FINAL

Supplemental Environmental Assessment III

San Joaquin River Basin, Lower San Joaquin River, California, Project

Tenmile Slough Reach 30L Levee Improvements Alternate Haul Route

September 2025

US Army Corps of Engineers®
Sacramento District

[This page intentionally left blank]

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ACRONYMS AND ABBREVIATIONS

APE	Area of Potential Effects
BO	Biological Opinion
CAA	Clean Air Act
CCAA	California Clean Air Act
CARB	California Air Resource Board
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CH_4	methane
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
CV	Central Valley
CVFPB	Central Valley Flood Protection Board
cy	Cubic yards
DCH	Designated critical habitat
Delta	Sacramento-San Joaquin Delta
DPS	Distinct population segment
DWR	California Department of Water Resources
EIS/EIR	Environmental Impact Statement/Environmental Impact Report
EO	Executive Order
EPA	Environmental Protection Agency
ESA	Endangered Species Act
ESU	Evolutionarily significant unit
FONSI	Finding of No Significant Impact
IIFR/EIS/EIR	Integrated Interim Feasibility Report/Environmental Impact Statement/Environmental Impact Report
GGS	Giant garter snake
GHG	Greenhouse gas
LSJR	Lower San Joaquin River
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NFS	Non-Federal Sponsor
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
N_2O	nitrous oxide
PA	Programmatic Agreement
PG&E	Pacific Gas and Electric Company
P.L.	Public Law
PM	particulate matter
PM_{10}	PM equal to or less than 10 micrometers in diameter

$PM_{2.5}$	PM equal to or less than 2.5 micrometers in diameter
RCEM	Road Construction Emission Model
SEA	Supplemental Environmental Assessment
SEWD	Stockton East Water District
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SJAFCA	San Joaquin Area Flood Control Agency
SJVAPCD	San Joaquin Valley Air Pollution Control District
SR	State Route
TPY	tons per year
TS30L	Tenmile Slough, Reach 30 Left Bank
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
VELB	Valley elderberry longhorn beetle
WOTUS	Waters of the United States
WRDA	Water Resources Development Act

[This page intentionally left blank]

Chapter 1 INTRODUCTION

1.1 Summary

The San Joaquin River Basin, Lower San Joaquin River, California, Project (LSJR Project) is a cooperative flood risk management effort by the U.S. Army Corps of Engineers (USACE) with its non-Federal sponsors (NFS), the Central Valley Flood Protection Board (CVFPB), as represented by the California Department of Water Resources (DWR), and the San Joaquin Area Flood Control Agency (SJAFCA). The purpose of the LSJR Project is to reduce flood risk to the City of Stockton associated with seepage, stability, overtopping, and erosion for levees along the San Joaquin River, Calaveras River, Fourteenmile Slough, Tenmile Slough, French Camp Slough, Mosher Slough, and Duck Creek. The LSJR Project area experienced major flood events in 1955, 1958, and 1997, resulting in varying degrees of damage. Climate change models for the Central Valley forecasts more frequent, short duration, high flow events that could potentially increase future flood risk. The existing levee system protects over 71,000 acres of mixed-use land, about 235,000 people, and an estimated $28.7 billion in damageable property.

The 2018 San Joaquin River Basin, Lower San Joaquin River, CA, Final Integrated Interim Feasibility Report/Environmental Impact Statement/Environmental Impact Report (2018 LSJR IIFR/EIS/EIR) evaluated seven alternatives to reduce flood risk to the City of Stockton and surrounding areas. Alternative 7a was identified as the recommended plan and is now the authorized LSJR Project. The LSJR Project includes approximately 24 miles of levee improvements and two closure structures, one at Fourteenmile Slough and the other at Smith Canal. The levee improvements include cutoff walls, deep soil mixing (seismic remediation), a new levee, levee geometry improvements, and erosion protection. The LSJR Project is divided into several components, which include the Smith Canal Gate structure, Tenmile Slough Reach 30 Left Bank (TS30L), and Phases A through F. Table 1 outlines each component of the LSJR Project, providing a brief description and the scheduled construction start year. Figure 1 shows an overview map of the proposed construction locations for the LSJR Project, including the closure structures and all phases. The Smith Canal Gate structure began construction in 2020 and all construction activities were completed in 2023. The Federal Emergency Management Agency (FEMA) will issue revised flood maps of the Smith Canal area, which is anticipated to be completed in 2025.

The 2018 LSJR IIFR/EIS/EIR discussed the overall impacts of the proposed levee repairs and closure structures but left specific details to be analyzed during design of each of the reaches. These include Project design elements such as borrow sites, haul routes, staging areas, and the final footprint. Additionally, environmental and cultural resource impacts were largely conducted by desktop analysis, with detailed field surveys to be conducted prior to Project construction. The 2018 LSJR IIFR/EIS/EIR analyzed

Reach TS30L with a conservative approach using typical cross sections and footprints for levee reaches, with the understanding that further design refinements would be completed during the reach design with the development of supplemental National Environmental Policy Act (NEPA) documentation as needed. The recommended plan in the 2018 LSJR IIFR/EIS/EIR for Reach TS30L included fix-in-place improvements consisting of a cutoff wall, geometry improvements, all weather maintenance access roads, and erosion protection. The 2023 TS30L Final Supplemental Environmental Assessment (SEA) described the refinements developed since the 2018 LSJR IIFR/EIS/EIR relating to the specific design and mitigation for the TS30L levee improvement work. The following elements relating to TS30L that were not discussed in the 2018 LSJR IIFR/EIS/EIR but analyzed in the 2023 TS30L Final SEA included, the Stockton East Water District (SEWD) borrow site and haul route, two staging areas, an improved road in the waterside easement, and a levee footprint shifted towards the waterside.

This SEA supplements the 2018 LSJR IIFR/EIS/EIR and analyzes the impacts of a proposed alternate haul route for transporting materials from the previously identified and approved SEWD borrow site to the TS30L site, not discussed in previous NEPA documents. Three other alternative routes are outlined but not analyzed or considered further due to the justifications described. This SEA is the third supplemental document for the LSJR Project prepared in compliance with NEPA. Subsequent LSJR Project reaches will require further environmental review as their designs are refined, which may result in the creation of additional supplemental documentation.

Table 1. Overview of the LSJR Project components and phases.

LSJR Project Component	Type of Work	Location	Length	Scheduled Construction Start Year
Smith Canal Gate structure	Floodwall tying into the existing levee, and gate structure for tidal exchange and boat access to Smith Canal.	Stockton, along the San Joaquin River from Dad's Point to the eastern boundary of the Stockton Golf & Country Club.	Approximately 800 ft	2020
TS30L	Levee fix in place with the addition of a cut-off wall, geometry reshaping, and waterside erosion protection.	Stockton, at the western border of the Brookside housing development, and north of March Lane along the Tenmile Slough.	Approximately 5,900 ft	2024
Phase A – Shima Tract	Levee fix in place with the addition of a cut-off wall, as well as the addition of waterside erosion protection.	North Stockton west of Interstate 5 and north of Schooner Drive to Sturgeon Road.	Approximately 8,400 ft	2028
Phase B – Fourteenmile Slough	Levee fix in place and new levees, with the addition of a cutoff wall, height improvements, geometry improvements, and a closure structure.	North Stockton along the Fourteenmile Slough.	Approximately 10,400 ft	2032
Phase C – Tenmile Slough, Calaveras River	Levee fix in place with the addition of a cutoff wall, seismic fixes, and levee reshaping and geometry improvements.	Right bank of the Calaveras River, south of March Lane to N. El Dorado Street (Phase C-2), including a small portion North of the Calaveras on the San Joaquin River (Phase C-1, reaches TS10L and TS20L).	Approximately 28,600 ft	2032
Phase D – Calaveras River, San Joaquin River	Levee fix in place with the addition of a cutoff wall, geometry improvements, height improvements and retention walls.	Left bank of the Calaveras River, north of Monte Diablo Avenue to N. El Dorado Street, including a small portion South of the Calaveras on the San Joaquin River near Smith Canal.	Approximately 27,500 ft	2035
Phase E – San Joaquin River, French Camp Slough, Duck Creek	Levee fix in place with the addition of a cutoff wall, construction of new levees, levee reshaping and geometry improvements.	South of the Port of Stockton along the San Joaquin River, French Camp Slough, and Walker Slough, adjacent to Van Buskirk Park to S. El Dorado Street.	Approximately 30,400 ft	2033
Phase F – Mosher Creek	Levee fix in place with the addition of a cutoff wall and height improvements.	North Stockton from Mosher Slough east to Thornton Road.	Approximately 10,700 ft	2032

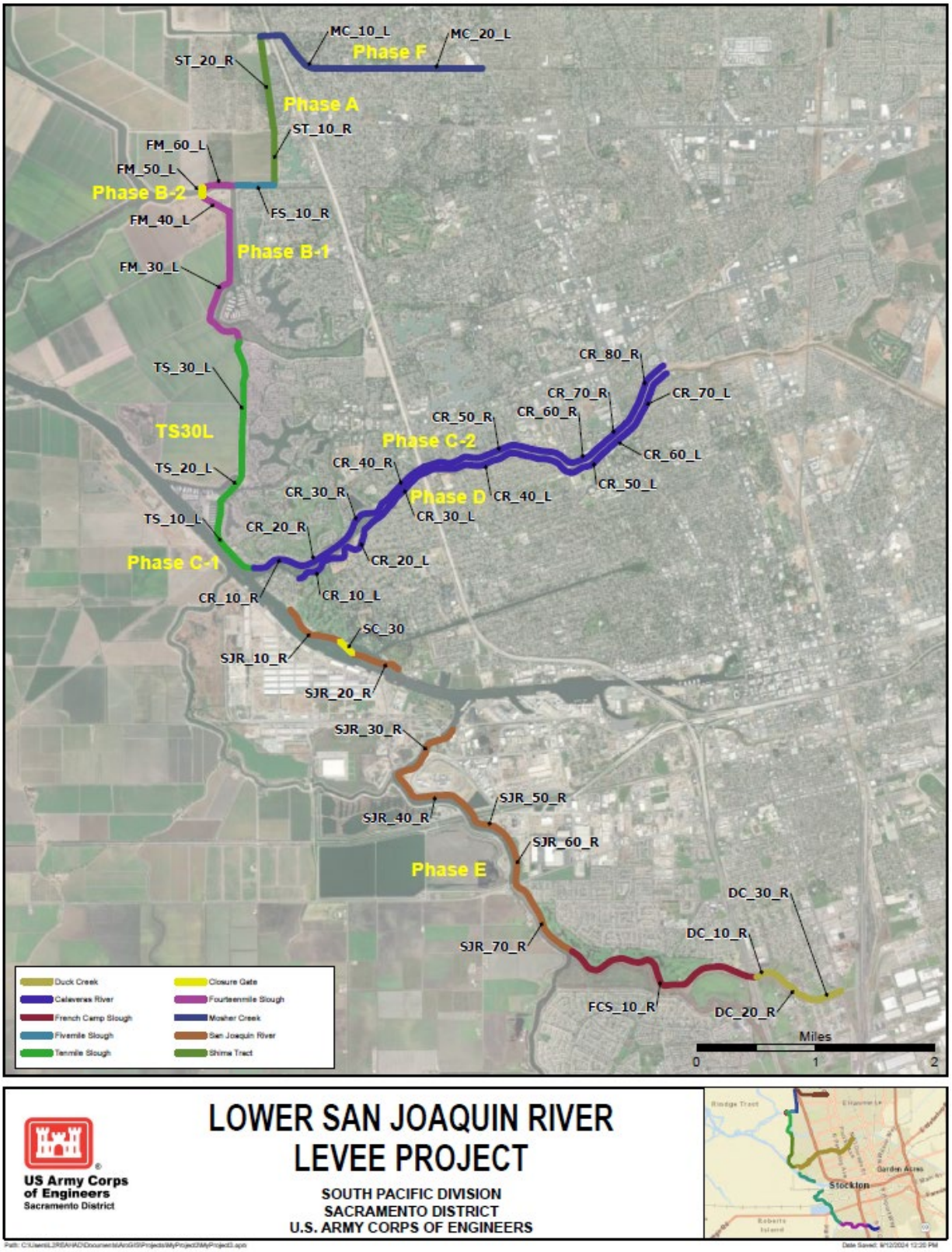

Figure 1. Map showing the phase locations and closure structures of the LSJR Project.

1.2 Authority

The LSJR Project was authorized for construction in America's Water Infrastructure Act of 2018 (Public Law [P.L.] 115-270), which expedited the completion of the feasibility study and allowed the study to proceed directly to the preconstruction, engineering, and design phase of the Project, as described in Section 1322(b)(2)(F) of the Water Resources Development Act (WRDA) of 2016 (P.L. 114-322). Funding was provided under Division D, Title I of the Consolidated Appropriations Act of 2021 (PL 116-260).

1.3 Project Purpose

The overall purpose of the LSJR Project is to provide flood risk management for the City of Stockton and to decrease the annual chance of flooding through levee improvements. Reach TS30L is located along the Delta Front, a region that was determined by USACE, SJAFCA, and CVFPB to pose the greatest flood risk. The improvements specific to TS30L address flood risk from the Sacramento-San Joaquin Delta (Delta), a large, tidally-influenced region over 1,000 square miles in area, and its tributaries. The Delta is fed by the Sacramento and San Joaquin Rivers, which receive runoff from winter storms and spring snowmelt from California's Central Valley and Sierra Nevada mountains.

The purpose of the Proposed Action is to establish an approved alternate haul route from the SEWD borrow site to TS30L in case the planned haul route becomes infeasible to use. The Proposed Action is needed to allow for a back-up route so that the LSJR Project TS30L levee improvement work can continue without delay. The Proposed Action would provide an alternate haul route from the SEWD borrow site to TS30L, following roads and highways that are suitable for haul traffic and that maximizes the use of designated truck routes.

1.4 Need for Action

The 2018 LSJR IIFR/EIS/EIR did not identify or describe specific LSJR Project elements, including the borrow site locations, haul routes, and staging areas since it was not known at the time of publication. The 2023 TS30L Final SEA documents the current approved haul route to and from the SEWD borrow site, which is located 11 miles east of TS30L on 110 acres of agricultural land. The current approved haul route crosses over the Stockton Diverting Canal using a former railroad bridge previously owned by Southern Pacific Railroad and Stockton Terminal & Eastern Railroad. This bridge is currently owned by Stockton East Water District. However, the bridge may become no longer feasible to use once work has started due to structural deficiencies and safety concerns. Therefore, the proposed alternate haul route covered in this document would provide an option to avoid the use of the existing bridge. If the current planned haul route becomes no longer useable, the alternate haul route must be

already cleared and in compliance with Federal and State environmental laws and regulations to allow continuous project progress.

