Todd Smith, Planning Director
Planning and Environmental Review

Troy Givans, Director
Department of Community Development

County of Sacramento

Mitigated Negative Declaration

Pursuant to Title 14, Division 6, Chapter 3, Article 6, Sections 15070 and 15071 of the California Code of Regulations and pursuant to the Procedures for Preparation and Processing of Environmental Documents adopted by the County of Sacramento pursuant to Sacramento County Ordinance No. SCC-116, the Environmental Coordinator of Sacramento County, State of California, does prepare, make, declare, publish, and cause to be filed with the County Clerk of Sacramento County, State of California, this Mitigated Negative Declaration re: The Project described as follows:

1. **Control Number:** PLNP2021-00133

2. **Title and Short Description of Project:** New Green Apartments at Larchmont

The project consists of the following entitlement requests:

1. A Development Plan Review to allow a residential project over 24 units per acre in the RMU-1 district of the North Watt Special Planning Area.
2. A Special Development Permit to allow the proposed project to deviate from the following development standards:
   - Minimum Build-To-Line (North Watt Avenue Corridor Plan Section 3.3.1): The standard is a 70-percent minimum. The project as proposed provides a 0 percent built-to-line.
     Frontage Landscaping Adjacent to Buildings (SZC Section 5.4.2.B.2): Within the area between the right-of-way and buildings, tress shall be placed no further than 10 feet from the back of the sidewalk. The project as proposed provides an average of 25 feet on center however has an instance of 60 feet on center north of the driveway due to domestic water meters.
   - Interior Landscape Planter Tree Spacing and Planting (SZC Section 5.2.4.B.3.d). The standard tree spacing for perimeter planters is 30 feet on center. The project as proposed does not provide trees within the western and southern perimeter planters.
     Minimum Parking Lot Planter Size: (SZC Section 5.2.4.F). The standard minimum parking lot planter size is six feet wide with an area of 40 square feet. The project as proposed provides a 3-foot planter at the southern driveway entrance adjacent to the accessible parking stall.
   - Minimum End Aisle Planter Width: (SZC Section 5.2.4.F): The standard for end aisle planter width is 8 feet. The project as proposed provides a minimum width of 2 feet.
   - Parking Row Tree Planting: (SZC Section 5.2.4.F): The standard for parking row tree plantings is for one tree per seven spaces. The project as proposed provides an average of one planter per 8 spaces with a maximum of 16 spaces between planters.
   - Waste Enclosure Setback from Residentially Zone Property: (SZC Section 5.4.3.C): The standard for setbacks of waste enclosures from residentially zoned property is 15 feet. The project as proposed provides a setback of 5 feet, 6 inches from residentially zoned property (RMU-1).
   - Maximum Number of Community Identification Signs: (SZC Section 5.10.1.M) The standard for the maximum number of community identification signs is one sign. The project as proposed provides two signs (one on either side of primary entry adjacent to building 3 and building 8)
3. A Design Review to comply with the Countywide Design Guidelines.

The project would construct eight (8) multi-family apartment buildings with 172 units. The project also includes a private clubhouse for residents with an adjacent, outdoor swimming pool area. Other improvements and amenities include an outdoor playground, on-site drainage facilities, asphalt-paved parking lot with covered parking, landscaping, sidewalks, and bike racks

827 7th Street, Room 225 • Sacramento, California 95814 • phone (916) 874-6141 • fax (916) 874-7499
http://www.per.saccounty.gov/

Document Released 4/23/24

3. **Assessor's Parcel Number:** 208-0122-067-0000

4. **Location of Project:** The project site is located at 7403 Watt Avenue, on the west side of Watt Avenue, approximately 750 feet south of U Street/Antelope Road in the North Highlands community of unincorporated Sacramento County.

5. **Project Applicant:** LCA Architects

6. Said project will not have a significant effect on the environment for the following reasons:
   a. It will not have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory.
   b. It will not have the potential to achieve short-term, to the disadvantage of long-term, environmental goals.
   c. It will not have impacts, which are individually limited, but cumulatively considerable.
   d. It will not have environmental effects, which will cause substantial adverse effects on human beings, either directly or indirectly.

7. As a result thereof, the preparation of an environmental impact report pursuant to the Environmental Quality Act (Division 13 of the Public Resources Code of the State of California) is not required.

8. The attached Initial Study has been prepared by the Sacramento County Planning and Environmental Review Division in support of this Mitigated Negative Declaration. Further information may be obtained by contacting the Planning and Environmental Review Division at 827 Seventh Street, Room 225, Sacramento, California, 95814, or phone (916) 874-6141.

Julie Newton

Digitally signed by Julie Newton
DN: cn=Julie Newton, o=Sacramento County, ou, email=newtonju@saccounty.net, c=US
Date: 2024.04.23 08:23:15 -07'00'

Julie Newton
Environmental Coordinator
County of Sacramento, State of California

County of Sacramento

Planning and Environmental Review Division

SUBSEQUENT MITIGATED NEGATIVE DECLARATION TO THE NORTH WATT AVENUE CORRIDOR PLAN FINAL ENVIRONMENTAL IMPACT REPORT (2008-GPB-CZB-ZOB-00153; SCH NUMBER: 2009092067)

Project Information

Control Number: PLNP2021-00133

Name: New Green Apartments at Larchmont

Location: The project site is located at 7403 Watt Avenue, on the west side of Watt Avenue, approximately 750 feet south of U Street/Antelope Road in the North Highlands community of unincorporated Sacramento County.

Assessor's Parcel Number: 208-0122-067-0000

Owner:

New Green Properties LLC
2224 Endeavor Way
Sacramento, CA 95834
Contact: Narinder Singh

Applicant:

LCA Architects
590 Ygnacio Valley Rd, Suite 310
Walnut Creek, CA 94596
Contact: Carl Campos

Project Description

The project consists of the following entitlement requests:

1. A **Development Plan Review** to allow a residential project over 24 units per acre in the RMU-1 district of the North Watt Special Planning Area.

2. A **Special Development Permit** to allow the proposed project to deviate from the following development standards:

- Minimum Build-To-Line (North Watt Avenue Corridor Plan Section 3.3.1, Table 3.1): The standard is a 70-percent minimum. The project as proposed provides a 0 percent built-to-line.

- Frontage Landscaping Adjacent to Buildings (SZC Section 5.4.2.B.2, Table 5.7.A): Within the area between the right-of-way and buildings, tress shall be placed no further than 10 feet from the back of the sidewalk. The project as proposed provides an average of 25 feet on center however has an instance of 60 feet on center north of the driveway due to domestic water meters.

- Interior Landscape Planter Tree Spacing and Planting (SZC Section 5.2.4.B.3.d). The standard tree spacing for perimeter planters is 30 feet on center. The project as proposed does not provide trees within the western and southern perimeter planters.

- Minimum Parking Lot Planter Size: (SZC Section 5.2.4.F, Table 5.2). The standard minimum parking lot planter size is six feet wide with an area of 40 square feet. The project as proposed provides a 3-foot planter at the southern driveway entrance adjacent to the accessible parking stall.

- Minimum End Aisle Planter Width: (SZC Section 5.2.4.F, Table 5.2): The standard for end aisle planter width is 8 feet. The project as proposed provides a minimum width of 2 feet.

- Parking Row Tree Planting: (SZC Section 5.2.4.F, Table 5.2): The standard for parking row tree plantings is for one tree per seven spaces. The project as proposed provides an average of one planter per 8 spaces with a maximum of 16 spaces between planters.

- Waste Enclosure Setback from Residentially Zone Property: (SZC Section 5.4.3.C, Table 5.8.B): The standard for setbacks of waste enclosures from residentially zoned property is 15 feet. The project as proposed provides a setback of 5 feet, 6 inches from residentially zoned property (RMU-1).

- Maximum Number of Community Identification Signs: (SZC Section 5.10.1.M) The standard for the maximum number of community identification signs is one sign. The project as proposed provides two signs (one on either side of primary entry adjacent to building 3 and building 8)

3. A **Design Review** to comply with the Countywide Design Guidelines.

If approved, the project would construct eight (8) multi-family apartment buildings with 172 units. The project also includes a private clubhouse for residents with an adjacent, outdoor swimming pool area. Other improvements and amenities include an outdoor playground, on-site drainage facilities, asphalt-paved parking lot with covered parking, landscaping, sidewalks, and bike racks.

ENVIRONMENTAL SETTING

The 6.11-acre parcel is undeveloped. The parcel is generally bordered by commercial parcels on the north, residential developments to the west and east, and a vacant parcel to the south. The eastern border of the parcel abuts Watt Avenue.

The site is relatively flat with a gradual slope toward the southwest. Site elevation ranges from approximately 86 to 98 feet above mean sea level. Habitat types onsite consist of non-native, ruderal grasslands, wetland swale, and seasonal wetlands.

INTRODUCTION

An Addendum to a previously adopted or certified mitigated negative declaration or environmental impact report may be prepared for a project if only minor technical changes or additions are necessary or none of the conditions calling for the preparation of a subsequent Environmental Impact Report (EIR) or Initial Study/Negative Declaration (IS/ND) have occurred (California Environmental Quality Act Guidelines [CEQA] Section 15164). Consistent with CEQA Guidelines Section 15164, the following analysis has been prepared to demonstrate that none of the conditions described in Section 15162 of the CEQA Guidelines calling for preparation of a subsequent EIR have occurred and that only minor technical changes or additions to the existing CEQA document is necessary in order to deem the certified EIR adequate to describe the impacts of the modified project. CEQA Guidelines Section 15164 also states that an Addendum need not be circulated for public review but can be included in or attached to the previously certified EIR for consideration by the hearing body. This Addendum focuses on those aspects of the modified project or its impacts that require additional discussion.

CEQA DOCUMENTS ADDRESSED

The following CEQA documents are addressed herein:

- Final Environmental Impact Report, North Watt Avenue Corridor Plan (County Control Number: 2008-GPB-CZB-ZOB-00153; SCH Number: 2009092067), certified by the Sacramento County Board of Supervisors on July 17, 2012 (Attachment A).

The FEIR is available for review at Sacramento County Planning and Environmental Review, 827 7th Street, Room 225 Sacramento, CA 95814 and is incorporated by reference in accordance with State CEQA Guidelines Section 15150.

This document is a Subsequent Mitigated Negative Declaration (MND)to the FEIR. In accordance with CEQA, the Subsequent MND analyzes proposed modifications (the Modified Project) and analyzes new information not known at the time the FEIR was certified. The Subsequent MND demonstrates that all potential environmental impacts associated with the Modified Project were either within the scope of impacts already evaluated and were found to be consistent with the analyses presented in the FEIR or have been analyzed within this document.

CEQA Authority for Preparation of a Subsequent Environmental Document

CEQA establishes the type of environmental documentation required when changes to a project occur after an EIR is certified. Specifically, Section 15162 of the CEQA Guidelines states that:

(a) When an EIR has been certified or a negative declaration for a project, no subsequent EIR shall be prepared for that project unless the lead agency determines, on the basis of substantial evidence in light of the whole record, one or more of the following:

(1) Substantial changes are proposed in the project which will require major revisions of the previous EIR or negative declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects;

(2) Substantial changes occur with respect to the circumstances under which the project is undertaken, which will require major revisions of the previous EIR or negative declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; or

(3) New information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the previous EIR was certified as complete or the negative declaration was adopted, shows any of the following:

(A) The project will have one or more significant effects not discussed in the previous EIR or mitigated negative declaration;

(B) Significant effects previously examined will be substantially more severe than shown in the previous EIR;

(C) Mitigation measures or alternatives previously found not to be feasible would in fact be feasible, and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measure or alternative; or

(D) Mitigation measures or alternatives which are considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects on the environment, but the project proponents decline to adopt the mitigation measure or alternative.

(b) If changes to a project or its circumstances occur or new information becomes available after adoption of a negative declaration, the lead agency shall prepare a subsequent EIR if required under subdivision (a). Otherwise the lead agency shall determine whether to prepare a subsequent negative declaration, an addendum, or no further documentation.

(c) Once a project has been approved, the lead agency's role in project approval is completed, unless further discretionary approval on that project is required. Information appearing after an approval does not require reopening of that approval. If after the project is approved, any of the conditions described in subdivision (a) occurs, a subsequent EIR or negative declaration shall only be prepared by the public agency which grants the next discretionary approval for the project, if any. In this situation no other responsible agency shall grant an approval for the project until the subsequent EIR has been certified or subsequent negative declaration adopted.

(d) A subsequent EIR or subsequent negative declaration shall be given the same notice and public review as required under Section 15087 or Section 15072. A subsequent EIR or negative declaration shall state where the previous document is available and can be reviewed.

In light of new information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the previous EIR was certified, the proposed Project would have one or more significant effects not discussed in the previous EIR. Pursuant to Section 15162 (b) the lead agency shall prepare a subsequent EIR if required under subdivision (a). Otherwise, the lead agency shall determine whether to prepare a subsequent negative declaration, an addendum, or no further documentation.

Background – Approved and Modified Project

Overview of Approved Project

The approved project consisted of a request for a General Plan Amendment, Community Plan Amendment, Rezone and Zoning Ordinance Amendment to adopt the North Watt Avenue Corridor via a Special Planning Area (SPA) ordinance, which provided policy framework to guide future revitalization activities along the Watt Avenue corridor, in the North Highlands community.

The North Watt Avenue Corridor Plan (Corridor Plan) and associated SPA cover approximately 750 acres in the North Highlands community. The SPA is located along a four-mile segment of Watt Avenue north of Interstate-80 to Antelope Road/U Street within unincorporated Sacramento County. The plan area is situated entirely within the community of North Highlands adjacent to the former McClellan Air Force Base (now the McClellan Business Park). The Corridor Plan was intended to guide infill growth and public improvements within the plan area within a planning horizon of 20 years. Full build out of the Corridor Plan area anticipates the addition of up to 7,200 additional residential units, 1,170,000 square feet of new retail, and 714,700 square feet of new office uses.

The Corridor Plan and SPA ordinance were approved by the County Board of Supervisors on July 17, 2012.

Environmental Document

The Draft Environmental Impact Report (DEIR), which was prepared to assess the environmental effects of the Corridor Plan project, was released for public review and comment on September 9, 2011. The written public comment period ended on October 24, 2011.The Corridor Plan project and the DEIR were heard by the Sacramento County Planning Commission on March 26, 2012. The Planning Commission recommended approval of the Corridor Plan Project including the Corridor Plan amendments recommended by the Planning Division since the publication of the DEIR. A Final Environmental Impact Report (EIR) entitled, North Watt Avenue Corridor Plan (County Control Number: 2008-GPB-CZB-ZOB-00153; SCH Number: 2009092067), was certified by the Sacramento County Board of Supervisors on July 17, 2012. The Board of Supervisors adopted the associated Mitigation Monitoring and Reporting Program.

Proposed Modifications to Project

The EIR prepared for the Corridor Plan evaluated impacts at a programmatic level. While the EIR evaluated biological resources, biological pedestrian surveys were not conducted for the entire Corridor Plan area because of its location in a predominantly urban environment and the scale of the Corridor Plan area. The EIR concluded that no known special status species existed in the Corridor Plan area. Site-specific technical reports were prepared and submitted as part of the application for the Modified Project.

The biological report submitted for the Modified Project concluded that Sanford’s arrowhead (*Sagittaria sanfordii*). Sanford’s arrowhead is considered a federal species of special concern and is listed by the California Native Plant Society’s Inventory of Rare and Endangered Plants as category 1B.2 (i.e. rare throughout its range in California with a moderate probability of going extinct). The biological report also determined that the site contains suitable habitat for burrowing owls (*Athene cunicularia*). Burrowing owl is considered a species of special concern by the state. The findings of the biological report constitute new information not previously considered by the EIR. Furthermore, impacts to either of these species would constitute a significant impact to special status species and would require preparation of a subsequent environmental document pursuant to Section 15162 (b) of the CEQA Guidelines.

The analysis contained herein evaluates project-specific development proposed on one parcel located within the Corridor Plan area. The analyses of the project-specific development is outlined in the sections and checklist table hereafter.

ENVIRONMENTAL CHECKLIST FOR ADDENDUM ENVIRONMENTAL REVIEW

The purpose of this checklist is to evaluate the categories in terms of any "changed condition" (i.e. changed circumstances, project changes, or new information of substantial importance) that may result in a changed environmental result. A "no" answer does not necessarily mean there are no potential impacts relative to the environmental category, but that there is no change in the condition or status of the impact since it was analyzed and addressed in prior environmental documents.

EXPLANATION OF CHECKLIST EVALUATION CATEGORIES

Where Impact was Analyzed. This column provides a cross-reference to the pages of the prior environmental documents where information and analysis may be found relative to the environmental issue listed under each topic. Unless otherwise indicated, page number references are to the EIR page.

Do Proposed Changes Involve New Significant Impacts? Pursuant to Section 15162(a)(1) of the CEQA Guidelines, this column indicates whether the changes represented by the current project will result in new significant impacts that have not already been considered and mitigated by the prior environmental review documents and related approvals or will result in a substantial increase in the severity of a previously identified impact.

Any New Circumstances Involving New Impacts? Pursuant to Section 15162(a)(2) of the CEQA Guidelines, this column indicates whether there have been changes to the project site or the vicinity (circumstances under which the project is undertaken) which have occurred subsequent to the certification or adoption of prior environmental documents, which would result in the current project having new significant environmental impacts that were not considered in the prior environmental documents or that substantially increase the severity of a previously identified impact.

Any new Information Requiring New Analysis or Verification? Pursuant to Section 15162(a)(3)(A–D) of the CEQA Guidelines, this column indicates whether new information of substantial importance which was not known and could not have been known with the exercise of reasonable diligence at the time the previous environmental documents were certified or adopted is available requiring an update to the analysis of the previous environmental documents to verify that the environmental conclusions and mitigation measures remain valid. Either "yes" or "no" will be answered to indicate whether there is new information showing that: (A) the project will have one or more significant effects not discussed in the prior environmental documents; (B) that significant effects previously examined will be substantially more severe than shown in the prior environmental documents; (C) that mitigation measures or alternatives previously found not to be feasible would in fact be feasible and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measure or alternative; or (D) that mitigation measures or alternatives which are considerably different from those analyzed in the prior environmental documents would substantially reduce one or more significant effects on the environment, but the project proponents decline to adopt the mitigation measure or alternative. If "no," then no additional environmental documentation (supplemental or subsequent EIR) is required.

Mitigation Measures Implemented or Addressing Impacts. Pursuant to Section 15162(a)(3) of the CEQA Guidelines, this column indicates whether the prior environmental documents provide mitigation measures to address effects in the related impact category. In some cases, the mitigation measures may have already been implemented. A "yes" response will be provided in any instance where mitigation was included, regardless of whether the mitigation has been completed at this time. If "none" is indicated, this environmental analysis concludes a significant impact does not occur with this project, no mitigation was previously included, and no mitigation is needed.

DISCUSSION AND MITIGATION SECTIONS

Discussion. A discussion of the elements of the checklist is provided under each environmental category in order to clarify the answers. The discussion provides information about the particular environmental issue, how the project relates to the issue and the status of any mitigation that may be required or has already been implemented.

Mitigation Measures. Applicable mitigation measures from the prior environmental review that apply to the project are listed under each environmental category. Refer to Attachment B for the full text of listed Mitigation Measures.

CHECKLIST

I. Aesthetics

	Where Impact Was Analyzed in Prior Environmental Documents	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information Requiring New Analysis or Verification?	Prior Environmental Documents' Mitigation Measures Implemented or Addressing Impacts
a. Substantially alter existing viewsheds such as scenic highways, corridors or vistas?	Page CK-3	No	No	No	None recommended.
b. In non-urbanized area, substantially degrade the existing visual character or quality of public views of the site and its surroundings?	N/A	No	No	No	None recommended.
c. If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	Page CK-3	No	No	No	None recommended.
d. Create a new source of substantial light or glare, adversely affect day or nighttime views in the area?	Page CK-3	No	No	No	None recommended.

	Where Impact Was Analyzed in Prior Environmental Documents	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information Requiring New Analysis or Verification?	Prior Environmental Documents' Mitigation Measures Implemented or Addressing Impacts

DISCUSSION:

The EIR determined that impacts to aesthetics related to substantially altering views and visual character were considered less than significant. The Modified Project as proposed, is consistent with the prior analysis and would not generate new impacts related to aesthetics.

MITIGATION MEASURES:

None recommended

II. Agricultural & Forestry Resources

	Where Impact Was Analyzed in Prior Environmental Documents	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information Requiring New Analysis or Verification?	Prior Environmental Documents' Mitigation Measures Implemented or Addressing Impacts
a. Convert Prime Farmland, Unique Farmland, Farmland of Statewide Importance or areas containing prime soils to uses not conducive to agricultural production?	Page CK-2	No	No	No	None recommended.
b. Conflict with any existing Williamson Act contract?	Page CK-2	No	No	No	None recommended.
c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	Page CK-2	No	No	No	None recommended.
d. Result in the loss of forest land or conversion of forest land to non-forest use?	N/A	No	No	No	None recommended.
e. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	Page CK-2	No	No	No	None recommended.

	Where Impact Was Analyzed in Prior Environmental Documents	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information Requiring New Analysis or Verification?	Prior Environmental Documents' Mitigation Measures Implemented or Addressing Impacts

Discussion:

The North Watt Avenue Corridor Plan (Corridor Plan) area does not contain agricultural lands. The EIR found that some minor agricultural-residential properties are adjacent to the plan area; however, these operations are small-scale animal husbandry or hobby farms, which are located adjacent to urban uses along Watt Avenue. The EIR concluded the proposed Corridor Plan would not introduce incompatible uses in the vicinity of existing agricultural uses. The Modified Project is consistent with the findings of the EIR and would not introduce incompatible uses to the adjacent Agricultural-Residential uses.

Mitigation Measures:

None recommended.

III. Airports

	Where Impact Was Analyzed in Prior Environmental Documents	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information Requiring New Analysis or Verification?	Prior Environmental Documents' Mitigation Measures Implemented or Addressing Impacts
a. Result in a safety hazard for people residing or working in the vicinity of an airport/airstrip?	Page 5-7 – 5-10	No	No	No	None recommended.
b. Expose people residing or working in the project area to aircraft noise levels in excess of applicable standards?	Page 5-4 - 5-6	No	No	No	None recommended

	Where Impact Was Analyzed in Prior Environmental Documents	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information Requiring New Analysis or Verification?	Prior Environmental Documents' Mitigation Measures Implemented or Addressing Impacts
c. Result in a substantial adverse effect upon the safe and efficient use of navigable airspace by aircraft?	Page 5-6 – 5-7	No	No	No	None recommended
d. Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	Page 5-11	No	No	No	None recommended

	Where Impact Was Analyzed in Prior Environmental Documents	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information Requiring New Analysis or Verification?	Prior Environmental Documents' Mitigation Measures Implemented or Addressing Impacts

DISCUSSION:

Portions of the Corridor Plan area are located within the McClellan Airport Planning Policy Area (APPA). Parcels located within the APPA are subject to the McClellan Comprehensive Land Use Plan (CLUP), which provides additional guidance for land use within and in the vicinity of McClellan Airfield. The purpose of the CLUP is to establish land use compatibility guidelines for safety, noise, and height within the Airport Policy Area. CLUP guidance and land use compatibility is primarily determined by project location and whether the project is located within one of the three safety zones – Overflight Zone, Approach/Departure Zone, or Clear Zone.

SAFETY

Portions of the Elkhorn and Town Center Districts and most of the Triangle Gateway District are located within the Overflight Zone. Most of the Corridor Plan uses are compatible with the Land Use Compatibility Guidelines for Safety tables of the CLUP. The EIR concluded no significant land use related environmental impacts would be created in the Overflight Zone. Impacts were determined to be less than significant.

A small portion of the Triangle Gateway District is located within the Approach/Departure Zone. Uses within this zone are more stringently regulated than those within the Overflight Zone, because of the safety issues with concentrating people in an area that may require emergency landings and has a higher potential for aircraft crashes. Based on the airport safety tables, almost all of the Corridor Plan uses are not compatible or allowed within the Approach/Departure Zone. Single-family homes are allowed if density is no more than one unit per five acres. The EIR noted that state law does allow the County Board of Supervisors (BOS) to override findings of the CLUP, but that siting any nonconforming use within this zone would still present significant safety issues, which could not be mitigated to a less-than-significant level. The EIR concluded that impacts related to airport safety and policy would be significant and unavoidable.

A small portion of the Triangle Gateway District is also located within a small portion of the Clear Zone. The Clear Zone limits compatible uses to open space, natural areas, and some agricultural uses, provided that these uses do not involve structures or new water areas that could produce fog or result in a bird hazard. Similar to the Approach/Departure Zone, policy may be overridden through BOS discretion, but would present significant safety issues that could not be mitigated to a less-than-significant level. The

	Where Impact Was Analyzed in Prior Environmental Documents	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information Requiring New Analysis or Verification?	Prior Environmental Documents' Mitigation Measures Implemented or Addressing Impacts

EIR concluded that impacts related to airport safety and policy would be ***significant and unavoidable***.

Height

The EIR concluded that the Corridor Plan does not propose building heights that exceed Federal Aviation Administration (FAA) building height standards and would not impact navigable airspace.

Air Traffic

The EIR concluded that the project would not involve changes to air traffic patterns and would not affect levels of air traffic.

Modified Project

Safety

The project is located within the McClellan APPA but is located outside of the three safety zones. Impacts related to safety are ***less than significant***.

Height

The Modified Project does not exceed FAA building height standards and would not impact navigable airspace.

Air Traffic

The Modified Project would not involve changes to air traffic patterns and would not affect levels of air traffic.

The Modified Project is consistent with the findings of the EIR and would not introduce incompatible land uses or affect navigable air traffic patterns. Nor would the Modified Project create a safety hazard for people residing or working in the vicinity of an airport/airstrip.

	Where Impact Was Analyzed in Prior Environmental Documents	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information Requiring New Analysis or Verification?	Prior Environmental Documents' Mitigation Measures Implemented or Addressing Impacts
MITIGATION MEASURES: None recommended					

IV. Air Quality

	Where Impact Was Analyzed in Prior Environmental Documents	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information Requiring New Analysis or Verification?	Prior Environmental Documents' Mitigation Measures Implemented or Addressing Impacts
a. Conflict with or obstruct implementation of the applicable air quality plan?	N/A	No	No	No	None recommended.
b. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard?	Page 9-9 – 9-11	No	No	No	MM AQ-1: Ozone Precursor Analysis & Reduction
c. Expose sensitive receptors to pollutant concentrations in excess of standards?	Page 9-9 – 9-23	No	No	No	MM AQ-1: Ozone Precursor Analysis and Reduction, MM AQ-2: AQMP 15.75% Emissions Reduction, MM AQ-3: TAC Mitigation Plan, and MM AQ-4: 200-ft I-80 Buffer for New Sensitive Uses

	Where Impact Was Analyzed in Prior Environmental Documents	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information Requiring New Analysis or Verification?	Prior Environmental Documents' Mitigation Measures Implemented or Addressing Impacts
d. Create objectionable odors affecting a substantial number of people?	N/A	No	No	No	None recommended.

	Where Impact Was Analyzed in Prior Environmental Documents	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information Requiring New Analysis or Verification?	Prior Environmental Documents' Mitigation Measures Implemented or Addressing Impacts

DISCUSSION:

The EIR found emission of fugitive dust to be significant and unavoidable, even with adherence to the Sacramento Air Quality Management District's (SMAQMD) Rule 403, which requires dust abatement practices be implemented.

The EIR found construction-related emissions of ozone precursors and diesel particulates to be significant. Mitigation Measure AQ-1 requires that all construction projects prepare an ozone precursor analysis. If the project exceeds SMAQMD's thresholds, heavy-duty, off-road vehicles will achieve a project-wide fleet-average 20% NO_x reduction and a 45% particulate reduction compared to the most recent California Air Resource Board (CARB) fleet average. The measure also requires that all off-road, diesel-powered equipment do not exceed 40% opacity for more than three minutes in any one hour. Contractors are required to submit monthly equipment lists to SMAQMD to ensure compliance. With the implementation of MM AQ-1, construction-related emissions of ozone precursors and diesel particulates are less than significant.

The EIR's operational emissions analysis concluded ROG and NO_x exceed SMAQMD thresholds of significance of 65 lbs/day in the summer and winter, which would be considered a significant impact. General Plan Policy AQ-4 requires that developments exceeding these thresholds prepare an Air Quality Mitigation Plan (AQMP). The goal of the AQMP is to achieve a 15-percent reduction of emissions. Even with a 15% reduction in operational emissions, the estimated operational emissions would still exceed the operational threshold of 65 pounds per day. The SMAQMD endorsed the North Watt Avenue Corridor Plan AQMP, which requires all projects to achieve a minimum 15.75% reduction in emissions through implementation of its measures (Mitigation Measure AQ-2). The EIR determined that impacts from operational emissions are significant and unavoidable.

MODIFIED PROJECT

CONSTRUCTION-RELATED AIR QUALITY IMPACTS

DUST PARTICULATE MATTER

The project site has an area of 6.11 acres which is less than the 15-acre-per-day threshold expected to result in significant dust

	Where Impact Was Analyzed in Prior Environmental Documents	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information Requiring New Analysis or Verification?	Prior Environmental Documents' Mitigation Measures Implemented or Addressing Impacts

emissions. While the project is not expected to result in significant fugitive dust emissions individually, it would still contribute to cumulative emissions in the Corridor Plan area. Concurrent construction of multiple projects within the Corridor Plan area could easily exceed the 15 acres per day threshold. Cumulative impacts to air quality from construction-related fugitive dust emissions remain ***significant and unavoidable***.

OZONE PRECURSORS AND DIESEL PARTICULATES

Individually, the project is not expected to exceed the SMAQMD daily construction threshold of 85 pounds/day NO_X; however, cumulative impacts from concurrent developments could exceed the threshold. The project will be required to comply with Mitigation Measures AQ-1 & AQ-2. Impacts from construction-related emissions of ozone precursors and diesel particulate matter would be ***less than significant with mitigation***.

TOXIC AIR CONTAMINANTS

The EIR evaluated cancer risk associated with high-traffic roadways and proximity to the Union Pacific railway. Portions of the Corridor Plan area are located near Interstate 80 and the Union Pacific railway. Automobile and railcar traffic are both sources for a variety of toxic air contaminants including but not limited to nitrogen oxides, diesel particulate matter, and carbon monoxide. Long-term exposure to these contaminants can contribute to a variety of adverse health effects to humans. Mitigation Measure AQ-3 requires that all projects involving sensitive uses (residential uses, and those concentrations of the very young, elderly, or infirm such as parks, daycares, nursing homes, or hospitals) within 500 feet of Interstate 80 or the Union Pacific railway prepare a mitigation plan to reduce impacts associated with toxic air contaminants. Mitigation Measure AQ-4 restricts the siting of new sensitive uses within 200 feet of the nearest Interstate 80 travel lane in order to prevent chronic pollutant exposure.

The Modified Project site is located beyond the 500-foot threshold that would require inclusion of Mitigation Measures AQ-3 & AQ-4; Mitigation Measures AQ-3 & AQ-4 are not applicable to the Modified Project.

OPERATIONAL AIR QUALITY IMPACTS

Helix prepared an Air Quality and Greenhouse Gas Report (Appendix A) for the Modified Project. The report concluded that the Modified Projecty would not individually exceed daily operational emissions for ROG and NO_X. Even though the project would not

	Where Impact Was Analyzed in Prior Environmental Documents	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information Requiring New Analysis or Verification?	Prior Environmental Documents' Mitigation Measures Implemented or Addressing Impacts

exceed operational emissions individually, Mitigation Measure AQ-2 would still apply to the project. Cumulative impacts remain significant and unavoidable.

Operational emissions related to CO_2 were discussed in the Climate Change chapter of the EIR. They are further discussed in the Greenhouse Gases section of this Addendum.

MITIGATION MEASURES:

The following Air Quality mitigation measures are applicable to the modified project:

MM AQ-1: Construction-Related Ozone Precursor Analysis and Reduction & MM AQ-2: AQMP 15.75% Operational Emissions Reduction

V. Biological Resources

	Where Impact Was Analyzed in Prior Environmental Documents	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information Requiring New Analysis or Verification?	Prior Environmental Documents' Mitigation Measures Implemented or Addressing Impacts
a. Have a substantial adverse effect on any special status species, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, or threaten to eliminate a plant or animal community?	Page 11-25 – 11-26	Yes	Yes	Yes	MM BR-4: Raptor Nesting Habitat Surveys

	Where Impact Was Analyzed in Prior Environmental Documents	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information Requiring New Analysis or Verification?	Prior Environmental Documents' Mitigation Measures Implemented or Addressing Impacts
b. Have a substantial adverse effect on riparian habitat or other sensitive natural communities?	Page 11-22 – 11-25	No	No	No	MM BR-3: Riparian Habitat Protection, Restoration, and Compensatory Mitigation
c. Have a substantial adverse effect on streams, wetlands, or other surface waters that are protected by federal, state, or local regulations and policies?	Page 11-16 – 11-25	No	No	No	MM BR-2: Wetland Protection, Permitting, and Compensatory Mitigation MM BR-3: Riparian Habitat Protection, Restoration, and Compensatory Mitigation
d. Have a substantial adverse effect on the movement of any native resident or migratory fish or wildlife species?	Page 11-25 – 11-26	No	No	No	None recommended.
e. Adversely affect or result in the removal of native or landmark trees?	Page 11-9 – 11-16	No	No	No	MM BR-1: Native Oak Tree Protection and Compensation
f. Conflict with any local policies or ordinances protecting biological resources?	Page	No	No	No	None recommended.
g. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, state or federal plan for the conservation of habitat?	N/A	No	No	No	None recommended.

	Where Impact Was Analyzed in Prior Environmental Documents	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information Requiring New Analysis or Verification?	Prior Environmental Documents' Mitigation Measures Implemented or Addressing Impacts

DISCUSSION:

SPECIAL-STATUS SPECIES

The EIR analyzed impacts to special-status species. The EIR concluded that because of the developed, urban nature of the Corridor Plan area, there are very few areas with suitable habitat for special-status species. The EIR acknowledged the presence of large trees throughout the Plan area, which may provide suitable nesting habitat for protected raptor species. Mitigation Measure BR-4 requires pre-construction surveys for nesting raptors within ½ mile of the project site, when development commences between March 1 and September 15. If active nests are found, CDFW should be contacted to determine species-specific protective measures. Impacts to protected raptors are ***less than significant with mitigation***.

MIGRATORY SPECIES

The EIR also acknowledged the potential for migratory nesting birds and concluded that it is up to the property owner to comply with the Migratory Bird Treaty Act (MBTA).

RIPARIAN HABITAT

There are four creeks within the Corridor Plan area, but only the Robla Creek located within the Elkhorn District contains riparian vegetation. The EIR concluded that impacts to Robla Creek from development/redevelopment could occur. Mitigation Measure BR-3 was implemented to preserve and protect riparian habitat. If protection and preservation is infeasible, the developer would be required to obtain all necessary state and federal permits, and restore/revegetate or provide compensatory mitigation, to ensure no net loss of riparian habitat. Impacts to riparian habitat are ***less than significant with mitigation***.

WETLANDS AND WATERS OF THE U.S.

Other waters in the Corridor Plan area include tributaries, open channels, seasonal wetlands and wetland swales. Development within or adjacent to wetlands could result in impacts to wetlands. Mitigation Measure BR-2 requires that a developer either preserve and protect existing wetlands or secure proper state and/or federal permits for impacts to wetlands. Additionally, if compensatory

	Where Impact Was Analyzed in Prior Environmental Documents	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information Requiring New Analysis or Verification?	Prior Environmental Documents' Mitigation Measures Implemented or Addressing Impacts

mitigation required by the permit(s) is not equivalent to the area lost, the developer shall make payment to the County at a $35,000 per acre of the unmitigated/uncompensated wetlands, pursuant to the County's no-net-loss wetland policy (GP Policy CO-58). Impacts to wetlands and Waters of the US are ***less than significant with mitigation***.

Native Trees

The EIR also evaluated impacts to native oak trees from removal or encroachment. Mitigation Measure BR-1 requires oak tree protection during construction. If a native oak cannot be preserved, then the developer shall mitigate through replacement plantings equivalent to the inches at diameter breast height (dbh) lost. If replacement plantings are infeasible, in lieu fees at a rate of $325 per inch (dbh) shall be made into the County Tree Fund. Impacts to native oaks are ***less than significant with mitigation***.

Modified Project

While the EIR evaluated biological resources, biological pedestrian surveys were not conducted for the entire Corridor Plan area because of its location in a predominantly urban environment and the scale of the Corridor Plan area. The EIR concluded that no known special status species existed in the Corridor Plan area. Site-specific technical reports were prepared and submitted as part of the application for the Modified Project.

A biological resources inventory report (Appendix B), an aquatic resources delineation report (Appendix C), and arborist report (Appendix D) were prepared by HELIX Environmental Planning, Inc. (HELIX) for the project. HELIX staff conducted pedestrian-level surveys between 2018 and 2021. These efforts concluded there are three vegetation communities/habitat types on the parcel: 5.859 acres of non-native grassland, 0.25 acres of wetland swale, and 0.08 acres of seasonal wetlands.

The biological report found that one special-status plant species does exist onsite and that the site provides suitable habitat for two special-status wildlife species. The findings of the biological report constitute new information not previously considered by the EIR. Furthermore, impacts to either of these species would constitute a significant impact to special status species and would require preparation of a subsequent environmental document pursuant to Section 15162 (b) of the CEQA Guidelines.

	Where Impact Was Analyzed in Prior Environmental Documents	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information Requiring New Analysis or Verification?	Prior Environmental Documents' Mitigation Measures Implemented or Addressing Impacts

SPECIAL-STATUS SPECIES

PLANT SPECIES

A total of 12 regionally occurring special-status plant species were identified during the database queries and desktop review. The majority of the special-status plant species are associated with vernal pools, meadows and seeps, chaparral, or cismontane woodlands and do not have the potential to occur onsite; however, the site provides suitable habitat for one special-status plant species, Sanford's arrowhead (*Sagittaria sanfordii*).

SANFORD'S ARROWHEAD

Sanford's arrowhead occurs in emergent marsh habitats, including habitats which are modified or human-made. Sanford's arrowhead is designated as a federal species of special concern and is listed by the California Native Plant Society's Inventory of Rare and Endangered Plants as category 1B.2 (i.e. rare throughout its range in California with a moderate probability of going extinct). Sanford's is fairly common in the Sacramento area. Potential suitable marsh habitats include the margins of rivers, streams, ponds, reservoirs, irrigation and drainage canals and ditches, and stock-ponds. In order to avoid impacts to the species, appropriate habitat must be avoided, or a survey must be performed demonstrating that the species is not present.

Ten individual Sanford's arrowhead plants were documented in the freshwater wetland swale onsite during the botanical survey in September 2021. The proposed project would fill in the wetland swale, which would remove the habitat and result in the destruction of the plants. This would be considered a significant impact. In order to avoid take of the species, mitigation (Mitigation Measure A) would be required that additional survey(s) be conducted prior to construction and that individual plants be removed, transplanted, and monitored for a three-year period. Impacts to Sanford's arrowhead would be ***less than significant with mitigation***.

WILDLIFE SPECIES

A total of 30 regionally occurring special-status wildlife species were identified during the updated database searches and desktop review. The majority of the special-status wildlife species are associated with aquatic habitats of the adjacent Sacramento Valley

	Where Impact Was Analyzed in Prior Environmental Documents	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information Requiring New Analysis or Verification?	Prior Environmental Documents' Mitigation Measures Implemented or Addressing Impacts

such as rivers, sloughs, and freshwater wetlands, including vernal pools. The remaining species are associated with woodlands, cliffs, elderberry shrubs, and open areas with scattered trees. There are no reported occurrences of special-status animal species on or adjacent to the parcel; however, the parcel may provide suitable habitat for burrowing owl (*Athene cunicularia*) and white-tailed kite (*Elanus leucurus*), as well as nesting migratory birds and raptors that are otherwise not special-status species. These species are discussed briefly below.

Burrowing Owl

Burrowing owl (*Athene cunicularia*) was not analyzed under the Corridor Plan EIR.

According to the CDFW life history account for the species, habitat can be found in annual and perennial grasslands, deserts, and arid scrublands characterized by low-growing vegetation. Burrows are the essential component of burrowing owl habitat. Both natural and artificial burrows provide protection, shelter, and nesting sites for burrowing owls. Burrowing owls typically use burrows made by fossorial mammals, such as ground squirrels or badgers, but also use human-made structures such as cement culverts; cement, asphalt, or wood debris piles; or openings beneath cement or asphalt pavement. Burrowing owls are listed as a California Species of Special Concern due to loss of breeding habitat.

Burrowing owls may use a site for breeding, wintering, foraging, and/or migration stopovers. Breeding season is generally defined as spanning February 1 to August 31 and wintering from September 1 to January 31. Occupancy of suitable burrowing owl habitat can be verified at a site by detecting a burrowing owl, its molted feathers, cast pellets, prey remains, eggshell fragments, or excrement at or near a burrow entrance. Burrowing owls exhibit high site fidelity, reusing burrows year after year.

According to the CDFW "Staff Report on Burrowing Owl Mitigation" (March 2012), surveys for burrowing owl should be conducted whenever suitable habitat is present within 500 feet of a proposed impact area; this is also consistent with the "Burrowing Owl Survey Protocol and Mitigation Guidelines" published by The California Burrowing Owl Consortium (April 1993). Occupancy of burrowing owl habitat is confirmed whenever one burrowing owl or burrowing owl sign has been observed at a burrow within the last three years.

The CDFW Staff Report on Burrowing Owl Mitigation indicates that the impact assessment should address the factors which could

	Where Impact Was Analyzed in Prior Environmental Documents	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information Requiring New Analysis or Verification?	Prior Environmental Documents' Mitigation Measures Implemented or Addressing Impacts

impact owls, the type and duration of disturbance, the timing and duration of the impact, and the significance of the impacts. The assessment should also take into account existing conditions, such as the visibility and likely sensitivity of the owls in question with respect to the disturbance area and any other environmental factors which may influence the degree to which an owl may be impacted (e.g., the availability of suitable habitat).

There are no reported occurrences of this species on or adjacent to the parcel in the CNDDB. The nearest recent CNDDB occurrence is located 5.3 miles west of the Study Area in a debris pile in open grassland habitat. Marginal foraging and nesting habitat are present within the non-native grassland and along the freshwater wetland swale of the site. Burrowing owl was not observed during any of the biological surveys; however, surveys consisted of meandering transects for habitat types. Therefore, additional protocol-level surveys should be conducted prior to construction. In order to avoid take of the species or nest abandonment, Mitigation Measure B will require pre-construction survey for the species. Impacts to burrowing owl are ***less than significant with mitigation***.

NESTING RAPTORS

The FEIR acknowledged the potential for nesting raptors within the Corridor Plan area and the potential for disturbance by project related construction. Disturbance of these species resulting in nest abandonment is considered a significant impact. Mitigation Measure BR-4 of the FEIR requires pre-construction nesting surveys for raptors for any proposed construction activity between February 1 and September 15.

WHITE-TAILED KITE

The scattered trees on and adjacent to the site provide marginal nesting habitat and the non-native grassland provides marginal foraging habitat for white-tailed kite. White-tailed kites were not observed onsite during any of the biological surveys and there are no reported occurrences of this species on or adjacent to the parcel in the CNDDB. The nearest documented occurrence of white-tailed kite is 5.5 miles east in annual grassland with scattered oaks.

White-tailed kite is a year-round resident in California in coastal areas and lowlands in the Central Valley. Population sizes increase during the non-breeding season due to over-wintering migrants. This species prefers to forage over open stages of habitats

	Where Impact Was Analyzed in Prior Environmental Documents	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information Requiring New Analysis or Verification?	Prior Environmental Documents' Mitigation Measures Implemented or Addressing Impacts

dominated by herbaceous species (Zeiner et al.1990). White-tailed kite will nest in tall trees adjacent to foraging habitat (Zeiner et al. 1990) with nest placement typically located near the top of the tree (NatureServe 2019). Typically, this species will have one brood per year, but occasionally will have a second brood (NatureServe 2019). White-tailed kites feed mainly on small mammals such as voles (*Microtus spp.*) but will take other small vertebrate and invertebrate prey.

To avoid impacts to nesting raptors, pre-construction nesting surveys (Mitigation Measure BR-4) will be required to identify any active nests and to implement avoidance measures if nests are found – if construction will occur during the nesting season of February 1 to September 15. The purpose of the survey requirement is to ensure that construction activities do not agitate or harm nesting raptors, potentially resulting in nest abandonment or other harm to nesting success. If nests are found, the developer is required to contact CDFW to determine what measures need to be implemented in order to ensure that nesting raptors remain undisturbed. The measures selected will depend on many variables, including the distance of activities from the nest, the types of activities, and whether the landform between the nest and activities provides any kind of natural screening. If no active nests are found during the focused survey, no further mitigation will be required. Impacts to nesting raptors will be ***less than significant with mitigation***.

MIGRATORY NESTING BIRDS

The FEIR included a discussion of the Migratory Bird Treaty Act in the regulatory setting of the Biological Resources chapter; however, mitigation was not incorporated since compliance is required under federal law.

The Migratory Bird Treaty Act of 1918, which states "unless and except as permitted by regulations, it shall be unlawful at any time, by any means or in any manner, to pursue, hunt, take, capture, kill, attempt to take, capture, or kill" a migratory bird. Section 3(19) of the Federal Endangered Species Act defines the term "take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. Causing a bird to abandon an active nest may cause harm to egg(s) or chick(s) and is therefore considered "take." To avoid take of nesting migratory birds, mitigation has been included to require that activities either occur outside of the nesting season, or to require that nests be buffered from construction activities until the nesting season is concluded.

	Where Impact Was Analyzed in Prior Environmental Documents	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information Requiring New Analysis or Verification?	Prior Environmental Documents' Mitigation Measures Implemented or Addressing Impacts

Trees in the project vicinity provide potential nesting habitat for migratory birds. To avoid take of nesting migratory birds, Minimization Measure C has been incorporated within the MMRP to ensure compliance with federal law. The measure will require that activities either occur outside of the nesting season, or that nests be buffered from construction activities until the nesting season is concluded. Impacts to migratory birds are ***less than significant.***

Pursuant to CEQA Guidelines Section 15164, subdivision (a), the County finds that none of the conditions described in Section 15162 calling for preparation of a subsequent EIR have occurred relative to the mandatory findings.

RIPARIAN HABITAT & WETLANDS

The regulatory environment for protection of federal surface waters has changed since the certification of the EIR. On May 25, 2023, the US Supreme Court narrowed the protections of the CWA. The Supreme Court opined,

> the CWA's use of 'waters' refers only to "geographic[al] features that are described in ordinary parlance as 'streams, oceans, rivers, and lakes'" and to adjacent wetlands that are "indistinguishable" from those bodies of water due to a continuous surface connection. Rapanos v. United States, 547 U. S. 715, 755, 742, 739 (plurality opinion). To assert jurisdiction over an adjacent wetland under the CWA, a party must establish "first, that the adjacent [body of water constitutes] . . . 'water[s] of the United States' (i.e., a relatively permanent body of water connected to traditional interstate navigable waters); and second, that the wetland has a continuous surface connection with that water, making it difficult to determine where the 'water' ends and the 'wetland' begins.

Although federal protections were narrowed by the Supreme Court, the State also has jurisdiction over impacts to surface waters through the Porter-Cologne Water Quality Control Act (Porter-Cologne), which <u>does not</u> require that waters be "navigable". For this reason, federal non-jurisdictional waters – isolated wetlands – can be regulated by the state of California pursuant to Porter-Cologne. In addition to Porter-Cologne, CDFW has purview over waters that have potential to support fish and wildlife resources under the Lake and Streambed Alteration Program, pursuant to Fish and Game Code Section 1602.

Section 1602 requires any person, state or local governmental agency, or public utility to notify CDFW prior to beginning any activity

	Where Impact Was Analyzed in Prior Environmental Documents	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information Requiring New Analysis or Verification?	Prior Environmental Documents' Mitigation Measures Implemented or Addressing Impacts

that may do one or more of the following:

- Divert or obstruct the natural flow of any river, stream, or lake;
- Change the bed, channel or bank of any river, stream, or lake;
- Use material from any river, stream, or lake; or
- Deposit or dispose of material into any river, stream, or lake; or
- Substantially adversely affect associated fish and wildlife resources.

Projects that may do one or more of the following are required to submit a Notification of Lake and Streambed Alteration to CDFW. CDFW has the authority to issue a conditional Agreement for work to proceed.

The CWA establishes a "no net loss" policy regarding wetlands for the state and federal governments, and General Plan Policy CO-58 establishes a "no net loss" policy for Sacramento County. Pursuant to these policies, any wetlands to be excavated or filled require 1:1 mitigation, and construction within the wetlands cannot take place until the appropriate permit(s) and agreement(s) have been obtained from the Corps, the USFWS, the Regional Water Quality Control Board, the CDFW and any other agencies with authority over surface waters. Any loss of delineated wetlands not mitigated through the permitting process must be mitigated, pursuant to County policy. Appropriate mitigation may include establishment of a conservation easement over wetlands, purchase of mitigation banking credits, or similar measures.

Aquatic Resource Delineation

A jurisdictional delineation of the project site was conducted during biological surveys on January 10 and February 8, 2018, in accordance with the *Corps of Engineers Wetlands Delineation Manual* (USACE 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)* (USACE 2008). The three-parameter method was used to determine the presence/absence of wetlands, which involves identifying indicators of hydrophytic vegetation, hydric soils, and

	Where Impact Was Analyzed in Prior Environmental Documents	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information Requiring New Analysis or Verification?	Prior Environmental Documents' Mitigation Measures Implemented or Addressing Impacts

wetland hydrology according to the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)* (USACE 2008) and the *Arid West 2016 Regional Wetland Plant List* (USACE 2016). A total of 20 data points were taken in the project site; data points were taken throughout the site to classify the site's soils, vegetation, and hydrologic characteristics. The delineation identified wetland features were present onsite.

WETLAND SWALE

A "Y" shaped wetland swale collects water from two culvert outfalls in the northern and eastern portions of the site and drains toward the southwest into a larger drainage off-site. The culvert outfall along the north side of the parcel collects stormwater and urban runoff primarily from the adjacent industrial facility and other industrial and commercial developments to the north of the project parcel. The culvert outfall along the eastern side of the parcel collects stormwater and urban runoff primarily from residential developments east of Watt Avenue. The wetland swale is vegetated with freshwater emergent macrophytes including a predominance of pale persicaria (*Persicaria lapathifolia*), tall flatsedge (*Cyperus eragrostis*), and creeping bentgrass (*Agrostis stolonifera*). Vegetation in the wetland swale indicates that the swale contains surface water for the majority of the growing season.

SEASONAL WETLANDS

The site contains two seasonal wetlands which are located to the west of the wetland swale. The seasonal wetlands collect runoff from the western half of the site, north of the swale. In contrast to the wetland swale, which is vegetated with emergent macrophytes, the seasonal wetlands are vegetated with herbaceous annual grasses and forbs typical of disturbed seasonal wetlands in the region including Italian ryegrass (*Festuca perennis*) and curly dock (*Rumex crispus*). This difference in vegetation indicates a hydrologic regime in the seasonal wetlands consisting of periods of inundation during and shortly after storm events with several weeks of saturation during the growing season.

The proposed project would fill in all the wetland features onsite and would result in a loss of 0.33 acres of wetlands. It is unlikely that the features onsite would be protected under federal law, as they do not have a "relatively permanent" connection to navigable waters. Mitigation Measure BR-2 has been revised to ensure that the project proponent secures all necessary regulatory permits prior to approval of improvement plans and that the applicant provide compensation equivalent to the area impacted. Impacts to

	Where Impact Was Analyzed in Prior Environmental Documents	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information Requiring New Analysis or Verification?	Prior Environmental Documents' Mitigation Measures Implemented or Addressing Impacts

wetlands are ***less than significant with mitigation***.

NATIVE TREES

There are eight native trees located on the site. Six of the eight protected trees (Tree #139, #140, #155, #157, #297, and #298) are valley oaks (Quercus lobata) and are in fair to good condition. The remaining protected tree (Tree #160) is a multi-stemmed California black walnut (Juglans hindsii) in good condition. Based upon the 2019 arborist report, the project would remove all of the trees onsite resulting in the loss of approximately 59 inches of native oaks and 9.4 inches of black walnut. Mitigation Measure BR-1 remains applicable to the project and compensation for loss of native trees would be assessed. The measure has been updated to include all native species protected under General Plan Policy CO-139. Impacts to native trees are ***less than significant with mitigation***.

MITIGATION MEASURES:

MITIGATION MEASURE A: SANFORD'S ARROWHEAD

Surveys shall be performed by a qualified botanist during the species non-dormant, flowering period (May – October) prior to work within suitable habitat. If the species is not found during the survey, no further mitigation would be required. If plant(s) are found the botanist shall establish distribution of the colony(s) and estimate the number of individuals in the population. Unless deemed infeasible by the Environmental Coordinator, all plants or tuber/rhizomes shall be removed from the area of impact and transplanted to a new or existing preserve or, if the impact is temporary, replanted in the same location after the disturbance. Surveys shall be performed annually at the transplant location for a period of three years, to ensure success. If survival is not meeting a minimum 60% survivorship, transplantation will be deemed failed. In cases where transplanting is deemed infeasible, or where transplanting has failed, compensatory mitigation shall be provided. Compensatory mitigation shall consist of placement of a conservation easement over a known, unprotected population of the species.

MITIGATION MEASURE B: BURROWING OWL

Prior to the commencement of construction activities (which includes clearing, grubbing, or grading) within 500 feet of suitable burrow habitat, a survey for burrowing owl shall be conducted by a qualified biologist. The survey shall occur within 30 days of the

	Where Impact Was Analyzed in Prior Environmental Documents	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information Requiring New Analysis or Verification?	Prior Environmental Documents' Mitigation Measures Implemented or Addressing Impacts

date that construction will encroach within 500 feet of suitable habitat. Surveys shall be conducted in accordance with the following:

1. A survey for burrows and owls should be conducted by walking through suitable habitat over the entire project site and in areas within 150 meters (~500 feet) of the project impact zone.

2. Pedestrian survey transects should be spaced to allow 100 percent visual coverage of the ground surface. The distance between transect center lines should be no more than 30 meters (~100 feet) and should be reduced to account for differences in terrain, vegetation density, and ground surface visibility. To efficiently survey projects larger than 100 acres, it is recommended that two or more surveyors conduct concurrent surveys. Surveyors should maintain a minimum distance of 50 meters (~160 feet) from any owls or occupied burrows. It is important to minimize disturbance near occupied burrows during all seasons.

