biologist will search along exclusionary fences, in pipes, and beneath vehicles before the vehicles are moved. 11. If a giant garter snake is found in a construction or restoration area, activities within a minimum of 10 feet of the individual will cease immediately, the construction manager and the USFWS- and CDFW-approved biologist will be notified, and the USFWS- and CDFW-approved biologist will observe and follow the individual within 10 feet to ensure it has safely left the area. A larger protective buffer may be established, depending on site-specific conditions such as the use of heavy equipment, or other activities that may cause harm to the							

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		individual, as determined by the USFWS- and CDFW-approved biologist. The snake will be allowed to move of its own volition out of harm's way. If the snake does not move and it is deemed necessary to relocate the animal to prevent harm, as determined by the USFWS- and CDFW-approved biologist in coordination with the construction manager, the snake may be captured and relocated to suitable habitat a minimum of 200 feet outside of the work area in accordance with the relocation plan, prior to resumption of construction activity. After the giant garter snake has moved out of the work area, all burrows within 200 feet of aquatic habitat will be inspected and collapsed; burrow collapse on levees will only be conducted following approval from relevant regulatory agencies (e.g., USACE, Reclamation). 12. Within 24 hours prior to construction activities, and dredging, requiring heavy equipment, a USFWS- and CDFW-approved biologist will conduct a preconstruction clearance survey of all the activity area not protected by exclusionary fencing where giant garter snake could be present. This survey of the work area will be repeated if a lapse in construction or dredging activity of 2 weeks or greater occurs during the aestivation period (October 1 to May 1) or if the lapse in construction activity is more than 12 hours during active season (May 1 to October 1). If a giant garter snake is encountered during surveys or construction, cease activities until appropriate corrective measures have been completed, it has been determined that the giant garter snake will not be harmed, or the giant garter snake has left the work area. 13. The USFWS- and CDFW-approved biological monitor will help guide access and construction work around wetlands, active rice fields, and other sensitive habitats capable of supporting giant garter snake to minimize habitat disturbance and risk of injuring or killing giant garter snakes. 14. Store equipment in designated staging area areas at least 200 feet away from giant garter snake aquatic habitat to the extent practicable. 15. Visually check for giant garter snake under any vehicles or equipment that have been idle for more than 1 hour, or parked overnight, prior to moving the vehicles. Check any crevices or cavities in the work area where individuals may be present, including stockpiles that have been left for more than 24 hours where cracks/crevices may have formed. For activities that will occur within suitable giant garter snake habitat during the giant garter snake inactive season (October 2 to April 30) and will last more than 2 weeks, DWR will implement the following additional avoidance and minimization measures. 16. All aquatic giant garter snake habitat will be dewatered between May 1 and October 1 (giant garter snake active season) to the extent that the area is no longer suitable habitat for giant garter snake as determined by the USFWS- and CDFW-approved biologist. Dewatering will be limited to the immediate construction area and will remain dry for at least 15 consecutive days prior to excavating or filling the dewatered habitat. The USFWS- and CDFW-approved biologist will be on-site during dewatering activities to salvage and relocate any snake that cannot escape on its own. Dewatering is necessary because aquatic habitat provides prey and cover for giant garter snake; dewatering serves to remove the attractant and increase the likelihood that giant garter snake will move to other available habitat. Any deviation from this measure will be done in coordination with and with the approval of USFWS and CDFW. 17. Following dewatering of aquatic habitat, all potential impact areas that provide suitable aquatic or upland giant garter snake habitat will be surveyed for giant garter snake by the biologist. If giant garter snakes are observed, they will be passively allowed to leave the potential impact area. If the snake does not move of its own accord and it is determined necessary, the snake will be relocated in accordance with the approved relocation plan. 18. Once habitat is deemed free of giant garter snakes, exclusion fencing will be installed around the construction site so no snakes may reenter prior to or							

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		during construction.							
MM BIO-31	Avoid and Minimize Impacts on Western Yellow-Billed Cuckoo	The following measures will be required only for surface construction and restoration activities occurring between May 15 through September 1 to avoid and minimize impacts on western yellow-billed cuckoo. Surveys and monitoring will be conducted from locations where access allows. 1. Prior to the construction, a noise expert will create a sound level contour map showing the 60 dBA sound level contour specific to the type and location of construction to occur in the area. 2. Two weeks prior to construction, a USFWS- and CDFW-approved biologist will conduct daily surveys, consistent with a USFWS- or CDFW-approved survey protocol (e.g., Halterman et al. 2015:9-42, or more current guidance), within 500 feet of suitable habitat where construction-related noise levels could exceed 60 dBA equivalent sound level (L_{eq}) (1 hour). 3. If a yellow-billed cuckoo is found, construction activities will be limited such that sound will not exceed 60 dBA within 500 feet of the habitat being used until the USFWS- and CDFW-approved biologist has confirmed that the bird has left the area. 4. If surveys find cuckoos in an area where vegetation will be removed, vegetation removal will be conducted when the USFWS- and CDFW-approved biologist has confirmed that cuckoos are not present within 500 feet of vegetation removal activities. 5. Portable and stationary equipment will be located, stored, and maintained as far as possible, with a minimum distance of 500 feet, from suitable western yellow-billed cuckoo habitat. 6. All lights will be screened and directed down toward work activities and away from migratory habitat. A biological monitor will ensure that lights are properly directed at all times during construction.	Preconstruction; Construction	Surveying; Monitoring; Contract Requirements; Compliance Reporting	As needed	Biological Monitor; Noise Expert; Qualified Biologist; Contractor(s)	Condition of Design Documents and Construction Contract; Condition of Compliance Reporting	CDFW; USFWS	Impact BIO-31: Impacts of the Project on Western Yellow- Billed Cuckoo; Impact BIO-54: Conflict with the Provisions of an Adopted Habitat Conservation Plan, Natural Community Conservation Plan, or Other Approved Local, Regional, or State Habitat Conservation Plan; Impact BIO-56: Substantial Adverse Effects on Fish and Wildlife Resources Regulated under California Fish and Game Code Section 1600 et seq.
MM BIO-32	Conduct Preconstruction Surveys and Implement Protective Measures to Avoid Disturbance of California Black Rail	The following measures will be required only for surface construction and restoration activities. Preconstruction surveys for California black rail will be required by DWR to be conducted 1 year prior to construction and the year of construction where potentially suitable habitat for this species occurs within 500 feet of work areas and where access is available. Potentially suitable habitat includes tidal and nontidal seasonal or perennial wetlands at least 2 acres in size with any kind of vegetation types consistent with California black rail use in the Delta (as determined by field evaluations conducted by a CDFW-approved biologist with experience surveying for black rail) over 10 inches high, whether or not the patch in question was mapped as modeled habitat. A minimum of four surveys will be conducted between February 1 and April 15, with at least 10 days between surveys. Because California black rail are most active between 2 hours before and 3 hours after sunrise, surveys will start at sunrise and continue no later than 9:30 a.m. These surveys will involve the following protocols (based on Evens et al. 1991), or other CDFW-approved survey methodologies that may be developed using new information and best-available science and will be conducted by biologists with the qualifications stipulated in the CDFW-approved methodologies. Surveys and monitoring will be conducted from locations where access allows. 1. Listening stations will be established at 300-foot intervals throughout potential California black rail habitat that will be affected by construction or CMP restoration activities. Listening stations will be placed along roads, trails, and levees to avoid trampling wetland vegetation. Listening stations will be located a maximum of 10 meters from suitable habitat where access is available. 2. Surveys at each station will consist of a biologist listening passively for 1 minute, then broadcasting prerecorded black rail vocalizations: 1 minute of “grr” calls followed by 0.5 minute of “ki-ki-doo” calls. The CDFW-approved biologist will then listen for another 3.5 minutes for a total of 6 minutes per station. Once a California black rail response is detected, the biologist will cease broadcasting immediately. 3. A global positioning system (GPS) receiver and compass will be used to identify	Preconstruction; Construction	Surveying; Monitoring; Contract Requirements; Compliance Reporting	As needed	Qualified Biologist; Contractor(s);	Condition of Design Documents and Construction Contract; Condition of Compliance Reporting	CDFW	Impact BIO-32: Impacts of the Project on the California Black Rail; Impact BIO-54: Conflict with the Provisions of an Adopted Habitat Conservation Plan, Natural Community Conservation Plan, or Other Approved Local, Regional, or State Habitat Conservation Plan; Impact BIO-56: Substantial Adverse Effects on Fish and Wildlife Resources Regulated under California Fish and Game Code Section 1600 et seq.

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		survey stations, angles to call locations, and call locations and distances from listening stations. The California black rail call type, location, distance from listening station, and time will be recorded. The project will be implemented in a manner that will not result in take of California black rail as defined by Section 86 of the California Fish and Game Code. Where California black rail has been detected within 500 feet of work areas during preconstruction surveys, the following measures will be required. 4. To avoid the loss of individual California black rails, construction activities within 500 feet of potential habitat will not occur within 2 hours before or after extreme high tides (6.5 feet or above, as measured at the Golden Gate Bridge), to the extent feasible, as determined by the construction manager in coordination with a qualified biologist. During high tide, protective cover for California black rail is sometimes limited, and disturbance from project activities could prevent individual rails from reaching available cover. 5. To avoid the loss of individual California black rails, activities within 500 feet of tidal marsh areas and managed wetlands will be avoided during the rail breeding season (February 1 through August 31), unless surveys are conducted to determine that no rails are present within the 500-foot buffer. 6. If breeding California black rail is determined to be present, activities will not occur within 500 feet of an identified calling center (or a smaller distance if approved by CDFW). If the intervening distance between the rail calling center and any activity area is greater than 200 feet and across a major slough channel or substantial barrier (e.g., constructed noise barrier) it may proceed at that location within the breeding season. 7. If construction activities require removal of potential California black rail habitat, whether or not rails have been detected there, vegetation will be removed during the nonbreeding season (September 1 through January 31). Vegetation removal will be completed carefully using hand tools or vegetation removal equipment that is approved by a CDFW-approved biologist. The CDFW-approved biologist will search vegetation immediately in front of the removal tools or equipment and will stop removal if rails are detected. Vegetation removal will resume when the California black rail leaves the area. 8. If the construction footprint is within 500 feet of a known calling center, noise reduction structures such as temporary noise-reducing walls, will be installed at the edge of construction footprint, as determined by an on-site CDFW-approved biologist. Noise-causing construction will be initiated during the nonbreeding season (September 1 through January 31), where feasible, as determined by the contractor in coordination with the CDFW-approved biologist, so that California black rails can acclimate to noise and activity prior to nesting. Examples where construction initiation during the nonbreeding season would not be feasible include inclement weather or conflicts with work windows for other terrestrial or aquatic species. 9. The CDFW-approved biologist will have the authority to stop activities at the work site if they determine that any of avoidance and minimization measures are not being fulfilled.							
MM BIO-33	Avoid and Minimize Disturbance of Sandhill Cranes	Surface construction and restoration activities will be avoided during the sandhill crane wintering season (September 15 through March 15) to the extent feasible, as determined by the contractor in coordination with project engineers. DWR recognizes that sandhill cranes may arrive earlier and stay later than the dates specified in the EIR because the project will take many years to construct. If CDFW develops guidance regarding sandhill crane surveys and work windows, DWR will adjust survey dates and dates included in mitigation measures to minimize potential impacts on sandhill cranes. In addition, the following measures will be implemented for surface construction and restoration activities to avoid and minimize impacts on greater and lesser sandhill crane and to avoid take of greater sandhill crane as defined by Section 86 of the California Fish and Game Code. Surveys and monitoring will be conducted from locations where access allows.	Preconstruction; Construction	Surveying; Monitoring; Contract Requirements; Compliance Reporting	As needed	Biological Monitor; Noise Expert; Project Engineers; Qualified Biologist; Contractor(s)	Condition of Design Documents and Construction Contract; Condition of Compliance Reporting	CDFW	Impact BIO-33: Impacts of the Project on Greater Sandhill Crane and Lesser Sandhill Crane; Impact BIO-54: Conflict with the Provisions of an Adopted Habitat Conservation Plan, Natural Community Conservation Plan, or Other Approved Local, Regional, or State Habitat Conservation Plan; Impact

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		1. Preconstruction Surveys a. Preconstruction surveys will be conducted to evaluate the use of sandhill crane suitable habitat (described in Appendix 13B, Section 13B.58, *Greater Sandhill Crane*, and Section 13B.59, *Lesser Sandhill Crane*) by a qualified biologist familiar with sandhill crane biology and experienced with sandhill crane survey techniques. Annual surveys will be conducted for sandhill crane temporary (cultivated lands) and permanent (managed wetlands) roost sites (Ivey et al. 2014a:6) within 0.75 mile of the construction area boundary where access is available. Surveys will be conducted annually, beginning during the winter prior ground disturbance, over multiple days within the survey area by a qualified biologist with experience observing the species. DWR will coordinate with CDFW and Refuge biologists prior to conducting sandhill crane preconstruction surveys. b. Prior to construction, a noise expert will create a sound level contour map showing the 50 dBA sound level contour specific to the type and location of construction to occur in the area and existing noise barriers such as levees or embankments. The sandhill crane survey data will be used with GIS-based methods to evaluate habitat loss, the acres of habitat affected by the 50 dB sound level contour, to identify lands in fulfillment of minimization requirements, and to determine the total affected and compensatory habitat required, at the time of project footprint finalization. The sandhill crane foraging habitat model may be updated using agricultural land-use data or a combination of land-use and survey data to allow for avoidance and minimization requirements to be quantified using up-to-date information. **2. Timing** c. Construction of some project facilities such as access roads and underground transmission lines may be scheduled so that they occur outside of the crane wintering season (September 15 through March 15). The construction activities with a high potential to disturb cranes, such as pile driving, that need to occur for only limited time periods will be scheduled for periods outside the sandhill crane wintering season (September 15 through March 15) to the extent feasible, as determined by the contractor in coordination with project engineers. d. Helicopter surveys to identify buried groundwater and natural gas wells throughout the project area and pile installation test methods at the north Delta intakes will be conducted outside of the sandhill crane wintering season (September 15 through March 15). Pile installation test methods will include noise monitoring to test the site-specific effectiveness of noise minimization measures (e.g., shrouds around the hammer as described below), to determine which measures will be feasible and effective to implement during pile installation. e. Other field investigations including test trenches, CPTs, soil borings, ERT, groundwater testing, monument installation, pilot studies for settlement, agronomic testing, and utility potholing will not be conducted within known permanent and temporary roost sites during the sandhill crane wintering season (September 15 through March 15). f. To the extent feasible, as determined by the contractor in coordination with project engineers, construction within habitat that is known to be occupied based on preconstruction surveys and cannot be completed prior to commencement of the wintering season, will be started at a minimum, 14 days before September 15 or 14 days after March 15, such that no new sources of noise or other major disturbance that could affect sandhill cranes will be introduced after the sandhill cranes arrive at their wintering grounds. **3. Minimize Effects on Sandhill Crane Foraging and Roosting Habitat Resulting from Water Conveyance Facilities Construction**							BIO-56: Substantial Adverse Effects on Fish and Wildlife Resources Regulated under California Fish and Game Code Section 1600 et seq.

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		DWR will implement the following measures to minimize effects on sandhill crane resulting from implementation of the final design of the water conveyance facilities. a. Foraging Habitat i. The final design of the conveyance facilities will avoid construction-related loss of sandhill crane foraging habitat to the extent feasible, as determined by project engineers in coordination with a qualified biologist. ii. Avoid pile driving and general construction-related combined noise effects on foraging habitat to the extent feasible. Where feasible, as determined by the contractor in coordination with a qualified biologist, DWR will avoid construction from 1 hour after sunrise to 1 hour before sunset in areas where construction would result in noise exceeding 50 dBA L_{eq} (1 hour) within crane foraging habitat.[11] Prior to construction, a noise expert will create a sound level contour map showing the 50 dBA sound level contour specific to the type and location of construction to occur in the area and existing noise barriers such as levees or embankments. DWR will use shrouds or noise blankets to reduce noise from impact hammers or vibratory pile drivers at the intake work sites, which have been shown to reduce pile hammer noise by 8 to 23 dBA (Teachout and Cushman 2005:8; Washington State Department of Transportation 2018:7.15). Artificial noise barriers may be installed to decrease noise levels at foraging habitat below 50 dBA L_{eq} (1 hour). However, the visual effects of noise barriers on sandhill cranes are unknown; therefore, all other options to reduce noise (e.g., installation of shrouds at pile driving locations at the intakes and other construction sites) will be implemented before installing noise barriers at the edge of the construction boundary. As described above, test piles constructed under field investigations and sound level surveys will determine site-specific considerations and feasibility for implementation of these measures. iii. Enhance foraging habitat to avoid loss of foraging values that could otherwise result from unavoidable noise-related effects. DWR will enhance 0.1 acre of foraging habitat for each acre of foraging habitat to be indirectly affected within the 50 dBA L_{eq} (1 hour) construction sound level contour during the wintering season (September 1 through March 15). The enhanced foraging habitat will be established one crane wintering season (September 1 through March 15) prior to construction and will be maintained until the activities causing the indirect noise effect is completed. The enhanced habitat will consist of corn fields that will not be harvested and will be managed to maximize food availability to sandhill cranes (e.g., corn stalks will be knocked down or mulched to make grain available to foraging cranes). A management plan for the enhanced habitat will be completed prior to establishing the habitat, in coordination with a qualified biologist with experience managing sandhill crane habitat on cultivated lands, or experience directing such management, consistent with the foraging habitat values in Appendix 13B, Section 13B.58, *Greater Sandhill Crane*. The enhanced habitat will be located outside the construction-related 50 dBA L_{eq} (1 hour) sound level contour and within 1 mile of the affected habitat. b. Roosting Habitat i. If a sandhill crane roost site is located within 0.75 mile of the construction area boundary, then to the extent feasible, nighttime (1 hour before sunset to 1 hour after sunrise) project activities will be							

[11] 50 decibels averaged over a 1-hour period.

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		relocated to maintain a 0.75-mile non-disturbance buffer during the wintering season (September 1 through March 15) or until a qualified biologist has determined that the roost site is no longer being used by cranes. If this is not feasible, as determined by project engineers in coordination with a qualified biologist, the following measures will be implemented to avoid and minimize effects on roosting sandhill cranes. ii. DWR will avoid permanent impacts resulting in direct loss of roost sites. This can be accomplished by siting activities outside identified crane roost sites or by relocating the roost site if it consists of cultivated lands (roost sites that consist of wetlands rather than cultivated lands will not be subject to relocation). A cultivated land roost site can be relocated by not flooding the site where the impact will occur during years when construction will occur and by establishing a new roost site equal or greater in size at a new location away from the disturbance (outside the 50 dBA L_{eq} [1 hour] pile driving and general construction sound level contour) but within 1 mile of the affected roost site. The relocated roost site will be established 1 year prior to construction activities affecting the original roost site. A qualified biologist familiar with crane biology will design the new roost site and direct roost site establishment. Potential sites will be identified and surveyed prior to establishment. Relocated roost sites will be maintained until construction is complete in the affected region. Prior to construction, a noise expert will create a sound level contour map showing the 50 dBA sound level contour specific to the type and location of construction to occur in the area and existing noise barriers such as levees or embankments. iii. Avoid pile driving and general construction-related noise effects on known permanent and temporary roost sites as described below. Activities within 0.75 mile of known roost sites will reduce pile driving and general construction noise during nighttime hours (from 1 hour before sunset to 1 hour after sunrise) such that pile-driving and general construction noise levels do not exceed a combined 50 dBA L_{eq} (1 hour) at the nearest temporary or permanent roost sites during periods when the roost sites are available (flooded). This can be accomplished by limiting construction activities that could result in pile-driving and general construction noise levels above 50 dBA L_{eq} (1 hour) at the roost site to day time only (from 1 hour after sunrise to 1 hour before sunset); siting nighttime project activities to ensure that pile-driving and general construction noise levels do not exceed a combined 50 dBA L_{eq} (1 hour) at the roost site; relocating cultivated land roost sites as described above; and/or installing noise barriers between roost sites within the 50 dBA L_{eq} (1 hour) contour and the pile-driving and general construction noise source areas, such that construction noise levels at the roost site do not exceed 50 dBA L_{eq} (1 hour). The installation of noise barriers will be used only if the first three options cannot be implemented to the extent that noise levels do not exceed 50 dBA L_{eq} (1 hour) at the roost site. As described above, DWR will use shrouds or noise blankets to reduce noise from impact hammers or vibratory pile drivers at the intake work sites, which have been shown to reduce pile hammer noise by 8 to 23 dBA (Teachout and Cushman 2005; Washington State Department of Transportation 2018:7.15). All other options to reduce noise (e.g., installation of shrouds at pile driving locations at the intakes and other construction sites) will be implemented before installing noise barriers before installing noise barriers at the edge of the construction boundary. As described above, test piles constructed under field investigations and sound level surveys will determine site-specific considerations and							

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feasibility for implementation of these measures.

iv. If the roost site to be indirectly affected within the 50 dBA L_{eq} (1 hour) pile-driving and general construction combined sound level contour is a wetland roost site (natural wetlands) rather than flooded cultivated lands, then the existing wetland roost site will not be removed. A new, cultivated land roost site will be temporarily established at a new location away from the disturbance (outside the 50 dBA L_{eq} (1 hour) sound level contour) but within 1 mile of the affected site, at a ratio of 1 acre created for each acre of temporary or permanent roost site within the pile-driving and general construction 50 dBA L_{eq} (1 hour) sound level contour. The new roost site will be established prior to commencement of the wintering season that occurs prior to construction activities potentially affecting the original roost site and will be maintained until the activities creating the indirect disturbance are completed. A qualified biologist familiar with crane biology will design the new roost site and direct roost site establishment.

4. Measures to Avoid and Minimize Potential Effects from Lighting and Visual Disturbance

DWR has designed the project to minimize lighting and visual effects from traffic to reduce disturbance to sandhill cranes in the vicinity of Stone Lakes NWR. Project-related traffic on Hood-Franklin Road would be limited to shuttles bringing construction employees to and from the intake construction areas and the park and ride lot. In areas within 0.75 miles of known sandhill crane roost sites, DWR will implement the following measures to avoid and minimize potential lighting and visual effects that could result from construction or operation and maintenance.

a. Route nighttime truck traffic to reduce headlight impacts in roosting habitat where feasible, as determined by the project engineers in coordination with a qualified biologist.

b. Require trucks traveling along the intake haul road to move continuously and not idle or stop along the haul road adjacent to Stone Lakes NWR.

c. Install light barriers, where there are no existing barriers such as levees or embankments, to block the line of sight between the nearest roosting areas and the primary nighttime construction light source areas.

d. Screen all construction-related lights and direct them down toward work activities and away from the night sky and nearby roost sites. A biological monitor will ensure that lights are properly directed at all times during construction.

e. Minimize the use of construction equipment greater than 50 feet in height to the extent feasible, as determined by the contractor in light of project schedule and cost and logistical considerations.

f. DWR's approach to satisfying these measures will be reviewed and approved by a qualified biologist prior to construction. The qualified biologist will have the authority to stop activities at the work site if they determine that any of the avoidance and minimization measures are not being fulfilled.

5. Measures to Minimize Effects to Sandhill Cranes on Staten Island

Because of the density of greater sandhill cranes wintering on Staten Island and the importance of Staten Island to the existing population of the greater sandhill crane in the study area facilities will be placed to minimize disturbance to sandhill cranes at this site. Interested parties provided information used to identify the placement of the tunnel shaft on Staten Island (under Alternatives 1, 2a, 2b, and 2c) at a location at the northern portion of Staten Island in a previously disturbed area adjacent to a road and powerline (Delta Conveyance Design and Construction Authority 2022d:4). DWR will ensure that project-related construction will not result in a net decrease in crane use on Staten Island as determined by deriving greater sandhill crane use days for the entire

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		winter period.[12] This standard will be achieved through some combination of the following (and including the above required avoidance and minimization measures). a. Minimize noise, lighting, and visual disturbances during construction (see measures described above). b. Minimize construction activity during the crane wintering season (September 15 through March 15) to the extent feasible, as determined by the contractor in coordination with project engineers. c. Provide supplemental feeding/foraging habitat enhancement as described above under *Minimize Effects on Sandhill Crane Foraging and Roosting Habitat Resulting from Water Conveyance Facilities Construction*. d. Maintain flooding and irrigation capacity. DWR will work with land managers to stage construction activities on Staten Island such that they do not disrupt flooding and irrigation to the extent that greater sandhill crane habitat will be reduced during the crane wintering season. Prior to construction on Staten Island, the qualified biologist will coordinate with DWR to develop a strategy for achieving no net decrease in crane use on Staten Island using a combination of the measures described above, and prepare a plan based on the final construction design on Staten Island that includes all avoidance and minimization measures necessary for achieving no net decrease in crane use on Staten Island. This plan will be subject to review and approval by the wildlife agencies prior to its implementation. All avoidance and minimization measures will be in place, consistent with the plan, prior to project construction on Staten Island. **6. Bouldin Island Minimization Measures** Because of the regular use of temporary roost sites (cultivated lands) on Bouldin Island by sandhill cranes, DWR will place conveyance facilities and RTM to minimize disturbance to sandhill cranes at this site to the extent feasible, as determined by project engineers. Interested parties provided information used to minimize impacts on habitat for special-status species on Bouldin Island and to prioritize placement of facilities and RTM along the southern, western, and northeastern portions of the island based on physical conditions and biological resources. DWR will implement some combination of the following (and including the above required avoidance and minimization measures). a. Provide supplemental feeding/foraging habitat enhancement as described above under Minimize Effects on Sandhill Crane Foraging and Roosting Habitat Resulting from Water Conveyance Facilities Construction. b. Maintain flooding and irrigation capacity. DWR will work with land managers to stage construction activities on Bouldin Island such that they do not disrupt flooding and irrigation to the extent that sandhill crane habitat will be reduced during the crane wintering season.							
MM BIO-34	Avoid California Least Tern Nesting Colonies and Minimize Indirect Effects on Colonies	The following measures will be implemented for surface construction and restoration activities to avoid and minimize impacts on California least tern nesting colonies and to avoid take of California least tern, as defined by Section 86 of the California Fish and Game Code. Surveys and monitoring will be conducted from locations where access allows. 1. If suitable nesting habitat for California least tern (flat, unvegetated areas near aquatic foraging habitat) is identified during planning-level surveys the year prior to construction, DWR will require that at least three preconstruction surveys for this species will be conducted in all suitable habitat within 500 feet of the construction footprint during the California least tern breeding season (April 15 to August 15). Surveys will be conducted by a USFWS- and CDFW-	Preconstruction; Construction	Surveying; Monitoring; Compliance Reporting	As needed	Qualified Biologist	Condition of Compliance Reporting	CDFW; USFWS	Impact BIO-34: Impacts of the Project on California Least Tern

[12] Expected loss of crane use will be estimated by using data on crane use days/acre by habitat type on Staten Island from past studies and future monitoring before construction begins (using averages among available years). These will be used to predict the number of lost crane use days within the footprint of the habitat loss and within the 50 dBA L_{eq} (1 hour) pile-driving and general construction sound level contour. Preproject crane surveys will provide additional data on crane use day densities per habitat type to improve the prediction. Use day densities will be used to guide decisions regarding crop habitat needed to be maintained on Staten Island to maintain this performance standard during construction.

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		approved biologist with experience observing the species and its nests. DWR will implement the following requirements to avoid loss of California least tern nesting colonies if construction will take place within 500 feet of a California least tern nest during the breeding season (April 15 to August 15 or extended as determined through surveys). a. A USFWS- and CDFW-approved wildlife biologist will monitor construction activities within 500 feet of the nests to ensure that construction activities do not affect nest success. Reduced buffers may be allowed, through coordination with USFWS and CDFW, if a full-time USFWS- and CDFW-approved biologist is present to monitor the nest and has authority to halt construction if bird behavior indicates continued activities could lead to nest failure. Active nests will be monitored to track progress of nesting activities until the biologist determines that the young have fledged and are capable of independent survival or the nest site is no longer active. b. Activities performed during the California least tern breeding season, in occupied least tern nesting habitat, with USFWS and CDFW approval and under the supervision of a USFWS- and CDFW-approved biologist will be limited to inspection, research, or monitoring.							
MM BIO-35	Avoid and Minimize Impacts on Cormorant, Heron, and Egret Rookeries	Cormorants, herons, and egrets are highly traditional in their use of nest sites (rookeries), in that they use the same sites year after year. To reduce impacts on rookeries, DWR will implement the following measures prior to surface construction and restoration activities. Surveys and monitoring will be conducted from locations where access allows. 1. To the maximum extent feasible, as determined by the contractor in coordination with a qualified biologist, vegetation removal and trimming will be scheduled during the nonbreeding season of birds (September 1 through January 31). Vegetation trimming will not remove known nests. If a rookery needs to be removed, DWR will contact CDFW prior to removal and removal will occur during the nonbreeding season (September 1 through January 31). Preconstruction surveys of previously occupied colonies and all suitable habitat within 500 feet of the project footprint and compensatory mitigation sites will be conducted during the breeding (February 1 through August 31) season by a qualified biologist with experience observing cormorants, herons, and egrets and their nests. If there is a break in construction of 3 calendar days or more, surveys will be conducted prior to restarting construction in the area. 2. Construction activities that will result in the greatest disturbance to an active cormorant, heron, or egret rookery, as determined by the qualified biologist, will be deferred until after or as late in the breeding season as feasible, as determined by the contractor in coordination with the project biologist. If construction must take place within 500 feet of an active cormorant, heron, or egret rookery during the breeding season, a qualified biologist will establish a non-disturbance buffer within a minimum distance of 50 feet from the rookery and will monitor the rookery to ensure that construction activities do not affect nest success. The extent of the buffer will be determined by the qualified wildlife biologist(s) and will be established by taking into consideration the type and extent of the proposed activity occurring near the nest, the duration and timing of the activity, the line of sight between the nest and the disturbance, the sensitivity and the habituation of the birds and raptors to existing conditions, and the dissimilarity of the proposed activity to ambient levels of noise and other disturbances. Reduced buffers may be allowed if a full-time qualified biologist is present to monitor the nest and has authority to expand the buffer or halt construction if bird behavior indicates continued activities could lead to nest failure or if a bird is in the footprint during project activities. 3. Active nests will be monitored to track progress of nesting activities until the biologist determines that the young have fledged and are capable of independent survival or the nest site is no longer active.	Preconstruction; Construction	Surveying; Monitoring; Contract Requirements; Compliance Reporting	As needed	Biological Monitor; Qualified Biologist; Contractor(s); DWR	Condition of Design Documents and Construction Contract; Condition of Compliance Reporting	CDFW; USFWS	Impact BIO-35: Impacts of the Project on Cormorants, Herons, and Egrets; Impact BIO-54: Conflict with the Provisions of an Adopted Habitat Conservation Plan, Natural Community Conservation Plan, or Other Approved Local, Regional, or State Habitat Conservation Plan; Impact BIO-56: Substantial Adverse Effects on Fish and Wildlife Resources Regulated under California Fish and Game Code Section 1600 et seq.

MM #	Title	Mitigation Measure Text	Timing	Implementation Action	Reporting Schedule	Implementation Party	Implementation Mechanism	Participating or Permitting Organizations	Impact # and Impact Title
MM BIO-36a	Conduct Nesting Surveys for Special-Status and Non–Special-Status Birds and Raptors and Implement Protective Measures to Avoid Disturbance of Nesting Birds and Raptors	To reduce impacts on nesting birds, DWR will implement the measures listed below prior to surface construction and restoration activities. Surveys and monitoring will be conducted from locations where access allows. 1. **Timing Restrictions.** To the maximum extent feasible, as determined by the contractor in coordination with a qualified biologist, construction activities, vegetation removal, and trimming will be scheduled during the nonbreeding season of birds (September 1 through January 31) to avoid impacts on nesting birds if nesting birds are present. If construction activities, vegetation removal, and trimming cannot be conducted in accordance with this timeframe, surveys for nesting birds and additional protective measures will be implemented as described below. 2. **Preconstruction Surveys.** A qualified wildlife biologist with knowledge of the relevant species will conduct nesting surveys before the start of construction. A minimum of three separate surveys will be conducted within 30 days prior to construction, with the last survey within 3 days prior to construction. Surveys will be conducted within the project construction and staging areas and all suitable nesting habitat (e.g., trees, shrubs, emergent wetland, grasslands ruderal areas, cultivated lands, human-made structures) within 500 feet of the project construction and staging areas (or an alternative survey distance if described within species-specific USFWS or CDFW protocols or species-specific mitigation measures within this document) to locate any active nest protected by the Migratory Bird Treaty Act. If no active nests are detected during these surveys, no additional measures are required if construction begins within 3 calendar days. An additional survey will be conducted after any construction breaks of 3 calendar days or more. Surveys for nesting bank swallows will be conducted in RTM areas that have been present for at least 1 year, allowing the substrate to stabilize. Surveys of RTM will be conducted prior to RTM removal, during the bank swallow nesting season (April 1 through August 31). 3. **Non-Disturbance Buffer.** If active nests are found in the survey area, non-disturbance buffers will be established around the nest sites to avoid disturbance or destruction of the nest site until the end of the breeding season (September 1) or until a qualified wildlife biologist determines that the young have fledged and moved out of the work area (this date varies by species). Buffer distances vary by species and conservation status (e.g., listed species and fully protected species may warrant larger buffers than non–special-status species) but typically, these buffer distances are between 300 feet and 650 feet for raptors and between 50 feet and 250 feet for other nesting birds. The extent of the buffers will be determined by the qualified wildlife biologist(s) and will be established by taking into consideration the type and extent of the proposed activity occurring near the nest, the duration and timing of the activity, the line of sight between the nest and the disturbance, the sensitivity and the habituation of the birds and raptors to existing conditions, and the dissimilarity of the proposed activity to ambient levels of noise and other disturbances. The qualified wildlife biologist(s) will mark the extent and locations of non-disturbance buffers on maps to present to construction personnel at morning tailboards or will use flagging, fencing, or other suitable physical markers, depending on the species of birds, the size of the buffers, and the construction activities to be conducted in the work area. 4. **Nest Monitoring.** The qualified wildlife biologist(s) will monitor the nests to ensure that construction activities do not affect nest success. Buffers (described above) may be reduced if a full-time qualified biologist is present to monitor the nest. Active nests will be monitored to track progress of nesting activities until the biologist determines that the young have fledged and are capable of independent survival or the nest site is no longer active. 5. **Authority of Qualified Wildlife Biologist(s).** If, during construction, the qualified wildlife biologist(s) determines that a nesting bird is disturbed by construction activities to the point where continued activities could lead to nest failure, the qualified wildlife biologist(s) will have the authority to immediately	Preconstruction; Construction	Surveying; Monitoring; Contract Requirements; Compliance Reporting	As needed	Qualified Biologist; Contractor(s)	Condition of Design Documents and Construction Contract; Condition of Compliance Reporting	CDFW; USFWS	Impact BIO 36: Impacts of the Project on Osprey, White-Tailed Kite, Coopers Hawk, and Other Nesting Raptors; Impact BIO-38: Impacts of the Project on Ground-Nesting Grassland Birds; Impact BIO-41: Impacts of the Project on Other Nesting Special-Status and Non-Special- Status Birds; Impact BIO-54: Conflict with the Provisions of an Adopted Habitat Conservation Plan, Natural Community Conservation Plan, or Other Approved Local, Regional, or State Habitat Conservation Plan; Impact BIO-56: Substantial Adverse Effects on Fish and Wildlife Resources Regulated under California Fish and Game Code Section 1600 et seq.

MM #	Title	Mitigation Measure Text	Timing	Implementation Action	Reporting Schedule	Implementation Party	Implementation Mechanism	Participating or Permitting Organizations	Impact # and Impact Title
		stop work. The qualified wildlife biologist(s) will determine if additional protective measures (including increasing the non-disturbance buffer distance) need to be implemented and will continue monitoring the nest until the qualified biologist(s) determine that bird behavior has normalized.							
MM BIO-36b	Conduct Preconstruction Surveys and Implement Protective Measures to Avoid Disturbance of White-Tailed Kite	The following measures will be required for surface construction and restoration activities occurring in suitable white-tailed kite habitat as defined in Appendix 13B, Section 13B.68, *White-Tailed Kite*, and by additional assessments conducted prior to construction in a given area. Surveys and monitoring will be conducted from locations where access allows. 1. **Preconstruction Surveys.** Preconstruction surveys will be conducted by a qualified biologist(s) to identify the presence of potential white-tailed kite nest trees within project construction and staging areas and within 0.25 mile of these areas, where accessible. Surveys for nesting white-tailed kites will be conducted, following a protocol approved by CDFW, within 30 days prior to construction to ensure nesting activity is documented prior to the onset of construction activity during the nesting season. White-tailed kite nest in the study area between approximately March 15 and September 15. While many nest sites are traditionally used for multiple years, new nest sites can be established in any year. Therefore, construction activity that is planned after March 15 of any year will require surveys during the year of the construction. If construction is planned before March 15 of any year, surveys will be conducted the year immediately prior to the year of construction. DWR will provide survey results to CDFW by phone or email no less than 5 days prior to commencement of construction activities. The qualified biologist(s) will conduct a second survey of potential nesting trees and active nests and monitor white-tailed kite nests no more than 72 hours prior to construction. If no nesting activity is found, then construction can proceed with no restrictions if construction begins within 3 calendar days. An additional survey will be conducted after any construction breaks of 3 calendar days or more. 2. **Timing Restrictions.** Where the construction site occurs within 0.25 mile of a white-tailed kite nest, DWR will limit construction activities to outside the white-tailed kite breeding season (March 15 through September 15), to the extent feasible, as determined by the contractor in coordination with a qualified biologist. Where construction activities within 0.25 mile of an active nest cannot feasibly be avoided during the breeding season, DWR will initiate construction prior to egg laying to the greatest extent feasible, as determined by the contractor in coordination with a qualified biologist. This will allow time for white-tailed kites to acclimate to disturbance before eggs are laid. If eggs or young are present in the nest, work will not be permitted to occur until the qualified biologist(s) determines that white-tailed kites have acclimated to disturbance and exhibit normal nesting behavior. 3. **Non-Disturbance Buffer.** Where construction activities must occur within 0.25 mile of an occupied white-tailed kite nest, DWR will establish a 650-foot-radius (198 meters) non-disturbance buffer around each white-tailed kite nest tree and the buffer will remain in place until the end of the breeding season or until the last chick has left the nest. DWR will clearly delineate the non-disturbance buffer with fencing or other conspicuous marking. The qualified biologist(s) will monitor occupied nest trees to track progress of nesting activities (see measure 4 below). DWR will not conduct any construction activities within the buffer while a nest site is occupied by white-tailed kite during the breeding season. The buffer size may be modified based on the field examination and determination by the qualified biologist(s) of conditions that may minimize disturbance effects, including line of sight, topography, land use, type of disturbance, existing ambient noise and disturbance levels, and other relevant factors, as authorized by CDFW. Entry into the buffer will be granted when the qualified biologist(s) determines that the young have fledged and are capable of independent survival, or the nest has failed, and the nest site is no longer active. 4. **White-Tailed Kite Nest Monitoring.** Where construction activities must occur	Preconstruction; Construction	Surveying; Monitoring; Contract Requirements; Compliance Reporting	1. 5 days prior to commencement of construction activities 2. Within 24 hours of preconstruction survey of occupied nests within 650 feet of construction activities 3. Within 24 hours if a nest within 0.25 mile is disturbed to determine additional protection measures 4. Within 24 hours if nests or nestlings are abandoned	Qualified Biologist; Contractor(s)	Condition of Design Documents and Construction Contract; Condition of Compliance Reporting	CDFW	Impact BIO-36: Impacts of the Project on Osprey, White-Tailed Kite, Coopers Hawk, and Other Nesting Raptors; Impact BIO-54: Conflict with the Provisions of an Adopted Habitat Conservation Plan, Natural Community Conservation Plan, or Other Approved Local, Regional, or State Habitat Conservation Plan; Impact BIO-56: Substantial Adverse Effects on Fish and Wildlife Resources Regulated under California Fish and Game Code Section 1600 et seq.

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within 0.25 mile of an occupied white-tailed kite nest tree, DWR will implement the following monitoring plan.

a. Five days and three days prior to the initiation of construction at any site where a nest is within 650 feet of construction, the qualified biologist(s) will observe the subject nest(s) for at least 1 hour or until normal nesting behavior can be determined. The qualified biologist(s) will document nesting status and behaviors to compare to nesting status and behaviors after construction begins. The results of preconstruction monitoring will be reported to CDFW within 24 hours of each survey.

b. Where an occupied white-tailed kite nest tree occurs less than 325 feet (99 meters) from construction, the qualified biologist(s) will observe the nest for at least 4 hours per day during construction to ensure the white-tailed kites are engaged in normal nesting behavior.

c. Where an occupied white-tailed kite nest tree occurs between 325 to 650 feet (99 to 198 meters) from construction, the qualified biologist(s) will observe the nest for at least 2 hours per day during construction to ensure the white-tailed kites are engaged in normal nesting behavior.

d. Where an occupied white-tailed kite nest tree occurs between 650 to 1,300 feet (198 to 396 meters) from construction, the qualified biologist(s) will observe the nest once a day during construction to ensure the white-tailed kites are engaged in normal nesting behavior and to check the status of the nest.

5. **Disturbance of Occupied Nest Tree.** DWR will prohibit physical contact with an active nest tree from the time of egg laying to fledging, unless approved by CDFW. All workers within 650 feet will be out of the line of sight of the occupied white-tailed kite nest tree during breaks or will take breaks more than 650 feet from an occupied nest tree.