1.5 Proposed Action

The Proposed Action consists of the following elements associated with TS30L and subsequent project construction phases that were not analyzed in the 2018 LSJR IIFR/EIS/EIR or 2023 TS30L Final SEA:

- Alternate haul route from SEWD borrow site to avoid using the existing railroad bridge crossing the Stockton Diverting Canal.

1.6 Proposed Action Area

The Proposed Action area is located in the City of Stockton in San Joaquin County, California (Figure 2). Reach TS30L is located on the west side of Stockton between Fourteenmile Slough and the San Joaquin River in an area referred to as the Delta Front. Reach TS30L is a dryland levee with a north-south orientation and is approximately 5,900 feet in length. The Brookside neighborhood is immediately to the east of TS30L (landside), and rice fields lie to the west (waterside).

The proposed alternate haul route from the 110-acre SEWD borrow site to TS30L is approximately 22 miles one way, which includes the use of surface streets and highways. The borrow area is bounded by Highway 26/Fremont Street to the north, East Main Street to the south, the Stockton Diverting Canal to the west, and the SEWD settling pond to the east. The SEWD borrow site is located among agricultural fields approximately 9 miles to the east of TS30L, requiring a haul route which crosses the city in an east to west direction.

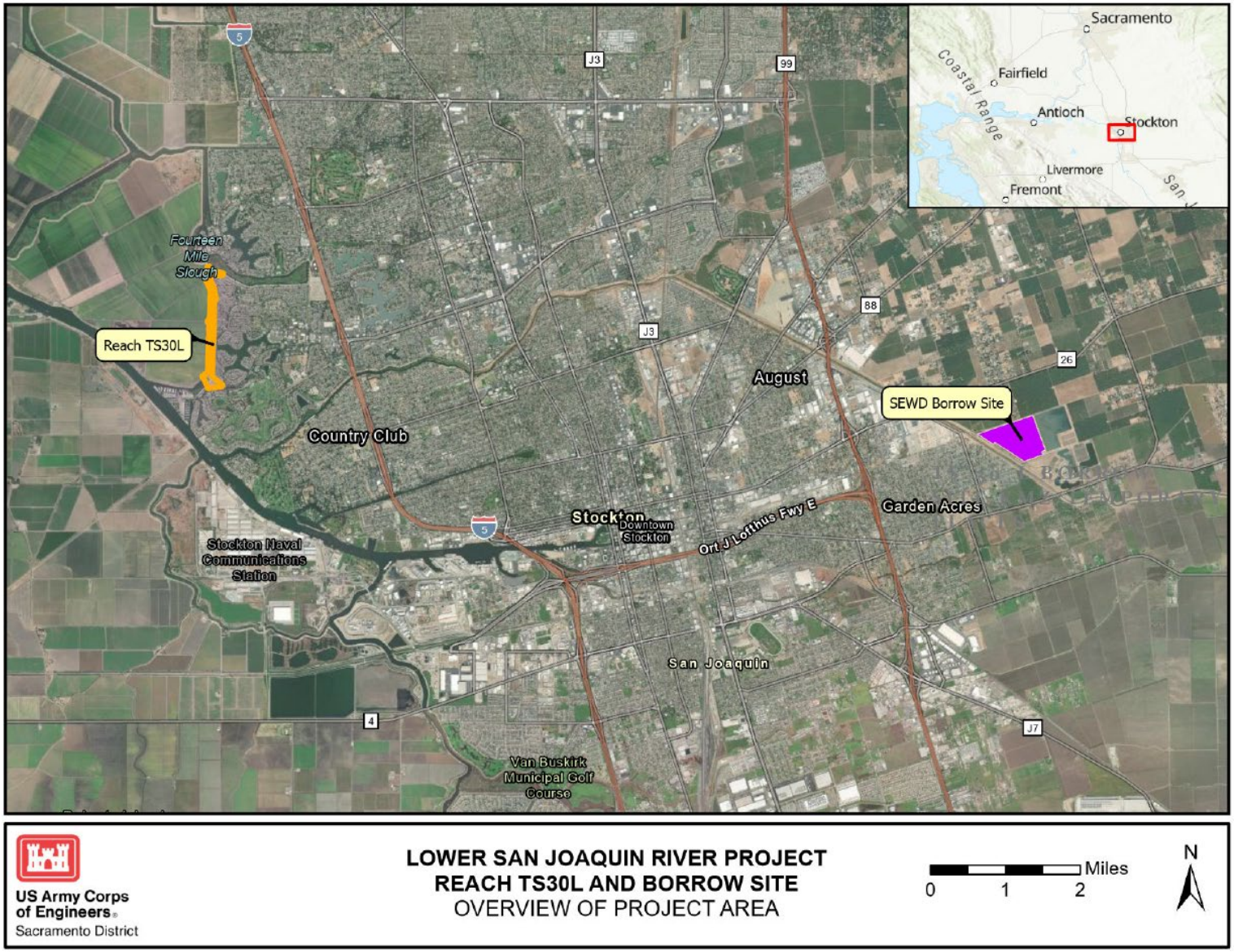

Figure 2. Map showing overview of the Proposed Action area.

1.7 Previous NEPA Documentation

The Record of Decision for the Final 2018 LSJR IIFR/EIS/EIR was signed by the Assistant Secretary of the Army (Civil Works) on February 8, 2019. Along with the No Action Alternative, the 2018 LSJR IIFR/EIS/EIR analyzed six alternatives to reduce flood risk to the City of Stockton and the surrounding areas. Alternative 7a was proposed as the recommended plan and was also found to be the Least Environmentally Damaging Practicable Alternative under the Clean Water Act. Alternative 7a was authorized for construction in America's Water Infrastructure Act of 2018 (P.L. 115-270).

The TS30L levee improvements were evaluated under NEPA in supplemental documents tiered from the 2018 LSJR IIFR/EIS/EIR, including the 2023 TS30L Final SEA, which analyzed the modifications and updates to the design plans for TS30L, including specific elements relating to the borrow site location and haul routes, staging area locations, specific levee footprint, and revised mitigation strategy. As lead federal agency under NEPA, USACE prepared this SEA with a Finding of No Significant Impact (FONSI) signed by the Acting Sacramento District Commander on November 13, 2023.

1.8 Purpose of this SEA and Decision Needed

Under NEPA guidelines, a SEA is prepared to evaluate potential impacts of Project changes made after a Record of Decision. This SEA describes the refinements developed since the 2018 LSJR IIFR/EIS/EIR and the 2023 TS30L SEA pertaining to the alternate haul route and associated work for the TS30L levee improvements. The environmental effects of the Proposed Action and No Action Alternative are analyzed and disclosed for public review in this document. Measures to avoid and minimize adverse environmental effects of the Proposed Action have been identified to ensure environmental effects are less than significant.

A draft of this SEA was circulated for a 10-day public review period from August 7 to August 18, 2025. As stated in Appendix A, no comments were received from the public during this period. The District Engineer, Commander of the Sacramento District, must decide whether the Proposed Action qualifies for a FONSI under NEPA guidelines, or whether a Supplemental EIS must be prepared.

Chapter 2 ALTERNATIVES

2.1 No Action Alternative

Under the No Action Alternative, the current approved haul route as described in the 2023 TS30L Final SEA would remain the only route to transport material from the SEWD borrow site to TS30L (Figure 3). The borrow site at the SEWD facility is located on 110 acres of agricultural land and fill material would be hauled by truck from this location in order to construct the levee improvements at TS30L. The haul route is a total of 11 miles and would utilize SEWD-owned roads, then cross over the Stockton Diverting Canal via a former, at-grade railroad bridge before using public streets to cross the city. The route would then follow Cardinal Avenue to State Route (SR) 26, then SR 99, SR 4, Interstate 5 (I-5), and the West March Lane exit. March Lane leads directly to the southern end of Reach TS30L. The borrow site would be used by SEWD as a groundwater recharge basin after construction is completed.

Should this current route become infeasible or no longer accessible, there would be no back-up or alternate haul route that could be utilized. Therefore, in the event that this occurs, construction work for the TS30L Reach of the LSJR Project would be delayed until a new haul route is cleared compliant with Federal and State environmental laws and regulations. Under the No Action Alternative, there is the potential for severe delays in the authorized schedule for the LSJR Project, which would result in increased flood risk to the surrounding communities during this period of delay.

2.2 Alternatives Analyzed in Detail

2.2.1 Alternative 1 - Proposed Action

The Proposed Action consists of an alternate haul route not previously analyzed due to new information developed during design. The proposed alternate haul route from the SEWD borrow site to TS30L is approximately 22 miles long, which includes the use of surface streets and highways (Figure 4). This alternate haul route from the SEWD borrow site would follow a private road on the west side of the property, then turn left onto the levee road parallelling the Stockton Diverting Canal. It then turns left onto East Main Street, which becomes Copperopolis Road, and heads east for approximately 3 miles. The route continues by taking a left onto County Route J5 (CR J5)/Jack Tone Road, heading north for 2 miles, then takes a left to connect with State Route (SR) 26/Fremont Street, travelling west for approximately 5.7 miles. Where the route connects SR 26/Fremont Street and SR 99, it then follows the same path as the current approved haul route discussed in the 2023 TS30L Final SEA.

Preliminary estimates of material required for construction of the levee improvement work at TS30L is 55,000 cy. It is assumed that a minimum of 5% of the material would

be delivered along the main haul route before the alternative route is needed. The assumption then is that the alternate haul route would be needed for 52,000 cy of material to be transported. Construction at TS30L is anticipated to begin in May 2025 and conclude on October 31, 2026. USACE initially estimated two construction seasons for completion of the levee repairs, but completion within one construction season is currently projected. There is the possibility of work extending into a second season; if that is the case, supplemental environmental compliance documentation would be completed as needed. It is estimated that material would be placed unequally over time, with the early months being more heavily weighted toward material placement than later months. Table 2 outlines the projected hauling volume estimates by month for the duration of construction. The contractor would use 12 cy trucks and/or 20 cy trucks. If only using the smaller capacity 12 cy trucks, which would involve the most trips and distance traveled, there would be 4,334 one-way trips required for a total of 95,333 miles traveled one way from the SEWD borrow area to the TS30L construction site, or 190,667 miles round trip if the trucks would need to travel back to pick up the next load of material. If 20 cy trucks are used instead of or along with the 12 cy trucks, this would reduce the number of trips and total distance travelled.

Under the Proposed Action, both the haul route described in the No Action Alternative and the alternate haul route described above would be available for use during construction of the TS30L levee repairs. Although it is assumed that the original haul route would become unusable early in the construction season due to deficiencies in the railroad bridge, it's possible that the bridge is more structurally sound than expected and the alternate haul route could be used for a lesser duration or not at all.

Table 2. Estimated hauling volume of material in cubic yards (cy) by month for the duration of construction from the SEWD borrow site to TS30L.

Month in 2025	Material Volume (cy)	Total Material Volume (cy)
June	18,000	55,000
July	16,300	
August	10,200	
September	6,000	
October	4,500	

2.3 Alternatives Not Further Considered

The following alternatives were considered but determined not suitable based on the reasonings described in the following sections. Therefore, these alternate haul route options are not analyzed further in this SEA.

2.3.1 Alternative 2 - South Gillis Road

This Alternative consists of the same elements as the Proposed Action not previously analyzed in the 2018 LSJR IIFR/EIS/EIR or the 2023 TS30L SEA, including an alternate haul route. The alternate haul route associated with Alternative 2 - South Gillis Road is approximately 14 miles long from the SEWD borrow site to TS30L. This route is similar to the Proposed Action but differs at the start near the SEWD borrow area. It starts following the private road from the SEWD borrow site on the west side of the property and then turns left onto the levee road parallelling the Stockton Diverting Canal. However, from there, the route turns right onto East Main Street. This alternate haul route would require a three-point right turn from the levee road at the SEWD facility and across the East Main Street bridge due to the sharp degree of the turn for the haul trucks. The route then takes a left turn down South Gillis Road and a right onto SR 4/Farmington Road, which is a truck route. It then turns north onto SR 99 and then west onto SR 4, where it continues following the same path as the No Action Alternative and Proposed Action routes to TS30L (Figure 5).

This alternative is not approved by San Joaquin County and is not preferred for several reasons. The right turn onto the East Main Street Bridge would require traffic control to make a three-point turn and possible damage to the existing bridge barrier rail may occur from the trucks making the right turn. Additionally, making the left turn onto South Gillis Road would require the haul trucks to cross oncoming high speed traffic on East Main Street and since there is no designated left turn lane, the haul trucks would have to wait until clear in the main travel lane in order to make the left turn onto South Gillis Road. This may impede travel for other vehicles and poses traffic and safety concerns. Furthermore, South Gillis Road is a smaller and narrower road that is not a designated truck route, and its pavement structure is not designed for truck loads. Therefore, due to safety and traffic concerns, and the reasons described, this alternative to the proposed alternate haul route is not considered or analyzed further in this SEA.

2.3.2 Alternative 3 - SEWD Main Entrance Road

This Alternative consists of an alternate haul route that utilizes the main entrance of the SEWD facility, then turns right onto East Main Street. The route continues on East Main Street for about 2 miles then turns left onto Doctor M.L.K Jr Boulevard/East Charter Way for another 2 miles. It then takes a right, heading north onto South Wilson Way, which connects to SR 4 and continues following the same path as the No Action Alternative and Proposed Action routes to TS30L (Figure 6). The alternate haul route associated with Alternative 3 - SEWD Main Entrance Road is approximately 13 miles long from the SEWD borrow site to TS30L.

This alternative is not approved by SEWD, as utilizing the SEWD main entrance road (New Water Road) is not ideal due to the frequency of trucks and proximity to the office on site, as well as concerns due to water district security. The use of this alternate haul

route would also require repair of any damaged roadways, including New Water Road, within the SEWD facility, daily vacuum sweepers, and frequent security patrols. Therefore, due to these reasons, this alternate haul route is not considered or analyzed further in this SEA.

2.3.3 Alternative 4 - Alpine Road

This Alternative consists of an alternate haul route from the SEWD borrow site that begins following the same route as the Proposed Action, using the private road on the west side of the property, turning left onto the levee road parallelling the Stockton Diverting Canal and then turning another left onto East Main Street. However, this alternative route would turn left onto Alpine Road rather than continuing on East Main Street that turns into Copperopolis Road. This route would continue north on Alpine Road for about 1.6 miles, then turns left on SR 26/Fremont Street, where it connects with the same path as the No Action Alternative and Proposed Action alternate haul routes the rest of the way to TS30L (Figure 7).