3. If no occupied burrows or burrowing owls are found in the survey area, a letter report documenting survey methods and findings shall be submitted to the Environmental Coordinator and no further mitigation is necessary.

4. If occupied burrows or burrowing owls are found, then a complete burrowing owl survey is required. This consists of a minimum of four site visits conducted on four separate days, which must also be consistent with the Survey Method, Weather Conditions, and Time of Day sections of Appendix D of the California Fish and Wildlife "Staff Report on Burrowing Owl Mitigation" (March 2012). Submit a survey report to the Environmental Coordinator which is consistent with the Survey Report section of Appendix D of the California Fish and Wildlife "Staff Report on Burrowing Owl Mitigation" (March 2012).

If occupied burrows or burrowing owls are found the applicant shall contact the Environmental Coordinator and consult with California Fish and Wildlife prior to construction and will be required to submit a Burrowing Owl Mitigation Plan (subject to the approval of the Environmental Coordinator and in consultation with California Fish and Wildlife). This plan must document all proposed measures, including avoidance, minimization, exclusion, relocation, or other measures, and include a plan to monitor mitigation success. The CDFW "Staff Report on Burrowing Owl Mitigation" (March 2012) should be used in the development of the mitigation plan.

	Where Impact Was Analyzed in Prior Environmental Documents	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information Requiring New Analysis or Verification?	Prior Environmental Documents' Mitigation Measures Implemented or Addressing Impacts

MITIGATION MEASURE BR-4: RAPTOR NEST PROTECTION

If construction activity (which includes clearing, grubbing, or grading) is to commence within 500 feet of suitable nesting habitat between February 1 and September 15, a survey for raptor nests shall be conducted by a qualified biologist. The survey shall cover all potential trees on-site and off-site up to a distance of 500 feet from the project boundary. The survey shall occur within 30 days of the date that construction will encroach within 500 feet of suitable habitat. The biologist shall supply a brief written report (including date, time of survey, survey method, name of surveyor and survey results) to the Environmental Coordinator prior to ground disturbing activity. If no active nests are found during the survey, no further mitigation will be required. If any active nests are found, the Environmental Coordinator and CDFW shall be contacted to determine appropriate avoidance/protective measures. The avoidance/protective measures shall be implemented prior to the commencement of construction within 500 feet of an identified nest.

MITIGATION MEASURE C: MIGRATORY BIRD NEST PROTECTION

To avoid impacts to nesting migratory birds the following shall apply:

1. If construction activity (which includes clearing, grubbing, or grading) is to commence within 50 feet of nesting habitat between February 1 and September 15, a survey for active migratory bird nests shall be conducted no more than 14 days prior to construction by a qualified biologist.

2. Trees slated for removal shall be removed during the period of September through January, in order to avoid the nesting season. Any trees that are to be removed during the nesting season, which is February through August, shall be surveyed by a qualified biologist and will only be removed if no nesting migratory birds are found.

3. If active nest(s) are found in the survey area, a non-disturbance buffer, the size of which has been determined by a qualified biologist, shall be established and maintained around the nest to prevent nest failure. All construction activities shall be avoided within this buffer area until a qualified biologist determines that nestlings have fledged, or until September 15.

MITIGATION MEASURE BR-2: WETLANDS AND PROTECTED SURFACE WATERS

	Where Impact Was Analyzed in Prior Environmental Documents	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information Requiring New Analysis or Verification?	Prior Environmental Documents' Mitigation Measures Implemented or Addressing Impacts

Prior to execution of redevelopment/ development projects within the Corridor Plan area or installation of public service infrastructure, the project proponent(s) shall submit a wetland delineation to Planning and Environmental Review for the project impact areas if appropriate habitat exists. The wetland delineation shall be prepared by a qualified biologist.

The applicant shall obtain all applicable permits and/or agreements (WDR or LSAA) from the Central Valley Regional Water Quality Control Board and the California Department of Fish and Wildlife. The applicant shall submit copies of all the permits/agreements to the Environmental Coordinator.

If regulatory permitting processes result in less than a 1:1 compensation ratio for loss of wetlands, the Project applicant shall demonstrate that the wetlands which went unmitigated/uncompensated as a result of permitting have been mitigated through other means. Acceptable methods include payment into a mitigation bank or protection of off-site wetlands through the establishment of a permanent conservation easement, subject to the approval of the Environmental Coordinator.

Mitigation Measure BR-1: Native Trees

The removal of six valley oaks (Tree #139, #140, #155, #157, #297, and #298) and one CA black walnut (Tree #160) would result in the removal of 69 inches diameter at breast height (dbh) and shall shall be compensated for by planting in-kind native trees equivalent to the dbh inches lost, based on the ratios listed below, at locations that are authorized by the Environmental Coordinator. On-site preservation of native trees that are less than 6 inches (<6 inches) dbh, may also be used to meet this compensation requirement. Native trees include: valley oak (*Quercus lobata*), interior live oak (*Quercus wislizenii*), blue oak (*Quercus douglasii*), or oracle oak (*Quercus morehus*), California sycamore (*Platanus racemosa*), California black walnut (*Juglans californica*), Oregon ash (*Fraxinus latifolia*), western redbud (*Cercis occidentalis),* gray pine (*Pinus sabiniana*), California white alder (*Alnus rhombifolia*), boxelder (*Acer negundo*), California buckeye (*Aesculus californica*), narrowleaf willow (*Salix exigua*), Gooding's willow (*Salix gooddingii*), red willow (*Salix laevigata*), arroyo willow (*Salix lasiolepis*), shining willow (*Salix lucida*), Pacific willow (*Salix lasiandra*), and dusky willow (*Salix melanopsis*).

Replacement tree planting shall be completed prior to approval of grading or improvement plans, whichever comes first. As

	Where Impact Was Analyzed in Prior Environmental Documents	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information Requiring New Analysis or Verification?	Prior Environmental Documents' Mitigation Measures Implemented or Addressing Impacts

proposed, the project would require **<u>69 inches</u>** of compensation.

Equivalent compensation based on the following ratio is required:

- one preserved native tree < 6 inches dbh on-site = 1 inch dbh
- one D-pot seedling (40 cubic inches or larger) = 1 inch dbh
- one 15-gallon tree = 1 inch dbh
- one 24-inch box tree = 2 inches dbh
- one 36-inch box tree = 3 inches dbh

Prior to the approval of Improvement Plans or Building Permits, whichever occurs first, a Replacement Tree Planting Plan shall be prepared by a certified arborist or licensed landscape architect and shall be submitted to the Environmental Coordinator for approval. The Replacement Tree Planting Plan(s) shall include the following minimum elements:

1. Species, size and locations of all replacement plantings and < 6-inch dbh trees to be preserved
2. Method of irrigation
3. If planting in soils with a hardpan/duripan or claypan layer, include the Sacramento County Standard Tree Planting Detail L-1, including the 10-foot-deep boring hole to provide for adequate drainage
4. Planting, irrigation, and maintenance schedules;
5. Identification of the maintenance entity and a written agreement with that entity to provide care and irrigation of the trees for a

	Where Impact Was Analyzed in Prior Environmental Documents	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information Requiring New Analysis or Verification?	Prior Environmental Documents' Mitigation Measures Implemented or Addressing Impacts

3-year establishment period, and to replace any of the replacement trees which do not survive during that period.

6. Designation of 20-foot root zone radius and landscaping to occur within the radius of trees < 6 inches dbh to be preserved on-site.

No replacement tree shall be planted within 15 feet of the driplines of existing native trees or landmark size trees that are retained on-site, or within 15 feet of a building foundation or swimming pool excavation. The minimum spacing for replacement native trees shall be 20 feet on-center. Examples of acceptable planting locations are publicly owned lands, common areas, and landscaped frontages (with adequate spacing). Generally unacceptable locations are utility easements (PUE, sewer, storm drains), under overhead utility lines, private yards of single-family lots (including front yards), and roadway medians.

Native trees <6 inches dbh to be retained on-site shall have at least a 20-foot radius suitable root zone. The suitable root zone shall not have impermeable surfaces, turf/lawn, dense plantings, soil compaction, drainage conditions that create ponding (in the case of oak trees), utility easements, or other overstory tree(s) within 20 feet of the tree to be preserved. Trees to be retained shall be determined to be healthy and structurally sound for future growth, by an ISA Certified Arborist subject to Environmental Coordinator approval.

If tree replacement plantings are demonstrated to the satisfaction of the Environmental Coordinator to be infeasible for any or all trees removed, then compensation shall be through payment into the County Tree Preservation Fund. Payment shall be made at a rate of $325.00 per dbh inch removed but not otherwise compensated, or at the prevailing rate at the time payment into the fund is made.

VI. Cultural Resources

	Where Impact Was Analyzed in Prior Environmental Documents	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information Requiring New Analysis or Verification?	Prior Environmental Documents' Mitigation Measures Implemented or Addressing Impacts
a. Cause a substantial adverse change in the significance of a historical resource?	Page 13-17 – 13-33	No	No	No	MM CR-1: Preservation of Architectural Resources MM CR-2: Architectural Evaluations
b. Have a substantial adverse effect on an archaeological resource?	Page 13-33 – 13-34	No	No	No	MM CR-3: Unanticipated Discovery of an Archaeological Resource or Human Remains
c. Disturb any human remains, including those interred outside of formal cemeteries?	Page 13-35	No	No	No	MM CR-3: Unanticipated Discovery of an Archaeological Resource or Human Remains

Discussion:

PAR Environmental Services, Inc. (PAR) prepared the cultural report evaluating historical and archeological resources for the EIR.

Historical Resources

The field assessment identified limited potential for prehistoric and historic archaeological remains. Forty-five (45) newly identified architectural properties were recorded and evaluated in light of the California Register of Historical Resources criteria and CEQA section 5024. The following discussions are divided into impacts to cultural resources within the specific land use district proposed by the Corridor Plan.

The EIR evaluated 10 built structures for eligibility for listing in the California Register. The commercial and residential properties in Elkhorn District are among many structures constructed in the project area in the post-World War II population explosion in California and Sacramento County specifically. All of the properties are of common design and construction techniques and nearly all exhibit evidence of modifications, ranging from minor to significant. These properties are not associated with any person or event significant in state or local history, do not represent a unique architectural or building style, are not the work of a master, and do not otherwise contribute to our understanding of our past. As a result, these 10 resources do not appear to be historic resources for the

	Where Impact Was Analyzed in Prior Environmental Documents	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information Requiring New Analysis or Verification?	Prior Environmental Documents' Mitigation Measures Implemented or Addressing Impacts

purposes of CEQA.

As noted above, several structures within the Corridor have been evaluated for historical significance and do not meet the criteria to be considered significant. In those cases, no further mitigation is required.In instances where a structure is deemed significantly historical, Mitigation Measure CR-1 requires that significant historical architectural resources be preserved in situ with all proposed modifications carried out to the U.S. Secretary of Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring and Reconstructing Historic Buildings. In the instance that demolition of a significant historical architectural resource, the applicant shall have a qualified architectural historian prepare a historic report and documentation for CRHR Criteria 1 & 3. All documentation shall be archived with the Sacramento Archives and Museum Collection Center and the County of Sacramento. Mitigation Measure CR-2 requires that all properties not subject to a previous architectural evaluation and at least 50 years or older shall have a historic architectural study performed by a qualified, professional architectural historian. Environmental impacts to those structures would be considered ***less than significant***.

ARCHAEOLOGICAL RESOURCES

PAR noted that most of the Elkhorn District located on the east side of Watt Avenue is paved and/or developed. Open areas, void of development, exist along the west side of Watt Avenue. PAR noted that access to these areas was limited due to fencing. The record search and physical examination of roadsides indicate a low potential for extensive resources. There is a potential for isolated artifacts and small processing prehistoric sites related to hunting or plant resource collection; however, no isolated artifacts or other indicators were noted during fieldwork.

Buried resources may consist of historic remains such as structural features (foundations, cellars, etc.) or buried trash deposits containing glass, ceramics and metal, or the resources may be of prehistoric origin containing chipped stone, shell, bone and other remains. If such subsurface resources are encountered, work should halt in the vicinity of the discovery until its significance can be evaluated by a professional archaeologist. If during land clearing further surface resources such as additional mining, historic trash scatters, or prehistoric resources are encountered, work should halt in the vicinity of the find until the discovery can be evaluated by a professional archaeologist. Mitigation Measure CR-3 provides guidance for treatment and disposition of unanticipated subsurface cultural deposits and human remains. With implementation of the MM CR-3 impacts cultural resources and human remains are ***less***

	Where Impact Was Analyzed in Prior Environmental Documents	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information Requiring New Analysis or Verification?	Prior Environmental Documents' Mitigation Measures Implemented or Addressing Impacts

than significant.

MODIFIED PROJECT

HELIX prepared a cultural resources assessment for the Modified Project. The report's findings were consistent with the EIR's findings.

HISTORICAL RESOURCES

The site is undeveloped and does not contain any built structures. There are no known historical resources on the site. Since the site does not have any built architectural resources, Mitigation Measures CR-1 & CR-2 do not apply.

ARCHAEOLOGICAL RESOURCES

HELIX sent a records search request to the North Central Information Center for a 0.5-mile buffer radius beyond the area of potential effect (APE). The search identified five studies had been conducted within the 0.5-mile search radius. Two of the previous studies included the current APE as part of the survey efforts. Neither of these reports recorded archaeological or built architectural resources within the project APE; however, this does not preclude the possibility of subsurface resources being discovered during construction. Mitigation Measure CR-3 remains applicable to the project.

Impacts related to cultural resources are ***less than significant with mitigation***.

MITIGATION MEASURES:

The following mitigation measure remains applicable to the modified project:

MM CR-3: Unanticipated Discovery of Cultural Resources or Human Remains

VII. Energy

	Where Impact Was Analyzed in Prior Environmental Documents	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information Requiring New Analysis or Verification?	Prior Environmental Documents' Mitigation Measures Implemented or Addressing Impacts
a. Result in potentially significant environmental impacts due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction?	4-1 – 14-30	No	No	No	None recommended
b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	4-1 – 14-30	No	No	No	None recommended

	Where Impact Was Analyzed in Prior Environmental Documents	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information Requiring New Analysis or Verification?	Prior Environmental Documents' Mitigation Measures Implemented or Addressing Impacts

DISCUSSION:

Energy was not included in Appendix G when the EIR was released and certified; however, operational emissions related to energy were estimated as part of the Climate Change chapter. The Modified Project would not result in potentially significant impacts due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction. The Modified Project does not conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

A discussion of energy-related emissions is included in the Greenhouse Gases section of this Addendum.

MITIGATION MEASURES:

None recommended.

VIII. Geology and Soils

	Where Impact Was Analyzed in Prior Environmental Documents	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information Requiring New Analysis or Verification?	Prior Environmental Documents' Mitigation Measures Implemented or Addressing Impacts
a. Directly or indirectly cause potential substantial adverse effects, including risk of loss, injury or death involving rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?	N/A; CK-7	No	No	No	None recommended.

	Where Impact Was Analyzed in Prior Environmental Documents	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information Requiring New Analysis or Verification?	Prior Environmental Documents' Mitigation Measures Implemented or Addressing Impacts
b. Result in substantial soil erosion, siltation or loss of topsoil?	Page CK-7	No	No	No	None recommended.
c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, soil expansion, liquefaction or collapse?	N/A; CK-7	No	No	No	None recommended.
d. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available?	N/A; CK-8	No	No	No	None recommended.
e. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	Page CK-8	No	No	No	None recommended.

DISCUSSION:

The EIR determined that impacts to geology and soils were considered less than significant. The Modified Project would not generate new impacts related to geology and soils.

MITIGATION MEASURES:

None Recommended

IX. Greenhouse Gases

	Where Impact Was Analyzed in Prior Environmental Documents	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information Requiring New Analysis or Verification?	Prior Environmental Documents' Mitigation Measures Implemented or Addressing Impacts
a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	Page 14-15 – 14-31	No	No	No	MM CC-1: Residential Energy Sector Emission Reductions MM CC-2: Commercial Energy Sector Emission Reductions
b. Conflict with an applicable plan, policy or regulation for the purpose of reducing the emission of greenhouse gases?	N/A	No	No	No	None recommended.

	Where Impact Was Analyzed in Prior Environmental Documents	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information Requiring New Analysis or Verification?	Prior Environmental Documents' Mitigation Measures Implemented or Addressing Impacts

DISCUSSION:

The Corridor Plan Final EIR found that additional residential development will ultimately aggravate an existing climate change problem. Operational emissions from residential land development were split between two categories— transportation and energy. Transportation related CO_2 emissions were quantified using URBEMIS. Residential transportation emissions for the corridor plan area were estimated at 75,259.69 metric tons (MT) of CO_2 per year. Per capita calculations were quantified as follows:

- 7,200 new residential units in the Corridor Plan with 75,259.69 MT CO_2 per year
- 7,200 units x 2.7 people per home = 19,440 people
- 75,259.69 MT CO_2 per year / 19,440 people = 3.87 MT CO_2 per capita

Emissions from residential transportation is 3.87 MT CO_2 per capita and are below the 4.56 MT per capita threshold and impacts are therefore ***less than significant***.

The 2005 County Emission Inventory assumed per capita residential energy emissions at 1.84 MT of CO_2 per year, which is 0.54 metric tons (MT) per capita over the 1.30 MT per capita standard as determined by Sacramento County. Future residential projects will be required to mitigate emissions associated with residential energy use emissions, which equates to at least 0.54 MT per capita in order to meet the 1.3 MT per capita energy sector emissions threshold. The associated per household mitigation obligation, based on 2.7 people per home, is 1.46 MT. To achieve this level of mitigation some reduction strategies are outlined below. With the implementation of the Air Quality Management Plan (AQMP), the per capita reduction required for future residential projects is 0.25 MT CO2 per capita.

The Sacramento Metropolitan Air Quality Management District (SMAQMD) has developed interim guidelines for GHG emissions reductions, similar to the guidelines for AQMPs. In the guidelines, one point is equivalent to a 1% reduction. There are a total of 48.825 points provided for commercial projects, 58.825 points for mixed use developments, and 61.475 for residential projects. The

	Where Impact Was Analyzed in Prior Environmental Documents	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information Requiring New Analysis or Verification?	Prior Environmental Documents' Mitigation Measures Implemented or Addressing Impacts

Sacramento County Community Planning and Development Department submitted an AQMP which details 13 measures that reduce project related air quality impacts (refer to Appendix H of the EIR). All of the measures are directly applicable to future residential projects within the Corridor and the reduction of associated CO_2 emissions.

Utilizing the SMAQMD interim guidelines for GHG emissions reductions, the applied measures would reduce residential CO_2 emissions by 15.75 percent utilizing the following measures:

1. Proximity to Bike Path/Bike Lanes
2. Pedestrian Network
3. Pedestrian Barriers Minimized
4. Bus Shelter for Existing Transit Service
5. Traffic Calming
6. Pedestrian Pathway Through Parking
7. Street Grid
8. Suburban Mixed-Use
9. Bike Parking
10. Parking Reduction Plan
11. Shared Parking

	Where Impact Was Analyzed in Prior Environmental Documents	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information Requiring New Analysis or Verification?	Prior Environmental Documents' Mitigation Measures Implemented or Addressing Impacts

12. Curb-Side Parking
13. Off-Street Parking

The above measures are included as measures in the AQMP, which was endorsed by SMAQMD on July 16, 2010. Future projects will be required to adhere to the endorsed AQMP and will effectively reduce GHG emissions impacts related to residential projects. Incorporation of the above measures into future project designs reduces residential CO_2 emissions noted as the county average by 15.75 percent. This reduction would effectively reduce the assumed emissions volume from 1.84MT to 1.55 MT and reduces the per capita mitigation requirement from 0.54 MT to 0.25 MT per capita.

Mitigation Measure CC-1 of the EIR added a policy to the North Watt Corridor Plan requiring that future applicants for residential projects reduce residential emissions by 0.25 MT CO_2 per capita. In consultation with County Planning and Environmental Review and SMAQMD, applicants shall submit a plan detailing a set of quantitative and/or qualitative measures that achieve the reduction in CO_2 emissions per capita, prior to the issuance of building permits or prior to obtaining any discretionary entitlements. This mitigation may be modified to conform with current Sacramento County climate change standards, including but not limited to a Green Building Program and Climate Action Plan. Additionally, applicants may choose to submit revised, project-specific, residential energy-use emissions factors; however, the applicant will be required to provide adequate data to support the revised emission factor. The policy requiring the reduction of residential emissions by 0.25 MT CO_2 per capita was added to the North Watt Avenue Corridor Plan.

Given that the proposed Corridor Plan will lead to additional development that will ultimately aggravate an existing climate change problem, the additional development would have a potentially significant impact on climate change. With the application of the mitigation listed below, impacts to climate change from residential projects would be reduced to **less than significant.**

MODIFIED PROJECT

Consistent with Mitigation Measure CC-1 of the EIR, the applicant has chosen to submit revised residential energy-use emission specific to the Modified Project. The Modified Project would result in eight three-story multi-family buildings totaling 172 units. This

	Where Impact Was Analyzed in Prior Environmental Documents	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information Requiring New Analysis or Verification?	Prior Environmental Documents' Mitigation Measures Implemented or Addressing Impacts

exceeds SMAQMD's GHG screening threshold of 88 units for mid-rise apartments (3-10 stories); therefore, CalEEMod (Version2022.1.1.20) was used to estimate annual operational GHG emissions for the Modified Project. The anticipated annual CO_2e emissions are 1,497.50 MT, in which the majority of the anticipated emissions stem from mobile emissions (1,212 MT/year).

Using the same per capita analysis used in the EIR, per capita transportation emissions would be 2.61 MT per year which is well below the expected 3.87 MT CO_2 per capita estimated by the EIR and the 4.56 MT per capita threshold at the time. Calculations below:

172 units x 2.7 people per unit = 464.4 people.

1,212 MT CO_2 per year / 464.4 people = 2.61 MT CO_2 per year

The project's transportation emissions of 2.61 MT CO_2 per capita were less than the 3.87 MT CO_2 per capita estimated by the EIR. Therefore, impacts related to transportation emissions are ***less than significant***.

The project's energy-related emissions are expected to be 236.59 MT/year. Using the same per capita analysis, annual CO_2 emissions would be 0.51 MT/year per capita. This is below the 1.55 MT per capita estimates of the EIR and 1.30 MT threshold at the time. Although energy emissions are well below what was anticipated by the EIR, all residential projects are required to comply with the AQMP achieve a minimum 15.75% operational emissions (Mitigation Measure AQ-2). Mitigation Measure AQ-2 remains applicable to the project.

MITIGATION MEASURES:

Mitigation Measure AQ-2: 15.75% Operational Emissions Reduction

X. Hazards and Hazardous Materials

	Where Impact Was Analyzed in Prior Environmental Documents	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information Requiring New Analysis or Verification?	Prior Environmental Documents' Mitigation Measures Implemented or Addressing Impacts
a. Create a substantial hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	Page 12-9 – 12-21	No	No	No	None recommended.
b. Expose the public or the environment to a substantial hazard through reasonably foreseeable upset conditions involving the release of hazardous materials?	Page 12-9 – 12-21	No	No	No	MM HM-1: Phase II Environmental Site Assessment, Soil Management Plan, or a Health Risk Assessment
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances or waste within one-quarter mile of an existing or proposed school?	Page 12-9 – 12-21	No	No	No	MM HM-1: Phase II Environmental Site Assessment, Soil Management Plan, or a Health Risk Assessment
d. Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5, resulting in a substantial hazard to the public or the environment?	Page 12-9 – 12-21	No	No	No	MM HM-1: Phase II Environmental Site Assessment, Soil Management Plan, or a Health Risk Assessment
e. Impair implementation of or physically interfere with an adopted emergency response or emergency evacuation plan?	Page CK-9	No	No	No	None recommended.
f. Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to or intermixed with urbanized areas	N/A	No	No	No	N/A; not included in Appendix G when the EIR was released and certified

	Where Impact Was Analyzed in Prior Environmental Documents	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information Requiring New Analysis or Verification?	Prior Environmental Documents' Mitigation Measures Implemented or Addressing Impacts

DISCUSSION:

HAZARDOUS MATERIALS

According to the State GeoTracker and Envirostor databases, there are known toxic sites within the plan area. Of those sites, some are still actively monitored by the appropriate jurisdiction and are in various degrees of assessment. With redevelopment, there is potential for residential uses to be located on these sites. However, since specific parcel redevelopment and development plans are not part of the proposed Corridor Plan, impacts associated with the toxic sites were individually analyzed at the time of preparation of the EIR. Due to the uncertainty of impacts to human health and environment, development on known toxic sites is considered a potentially significant impact.

Mitigation Measure HM-1 requires project applicants and developers seeking to develop or redevelop properties listed in Table HM-1 or Table HM-2 of the EIR to consult with the County Environmental Management Department (EMD) to obtain a site evaluation to determine the need for a Phase II Environmental Site Assessment, Soil Management Plan or Health Risk Assessment. If said analyses are required, all site clean-up recommendations, in consultation with EMD, shall be completed prior to the issuance of any building or grading permit, unless EMD approves clearance due to extenuating circumstances. Impacts are ***less than significant with mitigation***.

MODIFIED PROJECT

The proposed project site is not a property listed on Table HM-1 or Table HM-2 of the Final EIR. A search of the GeoTracker and Envirostor databases was conducted by PER staff on October 2, 2023. There were no records associated with the Modified Project site; however, there was one closed case in proximity. The record was for a leaking underground storage tank (LUST) located along southbound Watt Avenue. The case was opened in 1988 and closed in 1996. The cleanup case was attributed to a business entity operating under the title National Rentals at 7415 Watt Ave; however, the situs address does not exist in County records. Historic aerial imagery shows that the project parcel has never been developed. The situs address in the report was most likely entered incorrectly and may be attributed to the parcel to the north or across the street to the east. Nevertheless, the status of this listing

	Where Impact Was Analyzed in Prior Environmental Documents	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information Requiring New Analysis or Verification?	Prior Environmental Documents' Mitigation Measures Implemented or Addressing Impacts

was completed – case closed. Based on the regulatory status, this case would not be expected to pose a significant environmental concern for the project site.

A review of historic aerial imagery also confirmed that the site nor the surrounding parcels have ever been used for the growing of agricultural crops; therefore, residual pesticides or fertilizers are not expected to be present. Impacts are ***less than significant***. Mitigation Measure HM-1 is not applicable to the proposed project.

WILDFIRE

Wildfire was not included in Appendix G of the CEQA Guidelines when the EIR was released and certified. The Modified Project is located within a Local Responsibility Area and is not located within a Very High Fire Hazard Severity Zone. The project site is located along an urban corridor and would not expose people or structures to a significant risk of loss, injury or death involving wildland fires. Impacts related to wildfire are ***less than significant***.

MITIGATION MEASURES:

None recommended.

XI. Hydrology and Water Quality

	Where Impact Was Analyzed in Prior Environmental Documents	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information Requiring New Analysis or Verification?	Prior Environmental Documents' Mitigation Measures Implemented or Addressing Impacts
a. Substantially deplete groundwater supplies or substantially interfere with groundwater	Page	No	No	No	None recommended.

	Where Impact Was Analyzed in Prior Environmental Documents	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information Requiring New Analysis or Verification?	Prior Environmental Documents' Mitigation Measures Implemented or Addressing Impacts
recharge such that the project may impede sustainable groundwater management of the basin?	CK-6				
b. Substantially alter the existing drainage pattern of the project area and/or increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site?	Page 7-15 – 7-17	No	No	No	None recommended.
c. Develop within a 100-year floodplain as mapped on a federal Flood Insurance Rate Map or within a local flood hazard area?	Page 7-16 – 7-17	No	No	No	None recommended.
d. Place structures that would impede or redirect flood flows within a 100-year floodplain?	Page 7-16 – 7-17	No	No	No	None recommended.
e. Expose people or structures to a substantial risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	Page 7-16 – 7-17	No	No	No	None recommended.
f. Create or contribute runoff that would exceed the capacity of existing or planned stormwater drainage systems?	Page 7-16 – 7-17	No	No	No	None recommended.
g. Create substantial sources of polluted runoff or otherwise substantially degrade ground or surface water quality?	Page 7-17 – 7-21	No	No	No	None recommended.

	Where Impact Was Analyzed in Prior Environmental Documents	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information Requiring New Analysis or Verification?	Prior Environmental Documents' Mitigation Measures Implemented or Addressing Impacts

DISCUSSION:

DRAINAGE & FLOOD RISKS

Hydraulic modeling conducted during the preparation of the EIR found that existing trunk drainage facilities within the Corridor Plan were sufficiently sized to meet County improvement standards. The EIR found that the existing drainage concerns in the area are minor and pose no serious safety concerns or flood hazards. Future development/redevelopment within the Corridor Plan will be coordinated with DWR to meet the specifications of the Sacramento County Improvement Standards and the Sacramento County Floodplain Management Ordinance. With conformance with applicable standards, future development associated with the Corridor will not substantially increase the rate or amount of surface runoff in a manner that causes flooding or that exceeds stormwater system capacity; project impacts related to drainage and flooding are ***less than significant***.

STORMWATER QUALITY

Future projects will be required to adhere to all applicable stormwater quality standards. Conformance with applicable standards and regulations will ensure impacts of future development/redevelopment projects, associated with stormwater quality are ***less than significant***.

MODIFIED PROJECT:

EXISTING SITE DRAINAGE

The 6.11-acre site is undeveloped and located within the Dry Creek Watershed. The parcel is not located within a Federal Emergency Management Agency (FEMA) 100-year floodplain but is located within a local flood overlay area. There is a 36-inch storm drainpipe discharging upstream runoff on the northerly property line as well as a 27-inch drainpipe along the easterly property line. Both storm drainpipes discharge runoff into separate natural channels and subsequently converge into a collective channel and route drainage to the southwest corner of the property.

	Where Impact Was Analyzed in Prior Environmental Documents	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information Requiring New Analysis or Verification?	Prior Environmental Documents' Mitigation Measures Implemented or Addressing Impacts

PROPOSED DRAINAGE & STORMWATER QUALITY IMPROVEMENTS

JTS Engineering Consultants (JTS) prepared a drainage study for the project (Appendix E). County DWR reviewed the drainage study and approved it in July 2022.

The proposed design (reference Plate AD-1) includes connecting a 60-inch by 60-inch rectangular pipe to the eastern influent and a 54-inch pipe to the northern influent. The proposed pipe and rectangular channel will convey drainage through the drive aisles of the site and connect at a manhole in the southwest corner. From this manhole, a 60-inch by 60-inch rectangular storm drainpipe will convey drainage off the site and discharge through an outfall to the natural channel offsite. A drainage easement is being proposed over these facilities, running through the project site.

All onsite drainage will be filtered through stormwater quality (SWQ) facilities. There are two different types of SWQ control facilities onsite, bio-retention planters and storm filters. Sub-sheds along the southerly and westerly property lines will collect runoff within bio-retention planters that allow infiltration into the native soil. Additional bio-retention planters will be placed adjacent to the proposed buildings and will have closed bottoms. Onsite runoff not accumulated within bio-retention sheds will be collected in drain inlets connected by storm drainpipes and ultimately will drain to a Contech Stormfilter manhole. Runoff from the site frontage will collect in drain inlets or bio-retention planters and route to the on-site system. The bio-retention planters shall have underdrains that connect to overflow devices. Underground detention facilities will be implemented throughout the site. Boxed pipes adjacent to the southerly and westerly bio-retention planters will serve as detention facilities for flood control. A rectangular underground vault located near the northeast corner of the drive aisle, within the parking spaces, shall serve as mitigation for hydromodification. The vault shall have a riser and orifice sized to reduce runoff to the existing hydrology for sub-sheds routed to the facility.

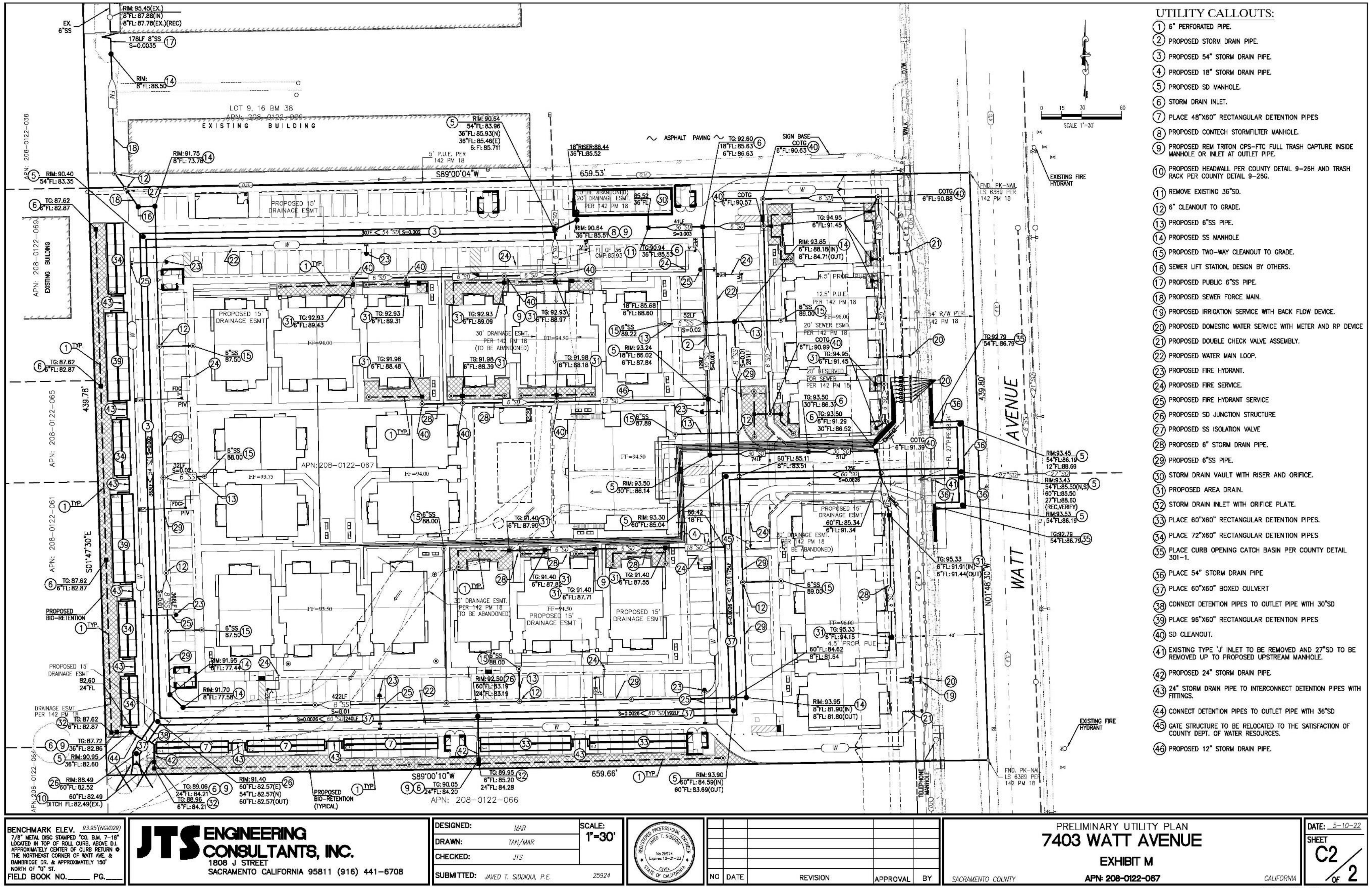
The project will be required to comply with minimum building pad/floor elevations and installation of on-site drainage facilities in accordance with the latest version of the *Stormwater Quality Design Manual for the Sacramento Region*. Compliance with the Sacramento County Floodplain Management Ordinance, Sacramento County Water Agency Code, and Sacramento County Improvement Standard, and DWR's conditions will ensure that project impacts related to drainage and stormwater quality are ***less than significant***.

	Where Impact Was Analyzed in Prior Environmental Documents	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information Requiring New Analysis or Verification?	Prior Environmental Documents' Mitigation Measures Implemented or Addressing Impacts

MITIGATION MEASURES:

None recommended.

Plate AD-1: Proposed Drainage & Stormwater Quality Improvements



XII. Land Use and Planning

	Where Impact Was Analyzed in Prior Environmental Documents	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information Requiring New Analysis or Verification?	Prior Environmental Documents' Mitigation Measures Implemented or Addressing Impacts
a. Cause a significant environmental impact due to a conflict with any applicable land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	Page 4-6 – 4-41	No	No	No	None recommended.
b. Physically disrupt or divide an established community?	Page 4-41 – 4-47	No	No	No	MM LU-1: North Area Recovery Station Buffer Zone

	Where Impact Was Analyzed in Prior Environmental Documents	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information Requiring New Analysis or Verification?	Prior Environmental Documents' Mitigation Measures Implemented or Addressing Impacts

DISCUSSION:

GENERAL PLAN

The existing General Plan land use designation is Transit Oriented Development (TOD). The TOD land use designation delineates specific areas on the General Plan Land Use Diagram associated with Transit Oriented Developments. However, the standards of this designation are appropriate for other developments that are near transit opportunities where a "pedestrian friendly" design is desired. "Pedestrian friendly" is defined as supportive of pedestrian and other non-vehicular modes of travel including those used by persons with disabilities. The mix of uses can occur in a variety of ways; office or residential uses can be included in the same building, or possibly above retail (vertical mixed use). Mixing promotes functional integration of uses through vertical mixing or through site design. However, when differing uses are on the same site but separated by a wall or large expanse of parking, they are "multiple use" projects. These projects do not meet the intent of the mixed-use designation because they lack the necessary functional integration. TODs are expected to be between 20 and 160 acres in size with residential densities in the core ranging from 7 to 50 units per gross acre, with a minimum average varying on the basis of location and facility status.

NORTH WATT AVE CORRIDOR PLAN

The Corridor Plan was devised to implement new land use and transportation development that produce less greenhouse gas emissions than existing forms; builds on the priorities set by the community; and supports the County's commitment to revitalize its older commercial corridors. The Corridor Plan defines goals and objectives that will lead to the corridor's transition to a series of mixed-use urban villages and residential neighborhoods supporting the County's objectives for infill development. The development framework provides for an integrated land use and circulation program for the entire corridor, including North Watt Avenue and 34th Street, to better serve the needs of the North Highlands community objectives for infill development. The development framework provides for an integrated land use and circulation program for the entire corridor, including North Watt Avenue and 34th Street, to better serve the needs of the North Highlands community.

The Corridor Plan area encompasses varied development patterns and land uses across a large, diverse area. For planning purposes, the Corridor Plan has been subdivided into three distinct districts (Elkhorn, Town Center, and Triangle Gateway) based

	Where Impact Was Analyzed in Prior Environmental Documents	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information Requiring New Analysis or Verification?	Prior Environmental Documents' Mitigation Measures Implemented or Addressing Impacts

on smart growth principle that promote higher residential densities and nonresidential intensities that support transit. The project is located within the Elkhorn District.

<u>ELKHORN DISTRICT</u>

The Elkhorn District is located between Antelope Road and I Street. The Elkhorn District Center is envisioned as an employment and residential mixed-use center, with commercial/retail uses fronting onto Elkhorn Boulevard. Office and higher density residential development may be located above this commercial frontage and in the remainder of the district center. All development in the district center should be developed at sufficient densities and intensities to support local bus stops and one or more bus rapid transit stations. Areas north and south of the district center, within the larger Elkhorn District, will be primarily residential, with some limited neighborhood-serving nonresidential uses.

RESIDENTIAL MIXED-USE 1 ZONE

The project site is located within the Residential Mixed-Use 1 (RMU-1) zone. This zone is intended to allow for the development of medium-density residential neighborhoods that would be supported by small scale, neighborhood-serving retail. According to the Corridor Plan, the RMU-1 zone "shall be predominately residential with limited neighborhood-serving nonresidential uses". Residential densities will be 15-25 dwelling units per acre (du/acre). Nonresidential uses will have Floor Area Ratios of 0.25 min to 0.5 max and will be located on two acres or less for any single use. Table LU-3 shows permitted uses while Table LU-4 denotes prohibited uses in the RMU-1 zone.

MODIFIED PROJECT

The project site is located within the northern end of the Elkhorn District approximately 0.4 miles north of the Elkhorn District Center. The RMU-1 zoning district allows for multi-family residential uses at a density of 15-25 du/acre. The project is proposing to construct 172 units on approximately 6.11 acres, which would result in a density of approximately 28.15 du/acre. The proposed density is inconsistent with the RMU-1 zone since it exceeds the allowed density by approximately 20 units. Chapter 2 of the Corridor Plan outlines the processes for variation and exceptions to development standards and criteria of the plan.

Section 2.6.9 of the Corridor Plan states that projects that do not meet the criteria set forth in the SPA shall submit an application for

	Where Impact Was Analyzed in Prior Environmental Documents	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information Requiring New Analysis or Verification?	Prior Environmental Documents' Mitigation Measures Implemented or Addressing Impacts

a Development Plan Review subject to discretionary review by the County Planning Commission. The intent of this review is to provide for public review of design and site plan features. The intent is not to trigger additional environmental review with the assumption that the use and intensity of the project is covered under the EIR for the SPA.

a. Any proposed buildings over 2 stories in height in RMU-1 district.

b. Any proposed buildings over 3 stories in height in RMU-2, CMU and TOD districts.

c. Any residential projects over 24 units per acre or 2 stories in height for RMU-1 and any residential project over 30 units per acre or 3 stories in height for the RMU-2, CMU and TOD districts. The proposed use or deviation from SPA standards is justified by exceptional design over and above the standards in the SPA.

The following considerations support the criteria for approval of the Development Plan Review: (1) The project site is located adjacent to Watt Avenue and along a future bus rapid transit line (BRT) planned by Regional Transit. The nearest BRT stop would be located approximately 0.2 miles north of the project site at the intersection of Watt Avenue and Antelope Road. One of the key goals of the Corridor Plan is to provide medium and high-density development along Watt Avenue to support BRT. (2) An additional 20 multi-family units would result in negligible changes in density and would support the higher densities needed for ridership needed for BRT. An additional 20 multi-family units would not create any nuisance or additional public safety concerns.

Although the number of units is inconsistent with the allowed density of the RMU-1 zone, the number of units proposed would be within the overall number of units that was utilized in the scope of technical studies and analysis for the entire Corridor Plan EIR. The Modified Project is consistent with the impact analysis contained in the EIR and would not result in any new significant environmental impacts. Therefore, the analysis from the EIR remains appropriate for the proposed project.

MITIGATION MEASURES:

None recommended

XIII. Mineral Resources

	Where Impact Was Analyzed in Prior Environmental Documents	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information Requiring New Analysis or Verification?	Prior Environmental Documents' Mitigation Measures Implemented or Addressing Impacts
a. Result in the loss of availability of a known mineral resources that would be of value to the region and the residents of the state?	Page CK-8	No	No	No	None recommended.
b. Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	Page CK-8	No	No	No	None recommended.

Discussion:

The EIR determined that the project is not located within an Aggregate Resource Area as identified by the Sacramento County General Plan Land Use Diagram, nor are any important mineral resources known to be located on the project site. The Modified Project would not generate new impacts related to mineral resources.

Mitigation Measures:

None recommended.

XIV. Noise

	Where Impact Was Analyzed in Prior Environmental Documents	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information Requiring New Analysis or Verification?	Prior Environmental Documents' Mitigation Measures Implemented or Addressing Impacts
a. Result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established by the local general plan, noise ordinance or applicable standards of other agencies?	Page 10-9 -10-27	No	No	No	MM NS-1: Residential Interior Noise Level Standards MM NS-2: Non-residential Interior Noise Level Standards MM NS-3: Noise Level Analysis near Railroads MM NS-4: General Plan Noise Element Policy Regarding Excessive Noise
b. Generate excessive groundborne vibration or groundborne noise levels.	N/A	No	No	No	None recommended.

	Where Impact Was Analyzed in Prior Environmental Documents	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information Requiring New Analysis or Verification?	Prior Environmental Documents' Mitigation Measures Implemented or Addressing Impacts

DISCUSSION:

AIRCRAFT NOISE

The EIR analyzed impacts of airport operations on sensitive receptors within the Corridor Plan area. The Corridor Plan area is within the CLUP's 60 or 65 Community Noise Equivalent Level (CNEL) decibel (dB) noise contours. As part of the *McClellan Air Force Base Draft Final Reuse Plan and Draft Implementation Plan* Final Environmental Impact Report/Environmental Impact Statement (McClellan Reuse EIR/EIS) certified on November 27, 2002, a noise consulting firm analyzed McClellan Airport to determine noise levels associated with the change in uses at McClellan. The decommissioning of the base and reduction in air traffic resulted in a reduction in the airport's noise contours. The BOS adopted the updated noise contours as an override of the existing CLUP (Resolution # 2006-1379) and incorporated associated land use conditions as Policies NO-3 and NO-4 of the Sacramento County General Plan Noise Element. Nearly the entire Corridor Plan area, with the exception of a portion of the Triangle Gateway District, is located outside of the 60 CNEL dB noise contour. The land uses in that portion of the plan are not considered sensitive noise receptors. Aircraft noise impacts were determined to be less than significant.

TRAFFIC NOISE IMPACTS TO RESIDENTIAL USES

EXTERIOR NOISE LEVELS

In general, louder volumes affecting outdoor residential activity areas would be significant but pursuant to General Plan Policy NO-15 the County has the flexibility to consider the application of a 5 dB less restrictive exterior noise standard for infill projects where it may be impractical or infeasible to reduce exterior noise levels to the 65 dB level for residential projects. In the case of the proposed Project, most of the Plan area is within the 65 dB contour; however, many of these areas are actually subject to noise of 55 dB or lower due to the shielding effects of buildings closer to Watt Avenue. Nonetheless, there are still many areas affected by the Watt Avenue noise environment and given the mixed-use goals of the Project it would be infeasible to locate all residential outdoor uses outside of the 65 dB contour.

Given the general intent of the Corridor Plan and proposed mixed-use land uses adjacent to major roadways, it is expected that

	Where Impact Was Analyzed in Prior Environmental Documents	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information Requiring New Analysis or Verification?	Prior Environmental Documents' Mitigation Measures Implemented or Addressing Impacts

residential development would occur in areas where exterior noise levels would be in excess of 65 dB. The application of policy NO-15 would provide some flexibility, given that the project area is intended to be a dense urban infill center, where higher noise levels would be expected. Even with the application of policy NO-15, exterior noise levels may be in excess of 70 dB. This is a significant impact which would require mitigation.

As noted in policy NO-13, above, an emphasis shall be placed on the use of setbacks and site design prior to the consideration of noise barriers as measures to reduce noise impacts. In this particular instance, sound walls and other noise barriers would directly conflict with the Corridor plan, which as noted previously, is intended to create a connected community-based urban environment. The viability of the proposed project is directly dependent on the major roadways within the plan area and the ability of pedestrians and bicyclists to move freely throughout the plan area and access businesses from the roadways. The use of sound barriers can severely impede pedestrian mobility through real or perceived impasses or obstacles.

While it is encouraged that outdoor living areas are shielded to the extent possible to reduce impacts due to excessive noise levels, it is foreseeable that in some instances it may be infeasible to reduce impacts to a less than significant level consistent with General Plan policy. Given the nebulous nature of future residential development and the uncertainty that noise levels can feasibly be reduced to meet exterior noise standards without compromising the intent of the proposed project, exterior noise impacts to residential uses are considered ***significant and unavoidable***.

INTERIOR NOISE LEVELS

Standard façade construction for residential structures typically results in a minimum 25 dB exterior-to-interior reduction in noise. Indoor residential environments exposed to exterior noise environments no greater than 70 dB will not be subject to noise in excess of the 45 dB threshold of General Plan Policy NO-1. Mitigation is recommended that would require all residential construction to remain outside the 70 dB contour unless sound resistant construction materials are utilized such that interior noise levels do not exceed 45 dB. With mitigation, interior residential noise exposure impacts are ***less than significant***.

MODIFIED PROJECT:

	Where Impact Was Analyzed in Prior Environmental Documents	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information Requiring New Analysis or Verification?	Prior Environmental Documents' Mitigation Measures Implemented or Addressing Impacts

AIRCRAFT NOISE

The Modified Project parcel is located between the 60 and 65 CNEL dB noise contour of the CLUP but is located outside of the 60 CNEL dB BOS-adopted noise contour. Multi-family dwellings are allowed between the 60-65 CNEL dB noise contours. Per General Plan Policy NO-4, new residential development within the APPA boundaries, but outside the 60 CNEL dB noise contour, shall be subject to the following conditions:

A. Provide minimum noise insulation to 45 dB CNEL within new residential dwellings, including detached single-family dwellings, with windows closed in any habitable room.

B. Notification in the Public Report prepared by the California Department of Real Estate disclosing the fact to prospective buyers that the parcel is located within an Airport Policy Area.

C. An Avigation Easement prepared by the Sacramento County Counsel's Office granted to the County of Sacramento, recorded with the Sacramento County Recorder, and filed with Department of Airports. Such Avigation Easement shall acknowledge the property location within an Airport Planning Policy Area and shall grant the right of flight and unobstructed passage of all aircraft into and out of the subject Airport.

Mitigation consistent with NO-4(A) has been added to the Modified Project as Mitigation Measure D, and the required Avigation Easement and reporting are addressed in the Planning staff report and are included as Conditions of Approval. With noise mitigation, the inclusion of the disclosure requirement and the implementation of the Avigation Easement, noise impacts related to airports are ***less than significant with mitigation***.

TRAFFIC NOISE

A noise study for the Modified Project was prepared by Helix in November 2021 (Appendix F). The information in the study is presented in the discussions below.

	Where Impact Was Analyzed in Prior Environmental Documents	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information Requiring New Analysis or Verification?	Prior Environmental Documents' Mitigation Measures Implemented or Addressing Impacts

EXTERIOR NOISE

Buildings #3 & #8 are located along the eastern parcel boundary, along Watt Avenue. There would be 24 units with private, outdoor decks/patios facing onto Watt Avenue. The Federal Highway Administrations Traffic Noise Prediction Model (FHWA_RD-77-108) was used to estimate noise levels at the nearest outdoor area (private outdoor decks). The outdoor decks are approximately 55 feet from the center line of southbound Watt Avenue and would be located within the 70-75dB noise contour for the 2035 average daily trip (ADT) conditions; however, per the General Plan Noise Element, individual patios and balconies of multi-family developments are not considered to be sensitive outdoor areas.

The nearest outdoor common area is the pool area which would be located behind the two-story clubhouse near the center of the parcel. The pool area is located approximately 290 feet west of southbound Watt Avenue. The projected 2035 ADT noise level at 290 feet would be 63 dB without accounting for shielding from the proposed buildings along Watt Avenue as well as the clubhouse. This is below the County exterior noise threshold of 65 dB, without accounting for shielding. Individually, exterior noise levels for the Modified Project are ***less than significant***.

INTERIOR NOISE

Units facing Watt Avenue in Buildings #3 & #8 would be located within the 70-75dB noise contour for the 2035 ADT conditions (reference Plate AD-2). The FHWA model projected the noise level at the nearest facades to be 72 dB. Standard façade construction for residential structures typically results in a minimum 25 dB exterior-to-interior reduction in noise, which would bring interior noise levels to 47 dB. Mitigation Measure NS-1 remains applicable to residential units along Watt Avenue. Implementation of the measure will require the project to reduce interior noise levels to 45 dB through windows with a Sound Transmission Class (STC) rating of 22-60 as well as walls with STC rating of 34-60. Traffic noise impacts to interior residential areas would be ***less than significant with mitigation***.

MITIGATION MEASURES:

Mitigation Measure NS-1

	Where Impact Was Analyzed in Prior Environmental Documents	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information Requiring New Analysis or Verification?	Prior Environmental Documents' Mitigation Measures Implemented or Addressing Impacts

Mitigation Measure D: McClellan Airport Policy Area Residential Noise Mitigation

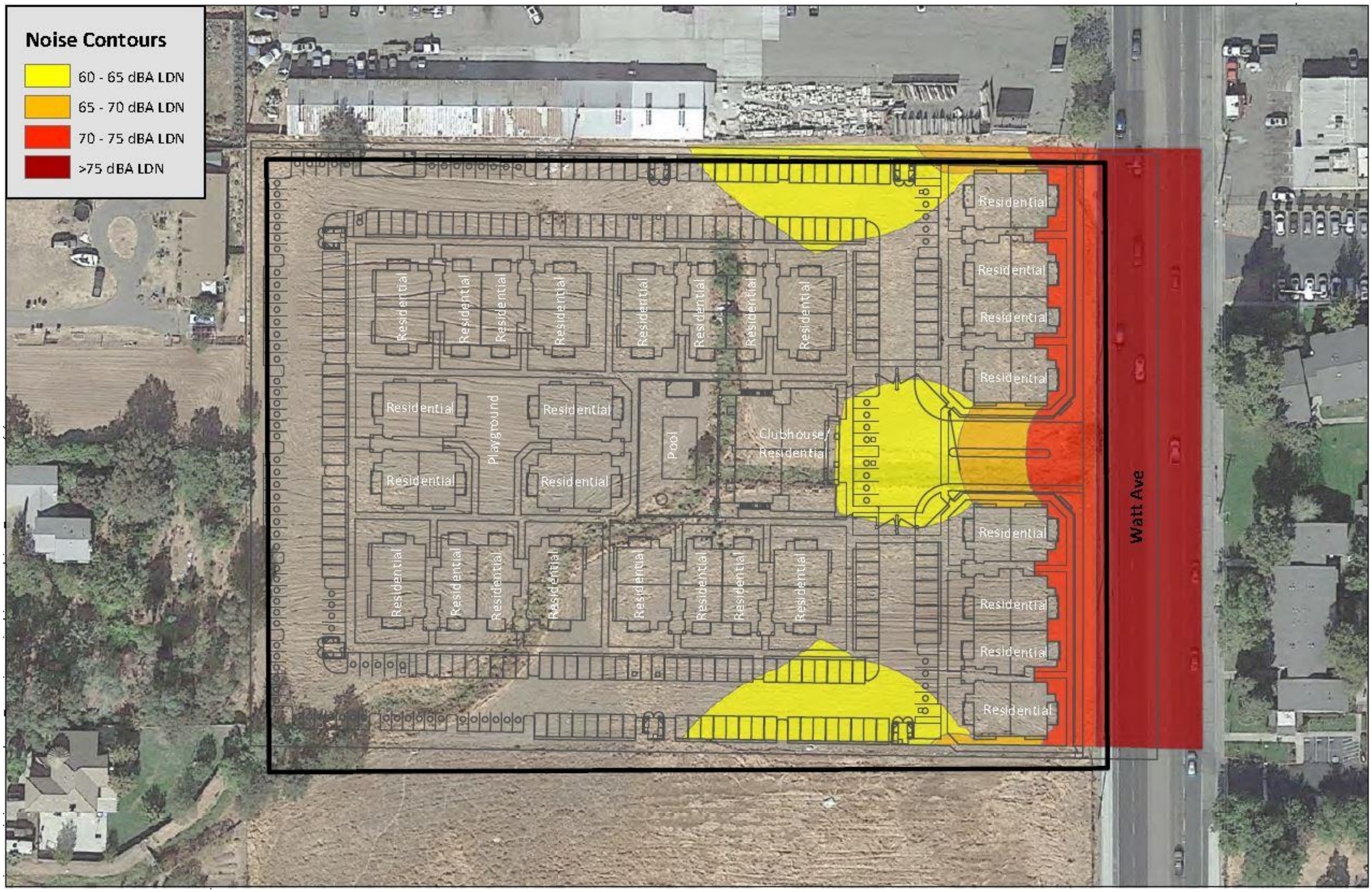
The Policy NO-4 of the County General Plan's Noise Element states that new residential development within adopted Airport Policy Area boundaries, but outside the 60 CNEL, shall be subject to the following conditions:

A. Provide minimum noise insulation to 45 dB CNEL within new residential dwellings, including detached single-family dwellings, with windows closed in any habitable room.