6. **Authority of Qualified Biologist(s).** The project will be implemented in a manner that will not result in take of white-tailed kite, as defined by Section 86 of the California Fish and Game Code. If during construction, the qualified biologist(s) determines that a nesting white-tailed kite within 0.25 mile of construction is disturbed by construction activities to the point where nest abandonment is likely, the qualified biologist(s) will have the authority to immediately stop work and will immediately notify DWR. A designated representative from DWR will contact CDFW within 24 hours to determine additional protection measures to be implemented. Additional protective measures may include, but are not limited to, increasing the size of the buffer, delaying construction until the chicks have fledged, temporarily relocating staging areas, and temporarily rerouting access to the construction site. The qualified biologist(s) will:

a. Stop construction until additional protective measures are implemented unless white-tailed kite behavior normalizes on its own. Potential nest abandonment and failure may be indicated if, in the qualified biologist(s)' professional judgment, the white-tailed kite exhibits distress and/or abnormal nesting behavior, such as swooping or stooping at construction equipment or personnel, excessive distress-call vocalization or agitated behavior directed personnel, failure to remain on nest, or failure to deliver prey items.

b. Continue monitoring and ensure additional protective measures remain in place until the qualified biologist(s) determine(s) white-tailed kite behavior has normalized.

c. Determine if additional protective measures are ineffective and stop construction until the additional protective measures are modified.

d. Continue monitoring until determining that white-tailed kite behavior has normalized.

e. The DWR representative or qualified biologist(s) will notify CDFW within 24 hours if nests or nestlings are abandoned and if the nestlings are still

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		alive. The qualified biologist(s) will work with CDFW to determine appropriate actions. 7. **Nest Tree Avoidance.** DWR will avoid removal of known nest trees to the maximum extent feasible as determined by the contractor in coordination with a qualified biologist. If a known nest tree must be removed for construction activities, DWR will notify and obtain written approval from CDFW. The notification will include the location of the known nest tree, conditions to offset the loss of the nest tree (using the protocol described for Swainson's Hawk in Appendix 3F, Attachment 3F.1, Table 3F.1-3, CMP-19a: *Swainson's Hawk Nesting Habitat*), and the time of removal, which will generally be October 1 through February 1. DWR will not remove any occupied nest tree until the last young have left the nest, as verified by the qualified biologist(s). DWR will compensate for the temporal loss of known white-tailed kite nest trees using the protocol described for Swainson's Hawk in Appendix 3F, *Compensatory Mitigation* (Attachment 3F.1, Table 3F.1-3, CMP-19a: *Swainson's Hawk Nesting Habitat*). 8. **Geotechnical Exploration.** DWR will conduct geotechnical exploration outside of the breeding season, to the extent feasible, as determined by the contractor in coordination with project engineers. The qualified biologist(s) will delineate with flagging or other visible markers suitable breeding habitat within the geotechnical exploration site. DWR will restrict geotechnical exploration to areas outside of the delineated breeding habitat. If geotechnical exploration must occur during the breeding season, the qualified biologist(s) will survey the breeding habitat within 0.25 mile for nesting white-tailed kite. DWR will limit geotechnical exploration activities to least 0.25 mile away from any occupied nest tree, unless otherwise approved by CDFW. 9. **Measures Specific to Transmission Line Construction.** DWR will not use helicopters to string transmission lines or to conduct field investigations within 0.25 mile of an occupied nest tree. DWR will not remove or trim occupied nest trees for transmission line construction until after the breeding season has ended or the last young have left the nest. If removal or trimming of an occupied nest tree needs to occur for human or wildlife safety, DWR will conduct removal or trimming from October 1 to February 1, or with written approval and guidance from CDFW. DWR will avoid removal or trimming of known or suitable nest trees, to the extent practicable, as determined by the contractor in coordination with the qualified biologist, during transmission line stringing and reconductoring activities or during power and pole placement. Where practicable, as determined by the contractor, DWR will place poles and lines outside of breeding habitat, as delineated by the qualified biologist(s). DWR will follow the *Nest Tree Avoidance* measures listed above when removal or trimming of known or suitable nest trees cannot be avoided.							
MM BIO-37	Conduct Surveys for Golden Eagle and Avoid Disturbance of Occupied Nests	The following measures will be required for surface construction and restoration activities to avoid disturbance of occupied golden eagle nests. Surveys and monitoring will be conducted from locations where access allows. 1. Prior to the start of construction, DWR will require qualified wildlife biologists (experienced with raptor identification and behaviors) to conduct focused surveys for golden eagle nests in suitable habitat within up to a 1-mile radius of the construction footprint. Survey methods will be determined based on coordination with USFWS and CDFW and all survey results will be submitted to USFWS and CDFW. In addition, prior to conducting surveys, any known breeding area records will be reviewed, and a map of potential nest sites will be created using GIS mapping of suitable nesting habitat. 2. If an occupied golden eagle nest is identified in the survey area, a non-disturbance buffer of up to 1 mile will be established around the nest site to avoid disturbance or destruction of the site, consistent with the *USFWS Recommended Buffer Zones for Ground-based Human Activities around Nesting Sites of Golden Eagles in California and Nevada* (U.S. Fish and Wildlife Service 2020b:1), or more recent USFWS-approved guidance, if it becomes available. If	Preconstruction; Construction	Surveying; Monitoring; Compliance Reporting	As needed	Qualified Biologist	Condition of Compliance Reporting	CDFW; USFWS	Impact BIO-37: Impacts of the Project on Golden Eagle and Ferruginous Hawk

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		the qualified wildlife biologist(s) determines that a nesting eagle is disturbed by construction activities, the qualified wildlife biologist(s) will have the authority to increase the non-disturbance buffer in coordination with USFWS and CDFW. If active eagle nests are identified and avoidance guidelines cannot be feasibly implemented, then DWR will not proceed with construction activities within 1 mile of the active eagle nests until the qualified biologist(s) confirms that the nests are no longer active or the qualified biologist(s), working with the USFWS and CDFW, identifies protective measures that avoid take.							
MM BIO-39	Conduct Preconstruction Surveys and Implement Protective Measures to Minimize Disturbance of Swainson's Hawk	The following measures will be required for surface construction and restoration activities occurring in suitable Swainson's hawk habitat as defined in Appendix 13B, Section 13B.72, *Swainson's Hawk*, and by additional assessments conducted prior to construction in a given area. Surveys and monitoring will be conducted from locations where access allows. 1. **Preconstruction Surveys.** Preconstruction surveys will be conducted by a CDFW-approved biologist(s) to identify the presence of suitable Swainson's hawk nest trees and known nest trees (occupied within 1 or more of the past 5 years) within 0.5 mile of project sites. DWR will ensure that surveys for nesting Swainson's hawks are conducted in all suitable and known nest trees identified by the CDFW-approved biologist(s) and are consistent with the *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley* (Swainson's Hawk Technical Advisory Committee 2000), or methodology modified with written approval from CDFW. DWR will provide survey results to CDFW by phone or email no less than 5 days prior to commencement of construction activities, and in a written report within 30 days after commencement of construction activities. The CDFW-approved biologist(s) will include the location of all known and occupied nest trees (occupied in 1 or more of the last 5 years) present within 0.5 mile of the construction footprint. A nest tree will be considered occupied from the time the Swainson's hawk pair starts constructing the nest until the young leave the nest, or until the CDFW-approved biologist(s) determine(s) the nesting attempt failed and the nest is abandoned. 2. **Timing Restrictions.** Where the construction site occurs within 0.5 mile of known or occupied nest trees identified by the CDFW-approved biologist(s), DWR will limit construction activities to outside the Swainson's hawk breeding season (March 1 through August 15), to the extent practicable, as determined by the contractor. Where construction activities cannot be restricted to more than 0.5 mile of an occupied nest tree during the breeding season, DWR will restrict the construction activities to not occur during the period of egg laying until after young have fledged, as determined by the CDFW-approved biologist(s), to the extent practicable as determined by the contractor in coordination with the CDFW-approved biologist. If not practicable, DWR will initiate construction activities prior to egg laying to allow time for Swainson's hawk acclimate to disturbance before eggs are laid. Where restricting work to outside the breeding season or during the period of egg laying to post-fledging is not practicable, DWR will submit plans to initiate construction activities to CDFW for written approval. 3. **Non-Disturbance Buffer.** Where construction activities must occur within 0.5 mile of an occupied Swainson's hawk nest tree, DWR will establish a 650-foot-radius non-disturbance buffer around each occupied nest tree, and the buffer will remain in place until the end of the breeding season or until the last chick has left the nest. DWR will clearly delineate the non-disturbance buffer with fencing or other conspicuous marking. The CDFW-approved biologist(s) will monitor occupied nest trees to track progress of nesting activities (see measure 4 below). DWR will not conduct any construction activities within the buffer unless a smaller buffer is approved in writing by CDFW. If a construction activity must occur within 0.5 miles of an occupied nest tree, DWR will follow the conditions under *Swainson's Hawk Nest Monitoring* below. DWR will not conduct any construction activity within 150 feet of an occupied nest tree.	Preconstruction; Construction	Surveying; Monitoring; Contract Requirements; Compliance Reporting	1. Within 24 hours of each preconstruction survey 2. Within 24 hours if nests or nestlings are abandoned 3. As needed	Qualified Biologist; Contractor(s); DWR	Condition of Design Documents and Construction Contract; Condition of Compliance Reporting	CDFW; USFWS	Impact BIO-39: Impacts of the Project on Swainson's Hawk; Impact BIO-54: Conflict with the Provisions of an Adopted Habitat Conservation Plan, Natural Community Conservation Plan, or Other Approved Local, Regional, or State Habitat Conservation Plan; Impact BIO-56: Substantial Adverse Effects on Fish and Wildlife Resources Regulated under California Fish and Game Code Section 1600 et seq.

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		4. **Swainson's Hawk Nest Monitoring.** Where construction activities must occur within 0.5 mile of an occupied Swainson's hawk nest tree, DWR will implement the following monitoring plan. If a nesting bird monitoring and management plan is prepared by a CDFW-approved biologist, and approved in writing by CDFW, it will prevail where it differs from the measures below. a. Five days and three days prior to the initiation of construction at any site where an occupied nest is within 0.5 mile of construction, the CDFW-approved biologist will observe the subject nest(s) for at least one hour or until nest status can be determined. The CDFW-approved biologist(s) will document nesting status and behaviors to compare to nesting status and behaviors after construction begins. DWR will report the results of preconstruction monitoring to CDFW within 24 hours of each survey. b. Where an occupied nest tree occurs between 150 and 325 feet (46 to 99 meters) from construction activities, the CDFW-approved biologist will observe the nest for at least 4 hours per day during construction to ensure the Swainson's hawks are engaged in normal nesting behavior. DWR will limit construction to between 30 minutes after sunrise and 30 minutes before sunset. c. Where an occupied nest tree occurs between 325 and 650 feet (99 to 198 meters) of construction, the CDFW-approved biologist(s) will observe the nest for at least 2 hours per day during construction to ensure the Swainson's hawk are engaged in normal nesting behavior. d. Where an occupied nest tree occurs between 650 and 1,300 feet (198 to 396 meters) of construction, the CDFW-approved biologist(s) will observe the nest for at least one hour on at least three days per week during construction to ensure the Swainson's hawk are engaged in normal nesting behavior and to check the status of the nest. e. Where an occupied nest tree occurs between 1,300 and 2,640 feet (396 to 805 meters) of construction, the CDFW-approved biologist(s) will observe the nest for at least one hour on at least one day per week during construction to ensure the Swainson's hawks are engaged in normal nesting behavior and to check the status of the nest. 5. **Disturbance of Occupied Nest Tree.** DWR will prohibit physical contact with an occupied nest tree throughout the breeding season (March 1 through August 15). All workers within 650 feet will be out of the line of sight of the occupied nest tree during breaks or will take breaks more than 650 feet from the occupied nest tree. 6. **Authority of CDFW-Approved biologist(s).** If, during construction, the CDFW-approved biologist(s) determine(s) that a nesting Swainson's hawk within 0.5 mile of the construction site is disturbed by construction activities to the point where nest abandonment is likely, the CDFW-approved biologist(s) will have the authority to immediately stop work and will immediately notify DWR. A designated representative from DWR will contact CDFW within 24 hours to determine additional protective measures to be implemented. Additional protective measures may include, but are not limited to, increasing the size of the buffer, delaying construction until the chicks have fledged, temporarily relocating staging areas, and temporarily rerouting access to the construction site. The CDFW-approved biologist(s) will: a. Stop construction until additional protective measures are implemented, unless Swainson's hawk behavior normalizes on its own. Potential nest abandonment and failure may be indicated if, in the CDFW-approved biologist(s)professional judgment, the Swainson's hawks exhibit distress and/or abnormal nesting behavior, such as swooping/ stooping at equipment or personnel, excessive distress-call vocalization or agitated behavior directed at personnel, failure to remain on nest, or failure to deliver prey items. b. Continue monitoring and ensure additional protective measures remain in							

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		place until the CDFW-approved biologist(s) determine(s) Swainson's hawk behavior has normalized. c. Determine if additional protective measures are ineffective and stop construction until the additional protective measures are modified. d. Continue monitoring until determining that Swainson's hawk behavior has normalized. e. The DWR representative or CDFW-approved biologist(s) will notify CDFW within 24 hours if nests or nestlings are abandoned and if the nestlings are still alive. The CDFW-approved biologist(s) will work with CDFW to determine appropriate actions. 7. **Nest Tree Avoidance.** DWR will avoid removal of known nest trees and suitable nest trees to the maximum extent practicable as determined by the contractor in coordination with the CDFW-approved biologist. If a known nest tree must be removed for construction activities, DWR will notify and obtain written approval from CDFW. The notification will include the location of the known nest tree, conditions to offset the loss of the nest tree (using the protocol described for Swainson's Hawk in Appendix 3F, Attachment 3F.1, Table 3F.1-3, CMP-19a: *Swainson's Hawk Nesting Habitat*), and the time of removal, which will generally be October 1 through February 1. DWR will not remove any occupied nest tree until the last young have left the nest, as verified by the CDFW-approved biologist(s). 8. **Geotechnical Exploration.** DWR will conduct geotechnical exploration outside of the breeding season, to the extent practicable as determined by the contractor in coordination with project engineers. The CDFW-approved biologist(s) will delineate with flagging or other visible markers suitable breeding habitat within the geotechnical exploration site. DWR will restrict geotechnical exploration to areas outside of the delineated breeding habitat. If geotechnical exploration must occur during the breeding season, the CDFW-approved biologist(s) will survey the breeding habitat within 0.5 mile for nesting Swainson's hawks. DWR will limit geotechnical exploration activities to least 0.5 mile away from any occupied nest tree, unless otherwise approved by CDFW. 9. **Measures Specific to Transmission Line Construction.** DWR will not use helicopters to string transmission lines or to conduct surveys for field investigations within 0.5 mile of an occupied nest tree. DWR will not remove or trim occupied nest trees for transmission line construction until after the breeding season has ended or the last young have left the nest. If removal or trimming of an occupied nest tree needs to occur for human or wildlife safety, DWR will conduct removal or trimming from October 1 to February 1 (outside of the breeding season), or with written approval and guidance from CDFW. DWR will avoid removal or trimming of known or suitable nest trees, to the extent practicable, as determined by the contractor in coordination with the qualified biologist, during transmission line stringing and reconductoring activities or during power and pole placement. Where practicable, as determined by the contractor, DWR will place poles and lines outside of breeding habitat, as delineated by the CDFW-approved biologist(s). DWR will follow the *Nest Tree Avoidance* measures listed above when removal or trimming of known or suitable nest trees cannot be avoided.							
MM BIO-40	Conduct Surveys and Minimize Impacts on Burrowing Owl	The following measures will be required for surface construction and restoration activities to minimize impacts on burrowing owl. Surveys and monitoring will be conducted from locations where access allows. **1. Surveys.** a. Burrowing owl breeding and wintering surveys will be required within 500 feet of water conveyance work areas and restoration sites where suitable habitat has been identified during habitat assessment surveys where access is available. Surveys will be initiated during the year that precedes construction and will be consistent with the methods described in the Staff	Preconstruction; Construction	Surveying; Monitoring; Contract Requirements; Compliance Reporting	As needed	Biological Monitor; Construction Personnel; Environmental Manager; Qualified Biologist; Contractor(s)	Condition of Design Documents and Construction Contract; Condition of Compliance Reporting	CDFW	Impact BIO-40: Impacts of the Project on Burrowing Owl; Impact BIO-54: Conflict with the Provisions of an Adopted Habitat Conservation Plan, Natural Community Conservation Plan, or Other Approved Local,

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		Report on Burrowing Owl Mitigation (California Department of Fish and Game 2012), or a modified methodology with written approval from CDFW. b. In addition to initial breeding and wintering season surveys, DWR will also require that preconstructions survey be conducted, with one occurring 14 days prior to groundbreaking and/or staging activities and another within 24 hours of these activities. These surveys will confirm whether owls identified during the initial breeding and wintering season surveys are still present or whether the previously unoccupied site has since become occupied by burrowing owls. 2. **Avoidance and Minimization.** To the extent feasible, as determined by the contractor in coordination with the qualified biologist, burrowing owls will be avoided by relocating work areas with flexible locations, such as geotechnical exploration sites. Within the construction footprint where ground disturbance cannot avoid burrowing owls, owls will be relocated during the nonbreeding season and burrows will be excavated in coordination with CDFW, as described below under *Burrowing Owl Relocation*. a. If an active burrow is identified within 500 feet of a work area and work cannot be conducted outside of the nesting season (February 1 through August 31), a qualified biologist will establish a non-disturbance buffer that extends a minimum of 328 feet (200 meters) around the burrow. If burrowing owls are present at the site during the nonbreeding season (September 1 through January 31), a qualified biologist will establish a no-activity zone that extends a minimum of 656 feet (100 meters) around the burrow. The extent of non-disturbance buffers will be determined based on time of year and level of disturbance described in the *Staff Report on Burrowing Owl Mitigation* (California Department of Fish and Game 2012:9) b. If the appropriate non-disturbance buffer for breeding or nonbreeding burrowing owls cannot be established, a qualified biologist will evaluate site-specific conditions and, in consultation with CDFW, recommend a smaller buffer that still minimizes the potential to disturb the owls (and still allows reproductive success during the breeding season). The site-specific buffer will be established by taking into consideration the type and extent of the proposed activity occurring near the occupied burrow, the duration and timing of the activity, the sensitivity and habituation of the owls to existing conditions, and the dissimilarity of the proposed activity to background activities. If an appropriate buffer cannot be established around the active owl burrows, actions will be taken to exclude the owls from the site per the requirements below. c. A biological monitor will be present during all construction activities occurring within any reduced buffers. If during the breeding season there is any change in owl nesting and foraging behavior as a result of construction activities, the biological monitor will have the authority to immediately stop work and will work with construction personnel and the environmental manager to provide additional protections to reduce disturbance, such as adding visual and sound curtains; any modifications to the standard protections will be in consultation with CDFW. d. If monitoring indicates that the nest is abandoned prior to the end of nesting season or the burrow is no longer in use by owls (e.g., chicks have fledged), the non-disturbance buffer may be removed. If the abandoned burrow cannot be avoided by construction activity, the biologist will excavate and collapse the burrow to prevent reoccupation. 3. **Burrowing Owl Relocation.** If burrowing owls are present within the construction footprint and cannot be avoided during the nonbreeding season (generally September 1 through January 31), they will be relocated through passive relocation, with or without burrow exclusion. Burrow exclusion is the							Regional, or State Habitat Conservation Plan; Impact BIO-56: Substantial Adverse Effects on Fish and Wildlife Resources Regulated under California Fish and Game Code Section 1600 et seq.

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		prevention of burrows being reoccupied through the use of one-way doors. Passive relocation will be used when (1) there is a sufficient amount of suitable habitat within 500 feet of the work area to support nesting and foraging, (2) there are compatible land use practices in the area, and (3) the area is preferably currently under or proposed for conservation. Passive relocation will be conducted during the nonbreeding season; however, passive relocation techniques may be used during the breeding season (February 1 through August 31) if a qualified biologist, coordinating with CDFW, determines through site surveillance that the burrow is not occupied by a breeding pair, young, or eggs. Passive relocation will first be considered without the use of exclusion devices in order to avoid and minimize harassment of owls. DWR will develop Burrowing Owl Artificial Burrow and Exclusions Plans to be approved by CDFW prior to relocation, which will include the following relocation activities or revised relocation activities based on CDFW guidance and approval. a. *Passive relocation without exclusion.* Prior to relocating owls, all potential burrowing owl burrows in suitable nesting habitat within the project footprint and 75 feet (23 meters) around the footprint, will be surveyed for owl use, and excavated if no owls are found. If occupied burrows are found, two natural or artificial burrows will be provided for each occupied burrow, within 165 to 325 feet (50 to 99 meters) of the natural burrow where feasible. Artificial burrows will be installed following the methods in Barclay (2008:53–55) and Johnson et al. (2010:4–32), or more current methodology if it becomes available, upon CDFW approval. Sites used for artificial burrows will either be properties currently used for or proposed for conservation if feasible, as determined by DWR in coordination with property owners. After constructing the artificial burrows, the owls will be given 60 days to relocate on their own. The work area will be monitored weekly for up to 60 days to determine whether the owls have left the burrow and to confirm occupancy at the artificial or other nearby burrows. The formerly occupied burrows will then be excavated. Whenever feasible, based on the location and substrate of burrows, as determined by the qualified biologist, burrows will be excavated using hand tools and refilled to prevent reoccupation. Sections of flexible plastic pipe (at least 3 inches in diameter) will be inserted into burrows during excavation to maintain an escape route for any animals inside the burrow. b. *Passive relocation with exclusion.* If the burrowing owls found do not relocate on their own through the above methodology, passive relocation will be accomplished by installing one-way doors (e.g., modified dryer vents). The one-way doors will be left in place for a minimum of 48 hours and be monitored twice daily to ensure that the owls have left the burrow. Once the biologist concludes the owls have left the burrow, the burrow will be excavated using hand tools, and a section of flexible plastic pipe (at least 3 inches in diameter) will be inserted into the burrow tunnel during excavation to maintain an escape route for any animals that may be inside the burrow.							
MM BIO-42	Conduct Surveys and Minimize Impacts on Least Bell's Vireo	The following measures will be required for all surface construction and restoration activities occurring between May 15 through September 1 to avoid and minimize impacts on least Bell's vireo. Surveys and monitoring will be conducted from locations where access allows. 1. Prior to the construction, a noise expert will create a sound level contour map showing the 60 dBA sound level contour specific to the type and location of construction to occur in the area. 2. Two weeks prior to construction, a USFWS- and CDFW-approved biologist will conduct daily surveys, consistent with a USFWS- or CDFW- approved survey protocol (U.S. Fish and Wildlife Service 2001:1-3, or more current guidance), within 500 feet of suitable habitat where construction-related noise levels could exceed 60 dBA L_{eq} (1 hour).	Preconstruction; Construction	Surveying; Contract Requirements; Compliance Reporting	As needed	Biological Monitor; Noise Expert; Qualified Biologist; Contractor	Condition of Design Documents and Construction Contract; Condition of Compliance Reporting	CDFW; USFWS	Impact BIO-42: Impact of the Project on Least Bell's Vireo

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		3. If a least Bell's vireo is found, construction activities will be limited such that sound will not exceed 60 dBA within 500 feet of the habitat being used until the USFWS- and CDFW-approved biologist has confirmed that the bird has left the area. 4. If surveys find least Bell's vireos in an area where vegetation will be removed, vegetation removal will be conducted when the USFWS- and CDFW-approved biologist has confirmed that least Bell's vireos are not present within 500 feet of vegetation removal activities. 5. Portable and stationary equipment will be located, stored, and maintained as far as possible, with a minimum distance of 500 feet, from suitable least Bell's vireo habitat. 6. All lights will be screened and directed down toward work activities and away from suitable habitat. A biological construction monitor will ensure that lights are properly directed at all times during construction.							
MM BIO-44	Conduct Preconstruction Surveys and Implement Protective Measures to Avoid Disturbance of Tricolored Blackbird	The following measures will be required for surface construction and restoration activities to avoid disturbance of tricolored blackbird. Surveys and monitoring will be conducted from locations where access allows. **1. Preconstruction Surveys.** a. *Nesting.* Prior to construction, DWR will contact the UC Davis Tricolored Blackbird Portal Project staff, or another group as recommended by CDFW, to acquire recent colony information. Prior to initiation of construction in a given work area and within 1,300 feet (396 meters) of the work area, the CDFW-approved biologist(s) will conduct preconstruction surveys to evaluate the presence of tricolored blackbird breeding colonies and suitable nesting habitat. Surveys will be conducted during the breeding season (March 15 through July 31) 1 year prior to, and then again in the year of, construction. During each year, surveys will be conducted monthly in March, April, May, June, and July. If construction is initiated during the breeding season, the CDFW-approved biologist(s) will conduct three surveys within 15 days of construction, with one of the surveys within 5 days of the start of construction. If there is a break in construction of 1 week or more, surveys will be conducted prior to starting construction again in the area. DWR will use a breeding season survey protocol approved in writing by CDFW. The CDFW-approved biologist(s) will delineate suitable nesting habitat and breeding colonies with flagging or other visible marking. If active tricolored blackbird nesting colonies are identified, the following avoidance measures will be implemented. b. *Roosting.* Prior to initiation of nighttime construction activities (45 minutes before sunset to 45 minutes after sunrise) within 300 feet of a construction site, the CDFW-approved biologist(s) will conduct preconstruction surveys to establish the existence and use of roosting habitat by tricolored blackbird. Surveys will be conducted during the nonbreeding season (August 1 through March 14) 1 year prior and then the year of construction to establish use of roosting habitat. If nighttime construction is initiated at a site during the nonbreeding season, the CDFW-approved biologist(s) will conduct three surveys within 15 days prior to the nighttime construction, with one of the surveys within 5 days prior to the start of the nighttime construction. DWR will use a roosting survey protocol approved in writing by CDFW. DWR will consider roosting habitat occupied by large mixed blackbird flocks to be occupied by tricolored blackbird if the CDFW-approved biologist(s) cannot clearly identify tricolored blackbird presence within the flock. During nighttime construction activities (45 minutes before sunset to 45 minutes after sunrise), the CDFW-approved biologist(s) will check suitable roost sites within 300 feet of construction areas that are not occupied at the time of preconstruction surveys each day throughout the nonbreeding season, in accordance with the roosting survey protocol approved by CDFW, to determine whether tricolored blackbird later	Preconstruction; Construction	Surveying; Monitoring; Contract Requirements; Compliance Reporting	1. Within 24 hours if a nest is disrupted 2. Within 24 hours if nests or nestlings are abandoned 3. As needed	Designated Biologist; Qualified Biologist	Condition of Design Documents and Construction Contract; Condition of Compliance Reporting	CDFW; UC Davis Tricolored Blackbird Portal Project	Impact BIO-44: Impacts of the Project on Tricolored Blackbird; Impact BIO-54: Conflict with the Provisions of an Adopted Habitat Conservation Plan, Natural Community Conservation Plan, or Other Approved Local, Regional, or State Habitat Conservation Plan; Impact BIO-56: Substantial Adverse Effects on Fish and Wildlife Resources Regulated under California Fish and Game Code Section 1600 et seq.

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occupy the roost site. The CDFW-approved biologist(s) will delineate occupied roost sites with flagging or other visible markings.

2. **Non-Disturbance Buffer for Breeding.** DWR will ensure construction avoids suitable nesting habitat within 1,300 feet, to the extent feasible as determined by the construction manager in coordination with the CDFW-approved biologist. If nesting habitat cannot be avoided and a tricolored blackbird breeding colony is detected, DWR will ensure construction does not occur within a 1,300-foot diameter non-disturbance buffer surrounding the colony and associated habitat during the breeding season (March 15 through July 31). The non-disturbance buffer may be reduced to a minimum of 300 feet (91 meters), with written approval from CDFW, in areas with dense forest, buildings, or other features between the construction and the breeding colony, where there is sufficient topographic relief to protect the colony from excessive noise or visual disturbance; or where sound curtains have been installed. If tricolored blackbird colonizes habitat within 1,300 feet of construction after construction has been initiated, DWR will reduce disturbance through establishment of non-disturbance buffers and/or sound curtains, as determined in consultation with CDFW.
3. **Night Work.** DWR will restrict construction to 45 minutes after sunrise to 45 minutes before sunset if occurring within 1,300 feet (396 meters) of a breeding colony occupied by tricolored blackbird to the extent feasible, as determined by the contractor in coordination with the CDFW-approved biologist.
4. **Daily Monitoring.** Where access allows, the CDFW-approved biologist(s) will monitor breeding colonies that are within 1,300 feet (396 meters) of construction for at least 6 hours per day, to verify that construction is not disrupting the colony. If the Designated Biologist(s) determines that construction is causing a disruption to the colony, the CDFW-approved biologist(s) will have the authority to stop construction and will notify DWR immediately. The DWR Representative will notify CDFW within 24 hours to determine additional protective measures that can be implemented. The CDFW-approved biologist(s) will have the authority to:
   a. Stop construction activities that are resulting in the disturbance until additional protective measures are implemented, unless tricolored blackbird breeding behavior normalizes on its own.
   b. Continue monitoring and ensure additional protective measures will remain in place for the duration of construction.
   c. Determine if additional protective measures are ineffective and stop construction as needed until the additional protective measures are modified.
   d. Maintain additional protective measures until the CDFW-approved biologist determines tricolored blackbird behavior has normalized and continue monitoring.

   Additional protective measures may include, but are not limited to, increasing the size of the buffer, delaying construction until the colony is finished breeding and chicks have left the nest site, temporarily relocating staging areas, and temporarily rerouting access to the construction site. The CDFW-approved biologist(s) will notify CDFW within 24 hours if nests or nestlings are abandoned. If the nestlings are still alive, the CDFW-approved biologist (s) will work with CDFW to determine appropriate actions. Notification to CDFW will be via telephone or email, followed by a written incident report. Notification will include the date, time, location, and circumstances of the incident.
5. **Non-Disturbance Buffer for Roosting.** DWR will not conduct nighttime construction (45 minutes before sunset to 45 minutes after sunrise) within a 300-foot non-disturbance buffer surrounding the roost site. The non-disturbance buffer may be modified in areas with dense forest, buildings, or other features between the nighttime construction and the occupied roost site; where there is sufficient topographic relief to protect the roost site from

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		excessive noise or visual disturbance; or where sound curtains are installed, as approved in writing by CDFW. Occupied roost sites that are within 300 feet of nighttime construction that occurs 45 minutes before sunset to 45 minutes after sunrise will be monitored daily (beginning 45 minutes before sunset) by the CDFW-approved biologist(s), for at least 4 hours or until the roost site is no longer occupied, to verify that the activity is not disrupting the roosting birds. If the CDFW-approved biologist(s) determines construction are disrupting roosting activity, DWR will put additional protective measures in place until the tricolored blackbird behavior normalizes. Additional protective measures may include, but are not limited to, increasing the size of the non-disturbance buffer, delaying nighttime construction until the flock has left the roost site or the end of the nonbreeding season, temporarily relocating staging areas, temporarily rerouting access to the construction site, or installation of sound curtains. DWR will contact CDFW if protective measures are not effectively reducing disruption to the roost site. 6. **Disturbance of Breeding Colonies and Roost Sites.** DWR will prohibit physical contact with a breeding colony during the breeding season (March 15 through July 31) from the time of nest site selection until after the chicks have fledged. DWR will prohibit physical contact with an occupied roost site during the nonbreeding season (August 1 through March 14). 7. **Nesting Habitat Avoidance for Geotechnical Exploration and Transmission Line Construction.** The CDFW-approved biologist(s) will delineate breeding colonies and buffers with flagging or other visible marking at construction sites for geotechnical exploration and transmission line construction, including work and staging areas and access roads. DWR will restrict these construction activities to construction sites outside of the delineated habitat during the breeding season. DWR will not conduct these construction activities within non-disturbance buffers established for breeding colonies. 8. **Helicopters.** DWR will not use helicopters to conduct field investigations or to string transmission lines within 200 horizontal feet (61 meters) or 150 vertical feet (46 meters) of breeding colonies unless the helicopter is small enough to only cause a down draft of 15 to 18 miles per hour at up to 150 feet (46 meters). DWR will only operate helicopters at these distances from the breeding colony for up to 3 minutes in duration, once or twice per day, with a minimum of 4 hours between helicopter activities. If activities require larger helicopters or longer work periods, DWR will consult with CDFW to establish the appropriate buffer. DWR will ensure helicopters do not land or take off within 500 feet (152 meters) of any breeding colony. This buffer may be modified in areas with dense forest, buildings, or other features between the helicopter landing/take-off site and the breeding colony, where there is sufficient topographic relief to protect the breeding colony from excessive noise or disturbance; and as approved in writing by CDFW. Helicopters will not be used between 45 minutes before sunset to 45 minutes after sunrise.							
MM BIO-45a:	Compensate for the Loss of Bat Roosting Habitat on Bridges and Overpasses	If bridge or overpass roosting habitat is lost during bridge or overpass widening, DWR will replace habitat on the same bridge or overpass at a minimum ratio of 1:1 or a functionally equivalent amount of habitat. To the extent practicable, replacement habitat will have similar dimensions and orientation as the habitat that was affected or lost. Replacement habitat on bridges/overpasses and associated monitoring will follow the guidance in *Caltrans Bat Mitigation: A Guide to Developing Feasible and Effective Solutions* (Johnston et al. 2019), or the most recent guidance available at that time, with final plans developed in coordination with CDFW.	Construction	Contract Requirements	As specified if bats or habitat is present	DWR	Condition Prior to Resource Impacts or Disturbance; Condition of Design Documents and Construction Contract	CDFW	Impact BIO-45: Impacts of the Project on Bats
MM BIO-45b:	Avoid and Minimize Impacts on Roosting Bats	The following measures were designed to avoid and minimize impacts on special-status bats. These measures are in part adopted from *Caltrans Bat Mitigation: A Guide to Developing Feasible and Effective Solutions* (Johnston et al. 2019). Bat species with potential to occur in the study area employ varied roost strategies, from solitary roosting in foliage of trees to colonial roosting in trees and artificial structures, such as buildings and bridges. Daily and seasonal variations in habitat	Preconstruction; Construction	Surveying; Contract Requirements	As needed	Qualified Biologist; Contractor(s)	Condition of Design Documents and Construction Contract	CDFW	Impact BIO-45: Impacts of the Project on Bats; Impact BIO-56: Substantial Adverse Effects on Fish and Wildlife Resources

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		use are common. To obtain the highest likelihood of detection, preconstruction bat surveys will be implemented by DWR approximately 2 years prior to the beginning of surface construction at a given location. Surveys and monitoring will be conducted from locations where access allows. **Preconstruction Bridge, Overpass, and Other Structure Surveys** 1. Approximately 2 years prior to surface construction, including demolition, beginning on a bridge, overpass or a structure, a qualified biologist, with knowledge of the natural history of California bats, experience identifying habitat, and experience using full-spectrum acoustic equipment, will conduct a daytime search for bat sign (e.g., guano, urine staining, culled insect parts) on or underneath the bridge, overpass, or structure. This 2-year period prior to surface construction allows enough time to conduct surveys and plan for evictions, if necessary. Biologists conducting daytime surveys will listen for audible social calls through the use of bat detector, which converts ultrasonic echolocation emissions into frequencies audible to humans in real-time. This field assessment can be performed during any time of year, provided that weather conditions or local flooding do not affect the biologist's ability to do a thorough evaluation. Visual observations can be made using the naked eye, binoculars, a high-powered flashlight, and or a fiber-optic camera probe to inspect eaves and attics of structures and on bridge or overpass expansion joints, weep holes, and other bridge or overpass features that could house bats. Surveys should include the following methods. a. Survey under the entire bridge or overpass, as practicable. b. Identify the type of habitat present (e.g., day and night-roosting habitat). c. Describe the features that provide the roosting habitat (e.g., expansion joints, hinges, closure pours). d. Describe signs of bat use with respect to each habitat feature, if present. e. Include a sketch of the structure showing the locations of suitable habitat features and bat activity in each feature, based on sign or visual detection. A sketch will help in describing the habitat feature and planning for future surveys. f. Use the preferred method of documenting conditions in the survey area, including evidence of bats: a digital camera capable of capturing high-resolution images that provide scale. Take adequate photos to capture the bridge or overpass size, structural type, and all features that are relevant to bat use. At a minimum, the photographs should document the bridge or overpass signage (with identification number, post mile, and bridge or overpass name [if applicable]); a right-angle (i.e., side perspective) view showing the entire span; the abutments and any details associated with potential roosting habitat; representative images of the soffit, expansion joints, hinges, and closure pours; how the piers support the deck; representative weep holes documenting the presence or absence of screens; and images of various bat sign, such as urine staining and guano on the structure. g. Because several species may occupy a bridge or overpass, ensure that each type of guano sign is photographed. If bats occupy the bridge or overpass, the survey time under active roosts needs to be limited. Any use of flash photography to document roosting bats will create some level of disturbance. Many digital cameras can take images at very low light; if a flash is required, use a minimum setting such as 1/8 power or less. h. Estimate dimensions (i.e., length, width, depth) of each roost habitat type. Dimensions should be taken into consideration when designing mitigation habitat. i. Describe surrounding environmental conditions, including the dominant habitat type present, aquatic features, and other potential roost habitat (e.g., tree snags or large sycamores with cavities) on-site and in its vicinity.							Regulated under California Fish and Game Code Section 1600 et seq.

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		Survey the entire project site plus a 100-foot-wide buffer for potential roosting habitat. 2. If no habitat or sign of bats is observed, no further surveys are warranted. The biologist will carefully document the reasons for determining that no bat habitat is present on the bridge, overpass, or structure, and why further surveys are not merited. If habitat is present, but no sign of bats is observed, additional surveys would be necessary to support the conclusion that bats are not present because small colonies and individuals may often not produce obvious signs of occupancy and depending on the timing of the habitat assessment bats may have migrated or are not occupying the habitat at that time. 3. If suitable habitat or signs of bat use are observed during the preliminary field assessment, focused surveys should be performed by a biologist to determine whether colonies are present and the approximate size of the colony or colonies and the species present. Caution should be taken when conducting field surveys at active roosts. To ensure that disturbance is kept to a minimum, the biologist and any field assistants should not loiter directly underneath known or suspected occupied roosts longer than is necessary to record data. Surveys should be performed in the summer, fall, spring, and winter to determine how the site is used by bats. Information collected during focused surveys should include an estimate of the number of bats and species present during the summer, fall or spring, and winter to provide an assessment of spatial and temporal use, as described below. a. Maternity season surveys. In California, the maternity season generally occurs from March 1 to August 31. The exact timing of the maternity season surveys will be determined by the biologist and take into consideration conditions in a given year. The following methods will be used for maternity season surveys. i. Conduct a daytime inspection to determine if bats are present and to identify areas of high use. While daytime inspections are usually sufficient to determine the presence of night-roosting habitat, nighttime roost inspections (2 to 3 hours after sunset) will be conducted if special-status species are suspected to occur. ii. Conduct a follow-up dusk emergence count survey. Dusk emergence count surveys should be conducted on a warm night when nighttime lows are not less than 45°F and during dry weather conditions. Surveys should be conducted from approximately 15 minutes before sunset to 1 hour after sunset. Prior to any dusk emergence count, the biologist should understand the primary locations where bats are day roosting so these locations can be targeted during the emergence count. Depending on the locations and number of roost exit points, multiple surveyors may be needed. Surveyors should each be assigned a specific area that does not overlap with other surveyors' locations. Surveyors should station themselves such that roost exit points are backlit by the sky. If possible, night-vision goggles should be used to assist in the counting. iii. Use bat detectors that produce an audible sound, which is helpful in identifying and counting bats as they emerge from the roost. Conduct active acoustic monitoring concurrent with exit count surveys to determine species or frequency group of bats. b. Fall and spring migratory period surveys. At least one daytime site inspection and one dusk emergence count should be conducted between March and April, and between early September and mid-October, to assess if bats are present and to count individuals. c. Winter surveys. At least one daytime site inspection should be conducted in January or February to determine if winter hibernacula or overwintering habitat for bats are present. Crevice-roosting species typically roost deep in crevices in the winter, and they may not be visible during winter							

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		inspections. Therefore, visual surveys, in combination with the use of an extendable fiber-optic camera probe to view inside crevices may be required for some bridges, overpasses, or structures. **Preconstruction Tree Surveys** 4. If tree removal or trimming is necessary for project construction, approximately 1 year prior to surface construction at a given location a biologist will examine trees to be removed or trimmed for suitable bat roosting habitat. High-value habitat features (e.g., large tree cavities, basal hollows, loose or peeling bark, larger snags, palm trees with intact thatch) will be identified and the area around these features searched for bats and bat sign (e.g., guano, culled insect parts, staining). Riparian woodland, orchards, and stands of mature broadleaf trees should be considered potential habitat for solitary foliage-roosting bat species. 5. If bat sign is detected, biologists will conduct evening visual emergence survey of the source habitat feature, from a half hour before sunset to 1 to 2 hours after sunset for a minimum of 2 nights within the season that surface construction would be taking place. Methodology should follow that described above in measure 3 for the bridge or overpass emergence survey. 6. Additionally, if suitable tree-roosting habitat is present, acoustic monitoring with a bat detector will be used to assist in determining species present. These surveys will be conducted in coordination with the acoustic monitoring conducted for the bridge, overpass, or structure. **Protective Measures for Bats Using Bridges, Overpasses, Structures, and Trees** 7. Avoidance and minimization measures will be necessary if it is determined that bats are using a bridge, overpass, or structure or trees as roost sites and/or sensitive bats species are detected during acoustic monitoring. Appropriate measures will be determined by DWR in consultation with CDFW and will include, as applicable, the following measures. a. Ensure that bats are protected from noise, vibrations, and light that result from surface construction activities associated with project infrastructure as well as operations and maintenance of aboveground water conveyance facilities. This would be accomplished by placing noise barriers between surface construction activities and the roost and by directing lights inward toward construction. b. Avoid construction-related disturbance above disturbance created by normal use of the bridge, overpass, or structure (as determined during preconstruction surveys) between April 15 and September 15 (the maternity period) to avoid impacts on reproductively active females and dependent young. c. Install exclusion devices from March 1 through April 1 and/or September 1 through November 1 to preclude bats from occupying the bridge or overpass during surface construction. Exclusionary devices will only be installed by or under the supervision of an experienced biologist. d. Avoid tree removal between April 15 and September 15 (the maternity period for bat species that use trees) to avoid impacts on pregnant females and active maternity roosts (whether colonial or solitary). e. Conduct tree removal between September 15 and October 31 to the maximum extent practicable, which corresponds to a time period when bats would not likely have entered winter hibernation and would not be caring for flightless young. If weather conditions remain conducive to regular bat activity beyond October 31, later tree removal may be considered in consultation with CDFW. f. Remove trees in pieces, rather than felling the entire tree. g. If a maternity roost is located, whether solitary or colonial, leave that roost undisturbed with a minimum 200-foot non-disturbance buffer or a distance as determined in consultation with CDFW until September 15 or							

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		until a biologist has determined the roost is no longer active. h. If a non-maternity roost is found, avoid that roost to the maximum extent practicable and use a minimum 200-foot non-disturbance buffer or a distance as determined in consultation with CDFW. Every effort will be made to avoid the roost to the maximum extent practicable, as methods to evict bats from trees are largely untested. However, if the roost cannot be avoided, eviction will be attempted and procedures designed in consultation with CDFW to reduce the likelihood of mortality of evicted bats. In all cases: i. Eviction will not occur before September 15 and will match the timeframe for tree removal approved by CDFW. ii. Biologists will carry out or oversee the eviction tasks and monitor the tree trimming or removal. iii. Eviction will take place late in the day or in the evening to reduce the likelihood of evicted bats falling prey to diurnal predators. iv. Eviction will take place during weather and temperature conditions conducive to bat activity (a warm night when nighttime lows are not less than 45°F and during dry weather conditions). v. Special-status bat roosts will not be disturbed. vi. Evictions will not occur until temporary or permanent replacement roosting habitat is established at a location subject to CDFW approval. Replacement habitat plans will be reviewed and approved by CDFW. Habitat will be replaced at a ratio of 1:1 and will be functionally equivalent. 8. Eviction procedures will include but are not limited to: a. Pre-eviction surveys to obtain data to inform the eviction approach and subsequent mitigation requirements. Relevant data may include the species, sex, reproductive status, and number of bats using the roost, and roost conditions such as temperature and dimensions. Surveys may include visual emergence, night vision, acoustic, and capture. b. Structural changes may be made to the roost, performed without harming bats, such that the conditions in the roost are undesirable to roosting bats and the bats leave on their own (e.g., open additional portals so that temperature, wind, light, and precipitation regime in the roost change). c. Uninjurious harassment at the roost site to encourage bats to leave on their own, such as ultrasound deterrents or other sensory irritants.							
MM BIO-46	Conduct Preconstruction Survey for San Joaquin Kit Fox and Implement Avoidance and Minimization Measures	As properties become accessible for initiating project activities within areas of modeled San Joaquin kit fox habitat, DWR will require suitability assessments of the modeled habitat by a biologist qualified to identify suitable habitat for this species. Surveys will be conducted from locations where access allows. 1. For areas verified as being suitable for San Joaquin kit fox, preconstruction surveys will be initiated within 14 to 30 days prior to ground disturbance, vegetation removal, or establishment of staging areas related to project activities. A USFWS- and CDFW-approved biologist with experience surveying for and observing the species will survey the project footprint and the area within 200 feet beyond the footprint to identify known or potential San Joaquin kit fox dens. Adjacent parcels under different land ownership will not be surveyed unless access is granted within the 200-foot radius of the project footprint. The biologists will conduct these searches by systematically walking 30- to 100-foot-wide transects throughout the survey area; transect width will be adjusted based on vegetation height and topography. The biologist will conduct walking transects such that 100% visual coverage of the worksite footprint is achieved. Dens will be classified in one of the following four den status categories outlined in the *Standardized Recommendations for Protection of the Endangered San Joaquin Kit Fox Prior to or During Ground Disturbance* (U.S. Fish and Wildlife Service 2011:8–9).	Preconstruction; Construction	Surveying; Compliance Reporting	1. Written results of the surveys will be submitted to USFWS and CDFW within 5 calendar days of the completion of surveys and prior to the beginning of ground disturbance and/or construction activities 2. Immediately if natal or pupping den is discovered	Qualified Biologist	Condition of Compliance Reporting	CDFW; USFWS	Impact BIO-46: Impacts of the Project on San Joaquin Kit Fox; Impact BIO-56: Substantial Adverse Effects on Fish and Wildlife Resources Regulated under California Fish and Game Code Section 1600 et seq.