This alternative has been rejected by the San Joaquin County traffic engineer and cannot be because (1) utilizing this route would cause additional wear and tear on both Alpine Road and Caltrans' SR 26 facility, (2) increase traffic congestion at the existing all-way stop at Alpine Road and SR 26/Fremont Street, and (3) cause additional inconvenience to property owners and residents along Alpine Road from the increased truck traffic. Therefore, due to these reasons, this alternative to the proposed alternate haul route is not considered or analyzed further in this SEA.

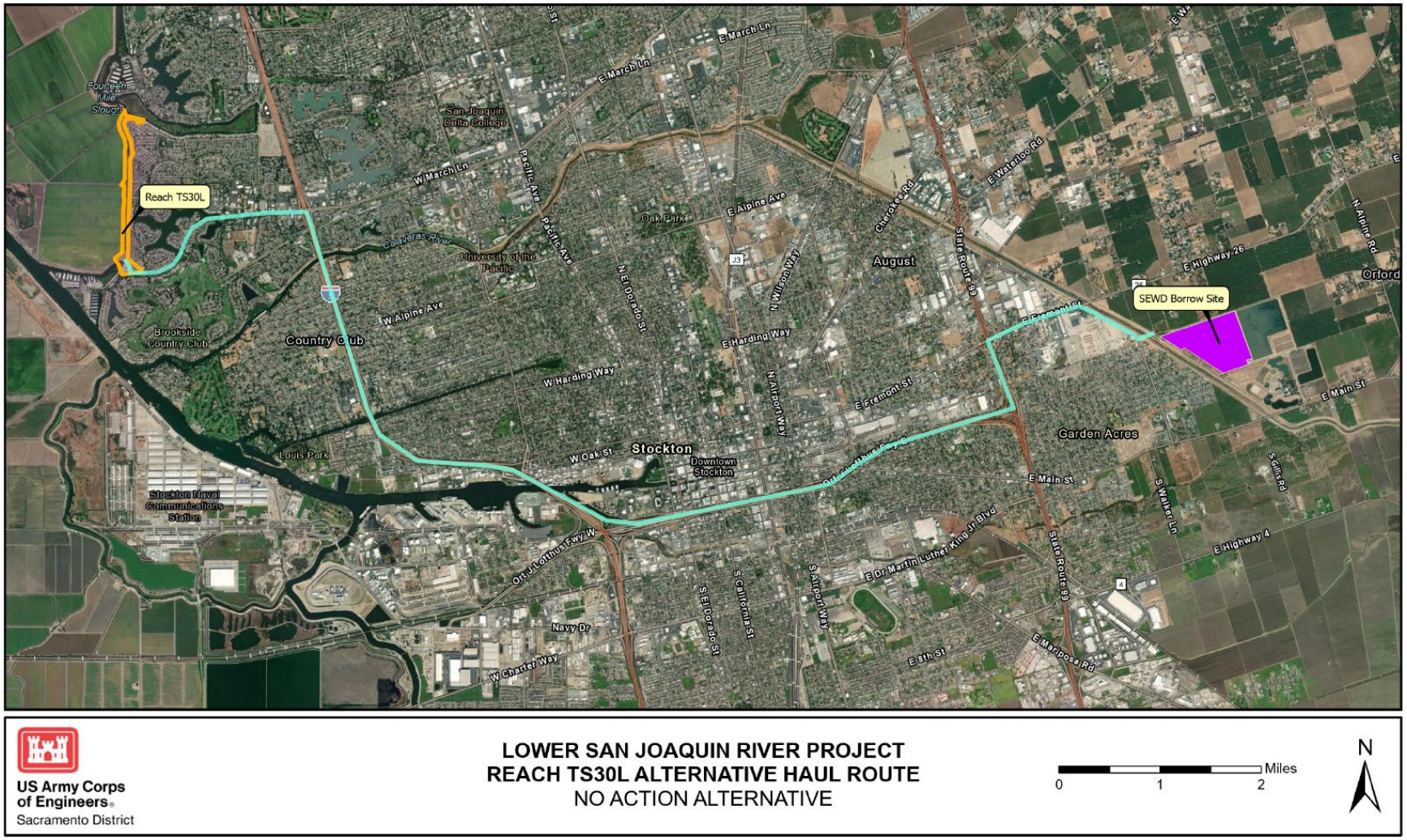

Figure 3. No Action Alternative for alternate haul route from SEWD borrow site to TS30L.

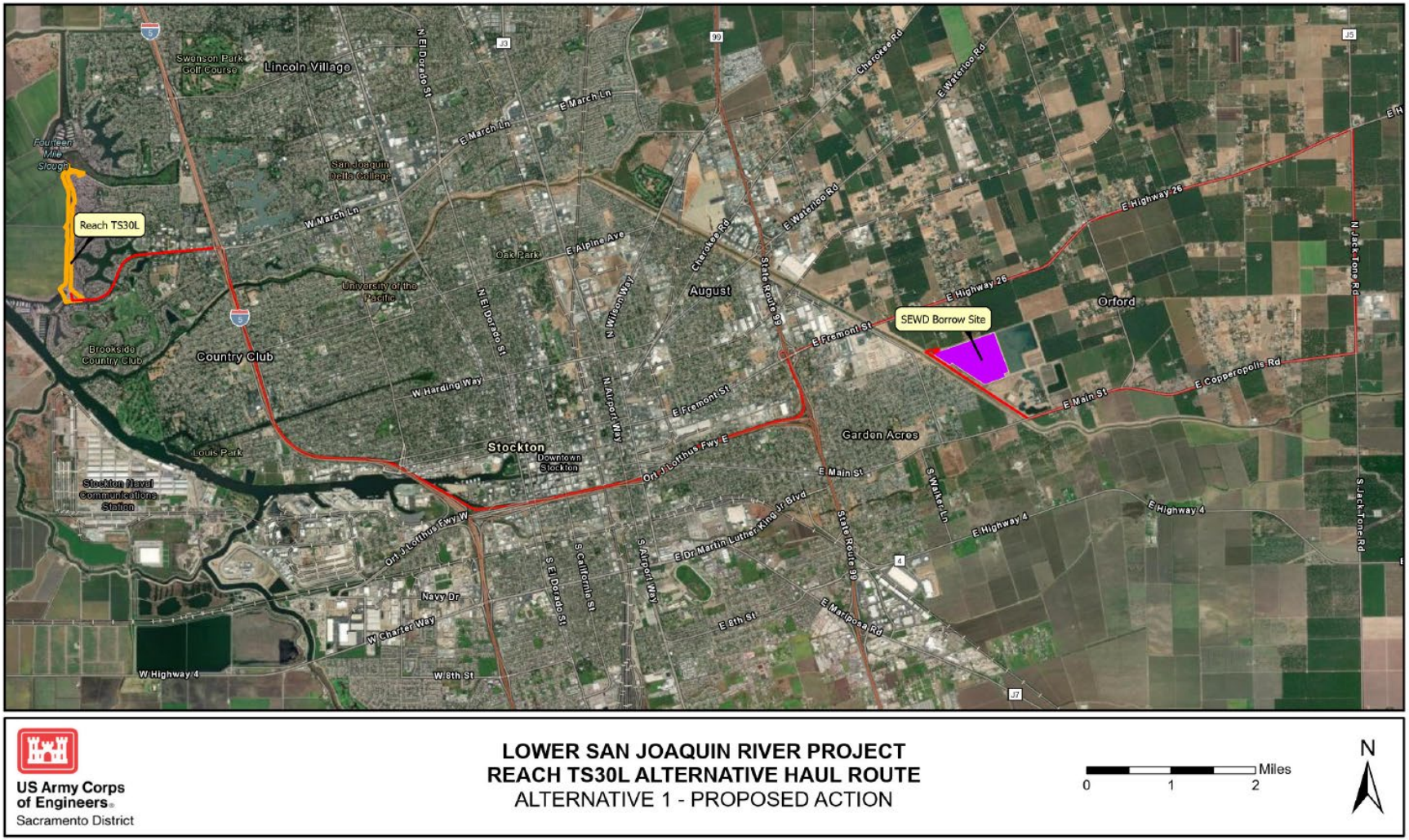

Figure 4. Alternative 1 (Proposed Action) for alternate haul route from SEWD borrow site to TS30L.

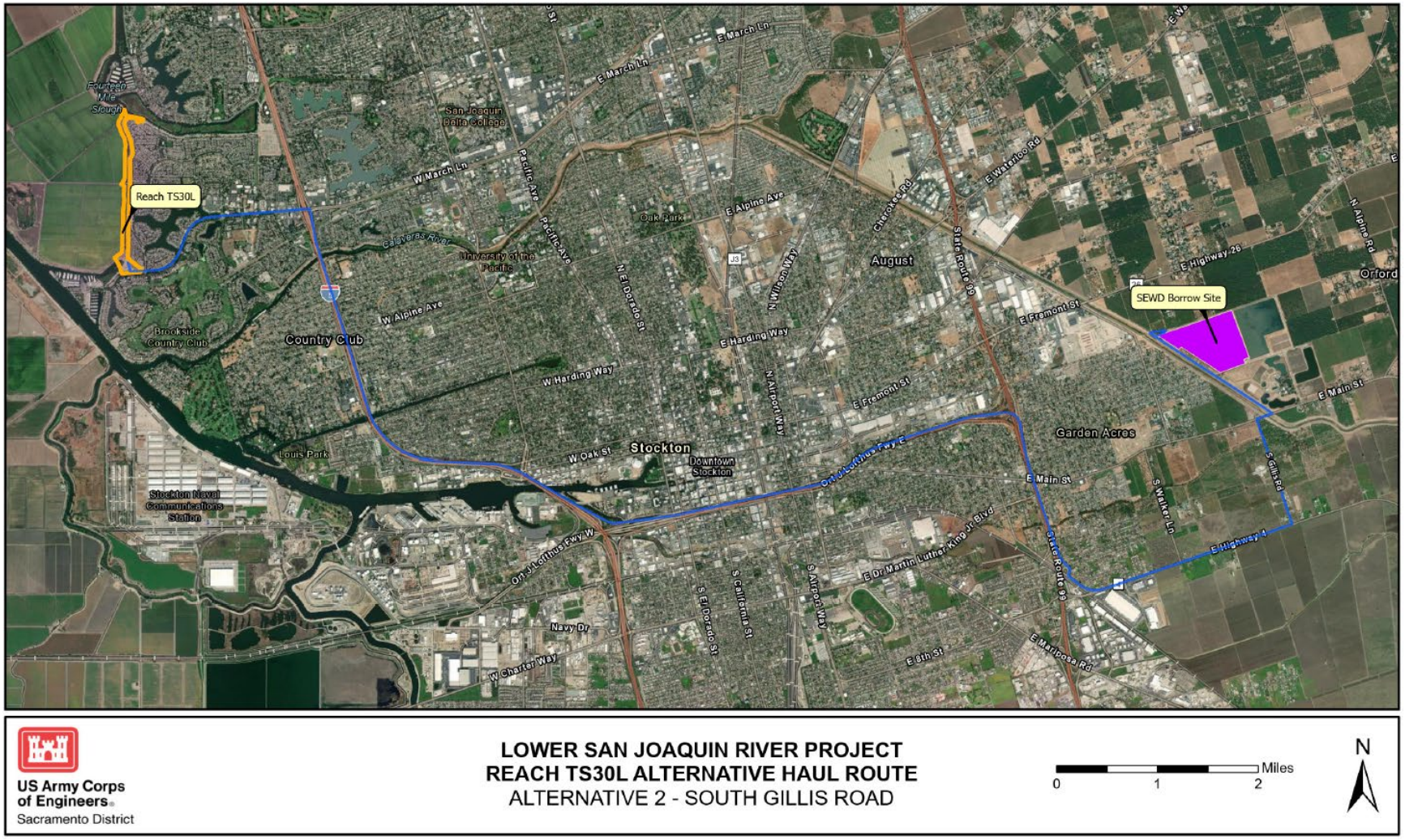

Figure 5. Alternative 2 (South Gillis Road) for alternate haul route from SEWD borrow site to TS30L.

Figure 6. Alternative 3 (SEWD Main Entrance Road) for alternate haul route from SEWD borrow site to TS30L.

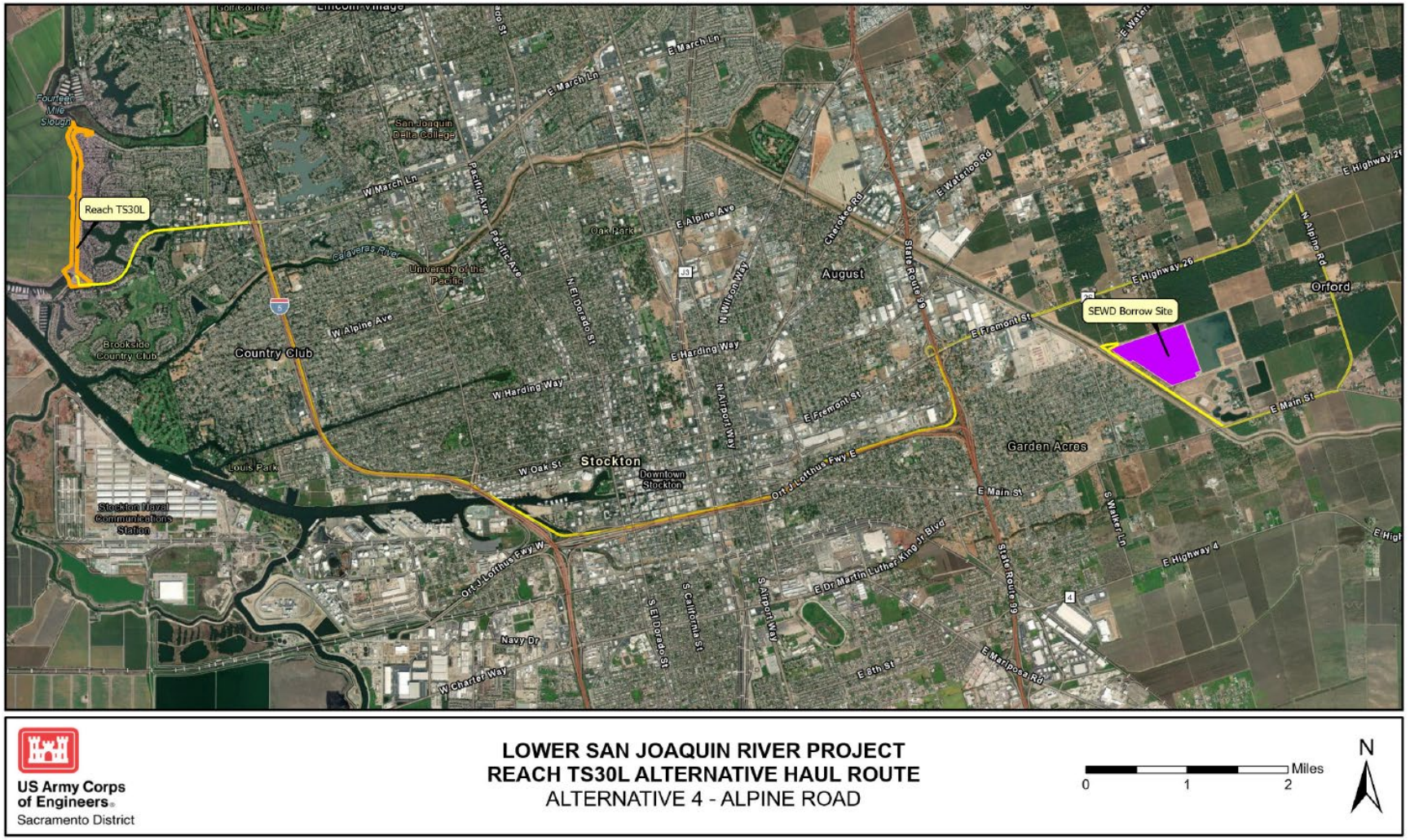

Figure 7. Alternative 4 (Alpine Road) for alternate haul route from SEWD borrow site to TS30L.