B. Notification in the Public Report prepared by the California Department of Real Estate disclosing the fact to prospective buyers that the parcel is located within an Airport Policy Area.

C. An Avigation Easement prepared by the Sacramento County Counsel's Office granted to the County of Sacramento, recorded with the Sacramento County Recorder, and filed with Department of Airports. Such Avigation Easement shall acknowledge the property location within an Airport Planning Policy Area and shall grant the right of flight and unobstructed passage of all aircraft into and out of the subject Airport.

Plate AD-2: Future Noise Levels using 2035 Average Daily Trip Estimates



XV. Population and Housing

	Where Impact Was Analyzed in Prior Environmental Documents	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information Requiring New Analysis or Verification?	Prior Environmental Documents' Mitigation Measures Implemented or Addressing Impacts
a. Induce substantial unplanned population growth in an area either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of infrastructure)?	Page 4-47 – 4-48	No	No	No	None recommended.
b. Displace substantial amounts of existing people or housing, necessitating the construction of replacement housing elsewhere?	Page 4-47 – 4-48	No	No	No	None recommended.

	Where Impact Was Analyzed in Prior Environmental Documents	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information Requiring New Analysis or Verification?	Prior Environmental Documents' Mitigation Measures Implemented or Addressing Impacts

DISCUSSION:

The proposed Modified Project would construct 172 multi-family dwelling units, which is 20 more units than allowed by the RMU-1 maximum density of 25 dwelling units per acre. However, since the number of units proposed would be within the overall number of units that was utilized in the scope of technical studies and analysis for the entire Corridor Plan EIR, the Modified Project is consistent with the impact analysis contained in the EIR. Therefore, the analysis from the EIR remains appropriate for the proposed project.

An additional 20 multi-family units would result in negligible changes in density and would support the higher densities needed for ridership needed for BRT. An additional 20 multi-family units would not create any nuisance or additional public safety concerns.

Although the number of units is inconsistent with the allowed density of the RMU-1 zone, the number of units proposed would be within the overall number of units that was utilized in the scope of technical studies and analysis for the entire Corridor Plan EIR. The Modified Project is consistent with the impact analysis contained in the EIR and would not result in any new significant environmental impacts. Therefore, the analysis from the EIR remains appropriate for the Modified Project. The Modified Project is and would not result in substantial unplanned population beyond that identified in the EIR.

MITIGATION MEASURES:

None recommended

XVI. Public Services

	Where Impact Was Analyzed in Prior Environmental Documents	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information Requiring New Analysis or Verification?	Prior Environmental Documents' Mitigation Measures Implemented or Addressing Impacts
a. Result in substantial adverse physical impacts associated with the provision of fire services?	Page 6-33	No	No	No	None recommended.
b. Result in substantial adverse physical impacts associated with the provision of police services?	Page 6-33 – 6-34	No	No	No	None recommended.
c. Result in substantial adverse physical impacts associated with the provision of public school services?	Page 6-34 – 6-35	No	No	No	None recommended.
d. Result in substantial adverse physical impacts associated with the provision of park services?	Page 6-35 – 6-38	No	No	No	None recommended.
e. Result in substantial adverse physical impacts associated with the provision of other public facilities?	Page 6-23 – 6-33 & 6-38 – 6-45	No	No	No	None recommended.

	Where Impact Was Analyzed in Prior Environmental Documents	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information Requiring New Analysis or Verification?	Prior Environmental Documents' Mitigation Measures Implemented or Addressing Impacts

Discussion:

Fire Protection

The North Watt Avenue Corridor Plan is within the service area of the Sacramento Metropolitan Fire District. The Sacramento Metropolitan Fire District provides services for a 417 square mile district operating 42 fire stations. The Sacramento Metropolitan Fire District reviewed the proposed project but did not submit comments and conditions of approval for the proposed project. Development or redevelopment projects will be subject to additional design requirements specified by the Fire District during the application or design phases of individual projects. The proposed project is not expected to result in substantial adverse physical impacts associated with the provision of emergency services. Impacts related to the North Watt Corridor Plan on fire protection and emergency services are **less than significant**.

Law Enforcement

The North Watt Corridor area is served by the Sacramento County Sheriff's Department. The Sacramento County Sheriff's Department did not submit comments on the proposed North Watt Corridor Plan. Based on past communication with Jeff Rodrigues of the Sacramento County Sherriff's Department, the Sheriff's Department seeks to maintain a service ratio standard of 1 officer per 1,000 population. The Corridor Plan could result in the addition of up to 7,200 residential units, which could result in a population increase of up to 19,440 people (based on an assumption of 2.7 people per residential unit). In order to maintain the service standard ratio of 1 officer per 1,000 people an additional 19.4 officers would be required to serve the project population. Such personnel and equipment would be funded through a combination of tax revenue and other sources to which individual projects within the Corridor may have to contribute. Development/redevelopment projects in the area may also be subject to design requirements specified by the Sheriff's Department during the application or design phases of individual projects. Impacts of the Corridor Plan on law enforcement are considered **less than significant**.

Schools

The North Watt Avenue Corridor is within the San Juan Unified School District and the Twin Rivers Unified School District. It is

	Where Impact Was Analyzed in Prior Environmental Documents	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information Requiring New Analysis or Verification?	Prior Environmental Documents' Mitigation Measures Implemented or Addressing Impacts

expected that development/redevelopment according to the proposed Corridor Plan would result in increases to the localized student population. As no specific development plans are proposed within the scope of the Plan, the extent of student population increases are unknown. Furthermore, the effects of project related population increases will have to be compared to the student populations and facility capacities at local schools at the time development/ redevelopment occurs.

The school districts did not submit comments on the Corridor Plan project. However, established case law, Goleta Union School District v. The Regents of the University of California (36 Cal-App. 4^{th} 1121, 1995), indicates that school overcrowding, standing alone, is not a change in the physical conditions, and cannot be treated as an impact on the environment. Necessary school facilities will likely be funded through a combination of Mello-Roos bonds, statewide school bonds, and developer mitigation fees. Development within the Corridor would be required to pay the school impact fee in place at the time of project approval. Payment of required impact fees and taxes is determined to be full mitigation for impacts to schools pursuant to SB 50. Therefore, implementation of the proposed project would have a **less than significant** impact on school resources.

Parks

The North Watt Avenue Corridor Plan is located within the North Highlands Recreation and Park District (NHRPD). The project would incrementally increase the need for park and recreation services; however, project impacts will not result in substantial adverse physical impacts. Pursuant to the County Land Development Ordinance (Title 22 of Sacramento County Code) all future Tentative Subdivision Maps and Tentative Parcel Maps will be conditioned to dedicate land, pay a fee in lieu thereof, or provide a combination of dedication and in-lieu fees. Impacts to parks are ***less than significant***.

Modified Project

The Modified Project is consistent with the analyses of the EIR and would not result in significant impacts to public services. Impacts are ***less than significant***.

Mitigation Measures:

	Where Impact Was Analyzed in Prior Environmental Documents	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information Requiring New Analysis or Verification?	Prior Environmental Documents' Mitigation Measures Implemented or Addressing Impacts
None recommended					

XVII. Recreation

	Where Impact Was Analyzed in Prior Environmental Documents	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information Requiring New Analysis or Verification?	Prior Environmental Documents' Mitigation Measures Implemented or Addressing Impacts
a. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	Public Services Chapter 6-35 – 6-38.				None recommended.
b. Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	N/A				N/A; not included in Appendix G when the EIR was released and certified

	Where Impact Was Analyzed in Prior Environmental Documents	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information Requiring New Analysis or Verification?	Prior Environmental Documents' Mitigation Measures Implemented or Addressing Impacts

DISCUSSION:

Recreation was not included in Appendix G of the CEQA Guidelines when the EIR was released and certified. Impacts to parks were discussed in the Public Services chapter of the EIR and the same section of this document.

MITIGATION MEASURES:

None recommended

XVIII. Transportation

	Where Impact Was Analyzed in Prior Environmental Documents	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information Requiring New Analysis or Verification?	Prior Environmental Documents' Mitigation Measures Implemented or Addressing Impacts
a. Conflict with or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b) – measuring transportation impacts individually or cumulatively, using a vehicles miles traveled standard established by the County?	N/A				N/A; not included in Appendix G when the EIR was released and certified
b. Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	Page 6-38 and 8-28				None recommended.

	Where Impact Was Analyzed in Prior Environmental Documents	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information Requiring New Analysis or Verification?	Prior Environmental Documents' Mitigation Measures Implemented or Addressing Impacts
c. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	Page N/A				None recommended.
d. Result in inadequate emergency access?	Page 6-33				None recommended.

	Where Impact Was Analyzed in Prior Environmental Documents	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information Requiring New Analysis or Verification?	Prior Environmental Documents' Mitigation Measures Implemented or Addressing Impacts

DISCUSSION:

MODIFIED PROJECT

The proposed Modified Project would construct 172 multi-family dwelling units, which is 20 more units than allowed by the RMU-1 maximum density of 25 dwelling units per acre. However, since the number of units proposed would be within the overall number of units that was utilized in the scope of technical studies and analysis for the entire Corridor Plan EIR, the Modified Project is consistent with the impact analysis contained in the EIR. Therefore, the analysis from the EIR remains appropriate for the proposed project.

The EIR included a Traffic Study conducted by Fehr & Peers that analyzed the project level and cumulative impacts of the Corridor Plan on area roadways and infrastructure. The EIR analysis identified significant impacts associated with LOS for some plan area roadway segments and intersections. Transportation improvements to reduce these impacts were identified and adopted as mitigation measures. Some mitigation measures require the construction of new roadway infrastructure, while others require fair-share payment. The timing of traffic infrastructure improvements is based upon a traffic analysis, demonstrating that the deferral would not result in significant traffic impacts, based on the County's level of service (LOS) "E" policy in urban areas. This generally means ensuring that roadway segments do not exceed the LOS "F" threshold of 18,000 vehicles per day, or that intersections do not exceed capacity and gridlock during the peak hour. By deferring these triggers to a later number of units, the plan area fee program builds up a balance that can be used to provide immediate credits/reimbursements when triggers are hit. Mitigation Measure TC-1 of the EIR required that the Community Development Department prepare a phasing plan for transportation infrastructure and improvements.

The Modified Project is consistent with the land uses analyzed in the EIR and associated impact analyses remain adequate. Correspondence received from the County Department of Transportation (DOT) staff (G. Gasperi) on February 6, 2024, stated that the County is still developing the phasing plan required by Mitigation Measure TC-1. A new traffic study put together as part of that effort shows that the Corridor is operating within County Level of Service Thresholds. DOT concluded that the Modified Project will not require any of the roadway improvements identified in the EIR, mitigation is not applicable to the Modified Project.

	Where Impact Was Analyzed in Prior Environmental Documents	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information Requiring New Analysis or Verification?	Prior Environmental Documents' Mitigation Measures Implemented or Addressing Impacts
MITIGATION MEASURES: None recommended					

XIX. Tribal Cultural Resources

	Where Impact Was Analyzed in Prior Environmental Documents	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information Requiring New Analysis or Verification?	Prior Environmental Documents' Mitigation Measures Implemented or Addressing Impacts
a. Would the project cause a substantial adverse change in the significance of a tribal cultural resource as defined in Public Resources Code 21074?	Page 13-33 – 13-35	No	No	No	MM CR-3: Unanticipated Discovery of an Archaeological Resource or Human Remains

	Where Impact Was Analyzed in Prior Environmental Documents	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information Requiring New Analysis or Verification?	Prior Environmental Documents' Mitigation Measures Implemented or Addressing Impacts

DISCUSSION:

Tribal Cultural Resources (TCRs) were not a separate topical area of discussion in Appendix G of the CEQA Guidelines at the time the EIR was certified. TCRs were previously grouped with Cultural Resources and evaluated as an archaeological resource. A discussion of the findings of the EIR and pertinence to the Modified Project are discussed in the Cultural Resources chapter of this document.

This section supplements the TCR checklist questions by analyzing if the proposed project would:

- Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with a cultural value to a California Native American tribe, that is:

  a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or

  b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

Under PRC Section 21084.3, public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource. California Native American tribes traditionally and culturally affiliated with a geographic area may have expertise concerning their tribal cultural resources (21080.3.1(a)).

TRIBAL CULTURAL RESOURCE SETTING

HELIX sent a records search request to the North Central Information Center for a 0.5-mile buffer radius beyond the area of

	Where Impact Was Analyzed in Prior Environmental Documents	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information Requiring New Analysis or Verification?	Prior Environmental Documents' Mitigation Measures Implemented or Addressing Impacts

potential effect (APE). The search identified five studies that had been conducted within the 0.5-mile search radius. Two of the previous studies included the current APE as part of the survey efforts. Neither of these reports recorded archaeological within the project APE; however, this does not preclude the possibility of subsurface resources being discovered during construction. Mitigation Measure CR-3 remains applicable to the project.

In accordance with Assembly Bill (AB) 52, codified as Section 21080.3.1 of CEQA, formal notification letters were sent to those tribes who had previously requested to be notified of Sacramento County projects on October 20, 2022 & March 12, 2024. Two responses were received from the United Auburn Indian Community (UAIC), on March 12, 2024, and from Wilton Rancheria (Wilton), on March 13, 2024, requesting consultation under AB 52.

DISCUSSION OF PROJECT IMPACTS – TRIBAL CULTURAL RESOURCES

Through consultation, Wilton representatives confirmed site sensitivity for tribal cultural resources and requested that a paid tribal monitor(s). UAIC requested that mitigation for inadvertent discovery of TCRs be included. Impacts to TCRs will be ***less than significant with mitigation***.

MITIGATION MEASURES:

Mitigation Measure CR-3: Unanticipated Discovery of an Archaeological Resource or Human Remains

Mitigation Measure E: Paid Tribal Monitors

To minimize the potential for destruction of or damage to existing or previously undiscovered archaeological, cultural resources, and tribal cultural resources and to identify any such resources at the earliest possible time during project-related earthmoving activities, the project applicant and its construction contractor(s) will implement the following measures:

1. Paid Native American Monitors from Wilton Rancheria will be invited to monitor the vegetation grubbing, stripping, grading, or other ground-disturbing activities in the northern segment of the project area to determine the presence or absence of any cultural resources. Native American Representatives from culturally affiliated tribes act as a representative of their Tribal

	Where Impact Was Analyzed in Prior Environmental Documents	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information Requiring New Analysis or Verification?	Prior Environmental Documents' Mitigation Measures Implemented or Addressing Impacts

government and shall be consulted before any cultural studies or ground-disturbing activities begin.

2. Native American Representatives and Native American Monitors have the authority to identify sites or objects of significance to Native Americans and to request that work be stopped, diverted, or slowed if such sites or objects are identified within the direct impact area; however, only a Native American Representative can recommend appropriate treatment of such sites or objects.

Mitigation Measure F: Inadvertent Discoveries of Tribal Cultural Resources

If potential TCRs, archaeological resources, other cultural resources, articulated, or disarticulated human remains are discovered during construction activities, work will cease within 100 feet of the find (based on the apparent distribution of cultural resources), whether or not a Native American Monitor from a traditionally and culturally affiliated Native American Tribe is present. Sacramento County Planning and Environmental Review shall be immediately notified at (916) 874-6141. A qualified cultural resources specialist and Native American Representatives and Monitors from traditionally and culturally affiliated Native American Tribes will assess the significance of the find and make recommendations for further evaluation and treatment as necessary. Culturally appropriate treatment may be, but is not limited to, processing materials for reburial, minimizing handling of cultural objects, leaving objects in place within the landscape, returning objects to a location within the project area where they will not be subject to future impacts. The Tribe does not consider curation of TCRs to be appropriate or respectful and request that materials not be permanently curated, unless requested by the Tribe.

Treatment that preserves or restores the cultural character and integrity of a Tribal Cultural Resource may include Tribal Monitoring, culturally appropriate recovery of cultural objects, and reburial of cultural objects or cultural soil. These recommendations will be documented in the project record. For any recommendations made by traditionally and culturally affiliated Native American Tribes that are not implemented, a justification for why the recommendation was not followed will be provided in the project record.

If adverse impacts to tribal cultural resources, unique archeology, or other cultural resources occurs, then consultation with UAIC, Wilton Rancheria, Ione Band of Miwoks, and other traditionally and culturally affiliated Native American Tribes regarding mitigation contained in the Public Resources Code sections 21084.3(a) and (b) and CEQA Guidelines section 15370 should occur, in order to

	Where Impact Was Analyzed in Prior Environmental Documents	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information Requiring New Analysis or Verification?	Prior Environmental Documents' Mitigation Measures Implemented or Addressing Impacts
coordinate for compensation for the impact by replacing or providing substitute resources or environments. In addition, pursuant to Section 5097.97 of the State Public Resources Code and Section 7050.5 of the State Health and Safety Code, in the event of the discovery of human remains, all work is to stop and the County Coroner and Office of Planning and Environmental Review shall be immediately notified. If the remains are determined to be Native American, guidelines of the Native American Heritage Commission shall be adhered to in the treatment and disposition of the remains.					

XX. Utilities and Service Systems

	Where Impact Was Analyzed in Prior Environmental Documents	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information Requiring New Analysis or Verification?	Prior Environmental Documents' Mitigation Measures Implemented or Addressing Impacts
a. Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	Page 6-23 – 6-27	No	No	No	MM PS-1: Public Service Infrastructure Phasing MM PS-2: Water Supply/Infrastructure Phasing
b. Have adequate wastewater treatment and disposal facilities for full buildout of the project?	Page 6-27 – 6-33	No	No	No	MM PS-1: Public Service Infrastructure Phasing
c. Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs, or otherwise impair the attainment of solid waste reduction goals?	Page 6-34	No	No	No	None recommended

	Where Impact Was Analyzed in Prior Environmental Documents	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information Requiring New Analysis or Verification?	Prior Environmental Documents' Mitigation Measures Implemented or Addressing Impacts
d. Result in substantial adverse physical impacts associated with the construction of new water supply or wastewater treatment and disposal facilities or expansion of existing facilities?	Page 6-23 – 6-33	No	No	No	MM PS-1: Public Service Infrastructure Phasing MM PS-2: Water Supply/Infrastructure Phasing
e. Result in substantial adverse physical impacts associated with the provision of storm water drainage facilities?	Page CK-4	No	No	No	None recommended.
f. Result in substantial adverse physical impacts associated with the provision of electric or natural gas service?	Page 6-38	No	No	No	None recommended.
g. Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	Page 6-13 – 6-16				None recommended.

	Where Impact Was Analyzed in Prior Environmental Documents	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information Requiring New Analysis or Verification?	Prior Environmental Documents' Mitigation Measures Implemented or Addressing Impacts

DISCUSSION:

The EIR found that the Corridor Plan area had existing infrastructure and adequate water supply; but that additional water supply may be needed with full buildout and development of the surrounding area. Additionally, the water infrastructure and sewer studies indicated that some upgrades to water and sewer infrastructure would be necessary. Mitigation Measures PS-1 & PS-2 required the County and public utility service entities to develop a phasing plan for water supply and public service infrastructure. With development and implementation of the phasing plan, impacts related to public services would be ***less than significant***.

MODIFIED PROJECT

The Modified Project will be required to pay fair share fees through the Public Facilities Finance Plan. These fees are collected at the time of development to pay for identified road improvements in the Corridor Plan area.

MITIGATION MEASURES:

None recommended.

XXI. Wildfire

	Where Impact Was Analyzed in Prior Environmental Documents	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information Requiring New Analysis or Verification?	Prior Environmental Documents' Mitigation Measures Implemented or Addressing Impacts

	Where Impact Was Analyzed in Prior Environmental Documents	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information Requiring New Analysis or Verification?	Prior Environmental Documents' Mitigation Measures Implemented or Addressing Impacts
If located in or near a State responsibility areas or lands classified as a very high fire severity zone would the project:	N/A				N/A; not included in Appendix G when the EIR was released and certified
a. Substantially impair an adopted emergency response plan or emergency evacuation plan?	N/A				N/A; not included in Appendix G when the EIR was released and certified
b. Due to slope, prevailing winds, and other factors, exacerbate wildfire rises, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of wildfire?	N/A				N/A; not included in Appendix G when the EIR was released and certified
c. Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	N/A				N/A; not included in Appendix G when the EIR was released and certified
d. Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	N/A				N/A; not included in Appendix G when the EIR was released and certified

	Where Impact Was Analyzed in Prior Environmental Documents	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information Requiring New Analysis or Verification?	Prior Environmental Documents' Mitigation Measures Implemented or Addressing Impacts

DISCUSSION:

The Modified Project is located within a Local Responsibility Area and is not located within a Very High Fire Hazard Severity Zone. The project site is located along an urban corridor and would not expose people or structures to a significant risk of loss, injury or death involving wildland fires. Impacts related to wildfire are ***less than significant***.

MITIGATION MEASURES:

None recommended

XXII. Mandatory Findings of Significance

	Where Impact Was Analyzed in Prior Environmental Documents	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information Requiring New Analysis or Verification?	Prior Environmental Documents' Mitigation Measures Implemented or Addressing Impacts
a. Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of an endangered, threatened or rare species, or eliminate important examples of the major periods of California history or prehistory?	Page 15-1 – 15-18	No	No	No	

	Where Impact Was Analyzed in Prior Environmental Documents	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information Requiring New Analysis or Verification?	Prior Environmental Documents' Mitigation Measures Implemented or Addressing Impacts
b. Does the project have impacts which are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)	Page 15-15 – 15-17	No	No	No	
c. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly	15-1 – 15-18	No	No	No	

DISCUSSION:

The Modified Project is consistent with the prior findings of the EIR. No further analysis is required.

ATTACHMENTS:

Attachment A: Final Environmental Impact Report for the North Watt Avenue Corridor Plan (County Control Number: 2008-GPB-CZB-ZOB-00153; SCH Number: 2009092067). The FEIR consists of the Draft EIR & Response to Comments

Due to length, Attachment A is available to view at the Sacramento County Department of Planning and Environmental Review, 827 7th Street, Room 225, Sacramento, CA 95814, during normal business hours, or online at:

https://planningdocuments.saccounty.net/ViewProjectDetails.aspx?ControlNum=PLNP2021-00133

Attachment B: Mitigation and Monitoring Reporting Program

APPENDICES:

Appendix A: Air Quality and Greenhouse Gas Report. HELIX Environmental Planning, November 2021.

Appendix B: Biological Resources Inventory Report. HELIX Environmental Planning, September 2021.

Appendix C: Aquatic Resources Delineation Report. HELIX Environmental Planning, February 2018.

Appendix D: Arborist Report. HELIX Environmental Planning, August 2021.

Appendix E: Drainage Study. JTS Engineering Consultants, Inc., July 2022.

Appendix F: Noise Study. HELIX Environmental Planning, November 2021.

HELIX Environmental Planning, Inc.
11 Natoma Street, Suite 155
Folsom, CA 95630
916.365.8700 tel
619.462.0552 fax
www.helixepi.com

September 24, 2021 Project 03974.00001.001

Mr. Narinder Singh
New Green Properties, LLC
2224 Endeavor Way
Sacramento, CA 95834

Subject: Updated Biological Resources Evaluation Technical Memorandum, Watt Avenue Apartments, Sacramento County, California

Dear Mr. Singh:

Under contract with New Green Properties, LLC, HELIX Environmental Planning, Inc. (HELIX) prepared an update to the biological resources evaluation of the approximately 6.2-acre site of the proposed Watt Avenue Apartments (Study Area) located at 7403 Watt Avenue, in unincorporated Sacramento County, California. A biological resources evaluation technical memorandum for the project was originally prepared by HELIX in April 2018 and submitted to Sacramento County Office of Planning and Environmental Review in December 2019. The biological resources evaluation was conducted to support the design and entitlement of a proposed apartment complex on the property (hereafter referred to as "project" or "proposed project"). The purpose of the analysis was to evaluate the potential for impacts to biological resources that could occur as a result of the proposed project and to provide recommended measures to avoid/reduce any such impacts. This updated memorandum incorporates the results of the most recent biological review and fieldwork conducted at the site and includes a description of the location, setting, and existing conditions of the Study Area, methods used to conduct the analysis, a description of the potential resources on the property, and recommendations for avoidance and minimization of potential impacts to resources. This memorandum is intended for use in supporting California Environmental Quality Act (CEQA) documentation for the project being prepared by Sacramento County staff.

PROJECT LOCATION AND SETTING

The Study Area is located in unincorporated Sacramento County, at 7403 Watt Avenue (Attachment A, Figure 1), in unsurveyed land of the Rancho Del Paso Land Grant of Township 10 North and Range 5 East, Mount Diablo Meridian, and is depicted on the U.S. Geological Survey (USGS) *Rio Linda, CA* 7.5-minute quadrangle map (Attachment A, Figure 2). The approximate center of the Study Area is at latitude 38.700537 and longitude -121.384108, NAD 84. The elevation on the Study Area ranges from approximately 90 to 100 feet above mean sea level (amsl).

The Study Area is located in a developed area of unincorporated Sacramento County near the community of North Highlands and is surrounded by developed land in commercial, industrial, and residential uses. The Study Area is located within an area proposed for development as part of the North Watt Avenue Corridor Plan. Figure 3 in Attachment A is an aerial photograph of the project site and vicinity. The Study Area, as well as the surrounding areas, is characterized by a high level of human disturbance and as a result the biological communities once present on the site are in a highly altered state. The flora present in the Study Area is composed primarily of introduced and non-native weedy species, therefore wildlife use of the Study Area is limited to a few disturbance-tolerant urban species. Lands within the immediate vicinity of the Study Area similarly provide little value for wildlife.

METHODS

Biological studies were conducted over a three-year period for the project and consisted of a special-status species evaluation, which included a desktop review and database searches to identify known biological resources in the Study Area and vicinity, and biological surveys, which included a delineation of potentially jurisdictional aquatic resources, a biological reconnaissance survey, a focused botanical survey, and a protected tree inventory.

Special-Status Species Evaluation

Regulations pertaining to the protection of biological resources in the Study Area are summarized in Attachment B. For the purposes of this report, special-status species are those that fall into one or more of the following categories, including those:

- listed as endangered or threatened under the Federal Endangered Species Act (FESA; including candidates and species proposed for listing);
- listed as endangered or threatened under the California Endangered Species Act (CESA; including candidates and species proposed for listing);
- designated as rare, protected, or fully protected pursuant to California Fish and Game Code;
- designated a Species of Special Concern (SSC) by the California Department of Fish and Wildlife (CDFW);
- considered by CDFW to be a Watch List species with potential to become a SSC;
- defined as rare or endangered under Section 15380 of the CEQA; or
- having a California Rare Plant Rank (CRPR) of 1A, 1B, 2A, 2B, or 3.

In order to evaluate special-status species and/or their habitats with the potential to occur in the Study Area and/or be impacted by the proposed project, HELIX obtained lists of regionally occurring special-status species from the following information sources:

- California Department of Fish and Wildlife (CDFW). 2021. *California Natural Diversity Database* (CNDDB); For: *Rio Linda, Pleasant Grove, Roseville, Taylor Monument, Sacramento West, Verona, Citrus Heights, Sacramento East and Carmichael* USGS 7.5-minute series quadrangles, Sacramento, CA. Accessed August 18, 2021;

- California Native Plant Society (CNPS). 2021. *Inventory of Rare and Endangered Plants* (online edition, v8-03 0.39) For: *Rio Linda, Pleasant Grove, Roseville, Taylor Monument, Sacramento West, Verona, Citrus Heights, Sacramento East and Carmichael* USGS 7.5-minute series quadrangles, Sacramento, CA. Accessed August 17, 2021; and

- U.S. Fish and Wildlife Service (USFWS). 2021. *Information for Planning and Consultation* (IPaC). Accessed August 18, 2021.

Attachment C includes these lists of special-status plant and animal species occurring in the project region. The potential for these regionally occurring special-status species to occur in the Study Area is analyzed in Attachment D.

Aquatic Resources Evaluation

A jurisdictional delineation of the project site was conducted during biological surveys on January 10 and February 8, 2018 in accordance with the *Corps of Engineers Wetlands Delineation Manual* (USACE 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)* (USACE 2008). The three-parameter method was used to determine the presence/absence of wetlands, which involves identifying indicators of hydrophytic vegetation, hydric soils, and wetland hydrology according to the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)* (USACE 2008) and the *Arid West 2016 Regional Wetland Plant List* (USACE 2016). A total of 20 data points were taken in the project site; data points were taken throughout the site to classify the site's soils, vegetation, and hydrologic characteristics. The results of the delineation, which is separately bound, are summarized in this report.

Biological Reconnaissance Survey

Biological reconnaissance surveys of the Study Area were conducted on January 10, 2018 and February 8, 2018 by HELIX Senior Scientist, Stephen Stringer, M.S. and HELIX Senior Biologist/Botanist George Aldridge, Ph.D. During both surveys, the Study Area was assessed to identify the habitat type(s) present on-site and the potential to support special-status plant and wildlife species known from the broader project region. The surveys consisted of pedestrian surveys of the Study Area and the surrounding area. Meandering transects of the Study Area were performed to obtain visual coverage of the site. A list of all plant and animal species observed in the site during the biological surveys is provided in Attachment E; representative photographs of the site are presented in Attachment F.

Botanical Surveys

A botanical survey of the entire Study Area was conducted on March 28, 2018 by George Aldridge, Ph.D., during the blooming season of early-flowering regionally-occurring special-status plants. An additional focused botanical survey for Sanford's arrowhead was conducted on September 9, 2021 by HELIX biologist/botanist Greg Davis. The survey was focused within the wetland swale, which is the only suitable habitat for Sanford's arrowhead in the Study Area.

Protected Tree Inventory

An initial arborist survey was conducted on November 8, 2019, by HELIX Biologist and ISA Certified Arborist George Aldridge, Ph.D. (#WE-11778A). An update to the initial survey was performed by ISA certified arborist Stephanie McLaughlin (#WE-12922A) on March 23, 2021, to verify the current conditions of the trees. The results of the tree inventory, which is separately bound, are summarized in this report.

RESULTS

Environmental Setting

The Study Area is located within a commercial and residential area in the unincorporated community of North Highlands. The Study Area is generally bordered by commercial parcels on the north, residential developments to the west and east, and a vacant parcel to the south. The eastern border of the Study Area abuts Watt Avenue.

Site Conditions

The Study Area is undeveloped with no current use and no apparent uses in the recent past. Homeless encampments were present on the site during the biological reconnaissance surveys. The northwest and eastern portions of the site appear to have been disturbed in the past, potentially as a result of grading for the adjacent industrial facility and Watt Avenue, and soils in these areas appear to be comprised of fill/mixed fill and native soil. Vegetation in the Study Area is comprised of non-native grassland as well as wetland habitats. A "Y" shaped wetland swale collects water from two culvert outfalls in the northern and eastern portions of the Study Area and drains toward the southwest into a larger drainage off-site. The culvert outfall along the north side of the Study Area collects stormwater and urban runoff primarily from the adjacent industrial facility and other industrial and commercial developments to the north of the Study Area. The culvert outfall along the eastern side of the Study Area collects stormwater and urban runoff primarily from residential developments east of Watt Avenue.

Topography

Terrain in the immediate vicinity of the Study Area is primarily flat; the Study Area itself is also primarily flat with a gradual slope toward the southwest. The elevation on the site ranges from approximately 90 to 100 feet (24 to 30 meters) amsl.

Soils

The Study Area includes two soil mapping units (NRCS 2021): Fiddyment-Urban land complex, 1 to 8 percent slopes and Urban land – Xerarents – Fiddyment Complex, 0 to 8 percent slopes (Attachment A, Figure 4).

Fiddyment soils are residuum weathered from sedimentary rock. It consists of surface layers of sandy to sandy clay loam to a depth of approximately 40 inches, with weathered bedrock below 40 inches. This soil type has a depth of more than 80 inches to the water table, is well drained, and the frequency of flooding and ponding is classified as "none" (NRCS 2021). This soil unit is considered hydric within depressions according to the U.S. Department of Agriculture Natural Resources Conservation Service list of hydric soils (NRCS 2016).

Xerarents are alluvium derived from granite. Surface layers are variable. This soil type has a depth of more than 80 inches to the water table, is well-drained, and the frequency of flooding and ponding is classified as “none” (NRCS 2021). This soil unit is considered hydric within depressions according to the U.S. Department of Agriculture Natural Resources Conservation Service list of hydric soils (NRCS 2016).

Hydrology

The Study Area is within the Lower American watershed (HUC 18020111). The site drains generally south and west toward an off-site drainage tributary to Dry Creek, via a wetland swale on the site. Apparent sources of water for the site include direct precipitation and discharges from two culverts along the northern and eastern edges of the site. The culvert outfall along the north side of the Study Area appears to collect runoff from the adjacent industrial facility and other industrial and commercial developments to the north of the Study Area. The culvert outfall along the eastern side of the Study Area collects runoff from residential development east of Watt Avenue. The Study Area appears to be located within the upstream extent of a small watershed that collects runoff from developed areas in the immediate vicinity of the Study Area and drains westerly into Dry Creek. There are no natural drainages or wetlands upstream of the Study Area within the immediate watershed. Water feeding the swale in the Study Area appears to be concentrated urban runoff.

Habitat Types/Vegetation Communities

There are three vegetation communities/habitat types on the Study Area: non-native grassland, wetland swale, and seasonal wetland (Attachment A, Figure 5).

Non-native Grassland

Upland areas of the site are considered non-native grassland and are vegetated primarily with non-native grasses and forbs. Italian ryegrass (*Festuca perennis*), wild oat (*Avena* sp.), barley (*Hordeum* spp.), and bromes (*Bromus* spp.) make up the majority of the herbaceous cover on the property in terms of percent cover, with other non-native grasses such as medusa head (*Elymus caput-medusae*) also present at high density in some areas. Nearly all herbaceous plant species observed during the biological reconnaissance are non-natives associated with disturbance. The Study Area is subject to regular disturbance, at the time of the 2021 arborist survey the grassland area had recently been disced.

Wetland Swale

A “Y” shaped wetland swale collects water from two culvert outfalls in the northern and eastern portions of the Study Area and drains toward the southwest into a larger drainage off-site. The culvert outfall along the north side of the Study Area collects stormwater and urban runoff primarily from the adjacent industrial facility and other industrial and commercial developments to the north of the Study Area. The culvert outfall along the eastern side of the Study Area collects stormwater and urban runoff primarily from residential developments east of Watt Avenue. The wetland swale is vegetated with freshwater emergent macrophytes including a predominance of pale persicaria (*Persicaria lapathifolia*), tall flatsedge (*Cyperus eragrostis*), and creeping bentgrass (*Agrostis stolonifera*). Vegetation in the wetland swale indicates that the swale contains surface water for the majority of the growing season.

Seasonal Wetland

Two seasonal wetlands are present in the Study Area adjacent to the wetland swale. The seasonal wetlands collect runoff from the western half of the site, north of the swale. In contrast to the wetland swale, which is vegetated with emergent macrophytes, the seasonal wetlands are vegetated with herbaceous annual grasses and forbs typical of disturbed seasonal wetlands in the region including Italian ryegrass (*Festuca perennis*) and curly dock (*Rumex crispus*). This difference in vegetation indicates a hydrologic regime in the seasonal wetlands consisting of periods of inundation during and shortly after storm events with several weeks of saturation during the growing season.

Wildlife Observations

Wildlife species observed in the Study Area during the biological surveys included common urban species such as European starling (*Sturnus vulgaris*), northern mockingbird (*Mimus polyglottos*), American robin (*Turdus migratorius*), black phoebe (*Sayornis nigricans*), western scrub jay (*Aphelocoma californica*), and mourning dove (*Zenaida macroura*). No active bird nests were observed in the Study Area at the time of the biological reconnaissance survey.

SPECIAL-STATUS SPECIES EVALUATION

A total of 12 regionally occurring special-status plant species and 30 regionally occurring special-status wildlife species were identified during the updated database queries and desktop review and are evaluated in Attachment D.

Special Status Plant Species

A total of 12 regionally occurring special-status plant species were identified during the database queries and desktop review. The majority of the special-status plant species are associated with vernal pools, meadows and seeps, chaparral, or cismontane woodlands and do not have the potential to occur in the Study Area. However, the Study Area provides suitable habitat for one special-status plant species, Sanford's arrowhead (*Sagittaria sanfordii*), which was documented in the freshwater wetland swale in the Study Area during the botanical survey in September 2021. Sanford's arrowhead is discussed below. Species determined to have no potential to occur in the Study Area or be impacted by the proposed project (Attachment D) are not discussed further in this report.

Sanford's Arrowhead

Federal status – none
State status – none
CNPS Rare Plant Rank – 1B.2

Species Description

Sanford's arrowhead is a rhizomatous emergent, aquatic herb that is found in shallow water within a variety of freshwater habitats, including standing or slow-moving freshwater ponds, marshes, and ditches. The known range is within Butte, Del Norte, Fresno, Merced, Mariposa, Orange, Placer, Sacramento, Shasta, San Joaquin, Tehama, and Ventura counties at elevations ranging from 0 to 1,950 feet (0 to 594 meters) amsl. This species blooms from May to October (occasionally November) (CNPS 2021).

Survey History

An estimated 10 individual plants identified as Sanford's arrowhead were documented in the Study Area during the focused botanical survey on September 9, 2021. The plants were identified utilizing vegetative characteristics, as no flowers, fruits, or inflorescences were present on the plants at the time of the survey. The plants were readily identified as belonging to the water plantain (Alismataceae) family based on the experience of the surveyors and then keyed to the water plantain family for confirmation using the *Jepson Manual Vascular Plants of California* (Baldwin et al. 2012) based on vegetative characteristics. Based on overall plant morphology and leaf shape, the plants were narrowed down to one of two potential genera in the water plantain family: *Alisma* or *Sagittaria*. The plants were then identified as belong to the genus *Sagittaria* (differentiated from the genus *Alisma*) due to the presence of three-angled petioles and stolons as well as spherical tubers. They were then keyed to *Sagittaria sanfordii* (differentiated from other species of *Sagittaria*) because they have linear/lanceolate/ovate leaves rather than sagittate leaves.

The closest reported occurrence of Sanford's arrowhead in the CNDDB is located approximately 0.9 mile northwest of the Study Area, where this species was originally documented in 2001 in Goat Creek (CNDDB occurrence #72), which is a tributary to Dry Creek (CDFW 2021). HELIX biologists documented Sanford's arrowhead at this location in October 2020.

Habitat Suitability

The freshwater wetland swale, particularly deeper slow moving downstream portions near the southwest corner of the Study Area, provide suitable habitat for Sanford's arrowhead and are occupied by this species.

Potential for Adverse Effects

Approximately 10 individual Sanford's arrowhead plants are present in the Study Area and would be impacted based on the current project design. Placement of fill into the swale associated with construction activities would result in the destruction of these 10 individual Sanford's arrowhead plants, which would be considered a significant impact.

Implementation of MM BIO-1 would reduce project impacts to Sanford's arrowhead to a less than significant level.

Special-Status Wildlife Species

A total of 30 regionally occurring special-status wildlife species were identified during the updated database searches and desktop review. The majority of the special-status wildlife species are associated with aquatic habitats of the adjacent Sacramento Valley such as rivers, sloughs, and freshwater wetlands, including vernal pools. The remaining species are associated with woodlands, cliffs, elderberry shrubs, and open areas with scattered trees.

There are no reported occurrences of special-status animal species on or adjacent to the Study Area. However, the Study Area may provide suitable habitat for burrowing owl (*Athene cunicularia*) and white-tailed kite (*Elanus leucurus*), as well as nesting migratory birds and raptors that are otherwise not special-status species. These species are discussed briefly below. Species determined to have no potential to occur in the Study Area or be impacted by the proposed project (Attachment D) are not discussed further in this report.

Burrowing Owl

Federal status – none
State status – none
Other – CDFW Species of Special Concern

Species Description

Burrowing owls are often found in open, dry grasslands, agricultural and range lands, and desert habitats. They can also inhabit grass, forb, and shrub stages of pinyon and ponderosa pine habitats. Burrowing owls occur at elevations ranging from 200 feet below mean sea level to over 9,000 feet amsl. In California, the highest elevation where burrowing owls are known to occur is 5,300 feet amsl in Lassen County. In addition to natural habitats, burrowing owls can be found in urban habitats such as at the margins of airports and golf courses and in vacant urban lots. Burrowing owls forage in adjacent grasslands and other suitable habitats primarily for insects and small mammals, and less often for reptiles, amphibians, and other small birds.

Burrowing owls nest in burrows in the ground and commonly perch on fence posts or mounds near the burrow. The owls often use ground squirrel burrows or badger dens or artificial burrows such as abandoned pipes or culverts. Although the more northern burrowing owl populations migrate seasonally, burrowing owls are year-round residents of the San Joaquin Valley. Burrowing owls often form loose colonies, with nest burrows 46 to 2,952 feet apart (Ross 1974; Gleason 1978). In the Sacramento and San Joaquin valleys, the nesting season for burrowing owl can begin as early as February 1 and continues through August 31.

Survey History

Burrowing owl was not observed in the Study Area during any of the biological surveys and there are no reported occurrences of this species on or adjacent to the parcel in the CNDDB. The nearest recent CNDDB occurrence is located 5.3 miles west of the Study Area in a debris pile in open grassland habitat (CDFW 2021).

Habitat Suitability

Marginal foraging and nesting habitat is present in the Study Area within the non-native grassland and along the freshwater wetland swale.

Potential for Adverse Effects

If burrowing owl is present on the Study Area and went undetected during the biological reconnaissance surveys or occupies the Study Area prior to construction, potential adverse effects of the proposed project on burrowing owl could include harm to individual burrowing owl, burrow disturbance/loss of active burrows, and loss of potential habitat. Harm of individuals could occur as a result of contact with construction equipment or personnel and burrow disturbance/loss of active burrows could result in displacement of individuals subjecting them to increased chance of predation or mortality. Harm to individual burrowing owl would be considered a significant impact. Loss of potential unoccupied habitat would not be considered a significant impact as there is ample higher quality habitat in the region of the Study Area.

Implementation of MM BIO-2 would reduce potential impacts to burrowing owl to a less than significant level.

White-Tailed Kite

Federal status – none
State status – none
Other – Fully Protected

Species Description

White-tailed kite is a year-round resident in California in coastal areas and lowlands in the Central Valley. Population sizes increase during the non-breeding season due to over-wintering migrants. This species prefers to forage over open stages of habitats dominated by herbaceous species (Zeiner et al. 1990). White-tailed kite will nest in tall trees adjacent to foraging habitat (Zeiner et al. 1990) with nest placement typically located near the top of the tree (NatureServe 2019). Typically, this species will have one brood per year, but occasionally will have a second brood (NatureServe 2019). White-tailed kites feed mainly on small mammals such as voles (*Microtus* spp.) but will take other small vertebrate and invertebrate prey.

Survey History

White-tailed kite was not observed in the Study Area during any of the biological surveys and there are no reported occurrences of this species on or adjacent to the parcel in the CNDDB. The nearest documented occurrence of white-tailed kite is 5.5 miles east in annual grassland with scattered oaks (CDFW 2021).

Habitat Suitability

The scattered trees on and adjacent to the Study Area provide marginal nesting habitat and the non-native grassland provides marginal foraging habitat for white-tailed kite.

Potential for Adverse Effects

In the absence of proposed mitigation measures, potential adverse effects of the proposed project on white-tailed kite could include harm to individual birds and nest disturbance/loss of occupied nests. If white-tailed were to occupy the trees in the project site prior to construction of the project, such activities could result in direct impacts to white-tailed kite individuals through harm as a result of contact with construction equipment or personnel and/or indirect impacts as a result of habitat destruction or loss of nesting habitat.

Implementation of MM BIO-3 would reduce potential impacts to white-tailed kite to a less than significant level.

Migratory Birds and Raptors

As noted in Attachment B, migratory and non-game birds are protected during the nesting season by California Fish and Game Code. The Study Area and immediate vicinity provides nesting and foraging habitat for a variety of native birds common to urbanized areas, such as mourning dove (*Zenaida macroura*), house finch (*Haemorhous mexicanus*), and Anna's hummingbird (*Calypte anna*). Nests were not observed during surveys; however, a variety of migratory birds have the potential to nest in and adjacent to the site, in trees, shrubs and on the ground in vegetation.

Project activities such as clearing and grubbing during the avian breeding season (February 1 through August 31) could result in injury or mortality of eggs and chicks directly through destruction or indirectly through forced nest abandonment due to noise and other disturbance. Needless destruction of nests, eggs, and chicks would be a violation of the Fish and Game Code and a significant impact.

Implementation of MM BIO-3 would reduce potential impacts to nesting migratory birds and raptors to a less than significant level.

Sensitive Natural Communities

Due to the general lack in abundance of native plant species, there are no terrestrial or aquatic sensitive natural communities in the Study Area. Natural communities are defined by one or more characteristic plant species, and the species communities in the Study Area are not considered characteristic of a sensitive natural community.

Aquatic Resources Delineation

Jurisdictional waters on the project site include 0.33 acre of wetlands including a 0.25-acre wetland swale and two seasonal wetlands totaling 0.08 acre. An aquatic resources delineation was completed in February 2018 submitted to the USACE for verification. A Preliminary Jurisdictional Determination (PJD) was issued by the USACE verifying the extent of aquatic resources on the site on December 6, 2018 and is included in Attachment G. Project activities that resulted in impacts to the aquatic resources in the proposed project site are potentially subject to permits from the USACE, RWQCB, and/or CDFW. To avoid unauthorized impacts to potentially jurisdictional waters, any appropriate permits should be secured prior to impacting any of the aquatic features shown on the Aquatic Resources Delineation Map in Attachment H. Impacts to waters of the U.S. would require a Clean Water Act Section 404/401 permit from the USACE/RWQCB respectively. Impacts to aquatic resources not determined to be waters of the U.S. would require submitting a Report of Waste Discharge to the RWQCB and obtaining Waste Discharge Requirements. Impacts to waters of the state may also require a Streambed Alteration Agreement from CDFW.

Implementation of MM BIO-4 would reduce impacts to waters of the U.S. and waters of the State to a less than significant level.

Protected Trees

A total of 16 trees are present within or overhanging the Study Area. Of these trees, seven are native trees protected by Sacramento County and nine are non-native trees that are not currently regulated but may require mitigation for loss of tree canopy per the County General Plan. Removal of protected trees to facilitate development of the project would require a permit from the Sacramento County Director of Public Works. All protected trees located on the site are currently proposed for removal and no trees are proposed for preservation.

Implementation of MM BIO-5 would reduce impacts to protected trees to a less than significant level.

RECOMMENDED MITIGATION MEASURES

Special-Status Species

Special-Status Plants

The recommended measures for Sanford's arrowhead below would reduce any potential impacts to special-status plants to less than significant.

MM BIO-1: Sanford's Arrowhead

Based on the current project design, it is anticipated that Sanford's arrowhead cannot be avoided and project impacts to this species are anticipated. Therefore, the following measures should be implemented.

- Consultation with CDFW should be conducted to develop a mitigation strategy for impacts to Sanford's arrowhead. The proponent should notify CDFW, providing a complete description of the location, size, and condition of the occurrence, and the extent of proposed direct and indirect impacts to it. The project proponent should comply with any mitigation requirements imposed by CDFW. Mitigation requirements could include but are not limited to, development of a plan to relocate the special-status plants (seed or individuals) to a suitable location outside of the impact area and monitoring the relocated population to demonstrate transplant success or preservation of this species or its habitat at an on or offsite location.

- Fencing and signage should be placed at the limits of construction in the wetland swale to protect downstream habitat for Sanford's arrowhead identifying the location as an environmentally sensitive area that must be protected during construction. Appropriate best management practices should be implemented to protect downstream Sanford's arrowhead habitat from fugitive dust, sedimentation, harmful substances, or contaminated runoff from the construction area that could harm the plants.

Special-Status Wildlife

<u>Burrowing Owl</u>

The recommended measures for burrowing owl below would reduce any potential impacts to burrowing owl to less than significant.

MM BIO-2: Burrowing Owl Surveys

If feasible, construction-related ground disturbance activities should begin outside of the burrowing owl nesting season (February 1 through August 31) and during construction the site should be maintained in a manner that is inhospitable to burrowing owl such as keeping the site free of vegetation, ground squirrel control, and maintaining regular site disturbance by construction equipment and personnel. This will discourage burrowing owl from potentially occupying the project site.

No more than 14 days prior to initiation of ground disturbing activities associated with project construction, a qualified biologist should conduct a Take Avoidance survey of the project site in accordance with the methods outlined in the CDFW *Staff Report on Burrowing Owl Mitigation* (2012) or most recently adopted guidance. If no burrowing owls are found, no further mitigation will be necessary. If burrowing owls are found, then the following measures should be implemented prior to the commencement of construction:

- If an occupied wintering burrow is discovered on the project site during pre-construction surveys, a 50-meter buffer area should be established around the burrow until the owl leaves on its own. Ground-disturbing work conducted during the non-breeding (winter) season (September 1 to January 31) can proceed near the occupied burrow so long as the work occurs no closer than 50 meters to the burrow, and the burrow is not directly affected by the project activity. A smaller buffer may be established in consultation with CDFW and monitored at the discretion of a qualified biologist. If the 50-meter buffer cannot be maintained for the duration of occupancy by the owl, owls may be excluded from an occupied wintering burrow in accordance with the conditions of a Burrowing Owl Exclusion Plan, which should be prepared and submitted to CDFW for approval prior to passive relocation of any burrowing owls.

- If an occupied nesting burrow is discovered during pre-construction surveys, an avoidance buffer of 500 meters should be established around the burrow location and maintained until a qualified biologist has determined that the nest has fledged or is no longer active (a 500-meter avoidance buffer is appropriate for high-intensity impacts near nesting burrows during the breeding season [CDFW 2012]). No project activities should take place within the 500-meter buffer during the time in which it is in place. A smaller buffer may be established in consultation with CDFW and monitored at the discretion of a qualified biologist.

- If an occupied burrow cannot be avoided, and the burrow is not actively in use as a nest, a 200-meter buffer should be established until the burrowing owls can be excluded from burrows in accordance with the project's Burrowing Owl Exclusion Plan, which should be prepared and submitted for approval by CDFW prior to passive relocation of any burrowing owls. The Burrowing Owl Exclusion Plan should be based on the recommendations made in the *Staff Report on Burrowing Owl Mitigation* (CDFW 2012) or most recently adopted guidance and should include the following information for each proposed passive relocation:

    - Confirmation by site surveillance that the burrow(s) is empty of burrowing owls and other species;
    - Type of scope to be used and appropriate timing of scoping;
    - Occupancy factors to look for and what shall guide determination of vacancy and excavation timing;
    - Methods for burrow excavation;
    - Removal of other potential owl burrow surrogates or refugia on-site;

  - Methods for photographic documentation of the excavation and closure of the burrow; and
  - Monitoring of the site to evaluate success and, if needed, to implement remedial measures to prevent subsequent owl use to avoid take. Methods for assuring the impacted site shall continually be made inhospitable to burrowing owls and fossorial mammals.

- If burrowing owl pairs are passively relocated, compensatory mitigation for lost wintering/breeding habitat should be provided commensurate with the quality and amount lost through purchase of credits at a CDFW-approved mitigation bank in the project region.

White-tailed Kite and Other Raptors and Nesting Migratory Birds

The following mitigation measure is recommended to reduce potential project impacts to white-tailed kite and other raptors and nesting migratory birds and other nesting birds:

MM BIO-3: Nesting Bird Surveys

Prior to any ground-disturbing or vegetation clearing and grubbing activities occurring during the avian breeding season (February 1 through August 31), a qualified biologist should conduct a pre-construction nesting bird survey no more than 14 days prior to initiation of project activities. The survey area should include suitable raptor nesting habitat within 300 feet of the limits of disturbance (inaccessible areas outside of the Study Area can be surveyed from the site or from public roads using binoculars or spotting scopes). If no active nests are identified, no further mitigation is required. If active nests are identified, the following measure is required:

- A suitable buffer (e.g., 300 feet for raptors; 100 feet for passerines) should be established by a qualified biologist around active nests and no construction activities within the buffer should be allowed until a qualified biologist has determined that the nest is no longer active (i.e., the nestlings have fledged and are no longer reliant on the nest, or the nest has failed). Encroachment into the buffer may occur at the discretion of a qualified biologist. Any encroachment into the buffer should be monitored by a qualified biologist to determine whether nesting birds are being impacted.

Aquatic Resources

The following mitigation measure is recommended to reduce potential project impacts to aquatic resources:

MM BIO-4: Aquatic Resource Permits

The project applicant should obtain necessary permits from the USACE, RWQCB, and/or CDFW prior to impacting potential waters of the U.S./State. Impacts to waters of the U.S./State should be mitigated in accordance with permit requirements. Based on the preliminary plans, it is anticipated that implementation of the proposed project would require a Clean Water Act Section 404/401 permit from the USACE/RWQCB for permanent impacts to 0.33 acre of wetlands – all wetlands on the site would likely be filled to facilitate construction of the project.

Protected Trees

The recommended measures for protected trees below would reduce any potential impacts to protected trees to less than significant.

MM BIO-5: Tree Removal Permits

The project site contains trees potentially protected by the Sacramento County Tree Preservation Ordinance (see Attachment B). Trees on the site should be protected from removal as well as from ground disturbance within the protection zone without a tree permit from the County. Prior to any removal, or ground disturbance within a radius of one foot greater than the maximum dripline of a protected tree, the project proponent should obtain a tree permit from the County. The person requesting the permit, or the property owner may also be required to pay the cost of obtaining and planting the replacement trees.

We appreciate the opportunity to assist you with this project. Please contact me at (916) 365-8700 with any questions.