MM #	Title	Mitigation Measure Text	Timing	Implementation Action	Reporting Schedule	Implementation Party	Implementation Mechanism	Participating or Permitting Organizations	Impact # and Impact Title
		a. *Potential den.* Any subterranean hole within the species' range that has entrances of appropriate dimensions for which available evidence is sufficient to conclude that it is being used or has been used by a San Joaquin kit fox. Potential dens comprise any suitable subterranean hole or any den or burrow of another species (e.g., coyote, badger, red fox, or ground squirrel) that otherwise has appropriate characteristics for kit fox use. If a potential den is found, the biologist will establish a 50-foot buffer using flagging. b. *Known den.* Any existing natural den or artificial structure that is used or has been used at any time in the past by a San Joaquin kit fox. Evidence of use may include historical records; past or current radiotelemetry or spotlighting data; kit fox sign such as tracks, scat, or prey remains; or other reasonable proof that a den is being or has been used by a kit fox. If a known den is found, the biologist will establish a 100-foot buffer using flagging. c. *Natal or pupping den***.** Any den used by San Joaquin kit foxes to whelp or rear their pups. Natal or pupping dens may be larger with more numerous entrances than dens occupied exclusively by adults. These dens typically have more kit fox tracks, scat, and prey remains near the den and may have a broader apron of matted dirt or vegetation at one or more entrances. A natal den, defined as a den in which kit fox pups are actually whelped but not necessarily reared, is a more restrictive version of the pupping den. In practice, however, it is difficult to distinguish between the two types of dens; therefore, for purposes of this definition, either term applies. If a natal or pupping den is discovered, the biologist will establish a buffer of at least 200 feet using fencing but a final buffer will be established in coordination with USFWS and CDFW. d. *Atypical den.* Any artificial structure that has been or is being occupied by a San Joaquin kit fox. Atypical dens may include pipes, culverts, and diggings beneath concrete slabs and buildings. If an atypical den is discovered, the biologist will establish a 50-foot buffer using flagging. 2. Disturbance to all San Joaquin kit fox den status categories (described directly above) will be avoided to the extent possible. Where avoidance is not possible, limited den destruction may be allowed provided the following procedures are observed. 3. If an atypical, natal or pupping, known or potential San Joaquin kit fox den is discovered within a project footprint, the den will be monitored for 3 days by a USFWS- and CDFW-approved biologist using a tracking medium or an infrared beam camera to determine if the den is currently being used. 4. If an active natal or pupping den is found within a project footprint, USFWS and CDFW will be notified immediately. The den will not be destroyed until the pups and adults have vacated and then only after further coordination with USFWS and CDFW. 5. If San Joaquin kit fox activity is observed at the potential, known, or atypical den during the preconstruction surveys, den use will be actively discouraged with the approval of the USFWS- and CDFW-approved biologist, as described below, and monitoring will continue for an additional 5 consecutive days from the time of the first observation to allow any resident animals to move to another den. For dens other than natal or pupping dens, use of the den can be discouraged by partially plugging the entrance with soil such that any resident animal can easily escape. Alternatively, if the animal is still present after 5 or more consecutive days of plugging and monitoring, the den may have to be excavated by hand when, in the judgment of a biologist, it is temporarily vacant (i.e., during the animal's normal foraging activities). If at any point during excavation a San Joaquin kit fox is discovered inside the den, the excavation activity will cease immediately and monitoring of the den, as described above, will be resumed. Destruction of the den may be completed when, in the judgment of the			3. Immediately if injured or killed 4. 24 hours of all capture, handling, and relocation to USFWS and CDFW 5. 24 hours after injury or death to USFWS and CDFW				

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		biologist, the animal has escaped from the partially destroyed den. 6. Construction requirements from *Standardized Recommendations for Protection of the San Joaquin Kit Fox Prior to or during Ground Disturbance* (U.S. Fish and Wildlife Service 2011:5–9) or the latest guidelines will be implemented. 7. If potential, known, atypical, or natal or pupping dens are identified within temporary work areas or within a 200-foot buffer of a temporary work area, exclusion zones around each den entrance or cluster of entrances will be demarcated. The configuration of exclusion zones will be circular, with a radius measured outward from the den entrance(s). No activities will occur within the exclusion zones. Exclusion zone radii for atypical dens and potential dens will be at least 50 feet and will be demarcated with four to five flagged stakes. Exclusion zone radii for known dens will be at least 100 feet and will be demarcated with staking and flagging that encircle each den or cluster of dens but do not prevent access to the den by the foxes. Exclusion zone radii for natal or pupping dens will be at least 200 feet and will be demarcated using fencing, but a final buffer will be established in coordination with USFWS and CDFW. Exclusion zone radii for natal or pupping dens will be at least 200 feet and will be demarcated using fencing, but a final buffer will be established in coordination with USFWS and CDFW. 8. Written results of the surveys will be submitted to USFWS and CDFW within 5 calendar days of the completion of surveys and prior to the beginning of ground disturbance and/or construction activities in San Joaquin kit fox modeled habitat. During construction, the following measures will be implemented for all activities in suitable San Joaquin kit fox habitat (as determined by a USFWS- and CDFW-approved biologist): 9. The USFWS- and CDFW-approved biologist for San Joaquin kit fox will be the contact source for any employee or contractor who might incidentally kill or injure a kit fox or who finds a dead, injured, or entrapped kit fox. 10. Any personnel who are responsible for incidentally killing or injuring a San Joaquin kit fox will immediately report the incident to the USFWS- and CDFW-approved biologist. The USFWS- and CDFW-approved biologist will contact USFWS immediately in the case of a dead, injured, or entrapped kit fox. 11. USFWS and CDFW will be notified immediately of the accidental death or injury to a San Joaquin kit fox. Notification must include the date, time, and location of the incident or of the finding of a dead or injured animal and any other pertinent information. The USFWS contact is the Assistant Field Supervisor of Endangered Species. 12. New sightings of kit fox will be reported to the CNDDB. A copy of the reporting form and a topographic map clearly marked with the location of where the kit fox was observed will also be provided to USFWS at the address below.							
MM BIO-47	Conduct Preconstruction Survey for American Badger and Implement Avoidance and Minimization Measures	DWR will require a qualified biologist to survey for American badger concurrently with the preconstruction surveys for burrowing owl within 14 days prior to the start of ground disturbance. If an active den is detected within the work area, the qualified biologist will establish a minimum 100-foot non-disturbance buffer around the den until the biologist determines that the den is no longer active through direct monitoring, using wildlife cameras, or using a camera probe. Potential dens that are determined to be inactive by one or more of the aforementioned methods will be collapsed by hand to prevent occupation of the den between the time of the survey and construction activities. Surveys and monitoring will be conducted from locations where access allows.	Preconstruction	Surveying; Monitoring; Compliance Reporting	As needed	Qualified Biologist	Condition of Compliance Reporting	CDFW	Impact BIO-47: Impacts of the Project on American Badger; Impact BIO-54: Conflict with the Provisions of an Adopted Habitat Conservation Plan, Natural Community Conservation Plan, or Other Approved Local, Regional, or State Habitat Conservation Plan; Impact BIO-56: Substantial Adverse Effects on Fish and Wildlife Resources Regulated under California Fish and Game

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									Code Section 1600 et seq.
MM BIO-53	Avoid and Minimize Impacts on Terrestrial Wildlife Connectivity and Movement	**Design and Construction** The following measures will be implemented during project design and construction to avoid and minimize impacts on terrestrial wildlife connectivity and movement. The design and monitoring of the project will be developed and conducted in coordination with an agency-approved biologist qualified and experienced in wildlife crossing and connectivity planning and design. The agency-approved biologist must demonstrate an understanding of the species' ecological, behavioral, and movement needs across WCGs and how to integrate the best design practices available, including the integration of measures to avoid and minimize noise, light, and other disturbances that may affect connectivity function, into project plans and specifications. The agency-approved biologist will oversee development and design of wildlife crossing structures, which will include wildlife fencing, as well as all other project elements and roadway features with connectivity requirements and specifications. 1. As part of project access road improvement planning, design, and construction, under Alternatives 1, 2a, 2b, and 2c, the project will upgrade the existing culvert on SR 12 (identified by CDFW [2020d:11] as a priority barrier to wildlife movement in the region; Barrier ID W031) to a dedicated wildlife crossing structure to facilitate movement of both aquatic and terrestrial wildlife. The wildlife crossing structure will span the banks of the channel to the maximum extent possible and will incorporate design elements to facilitate movement and connectivity of giant garter snake, western pond turtle, mink, river otter, beaver, other reptiles, and mammals inhabiting the area. This mitigation is only applicable to Alternatives 1, 2a, 2b, and 2c to mitigate for the impacts of widening SR 12. 2. The new intersection for Byron Highway and the extension of Armstrong Road (Alternatives 1, 2a, 2b, 2c, 3, 4a, 4b, and 4c) will include wildlife crossing structures where the new road intersects with Brushy Creek. The wildlife crossing structure will span the banks of the channel to the maximum extent possible and will incorporate design elements to facilitate movement and connectivity of California red-legged frog, western pond turtle, and other aquatic, semi-aquatic, and terrestrial wildlife species inhabiting the area. 3. Contiguous habitat connectivity along riparian banks and corridors will be maintained during construction, to the extent feasible, to maintain connectivity at riparian banks and corridors at levees, intakes, and other facilities located along or within riparian banks and corridors. Riparian vegetation and canopy will be avoided and maintained to the maximum extent possible during construction. Design will include wildlife fencing where applicable to prevent wildlife access to construction areas that may be dangerous for wildlife, such as roads and other facilities. Fencing will also be designed and placed in a manner that facilitates wildlife movement through or between the riparian banks and corridors during constriction. Feasibility will be determined and design and maintenance of habitat contiguity and fencing will be developed and overseen by DWR in coordination with a biologist qualified and experienced in wildlife crossing planning and design and will be managed in coordination with the qualified biologist during construction phasing. **Operations** 4. Contiguous habitat connectivity along riparian banks and riparian corridors will be maintained during operations to maintain connectivity at riparian banks and corridors at levees, intakes, and other facilities located along/within riparian banks and corridors. The native riparian vegetation and canopy in these areas will be maintained to the maximum extent possible during operation. Where maintaining and reestablishing the riparian vegetation and canopy is not possible, plans will include landscaping with native plants that will provide the maximum amount of cover and heterogeneity possible and will also consider the use of other non-vegetative options to provide cover and heterogeneity to	Preconstruction; Construction; Operations	Design; Monitoring; Contract Requirements	As needed	Qualified Biologist	Condition of Design Documents and Construction Contract	CDFW; USFWS	Impact BIO-53: Interfere Substantially with the Movement of Any Native Resident or Migratory Fish or Wildlife Species or with Established Native Resident or Migratory Wildlife Corridors, or Impede the Use of Native Wildlife Nursery Sites

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		facilitate wildlife movement such as rock piles, snags, and human-made materials, such as faux rocks and trees that provide cover, yet are lightweight and not load-bearing. Design will include wildlife fencing where applicable to prevent wildlife access to roads and facilities. Fencing will also be designed and placed in a manner that facilitates wildlife movement through or between the riparian banks and corridors during constriction. Design of habitat contiguity, revegetation, and fencing will be developed by DWR in coordination with a biologist qualified and experienced in wildlife crossing planning and design. 5. An agency-approved biologist with demonstrated understanding of monitoring and adaptive management techniques used in the field of connectivity ecology, road ecology, and wildlife crossings will oversee operations monitoring of new wildlife crossings, connectivity enhancement measures (e.g., amphibian-friendly roads and curbs), new and modified roadways, and all project elements with potential to affect wildlife connectivity (e.g., project elements along riparian banks). Monitoring will occur for at least 5 years using best practices in the field and will be compiled to inform adaptive management strategies, which may be needed to ensure intended connectivity function and value are being achieved. Monitoring techniques may include wildlife camera monitoring, wildlife tracking, and roadkill monitoring. Monitoring will be conducted over multiple seasons and include considerations and methodologies targeting species across all WCGs as well as listed species. Monitoring will be conducted from locations where access allows.							
MM CUL-1a	Avoid Impacts on Built-Environment Historical Resources through Project Design	1. Redesign or modify relevant facilities, construction activities, or both to avoid destruction of or damage to a built-environment historical resource or its setting, to the extent feasible, and if avoidance is not feasible, minimize the destruction or damage to the greatest extent feasible.	Preconstruction; Construction	Design	As needed	Contractor(s)	Condition of Design Documents and Construction Contract	State Historic Preservation Officer	Impact CUL-1: Impact of Eligible Built-Environment Historical Resources Resulting from Construction and Operation of the Project
MM CUL-1b	Prepare and Implement a Built-Environment Treatment Plan in Consultation with Interested Parties	1. DWR will complete a built-environment treatment plan (BETP) as part of mitigation and monitoring for compliance with CEQA. This mitigation measure provides options that may be included in the BETP, depending on the type of impact and the type of resource. A historian who meets the Secretary of the Interior's Standards will determine suitable content for each resource's BETP that would appropriately mitigate the impacts for individual historical resources. Therefore, the content of different BETPs may vary. a. A BETP will be prepared for each built-environment historical resource with a significant impact from the project. For each BETP prepared, DWR will review mitigation measures from other resource topics in this EIR, such as noise and visual, to identify other mitigation activities related to the historical resource that is the subject of the treatment plan. The BETP will be prepared by an architectural historian who meets the Secretary of the Interior's Standards with demonstrated experience preparing treatment for similar kinds of resources and reviewed by relevant parties prior to any demolition or ground-disturbing activity with potential to affect a built-environment resource. Property-specific impacts are identified in Appendix 19C, Tables 19C-1 through 19C-4, and mitigation consistent with (c) and (d) below will be implemented in accordance with the specifics developed in the BETP. Resource-specific BETPs will reduce project impacts by tailoring avoidance and minimization treatments to each resource. b. DWR will consult with relevant parties during preparation of the BETPs. Consultation with relevant parties will help ensure that BETP mitigation activities protect significant character-defining features important to those parties. Such parties may include but are not limited to the State Historic Preservation Officer, the Advisory Council on Historic Preservation, local historical societies, and other interested parties such as local preservation and community organizations with a demonstrated interest in the resource	Preconstruction	Design	As needed	Architectural Historian; DWR	Condition of Design Documents and Construction Contract	State Historic Preservation Officer; Advisory Council on Historic Preservation; Local Historical Societies; Local Preservation and Community Organization	Impact CUL-1: Impact of Eligible Built-Environment Historical Resources Resulting from Construction and Operation of the Project

MM #	Title	Mitigation Measure Text	Timing	Implementation Action	Reporting Schedule	Implementation Party	Implementation Mechanism	Participating or Permitting Organizations	Impact # and Impact Title
		that is the subject of the BETP. c. For built-environment historical resources whose integrity of design, materials, or workmanship will be significantly affected, an architectural historian who meets the Secretary of the Interior's Standards may specify resource-specific treatments in each BETP. Treatments selected for each resource's BETP would establish baseline conditions for affected resources and identify additional treatments most likely to address potential damage. Specific treatments will reduce project impacts by developing a clear plan to stabilize resources, resulting in avoidance or minimization of potential impacts on the resource's integrity of design, materials, or workmanship. Furthermore, these treatments will help avoid damage to built-environment historical resources and will provide guidance on conducting repairs if inadvertent damage occurs. These treatments will be designed to avoid direct impacts such as vibration that may result in structural damage or other physical damage. i. A preconstruction condition assessment is required for all resources in the AI-BE and will be included in every BETP. The condition assessment will be used to prepare a stabilization plan for all resources and to identify resources in poor condition. For those identified in the assessment as being in poor condition, a Historic Structure Report will be prepared. Should damage caused by the project be questioned, these condition assessments will provide evidence of the preconstruction condition. ii. Historic Structure Reports may be prepared for built-environment historical resources in the AI-BE for which detailed information is required to develop protection measures (National Park Service 2005a). These reports will be prepared for buildings and structures that are adjacent to construction and potentially sensitive to construction-related activities such as vibration. Preconstruction stabilization of these buildings may be necessary. The Historic Structure Report will include preconstruction protection measures based on guidance in the National Park Service's Technical Preservation Brief 31 on mothballing historic buildings (1993), preconstruction stabilization methods, and outline a treatment plan and work recommendations based on the Secretary of the Interior's Standards for the Treatment of Historic Properties,[13] should the historical resource sustain unanticipated damage (National Park Service n.d.). iii. Precautions to protect built-environment historical resources from construction vehicles, debris, and dust may be required and may include fencing or debris meshing. Temporary mothballing and fire and intrusion protection based on the National Park Service's Technical Preservation Brief 31 on mothballing historic buildings (1993) may be needed if the buildings are unoccupied during construction. iv. Protective treatments against construction vibration may be recommended and would be field checked as needed during construction by a qualified architectural historian with demonstrated experience in conducting monitoring of this nature. Vibration monitoring will be required for buildings determined to be susceptible to vibration damage that are in the AI-BE and within an area to be affected by activities or machinery that cause vibrations in exceedance of a single-event source vibration generating a PPV in inches per second of 0.3 PPV, or when a continuous source causes vibration at 0.12 PPV, as summarized in Table 19-4.							

[13] *The Secretary of the Interior's Standards for the Treatment of Historic Properties* are available at https://www.nps.gov/tps/standards.htm (National Park Service n.d.).

MM #	Title	Mitigation Measure Text	Timing	Implementation Action	Reporting Schedule	Implementation Party	Implementation Mechanism	Participating or Permitting Organizations	Impact # and Impact Title
		d. For built-environment historical resources whose integrity of setting, feeling, or association will be significantly affected, an architectural historian who meets the Secretary of Interior's Standards may specify resource-specific treatments in each BETP. Treatments selected for each resource's BETP would establish baseline conditions for affected resources and identify additional treatments most likely to address potential damage. These treatments will reduce project impacts by ensuring that new project features, to the extent feasible, are designed in a manner consistent with the setting to retain the resource's integrity of setting, feeling, and association. As an effort to mitigate significant impacts on a built-environment historical resource, the resource will be documented and recorded to preserve its history and role within the region for the public's benefit and understanding. Where significant impacts on built-environment historical resources will occur, the impacts will be mitigated by repairing damage in accordance with the Secretary of the Interior's Standards. i. Design standards consistent with the Secretary of the Interior's Standards may be incorporated into the BETP to minimize visual impacts and to ensure context-appropriate design. This may include screening features, plantings, or other design changes that can minimize impacts. ii. Historic American Building Survey (HABS) documentation may be prepared for historical resources that will be demolished or altered. HABS documentation will include written and photographic documentation of the significant and character-defining features of these properties. These reports will minimize the adverse impacts by capturing and preserving a description of the significant information and characteristics associated with the resource. iii. As applicable, Historic American Landscape Survey (HALS) records and Historic American Engineering Record (HAER) documents may be prepared for historic water-associated resources (National Park Service 2005b). The levees and other linear historical resource features will be recorded following HAER guidelines. Additionally, the settings will be recorded following HALS guidelines. These reports will include written and photographic documentation of the significant and character-defining features of these properties. The HALS and HAER reports will minimize the significant impacts by capturing and retaining a description of the significant engineering and design information associated with the resource. iv. In recent years, the National Park Service and National Archives have issued directives indicating that they will not accept formal submissions under the HABS, HALS, and HAER programs unless the resource being documented is a rare, unusual, or exceptionally high-quality example of its type because of the huge volume of submissions generated by environmental mitigation requirements. Therefore, if HABS, HALS, or HAER documentation is prepared, the BETP will indicate whether the documentation will be formally submitted to the National Park Service for review and approval, based on a consideration of the rarity or caliber of the resource being mitigated, or instead will be prepared informally for distribution to local repositories or for re-use for interpretive or educational programs. v. As applicable for rural cultural landscape historic districts, the BETP may include the preparation of a Landscape Treatment Plan. The Landscape Treatment Plan will follow guidance published by the National Park Service (1998) and will serve to document the history and significance of the landscape and provide treatment recommendations that conform with the Secretary of the Interior's Standards.						

MM #	Title	Mitigation Measure Text	Timing	Implementation Action	Reporting Schedule	Implementation Party	Implementation Mechanism	Participating or Permitting Organizations	Impact # and Impact Title
		vi. The BETP may include preparation of interpretive or educational media such as displays in public spaces, print materials, or websites. Interpretive and educational media may incorporate written, photographic, and archival documentation (such as those compiled for informal HABS/HAER/HALS reports), oral history interviews, video, or animation to tell the story of the heritage represented by the affected resource. Interpretive media may be an appropriate mitigation for some historical resources because they are associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage or that are associated with persons important in our past for their association with historical trends or people, rather than for their design qualities.							
MM CUL-2	Conduct a Survey of Inaccessible Properties to Assess Eligibility and Determine Whether These Properties Will Be Adversely Affected by the Project	1. Because DWR does not have legal access to portions of the project footprint, built resources inventory has not been concluded for the areas that were inaccessible from the public right-of-way. Before construction, DWR will have access to all property needed to finalize the inventory and evaluation, and DWR will ensure that all areas of impacts will be surveyed. This subsequent survey will be conducted in a manner consistent with the 2021 survey (Appendix 19A, *Historical Resources Survey and Evaluation Report*). The project impacts will be minimized with this measure by ensuring that built-environment historical resources have been identified, so Mitigation Measure CUL-1b can be applied. a. The scope of the inventory will include the entire area where impacts may occur that were inaccessible or partially inaccessible in the first survey efforts. Such impacts consist of direct disturbance, damage through vibration, or changes to the setting. b. The work will be led or supervised by architectural historians that meet the Secretary of the Department of the Interior's professional qualification standards provided in 36 CFR Part 61. c. Inventory methods and evaluation will include pedestrian surveys, photographic documentation, historical research using both primary and secondary sources, and interviews and oral histories. d. Newly identified resources will be mapped and described on applicable California Department of Parks and Recreation (DPR) 523-series forms. Mapping will be performed by recording data points with GPS hardware that can be imported and managed digitally. e. For all identified resources, DWR will review the previous documentation and complete a field survey to determine if the resources retain sufficient integrity as historical resources (CEQA Guidelines § 15064.5(a)). f. The recorded resources and the resource evaluations will be summarized in an inventory report. The inventory report will include a determination of whether individual resources qualifying as historical resources or historic properties will be subject to significant impacts. DWR will make such a finding if the project will result in the following: i. Demolish or materially alter the qualities that make the resource eligible for listing in the CRHR (CEQA Guidelines § 15064.5(b)(2)(A),(C)). ii. Demolish or materially alter the qualities that justify the inclusion of the resource on a local register or its identification in an historical resources survey meeting the requirements of California Public Resources Code Section 5024.1(g). g. Where built-environment historical resources that are listed or qualify for listing in the CRHR or NRHP, or that have been designated in a qualified local register, will be subject to significant impacts, these resources will be added to the BETP prepared in accordance with Mitigation Measure CUL-1b.	Preconstruction	Surveying	After surveying	Architectural Historian; Contractor(s); DWR	Condition of Design Documents and Construction Contract	State Historic Preservation Officer	Impact CUL-2: Impacts on Unidentified and Unevaluated Built-Environment Historical Resources Resulting from Construction and Operation of the Project

MM #	Title	Mitigation Measure Text	Timing	Implementation Action	Reporting Schedule	Implementation Party	Implementation Mechanism	Participating or Permitting Organizations	Impact # and Impact Title
MM CUL-3a	Prepare and Implement an Archaeological Resources Management Plan	1. Because DWR does not have legal access to portions of the project footprint, an archaeological resources inventory has not been concluded for the areas that were inaccessible. Before construction, DWR will have access to all property needed to finalize the inventory and evaluation, and DWR will ensure that all areas of impacts will be surveyed. The project impacts will be minimized with this measure by ensuring that archaeological resources have been identified. DWR will prepare an Archaeological Resources Management Plan (ARMP) prior to field investigations and construction activities to guide the archaeological resources technical studies and resource-specific treatments to be conducted prior to and during construction activities. The ARMP will describe procedures that have been identified for avoiding, minimizing, and mitigating known or potential project impacts on archaeological resources. The first step in each procedure will be to implement feasible avoidance of archaeological resources. a. The ARMP will be developed during the permitting and design process and will be adopted prior to land acquisition. Preparers of the ARMP will meet professional qualification standards established in the Secretary of the Interior's Professional Qualification Standards for archaeology and architectural history. DWR will coordinate with the Native American Tribes that participated in consultation on the project to ascertain whether they have standard procedures that may be applicable or other input on the content of the ARMP. The Tribes will be afforded an opportunity to review and comment on the draft ARMP. The content of the ARMP will follow industry standards, including guidance prepared by the California Office of Historic Preservation and the National Park Service. Each procedure will be attached to the ARMP, as each is completed in accordance with the timing and responsibilities identified below. b. The ARMP will include procedures for the following: i. Archaeological Resources Phased Identification ii. Archaeological Treatment iii. Post-Review Discovery iv. Archaeological Monitoring **Archaeological Resources Phased Identification Procedure (PIP)** c. *Purpose:* DWR, or its qualified contractors, will conduct pedestrian and subsurface surveys to complete the identification of archaeological resources located in the AI-A. The PIP will provide details about the current cultural resources data gaps and requirements for completing phased identification surveys prior to construction for areas where DWR currently does not have access. Once these surveys are conducted and DWR has detailed information about potentially affected resources, DWR will be able to assess resource-specific project impacts and consider avoidance options and the applicability of other procedures in the ARMP, such as treatment plans or monitoring. d. *Outcome:* Implementing the PIP will ensure that DWR fills the current data gaps for archaeological resources and is fully aware of the presence of archaeological resources that may be affected by the project. As part of the reporting requirements when implementing the PIP, the survey and evaluation reports will recommend appropriate procedures in the ARMP required to avoid, minimize, or mitigate project impacts on those resources found to be significant that are not currently known due to limited access. e. *Content:* The PIP will include guidance for phased surveys and CRHR evaluations for archaeological resources and assessment of impacts, should any resources be newly identified. The PIP will specify the ways in which surveys might be phased, taking into consideration the mechanisms for acquiring access to currently inaccessible properties and the schedule for design development. **Archaeological Treatment Procedure**	Preconstruction; Construction	Contract Requirements; Surveying; Monitoring	As needed	Archeologist; Contractor(s); DWR	Condition of Design Documents and Construction Contract;	State Historic Preservation Officer; Affiliated Tribes	Impact CUL-3: Impacts on Identified Archaeological Resources Resulting from the Project; Impact CUL-4: Impacts on Unidentified Archaeological Resources That May Be Encountered in the Course of the Project; Impact CUL-5: Impact on Buried Human Remains

MM #	Title	Mitigation Measure Text	Timing	Implementation Action	Reporting Schedule	Implementation Party	Implementation Mechanism	Participating or Permitting Organizations	Impact # and Impact Title
		f. *Purpose:* DWR, or its qualified contractors, will prepare a procedure that provides a range of treatment options for archaeological resources identified as part of implementing the PIP or previously identified as NRHP/CRHR eligible. g. *Outcome:* The Archaeological Treatment Procedure will ensure that all archaeological resources potentially affected by the project will be treated according to best practices and professional standards, and that treatment options will include a range of interventions from avoidance and minimization of impacts to mitigation for the loss of the physical resource. h. *Content:* The Archaeological Treatment Procedure will provide detailed guidance on the professional standards and best practices for a range of treatment types for avoiding and minimizing impacts on archaeological resources, as well as other treatments for how to record the significance of an archaeological resource when impacts cannot be avoided or minimized. This procedure will identify when it is appropriate to prepare a resource-specific treatment plan and establish the minimum contents and standards for such plans. Treatment may include, but would not be limited to the following actions. i. Installation of exclusionary fencing ii. Site capping iii. Data recovery iv. Public interpretation and education **Post-Review Discovery Procedure** i. *Purpose:* DWR, or its qualified contractors, will prepare a procedure that identifies the critical path actions that must be followed if an unanticipated discovery of cultural materials occurs at any time during project construction, operations, or maintenance. j. *Outcome:* The Post-Review Discovery Procedure will ensure that any archaeological resources that are disturbed in the course of project construction, operations, or maintenance will be assessed by qualified archaeologists prior to further ground-disturbing activities, and that treatment options for the avoidance, minimization, or mitigation of further disturbance are developed and applied prior to resumption of construction activity. k. *Content:* The Post-Review Discovery Procedure will specify the steps required for stopping work, assessing the find, coordinating with appropriate agencies or interested parties, developing appropriate treatment, and determining when construction or other activities can continue in what proximity of any unanticipated discoveries of archaeological resources. This procedure will include a research design and guidance for evaluation and treatment of post-review archaeological discoveries. Treatment may include, but would not be limited to the following actions. i. Installation of exclusionary fencing ii. Site capping iii. Data recovery iv. Public interpretation and education **Archaeological Monitoring Procedure** l. *Purpose:* DWR, or its qualified contractors, will prepare a procedure for archaeological monitoring that will be performed during project-related ground disturbance. m. *Outcome:* The Archaeological Monitoring Procedure will ensure that qualified archaeologists perform monitoring during project-related ground disturbance to identify any unanticipated discoveries and to implement the Post-Review Discovery Procedure.							

MM #	Title	Mitigation Measure Text	Timing	Implementation Action	Reporting Schedule	Implementation Party	Implementation Mechanism	Participating or Permitting Organizations	Impact # and Impact Title
		n. *Content:* The Archaeological Monitoring Procedure will establish the methods and standards for when and how archaeological monitoring activities will be conducted, identify the roles and responsibilities of monitors and construction crews, and specify communication protocols and reporting requirements. This procedure will address monitoring required during project-related ground disturbance.							
MM CUL-3b	Conduct Cultural Resources Sensitivity Training	1. Prior to the start of ground disturbance, DWR will ensure that a qualified archaeologist conducts a mandatory archaeological sensitivity training for all personnel involved in ground-disturbing work about cultural resources sensitivity in the project footprint and cultural resources that could be encountered during work. Participants will be required to sign a form stating that they have received and understand the training. DWR will maintain the record of training and make it available to interested parties, upon request. The project foreman will ensure that the new personnel brought onto the project receive the mandatory training before starting work.	Preconstruction	Contract Requirements; Training	As needed	Archeologist; Contractor(s); DWR;	Condition of Design Documents and Construction Contract	N/A	Impact CUL-3: Impacts on Identified Archaeological Resources Resulting from the Project; Impact CUL-4: Impacts on Unidentified Archaeological Resources That May Be Encountered in the Course of the Project; Impact CUL-5: Impact on Buried Human Remains
MM CUL-3c	Implement Archaeological Protocols for Field Investigations	1. All areas associated with field investigations will be reviewed by a qualified archaeologist to evaluate the potential for impacts, if any, on cultural resources. DWR will also implement the following protocols: a. Locations that have no previous survey coverage must be surveyed by, or under the direct supervision of, a qualified archaeologist prior to the start of any ground-disturbing activities. b. If the archaeologist observes cultural resources within the field investigation area or at minimum, within a 100-foot buffer as identified by a qualified archaeologist, the location will be shifted outside the buffer to reduce the potential for significant cultural resource impacts without significantly increasing potential impacts on other resources. c. If a suitable location cannot be determined by project engineers within adjacent areas, and if relocation or termination is feasible, then the soil investigation at that location will not be conducted. If relocation or termination are not feasible, field investigations will not be conducted until Mitigation Measure CUL-3a has been completed. i. Should any unexpected cultural resources be exposed during field investigations, all work will immediately stop in the immediate vicinity (e.g., within 100 feet [30 meters]) of the find until it can be evaluated by a qualified archaeologist and an appropriate plan of action can be determined.	Preconstruction	Surveying	As needed	Archeologist; DWR	Condition of Design Documents and Construction Contract	N/A	Impact CUL-3: Impacts on Identified Archaeological Resources Resulting from the Project; Impact CUL-4: Impacts on Unidentified Archaeological Resources That May Be Encountered in the Course of the Project; Impact CUL-5: Impact on Buried Human Remains
MM CUL-5	Follow State and Federal Law Governing Human Remains If Such Resources Are Discovered during Construction	If human remains are discovered, DWR and the construction contractors will coordinate with the county coroner and California Native American Heritage Commission (NAHC) to make the determinations and perform the management steps prescribed in California Health and Safety Code Section 7050.5 and California Public Resources Code Section 5097.98. The provisions of these state laws apply unless discoveries occur on land owned or controlled by the federal government. For discoveries on federal land, procedures for Native American Graves Protection and Repatriation Act will be followed. Compliance with state law for discoveries occurring on private or state lands requires notification of the county coroner so the coroner may determine if an investigation regarding the cause of death is required. If the coroner determines that the remains are of early Native American origin, the coroner will notify the NAHC. Upon notification the NAHC will identify the most likely descendant (MLD). DWR will coordinate with the MLD to ascertain whether the Tribe has standard procedures for treatment of burials or human remains. DWR will coordinate closely with the Tribe to develop an appropriate treatment plan for the reinterment or other consideration of the remains. If the NAHC fails to identify the MLD, or if the parties cannot reach agreement as to how to treat the remains as described in California Public Resources Code Section 5097.98(e), DWR will reinter the remains	Construction	Compliance Reporting; Remediation	As needed	Contractor(s); DWR	Condition of Compliance Reporting	County Coroner; NAHC	Impact CUL-5: Impact on Buried Human Remains

MM #	Title	Mitigation Measure Text	Timing	Implementation Action	Reporting Schedule	Implementation Party	Implementation Mechanism	Participating or Permitting Organizations	Impact # and Impact Title
		at a location not subject to further disturbance. DWR will ensure the protections prescribed in California Public Resources Code Section 5097.98(e) are performed, such as the use of conservation easements and recording of the location with the relevant county and CHRIS Information Center. If the burial appears to be a contributor to the Delta Tribal cultural landscape, as determined by implementing Mitigation Measure TCR-2: *Perform an Assessment of Significance, Known Attributes, and Integrity for Individual CRHR Eligibility*, DWR will also implement Mitigation Measure TCR-1c: *Implement Measures to Restore and Enhance the Physical, Spiritual, and Ceremonial Qualities of Affected Tribal Cultural Resources* including, but not limited to, the provision for access to designated land for repatriation of disturbed cultural materials associated with burials.							
MM GW-1	Maintain Groundwater Supplies in Affected Areas	Prior to construction, the location of existing wells will be determined within the anticipated 0.5-mile radius of influence of project sites at which dewatering would occur during construction or maintenance. These sites include the north Delta intakes (construction and maintenance), the Southern Forebay Spillway and Outlet Structure (only used during construction dewatering), and the Bethany Complex Surge Basin (only used during construction dewatering). Initially, the area of influence will be considered to be within 0.5 mile of the dewatering areas for each site and will be validated or refined during the design phase. Based on available information, site investigations, and desk studies, the location of existing wells, depths of the wells and the depth to groundwater within these wells will be determined. During geotechnical explorations and construction, new monitoring wells will be installed within and outside of the area of influence (0.5-mile radius) for the dewatering location for each site and along the Sacramento River (for the intakes) and Italian Slough (for the Southern Forebay). Existing monitoring wells or new monitoring wells (to be installed as part of field investigations during the design phase) inside and outside the area of influence will also be used. Monitoring will be conducted to assess changes in water levels attributable to dewatering activities and maintenance by comparing changes in groundwater elevations within and outside the dewatering area of influence. Monitoring will also be conducted to assess change in electrical conductivity (EC) at select locations during construction. Monitoring wells at the intakes will continue to be used as part of a conveyance operations monitoring program. No monitoring will occur near tunnel shaft locations because dewatering would be limited to volume within the constructed tunnel shaft after the shaft has been isolated from the aquifer. Monthly groundwater monitoring will be initiated as soon as access to existing wells is obtained (wherever applicable) and as soon as new monitoring wells are installed. Monitoring for both groundwater levels and EC will continue through the construction phase for up to 6 months following termination of construction dewatering activities and for at least 5 years after commencement of conveyance operations at the intakes. Monitoring preparation will include: • During the design phase, the locations of existing wells that would require monitoring will be determined. The information will be used to determine the need and location for construction of new monitoring wells. Groundwater levels and EC will be monitored in accessible existing wells. Monitoring of groundwater levels and EC in accessible existing wells will be conducted on a weekly or monthly basis for the durations stated above, as needed. ○ The area of influence of construction dewatering operations and conveyance operations will be refined from the assumed 0.5-mile radius based upon the location of potentially affected existing wells and existing available groundwater and hydrogeologic information. • Additional monitoring wells will be installed at the intakes, Southern Forebay structures, and Bethany Reservoir Surge Basin during future geotechnical explorations and the construction phase, depending on the availability and suitability of existing wells for monitoring. If the location, type, and depth of	Preconstruction; Construction; Operations; Postconstruction	Contract Requirements; Surveying; Design; Monitoring	Monthly; Annually; Final report	Contractor(s)	Condition Prior to Resource Impacts or Disturbance; Condition of Design Documents and Construction Contract	N/A	Impact GW-1: Changes in Stream Gains or Losses in Various Interconnected Stream Reaches; Impact GW-2: Changes in Groundwater Elevations; Impact GW-3: Reduction in Groundwater Levels Affecting Supply Wells; Impact GW-4: Changes to Long Term Change In Groundwater Storage

MM #	Title	Mitigation Measure Text	Timing	Implementation Action	Reporting Schedule	Implementation Party	Implementation Mechanism	Participating or Permitting Organizations	Impact # and Impact Title
		existing wells are deemed to be insufficient for monitoring of groundwater levels near dewatering sites, new monitoring wells would be installed. Groundwater levels and EC will be monitored in the newly constructed monitoring wells and existing wells (as noted above). Monitoring of groundwater water levels and EC in new monitoring wells will be conducted on a weekly or monthly basis for the durations stated above during and after construction and dewatering activities for up to 6 months after the end of construction period. ○ New monitoring wells will be constructed outside the slurry cutoff walls and/or sheet piles, but within the project right-of-way. ○ No EC monitoring will occur at the intakes. Monitoring for EC will occur only at construction sites in the Southern Forebay structures and Bethany Reservoir Surge Basin. • All monitoring data will be reported to the public monthly, annually, and in a final report. The monthly reports will contain tabular water level data as well as changes in water levels from the previous months. The annual report will summarize monthly data and show EC chemographs (figures showing changes in EC values with time) and the most recent water level contour map as well as the preconstruction contour map and hydrographs. The final report will include water level contour maps (for the area of the groundwater aquifer that is affected by dewatering) and EC chemographs. The contour maps will show initial preconstruction water levels, construction phase water levels, post-construction water levels, and annual conveyance operations water levels, as applicable. • The results of preconstruction and construction-related monitoring and geotechnical and hydrogeologic testing during field investigations would be used to determine if supplemental reinjection and/or extraction wells would be needed. During construction or maintenance dewatering, if the results of groundwater monitoring described above indicate that the difference between average groundwater elevation declines in monitoring wells inside the area of influence of dewatering and control (background) monitoring well outside the area of influence is more than 10% of the depth of the shallowest known well inside the area, mitigation of impacts on groundwater supplies will be needed. For wells that may be affected by groundwater level declines described herein, the following will be implemented: • Reinject groundwater using injection wells; potable supplies will be brought in temporarily while injection wells are constructed and the groundwater basin recharges, if needed. The following additional measures will also be implemented if injection wells are not feasible in an area or not sufficient to offset potential impacts on groundwater levels in the area of influence: 1. Deepen or modify (e.g., lower pump intakes) wells used for domestic or agricultural purposes; potable supplies will be brought in temporarily while wells are modified, if needed. 2. Secure a temporary water supply or compensate farmers for production losses due to a reduction in available groundwater supplies.							
MM GW-5	Reduce Potential Increases in Groundwater Elevations near Project Intake Facilities	The groundwater monitoring well system (including existing wells) described under Mitigation Measure GW-1: *Maintain Groundwater Supplies in Affected Areas*, will be used during construction and maintenance to determine if increases in groundwater elevations within the area of influence would exceed observed increases outside the area of influence. If groundwater elevations increase more than 10% inside the area of influence over conditions outside the area of influence, existing or new dewatering wells (including reinjection wells described for Mitigation Measure GW-1) will be used to extract groundwater and reduce the groundwater elevations to average seasonal elevations.	Construction; Operations	Contract Requirements; Monitoring	As needed	Contractor(s)	Condition of Design Documents and Construction Contract	N/A	Impact GW-5: Increases in Groundwater Elevations near Project Intake Facilities Affecting Agricultural Drainage

MM #	Title	Mitigation Measure Text	Timing	Implementation Action	Reporting Schedule	Implementation Party	Implementation Mechanism	Participating or Permitting Organizations	Impact # and Impact Title
MM HAZ-2	Perform a Phase I Environmental Site Assessment Prior to Construction Activities and Remediate	1. Prior to construction, DWR will conduct a Phase I environmental site assessment in conformance with the American Society for Testing and Materials Standard Practice E1527-05. All environmental investigation, sampling, and remediation activities associated with properties in the project area will be conducted under a work plan approved by the regulatory oversight agency (e.g., DTSC, EPA) and will be conducted by an appropriate environmental professional. a. Areas to be excavated as part of construction (e.g., for water conveyance facilities, shaft locations, concrete batch plants, intake locations, RTM areas, staging areas) where historical contamination has been identified or where contamination is suspected (e.g., as evidenced by soil discoloration, odors, differences in soil properties, abandoned underground storage tanks [USTs]) will undergo soil and/or groundwater testing at a certified laboratory provided that existing data are not available to characterize the nature and concentration of the contamination. A Phase I environmental site assessment must include the following components (40 CFR § 312.20). i. An on-site visit to identify current conditions (e.g., vegetative dieback, chemical spill residue, presence of aboveground or underground storage tanks [ASTs or USTs]). ii. An evaluation of possible risks posed by neighboring properties. iii. Interviews with persons knowledgeable about the site's history (e.g., current or previous property owners, property managers). iv. An examination of local planning files to check prior land uses and any permits granted. v. File searches with appropriate agencies (e.g., State Water Board, fire department, county health department) having oversight authority relative to water quality and groundwater and soil contamination. vi. Examination of historical aerial photography of the site and adjacent properties. vii. A review of current and historical topographic maps of the site to determine drainage patterns. viii. An examination of chain-of-title for environmental liens and/or activity and land use limitations. b. If the Phase I environmental site assessment indicates likely site contamination, a Phase II environmental site assessment will be performed (also by an appropriate environmental professional). c. A Phase II environmental site assessment will comprise the following components. i. Collection of original surface and/or subsurface samples of soil, groundwater, and building materials to analyze for quantities of various contaminants. ii. An analysis to determine the vertical and horizontal extent of contamination (if the evidence from sampling shows contamination). d. If contamination is uncovered as part of Phase I or II environmental site assessments, remediation (e.g., cleaning, removing, or capping contaminants in accordance with DTSC regulations) will be required. If materials such as asbestos-containing materials, lead-based paint, or PCB-containing equipment are identified, these materials will be properly managed and disposed of prior to or during the demolition process. e. Any contaminated soil identified on a project site must be properly disposed of in accordance with the DTSC regulations in effect at the time. f. If, during construction/demolition of structures, soil or groundwater contamination is suspected, the construction/demolition activities will cease and appropriate health and safety procedures will be implemented, including the use of appropriate personal protective equipment (e.g., respiratory protection, protective clothing, helmets, goggles).	Preconstruction	Contract Requirements; Compliance Reporting; Remediation	As needed	Contractor(s); DWR	Condition Prior to Resource Impacts or Disturbance; Condition of Design Documents and Construction Contract	DTSC; EPA; RWQCBs	Impact HAZ-2: Create a Significant Hazard to the Public or the Environment through Reasonably Foreseeable Upset and Accident Conditions Involving the Release of Hazardous Materials into the Environment; Impact HAZ 4: Be Located on a Site That Is Included on a List of Hazardous Materials Sites Compiled Pursuant to Government Code Section 65962.5 and, as a Result, Create a Substantial Hazard to the Public or the Environment

MM #	Title	Mitigation Measure Text	Timing	Implementation Action	Reporting Schedule	Implementation Party	Implementation Mechanism	Participating or Permitting Organizations	Impact # and Impact Title
MM NOI-1	Develop and Implement a Noise Control Plan	DWR and project contractors will develop and implement a noise control plan consisting of pre-construction actions, sound-level monitoring, best noise control practices, and noise barriers constructed in locations where sound levels from construction are anticipated to exceed daytime or nighttime noise level criteria. The frequency and duration of construction noise are also considered as factors in the implementation of these measures. **Pre-construction Actions** *Future investigations test pile sound-level monitoring*. Prior to construction, as a part of field investigations, pile testing would be done in the vicinity of one of the future intake locations where ground conditions are similar to intake areas (see discussion under Impact NOI-1). During pile testing, sound-level monitoring would be conducted to measure source sound levels from in-water pile driving. Noise modeling will be updated based on result of test pile sound-level monitoring.[14] Updated sound-level modeling will be used to determine where impacts would occur to receptors due to pile driving, to update the construction noise analysis for all facilities, based on daytime and nighttime noise level criteria described in Section 24.3.2, *Thresholds of Significance*. **Sound Insulation Program.** DWR will coordinate a program to offer sound insulation to property owners of residences and businesses where sound levels during construction of project facilities are predicted to exceed daytime or nighttime noise level criteria for a specified duration, notwithstanding other noise mitigation measures described below. The program would consist of, but would not be limited to, installation of dual pane windows, new or improved exterior doors, and new HVAC systems for qualifying homes.[15] Updated modeling will identify locations of sensitive receptors that would qualify for sound insulation.[16] The following two categories of residences would be eligible. • Residences where construction would exceed the daytime criterion of 60 dBA 1-hour L_{eq} for more than 12 months. • Residences where night work would exceed the nighttime criterion of 50 dBA 1-hour L_{eq} for more than 21 days. Replacement or acoustical treatment of windows and doors can result in a noise reduction of 5 dB or more in interior rooms, depending on condition of existing construction. New HVAC systems would provide regulated internal temperatures of residential buildings, allowing for inhabitants to close their windows. To reduce the level of impact due to construction noise, this measure would require voluntary participation of all property owners and occupants of residences affected by project-related construction noise. The sound insulation program would continue to be available for property owners to opt in after facility construction begins. **Sound-Level Monitoring** To address additional noise concerns during construction, SLMs will be installed at locations outside construction work areas to collect sound-level data continuously during long-term buildout of facilities (Intakes A, B and C, Twin Cities, and Bethany). SLMs will be located as near as possible to a location equidistant from the construction boundary to the nearest sensitive receptor, at a location where property access for this purpose is allowed. Sound-level data collected at each site will be used to verify compliance with daytime and nighttime noise limits. All SLMs will be programmed to run continuously and have the capability to access data remotely, so that data reviews and compliance reporting can be done on a weekly basis.	Preconstruction	Contract Requirements	As needed	Noise Expert; Contractor(s); DWR	Condition Prior to Resource Impacts or Disturbance; Condition of Design Documents and Construction Contract	N/A	Impact NOI 1: Generate a Substantial Temporary or Permanent Increase in Ambient Noise Levels in the Vicinity of the Project in Excess of Standards Established in the Local General Plan or Noise Ordinance, or Applicable Standards of Other Agencies; Impact BIO-31: Impacts of the Project on Western Yellow- Billed Cuckoo; Impact BIO-32: Impacts of the Project on the California Black Rail; Impact BIO-33: Impacts of the Project on Greater Sandhill Crane and Lesser Sandhill Crane; Impact BIO-34: Impacts of the Project on California Least Tern; Impact BIO-35: Impacts of the Project on Cormorants, Herons, and Egrets; Impact BIO-36: Impacts of the Project on Osprey, White-Tailed Kite, Coopers Hawk, and Other Nesting Raptors; Impact BIO-37: Impacts of the Project on Golden Eagle and Ferruginous Hawk; Impact BIO-38: Impacts of the Project on Ground-Nesting Grassland Birds; Impact BIO-39: Impacts of the Project on Swainson's Hawk; Impact BIO-40: Impacts of the Project on Burrowing Owl; Impact BIO-41: Impacts of the Project on Other Nesting Special-Status and Non-Special- Status Birds; Impact BIO-42: Impact of the Project on Least Bell's Vireo; Impact BIO-44: Impacts of the Project on Tricolored Blackbird

[14] Sound level modeling in this Final EIR is developed for environmental review, to determine whether noise impacts would occur. Modeled source levels used in the Delta Conveyance Project noise analysis are conservative. Source levels measured during test-pile installation would be representative of construction, and inclusion of measured data would improve the accuracy of the model.

[15] Furnace/heat pump systems are included so that residents can close their windows, reducing interior noise. Homes already with newer systems (installed within the last 8 years) would not qualify for replacement.

[16] The program would be done in coordination with Mitigation Measure AQ-6: *Avoid Residential Exposure to Localized Diesel Particulate Matter*.

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A daytime exceedance would occur if on-site equipment or truck noise during daytime hours (7:00 a.m. to 10:00 p.m.) is measured to exceed a daily average of 60 dBA 1-hour L_{eq} for a period of more than 3 days in any 14-day period, or a daily average of 70 dBA 1-hour L_{eq} for a period of more than 1 day in any 14-day period. A nighttime exceedance would occur if on-site equipment or truck noise during nighttime hours (10:00 p.m. to 7:00 a.m.) is measured to exceed a daily average of 50 dBA 1-hour L_{eq} for a period of more than 3 days in any 14-day period.