Chapter 3 EXISTING CONDITIONS AND ENVIRONMENTAL EFFECTS ANALYSIS

3.1 Approach to Analysis

The recommended alternative in the 2018 LSJR IIFR/EIS/EIR, Alternative 7a, along with the Proposed Action in the 2023 TS30L Final SEA, which describes the currently approved haul route, is the No Action Alternative for this SEA. The existing conditions and regulatory settings for each resource area were fully described in the above documents and are incorporated in this SEA by reference. The avoidance, minimization, and mitigation measures described in the 2018 LSJR IIFR/EIS/EIR are also applicable to both the No Action Alternative and the Proposed Action. Additionally, general and resource area specific best management practices (BMPs) are included in Appendix C and would be implemented for the Proposed Action. As a supplemental NEPA document, this SEA focuses its analysis on changes to the No Action Alternative, specifically an alternate haul route to transport material from the SEWD borrow site to TS30L. Although it's not known to what extent the newly proposed alternate haul route would be used for construction, and there is a possibility that it would not be used at all, for the sake of identifying and describing impacts to the environment, the analyses below assume that the proposed route would be utilized to the maximum extent. The following resources are likely to be affected by the Proposed Action: Air Quality and Greenhouse Gas Emissions, Community and Socioeconomics, Transportation, Utilities and Public Services, Aesthetics, and Noise.

3.2 Regulatory Setting

The Affected Environment and Environmental Consequences chapter of the 2018 LSJR IIFR/EIS/EIR adequately characterizes the regulatory setting for each resource affected by the Proposed Action.

3.3 Resources Not Discussed in Detail

Several resources are not evaluated in detail within this SEA because the Proposed Action of using the alternate haul route would not create additional impacts to the resource beyond what has been described in the 2018 LSJR IIFR/EIS/EIR and 2023 TS30L Final SEA, or the effects to the resources from the Proposed Action are negligible. Resources eliminated from further analysis in this SEA and their previous analyses sections in the 2018 LSJR IIFR/EIS/EIR and 2023 TS30L Final SEA are listed in Table 3. Note that these resources may still have effects under the No Action

Alternative; however, they are not being discussed further as they have been sufficiently discussed in the 2018 LSJR IIFR/EIS/EIR and the 2023 TS30L Final SEA.

Table 3. Resources not discussed in detail.

Resource	2018 LSJR IIFR/EIS/EIR Section	2023 TS30L Final SEA Section
Geology and Geomorphology	5.1	Not discussed
Seismicity	5.2	Not discussed
Soils and Mineral Resources	5.3	Not discussed
Hydrology and Hydraulics	5.4	Not discussed
Water Quality	5.5	Not discussed
Groundwater	5.6	3.4
Wetlands and Other Waters of the United States	5.7	3.5
Vegetation and Wildlife	5.9 and 5.10	3.7
Aquatic Resources and Fisheries	5.11	Not discussed
Special Status Species	5.12	3.8
Land Use	5.14	3.11
Recreation	5.17	Not discussed
Aesthetics	5.18	3.6
Public Health and Environmental Hazards	5.20	Not discussed
Cultural Resources	5.21	3.15

Geology and Geomorphology

The existing conditions and environmental effects analysis as related to geology and geomorphology previously described in Section 5.1 of the 2018 LSJR IIFR/EIS/EIR are still generally applicable to the Proposed Action area. The use of the alternate haul route would have no effect on geology or regional geologic resources or processes since this would only involve truck travel for hauling along the proposed route. General and resource specific BMPs would be implemented to avoid or reduce any erosion or

deposition of materials beyond the project footprint. Therefore, the Proposed Action would not have an effect on the geology and geomorphology of the area.

Seismicity

The existing conditions and environmental effects analysis as related to seismicity previously described in Section 5.2 of the 2018 LSJR IIFR/EIS/EIR are still generally applicable to the Proposed Action area today, including the information on faults and seismic activity, and liquefaction and settlement. The proposed usage of the alternate haul route would not expose people or structures to hazards related to rupture of a known fault, strong ground shaking, seismic related ground failure, or landslides. The Proposed Action would have no effect on known seismic faults and would not cause ground movement along faults.

Soils and Mineral Resources

The existing conditions and environmental effects analysis as related to soils and mineral resources previously described in Section 5.3 of the 2018 LSJR IIFR/EIS/EIR are still generally applicable to the project area of the Proposed Action. The use of the alternate haul route would not have an effect on soils or mineral resources, as truck travel along the route for hauling material would not impact or degrade soils or mineral resources. Some dust production may be generated from truck travel along the levee road adjacent to the SEWD borrow site but would be minimal, and most of the proposed alternate haul route is along designated truck routes. Dust control BMPs would be implemented, such as covering the loads or keeping at least two feet of freeboard during truck hauling, to minimize spillage of material and dust generation while in transit. General and resources specific BMPs would be implemented to avoid or reduce any impacts to soils or mineral resources and would be less than significant.

Hydrology and Hydraulics

The existing conditions and environmental effects analysis as related to hydrology and hydraulics previously described in Section 5.4 of the 2018 LSJR IIFR/EIS/EIR are still generally applicable to the Proposed Action area. The proposed usage of the alternate haul route would not have any effect on hydrology or hydraulics, as truck travel along this route would not result in any impacts or alterations of rivers and streams, or cause erosion or sedimentation of downstream waterways or impact existing stormwater drainage systems. Therefore, the Proposed Action would have no effect on hydrology and hydraulics.

Water Quality

The existing conditions and environmental effects analysis as related to water quality previously described in Section 5.5 of the 2018 LSJR IIFR/EIS/EIR are still generally

applicable to the Proposed Action area of the alternate haul route. The proposed haul route would use a levee road which runs along the Stockton Diverting Canal, but BMPs would be implemented as needed to reduce or avoid erosion and sedimentation into the waterway. Therefore, truck travel along the route would not impact water quality conditions and would not have an effect on water quality in general.

Groundwater

The existing conditions and environmental effects analysis as related to groundwater previously described in Section 5.6 of the 2018 LSJR IIFR/EIS/EIR and Section 3.4 of the 2023 TS30L Final SEA are still generally applicable to the Proposed Action area. Utilizing the proposed alternate haul route and the associated truck traffic along the route would not have an effect on groundwater, as these actions would not impede the recharge or flow of groundwater resources within the project area. The excavation of levee material from the SEWD borrow site would be utilized for groundwater recharge through the creation of basins, which benefits groundwater supply in the eastern Stockton area. Therefore, the Proposed Action would have minimal or less than significant impacts to groundwater with some beneficial effects.

Wetlands and Other Waters of the United States

The existing conditions and environmental effects analysis as related to wetlands and other Waters of the United States (WOTUS) previously described in Section 5.7 of the 2018 LSJR IIFR/EIS/EIR and Section 3.5 of the 2023 TS30L Final SEA are still generally applicable to the project area of the Proposed Action. The proposed use of the alternate haul route would not have an effect on any wetlands or other WOTUS since these are not present within the project area. The Stockton Diverting Canal is a canal for agricultural irrigation and is not classified as WOTUS.

Vegetation and Wildlife

The existing conditions and environmental effects analysis as related to vegetation and wildlife previously described in Sections 5.9 and 5.10, respectively, of the 2018 LSJR IIFR/EIS/EIR and Section 3.7 of the 2023 TS30L Final SEA are still generally applicable to the Proposed Action area. Utilizing the proposed alternate haul route would not have an effect on vegetation or wildlife. Minor disturbances to vegetation and wildlife may occur, however, these effects would be minimal and limited to a small area during active hauling. Therefore, the Proposed Action would have negligible effects on vegetation and wildlife.

Aquatic Resources and Fisheries

The existing conditions and environmental effects analysis as related to aquatic resources and fisheries previously described in Section 5.11 of the 2018 LSJR

IIFR/EIS/EIR are still generally applicable to the project area of the Proposed Action. The proposed alternate haul route is adjacent to the Stockton Diverting Canal, but this area only provides low-quality habitat and there would be no in-water work. Other waterways within the project area also consist of low-quality habitat for aquatic species or fish, and as mentioned previously, no effects to water quality, wetlands, or WOTUS are expected. Therefore, the Proposed Action would not have an effect on aquatic resources or fisheries.

Special Status Species

The existing conditions and environmental effects analysis as related to special status species previously described in Section 5.12 of the 2018 LSJR IIFR/EIS/EIR and Section 3.8 of the 2023 TS30L Final SEA are still generally applicable to the Proposed Action area. Based on prior consultations with the U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) (see Section 4.3), the LSJR Project as a whole has the potential to affect the following species listed under the federal Endangered Species Act (ESA):

- Central Valley (CV) spring-run Chinook salmon evolutionarily significant unit (ESU) (*Oncorhynchus tshawytscha*)
- California CV steelhead distinct population segment (DPS) (*O. mykiss*) and designated critical habitat (DCH)
- Southern DPS North American green sturgeon (*Acipenser medirostris*) and DCH
- Delta smelt (*Hypomesus transpacificus*) and DCH
- Valley elderberry longhorn beetle (VELB) (*Desmocerus californicus*)
- Giant garter snake (GGS) (*Thamnophis gigas*)

Due to the nature of the Proposed Action utilizing a haul route, there would be no effects to special status species. The proposed alternate haul route is mostly along major highways and designated truck routes through the City of Stockton, which is a highly urbanized area and not suitable or ideal habitat for most wildlife species. As previously mentioned, there are no anticipated effects to water quality, wetlands, or WOTUS; therefore, there would be no effect to the aquatic special status species. Although a vegetation survey has not been conducted along the levee road adjacent to the Stockton Diverting Canal, there is very little vegetation along the route, and it is unlikely that elderberry shrubs are present. Therefore, there is no suitable habitat for VELB. According to the California Natural Diversity Database (CNDDB), GGS were observed in the Stockton Diverting Canal in the 1970s but are likely to be extirpated at the location due to the extensive urban development that has occurred in the years since (Hansen 2011). Therefore, the Proposed Action is expected to have no effects on federally listed special status species.

Land Use

The existing conditions and environmental effects analysis as related to land use previously described in Section 5.14 of the 2018 LSJR IIFR/EIS/EIR and Section 3.11 of the 2023 TS30L Final SEA are still generally applicable to the Proposed Action area. Utilizing the proposed alternate haul route would not have any effect on land use or result in any changes to land use designations within the project area.

Recreation

The existing conditions and environmental effects analysis as related to recreation previously described in Section 5.17 of the 2018 LSJR IIFR/EIS/EIR are still generally applicable to the project area of the Proposed Action. The proposed use of the alternate haul route would not cause any disruptions to recreational activities or impact access to recreational areas or facilities. Therefore, the Proposed Action would not have any effect on recreation within the project area.

Aesthetics

The existing conditions and environmental effects analysis as related to aesthetics previously described in Section 5.18 of the 2018 LSJR IIFR/EIS/EIR and Section 3.6 of the 2023 TS30L Final SEA are still generally applicable to the project area of the Proposed Action. The use of the proposed alternate haul route would increase truck traffic on the surface streets and highways along the route, causing some visual disturbances to the aesthetics of the area. However, the majority of the proposed route is along designated truck routes and therefore impacts would be minimal since truck travel is already the existing characteristic for these roads. For the surface streets not designated as truck routes, impacts to the visual quality of the area would be minimal as truck traffic would be limited to set hauling hours during the workday. Therefore, impacts to aesthetics and visual resources from the Proposed Action would be less than significant.

Public Health and Environmental Hazards

The existing conditions and environmental effects analysis as related to public health and environmental hazards previously described in Section 5.20 of the 2018 LSJR IIFR/EIS/EIR are still generally applicable to the Proposed Action area. Potential effects to areas associated with public health, such as emissions and pollutants, are addressed in Section 3.4, Air Quality, in this document. The usage of the proposed alternate haul route may lead to fuels and oils accidentally released into the environment from truck travel along the route. Standard measures would be implemented and compliance with applicable regulations would be followed to avoid or reduce these potential effects. Therefore, impacts to public health and environmental hazards from the Proposed Action would be less than significant.

Cultural Resources

The existing conditions and environmental effects analysis as related to cultural resources previously described in Section 5.21 of the 2018 LSJR IIFR/EIS/EIR and Section 3.15 of the 2023 TS30L Final SEA are still applicable to the Proposed Action area of the alternate haul route. The proposed usage of the alternate haul route would not have an effect on cultural resources.

3.4 Air Quality and Greenhouse Gas Emissions

3.4.1 Existing Conditions

The information provided in Section 5.8.1 of the 2018 LSJR IIFR/EIS/EIR and Section 3.13.1 of the 2023 TS30L Final SEA, including existing conditions and regulatory framework, is still applicable and is included by reference.

Criteria air pollutants were modeled using the Road Construction Emission Model (RCEM) based off the 2018 LSJR IIFR/EIS/EIR and the 2023 TS30L Final SEA. This model is used to estimate emissions from linear construction projects and estimates for both vehicle exhaust and fugitive dust. The results are estimated for each year of construction and for each phase of construction. Fugitive dust is based on the maximum area of land disturbed daily with dust reductions required by the San Joaquin Valley Air Pollution Control District (SJVAPCD) amount of acreage being constructed and the type of work completed. Results are shown in tons/year. Emissions were estimated using multiple phases. The phases included:

1. Grubbing/land clearing
2. Grading and excavation
3. Drainage/Utilities/Sub-Grade

3.4.2 Environmental Effects Analysis

No Action Alternative

Under the No Action Alternative, construction would continue, using the haul routes as described in the 2018 LSJR IIFR/EIS/EIR and the 2023 TS30L Final SEA. No additional air quality and greenhouse gas emissions would be generated. In addition, existing levels of operational air quality emissions from maintenance activities would not change. However, the No Action Alternative may result in increased Project timeline due to lack of a viable haul route if the original haul route is not feasible. During this delay, many communities within Stockton, disadvantaged and otherwise, would remain vulnerable to flood risk and the potential for major flood events due to levee failure would remain high. In the event of levee failure and subsequent flooding, impacts to air quality would occur

through additional construction work that would be needed to repair damages to infrastructure and properties.