Sincerely,

Stephen Stringer

Stephen Stringer, M.S.
Principal Biologist

Attachments:

Attachment A: Figures
Attachment B: Regulatory Setting
Attachment C: Lists of Regionally-Occurring Special-Status Species from USFWS, CDFW, and CNPS
Attachment D: Potential for Special-Status Species to Occur in the Study Area
Attachment E: Plant and Animal Species Observed in the Study Area
Attachment F: Site Photos
Attachment G: USACE Preliminary Jurisdictional Determination
Attachment H: Aquatic Resources Delineation Map

REFERENCES

Baldwin, Bruce G. et. al. (eds). 2012. The Jepson Manual Vascular Plants of California, 2nd Edition. University of California Press, Berkeley

California Department of Fish and Wildlife (CDFW). 2021. RareFind 5.0, California Natural Diversity Database. Sacramento, California. Accessed August 18, 2021. Information expires 2/1/2022.

2012. Staff Report on Burrowing Owl Mitigation. March 7.

California Native Plant Society (CNPS). 2021. Inventory of Rare and Endangered Plants (online edition, v8-03 0.39). California Native Plant Society, Website http://www.rareplants.cnps.org. Accessed August 17, 2021.

Gleason, R. S. 1978. Aspects of the breeding biology of Burrowing Owls in southeastern Idaho. Thesis. University of Idaho, Moscow, USA.

Natural Resources Conservation Service, United States Department of Agriculture (NRCS). 2021. Web Soil Survey. Available online at: http://websoilsurvey.nrcs.usda.gov/. Accessed August 2021.

NatureServe. 2019. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.1. NatureServe, Arlington, Virginia. Available http://explorer.natureserve.org. Accessed December 24, 2019.

Ross, P. V. 1974. Ecology and behavior of a dense colony of burrowing owls in the Texas Panhandle. M. S. Thesis. West Texas State University, Canyon.

U.S. Army Corps of Engineers (USACE). 1987. Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.

2008. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0). J.S. Wakeley, R.W. Lichvar, and C.V. Noble, eds., Technical Report prepared for the U.S. Army Engineer Research and Development Center, Vicksburg, MS.

2016. Arid West 2016 Regional Wetland Plant List.

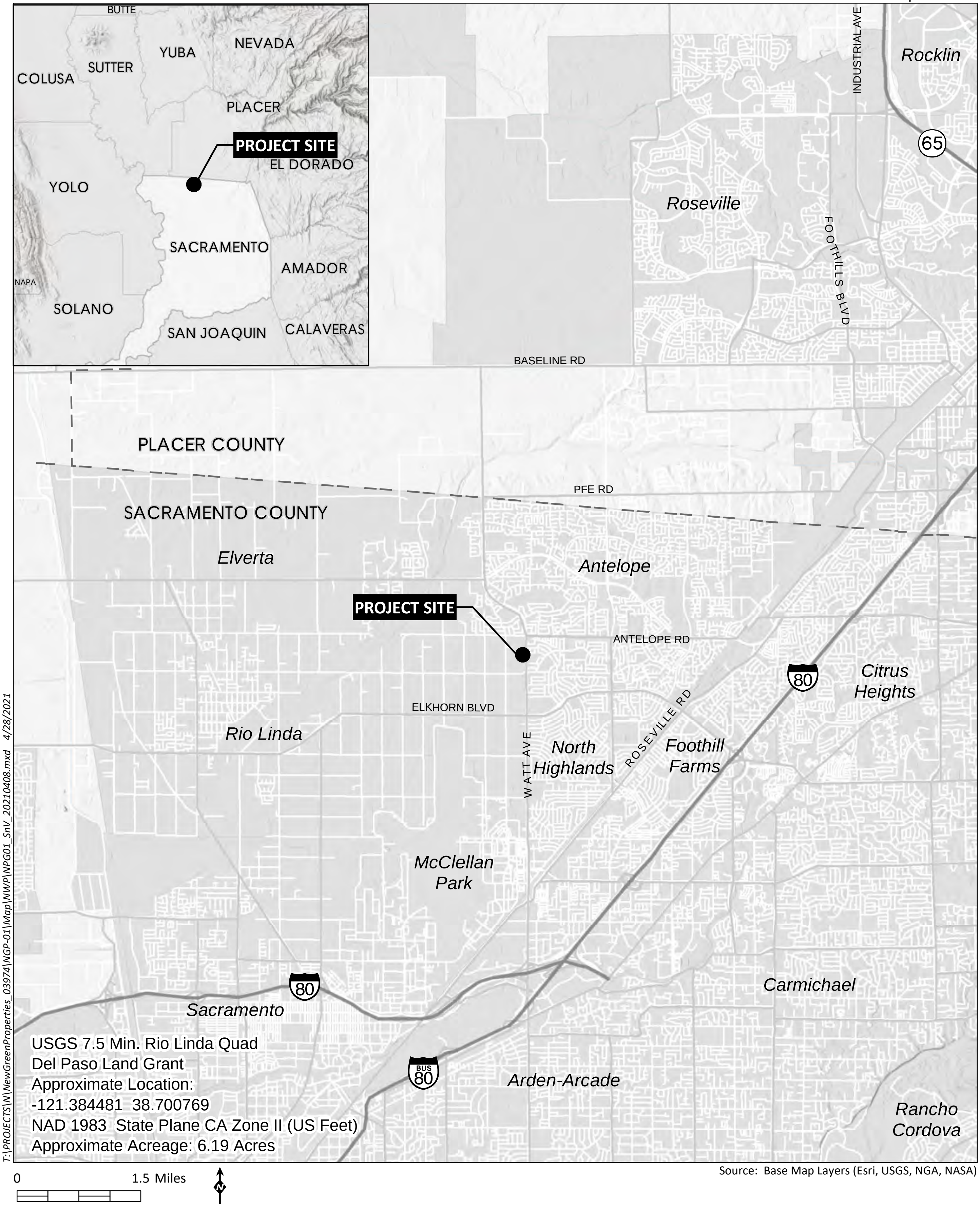
U.S. Fish and Wildlife Service (USFWS). 2021. Information for Planning and Consultation (IPaC). List of threatened and endangered species that may occur in your proposed project location and/or be affected by your proposed project. Obtained on August 18, 2021.

Zeiner, D.C., W.F. Laudenslayer, Jr., K.E. Mayer, and M. White, eds. 1988-1990. California's Wildlife. Vol. I-III. California Depart. of Fish and Game, Sacramento, California.

Attachment A

Figures

This page intentionally left blank

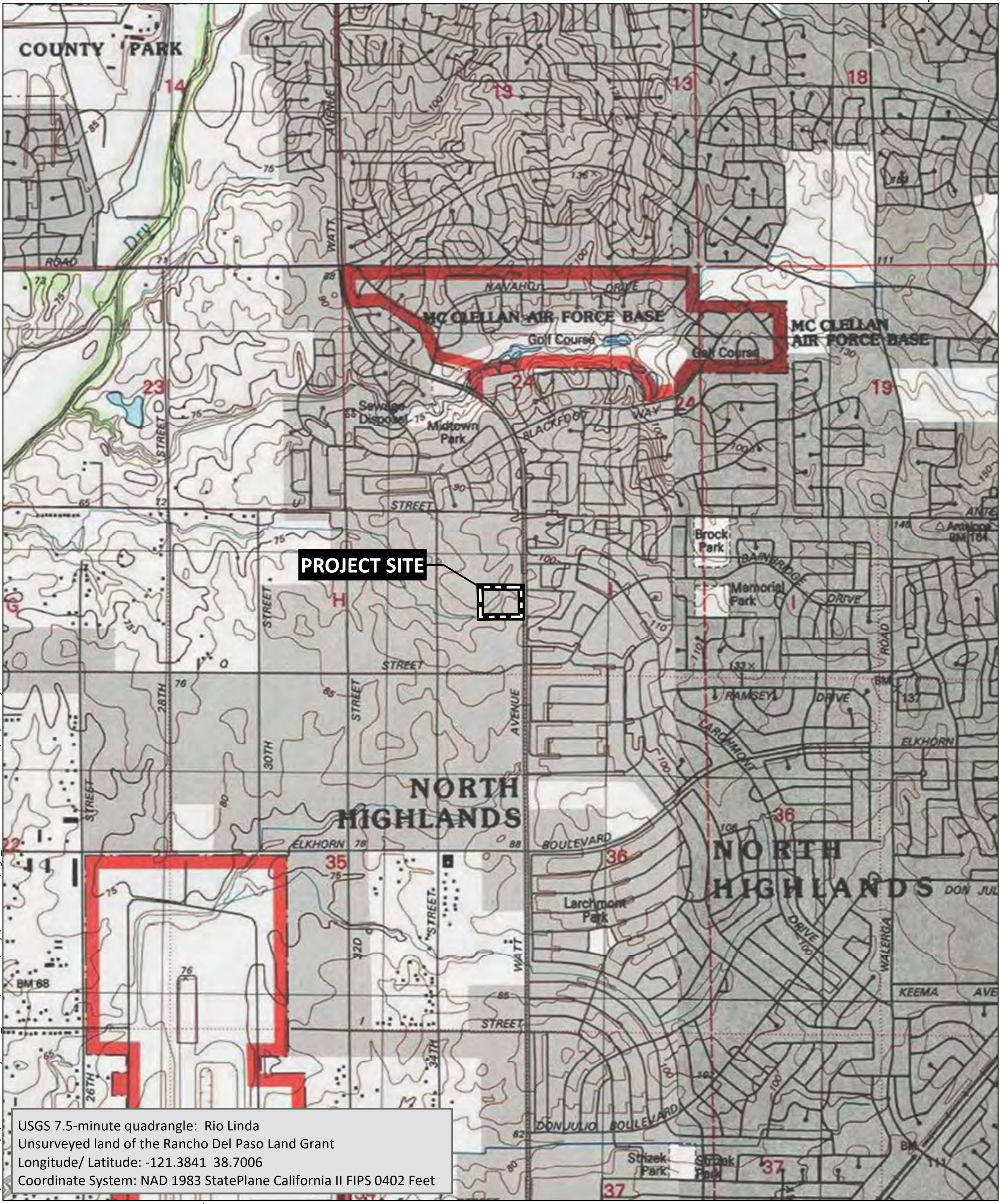


Source: Base Map Layers (Esri, USGS, NGA, NASA)

HELIX Environmental Planning

Regional Vicinity and Project Location

Figure 1



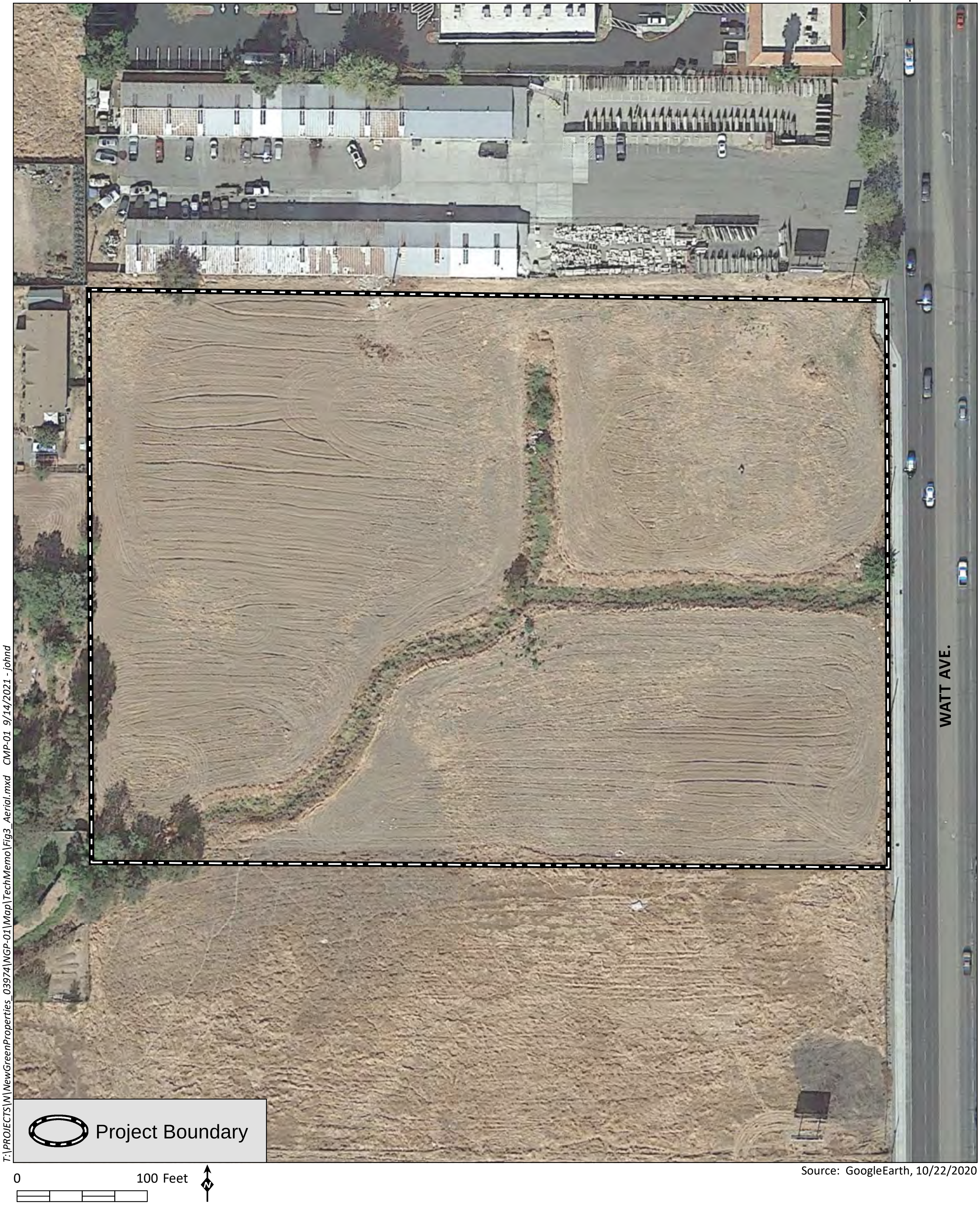
Source: USGS 2021

T:\PROJECTS\N\NewGreenProperties_03974\NGP-01\Map\TechMemo\Fig2_USGS.mxd CMP-01 9/14/2021 - johnd

HELIX Environmental Planning

Project Location Map

Figure 2



Source: GoogleEarth, 10/22/2020

HELIX
Environmental Planning

Aerial Map

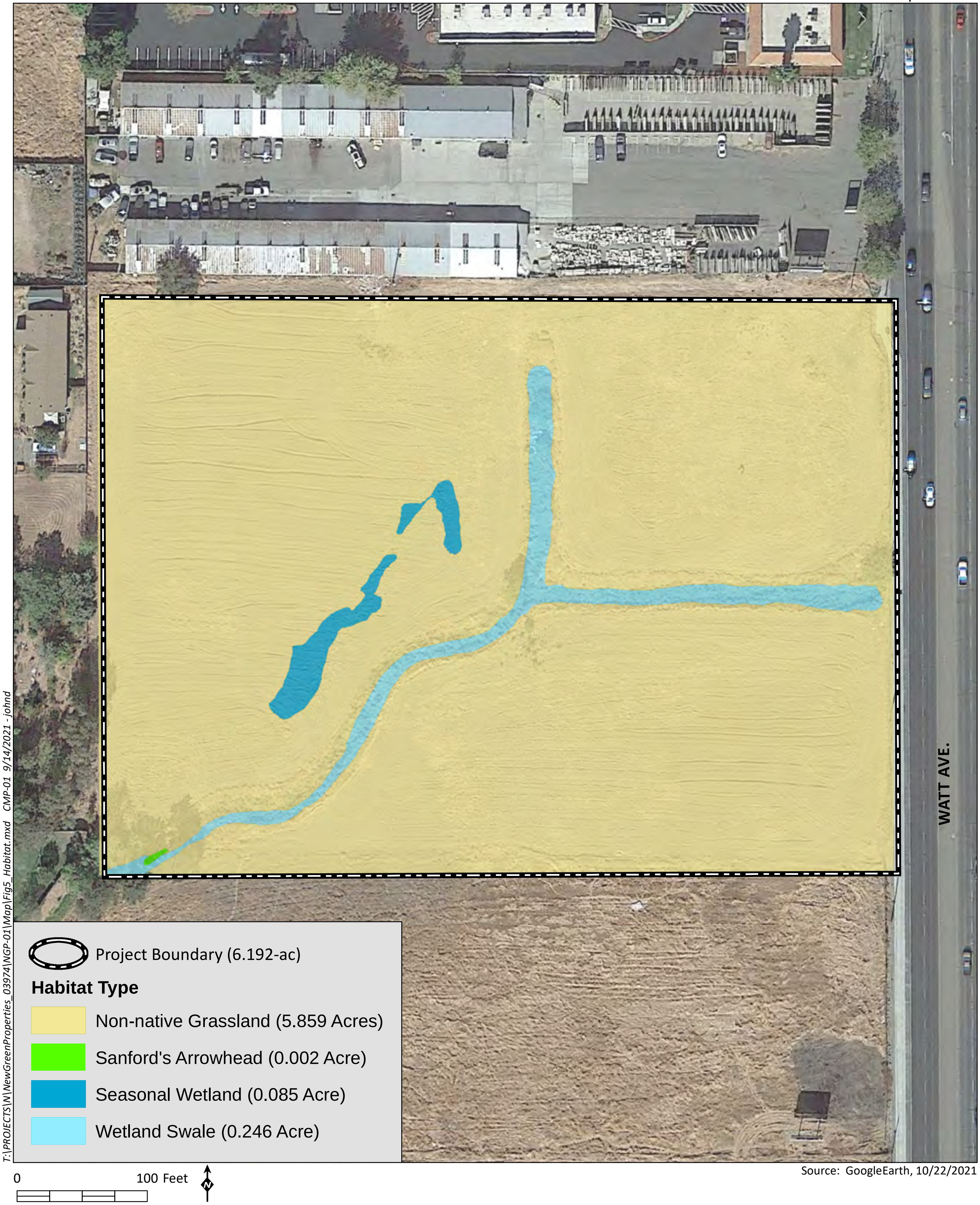
Figure 3

Source: NRCS, 2021; USGS, 2021; GoogleEarth, 10/22/2021

HELIX Environmental Planning

Soils & NWI Map

Figure 4



HELIX Environmental Planning

Habitat Map and Special-Status Species Occurrences

Figure 5

Attachment B

Regulatory Setting

This page intentionally left blank

Attachment B
Regulatory Setting

Regulatory Setting

Policies, regulations, and plans pertaining to the protection of biological resources in the Study Area are summarized in the following sections.

Federal Regulations

Federal Endangered Species Act

The U.S. Fish and Wildlife Service (USFWS) enforces the provisions stipulated within the Federal Endangered Species Act of 1973 (FESA; 16 USC 1531 et seq.). Species identified as federally threatened or endangered (50 CFR 17.11, and 17.12) are protected from take, defined as direct or indirect harm, unless a Section 10 permit is granted to an entity other than a federal agency or a Biological Opinion with incidental take provisions is rendered to a federal lead agency via a Section 7 consultation. Pursuant to the requirements of FESA, an agency reviewing a proposed project within its jurisdiction must determine whether any federally-listed species may be present in the study area and determine whether the proposed project will jeopardize the continued existence of or result in the destruction or adverse modification of critical habitat of such species (16 USC 1536 (a)[3], [4]). Other federal agencies designate species of concern (species that have the potential to become listed), which are evaluated during environmental review under the National Environmental Protection Act (NEPA) or California Environmental Quality Act (CEQA) although they are not otherwise protected under FESA.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) of 1918 established federal responsibilities for the protection of nearly all species of birds, their eggs, and nests. The Migratory Bird Treaty Reform Act of 2004 further defined species protected under the act and excluded all non-native species. Section 16 U.S.C. 703–712 of the Act states "unless and except as permitted by regulations, it shall be unlawful at any time, by any means or in any manner, to pursue, hunt, take, capture, kill, attempt to take, capture, or kill" a migratory bird. A migratory bird is any species or family of birds that live, reproduce, or migrate within or across international borders at some point during their annual life cycle. Currently, there are 836 migratory birds protected nationwide by the Migratory Bird Treaty Act, of which 58 are legal to hunt. The U.S. Court of Appeals for the 9th Circuit (with jurisdiction over California) has ruled that the MBTA does not prohibit incidental take (952 F 2d 297 – Court of Appeals, 9th Circuit 1991).

State Jurisdiction

California Endangered Species Act

The California Endangered Species Act (CESA) (California Fish and Game Code Sections 2050 to 2097) is similar to the FESA. The California Fish and Wildlife Commission is responsible for maintaining lists of threatened and endangered species under CESA. CESA prohibits the take of listed and candidate (petitioned to be listed) species. "Take" under California law means to hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch capture, or kill (California Fish and Game Code, Section 86). The California Department of Fish and Wildlife (CDFW) can authorize take of a state-listed species under Section 2081 of the California Fish and Game Code if the take is incidental to an otherwise lawful

Attachment B
Regulatory Setting

activity, the impacts are minimized and fully mitigated, funding is ensured to implement and monitor mitigation measures, and CDFW determines that issuance would not jeopardize the continued existence of the species. A CESA permit must be obtained if a project will result in the "take" of listed species, either during construction or over the life of the project. For species listed under both FESA and CESA requiring a Biological Opinion under Section 7 of the FESA, CDFW may also authorize impacts to CESA species by issuing a Consistency Determination under Section 2080.1 of the Fish and Game Code.

California Code of Regulations Title 14 and California Fish and Game Code

The official listing of endangered and threatened animals and plants is contained in the California Code of Regulations Title 14 §670.5. A state candidate species is one that the California Fish and Game Code has formally noticed as being under review by CDFW to include in the state list pursuant to Sections 2074.2 and 2075.5 of the California Fish and Game Code.

Legal protection is also provided for wildlife species in California that are identified as "fully protected animals." These species are protected under Sections 3511 (birds), 4700 (mammals), 5050 (reptiles and amphibians), and 5515 (fish) of the California Fish and Game Code. These statutes prohibit take or possession of fully protected species at any time. CDFW is unable to authorize incidental take of fully protected species unless any such take authorization is issued in conjunction with the approval of a Natural Community Conservation Plan that covers the fully protected species (California Fish and Game Code Section 2835).

California Environmental Quality Act

Under the CEQA of 1970 (Public Resources Code Section 21000 et seq.), lead agencies analyze whether projects would have a substantial adverse effect on a candidate, sensitive, or special-status species (Public Resources Code Section 21001(c)). These "special-status" species generally include those listed under FESA and CESA, and species that are not currently protected by statute or regulation, but would be considered rare, threatened, or endangered under the criteria included CEQA Guidelines Section 15380. Therefore, species that are considered rare are addressed under CEQA regardless of whether they are afforded protection through any other statute or regulation. The California Native Plant Society (CNPS) inventories the native flora of California and ranks species according to rarity; plants ranked as 1A, 1B, 2A, 2B, and 3 are generally considered special-status species under CEQA.[1]

Although threatened and endangered species are protected by specific federal and state statutes, CEQA Guidelines Section 15380(d) provides that a species not listed on the federal or state list of protected species may be considered rare if it can be shown to meet certain specified criteria. These criteria have been modeled after the definition in FESA and the section of the California Fish and Game Code dealing with rare or endangered plants and animals. Section 15380(d) allows a public agency to undertake a review to determine if a significant effect on species that have not yet been listed by either the USFWS or CDFW (i.e., candidate species) would occur.

[1] The California Rare Plant Rank system can be found online at: < http://www.cnps.org/cnps/rareplants/ranking.php>

Attachment B
Regulatory Setting

Native Plant Protection Act

The California Native Plant Protection Act of 1977 (California Fish and Game Code Sections 1900-1913) empowers the Fish and Game Commission to list native plant species, subspecies, or varieties as endangered or rare following a public hearing. To the extent that the location of such plants is known, CDFW must notify property owners that a listed plant is known to occur on their property. Where a property owner has been so notified by CDFW, the owner must notify CDFW at least 10 days in advance of any change in land use (other than changing from one agricultural use to another), in order that CDFW may salvage listed plants that would otherwise be destroyed. Currently, 64 taxa of native plants have been listed as rare under the act.

Nesting Birds

California Fish and Game Code Subsections 3503 and 3800 prohibit the possession, take, or needless destruction of birds, their nests, and eggs, and the salvage of dead nongame birds. California Fish and Game Code Subsection 3503.5 protects all birds in the orders of Falconiformes and Strigiformes (birds of prey). Fish and Game Code Subsection 3513 states that it is unlawful to take or possess any migratory nongame bird as designated in the Migratory Bird Treaty Act or any part of such migratory nongame bird except as provided by rules and regulations adopted by the Secretary of the Interior under provisions of the Migratory Bird Treaty Act. The Attorney General of California has released an opinion that the Fish and Game Code prohibits incidental take.

Jurisdictional Waters

Federal Jurisdiction

Any person, firm, or agency planning to alter or work in "waters of the U.S.," including the discharge of dredged or fill material, must first obtain authorization from the U.S. Army Corps of Engineers (USACE) under Section 404 of the Clean Water Act (CWA; 33 USC 1344). Permits, licenses, variances, or similar authorization may also be required by other federal, state, and local statutes. Section 10 of the Rivers and Harbors Act prohibits the obstruction or alteration of navigable waters of the U.S. without a permit from USACE (33 USC 403).

On April 21, 2020, the Environmental Protection Agency (EPA) and USACE published the Navigable Waters Protection Rule to define "Waters of the United States" in the Federal Register. On June 22, 2020 the Navigable Waters Protection Rule: Definition of "Waters of the United States" (NWPR) became effective in 49 states, including California, and in all US territories.

The NWPR regulates traditional navigable waters and perennial or intermittent tributary systems, and defines four categories of regulated waters including:

- The territorial seas and traditional navigable waters;
- Perennial and intermittent tributaries to those waters;
- Certain lakes, ponds, and impoundments; and
- Wetlands adjacent to jurisdictional waters.

Attachment B
Regulatory Setting

The NWPR also defines 12 categories of exempted aquatic resources:

- Waters not listed as WOTUS
- Groundwater
- Ephemeral features
- Diffuse stormwater run-off
- Ditches not identified as WOTUS
- Prior converted cropland (PCC)
- Artificially irrigated areas
- Artificial lakes and ponds
- Water-filled depressions incidental to mining or construction activity
- Stormwater control features
- Groundwater recharge, water reuse, and wastewater recycling structures
- Waste treatment systems

With non-tidal waters, in the absence of adjacent wetlands, the extent of USACE jurisdiction extends to the ordinary high water mark (OHWM) – the line on the shore established by fluctuations of water and indicated by a clear, natural line impressed on the bank, shelving, changes in soil character, destruction of terrestrial vegetation, or the presence of litter and debris. Wetlands are defined in 33 CFR Part 328 as:

> *"those areas that are inundated or saturated by surface or ground water at a frequency and duration to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions."*

Federal and state regulations pertaining to waters of the U.S., including wetlands, are discussed below.

Clean Water Act (33 USC 1251-1376). The CWA provides guidance for the restoration and maintenance of the chemical, physical, and biological integrity of the nation's waters.

Section 401 requires that an applicant for a federal license or permit that allows activities resulting in a discharge to waters of the U.S. must obtain a state certification that the discharge complies with other provisions of CWA. The Regional Water Quality Control Board (RWQCB) administers the certification program in California and may require State Water Quality Certification before other permits are issued.

Section 402 establishes a permitting system for the discharge of any pollutant (except dredged or fill material) into waters of the U.S.

Section 404 establishes a permit program administered by USACE that regulates the discharge of dredged or fill material into waters of the U.S. (including wetlands). Implementing regulations by USACE are found at 33 CFR Parts 320-332. The Section 404 (b)(1) Guidelines were developed by the USEPA in conjunction with USACE (40 CFR Part 230), allowing the discharge of dredged or fill material for non-water dependent uses into special aquatic sites only if there is no practicable alternative that would have less adverse impacts.

Attachment B
Regulatory Setting

State Jurisdiction

Regional Water Quality Control Board

Any action requiring a CWA Section 404 permit, or a Rivers and Harbors Act Section 10 permit, must also obtain a CWA Section 401 Water Quality Certification. The State of California Water Quality Certification (WQC) Program was formally initiated by the State Water Resources Control Board (SWRCB) in 1990 under the requirements stipulated by Section 401 of the Federal CWA. Although the Clean Water Act is a Federal law, Section 401 of the CWA recognizes that states have the primary authority and responsibility for setting water quality standards. In California, under Section 401, the State and Regional Water Boards are the authorities that certify that issuance of a federal license or permit does not violate California's water quality standards (i.e., that they do not violate Porter-Cologne and the Water Code). The WQC Program currently issues the WQC for discharges requiring USACE's permits for fill and dredge discharges within Waters of the United States, and now also implements the State's wetland protection and hydromodification regulation program under the Porter Cologne Water Quality Control Act.

On April 2, 2019, the SWRCB adopted a State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State (Procedures), for inclusion in the forthcoming Water Quality Control Plan for Inland Surface Waters and Enclosed Bays and Estuaries and Ocean Waters of California. The Procedures consist of four major elements: 1) a wetland definition; 2) a framework for determining if a feature that meets the wetland definition is a water of the state; 3) wetland delineation procedures; and 4) procedures for the submittal, review, and approval of applications for Water Quality Certifications and Waste Discharge Requirements for dredge or fill activities. The Office of Administrative Law approved the Procedures on August 28, 2019, and the Procedures became effective May 28, 2020.

Under the Procedures and the State Water Code (Water Code §13050(e)), "Waters of the State" are defined as "any surface water or groundwater, including saline waters, within the boundaries of the state." Unless excluded by the Procedures, any activity that could result in discharge of dredged or fill material to Waters of the State, which includes Waters of the U.S. and non-federal Waters of the State, requires filing of an application under the Procedures.

The Porter-Cologne Water Quality Control Act (Porter-Cologne Act, Water Code Section 13000 et seq.) is California's statutory authority for the protection of water quality in conjunction with the federal CWA. The Porter-Cologne Act requires the SWRCB and RWQCBs under the CWA to adopt and periodically update water quality control plans, or basin plans. Basin plans are plans in which beneficial uses, water quality objectives, and implementation programs are established for each of the nine regions in California. The Porter-Cologne Act also requires dischargers of pollutants or dredged or fill material to notify the RWQCBs of such activities by filing Reports of Waste Discharge and authorizes the SWRCB and RWQCBs to issue and enforce waste discharge requirements, National Pollution Discharge Elimination System (NPDES) permits, Section 401 water quality certifications, or other approvals.

California Department of Fish and Wildlife

The CDFW is a trustee agency that has jurisdiction under Section 1600 et seq. of the California Fish and Game Code. Under Sections 1602 and 1603, a private party must notify CDFW if a proposed project will "substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of streambeds…except when the department has been notified pursuant to Section 1601." Additionally, CDFW asserts jurisdiction over native riparian habitat adjacent to aquatic features, including native trees over four inches in diameter at breast height (DBH). If an existing fish or wildlife resource may be substantially adversely affected by the activity, CDFW may propose reasonable measures that will allow protection of those resources. If these measures are agreeable to the parties involved, they may enter into an agreement with CDFW identifying the approved activities and associated mitigation measures. Generally, CDFW recommends submitting an application for a Streambed Alteration Agreement (SAA) for any work done within the lateral limit of water flow or the edge of riparian vegetation, whichever is greater.

Local Regulations

Sacramento County Tree Preservation Regulations

Sacramento County has adopted measures for the preservation of native and non-native trees through the County Code and the General Plan.

Chapter 19.04 of the County Code regulates removal and impacts to public trees, heritage trees, and landmark trees. Public trees are defined as any tree or shrub planted or maintained by the County on an easement, planting easement, street, County park, or public premises; heritage trees are any California oak tree with a trunk sixty inches or greater in girth, which equates to a trunk diameter of approximately 19 inches; landmark trees include any especially prominent or stately tree. A tree permit is required to prune, remove, or otherwise disrupt any public tree.

Chapter 19.12 of the County Code, titled "Tree Preservation and Protection", provides protection for native oak trees in the designated urban area of the unincorporated county. Native oaks are defined as valley oak (*Quercus lobata*), interior live oak (*Q. wislizeni*), blue oak (*Q. douglasii*), and oracle oak (*Q.* x *morehus*) trees having a diameter at breast height (DBH) of at least 6 inches for a single stem tree or a combined DBH of 10 inches for a tree with multiple stems. Grading, trenching, or filling within the dripline, or removal, destruction, or killing of a tree as defined in the ordinance is prohibited without a tree permit. Tree permits are issued by the Director of Public Works or by the body approving a discretionary action such as a conditional use permit. Section 19.12.150 provides authority to approving bodies to adopt mitigation measures as conditions of approval for discretionary projects in order to protect other species of trees in addition to native oaks. The Tree Preservation Ordinance does not specify replacement obligations for native oaks removed under a tree permit; the approving body may impose "reasonable conditions of approval as are necessary to minimize the environmental, health, or safety effects of the development or use" and may require financial security to ensure completion of "additional work" specified in the conditions of approval. "Additional work" may include replanting.

The Conservation Element of the General Plan includes a section regarding landmark and heritage tree protection. The stated objective of the plan is that "heritage and landmark tree resources [are] preserved and protected for their historic, economic, and environmental functions." The plan states that:

> *"Conservation of native tree species other than oaks and preservation of native oaks and landmark trees is the primary intent of the policies in the section. However, if preservation cannot be attained, then loss of the protected trees shall be compensated. Compensation for*

Attachment B
Regulatory Setting

tree loss may be achieved by on-site or off-site replacement or payment into a Tree Preservation Fund."

The section discusses thresholds of significance under CEQA for impacts to trees and concludes that tree impacts are "circumstantial". The section states that projects that exceed the threshold of significance may have significant impacts even after mitigation, and conversely, tree loss of some species that exceeds the threshold in certain circumstances may not constitute a significant impact. The section states that final determination of significance will be made by the Environmental Coordinator. The section does not include a definition of "tree" based on DBH.

Policy CO-139 of the General Plan states that "Native trees other than oaks, which cannot be protected through development, shall be replaced with in-kind species in accordance with established tree planting specifications, the combined diameter of which shall equal the combined diameter of the trees removed." Tree replacement values are stipulated as follows:

- one D-pot seedling = 1-inch DBH
- one 15-gallon tree = 1-inch DBH
- one 24-inch box tree = 2-inches DBH
- one 36-inch box tree = 3-inches DBH

The Sacramento County General Plan contains policies aimed at preserving tree canopy in the County. The Conservation Element of the General Plan includes a section on urban forest management. The stated objective of the plan is a "coordinated and funded Urban Tree Management Plan and program sufficient to achieve a doubling of the County's tree canopy by 2050..."

Policy CO-146 of the General Plan states that "If new tree canopy cannot be created onsite to mitigate for the non-native tree canopy removed for new development, project proponents (including public agencies) shall contribute to the Greenprint funding in an amount proportional to the tree canopy of the specific project."

Additionally, the County considers selected native trees that are 4 inches or diameter or larger at breast height and large, healthy non-native trees in their CEQA review process.

This page intentionally left blank

Attachment C

Lists of Regionally-Occurring Special-Status Species from USFWS, CDFW, and CNPS

This page intentionally left blank

Inventory of Rare and Endangered Plants of California

California Native Plant Society

HOME ABOUT CHANGES REVIEW HELP

Search: Simple Advanced

Search for species and Go

Search Results

Back Export Results

15 matches found. Click on scientific name for details

Search Criteria: Quad is one of [**3812164,3812154,3812155,3812153,3812165,3812175,3812163,3812174,3812173**]

Scientific Name | Common Name | Family | Lifeform | Blooming Period | Fed List | State List | Global Rank | State Rank | CA Rare Plant Rank | General Habitats | Micro Habitats | Lowest Elevation | Highest Elevation | CA Endemic | Date Added | Photo

Search:

▲ SCIENTIFIC NAME	COMMON NAME	FAMILY	LIFEFORM	BLOOMING PERIOD	FED LIST	STATE LIST	GLOBAL RANK	STATE RANK	CA RARE PLANT RANK	PHOTO
Astragalus tener var. *ferrisiae*	Ferris' milk-vetch	Fabaceae	annual herb	Apr-May	None	None	G2T1	S1	1B.1	No Photo Available
Balsamorhiza macrolepis	big-scale balsamroot	Asteraceae	perennial herb	Mar-Jun	None	None	G2	S2	1B.2	 ©1998 Dean Wm. Taylor
Brodiaea rosea ssp. *vallicola*	valley brodiaea	Themidaceae	perennial bulbiferous herb	Apr-May(Jun)	None	None	G5T3	S3	4.2	No Photo Available
Centromadia parryi ssp. *rudis*	Parry's rough tarplant	Asteraceae	annual herb	May-Oct	None	None	G3T3	S3	4.2	No Photo Available
Chloropyron molle ssp. *hispidum*	hispid salty bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	Jun-Sep	None	None	G2T1	S1	1B.1	No Photo Available
Downingia pusilla	dwarf downingia	Campanulaceae	annual herb	Mar-May	None	None	GU	S2	2B.2	No Photo Available
Fritillaria agrestis	stinkbells	Liliaceae	perennial bulbiferous herb	Mar-Jun	None	None	G3	S3	4.2	No Photo Available
Gratiola heterosepala	Boggs Lake hedge-hyssop	Plantaginaceae	annual herb	Apr-Aug	None	CE	G2	S2	1B.2	No Photo Available
Hibiscus lasiocarpos var. *occidentalis*	woolly rose-mallow	Malvaceae	perennial rhizomatous herb (emergent)	Jun-Sep	None	None	G5T3	S3	1B.2	No Photo Available
Juncus leiospermus var.	Ahart's dwarf rush	Juncaceae	annual herb	Mar-May	None	None	G2T1	S1	1B.2	No Photo

SCIENTIFIC NAME	COMMON NAME	FAMILY	LIFEFORM	BLOOMING PERIOD	FED LIST	STATE LIST	GLOBAL RANK	STATE RANK	CA RARE PLANT RANK	PHOTO
ahartii										Available
Juncus leiospermus var. leiospermus	Red Bluff dwarf rush	Juncaceae	annual herb	Mar-Jun	None	None	G2T2	S2	1B.1	No Photo Available
Legenere limosa	legenere	Campanulaceae	annual herb	Apr-Jun	None	None	G2	S2	1B.1	No Photo Available
Orcuttia viscida	Sacramento Orcutt grass	Poaceae	annual herb	Apr-Jul(Sep)	FE	CE	G1	S1	1B.1	No Photo Available
Sagittaria sanfordii	Sanford's arrowhead	Alismataceae	perennial rhizomatous herb (emergent)	May-Oct(Nov)	None	None	G3	S3	1B.2	No Photo Available
Symphyotrichum lentum	Suisun Marsh aster	Asteraceae	perennial rhizomatous herb	(Apr)May-Nov	None	None	G2	S2	1B.2	No Photo Available

Showing 1 to 15 of 15 entries

CONTACT US

Send questions and comments to rareplants@cnps.org.

ABOUT THIS WEBSITE

About the Inventory
Release Notes
Advanced Search
Glossary

ABOUT CNPS

About the Rare Plant Program
CNPS Home Page
About CNPS
Join CNPS

CONTRIBUTORS

The Calflora Database
The California Lichen Society
California Natural Diversity Database
The Jepson Flora Project
The Consortium of California Herbaria
CalPhotos

Developed by Rincon Consultants, Inc.

Log in

IPaC **U.S. Fish & Wildlife Service**

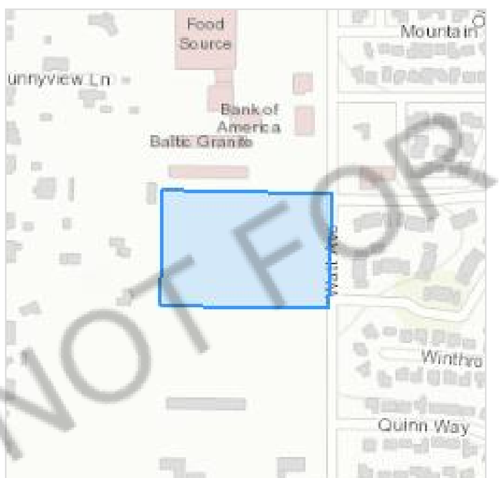
IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Sacramento County, California



Local office

Sacramento Fish And Wildlife Office

(916) 414-6600
(916) 414-6713

Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

---

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Reptiles

NAME	STATUS

Giant Garter Snake Thamnophis gigas — Threatened
Wherever found
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/4482

Amphibians

NAME	STATUS
California Red-legged Frog Rana draytonii Wherever found There is **final** critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/2891	Threatened
California Tiger Salamander Ambystoma californiense There is **final** critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/2076	Threatened

Fishes

NAME	STATUS
Delta Smelt Hypomesus transpacificus Wherever found There is **final** critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/321	Threatened

Insects

NAME	STATUS
Valley Elderberry Longhorn Beetle Desmocerus californicus dimorphus Wherever found There is **final** critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/7850	Threatened

Crustaceans

NAME	STATUS
Vernal Pool Fairy Shrimp Branchinecta lynchi Wherever found There is **final** critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/498	Threatened

Vernal Pool Tadpole Shrimp Lepidurus packardi Endangered
Wherever found

There is **final** critical habitat for this species. The location of the critical habitat is not available.
https://ecos.fws.gov/ecp/species/2246

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Nationwide conservation measures for birds http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)
Bald Eagle Haliaeetus leucocephalus This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Jan 1 to Aug 31
Common Yellowthroat Geothlypis trichas sinuosa This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/2084	Breeds May 20 to Jul 31
Nuttall's Woodpecker Picoides nuttallii This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9410	Breeds Apr 1 to Jul 20
Oak Titmouse Baeolophus inornatus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9656	Breeds Mar 15 to Jul 15
Olive-sided Flycatcher Contopus cooperi This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3914	Breeds May 20 to Aug 31

Wrentit *Chamaea fasciata* Breeds Mar 15 to Aug 10

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Yellow-billed Magpie *Pica nuttalli* Breeds Apr 1 to Jul 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9726

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

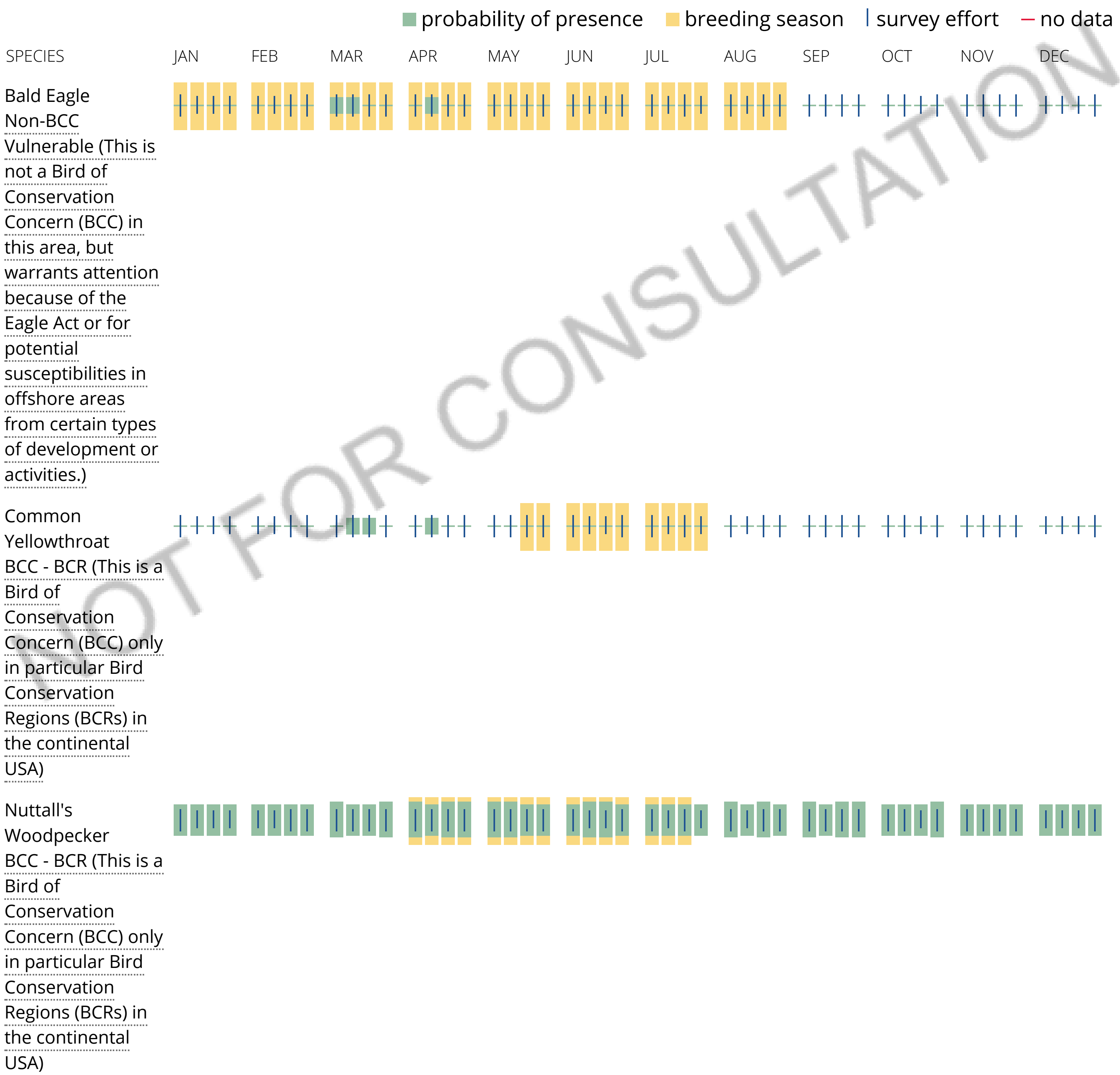
Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

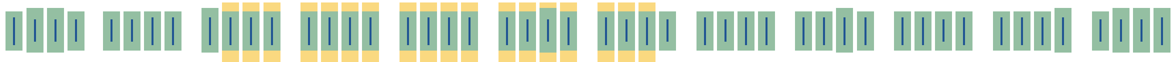
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

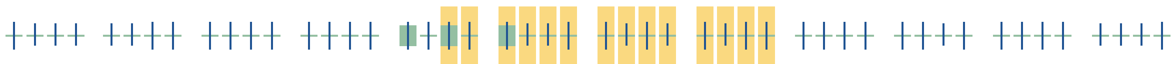
Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



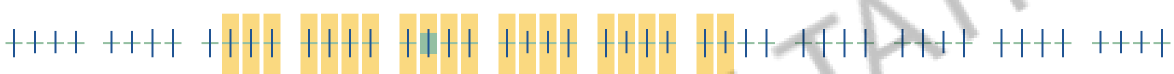
Oak Titmouse
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



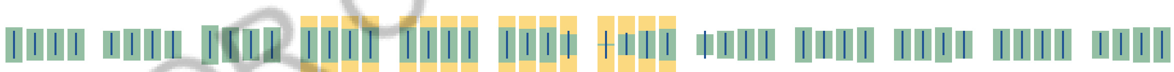
Olive-sided Flycatcher
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Wrentit
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Yellow-billed Magpie
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the AKN Phenology Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets .

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

FRESHWATER EMERGENT WETLAND

PEM1Ax

A full description for each wetland code can be found at the National Wetlands Inventory website

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Rio Linda (3812164) OR Citrus Heights (3812163) OR Roseville (3812173) OR Pleasant Grove (3812174) OR Verona (3812175) OR Taylor Monument (3812165) OR Sacramento East (3812154) OR Sacramento West (3812155) OR Carmichael (3812153))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Accipiter cooperii Cooper's hawk	ABNKC12040	None	None	G5	S4	WL
Agelaius tricolor tricolored blackbird	ABPBXB0020	None	Threatened	G1G2	S1S2	SSC
Alkali Meadow Alkali Meadow	CTT45310CA	None	None	G3	S2.1	
Alkali Seep Alkali Seep	CTT45320CA	None	None	G3	S2.1	
Ammodramus savannarum grasshopper sparrow	ABPBXA0020	None	None	G5	S3	SSC
Andrena subapasta An andrenid bee	IIHYM35210	None	None	G1G2	S1S2	
Aquila chrysaetos golden eagle	ABNKC22010	None	None	G5	S3	FP
Archoplites interruptus Sacramento perch	AFCQB07010	None	None	G2G3	S1	SSC
Ardea alba great egret	ABNGA04040	None	None	G5	S4	
Ardea herodias great blue heron	ABNGA04010	None	None	G5	S4	
Astragalus tener var. ferrisiae Ferris' milk-vetch	PDFAB0F8R3	None	None	G2T1	S1	1B.1
Athene cunicularia burrowing owl	ABNSB10010	None	None	G4	S3	SSC
Balsamorhiza macrolepis big-scale balsamroot	PDAST11061	None	None	G2	S2	1B.2
Branchinecta lynchi vernal pool fairy shrimp	ICBRA03030	Threatened	None	G3	S3	
Branchinecta mesovallensis midvalley fairy shrimp	ICBRA03150	None	None	G2	S2S3	
Buteo regalis ferruginous hawk	ABNKC19120	None	None	G4	S3S4	WL
Buteo swainsoni Swainson's hawk	ABNKC19070	None	Threatened	G5	S3	
Chloropyron molle ssp. hispidum hispid salty bird's-beak	PDSCR0J0D1	None	None	G2T1	S1	1B.1

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Cicindela hirticollis abrupta Sacramento Valley tiger beetle	IICOL02106	None	None	G5TH	SH	
Coccyzus americanus occidentalis western yellow-billed cuckoo	ABNRB02022	Threatened	Endangered	G5T2T3	S1	
Desmocerus californicus dimorphus valley elderberry longhorn beetle	IICOL48011	Threatened	None	G3T2	S3	
Downingia pusilla dwarf downingia	PDCAM060C0	None	None	GU	S2	2B.2
Dumontia oregonensis hairy water flea	ICBRA23010	None	None	G1G3	S1	
Egretta thula snowy egret	ABNGA06030	None	None	G5	S4	
Elanus leucurus white-tailed kite	ABNKC06010	None	None	G5	S3S4	FP
Elderberry Savanna Elderberry Savanna	CTT63440CA	None	None	G2	S2.1	
Emys marmorata western pond turtle	ARAAD02030	None	None	G3G4	S3	SSC
Fritillaria agrestis stinkbells	PMLIL0V010	None	None	G3	S3	4.2
Gonidea angulata western ridged mussel	IMBIV19010	None	None	G3	S1S2	
Gratiola heterosepala Boggs Lake hedge-hyssop	PDSCR0R060	None	Endangered	G2	S2	1B.2
Great Valley Cottonwood Riparian Forest Great Valley Cottonwood Riparian Forest	CTT61410CA	None	None	G2	S2.1	
Hibiscus lasiocarpos var. occidentalis woolly rose-mallow	PDMAL0H0R3	None	None	G5T3	S3	1B.2
Hydrochara rickseckeri Ricksecker's water scavenger beetle	IICOL5V010	None	None	G2?	S2?	
Juncus leiospermus var. ahartii Ahart's dwarf rush	PMJUN011L1	None	None	G2T1	S1	1B.2
Juncus leiospermus var. leiospermus Red Bluff dwarf rush	PMJUN011L2	None	None	G2T2	S2	1B.1
Lasiurus cinereus hoary bat	AMACC05030	None	None	G3G4	S4	
Laterallus jamaicensis coturniculus California black rail	ABNME03041	None	Threatened	G3G4T1	S1	FP
Legenere limosa legenere	PDCAM0C010	None	None	G2	S2	1B.1
Lepidurus packardi vernal pool tadpole shrimp	ICBRA10010	Endangered	None	G4	S3S4	

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Linderiella occidentalis California linderiella	ICBRA06010	None	None	G2G3	S2S3	
Melospiza melodia song sparrow ("Modesto" population)	ABPBXA3010	None	None	G5	S3?	SSC
Northern Claypan Vernal Pool Northern Claypan Vernal Pool	CTT44120CA	None	None	G1	S1.1	
Northern Hardpan Vernal Pool Northern Hardpan Vernal Pool	CTT44110CA	None	None	G3	S3.1	
Northern Volcanic Mud Flow Vernal Pool Northern Volcanic Mud Flow Vernal Pool	CTT44132CA	None	None	G1	S1.1	
Nycticorax nycticorax black-crowned night heron	ABNGA11010	None	None	G5	S4	
Oncorhynchus mykiss irideus pop. 11 steelhead - Central Valley DPS	AFCHA0209K	Threatened	None	G5T2Q	S2	
Oncorhynchus tshawytscha pop. 11 chinook salmon - Central Valley spring-run ESU	AFCHA0205L	Threatened	Threatened	G5T1T2Q	S2	
Oncorhynchus tshawytscha pop. 7 chinook salmon - Sacramento River winter-run ESU	AFCHA0205B	Endangered	Endangered	G5T1Q	S1	
Orcuttia viscida Sacramento Orcutt grass	PMPOA4G070	Endangered	Endangered	G1	S1	1B.1
Pogonichthys macrolepidotus Sacramento splittail	AFCJB34020	None	None	GNR	S3	SSC
Progne subis purple martin	ABPAU01010	None	None	G5	S3	SSC
Riparia riparia bank swallow	ABPAU08010	None	Threatened	G5	S2	
Sagittaria sanfordii Sanford's arrowhead	PMALI040Q0	None	None	G3	S3	1B.2
Spea hammondii western spadefoot	AAABF02020	None	None	G2G3	S3	SSC
Spirinchus thaleichthys longfin smelt	AFCHB03010	Candidate	Threatened	G5	S1	
Symphyotrichum lentum Suisun Marsh aster	PDASTE8470	None	None	G2	S2	1B.2
Taxidea taxus American badger	AMAJF04010	None	None	G5	S3	SSC
Thamnophis gigas giant gartersnake	ARADB36150	Threatened	Threatened	G2	S2	
Vireo bellii pusillus least Bell's vireo	ABPBW01114	Endangered	Endangered	G5T2	S2	

Record Count: 59

Attachment D

Potential for Special-Status Species to Occur in the Study Area

This page intentionally left blank

Attachment D
Potential for Special-Status Species to Occur in the Study Area

Scientific Name/Common Name	FESA/CESA/ CRPR or Other State Status*	General Habitat Description	Potential to Occur	Rationale
Invertebrates				
Branchinecta lynchi vernal pool fairy shrimp	FT/--/--	Vernal pools ranging from small, clear, sandstone rock pools to large, turbid, alkaline, grassland valley floor pools. It is most frequently found in pools measuring less than 0.05 acre, although has been collected from vernal pools exceeding 25 acres. The known range within California includes the Central Valley and southern California (USFWS 2005).	Will not occur	There is no suitable vernal pool habitat in the Study Area. Seasonal wetlands and wetland swale habitat in the Study Area were evaluated by HELIX biologists with federal recovery permits for listed vernal pool branchiopods and were determined to not represent suitable habitat for this species. The disturbed seasonal wetlands are vegetated with species typical of a sporadic hydrologic regime and periods of saturation rather than inundation. The wetland swale is a perennial wetland feature fed by urban stormwater runoff and experiences periodic high flows. The wetland swale is not suitable for vernal pool branchiopods.
Desmocerus californicus dimorphus valley elderberry longhorn beetle	FT/--/--	Endemic to elderberry shrubs (*Sambucus* spp.) occurring in riparian habitat in the Sacramento and San Joaquin Valleys, riparian habitats in the Sacramento and San Joaquin Valleys, and less common throughout riparian forests of the Central Valley from Redding to Fresno County (USFWS 2014) typically below 152 m amsl (USFWS 2017a).	Will not occur	There are no elderberry shrubs in or immediately adjacent to the Study Area.