In the event of an exceedance, DWR will contact affected residents to offer short-term (or long-term, if preferred) relocation assistance and/or measures stated above for the duration of the time construction is expected to exceed the specified levels. To reduce the significance of Impact NOI-1 due to construction noise, this measure would require voluntary participation of all property owners of residences affected by project-related construction noise.

Best Noise Control Practices

- *Construction hours.* Construction activities will be restricted to certain hours of the day.
  - Pile driving will be limited to the hours between 7:00 a.m. and 7:00 p.m.
  - Construction will not occur during nighttime hours (10:00 p.m. to 7:00 a.m.), except for concrete pours, which, when they occur, will be done on a 24-hour basis as required at each new facility.[17]
  - Off-site haul truck trips on local roads will be limited to the hours between 7:00 a.m. and 7:00 p.m., except for 24-hour concrete deliveries during continuous pours.
  - Where workplace safety standards allow, dedicated backup monitors will be used instead of backup beepers on heavy equipment between 10:00 p.m. and 7:00 a.m.
- *Noise shrouds for pile drivers.* Shrouds will be used to reduce noise from pile driving. A shroud or noise blanket of sufficient mass installed on pile-driver scaffolding is effective as a noise-reduction method for noise from impact hammers or vibratory pile drivers. A noise blanket has been shown to reduce pile hammer noise by 8 to 23 dBA (Teachout and Cushman 2005:8; Washington State Department of Transportation 2018:7-13).
- *Implementation of Quiet Zones around work areas.* Construction work areas will include signage indicating areas that will be operated as "Quiet Zones." These signs will be located within areas where residences are more likely to be affected by noise from heavy equipment or trucks. Quiet Zones will limit truck idling time and require shut down of equipment (no idling). The zone will end at a distance approximately 700 feet from the nearest residence.[18]
- *Installation of enclosures around noise-generating equipment.* If there are one or more dominant sources of noise in fixed locations where enclosures make a noticeable difference in overall ambient levels, then the use of this measure will be appropriate. This measure will substantially reduce levels from a single piece of equipment in a fixed location, such as a generator or ventilation fan. The achievable amount of noise reduction relative to a receptor will vary depending on the enclosure type and the location of equipment. For a given piece of equipment, sound reductions from an enclosure or silencer will typically be in the range of 8 to 25 dBA.

Installation of Temporary Sound Barriers at Work Areas

In the event of an exceedance during sound-level monitoring as defined above, a temporary sound barrier will be used to reduce noise from work areas where it is determined that use of barriers would be effective to reduce noise levels at sensitive receptor locations. A barrier of sufficient dimensions can effectively reduce noise from heavy equipment activity occurring at a construction site to levels below

[17] The total durations of continuous pours would range from 1 week to 4 months and are specified for each facility under Impact NOI-1. Pours at a given facility would not be consecutive over the total duration specified for nighttime pours.

[18] This is the distance where heavy equipment noise is expected to be 60 dBA 1-hour L_{eq} or lower, according to modeling.

MM #	Title	Mitigation Measure Text	Timing	Implementation Action	Reporting Schedule	Implementation Party	Implementation Mechanism	Participating or Permitting Organizations	Impact # and Impact Title
		daytime and nighttime noise level criteria at sensitive receptors.							
MM PALEO-1a	Prepare and Implement a Monitoring and Mitigation Plan for Paleontological Resources	1. Before ground-breaking construction begins, DWR will retain a qualified professional paleontologist (as defined by the SVP Standard Procedures [Society of Vertebrate Paleontology 2010:10]) to develop a comprehensive Paleontological Resources Monitoring and Mitigation Plan (PRMMP) for the project, to help avoid destroying unique paleontological resources. 2. The PRMMP will be consistent with the SVP Standard Procedures (Society of Vertebrate Paleontology 2010) and the SVP Conditions of Receivership (Society of Vertebrate Paleontology 1996:1,2) and will require the following: a. *Paleontological qualifications:* A paleontological resources specialist (PRS) will be designated or retained for construction activities. The PRS will have paleontological resources management qualifications consistent with the description of a qualified professional paleontologist in the SVP Standard Procedures (Society of Vertebrate Paleontology 2010). The PRS will be responsible for implementing all aspects of the PRMMP, managing any additional paleontological monitors needed for construction activities, and serving as a qualified resource in the event of unanticipated paleontological finds. The PRS may, but need not necessarily, be the same individual who prepared the PRMMP. b. *Preconstruction surveys:* Preconstruction surveys (with salvage and/or protection in place, as appropriate) will be conducted in areas where construction activities would result in surface disturbance of geologic units identified as highly sensitive or undetermined for paleontological resources. The PRS will be responsible for determining where and when paleontological resources monitoring would be required prior to breaking ground. c. *Coordination procedures and communications protocols:* Preconstruction and construction-period coordination procedures and communications protocols will be established, including procedures to alert all construction personnel involved with earthmoving activities about the possibility of encountering fossils as set forth in Mitigation Measure PALEO-1b and communications regarding the *stop work, evaluate and treat appropriately response* in the event of a paleontological discovery, as described in "e" below. d. *Monitoring:* All ground-disturbing activities involving highly sensitive units will be monitored by qualified monitors (as defined by the SVP Standard Procedures [Society of Vertebrate Paleontology 2010:10]). Monitoring will initially be conducted full time for grading and excavation in those areas identified by the PRS as having potential to damage paleontological resources, but the PRMMP may provide for monitoring frequency in any given location to be reduced once 50% of the ground-disturbing activity in that location has been completed, if the reduction is appropriate based on the implementing PRS's professional judgment in consideration of actual site conditions. The PRS will have the authority to stop work if paleontological resources are discovered and as described in "e" below. e. *Stop work, evaluate, and treat appropriately when a unique or significant fossil is encountered:* DWR will require that if potentially unique or significant fossil remains are discovered during ground-disturbing activities, the construction crew will be directed to immediately cease work in the vicinity of the find and notify the PRS, consistent with the PRMMP described under Mitigation Measure PALEO-1a. f. *Sampling and data recovery procedures:* Sampling and data recovery procedures that are consistent with the SVP Standard Procedures (Society of Vertebrate Paleontology 2010) and the SVP Conditions of Receivership (Society of Vertebrate Paleontology 1996:1,2) will be established. g. *Repository plan and curation:* A repository plan will be developed that provides for appropriate curation of recovered materials, if necessary.	Preconstruction; Construction; Postconstruction	Contract Requirements; Compliance Reporting; Surveying; Monitoring; Reporting; Remediation	Interim reporting during construction; Final report after construction concludes	Paleontological Resource Specialist; Professional Geologist; Qualified Professional Paleontologist	Condition of Design Documents and Construction Contract	N/A	Impact PALEO-1: Cause Destruction of a Unique Paleontological Resource as a Result of Surface Ground Disturbance

MM #	Title	Mitigation Measure Text	Timing	Implementation Action	Reporting Schedule	Implementation Party	Implementation Mechanism	Participating or Permitting Organizations	Impact # and Impact Title
		Procedures for preparing, identifying, and analyzing fossil specimens and data recovered will be established, consistent with the SVP Conditions of Receivership (Society of Vertebrate Paleontology 2010) and any specific requirements of the designated repository institution. h. *Reporting:* Mitigation monitoring report preparation guidelines will be established that are consistent with the SVP Standard Procedures guidelines (Society of Vertebrate Paleontology 2010) and approved by DWR. The report will include, at a minimum, discussions of effects, regulatory requirements, purpose of mitigation, regional geologic context, project area stratigraphy, stratigraphic and geographic distribution of paleontological resources, field and laboratory methods and procedures, fossil recovery, and paleontological significance. The report will also include geological cross sections and stratigraphic sections depicting fossil discovery localities and excavated rock units; maps showing the activity location and vicinity, as well as geology and location of discovered fossil localities; appropriate illustrations depicting monitoring conditions, field context of collecting localities, and laboratory activities; and appendices including an itemized listing of catalogued fossil specimens, complete descriptions of all fossil collecting localities, an explanation of report acronyms and terms, and a signed curation agreement with an approved paleontological repository. i. *90% design submittal for project elements requiring excavation:* DWR will have a qualified individual review the 90% design submittals to finalize the identification of construction activities involving geologic units considered highly sensitive for paleontological resources for the purpose of determining monitoring location and schedule. Evaluation will consider the anticipated depth of disturbance, the selected construction technique, and the geology of the alignment. The evaluation may be carried out by the PRS or an individual meeting the SVP's requirements for a qualified professional paleontologist (per Society of Vertebrate Paleontology 2010) and will be conducted in collaboration with the design and geotechnical teams. If the evaluation is performed by a professional paleontologist, it will be reviewed and verified by a California-licensed professional geologist. The purpose of this evaluation will be to develop specific language identifying how the mitigation measures will be applied to the various phases of construction along the alignment (e.g., which areas would require monitors). This measure will require that unique or significant paleontological resources identified during surface excavation are protected from destruction or treated and documented appropriately to preserve their scientific value. Unique paleontological resources will be systematically identified, documented, avoided, or protect from destruction, where feasible, or recovered and curated so they remain available for scientific study.							
MM PALEO-1b	Educate Construction Personnel in Recognizing Fossil Material	1. DWR will require that all construction personnel receive training provided by a qualified professional paleontologist experienced in teaching non-specialists, so they can recognize fossil materials in the event any are discovered during construction. Training will include information on the possibility of encountering fossils during construction, the types of fossils likely to be seen and how to recognize them, and proper procedures in the event fossils are encountered. All field management and supervisory personnel and construction workers involved with ground-disturbing activities will be required to take this training prior to beginning work. Training materials will include an informational brochure that provides contacts and summarizes procedures in the event paleontological resources are encountered. This measure will help ensure that unique or significant paleontological resources have a better likelihood of being identified during construction so they can be temporarily avoided or immediately treated, as appropriate.	Preconstruction; Construction	Contract Requirements; Training	As needed	Construction personnel; Qualified Professional Paleontologist; Contractor(s)	Condition of Design Documents and Construction Contract	N/A	Impact PALEO-1: Cause Destruction of a Unique Paleontological Resource as a Result of Surface Ground Disturbance

MM #	Title	Mitigation Measure Text	Timing	Implementation Action	Reporting Schedule	Implementation Party	Implementation Mechanism	Participating or Permitting Organizations	Impact # and Impact Title
MM PH-1a	Avoid Creating Areas of Standing Water During Preconstruction Field Investigations and Project Construction	1. DWR will eliminate standing water to reduce potentially suitable mosquito breeding areas at field investigation sites and construction sites (including staging areas). Actions will include, but not necessarily be limited to: a. Avoid leaving containers that can accumulate water in an uncovered or upright position. This includes wheelbarrows, drums, buckets, cans, tarps, and other containers. If uncovered containers must remain on-site, create drainage holes. b. Store building materials under shelter/cover that does not collect water. c. Grade all work areas to drain. d. Fill in potholes and other areas where water is likely to accumulate and/or clear pooled, stagnant water regularly. e. Routinely remove garbage and other debris that may collect water. f. Periodically pump out water from trenches, ditches, or other ground areas where water could accumulate for several days and potentially provide mosquito breeding habitat.	Preconstruction; Construction	Contract requirements	As needed	Contractor(s)	Condition of Design Documents and Construction Contract	N/A	Impact PH-1: Increase in Vector-Borne Diseases
MM PH-1b	Develop and Implement a Mosquito Management Plan for Compensatory Mitigation Sites on Bouldin Island and at I-5 Ponds	1. To aid in vector management and control, DWR will develop and implement a mosquito management plan for the compensatory mitigation sites where freshwater marsh, lake/pond, riparian, or seasonal wetland habitat is created/enhanced on Bouldin Island and at the I-5 Ponds. Bouldin Island and the I-5 Ponds are located in San Joaquin County and thus DWR will consult with the San Joaquin County MVCD with respect to habitat creation and enhancement activities at these locations. Consultation will include, but may not be limited to, review of the mosquito management plan and best management practices (BMPs) to be implemented at the compensatory mitigation sites, review of proposed mosquito monitoring efforts at the sites, and assistance with monitoring efforts where feasible. In addition, DWR will consult with the San Joaquin County MVCD during all phases of habitat creation and enhancement (i.e., design, implementation, and operations). 2. The Central Valley Joint Venture's Technical Guide to Best Management Practices for Mosquito Control in Managed Wetlands (Kwasny et al. 2004), the California Department of Public Health's Best Management Practices for Mosquito Control in California (California Department of Public Health and the Mosquito and Vector Control Association of California 2012), and other guidelines will be used to help design appropriate habitat creation and enhancement features to the extent feasible, consistent with the biological goals and objectives of the Delta Conveyance Project. 3. The mosquito management plan will address aquatic habitat design considerations, water management practices, vegetation management, biological controls, and habitat maintenance. BMPs included in the mosquito management plan will include (as applicable), but may not be limited to: a. Implement monitoring and sampling programs to detect early signs of mosquito population problems. b. Implement freshwater habitat management to include water-control-structure management, vegetation management to reduce mosquito production, mosquito predator management, drainage improvements, and coordination with California Department of Fish and Wildlife regarding these strategies and specific techniques to help minimize mosquito production. c. Maintain permanent ponds that increase the diversity of waterfowl yet decrease the introduction of vectors through constant circulation of water, vegetation control, and periodic draining of ponds. d. Utilize water sources with mosquito predators (e.g., mosquito-eating fish or invertebrate predators) for flooding. e. Manage vegetation routinely; activities such as annual thinning of rushes and cattails and removing excess vegetative debris enables natural predators to hunt mosquito larvae more effectively in permanent wetlands.	Preconstruction; Construction	Contract requirements; Design; Monitoring	As needed	Contractor(s); DWR	Condition of Design Documents and Construction Contract	San Joaquin County MVCD	Impact PH-1: Increase in Vector-Borne Diseases

MM #	Title	Mitigation Measure Text	Timing	Implementation Action	Reporting Schedule	Implementation Party	Implementation Mechanism	Participating or Permitting Organizations	Impact # and Impact Title
		Vegetation in shallow, temporary wetlands can be mowed when dry. f. Time flooding of seasonal wetlands to reduce overlap with peak mosquito activity. g. Excavate deep channels or basins to maintain permanent water areas (>2.5 feet deep) within a portion of seasonal managed wetlands. This provides year-round habitat for mosquito predators that can inoculate seasonal wetlands when they are irrigated or flooded. h. Provide adequate water control structures for complete drawdown and rapid flooding. i. When possible, include independent inlets and outlets in the design of each wetland unit. j. Construct or enhance swales so they are sloped from inlet to outlet and allow maximum drawdown. k. Use biological agents, such as mosquito fish (*Gambusia affinis*), to limit larval mosquito populations. l. Use larvicides and adulticides, as necessary, in compliance with all applicable federal and state regulations (e.g., Clean Water Act, Endangered Species Act). Use only larvicides and adulticides that are currently registered by the California Department of Pesticide Regulation. These pesticides will be applied only by trained personnel and according to label directions.							
MM SOILS-5	Conduct Site-Specific Soil Analysis and Construct Alternative Wastewater Disposal System as Required	At each proposed wastewater disposal system site, a site-specific analysis of soil characteristics and groundwater conditions will be conducted to determine the soil saturated hydraulic conductivity, depth to seasonal high water table, and other factors that affect the suitability of the site for use for on-site wastewater disposal. Should a site analysis determine that a conventional disposal system could fail, an alternative wastewater disposal system, such as a mound system or a pressure-dosed mound system, would be required. The components of on-site wastewater systems typically consist of a septic tank for pretreatment, a pump with a small diameter pipe network, and an absorption area (also known as a leach field). A mound-type leach field consists of an elevated mound of suitable imported soil that is constructed atop the native soil to provide 1 to 2 feet of treatment media (i.e., suitable soil), in which distribution drain lines are installed in trenches. The imported soil used to form the mound is unsaturated and allows soil microbes to feed on the waste and nutrients in the wastewater, thereby effectively treating the wastewater before it percolates into the underlying native soil and groundwater. In a pressure-dosed mound system, the wastewater is dispersed into imported fill soil consisting of rapidly permeable sands that contain a high volume of free air within the pore space. This mitigation measure, where necessitated at a particular proposed wastewater disposal system site, will reduce the impact to a less-than-significant level by requiring construction contractors to provide soil material of sufficient thickness and permeability that is an adequate distance from the groundwater level to ensure that the effluent is treated and does not contaminate groundwater. This mitigation measure would not result in an impact.	Preconstruction; Construction	Contract Requirements; Surveying; Design	As needed	Contractor(s)	Condition of Design Documents and Construction Contract	RWQCBs; County Environmental Health Agencies	Impact SOILS-5: Have Soils Incapable of Adequately Supporting the Use of Septic Tanks or Alternative Wastewater Disposal Systems Where Sewers Are Not Available for the Disposal of Wastewater
MM TCR-1a	Avoidance of Impacts on Tribal Cultural Resources	DWR will construct the project in a manner that avoids physically disturbing character-defining features of the Delta TCL by conducting preconstruction surveys to verify the extent of character-defining features of the Delta TCL and coordinating with affiliated Tribes and the project engineering design team to modify project-related construction activities, facilities, or both, to avoid physically disturbing character-defining features of the Delta TCL to the extent feasible, and if complete avoidance is not feasible, to minimize the physical disturbance to the greatest extent feasible. Efforts have been made during project planning to identify locations where construction activities have the potential to damage known ethnohistorical or archaeological locations and to assess the feasibility of adjusting the project locations to avoid physical disturbance of a known ethnohistorical or archaeological location. For example, access roads related to one or more of the north Delta intakes	Preconstruction	Consultation; Surveying	As needed	Project Engineers/Project Engineering Design Team; Contractor(s); DWR	Condition of Design Documents and Construction Contract	Affiliated Tribes	Impact TCR-1: Impacts on the Delta Tribal Cultural Landscape Tribal Cultural Resource Resulting from Construction, Operations, and Maintenance of the Project Alternatives; Impact TCR-2: Impacts on Individual Tribal Cultural Resources Resulting from Construction, Operations, and Maintenance of the Project Alternatives

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		are in proximity to known mound sites. The project design team deemed that relocation of access roads to a safer distance away from the known sites (i.e., changing the location of the roads to avoid physical disturbance) would be feasible, and could be a realistic solution to avoid this impact. However, the exact location and extent of impacts on character-defining features of the Delta TCL are unclear due to the lack of confirmation of the extent of resource boundaries, as described in this chapter. Therefore, the first step in avoidance of impacts through adjusting the design will be to field-verify the extent of the resource relative to the proposed project activity and determine avoidance options. Based on Tribal consultation and input from the engineering design team, DWR has concluded that avoidance at certain locations of known archaeological resources is feasible through collaboration with Tribes during the project design phase. For example, many consulting Tribes raised a concern with DWR about a known archaeological site near Intake B that is a character-defining feature of the Delta TCL. The physical extent had not been confirmed through site surveys in many decades, but based on previous mapping and consultation with the Tribes regarding potential protective buffers, the engineering design team developed options for feasible avoidance near Intake B that both DWR and consulting Tribes agreed would likely avoid impacts. DWR will coordinate with affiliated Tribes to inform project design refinements to avoid or minimize, whenever feasible, physical disturbances to character-defining features, such as Native American archaeological resources, village sites, ceremonial locations, and other character-defining features that may be physically affected by project related activities. Through the continuing collaborative process used during consultation, DWR and consulting Tribes discussed an avoidance strategy which DWR will implement that includes the following steps: 1. Where Native American archaeological resources, ceremonial sites, or other character-defining features have been identified, DWR will conduct site-specific surveys, in coordination with affiliated Tribes, to delineate the resource boundaries and inform further design refinements for avoidance. 2. Based on the results of the site-specific surveys, DWR will design or redesign project facilities to avoid Native American archaeological resources, ceremonial sites, or other character-defining features to the greatest extent possible, while still practicably meeting the purpose of the facility.							
MM TCR-1b	Plans for the Management of Tribal Cultural Resources	1. DWR will construct the project in a manner that avoids physically disturbing Tribal cultural resources when feasible and, if complete avoidance is not feasible, implement other resource-specific treatment measures that minimize or mitigate the physical disturbance to Tribal cultural resources. This mitigation measure will be implemented through the development of a Tribal Cultural Resources Management Plan (TCRMP) subject to review and approval by DWR's Archaeologist. DWR will prepare a TCRMP prior to field investigations and construction activities to guide continued consultation, refinement of resource identification, and procedures for developing resource-specific treatment to be conducted prior to and during construction activities. The TCRMP will describe procedures for avoiding, minimizing, and mitigating project impacts on known or potential Tribal cultural resources. The TCRMP will be developed during the permitting and design process and will be adopted within 2 years of certification of the EIR. Preparers of the TCRMP will meet professional qualification standards established in the Secretary of the Interior's Professional Qualification Standards for cultural resources disciplines (history, archaeology, and/or architectural history). DWR will coordinate with the Tribes that participated in consultation on the project to ascertain whether they have standard procedures that may be applicable or other input on the content of the TCRMP. The Tribes will be afforded an opportunity to review and comment on the draft TCRMP. The TCRMP will include procedures for the following: a. Tribal Consultation	Preconstruction	Contract Requirements	As needed	Tribal Monitors; Archaeologist; DWR	Condition of Design Documents and Construction Contract; Condition of Plan	Affiliated Tribes	Impact TCR-1: Impacts on the Delta Tribal Cultural Landscape Tribal Cultural Resource Resulting from Construction, Operations, and Maintenance of the Project Alternatives; Impact TCR-2: Impacts on Individual Tribal Cultural Resources Resulting from Construction, Operations, and Maintenance of the Project Alternatives

MM #	Title	Mitigation Measure Text	Timing	Implementation Action	Reporting Schedule	Implementation Party	Implementation Mechanism	Participating or Permitting Organizations	Impact # and Impact Title
		b. Principles and Procedures for the Identification of Tribal Cultural Resources c. Developing Resource-Specific Treatment d. Native American Burial Treatment e. Post-Review Discovery f. Tribal Monitoring 2. The TCRMP will be prepared in consultation with culturally affiliated Tribes, including co-creation of the procedures for ongoing consultation regarding implementation of the TCRMP as well as development of other project implementation documents and plans. DWR is committed to continuing Tribal consultation throughout construction of the project to provide culturally affiliated Tribes the opportunity to review and comment on future, yet to be developed, documents developed for construction and mitigation of the project, as applicable. This consultation will include implementation of specific construction elements and mitigation components, in which culturally affiliated Tribes have expressed interest in coordinating with DWR. At a minimum, DWR will facilitate quarterly meetings with culturally affiliated Tribes to provide project updates and discuss opportunities for Tribal participation in aspects of project construction and mitigation measure implementation, including development of compensatory mitigation site-specific performance monitoring and management plans and adaptive management plans. The purpose of these meetings will be to clearly identify coordination opportunities and roles for culturally affiliated Tribes to participate in implementation of the project. DWR is also committed to coordinating with Tribes regarding the long-term operations and maintenance of the Delta Conveyance Project. 3. DWR will construct the project in a manner that avoids physically disturbing archaeological resources that are character-defining features of the Delta TCL when feasible and, if complete avoidance is not feasible, implement other resource-specific treatment measures that minimize or mitigate the physical disturbance of these character-defining features. This mitigation measure will be implemented through the development of an Archaeological Resources Management Plan (ARMP) subject to review and approval by DWR's Archeologist. Native American archaeological resources that are character-defining features of the Delta TCL will be subject to Chapter 19, *Cultural Resources*, Mitigation Measure CUL-3a: *Prepare and Implement an Archaeological Resources Management Plan* with additional recognition of their role as part of the Delta TCL. As described in Mitigation Measure CUL-3a, the ARMP will include procedures for archaeological resources phased identification, archaeological treatment, post-review discovery, and archaeological monitoring. In accordance with (1)(a) of Mitigation Measure CUL-3a, DWR will consult with affiliated Tribes regarding the methods for identification, treatment, post-review discovery, and monitoring during the preparation of the ARMP and incorporate Tribal input into the ARMP to the greatest extent practicable. Tribes will be afforded an opportunity to review and comment on the draft ARMP. The ARMP will reiterate DWR's commitment to avoidance for Native American archaeological resources in accordance with Mitigation Measure TCR-1a: *Avoidance of Impacts on Tribal Cultural Resources.* DWR recognizes that different affiliated Tribes may have different preferences about the approach for identification or treatment of Native American archaeological resources, and thus application of the ARMP for one location may differ from application at another location. Some examples of resource identification methods recommended by affiliated Tribes include: a. Canine forensic surveys b. Intensive pedestrian surveys							

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		c. Light detection and ranging (LiDAR) imagery analysis d. Geophysical studies, such as the use of ground-penetrating radar e. Subsurface investigations (which may include excavation of test pits) Where Native American archaeological resources cannot be avoided through implementation of Mitigation Measure TCR-1a, other treatment measures will be applied as defined in the TCRMP. Such treatment measures may include those listed in Mitigation Measure TCR-1c(4)(a)–(f), or others that are developed through consultation with culturally affiliated Tribes as set forth in the TCRMP. 4. For Native American archaeological resources where burials have been identified, DWR will implement burial treatment plans as described in Mitigation Measure CUL-5: *Follow State and Federal Law Governing Human Remains If Such Resources Are Discovered during Construction*. DWR will implement these plans prior to, during, and following construction, depending on how the treatments are described in the final ARMP or burial treatment plan(s). As part of the burial treatment plans, DWR will provide access to designated land to the affiliated Tribe (or most likely descendant), in perpetuity, for repatriation of disturbed cultural materials associated with burials.							
MM TCR-1c	Implement Measures to Restore and Enhance the Physical, Spiritual, and Ceremonial Qualities of Affected Tribal Cultural Resources	DWR will construct the project in a manner that minimizes the material impairment of the physical, spiritual, and ceremonial qualities of the character-defining features of the Delta TCL; however, because this may not be feasible in all cases, mitigation will be implemented for unavoidable impacts. Through consultation with Tribes, DWR has identified mitigation measures for the material impairment of the physical, spiritual, and ceremonial qualities of character-defining features of the Delta TCL. For character-defining features of the Delta TCL that would be materially impaired by construction activities DWR will: 1. Provide affiliated Tribes the opportunity to participate in surveys for all project footprint locations. DWR will provide Tribes with Tribal survey forms to document site-specific information the Tribe wishes to share with DWR. 2. Allow affiliated Tribes to monitor ground-disturbing construction activities with surface effects. 3. Develop Tribal resources awareness training in coordination with affiliated Tribes to support avoidance and protection of character-defining features. Prior to the start of ground disturbance, a mandatory Tribal resource awareness training will be provided for all personnel involved in ground-disturbing work. DWR will maintain the record of training and make it available, upon request. 4. Support Tribal stewardship activities through funding and access opportunities, to be defined in coordination with affiliated Tribes, that allow Tribes to restore land and develop conservation projects. Techniques may include: a. Providing funding to develop conservation projects that allow Tribes to reintroduce ancestral languages. b. Facilitating access agreements, as appropriate, for restored areas. c. Restoring traditional use areas and restoration of plants and animals affected by the project (see Mitigation Measure TCR-1d for additional information on Tribal involvement of planned restoration activities for mitigation for project impacts). d. Promoting access to areas where Tribes can continue to conduct their ceremonial practices. e. Providing funding for the development of indigenous science by establishing education programs and scholarships; and support of academic programming development in selected academic institutions. f. Supporting co-management partnerships for access to state lands currently not publicly accessible.	Construction	Contract Requirements; Monitoring; Funding; Restoration	As needed	DWR	Condition Prior to Resource Impacts or Disturbance; Condition of Design Documents and Construction Contract	Affiliated Tribes	Impact TCR-1: Impacts on the Delta Tribal Cultural Landscape Tribal Cultural Resource Resulting from Construction, Operations, and Maintenance of the Project Alternatives; Impact TCR-2: Impacts on Individual Tribal Cultural Resources Resulting from Construction, Operations, and Maintenance of the Project Alternatives

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MM TCR-1d	Incorporate Tribal Knowledge into Compensatory Mitigation Planning (Restoration)	DWR will construct the project in a manner that avoids or minimizes the material impairment of the physical, spiritual, and ceremonial qualities of the species habitat character-defining features of the Delta TCL, to the extent feasible, by incorporating Tribal knowledge into the CMP. While the CMP (Appendix 3F) was developed to address impacts on habitat for special-status species and aquatic resources, the objectives and restoration actions described in the plan would also mitigate for impacts on the plant and animal species habitats that are character-defining features of the Delta TCL. By restoring character-defining habitat features, the CMP would mitigate the project's impact on the physical, spiritual, and ceremonial qualities of these character-defining features. 1. In addition, to ensure the character-defining feature aspects of the species habitat are also considered and addressed in the CMP (such as Tribal spiritual connection to the landscape or specific ceremonial locations) DWR will seek and incorporate Tribal knowledge, including Tribal Ecological Knowledge (sometimes referred to as TEK), into restoration planning, as follows: a. Facilitate a scoping workshop between the technical authors of the CMP, and plans identified therein, and affiliated Tribes for the purpose of orienting the Tribes to the objectives of the plan, presenting baseline data that is either known or being developed for the plan, requesting input from the Tribes, and sharing the schedule for preparation and implementation of the site-specific plans. b. Invite affiliated Tribes to participate in field visits conducted as a part of restoration planning. c. Clearly identify the future role for affiliated Tribes to participate in implementation of the plan. d. Provide affiliated Tribes the opportunity to review and comment on mitigation site designs and management plans. e. Provide a copy of the final mitigation site designs and management plans to all affiliated Tribes who participated in plan development. 2. DWR will mitigate the material impairment of spiritual and ceremonial qualities of the character-defining features of the Delta TCL by facilitating Tribal access to habitat restoration areas constructed as mitigation for project impacts to species habitats. Access to these habitat restoration areas would mitigate for the material impairment of spiritual and ceremonial qualities of the character-defining features including species habitats, views and vistas, and waterways that are character-defining features of the Delta TCL. DWR will facilitate the development of access agreements as noted above, and will discuss feasible opportunities for access to restored areas—with approval from the fish and wildlife regulatory agencies—for ceremony and other spiritual practices, as well as collecting and gathering of resources for traditional uses.	Construction	Contract Requirements	As needed	DWR	Condition of Plan	Affiliated Tribes; CDFW; USFWS	Impact TCR-1: Impacts on the Delta Tribal Cultural Landscape Tribal Cultural Resource Resulting from Construction, Operations, and Maintenance of the Project Alternatives; Impact TCR-2: Impacts on Individual Tribal Cultural Resources Resulting from Construction, Operations, and Maintenance of the Project Alternatives
MM TCR-2	Perform an Assessment of Significance, Known Attributes, and Integrity for Individual CRHR Eligibility	Efforts have been made during Tribal consultation to identify individual Tribal cultural resources. DWR considered whether any of the character-defining features of the Delta TCL, such as biological species habitats, waterways, archaeological sites, built mound structures, trails, villages, ceremonial places, and cemeteries and burials, possess cultural value separate from what they contribute to the Delta TCL, and established a three-step screening process for identifying which landscape components warranted further CRHR evaluation as potential individual Tribal cultural resources. DWR is committed to continuing Tribal consultation throughout implementation of the mitigation measures and recognizes that during the course of the ongoing consultation, DWR may gain further understanding of the significance of Delta TCL character-defining features, or other resources, that have cultural value to an affiliated Tribe. If this occurs, DWR would reevaluate a character-defining feature, or evaluate a resource, for individual CRHR eligibility using the following three-step assessment of significance, known attributes, and integrity: 1. DWR will assess whether the additional evidence, in the form of Tribal expert opinion shared through consultation, and other relevant data that DWR has	Preconstruction	Evaluation; Assessment	As needed	DWR	Condition of Design Documents and Construction Contract	Affiliated Tribes	Impact TCR-2: Impacts on Individual Tribal Cultural Resources Resulting from Construction, Operations, and Maintenance of the Project Alternatives

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		collected, demonstrates a discrete resource has cultural value (significance) separate and apart from the holistic Delta TCL (though it may also contribute to the landscape). 2. DWR will assess whether the additional evidence, in the form of Tribal expert opinion shared through consultation, and other relevant data that DWR has collected, demonstrates a discrete resource that has demonstrated significance is described and mapped sufficiently for CRHR evaluation. 3. DWR will assess whether the additional evidence, in the form of Tribal expert opinion shared through consultation, and other relevant data that DWR has collected, demonstrates a discrete resource that has demonstrated significance has integrity of its characteristics to convey its cultural value (significance) separate and apart from the holistic Delta TCL (though it may also contribute to the landscape). DWR will continue to assess integrity through a Tribal perspective. If DWR finds that any resources pass all three screening steps, DWR will assess the resources' CRHR eligibility in accordance with Public Resources Code Section 21074(a)(1) and (2). If an individual resource is CRHR eligible, DWR will assess the project's potential effect on the resource to determine whether there would be a substantial adverse change to the resource's independent significance. If the project would cause a substantial adverse change to the individual Tribal cultural resource, DWR will implement Mitigation Measures TCR-1a: *Avoidance of Impacts on Tribal Cultural Resources*, TCR-1b: *Plans for the Management of Tribal Cultural Resources*, TCR-1c: *Implement Measures to Restore and Enhance the Physical, Spiritual, and Ceremonial Qualities of Affected Tribal Cultural Resources*, and TCR-1d: *Incorporate Tribal Knowledge into Compensatory Mitigation Planning (Restoration)* to avoid or reduce the impact.							
MM TRANS-1	Implement Site-Specific Construction Transportation Demand Management Plan and Transportation Management Plan	1. Prior to construction, DWR will require that provisions be included in construction contracts stating that contractors' crews and schedules are to be coordinated to reduce total construction employee VMT during construction periods through the use of park-and-ride lots and carpooling/vanpooling, and that the plans and specifications that are developed as part of the project alternatives design are being followed. The project will also require development of site-specific TDMs and TMPs that address the specific steps to be taken before, during, and after construction to minimize VMT as a result of construction employees driving alone in their single occupancy vehicles to and from park-and-ride lots and construction sites. Construction contractors will be responsible for developing the TDMs and TMPs in consultation with the following applicable transportation entities. ○ Caltrans for state and federal roadway facilities ○ Local agencies for local roadway and intersection facilities (vehicles, pedestrians, and bicyclists) ○ Transit providers ○ Commuter and Freight Rail operators ○ U.S. Coast Guard ○ Federal, California, city, and county parks departments 2. DWR will be responsible for verifying that the TDMs and TMPs are implemented prior to beginning construction at each project feature. If necessary, to minimize unexpected operational and safety related impacts or delays during construction, DWR will also be responsible for modifying the TDMs and/or the TMPs to reduce potential effects identified by the applicable transportation entities identified above throughout the duration of the contract. The following shall be prepared by the contractor(s) and approved by DWR prior to beginning construction at each project feature: a. Develop a TDM plan that will reduce the reliance of construction employees on single occupancy vehicles. The TDM plan shall include the following performance standards: • Incentivize carpooling and vanpooling to and from park-and-ride	Preconstruction; Construction	Contract Requirements; Monitoring; Funding; Reporting	Quarterly; Yearly	Contractor(s); DWR	Condition Prior to Resource Impacts or Disturbance; Condition of Design Documents and Construction Contract	Caltrans; Local agencies; Transit providers; Commuter and freight rail operators; USCG; Federal, California, city, and county parks departments	Impact TRANS-1: Increased Average VMT Per Construction Employee versus Regional Average; Impact HAZ-6: Impair Implementation of or Physically Interfere with an Adopted Emergency Response Plan or Emergency Evacuation Plan; Impact TRANS-3: Substantially Increase Hazards from a Geometric Design Feature (e.g. Sharp curves or Dangerous Intersections) or Incompatible Uses (e.g. Farm Equipment); Impact TRANS-4: Result in adequate Emergency Access; Impact UT-1: Result in Substantial Physical Impacts Associated with the Provision of, or the Need for, New or Physically Altered Governmental Facilities, the Construction of Which Could Cause Significant Environmental Impacts on Public Services Including

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		facilities to achieve the goal of a 25% reduction in single occupancy vehicles. • Require 100% compliance by construction workers to use park-and-ride facilities and transfer to project transit vehicles to travel to and from feature construction sites. • Incentives can include a combination of monetary (i.e., carpool/vanpool gas cards) and non-monetary (i.e., preferential parking spaces and express transit boarding to and from park-and-ride facilities and construction site for employees who carpool/vanpool). • Quarterly and yearly TDM reports will be prepared to quantify the performance toward meeting the goal of 25% reduction in the use of single occupancy vehicles at each of the park-and-ride facilities based on number of passengers compared to vehicles parked. b. Incorporate TDM measure to incentivize the use of alternative travel modes such as transit and bicycling to park-and-ride facilities. • Incentives can include a combination of monetary (i.e., transit passes) and non-monetary (i.e., preferential transit boarding to and from park-and-ride facilities and construction site for employees who use transit). • Quarterly and yearly TDM reports will be prepared to quantify the performance of transit and bicycling to park-and-ride facilities based on surveys on how construction workers arrived at the park-and-ride facilities (drove alone, carpool/vanpool, transit, or bicycling). 3. Each TMP will address the following, as needed. a. Coordination with the affected agency during the construction and operation of the five park-and-ride facilities to be served by alternative fuel vehicles to and from construction sites. • Hood-Franklin Park-and-Ride Lot (Alternatives 1, 2a, 2b, 2c, 3, 4a, 4b, 4c, and 5) • Charter Way Park-and-Ride Lot (Alternatives 1, 2a, 2b, 2c, 3, 4a, 4b, 4c, and 5) • Rio Vista Park-and-Ride Lot (Alternatives 1, 2a, 2b, and 2c) • Byron Park-and-Ride Lot (Alternatives 1, 2a, 2b, 2c, 3, 4a, 4b, and 4c) • Bethany Park-and-Ride Lot (Alternatives 1, 2a, 2b, 2c, 3, 4a, 4b, and 4c) b. Coordination with the affected agency during the construction of the following major road improvements described in Section 20.3.3.3. • Intake haul road (Alternatives 1, 2a, 2b, 2c, 3, 4a, 4b, 4c, and 5) • Twin Cities Complex (Alternatives 1, 2a, 2b, 2c, 3, 4a, 4b, 4c, and 5) • New Hope Tract (Alternatives 1, 2a, 2b, and 2c) • Bouldin Island (Alternatives 1, 2a, 2b, 2c, 3) • Bacon and Mandeville Islands (Alternatives 1, 2a, 2b, and 2c) • New Hope Tract (Alternatives 3, 4a, 4b, 4c, and 5) • Terminous Tract (Alternatives 3, 4a, 4b, 4c, and 5) • Lower Roberts Island (Alternatives 3, 4a, 4b, 4c, and 5) • Southern Complex on Byron Tract (Alternatives 1, 2a, 2b, 2c, 3, 4a, 4b, and 4c) • Southern Complex West of Byron Highway (Alternatives 1, 2a, 2b, 2c, 3, 4a, 4b, and 4c) • Bethany Reservoir Pumping Plant and Surge Basin (Alternative 5) • Bethany Reservoir Aqueduct (Alternative 5) • Bethany Reservoir Discharge Structure (Alternative 5) c. Coordination with the affected agency during the construction of the following shaft site improvements: • New Hope Tract, Staten Island, and Mandeville Island (central							Police Protection, Fire Protection, Public Schools, and Other Public Facilities (e.g., Libraries, Hospitals)

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		alignment alternatives) • New Hope Tract, Canal Ranch Tract, King Island, and Upper Jones Tract (eastern alignment alternatives); and • New Hope Tract, Canal Ranch Tract, King Island, Upper Jones Tract, and Union Island (Bethany Reservoir alignment). d. Notifications in the multiple languages spoken in the Delta for the public, emergency providers, cycling organizations, bike shops, schools, the U.S. Coast Guard, boating organizations, marinas, city and county parks departments, and California Department of Parks and Recreation, where applicable, describing construction activities that could affect transportation and water navigation. e. Alternate access routes via detours, including Americans with Disabilities Act-compliant facilities where required to maintain continual circulation for local travelers in and around construction zones and site access driveways, including bicycle riders, pedestrians, and boaters, where applicable. f. Scheduling for oversized material deliveries to the work site and haul routes during off-peak times. g. Provisions that direct haulers are required to pull over to the side of the road if an emergency vehicle is approaching in either direction. If an emergency vehicle is approaching on a narrow two-way roadway, specify measures to require that construction vehicles use appropriate maneuvers to allow continual access for emergency vehicles at the time of an emergency. h. To eliminate potential hazards from a geometric design, DWR will require that geometric design plans that meet geometric standards be prepared and approved by the applicable transportation entity (i.e., Caltrans, county, or city public works department) for the major road improvements included in the conceptual design of the project alternatives. i. Scheduling closures for road and bridge improvements to nighttime hours and limit closure periods to reduce traffic effects associated with detours. j. Designing park-and-ride lot entrances and exits to avoid construction employee queuing on higher volume roadways, providing adequate turn lanes and signage or signals (if needed) for lot entrances and exits and scheduling park and ride lot arrivals and departures to reduce employee traffic volumes during peak morning and evening commute periods. k. To reduce potential conflicts with existing land uses, DWR will require that staged construction plans, roadway closure reports, and detour plans be prepared for major road improvements and approved by the applicable transportation entity (i.e., Caltrans, county, or city public works department). l. A project information website in the multiple languages spoken in the Delta will be developed to inform residents, business owners, and farmers of provisions that have been implemented to reduce VMT in the study area and forthcoming construction in coordination with events and harvest activities in the Delta. m. The contractor will coordinate with emergency responders to identify routes traditionally used by voluntary responders to access fire stations, and emergency responders to access the communities from the police and fire stations. n. During construction, each week, the contractor will coordinate with emergency responders, including ambulance dispatchers, to identify road construction and high-volume construction traffic events (e.g., during hours of material deliveries). o. During road construction, the contractor will have designated staff monitor emergency response calls with immediate communications with construction crews at every site to facilitate movement of emergency							

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		responders. p. The contractor will post information on a weekly basis on the project information website in the multiple languages spoken in the Delta to inform residents, business owners, and farmers of daily road construction and high-volume construction traffic events (e.g., during hours of material deliveries). q. The contractor will either maintain at least one shoulder along existing access roads to be free of debris or provide detours during short-term, overnight closures (maximum of 2 nights per week) to allow access of fire engines, ambulances, and police cars that need to travel at high speeds. r. During road construction, the contractor will have several steel plates and equipment available at all times to cover trench sites when there is no construction activity (i.e., after hours or weekends) to provide access for emergency responders over temporary excavations.							
MM WQ-4	Contra Costa Water District Interconnection Facility	DWR and Contra Costa Water District entered into a settlement agreement signed and dated July 26, 2023. This mitigation measure is based on the provisions outlined in the settlement agreement, including requiring DWR to convey Contra Costa Water District water through the Delta Conveyance Project facilities to an intertie with existing Contra Costa Water District south Delta water conveyance facilities or assist in facilitation of the diversion of Contra Costa Water District water at the Freeport Intake. The agreement does not increase the total amount of water that Contra Costa Water District would otherwise be entitled to divert. As part of the implementation of this mitigation measure, DWR will construct an interconnection facility between Delta Conveyance Project facilities and existing Contra Costa Water District facilities with a capacity of a minimum of 50 cfs and potentially up to 150 cfs. The minimum annual capacity per Operational Year made available by DWR to Contra Costa Water District will allow 18,000 acre-feet of Contra Costa Water District water supplies to move through the conveyance facilities to the interconnection facility. The interconnection facility would be operated in conjunction with the operation of the Delta Conveyance Project as described in the settlement agreement. As allowed by the settlement agreement, use of the existing East Bay Municipal Water District Freeport Regional Water Authority's Intake (Freeport Intake) may be used by DWR during conditions described in the settlement agreement to convey water to Contra Costa Water District; however, DWR is not required to use the Freeport Intake. The implementation of construction and operation of an interconnection facility by DWR or use of the existing Freeport Intake by DWR will allow water to be conveyed to Contra Costa Water District that meets applicable Bay-Delta WQCP objectives and criteria. This mitigation measure will also allow existing Contra Costa Water District locations (e.g., Contra Costa Water District Pumping Plant #1) to continue to comply with Bay-Delta WQCP objectives and criteria, as expected pursuant to the modeling performed for the operation of the Delta Conveyance Project and with respect to chloride.	Preconstruction; Construction; Operations	Contract Requirements; Construction	As needed	Contractor(s)	Condition of Design Documents and Construction Contract	Contra Costa Water District	Impact WQ-4: Effects on Chloride Resulting from Facility Operations and Maintenance
MM WQ-6	Develop and Implement a Mercury Management and Monitoring Plan	This mitigation measure will be implemented as part of the CMP described further in Appendix 3F. DWR will minimize methylmercury generation and mobilization into the food chain resulting from CMP implementation by developing a Mercury Management and Monitoring Plan (MMMP) to guide tidal habitat siting, design, monitoring, and adaptive management. The MMMP will require evaluation of site-specific conditions to assess whether the creation and existence of new tidal habitats would make the current Delta mercury impairment discernibly worse and will include siting, design, monitoring, and adaptive management elements to minimize conditions within new tidal habitats that may be conducive to the creation or increased availability of methylmercury while still achieving most or all of the desired CMP benefits. The MMMP objective will be to control levels of bioavailable methylmercury within the CMP tidal habitats such that aquatic organisms in waters within the CMP tidal habitats and immediately adjacent waterways that directly exchange water with the tidal habitats will not have measurably higher body burdens compared to those in	Preconstruction	Contract Requirements; Surveying; Design; Monitoring	After completion of activities	Qualified Biologist	Condition of Design Documents and Construction Contract	State Water Board; Central Valley RWQCB	Impact WQ-6: Effects on Mercury Resulting from Facility Operations and Maintenance; Impact BIO-25: Impacts of the Project on Western Pond Turtle; Impact BIO-30: Impact of the Project on the Giant Garter Snake

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		comparable reference locations in the Delta, and thus CMP implementation will not make the current Delta mercury impairment discernably worse. The MMMP will serve as the framework for site-specific mercury management plans to be prepared for each proposed new tidal habitat site that address the MMMP elements (defined below) based on site-specific conditions. Current and ongoing research programs are providing information regarding mercury cycling in tidal wetlands. These include data from the Yolo Wildlife Area Tidal Wetland in the Yolo Bypass, Blacklock Tidal Wetland in Suisun Marsh, North Lindsey Slough Tidal Wetland in the Cache Slough Complex, and the Westervelt Cosumnes River Tidal Wetland east of the confluence of the Cosumnes and Mokelumne Rivers (California Department of Water Resources 2020:7). Several other tidal wetland restoration projects are being planned that will contribute to the available data informing management actions to minimize methylmercury generation and bioaccumulation in tidal wetlands. The CMP ecosystem restoration objectives will be considered throughout the development of the MMMP. **Mercury Management and Monitoring Plan Elements** 1. DWR will retain a qualified water quality specialist, wildlife biologist, or fisheries biologist with expertise in methylmercury management to develop the MMMP. 2. The MMMP will address the following elements to minimize and control measured mercury methylation and methylmercury bioavailability within CMP tidal habitats. a. *Predesign field studies*—The MMMP will define the predesign field studies to be conducted at potential tidal habitat sites to characterize mercury sources and concentrations of mercury, methylmercury, organic carbon, iron, and sulfate in surface water and sediment to inform tidal habitat design and post-restoration monitoring. b. *Siting, design, source control, and management measures*—The MMMP will define tidal habitat siting, design, source control, and management measures to minimize mercury bioaccumulation into the foodweb so that mean tissue mercury concentrations in fish collected within the CMP tidal habitats and immediately adjacent waterways that directly exchange water with the tidal habitats are not significantly greater than mercury tissue concentrations for the same species in similar tidal habitat elsewhere in the Delta. Siting, design, source control, and management measures that will be considered and evaluated in the MMMP will include, but not be limited to, the following. i. Avoid siting tidal habitats in areas that currently have high soil or sediment mercury levels and minimize exposure of mercury-containing soils. ii. Design for favorable water and sediment exchange with adjacent Delta waters to manage elemental mercury input and export of methylmercury over time (Davis et al. 2012:20). iii. Minimize microbial methylation of mercury associated with anoxic or near-anoxic conditions by managing the amount of organic material at a restoration site and dissolved oxygen levels. This can be affected by managing vegetation to reduce this organic carbon source, which fuels mercury methylation by bacteria (California Department of Water Resources et al. 2020:7-1; Alpers et al. 2014:285). iv. Manage vegetation to reduce organic carbon, which fuels mercury methylation by bacteria, by mechanical removal (California Department of Water Resources et al. 2020:7-1; Alpers et al. 2014:285; Windham-Myers et al. 2009:10). v. Minimize seasonal wetting/drying cycles that encourage mercury methylation (California Department of Public Health 2013:12). vi. Minimize drainage through soils where mercury methylation is							

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greatest (Bergamaschi et al. 2011:1369).

vii. Enhance photo-demethylation that converts methylmercury into a biologically unavailable, inorganic form of mercury (California Department of Public Health 2013:2).

viii. Control sediment mobilization into the tidal habitat and Delta waterways if particulates or sediment is determined to be a key source of mercury (California Department of Water Resources et al. 2020:7-1).

ix. Remediate tidal habitat soils with iron to reduce methylation in sulfide rich soils (McCord and Heim 2015:732).

c. *Monitoring*—The MMMP will describe strategies to monitor and collect data to determine how well the design, source control, and management measures are affecting methylmercury concentrations in fish tissue at the new tidal habitats relative to comparable reference locations.

d. *Adaptive management*—The MMMP will describe actions to be taken to further reduce methylmercury concentrations in sediment, the water column, and fish tissues should they be shown to exceed performance standards. Adaptive management strategies will be fully developed as part of the MMMP and will inform future tidal habitat siting and initial and future management actions.