Original construction emissions with original haul route are outlined in the 2023 TS30L Final SEA in tons per year (tpy).

Alternative 1 - Proposed Action

The proposed action would increase the mileage of the original haul route from 11 miles to 22 miles. Additional air quality emissions would be generated as a result of the longer route. There would be an increase of 0.32 tons of NOx for the project utilizing the alternate haul routes, which is not a significant increase in emissions when compared to the yearly threshold of 10 tons. All emissions are outlined in Table 4.

Table 5 shows the original and alternate haul route greenhouse gas (GHG) emission estimates. These emissions were calculated using RCEM version 9. The model estimates emissions for vehicle exhaust, fugitive dust, and greenhouse gasses for each phase of the project. The results are estimated by the amount of acreage being constructed and the type of work completed. The RCEM was used instead of the California Emissions Estimator Model (CalEEMod) for consistency with the 2018 LSJR IIFR/EIS/EIR and the 2023 TS30L SEA. The data output from RCEM is included in Appendix B.

Table 4. TS30L Alternate Haul Route Total Mitigated Construction Emissions (May to October 2025).

	ROG	CO	NO_x	PM_{10}	$PM_{2.5}$	SO_x
Alternative 1 emissions (tpy)	0.74	13.10	2.04	7.30	1.57	0.03
San Joaquin County Thresholds (tpy)	10	100	10	15	15	27

The increased mileage from the alternate haul route increases the total mitigated emissions of NOx by .32 tons a year utilizing 10 cy trucks. This is below the threshold of 10 tons a year by 8 tons a year and would not significantly impact the air quality of the project.

GHG emissions were estimated using the same model as air quality and would not lead to a significant increase in emissions (Table 5).

Table 5. TS30L GHG Estimations (tons/year).

Haul Route	CO_2	CH_4	N_2O	CO_2e
Alternate 1	2606	.74	.07	2399
Original	2442	.74	.04	2242

CO_2 = carbon dioxide; CH_4= methane; N_2O = nitrous oxide R =refrigerants; CO_2e = carbon dioxide equivalent

3.4.3 Avoidance and Minimization Measures

The mitigation measures outlined in Section 5.8.10 in the 2018 LSJR IIFR/EIS/EIR and Section 3.13.3 in the 2023 TS30L Final SEA would be adopted as needed to reduce impacts to air quality and GHG emissions from the Proposed Action. General BMPs included in Appendix C would also be implemented, which would reduce impacts to air quality.

3.5 Community and Socioeconomics

3.5.1 Existing Conditions

The regulatory framework related to socioeconomics described in Section 5.13.1 of the 2018 LSJR IIFR/EIS/EIR and Section 3.9.1 of the 2023 TS30L Final SEA remain applicable to the Proposed Action of the alternate haul route, and therefore not repeated here. The areas pertaining to socioeconomics that were covered include demographics, housing, and the local economy.

Additional information and data on population demographics and socioeconomic burdens associated with the Proposed Action area is referenced from the state of California's CalEnviroScreen tool (CalEPA 2021). For this analysis, a tract is considered socioeconomically "burdened" by a particular indicator if the tract is in the 90th percentile or greater for the indicator. A summary of the tracts containing or adjacent to the Proposed Action area, including population, racial composition, and socioeconomics, is shown in Table 6. Total of 21 tracts are within the Proposed Action area in the City of Stockton and San Joaquin County.

According to the U.S. Department of Housing and Urban Development's biannual point-in-time counts, in 2024, San Joaquin County had a population of over 4,700 unhoused persons, with about 73% of that population being unsheltered and the remaining 27% living in transitional housing or shelters (HUD 2024). Encampments have been observed at TS30L, within and adjacent to the project boundary, in the past and may reoccur in the future.

Table 6. Demographics and socioeconomic burdens of census tracts within the Proposed Action area.

Tract Number and Location	Population (2019)	Racial Composition (%)						Socioeconomic Burden										
		Hispanic	White	Black	Native American	Asian American	Other	Diesel particulate matter	Exposure to pesticides	Drinking water contaminants	Proximity to cleanup sites	Pollution burden	Groundwater threats	Impaired water bodies	Asthma	Cardiovascular disease	Poverty	Unemployment	Housing burden
6077000100 *Stockton (Downtown)*	3,688	54.2	13.7	19.4	0.4	8.2	3.0	X			X	X	X		X		X	X	X
6077000300 *Stockton (Downtown)*	2,048	51.9	14.4	18.2	0.0	12.8	2.7	X			X	X	X	X	X		X		
6077000600 *Stockton (Downtown)*	1,703	74.9	6.2	3.7	0.0	12.5	2.6								X	X	X		X
6077000801 *Stockton (Downtown)*	7,624	70.0	3.8	4.4	0.0	16.3	5.5	X				X	X	X	X				
6077000900 *Stockton (Downtown)*	5,620	56.6	20.6	14.6	0.1	4.1	3.9	X				X		X	X	X			
6077001000 *Stockton (Country Club)*	5,185	44.3	31.9	12.9	0.1	6.7	4.1							X				X	
6077001101 *Stockton (Country Club)*	5,220	45.9	35.1	6.7	0.0	5.8	6.4							X				X	
6077001102 *Stockton (Country Club)*	4,763	49.8	34.4	8.4	0.1	6.5	0.7							X					
6077001800 *Stockton (near SR 26/Fremont Street and SR 99)*	4,438	80.3	17.0	1.5	0.0	0.8	0.5						X		X	X			
6077001900 *Stockton (Stribley Park)*	4,681	77.5	6.1	15.2	0.0	0.3	1.0	X							X	X	X		X

Tract Number and Location	Population (2019)	Racial Composition (%)						Socioeconomic Burden											
		Hispanic	White	Black	Native American	Asian American	Other	Diesel particulate matter	Exposure to pesticides	Drinking water contaminants	Proximity to cleanup sites	Pollution burden	Groundwater threats	Impaired water bodies	Asthma	Cardiovascular disease	Poverty	Unemployment	Housing burden
6077002000 *Stockton (near SR 99 and SR 4 interchange)*	3,357	80.3	7.9	7.5	0.0	1.5	1.7	X							X	X	X	X	
6077002701 *Stockton (Garden Acres)*	6,246	77.1	18.6	2.1	0.1	1.7	0.0									X	X	X	
6077002702 *Stockton (Garden Acres)*	3,726	84.7	13.2	0.0	0.9	0.3	1.0									X		X	
6077003112 *Stockton (Brookside)*	3,214	28.5	42.3	8.1	0.0	17.2	3.9							X	X				
6077003113 *Stockton (Brookside)*	6,844	36.5	20.1	17.0	0.9	22.5	2.9							X				X	X
6077003114 *Stockton (Brookside)*	9,923	22.1	47.1	7.3	0.0	21.6	1.9							X					
6077003601 *Unincorporated San Joaquin County area (SEWD Facility)*	3,281	41.3	48.3	0.5	0.0	8.2	0.3		X	X									
6077003602 *Unincorporated San Joaquin County area (Alpine Road and Jack Tone Road)*	3,429	63.9	32.9	0.0	0.1	1.25	1.8		X	X									
6077003700 *Unincorporated San Joaquin County area (Gillis Road and SR 4/Farmington Road)*	3,154	72.1	20.5	4.1	0.0	0.6	2.6			X						X		X	

Tract Number and Location	Population (2019)	Racial Composition (%)						Socioeconomic Burden											
		Hispanic	White	Black	Native American	Asian American	Other	Diesel particulate matter	Exposure to pesticides	Drinking water contaminants	Proximity to cleanup sites	Pollution burden	Groundwater threats	Impaired water bodies	Asthma	Cardiovascular disease	Poverty	Unemployment	Housing burden
6077003900 *Unincorporated San Joaquin County area (TS30L and island tracts west of Stockton)*	1,518	69.8	29.0	0.0	0.5	0.7	0.0		X	X			X	X					
6077004800 *Peters (East of Jack Tone Road)*	5,944	46.7	48.6	0.8	0.2	2.5	1.2		X										

3.5.2 Environmental Effects Analysis

No Action Alternative

The current haul route outlined in the 2023 TS30L Final SEA is the No Action Alternative in this SEA. The environmental effects analysis for socioeconomic impacts presented in the 2023 TS30L Final SEA is applicable to the analysis in this SEA and is incorporated by reference. No action would mean the current haul route would be the only haul route available for use and if it becomes unusable, no alternate haul routes could be utilized, therefore causing project delays. During this delay, many communities within Stockton, disadvantaged and otherwise, would remain vulnerable to flood risk and the potential for major flood events due to levee failure would remain high. In the event of levee failure and subsequent flooding, potential direct and indirect impacts on existing residential, commercial, and industrial infrastructure as well as on agricultural lands and future land use of the region would occur. This may result in temporary or permanent displacement and relocation of residents and businesses. Therefore, the No Action Alternative may pose significant impacts to communities and the socioeconomics within Stockton and the surrounding areas.

Alternative 1 - Proposed Action

The Proposed Action for use of the alternate haul route would increase the number of miles traveled on non-truck routes by approximately 6 miles. The socioeconomics of the route is similar to the original haul route and encompasses mostly the same areas within the City of Stockton in San Joaquin County. According to U.S. Census data from 2023, 15.4% of Stockton residents were classified in poverty, which is defined as having an income below the poverty level (U.S. Census Bureau 2023). However, specific communities or tracts within Stockton have varying poverty levels and environmental burdens, as shown in Table 6. The proposed alternate haul route includes additional surface streets that pass near or adjacent to rural residential homes and communities, specifically along East Main Street, Copperopolis Road, Jack Tone Road (County J5), and State Route (SR) 26/Fremont Street. The use of this proposed alternate haul route may affect these local communities by posing safety concerns due to increased truck traffic and vehicle exhaust emissions, as well as possible disruption or delays to accessing their homes. However, overall effects are similar to the original haul route and impacts would be less than significant. Using this alternate haul route would have no negative effect on housing or the local economy, except some possible benefits relating to employment opportunities and procurement of resources from local businesses in the area. Therefore, effects from the Proposed Action would be less than significant on community and socioeconomics.

3.5.3 Avoidance and Minimization Measures

Measures discussed in Sections 5.8.10 “Air Quality and Greenhouse Gas Emissions”, 5.15.10 “Transportation”, and 5.19.10 “Noise” in the 2018 LSJR IIFR/EIS/EIR would be implemented, as applicable, to avoid and minimize socioeconomic impacts to communities adjacent to the proposed alternate haul route. General BMPs included in Appendix C would also be implemented. Dust control measures would be utilized to minimize air quality impacts due to fugitive dust. Additionally, to minimize impacts to residences, haul trucks must follow approved, designated haul routes, as well as specified lanes, and would not be permitted to drive through residential communities as feasible.

3.6 Transportation

3.6.1 Existing Conditions

The environmental and regulatory framework described in Section 5.15.1 of the 2018 LSJR IIFR/EIS/EIR is generally applicable to the analysis and is incorporated by reference in this SEA and therefore is not repeated here.

3.6.2 Environmental Effects Analysis

No Action Alternative

The Proposed Action in the 2023 TS30L Final SEA, which describes the current approved haul route, is the No Action Alternative in this SEA. Section 5.15.4 of the 2018 LSJR IIFR/EIR/EIS states that Alternative 7a would result in minimal, short-term impacts on traffic but would not substantially restrict emergency access. The environmental effects analysis and determination presented in the 2023 TS30L Final SEA is applicable to the analysis in this SEA and is incorporated by reference. Effects to transportation from the current haul route are not expected to exceed those described in the 2018 LSJR IIFR/EIR/EIS or the 2023 TS30L Final SEA.

However, no action would mean the current haul route would be the only haul route available for use and if it becomes unusable, no alternate haul routes could be utilized, therefore causing project delays. During this delay, the area would remain vulnerable to flood risk and the potential for major flood events due to levee failure would remain high. In the event of levee failure and subsequent flooding, both direct and indirect impacts to transportation would occur. Flooding would result in direct impacts to highways and roads, limiting or restricting access through the flooded areas and causing major traffic delays. Therefore, the No Action Alternative may pose significant impacts to transportation within Stockton and the surrounding areas.

Alternative 1 - Proposed Action

The SEWD borrow site is located approximately 9 miles east of the TS30L levee site. The proposed alternate haul route is approximately 22 miles long, which is 11 miles longer or double the length of the original haul route, and includes the use of surface streets and highways. Hauling to and from this site would occur Monday through Saturday between the hours of 8:00am to 4:00pm (although construction at the TS30L project site could extend outside of these hours). The alternate haul route from the SEWD borrow site would follow a private road on the west side of the property then turns left onto the levee road parallelling the Stockton Diverting Canal. It then turns left onto East Main Street, which becomes Copperopolis Road, and heads east for approximately 3 miles. The route continues by taking a left onto Jack Tone Road (County J5), heading north for 2 miles, then takes a left to connect with State Route (SR) 26/Fremont Street, travelling west for approximately 5.7 miles. It then follows SR 99 until its interchange with SR 4, about 0.5 miles. From here, the route follows the same path as the No Action Alternative, or current approved haul route, continuing west on SR 4 and north on Interstate 5 (I-5) for approximately 7 miles then exits at West March Lane, heading west for about 1.6 miles, which then leads directly onto the south end of TS30L at March Lane and Brookside Road.

The alternate haul route avoids crossing the at-grade railroad bridge over the Stockton Diverting Canal and instead follows several surface streets to connect to the highway. Traffic control would likely be required to facilitate the left turn onto East Main Street by the haul trucks due to this road being heavily trafficked. The proposed alternate haul route would increase truck traffic along the route on East Main Street, Copperopolis Road, Jack Tone Road, and SR 26/Fremont Street, which include residential houses and communities adjacent to these roadways. Additionally, these roadways are not designated truck routes until it connects with SR 26/Fremont Street, which is classified as a Surface Transportation Assistance Act (STAA) County Truck Route at the intersection with Cardinal Avenue to the interchange with SR 99. SR 99, SR 4, and I-5 are designated as STAA State Truck Routes (Caltrans 2021 and 2023).

Material would be hauled using either 12- or 20-cy trucks. With the smaller 12-cy trucks, an estimated 4,334 total trips would be required. This would be a total of 95,333 miles traveled one way 190,667 miles if trucks would need to travel round trip to pick up the next load.