Attachment D
Potential for Special-Status Species to Occur in the Study Area

Scientific Name/Common Name	FESA/CESA/ CRPR or Other State Status*	General Habitat Description	Potential to Occur	Rationale
Lepidurus packardi vernal pool tadpole shrimp	FE/--/--	The vernal pool tadpole shrimp (VPTS) occurs within the Central Valley of California and in the San Francisco Bay area (USFWS 2005), with the majority of the populations occurring in the Sacramento Valley. This species has also been reported from the Sacramento River Delta to the east side of San Francisco Bay, and from a few scattered localities in the San Joaquin Valley from San Joaquin County to Madera County (Rogers 2001). Suitable habitats vary considerably, including vernal pools, clay flats, alkaline pools, ephemeral stock tanks, roadside ditches, and road ruts (Rogers 2001). Vernal pools may range in size from small, clear, and well-vegetated to highly turbid, alkali scald pools to large winter lakes (Rogers 2001) ranging in size from 54 square feet to 89 acres (USFWS 2005), containing clear- to highly-turbid water. They may be seasonal or ephemeral and may exhibit a wide range of salinity levels. However, VPTS survival requires that water bodies be deeper than 5 inches, pond for 40 days or more, and not experience wide daily temperature fluctuations (Rogers 2001). VPTS cysts (resting eggs) also must have the opportunity to dry out before they can hatch.	Will not occur	There is no suitable vernal pool habitat in the Study Area. Seasonal wetlands and wetland swale habitat in the Study Area were evaluated by HELIX biologists with federal recovery permits for listed vernal pool branchiopods and were determined to not represent suitable habitat for this species. The disturbed seasonal wetlands are vegetated with species typical of a sporadic hydrologic regime and periods of prolonged saturation rather than inundation. The wetland swale is a perennial wetland feature fed by urban stormwater runoff and experiences periodic high flows. The wetland swale is not suitable for vernal pool branchiopods.
Fishes				
Archoplites interruptus Sacramento perch	--/--/SSC	Extinct in its native range, all known populations of this species are the result of introductions. The species is adapted for life in sloughs, slow moving rivers, and large lakes in the Central Valley, and can tolerate high temperatures and salinities as well as high pH (alkalinity). Extant populations	Will not occur	There is no suitable habitat for this species in the Study Area and the Study Area is outside of this species' known geographic range.

Attachment D
Potential for Special-Status Species to Occur in the Study Area

Scientific Name/Common Name	FESA/CESA/ CRPR or Other State Status*	General Habitat Description	Potential to Occur	Rationale
		are in reservoirs; the species has been replaced in its native range by introduced game fishes (Crain and Moyle 2011).		
Hypomesus transpacificus Delta smelt	FT/--/--	Delta smelt spawn in shallow, fresh or slightly brackish water upstream of the mixing zone. Most spawning happens in tidally-influenced backwater sloughs and channel edgewaters. Although spawning has not been observed in the wild, the eggs are thought to attach to substrates such as cattails, tules, tree roots and submerged branches. Delta smelt are found only from the Suisun Bay upstream through the Delta in Contra Costa, Sacramento, San Joaquin, Solano and Yolo counties (USFWS 1995).	Will not occur	There is no suitable habitat for this species in the Study Area and the Study Area is outside of this species' known geographic range.
Oncorhynchus mykiss irideus - Population 11 Central Valley DPS	FT/--/--	Steelhead spawn in rivers and streams with cool, clear, water and suitable silt free substrate (NMFS 2006). This distinct population segment includes all naturally spawned anadromous steelhead populations below natural and manmade impassable barriers in the Sacramento and San Joaquin Rivers and their tributaries, excluding steelhead from San Francisco and San Pablo Bays and their tributaries, as well as two artificial propagation programs: the Coleman NFH, and Feather River Hatchery steelhead hatchery programs (NMFS 2006).	Will not occur	There is no suitable habitat for this species in the Study Area. The wetland swale in the Study Area carries urban stormwater runoff from adjacent residential and commercial developments and empties into an unnamed drainage downstream of the Study Area that ultimately empties into Dry Creek approximately 1.5 miles downstream of the Study Area. The segment of Dry Creek downstream of the Study Area is designated Critical Habitat for the Central Valley DPS of steelhead. This segment of Dry Creek provides periodic poor-quality migration and natal

Attachment D
Potential for Special-Status Species to Occur in the Study Area

Scientific Name/Common Name	FESA/CESA/ CRPR or Other State Status*	General Habitat Description	Potential to Occur	Rationale
				rearing habitat for steelhead (CDFW 2021). Steelhead are not known to come up the unnamed drainage downstream of the Study Area and would not be expected to as this segment is not considered habitat.
Oncorhynchus tshawytscha chinook salmon	FE/CE/--	Both the Central Valley spring-run and the Sacramento River winter-run Evolutionary Significant Units of the species occur in the vicinity of the Study Area. Chinook salmon is an anadromous fish species that spawns in rivers and streams with cool, clear, water and suitable cobble and gravel substrate. Most fall-run Chinook Salmon return to their natal streams between September and October, and spawn soon after freshwater entry (Chase et al 2007).	Will not occur	There is no suitable habitat for this species in the Study Area and Chinook salmon are not known to occur in Dry Creek or the unnamed drainage downstream of the Study Area (CDFW 2021).
Pogonichthys macrolepidotus Sacramento splittail	--/--/SSC	Endemic to the Central Valley. They occur below the Red Bluff Diversion Dam in Tehama County to the downstream reaches of the Sacramento and American Rivers (Moyle et al 2015). They also occur in the lower reaches of the Feather, Merced, Tuolumne River and the San Joaquin Rivers (Moyle et al 2015). This species is largely confined to the Delta, Suisun Bay, Suisun Marsh, Napa River, Petaluma River, and Sacramento-San Joaquin estuary. This species occurs predominantly in freshwater estuarine systems and prefers low-salinity, shallow-water habitats. Occurs in slow-moving sections of rivers, sloughs, and marshes. Species abundance is strongly tied to outflows because spawning occurs over flooded vegetation (Moyle et al 2015).	Will not occur	There is no suitable habitat for this species in the Study Area and the Study Area is outside of this species' known geographic range.

Attachment D
Potential for Special-Status Species to Occur in the Study Area

Scientific Name/Common Name	FESA/CESA/ CRPR or Other State Status*	General Habitat Description	Potential to Occur	Rationale
Spirinchus thaleichthys longfin smelt	Candidate FT/CT/--	The longfin smelt is a pelagic estuarine fish that spawns in freshwater and then moves downstream to brackish water to rear. They usually live for 2 years, spawn, and then die, although some individuals may spawn as 1- or 3-year-old fish before dying. Longfin smelt in the Bay-Delta may spawn as early as November and as late as June, although spawning typically occurs from January to April. The known range of the longfin smelt extends from the San Francisco Bay-Delta in California northward to the Cook Inlet in Alaska. Longfin smelt have been observed as far upstream as Isleton in the Sacramento River, Santa Clara shoal in the San Joaquin system, Hog Slough off the South-Fork Mokelumne River, and in Old River south of Indian Slough (USFWS 2016).	Will not occur	There is no suitable habitat for this species in the Study Area and the Study Area is outside of this species' known geographic range.
Amphibians				
Ambystoma californiense California tiger salamander	FT/ST/--	Generally restricted to vernal pools and seasonal ponds, including many constructed stock ponds, in grassland and oak savannah plant communities from sea level to about 1,500 feet in central California. Adults spend the majority of their lives in upland areas surrounding suitable breeding ponds, in rodent burrows. Suitable breeding habitat must be present in combination with suitable upland habitat. In the Coastal region, populations are scattered from Sonoma County in the northern San Francisco Bay Area to Santa Barbara County, and in the Central Valley and Sierra Nevada foothills from Yolo to Kern counties (USFWS 2017b).	Will not occur	There is no suitable breeding or upland habitat for this species in the Study Area.

Attachment D
Potential for Special-Status Species to Occur in the Study Area

Scientific Name/Common Name	FESA/CESA/ CRPR or Other State Status*	General Habitat Description	Potential to Occur	Rationale
Rana draytonii California red-legged frog	FT/--/SSC	The California red-legged frog occupies a distinct habitat, combining both specific aquatic and riparian components. The adults require dense, shrubby or emergent riparian vegetation closely associated with deep (greater than 2 1/3-foot deep) still or slow-moving water. The largest densities of California red-legged frogs are associated with deep-water pools with dense stands of overhanging willows (*Salix* spp.) and an intermixed fringe of cattails (*Typha latifolia*). Well-vegetated terrestrial areas within the riparian corridor may provide important sheltering habitat during winter. California red-legged frogs aestivate (enter a dormant state during summer or dry weather) in small mammal burrows and moist leaf litter. They have been found up to 100 feet from water in adjacent dense riparian vegetation. Studies have indicated that this species cannot inhabit water bodies that exceed 70° F, especially if there are no cool, deep portions (USFWS 2002).	Will not occur	There is no suitable aquatic habitat in or adjacent to the Study Area and the Study Area is completely surrounded by development with no opportunity for this species to disperse to the Study Area.
Spea hammondii western spadefoot	--/--/SSC	Amphibian that breeds in vernal pools and seasonal ponds or slow portions of streams in grasslands and woodlands. Adults spend most of their time in underground burrows in grasslands surrounding breeding pools (Jennings and Hayes 1994). Breeding is typically finished by the end of March. Tadpoles mature through late-spring and disperse as pools dry (Zeiner et al. 1988-1990).	Will not occur	There is no suitable aquatic breeding habitat in or adjacent to the Study Area, which is completely surrounded by development. The seasonal wetlands are not deep enough to hold water for a sufficient duration to provide breeding habitat for this species.

Attachment D
Potential for Special-Status Species to Occur in the Study Area

Scientific Name/Common Name	FESA/CESA/ CRPR or Other State Status*	General Habitat Description	Potential to Occur	Rationale
Reptiles				
Emys marmorata western pond turtle	--/--/SSC	Inhabits ponds or slow-moving water with dense submerged vegetation, abundant basking sites, gently sloping banks, and dry clay or silt soils in nearby uplands. Turtles will lay eggs up to 0.25-mile from water, but typically go no more than 600 feet (Jennings and Hayes 1994).	Will not occur	There is no suitable aquatic habitat in or adjacent to the Study Area.
Thamnophis gigas giant garter snake	FT/ST/--	Endemic to the San Joaquin and Sacramento Valley floors. Inhabits agricultural wetlands and other waterways such as irrigation and drainage canals, sloughs, ponds, small lakes, low gradient streams, and adjacent uplands. Requires adequate water during its active season (early spring through mid-fall) to provide food and cover, emergent, herbaceous wetland vegetation for foraging and cover, grassy banks and openings in waterside vegetation for basking, and higher elevation uplands for cover and refuge from flood waters during its dormant season (winter). Inhabits small mammal burrows and other soil crevices with sunny exposure along south and west facing slopes, above prevailing flood elevations when dormant. Primarily found in marshes and sloughs as well as slow-moving creeks but absent from large rivers (USFWS 2017c).	Will not occur	There is no suitable aquatic habitat in or adjacent to the Study Area and this species is not known to occur in the North Highlands area. The closest known occurrences of giant garter snake to the Study Area are located approximately 6 miles west of the Study Area in the Natomas Basin (CDFW 2021).
Birds				
Accipiter cooperii Cooper's hawk	--/--/WL	Nests in woodlands and urban trees. Preys on medium-sized birds and small mammals. Forages in open woodland and habitat edges (Zeiner et al. 1990).	Will not occur	There is no suitable woodland habitat on or near the Study Area. The trees on and adjacent to the Study Area are too small and scattered to constitute woodland habitat.

Attachment D
Potential for Special-Status Species to Occur in the Study Area

Scientific Name/Common Name	FESA/CESA/ CRPR or Other State Status*	General Habitat Description	Potential to Occur	Rationale
Agelaius tricolor tricolored blackbird	--/ST/SSC	Common locally throughout central California. Nests and seeks cover in emergent wetland vegetation, specifically cattails and tules, but may also use riparian vegetation. Nesting area must be large enough to support a minimum colony of 50 pairs as they are a highly colonial species. Forages on ground in croplands, grassy fields, flooded land, and edges of ponds (Shuford and Gardali 2008).	Will not occur	There is no suitable marsh habitat or nesting substrate in the Study Area. The narrow strip of emergent wetland habitat in the freshwater swale is not sufficient to provide nesting habitat for this species.
Ammodramus savannarum grasshopper sparrow	--/--/SSC	A summer resident of foothills and lowlands west of the Cascade-Sierra Nevada crest. Occurs in grasslands with scattered shrubs or other tall structures which it utilizes as singing perches. Nests on the ground in dense grass with overhanging taller grasses and forbs (Zeiner et al. 1990).	Will not occur	Suitable densely vegetated nesting and foraging habitat for this species is not present in the Study Area or surrounding areas.
Aquila chrysaetos Golden eagle	--/--/FP	Typically occurs in rolling foothills, mountain areas, deserts and other open habitats up to 3,822 m amsl. Typically nests on cliff ledges or large trees in open areas in canyons. Will occasionally use other tall structures for nesting, such as electrical transmission towers. Prey consists mostly of rodents, carrion, birds, reptiles and occasionally small livestock (Zeiner et al. 1990).	Will not occur	The Study Area does not provide suitable open nesting or foraging habitat.
Athene cunicularia burrowing owl	--/--/SSC	Inhabits open habitats including arid grasslands, pastures, disturbed areas, and deserts. Occupies burrows of small mammals, especially California ground squirrel (*Otospermophilus beecheyi*), or artificial burrows such as pipes and culverts. Hunts from low perches, fence posts, and mounds. Breeds from Marsh through August (CDFW 2012).	**May occur**	Marginal foraging and nesting habitat is present in the Study Area within the non-native grassland and along the constructed swale. No burrowing owls were observed during any of the biological surveys so this species is believed to currently

Attachment D
Potential for Special-Status Species to Occur in the Study Area

Scientific Name/Common Name	FESA/CESA/ CRPR or Other State Status*	General Habitat Description	Potential to Occur	Rationale
				be absent from the Study Area but could occupy the Study Area in the future. The nearest recent CNDDB occurrence is located 5.3 miles west of the Study Area in a debris pile in open grassland habitat (CNDDB 2021).
Buteo regalis ferruginous hawk	--/--/WL	Found in arid and semi-arid open grasslands, sagebrush flats, desert scrub, low foothills and areas of pinyon and juniper habitat. Ferruginous hawks' nest in trees, large shrubs, utility poles and occasionally on the ground near river cut banks. Preys upon ground squirrels, rabbits, mice, and gophers. (Dechant et al. 1999)	Will not occur	Suitable open nesting and foraging habitat for this species is not present in the Study Area or surrounding areas.
Buteo swainsoni Swainson's hawk	--/ST/--	Swainson's hawk breeds in stands with few trees in juniper-sage flats, riparian areas, and in oak savannah in the Central Valley and forages in adjacent grasslands or suitable grain or alfalfa fields, or livestock pastures. Swainson's hawks breed in California and winter in Mexico and South America. Swainson's hawks usually arrive in the Central Valley between March 1 and April 1 and migrate south between September and October. Swainson's hawks usually nest in trees adjacent to suitable foraging habitat. Swainson's hawk nests are usually located in trees near the edges of riparian stands, in lone trees or groves of trees in agricultural fields, and in mature roadside trees. Valley oak, Fremont cottonwood, walnut, and large willow with an average height of about 58 feet, and ranging from 41 to 82 feet, are the most commonly used nest trees in the Central Valley. Suitable foraging areas for	Will not occur	Suitable open nesting and foraging habitat for this species is not present in the Study Area or surrounding areas. The site is small and surrounded by urban development. Swainson's hawk would not be expected to forage in the Study Area or immediate vicinity within 1-2 miles because the area is largely developed. The closest reported occurrence of nesting Swainson's hawk is located approximately 2 miles north of the Study Area along Dry Creek in open grassland habitat.

Attachment D
Potential for Special-Status Species to Occur in the Study Area

Scientific Name/Common Name	FESA/CESA/ CRPR or Other State Status*	General Habitat Description	Potential to Occur	Rationale
		Swainson's hawk include native grasslands or lightly grazed pastures, alfalfa and other hay crops, idle land, certain grain and row croplands, and ruderal lands. Swainson's hawks primarily feed on voles; however, they will feed on a variety of prey including small mammals, birds, and insects (CDFW 1994).		
Coccyzus americanus occidentalis western yellow-billed cuckoo	FT/SE/--	Occurs at isolated sites in Sacramento Valley in northern California, and along Kern and Colorado River systems in southern California. Frequents valley foothill and desert riparian habitats. Inhabits open woodlands with clearings, and riparian habitats with dense understory foliage along slow-moving drainages, backwaters, or seeps. Prefers dense willows for roosting but will use adjacent orchard in the Sacramento Valley (CDFW 2005).	Will not occur	Suitable riparian nesting and foraging habitat for this species is not present in the Study Area or surrounding areas.
Elanus leucurus white-tailed kite	--/--/FP	Forages over open grasslands, savannahs, marshes, and cultivated fields. Nests in trees in a variety of locations including isolated trees, and edges and interior of stands (Zeiner et al. 1990).	**May Occur**	The scattered trees on and adjacent to the Study Area provide marginal nesting habitat and the non-native grassland provides marginal foraging habitat. This species is known to nest in tall trees in urban areas and forage in small habitat patches. The nearest documented occurrence of white-tailed kite is 5.5 miles east in annual grassland with scattered oaks (CNDDB 2021).

Attachment D
Potential for Special-Status Species to Occur in the Study Area

Scientific Name/Common Name	FESA/CESA/ CRPR or Other State Status*	General Habitat Description	Potential to Occur	Rationale
Laterallus jamaicensis coturniculus California black rail	--/ST/FP	Inhabits brackish marsh, primarily in the upper marsh zone dominated by alkali heath (*Frankenia salina*), cattail, and rush (*Juncus*); prefers lower salinity environments. Forage on the ground, under cover of dense vegetation (USFWS 2013).	Will not occur	There is no suitable brackish marsh habitat in or adjacent to the Study Area.
Melospiza melodia song sparrow ("Modesto" population)	--/--/SSC	Restricted to California, where it is locally numerous in the Sacramento Valley, Sacramento–San Joaquin River Delta, and northern San Joaquin Valley. Resides in emergent freshwater marshes dominated by tules (*Scirpus* spp.) and cattails (*Typha* spp.) as well as riparian willow (*Salix* spp.) thickets. These Song Sparrows also nest in riparian forests of Valley Oak (*Quercus lobata*) with a sufficient understory of blackberry (*Rubus* spp.), along vegetated irrigation canals and levees, and in recently planted Valley Oak restoration sites (Shuford and Gardali 2008).	Will not Occur	There is no suitable marsh or riparian habitat for this species in the Study Area. The nearest recent CNDDB occurrence is located 17.9 miles southwest of the Study Area in riparian scrub in the Yolo Bypass area (CNDDB 2021).
Progne subis purple martin	--/--/SSC	Occurs as a summer resident and migrant, primarily from mid-March to late September. Breeds from May (rarely late Apr) to mid-August. Purple martins are widely but locally distributed in forest and woodland areas at low to intermediate elevations throughout much of the state. Martins use a wide variety of nest substrates (e.g., tree cavities, bridges, utility poles, lava tubes, and, formerly, buildings), but nonetheless are very selective of habitat conditions nearby. Martins are most abundant in mesic regions, near large wetlands and other water bodies, and at upper slopes and ridges, which likely concentrate aerial insects (Shuford and Gardali 2008).	Will not occur	There are no large wetlands or woodland habitat on or near the Study Area.

Attachment D
Potential for Special-Status Species to Occur in the Study Area

Scientific Name/Common Name	FESA/CESA/ CRPR or Other State Status*	General Habitat Description	Potential to Occur	Rationale
Riparia riparia bank swallow	--/ST/--	Primarily inhabits riparian and other lowland habitats west of the deserts during the spring-fall period. In summer, restricted to riparian, lacustrine, and coastal areas with vertical banks, bluffs, and cliffs with fine-textured or sandy soils, into which it digs nesting holes. In California, bank swallow primarily nests from Siskiyou, Shasta and Lassen Counties south along the Sacramento River to Yolo County. Also nests locally across much of state (Garrison 1999).	Will not occur	There are no suitable vertical banks, bluffs, or cliffs with fine textured soil and holes in or near the Study Area.
Vireo bellii pusillus least Bell's vireo	FE/SE/--	Is an obligate riparian species during the breeding season that prefers early successional habitat (USFWS 1998). Typically found in structurally diverse habitat such as cottonwood-willow forests, oak woodlands, and mule fat scrub (USFWS 1998) that generally contains both canopy and shrub layers and includes some associated upland habitat. This species will winter in arroyos that contain mesquite scrub habitat and are not limited to willow dominated habitats. Previously considered to be limited to southern California, recent account of this species with successful breeding in Salinas Valley and in Yolo county show that this species is expanding back into its former range	Will not occur	There is no suitable riparian habitat on or near the Study Area.

Attachment D
Potential for Special-Status Species to Occur in the Study Area

Scientific Name/Common Name	FESA/CESA/ CRPR or Other State Status*	General Habitat Description	Potential to Occur	Rationale
Mammals				
Taxidea taxus American badger	--/--/SSC	Inhabits drier open stages of most shrub, forest, and herbaceous habitats with loose, friable soils. Preys on a wide variety of mammals, reptiles, birds, and carrion, and hunts mostly by digging out fossorial prey. Occasionally takes prey on the surface. Not tolerant of cultivation. No longer occur in the Central Valley except in the extreme western edge (Williams 1986).	Will not occur	There is no suitable shrub or forest habitat on or near the Study Area.
Plants				
Astragalus tener var. *ferrisiae* Ferris' milk-vetch	--/--/1B.1	An annual herb found in vernally mesic meadows and seeps, and subalkaline flats in valley and foothill grassland, from 2 – 75 meters elevation. Previously thought extinct and rediscovered in 1989; currently known from 13 locations in the Sacramento Valley. Blooms April – May (CNPS 2021).	Will not occur	There are no suitable mesic meadows, seeps, or subalkaline flats on the Study Area.
Balsamorhiza macrolepis big-scale balsamroot	--/--/1B.2	Perennial herb. Grows on slopes in chaparral, cismontane woodland, and valley and foothill grassland, sometimes in serpentinite soil. Occurs at elevations from 45 – 1,555 m amsl. Flowering period March – June (CNPS 2021).	Will not occur	There is no suitable chaparral, woodland or grassland habitat or serpentinite soils for this species in the Study Area. In addition, this species was not observed on the Study Area during a botanical survey conducted during its blooming season.
Chloropyron molle ssp. *hispidum* hispid salty bird's-beak	--/--/1B.1	An annual hemiparasitic herb found in alkaline habitats in meadows, seeps, playas, and valley and foothill grassland from 1 – 155 meters elevation in the Central Valley. Blooms June – September (CNPS 2021).	Will not occur	There are no alkaline habitats on the Study Area.

Attachment D
Potential for Special-Status Species to Occur in the Study Area

Scientific Name/Common Name	FESA/CESA/ CRPR or Other State Status*	General Habitat Description	Potential to Occur	Rationale
Downingia pusilla dwarf downingia	--/--/2B.2	An annual herb found in vernal pools and mesic microsites in valley and foothill grassland from 1 – 445 meters elevation. Blooms March – May (CNPS 2021).	Will not occur	The seasonal wetlands in the study area are not considered suitable habitat for this species. In addition, this species was not observed in the Study Area during a botanical survey conducted during the blooming season.
Gratiola heterosepala Boggs Lake hedge-hyssop	--/SE/1B.2	An annual herb found on clay soils in marshes and swamps at lake margins, and in vernal pools from 10 – 2,375 meters elevation. Blooms April – August (CNPS 2021).	Will not occur	There is no suitable habitat in the Study Area. Soils on the Study Area are not suitable for this species, which requires clay soils.
Hibiscus lasiocarpos var. *occidentalis* woolly rose-mallow	--/--/1B.2	A perennial rhizomatous emergent herb found in freshwater marshes and swamps from 0 – 120 meters elevation. Common microsite habitats include moist riverbanks, low peat islands in sloughs and on riprap along levees. Blooms June – September (CNPS 2021).	Will not occur	There are no freshwater marshes or swamps in the Study Area and this species was not observed in the Study Area during a focused botanical survey conducted during its blooming season. The nearest reported occurrence in the CNDDB is approximately 10 miles southwest (CDFW 2021).
Juncus leiospermus var. *ahartii* Ahart's dwarf rush	--/--/1B.2	An annual herb found in mesic soils in valley and foothill grassland from 30 – 299 meters elevation. Restricted to the edges of vernal pools in grassland habitat. Blooms March – May (CNPS 2021).	Will not occur	There are no vernal pools in the Study Area.
Juncus leiospermus var. *leiospermus* Red Bluff dwarf rush	--/--/1B.1	An annual herb found in vernal pools and vernally mesic microsites in chaparral, cismontane woodland, meadows, seeps, and valley and foothill grassland from 35 – 1,250 meters elevation. Blooms March – June (CNPS 2021).	Will not occur	There are no vernal pools or other suitable habitats in the Study Area. This species was not observed in the Study Area during a focused botanical survey conducted during its blooming season.

Attachment D
Potential for Special-Status Species to Occur in the Study Area

Scientific Name/Common Name	FESA/CESA/ CRPR or Other State Status*	General Habitat Description	Potential to Occur	Rationale
Legenere limosa legenere	--/--/1B.1	An annual herb found in vernal pools from 1 – 880 meters elevation. Blooms April – June (CNPS 2021).	Will not occur	There are no vernal pools in the Study Area. Seasonal wetlands in the Study Area do not represent suitable habitat for this species.
Orcuttia viscida Sacramento Orcutt grass	FE/CE/1B.1	An annual herb found in vernal pools from 30 – 100 meters elevation. Blooms April-July (Sep) (CNPS 2021).	Will not occur	There are no vernal pools in the Study Area.
Sagittaria sanfordii Sanford's arrowhead	--/--/1B.2	A perennial rhizomatous herb found in marshes, swamps, and assorted shallow freshwater habitats from 0 – 650 meters elevation. Blooms May – October (November) (CNPS 2021).	**Present**	Approximately 10 individuals were observed in the Study Area during a focused botanical survey on September 9, 2021.
Symphyotrichum lentum Suisun Marsh aster	--/--/1B.2	A perennial rhizomatous herb found in freshwater and brackish marsh from 0 – 3 meters elevation. Blooms May – November (CNPS 2021).	Will not occur	There is no suitable aquatic habitat in the Study Area and the site is above the elevational range of this species.

Note: Bold font indicates a species with the potential to occur in the Study Area; these species are evaluated in detail in the body of the report.
*FESA=Federal Endangered Species Act; CESA=California Endangered Species Act; FE – FESA endangered; FT – FESA threatened; FC – FESA candidate; FD – FESA delisted; SE – CESA endangered; ST – CESA threatened; FP – Fully Protected; SSC – state species of special concern; CRPR – California Rare Plant Rank (see definitions of CRPR rankings below)
CNPS ratings: 1A = Presumed extirpated in California and rare elsewhere
1B = Rare, threatened, or endangered in California and elsewhere
1B.1 = Seriously endangered in California (over 80% of occurrences threatened / high degree and immediacy of threat)
1B.2 = Fairly endangered in California (20-80% occurrences threatened)
1B.3 = Not very endangered in California (fewer than 20% of occurrences threatened)
2B = Rare, threatened, or endangered in California but more common elsewhere.
2B.2 = Fairly endangered in California (20-80% occurrences threatened)
3 – more information needed
Global and State rankings in descending order of sensitivity (1=critically imperiled; 5=demonstrably secure).
Status in the Study Area is assessed as follows. **Will Not Occur**: Species is either sessile (i.e., plants) or so limited to a particular habitat that it cannot disperse on its own and/or habitat suitable for its establishment and survival does not occur in the Study Area; **Not Expected**: Species moves freely and might disperse through or across the Study Area, but suitable habitat for residence or breeding does not occur in the Study Area, potential for an individual of the species to disperse through or forage in the site cannot be excluded with 100% certainty; **Presumed Absent:** Habitat suitable for residence and breeding occurs in the Study Area; however, focused surveys conducted for the current project were negative; **May Occur**: Species was not observed on the site and breeding habitat is not present but the species has the potential to utilize the site for dispersal; **High**: Habitat suitable for residence and breeding occurs in the Study Area and the species has been recorded recently in or near the Study Area, but was not observed during surveys for the current project; **Present**: The species was observed during biological surveys for the current project and is assumed to occupy the Study Area or utilize the Study Area during some portion of its life cycle.

Attachment D
Potential for Special-Status Species to Occur in the Study Area

REFERENCES

Bolster, B.C., editor. 1998. Terrestrial Mammal Species of Special Concern in California. Draft Final Report prepared by P.V. Brylski, P.W. Collins, E.D. Pierson, W.E. Rainey and T.E. Kucera. Report submitted to California Department of Fish and Game Wildlife Management Division, Nongame Bird and Mammal Conservation Program for Contract No. FG3146WM.

California Department of Fish and Wildlife (CDFW). 2012. Staff Report on Burrowing Owl Mitigation. March.

2019. Report to the Fish and Game Commission: Evaluation of the Petition from the Xerces Society, Defenders of Wildlife and the Center for Food Safety to List Four Species of Bumble Bees as Endangered Under the California Endangered Species Act. April 2019. Special California Department of Fish and Wildlife, Sacramento, California, USA.

2021. RareFind 5.0/BIOS, California Natural Diversity Database. Sacramento, California. Accessed August 18, 2021. Information expires 02/01/2022.

California Native Plant Society (CNPS). 2021. Inventory of Rare and Endangered Plants (online edition, v8-02). California Native Plant Society, Sacramento, CA. Website http://www.rareplants.cnps.org [Accessed August 2021]. Queried for individual species as referenced.

Garrison, B. A. 1999. Bank Swallow (Riparia riparia). In: The Birds of North Amernica No. 414 (A. Poole and F. Gill eds.). The Birds of North America, Inc., Philadelphia, PA.

Jennings, M.R. and M.P. Hayes. 1994. Amphibian and Reptile Species of Special Concern in California. Final Report submitted to the California Department of Fish and [Wildlife], Inland Fisheries Division.

Koch, J., J. Strange, and P. Williams. 2012. Bumble bees of the Western United States. USDA-Forest Service, Pollinator Partnership. Washington, DC. 144 pp.

National Oceanic and Atmospheric Administration National Marine Fisheries Service (NMFS). 2006. 50 CFR Part 223 and 224 [Docket No. 051216341-5341-01; I.D. No.052104] RIN 0648–AR93. Endangered and Threatened Species; Final Listing Determination for 10 Distinct Population Segments of West Coast Steelhead. Federal Register Vol. 71, No. 3. January 5.

Palmer, R. S. (Ed.). (1988). Handbook of North American Birds Volume VI: Diurnal Raptors (Part 1). Yale University Press.

Shuford, W.D., and T. Gardali, editors. 2008. California Bird Species of Special Concern: A ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation concern in California. Studies of Western Birds 1. Western Field Ornithologists, Camarillo, California, and California Department of Fish and Game, Sacramento.

Attachment D
Potential for Special-Status Species to Occur in the Study Area

Stebbins, Robert C., and McGinnis, Samuel M. Field Guide to Amphibians and Reptiles of California: Revised Edition (California Natural History Guides) University of California Press, 2012.

Thorp, R. W., D. S Horning and L. L. Dunning. 1983. Bumble bees and cuckoo bumble bees of California (Hymenoptera: Apidae). Bulletin of the California Insect Survey 23: viii.

U.S. Fish and Wildlife Service (USFWS). 1995. Sacramento – San Joaquin Delta Native Fishes Recovery Plan. U.S. Fish and Wildlife Service, Portland, OR.

2002. Recovery Plan for the California Red-legged Frog (*Rana aurora draytonii*). U.S. Fish and Wildlife Service, Portland, Oregon. viii + 173 pp.

2005. Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon. Region 1, U.S. Fish and Wildlife Service, Portland, OR. December 15.

2013. Recovery Plan for tidal marsh ecosystems of Northern and Central California. Sacramento, California. xviii+ 605 pp.

2014. 50 CFR Part 17 RIN–0648–AO04 Endangered and Threatened Wildlife and Plants; Withdrawal of the Proposed Rule to Remove the Valley Elderberry Longhorn Beetle from the Federal List of Endangered and Threatened Wildlife. Federal Register Vol. 79, No. 180. September 17.

2017. Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle (Desmocerus californicus dimorphus). U.S. Fish and Wildlife Service; Sacramento, California. 28 pp.

Zeiner, D.C., W.F. Laudenslayer, Jr., K.E. Mayer, and M. White, eds. 1988-1990. California's Wildlife. Vol. I-III. California Depart. of Fish and Game, Sacramento, California.

This page intentionally left blank

Attachment E

Plant and Animal Species Observed in the Study Area

This page intentionally left blank

Attachment E
Plant and Animal Species Observed in the Study Area

Plant Species Observed in the Study Area

Family	Species Name	Common Name	Status
Native			
Alismataceae	*Sagittaria sanfordii*	Sanford's arrowhead	CRPR 1B.2
Betulaceae	*Alnus rhombifolia*	white alder	
Boraginaceae	*Amsinckia intermedia*	rancher's fiddleneck	
Cyperaceae	*Cyperus eragrostis*	tall flatsedge	
Fabaceae	*Lupinus bicolor*	miniature lupine	
	Vicia americana	American vetch	
Fagaceae	*Quercus lobata*	valley oak	
Onagraceae	*Epilobium ciliatum* ssp. *ciliatum*	willow herb	
	Oenothera elata	Hooker's evening primrose	
Plantaginaceae	*Callitriche marginata*	long-stalk water-starwort	
Poaceae	*Leersia oryzoides*	Rice cutgrass	
Polygonaceae	*Persicaria lapathifolia*	willow weed	
Ranunculaceae	*Ranunculus bonariensis* var. *trisepalus*	vernal pool buttercup	
Rubiaceae	*Galium aparine*	goosegrass	
Solanaceae	*Solanum americanum*	white nightshade	
Themidaceae	*Triteleia laxa*	Ithuriel's spear	
Non-Native			
Asteraceae	*Centaurea solstitialis*	yellow starthistle	High
	Chondrilla juncea	Skeleton weed	Moderate
	Helminthotheca echioides	bristly ox-tongue	Limited
	Lactuca serriola	wild lettuce	N
	Leontodon saxatilis	lesser hawkbit	N
	Senecio vulgaris	common groundsel	N
	Sonchus asper	prickly sow thistle	N
Brassicaceae	*Brassica nigra*	black mustard	Moderate
	Hirschfeldia incana	short-pod mustard	Moderate
	Lepidium latifolium	perennial pepperweed	High
	Raphanus sativus	wild radish	Limited
Chenopodiaceae	*Atriplex prostrata*	Fat-hen	N
Convolvulaceae	*Convolvulus arvensis*	bindweed	N
Euphorbiaceae	*Triadica sebifera*	Chinese tallowtree	Moderate
Fabaceae	*Medicago polymorpha*	burclover	Limited
	Melilotus indicus	Indian sweet clover	N
Geraniaceae	*Erodium botrys*	long-beak filaree	N
	Geranium dissectum	cutleaf geranium	Limited
Lythraceae	*Lythrum hyssopifolia*	grass poly	Limited
Malvaceae	*Malva parviflora*	cheeseweed	N
Onagraceae	*Ludwigia peploides*	Marsh purslane	High
Poaceae	*Avena fatua*	wild oats	Moderate
	Briza minor	little quaking-grass	N
	Bromus diandrus	common ripgut grass	Moderate
	Bromus hordeaceus	soft brome	Limited
	Elymus caput-medusae	medusahead	High

Attachment E
Plant and Animal Species Observed in the Study Area

Family	Species Name	Common Name	Status
	Festuca perennis	Italian ryegrass	N
	Hordeum murinum	hare barley	Moderate
	Paspalum dilatatum	dallis grass	N
	Polypogon monspeliensis	Rabbitsfoot grass	Limited
Polygonaceae	*Rumex crispus*	curly dock	Limited
Rosaceae	*Prunus* sp.	ornamental plum	N
	Pyracantha coccinea	scarlet firethorn	N
Simaroubaceae	*Ailanthus altissima*	tree-of-heaven	Moderate

Attachment E
Plant and Animal Species Observed in the Study Area

Animal Species Observed in the Study Area

Order/Family	Species Name	Common Name	Status*
Birds			
Columbiformes			
Columbidae	*Zenaida macroura*	mourning dove	--
Passeriformes			
Corvidae	*Aphelocoma californica*	California scrub jay	--
Mimidae	*Mimus polyglottos*	northern mockingbird	--
Sturnidae	*Sturnus vulgaris*	European starling	--
Turdidae	*Turdus migratorius*	American robin	--
Tyrannidae	*Sayornis nigricans*	black phoebe	--
Mammals			
Carnivora			
Felidae	*Felis catus*	domestic cat	--

* Status for animal species is FESA/CESA/Other state listing.

This page intentionally left blank

Attachment F

Site Photos

This page intentionally left blank

Photo 1. View of the northern portion of the project site looking west showing non-native grassland and adjacent industrial and residential development. Photo taken March 28, 2018.

Photo 2. View of the western portion of the project site, looking south. Photo taken March 28, 2018.

Photo 3. View of seasonal wetlands in the central portion of the project site, looking north. Photo taken March 28, 2018.

Photo 4. View of the wetland swale in the eastern portion of the project site looking northeast with Watt Avenue in the background. Photo taken March 28, 2018.

Photo 5. View of a small population of Sanford's arrowhead observed in the downstream end of the wetland swale on September 9, 2021.

Photo 6. Close up view of one of the Sanford's arrowhead plants observed in the Study Area on September 9, 2021.

This page intentionally left blank

Attachment G

USACE Preliminary Jurisdictional Determination

This page intentionally left blank

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, SACRAMENTO DISTRICT
1325 J STREET
SACRAMENTO CA 95814-2922

December 6, 2018

Regulatory Division (SPK-2018-00813)

New Green Properties, LLC
Attn: Mr. Narinder Singh
2224 Endeavor Way
Sacramento, California 95834

Dear Mr. Singh:

We are responding to your consultant's August 9, 2018, request for a preliminary jurisdictional determination (JD) for the Watt Avenue Apartments project site. The approximately 6.7-acre project site is located at 7403 Watt Avenue, Latitude 38.70056°, Longitude -121.38405°, Sacramento County, California.

Based on available information, we concur with your aquatic resources delineation for the site as depicted on the enclosed February 14, 2018, *Aquatic Resources Delineation Map* drawing prepared by Helix Environmental Planning (enclosure 1). The approximately 0.33 acre of aquatic resources (consisting of 0.25 acre [10,781 linear ft] of wetland swale and 0.08 acre of seasonal wetland) present within the survey area are potential jurisdictional aquatic resources "waters of the United States" regulated under Section 404 of the Clean Water Act.

At your request, we have completed a preliminary JD for the site. Enclosed find a copy of the *Preliminary Jurisdictional Determination Form* (enclosure 2). Please sign and return the completed form to this office, at the address listed below, within 30 days of the date of this letter. If you do not return the signed form within 30 days, we will presume concurrence and finalize the preliminary jurisdictional determination.

You may request an approved JD for this site at any time prior to starting work within waters, including after a permit decision is made.

We recommend you provide a copy of this letter and notice to all other affected parties, including any individual who has an identifiable and substantial legal interest in the property.

This preliminary jurisdictional determination has been conducted to identify the potential limits of wetlands and other aquatic resources at the project site which may be subject to U.S. Army Corps of Engineers jurisdiction under Section 404 of the Clean Water Act. A *Notification of Appeal Process and Request for Appeal Form* is enclosed to notify you of your options with this determination (enclosure 3).

We appreciate feedback, especially about interactions with our staff and processes.

Please refer to identification number SPK-2018-00813 in any correspondence concerning this project. If you have any questions, please contact me at U.S. Army Corps of Engineers Regulatory Division, California Delta Section,1325 J Street, Room 1350, Sacramento, CA 95814-2922, by email at *Mary.R.Pakenham-Walsh@usace.army.mil*, or telephone at (916) 557-7718. For program information or to complete our Customer Survey, visit our website at *www.spk.usace.army.mil/Missions/Regulatory.aspx*.

Sincerely,

Mary R. Pakenham-Walsh
Senior Project Manager
California Delta Section

Enclosures

cc: (w/o encls)
Mr. Joseph Morgan, U.S. Environmental Protection Agency, Region 9, morgan.josepth@epamail.epa.gov
Ms. Stephanie Tadlock, California Regional Water Quality Control Board, Central Valley Region, Stephanie.Tadlock@waterboards.ca.gov
Mr. Stephen Stringer, HELIX Environmental Planning, Inc., StephenS@helixepi.com

NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL

Applicant: New Green Properties, LLC Attn: Mr. Narinder Singh		File No.: SPK-2018-00813	Date: December 6, 2018
Attached is:			See Section below
	INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)		A
	PROFFERED PERMIT (Standard Permit or Letter of permission)		B
	PERMIT DENIAL		C
	APPROVED JURISDICTIONAL DETERMINATION		D
→	PRELIMINARY JURISDICTIONAL DETERMINATION		E

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at *http://www.usace.army.mil/cecw/pages/reg_materials.aspx* or Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.

- OBJECT: If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit.

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.

- APPEAL: If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer (address on reverse). This form must be received by the division engineer within 60 days of the date of this notice.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer (address on reverse). This form must be received by the division engineer within 60 days of the date of this notice.

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.

- ACCEPT: You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.

- APPEAL: If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer (address on reverse). This form must be received by the division engineer within 60 days of the date of this notice.

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.

SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT

REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)

ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.

POINT OF CONTACT FOR QUESTIONS OR INFORMATION:

If you have questions regarding this decision and/or the appeal process you may contact:

Mary R. Pakenham-Walsh
Senior Project Manager
California Delta Section

U.S. Army Corps of Engineers

Phone: 916-557-7718, FAX 916-557-7803
Email: Mary.R.Pakenham-Walsh@usace.army.mil

If you only have questions regarding the appeal process you may also contact:

Thomas J. Cavanaugh
Administrative Appeal Review Officer
U.S. Army Corps of Engineers
South Pacific Division
1455 Market Street, 2052B
San Francisco, California 94103-1399
Phone: 415-503-6574, FAX 415-503-6646
Email: Thomas.J.Cavanaugh@usace.army.mil

RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15 day notice of any site investigation, and will have the opportunity to participate in all site investigations.

_______________________________ Signature of appellant or agent.	Date:	Telephone number:

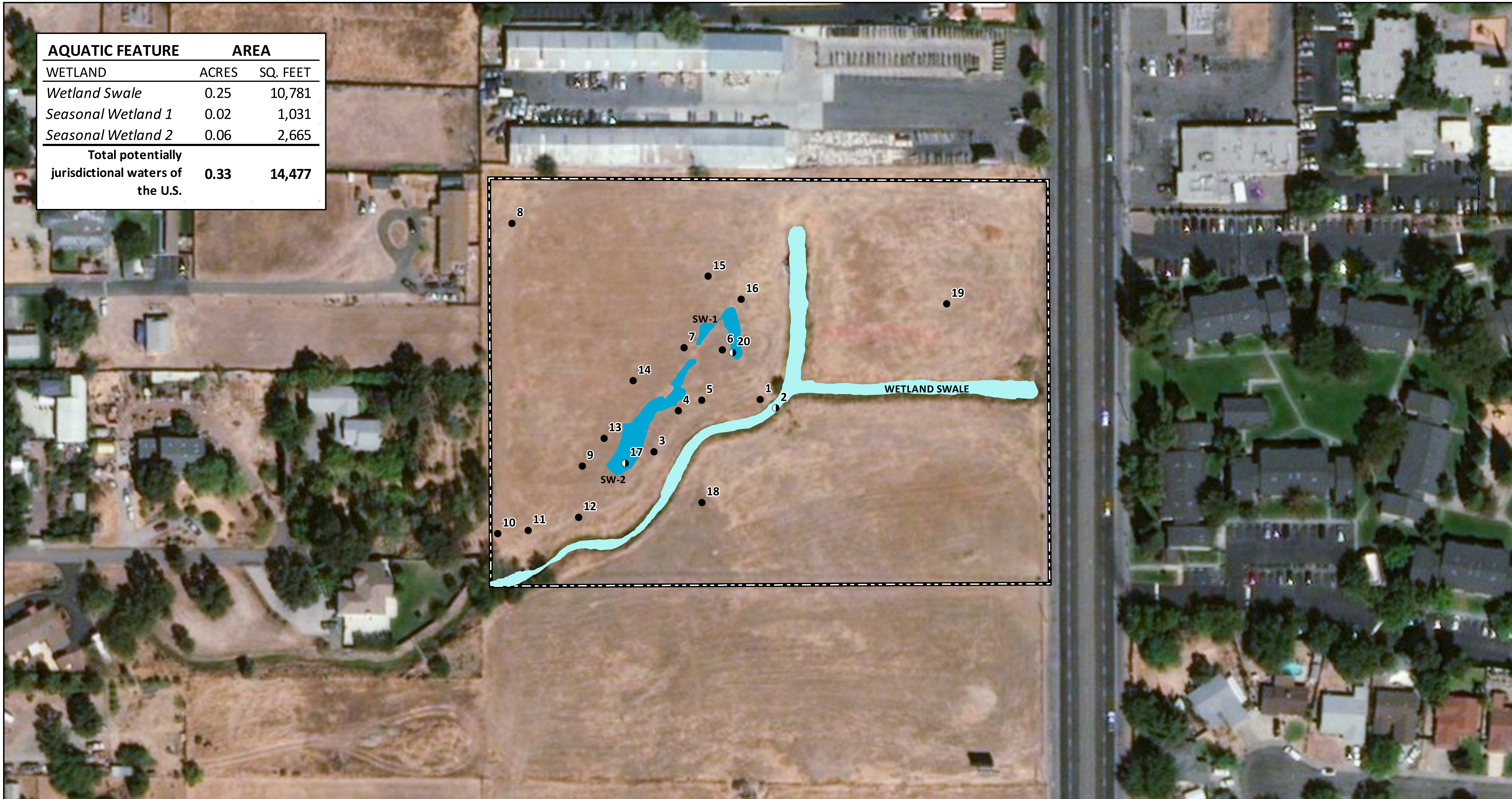
SPD version revised December17, 2010

Attachment H

Aquatic Resources Delineation Map

This page intentionally left blank

AQUATIC FEATURE	AREA	
WETLAND	ACRES	SQ. FEET
Wetland Swale	0.25	10,781
Seasonal Wetland 1	0.02	1,031
Seasonal Wetland 2	0.06	2,665
Total potentially jurisdictional waters of the U.S.	**0.33**	**14,477**



HELIX *Environmental Planning*

USACE REGULATORY FILE #:
VERIFIED BY: TBD
DATE OF VERIFICATION: TBD

REVISIONS

DATE	DESCRIPTION	BY

Project Boundary

Upland Sample Point

Wetland Sample Point

Aquatic Features

Seasonal Wetland

Wetland Swale

N

0 100 200 Feet

1 inch = 100 feet

Coordinate System: NAD 1983 StatePlane California II FIPS 0402 Feet
Projection: Lambert Conformal Conic
Datum: North American 1983

DRAWN BY: C. Hood
DELINEATORS: G. Aldridge, S. Stringer
DATE OF FIELDWORK: January 10 and February 18, 2018
DATE OF AERIAL PHOTOGRAPH: January 2018 (ESRI)
CREATED ON: February 14, 2018
REVISED ON:

NOTE: The boundaries and jurisdictional status of all waters shown on this map are preliminary and subject to verification by the U.S. Army Corps of Engineers

AQUATIC RESOURCES DELINEATION MAP

Made in accordance with the Updated Map and Drawing Standards for the South Pacific Division Regulatory Program as amended on February 10, 2016.

7403 Watt Ave.

Sacramento County, California

February 14, 2018

Map 1 of 1

Watt Avenue Apartments
Sacramento County, California

PLNP2021-00133

Aquatic Resources Delineation Report

Prepared for:

Narinder Singh, New Green Properties, LLC
2224 Endeavor Way,
Sacramento, CA 95834

Prepared by:

HELIX Environmental Planning, Inc.
11 Natoma Street, Suite 155
Folsom, CA 95630

February 14, 2018 | Project Number: NGP-01

Table of Contents

Appendices

This page intentionally blank

1.0 INTRODUCTION

On behalf of New Green Properties, LLC, HELIX Environmental Planning, Inc. (HELIX) has prepared this aquatic resources delineation report in support of the Watt Avenue Apartments Project (project) to document potentially jurisdictional wetlands and other waters of the U.S. and State on an approximately 6.7-acre project site located at 7403 Watt Avenue, in unincorporated Sacramento County, California. The currently undeveloped site is the location of a proposed apartment complex. The purpose of our delineation was to identify aquatic resources on the project site that potentially qualify as waters of the U.S. (WOUS) and/or waters of the State of California. Waters of the U.S. and State are subject to regulatory jurisdiction by the U.S. Army Corps of Engineers (USACE), the Regional Water Quality Control Board (RWQCB), and/or the California Department of Fish and Wildlife (CDFW); impacts to such resources would require obtaining permits from some or all of these agencies. The results presented in this document are preliminary unless and until concurrence is received from the USACE and the Central Valley RWQCB.

1.1 PROJECT LOCATION

The project site is located in unincorporated Sacramento County, at 7403 Watt Avenue (**Figure 1**), in unsurveyed land of the Rancho Del Paso Land Grant of Township 10 North and Range 5 East, Mount Diablo Meridian, and is depicted on the U.S. Geological Survey (USGS) “Carmichael, CA” 7.5-minute quadrangle map (**Figure 2**). The approximate center of the project site is at latitude 38.700537 and longitude -121.384108, NAD 84. The elevation on the site ranges from approximately 90 to 100 feet above mean sea level (amsl). Figures are included in **Appendix A**.

1.2 DRIVING DIRECTIONS

From downtown Sacramento, travel eastward on Interstate Business 80 toward Reno. Exit on Watt Avenue. Travel northward on Watt Avenue for approximately 4 miles. The site is located on the west side of Watt Avenue approximately 300 feet south of Larchmont Drive. The site is secured by perimeter fencing; property owner notification is required prior to entry.

1.3 AGENT CONTACT INFORMATION

Narinder Pal Singh
NATIONWIDE HOMES AND LENDING
Cell No: 916-240-4700
E-Mail: narinderpsingh2004@yahoo.com

1.4 REGULATORY SETTING

Any person, firm, or agency planning to alter or work in WOUS, including the discharge of dredged or fill material, must first obtain authorization from the USACE under Section 404 of the Clean Water Act (CWA; 33 United States Code [USC] 1344). Waters of the U.S. are defined as: (a) all waters that are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters that are subject to the ebb and flow of the tide; (b) all interstate waters including interstate wetlands; (c) all other waters such as intrastate lakes, rivers, streams, mudflats, sand flats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes or natural ponds, the use, degradation, or destruction of which could affect interstate commerce; (d) impoundments of these waters; (e) tributaries of these waters; or (f) wetlands adjacent to these waters (33 Code of Federal Regulations [CFR] Part 328). Within non-tidal waters that meet the definition given above, and in the absence of adjacent wetlands, the indicator used by the USACE to determine the lateral extent of its jurisdiction is the ordinary-high-water mark (OHWM), which is defined as the line on the shore established by fluctuations of water and indicated by a clear, natural line impressed on the bank, shelving, changes in soil character, destruction of terrestrial vegetation, and/or the presence of litter and debris.

Wetlands are defined under the CFR Part 328.3 as those areas that are inundated or saturated by surface or ground water at a frequency and duration to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

The USACE has determined that not all features which meet the WOUS definition are, in fact, considered WOUS. Normally, features not considered WOUS include: (a) non-tidal drainage and irrigation ditches excavated on dry land; (b) artificially irrigated areas which would revert to upland if the irrigation ceased; (c) artificial lakes or ponds created by excavating and/or diking dry land to collect and retain water and which are used exclusively for such purposes as stock watering, irrigation, settling basins, or rice growing; (d) artificial reflecting or swimming pools or other small ornamental bodies of water created by excavating and/or diking dry land to retain water for primarily aesthetic reasons, and (e) water-filled depressions created in dry land incidental to construction activity and pits excavated in dry land for the purpose of obtaining fill, sand, or gravel, unless and until the construction or excavation operation is abandoned and the resulting body of water meets the definition of WOUS (see 33 CFR 328.3(a)). Other features may be excluded based on Federal court rulings (e.g. SWANCC and Rapanos) or by regulation.

Permits, licenses, variances, or similar authorization may also be required by other federal, state, and local statutes. Section 10 of the Rivers and Harbors Act of 1899 prohibits the obstruction or alteration of navigable WOUS without a permit from the USACE (33 USC 403). The CDFW requires notification prior to commencement, and possibly a Streambed Alteration Agreement (SAA) pursuant to California Fish and Game Code Subsection 1600 *et seq.*, if a proposed activity would result in the alteration of a stream, river, or lake in California.

Any action requiring a CWA Section 404 permit, or a Rivers and Harbors Act Section 10 permit, must also obtain a CWA Section 401 Water Quality Certification. The RWQCB administers the 401 Certification program. If a water body does not meet the criteria to be considered WOUS but is considered waters of the State, a Report of Waste Discharge (ROWD) is required to be submitted to the appropriate regional water quality control board pursuant to California Water Code Section 13260. The term "waters of the state" is defined by California Water Code as "any surface water or groundwater, including saline waters, within the boundaries of the state" (California Water Code Section 13050(e)). The State Water Resources Control Board has defined a wetland as the following:

> *An area is wetland if, under normal circumstances, (1) the area has continuous or recurrent saturation of the upper substrate caused by groundwater, or shallow surface water, or both; (2) the duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and (3) the area either lacks vegetation or the vegetation is dominated by hydrophytes.*

2.0 ENVIRONMENTAL SETTING

2.1 LOCATION DESCRIPTION

The project site is located in a developed area of unincorporated Sacramento County near the City of North Highlands and is surrounded by developed land in commercial, industrial, and residential uses. The project site is located within an area proposed for development as part of the North Watt Avenue Corridor Plan. Terrain in the immediate vicinity of the project site is primarily flat; the site itself is also primarily flat with a gradual slope toward the southwest. The elevation on the site ranges from approximately 90 to 100 feet above mean sea level (amsl). **Figure 3** is an aerial photograph of the project site and vicinity.