Site-Specific Mercury Management Plans

3. The MMMP will be implemented by DWR through development and implementation of site-specific mercury management plans for each CMP tidal habitat site. Relevant MMMP design elements will be integrated into project-specific designs or an explanation of why a particular element is not applicable to the site will be provided. Where site-specific siting, design, source control, and management measures could limit the ecosystem benefits of CMP tidal habitat, such as by limiting the amount of carbon supplied to the Delta as a whole or by requiring flows inconsistent with the habitat type, discussions among involved resource agencies will be held to resolve such technical issues. In addition to relevant design elements from the MMMP, the site-specific mercury management plans will include the following components.

   a. A review of predicted changes in hydrology at the new tidal habitat site, expected changes in conditions affecting mercury methylation, expected changes in bioavailable methylmercury concentrations, and possible changes in bioaccumulation by fish.

   b. A determination of whether preconstruction sampling for baseline characterization of mercury and methylmercury concentrations in water, sediment, and/or biota is warranted. If this work was recently completed for a comparable reference location, then repeating the preconstruction sampling may not be needed. Decisions will be made on a site-specific basis.

   c. A description of characterization sampling and post-restoration monitoring at each tidal habitat project site that includes a Quality Assurance/Project Plan specifying sampling procedures, analytical methods, data review requirements, data analysis approaches (e.g., statistical tools), and data management and reporting procedures.

Site-Specific Monitoring and Adaptive Management

4. DWR will conduct monitoring at the new tidal habitat sites in accordance with the site-specific mercury management plans.

5. DWR will implement adaptive management based on monitoring results.

   a. Adaptive management will be implemented if monitoring results indicate that tissues of fish collected from within the CMP tidal habitat and immediately adjacent waterways that directly exchange water with the tidal habitat have statistically significant and higher average mercury concentrations than tissues of the same species of fish collected from

MM #	Title	Mitigation Measure Text	Timing	Implementation Action	Reporting Schedule	Implementation Party	Implementation Mechanism	Participating or Permitting Organizations	Impact # and Impact Title
		appropriate reference habitats elsewhere in the Delta. Conversely, if the mean mercury concentrations in fish tissues collected within the CMP tidal habitat and immediately adjacent waterways that directly exchange water with the tidal habitat are not significantly greater than mercury concentrations in tissues of the same species collected from appropriate reference habitats in the Delta, then the new tidal habitat will be determined to not be making the current mercury impairment discernably worse. This statistical analysis serves as a performance standard for this mitigation measure and identifies when adaptive management actions will need to be implemented. This performance standard will be defined as an action level for adaptive management in the site-specific mercury management plans. b. Adaptive management actions will be developed in coordination with the State Water Board and Central Valley RWQCB and based on monitoring findings. Adaptive management actions for newly created tidal habitats could include modifications to the type and frequency of monitoring being conducted and modifications to various ongoing management actions that affect vegetation, water and sediment exchange, dissolved oxygen levels, water depths, and sediment chemistry. Adaptive management actions for future CMP tidal habitats will be based on information gained from newly created tidal habitats and could include modifying criteria for siting future tidal habitats or modifying design criteria that affect tidal and sediment exchange, depth, dissolved oxygen levels, vegetation management, and sediment chemistry. **Oversight and Coordination** 6. DWR will identify a qualified specialist in methylmercury cycling and biological effects who will oversee all aspects of implementing this mitigation measure. The methylmercury specialist will review and approve all mercury and methylmercury-related conclusions and recommendations generated from the tidal habitat component of the CMP, including site-specific mercury management plans. The methylmercury specialist will develop a Quality Assurance/Project Plan to describe all sampling, analyses, and reporting as part of any site-specific mercury management plan. The specialist will also be responsible for integrating new, relevant information generated by research over the course of this program. 7. DWR will develop and implement methylmercury management approaches consistent with the Delta Methylmercury TMDL (Central Valley Regional Water Quality Control Board 2010a:iv, 73, 80, 88, 134, 197) developed to control methylmercury generation and loading in the Delta. The Delta Mercury Control Program in the Central Valley RWQCB WQCP, which establishes an implementation program for the TMDL, states, in part, "In subareas needing reductions in methylmercury, proponents of new wetland and wetland restoration projects scheduled for construction after 20 October, 2011 shall (a) participate in methylmercury Control Studies, or shall implement site-specific study plans, that evaluate practices to minimize methylmercury discharges, and (b) implement methylmercury controls as feasible. New wetland projects may include pilot projects and associated monitoring to evaluate management practices that minimize methylmercury discharges." (Central Valley Regional Water Quality Control Board 2018:4-93) DWR has participated in these studies. **Timing and Phasing** 8. DWR will develop the MMMP prior to siting any CMP tidal habitat. Site-specific mercury management plans will be developed by DWR as part of the design and implementation of individual CMP tidal habitat projects.							

3.2 Table 2. Delta Conveyance Project: Environmental Commitments

EC #	Environmental Commitment(s)	Key Features	Timing	Implementation Action	Reporting Schedule	Implementing Party	Implementation Mechanism	Participating or Permitting Organizations
EC-1	Conduct Environmental Resources Worker Awareness Training	DWR will provide training to field management and construction personnel on the importance of protecting sensitive natural resources (e.g., special-status fish species, wildlife species, plant species, and designated critical and/or suitable habitats for these species) prior to any ground-disturbing activity. Preconstruction training will be conducted so that construction personnel are aware of their responsibilities and the importance of compliance. All trainees will be required to sign a sheet indicating their attendance and completion of environmental training. The signature pages will be provided to California Department of Fish and Wildlife (CDFW), U.S. Fish and Wildlife Service (USFWS), and National Marine Fisheries Service (NMFS), if requested. Construction personnel will be educated on the types of sensitive resources in the project area and the measures required to avoid and minimize impacts on these resources. Materials covered in the training program will include environmental rules and regulations for the specific site requirements for limiting activities to approved work areas, timing restrictions, and avoidance of sensitive resource areas. In general, trainings will include the following components. 1. The need and legal requirements for resource avoidance and protection. 2. Important timing windows for special-status species (i.e., timing of special-status fish migration, spawning, and rearing; wildlife mating, nesting, and fledging; amphibian breeding and dispersal, and plant flowering periods). 3. Identification of listed fish, wildlife, and plant species potentially affected at the worksite, which will depend upon the work to be performed and location of the work. 4. Relevant measures from environmental documents and regulatory permits to be implemented during construction for the protection of covered fish, wildlife, and plant species, depending upon work to be performed and location of the work (i.e., in-water, upland, wetland). 5. Brief discussions of special-status species and natural communities of concern. 6. Boundaries of the work area. 7. Exclusion and construction fencing methods. 8. Roles and responsibilities, including an explanation regarding the authority of biological monitors to stop work as required by permits and/or project approvals. 9. What to do when special-status fish, wildlife, or plants are encountered (including dead, injured, stressed, or entrapped individuals) in work areas. 10. Staking methods to protect resources. 11. Avoidance and minimization commitments. 12. Consequences of violations of the laws and regulations protecting resources. A fact sheet or other supporting materials containing this information will be prepared and distributed to construction supervisors and managers, along with a list of contacts (names, numbers, and affiliations) prior to initiating construction activities. DWR will appoint a representative to be the primary point of contact for any employee or contractor who might inadvertently take[19] a special-status species, or a representative will be identified during the employee education program and the representative's name and telephone number provided to the fish and wildlife agencies. If new construction personnel are added to the project, the contractor will require that the personnel receive the mandatory training and sign a sheet indicating their attendance and completion of the environmental training before starting work. The training sheets for new construction personnel will be provided to CDFW, USFWS, and NMFS, if requested.	Preconstruction; Construction	Training; Avoidance	After completion of training, if requested	Contractor(s); DWR	Condition of Design Documents and Construction Contract	CDFW; NMFS; USFWS

[19] Under Section 9 of the Endangered Species Act, the term *take* means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or to attempt to engage in any such conduct. Take includes the modification of a listed species' designated critical habitat. Under the California Endangered Species Act, *take* refers to mortality or injury of any fish, wildlife, or plant species that has been listed as endangered or threatened or designated as a candidate for listing, but not the modification of habitat for a listed species.

EC #	Environmental Commitment(s)	Key Features	Timing	Implementation Action	Reporting Schedule	Implementing Party	Implementation Mechanism	Participating or Permitting Organizations
EC-2	Develop and Implement Hazardous Materials Management Plans	DWR will require that each project contractor responsible for construction of a project facility or project develop and implement a hazardous materials management plan (HMMP) before beginning construction. Multiple HMMPs will be prepared for the overall project construction activities, each considering site-specific conditions such as hazardous materials present on site and known historic site contamination. A database on known historic instances of contamination and results of any field inspections regarding the presence of hazardous chemicals will be maintained. The HMMPs will provide detailed information on the types of hazardous materials used or stored at all sites associated with the water conveyance facilities (e.g., intake pumping plants, maintenance facilities); phone numbers of applicable city, county, state, and federal emergency response agencies; primary, secondary, and final cleanup procedures; emergency-response procedures in case of a spill; and other applicable information. The HMMPs will include appropriate practices to reduce the likelihood of a spill of toxic chemicals and other hazardous materials during construction and facilities operation and maintenance. A specific protocol for the proper handling and disposal of hazardous materials will be established before construction activities begin, will be implemented during project construction, and will be enforced by DWR. The HMMP will include, but not be limited to, the following measures or practices. 1. Fuel, oil, and other petroleum products will be stored only at designated sites. 2. Hazardous materials containment containers will be clearly labeled with the identity of the hazardous materials contained therein, handling and safety instructions, and emergency contact information. 3. Storage, use, or transfer of hazardous materials in or near wet or dry streams will be consistent with the Fish and Game Code (Section 5650) and/or with the permission of CDFW. 4. Material Safety Data Sheets will be made readily available to the contractor's employees and other personnel at the work site. 5. The accumulation and temporary storage of hazardous wastes will not exceed 90 days. 6. Soils contaminated by spills or cleaning wastes will be contained and removed to an approved disposal site by an appropriately-certified hazardous waste disposal contractor. 7. Hazardous waste generated at work sites, such as contaminated soil, will be segregated from other construction spoils and properly handled, hauled, and disposed of at an approved disposal facility by a licensed hazardous waste hauler in accordance with applicable law and regulations. The contractor will obtain permits required for such disposal. 8. Emergency spill containment and cleanup kits will be located at the work site. The contents of the kit will be appropriate to the type and quantities of chemical or goods stored at the work site. 9. Handling and disposal of roadway materials will follow existing standards and specifications. 10. These steps will be taken when refueling vehicles at construction sites a. Refueling will only occur when employees are present. b. Refueling will be conducted only with approved pumps, hoses, and nozzles. c. All disconnected hoses will be placed in containers to collect residual fuel from the hoses. d. Vehicle engines will be shut down during refueling. e. When refueling is completed, the service truck will leave the project site.	Preconstruction; Construction; Operations	Contract Requirements; Plans; Avoidance	1. Prior to storage, use, or transfer of hazardous materials in or near wet or dry streams 2. As needed for hazardous waste storage, handling, and disposal	Contractor(s); DWR	Condition of Design Documents and Construction Contract	CDFW; DTSC
EC-3	Develop and Implement Spill Prevention, Containment, and Countermeasure Plans	DWR will require that each project contractor responsible for construction of a project facility or project develop and implement a spill prevention, containment, and countermeasure plan (SPCCP) for each project site (typically required to meet state and federal water quality requirements). Multiple SPCCPs will be prepared for project construction activities, each taking into account site-specific conditions. The SPCCPs will be developed in accordance with the regulatory requirements of Title 40 of the Code of Federal Regulations (CFR), Part 112, or the Spill Prevention, Control, and	Preconstruction; Construction; Operations	Contract Requirements; Plans; Avoidance	Immediately in the event of an accidental spill	Contractor(s); DWR	Condition of Design Documents and Construction Contract	National Response Center; RWQCB; Other appropriate regulatory authorities

EC #	Environmental Commitment(s)	Key Features	Timing	Implementation Action	Reporting Schedule	Implementing Party	Implementation Mechanism	Participating or Permitting Organizations
		Countermeasure Rule under the Oil Pollution Act of 1990, which includes requirements for oil spill prevention, preparedness, and response to prevent oil discharges to navigable waters of the United States and adjoining shorelines. The rule requires the preparation, amendment, and implementation of site-specific SPCCPs to prevent and respond to oil discharges that could affect navigable waters. The SPCCPs will be developed and implemented to minimize effects from spills of oil or oil-containing products[20] during project construction and operation. Each SPCC plan will address actions used to prevent spills in addition to specifying actions that will be taken should any spills occur, including emergency notification procedures. The SPCCPs will include the following measures and practices. 1. Discharge prevention measures will include procedures for routine handling of products (e.g., loading, unloading, and facility transfers) (40 CFR § 112.7(a)(3)(i)). 2. Discharge or drainage controls will be implemented such as secondary containment around containers and other structures, equipment, and procedures for the control of a discharge (40 CFR § 112.7(a)(3)(ii)). 3. Countermeasures will be implemented for discharge discovery, response, and cleanup (both the facility's capability and those that might be required of a contractor) (40 CFR § 112.7(a)(3)(iii)). 4. Methods of disposal of recovered materials will comply with applicable legal requirements (40 CFR §112.7(a)(3)(iv)). 5. Personnel will be trained in emergency response and spill containment techniques, and will also be made aware of the pollution control laws, rules, and regulations applicable to their work. 6. Petroleum products will be stored in non-leaking containers at impervious storage sites from which an accidental spill cannot escape. 7. Absorbent pads, pillows, socks, booms, and other spill containment materials will be stored and maintained at the hazardous materials storage sites for use in the event of an accidental spill. 8. Contaminated absorbent pads, pillows, socks, booms, and other spill containment materials will be placed in non-leaking sealed containers until transport to an appropriate disposal facility. 9. When transferring oil or other hazardous materials from trucks to storage containers, absorbent pads, pillows, socks, booms or other spill containment material will be placed under the transfer area. 10. Refueling of construction equipment will occur only in designated areas that will be a minimum of 150 feet from surface waters and other sensitive habitats, such as wetlands. 11. Equipment used in direct contact with water will be inspected daily for oil, grease, and other petroleum products. All equipment must be cleaned of external petroleum products prior to beginning work where contact with water may occur to prevent the release of such products to surface waters. 12. Oil-absorbent booms will be used when equipment is used in or immediately adjacent to waters. 13. All reserve fuel supplies will be stored only within the confines of a designated staging area, to be located a minimum of 150 feet from surface waters and other sensitive habitats, such as wetlands. 14. Fuel transfers will take place a minimum of 150 feet from surface waters and other sensitive habitats, such as wetlands, and absorbent pads will be placed under the fuel transfer operation. 15. Staging areas will be designed to contain contaminants such as oil, grease, fuel, and other petroleum products so that should an accidental spill occur, they do not drain toward receiving waters or storm drain inlets. 16. All stationary equipment will be staged in appropriate staging areas and positioned						

[20] "Oil" includes a variety of petroleum and non-petroleum based substances including gasoline, diesel fuel, motor oil, hydraulic fluid, aviation fuel, oil-based paint, oil-based paint thinner, roofing tar, and petroleum-based solvents.

EC #	Environmental Commitment(s)	Key Features	Timing	Implementation Action	Reporting Schedule	Implementing Party	Implementation Mechanism	Participating or Permitting Organizations
		over drip pans. 17. In the event of an accidental spill, personnel will identify and secure the source of the discharge and contain the discharge with sorbents, sandbags, or other material from spill kits and will contact appropriate regulatory authorities (e.g., National Response Center will be contacted if the spill threatens navigable waters of the United States or adjoining shorelines, as well as other appropriate response personnel). 18. These steps will be taken when refueling vehicles at construction sites. a. Refueling will only occur when employees are present. b. Refueling will be conducted only with approved pumps, hoses, and nozzles. c. All disconnected hoses will be placed in containers to collect residual fuel from the hoses. d. Vehicle engines will be shut down during refueling. e. When refueling is completed, the service truck will leave the project site. Methods of cleanup may include the following. 1. Physical methods for the cleanup of dry chemicals include the use of brooms, shovels, sweepers, or plows. 2. Mechanical methods include, but may not be limited to, the use of vacuum cleaning systems and pumps. 3. Chemical methods include the use of appropriate chemical agents such as sorbents, gels, and foams.						
EC-4a	Develop and Implement Erosion and Sediment Control Plans	DWR will require all contractors prepare and implement erosion and sediment control plans[21] to control short-term and long-term erosion and sedimentation effects and to restore soils and vegetation in areas damaged by construction activities. Multiple erosion and sediment control plans will be prepared for project-related construction activities, each taking into account site-specific conditions such as proximity to surface water, erosion potential, drainage, etc. The plans will include all the necessary CGP requirements regarding erosion control and will specify BMPs for erosion and sediment control that are to be implemented during construction activities. These BMPs will be incorporated into the stormwater pollution prevention plans (SWPPPs) (see EC-4b: *Develop and Implement Stormwater Pollution Prevention Plans*). In addition, to reduce aesthetic impacts, the tops and bottoms of spoils disposal areas will be rounded, and slope faces will be contoured, to create more natural-looking landforms; these will be planted with diverse appropriate native and indigenous vegetation that will also help control erosion. Erosion control measures will include the following. 1. Install physical erosion control stabilization features (hydroseeding with native seed mix, mulch, silt fencing, fiber rolls, sandbags, and erosion control blankets) to capture sediment and control both wind and water erosion. Erosion control may not use netting made with plastic monofilament or similar materials or netting with cross joints that are bound or stitched (such as straw wattles, fiber rolls, or erosion control blankets), which could trap wildlife including snakes or birds. All fiber rolls, straw wattles, and hay bales used within and adjacent to the project site shall be free of nonnative plant materials. Fiber rolls or erosion-control mesh shall be made of loose-weave mesh that is not fused at the intersections of the weave, or other products without welded weaves. 2. Keep emergency erosion-control supplies on-site at all times during construction, and have the contractor(s) use these emergency stockpiles as needed. DWR and/or the contractors will require that supplies used from the emergency stockpiles are replaced within 48 hours. DWR will also require that materials used in construction of erosion control methods will be removed from the work site and properly disposed when no longer needed.	Preconstruction; Construction; Postconstruction	Contract Requirements; Plans; Avoidance	As needed	Contractor(s); DWR	Condition of Design Documents and Construction Contract	State Water Board; RWQCB

[21] An erosion and sediment control plan is typically required for ground-disturbing projects as part of the National Pollutant Discharge Elimination System (NPDES)/SWPPP permitting process (U.S. Environmental Protection Agency 2007), depending on the size of the disturbed area. The Phase II EPA rules would cover project activities with 1 or more acres of ground disturbance.

EC #	Environmental Commitment(s)	Key Features	Timing	Implementation Action	Reporting Schedule	Implementing Party	Implementation Mechanism	Participating or Permitting Organizations
		3. Design grading to be compatible with adjacent areas and minimize potential for disturbance of adjacent terrain and natural land features and minimize erosion in disturbed areas to the extent practicable. 4. Divert runoff away from steep, denuded slopes, or other critical areas with barriers, berms, ditches, or other facilities. 5. To the extent possible, retain native trees and vegetation to help stabilize hillsides, retain moisture, and reduce erosion. 6. Limit construction, clearing of native vegetation, and disturbance of soils to areas of proven stability. 7. To the extent possible, sequence clearing of native vegetation and disturbance of soils to minimize overall time of soil disturbance. 8. Implement construction management and scheduling measures to avoid exposure and mitigate erosion from rainfall events, runoff, or flooding at construction sites, to the extent feasible. 9. Conduct frequent site inspections (before, during, and after significant storm events) to confirm that control measures are intact and working properly and to correct problems as needed. 10. Install runoff and drainage control features (e.g., berms and swales, slope drains) as necessary to avoid and minimize erosion. 11. Install wind erosion control features (e.g., application of hydraulic mulch or bonded fiber matrix). 12. Watertight forms and other containment structures will be used to prevent spills or discharge of raw concrete, wash water, and other contaminants from entering surface waters and other sensitive habitats during overwater activities (e.g., casting of barge decks). Sediment control measures will include the following. 1. Use sediment ponds, silt traps, wattles, berms, barriers, physical treatment facilities, or similar measures to slow water velocity and retain sediment transported by on-site run on or runoff. 2. Collect and direct surface run on and runoff at non-erosive velocities to on-site treatment facilities for storage and reuse as needed with controlled flows and velocities to drainage courses. 3. When ground-disturbing activities are required adjacent surface water, wetlands, or aquatic habitat, use sediment and turbidity barriers, treatment facilities, soil stabilization, and revegetation of disturbed surfaces. 4. Prevent mud from being tracked onto public roadways by installing gravel on primary construction ingress/egress points, rumble plates, and/or truck tire washing. 5. Deposit or store excavated materials away from drainage courses and apply soil stabilization materials if left in place for more than 5 days or storm events are forecast within 48 hours. After construction is complete, site-specific restoration efforts will include grading, post construction BMPs for erosion control, and revegetation. Self-sustaining, local native plants that require little or no maintenance and do not create an extreme fire hazard will be used. All disturbed areas will be graded, recontoured to pre-project contours, as feasible, and seeded with a native seed mix. Consideration will also be given to additional replacement of or upgrades to drainage facilities to avoid and minimize erosion. Paved areas damaged by construction activities will be repaved to avoid erosion due to pavement damage. Once post construction BMPs are constructed and revegetation is appropriately established, a Notice of Termination will be filed with the State Water Board. DWR will apply for a long-term SWPPP permit with the Central Valley Water Board for operations of the intake, tunnel shaft, and Southern Complex or Bethany Complex sites that will include long-term erosion control plans.						

EC #	Environmental Commitment(s)	Key Features	Timing	Implementation Action	Reporting Schedule	Implementing Party	Implementation Mechanism	Participating or Permitting Organizations
EC-4b	Develop and Implement Stormwater Pollution Prevention Plans	Project activities that disturb 1 or more acres of land have the potential to alter stormwater runoff. This includes project activities that require excavation, grading, or stockpiling material at project sites, which could result in temporary and/or permanent changes to drainage patterns, paths, and facilities that would, in turn, cause changes in drainage flow rates, directions, and velocities of runoff, or constituents of runoff. Construction sites for the intakes, tunnel shafts, concrete batch plants, Southern Complex, and Bethany Complex would include facilities to capture and divert all runoff, dewatering, and decant flows (from soil material storage areas) to on-site treatment facilities for direct on-site reuse or on-site storage. If these flows exceed the on-site reuse demand or storage capacities, the treated water would be discharged into adjacent water bodies. Construction sites for access roads and installation activities for electrical and SCADA connections would include methods described in this section to protect water quality of adjacent water bodies.[22] DWR will require that the construction contractors implement measures, as described below, as part of the construction activities and in advance of any necessary permit(s). In accordance with this environmental commitment, DWR will require the preparation and implementation of stormwater pollution prevention plans (SWPPPs) to control short-term and long-term effects associated with construction-generated stormwater runoff. The SWPPPs will include all the necessary state requirements regarding construction-generated stormwater collection, detention, treatment, and discharge that will be in place throughout the construction period. For the alternative selected, a series of separate but related SWPPPs will be prepared by a Qualified SWPPP Developer (QSD) and will be implemented under the supervision of a Qualified SWPPP Practitioner (for each construction site and/or each construction contract). As part of the procedure to gain coverage under the CGP, the QSD will determine the "Risk Level" (Levels 1, 2, or 3, or Types 1, 2, or 3 for linear underground/overhead projects) of the construction activities covered by a given SWPPP, which involves an evaluation of the site's "Sediment Risk" and "Receiving Water Risk." The risk level of the site will be determined based on the probability of a significant risk of causing or contributing to an exceedance of a water quality standard based on the construction activities to be performed, the existing water quality, soil and sediment conditions, without additional requirements (pursuant to Order No. 2009-0009-DWQ as amended by Order Nos. 2010-0014-DWQ and 2012-2006-DWQ). The risk is calculated separately for sediment and receiving water, with two risk categories for receiving water (low and high) and three risk categories for sediment risk (low, medium, and high). The overall project risk levels (1, 2, or 3) are then determined through a matrix, where Risk Level 1 applies to projects with low receiving water and sediment risks, Risk Level 3 for projects with high receiving water and sediment risks, and Risk Level 2 for all other combinations of sediment and receiving water risks. These project risk levels determine the level of protection (i.e., the BMPs to be used) and monitoring that is required for the project. If the site is Risk Level 2 or 3, water sampling for pH and turbidity will be required and the SWPPP will specify sampling locations and schedule, sample collection and analysis procedures, and recordkeeping and reporting protocols. Other typical requirements for such situations are provided below under Risk Levels 2 and 3. Table 3B-2 shows how varying sediment risk and receiving water risk combine to result in a given Risk Level for a given construction site. **Table 3B-2. Combined Risk Level Matrix** Sediment Risk: Low / Medium / High Receiving Water Risk: Low — Level 1 / Level 2 Receiving Water Risk: High — Level 2 / Level 3	Preconstruction; Construction; Postconstruction	Contract Requirements; Plans; Monitoring; Sampling; Reporting	1. If any effluent sample exceeds an applicable NAL, Risk Level 2 dischargers will submit all storm event sampling results to the State Water Board no later than 10 days after the conclusion of the storm event. 2. The Regional Boards have the authority to require the submittal of an NAL. 3. If an NEL is exceeded, the discharger must electronically submit all storm event sampling results to the State and Regional Water Boards via SMARTS no later than 5 days after the conclusion of the storm event.	QSD; QSP; Contractor(s); DWR	Condition of Design Documents and Construction Contract	RWQCB; State Water Board; State of California's Surface Water Ambient Monitoring Program; California Stormwater Quality Association; Caltrans

[22] These activities are regulated under the Construction General Permit for Construction and Land Disturbance Activities (Construction General Permit [CGP]) (Order 2010-0014-DWQ or any more recent version) issued from the State Water Resources Control Board (State Water Board). The CGP requires the development and implementation of a stormwater pollution prevention plan for NPDES permit coverage for stormwater discharges.

EC #	Environmental Commitment(s)	Key Features	Timing	Implementation Action	Reporting Schedule	Implementing Party	Implementation Mechanism	Participating or Permitting Organizations
		Changes in runoff characteristics associated with construction activities have the potential to be detrimental to special-status fish and wildlife species as well as aquatic habitat and natural communities associated with receiving waters, through changes in ambient water temperature, sediment, and pollutants resulting from stormwater runoff. The objectives of the SWPPPs will be to (1) identify pollutant sources associated with construction activities and operations that may affect the quality of stormwater and (2) identify, construct, and implement stormwater pollution prevention measures to reduce pollutants in stormwater discharges during and after construction. The SWPPP will be kept on-site during construction activity and operations and will be made available upon request. The SWPPP will describe site topographic, soil, and hydrologic characteristics; construction activities and schedule; construction materials to be used, including sources of imported fill material and other potential sources of pollutants at the construction site; potential non-stormwater discharges (e.g., trench dewatering); erosion and sediment control measures; "housekeeping" BMPs to be implemented; a BMP implementation schedule; a site and BMP inspection schedule; and ongoing personnel training requirements. The SWPPP will also include a hazardous materials management plan. These provisions are intended to prevent water quality degradation related to pollutant discharge to receiving waters and to prevent or constrain changes to the pH of receiving waters. Performance standards are expected to be specified in the CGP and will be met by implementing stormwater pollution prevention BMPs that are tailored to specific site conditions, including the Risk Level of individual construction sites. These measures mirror the requirements to gain and maintain coverage under the anticipated CGP. DWR will consult with the appropriate Regional Water Quality Control Board (RWQCB) or State Water Board to determine the appropriate aggregation of specific construction activities, or groups of activities, to be authorized under the CGP. Multiple SWPPPs will be prepared for project-related construction activities, with a given SWPPP prepared to cover a particular water conveyance component (e.g., Southern Forebay), groups of components (e.g., intakes), and site-specific conditions (e.g., proximity to surface water, drainage). The risk level will be identified for each action covered by a specific SWPPP. These SWPPPs will generally follow the U.S. Environmental Protection Agency (EPA) (2007) guidelines for such plans and would typically identify the following list of BMPs. These BMPs are requirements common to all Risk Level sites; however, some detail is provided in "Inspection and Monitoring" on various Risk Level requirements. 1. Erosion Control Measures. a. Implement effective wind erosion BMPs, such as watering, application of soil binders/tackifiers, and covering stockpiles. b. Provide effective soil cover for inactive areas and all finished slopes and utility backfill areas, such as seeding with a native seed mix, application of hydraulic mulch and bonded fiber matrices, and installation of erosion control blankets and rock slope protection. 2. Sediment Control Measures. a. Prevent transport of sediment at the construction site perimeter, toe of erodible slopes, soil stockpiles, and into storm drains. b. Capture sediment via sedimentation and stormwater detention facilities. c. Reduce runoff velocity on exposed slopes. d. Reduce off-site sediment tracking. 3. Management Measures for Construction Materials. a. Cover and berm inactive stockpiled construction materials. b. Store chemicals in watertight containers. c. Minimize exposure of construction materials to stormwater. d. Designate refueling and equipment inspection/maintenance locations. e. Control of drift and runoff from areas treated with herbicides, pesticides, and other chemicals that may be harmful to aquatic habitats.						

EC #	Environmental Commitment(s)	Key Features	Timing	Implementation Action	Reporting Schedule	Implementing Party	Implementation Mechanism	Participating or Permitting Organizations
		4. Waste Management Measures. a. Prevent off-site disposal or runoff of any rinse or wash waters. b. Implement concrete and truck washout facilities and appropriately sized storage, treatment, and disposal practices. c. Require the containment of sanitation facilities (e.g., portable toilets). d. Clean or replace sanitation facilities (as necessary) and inspect regularly for leaks/spills. e. Cover waste disposal containers during rain events and at end of every day. f. Protect stockpiled waste material from wind and rain. 5. Construction Site Dewatering and Pipeline Testing Measures. a. Reclaim site dewatering discharges to the extent practicable, or use for other construction purposes (e.g., land application for dust control). b. Implement appropriate treatment and disposal of construction site dewatering from excavations to prevent discharges to surface waters, unless permitted by regulatory agencies to discharge to surface waters. 6. Accidental Spill Prevention and Response Measures. a. Maintain equipment and materials necessary for cleanup of accidental spills onsite. b. Clean up accidental spills and leaks immediately and dispose of properly. c. Require that there are trained spill response personnel available. 7. Non-stormwater Management Measures. a. Control all non-stormwater discharges during construction. b. Wash vehicles in such a manner as to prevent non-stormwater discharges to surface waters. c. Clean streets in such a manner as to prevent non-stormwater discharges from reaching surface water. d. Discontinue the application of any erodible landscape material during rain, or within 2 days before a forecasted rain event. 8. Inspection and Monitoring Common to All Risk Levels. a. Require that all inspection, maintenance, repair, and sampling activities at the construction site will be performed or supervised by a QSP representing the discharger. b. Develop and implement a written site-specific Construction Site Monitoring Program (CSMP). 9. Inspection, Monitoring, and Maintenance Activities Based on the Risk Level of the Construction Site (as defined in the State Water Board CGP). a. Risk Level 1 Sites: i. Perform weekly inspections of BMPs, and at least once each 24-hour period during extended storm events. ii. At least 2 business days (48 hours) prior to each anticipated qualifying rain event (a rain event producing 0.5 inch or more of precipitation), visually inspect: (a) stormwater drainage areas to identify any spills, leaks, or uncontrolled pollutant sources; (b) all BMPs to identify whether they have been properly implemented in accordance with the SWPPP; and (c) stormwater storage and containment areas to detect leaks and require maintenance of adequate freeboard. iii. Visually observe stormwater discharges at all discharge locations within two business days (48 hours) after each qualifying rain event and identify additional BMPs as necessary, and revise the SWPPP accordingly. iv. Conduct minimum quarterly visual inspections of each drainage area for the presence of (or indications of prior) unauthorized and authorized non-stormwater discharges and their sources. v. Collect one or more samples of construction site effluent during any breach, malfunction, leakage, or spill observed within the construction site during a visual inspection that could result in the discharge of pollutants						

EC #	Environmental Commitment(s)	Key Features	Timing	Implementation Action	Reporting Schedule	Implementing Party	Implementation Mechanism	Participating or Permitting Organizations

to surface waters whether visually detectable or not.

b. Risk Level 2 Sites:
   i. Perform all of the same visual inspection, monitoring, and maintenance measure specified for Risk Level 1 sites.
   ii. Perform sampling and analysis of stormwater discharges to characterize discharges associated with construction activity from the entire disturbed area at all discharge points where stormwater is discharged offsite.
   iii. At a minimum, collect and analyze a minimum of three samples per day for pH and turbidity during qualifying rain events. The CGP also requires the discharger to revise the SWPPP and to immediately modify existing BMPs and/or implement new BMPs such that subsequent discharges are below the relevant Numeric Action Levels (NALs) specified by the CGP. It may be a violation of the CGP if the discharger fails to take corrective action to reduce the discharge below these NALs specified by the CGP.
   iv. When an active treatment system is deployed on the site or a portion of the site, collect active treatment system effluent samples and measurements from the discharge pipe or another location representative of the nature of the discharge.
   v. In the event that any effluent sample exceeds an applicable NAL, Risk Level 2 dischargers will submit all storm event sampling results to the State Water Board no later than 10 days after the conclusion of the storm event. The Regional Boards have the authority to require the submittal of an NAL Exceedance Report, which includes a description of the current BMPs associated with the effluent sample that exceeded the NAL and the proposed corrective actions taken.

c. Risk Level 3 Sites:
   i. Perform all of the same visual inspection, monitoring, and maintenance measure specified for Risk Level 1 and Risk Level 2 sites.
   ii. In the event that a numeric effluent limitation (NEL) of the CGP (i.e., pH and turbidity) is exceeded and has a direct discharge into receiving waters, the discharger will subsequently sample receiving waters for all parameter(s) monitored in the discharge. An exceedance of an NEL is considered a violation of the CGP, and the discharger must electronically submit all storm event sampling results to the State and Regional Water Boards via Stormwater Multiple Application and Report Tracking System (SMARTS) no later than 5 days after the conclusion of the storm event.[23]
   iii. If disturbing 30 acres or more of the landscape and discharging directly into receiving waters, conduct a benthic macroinvertebrate bioassessment of receiving waters prior to and after commencement of construction activities to determine if significant degradation to the receiving water's biota has occurred. However, if commencement of construction is outside of an index period (i.e., the period of time during which bioassessment samples must be collected to produce results suitable for assessing the biological integrity of streams and rivers) for the site location, the discharger will participate in the State of California's Surface Water Ambient Monitoring Program.

The SWPPP will also specify the forms and records that must be uploaded to the State Water Board online SMARTS, such as quarterly non-stormwater inspection and annual compliance reports.

If the QSP determines the site is Risk Level 2 or 3, water sampling for pH and turbidity will be required and the SWPPP will specify sampling locations and schedule, sample collection and analysis procedures, and recordkeeping and reporting protocols. In accordance with the CGP numeric action level requirements, the project contractor's

[23] The State Water Board has suspended the applicability of Numeric Effluent Limitations (NELs) for pH and turbidity at Risk Level 3/LUP Type 3 construction sites. In addition, because receiving water monitoring is required only if the NELs are triggered, all receiving water monitoring requirements are also suspended. The Level 3/Type 3 NEL requirements are presented here assuming that such NELs will be reinstated when project construction commences.

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QSD will revise the SWPPP and modify existing BMPs or implement new BMPs when effluent monitoring indicates that daily average runoff pH is outside the range of 6.5 to 8.5 and that the daily average turbidity is greater than 250 nephelometric turbidity units (NTUs). Such BMPs may include construction of sediment traps and sediment basins, use of Baker or other type tanks, installation of rock slope protection, covering of active stockpiles in event of rain, constructing desilting basins, and use of ATS. The ability of other areas to withstand excessive erosion and sedimentation may be increased by applying additional mulching, bonded fiber matrices, and erosion control blankets; reseeding with a native seed mix; and installation of additional fiber rolls, silt fences, and gravel bag berms. The QSD may also specify changes in the manner and frequency of BMP inspection and maintenance activities. The determination of which BMP should be applied in a given situation is very site-specific. QSDs typically refer to the California Stormwater Quality Association's *Stormwater Best Management Practice Handbook Portal: Construction* or the similar Caltrans manual for selecting BMPs for particular site conditions.

Additionally, if a given construction component is Risk Level 3, for that component DWR will report to the State Water Board when effluent monitoring indicates that daily average runoff pH is outside the range of 6.0 to 9.0 or the daily average turbidity is greater than 500 NTUs. In the event that the turbidity NEL is exceeded, DWR may also be required to sample and report to the State Water Board pH, turbidity, and suspended sediment concentration of receiving waters for the duration of construction.

The contractor will also conduct sampling of runoff effluent when a leak, spill, or other discharge of non-visible pollutants is detected.

The CGP has specific monitoring and action level requirements for the Risk Levels, which are summarized in Table 3B-3.

Table 3B-3. SWPPP Monitoring and Action Requirements

SWPPP Requirements	Risk Level/Type 1	2	3
Minimum Stormwater and Non-Stormwater BMPs	✓	✓	✓
Numeric Action Levels (NAL) NAL for pH: 6.5–8.5 pH units NAL for turbidity: 250 NTU		✓	✓
Numeric Effluent Limitations (NEL) NEL for pH: 6–9 pH units NEL for turbidity: 500 NTU			✓
Visual Monitoring (weekly; before, during, after rain events; non-stormwater)	✓	✓	✓
Runoff Monitoring		✓	✓
Receiving Water Monitoring			✓

Note: The State Water Board has suspended the applicability of NELs for pH and turbidity at Risk Level 3/LUP Type 3 construction sites. In addition, because receiving water monitoring is required only if the NELs are triggered, all receiving water monitoring requirements are also suspended. The Level 3/Type 3 NEL requirements are presented here assuming that such NELs will be reinstated when project construction commences.

BMP = best management practices; pH = potential hydrogen; NTU = nephelometric turbidity unit.