The Proposed Action would increase truck traffic along the surface streets and highways not designated as truck routes. Assuming the use of 12-cy haul trucks and 20 working days per month, there would be a maximum of approximately 75 truck trips per working day over the five months of the levee work at TS30L. Due to the truck limit per day and other traffic control measures that would be implemented, effects to transportation along this alternate haul route or within the project area would be less than significant from the Proposed Action.

Where the route connects SR 26/Fremont Street and SR 99, it then follows the same path as the current haul route discussed in the 2023 TS30L Final SEA and effects would be the same as described for the No Action Alternative.

3.6.3 Avoidance and Minimization Measures

Measures discussed in Section 5.15.10 in the 2018 LSJR IIFR/EIS/EIR and Section 3.12.3 in the 2023 TS30L Final SEA would be implemented, as applicable, to avoid and minimize impacts to residential areas and communities adjacent to the proposed alternate haul route. General BMPs included in Appendix C would also be implemented. A traffic control plan and truck trip limits per day would be developed and adhered to in order to ensure minimal effects to transportation from the Proposed Action.

3.7 Utilities and Public Services

3.7.1 Existing Conditions

The environmental and regulatory framework described in Section 5.16.1 of the 2018 LSJR IIFR/EIS/EIR and Section 3.10.1 of the 2023 TS30L Final SEA is generally applicable to the analysis in this SEA and therefore not repeated here. The areas pertaining to utilities and public services that were covered include water services, wastewater, stormwater, solid waste, energy use and conservation, fire protection, and police services.

3.7.2 Environmental Effects Analysis

No Action Alternative

The current haul route described in the 2023 TS30L Final SEA is the No Action Alternative in this SEA. No action would mean the current haul route would be the only haul route available for use and if it becomes unusable, no alternate haul routes could be utilized, therefore causing project delays. During this delay, many communities within Stockton, disadvantaged and otherwise, would remain vulnerable to flood risk and the potential for major flood events due to levee failure would remain high. This would lead to direct and indirect impacts to utilities and public services within the flood risk areas and surrounding communities, as flood waters would potentially damage or destroy utility infrastructure and hinder emergency response.

The environmental effects analysis and determination presented in the 2023 TS30L Final SEA is applicable to the analysis in this SEA and is incorporated by reference. No impacts to utilities and public services are anticipated as a result of developing the SEWD borrow site, use of the current haul route, or use of the stockpile sites.

Alternative 1 - Proposed Action

The proposed alternate haul route, which is approximately 22 miles long, includes the use of surface streets and highways. Some roads along the route are adjacent to operational PG&E electric transmission lines, including overhead lines crossing over East Main Street at the intersection with Alpine Road, along SR 26/Fremont Street, crossing West March Lane at the exit from I-5, and overhead at the TS30L site (CEC 2023). However, the Proposed Action would not cause any disruptions to utility resources and no relocation or installation of utility infrastructure would be needed from the use of the alternate haul route. There would also be no significant effects on public services, such as police, fire, or emergency services, as a result of utilizing this alternative route to haul material from the SEWD borrow site to the TS30L levee construction area. Although increased truck traffic on the roads and highways along the route would occur during working hours, the majority of the route is on designated truck routes and truck limits per day would reduce any potential impacts on surface streets to less than significant.

3.7.3 Avoidance and Minimization Measures

The mitigation measures outlined in Section 5.16.10 in the 2018 LSJR IIFR/EIS/EIR would be implemented as needed to reduce impacts from the Proposed Action. Those measures, in addition to general BMPs included in Appendix C, would further ensure that the Proposed Action would have no significant effects on existing utilities and public services.

3.8 Noise

3.8.1 Existing Conditions

The environmental and regulatory framework described in Section 5.19.1 of the 2018 LSJR IIFR/EIS/EIR and Section 3.14.1 of the 2023 TS30L Final SEA is generally applicable to the analysis in this SEA and therefore is not repeated here.

In addition to the noise related provisions in the 2018 LSJR IIFR/EIS/EIR, the allowable hauling truck traffic hours by the City of Stockton are 8:00 am to 4:00 pm. For hauling outside of these hours, an encroachment permit must be obtained from the City of Stockton.

The SEWD borrow site is located on farmland east of the City of Stockton. The main SEWD facility and water treatment plant border the site to the south. A levee and canal separate the borrow site from the Garden Acres neighborhood, which is located to the southwest. The remaining land surrounding the borrow site is farmland. Typical ambient noise conditions occurring in the surrounding agricultural and residential areas include

but are not limited to vehicle noise on roadways, emergency vehicle sirens, passing aircraft, and agricultural equipment.

3.8.2 Environmental Effects Analysis

No Action Alternative

Noise effects associated with the No Action Alternative to use the current approved haul route were sufficiently covered in Section 5.19.4 of the 2018 LSJR IIFR/EIS/EIR and additional effects were described in Section 3.14.2 of the 2023 TS30L Final SEA. Under the No Action Alternative, the current haul route would be the only haul route available for use and if it becomes unusable, no alternate haul routes could be utilized, therefore causing project delays. During this delay, the area would remain vulnerable to flood risk and the potential for major flood events due to levee failure would remain high. In the event of levee failure and subsequent flooding, impacts to noise would occur through additional construction work that would be needed to repair damages to infrastructure and properties. Therefore, the No Action Alternative may pose significant effects to noise within Stockton and the surrounding areas.

Alternative 1 - Proposed Action

The proposed alternate haul route would increase truck traffic along surface streets, including East Main Street, Copperopolis Road, Jack Tone Road, and SR 26/Fremont Street, which include residential homes adjacent to and near those roadways. However, truck travel would fall within the daytime hauling traffic hours in accordance with the noise ordinances in both San Joaquin County Code and City of Stockton Municipal Code, which would be limited to 8:00 am to 4:00 pm. Additionally, the proposed alternate haul route would also include travelling on West March Lane within the nearby Brookside residential area but not directly adjacent to houses. The portion of the route along highways designated as truck routes, would not impact noise above the existing and current background levels for major highways with heavy truck and vehicle traffic. The sections of the route on surface streets through residential and rural areas would have less than significant impacts to noise. The increased noise associated with passing haul trucks would be limited, short-term noise events and would not substantially increase the overall ambient noise conditions of the area, as these roads are currently utilized for vehicle travel. Additionally, the specified hauling hours would limit any increased noise to daytime and would abide by local noise ordinances. As a result, effects to noise would be minimal and less than significant.

3.8.3 Avoidance and Minimization Measures

The mitigation measures outlined in Section 5.19.10 in the 2018 LSJR IIFR/EIS/EIR would be implemented to reduce noise impacts from the Proposed Action. General

BMPs included in Appendix C would also be implemented. In addition, a construction schedule would be followed, and trucks would only run from 8:00am to 4:00pm on working days in order to further reduce noise impacts.

Chapter 4 COMPLIANCE WITH FEDERAL ENVIRONMENTAL LAWS AND REGULATIONS

Certain Federal laws and regulations require issuance of permits before project implementation. Other laws and regulations require agency consultation but may not require issuance of any authorization or entitlements before project implementation. For each of the laws and regulations addressed in this section, the description indicates either full or partial compliance. If partial compliance is indicated, full compliance would be achieved prior to issuance of a NEPA decision document.

4.1 Clean Air Act, as amended, 42 U.S.C. 7401, et seq.

Air quality regulations were first communicated with the Clean Air Act (CAA). The CAA is intended to protect the Nation's air quality by regulating emissions of air pollutants. The CAA established the National Ambient Air Quality Standards (NAAQS) and delegated enforcement of air pollution control to the states. California Air Resource Board (CARB) has been designated as the state agency responsible for regulating air pollution sources at the state level. CARB, in turn, has delegated the responsibility of regulating stationary emission sources to local air pollution control or management districts which, for the proposed project is SJVAPCD.

The CAA states that all applicable federal and state ambient air quality standards must be maintained during the operation of any emission source. The CAA also delegates to each state the authority to establish air quality rules and regulations. State adopted rules and regulations must be at least as stringent as the mandated federal requirements. In states where the NAAQS are exceeded, the CAA requires preparation of a State Implementation Plan (SIP) that identifies how the state will meet standards within timeframes mandated by the CAA. The U.S. EPA, in conjunction with the U.S. Department of Transportation, established the General Conformity Rule on 30 November 1993. The rule implements the CAA conformity provision, which requires federal agencies to identify, analyze, and quantify emission impacts of an action and mandates that the federal government not engage, support, or provide financial assistance for licensing or permitting, or approve any activity not conforming to an approved CAA implementation plan.

The Proposed Action area meets NAAQS for criteria pollutants and therefore, no conformity analysis was required. This SEA evaluates air emissions resulting from the Proposed Action and concludes that there would be less than a significant impact on air quality. Prior to the use of the proposed alternate haul route, USACE and the NFS

would coordinate with SJVAPCD to ensure compliance with all District rules that may apply.

4.2 National Environmental Policy Act, as amended, 42 USC 4321 et seq.

NEPA applies to all Federal agencies and most of the activities they manage, regulate or fund that affect the environment. NEPA requires every Federal agency to disclose the environmental effects of its actions for public review purposes and directs the Federal agency to assess alternatives to, and the consequences of, the proposed action. This document supplements the original LSJR Project NEPA document, providing additional information to consider the environmental consequences of project refinements developed since the 2018 LSJR IIFR/EIS/EIR. A draft version of this document was circulated for a 10-day public review. USACE would include responses to all substantive comments received in Appendix A; however, no comments were received on this document during the public review period.

With the issuance of a FONSI signed by the Sacramento District Commander, the Proposed Action will be in full compliance with NEPA.

4.3 Endangered Species Act, as amended, 16 U.S.C. 1531, et seq.

Under Section 7(a)(2) of the Endangered Species Act (ESA), federal agencies must consult with the U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) to ensure that agency actions do not jeopardize the continued existence of any threatened or endangered species or their habitats. USACE conducted formal consultation on Alternative 7a for the LSJR Feasibility Study with USFWS and NMFS, receiving Biological Opinions (BOs) from USFWS on June 13, 2016 (08ESMF00-2015-F-0206) and from NMFS on June 7, 2016 (WCR-2015-3809). USACE also reinitiated Section 7 consultation to USFWS under the ESA for the TS30L Reach levee improvements on May 15, 2023, and a BO was received from USFWS on October 12, 2023 (2022-0043398).

These consultations addressed a number of federally listed species and species of concern, as well as critical habitat. The proposed alternate haul route does not require reinitiation of Section 7 consultation to USFWS. Due to the nature of the Proposed Action, there would be no effects to listed plants, wildlife, and fish species with the implementation of the avoidance and minimization measures described and referenced throughout this document and outlined in Appendix C. Table 7 shows the federally listed special status species with the potential to be affected by the overall LSJR Project and describes the effects determination for the Proposed Action for each species.

Table 7. Summary of effects from the Proposed Action to federally listed species.

Evolutionarily Significant Unit (ESU) / Distinct Population Segment (DPS) / Other	Listing Status	Resource Agency Jurisdiction	Critical Habitat Designation/ Action Area within Designated Critical Habitat (DCH)	Factors Affecting Determination	ESA Section 7 Effects Determination
Reptiles					
Giant Garter Snake (*Thamnophis gigas*)	Threatened (October 20, 1993: 58 FR 54053-54066)	USFWS	None Designated	The Proposed Action is within the habitat range for this species. However, the Proposed Action area only contains low quality habitat and that is not suitable or ideal for this species. Therefore, no effect is anticipated.	No Effect
Northwestern Pond Turtle (*Actinemys marmorata*)	Proposed Threatened (October 3, 2023: 88 FR 68370)	USFWS	None proposed	The Proposed Action is within the habitat range for this species. However, the Proposed Action area lacks suitable habitat and the nature of the proposed actions for use of a haul route would have no effect on this species. Northwestern pond turtle existence and habitat would remain consistent with the baseline conditions.	Not likely to jeopardize the continued existence or destroy/ adversely modify proposed critical habitat
Fishes					
Delta Smelt (*Hypomesus transpacificus*)	Threatened (March 5, 1993: 58 FR 12854-12864)	USFWS	Within DCH	The Proposed Action is within DCH for this species. However, no in-water work would be performed, and the Proposed Action area does not contain suitable habitat. Therefore, no effect is anticipated for this species.	No Effect
Central Valley spring-run Chinook salmon (*Onchorhynchus tshawytscha*)	Threatened (September 16, 1999: 64 FR 50394)	NMFS	Outside DCH	The Proposed Action area is within the habitat range for this species, but outside DCH. No suitable habitat is within the Proposed Action area. No in-water work would be performed. Therefore, no effect is anticipated for this species.	No Effect

Evolutionarily Significant Unit (ESU) / Distinct Population Segment (DPS) / Other	Listing Status	Resource Agency Jurisdiction	Critical Habitat Designation/ Action Area within Designated Critical Habitat (DCH)	Factors Affecting Determination	ESA Section 7 Effects Determination
California Central Valley steelhead (*Onchorhynchus mykiss*)	Threatened (March 19, 1998: 63 FR 13347)	NMFS	Within DCH	The Proposed Action is within DCH for this species. However, no in-water work would be performed, and the Proposed Action area does not contain suitable habitat. Therefore, no effect is anticipated for this species.	No Effect
Green sturgeon, southern DPS (*Acipenser medirostris*)	Threatened (June 6, 2006: 71 FR 17757)	NMFS	Within DCH	The Proposed Action is within DCH for this species. However, no in-water work would be performed, and the Proposed Action area does not contain suitable habitat. Therefore, no effect is anticipated for this species.	No Effect
Insects					
Monarch Butterfly *(Danaus Plexippus)* - California overwintering population	Proposed Threatened (December 12, 2024: 89 FR 100662)	USFWS	Outside Proposed	No known overwintering sites are located within or near the Proposed Action area (The Center for Biological Diversity 2014). Monarch butterfly existence and habitat would remain consistent with the baseline conditions.	Not likely to jeopardize the continued existence or destroy/ adversely modify proposed critical habitat
Valley Elderberry Longhorn Beetle (*Desmocerus californicus dimorphus*)	Threatened (August 8, 1980: 45 FR 52803-52807)	USFWS	Outside DCH	The Proposed Action area is within the habitat range for this species, but outside DCH. No suitable habitat is within the Proposed Action area and the nature of the actions would not have an effect on this species. No elderberry shrubs would be impacted by the Proposed Action. Therefore, no effect is anticipated for this species.	No Effect

4.4 National Historic Preservation Act, as amended, 54 USC 300101 et seq.

The National Historic Preservation Act (NHPA) (54 U.S.C. § 300101 et seq.) is the primary Federal legislation governing the preservation of significant historic properties. Section 106 of the NHPA requires Federal agencies to take into account the effects of their undertakings on historic properties. Undertakings are projects, activities, or programs funded in whole or in part under the direct or indirect jurisdiction of a federal agency. USACE uses effects determinations arrived at through compliance with Title 54 U.S.C. § 306108, commonly known as Section 106, to assess effects to cultural resources under NEPA and to mitigate for adverse effects under both laws. USACE is complying with Section 106 of the NHPA for the Project through implementation of the Programmatic Agreement between the US Army Corps of Engineers and the California State Historic Preservation Officer Regarding the Lower San Joaquin River Feasibility Study Project, San Joaquin County, California (PA), executed on May 11, 2016, and amended on May 11, 2021.