2.2 EXISTING CONDITIONS

The project site is undeveloped with no current site uses and no apparent site uses in the recent past. Homeless encampments were present on the site during the site visits. The northwest and eastern portions of the site appear to have been disturbed in the past, potentially as a result of grading for the adjacent industrial facility and Watt Avenue, and soils in these areas appear to be comprised of fill/mixed fill and native soil. Vegetation on the site is comprised of ruderal grassland as well as wetland habitats.

2.3 FIELD CONDITIONS

Fieldwork for the wetland delineation was conducted on January 10, 2018 and February 8, 2018. The weather during the site visits was partly cloudy to sunny and mild. The average annual rainfall for the City of Sacramento is 18.51 inches. The City of Sacramento experienced lower than normal precipitation leading up to the field surveys, however, the project site experienced 1.43 inches of rain in the two days preceding the January 10th survey.[1]

2.4 INTERSTATE OR FOREIGN COMMERCE CONNECTION

Wetlands on the site drain off-site toward the southwest into a larger swale that forms a drainage downstream of the site and empties into Dry Creek approximately 1.25 miles to the west after flowing through surrounding residential developments. Dry Creek is tributary to Steelhead Creek, which is tributary to the American River. The American River is tributary to the Sacramento River, which is a traditional navigable water used in interstate and foreign commerce.

[1] Weather data are from https://www.wunderground.com/history/airport/KSAC/2017/10/1/CustomHistory.html?dayend=26&monthend=10&yearend=2017&req_city=&req_state=&req_statename=&reqdb.zip=&reqdb.magic=&reqdb.wmo=

3.0 METHODS

3.1 DATA GATHERING

The following sources were used in preparation of this jurisdictional delineation:

- Aerial photography taken June 21, 2016 downloaded from Esri®
- USFWS's National Wetland Inventory online wetland mapper (USFWS 2018)
- Natural Resources Conservation Service (NRCS) web soil survey (NRCS 2018)
- Corps of Engineers Wetlands Delineation Manual (USACE 1987)
- Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0) (USACE 2008)
- USACE 2016 National Wetland Plant List for the Arid West (USACE 2016)

The delineation area includes the entire approximately 6.7-acre project site. Refer to the delineation map in **Appendix B** for the limits of the HELIX delineation.

3.2 DETERMINATION PROCEDURES

3.2.1 Delineation Methods

Fieldwork for the jurisdictional delineation was conducted on January 10, 2018 and February 8, 2018 by HELIX Senior Scientist, Stephen Stringer, M.S. and HELIX Senior Biologist George Aldridge, Ph.D. The delineation was conducted in accordance with the Corps of Engineers *Wetlands Delineation Manual* (USACE 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (Version 2.0) (USACE 2008).

Vegetation, soils, and hydrologic characteristics were visually assessed during the field delineation by walking meandering transects through the entire project site to obtain 100 percent visual coverage. The plant species identifiable at the time of the survey were recorded (refer to **Appendix C** for the list of plants observed with the wetland indicator status for each species). Ground photographs of each recorded feature were taken (**Appendix D**).

The three-parameter method was used to determine the presence/absence of wetlands, which involves identifying indicators of hydrophytic vegetation, hydric soils, and wetland hydrology according to the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)* (USACE 2008) and the *Arid West 2016 Regional Wetland Plant List* (USACE 2016). A total of 20 data points were taken in the project site; data points were taken throughout the site to classify the site's soils, vegetation, and hydrologic characteristics (**Appendix E**). The extent of wetlands and other waters in the project site were mapped in the field using a Panasonic Toughpad™ connected to an Arrow 100 GNSS receiver with sub-meter accuracy. These data were exported into ArcMap 10.3.1® and used to produce the map of aquatic features in the delineation area and calculate the acreage of each aquatic feature.

3.2.2 Determination of Potential Jurisdiction

Waters of the U.S.

Typically, the USACE and the U.S. EPA will assert jurisdiction over the following waters:

- Traditional navigable waters (TNW),
- Wetlands adjacent to TNWs,
- Non-navigable tributaries of TNWs that are relatively permanent where the tributaries typically flow year-round or have continuous flow at least seasonally (e.g., typically three months), and
- Wetlands directly abutting such tributaries.

The agencies will decide jurisdiction over the following waters based on a fact-specific analysis to determine whether they have a significant nexus with a TNW:

- Non-navigable tributaries that are not relatively permanent,
- Wetlands adjacent to non-navigable tributaries that are not relatively permanent, and
- Wetlands adjacent to but that do not directly abut a relatively permanent non-navigable tributary.

The agencies generally will not assert jurisdiction over the following features:

- Swales or erosional features (e.g., gullies, small washes characterized by low volume, infrequent, or short duration flow), and
- Ditches (including roadside ditches) excavated wholly in and draining only uplands and that do not carry a relatively permanent flow of water.

The agencies will apply the significant nexus standard as follows:

"A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by all wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical and biological integrity of downstream traditional navigable waters."

Waters of the State

The Central Valley RWQCB will assert jurisdiction over any waters of the state, including wetlands, regardless of whether or not the feature qualifies as WOUS. Waters of the State include but are not limited to natural and artificial ponds, rivers and streams, ditches and canals, wetlands, and vernal pools.

3.2.3 Plant/Habitat Nomenclature

Habitat nomenclature is generally derived from *A Manual of California Vegetation, Second Edition* (Sawyer *et al.* 2009). Plant nomenclature is taken from *The Jepson Manual: Vascular Plants of California, second edition* (Baldwin *et. al*. 2012).

4.0 RESULTS

4.1 VEGETATION COMMUNITIES/HABITAT TYPES

Vegetation communities/land cover types on the project site include ruderal grassland and wetland. Upland areas of the site are vegetated primarily with non-native grasses and forbs. Italian ryegrass (*Festuca perennis*), wild oat (*Avena* sp.), barley (Hordeum spp.), and bromes (Bromus spp.) make up the majority of the herbaceous cover on the property in terms of percent cover, with other non-native grasses such as medusa head (*Elymus caput-medusae*) and also present at high density in some areas. Refer to **Appendix C** for a list of plant species observed at wetland data points.

4.2 SOILS

The project site includes two soil mapping units (NRCS 2018): Fiddyment-Urban land complex, 1 to 8 percent slopes and Urban land – Xerarents – Fiddyment Complex, 0 to 8 percent slopes (**Figure 4**).

Fiddyment soils are residuum weathered from sedimentary rock. It consists of surface layers of sandy to sandy clay loam to a depth of approximately 40 inches, with weathered bedrock below 40 inches. This soil type has a depth of more than 80 inches to the water table, is well drained, and the frequency of flooding and ponding is classified as “none” (NRCS 2018). This soil unit is considered hydric within depressions according to the U.S. Department of Agriculture Natural Resources Conservation Service list of hydric soils (NRCS 2016).

Xerarents are alluvium derived from granite. Surface layers are variable. This soil type has a depth of more than 80 inches to the water table, is well-drained, and the frequency of flooding and ponding is classified as “none” (NRCS 2018). This soil unit is considered hydric within depressions according to the U.S. Department of Agriculture Natural Resources Conservation Service list of hydric soils (NRCS 2016).

4.3 HYDROLOGY

The project site is within the Lower American watershed (HUC 18020111). The project site drains generally south and west toward an off-site drainage tributary to Dry Creek, via a wetland swale on the site. Apparent sources of water for the site include direct precipitation and discharges from two culverts along the northern and eastern edges of the site. The culvert outfall along the north side of the project site appears to collect runoff from the adjacent industrial facility and other industrial and commercial developments to the north of the site. The culvert outfall along the eastern side of the project site collects runoff from residential development east of Watt Avenue. The project site appears to be located within the upstream extent of a small watershed that collects runoff from developed areas in the immediate vicinity of the site and drains westerly into Dry Creek. There are no natural drainages or wetlands upstream of the site within the immediate watershed. Water feeding the swale in the project site appears to be concentrated urban runoff.

4.4 USFWS NATIONAL WETLANDS INVENTORY

The USFWS National Wetlands Inventory online database[2] was reviewed to determine if there are any wetlands or other waters of the U.S. mapped by the USFWS in the project site or vicinity. The National Wetlands Inventory identifies one freshwater emergent wetland feature in the project site classified as PEM1Ax (palustrine, emergent, persistent, temporarily flooded) (**Figure 4**). No other wetlands are mapped on the site in the National Wetlands Inventory. Other than the freshwater emergent wetland, which continues off-site to the southwest, there are no wetlands mapped adjacent to the project site.

5.0 AQUATIC RESOURCES

Aquatic resources on the project site consist of a wetland swale that traverses the site in a northeast to southwest direction and two seasonal wetlands adjacent to the wetland swale. Aquatic resources are summarized in **Table 1** at the end of this section.

5.1 WETLAND SWALE

A "Y" shaped wetland swale collects water from two culvert outfalls in the northern and eastern portions of the site and drains toward the southwest into a larger drainage off-site. The culvert outfall along the north side of the project site collects stormwater and urban runoff primarily from the adjacent industrial facility and other industrial and commercial developments to the north of the site. The culvert outfall along the eastern side of the project site collects stormwater and urban runoff primarily from residential developments east of Watt Avenue. The wetland swale is mapped as a freshwater emergent wetland by the National Wetland Inventory and is classified as PEM1Ax (palustrine, emergent, persistent, temporarily flooded).

The wetland swale is vegetated with freshwater emergent macrophytes including a predominance of pale persicaria (*Persicaria lapathifolia*), tall flatsedge (*Cyperus eragrostis*), and creeping bentgrass (*Agrostis stolonifera*). Vegetation in the wetland swale indicates that the swale contains surface water for the majority of the growing season. Data point 2 taken within the wetland swale met the three-parameter test for wetlands with a predominance of hydrophytic vegetation, hydric soil (depleted dark surface), and wetland hydrology consisting of surface water and saturation in the upper 12 inches.

The seasonal wetland swale is a potential waters of the U.S. because it is a non-navigable tributary of a traditional navigable water (Sacramento River) that is relatively permanent (i.e. it flows year around or has continuous flow at least seasonally).

5.2 SEASONAL WETLANDS

Two seasonal wetlands are present on the site adjacent to the wetland swale. The seasonal wetlands collect runoff from the western half of the site, north of the swale. In contrast to the wetland swale, which is vegetated with emergent macrophytes, the seasonal wetlands are vegetated with herbaceous annual grasses and forbs typical of disturbed seasonal wetlands in the region including Italian ryegrass (*Festuca perennis*) and curly dock (*Rumex crispus*). This difference in vegetation indicates a hydrologic regime in the

[2] National Wetlands Inventory online database at < http://www.fws.gov/wetlands/Wetlands-Mapper.html> accessed February 2018

seasonal wetlands consisting of periods of inundation during and shortly after storm events with several weeks of saturation during the growing season. The seasonal wetlands are not mapped on the National Wetland Inventory but are classified as PEM2E (palustrine, emergent, non-persistent, seasonally flooded/saturated).

Data point 20 taken within seasonal wetland 1 met the three-parameter test for wetlands with a predominance of hydrophytic vegetation, hydric soil (depleted dark surface), and wetland hydrology consisting of a high water table and saturation in the upper 12 inches. Data point 17 taken within seasonal wetland 2 met the three-parameter test for wetlands with a predominance of hydrophytic vegetation, hydric soil (redox dark surface), and wetland hydrology consisting of surface water, a high water table, and saturation in the upper 12 inches.

The seasonal wetlands are potential waters of the U.S. because they are classified as wetlands adjacent to, but that do not directly abut, a relatively permanent non-navigable tributary (wetland swale). The term "adjacent" means bordering, contiguous, or neighboring. Adjacent wetlands include wetlands whose proximity to a jurisdictional water is reasonably close so that the wetlands have an ecological interconnection with jurisdictional waters.

Table 1. Aquatic Resources in the Project Site

Feature	Lat./Long.	Cowardin Classification[1]	Area (ac.)	Area (sq. ft.)
Wetlands				
Wetland Swale	38.700507/ -121.38405	P-EM-1-x	0.25	10,781
SW 1	38.700686/ -121.384456	P-EM-2-E	0.02	1,031
SW 2	38.700830/ -121.384172	P-EM-2-E	0.06	2,665
		Total Aquatic Resources	**0.33**	**14,477**

[1]Cowardin Codes for Wetlands: System (P = Palustrine; R = Riverine) Subsystem (4 = Intermittent) – Class (EM = Emergent; SB = Streambed) – Subclass (1 = Persistent; 2 = Non-persistent; 7 = Vegetated) – Modifiers (E = Seasonally Flooded/Saturated; K = Artificial; f = Farmed; x = Excavated).

6.0 SUMMARY

HELIX conducted an aquatic resources delineation of the 6.7-acre project site located at 7403 Watt Avenue in Sacramento County. A total of 0.33 acre of wetlands were delineated on the project site. No non-wetland waters are present on the site. All aquatic resources delineated on the site are potential waters of the U.S. and waters of the State subject to USACE and RWQCB jurisdiction. Impacts to these aquatic resources would require permits from the USACE and RWQCB. The aquatic features in the project site do not meet the definition of lakes or streams and are not regulated by CDFW. This aquatic resources delineation is preliminary and subject to verification by the resource agencies.

7.0 REFERENCES

Baldwin, B.G., D.H. Goldman, D.J. Keil, R. Patterson, T.J. Rosatti, D.H. Wilken, editors. 2012. The Jepson Manual: Vascular Plants of California, second edition. University of California Press, Berkeley.

Sawyer, J.O., T. Keeler-Wolf, and J.M. Evens. 2009. A Manual of California Vegetation, second edition. California Native Plant Society Press, Sacramento.

Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture (NRCS). 2018. Web Soil Survey. Available online at: http://websoilsurvey.nrcs.usda.gov/. Accessed February 2018.

_______. 2016. National List of Hydric Soils. Available online at: https://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/use/hydric/. Accessed October 2017.

U.S. Army Corps of Engineers (USACE). 2016. Arid West 2016 Regional Wetland Plant List.

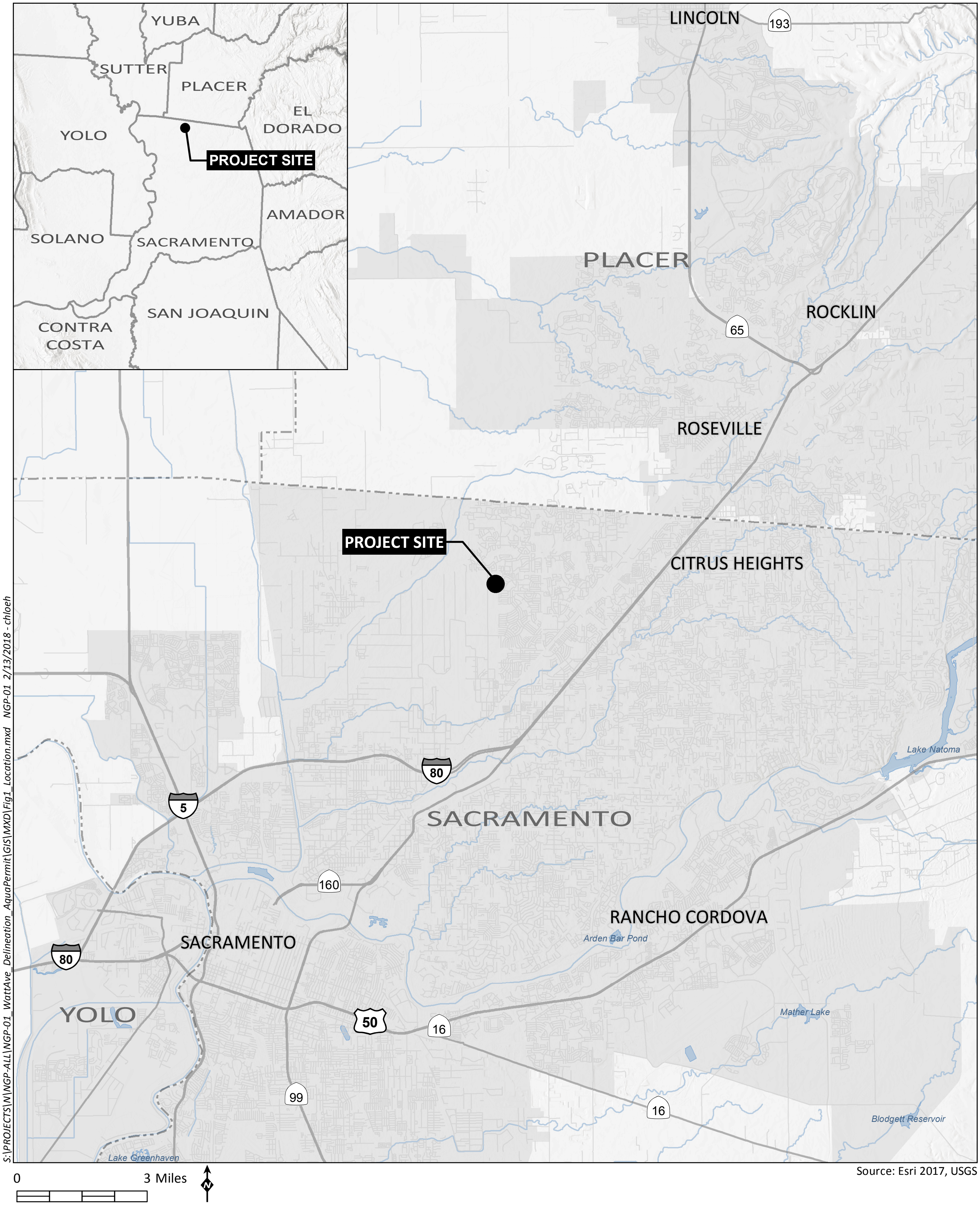
_______. 1987. Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.

_______. 2008. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0). J.S. Wakeley, R.W. Lichvar, and C.V. Noble, eds., Technical Report prepared for the U.S. Army Engineer Research and Development Center, Vicksburg, MS.

U.S. Fish and Wildlife Service (USFWS). 2018. National Wetlands Inventory. Accessed online February 2018 at < http://www.fws.gov/wetlands/Data/mapper.html>.

This page intentionally blank

Appendix A: Figures

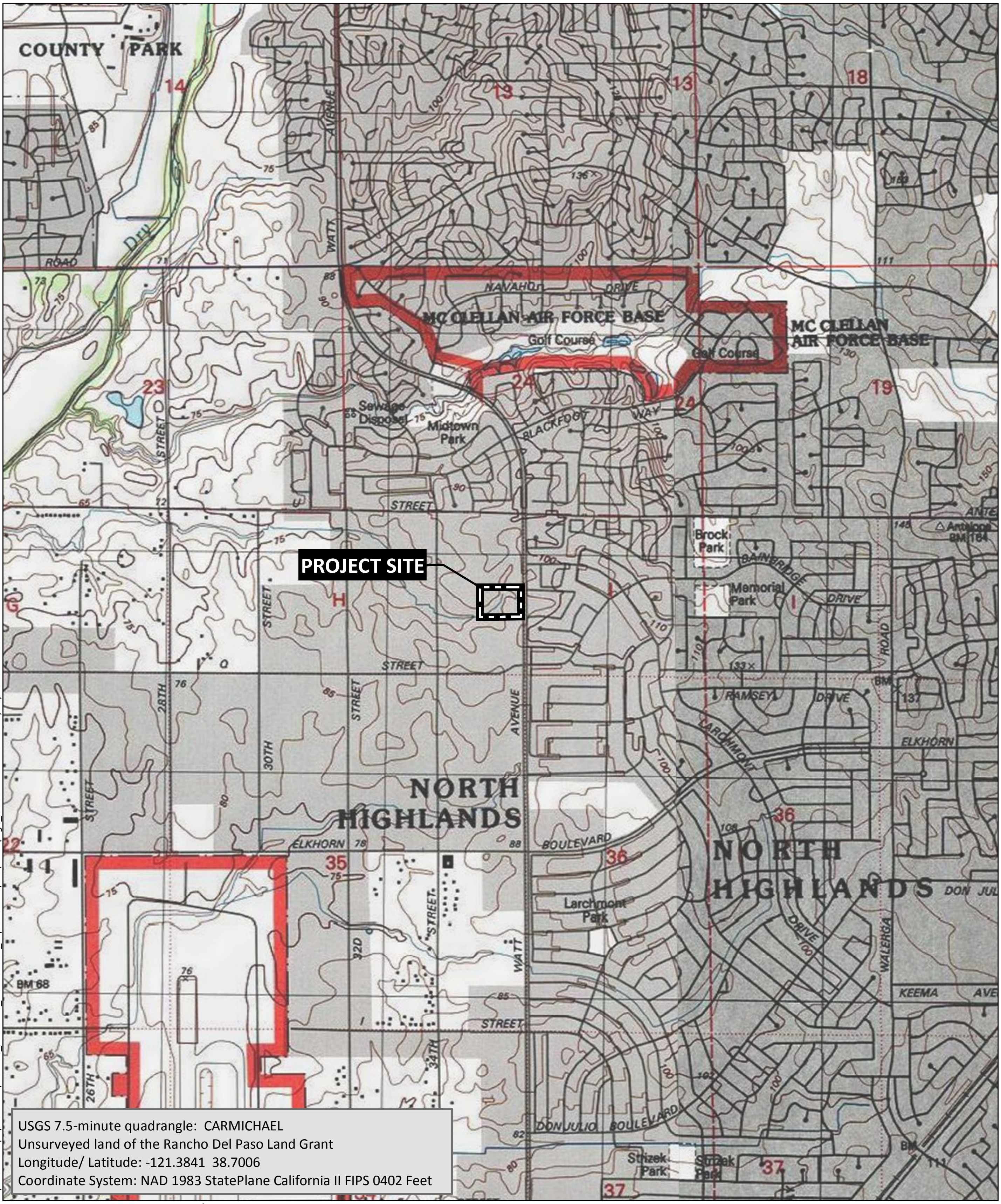


Source: Esri 2017, USGS

HELIX Environmental Planning

Regional Vicinity and Project Location

Figure 1



Source: USGS 2017

0 2,000 Feet

S:\PROJECTS\N\NGP-ALL\NGP-01_WattAve_Delineation_AquaPermit\GIS\MXD\Fig2_USGS.mxd NGP-01 2/13/2018 - chloeh

HELIX
Environmental Planning

USGS 7.5-minute Quadrangle Map

Figure 2

Source: Esri 2017

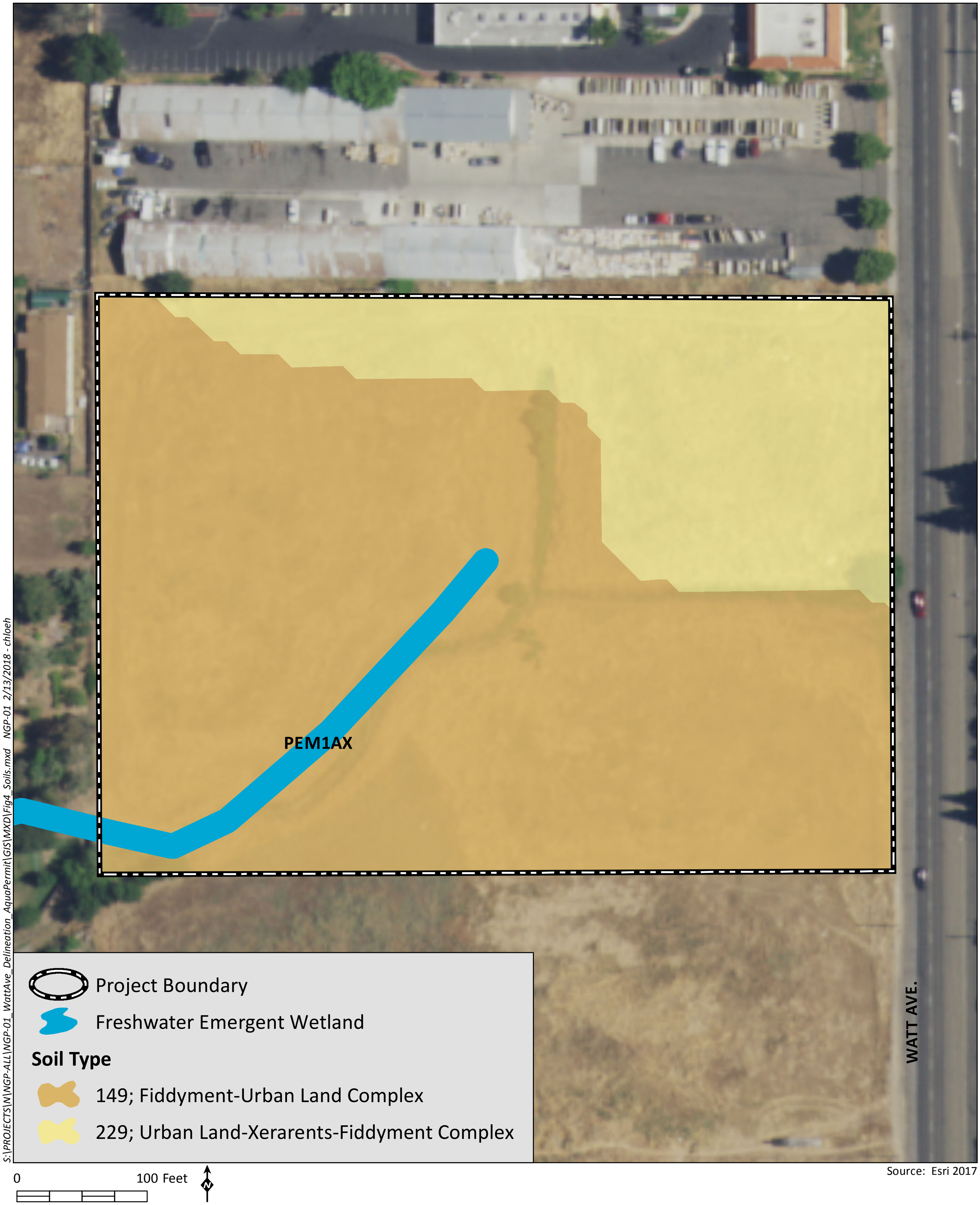
0 100 Feet

HELIX
Environmental Planning

Aerial Map

Figure 3

7403 Watt Ave.



Source: Esri 2017

HELIX Environmental Planning

Soils & NWI Map

Figure 4

Appendix B: Aquatic Resources Delineation Map

AQUATIC FEATURE	AREA	
WETLAND	ACRES	SQ. FEET
Wetland Swale	0.25	10,781
Seasonal Wetland 1	0.02	1,031
Seasonal Wetland 2	0.06	2,665
Total potentially jurisdictional waters of the U.S.	**0.33**	**14,477**

HELIX Environmental Planning

USACE REGULATORY FILE #:
VERIFIED BY: TBD
DATE OF VERIFICATION: TBD

REVISIONS

DATE	DESCRIPTION	BY

Project Boundary
Upland Sample Point
Wetland Sample Point

Aquatic Features
Seasonal Wetland
Wetland Swale

N

0 100 200 Feet
1 inch = 100 feet

Coordinate System: NAD 1983 StatePlane California II FIPS 0402 Feet
Projection: Lambert Conformal Conic
Datum: North American 1983

DRAWN BY: C. Hood
DELINEATORS: G. Aldridge, S. Stringer
DATE OF FIELDWORK: January 10 and February 18, 2018
DATE OF AERIAL PHOTOGRAPH: January 2018 (ESRI)
CREATED ON: February 14, 2018
REVISED ON:

NOTE: The boundaries and jurisdictional status of all waters shown on this map are preliminary and subject to verification by the U.S. Army Corps of Engineers

AQUATIC RESOURCES DELINEATION MAP

Made in accordance with the Updated Map and Drawing Standards for the South Pacific Division Regulatory Program as amended on February 10, 2016.

7403 Watt Ave.
Sacramento County, California
February 14, 2018

Map 1 of 1

Appendix C: Plant Species Observed

Family	Species Name	Common Name	Indicator Status*
Asteraceae	*Holocarpha virgata*	tarplant	UPL
Brassicaceae	*Raphanus sativa*	wild radish	UPL
Convolvulaceae	*Convolvulus arvensis*	bindweed	UPL
Cyperaceae	*Cyperus eragrostis*	Tall flat-sedge	FACW
Fabaceae	*Trifolium hirtum*	Rose clover	UPL
	Vicia americana	vetch	FAC
	Vicia sp.	vetch	UPL
Geraneaceae	*Erodium botrys*	storksbill	FACU
	Erodium cicutarium	storksbill	UPL
	Geranium dissectum	Cut-leaved geranium	UPL
Onagraceae	*Epilobium brachycarpum*	fireweed	FAC
Persicariaceae	*Persicaria lapathifolia*	Pale persicaria	FACW
Poaceae	*Agrostis stolonifera*	Creeping bentgrass	FACW
	Avena fatua	oats	UPL
	Bromus sp.		FACU/UPL
	Elymus caput-medusae	medusa head	UPL
Polygonaceae	*Rumex crispus*	curly dock	FAC

Scientific and common names from: Baldwin, et al. (2012)

*Acronyms: FAC = facultative, FACU = facultative upland, FACW = facultative wetland, OBL = obligate, -- = no indicator status (USACE 2014)

Appendix D: Ground Photographs

Photo 1. View of the wetland swale looking southwest from the vicinity of data point 2.

Photo 2. View of SW 1 looking south from the vicinity of data point 16.

Photo 3. View of SW 2 looking north from the vicinity of data point 17.

Photo 4. View looking west from the northeast corner of the site showing disturbed grassland habitats that are typical of the upland portions of the site.

Appendix E: Data Sheets

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: 7403 Watt Avenue City/County: Sacramento Sampling Date: 1/10/2018

Applicant/Owner: New Green Properties LLC State: CA Sampling Point: 1

Investigator(s): S. Stringer, G. Aldridge Section, Township, Range: unsurveyed, 10N, 5E

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): 2

Subregion (LRR): C Lat: 38.700537 Long: -121.384108 Datum: NAD-84

Soil Map Unit Name: Fiddyment-Urban Land Complex, 1 to 8 percent slopes NWI classification: None

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

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

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

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

	Yes	No
Hydrophytic Vegetation Present?		✔
Hydric Soil Present?		✔
Wetland Hydrology Present?		✔
Is the Sampled Area within a Wetland?		✔

Remarks:

Point is in a grass hay field adjacent to a wetland swale

VEGETATION – Use scientific names of plants.

Stratum / Species	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
= Total Cover	0		
Sapling/Shrub Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
5.			
= Total Cover	0		
Herb Stratum (Plot size: 3m)			
1. Avena fatua	60	Y	UPL
2. Elymus caput-medusae	60	Y	UPL
3. Geranium dissectum	40	Y	UPL
4.			
5.			
6.			
7.			
8.			
= Total Cover	100		
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ___ No ✔

Remarks:

Dense cover of upland weeds

SOIL

Sampling Point: 1

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-20	10 YR 3/4	100					Cl Lo	

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** ___ **No** ✔

Remarks:

No hydric soil indicators

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ___ No ✔ Depth (inches): ___

Water Table Present? Yes ___ No ✔ Depth (inches): ___

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

Wetland Hydrology Present? **Yes** ___ **No** ✔

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

Remarks:

No indicators of wetland hydrology

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: 7403 Watt Avenue City/County: Sacramento Sampling Date: 1/10/2018

Applicant/Owner: New Green Properties LLC State: CA Sampling Point: 2

Investigator(s): S. Stringer, G. Aldridge Section, Township, Range: unsurveyed, 10N, 5E

Landform (hillslope, terrace, etc.): ditch Local relief (concave, convex, none): concave Slope (%): 2

Subregion (LRR): C Lat: 38.700507 Long: -121.38405 Datum: NAD-84

Soil Map Unit Name: Fiddyment-Urban Land Complex, 1 to 8 percent slopes NWI classification: None

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

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

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

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

Hydrophytic Vegetation Present?	Yes ✔	No ___
Hydric Soil Present?	Yes ✔	No ___
Wetland Hydrology Present?	Yes ✔	No ___

Is the Sampled Area within a Wetland? **Yes** ✔ **No** ___

Remarks:

Point is in a wetland swale fed by two culverts carrying storm water and urban runoff

VEGETATION – Use scientific names of plants.

Stratum / Species	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
= Total Cover	0		
Sapling/Shrub Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
5.			
= Total Cover	0		
Herb Stratum (Plot size: 3m)			
1. Persicaria lapathifolia	50	Y	FACW
2. Epilobium brachycarpum	30	Y	FAC
3. Cyperus eragrostis	20	Y	FACW
4. Agrostis stolonifera	50	Y	FACW
5.			
6.			
7.			
8.			
= Total Cover	100		
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

- ✔ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** ✔ **No** ___

Remarks:

Dense cover of hydrophytes, flattened by recent storm flow

SOIL

Sampling Point: 2

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-2	10 YR 3/1	100					Sa Lo	
2-6	5 Y 6/1	100					Sa Lo	

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ✔ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? Yes ✔ No ___

Remarks:

Matrix below 2 inches is depleted/gleyed; surface is very dark. All soil is inundated, so no redox.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes ✔	No ___	Depth (inches): 2
Water Table Present?	Yes ✔	No ___	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes ✔	No ___	Depth (inches): 0

Wetland Hydrology Present? Yes ✔ No ___

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

Remarks:

Flowing water present in the wetland swale

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: 7403 Watt Avenue City/County: Sacramento Sampling Date: 1/10/2018

Applicant/Owner: New Green Properties LLC State: CA Sampling Point: 3

Investigator(s): S. Stringer, G. Aldridge Section, Township, Range: unsurveyed, 10N, 5E

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): C Lat: 38.700371 Long: -121.384511 Datum: NAD-84

Soil Map Unit Name: Fiddyment-Urban Land Complex, 1 to 8 percent slopes NWI classification: None

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

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

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

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

Hydrophytic Vegetation Present?	Yes ___	No ✔
Hydric Soil Present?	Yes ___	No ✔
Wetland Hydrology Present?	Yes ___	No ✔

Is the Sampled Area within a Wetland? Yes ___ No ✔

Remarks:

Point is in a hay field between a wetland swale and a seasonal wetland with standing water

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 3m)			
1. Vicia sp.	25	Y	UPL
2. Elymus caput-medusae	40	Y	UPL
3. Avena fatua	25	Y	UPL
4. Convolvulus arvensis	20	Y	UPL
5.			
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	___ = Total Cover		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ___	x 1 = ___
FACW species ___	x 2 = ___
FAC species ___	x 3 = ___
FACU species ___	x 4 = ___
UPL species ___	x 5 = ___
Column Totals: ___ (A)	___ (B)

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ___ No ✔

Remarks:

Only upland species present

SOIL

Sampling Point: 3

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-20	10 YR 3/4	100					Cl Lo	

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? **Yes** ______ **No** ✔

Remarks:

No hydric soil indicators

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

	Yes	No	Depth (inches)
Surface Water Present?		✔	
Water Table Present?		✔	
Saturation Present? (includes capillary fringe)	✔		6

Wetland Hydrology Present? **Yes** ______ **No** ✔

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

Remarks:

Water in pit from adjacent surface puddle; no indicators of wetland hydrology at the point

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: 7403 Watt Avenue City/County: Sacramento Sampling Date: 1/10/2018

Applicant/Owner: New Green Properties LLC State: CA Sampling Point: 4

Investigator(s): S. Stringer, G. Aldridge Section, Township, Range: unsurveyed, 10N, 5E

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): C Lat: 38.700502 Long: -121.384421 Datum: NAD-84

Soil Map Unit Name: Fiddyment-Urban Land Complex, 1 to 8 percent slopes NWI classification: None

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

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

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

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

	Yes	No
Hydrophytic Vegetation Present?		✔
Hydric Soil Present?		✔
Wetland Hydrology Present?		✔

Is the Sampled Area within a Wetland? Yes ____ No ✔

Remarks:

Point is in a hay field between a wetland swale and a seasonal wetland with standing water

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
= Total Cover	0		
Sapling/Shrub Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
5.			
= Total Cover	0		
Herb Stratum (Plot size: 3m)			
1. Vicia americana	25	Y	FAC
2. Elymus caput-medusae	40	Y	UPL
3. Avena fatua	25	Y	UPL
4. Convolvulus arvensis	20	Y	UPL
5.			
6.			
7.			
8.			
= Total Cover	100		
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 25 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ____ No ✔

Remarks:

Mostly upland species present

SOIL

Sampling Point: 4

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-20	10 YR 3/4	100					Cl Lo	

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? **Yes** ______ **No** ✔

Remarks:

No hydric soil indicators

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ______ No ✔ Depth (inches): ______

Water Table Present? Yes ______ No ✔ Depth (inches): ______

Saturation Present? (includes capillary fringe) Yes ✔ No ______ Depth (inches): 6

Wetland Hydrology Present? **Yes** ______ **No** ✔

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

Remarks:

Water in pit from adjacent surface puddle; no indicators of wetland hydrology at the point

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: 7403 Watt Avenue City/County: Sacramento Sampling Date: 1/10/2018

Applicant/Owner: New Green Properties LLC State: CA Sampling Point: 5

Investigator(s): S. Stringer, G. Aldridge Section, Township, Range: unsurveyed, 10N, 5E

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): C Lat: 38.700530 Long: -121.384331 Datum: NAD-84

Soil Map Unit Name: Fiddyment-Urban Land Complex, 1 to 8 percent slopes NWI classification: None

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

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

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

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

Hydrophytic Vegetation Present?	Yes ___	No ✔
Hydric Soil Present?	Yes ___	No ✔
Wetland Hydrology Present?	Yes ___	No ✔

Is the Sampled Area within a Wetland? **Yes** ___ **No** ✔

Remarks:

Point is in a hay field between a wetland swale and a seasonal wetland with standing water

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 3m)			
1. Vicia americana	25	Y	FAC
2. Elymus caput-medusae	40	Y	UPL
3. Avena fatua	25	Y	UPL
4. Convolvulus arvensis	20	Y	UPL
5.			
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	___ = Total Cover		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 25 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** ___ **No** ✔

Remarks:

Mostly upland species present

SOIL

Sampling Point: 5

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-20	10 YR 3/4	100					Cl Lo	

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

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

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (**LRR C**)
___ 1 cm Muck (A9) (**LRR D**)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? **Yes** ______ **No** ✔

Remarks:

No hydric soil indicators

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ______ No ✔ Depth (inches): ______
Water Table Present? Yes ______ No ✔ Depth (inches): ______
Saturation Present? (includes capillary fringe) Yes ✔ No ______ Depth (inches): 6

Wetland Hydrology Present? **Yes** ______ **No** ✔

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

Remarks:

Water in pit from adjacent surface puddle; no indicators of wetland hydrology at the point

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: 7403 Watt Avenue City/County: Sacramento Sampling Date: 1/10/2018

Applicant/Owner: New Green Properties LLC State: CA Sampling Point: 6

Investigator(s): S. Stringer, G. Aldridge Section, Township, Range: unsurveyed, 10N, 5E

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): C Lat: 38.700686 Long: -121.384456 Datum: NAD-84

Soil Map Unit Name: Fiddyment-Urban Land Complex, 1 to 8 percent slopes NWI classification: None

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

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

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

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

	Yes	No
Hydrophytic Vegetation Present?		✔
Hydric Soil Present?		✔
Wetland Hydrology Present?		✔
Is the Sampled Area within a Wetland?		✔

Remarks:

Point is in a hay field adjacent to a seasonal wetland

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 3m)			
1. Vicia americana	25	Y	FAC
2. Elymus caput-medusae	40	Y	UPL
3. Avena fatua	25	Y	UPL
4. Convolvulus arvensis	20	Y	UPL
5.			
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 25 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ___ No ✔

Remarks:

Mostly upland species present

SOIL

Sampling Point: 6

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-20	10 YR 3/4	100					Cl Lo	

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

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

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (**LRR C**)
___ 1 cm Muck (A9) (**LRR D**)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: __________

Depth (inches): __________

Hydric Soil Present? **Yes** ____ **No** ✔

Remarks:

No hydric soil indicators

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ____ No ✔ Depth (inches): ____

Water Table Present? Yes ____ No ✔ Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ✔ No ____ Depth (inches): 6

Wetland Hydrology Present? **Yes** ____ **No** ✔

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

Remarks:

Water in pit from adjacent surface puddle; no indicators of wetland hydrology at the point

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: 7403 Watt Avenue City/County: Sacramento Sampling Date: 1/10/2018

Applicant/Owner: New Green Properties LLC State: CA Sampling Point: 7

Investigator(s): S. Stringer, G. Aldridge Section, Township, Range: unsurveyed, 10N, 5E

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): C Lat: 38.700691 Long: -121.384571 Datum: NAD-84

Soil Map Unit Name: Fiddyment-Urban Land Complex, 1 to 8 percent slopes NWI classification: None

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

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

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

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

	Yes	No
Hydrophytic Vegetation Present?		✔
Hydric Soil Present?		✔
Wetland Hydrology Present?		✔
Is the Sampled Area within a Wetland?		✔

Remarks:

Point is in a hay field adjacent to a seasonal wetland

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 3m)			
1. Vicia americana	25	Y	FAC
2. Elymus caput-medusae	40	Y	UPL
3. Avena fatua	25	Y	UPL
4. Convolvulus arvensis	20	Y	UPL
5.			
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 25 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ___ No ✔

Remarks:

Mostly upland species present

SOIL

Sampling Point: 7

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-20	10 YR 3/4	100					Cl Lo	

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes ___ No ✔

Remarks:

No hydric soil indicators

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ___ No ✔ Depth (inches): ___

Water Table Present? Yes ___ No ✔ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ✔ No ___ Depth (inches): 6

Wetland Hydrology Present? Yes ___ No ✔

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

Remarks:

Water in pit from adjacent surface puddle; no indicators of wetland hydrology at the point

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: 7403 Watt Avenue City/County: Sacramento Sampling Date: 1/10/2018

Applicant/Owner: New Green Properties LLC State: CA Sampling Point: 8

Investigator(s): S. Stringer, G. Aldridge Section, Township, Range: unsurveyed, 10N, 5E

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): C Lat: 38.701062 Long: -121.385223 Datum: NAD-84

Soil Map Unit Name: Fiddyment-Urban Land Complex, 1 to 8 percent slopes NWI classification: None

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

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

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

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

	Yes	No
Hydrophytic Vegetation Present?		✔
Hydric Soil Present?		✔
Wetland Hydrology Present?		✔

Is the Sampled Area within a Wetland? Yes ___ No ✔

Remarks:

Point is at the highest point on the property, in a grass hay field. Soil has been disked

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
= Total Cover	0		
Sapling/Shrub Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
5.			
= Total Cover	0		
Herb Stratum (Plot size: 3m)			
1. Avena fatua	40	Y	UPL
2. Raphanus sativa	30	Y	UPL
3. Erodium cicutarium	25	Y	UPL
4. Erodium botrys	5	N	FACU
5. Vicia americana	3	N	FAC
6.			
7.			
8.			
= Total Cover	100		
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ___ No ✔

Remarks:

Only upland species dominant

SOIL

Sampling Point: 8

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-20	7.5 YR 3/4	100					Cl Lo	

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

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

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (**LRR C**)
___ 1 cm Muck (A9) (**LRR D**)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: __________

Depth (inches): __________

Hydric Soil Present? Yes ____ No ✔

Remarks:

No hydric soil indicators

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ____ No ✔ Depth (inches): ______

Water Table Present? Yes ____ No ✔ Depth (inches): ______

Saturation Present? (includes capillary fringe) Yes ____ No ✔ Depth (inches): ______

Wetland Hydrology Present? Yes ____ No ✔

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

Remarks:

No indicators of wetland hydrology

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: 7403 Watt Avenue City/County: Sacramento Sampling Date: 1/10/2018

Applicant/Owner: New Green Properties LLC State: CA Sampling Point: 9

Investigator(s): S. Stringer, G. Aldridge Section, Township, Range: unsurveyed, 10N, 5E

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): C Lat: 38.700341 Long: -121.384783 Datum: NAD-84

Soil Map Unit Name: Fiddyment-Urban Land Complex, 1 to 8 percent slopes NWI classification: None

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

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

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

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

	Yes	No
Hydrophytic Vegetation Present?		✔
Hydric Soil Present?		✔
Wetland Hydrology Present?		✔
Is the Sampled Area within a Wetland?		✔

Remarks:

Point is in a grass hay field. Soil has been disked

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
= Total Cover	0		
Sapling/Shrub Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
5.			
= Total Cover	0		
Herb Stratum (Plot size: 3m)			
1. Erodium botrys	40	Y	FACU
2. Vicia americana	40	Y	FAC
3.			
4.			
5.			
6.			
7.			
8.			
= Total Cover	80		
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	40	x 3 =	120
FACU species	40	x 4 =	160
UPL species	0	x 5 =	0
Column Totals:	80 (A)		280 (B)

Prevalence Index = B/A = 3.5

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ____ No ✔

Remarks:

Fails dominance test and prevalence index

SOIL

Sampling Point: 9

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-20	7.5 YR 3/4	100					Cl Lo	

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

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

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (**LRR C**)
___ 1 cm Muck (A9) (**LRR D**)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? **Yes** ______ **No** ✔

Remarks:

No hydric soil indicators

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

Wetland Hydrology Present? **Yes** ______ **No** ✔

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

Remarks:

No indicators of wetland hydrology

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: 7403 Watt Avenue City/County: Sacramento Sampling Date: 1/10/2018

Applicant/Owner: New Green Properties LLC State: CA Sampling Point: 10

Investigator(s): S. Stringer, G. Aldridge Section, Township, Range: unsurveyed, 10N, 5E

Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 0

Subregion (LRR): C Lat: 38.700137 Long: -121.385101 Datum: NAD-84

Soil Map Unit Name: Fiddyment-Urban Land Complex, 1 to 8 percent slopes NWI classification: None

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

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

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

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

Hydrophytic Vegetation Present?	Yes ✔	No ____
Hydric Soil Present?	Yes ____	No ✔
Wetland Hydrology Present?	Yes ✔	No ____

Is the Sampled Area within a Wetland? **Yes** ____ **No** ✔

Remarks:

Point is in a depression in a grass hay field that collects water during and shortly after storm events

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 3m)			
1. Festuca perennis	80	Y	FAC
2. Avena fatua	10	N	UPL
3. Erodium botrys	5	N	FACU
4.			
5.			
6.			
7.			
8.			
	90 = Total Cover		
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	____	x 1 = ____
FACW species	____	x 2 = ____
FAC species	____	x 3 = ____
FACU species	____	x 4 = ____
UPL species	____	x 5 = ____
Column Totals:	____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

✔ Dominance Test is >50%
___ Prevalence Index is ≤3.0[1]
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** ✔ **No** ____

Remarks:

Dominated by FAC grass

SOIL

Sampling Point: 10

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	10 YR 3/3	90	7.5 YR 4/6	10	C	PL,M	Cl Lo	

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

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

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (**LRR C**)
___ 1 cm Muck (A9) (**LRR D**)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ________
Depth (inches): ________

Hydric Soil Present? Yes ____ No ✔

Remarks:

Soil not hydric

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ✔ No ____ Depth (inches): 3
Water Table Present? Yes ____ No ✔ Depth (inches): ____
Saturation Present? (includes capillary fringe) Yes ____ No ✔ Depth (inches): ____

Wetland Hydrology Present? Yes ✔ No ____

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

Remarks:

Standing water present from recent rain event. Area does not appear to be a wetland.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: 7403 Watt Avenue City/County: Sacramento Sampling Date: 1/10/2018

Applicant/Owner: New Green Properties LLC State: CA Sampling Point: 11

Investigator(s): S. Stringer, G. Aldridge Section, Township, Range: unsurveyed, 10N, 5E

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): C Lat: 38.700137 Long: -121.384987 Datum: NAD-84

Soil Map Unit Name: Fiddyment-Urban Land Complex, 1 to 8 percent slopes NWI classification: None

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

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

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

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

	Yes	No
Hydrophytic Vegetation Present?		✔
Hydric Soil Present?		✔
Wetland Hydrology Present?		✔

Is the Sampled Area within a Wetland? **Yes** ___ **No** ✔

Remarks:

Point is in a hay field

VEGETATION – Use scientific names of plants.