The QSD preparing a SWPPP may include BMPs such as preservation of existing vegetation, perimeter control, seeding, mulching, fiber roll and silt fence barriers, erosion control blankets, protection of stockpiles, watering to control dust entrainment, rock slope protection, tracking control, equipment refueling and maintenance, concrete and solid waste management, and other measures to comply with the pH and turbidity level requirements defined by the CGP. Partly because the potential adverse effect on receiving waters depends on location of a work area relative to a waterway, the BMPs will be site-specific. For example, BMPs applied to level island-interior sites will be

EC #	Environmental Commitment(s)	Key Features	Timing	Implementation Action	Reporting Schedule	Implementing Party	Implementation Mechanism	Participating or Permitting Organizations
		different than BMPs applied to water-side levee conditions. The QSP will be responsible for day-to-day implementation of the SWPPP, including BMP inspections, maintenance, water quality sampling, and reporting to the State Water Board. If the water quality sampling results indicate an exceedance of NALs and Numeric Effluent Limitations (NELs) for pH and turbidity, as described above, the QSD will modify the type and/or location of the BMPs by amending the SWPPP in order to reduce pH, turbidity, and other contaminants to acceptable levels, consistent with CGP NALs and NELs and with the water quality objectives and beneficial uses set forth in the *Water Quality Control Plan (Basin Plan) for the Sacramento River Basin and the San Joaquin River Basin* (Central Valley Regional Water Quality Control Board 2018). DWR will apply for a long-term SWPPP permit with the Central Valley Water Board for operations of the intake, tunnel shaft, and Southern Complex or Bethany Complex sites that will include long-term BMPs.						
EC-5	Develop and Implement a Fire Prevention and Control Plan	DWR will develop and implement a fire prevention and control plan in consultation with the appropriate fire suppression agencies to verify that the necessary fire prevention and response methods are included in the plan. The plan will include fire prevention and suppression measures as appropriate for different activities and will consider the policies and standards in the affected jurisdictions. At a minimum, the following components, as applicable, will be included in the plan. If a component is not applicable to a specific activity, DWR or its contractor will explain in the plan why that component or a portion thereof is not included in the plan. 1. If a fire should start, the appropriate fire protection agencies will be contacted immediately. 2. Procedures and policies for controlling any fires that are on the work site, and other related fire prevention and control procedures developed in consultation with and fire protection agencies. 3. Procedures for regular maintenance of safeguards installed on heat-producing equipment to prevent the accidental ignition of combustible materials. 4. A list of all major potential fire hazards, proper handling and storage procedures for hazardous materials, potential ignition sources and their control, and the type of fire protection equipment necessary to control each potential major hazard. 5. Smoking will be allowed only in areas designated for smoking, and these areas will be cleared of vegetation, or in enclosed vehicles. Cigarette butts are to be disposed of in car ashtrays or other approved disposal containers and dumped daily in a proper receptacle off the work site. 6. The contractor will be responsible for maintaining appropriate fire suppression equipment at the work site including a water truck or fire truck with a water tank with a capacity of at least 3,000 gallons. Fire extinguishers, shovels, and other firefighting equipment will be available at work sites and on appropriate construction equipment. The contractor will be required to require that each construction vehicle on the work site will be equipped with a minimum 20-pound (or two 10-pound) fire extinguisher(s). 7. At the work site, a sealed fire toolbox will be located at a point accessible in the event of fire. This fire toolbox will contain: one back-pack pump-type extinguisher filled with water, two axes, two McLeod fire tools, and shovels so that employees at the work site can be equipped to fight fire. 8. Gasoline-powered construction equipment with catalytic converters will be equipped with shielding or other acceptable fire prevention features. Internal combustion engines will be equipped with spark arrestors. 9. Welding sites will include fire prevention provisions. 10. The contractor will maintain contact with local firefighting agencies throughout the fire season for updates on fire conditions, and such fire conditions will be communicated daily to the on-site employees of the contractor and subcontractors daily. In addition to the plan, fire protection will conform to the State Fire Marshal requirements and will be in full compliance with Cal/OSHA standards for fire safety and	Preconstruction; Construction	Contract Requirements; Plans; Avoidance	As needed	Contractor(s); DWR	Condition of Design Documents and Construction Contract	State Fire Marshal; Cal/OSHA; Fire protection agencies

EC #	Environmental Commitment(s)	Key Features	Timing	Implementation Action	Reporting Schedule	Implementing Party	Implementation Mechanism	Participating or Permitting Organizations
		prevention. Public road modifications will be designed per the county or state standards, which includes adequate widths for first responders. The project-only access roads would be designed with widths for large construction trucks, which would also be adequate for first responders and fire suppression equipment. Any fire hydrants will be located as deemed acceptable by the State Fire Marshal and will meet state government standards. Fire protection using water will be provided by a potable water system either from the nearest municipal clean water conveyance system or from a self-contained filtration and treatment system that takes water from an adjacent waterway or a site well or tank.						
EC-6	Conduct Cultural Resources Awareness Training	Prior to the start of ground disturbance, a qualified DWR archaeologist will conduct a mandatory cultural resources awareness training for all personnel involved in ground-disturbing work about cultural resources sensitivity in the project footprint and cultural resources that could be encountered during work. Cultural resources awareness training will also be conducted for all operations and maintenance staff. Participants will be required to sign a form stating that they have received and understand the training. DWR will maintain the record of training and make it available to interested parties, including but not limited to State Historic Preservation Officer, the Advisory Council on Historic Preservation, local historical societies, and other interested parties such as local preservation and community organizations with a demonstrated interest in the resource, upon request. The project foreman will require that the new personnel brought onto the project receive the mandatory training before starting work. In general, trainings will include the following components. 1. The need and legal requirements for resource avoidance and protection. 2. Types of materials that could indicate the presence of an archaeological resource. 3. Brief discussion of the cultural context for the area. 4. Roles and responsibilities, including an explanation regarding the authority of archaeological monitors to stop work if needed. 5. What to do when archaeological resources or human remains are encountered in work areas. 6. Avoidance and minimization commitments. 7. Consequences of violations of the laws and regulations protecting resources.	Preconstruction; Construction; Operations	Contract Requirements; Plans; Training	Following training, if requested	Contractor(s); DWR	Condition of Design Documents and Construction Contract	State Historic Preservation Officer; Advisory Council on Historic Preservation; Local historical societies; Local preservation and community organizations with a demonstrated interest in the resource
EC-7	Off-Road Heavy-Duty Engines	**Zero-Emission Equipment** DWR will reinforce state priorities for zero-emission equipment (including generators) during construction and operation of the project. Zero-emission equipment (e.g., electric, hydrogen fuel cell) does not produce any emissions during operation from the tailpipe. Requirements for use of these technologies will follow the phased approach that focuses on implementation feasibility that is described here. 1. At the start of each construction contract, prohibit use of fossil fuel–powered axial fans, gantry cranes, light plants, and forklifts. All construction contractors must use zero-emission versions of these equipment types. 2. By 2030, require 10% zero-emission off-road equipment in all construction contracts, where feasible (i.e., equipment is commercially available, is cost-effective, and has earned a track record of reliability in real-world construction conditions). 3. By 2035, require 100% zero-emission off-road equipment in all construction contracts, where feasible (i.e., equipment is commercially available, is cost-effective, and has earned a track record of reliability in real-world construction conditions). 4. At the start of and during project operations, require 100% zero-emission off-road equipment, where feasible (i.e., equipment is commercially available, is cost-effective, and has earned a track-record of reliability in real-world construction conditions). 5. DWR will support attainment of the performance standards by prioritizing contractors that operate zero-emission and electric off-road equipment and by offering contract incentives for compliance. **Diesel Equipment** DWR will require all off-road diesel engines greater than or equal to 25 horsepower to	Construction; Operations	Contract Requirements; Monitoring; Reporting	Monthly and annual reports	Contractor(s); DWR	Condition of Design Documents and Construction Contract	CARB

EC #	Environmental Commitment(s)	Key Features	Timing	Implementation Action	Reporting Schedule	Implementing Party	Implementation Mechanism	Participating or Permitting Organizations
		use EPA-certified Tier 4 Final engines. This mandate does not preclude use of engines that meet certification standards more stringent than Tier 4 Final, if commercially available at the time of construction. A copy of each unit's certified tier specification, emissions rating, and any required California Air Resources Board (CARB) permit or air pollution control district operating permit will be made available to DWR at the time of mobilization of each piece of equipment. Each project contractor responsible for construction of a project facility will keep a written record (supported by equipment-hour meters where available) of equipment usage during project construction and maintenance for each piece of equipment. Each contractor will also provide DWR with monthly and annual reports of equipment operating hours documenting compliance. All off-road diesel equipment with engines less than 25 horsepower (i.e., non–Tier 4) will be required to use renewable diesel fuel that meets the most recent ASTM D975 specification for ultra-low sulfur diesel and has a carbon intensity no greater than 50% of diesel with the lowest carbon intensity among petroleum fuels sold in California. Each project contractor responsible for construction of a project facility will provide DWR with monthly and annual reports of renewable diesel purchase records and equipment and vehicle fuel consumption. Pursuant to the In-Use Off-Road Diesel-Fueled Fleets Regulation (In-Use Regulation), contractors will also be required to submit to CARB an affirmation that the fleet complied with the renewable diesel mandate in each year that annual reporting is required under the In-Use Regulation. All off-road diesel equipment will be required to minimize idling time either by shutting off when not in use or reducing idling time to 5 minutes (13 Cal. Code Regs. § 2449(d)(2)). Each project contractor responsible for construction of a project facility must provide clear signage that posts this requirement for workers at the entrances to the site						
EC-8	On-Road Haul Trucks	**Zero-Emission Vehicles** DWR will reinforce state priorities for zero-emission vehicles (ZEVs) during construction and operation of the project. A ZEV (e.g., electric, hydrogen fuel cell) does not produce any emissions during operation from the tailpipe. Requirements for use of these technologies will follow the phased approach that focuses on implementation feasibility that is described here. 1. At the start of each construction contract, require 100% light-duty ZEVs for on-site contractor travel, where feasible (i.e., vehicle is commercially available, is cost-effective, and has earned a track-record of reliability in real-world construction conditions). On-site light-duty vehicles are defined to include automobiles and pickup trucks that will exclusively operate within the construction right-of-way for at least 6 months. 2. By 2030, require 50% medium- and heavy-duty on-site ZEVs in all construction contracts, where feasible (i.e., vehicle is commercially available, is cost-effective, and has earned a track-record of reliability in real-world construction conditions). On-site vehicles are defined to include utility trucks, service trucks, water trucks, and dump trucks that will exclusively operate within the construction right-of-way for at least 6 months. 3. By 2035, require 75% medium- and heavy-duty on-site ZEVs in all construction contracts. On-site vehicles are defined to include utility trucks, service trucks, water trucks, and dump trucks that will exclusively operate within the construction right-of-way for at least 6 months. 4. By 2035, require 50% ZEVs for all off-site short-haul and drayage (i.e., within 10 miles of a project site), where feasible (i.e., vehicle is commercially available, is cost-effective, and has earned a track-record of reliability in real-world construction conditions). 5. At the start of and during project operation, require 100% ZEVs for all vehicle types, where feasible. 6. DWR will support attainment of the performance standards by prioritizing contractors that operate ZEVs and electric on-road vehicles and by offering contract incentives for compliance.	Construction; Operations	Contract Requirements; Monitoring; Reporting	Monthly and annual reports	Contractor(s); DWR	Condition of Design Documents and Construction Contract	CARB

EC #	Environmental Commitment(s)	Key Features	Timing	Implementation Action	Reporting Schedule	Implementing Party	Implementation Mechanism	Participating or Permitting Organizations
		Diesel Vehicles DWR will require all contractors to use diesel trucks that have model year engines manufactured or retrofitted ideally within the past 5 years from when the vehicles are brought to the individual construction or maintenance sites, but no more than 8 years from overall project groundbreaking. Each contractor will provide DWR with monthly and annual reports documenting compliance. All on-road diesel vehicles will be required to comply with California idling regulations (13 Cal. Code Regs. §§ 2485 and 2480).						
EC-9	On-Site Locomotives	DWR will require all locomotives operating within Twin Cities Complex, Southern Complex, and/or Lower Roberts Island to utilize EPA certified Tier 4 or more advanced engines. A copy of each unit's certified tier specification and any required CARB or air pollution control district operating permit will be made available to DWR at the time of mobilization of each locomotive. Each contractor will keep a written record (supported by engine-hour meters where available) of locomotive usage during project construction. Each contractor will provide DWR with monthly and annual reports of locomotive operating hours documenting compliance.	Construction; Operations	Contract Requirements; Monitoring; Reporting	Monthly and annual reports	Contractor(s); DWR	Condition of Design Documents and Construction Contract	CARB; Air pollution control district
EC-10	Marine Vessels	DWR will require all marine vessels to operate engines no older than model year 2010 (manufactured or retrofitted) during geotechnical investigations. All marine vessels working on intake construction will be required to operate engines no older than model year 2020 (manufactured or retrofitted). A copy of each vessel's engine specifications will be made available to DWR at the time of mobilization of each vessel. Each contractor will keep a written record (supported by engine-hour meters where available) of engine usage during project construction. Each contractor will provide DWR with monthly and annual reports of engine operating hours documenting compliance.	Construction; Operations	Contract Requirements; Monitoring; Reporting	Monthly and annual reports	Contractor(s); DWR	Condition of Design Documents and Construction Contract	N/A
EC-11	Fugitive Dust Control	DWR will require all contractors employ the following measures to minimize and control fugitive dust emissions. 1. Water exposed soil during active construction with adequate frequency for continued moist soil and to prevent visible dust from leaving work areas. Frequency of watering will be increased during especially dry or windy periods or in areas with high construction activity. Active work areas include (but are not limited to), graded areas, excavation areas, and demolition sites. 2. Gravel and cover all on-site vehicle travel routes with chip seal, or apply dust suppressants (e.g., Soil-Sement, PennzSuppress) on all ungraveled travel routes. On-site vehicle travel routes include (but are not limited to) staging areas, access roads, and haul areas. 3. Apply and maintain an organic biopolymer tackifier on all stockpiles during active use. 4. Cover or maintain at least 2 feet of freeboard space on haul trucks and rail cars transporting soil, sand, or other loose material on the site. Haul trucks and rail cars transporting soil, sand, or other loose material that will be traveling along freeways, major roadways, or railways will be covered. 5. If practicable, install wind breaks (e.g., plant trees, solid fencing) on the average dominant windward side(s) of construction areas. For purposes of implementation, chain-link fencing with added landscape mesh fabric adequately qualifies as solid fencing. 6. Enclose all mechanical dryers and outdoor conveyors. 7. Plant vegetative ground cover (native grass/plant seed) in disturbed areas (including stockpiles) as soon as reasonable after construction is completed. Water appropriately until vegetation is established. 8. Promptly finish and/or protect and maintain all disturbed areas in a manner to control fugitive dust. Mulch, dust palliative, soil binders, or other reasonable measures will be used in all inactive areas. 9. Establish and enforce a 15-mph speed limit for vehicles driving on unpaved portions of project construction sites. 10. Use wet power vacuum street sweepers to remove any visible trackout mud or dirt onto adjacent public roads at least once a day. Use of dry power sweeping is	Construction	Contract Requirements; Avoidance	As needed	Contractor(s); DWR	Condition of Design Documents and Construction Contract	Air quality management district

EC #	Environmental Commitment(s)	Key Features	Timing	Implementation Action	Reporting Schedule	Implementing Party	Implementation Mechanism	Participating or Permitting Organizations
		prohibited. 11. Install rattle plates and tire wheel wash facilities to stabilize construction entrances and exits, where not prohibited by site conditions. 12. Post a publicly visible sign with the telephone number and person to contact at the lead agency regarding dust complaints. This person will respond and take corrective action within 48 hours. The phone number of the air quality management district will also be visible to confirm compliance.						
EC-12	On-Site Concrete Batching Plants	DWR will require that the following measures be implemented to control fugitive dust emissions during concrete batching activities. 1. Apply best available control technology (BACT) (e.g., water and/or chemical suppressants) to reduce fugitive dust emissions from active storage piles and during aggregate and sand delivery, storage, and transfer. 2. Apply BACT (e.g., water sprays, enclosures, hoods, curtains, shrouds, movable and telescoping chutes, central dust collection systems) to reduce fugitive dust emissions during cement delivery and hopper and central mix loading. Prior to beginning operations, batch plant managers must provide to DWR documentation that each batch plant meets this standard during operation.	Preconstruction; Construction	Contract Requirements; Avoidance	As needed	Contractor(s); DWR	Condition of Design Documents and Construction Contract	Relevant air quality management districts.
EC-13	DWR Best Management Practices to Reduce GHG Emissions	DWR will require all construction contractors to implement the following applicable greenhouse gas (GHG) BMPs, which are outlined in DWR's *Climate Action Plan Phase I: Greenhouse Gas Emissions Reduction Plan Update 2020* (California Department of Water Resources 2020). **Preconstruction and Final Design BMPs** Preconstruction and final design BMPs are designed to ensure that individual projects are evaluated, and their unique characteristics taken into consideration when determining if specific equipment, procedures, or material requirements are feasible and efficacious for reducing GHG emissions from the project. 1. *BMP 1.* Evaluate project characteristics, including location, project work flow, site conditions, and equipment performance requirements, to determine whether the specifications for the use of equipment with repowered engines, electric drive trains, or other high-efficiency technologies are appropriate and feasible for the project or specific elements of the project. 2. *BMP 2.* Evaluate the feasibility and efficacy of performing on-site material hauling with trucks equipped with onroad engines. 3. *BMP 3.* Confirm that all feasible avenues have been explored for providing an electrical service drop to the construction site for temporary construction power. When generators must be used, use alternative fuels, such as propane, or solar power, to power generators to the maximum extent feasible. 4. *BMP 4.* Evaluate the performance requirements for concrete used on the project and specify concrete mix designs that minimize GHG emissions from cement production and curing while preserving all required performance characteristics. 5. *BMP 5.* Limit deliveries of materials and equipment to the site to off peak traffic congestion hours. **Construction BMPs** Construction BMPs apply to all construction and maintenance projects that DWR completes or for which DWR issues contracts. All projects are expected to implement all Construction BMPs unless a variance is granted by the Division of Engineering Chief, Division of Operation and Maintenance Chief, or Division of Flood Management Chief, as applicable, and the variance is approved by the DWR CEQA Climate Change Committee. Variances will be granted when specific project conditions or characteristics make the BMP infeasible and where omitting the BMP will not be detrimental to the project's consistency with the *Climate Action Plan Phase I: Greenhouse Gas Emissions Reduction Plan Update 2020* (California Department of Water Resources 2020). 1. *BMP 7.* Minimize idling time by requiring that equipment be shut down after five minutes when not in use (as required by the State airborne toxics control measure [13 CCR Section 2485]). Provide clear signage that posts this requirement for	Preconstruction; Construction	Contract Requirements; Avoidance	As needed	Contractor(s); DWR	Condition of Design Documents and Construction Contract	DWR CEQA Climate Change Committee

EC #	Environmental Commitment(s)	Key Features	Timing	Implementation Action	Reporting Schedule	Implementing Party	Implementation Mechanism	Participating or Permitting Organizations
		workers at the entrances to the site and provide a plan for the enforcement of this requirement. 2. *BMP 8.* Maintain all construction equipment in proper working condition and perform all preventative maintenance. Required maintenance includes compliance with all manufacturer's recommendations, proper upkeep and replacement of filters and mufflers, and maintenance of all engine and emissions systems in proper operating condition. Maintenance schedules will be detailed in an Air Quality Control Plan prior to commencement of construction. 3. *BMP 9.* Implement tire inflation program on jobsite to confirm that equipment tires are correctly inflated. Check tire inflation when equipment arrives on site and every two weeks for equipment that remains on site. Check vehicles used for hauling materials off site weekly for correct tire inflation. Procedures for the tire inflation program will be documented in an Air Quality Management Plan prior to commencement of construction. 4. *BMP 10.* Develop a project specific ride share program to encourage carpools, shuttle vans, transit passes and/or secure bicycle parking for construction worker commutes. 5. *BMP 11.* Reduce electricity use in temporary construction offices by using high efficiency lighting and requiring that heating and cooling units be Energy Star compliant. Require that all contractors develop and implement procedures for turning off computers, lights, air conditioners, heaters, and other equipment each day at close of business. 6. *BMP 12.* For deliveries to project sites where the haul distance exceeds 100 miles and a heavy-duty class 7 or class 8 semi-truck or 53-foot or longer box type trailer is used for hauling, a SmartWay[24] certified truck will be used. 7. *BMP 13.* Minimize the amount of cement in concrete by specifying higher levels of cementitious material alternatives, larger aggregate, longer final set times, or lower maximum strength where appropriate. 8. *BMP 14.* Develop a project-specific construction debris recycling and diversion program to achieve a documented 50% diversion of construction waste. 9. *BMP 15.* Evaluate the feasibility of restrictions for material hauling on public roadways to off-peak traffic congestion hours. During construction scheduling and execution, minimize, to the extent possible, uses of public roadways that are not designated as construction haul routes during peak commuting hours.						
EC-14	Construction Best Management Practices for Biological Resources	DWR will require all construction and restoration activities in and adjacent to suitable habitat for special-status species and sensitive natural communities implement BMPs and have construction monitored by qualified biologists (experience with the resources and environmental compliance training and monitoring). Depending on the resource of concern and construction timing, construction activities and areas will be monitored for compliance with water quality regulations (SWPPP monitor, see EC-4b) and with resource-specific mitigation measures developed for sensitive biological resources (biological monitoring). Before initiating construction, DWR or its contractor, with DWR approval, will prepare a site or activity-specific environmental compliance monitoring plan to monitor, enforce and document measures to protect special-status fish, wildlife, plant species, and their habitats, designated critical habitat, and sensitive natural communities. The plan will include the following elements. • Reference to or inclusion of the SWPPP prepared under the CGP, where one is needed. (See EC-4b, Develop and Implement Stormwater Pollution and Prevention Plans.) • Summaries or copies of planning and preconstruction surveys (if applicable) for natural communities and special-status species.	Preconstruction; Construction	Contract Requirements; Monitoring; Reporting; Avoidance	1. Any sightings and any incidental take will be reported to CDFW and USFWS via email within 1 working day of the discovery. A follow-up report will be sent to these agencies, including dates, locations, habitat description, and any corrective measures taken to protect special-status species	Biological Monitor; Qualified Biologist; Contractor(s); DWR	Condition of Design Documents and Construction Contract	USFWS; NMFS; CDFW; EPA; California Department of Pesticide Regulation; State Water Board

[24] The U.S. Environmental Protection Agency (EPA) has developed the SmartWay truck and trailer certification program to set voluntary standards for trucks and trailers that exhibit the highest fuel efficiency and emissions reductions. These tractors and trailers are outfitted at point of sale or retrofitted with equipment that significantly reduces fuel use and emissions including idle reduction technologies, improved aerodynamics, automatic tire inflation systems, advanced lubricants, advanced powertrain technologies, and low rolling resistance tires. EPA Smartway (https://www.epa.gov/smartway).

EC #	Environmental Commitment(s)	Key Features	Timing	Implementation Action	Reporting Schedule	Implementing Party	Implementation Mechanism	Participating or Permitting Organizations
		• Description of mitigation measures to be implemented, including a description of site or activity-specific BMPs or additional measures not otherwise included in the project. • Descriptions of monitoring parameters (e.g., turbidity), including the specific activities to be monitored (e.g., dredging, grading activities) and monitoring frequency and duration as well as parameters and reporting criteria (e.g., turbidity is not to exceed 10 NTUs above background. Exceedances will be reported and the contractor must identify and correct the cause.). • Description of roles and responsibilities of the monitors and protocols for notifying CDFW, NMFS, and USFWS, if needed. • A daily monitoring log prepared by the monitor, which documents the day's construction activities, notes any problems identified and solutions implemented to rectify those problems, and document notifications of the construction superintendent and/or the fish and wildlife agencies regarding any exceedances of specific parameters (i.e., turbidity) or observations of special-status species. The monitoring log will also document construction start/end times, weather and general site conditions, and any other relevant information. The following measures will be Implemented prior to and during construction activities and field investigations for the protection of special-status fish, wildlife and plant species and their habitats, designated critical habitats, and sensitive natural communities. Additional measures may be developed for site-specific conditions or specific biological resources during the review and preconstruction planning of individual work areas. • All in-water construction activities where special-status species are known or have a potential to occur will be conducted during the allowable in-water work windows established by the USFWS, NMFS, and CDFW for the protection of special-status fish or wildlife species. With regard to impact pile driving, work windows for the north Delta intakes may be lengthened subject to NMFS, CDFW, and USFWS approval based on success of bubble curtain or other noise attenuation methods (see Mitigation Measure AQUA-1a: Develop and Implement an Underwater Sound Control and Abatement Plan in Chapter 12, Fish and Aquatic Resources) and real-time monitoring for fish presence. In-water activities associated with mobilization and demobilization (e.g., initial movement of materials to construction sites) are not subject to the work windows. Any in-water work may occur within a cofferdam, or behind the sheet pile training walls, regardless of the timing of in-water work windows.[25] Any extension/reduction of in-water work windows would focus on half-month increments. a. Geotechnical exploration: August 1 to October 31. b. North Delta intakes: June 1 to October 31, except that in-water impact pile driving is unlimited during the period June 15 to September 15, and in-water impact pile driving is subject to the conditions noted above for the periods from June 1 to June 15 and September 15 to October 31. c. Modified bridges: June 1 to October 31, except that in-water impact pile driving is unlimited during the period June 15 to September 15. d. California Aqueduct (between Skinner Fish Facility, Banks Pumping Plant, and Bethany Reservoir) and Delta-Mendota Canal (between Tracy Fish Collection Facility and Jones Pumping Plant): January 1 through December 31. e. Work in the Delta except for the north Delta intakes, modified bridges, and California Aqueduct and Delta-Mendota Canal: August 1 to October 31. • Qualified biologists will monitor construction activities in areas identified during the planning stages and species/habitat surveys as having special-status fish, wildlife, and plant species or their habitats, designated critical habitat, and sensitive natural communities. The intent of the biological monitoring is to confirm that specific measures that have been integrated into the project design and permit			encountered. 2. For each special-status species encountered, the biologist will submit a completed CNDDB field survey form (or equivalent) to CDFW no more than 90 days after completing the last field visit to the project site. 3. CDFW, NMFS, and/or USFWS will be notified within 1 working day of the discovery of, injury to, or mortality of a special-status species that results from project-related construction activities or is observed at the project site. Notification will include the date, time, and location of the incident or of the discovery of an individual special-status species that is dead or injured. For a special-status species that is injured or killed, general information on the type or extent of injury or likely cause of death will be included. The location of the incident will be recorded using a GPS and the coordinates will be made available upon requests by			

[25] There is no impact pile driving proposed within cofferdams or behind training walls.

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		requirements are being implemented correctly during construction and are working appropriately and as intended for the protection of special-status species, natural communities, and the environment in general. • Biological monitors will be professional biologists selected for their knowledge of the special-status species and natural communities that may be affected by construction activities. The qualifications of the biologist(s) will be presented to the fish and wildlife agencies for review and written approval, consistent with permits and authorizations. If a special-status species is observed in an active work area, the biological monitors will immediately provide the construction manager and contractor with its location and recommendations to address the species' presence and steps necessary to ensure the protection of the species consistent with permits and authorizations. • During construction, the non-disturbance buffers described under the special-status species' mitigation measures in Chapter 13, Terrestrial Biological Resources, of this Final EIR, will be established and maintained as necessary. A qualified biologist will monitor the site consistent with the requirements described for special-status species to enforce buffers and non-disturbance of sensitive resources. • Active construction and staging areas will be delineated with high-visibility temporary fencing at least 4 feet in height, flagging, or other barrier to prevent encroachment of construction personnel and equipment outside the defined project footprint. The location of fencing will be included in construction plans and/or EC sheets. Such fencing will be inspected and maintained daily by the construction foreman until completion of the project. Status of the fencing will also be verified and documented by the biological monitor. The fencing or flagging will be removed from areas after all construction activities have ceased and equipment is removed. No project-related construction activities will occur outside the delineated project construction areas. • Project-related vehicles will observe a maximum speed limit of 15 miles per hour on unpaved non-public construction access roads and in construction sites where it is safe to do so. Paved, non-public construction access roads will observe a maximum speed limit of 30 miles per hour. Speeds limits will be posted in both directions and will be enforced. Signage would be provided for extra caution to be used on cool days when giant garter snake may be basking on roads and on rainy nights when California tiger salamander and California red-legged frog are most likely to be moving between breeding and upland habitats. Vehicles will observe a nighttime speed limit of 10 miles per hour in construction sites within the Southern Complex and Bethany Complex to avoid potential vehicle strikes of California red-legged frog, California tiger salamander, and San Joaquin kit fox. • All ingress/egress at the project site will be restricted to those routes identified in the project plans and description. Cross-country access routes will be clearly marked in the field with appropriate flagging and signs. • All vehicle parking will be restricted to established areas, existing roads, or other suitable areas. • To avoid attracting predators, all food-related trash items such as wrappers, cans, bottles, and food scraps will be disposed of in enclosed containers and trash will be removed and disposed of at an appropriate facility at least once a week from the construction or project site. All contracts with contractors will include language reminding them of the obligations to abide by all laws related to litter. These obligations will be applicable both within work areas and while traveling along public roads within the project area. Vehicles carrying trash will be required to have loads covered and secured to prevent trash and debris from falling onto roads and adjacent properties. • To avoid injury or death to wildlife, no firearms will be allowed on the project site except for those carried by authorized security personnel or local, state, or federal law enforcement officials. • To prevent harassment, injury, or mortality of sensitive wildlife by dogs or cats, no pets will be permitted in the active construction area.			CDFW, NMFS, and/or USFWS. The biologist is encouraged to include any other pertinent information in the notification. All observations of special-status species will be reported to the CNDD. 4. The qualified biologist(s) will maintain monitoring records that include (1) the beginning and ending time of each day's monitoring effort; (2) a statement identifying the species encountered, including the time and location of the observation; (3) the time the specimen was identified and by whom and its condition; (4) the capture and release locations of each individual; (5) photographs and measurements of each individual; and (6) a description of any actions taken. The biologist(s) will maintain complete records in their possession while conducting monitoring activities and will immediately provide records to USFWS, CDFW, and NMFS upon request. If requested, all			

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		• To prevent inadvertent entrapment of special-status wildlife during construction in areas that may be occupied by wildlife at risk for entrapment, all excavated, steep-walled holes or trenches more than 6 inches deep, with the exception of shaft excavation, will be covered at the close of each working day with plywood or similar material or will be provided with one or more escape ramps constructed of earthfill or wooden planks at no more than a 30° angle. Shaft excavation sites are exempt from this measure because it would not be feasible to place a ramp into a vertical shaft. Rather than a vertical ramp inside the shaft, suitable barriers, approved by a qualified biologist prior to construction at the shaft site (e.g. chain link fence for large wildlife such as foxes and appropriate exclusion barriers for amphibians and reptiles), will be placed around the shaft opening to prohibit entry of wildlife into the shaft. Before such holes or trenches are filled, they will be thoroughly inspected for trapped animals. • If a special-status species is encountered during construction work, including dewatering, generally construction activities should be diverted away from the animal or, depending upon the conditions and specification in the relevant environmental documents and permits, work will cease until it moves out of the work area on its own or is relocated by a qualified biologist, following the species-specific mitigation measures appearing in the environmental documents and relevant permits. The monitor's authority to stop work will depend on the species encountered and the specific requirement of the relevant environmental documents and permits. • Capture and relocation of trapped or injured special-status wildlife can only be performed by personnel with appropriate USFWS and CDFW handling approvals. Any sightings and any incidental take will be reported to CDFW and USFWS via email within 1 working day of the discovery. A follow-up report will be sent to these agencies, including dates, locations, habitat description, and any corrective measures taken to protect special-status species encountered. For each special-status species encountered, the biologist will submit a completed CNDDB field survey form (or equivalent) to CDFW no more than 90 days after completing the last field visit to the project site. • Plastic monofilament netting or similar material will not be used for erosion control, because smaller wildlife may become entangled or trapped in it. Acceptable substitutes include coconut coir matting, burlap-wrapped straw wattles, or tackified hydroseeding compounds. This limitation will be communicated to the contractor through specifications or special provisions included in the construction bid solicitation package. • Wildlife, including special-status wildlife and their predators, can be attracted to den-like structures such as debris piles or pipes and may enter stored pipes and become trapped or injured. All pipes and culverts stored in the open will have their ends capped. Debris piles should be kept to a minimum and removed regularly. All construction, construction equipment, or construction debris left overnight in areas that may be occupied by wildlife that could occupy such structures will be inspected by the biological monitor prior to being used for construction. Such inspections will occur at the beginning of each day's activities, for those materials to be used or moved that day. • CDFW, NMFS and/or USFWS will be notified within 1 working day of the discovery of, injury to, or mortality of a special-status species that results from project-related construction activities or is observed at the project site. Notification will include the date, time, and location of the incident or of the discovery of an individual special-status species that is dead or injured. For a special-status species that is injured or killed, general information on the type or extent of injury or likely cause of death will be included. The location of the incident will be recorded using a GPS and the coordinates will be made available upon requests by CDFW, NMFS and/or USFWS. The biologist is encouraged to include any other pertinent information in the notification. All observations of special-status species will be reported to the California Natural Diversity Database. • Rodenticides and herbicides will be used in accordance with the manufacturer-			monitoring records will be provided to agencies according to the reporting requirements of the relevant permits.			

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		recommended uses and applications and in such a manner as to prevent primary or secondary poisoning of special-status fish, wildlife, and plant species and depletion of prey populations upon which they depend. Broadcast baiting will be avoided on all project-related and mitigation lands. Rodenticides will not be used on compensatory mitigation lands. All uses of such compounds will observe label and other restrictions mandated by EPA, the California Department of Pesticide Regulation, and other appropriate state and federal regulations, as well as additional project-related restrictions imposed by USFWS, NMFS and/or CDFW. If rodent control must be conducted in San Joaquin kit fox habitat, zinc phosphide should be used because of its proven lower risk to kit fox. Use of pesticides may be limited in other species-specific instances as well. In addition, the method of rodent control will comply with those discussed in the 4(d) rule published in the final listing rule for California tiger salamander (69 Federal Register [FR] 47211–47248). • The most recent available standard methods for species capture and handling, as well as species specific authorizations, will be used to capture and handle special-status fish or wildlife species. A professional biologist, with appropriate USFWS and CDFW handling approvals, will be responsible for and direct any efforts to capture and handle special-status species. Any person who captures and handles special-status species will ensure their hands are free of soaps, oils, creams, lotions, insect repellents, solvents or other potentially harmful chemicals and if not single use, nitrile or other hypo-allergenic gloves (non-latex) will be used for handling special-status fish or wildlife. To avoid transferring diseases or pathogens between aquatic habitats during the course of surveys or the capture and handling of special-status fish or wildlife species, all species captured and handled will be released in a safe, aquatic environment as close to the point of capture as possible. When capturing and handing special-status amphibians, the biologists will follow the Declining Amphibian Population Task Force's Fieldwork Code of Practice (U.S. Fish and Wildlife Service n.d.) or the most current applicable guidance. While in captivity, individual amphibians will be kept in a cool, moist, aerated environment such as a dark (e.g., green or brown) bucket containing a damp sponge. Containers used for holding or transporting these species will be sanitized and will not contain any standing water, unless transporting larvae or fish species. • The qualified biologist(s) will maintain monitoring records that include (1) the beginning and ending time of each day's monitoring effort; (2) a statement identifying the species encountered, including the time and location of the observation; (3) the time the specimen was identified and by whom and its condition; (4) the capture and release locations of each individual; (5) photographs and measurements of each individual; and (6) a description of any actions taken. The biologist(s) will maintain complete records in their possession while conducting monitoring activities and will immediately provide records to USFWS, CDFW, and NMFS upon request. If requested, all monitoring records will be provided to agencies according to the reporting requirements of the relevant permits. • Permanent and temporary construction disturbances and other types of ongoing project-related disturbance activities in suitable habitat for special-status species will be minimized by adhering to the following activities. Project designs will limit or cluster permanent project features to the smallest area possible while still permitting achievement of project goals. To minimize temporary disturbances, all project-related vehicle traffic and material storage will be restricted to established and/or designated ingress/egress points, construction areas, and other designated staging/storage areas. These areas will also be included in preconstruction surveys and, to the extent possible, will be established in locations disturbed by previous activities to prevent further effects. • Geotechnical investigations taking place on land over tunnel sections where there will be no surface disturbance during construction will avoid citing test trenches, CPTs, and borings in aquatic features, to the extent possible. This measure would not apply to the West Tracy Fault studies because these investigations need to take						

EC #	Environmental Commitment(s)	Key Features	Timing	Implementation Action	Reporting Schedule	Implementing Party	Implementation Mechanism	Participating or Permitting Organizations
		place along the fault alignment to gather the necessary information to support future designs. • Temporarily affected areas will be restored within 1 year to their pre-project conditions, including grade and hydrology. Areas to be restored to grassland will be reseeded with a non-invasive native mix of grasses and flowering forbs. Revegetation will take place during the appropriate time of year for the species being planted. A vegetation restoration plan will be prepared to facilitate revegetation of the temporary disturbance footprints on-site for each of the covered species habitats. DWR shall ensure that the vegetation restoration plan is successfully implemented to restore covered species habitat. Where there are temporary impacts to potentially suitable but unoccupied Mason's lilaeopsis (Lilaeopsis masonii) habitat, the vegetation restoration plan will require post-disturbance grading to elevations and hydrology suitable for Mason's lilaeopsis. • All equipment used for construction and habitat creation, enhancement, and management will be cleaned and inspected by a qualified biologist for terrestrial invasive plant and animal species prior to entering work areas and before moving between work areas. • Equipment to be used in aquatic habitats will be thoroughly cleaned and inspected for aquatic invasive plant propagules and animal species before entering aquatic habitats. DWR will also develop an invasive plant species management and control plan prior to construction for each construction site. The plan will ensure that invasive plant species and populations are kept below preconstruction abundance and distribution levels and will be developed in consultation with CDFW and local experts (e.g., California Invasive Plant Council). The invasive plant species management plan will include the following elements. • Documentation of preconstruction conditions. • Annual monitoring to document percent cover of native and nonnative invasive plant species. • Preparation of an annual report that includes the type, location, and quantity of the invasive plant species; the percent cover of invasive plant species for (i) the year prior to preconstruction, (ii) the current monitoring year, and (iii) any prior monitoring years; and a description of any management problems and remedial actions taken. Annual reports will be provided to CDFW on request. • Guidance provided by the California Invasive Plant Council (2012) for weed mapping field protocols and treatment plans, with particular attention given to species rated as high-level invasives with a negative ecological impact in California (California Invasive Plant Council 2006). • Invasive plant species management and control techniques employed where necessary. For terrestrial species, these techniques include hand or mechanical removal, chemical treatment, and targeted livestock grazing for terrestrial species management; for aquatic species, these techniques include hand or mechanical removal and chemical treatment. Only chemicals approved for use for such purposes in California may be employed in any control action.						
EC-15	Sediment Monitoring, Modeling, and Reintroduction Adaptive Management	It is estimated that any one of the project alternatives would entrain 4%–6% of the sediment load entering the Delta from the Sacramento River, which could have limited negative effects on turbidity and therefore on delta smelt habitat (see Impact AQUA-6: *Effects of Operations and Maintenance of Water Conveyance Facilities on Delta Smelt* in Chapter 12, *Fish and Aquatic Resources*). A multi-step process to assess and minimize potential negative effects will be implemented where necessary. The process will include multi-year monitoring and estimation of sediment entrainment during initial operations following north Delta diversion (NDD) construction; monitoring and modeling of potential effects relative to performance criteria based on the sediment entrainment estimates; and development and implementation of a sediment reintroduction plan should performance criteria have been exceeded. The process will be implemented by DWR and the permitting fish agencies (NMFS, USFWS, and CDFW) will have approval authority for products developed during the process (e.g., monitoring plans and annual reports).	Preconstruction; Construction; Operations	Contract Requirements; Plan; Monitoring; Reporting; Remediation	Annual reporting	Contractor(s); DWR	Condition of Design Documents and Construction Contract	NMFS; USFWS; CDFW; Delta Science Program; RWQCBs; USACE

EC #	Environmental Commitment(s)	Key Features	Timing	Implementation Action	Reporting Schedule	Implementing Party	Implementation Mechanism	Participating or Permitting Organizations
		The monitoring program will be the first step in the adaptive management process and will involve monitoring and estimating sediment entrainment during the first several years of operations following NDD construction. Monitoring duration will be subject to input from agency review and independent peer review but is anticipated to be at least 5 years to account for hydrological variability. Methods for estimating sediment entrainment will be determined during the planning phase and may include measurement of suspended sediment concentration and flow in the Sacramento River upstream and downstream of the NDD, as well as in the water diverted by each intake. Annual monitoring plans and results reporting will receive initial and periodic independent peer reviews facilitated by the Delta Science Program, and will be subject to approval by NMFS, USFWS, and CDFW. The second step of the process will involve monitoring and modeling of potential effects relative to performance criteria. The specifics of the performance criteria will be developed with the input of the permitting fish agencies and independent peer review. The performance criteria are expected to include assessments of habitat indicators such as the percentage of time that turbidity at monitoring stations exceeds an established threshold (e.g., 12 nephelometric turbidity units; Sommer and Mejia 2013). To account for the likely variability in sediment delivery caused by operations (i.e., sediment entrainment) and other factors (e.g., contribution of sediment from other tributaries), sediment modeling (e.g., using methods from Bever et al. 2018) will be used to approximate the incremental effects of operations given the estimates of sediment entrainment made during the first step of the process. Assessments of achievement of performance criteria will receive independent scientific peer review and will be subject to approval by NMFS, USFWS, and CDFW. If the monitoring and modeling estimates of the second step indicate exceedance of performance criteria attributable to operations, the third step of the proposed process will be initiated. This step will involve development and implementation of a sediment reintroduction plan within 5 years of the end of step two. This plan will aim to reintroduce sediment to allow performance criteria to be met. Sources of sediment to be reintroduced may include proposed facilities (e.g., the NDD sediment lagoons), existing facilities (e.g., Clifton Court Forebay), or locations unrelated to the project alternatives, and will account for factors such as sediment composition to meet performance criteria (e.g., fine particles for turbidity) and reintroduction location. Subject to approval by NMFS, USFWS, and CDFW, alternative means of achieving performance criteria may also be considered (e.g., restoration of turbid tidal habitat in the vicinity of areas that do not appear to be achieving performance standards). Modeling (e.g., using methods such as those of Bever and MacWilliams 2018, Bever et al. 2018) may be used to optimize sediment reintroduction locations relative to performance criteria to be achieved. The sediment reintroduction plan will be prepared to meet required permitting standards from the Central Valley RWQCB and USACE. The sediment reintroduction approach will be consistent with objectives for turbidity in the Central Valley Water Board's Water Quality Control Plan for the Sacramento River and San Joaquin River Basins and, if necessary, will obtain coverage under an individual National Pollutant Discharge Elimination System (NPDES) permit. The permitting fish agencies and independent peer review facilitated by the Delta Science Program will review and provide input on the proposed sediment reintroduction plan and annual reports of its implementation and monitoring to assess achievement of performance standards. The sediment reintroduction plan and reports of its implementation and effectiveness will be subject to approval by NMFS, USFWS, and CDFW.						