4.5 Noise Control Act, as amended, 42 USC 4901, et seq.

Federal action is essential to deal with major noise sources in commerce, control of which require national uniformity of treatment. EPA is directed by Congress to coordinate the programs of all Federal agencies relating to noise research and control. The Act also requires that Federal agency activities comply with all Federal, State, and local laws and regulation that regulate noise emissions threshold, which were incorporated into the significance thresholds used in the assessment of potential impacts of the proposed action. The general plans for San Joaquin County and the City of Stockton identify noise emissions thresholds, which were incorporated into the significance threshold used in the assessment of potential impacts in the 2018 LSJR IIFR/EIS/EIR for the LSJR Project.

Noise effects from utilizing the proposed alternate haul route is not likely to exceed land use compatibility thresholds on agricultural lands but could result in intermittent impacts to residential uses within 700 feet of the roads along the route. Truck routes would be properly maintained, and no night-time use of the route would occur. The use of the proposed alternate haul route would not add significant additional noise than has already been expected in the 2018 LSJR IIFR/EIS/EIR.

4.6 Resources Conservation and Recovery Act, as amended, 42 USC 6901 et seq.

This Act enables the EPA to administer a regulatory project that extends from the manufacture of hazardous materials to their disposal, thus regulating the generation, transportation, treatment, storage, and disposal of hazardous waste at all facilities and sites in the U.S. The Proposed Action for an alternate haul route from the SEWD borrow site to TS30L would comply with this Act when transporting or disposing of hazardous material found within the project area.

Chapter 5 COORDINATION OF THE SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT

The Draft SEA and Draft FONSI were circulated for public review from August 7 to August 18, 2025, for a total review period of 10 days. Notices were sent to residences in the surrounding communities that may be impacted by or otherwise be interested in the Proposed Action. No substantive comments were received during the public review period.

In developing the proposed alternate haul route, USACE consulted with the San Joaquin County Department of Public Works to gain the County's acceptance of the proposed route.

Agency and tribal consultations completed in the 2023 TS30L SEA remain applicable to the proposed action for the alternate haul route discussed in this SEA.

Chapter 6 FINDINGS

The anticipated environmental effects of the Proposed Action on five resource areas were evaluated under NEPA within this SEA for the LSJR TS30L alternate haul route. The analysis indicates that, with implementation of the avoidance, minimization, and mitigation measures described in this SEA and referenced from the 2018 LSJR IIFR/EIS/EIR and 2023 TS30L Final SEA, the Proposed Action would not cause any new significant impacts beyond those described in the previous documents. A final FONSI of the Proposed Action will be prepared and circulated with this SEA.

Chapter 7 REFERENCES

California Department of Transportation (Caltrans). 2021. Local Truck Routes – STAA Truck Routes. Accessed 13 February 2025. Available at: https://dot.ca.gov/programs/traffic-operations/legal-truck-access/local-truck-routes

California Department of Transportation (Caltrans). 2023. CA Truck Network. Accessed 13 February 2025. Available at: https://dot.ca.gov/programs/traffic-operations/legal-truck-access/truck-network-map

California Energy Commission (CEC). 2023. California Open Data Portal – California Electric Transmission Lines Geospatial Data. Accessed 18 February 2025. Available at: https://data.ca.gov/dataset/california-electric-transmission-lines1

California Environmental Protection Agency (CalEPA). 2021. CalEnviroScreen 4.0. October 2021. Accessed 20 Feb 2025. Available at: https://experience.arcgis.com/experience/11d2f52282a54ceebcac7428e6184203/page/CalEnviroScreen-4_0/

The Center for Biological Diversity, Center for Food Safety, The Xerces Society, Dr. Lincoln Brower. 2014. Petition to Protect Monarch Butterfly (*Danaus Plexippus plexippus*) under the Endangered Species Act (ESA). Available at: https://www.biologicaldiversity.org/species/invertebrates/pdfs/Monarch_ESA_Petition.pdf

Hansen, Eric C. 2011. Implementation of Priority 1, Priority 2, and Priority 3 Recovery Tasks for Giant Garter Snake (*Thamnophis gigas*) – Status and distribution of garter snakes at the Delta's White Slough Wildlife Area, San Joaquin County, CA. Prepared for Sacramento Fish and Wildlife Office, U.S. Fish and Wildlife Service, Agreement No. 802709G514.

Sacramento Metropolitan Air Quality Management District. 2017. Road Construction Emissions Model V 9.0. Available at https://www.airquality.org/businesses/ceqa-land-use-planning/ceqa-guidance-tools

U.S. Army Corps of Engineers (USACE) and San Joaquin Area Flood Control Agency (SJAFCA). 2018. San Joaquin River Basin, Lower San Joaquin River, CA, Final Integrated Interim Feasibility Report/Environmental Impact Statement/Environmental Impact Report (IIFR/EIS/EIR). Available at https://spk.usace.army.mil/lower_sj_river/

U.S. Army Corps of Engineers (USACE). 2023. San Joaquin River Basin, Lower San Joaquin River, California Project, Tenmile Slough Reach 30L Levee Improvements, Supplemental Environmental Assessment I (SEA).

U.S. Census Bureau. 2023. American Community Survey (ACS), 5-year Estimates. Accessed 19 March 2025. Available at: https://www.census.gov/quickfacts/fact/table/stocktoncitycalifornia/PST045224

U.S. Department of Housing and Urban Development (HUD). 2024. 2007-2024 Point-in-Time Estimates by CoC. Accessed 17 March 2025. Available at: https://www.huduser.gov/portal/sites/default/files/xls/2007-2024-PIT-Counts-by-CoC.xlsb.

U.S. Fish and Wildlife Service (USFWS). 2024. Information for Planning and Consultation (IPaC). Available at: https://ipac.ecosphere.fws.gov/

APPENDIX A

Public Comments and Responses

The Draft SEA and Draft FONSI were circulated for public review from August 7 to August 18, 2025, for a total review period of 10 days. No substantive comments were received during the public review period.

APPENDIX B

Air Quality Modeling Data

Road Construction Emissions Model, Version 9.0.0

Daily Emission Estimates for -> TS30L Levee Project														
Project Phases (Pounds)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	Total PM10 (lbs/day)	Exhaust PM10 (lbs/day)	Fugitive Dust PM10 (lbs/day)	Total PM2.5 (lbs/day)	Exhaust PM2.5 (lbs/day)	Fugitive Dust PM2.5 (lbs/day)	SOx (lbs/day)	CO2 (lbs/day)	CH4 (lbs/day)	N2O (lbs/day)	CO2e (lbs/day)
Grubbing/Land Clearing	2.03	35.04	4.33	100.22	0.22	100.00	20.99	0.19	20.80	0.07	6,572.18	2.05	0.08	6,648.68
Grading/Excavation	6.15	109.29	17.13	50.80	0.80	50.00	11.04	0.64	10.40	0.22	21,799.86	6.18	0.57	22,124.53
Drainage/Utilities/Sub-Grade	2.04	36.32	5.38	50.26	0.26	50.00	10.61	0.21	10.40	0.07	7,081.67	2.05	0.16	7,182.02
Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum (pounds/day)	6.15	109.29	17.13	100.22	0.80	100.00	20.99	0.64	20.80	0.22	21,799.86	6.18	0.57	22,124.53
Total (tons/construction project)	0.74	13.10	2.04	7.60	0.10	7.50	1.64	0.08	1.56	0.03	2,606.27	0.74	0.07	2,644.80

Notes:

Project Start Year ->	2025
Project Length (months) ->	12
Total Project Area (acres) ->	55
Maximum Area Disturbed/Day (acres) ->	5
Water Truck Used? ->	Yes

	Total Material Imported/Exported Volume (yd^3/day)		Daily VMT (miles/day)			
Phase	Soil	Asphalt	Soil Hauling	Asphalt Hauling	Worker Commute	Water Truck
Grubbing/Land Clearing	2	0	44	0	120	0
Grading/Excavation	111	0	528	0	300	150
Drainage/Utilities/Sub-Grade	22	0	132	0	120	50
Paving	0	0	0	0	0	0

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.

CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1 , 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

Total Emission Estimates by Phase for -> TS30L Levee Project														
Project Phases (Tons for all except CO2e. Metric tonnes for CO2e)	ROG (tons/phase)	CO (tons/phase)	NOx (tons/phase)	Total PM10 (tons/phase)	Exhaust PM10 (tons/phase)	Fugitive Dust PM10 (tons/phase)	Total PM2.5 (tons/phase)	Exhaust PM2.5 (tons/phase)	Fugitive Dust PM2.5 (tons/phase)	SOx (tons/phase)	CO2 (tons/phase)	CH4 (tons/phase)	N2O (tons/phase)	CO2e (MT/phase)
Grubbing/Land Clearing	0.01	0.21	0.03	0.60	0.00	0.60	0.13	0.00	0.12	0.00	39.43	0.01	0.00	36.19
Grading/Excavation	0.66	11.80	1.85	5.49	0.09	5.40	1.19	0.07	1.12	0.02	2,354.38	0.67	0.06	2,167.69
Drainage/Utilities/Sub-Grade	0.06	1.09	0.16	1.51	0.01	1.50	0.32	0.01	0.31	0.00	212.45	0.06	0.00	195.46
Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum (tons/phase)	0.66	11.80	1.85	5.49	0.09	5.40	1.19	0.07	1.12	0.02	2354.38	0.67	0.06	2,167.69
Total (tons/construction project)	0.74	13.10	2.04	7.60	0.10	7.50	1.64	0.08	1.56	0.03	2606.27	0.74	0.07	2,399.35

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.

CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1 , 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

The CO2e emissions are reported as metric tons per phase.

Road Construction Emissions Model **Version 9.0.0**

Data Entry Worksheet

Note: Required data input sections have a yellow background.
Optional data input sections have a blue background. Only areas with a
yellow or blue background can be modified. Program defaults have a white background.
The user is required to enter information in cells D10 through D24, E28 through G35, and D38 through D41 for all project types.
Please use "Clear Data Input & User Overrides" button first before changing the Project Type or begin a new project.

Clear Data Input & User Overrides

To begin a new project, click this button to clear data previously entered. This button will only work if you opted not to disable macros when loading this spreadsheet.

SACRAMENTO METROPOLITAN AIR QUALITY MANAGEMENT DISTRICT

Input Type

Project Name	TS30L Levee Project	
Construction Start Year	2025	Enter a Year between 2014 and 2040 (inclusive)
Project Type For 4: Other Linear Project Type, please provide project specific off-road equipment population and vehicle trip data	4	1) New Road Construction : Project to build a roadway from bare ground, which generally requires more site preparation than widening an existing roadway 2) Road Widening : Project to add a new lane to an existing roadway 3) Bridge/Overpass Construction : Project to build an elevated roadway, which generally requires some different equipment than a new roadway, such as a crane 4) Other Linear Project Type: Non-roadway project such as a pipeline, transmission line, or levee construction
Project Construction Time	12.00	months
Working Days per Month	24.00	days (assume 22 if unknown)
Predominant Soil/Site Type: Enter 1, 2, or 3 (for project within "Sacramento County", follow soil type selection instructions in cells E18 to E20 otherwise see instructions provided in cells J18 to J22)	2	1) Sand Gravel : Use for quaternary deposits (Delta/West County) 2) Weathered Rock-Earth : Use for Laguna formation (Jackson Highway area) or the Ione formation (Scott Road, Rancho Murieta) 3) Blasted Rock : Use for Salt Springs Slate or Copper Hill Volcanics (Folsom South of Highway 50, Rancho Murieta)
Project Length	1.20	miles
Total Project Area	55.00	acres
Maximum Area Disturbed/Day	5.00	acres
Water Trucks Used?	1	1. Yes 2. No

Please note that the soil type instructions provided in cells E18 to E20 are specific to Sacramento County. Maps available from the California Geologic Survey (see weblink below) can be used to determine soil type outside Sacramento County.

http://www.conservation.ca.gov/cgs/information/geologic_mapping/Pages/googlemaps.aspx#regionalseries

Material Hauling Quantity Input

Material Type	Phase	Haul Truck Capacity (yd³) (assume 20 if unknown)	Import Volume (yd³/day)	Export Volume (yd³/day)
Soil	Grubbing/Land Clearing	10.00		2.00
	Grading/Excavation	10.00	111.00	
	Drainage/Utilities/Sub-Grade	10.00	22.00	
	Paving			
Asphalt	Grubbing/Land Clearing			
	Grading/Excavation			
	Drainage/Utilities/Sub-Grade			
	Paving			

Mitigation Options

On-road Fleet Emissions Mitigation	2010 and Newer On-road Vehicles Fleet	Select "2010 and Newer On-road Vehicles Fleet" option when the on-road heavy-duty truck fleet for the project will be limited to vehicles of model year 2010 or newer
Off-road Equipment Emissions Mitigation	Tier 4 Equipment	Select "20% NOx and 45% Exhaust PM reduction" option if the project will be required to use a lower emitting off-road construction fleet. The SMAQMD Construction Mitigation Calculator can be used to confirm compliance with this mitigation measure (http://www.airquality.org/Businesses/CEQA-Land-Use-Planning/Mitigation). Select "Tier 4 Equipment" option if some or all off-road equipment used for the project meets CARB Tier 4 Standard
Will all off-road equipment be tier 4?	All Tier 4 Equipment	

Construction Periods	User Override of Construction Months	Program Calculated Months	User Override of Phase Starting Date	Program Default Phase Starting Date
Grubbing/Land Clearing	0.50	1.20		1/1/2025
Grading/Excavation	9.00	5.40		1/17/2025
Drainage/Utilities/Sub-Grade	2.50	3.60		10/18/2025
Paving		1.80		1/3/2026
Totals (Months)		14		

Please note: You have entered a different number of months than the project length shown in cell D16.
Note: Soil Hauling emission default values can be overridden in cells D61 through D64, and F61 through F64.