Stratum / Species	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
= Total Cover	0		
Sapling/Shrub Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
5.			
= Total Cover	0		
Herb Stratum (Plot size: 3m)			
1. Vicia americana	25	Y	FAC
2. Elymus caput-medusae	40	Y	UPL
3. Avena fatua	25	Y	UPL
4. Convolvulus arvensis	20	Y	UPL
5.			
6.			
7.			
8.			
= Total Cover	100		
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 25 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** ___ **No** ✔

Remarks:

Mostly upland species present

SOIL

Sampling Point: 11

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-20	10 YR 3/4	100					Cl Lo	

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ____________

Depth (inches): ____________

Hydric Soil Present? **Yes** ______ **No** ✔

Remarks:

No hydric soil indicators

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ______ No ✔ Depth (inches): ______

Water Table Present? Yes ______ No ✔ Depth (inches): ______

Saturation Present? (includes capillary fringe) Yes ✔ No ______ Depth (inches): 6

Wetland Hydrology Present? **Yes** ______ **No** ✔

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

Remarks:

Water in pit from adjacent surface puddle; no indicators of wetland hydrology at the point

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: 7403 Watt Avenue City/County: Sacramento Sampling Date: 1/10/2018

Applicant/Owner: New Green Properties LLC State: CA Sampling Point: 12

Investigator(s): S. Stringer, G. Aldridge Section, Township, Range: unsurveyed, 10N, 5E

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): C Lat: 38.700190 Long: -121.384807 Datum: NAD-84

Soil Map Unit Name: Fiddyment-Urban Land Complex, 1 to 8 percent slopes NWI classification: None

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

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

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

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

Hydrophytic Vegetation Present?	Yes ___	No ✔
Hydric Soil Present?	Yes ___	No ✔
Wetland Hydrology Present?	Yes ___	No ✔

Is the Sampled Area within a Wetland? **Yes** ___ **No** ✔

Remarks:

Point is in a hay field

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 3m)			
1. Vicia americana	25	Y	FAC
2. Elymus caput-medusae	40	Y	UPL
3. Avena fatua	25	Y	UPL
4. Convolvulus arvensis	20	Y	UPL
5.			
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	___ = Total Cover		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 25 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** ___ **No** ✔

Remarks:

Mostly upland species present

SOIL

Sampling Point: 12

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-20	10 YR 3/4	100					Cl Lo	

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ____________

Depth (inches): ____________

Hydric Soil Present? Yes ______ No ✔

Remarks:

No hydric soil indicators

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ______ No ✔ Depth (inches): ______

Water Table Present? Yes ______ No ✔ Depth (inches): ______

Saturation Present? (includes capillary fringe) Yes ______ No ✔ Depth (inches): 0

Wetland Hydrology Present? Yes ______ No ✔

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

Remarks:

No indicators of wetland hydrology at the point

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: 7403 Watt Avenue City/County: Sacramento Sampling Date: 1/10/2018

Applicant/Owner: New Green Properties LLC State: CA Sampling Point: 13

Investigator(s): S. Stringer, G. Aldridge Section, Township, Range: unsurveyed, 10N, 5E

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): C Lat: 38.700421 Long: -121.384700 Datum: NAD-84

Soil Map Unit Name: Fiddyment-Urban Land Complex, 1 to 8 percent slopes NWI classification: None

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

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

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

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

	Yes	No
Hydrophytic Vegetation Present?		✔
Hydric Soil Present?		✔
Wetland Hydrology Present?		✔

Is the Sampled Area within a Wetland? **Yes** ___ **No** ✔

Remarks:

Point is in a grass hay field. Soil has been disked

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
= Total Cover	0		
Sapling/Shrub Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
5.			
= Total Cover	0		
Herb Stratum (Plot size: 3m)			
1. Erodium botrys	40	Y	FACU
2. Vicia americana	40	Y	FAC
3.			
4.			
5.			
6.			
7.			
8.			
= Total Cover	80		
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	40	x 3 =	120
FACU species	40	x 4 =	160
UPL species	0	x 5 =	0
Column Totals:	80 (A)		280 (B)

Prevalence Index = B/A = 3.5

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** ___ **No** ✔

Remarks:

Fails dominance test and prevalence index

SOIL

Sampling Point: 13

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-20	7.5 YR 3/4	100					Cl Lo	

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ______________________

Depth (inches): ______________________

Hydric Soil Present? Yes ______ No ✔

Remarks:

No hydric soil indicators

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

Saturation Present? (includes capillary fringe) Yes _____ No ✔ Depth (inches): ___________

Wetland Hydrology Present? Yes ______ No ✔

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

Remarks:

No indicators of wetland hydrology

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: 7403 Watt Avenue City/County: Sacramento Sampling Date: 1/10/2018

Applicant/Owner: New Green Properties LLC State: CA Sampling Point: 14

Investigator(s): S. Stringer, G. Aldridge Section, Township, Range: unsurveyed, 10N, 5E

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): C Lat: 38.700592 Long: -121.384597 Datum: NAD-84

Soil Map Unit Name: Fiddyment-Urban Land Complex, 1 to 8 percent slopes NWI classification: None

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

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

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

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

	Yes	No
Hydrophytic Vegetation Present?		✔
Hydric Soil Present?		✔
Wetland Hydrology Present?		✔

Is the Sampled Area within a Wetland? Yes ____ No ✔

Remarks:

Point is in a hay field between a wetland swale and a seasonal wetland

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 3m)			
1. Vicia americana	25	Y	FAC
2. Elymus caput-medusae	40	Y	UPL
3. Avena fatua	25	Y	UPL
4. Convolvulus arvensis	20	Y	UPL
5.			
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 25 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ____ No ✔

Remarks:

Mostly upland species present

SOIL

Sampling Point: 14

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-20	10 YR 3/4	100					Cl Lo	

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? Yes ___ No ✔

Remarks:

No hydric soil indicators

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ___ No ✔ Depth (inches): ______

Water Table Present? Yes ___ No ✔ Depth (inches): ______

Saturation Present? (includes capillary fringe) Yes ✔ No ___ Depth (inches): 8

Wetland Hydrology Present? Yes ___ No ✔

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

Remarks:

Water in pit from adjacent surface puddle; no indicators of wetland hydrology at the point

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: 7403 Watt Avenue City/County: Sacramento Sampling Date: 1/10/2018

Applicant/Owner: New Green Properties LLC State: CA Sampling Point: 15

Investigator(s): S. Stringer, G. Aldridge Section, Township, Range: unsurveyed, 10N, 5E

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): C Lat: 38.701062 Long: -121.385223 Datum: NAD-84

Soil Map Unit Name: Fiddyment-Urban Land Complex, 1 to 8 percent slopes NWI classification: None

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

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

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

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

	Yes	No
Hydrophytic Vegetation Present?		✔
Hydric Soil Present?		✔
Wetland Hydrology Present?		✔
Is the Sampled Area within a Wetland?		✔

Remarks:

Point is in a grass hay field. Soil has been disked

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
= Total Cover	0		
Sapling/Shrub Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
5.			
= Total Cover	0		
Herb Stratum (Plot size: 3m)			
1. Avena fatua	40	Y	UPL
2. Raphanus sativa	30	Y	UPL
3. Erodium cicutarium	25	Y	UPL
4. Erodium botrys	5	N	FACU
5. Vicia americana	3	N	FAC
6.			
7.			
8.			
= Total Cover	100		
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ___ No ✔

Remarks:

Only upland species dominant

SOIL

Sampling Point: 15

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-20	7.5 YR 3/4	100					Cl Lo	

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? Yes ___ No ✔

Remarks:

No hydric soil indicators

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ___ No ✔ Depth (inches): ______

Water Table Present? Yes ___ No ✔ Depth (inches): ______

Saturation Present? (includes capillary fringe) Yes ___ No ✔ Depth (inches): ______

Wetland Hydrology Present? Yes ___ No ✔

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

Remarks:

No indicators of wetland hydrology

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: 7403 Watt Avenue City/County: Sacramento Sampling Date: 1/10/2018

Applicant/Owner: New Green Properties LLC State: CA Sampling Point: 16

Investigator(s): S. Stringer, G. Aldridge Section, Township, Range: unsurveyed, 10N, 5E

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): C Lat: 38.700830 Long: -121.384172 Datum: NAD-84

Soil Map Unit Name: Fiddyment-Urban Land Complex, 1 to 8 percent slopes NWI classification: None

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

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

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

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

	Yes	No
Hydrophytic Vegetation Present?		✔
Hydric Soil Present?		✔
Wetland Hydrology Present?		✔

Is the Sampled Area within a Wetland? Yes ___ No ✔

Remarks:

Point is in a hay field near a seasonal wetland

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
= Total Cover	0		
Sapling/Shrub Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
5.			
= Total Cover	0		
Herb Stratum (Plot size: 3m)			
1. Vicia americana	25	Y	FAC
2. Elymus caput-medusae	40	Y	UPL
3. Avena fatua	25	Y	UPL
4. Convolvulus arvensis	20	Y	UPL
5.			
6.			
7.			
8.			
= Total Cover	100		
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 25 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ___ No ✔

Remarks:

Mostly upland species present

SOIL

Sampling Point: 16

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-20	10 YR 3/4	100					Cl Lo	

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? Yes ___ No ✔

Remarks:

No hydric soil indicators

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ___ No ✔ Depth (inches): ___

Water Table Present? Yes ___ No ✔ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ✔ No ___ Depth (inches): 9

Wetland Hydrology Present? Yes ___ No ✔

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

Remarks:

Water in pit from adjacent surface puddle; no indicators of wetland hydrology at the point

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: 7403 Watt Avenue City/County: Sacramento Sampling Date: 1/10/2018

Applicant/Owner: New Green Properties LLC State: CA Sampling Point: 17

Investigator(s): S. Stringer, G. Aldridge Section, Township, Range: unsurveyed, 10N, 5E

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): C Lat: 38.700830 Long: -121.384172 Datum: NAD-84

Soil Map Unit Name: Fiddyment-Urban Land Complex, 1 to 8 percent slopes NWI classification: None

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

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

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

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

Hydrophytic Vegetation Present?	Yes ✔	No ___
Hydric Soil Present?	Yes ✔	No ___
Wetland Hydrology Present?	Yes ✔	No ___

Is the Sampled Area within a Wetland? **Yes** ✔ **No** ___

Remarks:

Point is in seasonal wetland in a hay field

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 3m)			
1. Festuca perennis	70	Y	FAC
2. Rumex crispus	2	N	FAC
3. Convolvulus arvensis	2	N	UPL
4.			
5.			
6.			
7.			
8.			
	70 = Total Cover		
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	___ = Total Cover		

% Bare Ground in Herb Stratum 30 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	___	x 1 = ___
FACW species	___	x 2 = ___
FAC species	___	x 3 = ___
FACU species	___	x 4 = ___
UPL species	___	x 5 = ___
Column Totals:	___ (A)	___ (B)

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

✔ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** ✔ **No** ___

Remarks:

Dominated by FAC grass

SOIL

Sampling Point: 17

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	10 YR 3/2	90	7.5 YR 4/6	10	C	PL, M	Cl Lo	

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✔ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? Yes ✔ **No** ______

Remarks:

10 percent distinct redox concentrations in pore linings

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ✔ No ______ Depth (inches): 5

Water Table Present? Yes ✔ No ______ Depth (inches): 12

Saturation Present? (includes capillary fringe) Yes ✔ No ______ Depth (inches): 0

Wetland Hydrology Present? Yes ✔ **No** ______

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

Remarks:

Standing water, obvious perched water table

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: 7403 Watt Avenue City/County: Sacramento Sampling Date: 1/10/2018

Applicant/Owner: New Green Properties LLC State: CA Sampling Point: 18

Investigator(s): S. Stringer, G. Aldridge Section, Township, Range: unsurveyed, 10N, 5E

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): C Lat: 38.700234 Long: -121.384322 Datum: NAD-84

Soil Map Unit Name: Fiddyment-Urban Land Complex, 1 to 8 percent slopes NWI classification: None

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

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

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

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

	Yes	No
Hydrophytic Vegetation Present?		✔
Hydric Soil Present?		✔
Wetland Hydrology Present?		✔

Is the Sampled Area within a Wetland? Yes ___ No ✔

Remarks:

Point is on a terrace above a wetland swale

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 3m)			
1. Avena fatua	30	Y	UPL
2. Elymus caput-medusae	25	Y	UPL
3. Holocarpha virgata	10	N	UPL
4. Festuca perennis	25	Y	FAC
5. Trifolium hirtum	10	N	UPL
6. Erodium botrys	10	N	FACU
7. Vicia americana	5	N	FAC
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ___	x 1 = ___
FACW species ___	x 2 = ___
FAC species ___	x 3 = ___
FACU species ___	x 4 = ___
UPL species ___	x 5 = ___
Column Totals: ___ (A)	___ (B)

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ___ No ✔

Remarks:

Dominated by UPL grasses

SOIL

Sampling Point: 18

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-6	7.5 YR 3/4	80						20 percent asphalt/gravel

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ____________

Depth (inches): ____________

Hydric Soil Present? Yes ______ No ✔

Remarks:

Fill/mixed fill with gravel and asphalt

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ______ No ✔ Depth (inches): ____________

Water Table Present? Yes ______ No ✔ Depth (inches): ____________

Saturation Present? (includes capillary fringe) Yes ______ No ✔ Depth (inches): ____________

Wetland Hydrology Present? Yes ______ No ✔

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

Remarks:

No hydrology indicators

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: 7403 Watt Avenue City/County: Sacramento Sampling Date: 1/10/2018

Applicant/Owner: New Green Properties LLC State: CA Sampling Point: 19

Investigator(s): S. Stringer, G. Aldridge Section, Township, Range: unsurveyed, 10N, 5E

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): C Lat: 38.700813 Long: -121.383395 Datum: NAD-84

Soil Map Unit Name: Urban Lands-Xerarents-Fiddyment Complex, 0 to 8 percent slopes NWI classification: None

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

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

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

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

	Yes	No
Hydrophytic Vegetation Present?		✔
Hydric Soil Present?		✔
Wetland Hydrology Present?		✔

Is the Sampled Area within a Wetland? Yes ___ No ✔

Remarks:

Point is on an upland terrace

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 3m)			
1. Avena fatua	70	Y	UPL
2. Bromus sp.	30	Y	UPL
3.			
4.			
5.			
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ___ No ✔

Remarks:

Dominated by UPL grasses

SOIL

Sampling Point: 19

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-8	7.5 YR 3/4	80					Fill	20 percent asphalt/gravel

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? Yes ______ No ✔

Remarks:

Soil previously disturbed; likely fill from roadway and adjacent properties

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ______ No ✔ Depth (inches): ______

Water Table Present? Yes ______ No ✔ Depth (inches): ______

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

Wetland Hydrology Present? Yes ______ No ✔

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

Remarks:

No hydrology indicators

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: 7403 Watt Avenue City/County: Sacramento Sampling Date: 1/08/2018

Applicant/Owner: New Green Properties LLC State: CA Sampling Point: 20

Investigator(s): S. Stringer Section, Township, Range: unsurveyed, 10N, 5E

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): <1

Subregion (LRR): C Lat: 38.700686 Long: -121.384456 Datum: NAD-84

Soil Map Unit Name: Fiddyment-Urban Land Complex, 1 to 8 percent slopes NWI classification: None

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

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

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

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

Hydrophytic Vegetation Present?	Yes ✔	No ___
Hydric Soil Present?	Yes ✔	No ___
Wetland Hydrology Present?	Yes ✔	No ___

Is the Sampled Area within a Wetland? Yes ✔ No ___

Remarks:

Region is experience drier than normal conditions

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: 3m)			
1. Festuca perennis	100	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
= Total Cover	100		
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

✔ Dominance Test is >50%
___ Prevalence Index is ≤3.0[1]
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✔ No ___

Remarks:

only vegetation identifiable is Italian ryegrass

SOIL

Sampling Point: 20

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-12	10 YR 3/1	95	5YR 4/6	5	C	PL/M	Cl Lo	

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✔ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? Yes ✔ No ______

Remarks:

hydric soil present

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ______ No ✔ Depth (inches): ______

Water Table Present? Yes ✔ No ______ Depth (inches): 2

Saturation Present? (includes capillary fringe) Yes ✔ No ______ Depth (inches): 0

Wetland Hydrology Present? Yes ✔ No ______

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

Remarks:

saturated at the surface at data point location; standing water present within tire ruts elsewhere in the wetland

Level 3 Drainage Study

For

Watt Avenue Apartments

7403 Watt Avenue

North Highlands, CA

Control Number: PLNP2021-00133

Watershed: 27-Dry Creek

Vertical Datum: NGVD29

July 20, 2022

Prepared by:
JTS Engineering Consultants, Inc.
1808 J Street
Sacramento, CA 95811

Job #: 2018-132

TABLE OF CONTENTS

EXHIBITS

APPENDICES

1. Introduction:

a. Existing Conditions

The 6.11-acre parcel at 7403 Watt Avenue (project site) with an assessor's parcel number of 208-0122-067 is currently undeveloped and is located south of the Watt Avenue and Antelope Road intersection in the North Highlands area of Sacramento County (**Exhibit A**). The adjacent parcel to the north is a developed commercial lot, abutting properties along the west are agricultural-residential lots, the adjacent property to the south is undeveloped and properties to the east of the site across from Watt Avenue are developed single and multi-family residential lots.

b. Project Description

The subject parcel will be developed into a multi-family residential apartment complex. It will have a total of eight buildings, an onsite park as well as a club house and pool area. Open and covered parking stalls and drive aisles will be built to meet occupancy requirements. The proposed design consists of 1.28 acres of a permeable surface and 4.83 acres of an impermeable surface, which is approximately 80% impervious. The areas consisting of impermeable surfaces include drive aisles, two emergency vehicle access roads, parking stalls, eight major buildings, a club house and a pool area. Areas consisting of permeable surfaces landscape planters, bio-retention planters and an onsite park.

c. Applicable Standards

i. Sacramento County Drainage Study Requirements
ii. Sacramento County Floodplain Management Ordinance
iii. Sacramento City/County Drainage Manual Volume 2: Hydrology Standards
iv. Sacramento County Improvement Standards – Section 9
v. Stormwater Quality Design Manual for the Sacramento Region.

d. Conditions of Approval: No conditions of approval are present at this time. This drainage study will serve as a basis for the conditions of approval for the project.

e. Previous Studies: No previous drainage studies have been completed for this project.

f. Objectives of Analysis

The purpose of this study is to address the following items:

1. Develop and evaluate a hydrologic model for the watersheds affecting the project site. The 2-, 10- and 100-year storms shall be analyzed in existing and with-project conditions.

2. Develop and evaluate existing and proposed unsteady flow hydraulic models within and downstream of the project site to assess potential adverse impacts and the mitigation of the proposed design.

3. Develop and evaluate an overland release hydraulic model of the project site to ensure that water depth will not exceed 6-inches within parking areas of the site, as well as to properly elevate proposed buildings above the water surface elevation per the Sacramento County Floodplain Ordinance.

4. Analyze a Nolte design storm for the proposed public storm drain facilities downstream using the maximum 10-year water surface elevation as the receiving channel tailwater condition.

5. Design a preliminary grading and drainage plan for the project site, including floodplain and increased runoff mitigation for the 100-year, 24-hour storm event, stormwater quality design, hydromodification, and low impact development.

2. Baseline (Existing Conditions):

a. Historical Land-use: The historical land usage of the subject parcel is unknown.

b. Topographic Sources: Topographic data of the subject parcel is based on a field survey. Existing site elevations range from 82.55- to 95.66-feet per the National Geodetic Vertical Datum of 1929 (NGVD29). Offsite topographic data relied on 2-foot LiDAR generated contours from the Sacramento County Open Data website based on the NGVD29 datum.

c. Offsite Drainage

i. **Upstream:** The upstream watershed is entirely developed and served by underground drainage facilities designed assumed to accommodate a Nolte storm event. Information of these facilities was gathered from the Sacramento County Drainage Facility Maps. All runoff is generated within hydrologic zone 2 of Sacramento County per the hydrology standards.

ii. **Downstream:** The natural channel on the subject property continues downstream until it discharges into Dry (North) Creek.

d. Onsite Drainage

There is a 36-inch storm drain pipe discharging upstream runoff on the northerly property line as well as a 27-inch along the easterly property line. Both storm drain pipes discharge runoff into separate natural channels and subsequently converge into a collective channel and route drainage to the southwest corner of the property.

e. Hydrologic Modeling Assumptions

Offsite Hydrology Model
Sacramento County Hydrologic Calculator version 1.1.0.25 (SacCalc) was used to complete the hydrological analysis of all watersheds. The Sacramento Method was used to analyze the 2-, 10- and 100-year, 24-hour design storms.

The Existing Watershed Map (**Exhibit B**) indicates that there are three sub-sheds upstream of the project site. Overland runoff that routes along the easterly property line of the project site is collected from sub-sheds 1 and 2 and overland runoff that flows to the northerly property line is collected from sub-shed 3.

Per the National Resources Conservation Service (NRCS) Web Soil Survey website, the project site, upstream and downstream watersheds are comprised primarily of type 'D' soil per the USDA hydrologic soil group classification.

The Existing Landuse Map can be seen on **Exhibit C** and indicates that sub-sheds 1 and 2 are largely comprised of single family and multi-family residential development and sub-shed 3 is mainly comprised of commercial development. Downstream of the subject parcel there is agricultural-residential, vacant land and some commercial sites. Parameters defining the percent impervious areas for each land-use type can be seen on the Landuse Map as well, which follow the hydrology standards. Land use of each sub-shed can be seen on **Exhibit B**.

The basin 'n' method was used for the lag transformation for each sub-shed. SacCalc input parameters, such as the longest water course or channel length, distance to centroid and land use be seen on **Exhibit B** and **Table 1** below. Peak runoff can be seen on **Table 2**. The majority of runoff is from watersheds 1 and 2, which accumulate to 177 cubic-feet per second at their junction.

See the attached electronic file of SacCalc model denoted "**Existing Offsite Hydrology**" for reference.

Table 1 – Existing Watershed Parameters

Sub-shed	Lag Time Parameters			Landuse				
	Longest Water Course (ft)	Centroid to Longest Water Course (ft)	Slope of Water Course (ft/ft)	Commercial (acres)	Single Family (acres)	Apartment (acres)	Vacant Land (acres)	Agricultural-Residential (acres)
1	3300	1754	0.01	2	36	24.2	0	0
2	3036.2	1137.7	0.01	2.7	28.9	9.1	1.6	0
3	1165.9	541.7	0.0069	12.6	0	0	0	0
4	709	533	0.008	0	0	0	3.7	0
5A	1237	840	0.011	8.2	0	0	2.3	10.8
5B	624	496	0.0096	0	0	0	2.5	3
6	577	249	0.019	0	0	0	0	1.9
7	874	457	0.011	0	0	0	0	5.1

Table 2 – Existing Peak Watershed Runoff

Sub-shed	**Peak Runoff**		
	$Q_{100\text{-Yr}}$ (cfs)	$Q_{10\text{-Yr}}$ (cfs)	$Q_{2\text{-Yr}}$ (cfs)
1	104	72	39
2	74	50	27
3	34	22	12
4	6.1	3.6	1.9
5A	36	21	12
5B	10	5.9	3.1
6	4.3	2.5	1.3
7	9.3	5.5	2.9

Onsite Hydrology Model

An existing onsite hydrology model for the 100-year, 24-hour design storm was created in SacCalc using the Sacramento Method in order to determine the increase in runoff from proposed development.

The existing project site is undeveloped. An impervious percent of 2% was used for the model. The basin 'n' method was used to compute the lag transformation. See the Existing Onsite Watershed Map (**Exhibit D**) which contains input watershed parameters. The existing 100-year peak flow generated by the site was computed as 11 cubic-feet per second.

See the sub-shed entitled "E-WS" within the attached electronic file of the SacCalc denoted "**Existing and Proposed On-site Hydrology**" for reference. The proposed component and mitigation volume will be discussed in subsequent sections of this report.

f. Hydraulic Modeling Assumptions

The existing channel on the subject property and downstream of the site was hydraulically modeled with United States Army Corp of Engineers (USACE) HEC-RAS version 5.0.7 using an unsteady flow analysis. The limits of the hydraulically studied area can be seen on the Existing Hydraulic Routing Map (**Exhibit E**). The upstream end of the analysis begins at the northerly and easterly property lines, where 27-inch and 36-inch storm drain pipes discharge into their respective channels. The downstream limit of the analysis ends just before the channel enters the existing double barrel 36-inch culverts (denoted R26 through R29 on SCDWR Drainage Facility Maps) between properties APN: 208-0121-053 and 208-0121-050.

SacCalc generated runoff hydrographs from the previously explained offsite hydrologic model were used as boundary conditions at the respective river stations that the sub-sheds discharge into the channel at. The downstream boundary condition at river station 1 of reach 3 was input as a flow-stage rating curve, which was calculated from field collected data of the downstream culvert. Autodesk AutoCAD Civil 3D Hydraflow Extension was used to compute the stage for incremental flows. See the attached electronic entitled, **'Downstream Culvert'** within **Appendix D**.

The roughness coefficient throughout the main channel was held to 0.05 with overbanks set at 0.04.

Elevations in the cross section were taken from the topographic survey of the site. Elevations outside of the topographic survey were taken from the 2-foot LiDAR data.

As seen on the Existing Hydraulic Routing Map, the channel was divided into three reaches and multiple cross-sections were input along the channels. Analysis of the downstream double barrel culverts along the channel path were also analyzed from topographic surveyed elevations.

Results of the model can be seen on the HEC-RAS Tabular Summary, Cross-Sections and Channel Profile on **Exhibit F**. The 2-, 10- and 100-year design storms over a 24-hour duration were routed in the model. The 100-year water surface elevation at river station 15, which is located at the discharge point of the subject property was computed as 86.95-feet. The upstream water surface elevation at reach 1 and 2 was computed as 91.40-feet and 88.38-feet, respectively.

See the existing condition plans within the attached electronic HEC-RAS files denoted '**7403 Watt Ave**' for reference.

g. Floodplain Extents

The resulting 100-year, 24-hour water surface elevation at each HEC-RAS cross-section of the on-site channel was used to map the existing floodplain within the subject property. The mapped floodplain was then imported into Autodesk AutoCAD Civil 3D and a volumetric comparison between the topographic survey of the site and the water surface elevation was done in order to compute the existing floodplain volume on the subject property, which will be mitigated for within the site design.

As seen on **Exhibit G**, the total fill volume, which represents the volume between the surface representing the water surface and the existing ground surface of the topographic survey was computed to be <u>42,568 cubic-feet</u>.

See **Exhibit H** for the existing and proposed 2-, 10- and 100-year storm events plotted downstream of the project site. The proposed condition will be discussed in subsequent sections of this report.

Analyzing the extent of the existing floodplain downstream of the project site, 34th Street roadway will overtop for all three analyzed storm events. Based on 2-foot LiDAR contours, existing structures may be at risk during all three analyzed storm events as well.

The existing water surface elevation adjacent to the existing building to the north of the project site was computed in order to determine the baseline condition in order to ensure that the proposed project will not adversely impact the structure. As seen on **Exhibit I**, offsite runoff enters into the existing project site at an edge of pavement elevation of 90.48-feet and subsequently drains to a low point of 89-97-feet. After reaching an adjacent elevation of 90.35-feet, floodwater would enter into the existing channel. Autodesk AutoCAD Civil 3D Hydraflow Extension was used to compute the water surface elevation using surveyed elevations along the edge of the pavement on the northerly property. Elevations surveyed at the existing building corners were taken on the pavement just outside the building and thus the actual finished floor of the building is likely higher due to surveyed elevations near the front of the building indicating higher elevations. The 100-year, 24-hour flowrate of offsite Shed 3 from SacCalc was computed as 34 cubic-feet per second. Deducting the Nolte flowrate of Shed 3, which is described in section 3.g of this report, of 6.47 cubic-feet per second, the overland release of 27.53 cubic-feet per second was routed through the described cross-section and a water surface elevation of 91.44-feet was calculated. Due to the computed water surface elevation higher than all surveyed elevations of the building corners, it appears that the building is within the floodplain and in order to not adversely affect the building, proposed conditions will require the water surface elevation to remain the same or lower the water surface elevation.

See Hydraflow Express file titled **Existing Overland Release Adjacent to Building** in **Appendix D**

3. **Mitigated Project (Proposed Condition):**

   a. **Proposed Landuse:** The proposed land-use of the subject property is high-density residential, which corresponds to 80% impervious surface per Sacramento County hydrology standards.

   b. **Grading Plan:** See **Exhibit J** for the Preliminary Grading Plan of the subject parcel. All runoff generated on-site will be collected in drain inlets or bio-retention planters.

   c. **Offsite Drainage Improvements:**

   Offsite drainage improvements include removing the existing type ‘J’ inlet fronting the project site and placing one ‘301’ type inlet on each side of the proposed driveway of the subject parcel. Due to the proposed development raising the existing grades of the project site fronting Watt Avenue, the water surface elevation would exceed the allowable 1-foot ponding within public roadways per Sacramento County standards. The incorporation of the 301-type inlets will reduce ponding to standard depth by collecting as much overland runoff as possible from upstream watersheds in order to convey the 100-year, 24-hour storm in the proposed public storm drain pipes that will be placed throughout the proposed drive aisles of the site. The inlets will route perpendicular to the centerline of the roadway with manholes placed in order to re-direct flow towards the proposed facilities. The incorporation of one 336-inch long grate and hood would suffice to reduce ponding depth to below one foot, however, due to consequential flooding of the site and roadway if an inlet were to fail, we believe that two should be placed in the event that one becomes completely clogged.

Topography immediately adjacent to the project site was analyzed in order to determine potential runoff that would be blocked due to the construction of the westerly and southerly retaining walls. From Sacramento County LiDAR contours, it was determined that elevations around the rear of parcels 208-0122-061 and 208-0122-065 routes flow south towards the channel, which bypasses the project site.

Evaluating the rear of parcel 208-0122-069, behind the existing structure appears to be relatively flat with no concentrated runoff path. The presence of an existing wooden fence prevented field measurements of the adjacent parcel, however, analyzing the project site terrain and the adjacent parcel, it appears that the terrain of the adjacent parcel is lower in elevation compared to the project site, adjacent to the fence. Additionally, measurements were taken with a builder's level along the fence line every 10-feet and indicated the site terrain sloping towards the adjacent. It is assumed that existing runoff generated within this area will pond and drain to the south as indicated from Sacramento County LiDAR contours. Thus we believe that a proposed off-site swale will not be needed in this location, based on the assessment that the proposed retaining wall will not block runoff generated within the area.

Due to the construction of the retaining wall along the southerly property line blocking local drainage from the adjacent lot that flows into the existing on-site channel, off-site mitigation will need to be implemented during construction, such as small ditch or swale that will route to the southwest corner of the site. Consequently, all off-site construction outside of the proposed drainage easement will require written notification to affected property owners. See **Exhibit K**, which indicates the location and sizing calculations for the proposed swale. The peak 100-year, 24-hour flowrate from offsite shed 5A was used to size the swale, although only a small portion of the shed will route towards the ditch. See Hydraflow Express file titled **Swale on APN 208-0122-066** in **Appendix D.**

There are no downstream proposed improvements at this time. See **Exhibit L** for existing and proposed water surface profiles for each modeled storm event. See **Exhibit H** for the existing and proposed 2-, 10- and 100-year storm events plotted downstream of the project site. See Table 3 below stating the computed existing and proposed peak flowrates discharging from the project site at river station 15 within the HEC-RAS model.

Table 3 – Peak Flows at Discharge Point of Project Site

Storm Event	Existing Peak Flow (CFS)	Proposed Peak Flow (CFS)
2-Year	72.20	58.76
10-Year	129.15	132.63
100-Year	186.48	188.86

Per the Sacramento County Floodplain Ordinance, adverse impacts are defined as changes that cause increased flood stages, flows, or velocity in or near local flood hazard areas which, to an extent including but not limited to increasing the base flood elevation equal to or greater than 0.1-foot for upstream, downstream, or adjacent properties. Increasing existing flood water inundating existing structures or significant offsite areas due to development is considered an adverse impact, regardless if the increase in flood stage is within the 0.1-foot increase. Additionally, the allowable 0.1-foot increase is considered cumulative throughout the downstream channel and the maximum increase for future development will be assessed.

Although clear increases in peak flow are shown from the HEC-RAS results, the increase in water surface elevation between existing and proposed cross-sections will be evaluated to determine if adverse effects are present from the proposed development, which will be evaluated in the summary of findings section within this report.

d. Onsite Drainage Improvements

Private Drainage System

All onsite drainage will be filtered through stormwater quality (SWQ) facilities. There are two different types of SWQ control facilities onsite, bio-retention planters and Contech Stormfilters. As seen on the Preliminary Utility Plan (**Exhibit M**), sub-sheds along the southerly and westerly property lines will collect runoff within bio-retention planters that allow infiltration into the native soil. Additional bio-retention planters have shall be placed adjacent to the proposed buildings, which will have closed bottoms. On-site runoff not accumulated within bio-retention sheds will be collected in drain inlets connected by storm drain pipes and ultimately will drain to a Contech Stormfilter manhole. Runoff from the site frontage will collect in drain inlets or bio-retention planters and route to the on-site system. The bio-retention planters shall have underdrains that connect to overflow devices. Orifices will be implemented between all underdrains and overflow devices. Underground detention facilities will be implemented throughout the site. Boxed pipes adjacent to the southerly and westerly bio-retention planters will serve as detention facilities for flood control. A rectangular underground vault located near the northeast corner of the drive aisle, within the parking spaces shall serve as mitigation for hydromodification. The vault shall have a riser and orifice sized to reduce runoff to the existing hydrology for sub-sheds routed to the facility.

Public Drainage System

Proposed design includes connecting a 60-inch by 60-inch rectangular pipe to the eastern influent and a 54-inch pipe to the northern influent. The proposed pipe and rectangular channel will convey drainage through the drive aisles of the site and connect at a manhole in the southwest corner. From this manhole, a 60-inch by 60-inch rectangular storm drain pipe will convey drainage off of the site and discharge through an outfall to the natural channel offsite. Drainage easement is being proposed for public 54-inch by 54-inch and 60-inch by 60-inch, running through the project site. The easement width calculations are shown on **Exhibit N**.

Public storm drain systems that serve 30-acres or more are considered trunk drainage facilities, which may be eligible for drainage fee credits if proposed facilities meet Sacramento County standards under Title 2 of the Water Agency Code, which indicates credit for the most efficient designs. A Nolte analysis of the proposed drainage facilities will be analyzed in subsequent sections of this report to determine if they will meet the minimum design storm flowrate adhering to minimum freeboard at manholes and inlets.

e. **Hydrologic Model Assumptions:**

Four separate SacCalc models were created for the proposed condition. A proposed off-site model was created to hydraulically model channel downstream of the site (**Appendix D – Proposed Offsite Hydrology**). Two proposed on-site SacCalc models were created (**Appendix D - Existing and Proposed On-site Hydrology** & **On-site Sub-shed Hydrology)**. The **Existing and Proposed On-site Hydrology** models the site as a single sub-shed and was used to compare the existing on-site model, in order to compute the volumetric difference between the 100-year, 24-hour hydrographs. The other models each on-site sub-shed for the 2-, 10- and 100-year, 24-hour storms in order to hydraulically model proposed on-site conditions. Finally a SacCalc for the Nolte storm (**Appendix D – Nolte Analysis**) was created in order to assess the minimum criteria for the proposed pipe.

Offsite Hydrology Model

The hydrologic model from the baseline section of this report was modified for offsite sheds, which all remained same aside from shed 5B, which was revised to exclude the portion of the shed containing the project site. See **Exhibit O** and **Exhibit P** of the Proposed Off-site Watershed Map and the Proposed Land Use Map, for inputs into the revised SacCalc model. See SacCalc model denoted **Proposed Offsite Hydrology** in **Appendix D** for reference.

Onsite Hydrology Model – Mitigation for Increased Runoff

As seen on the Proposed On-Site Watershed Map (**Exhibit Q**), the upstream end of the watercourse begins near the driveway on Watt Avenue and was routed downstream through the underground storm drain system. The travel time lag transformation method was used for the model by inputting proposed underground storm drain facility information. In order to yield conservative results the same watershed delineation was used for the existing on-site hydrology model.

The proposed landuse shall be high-density residential zoning which assumes an impervious percent of 80%, per Sacramento County hydrology standards. The same hydrologic soil group was used for the existing model. All input parameters can be seen on **Exhibit R**, which contains existing shed parameters as well.

The proposed on-site peak flowrate for the 100-year storm was computed as 18 cubic-feet per second. The volumetric difference between the existing and proposed hydrographs for the on-site 100-year, 24-hour storms was computed as 31,235 cubic-feet, which will be mitigated for within the project site, as seen on the figure below. Totaling the increased runoff mitigation storage with the loss of the existing floodplain, the total storage of the site will need to hold a minimum of 73,803 cubic-feet.

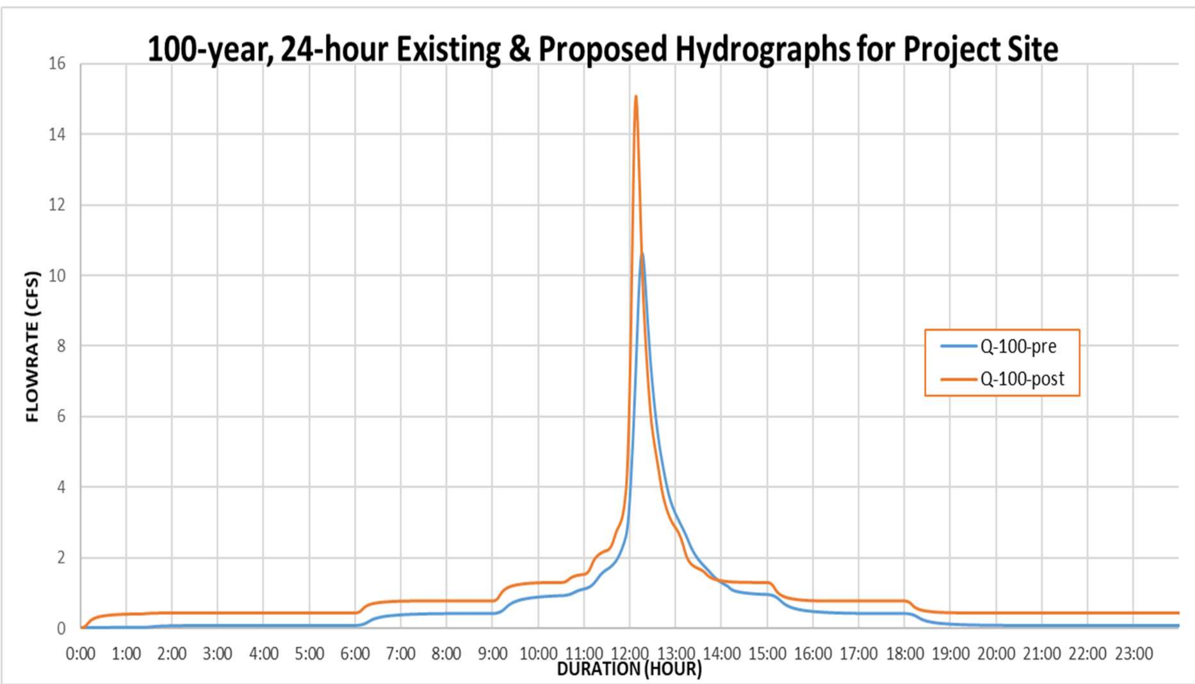


Figure 1 – 100-Year, 24-Hour Existing & Proposed Hydrographs of the Project Site

See the sub-shed entitled "P-WS" within the attached electronic files (**Appendix D**) of the SacCalc denoted "**Existing and Proposed On-site Hydrology**" for reference.

Onsite Hydrology Model – Sub-shed Analysis

As seen on the Proposed On-Site Sub-shed Map (**Exhibit S**), each of the delineated sub-sheds was modelled in SacCalc to compute the 2-, 10- and 100-year, 24-hour storm at each inlet in order to analyze the runoff routing to each point of runoff intake within the underground storm drain system. The site was divided into thirteen sub-sheds based on the proposed grading of the site.

All sub-sheds were analyzed as high-density residential landuse using the same hydrologic soil group as the previous models. The travel time method for each sub-shed was used to compute the lag transformation however the downstream pipe network was ignored in each sub-shed for inlet analysis in the underground system hydraulic model.

Input parameters and peak flows for each sub-shed can be seen on **Exhibit T**. SacCalc generated hydrographs for each of the sub-sheds were used to analyze the underground drainage system.

See the attached SacCalc electronic file denoted "**On-site Sub-shed Hydrology**" within **Appendix D** for reference.

f. Hydraulic Model Assumptions

Underground Drainage System Model

The proposed underground drainage and flood control system was modelled using Autodesk Storm and Sanitary Analysis version 2016 (SSA) for the 2-, 10- and 100-year, 24-hour storm events. Inputs and outputs for each storm can be seen on **Appendix A**.

Hydrologic processing within the program was specified but not utilized. All hydrology within the program was input as hydrographs or baseline flows generated from SacCalc. The SacCalc generated runoff hydrograph from the upstream watersheds 1 and 2 were altered in order to incorporate the Nolte flowrate coming into the system from the existing drainage facilities. The Nolte flowrate from each upstream watershed was added as a baseline inflow to the beginning node of each influent to the site. The Nolte flows from Sheds 1 and 3 were routed to the northerly manhole connecting to the existing pipe and the Nolte flow from shed 2 was added to the easterly manhole connecting to the existing pipe. The altered hydrograph for Sheds 1 and 2 representing overland runoff were routed to the proposed type 301 inlets on Watt Avenue. An altered hydrograph of shed 3, representing overland flow from the north by deducting the Nolte flow of Shed 3 was routed to the bio-retention planter along the westerly property line, which is where proposed overland control points would route the runoff in the event that inlets are completely clogged. All inlets were modelled with a 50% clogging factor. SacCalc generated runoff hydrographs for each on-site sub-shed were also input into the respective inlets that the areas drain to using a 50% clogging factor.

The hydrodynamic hydraulic routing method, which uses the Saint Venant equations, was used for the model in order to account for backwater effects, surcharging, surface ponding and sufficient utilization of the proposed storage facilities.

Storm drainage entering into the underground system will begin at invert elevations of the proposed facilities. As seen Appendix A, the inlet summary indicates that 'Inlet-DW', which denotes the two type '301' inlets on the driveway will pond 0.93-feet during the modelled 100-year storm event. All ponding at inlets within the drive aisles of the site are required to be below 6-inches. The surface above the bio-retention planter inlets were modeled as storage nodes within the program. The voids within the soil media of the planters was unaccounted for towards storage due to the media hydraulic connectivity relying on filtration and perforated underdrains, which are highly susceptible to clogging.

The downstream tailwater or boundary condition was set as a stage hydrograph from the existing the HEC-RAS model at river station 15, or discharge point of the project site. In order to ensure consistency between SSA and a proposed HEC-RAS model of the downstream channel, the outflow hydrograph of SSA was input into the HEC-RAS model at river station 15 and the model computed stage hydrograph of the proposed river station 15 was re-input into the SSA outfall boundary condition. The process was iterated until the stage hydrographs of the two models were consistent with each other for each modeled storm event.

For the 100-year model, the total system storage was computed to approximately 114,760 cubic-feet as seen on Appendix A. Due to this volume incorporating ponding on Watt Avenue, the total volume of approximately 21,706 cubic-feet at the inlet was deducted from the total, which results in a system volume of 93,054 cubic-feet, which exceeds the required storage of existing 100-year floodplain and the mitigation of increased runoff. Storage nodes represent the underground rectangular detention pipes that will be placed throughout the westerly and southerly parking spaces (See **Appendix D – Underground Detention** for excel files with stage-storage values of each detention facility). All volume used for stormwater quality treatment was neglected within the model and the implemented riser within the underground vault used for hydromodification control was represented with a weir for the riser.

It should be noted that there are two locations within the 100-year model where nodes are surcharged, the type 301 inlets within the driveway and the inlet within the westerly bio-retention planter. Parameters were set within the model so that these surcharged nodes will simply flood and drain back into the proposed system when flooding subsides and are not lost from the modeled system.

See Appendix D for SSA electronic files as well as Excel files for stage-storage data of detention pipes for reference.

HEC-RAS Model – Downstream of Project Site

A hydraulic model of the channel downstream of the project site was computed using HEC-RAS version 5.0.7 in order to ensure the proposed project will not adversely impact downstream development.

The existing HEC-RAS model was altered to begin at river station 15, where the outflow hydrographs from the SSA model were input into, after iterating between the two programs for a consistent stage hydrograph between river station 15 and the outfall of the SSA model. Downstream offsite hydrology remained the same aside from shed 5B, which was modified to neglect on-site portions within the existing shed.

All downstream geometric parameters remained the same as the existing HEC-RAS model and the water surface elevation for the 2-, 10- and 100-year, 24-hour storm events were computed with a one-dimensional unsteady flow model.

The hydraulic routing of the model can be seen on the Proposed Overland Hydraulic Routing Map (**Exhibit U**).

Results of the model can be seen on the HEC-RAS generated Tabular Summary, Cross-Sections and Channel Profile as seen on **Exhibit V** The highest water surface elevation

See the proposed condition plans within the attached electronic HEC-RAS files denoted '**7403 Watt Ave**' for reference.

Overland Release Model

Due to the existing building adjacent to where offsite Shed 3 drains to the project site, an overland release path modeled the 100-year peak flowrate, deducting the Nolte flowrate of the same shed. The routing of the model computes the floodwater from the northerly property line where the flow enters the site to the southeast of the site, where the overland flow would discharge from the site.

The hydraulic model was computed using HEC-RAS in order to compute the water surface elevation along the overland release path. The model will ensure that ponding within the path will not exceed 6-inches, as well as to ensure that finished floors of adjacent proposed buildings are properly elevated and adhere to the Sacramento County Floodplain Ordinance.

Utilizing a one-dimensional steady flow model, the overland peak flowrate of 27.53 cubic-feet per second was routed through the cross-sections shown on the Overland Release Exhibit (**Exhibit W**). The overland release flowrate was computed by deducting the Nolte flowrate of off-site shed 3 (Computed in section '3-g' of this report below) from the 100-year peak flowrate of Shed 3.

As seen on the HEC-RAS generated Tabular Summary, Cross-Sections and Channel Profile on **Exhibit W**, the water surface elevation of the cross-section upstream end of the modeled path, which is the same cross-section location as the existing overland release cross-section on **Exhibit I**, was computed at 91.06-feet or 0.38-feet lower than the existing condition. Thus proposed improvements will not create adverse impacts for the existing building adjacent to the property line. This analysis was performed assuming that no fencing or wall is proposed along the property line. The site plan of the project incorporates an 8-foot wall along the property and will be further evaluated in the design phase in order to ensure that proper conveyance will allow overland floodwater to drain through the wall and not cause adverse impacts upstream of the site.

Buildings adjacent to this path shall have a minimum pad and finished floor elevation of 1.2-feet and 1.5-feet, respectively, above the computed water surface elevation of the model. Some buildings will be required to be raised with ramps and steps leading from the back of side walk to the building finished floor. Due to unknown slab thickness at this time, freeboard requirements from pads were ignored but during design will be analyzed to ensure a minimum of 1.2-feet from the 100-year water surface elevation.

See **Overland Release** HEC-RAS electronic files within **Appendix D** for reference.

g. Storm Trunk Drainage

The proposed public on-site and off-site storm drain pipes across the site are required to be sized to accommodate the Nolte storm event. Per Sacramento County standards, all public storm drain manholes rims and inlet grates are required to be a minimum of 12- and 6-inches, respectively, above the water surface elevation of for the Nolte storm event.

The pipes were analyzed using Hydraflow Storm Sewer Extension for AutoCAD Civil 3D (Storm Sewer) with the Nolte flows of upstream sheds 1 and 3 coming into the existing 36-inch influent of the site and shed 2 coming into the easterly influent of the site. The downstream water surface elevation computed for the 10-year storm at river station 15 was used as the downstream tailwater elevation of the system.

The sub-sheds depicted on Exhibit B for the Nolte flow were determined by compiling record information from the Sacramento County facility, base and LiDAR maps. These sub-sheds are located in Sacramento County hydrologic zone 2. Nolte flow from the upstream sheds is conveyed through the existing system pipes. Sub-shed 1 & 3 routes runoff to the existing 36-inch drain on the northerly property line of the site and sub-shed 2 routes runoff through the existing 27-inch pipe on the easterly side of the pipe. Sub-shed 1 & 3 consists of 14.6 acres of commercial area and 60.2 acres of residential area. Sub-shed 2 consists of 38 acres of residential area, 2.7 acres of commercial area and 1.6 acres of vacant land which has been counted as commercial area. The Nolte flow was calculated using attached Nolte SacCalc Model. Inputs, routing and results can be seen on **Exhibit X**. On-site sub-sheds were modelled per the on-site sub-shed map

(**Exhibit S**) and offsite, upstream sheds were modelled per the Offsite Watershed Map (**Exhibit B**). The apartment areas surrounding the site were considered to be commercial zones in order to achieve more conservative results. The Nolte flow coming into the site from shed 1 and shed 3 was computed as 29.55 cubic-feet per second. The Nolte flow draining into the site from offsite shed 2 was computed as 13.62 cubic-feet per second.

The on-site Nolte flowrate was computed by assuming an impervious area of 80% for each sub-shed of the site. Inputting the area of the sub-sheds into SacCalc and then routing the sub-sheds to contributing junction points within the proposed public system, the contributing Nolte flowrate to each public pipe was determined. The total outflow of the system was computed as 57.02 cubic-feet per second.

As seen on the Storm Sewer model, the flowrate of the proposed pipes can accommodate this flow with a minimum of 1-foot of freeboard at all proposed storm drain manholes. See **Appendix B** for Storm Sewer results of the analysis.

The proposed public storm drain pipes serve more than 30-acres, which may be eligible for drainage fee credits since they can be sufficiently sized. Eligibility for drainage fee credits will be assessed at the design phase.

Additional Nolte analysis for proposed minor public storm drains shall be included within the design level study of this project.

h. Stormwater Quality Treatment

Requirements

The Stormwater Quality Design Manual for the Sacramento Region (SQDM) was used as a reference for all stormwater quality design measures. As seen on the Stormwater Quality Exhibit (**Exhibit Y**), there is approximately 4.83-acres of impervious area proposed through the project site. Per Table 3-2 of the Stormwater Quality Design Manual for the Sacramento Region, multi-family residential projects greater than one acre are required provide source control, hydro-modification control, low impact development control and treatment control, as well as full trash capture control due to the site zoned for at least ten dwelling units per acre.

All implemented measures shall comply with the Amendment of the Water Quality Control Plan for Ocean Waters of California to Control Trash (Ocean Plan). At each discharge point into the public system, a certified trash full capture device shall be implemented. Bio-retention planters shall comply with minimum specifications, which require a screen that prohibits the discharge of particles 5-milimeters or greater at the overflow device. For additional treatment control, Contech Stormfilters shall be utilized, which comply with the SQDM Proprietary Treatment Measures, Accepted Devices.

Design

As seen on Exhibit Y, there are multiple bio-retention planters to be implemented within the site. Two bio-retention planters, placed along the westerly and southerly property lines, will be used for LID control and will have an open bottom to allow infiltration into the native soil. The remaining area of the site will drain through bio-retention planters with closed bottoms or drain inlets. All sub-sheds draining to bio-retention planters were sized for hydromodification control, as well as treatment control. Areas draining to inlets shall be treated with Contech Stormfilters, as well as adhere to hydromodification control through the implementation of an underground vault containing a riser and orifice. The implemented treatment control facility (Contech Stormfilters) shall be able to accommodate all runoff from the sheds draining through the box, using water quality flow from the sheds computed on the LID spreadsheets.

Bio-retention planters adjacent to the westerly and southerly property lines were implemented to comply with low impact development control, as well as for flood control as discussed in previous sections of this report. Due to floodwater within the planter relying on inlets and not the soil media, bio-retention planter design parameters and not stormwater quality basin parameters were followed for the preliminary design.

i. **Hydromodification:**

<u>Onsite Hydromodification Model</u>
The purpose of this section is to examine the hydromodification controls within the subject property, which will size outlet structures, bio-retention planters and vaults. Sacramento Area Hydrology Model (SAHM) by Clear Creek Solutions was used to model 25% of the 2-year storm up to the 10-year storm for the existing and proposed project site. This section strictly focuses on drainage facilities within the project site and a subsequent section will analyze offsite flows to be piped with public facilities to determine hydromodification of offsite flows draining through the project site. See **Appendix C** for the generated SAHM report.

The property consists of approximately 6.11 acres of grass land, which will be developed into a multi-family residential apartment complex. The proposed development is proposing 4.83 acres of impervious area, which includes eight buildings, a club house and pool area, as well as parking aisles and stalls to meet occupancy requirements. The 1.28 acres of remaining area will be of pervious surface consisting of landscape buffers, landscape strips, a playground area, and bio-retention planters.

With no geotechnical report currently available, the soil composition is assumed to be type D (per NRCS Web Soil Survey), with a grassy surface at a moderate slope of 1-2%. This information was input into SAHM for a pre-project scenario for the total 6.11-acres of the site.

The SAHM model divides the project site into multiple sub-sheds, based on the Stormwater Quality Exhibit. All sub-sheds were modeled and analyzed individually within SAHM to comply with hydromodification control, thus points of compliances were analyzed at the discharge point of all facilities, which contain specific riser and orifice sizes. As previously mentioned, proposed facilities include bio-retention planters and inlets. All bio-retention planters were modeled separately, aside from planters adjacent to buildings within the same sub-sheds in order to simplify the model.

As previously mentioned, two of these sheds contain bio-retention planters that are adjacent to the southerly and westerly property lines, which allow infiltration based on parameters from the SAHM User's Manual. Additional bio-retention planters were implemented within the site to limit the size of the underground vault. The remaining sub-sheds are collected in drain inlets, which route to an underground vault with a riser and orifice. Impervious and pervious areas were determined for each of the sub-sheds. For each of the bio-retention planters, a lateral impervious element was used to represent the impervious area draining into each planter and the lateral pervious element was used to represent the pervious area draining into each planter. The sub-shed routing to the underground vault was modeled as a single general basin element, where the impervious and pervious areas of that shed were input and the element was then connected to the vault. A schematic of this scenario can be seen in Appendix C.

The facilities will subsequently drain into the public storm drain pipes installed within the project site. As seen on Appendix C, all sub-sheds adhere to the range of analyzed flows within the model. See Appendix C for all other input parameters for each element within the model.

j. Low Impact Development (LID):

Low impact development compliance was determined using the spreadsheet entitled 'Appendix D-2 Commercial Sites Low Impact Development (LID) Credits and Treatment BMP Sizing Calculations' obtained from the Sacramento Stormwater Quality Partnership website for each shed denoted on Exhibit Y.

As seen on the sub-shed table on Exhibit Y and the LID compliance spreadsheets **(Exhibit Z)**, the weighted average of LID points of the project site exceeds the minimum 100-point requirement.

4. Summary of Findings:

Analysis of the baseline conditions indicate that the existing channels within the project site are accommodating a peak flowrate of 177 cubic-feet per second from the easterly upstream watersheds and 34 cubic-feet per second from the north during the 100-year, 24-hour storm, which floods the site with approximately 42,568 cubic-feet of flood water. Due to increasing the impervious area of the subject parcel, the runoff will consequently increase and potentially cause downstream impacts. The volumetric difference between the existing and proposed storm events will be mitigated for in the proposed storm drain system.

The proposed underground system was modelled to indicate sufficient storage will be provided as well as to compute flows discharging from the site into the downstream channel. From the model, a peak volume of 93,054 cubic-feet shall be stored within the proposed system. The model also indicates that ponding in Watt Avenue will not exceed 1-foot, or 6-inches throughout the proposed on-site inlets within the parking areas. Additionally, the model indicates that the upstream 100-year runoff along Watt Avenue can be collected and conveyed within the proposed public pipes placed in the site. The 100-year overland runoff from the north will be conveyed through the site to the westerly bio-retention planter, as indicated from the overland release exhibit.

Due to the existing building adjacent to the influent of offsite shed 3, an overland release path was modeled in HEC-RAS and indicates that the depth of water within the parking areas of the site will be below 6-inches, adhering to the Sacramento County Floodplain Ordinance. The computed water surface elevation at the upstream end of the overland release path indicates that a water surface elevation of 91.06-feet will occur where offsite shed 3 enters into the site, which may inundate the existing structure to the north. However, as previously stated, due to the existing water surface elevation adjacent to the building computed at 91.44-feet, the proposed project lowers the floodplain and does not adversely affect the existing property to the north.

As seen on the preliminary grading plan, proposed grades have been set as to allow floodwater to freely drain into the project site with no alteration to the overland release from the adjacent northerly parcel. Proposed elevations downstream of the overland release control point has been raised by approximately 0.05-feet, however, with the implementation of pavement from the drive aisle and parking stalls, the water surface elevation at the overland release point decreased from the existing condition and thus does not adversely affect the existing structure to the north of the subject parcel. Due to an 8-foot proposed wall to be built along the northerly property line, conveyance design through the wall will be completed during the design level drainage study in order to ensure that proposed overland floodwater will not adverse impact the existing structure of the northerly parcel.

Evaluating the downstream floodplain, based on 2-foot LiDAR generated contours, it appears that several structures are within the floodplain in the existing condition and continue to be within the proposed condition. Analyzing the downstream water surface elevation for the evaluated cross-sections for each storm event, the water surface elevation remained the same or was lowered during the 2-year, 10-year and 100-year events at all cross-sections and thus does not adversely affect the downstream system.

As previously stated, the Sacramento County Floodplain Ordinance defines adverse impacts as changes to the floodplain which include, but are not limited to increasing the flood stage equal to or greater than 0.1-feet or increasing the flood stage by any amount that inundates existing structures or increases in stage that result in a significant increase in area inundated. Due to the proposed project complying with these criteria, the proposed improvements will not cause adverse impacts for the downstream system. Additionally, the allowable stage increase of below 0.1-feet is considered cumulative throughout the downstream channel. Due the proposed floodplain remaining the same for all analyzed cross-sections, future development will be allowed to increase the flood stage to 0.1-feet, in locations that do not cause adverse impacts due to existing structures or that cause a significant increase in area inundated by the increase stage.

Table 4 – Existing and Proposed Downstream Water Surface Elevations

River Station	Existing 100-Year WSEL	Proposed 100-Year WSEL	Existing 10-Year WSEL	Proposed 10-Year WSEL	Existing 2-Year WSEL	Proposed 2-Year WSEL
	(Ft)	(Ft)	(Ft)	(Ft)	(Ft)	(Ft)
15	86.95	86.94	86.45	86.45	85.69	85.67
13	86.71	86.71	86.3	86.29	85.60	85.60
11	86.37	86.37	86.08	86.08	85.5	85.50
10	86.32	86.31	86.05	86.04	85.48	85.48
9	86.24	86.24	86	85.99	85.46	85.46
8	86.06	86.06	85.9	85.89	85.41	85.41
7	86.03	86.03	85.87	85.87	85.38	85.38
6	85.99	85.98	85.84	85.84	85.37	85.37
5	85.94	85.94	85.82	85.81	85.34	85.34
4	85.88	85.88	85.78	85.77	85.31	85.31
3.5	85.84	85.84	85.76	85.75	85.29	85.29
3	85.77	85.77	85.7	85.69	85.26	85.26
2	84.91	84.9	84.7	84.69	84.4	84.40
1.6	84.88	84.88	84.67	84.67	84.38	84.38
1	84.86	84.86	84.66	84.65	84.37	84.37

Although the peak discharge of the project site increased by 2.38 cubic-feet per second during the 100-year event and 3.48 cubic-feet per second during the 10-year event, the proposed water surface elevation was computed at or below the existing water surface for all observed cross-sections. Analyzing the flow hydrograph of river station 15, which is immediately downstream of the project site, it appears the flow from the proposed storm peaks approximately 2 minutes earlier than the existing. Observing the remaining downstream cross-sections, the general trend of the peak flowrate for the proposed hydrographs decreases in comparison to the existing peak flows and at river station 11 the proposed flow is less than the existing peak flow. Analyzing the cross-sections further downstream, the proposed peak flow continues to decrease in comparison to the existing flow and the time at which the peak occurs aligns closer to the existing peak. Due to the increased impervious area of the proposed project shifting the peak flow timing, as well as diverting a portion of the existing site, which discharges into the channel downstream of the site, to drain directly into the channel from the southwest corner, it appears this may cause the discharge of the site to increase and allow downstream water surface elevations to remain the or decrease from the existing condition. Further analysis of the site discharge will be completed in the design level drainage study.

5. Conclusion:

The baseline and mitigated project results indicate that the proposed project can be developed to the County of Sacramento standards.

Hydrologic models for the existing watershed boundaries draining to the existing channel project site channel were developed using SacCalc.

An unsteady flow hydraulic HEC-RAS model was developed to evaluate the extent of the existing floodplain for mitigation of the volume that will be filled due to development, as well as to ensure that upstream and downstream water surface does not cause significant adverse impacts.