EC #	Environmental Commitment(s)	Key Features	Timing	Implementation Action	Reporting Schedule	Implementing Party	Implementation Mechanism	Participating or Permitting Organizations
EC-16	Provide Notification of Construction and Maintenance Activities in Waterways	DWR will notify agencies, including the U.S. Army Corps of Engineers, the Department of Boating and Waterways, and the U.S. Coast Guard, before in-water construction or maintenance activities begin and will notify appropriate fish and wildlife agency representatives and others when these activities could affect water quality or aquatic species. The notification procedures will follow stipulations included in applicable permit documents for the construction. In general, the notification information will be provided in multiple languages and will include site location(s), schedules, and work activities (see Section 3B.1.15, *EC-14: Construction Best Management Practices for Biological Resources*, for additional information regarding in-water work windows). Information on detours would include site-specific details regarding any temporary partial channel closures, including contacting other agencies and organizations, such as the U.S. Coast Guard, boating organizations, marina operators, city or county parks departments, and the California Department of Pesticide Regulation, where applicable. Before maintenance activities begin in waterways, DWR will require the posting of information regarding the maintenance of any in-water project facilities (e.g., intakes for the water conveyance facility) at nearby affected Delta marinas and public launch ramps. This information will include maintenance site location(s), maintenance schedules, speed limits, and identification of no-wake zone and/or detours, where applicable. Information on detours would include site-specific details regarding any temporary partial channel closures, including contacting the U.S. Coast Guard, boating organizations, marina operators, city or county parks departments, and California Department of Parks and Recreation, where applicable.	Preconstruction; Construction	Notification	As needed	Contractor(s); DWR	Condition of Design Documents and Construction Contract	USACE; Department of Boating and Waterways; USCG; California Department of Pesticide Regulation; DPR; Marina operators; City or county parks; Boating organizations
EC-17	Pursue Solar Electric Power Options at Conveyance Facility Sites	DWR will pursue solar panel development at various locations along conveyance facility sites such as the tunnel launch shaft sites, reception and maintenance shaft sites, and on flat -roofed buildings at the Southern Complex and Bethany Complex pumping plant sites. Options will be evaluated to ensure they are logistically, economically, and environmentally feasible prior to final design and implementation. Solar power generated at these sites would be used for operating conveyance and appurtenant facilities.	Preconstruction; Construction	Remediation	As needed	DWR	Condition of Design Documents and Construction Contract	Relevant public utility entities
EC-18	Minimize Construction-Related Disturbances to Delta Community Events and Festivals	DWR will require the construction contractor coordinate with the Ombudsman to identify Delta community events and festivals that could be disturbed by construction activity (see *Sources of Contributions to the Delta Region Economy, in Chapter 17, Socioeconomics* and Table 16-5, Annual Community-Based Delta Recreation Events, in Chapter 16, *Recreation*). In coordination with the Ombudsman, the contractor will prepare a site or activity-specific plan to minimize and avoid construction-related disturbances, such as noise and traffic, where feasible. Specific actions could include limiting, re-routing, or avoiding truck hauling during festivals and events and developing an event specific traffic management plan to address traffic congestion. In addition, depending on the location of the event relative to the area of construction at the time, reduced construction-hours may be implemented and/or other avoidance measures (e.g., additional screening or fencing) to limit exposure of festival attendees by construction activities.	Preconstruction; Construction	Contract Requirements; Plans; Avoidance	As needed	Contractor(s); DWR	Condition of Design Documents and Construction Contract	Relevant representatives from local municipalities

3.3 Table 3. Delta Conveyance Project: Compensatory Mitigation Plan

CMP #	CMP Species Habitat	CMP Text	Timing	Implementation Action	Reporting Schedule	Implementation Party	Implementation Mechanism	Participating or Permitting Organizations	Impact # and Impact Title
CMP-0	General Design Guidelines	These design guidelines will address critical life functions for special-status species. It will also include a framework to ensure that any substantial habitat loss or conversion associated with compensatory mitigation site development are offset so that there would be no net loss in habitat value for special-status species. Any compensatory mitigation to offset habitat losses (associated with the implementation of compensatory mitigation projects) would be constructed prior to or concurrent with the impact.	Preconstruction; Construction; Operations; Postconstruction	Acquisition; Contract Requirements; Restoration	As needed	Biological Monitors; Mitigation Manager	Condition of Design Documents and Construction Contract; Condition of Plan; Condition of MOU	CDFW; NMFS; USACE; USFWS; Affiliated Tribal entities and organizations	
CMP-1	Tidal Perennial Aquatic Habitat	Tidal perennial aquatic habitat will be created or acquired and permanently protected to compensate for project impacts to ensure no significant loss of tidal perennial aquatic habitat functions and values. A restoration and monitoring plan will be developed and implemented concurrently with project construction. The plan will describe how tidal perennial aquatic habitat will be created and monitored, including funding mechanisms and appropriate long-term management measures, and agency reporting requirements. See Section 3F.4.3, *Tidal Habitat Mitigation Framework*; Section 3F.5, *Assurances*; Section 3F.6, *Maintenance and Management*; and Section 3F.7, *Performance Standards and Monitoring*, for additional details.	Preconstruction; Construction; Operations; Postconstruction	Acquisition; Contract Requirements; Restoration	As needed	Construction Biological Monitors; Mitigation Manager	Condition Prior to Resource Impacts or Disturbance; Condition of Plan; Condition of MOU	CDFW; NMFS; USACE; USFWS	Impact BIO-1: Impacts of the Project on the Tidal Perennial Aquatic Natural Community; Impact BIO-34: Impacts of the Project on California Least Tern; Impact BIO-36: Impacts of the Project on Osprey, White-Tailed Kite, Cooper's Hawk, and Other Nesting Raptors
CMP-2	Tidal Freshwater Emergent Wetland	Tidal freshwater emergent wetland will be created or acquired and permanently protected to compensate for project impacts to ensure no significant loss of tidal freshwater emergent wetland functions and values. A restoration and monitoring plan will be developed and implemented concurrently with project construction. The plan will describe how tidal freshwater emergent wetland will be created and monitored, including funding mechanisms and appropriate long-term management measures, and agency reporting requirements.	Preconstruction; Construction; Operations; Postconstruction	Acquisition; Contract Requirements; Restoration	As needed, and as defined in the plan, when prepared.	Construction Biological Monitors; Mitigation Manager	Condition Prior to Resource Impacts or Disturbance; Condition of MOU	CDFW; NMFS; USACE; USFWS	Impact BIO-2: Impacts of the Project on Tidal Freshwater Emergent Wetlands; Impact BIO-12: Impacts of the Project on Tidal Freshwater Emergent Wetland Plants
CMP-3	Valley/Foothill Riparian Habitat	Valley/foothill riparian habitat will be created or restored and permanently protected to compensate for project impacts to ensure no significant loss of valley/foothill riparian habitat functions and values. In addition, valley/foothill riparian habitat will be acquired and permanently protected to further compensate for project impacts. A restoration and monitoring plan will be developed and implemented concurrently with project construction. The plan will describe how valley/foothill riparian habitat will be created and monitored, including funding mechanisms and appropriate long-term management measures, and agency reporting requirements.	Preconstruction; Construction; Operations; Postconstruction	Acquisition; Contract Requirements; Restoration	As needed, and as defined in the plan when prepared.	Construction Biological Monitors; Mitigation Manager	Condition Prior to Resource Impacts or Disturbance; Condition of Plan; Condition of MOU	CDFW; USACE; USFWS	Impact BIO-3: Impacts of the Project on Valley/Foothill Riparian Habitat
CMP-4	Nontidal Perennial Aquatic Habitat	Nontidal perennial aquatic habitat will be created or acquired and permanently protected to compensate for project impacts to ensure no significant loss of nontidal perennial aquatic habitat functions and values. A restoration and monitoring plan will be developed and implemented concurrently with project construction. The plan will describe how nontidal perennial aquatic habitat will be created and monitored, including funding mechanisms and appropriate long-term management measures, and agency reporting requirements.	Preconstruction; Construction; Operations; Postconstruction	Acquisition; Contract Requirements; Restoration	As needed, and as defined in the plan when prepared.	Construction Biological Monitors; Mitigation Manager	Condition Prior to Resource Impacts or Disturbance; Condition of Plan; Condition of MOU	CDFW; NMFS; USACE; USFWS	Impact BIO-4: Impacts of the Project on the Nontidal Perennial Aquatic Natural Community; Impact BIO-13: Impacts of the Project on Special-Status Nontidal Perennial Aquatic Plants
CMP-5	Nontidal Freshwater Perennial Emergent Wetland	Nontidal freshwater perennial emergent wetland will be created or acquired and permanently protected to compensate for project impacts to ensure no significant loss of nontidal freshwater perennial emergent wetland functions and values. In addition, nontidal freshwater perennial emergent wetland will be acquired and permanently protected to further compensate for project impacts. A restoration and monitoring plan will be developed and implemented concurrently with project construction. The plan will describe how nontidal freshwater perennial emergent	Preconstruction; Construction; Operations; Postconstruction	Acquisition; Contract Requirements; Restoration	As needed, and as defined in the plan when prepared.	Construction Biological Monitors; Mitigation Manager	Condition Prior to Resource Impacts or Disturbance; Condition of Plan; Condition of MOU	CDFW; USACE; USFWS	Impact BIO-5: Impacts of the Project on Nontidal Freshwater Perennial Emergent Wetland; Impact BIO-13: Impacts of the Project on Special-

CMP #	CMP Species Habitat	CMP Text	Timing	Implementation Action	Reporting Schedule	Implementation Party	Implementation Mechanism	Participating or Permitting Organizations	Impact # and Impact Title
		wetland will be created and monitored, including funding mechanisms and appropriate long-term management measures, and agency reporting requirements.							Status Nontidal Perennial Aquatic Plants
CMP-6	Nontidal Brackish Emergent Wetland	Nontidal brackish emergent wetland will be created or acquired and permanently protected to compensate for project impacts to ensure no significant loss of nontidal brackish emergent wetland functions and values. In addition, nontidal brackish emergent wetland will be acquired and permanently protected to further compensate for project impacts. A restoration and monitoring plan will be developed and implemented concurrently with project construction. The plan will describe how nontidal brackish emergent wetland will be created and monitored, including funding mechanisms and appropriate long-term management measures, and agency reporting requirements. This mitigation measure does not apply to Alternatives 1, 2a, 2b, and 2c.	Preconstruction; Construction; Operations; Postconstruction	Acquisition; Contract Requirements; Restoration	As needed, and as defined in the plan when prepared.	Construction Biological Monitors; Mitigation Manager	Condition Prior to Resource Impacts or Disturbance; Condition of Plan; Condition of MOU	CDFW; USACE; USFWS	
CMP-7	Alkaline Seasonal Wetland Complex	Alkaline seasonal wetland complex will be created or acquired and permanently protected to compensate for project impacts to ensure no significant loss of alkaline seasonal wetland complex functions and values. In addition, alkaline seasonal wetland complex will be acquired and permanently protected to further compensate for project impacts. A restoration and monitoring plan will be developed and implemented concurrently with project construction. The plan will describe how alkaline seasonal wetland complex will be created and monitored, including funding mechanisms and appropriate long-term management measures, and agency reporting requirements.	Preconstruction; Construction; Operations; Postconstruction	Acquisition; Contract Requirements; Restoration	As needed, and as defined in the plan when prepared.	Construction Biological Monitors; Mitigation Manager	Condition Prior to Resource Impacts or Disturbance; Condition of Plan; Condition of MOU	CDFW; USACE; USFWS	Impact BIO-7: Impacts of the Project on Alkaline Seasonal Wetland Complex; Impact BIO-10: Impacts of the Project on Special-Status Alkaline Seasonal Wetland Complex Plants
CMP-8	Vernal Pool Complex	Vernal pool complex will be created or acquired and permanently protected to compensate for project impacts to ensure no significant loss of vernal pool complex functions and values. In addition, vernal pool complex will be acquired and permanently protected to further compensate for project impacts. A restoration and monitoring plan will be developed and implemented concurrently with project construction. The plan will describe how vernal pool complex will be created and monitored, including funding mechanisms and appropriate long-term management measures, and agency reporting requirements.	Preconstruction; Construction; Operations; Postconstruction	Acquisition; Contract Requirements; Restoration	As needed, and as defined in the plan when prepared.	Construction Biological Monitors; Mitigation Manager	Condition Prior to Resource Impacts or Disturbance; Condition of Plan; Condition of MOU	CDFW; USACE; USFWS	Impact BIO-8: Impacts of the Project on Vernal Pool Complex
CMP-9	Special-Status Plants	Impacts on special-status plants and their habitat will be offset through restoration of suitable habitat. Suitable habitat is defined as habitat that currently supports the species for which mitigation is being implemented or meets habitat requirements for the species, as identified in the species models used in the impact analysis. Habitat requirements for the species include consideration of factors such as the natural community types associated with the species, soil map units associated with the species, and whether the species is or was known to occur at the proposed mitigation site. Suitable habitat also includes habitat that historically supported the species for which mitigation is being implemented, so long as a good-faith effort is made to identify and address those factors that contributed to the species' absence. In addition to addressing those factors that likely resulted in local extirpation (e.g., ranching, mowing, disking, altered hydrology, presence of invasive species). Reestablishing a plant species into suitable, historically supported habitat may include actions such as transplanting, propagation of seed, weed abatement, restoration of microtopography, and siting near existing occurrences. If propagation of seed is used, it will be conducted with consideration of maintenance of genetic diversity. Any propagation material would be sourced from the population affected by the project. Mitigation habitat will consist of existing, off-site suitable habitat acquired in-fee, through conservation easements, or from a certified conservation bank. Mitigation habitat will consist of existing, off-site suitable habitat acquired in fee, through conservation easements, or from a certified conservation bank. At least 2 acres of habitat will be restored and protected for every 1 acre that would be lost. A restoration and monitoring plan will be developed and implemented concurrently with project construction. The plan will include success criteria, specify the length of the monitoring period, and contain assurances of implementation, monitoring, and maintenance. Restored special-status plant habitat will be carried out concurrently with sensitive natural	Preconstruction; Construction; Operations; Postconstruction	Acquisition; Contract Requirements; Restoration	As needed, and as defined in the plan, when prepared. The plan will require annual monitoring reports will be submitted to CDFW for review and determination that the project remains in compliance with the mitigation.	Construction Biological Monitors; Mitigation Manager	Condition of Design Documents and Construction Contract; Condition of Plan; Condition of MOU	CDFW; USACE; USFWS	Impact BIO-9: Impacts of the Project on Special-Status Vernal Pool Plants; Impact BIO-10: Impacts of the Project on Special-Status Alkaline Seasonal Wetland Complex Plants; Impact BIO-11: Impacts of the Project on Special-Status Grassland Plants; Impact BIO-12: Impacts of the Project on Tidal Freshwater Emergent Wetland Plants; Impact BIO-13: Impacts of the Project on Special-Status Nontidal Perennial Aquatic Plants

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		community mitigation and sited in areas near extant populations of the affected species that could provide vegetative or seed propagules. Restored habitat will be sited in locations subject to CDFW approval. The mitigation habitat will be monitored annually to verify that the habitat suitability is maintained. Annual monitoring reports will be submitted to CDFW for review and determination that the project remains in compliance with the mitigation.							
CMP-10	Mason's Lilaeopsis	Impacts on Mason's lilaeopsis habitat will be offset through restoration of suitable habitat. Restored Mason's lilaeopsis habitat will be a subset of tidal restoration mitigation and sited in areas near extant populations of Mason's lilaeopsis that could provide vegetative or seed propagules. Restored habitat will be sited in locations subject to CDFW approval.	Preconstruction; Construction; Operations; Postconstruction	Acquisition; Contract Requirements; Restoration	As needed	Construction Biological Monitors; Mitigation Manager	Condition of Design Documents and Construction Contract; Condition of Plan; Condition of MOU	CDFW	Impact BIO-12: Impacts of the Project on Tidal Freshwater Emergent Wetland Plants
CMP-11	Vernal Pool Fairy Shrimp and Vernal Pool Tadpole Shrimp Habitat	Compensatory mitigation for vernal pool fairy shrimp and vernal pool tadpole shrimp habitat directly or indirectly affected will consist of the preservation of habitat and the creation of habitat at either a USFWS-approved mitigation bank or at a non-bank site approved by USFWS supporting habitat for vernal pool fairy shrimp and vernal pool tadpole shrimp. Mitigation at a non-bank location will be prioritized in the Altamont Hills recovery area, which is one of the core recovery areas identified in the *Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon* (U.S. Fish and Wildlife Service 2005).	Preconstruction; Construction; Operations; Postconstruction	Contract Requirements	As needed	Construction Biological Monitors; Mitigation Manager	Condition of Design Documents and Construction Contract; Condition of Plan; Condition of MOU	CDFW; USFWS	Impact BIO-14: Impacts of the Project on Vernal Pool Aquatic Invertebrates; Impact BIO-16: Impacts of the Project on Vernal Pool Terrestrial Invertebrates; Impact BIO-20: Impacts of the Project on Curved-Foot Hygrotus Diving Beetle; Impact BIO-23: Impacts of the Project on Western Spadefoot Toad
CMP-12	Valley Elderberry Longhorn Beetle Habitat	Generally following the guidance in USFWS's *Framework for Assessing Impacts on Valley Elderberry Longhorn Beetle (*Desmocerus californicus dimorphus*)* (U.S. Fish and Wildlife Service 2017a), the permanent loss of suitable riparian habitat will be offset with riparian creation and enhancement consistent with the restoration guidance in the Framework. All temporarily affected areas will be restored on-site and where on-site restoration is not possible the habitat will be replaced. All elderberry shrubs that are 1 inch or more in diameter at ground level in riparian habitat that will be affected will be transplanted to mitigation areas identified in the CMP. All elderberry shrubs in non-riparian areas that will be affected will be transplanted to mitigation areas identified in the CMP if they contain exit holes. All transplanted shrubs will be monitored and adaptively managed for survivorship as part of the site-specific maintenance and management plan and the monitoring and adaptive management plan as described in Section 3F.7 and Section 3F.6.4, *Adaptive Management*, respectively.	Preconstruction; Construction; Operations; Postconstruction	Acquisition; Contract Requirements; Restoration	As needed and as defined in the plans when prepared.	Construction Biological Monitors; Mitigation Manager	Condition of Design Documents and Construction Contract; Condition of Plan; Condition of MOU	USFWS	Impact BIO-18: Impacts of the Project on Valley Elderberry Longhorn Beetle
CMP-13	California Tiger Salamander Habitat	To the extent possible, California tiger salamander habitat protection will be located in a mitigation bank (with a service area that overlaps with the impact area) or other site protection instrument in the geographically appropriate management unit of the Central Valley, which is identified in USFWS's *Recovery Plan for the Central California Distinct Population Segment of the California Tiger Salamander (*Ambystoma californiense*)* (U.S. Fish and Wildlife Service 2017b). If a mitigation bank is not used, land acquisition for California tiger salamander will be prioritized based on the following characteristics. • Large contiguous landscapes that consist of grasslands, vernal pool complex, and alkali seasonal wetland complex and encompass the range of vegetation, hydrologic, and soil conditions that characterize these communities. • Lands that maintain connectivity with protected grassland, vernal pool complex, and alkali seasonal wetland complex landscapes near proposed construction sites, including connectivity with lands that have been protected or may be protected in the future under the East Contra Costa County Habitat Conservation Plan/Natural Community Conservation Plan. • Grasslands containing stock ponds and other aquatic features that provide	Preconstruction; Construction; Operations; Postconstruction	Acquisition; Contract Requirements; Restoration	As needed	Construction Biological Monitors; Mitigation Manager	Condition Prior to Resource Impacts or Disturbance; Condition of Plan; Condition of MOU	CDFW; USFWS	Impact BIO-22: Impacts of the Project on California Tiger Salamander; Impact BIO-23: Impacts of the Project on Western Spadefoot Toad; Impact BIO-37: Impacts of the Project on Golden Eagle and Ferruginous Hawk; Impact BIO-46: Impacts of the Project on San Joaquin Kit Fox; Impact BIO-47: Impacts of the Project on American Badger; Impact BIO-48: Impacts of the Project

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		aquatic breeding habitat for California tiger salamander. • Adjacent or connected to occupied California tiger salamander upland or aquatic habitat.							on San Joaquin Pocket Mouse; Impact BIO-51: Substantial Adverse Effect on State- or Federally Protected Wetlands and Other Waters through Direct Removal, Filling, Hydrological Interruption, or Other Means
CMP-14	California Red-Legged Frog Habitat	To mitigate for the loss of California red-legged frog aquatic and upland habitat, DWR will protect suitable habitat. California red-legged frog aquatic breeding and upland habitat will be prioritized for protection within the East San Francisco Bay core recovery area as described in the *Recovery Plan for the California Red-Legged Frog (*Rana aurora draytonii*)* (U.S. Fish and Wildlife Service 2002), at a location subject to USFWS approval. All lands protected and restored for compensation of effects on California red-legged frog habitat will be protected and managed in perpetuity. Land acquisition for California red-legged frog habitat management lands will be prioritized based on the following characteristics. • Lands that connect with existing protected grassland, vernal pool complex, and alkali seasonal wetland complex landscapes, including those in the East San Francisco Bay core recovery area for California red-legged frog.	Preconstruction; Construction; Operations; Postconstruction	Contract Requirements; Restoration	As needed	Construction Biological Monitors; Mitigation Manager	Condition Prior to Resource Impacts or Disturbance; Condition of Plan; Condition of MOU	USFWS	Impact BIO-23: Impacts of the Project on Western Spadefoot Toad; Impact BIO-24: Impacts of the Project on California Red-Legged Frog; Impact BIO-37: Impacts of the Project on Golden Eagle and Ferruginous Hawk; Impact BIO-46: Impacts of the Project on San Joaquin Kit Fox; Impact BIO-47: Impacts of the Project on American Badger; Impact BIO-48: Impacts of the Project on San Joaquin Pocket Mouse; Impact BIO-51: Substantial Adverse Effect on State- or Federally Protected Wetlands and Other Waters through Direct Removal, Filling, Hydrological Interruption, or Other Means
CMP-15	Giant Garter Snake Habitat	Where identified and delineated giant garter snake habitat cannot be avoided, compensation for the loss of the habitat will occur for aquatic and upland habitat, with in-kind habitat type compensation. The following measures will be considered when selecting mitigation sites. • Giant garter snake upland mitigation will be placed and protected adjacent to aquatic habitat protected for giant garter snake. The upland habitat will not exceed 200 feet from protected aquatic habitat (unless research shows a larger distance is appropriate and USFWS and CDFW agree). • Incidental injury or mortality of giant garter snakes within protected and restored habitat will be avoided and minimized by establishing 200-foot buffers between protected giant garter snake habitat and roads (other than those roads primarily used to support adjacent cultivated lands and levees). • Protected and restored giant garter snake habitat will be at least 2,500 feet from urban areas or areas zoned for urban development. • Characteristics of restored and protected habitat may change from the above descriptors if new information and best available science indicate greater benefits as agreed upon by USFWS and CDFW. Siting and design requirements for the restoration and protection of giant garter	Preconstruction; Construction; Operations; Postconstruction	Contract Requirements; Restoration	As needed	Construction Biological Monitors; Mitigation Manager	Condition of Design Documents and Construction Contract; Condition of Plan; Condition of MOU	CDFW; USFWS	Impact BIO-30: Impacts of the Project on Giant Garter Snake

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		snake nontidal wetland habitat are listed below. • For in-kind mitigation sites, the aquatic and upland habitat quality, character, and location must be of equal or greater value than the habitat quality that was lost. • Conservation mitigation sites will be characterized as nontidal marsh and will meet the following design criteria. ○ Restored nontidal marsh will be characterized by sufficient water during the giant garter snake's active summer season (May 1–October 1) to supply constant, reliable cover and sources of food such as small fish and amphibians. ○ Restored nontidal marsh will consist of still or slow-flowing water over a substrate composed of soil, silt, or mud characteristic of those observed in marshes, sloughs, or irrigation canals. ○ Restoration designs will not create large areas of deep, perennial open water that would support nonnative predatory fish. The restored marsh will be characterized by a heterogeneous topography providing a range of depths and vegetation profiles consisting of emergent, herbaceous aquatic vegetation that will provide suitable foraging habitat and refuge from predators. ○ Aquatic margins or shorelines will transition to uplands consisting of grassy banks, with the dense grassy understory required for sheltering. These margins will consist of approximately 200 feet of high ground or upland habitat above the annual high-water mark to provide cover and refugia from floodwaters during the dormant winter season. ○ The upland habitat will have ample exposure to sunlight to facilitate giant garter snake thermoregulation and will be characterized by low vegetation, bankside burrows, holes, and crevices providing critical shelter for snakes throughout the day. All giant garter snake upland and aquatic habitat will be established at least 2,500 feet from urban areas or areas zoned for urban development. ○ The loss of tidal aquatic habitat for giant garter snake may be mitigated through restoration of tidal habitat with a design that provides equal or greater habitat value for the species as agreed upon by USFWS and CDFW. Topography of the restored wetlands will be designed to provide adjacent terrestrial refuge persisting above the high-water mark. Terrestrial features will be sited within 200 feet of aquatic foraging areas at all tide levels, with slopes and grading designed to avoid exposing largely denuded intertidal mud flats during low tide.							
CMP-16	Western Yellow-Billed Cuckoo Habitat	DWR will offset the loss of western yellow-billed cuckoo habitat through the creation or restoration of riparian habitat in the study area. DWR will develop a riparian restoration plan that will identify the location and methods for riparian creation or restoration, and this plan will be subject to USFWS approval.	Preconstruction; Construction; Operations; Postconstruction	Contract Requirements; Restoration	As needed, and as required by the plan, when prepared.	Construction Biological Monitors; Mitigation Manager	Condition of Design Documents and Construction Contract; Condition of Plan; Condition of MOU	CDFW; USFWS	Impact BIO-31: Impacts of the Project on Western Yellow-Billed Cuckoo; Impact BIO-41: Impacts of the Project on Other Nesting Special-Status and Non–Special-Status Birds
CMP-17	California Black Rail Habitat	DWR will offset the loss of California black rail habitat through the creation or restoration of tidal emergent wetland habitat in the study area. DWR will develop a restoration plan that will identify the location and methods for tidal emergent wetland creation or restoration, and this plan will be subject to CDFW approval.	Preconstruction; Construction; Operations; Postconstruction	Contract Requirements; Restoration	As needed, and as required by the plan, when prepared.	Construction Biological Monitors; Mitigation Manager	Condition of Design Documents and Construction Contract; Condition of Plan; Condition of MOU	CDFW	Impact BIO-32: Impacts of the Project on California Black Rail; Impact BIO-41: Impacts of the Project on Other Nesting Special-Status and Non–Special-Status Birds

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CMP-18a	Sandhill Crane Roosting Habitat	Create suitable sandhill crane roosting habitat in minimum patch sizes of 40 acres within the Greater Sandhill Crane Winter Use Area with consideration of sea level rise and local seasonal flood events. Roosting habitat may be created on Bouldin Island or in suitable lands that provide connectivity between the Stone Lakes National Wildlife Refuge boundary and the Cosumnes River Preserve, subject to CDFW approval.	Preconstruction; Construction; Operations; Postconstruction	Contract Requirements	As needed	Construction Biological Monitors; Mitigation Manager	Condition of Design Documents and Construction Contract; Condition of Plan; Condition of MOU	CDFW	Impact BIO-33: Impacts of the Project on Greater Sandhill Crane and Lesser Sandhill Crane; Impact BIO-41: Impacts of the Project on Other Nesting Special-Status and Non–Special-Status Birds; Impact BIO-45: Impacts of the Project on Bats
CMP-18b	Sandhill Crane Foraging Habitat	Protect high- to very high-value foraging habitat for greater sandhill crane (corn, rice, wheat, and freshwater emergent wetlands), with at least 80% maintained in very high-value types (corn and rice) in any given year, subject to CDFW approval. This foraging habitat will be within 2 miles of new project roost sites and will consider sea level rise and local seasonal flood events, and the location of foraging habitat loss. The patch size of protected cultivated lands will be at least 160 acres.	Preconstruction; Construction; Operations; Postconstruction	Contract Requirements	As needed	Construction Biological Monitors; Mitigation Manager	Condition of Design Documents and Construction Contract; Condition of Plan; Condition of MOU	CDFW	Impact BIO-33: Impacts of the Project on Greater Sandhill Crane and Lesser Sandhill Crane; Impact BIO-36: Impacts of the Project on Osprey, White-Tailed Kite, Cooper's Hawk, and Other Nesting Raptors; Impact BIO-37: Impacts of the Project on Golden Eagle and Ferruginous Hawk; Impact BIO-38: Impacts of the Project on Ground-Nesting Grassland Birds; Impact BIO-41: Impacts of the Project on Other Nesting Special-Status and Non–Special-Status Birds; Impact BIO-45: Impacts of the Project on Bats
CMP-19a	Swainson's Hawk Nesting Habitat	Swainson's hawk nesting habitat will be restored and protected at a location agreed upon in writing by CDFW at that time. Lands protected and restored as compensatory mitigation for impacts on Swainson's hawk foraging habitat will meet the following criteria. • Swainson's hawk suitable nesting habitat includes mature trees (20 feet or greater) in riparian systems as well as in single, isolated, and roadside trees. • Nest sites are generally adjacent to or within easy flying distance to alfalfa or hay fields or other habitats or agricultural crops which provide an abundant prey source. • The following tree types are known to be preferred by Swainson's hawk: ○ Valley oak (*Quercus lobata*) ○ Freemont cottonwood (*Populus fremontii*) ○ Willows (*Salix* spp.) ○ Sycamores (*Platanus* spp.) ○ Walnuts (*Juglans* spp.) **Nest Site Replacement** In addition to the compensatory mitigation listed above, DWR will compensate for the temporal loss of suitable Swainson's hawk nest sites (defined as a 125-acre area where more than 50% of suitable nest trees [20 feet or taller] within the 125-acre block are removed). To establish a new nest site, DWR will transplant five mature suitable nest trees (at least 20 feet tall) and 15 five-gallon-container-sized suitable nest trees to a location specified in a Vegetation Restoration Plan that is within preserved mitigation lands and approved in writing by CDFW. Planting larger, mature trees, including transplanting trees scheduled for removal, and	Preconstruction; Construction; Operations; Postconstruction	Contract Requirements; Restoration	As needed	Construction Biological Monitors; Mitigation Manager	Condition Prior to Resource Impacts or Disturbance; Condition of Design Documents and Construction Contract; Condition of Plan; Condition of MOU	CDFW	Impact BIO-36: Impacts of the Project on Osprey, White-Tailed Kite, Cooper's Hawk, and Other Nesting Raptors; Impact BIO-39: Impacts of the Project on Swainson's Hawk; Impact BIO-41: Impacts of the Project on Other Nesting Special-Status and Non–Special-Status Birds; Impact BIO-45: Impacts of the Project on Bats

CMP #	CMP Species Habitat	CMP Text	Timing	Implementation Action	Reporting Schedule	Implementation Party	Implementation Mechanism	Participating or Permitting Organizations	Impact # and Impact Title
		supplemented with additional saplings, is expected to accelerate the development of potential replacement nest sites, offset the temporal loss of habitat, and compensate for the impact on Swainson's hawk populations in the Delta. DWR may obtain transplanted mature trees from nursery stock or trees transplanted from construction sites. DWR will plant a combination of five mature trees and 15 saplings at each replacement nest site to provide longevity to the nest site and ensure a sufficient number of trees will meet replacement nest tree success criteria and will survive to continue to provide Swainson's hawk nesting habitat over the long term. To determine the number of affected suitable nest sites, a grid of 125-acre blocks will be placed over each component of project footprint in which trees are to be removed. The grid will be overlain in a manner that places the most complete squares of the grid in the project footprint (i.e., the grid will be adjusted so that, to the extent possible, entire squares rather than portions of squares will overlap with the project footprint). To ensure that transplanted trees and saplings establish new Swainson's hawk nest sites, DWR will: • Establish replacement nest sites at least 0.5 mile apart • Establish replacement nest sites at least 0.25 mile from any existing suitable nest tree and at least 0.5 mile from any existing occupied nest tree • Establish replacement nest sites as close as possible to the impacted nest site, unless such location would have low long-term conservation value due to threats such as ongoing disturbance, seasonal flooding, or sea level rise • Plant the five mature trees and 15 saplings in sites within 3 miles of conserved suitable foraging habitat • Plant mature nest trees and saplings before impacts on suitable nest sites to reduce temporal impacts resulting from the loss of mature nest trees **Compensation for Lost Suitable Nest Trees** For each suitable nest tree removed for the project, DWR will plant five native trees (5-gallon container size) suitable for Swainson's hawk nesting to replace lost suitable nest trees at sites within 3 miles of conserved foraging habitat. Replacement Nest Tree Monitoring and Success Criteria DWR will monitor and maintain all replacement nest trees (mature trees and saplings) for a period of 10 years to assure survival and appropriate growth and development. Success will be measured as an 80% survival rate of mature trees and saplings at 5 and 10 years after planting. After the first 10 years, DWR will monitor replacement nest trees every 5 years to verify their continued survival and growth. For every tree lost during the 10-year time period, DWR will immediately plant a replacement tree upon the detection of failure. DWR will provide all necessary maintenance (i.e., fertilizing, irrigation) to ensure successful establishment. DWR will irrigate trees for a minimum of 5 years after planting, and then gradually wean the trees off the irrigation during a period of approximately 2 years. If larger stock is planted, DWR may reduce the number of years of irrigation accordingly. If the 80% establishment success criteria cannot be met, DWR will coordinate with CDFW to determine additional measures.							
CMP-19b	Swainson's Hawk Foraging Habitat	Swainson's hawk foraging habitat will be protected at locations subject to CDFW approval and will meet the following criteria. • Foraging habitat will be protected within 3 miles of a known Swainson's hawk nest tree and within 50 miles of the project footprint. • Where feasible, protected foraging habitat will have land surface elevations equal to or greater than -1 foot NAVD88 to minimize the risk of flooding and loss of suitable habitat due to future sea level rise. Where protected foraging habitat is located at elevations lower than -1 foot NAVD88, DWR will ensure that levees are maintained around protected habitat. • Individual patches of foraging habitat will be at least 40 acres in size. • Swainson's hawk prey populations will be supported by establishing 20- to	Preconstruction; Construction; Operations; Postconstruction	Contract Requirements	As needed	Construction Biological Monitors; Mitigation Manager	Condition of Design Documents and Construction Contract; Condition of Plan; Condition of MOU	CDFW	Impact BIO-33: Impacts of the Project on Greater Sandhill Crane and Lesser Sandhill Crane; Impact BIO-36: Impacts of the Project on Osprey, White-Tailed Kite, Cooper's Hawk, and Other Nesting Raptors; Impact BIO-39: Impacts of the Project on Swainson's Hawk;

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		30-foot-wide hedgerows along field borders and roadsides at a minimum rate of 400 linear feet per 100 acres of protected cultivated lands. • The use of rodenticide will be prohibited on compensation lands to mitigate for Swainson's hawk foraging habitat. • Mitigation acres will be provided for all acres of habitat lost in the very high, high, medium, and low value classes (see Table 13B.72-1 in Appendix 13B, *Species Accounts*, Section 13B.72.5.3, *Habitat Value Categories*, for definitions of Swainson's hawk foraging habitat value). Lands that are fallowed in any given season or year will be assigned the same habitat value as the dominant crop type on those lands. Cultivated lands will be maintained in nonpermanent crop types as follows: ○ At least 37.5% of Swainson's hawk mitigation lands will be in very high–value foraging habitat on an annual basis. ○ The amount of very high–value habitat used for mitigation will increase to at least the amount lost to project activities, if it is more than 37.5% of the total affected Swainson's hawk foraging habitat. ○ At least 25% of Swainson's hawk mitigation lands will be in high-value foraging habitat and other grasslands managed for Swainson's hawk use on an annual basis. ○ At least 22.5% of Swainson's hawk mitigation lands will be in medium-value foraging habitat. ○ No more than 15% of Swainson's hawk mitigation lands will be in low-value foraging habitat on an annual basis. No Swainson's hawk mitigation lands will be placed on a site that does not have one of the above-listed assigned habitat values (or their equivalent).							Impact BIO-41: Impacts of the Project on Other Nesting Special-Status and Non–Special-Status Birds; Impact BIO-45: Impacts of the Project on Bats
CMP-20	Occupied Burrowing Owl Habitat	If burrowing owls have been documented to occupy burrows at a project site in the last 3 years, current scientific literature supports the conclusion that the site should be considered occupied and mitigation is required (California Department of Fish and Game 2012:11). Suitable burrowing owl habitat will be protected, using the best practices described in the Staff Report on Burrowing Owl Mitigation (California Department of Fish and Game 2012:11–14). If construction activities result in take or if an active burrow must be relocated, as appropriate, DWR will consult with CDFW to develop effective mitigation alternatives.	Preconstruction; Construction; Operations; Postconstruction	Contract Requirements; Restoration	As needed	Construction Biological Monitors; Mitigation Manager	Condition of Design Documents and Construction Contract; Condition of Plan; Condition of MOU	CDFW	Impact BIO-40: Impacts of the Project on Burrowing Owl
CMP-21	Least Bell's Vireo	DWR will offset the loss of least Bell's vireo habitat through the creation or restoration of riparian habitat in the study area. DWR will develop a riparian restoration plan that will identify the location and methods for riparian creation or restoration, and this plan will be subject to USFWS approval.	Preconstruction; Construction; Operations; Postconstruction	Contract Requirements; Restoration	As needed, and as required in the plan when prepared.	Construction Biological Monitors; Mitigation Manager	Condition of Design Documents and Construction Contract; Condition of Plan; Condition of MOU	CDFW; USFWS	Impact BIO-41: Impacts of the Project on Other Nesting Special-Status and Non–Special-Status Birds; Impact BIO-42: Impacts of the Project on Least Bell's Vireo
CMP-22a	Tricolored Blackbird Nesting Habitat	To offset the loss of occupied tricolored blackbird nesting habitat, or previously occupied tricolored blackbird colonies (colonies that have been active within the past 15 years) will be permanently protected or restored and managed at a location subject to CDFW approval, and within 5 miles of the nearest breeding colony observed within the past 15 years if possible. Protected or restored nesting habitat will be managed to provide young, lush stands of bulrush/cattail emergent vegetation and prevent vegetation senescence; or other nesting substrate determined to be location and use appropriate and agreed to by CDFW. Nesting habitat protection or restoration will be prioritized based on the following characteristics. Alternative nesting habitat can be considered based on best available science (e.g., protection of upland tricolored blackbird nesting habitat including blackberries or some of the other upland vegetation species frequently used by tricolored blackbirds for nesting) and CDFW approval. • Occupied or recently occupied (i.e., within the last 15 years) stands of bulrush/cattail emergent vegetation. • Wetland marsh habitat that contains standing water to a depth of approximately 1 foot in most years from late January through late July to	Preconstruction; Construction; Operations; Postconstruction	Contract Requirements; Restoration	As needed	Construction Biological Monitors; Mitigation Manager	Condition of Design Documents and Construction Contract; Condition of Plan; Condition of MOU	CDFW	Impact BIO-44: Impacts of the Project on Tricolored Blackbird; Impact BIO-45: Impacts of the Project on Bats

CMP #	CMP Species Habitat	CMP Text	Timing	Implementation Action	Reporting Schedule	Implementation Party	Implementation Mechanism	Participating or Permitting Organizations	Impact # and Impact Title
		encourage dense development of cattail and bulrush vegetation and to provide protection from predators until nesting is completed; and that is within 6 kilometers of high- or very high–quality foraging habitat. High or very high–quality breeding season foraging habitat includes native pasture, nonirrigated native pasture, annual grassland, vernal pool grassland, alkali grassland, unsprayed alfalfa, unsprayed sunflower, and unsprayed mixed alfalfa, sunflower, alfalfa, mixed alfalfa, mixed pasture, and induced high water table native pasture, and nonirrigated mixed pasture, and dairies, as described in Appendix 13B, Section 13B.85.5.3, *Breeding Foraging Habitat Value Categories*, Table 13B.85-1. • Management and enhancement of tricolored blackbird nesting habitat will be consistent with the recommendations provided by Kyle (2011). The following criteria will guide site selection and management of emergent wetland habitat to benefit tricolored blackbird. • Burn, mow, or graze bulrush/cattail vegetation every 2 to 5 years, or an appropriate interval necessary and agreed to by CDFW to remove dead growth and encourage the development of new vegetative structure. • Maintain large continuous stands of bulrush/cattail that are at least 30 to 45 feet wide to provide adequate space for breeding as well as protection from predators. Establish seasonal buffer zones (consistent with buffers described in Chapter 13, Mitigation Measure BIO-33) around restored tricolored blackbird nesting habitat to reduce disturbance and improve foraging habitat for tricolored blackbirds. Where conditions permit, stands of emergent vegetation, native blackberry, or other native vegetation will be established along ditches and canals to provide suitable nesting substrate for tricolored blackbird. These stands will be located near foraging sites and DWR will prioritize sites located within the dispersal range of existing tricolored blackbird nesting colonies.							
CMP-22b	Tricolored Blackbird Breeding Foraging Habitat	To support protected or restored tricolored blackbird nesting habitat, or to offset the loss of breeding foraging habitat (i.e., foraging habitat used during the breeding season), breeding foraging habitat will be protected using a site protection instrument as described in Section 3F.4.2.2, *Site Protection Instruments*. Breeding foraging habitat will be protected at a location subject to CDFW approval within 6 kilometers of (1) protected or restored nesting habitat that is managed for tricolored blackbird or (2) a recently or historically (to encourage recolonization) occupied tricolored blackbird nesting habitat. To allow for normal crop rotation, 50% of land protected as tricolored blackbird breeding foraging habitat must be planted in high- and very high-value crop types in any given year (see Appendix 13B, Section 13B.85.5.3, Table 13B.85-1, for definitions of foraging habitat values). Foraging habitat protection will be prioritized based on the following characteristics. • Large contiguous landscapes that consist of high- or very high-value cultivated lands, grasslands, vernal pool complex, and alkali seasonal wetland complex. • Cultivated lands that incorporate riparian corridors, water conveyance channels, grasslands, and wetlands. • Cultivated lands that provide opportunities to maintain a mosaic of crop types and allow for the periodic rotation of essential crop types (those crop types with very high, high, and moderate foraging habitat values) to nonessential crop types to ensure acreage commitments. • Cultivated lands that expand upon or provide connectivity between existing conservation lands. Small patches of important wildlife habitats associated with protected cultivated lands will be maintained, including isolated valley oak trees, trees and shrubs along field borders and roadsides, remnant groves, riparian corridors, water conveyance channels, grasslands, ponds, and wetlands.	Preconstruction; Construction; Operations; Postconstruction	Contract Requirements	As needed	Construction Biological Monitors; Mitigation Manager	Condition of Design Documents and Construction Contract; Condition of Plan; Condition of MOU	CDFW	Impact BIO-36: Impacts of the Project on Osprey, White-Tailed Kite, Cooper's Hawk, and Other Nesting Raptors; Impact BIO-37: Impacts of the Project on Golden Eagle and Ferruginous Hawk; Impact BIO-38: Impacts of the Project on Ground-Nesting Grassland Birds; Impact BIO-41: Impacts of the Project on Other Nesting Special-Status and Non–Special-Status Birds; Impact BIO-44: Impacts of the Project on Tricolored Blackbird; Impact BIO-45: Impacts of the Project on Bats

CMP #	CMP Species Habitat	CMP Text	Timing	Implementation Action	Reporting Schedule	Implementation Party	Implementation Mechanism	Participating or Permitting Organizations	Impact # and Impact Title
		On cultivated lands managed as high- to very high-value foraging habitat for tricolored blackbirds, insecticide use will be minimized to the greatest extent practicable during the spring growing season until tricolored blackbird nestlings have fledged or it is documented that no nearby nesting is occurring. This is to ensure that an abundant insect prey population is available to support egg development and feeding of the young, as well as to minimize the risk of pesticide toxicity effects. Site protection instruments developed to protect tricolored blackbird breeding foraging habitat would include site management and site use restrictions, including the application of insecticide, as described in Section 3F.4.2.2.							
CMP-23	Tidal Perennial Habitat Restoration for Construction Impacts on Habitat for Fish and Aquatic Resources	Tidal perennial habitat (e.g., including consideration of shallow water habitat components consistent with agency/regulatory requirements) would be restored to mitigate for both temporary and permanent construction impacts. Tidal perennial habitat restoration site selection and design will occur in coordination with CDFW, USFWS, and NMFS. Restoration will primarily occur through breaching or setback of levees, thereby restoring tidal fluctuation to land parcels currently isolated behind those levees. Factors to be considered when evaluating sites for potential location and design of tidal perennial habitat restoration include provision of suitable habitat features such as those suggested by the San Francisco Estuary Institute (2020) and Sommer and Mejia (2013).[26] Where practicable and appropriate, portions of restoration sites will be raised to elevations that will support tidal marsh vegetation following levee breaching. Depending on the degree of subsidence and location, lands may be elevated by grading higher elevations to fill subsided areas, importing clean dredged or fill material from other locations, or planting tules or other appropriate vegetation to raise elevations in shallowly subsided areas over time through organic material accumulation. Surface grading will create a shallow elevation gradient from the marsh plain to the upland transition habitat if not already present on a restoration site. Based on assessments of local hydrodynamic conditions, sediment transport, and topography, restoration activities may be designed and implemented in a manner that accelerates the development of tidal channels within restored marsh plains. Following reintroduction of tidal exchange, tidal marsh vegetation is expected to establish and maintain itself naturally at suitable elevations relative to the tidal range. Depending on site-specific conditions and monitoring results, patches of native emergent vegetation may be planted to accelerate the establishment of native marsh vegetation on restored marsh plain surfaces. Siting, design, and performance criteria for tidal perennial habitat restoration will be developed based on assessments of topography, local hydrodynamic conditions, and sediment transport. As necessary and reflecting permitting requirements, a collaborative technical team including DWR and fishery agency representatives will be formed to select the most biologically appropriate and cost-effective restoration sites, design the restoration plan, set performance criteria, and develop the restoration unit management plan for the sites. Construction may involve the following activities: • Prior to breaching, recontouring the surface to maximize the extent of surface elevation suitable for establishment of tidal marsh vegetation by scalping higher elevation land to provide fill for placement on subsided lands to raise surface elevations. • Prior to breaching, importing dredge or fill material and placing it in shallowly subsided areas to raise ground surface elevations to a level suitable for establishment of tidal marsh vegetation. • Excavating channels to encourage the development of sinuous, high-density dendritic channel networks within restored marsh plain. • Revegetation through active planting and/or passive establishment of native	Preconstruction; Construction; Operations; Postconstruction	Contract Requirements; Restoration	As needed	Construction Biological Monitors; Mitigation Manager	Condition of Design Documents and Construction Contract; Condition of Plan; Condition of MOU	CDFW; NMFS; USACE; USFWS	Impact AQUA-1: Effects of Construction of Water Conveyance Facilities on Fish and Aquatic Species

[26] Examples of habitat features for consideration include shallow water for juvenile Chinook salmon (San Francisco Estuary Institute 2020:14) and low salinity and high turbidity for delta smelt (Sommer and Mejia 2013:17).