Soil Hauling Emissions User Input	User Override of Miles/Round Trip	Program Estimate of Miles/Round Trip	User Override of Truck Round Trips/Day	Default Values Round Trips/Day	Calculated Daily VMT
Miles/round trip: Grubbing/Land Clearing	44.00			1	44.00
Miles/round trip: Grading/Excavation	44.00			12	528.00
Miles/round trip: Drainage/Utilities/Sub-Grade	44.00			3	132.00
Miles/round trip: Paving				0	0.00

2010+ Model Year Mitigation Option Emission Rates	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)	0.03	0.41	3.06	0.11	0.05	0.02	1,672.88	0.00	0.26	1,751.28
Grading/Excavation (grams/mile)	0.03	0.41	3.06	0.11	0.05	0.02	1,672.88	0.00	0.26	1,751.28
Draining/Utilities/Sub-Grade (grams/mile)	0.03	0.41	3.06	0.11	0.05	0.02	1,672.34	0.00	0.26	1,750.71
Paving (grams/mile)	0.03	0.41	3.10	0.11	0.05	0.02	1,652.48	0.00	0.26	1,729.92
Grubbing/Land Clearing (grams/trip)	0.00	0.00	4.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/trip)	0.00	0.00	4.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Draining/Utilities/Sub-Grade (grams/trip)	0.00	0.00	4.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving (grams/trip)	0.00	0.00	4.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling Emissions	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Pounds per day - Grubbing/Land Clearing	0.00	0.04	0.31	0.01	0.00	0.00	162.28	0.00	0.03	169.88
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.97	0.00	0.00	1.02
Pounds per day - Grading/Excavation	0.03	0.48	3.68	0.13	0.06	0.02	1,947.31	0.00	0.31	2,038.56
Tons per const. Period - Grading/Excavation	0.00	0.05	0.40	0.01	0.01	0.00	210.31	0.00	0.03	220.16
Pounds per day - Drainage/Utilities/Sub-Grade	0.01	0.12	0.92	0.03	0.01	0.00	486.67	0.00	0.08	509.47
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.03	0.00	0.00	0.00	14.60	0.00	0.00	15.28
Pounds per day - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons per construction project	0.00	0.06	0.43	0.02	0.01	0.00	225.88	0.00	0.04	236.47

Note: Asphalt Hauling emission default values can be overridden in cells D91 through D94, and F91 through F94.

Asphalt Hauling Emissions User Input	User Override of Miles/Round Trip	Program Estimate of Miles/Round Trip	User Override of Truck Round Trips/Day	Default Values Round Trips/Day	Calculated Daily VMT
Miles/round trip: Grubbing/Land Clearing				0	0.00
Miles/round trip: Grading/Excavation				0	0.00
Miles/round trip: Drainage/Utilities/Sub-Grade				0	0.00
Miles/round trip: Paving				0	0.00

2010+ Model Year Mitigation Option Emission Rates	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)	0.03	0.41	3.06	0.11	0.05	0.02	1,672.88	0.00	0.26	1,751.28
Grading/Excavation (grams/mile)	0.03	0.41	3.06	0.11	0.05	0.02	1,672.88	0.00	0.26	1,751.28
Draining/Utilities/Sub-Grade (grams/mile)	0.03	0.41	3.06	0.11	0.05	0.02	1,672.34	0.00	0.26	1,750.71
Paving (grams/mile)	0.03	0.41	3.10	0.11	0.05	0.02	1,652.48	0.00	0.26	1,729.92
Grubbing/Land Clearing (grams/trip)	0.00	0.00	4.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/trip)	0.00	0.00	4.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Draining/Utilities/Sub-Grade (grams/trip)	0.00	0.00	4.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving (grams/trip)	0.00	0.00	4.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Emissions	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Pounds per day - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Worker Commute Emissions	User Override of Worker Commute Default Values	Default Values	Calculated Daily Trips	Calculated Daily VMT
User Input				
Miles/ one-way trip	10			
One-way trips/day	2			
No. of employees: Grubbing/Land Clearing	6		12	120.00
No. of employees: Grading/Excavation	15		30	300.00
No. of employees: Drainage/Utilities/Sub-Grade	6		12	120.00
No. of employees: Paving			0	0.00

Emission Rates	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)	0.01	0.78	0.06	0.05	0.02	0.00	295.84	0.00	0.01	297.52
Grading/Excavation (grams/mile)	0.01	0.78	0.06	0.05	0.02	0.00	295.84	0.00	0.01	297.52
Draining/Utilities/Sub-Grade (grams/mile)	0.01	0.77	0.06	0.05	0.02	0.00	295.57	0.00	0.01	297.25
Paving (grams/mile)	0.01	0.72	0.05	0.05	0.02	0.00	285.85	0.00	0.01	287.41
Grubbing/Land Clearing (grams/trip)	0.93	2.56	0.25	0.00	0.00	0.00	63.73	0.06	0.03	73.77
Grading/Excavation (grams/trip)	0.93	2.56	0.25	0.00	0.00	0.00	63.73	0.06	0.03	73.77
Draining/Utilities/Sub-Grade (grams/trip)	0.92	2.56	0.25	0.00	0.00	0.00	63.67	0.06	0.03	73.69
Paving (grams/trip)	0.87	2.47	0.23	0.00	0.00	0.00	61.59	0.06	0.03	71.10
Emissions	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Pounds per day - Grubbing/Land Clearing	0.03	0.27	0.02	0.01	0.01	0.00	79.95	0.00	0.00	80.66
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.48	0.00	0.00	0.48
Pounds per day - Grading/Excavation	0.07	0.68	0.05	0.03	0.01	0.00	199.88	0.01	0.01	201.66
Tons per const. Period - Grading/Excavation	0.01	0.07	0.01	0.00	0.00	0.00	21.59	0.00	0.00	21.78
Pounds per day - Drainage/Utilities/Sub-Grade	0.03	0.27	0.02	0.01	0.01	0.00	79.88	0.00	0.00	80.59
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.01	0.00	0.00	0.00	0.00	2.40	0.00	0.00	2.42
Pounds per day - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons per construction project	0.01	0.08	0.01	0.00	0.00	0.00	24.46	0.00	0.00	24.68

Water Truck Emissions	User Override of Default # Water Trucks	Program Estimate of Number of Water Trucks	User Override of Truck Round Trips/Vehicle/Day	Default Values Round Trips/Vehicle/Day	Calculated Trips/day	User Override of Miles/Round Trip	Default Values Miles/Round Trip	Calculated Daily VMT
User Input								
Grubbing/Land Clearing - Exhaust								0.00
Grading/Excavation - Exhaust	3		10.00			5.00		150.00
Drainage/Utilities/Subgrade	1		10.00			5.00		50.00
Paving								0.00

2010+ Model Year Mitigation Option Emission Rates	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)	0.03	0.41	3.06	0.11	0.05	0.02	1,672.88	0.00	0.26	1,751.28
Grading/Excavation (grams/mile)	0.03	0.41	3.06	0.11	0.05	0.02	1,672.88	0.00	0.26	1,751.28
Draining/Utilities/Sub-Grade (grams/mile)	0.03	0.41	3.06	0.11	0.05	0.02	1,672.34	0.00	0.26	1,750.71
Paving (grams/mile)	0.03	0.41	3.10	0.11	0.05	0.02	1,652.48	0.00	0.26	1,729.92
Grubbing/Land Clearing (grams/trip)	0.00	0.00	4.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/trip)	0.00	0.00	4.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Draining/Utilities/Sub-Grade (grams/trip)	0.00	0.00	4.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving (grams/trip)	0.00	0.00	4.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Emissions	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Pounds per day - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grading/Excavation	0.01	0.14	1.31	0.04	0.02	0.01	553.21	0.00	0.09	579.14
Tons per const. Period - Grading/Excavation	0.00	0.01	0.14	0.00	0.00	0.00	59.75	0.00	0.01	62.55
Pounds per day - Drainage/Utilities/Sub-Grade	0.00	0.05	0.44	0.01	0.01	0.00	184.34	0.00	0.03	192.98
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.01	0.00	0.00	0.00	5.53	0.00	0.00	5.79
Pounds per day - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons per construction project	0.00	0.02	0.15	0.00	0.00	0.00	65.28	0.00	0.01	68.34

Note: Fugitive dust default values can be overridden in cells D183 through D185.

Fugitive Dust	User Override of Max Acreage Disturbed/Day	Default Maximum Acreage/Day	PM10 pounds/day	PM10 tons/per period	PM2.5 pounds/day	PM2.5 tons/per period
Fugitive Dust - Grubbing/Land Clearing	10.00		100.00	0.60	20.80	0.12
Fugitive Dust - Grading/Excavation			50.00	5.40	10.40	1.12
Fugitive Dust - Drainage/Utilities/Subgrade			50.00	1.50	10.40	0.31

Off-Road Equipment Emissions

Grubbing/Land Clearing Override of Default Number of Vehicles	Default Number of Vehicles *Program-estimate*	Mitigation Option Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Default Equipment Tier	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
			Tier 4	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Excavators	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4.00			Tier 4	Off-Highway Trucks	1.61	28.02	3.23	0.16	0.15	0.05	5,118.71	1.66	0.05	5,173.81
			Tier 4	Other Construction Equipmer	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Other General Industrial Equip	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Other Material Handling Equip	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00			Tier 4	Rubber Tired Loaders	0.39	6.70	0.77	0.04	0.04	0.01	1,211.24	0.39	0.01	1,224.32
			Tier 4	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

User-Defined Off-road Equipment If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab

Number of Vehicles		Equipment Tier	Type		ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Grubbing/Land Clearing		pounds per day		2.00	34.72	4.01	0.20	0.18	0.07	6,329.95	2.05	0.06	6,398.14
	Grubbing/Land Clearing		tons per phase		0.01	0.21	0.02	0.00	0.00	0.00	37.98	0.01	0.00	38.39

Grading/Excavation Override of Default Number of Vehicles	Default Number of Vehicles *Program-estimate*	Mitigation Option Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Default Equipment Tier	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
			Tier 4	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Tier 4	Cranes	0.18	3.07	0.35	0.02	0.02	0.01	558.83	0.18	0.01	564.85
			Tier 4	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Tier 4	Excavators	0.16	3.92	0.32	0.02	0.01	0.01	500.34	0.16	0.00	505.73
1.00			Tier 4	Forklifts	0.05	1.16	0.09	0.00	0.00	0.00	148.03	0.05	0.00	149.63
			Tier 4	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10.00			Tier 4	Off-Highway Trucks	4.04	70.05	8.08	0.40	0.37	0.13	12,796.76	4.14	0.12	12,934.54
			Tier 4	Other Construction Equipmei	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Other General Industrial Equip	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Other Material Handling Equip	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3.00			Tier 4	Rollers	0.24	5.95	0.48	0.02	0.02	0.01	762.19	0.25	0.01	770.40
			Tier 4	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00			Tier 4	Rubber Tired Dozers	0.52	9.06	1.05	0.05	0.05	0.02	1,653.92	0.53	0.01	1,671.73
2.00			Tier 4	Rubber Tired Loaders	0.39	6.70	0.77	0.04	0.04	0.01	1,211.24	0.39	0.01	1,224.32
1.00			Tier 4	Scrapers	0.47	8.08	0.93	0.05	0.04	0.02	1,468.15	0.47	0.01	1,483.97
			Tier 4	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

User-Defined Off-road Equipment If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab

Number of Vehicles	Equipment Tier	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

			ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
	Grading/Excavation	pounds per day	6.03	107.99	12.08	0.60	0.56	0.20	19,099.46	6.18	0.17	19,305.18
	Grading/Excavation	tons per phase	0.65	11.66	1.30	0.07	0.06	0.02	2,062.74	0.67	0.02	2,084.96

Drainage/Utilities/Subgrade Override of Default Number of Vehicles	Default Number of Vehicles *Program-estimate*	Mitigation Option Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Default Equipment Tier		ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
			Tier 4	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Tier 4	Cranes	0.18	3.07	0.35	0.02	0.02	0.01	558.83	0.18	0.01	564.85
			Tier 4	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Tier 4	Excavators	0.16	3.92	0.32	0.02	0.01	0.01	500.34	0.16	0.00	505.73
			Tier 4	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3.00			Tier 4	Off-Highway Trucks	1.21	21.01	2.42	0.12	0.11	0.04	3,839.03	1.24	0.03	3,880.36
			Tier 4	Other Construction Equipmei	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Other General Industrial Equip	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Other Material Handling Equip	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Tier 4	Rubber Tired Dozers	0.26	4.53	0.52	0.03	0.02	0.01	826.96	0.27	0.01	835.87
1.00			Tier 4	Rubber Tired Loaders	0.19	3.35	0.39	0.02	0.02	0.01	605.62	0.20	0.01	612.16
			Tier 4	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tier 4	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

User-Defined Off-road Equipment — If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab

Number of Vehicles	Equipment Tier	Type		ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Drainage/Utilities/Sub-Grade	pounds per day	2.00	35.89	4.01	0.20	0.18	0.07	6,330.78	2.05	0.06	6,398.97
Drainage/Utilities/Sub-Grade	tons per phase	0.06	1.08	0.12	0.01	0.01	0.00	189.92	0.06	0.00	191.97

APPENDIX C

General Best Management Practices (BMPs)

The following measures listed below are general best management practices (BMPs) and standard actions that would be implemented to avoid and minimize impacts from construction related activities.

1. Prior to commencing construction activities, contractor and all employees must participate in an all-employee USACE conducted environmental awareness education program describing resources of concern, areas to be avoided and possible penalties for noncompliance.
2. Stage equipment, materials, supplies and vehicles on hardscape or other improved surface outside any environmentally sensitive areas.
3. All equipment and vehicles entering the project area and/or traveling between project areas must be cleaned of dirt and debris capable of transporting invasive species.
4. Refuel equipment and vehicles outside the project area.
5. Operate equipment and vehicles from hardscape, existing two track or other improved access route.
6. Chemicals, lubricants, drilling additives, and other hazardous materials used in operation must have 110% containment.
7. Completely capture and remove waste and dispose of properly off-site.
8. In work areas near down gradient aquatic resources, implement erosion control measures (BMPs) that minimize soil, sediment, or other waste from reaching the aquatic resources.
9. Limit site access to the smallest area possible in order to minimize disturbance.
10. Remove litter, debris, unused materials, equipment, and supplies from the project area daily. Deposit such materials or waste at an appropriate disposal or storage site.
11. Immediately clean up and report (within 24 hours) any spills of hazardous materials to the USACE POC. Report any such spills, and the success of the efforts to clean them up, in post-construction compliance reports.
12. If a contractor incidentally harms a living, or finds a dead, injured, or entrapped, threatened or endangered species or any other spices report the incident immediately to the USACE POC.
13. Storm Water Protection BMPS are to be in place prior to the start of construction and to be maintained throughout construction. Any Storm Water Protection Items that are being utilized must follow CASQA guidance.