CMP #	CMP Species Habitat	CMP Text	Timing	Implementation Action	Reporting Schedule	Implementation Party	Implementation Mechanism	Participating or Permitting Organizations	Impact # and Impact Title
		marsh vegetation. • Modifying ditches, cuts, and levees to encourage more natural tidal circulation and better flood conveyance based on local hydrology. • Removal or breaching of existing levees or embankments or creation of new structures to allow restoration to take place while protecting adjacent land. Constructing dikes, relocating water diversion infrastructure, or other activities as necessary to maintain agricultural activity in lands adjacent to tidal habitat restoration.							
CMP-24	Channel Margin Habitat Restoration for Construction Impacts on Habitat for Fish and Aquatic Resources	Channel margin habitat would be restored to mitigate construction impacts for both temporary and permanent impacts. Channel margin restoration will be accomplished by improving channel geometry and restoring riparian, marsh, and mudflat habitats on the water side of levees along channels that provide rearing and outmigration habitat for juvenile salmonids in particular, similar to what is currently done by the USACE and others when implementing levee improvements. Channel margin restoration associated with federal project levees will not be implemented on the levee, but rather on benches to the waterward side of such levees, and flood conveyance will be maintained as designed. Channel margin enhancements associated with federal project levees may require permission from USACE in accordance with USACE's authority under the Rivers and Harbors Act (33 USC § 408) and USACE levee vegetation policy. Sites for channel margin restoration will be subject to approval by NMFS and CDFW. Any restoration will be designed, constructed, and maintained to ensure no reduction in performance of the federal flood project. As necessary and reflecting permitting requirements, a collaborative technical team including DWR and fishery agency representatives will be formed to identify the most biologically appropriate and cost-effective restoration sites, design the restoration plan, set performance criteria, and develop the restoration unit management plan for the sites for DWR's selection. Types of channel margin enhancement actions may include the following: • Remove riprap from channel margins. • Modify the channel margin side of levees or setback levees to create low floodplain benches with variable surface elevations that create hydrodynamic complexity and support emergent vegetation. • Install large woody material (e.g., tree trunks and stumps) into constructed low benches or into existing riprapped levees to provide physical complexity. • Plant riparian and emergent wetland vegetation on created benches.	Preconstruction; Construction; Operations; Postconstruction	Contract Requirements; Restoration	As needed	Biological Monitors; Mitigation Manager	Condition of Design Documents and Construction Contract; Condition of Plan; Condition of MOU	CDFW; NMFS; USACE; USFWS	Impact AQUA-1: Effects of Construction of Water Conveyance Facilities on Fish and Aquatic Species
CMP-25	Tidal Habitat Restoration to Mitigate North Delta Hydrodynamic Effects on Chinook Salmon Juveniles	DWR will undertake tidal habitat restoration in the north Delta to mitigate for potential hydrodynamics-related effects such as a greater frequency of Sacramento River reverse flows below Georgiana Slough compared to existing conditions, as reflected in the results of the hydrodynamic analyses and through-Delta juvenile Chinook salmon survival modeling. The mitigation approach will be focused on offsetting the incremental effects of the project alternatives. The extent of this tidal habitat restoration will be determined in coordination with CDFW, NMFS, and FWS and in consideration of the following factors. 1. The extent to which required or planned restoration under other projects or programs (e.g., as summarized by CDFW [2020:127] for restoration related to SWP/CVP operations and by DWR [2023] for restoration under the EcoRestore program) and required restoration mitigation for other impacts of the alternatives minimizes hydrodynamic differences between existing conditions and the project alternatives to standards established during federal Endangered Species Act/California Endangered Species Act permitting. 2. The efficacy of the required Georgiana Slough Salmonid Migratory Barrier under the SWP Incidental Take Permit (California Department of Fish and Wildlife 2020:94–95). 3. Sea level rise, climate change, and associated changes in north Delta hydrodynamics projected to occur at the commencement of operation of the	Prior to Operations; Postconstruction	Contract Requirements; Restoration	As needed	Biological Monitors; Mitigation Manager	Condition of Design Documents and Construction Contract; Condition of Plan; Condition of MOU	CDFW; NMFS; USACE; USFWS	Impact AQUA-2: Effects of Operations and Maintenance of Water Conveyance Facilities on Sacramento River Winter-Run Chinook Salmon; Impact AQUA-3: Effects of Operations and Maintenance of Water Conveyance Facilities on Central Valley Spring-Run Chinook Salmon; Impact AQUA-4: Effects of Operations and Maintenance of Water Conveyance Facilities on Central Valley Fall-Run/Late Fall–Run Chinook Salmon

CMP #	CMP Species Habitat	CMP Text	Timing	Implementation Action	Reporting Schedule	Implementation Party	Implementation Mechanism	Participating or Permitting Organizations	Impact # and Impact Title
		north Delta intakes. This may include evaluating relationships between flow and hydrodynamic changes at various downstream locations (e.g. Georgiana Slough junction) to help isolate potential effects of the project alternatives. Restoration opportunities for this measure will align with species recovery needs and be guided by information in the Sacramento Valley Salmon Resiliency Strategy (California Natural Resources Agency 2017). A monitoring program will be included to assess the performance of the mitigation and modify the mitigation approach as necessary through the Adaptive Management Program to offset the effects of the project alternatives as they become better understood. The efficacy of tidal habitat restoration in affecting north Delta hydrodynamics has been demonstrated through modeling studies (Resource Management Associates 2020). The extent to which tidal habitat restoration to mitigate for DCP operational changes identified for both delta and longfin smelt can contribute to the appropriate type and degree of hydrodynamic mitigation necessary to address the modeled, project-driven, flow changes (e.g., changes in frequency of Sacramento River reverse flows below Georgiana Slough).							
CMP-26	Channel Margin Habitat Restoration for Operations Impacts on Chinook Salmon Juveniles	DWR will undertake channel margin habitat restoration to mitigate for potential flow-related impacts on riparian and wetland bench habitat used by juvenile Chinook salmon for rearing. The extent of this mitigation was calculated by multiplying the largest negative deficits in bench inundation index between each alternative and existing conditions in each geographic group (Chapter 12, *Fish and Aquatic Resources*, Table 12-33) by the total length of benches in each geographic group, which gives a total length of deficit (Table 12-34). This channel margin habitat restoration will be in addition to the channel margin habitat restoration included to mitigate construction impacts on channel margin habitat. The efficacy of channel margin habitat restoration has been demonstrated by studies in the Sacramento River documenting occurrence and abundance of juvenile Chinook salmon that is greater than at riprapped sites and similar to natural sites (Hellmair et al. 2018).	Preconstruction; Construction; Operations; Postconstruction	Contract Requirements; Restoration	As needed	Biological Monitors; Mitigation Manager	Condition of Design Documents and Construction Contract; Condition of Plan; Condition of MOU	CDFW; NMFS; USACE; USFWS	Impact AQUA-2: Effects of Operations and Maintenance of Water Conveyance Facilities on Sacramento River Winter-Run Chinook Salmon; Impact AQUA-3: Effects of Operations and Maintenance of Water Conveyance Facilities on Central Valley Spring-Run Chinook Salmon; Impact AQUA-4: Effects of Operations and Maintenance of Water Conveyance Facilities on Central Valley Fall-Run/Late Fall–Run Chinook Salmon
CMP-27	Tidal Habitat Restoration for Operations Impacts on Delta Smelt	DWR will mitigate potential project-related impacts on delta smelt by restoring tidal habitat, concentrated within the north Delta Arc or other areas deemed appropriate through consultation with USFWS and CDFW. The main objective of this restoration would be to increase the extent of suitable delta smelt habitat (e.g., intertidal and subtidal habitat) (California Department of Fish and Game 2011) with appropriate parameters (e.g., turbidity) providing habitat for occupancy (e.g., Sommer and Mejia 2013) or higher food availability in the vicinity (e.g., Hammock et al. 2019). This mitigation measure's effectiveness will be subject to long-term monitoring and assessed in coordination with USFWS and CDFW as part of the Adaptive Management Program.	Prior to Operations	Contract Requirements; Restoration	As needed, reporting to USFWS and CDFW will ensure occur to ensure efficacy.	Biological Monitors; Mitigation Manager	Condition of Design Documents and Construction Contract; Condition of Plan; Condition of MOU	CDFW; NMFS; USACE; USFWS	Impact AQUA-6: Effects of Operations and Maintenance of Water Conveyance Facilities on Delta Smelt
CMP-28	Tidal Habitat Restoration for Operations Impacts on Longfin Smelt	DWR will undertake tidal habitat restoration to mitigate for potential flow-related impacts on longfin smelt. The extent of this mitigation was calculated using the method of Kratville (2010), as recently applied by DWR (2019:5-5). The method is described in more detail in Appendix 12B, *Bay-Delta Methods and Results*, Section 12B.19, *Smelt Tidal Habitat Restoration Mitigation Calculation*. With the concurrence of USFWS and CDFW, this habitat restoration mitigation requirement may be partly or fully met by tidal perennial or shallow water habitat restoration for construction effects.	Prior to Operations	Contract Requirements; Restoration	As needed	Biological Monitors; Mitigation Manager	Condition of Design Documents and Construction Contract; Condition of Plan; Condition of MOU	CDFW; NMFS; USACE; USFWS	Impact AQUA-7: Effects of Operations and Maintenance of Water Conveyance Facilities on Longfin Smelt

CMP #	CMP Species Habitat	CMP Text	Timing	Implementation Action	Reporting Schedule	Implementation Party	Implementation Mechanism	Participating or Permitting Organizations	Impact # and Impact Title
CMP-29	Crotch Bumble Bee Habitat	Impacts on Crotch bumble bees and their habitat will be offset either through creation or enhancement of suitable habitat, land preservation through site protection instruments, the purchase of credits through a CDFW-approved mitigation bank, or the creation of non-bank site approved by CDFW. Bumble bee habitat has three main habitat requirements: flowering resources that provide pollen and nectar throughout the duration of the colony period (spring, summer, and fall), nest sites for the colony, and overwintering sites for dispersing queens (Hatfield et al. 2012). Mitigation sites will include flower rich natural habitats, grassland, and scrub habitats that include underground cavities (e.g., animal burrows) for nesting and overwintering and aboveground undisturbed areas with nesting resources, such as leaf litter or other complex habitat such as wood piles, tufts of grass, or rock walls for additional overwintering habitat (Xerces Society et al. 2018). Site protection instruments developed to protect Crotch bumble bee habitat would include site management and site use restrictions, including the application of insecticides, as described in U.S. Environmental Protection Agency *Guidance for Assessing Pesticide Risks to Bees* (U.S. Environmental Protection Agency 2014) (also see Section 3F.4.2.2). To offset the unsuccessful relocation of a nest, as determined by a qualified biologist, suitable habitat will be created, enhanced, or protected, using the mitigation mechanisms described above. Suitable habitat is defined as habitat that is suitable for foraging, nesting, or overwintering within a 1.8 km buffer[27] around the lost nest that is permanently affected.	Preconstruction; Construction; Operations; Postconstruction	Acquisition; Contract Requirements	As needed	Biological Monitors; Mitigation Manager	Condition of Design Documents and Construction Contract; Condition of Plan; Condition of MOU	CDFW	Impact BIO-21: Impacts of the Project on Crotch and Western Bumble Bees

[27] The 1.8-km buffer is based on the suitable habitat necessary to support a viable population of bumble bees based on Darvill et al. 2012 and Goulson 2010.

Chapter 4
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4.1 Table 1 References

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DELTA CONVEYANCE DESIGN & CONSTRUCTION AUTHORITY

General Counsel's Report

Contact: Josh Nelson, General Counsel

Agenda Date: April 18, 2024, Board Meeting **Item No.** 7a

Subject: Status Update

Summary:
The General Counsel continues to assist the DCA on legal matters as requested.

Detailed Report:
The General Counsel continues to provide legal assistance as requested. This has included assisting with the items on the agenda. In addition, we have helped prepare for the Finance Committee meeting. Other items include assisting staff with the on-going development of internal DCA plans and policies.

Our office also has assisted with confidential matters.

Action:
Information, only.

DELTA CONVEYANCE DESIGN & CONSTRUCTION AUTHORITY

Treasurer's Report

Contact: Katano Kasaine, Treasurer

Date: April 18, 2024 **Item No. 7b**

Subject: Treasurer's Monthly Report, February/March 2024

Summary:
The beginning cash balance for the Delta Conveyance Design and Construction Joint Powers Authority (Authority) as of February 1, 2024 was $1,037,222. Receipts for February through March 2024 totaled $3,183,929 representing contributions from the Department of Water Resources, Delta Conveyance Office (DCO), intended for the payment of the Authority's obligations. During the same period, disbursements totaled to $2,018,042 resulting in an ending cash balance of $2,203,109 as of March 31, 2024.

Additionally, as of March 31, 2024, the Authority's outstanding receivables amounted to $3,759,486 consisting of 15 invoices issued to the DCO.

The balances for prepaid expenses and accounts payable, as of March 31, 2024, were $159,055 and $5,161,156, respectively. For the same period, advances amounted to $800,000 and total net position was $160,494.

Attachment 1 consists of financial statements for the two months ended March 2024, a Schedule of Invoices Paid through March 2024, and Aging Schedules for Accounts Payable and Accounts Receivable as of March 31, 2024.

Detailed Report:
See attached statements.

Recommended Action:
Information only.

Attachments:
Attachment 1 – February/March 2024 Authority Financial Statements

DELTA CONVEYANCE DESIGN AND CONSTRUCTION JOINT POWERS AUTHORITY

Statement of Net Position

As of March 31, 2024

Assets:		
Cash	$	2,203,109
Accounts receivable		3,759,486
Prepaids		159,055
Total assets	$	6,121,650
Liabilities:		
Accounts payable	$	5,161,156
Advance for prepayments		800,000
Total liabilities		5,961,156
Net position:		160,494
Total liabilities and net position	$	6,121,650

DELTA CONVEYANCE DESIGN AND CONSTRUCTION JOINT POWERS AUTHORITY

Statements of Cash Receipts and Disbursements

	Feb. 1, 2024 Mar. 31, 2024	Year to Date Mar. 31, 2024
Receipts:		
Contributions [1]	$ 3,183,929	$ 23,105,164
Disbursements:		
Program management office		
Executive office	133,712	1,586,961
Community engagement	114,219	629,424
Program controls	—	2,600,964
Administration	295,397	2,329,327
Procurement	1,008	286,586
Property	28,964	284,072
Permitting management	22,320	320,272
Health and safety	—	152,514
Quality management	—	191,051
Program initiation		
Engineering	1,032,870	8,153,643
Fieldwork	389,552	5,780,078
Total disbursements	2,018,042	22,314,892
Net changes in cash	1,165,887	790,272
Cash at July 1, 2023	—	1,412,837
Cash at February 1, 2024	1,037,222	—
Cash at March 31, 2024	$ 2,203,109	$ 2,203,109

[1] DWR contributions invoiced through the DCO.

DELTA CONVEYANCE DESIGN AND CONSTRUCTION JOINT POWERS AUTHORITY

Statements of Revenues, Expenses and Changes in Net Position

	Feb. 1, 2024 Mar. 31, 2024	Year to Date Mar. 31, 2024
Revenues:		
Contributions [1]	$ 5,989,328	$ 23,894,627
Expenses:		
Program management office		
Executive office	305,300	1,704,225
Community engagement	123,253	624,797
Program controls	492,903	2,783,349
Administration	519,324	2,368,470
Procurement	68,098	310,810
Property	47,070	270,959
Permitting management	97,136	359,427
Health and safety	62,400	248,862
Quality management	69,316	236,524
Program initiation		
Engineering	3,033,235	8,598,500
Fieldwork	1,230,041	6,309,867
Total expenses	6,048,076	23,815,790
Changes in net position	(58,748)	78,837
Net position at June 30, 2023	—	81,657
Net position at January 31, 2024	219,242	—
Net position at March 31, 2024	$ 160,494	$ 160,494

* Amounts may include prior month accruals that were not previously captured due to timing.

[1] DWR contributions invoiced through the DCO.

DELTA CONVEYANCE DESIGN AND CONSTRUCTION JOINT POWERS AUTHORITY

Schedule of Invoices Paid
for the Nine Months Ended March 31, 2024

	Vendor	Invoice #	Invoice Date	Payment Date	Period of Expense	Invoice Amount	Amount Paid
1	Consolidated Communications	20230615	06/15/23	07/05/23	06/15/23-07/14/23	$ 2,847	$ 2,847
2	AT&T	1434120802	06/19/23	07/05/23	06/20/23-07/18/23	1,976	1,976
3	Caltronics Business Systems	3807031	06/22/23	07/05/23	05/21/23-06/20/23	1,997	1,997
4	DirectApps Inc. (Launch Consulting)	20920	05/11/23	07/10/23	04/01/23-04/30/23	15,319	15,319
5	AECOM Technical Services	2000756711	05/18/23	07/10/23	04/01/23-04/30/23	152,172	152,172
6	Best, Best, & Krieger	965664	05/18/23	07/10/23	04/01/23-04/30/23	17,067	17,067
7	Parsons	2305C141	05/25/23	07/10/23	04/01/23-04/28/23	509,618	509,618
8	AECOM Technical Services	2000755321	05/23/23	07/10/23	04/01/23-04/30/23	18,182	18,182
9	AirTouch Cellular (Verizon)	9937499359	06/17/23	07/10/23	05/18/23-06/17/23	216	216
10	Prime US-Park Tower LLC	20230701	07/01/23	07/10/23	07/01/23-07/31/23	102,670	102,670
11	Carahsoft Technology Corp	IN1408073	06/01/23	07/14/23	06/05/23-06/04/26	4,651	4,651
12	Jacobs	W8X97005-10	05/23/23	07/14/23	04/01/23-04/28/23	807,335	807,335
13	Metropolitan Water District of So. Ca	501873	05/11/23	07/14/23	04/01/23-04/30/23	31,174	31,174
14	Hamner, Jewell & Associates	202612	05/10/23	07/14/23	04/01/23-04/30/23	1,464	1,464
15	Bank of America	N/A**	07/21/23	07/21/23	07/21/23	482	482
16	Alliant Insurance Services, Inc.	2351909	06/30/23	08/02/23	07/01/23-07/01/24	7,928	7,928
17	Alliant Insurance Services, Inc.	2351910	06/30/23	08/02/23	07/01/23-07/01/24	1,566	1,566
18	Bank of America	N/A**	08/02/23	08/02/23	08/02/23	8,330	8,330
19	Hamner, Jewell & Associates	202658	06/02/23	08/07/23	05/01/23-05/31/23	1,379	1,379
20	Bender Rosenthal, Inc.	23042-5	06/08/23	08/07/23	05/01/23-05/26/23	43,793	43,793
21	Associated Right of Way Services, Inc.	21394	06/06/23	08/07/23	05/01/23-05/31/23	1,860	1,860
22	Gwen Buchholz, Permit Engineer, Inc.	2223-11	06/09/23	08/07/23	05/01/23-05/31/23	15,125	15,125
23	AECOM Technical Services	2000765092	06/08/23	08/07/23	05/01/23-05/31/23	538	538
24	AECOM Technical Services	2000765346	06/08/23	08/07/23	05/01/23-05/31/23	38,305	38,305
25	AECOM Technical Services	2000765343	06/09/23	08/07/23	04/17/23-05/31/23	168,621	168,621
26	Baker Tilly US, LLP	BT2460631	06/09/23	08/07/23	05/01/23-05/31/23	45,426	45,426
27	VMA Communications	DCA23April	04/30/23	08/07/23	04/01/23-04/30/23	38,163	38,163
28	VMA Communications	DCA23May	05/31/23	08/07/23	05/01/23-05/31/23	49,425	49,425
29	Best, Best, & Krieger	967355	06/09/23	08/07/23	05/01/23-05/31/23	23,820	23,820
30	Santa Clara Valley Water District	16	05/08/23	08/07/23	04/01/23-04/28/23	15,470	15,470
31	Jacobs	W8X97005-11	06/09/23	08/07/23	04/29/23-05/26/23	998,858	998,858
32	Parsons	2306B601	06/12/23	08/07/23	04/29/23-05/26/23	515,079	515,079
33	Santa Clara Valley Water District	17	06/08/23	08/07/23	04/29/23-05/26/23	14,419	14,419
34	AirTouch Cellular (Verizon)	9939870561	07/17/23	08/07/23	06/18/23-07/17/23	216	216
35	Caltronics Business Systems	3833168	07/25/23	08/07/23	06/21/23-07/20/23	1,908	1,908
36	Prime US-Park Tower LLC	20230801	07/25/23	08/07/23	08/01/23-08/31/23	102,670	102,670
37	Alliant Insurance Services, Inc.	2351908	06/30/23	08/09/23	07/01/23-07/01/24	27,549	27,549
38	Consolidated Communications	20230715	07/15/23	08/09/23	07/15/23-08/14/23	2,847	2,847
39	AT&T	0935511809	07/19/23	08/09/23	07/19/23-08/18/23	1,976	1,976
40	Gwen Buchholz, Permit Engineer, Inc.	2223-12	07/05/23	08/16/23	06/01/23-06/30/23	16,000	16,000
41	AECOM Technical Services	2000776183	07/07/23	08/25/23	06/01/23-06/30/23	60,943	60,943
42	Associated Right of Way Services, Inc.	21522	07/05/23	08/25/23	06/01/23-06/30/23	1,961	1,961
43	Santa Clara Valley Water District	18	07/10/23	08/25/23	05/27/23-06/30/23	19,696	19,696
44	Bender Rosenthal, Inc.	23042-6	07/12/23	08/25/23	05/27/23-06/30/23	47,248	47,248
45	Baker Tilly US, LLP	BT2478918	07/07/23	08/25/23	06/01/23-06/30/23	44,500	44,500
46	IRIS Intelligence, LLC	WYDCCA01-001r5	06/30/23	08/25/23	06/01/23-05/31/24	44,800	44,800
47	Keogh Multimedia	MK-2023-03	07/06/23	08/25/23	04/01/23-06/30/23	634	634
48	VMA Communications	DCA23June	06/30/23	08/25/23	06/01/23-06/30/23	46,661	46,661
49	Best, Best, & Krieger	970507	07/17/23	08/25/23	06/01/23-06/30/23	17,626	17,626
50	Lux Bus America Co.	85377	08/22/23	08/30/23	08/21/23	1,395	1,395
51	Metropolitan Water District of So. Ca	501887	06/29/23	09/06/23	05/01/23-05/31/23	19,034	19,034
52	Consolidated Communications	20230815	08/15/23	09/06/23	08/15/23-09/14/23	2,847	2,847
53	AirTouch Cellular (Verizon)	9942261773	08/17/23	09/06/23	07/18/23-08/17/23	216	216
54	AT&T	8467081803	08/19/23	09/06/23	08/19/23-09/18/23	1,976	1,976
55	Prime US-Park Tower LLC	20230901	08/22/23	09/06/23	09/01/23-09/30/23	102,670	102,670
56	Jacobs	W8X97005-12	07/20/23	09/18/23	04/29/23-06/30/23	1,351,892	1,351,892
57	Hamner, Jewell & Associates	202760	07/11/23	09/18/23	06/01/23-06/30/23	3,139	3,139
58	Parsons	2307B106	07/24/23	09/18/23	05/27/23-06/30/23	707,641	707,641
59	Metropolitan Water District of So. Ca	501890	07/27/23	09/18/23	06/01/23-06/30/23	22,474	22,474
60	Metropolitan Water District of So. Ca	501891	07/27/23	09/18/23	06/01/23-06/30/23	3,752	3,752
61	AECOM Technical Services	2000781214	07/20/23	09/22/23	05/01/23-06/30/23	1,790,548	1,790,548
62	Bender Rosenthal, Inc.	23042-7	08/04/23	09/22/23	07/01/23-07/28/23	25,763	25,763
63	Associated Right of Way Services, Inc.	21584	08/03/23	09/22/23	07/01/23-07/31/23	378	378

**Auto-withdrawal for Bank of America Line of Credit fee.

DELTA CONVEYANCE DESIGN AND CONSTRUCTION JOINT POWERS AUTHORITY

Schedule of Invoices Paid
for the Nine Months Ended March 31, 2024
(Continued)

	Vendor	Invoice #	Invoice Date	Payment Date	Period of Expense	Invoice Amount	Amount Paid
64	Baker Tilly US, LLP	BT2501233	08/04/23	09/22/23	07/01/23-07/31/23	48,060	48,060
65	Lux Bus America Co.	86344	09/08/23	09/22/23	09/06/23	1,579	1,579
66	AECOM Technical Services	2000789980	08/14/23	09/27/23	07/01/23-07/31/23	47,157	47,157
67	Lux Bus America Co.	87184	09/20/23	10/02/23	09/19/23-09/19/23	1,823	1,823
68	Caltronics Business Systems	3881970	09/21/23	10/02/23	07/21/23-07/31/23	675	675
69	Caltronics Business Systems	3882017	09/21/23	10/02/23	08/01/23-08/31/23	2,325	2,325
70	Caltronics Business Systems	3882037	09/21/23	10/02/23	09/01/23-09/30/23	3,472	3,472
71	Santa Clara Valley Water District	19	08/07/23	10/04/23	07/01/23-07/28/23	3,693	3,693
72	Gwen Buchholz, Permit Engineer, Inc.	2324-01	08/15/23	10/04/23	07/01/23-07/31/23	7,375	7,375
73	AECOM Technical Services	2000790522	08/14/23	10/04/23	07/01/23-07/31/23	242,126	242,126
74	AECOM Technical Services	2000790526	08/14/23	10/04/23	07/01/23-07/31/23	36,272	36,272
75	Jacobs	W8X97006-01	08/15/23	10/04/23	07/01/23-07/28/23	785,844	785,844
76	110 Holdings, LLC (Launch Consulting)	21272	07/13/23	10/06/23	06/01/23-06/30/23	17,604	17,604
77	110 Holdings, LLC (Launch Consulting)	21098	06/09/23	10/06/23	05/01/23-05/31/23	47,774	47,774
78	Consolidated Communications	20230915	09/15/23	10/06/23	09/15/23-10/14/23	2,847	2,847
79	AirTouch Cellular (Verizon)	9944665501	09/17/23	10/06/23	08/18/23-09/17/23	216	216
80	Neumann Ltd	9348	08/31/23	10/06/23	08/30/23-08/30/23	1,523	1,523
81	Prime US-Park Tower LLC	20231001	09/27/23	10/06/23	10/01/23-10/31/23	102,670	102,670
82	Caltronics Business Systems	3886416	09/27/23	10/06/23	09/01/23-09/30/23	2,475	2,475
83	Convergent Systems	43432	07/05/23	10/11/23	07/01/23-09/30/23	587	587
84	Lux Bus America Co.	87777	09/28/23	10/11/23	09/27/23-09/27/23	1,825	1,825
85	Parsons	2308B056	08/31/23	10/23/23	07/01/23-07/28/23	550,555	550,555
86	Metropolitan Water District of So. Ca	501894	08/17/23	10/23/23	07/01/23-07/31/23	13,852	13,852
87	Caltronics Business Systems	3893609	10/04/23	10/23/23	10/01/23-10/31/23	2,712	2,712
88	Lux Bus America Co.	88935	10/12/23	10/23/23	10/11/23-10/11/23	1,710	1,710
89	110 Holdings, LLC (Launch Consulting)	21446	08/16/23	10/25/23	07/01/23-07/31/23	23,568	23,568
90	Hamner, Jewell & Associates	202885	08/18/23	10/25/23	07/01/23-07/31/23	3,697	3,697
91	Bender Rosenthal, Inc.	23042-8	09/05/23	10/25/23	07/01/23-07/28/23	30,209	30,209
92	Associated Right of Way Services, Inc.	21710	09/07/23	10/25/23	08/01/23-08/31/23	1,069	1,069
93	Best, Best, & Krieger	974965	09/11/23	10/25/23	08/01/23-08/31/23	20,700	20,700
94	Gwen Buchholz, Permit Engineer, Inc.	2324-02	09/15/23	10/25/23	08/01/23-08/31/23	14,875	14,875
95	Jacobs	W8X97006-02	09/20/23	10/25/23	07/01/23-08/25/23	1,059,614	1,059,614
96	Santa Clara Valley Water District	20	09/07/23	10/25/23	07/29/23-08/25/23	3,871	3,871
97	Convergent Systems	43655	09/18/23	11/03/23	07/01/23-09/30/23	22	22
98	Parsons	2309B380	09/14/23	11/03/23	07/29/23-08/25/23	641,688	641,688
99	ACWA	20231004	10/04/23	11/03/23	01/01/24-12/31/24	820	820
100	ACWA	INV012311	08/23/23	11/03/23	11/29/23-11/29/23	1,600	1,600
101	ACWA	FC23-INV-781	08/23/23	11/03/23	11/29/23-11/29/23	475	475
102	ACWA	FC23-INV-782	08/23/23	11/03/23	11/29/23-11/29/23	475	475
103	Consolidated Communications	20231015	10/15/23	11/08/23	10/15/23-11/14/23	2,847	2,847
104	AT&T	0730672806	09/19/23	11/08/23	09/19/23-10/18/23	1,976	1,976
105	AT&T	8449633804	10/19/23	11/08/23	10/19/23-11/18/23	1,976	1,976
106	Prime US-Park Tower LLC	20231101	10/23/23	11/08/23	11/01/23-11/30/23	102,670	102,670
107	AECOM Technical Services	2000801515	09/15/23	11/15/23	08/01/23-08/31/23	47,615	47,615
108	Metropolitan Water District of So. Ca	501900	09/21/23	11/15/23	08/01/23-08/31/23	20,280	20,280
109	Commuter Industries, Inc.	230117	09/29/23	11/15/23	09/01/23-09/01/23	169	169
110	Commuter Industries, Inc.	230118	09/29/23	11/15/23	06/13/23-06/13/23	94	94
111	Commuter Industries, Inc.	230119	09/29/23	11/15/23	05/19/23-05/19/23	168	168
112	Keogh Multimedia	MK-2023-04	10/03/23	11/15/23	07/01/23-09/30/23	1,121	1,121
113	AirTouch Cellular (Verizon)	9947095099*	10/17/23	11/15/23	09/18/23-10/17/23	2,240	248
114	Convergent Systems	43917	10/05/23	11/17/23	10/01/23-12/31/23	609	609
115	Associated Right of Way Services, Inc.	21786	10/04/23	11/17/23	09/01/23-09/30/23	2,142	2,142
116	Gwen Buchholz, Permit Engineer, Inc.	2324-03	10/13/23	11/17/23	09/01/23-09/30/23	11,500	11,500
117	Hamner, Jewell & Associates	202935	09/13/23	11/17/23	08/01/23-08/31/23	2,010	2,010
118	Commuter Industries, Inc.	230128	10/15/23	11/17/23	10/12/23-10/12/23	94	94
119	Baker Tilly US, LLP	BT2531429	09/16/23	11/17/23	08/01/23-08/31/23	48,184	48,184
120	Baker Tilly US, LLP	BT2562445	10/16/23	11/17/23	09/01/23-09/30/23	48,060	48,060
121	e-Builder	14846	10/31/23	11/17/23	10/26/23-10/25/24	153,861	153,861
122	Caltronics Business Systems	3918517	11/02/23	11/17/23	11/01/23-11/30/23	2,569	2,569
123	ACWA	FC23-INV-995	11/10/23	11/17/23	11/29/23-11/29/23	265	265
124	Best, Best, & Krieger	973617	08/31/23	11/29/23	07/01/23-07/31/23	21,717	21,717
125	Jacobs	W8X97006-03	10/13/23	11/29/23	08/26/23-09/29/23	1,248,149	1,248,149
126	Parsons	2310A643	10/19/23	11/29/23	08/21/23-09/29/23	768,100	768,100

* In November 2023, DCO disallowed $1,992 of phone charges.

DELTA CONVEYANCE DESIGN AND CONSTRUCTION JOINT POWERS AUTHORITY

Schedule of Invoices Paid
for the Nine Months Ended March 31, 2024
(Continued)

	Vendor	Invoice #	Invoice Date	Payment Date	Period of Expense	Invoice Amount	Amount Paid
127	AECOM Technical Services	2000802870	09/15/23	12/06/23	07/01/23-08/31/23	749,820	749,820
128	AECOM Technical Services	2000803493	09/15/23	12/06/23	07/01/23-08/31/23	139,349	139,349
129	110 Holdings, LLC (Launch Consulting)	214400	10/06/23	12/06/23	08/01/23-08/31/23	23,925	23,925
130	Santa Clara Valley Water District	21	10/04/23	12/06/23	08/26/23-09/29/23	10,235	10,235
131	AECOM Technical Services	2000814727	10/24/23	12/06/23	09/01/23-09/30/23	42,578	42,578
132	onPar Advisors LLC	OPIN0178	11/19/23	12/06/23	11/02/23-11/01/24	48,622	48,622
133	Consolidated Communications	20231115	11/15/23	12/06/23	11/15/23-12/14/23	2,847	2,847
134	AT&T	9050194805	11/19/23	12/06/23	11/19/23-12/18/23	1,976	1,976
135	AirTouch Cellular (Verizon)	9949534528	11/17/23	12/06/23	10/18/23-11/17/23	216	216
136	Prime US-Park Tower LLC	20231201	11/27/23	12/06/23	12/01/23-12/31/23	102,670	102,670
137	110 Holdings, LLC (Launch Consulting)	21760	10/13/23	12/13/23	09/01/23-09/30/23	22,875	22,875
138	Metropolitan Water District of So. Ca	501910	10/16/23	12/13/23	09/01/23-09/30/23	20,648	20,648
139	Lux Bus America Co.	91254	11/13/23	12/13/23	11/13/23-11/13/23	1,278	1,278
140	Lux Bus America Co.	91981	11/21/23	12/13/23	11/14/23-11/14/23	1,659	1,659
141	Lux Bus America Co.	91988	11/21/23	12/13/23	11/15/23-11/15/23	1,665	1,665
142	AECOM Technical Services	2000814915	10/26/23	12/20/23	09/01/23-09/30/23	53,285	53,285
143	Bender Rosenthal, Inc.	23042-9	10/09/23	12/20/23	08/26/23-09/29/23	21,670	21,670
144	Best, Best, & Krieger	978429	10/27/23	12/20/23	09/01/23-09/30/23	17,172	17,172
145	Santa Clara Valley Water District	22	11/01/23	12/20/23	09/30/23-10/27/23	1,013	1,013
146	AECOM Technical Services	2000814778	10/25/23	12/20/23	08/01/23-09/30/23	935,034	935,034
147	110 Holdings, LLC (Launch Consulting)	21951	11/10/23	12/20/23	10/01/23-10/31/23	23,219	23,219
148	Parsons	2311B148	11/13/23	12/20/23	09/30/23-10/27/23	625,132	625,132
149	Caltronics Business Systems	3943729	12/04/23	12/20/23	12/01/23-12/31/23	2,523	2,523
150	Hamner, Jewell & Associates	202983	10/11/23	12/28/23	09/01/23-09/30/23	3,928	3,928
151	Best, Best, & Krieger	979076	11/05/23	12/28/23	10/01/23-10/31/23	21,528	21,528
152	iSpring Solutions, Inc.	IS-011458	12/05/23	12/28/23	12/01/23-11/30/24	8,613	8,613
153	Jacobs	W8X97006-04	11/07/23	01/03/24	09/13/23-10/27/23	911,934	911,934
154	VMA Communications	DCA23July	07/31/23	01/03/24	07/01/23-07/31/23	66,088	66,088
155	VMA Communications	DCA23Aug	08/31/23	01/03/24	08/01/23-08/31/23	28,375	28,375
156	Lux Bus America Co.	89852	10/24/23	01/03/24	10/16/23-10/16/23	300	300
157	AVI-SPL LLC	2087546	11/10/23	01/08/24	08/07/23-08/06/24	13,051	13,051
158	Consolidated Communications	20231215	12/15/23	01/08/24	12/15/23-01/14/24	2,847	2,847
159	VMA Communications	DCA23Sept	09/30/23	01/12/24	09/01/23-09/30/23	38,213	38,213
160	Bender Rosenthal, Inc.	23042-10	11/08/23	01/12/24	09/30/23-10/27/23	13,638	13,638
161	Gwen Buchholz, Permit Engineer, Inc.	2324-04	11/14/23	01/12/24	10/01/23-10/31/23	7,500	7,500
162	Commuter Industries, Inc.	230154	11/17/23	01/12/24	11/17/23-11/17/23	256	256
163	Commuter Industries, Inc.	230160	11/22/23	01/12/24	11/22/23-11/22/23	281	281
164	Commuter Industries, Inc.	230158	11/21/23	01/12/24	11/21/23-11/21/23	109	109
165	AT&T	420875801	12/19/23	01/12/24	12/19/23-01/18/24	1,976	1,976
166	AirTouch Cellular (Verizon)	9951995985	12/17/23	01/12/24	11/18/23-12/17/23	2,207	2,207
167	Prime US-Park Tower LLC	20240101	12/29/23	01/12/24	01/01/24-01/31/24	99,002	99,002
168	AECOM Technical Services	2000826345	11/28/23	01/17/24	10/01/23-10/31/23	47,811	47,811
169	AECOM Technical Services	2000826856	11/28/23	01/17/24	10/01/23-10/31/23	49,350	49,350
170	Hamner, Jewell & Associates	203123	11/15/23	01/17/24	10/01/23-10/31/23	1,046	1,046
171	VMA Communications	DCA23Oct	10/31/23	01/17/24	10/01/23-10/31/23	52,550	52,550
172	Parsons	2312B253	12/13/23	01/17/24	10/28/23-11/24/23	554,419	554,419
173	AECOM Technical Services	2000826313	11/28/23	01/22/24	07/20/23-10/31/23	70,606	70,606
174	110 Holdings, LLC (Launch Consulting)	214401	12/12/23	01/22/24	11/01/23-11/30/23	35,817	35,817
175	Santa Clara Valley Water District	23	12/05/23	01/22/24	10/28/23-11/24/23	2,025	2,025
176	Caltronics Business Systems	3971470	01/09/24	01/22/24	01/01/24-01/31/24	2,412	2,412
177	Jacobs	W8X97006-05	12/11/23	01/31/24	10/05/23-11/24/23	941,206	941,206
178	Hamner, Jewell & Associates	203174	12/12/23	01/31/24	11/01/23-11/30/23	783	783
179	Baker Tilly US, LLP	BT2604365	11/18/23	01/31/24	08/14/23-10/31/23	56,109	56,109
180	AECOM Technical Services	2000836314	12/15/23	01/31/24	10/28/23-12/01/23	43,434	43,434
181	AECOM Technical Services	2000837313	12/19/23	01/31/24	07/01/23-12/01/23	27,932	27,932
					Subtotal July - January*	$ 20,298,842	$ 20,296,850
182	Consolidated Communications	20240115	01/15/24	02/07/24	01/15/24-02/14/24	2,847	2,847
183	AT&T	4861056806	01/19/24	02/07/24	01/19/24-02/18/24	1,976	1,976
184	AECOM Technical Services	2000837299	12/19/23	02/07/24	09/04/23-12/02/23	225,869	225,869
185	Baker Tilly US, LLP	BT2632498	12/20/23	02/07/24	11/01/23-11/30/23	50,541	50,541
186	Metropolitan Water District of So. Ca	501926	11/15/23	02/07/24	10/01/23-10/31/23	25,088	25,088

* Totals may not foot due to rounding.

DELTA CONVEYANCE DESIGN AND CONSTRUCTION JOINT POWERS AUTHORITY

Schedule of Invoices Paid
for the Nine Months Ended March 31, 2024
(Continued)

	Vendor	Invoice #	Invoice Date	Payment Date	Period of Expense	Invoice Amount	Amount Paid
187	Convergent Systems	44352	01/05/24	02/07/24	01/01/24-03/31/24	609	609
188	Commuter Industries, Inc.	230161	12/06/23	02/07/24	12/12/23-12/12/23	645	645
189	Miles Treaster & Associates	50651	11/29/23	02/07/24	11/29/23-11/29/23	210	210
190	Prime US-Park Tower LLC	20240201	01/27/24	02/07/24	02/01/24-02/29/24	106,300	106,300
191	Jambo	2023-49	07/01/23	02/14/24	07/01/23-06/30/24	34,920	34,920
192	Bender Rosenthal, Inc.	23042-12	01/05/24	02/14/24	11/25/23-12/31/23	28,026	28,026
193	VMA Communications	DCA23Nov	11/30/23	02/14/24	11/01/23-11/30/23	112,175	112,175
194	Santa Clara Valley Water District	24	01/08/24	02/14/24	11/25/23-12/22/23	7,934	7,934
195	Caltronics Business Systems	4000174	02/12/24	02/23/24	02/01/24-02/29/24	2,718	2,718
196	Best, Best, & Krieger	983842	12/23/23	02/26/24	11/01/23-11/30/23	21,029	21,029
197	Consolidated Communications	20240215	02/15/24	03/06/24	02/15/24-03/24/24	2,850	2,850
198	AT&T	4477337806	02/19/24	03/06/24	02/19/24-03/18/24	1,976	1,976
199	Prime US-Park Tower LLC	20240301	02/23/24	03/06/24	03/01/24-03/31/24	106,605	106,605
200	Jacobs	W8X97006-06	01/26/24	03/13/24	09/13/23-12/29/23	1,154,275	1,154,275
201	Associated Right of Way Services, Inc.	21996	01/04/24	03/13/24	12/01/23-12/31/23	211	211
202	110 Holdings, LLC (Launch Consulting)	214402	01/25/24	03/13/24	12/01/23-12/31/23	31,290	31,290
203	Metropolitan Water District of So. Ca	501928	12/19/23	03/13/24	10/01/23-11/30/23	18,423	18,423
204	Hamner, Jewell & Associates	203213	01/08/24	03/13/24	12/01/23-12/31/23	727	727
205	Best, Best, & Krieger	986334	01/31/24	03/13/24	12/01/23-12/31/23	19,638	19,638
206	Lux Bus America Co.	107237	02/23/24	03/13/24	12/05/23-12/05/23	1,234	1,234
207	AECOM Technical Services	2000845451	01/18/24	03/18/24	05/09/23-12/29/23	57,475	57,475
208	Caltronics Business Systems	4016272	03/01/24	03/18/24	03/01/24-03/31/24	2,451	2,451
					Subtotal February - March*	$ 2,018,042	$ 2,018,042
					Total July - March*	$ 22,316,884	$ 22,314,892

* Totals may not foot due to rounding.

DELTA CONVEYANCE DESIGN AND CONSTRUCTION JOINT POWERS AUTHORITY

Accounts Payable Aging Schedule
As of March 31, 2024

Payable To:	1 - 30	31 - 60	61 - 90	> 90	Total
110 Holdings, LLC (Launch Consulting)					
Invoice #20152024	$ 28,053	$ —	$ —	$ —	$ 28,053
AECOM Technical Services					
Invoice #2000845431	62,711	—	—	—	62,711
Invoice #2000847155	759,302	—	—	—	759,302
Invoice #2000855455	54,078	—	—	—	54,078
Invoice #2000856267	90,228	—	—	—	90,228
Invoice #2000868064	42,677	—	—	—	42,677
Associated Right of Way Services, Inc.					
Invoice #21812	—	1,148	—	—	1,148
Invoice #21918	—	317	—	—	317
Invoice #22050	4,216	—	—	—	4,216
Invoice #22148	5,261	—	—	—	5,261
AT&T					
Invoice #1913997805	988	—	—	—	988
Baker Tilly US, LLP					
Invoice #BT2649237	—	48,060	—	—	48,060
Bender Rosenthal, Inc.					
Invoice #23042-11	—	14,737	—	—	14,737
Invoice #152	12,664	—	—	—	12,664
Best, Best, & Krieger					
Invoice #988978	19,504	—	—	—	19,504
Bradner Consulting LLC					
Invoice #2324-01	48,060	—	—	—	48,060
Consolidated Communications					
Invoice #20240315	1,425	—	—	—	1,425
Discovery Door Inc					
Invoice #47892	—	2,563	—	—	2,563
Gwen Buchholz, Permit Engineer, Inc.					
Invoice #2324-05	—	18,500	—	—	18,500
Invoice #2324-06	—	14,875	—	—	14,875
Invoice #2324-07	9,750	—	—	—	9,750
Invoice #2324-08	12,875	—	—	—	12,875
Jacobs					
Invoice #W8X97006_07	1,051,363	—	—	—	1,051,363
Invoice #W8X97006_08	1,139,404	—	—	—	1,139,404
Keogh Multimedia					
Invoice #MK-2024-01	—	780	—	—	780
Metropolitan Water District of So. Ca.					
Invoice #501933	13,843	—	—	—	13,843
Parsons					
Invoice #2401B114	—	579,436	—	—	579,436
Invoice #2402B205	473,872	—	—	—	473,872
Invoice #2403A696	543,871	—	—	—	543,871
Signs Now					
Invoice #107894	533	—	—	—	533
VMA Communications					
Invoice #DCA23Dec	62,437	—	—	—	62,437
Invoice #DCA24Jan	43,625	—	—	—	43,625
	$ 4,480,740	$ 680,416	$ —	$ —	$ 5,161,156

*Totals may not foot due to rounding.

DELTA CONVEYANCE DESIGN AND CONSTRUCTION JOINT POWERS AUTHORITY

Accounts Receivable Aging Schedule [1]
As of March 31, 2024

Receivable From:	1 - 30	31 - 60	61 - 90	> 90	Total
Department of Water Resources					
Invoice #DCA-557	$ —	$ 34,702	$ —	$ —	$ 34,702
Invoice #DCA-568	—	5,259	—	—	5,259
Invoice #DCA-569	—	66,278	—	—	66,278
Invoice #DCA-570	—	579,436	—	—	579,436
Invoice #DCA-577	62,711	—	—	—	62,711
Invoice #DCA-579	76,281	—	—	—	76,281
Invoice #DCA-588	5,661	—	—	—	5,661
Invoice #DCA-589	23,720	—	—	—	23,720
Invoice #DCA-590	543,871	—	—	—	543,871
Invoice #DCA-591	18,136	—	—	—	18,136
Invoice #DCA-592	1,051,363	—	—	—	1,051,363
Invoice #DCA-593	42,677	—	—	—	42,677
Invoice #DCA-594	3,382	—	—	—	3,382
Invoice #DCA-595	106,605	—	—	—	106,605
Invoice #DCA-596	1,139,404	—	—	—	1,139,404
	$ 3,073,811	$ 685,675	$ —	$ —	$ 3,759,486

*Totals may not foot due to rounding.

[1] Approval date by the DCO determines aging classification.

DELTA CONVEYANCE DESIGN AND CONSTRUCTION JOINT POWERS AUTHORITY

Statements of Cash Receipts and Disbursements

	Feb. 1, 2024 Mar. 31, 2024	Year to Date Mar. 31, 2024
Receipts:		
Contributions [1]	$ 3,183,929	$ 23,105,164
Disbursements:		
Program management office		
Executive office	133,712	1,586,961
Community engagement	114,219	629,424
Program controls	—	2,600,964
Administration	295,397	2,329,327
Procurement	1,008	286,586
Property	28,964	284,072
Permitting management	22,320	320,272
Health and safety	—	152,514
Quality management	—	191,051
Program initiation		
Engineering	1,032,870	8,153,643
Fieldwork	389,552	5,780,078
Total disbursements	2,018,042	22,314,892
Net changes in cash	1,165,887	790,272
Cash at July 1, 2023	—	1,412,837
Cash at February 1, 2024	1,037,222	—
Cash at March 31, 2024	$ 2,203,109	$ 2,203,109

Statements of Revenues, Expenses and Changes in Net Position

	Feb. 1, 2024 Mar. 31, 2024	Year to Date Mar. 31, 2024
Revenues:		
Contributions [1]	$ 5,989,328	$ 23,894,627
Expenses:		
Program management office		
Executive office	305,300	1,704,225
Community engagement	123,253	624,797
Program controls	492,903	2,783,349
Administration	519,324	2,368,470
Procurement	68,098	310,810
Property	47,070	270,959
Permitting management	97,136	359,427
Health and safety	62,400	248,862
Quality management	69,316	236,524
Program initiation		
Engineering	3,033,235	8,598,500
Fieldwork	1,230,041	6,309,867
Total expenses	6,048,076	23,815,790
Changes in net position	(58,748)	78,837
Net position at June 30, 2023	—	81,657
Net position at January 31, 2024	219,242	—
Net position at March 31, 2024	$ 160,494	$ 160,494

* Amounts may include prior month accruals that were not previously captured due to timing.

[1] DWR contributions invoiced through the DCO.

DELTA CONVEYANCE DESIGN AND CONSTRUCTION JOINT POWERS AUTHORITY

	Statements of Cash Receipts and Disbursements		Statements of Revenues, Expenses and Changes in Net Position	
	Feb. 1, 2024 Mar. 31, 2024	Year to Date Mar. 31, 2024	Feb. 1, 2024 Mar. 31, 2024	Year to Date Mar. 31, 2024
Receipts/Revenues:				
Contributions [1]	$ 3,183,929	$ 23,105,164	$ 5,989,328	$ 23,894,627
Disbursements/Expenses*:				
Program management office				
Executive office	133,712	1,586,961	305,300	1,704,225
Community engagement	114,219	629,424	123,253	624,797
Program controls	—	2,600,964	492,903	2,783,349
Administration	295,397	2,329,327	519,324	2,368,470
Procurement	1,008	286,586	68,098	310,810
Property	28,964	284,072	47,070	270,959
Permitting management	22,320	320,272	97,136	359,427
Health and safety	—	152,514	62,400	248,862
Quality management	—	191,051	69,316	236,524
Program initiation				
Engineering	1,032,870	8,153,643	3,033,235	8,598,500
Fieldwork	389,552	5,780,078	1,230,041	6,309,867
Total disbursements/expenses	2,018,042	22,314,892	6,048,076	23,815,790
Net changes in cash	1,165,887	790,272		
Cash at July 1, 2023	—	1,412,837		
Cash at February 1, 2024	1,037,222	—		
Cash at March 31, 2024	$ 2,203,109	$ 2,203,109		
Changes in net position			(58,748)	78,837
Net position at June 30, 2023			—	81,657
Net position at January 31, 2024			219,242	—
Net position at March 31, 2024			$ 160,494	$ 160,494

* Amounts may include prior month accruals that were not previously captured due to timing.

[1] DWR contributions invoiced through the DCO.

DELTA CONVEYANCE DESIGN & CONSTRUCTION AUTHORITY

DCP Communications Report

Contact: Valerie Martinez, DCA Communications Manager

Agenda Date: April 18, 2024 Board Meeting **Item No.** 7c

Subject: DCP Communications Status Update

Summary:
The Communications Manager will update the Board.

Detailed Report:
More details on Communications efforts will be discussed.

Action:
Information, only.