Existing and proposed hydrologic SacCalc models within the project site boundary were developed in order to mitigate increase in runoff due to development for the 100-year, 24-hour design storm event.

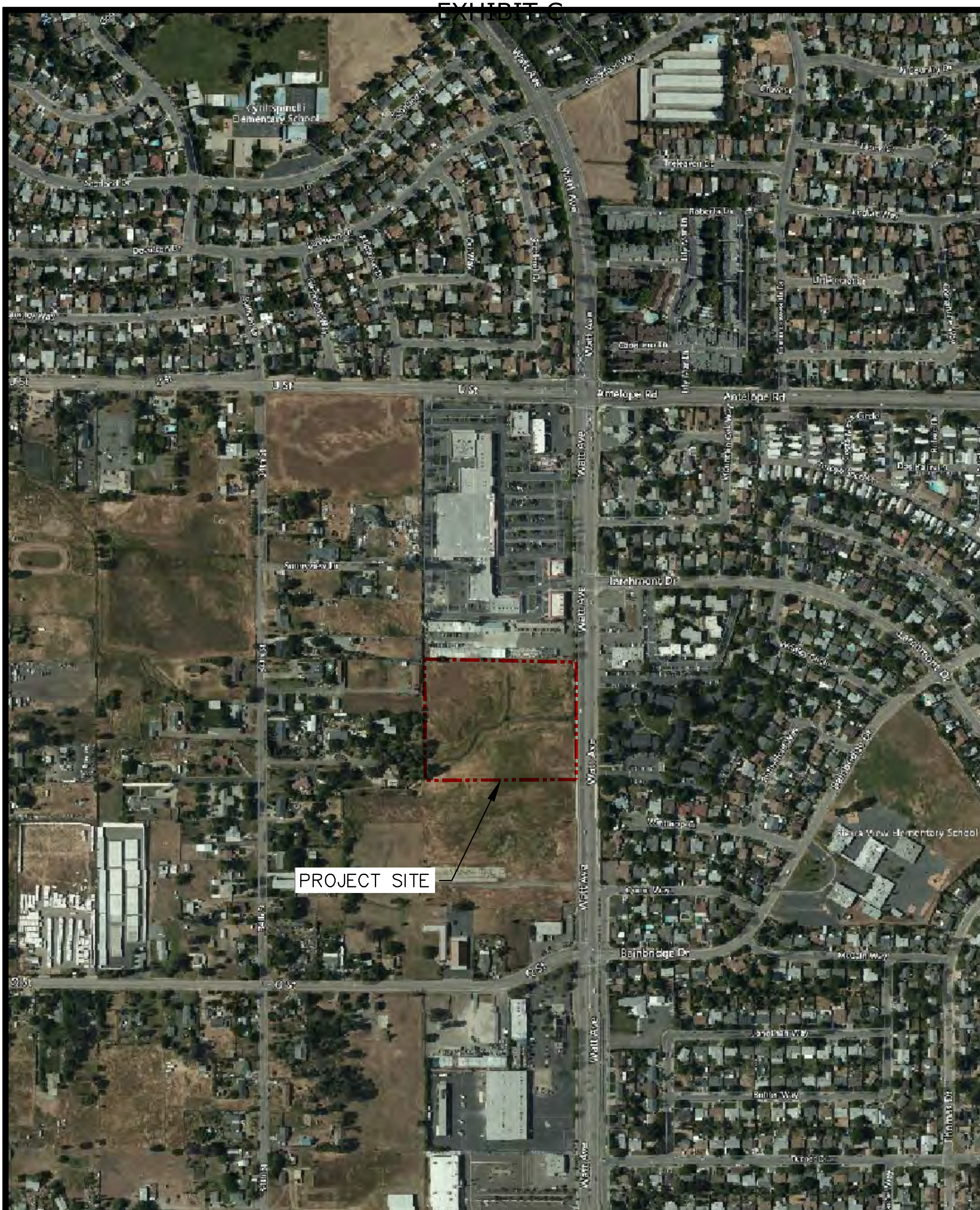
Preliminary grading and drainage plans were designed for the project site, which incorporate stormwater quality standards including treatment, hydromodification, and low impact development control.

A proposed unsteady flow hydraulic model downstream of the project site for each modeled storm event was developed using HEC-RAS to determine the extent of downstream impacts.

The proposed public storm drain facilities were hydrodynamically modelled using Autodesk Storm and Sanitary Analysis to ensure that ponding will not exceed 6-inches within the project site and 12-inches on Watt Avenue. This model also was used to analyze the utilization of the proposed storage facilities for mitigation of the 100-year, 24-hour design storm.

A Nolte design storm analysis was performed for the proposed public storm drain facilities within the project site using the proposed maximum 10-year water surface elevation as the receiving channel tailwater condition. All proposed manhole rims and inlets grates were determined to have a minimum of 12-inches and 6-inches, respectively, of freeboard during a Nolte storm event.

EXHIBIT C



JTS ENGINEERING CONSULTANTS, INC.
1808 J STREET, SACRAMENTO, CA 95811
PH:(916) 441-6708 FX:(916) 441-5336

DATE:	9-30-21
DRAWN:	TEG
CHECKED:	FNW
JOB NO:	2018-132

EXHIBIT A
VICINITY MAP
7403 WATT AVENUE APARTMENTS
COUNTY OF SACRAMENTO APN: 208-0122-067 CALIFORNIA

Basin "n" Method Data for Lag Time Computation

Watershed	Channel Length (ft)	Centroid Length (ft)	Slope (ft/ft)	Channelization	Land Use Impervious Area Percent (% or acres) 95	90	85	80	75	70	60	50	40	30	25	20	15	10	5	2	1	1*
SHED3	1165.9	541.7	.0069	Undeveloped		0																
				Developed		12.62																
SHED1	3300	1754	.01	Undeveloped		0		0					0									
				Developed		2		24.2					36									
SHED2	3036.2	1137.7	.010	Undeveloped		0		0					0							1.6		
				Developed		2.7		9.1					28.9							0		
SHED4	709	533	.008	Undeveloped																3.7		
				Developed																0		
SHED5A	1237	840	0.011	Undeveloped		7.1												10.15		2.28		
				Developed		1.13												0.68		0		
SHED7	874	457	0.011	Undeveloped														5.1				
				Developed														0				
SHED6	577	249	0.019	Undeveloped														1.87				
				Developed														0				
SHED5B	624	496	0.0096	Undeveloped														2.97		2.53		
				Developed														0		0		

Refer to the Drainage manual for Land Use Impervious Area Percent

*Dense Oaks, Shrubs, Vines

Watershed Hydrologic Summary Data

Watershed	Area (acres)	Mean Elevation (ft)	Lag Times: Method	Lag Times: Lag Time (min)	Basin "n": Method	Basin "n": Basin "n"	Loss Rates: Method	Loss Rates: Loss Rate (in/hr)	Percent Impervious: Method	Percent Impervious: Impervious Area (%)
SHED3	12.62	94	Basin "n"	-	Computed	-	Computed	-	Computed	-
SHED1	62.3	110	Basin "n"	-	Computed	-	Computed	-	Computed	-
SHED2	42.4	106	Basin "n"	-	Computed	-	Computed	-	Computed	-
SHED4	3.7	90	Basin "n"	-	Computed	-	Computed	-	Computed	-
SHED5A	21.42	91	Basin "n"	-	Computed	-	Computed	-	Computed	-
SHED7	5.1	89	Basin "n"	-	Computed	-	Computed	-	Computed	-
SHED6	1.87	90	Basin "n"	-	Computed	-	Computed	-	Computed	-
SHED5B	5.5	89	Basin "n"	-	Computed	-	Computed	-	Computed	-

0 150' 300' Feet

EXHIBIT B

EXISTING WATERSHED MAP

JTS ENGINEERING CONSULTANTS, INC.
1808 J STREET
SACRAMENTO, CALIFORNIA 95814 (916) 441-6708
JOB NO: 2018-132

EXHIBIT C

EXISTING LANDUSE MAP

JTS ENGINEERING CONSULTANTS, INC.
1808 J STREET
SACRAMENTO, CALIFORNIA 95814 (916) 441–6708
JOB NO: 2018–132

BENCHMARK ELEV. 93.95'(NGVD29)
7/8" METAL DISC STAMPED "CO. B.M. 7-18" LOCATED IN TOP OF ROLL CURB, ABOVE D.I. APPROXIMATELY CENTER OF CURB RETURN @ THE NORTHEAST CORNER OF WATT AVE. & BAINBRIDGE DR. & APPROXIMATELY 150' NORTH OF "Q" ST.
FIELD BOOK NO._____ PG.____

JTS ENGINEERING CONSULTANTS, INC.
1808 J STREET
SACRAMENTO CALIFORNIA 95811 (916) 441-6708

DESIGNED:	N/A	SCALE: 1"=30'
DRAWN:	TAN/MAR	
CHECKED:	FNW	
SUBMITTED:	FRANK N. WALKER, P.E.	35635

REGISTERED PROFESSIONAL ENGINEER FRANK N. WALKER No.35635 Expires:09-30-21 CIVIL STATE OF CALIFORNIA

NO	DATE	REVISION	APPROVAL	BY

EXISTING ONSITE SHED MAP
7403 WATT AVENUE
EXHIBIT D
SACRAMENTO COUNTY APN: 208-0122-067 CALIFORNIA

DATE: 1-5-21
SHEET 1 OF 1
JOB NO: 2018-132

EXHIBIT E - EXISTING HYDRAULIC ROUTING MAP

JTS ENGINEERING CONSULTANTS, INC.
1808 J STREET
SACRAMENTO, CALIFORNIA 95814 (916) 441-6708
JOB NO: 2018-132

EXHIBIT F

HEC-RAS Profile: Max WS

Reach	River Sta	Profile	Plan	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
1	3	Max WS	Existing 100-Yr	177.33	88.50	91.40		91.74	0.011965	4.71	37.62	20.46	0.61
1	3	Max WS	Existing 10-Yr	121.92	88.50	90.90		91.19	0.012496	4.34	28.08	17.89	0.61
1	3	Max WS	Existing 2-Yr	65.97	88.50	90.24		90.47	0.013466	3.79	17.42	14.49	0.61
1	2	Max WS	Existing 100-Yr	177.15	86.70	89.71		90.15	0.014069	5.28	33.52	16.75	0.66
1	2	Max WS	Existing 10-Yr	121.83	86.70	89.22		89.57	0.013752	4.74	25.68	14.89	0.64
1	2	Max WS	Existing 2-Yr	65.91	86.70	88.56		88.80	0.013295	3.96	16.62	12.42	0.60
1	1	Max WS	Existing 100-Yr	175.40	85.50	88.52		88.81	0.009563	4.31	40.72	21.44	0.55
1	1	Max WS	Existing 10-Yr	120.23	85.50	88.09		88.31	0.008680	3.77	31.92	19.16	0.51
1	1	Max WS	Existing 2-Yr	65.60	85.50	87.40		87.57	0.009212	3.28	20.01	15.54	0.51
1	0	Max WS	Existing 100-Yr	171.97	84.87	88.36		88.53	0.005112	3.37	53.33	41.46	0.41
1	0	Max WS	Existing 10-Yr	118.11	84.87	87.93		88.06	0.004783	2.94	40.13	22.37	0.39
1	0	Max WS	Existing 2-Yr	65.53	84.87	87.22		87.32	0.005040	2.56	25.59	18.36	0.38
2	3	Max WS	Existing 100-Yr	15.87	85.90	88.38		88.38	0.000204	0.57	27.96	17.08	0.08
2	3	Max WS	Existing 10-Yr	11.01	85.90	87.95		87.95	0.000212	0.52	21.09	15.08	0.08
2	3	Max WS	Existing 2-Yr	6.82	85.90	87.25		87.25	0.000417	0.58	11.67	11.81	0.10
2	2	Max WS	Existing 100-Yr	15.55	85.80	88.37		88.37	0.000206	0.59	26.52	15.17	0.08
2	2	Max WS	Existing 10-Yr	10.97	85.80	87.94		87.94	0.000211	0.54	20.37	13.56	0.08
2	2	Max WS	Existing 2-Yr	6.77	85.80	87.23		87.23	0.000375	0.58	11.70	10.89	0.10
2	1	Max WS	Existing 100-Yr	15.59	85.20	88.36		88.36	0.000055	0.35	53.14	175.82	0.04
2	1	Max WS	Existing 10-Yr	10.94	85.20	87.93		87.94	0.000057	0.32	34.71	134.81	0.04
2	1	Max WS	Existing 2-Yr	6.75	85.20	87.22		87.22	0.000076	0.31	21.85	16.14	0.05
2	0	Max WS	Existing 100-Yr	15.46	84.80	88.36		88.36	0.000033	0.27	81.98	154.04	0.03
2	0	Max WS	Existing 10-Yr	10.80	84.80	87.93		87.93	0.000055	0.31	35.05	109.40	0.04
2	0	Max WS	Existing 2-Yr	6.74	84.80	87.22		87.22	0.000073	0.30	22.16	16.11	0.05
3	20	Max WS	Existing 100-Yr	187.42	84.70	88.36		88.44	0.002378	2.44	104.14	155.66	0.29
3	20	Max WS	Existing 10-Yr	128.91	84.70	87.93		88.03	0.003169	2.55	50.48	103.44	0.32
3	20	Max WS	Existing 2-Yr	72.27	84.70	87.22		87.29	0.002964	2.15	33.69	21.28	0.30
3	19	Max WS	Existing 100-Yr	184.78	83.85	88.11		88.20	0.002566	2.62	93.91	138.53	0.30
3	19	Max WS	Existing 10-Yr	128.27	83.85	87.57		87.69	0.004006	2.79	46.93	32.89	0.36
3	19	Max WS	Existing 2-Yr	72.03	83.85	86.82		86.92	0.004622	2.50	28.78	19.96	0.37
3	18	Max WS	Existing 100-Yr	188.80	83.70	87.45		87.68	0.006222	3.90	48.37	37.31	0.45
3	18	Max WS	Existing 10-Yr	130.22	83.70	86.93		87.11	0.005627	3.42	38.11	18.62	0.42

EXHIBIT F

HEC-RAS Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
3	18	Max WS	Existing 2-Yr	72.80	83.70	86.16		86.29	0.005488	2.91	25.03	15.38	0.40
3	17	Max WS	Existing 100-Yr	187.32	82.84	87.24		87.37	0.003347	2.93	64.02	27.39	0.34
3	17	Max WS	Existing 10-Yr	128.53	82.84	86.73		86.83	0.002903	2.52	50.93	24.46	0.31
3	17	Max WS	Existing 2-Yr	71.69	82.84	85.96		86.03	0.002728	2.13	33.67	19.95	0.29
3	16	Max WS	Existing 100-Yr	184.71	82.56	87.04		87.16	0.003117	2.93	71.77	110.33	0.33
3	16	Max WS	Existing 10-Yr	125.13	82.56	86.52		86.63	0.003269	2.69	47.41	32.73	0.33
3	16	Max WS	Existing 2-Yr	69.36	82.56	85.76		85.83	0.003120	2.25	30.76	18.33	0.31
3	15	Max WS	Existing 100-Yr	183.33	82.40	86.95		87.01	0.001070	2.01	91.16	97.50	0.20
3	15	Max WS	Existing 10-Yr	123.86	82.40	86.45		86.49	0.000760	1.59	77.68	59.73	0.16
3	15	Max WS	Existing 2-Yr	68.37	82.40	85.69		85.71	0.000508	1.17	58.55	23.75	0.13
3	13	Max WS	Existing 100-Yr	183.01	81.97	86.71		86.84	0.002541	2.85	64.24	176.30	0.30
3	13	Max WS	Existing 10-Yr	122.82	81.97	86.30		86.38	0.001718	2.22	55.36	150.53	0.24
3	13	Max WS	Existing 2-Yr	58.61	81.97	85.60		85.63	0.000855	1.41	41.64	18.56	0.17
3	11	Max WS	Existing 100-Yr	182.77	81.70	86.37		86.51	0.003503	2.93	62.48	64.14	0.34
3	11	Max WS	Existing 10-Yr	121.80	81.70	86.08		86.16	0.002206	2.22	54.79	33.95	0.27
3	11	Max WS	Existing 2-Yr	55.64	81.70	85.50		85.53	0.001014	1.37	40.73	22.15	0.18
3	10	Max WS	Existing 100-Yr	182.70	81.81	86.32		86.41	0.001586	2.52	79.74	159.15	0.25
3	10	Max WS	Existing 10-Yr	121.44	81.81	86.05		86.10	0.000991	1.88	68.44	140.24	0.19
3	10	Max WS	Existing 2-Yr	55.00	81.81	85.48		85.50	0.000424	1.09	51.95	33.25	0.12
3	9	Max WS	Existing 100-Yr	182.52	81.70	86.24		86.27	0.000406	1.25	149.82	102.00	0.13
3	9	Max WS	Existing 10-Yr	121.09	81.70	86.00		86.01	0.000228	0.90	135.70	71.77	0.09
3	9	Max WS	Existing 2-Yr	54.42	81.70	85.46		85.46	0.000084	0.50	109.50	56.49	0.06
3	8	Max WS	Existing 100-Yr	219.33	81.47	86.06		86.13	0.001649	2.53	118.88	125.04	0.25
3	8	Max WS	Existing 10-Yr	144.99	81.47	85.90		85.94	0.001020	1.92	103.24	106.04	0.20
3	8	Max WS	Existing 2-Yr	64.38	81.47	85.41		85.43	0.000520	1.22	65.07	70.08	0.14
3	7.5			Culvert									
3	7	Max WS	Existing 100-Yr	218.95	81.65	86.03		86.09	0.001493	2.35	135.47	148.58	0.24
3	7	Max WS	Existing 10-Yr	144.65	81.65	85.87		85.91	0.000972	1.83	115.23	134.98	0.19
3	7	Max WS	Existing 2-Yr	64.28	81.65	85.38		85.40	0.000570	1.24	66.82	81.28	0.14
3	6	Max WS	Existing 100-Yr	218.32	81.19	85.99		86.00	0.000419	1.22	249.12	250.00	0.13
3	6	Max WS	Existing 10-Yr	144.41	81.19	85.84		85.85	0.000263	0.93	214.07	235.92	0.10

EXHIBIT C

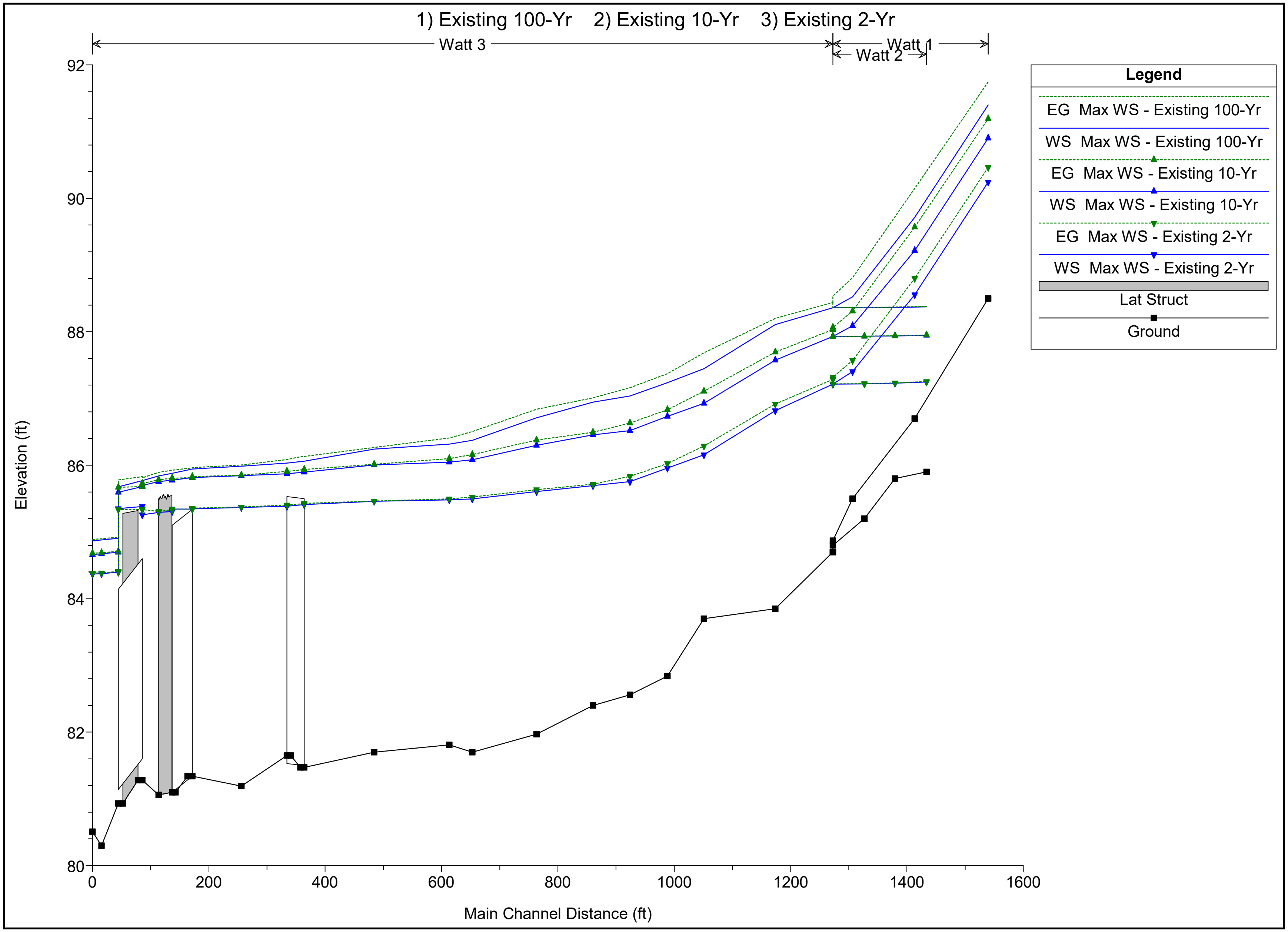
EXHIBIT F

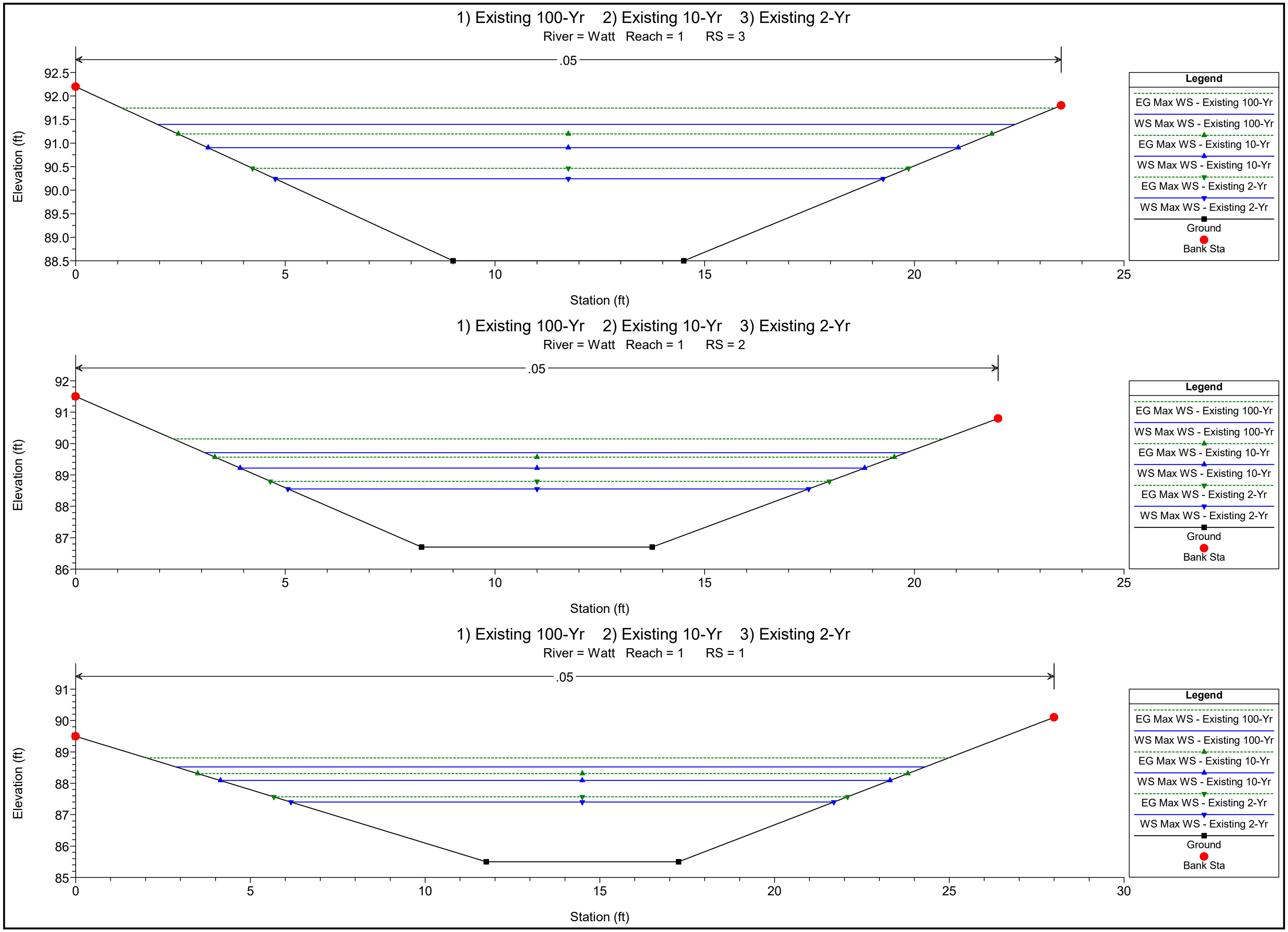
HEC-RAS Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
3	6	Max WS	Existing 2-Yr	63.99	81.19	85.37		85.37	0.000163	0.65	124.94	149.74	0.08
3	5	Max WS	Existing 100-Yr	219.90	81.34	85.94		85.96	0.000535	1.62	237.67	240.25	0.15
3	5	Max WS	Existing 10-Yr	146.32	81.34	85.82		85.83	0.000344	1.27	206.97	236.64	0.12
3	5	Max WS	Existing 2-Yr	65.92	81.34	85.34		85.36	0.000312	1.10	107.03	187.76	0.11
3	4.97			Culvert									
3	4	Max WS	Existing 100-Yr	219.87	81.10	85.88		85.93	0.002142	2.09	136.51	156.22	0.26
3	4	Max WS	Existing 10-Yr	146.28	81.10	85.78		85.81	0.001311	1.58	121.04	151.83	0.20
3	4	Max WS	Existing 2-Yr	65.89	81.10	85.31		85.33	0.001445	1.36	59.19	114.28	0.20
3	3.95			Lat Struct									
3	3.5	Max WS	Existing 100-Yr	209.53	81.06	85.84		85.89	0.001404	2.00	135.23	164.21	0.22
3	3.5	Max WS	Existing 10-Yr	141.13	81.06	85.76		85.78	0.000781	1.45	122.90	141.30	0.17
3	3.5	Max WS	Existing 2-Yr	65.88	81.06	85.29		85.31	0.000491	1.00	68.42	89.36	0.13
3	3	Max WS	Existing 100-Yr	214.89	81.28	85.77		85.81	0.004364	2.03	149.03	396.10	0.35
3	3	Max WS	Existing 10-Yr	145.31	81.28	85.70		85.73	0.003350	1.69	123.90	387.44	0.30
3	3	Max WS	Existing 2-Yr	67.87	81.28	85.26		85.34	0.000918	2.24	30.27	226.65	0.20
3	2.5			Culvert									
3	2	Max WS	Existing 100-Yr	224.53	80.93	84.91		84.92	0.000991	1.13	235.17	332.57	0.17
3	2	Max WS	Existing 10-Yr	145.07	80.93	84.70		84.71	0.000985	1.01	168.95	288.22	0.17
3	2	Max WS	Existing 2-Yr	67.83	80.93	84.40		84.41	0.001116	0.88	93.22	227.52	0.17
3	1.6	Max WS	Existing 100-Yr	220.26	80.30	84.88		84.90	0.000582	1.43	260.96	331.01	0.15
3	1.6	Max WS	Existing 10-Yr	145.04	80.30	84.67		84.69	0.000545	1.32	193.67	318.73	0.14
3	1.6	Max WS	Existing 2-Yr	67.83	80.30	84.38		84.39	0.000370	1.01	106.16	270.42	0.11
3	1	Max WS	Existing 100-Yr	227.76	80.51	84.86	83.35	84.89	0.000795	1.64	234.27	330.39	0.17
3	1	Max WS	Existing 10-Yr	150.16	80.51	84.66	82.83	84.68	0.000687	1.46	171.24	293.72	0.16
3	1	Max WS	Existing 2-Yr	67.83	80.51	84.37	82.08	84.38	0.000391	1.02	94.85	220.89	0.12

EXHIBIT C

EXHIBIT F




1) Existing 100-Yr 2) Existing 10-Yr 3) Existing 2-Yr
River = Watt Reach = 1 RS = 3
.05
Elevation (ft)
Station (ft)
Legend
EG Max WS - Existing 100-Yr
WS Max WS - Existing 100-Yr
EG Max WS - Existing 10-Yr
WS Max WS - Existing 10-Yr
EG Max WS - Existing 2-Yr
WS Max WS - Existing 2-Yr
Ground
Bank Sta
1) Existing 100-Yr 2) Existing 10-Yr 3) Existing 2-Yr
River = Watt Reach = 1 RS = 2
.05
Elevation (ft)
Station (ft)
Legend
EG Max WS - Existing 100-Yr
WS Max WS - Existing 100-Yr
EG Max WS - Existing 10-Yr
WS Max WS - Existing 10-Yr
EG Max WS - Existing 2-Yr
WS Max WS - Existing 2-Yr
Ground
Bank Sta
1) Existing 100-Yr 2) Existing 10-Yr 3) Existing 2-Yr
River = Watt Reach = 1 RS = 1
.05
Elevation (ft)
Station (ft)
Legend
EG Max WS - Existing 100-Yr
WS Max WS - Existing 100-Yr
EG Max WS - Existing 10-Yr
WS Max WS - Existing 10-Yr
EG Max WS - Existing 2-Yr
WS Max WS - Existing 2-Yr
Ground
Bank Sta

EXHIBIT

EXHIBIT C

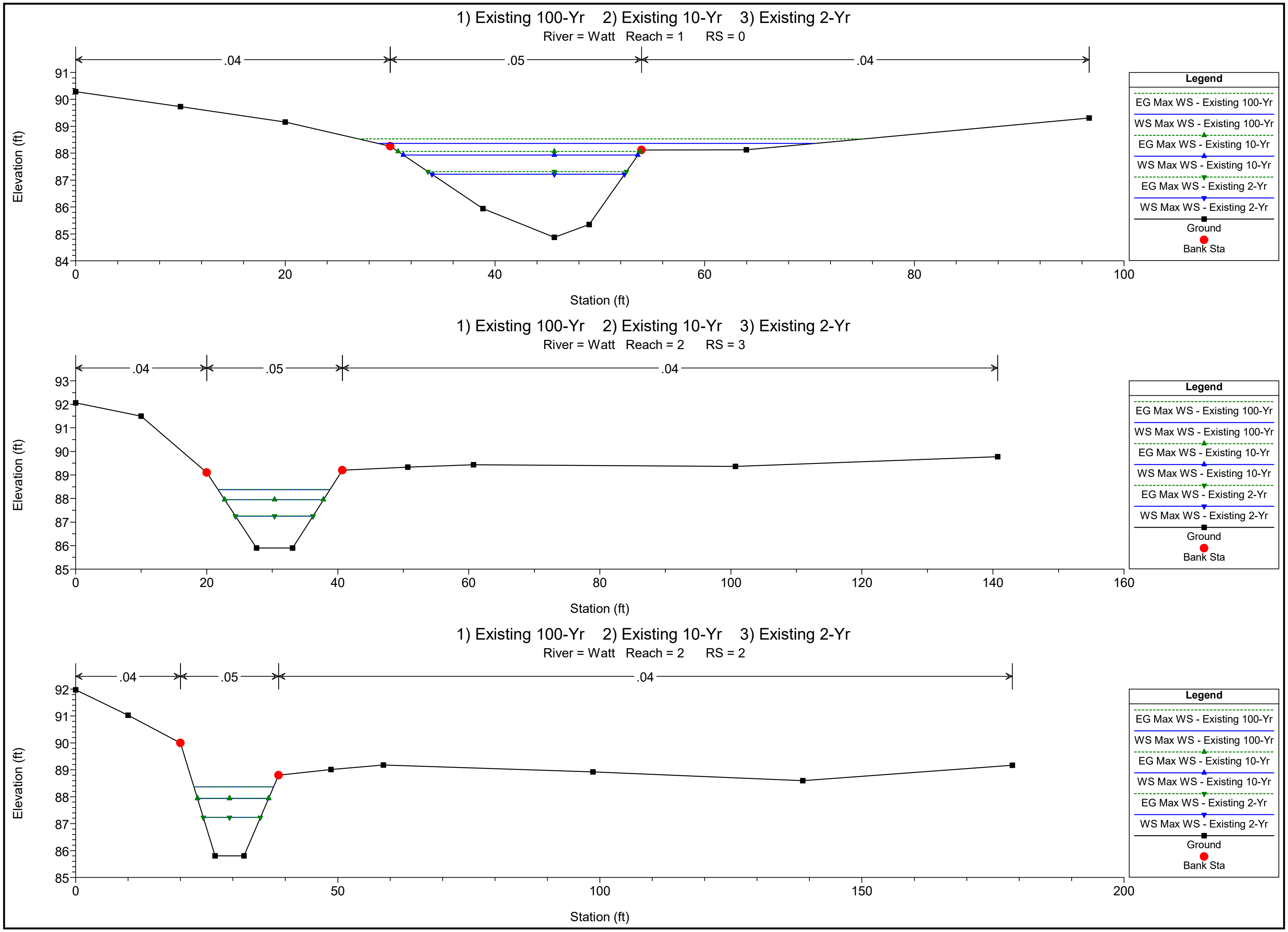
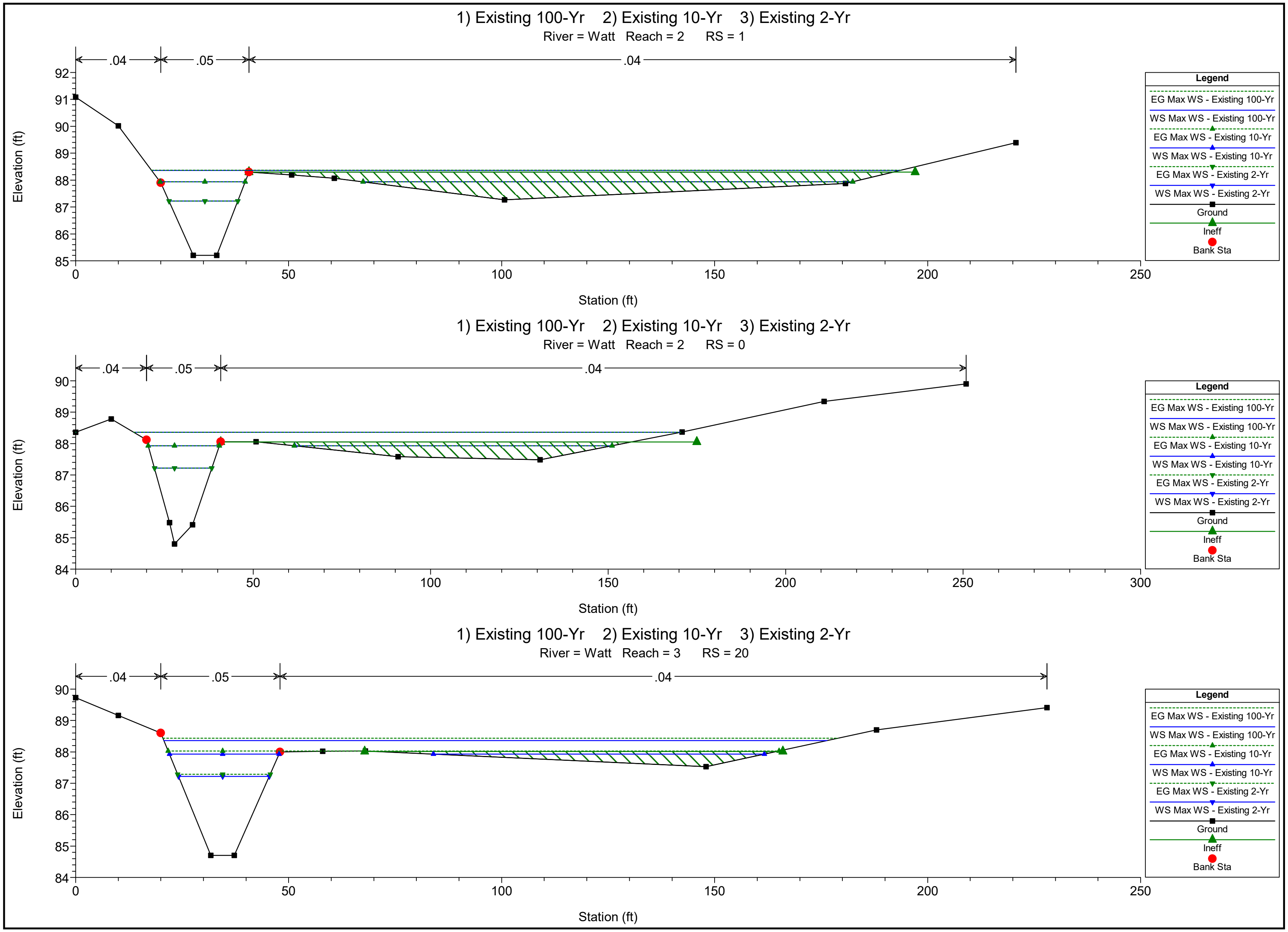


EXHIBIT C

EXHIBIT F



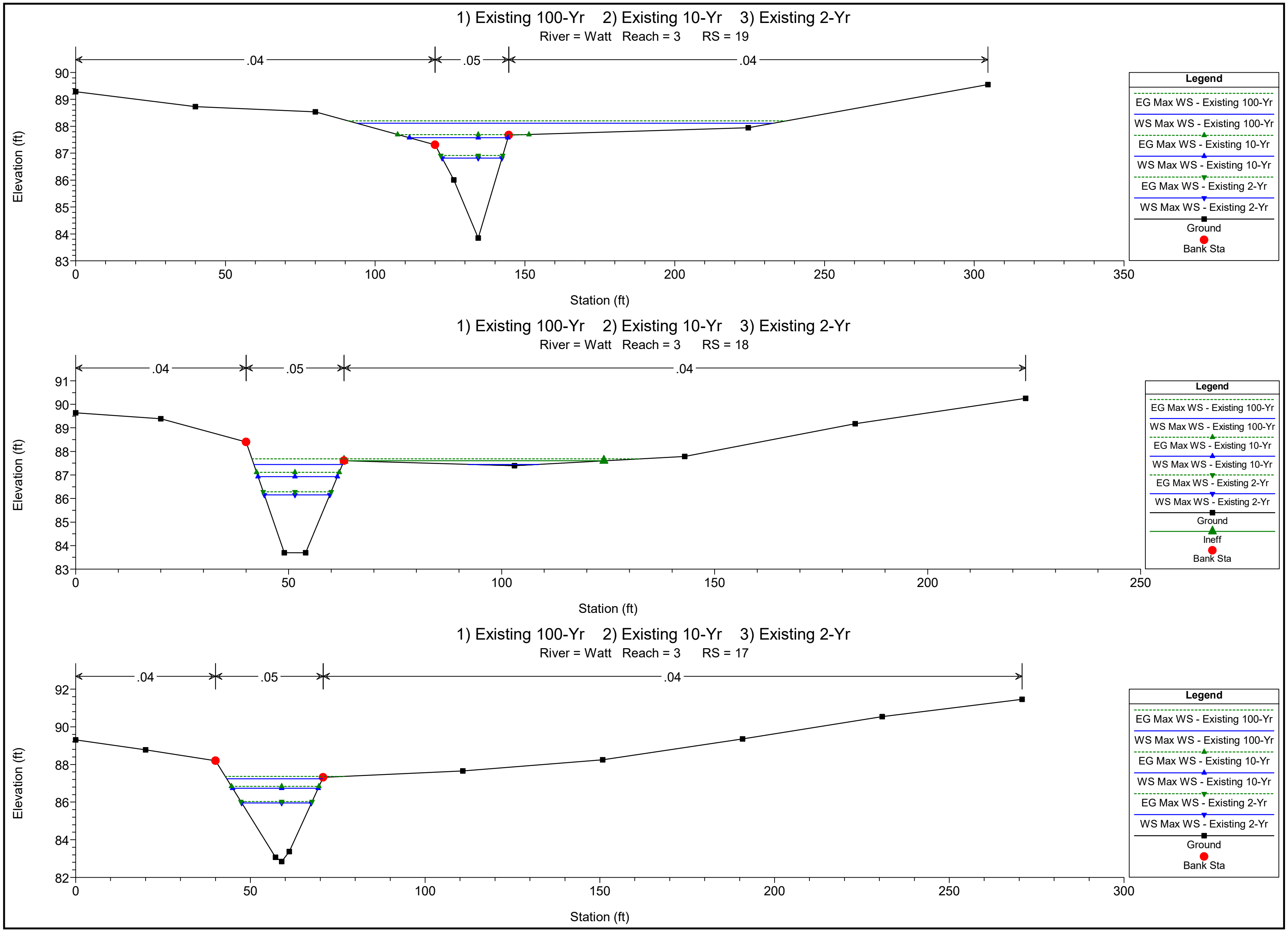
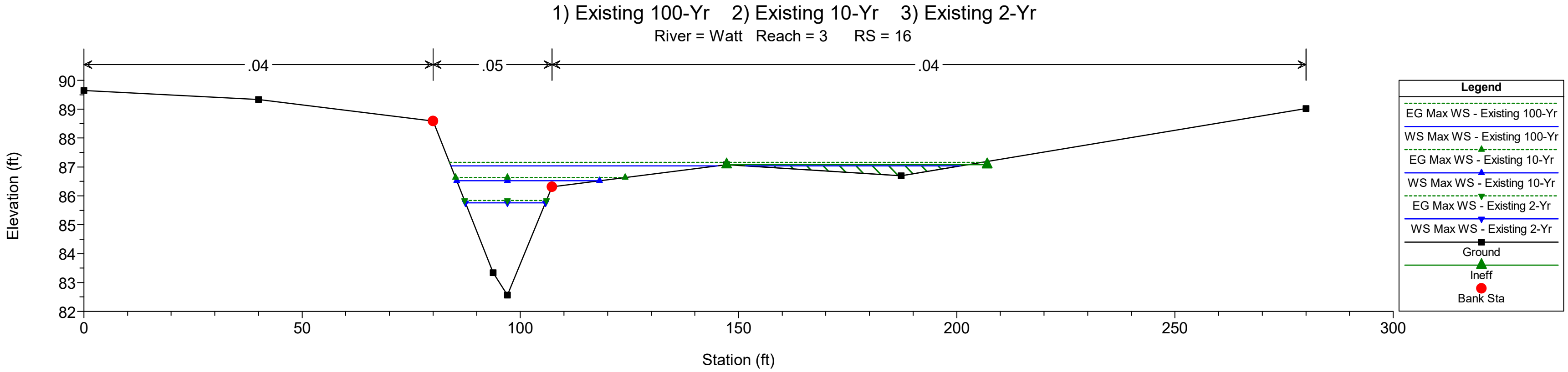
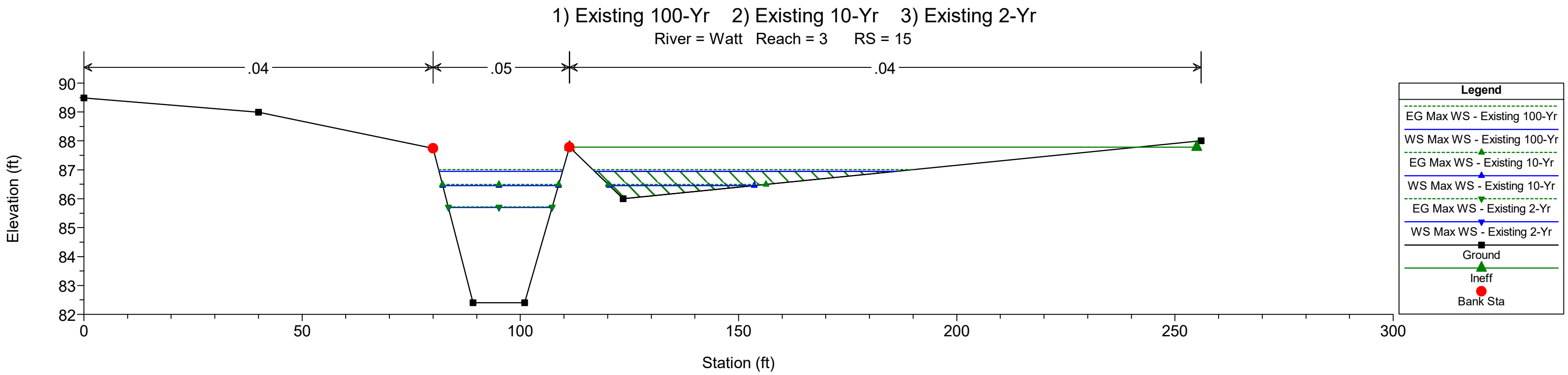

1) Existing 100-Yr 2) Existing 10-Yr 3) Existing 2-Yr
River = Watt Reach = 3 RS = 19
.04
.05
.04
Elevation (ft)
Station (ft)
Legend
EG Max WS - Existing 100-Yr
WS Max WS - Existing 100-Yr
EG Max WS - Existing 10-Yr
WS Max WS - Existing 10-Yr
EG Max WS - Existing 2-Yr
WS Max WS - Existing 2-Yr
Ground
Bank Sta
1) Existing 100-Yr 2) Existing 10-Yr 3) Existing 2-Yr
River = Watt Reach = 3 RS = 18
.04
.05
.04
Elevation (ft)
Station (ft)
Legend
EG Max WS - Existing 100-Yr
WS Max WS - Existing 100-Yr
EG Max WS - Existing 10-Yr
WS Max WS - Existing 10-Yr
EG Max WS - Existing 2-Yr
WS Max WS - Existing 2-Yr
Ground
Ineff
Bank Sta
1) Existing 100-Yr 2) Existing 10-Yr 3) Existing 2-Yr
River = Watt Reach = 3 RS = 17
.04
.05
.04
Elevation (ft)
Station (ft)
Legend
EG Max WS - Existing 100-Yr
WS Max WS - Existing 100-Yr
EG Max WS - Existing 10-Yr
WS Max WS - Existing 10-Yr
EG Max WS - Existing 2-Yr
WS Max WS - Existing 2-Yr
Ground
Bank Sta

EXHIBIT C


1) Existing 100-Yr 2) Existing 10-Yr 3) Existing 2-Yr
River = Watt Reach = 3 RS = 16
.04
.05
.04
Elevation (ft)
Station (ft)
Legend
EG Max WS - Existing 100-Yr
WS Max WS - Existing 100-Yr
EG Max WS - Existing 10-Yr
WS Max WS - Existing 10-Yr
EG Max WS - Existing 2-Yr
WS Max WS - Existing 2-Yr
Ground
Ineff
Bank Sta


1) Existing 100-Yr 2) Existing 10-Yr 3) Existing 2-Yr
River = Watt Reach = 3 RS = 15
.04
.05
.04
Elevation (ft)
Station (ft)
Legend
EG Max WS - Existing 100-Yr
WS Max WS - Existing 100-Yr
EG Max WS - Existing 10-Yr
WS Max WS - Existing 10-Yr
EG Max WS - Existing 2-Yr
WS Max WS - Existing 2-Yr
Ground
Ineff
Bank Sta

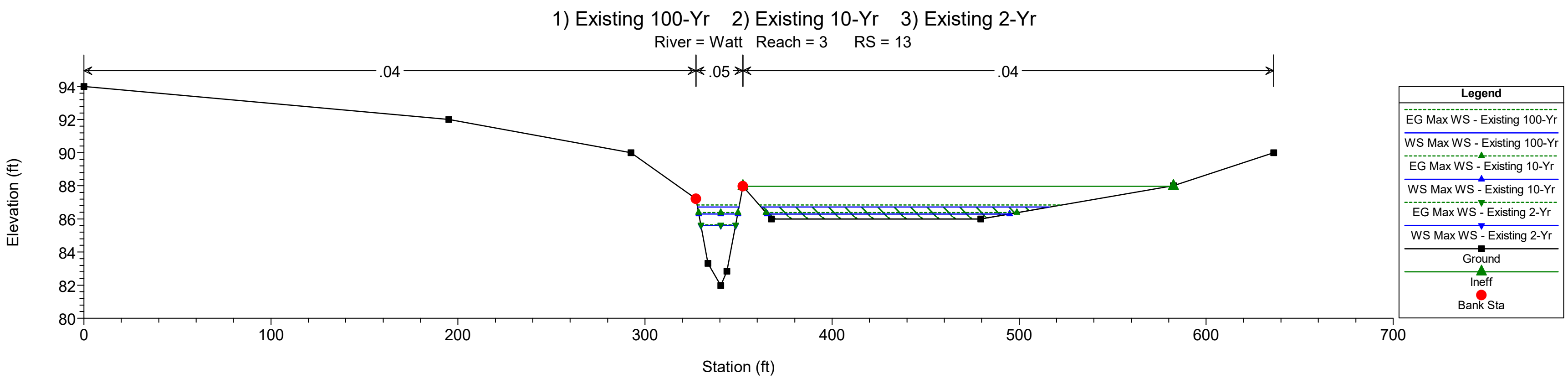
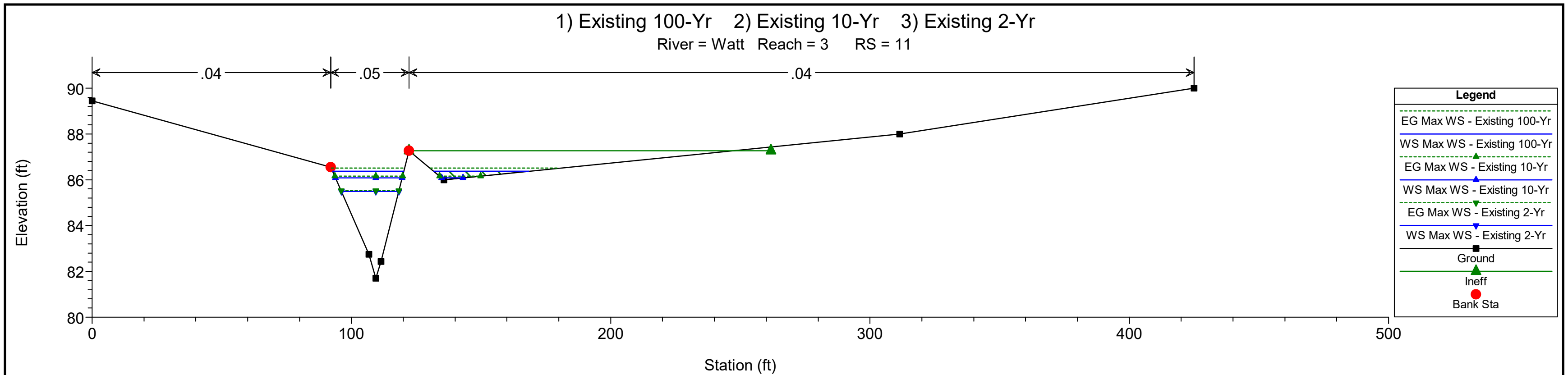
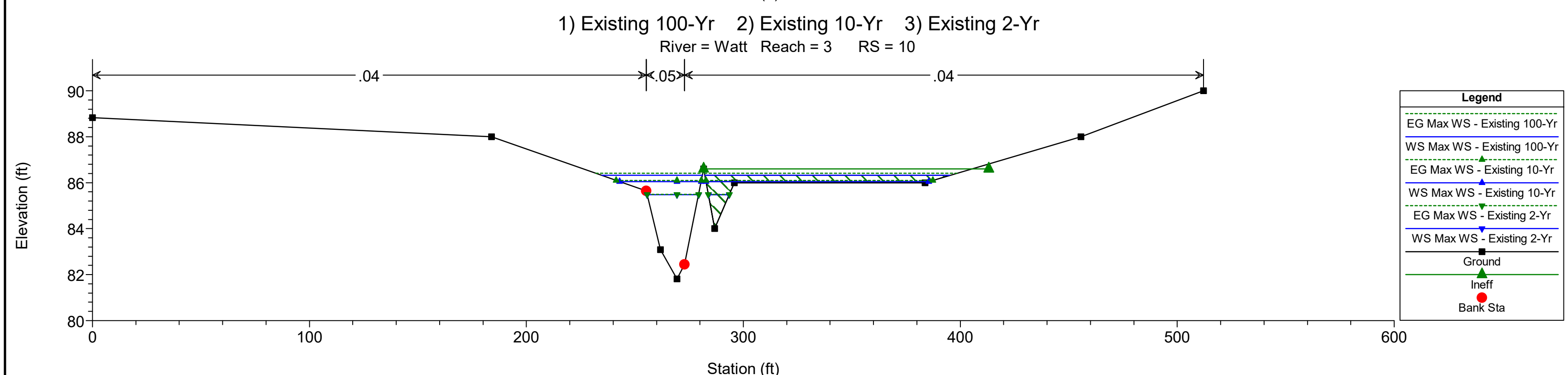

1) Existing 100-Yr 2) Existing 10-Yr 3) Existing 2-Yr
River = Watt Reach = 3 RS = 13
.04
.05
.04
Elevation (ft)
Station (ft)
Legend
EG Max WS - Existing 100-Yr
WS Max WS - Existing 100-Yr
EG Max WS - Existing 10-Yr
WS Max WS - Existing 10-Yr
EG Max WS - Existing 2-Yr
WS Max WS - Existing 2-Yr
Ground
Ineff
Bank Sta

EXHIBIT C


1) Existing 100-Yr 2) Existing 10-Yr 3) Existing 2-Yr
River = Watt Reach = 3 RS = 11
.04
.05
.04
Elevation (ft)
Station (ft)
Legend
EG Max WS - Existing 100-Yr
WS Max WS - Existing 100-Yr
EG Max WS - Existing 10-Yr
WS Max WS - Existing 10-Yr
EG Max WS - Existing 2-Yr
WS Max WS - Existing 2-Yr
Ground
Ineff
Bank Sta


1) Existing 100-Yr 2) Existing 10-Yr 3) Existing 2-Yr
River = Watt Reach = 3 RS = 10
.04
.05
.04
Elevation (ft)
Station (ft)
Legend
EG Max WS - Existing 100-Yr
WS Max WS - Existing 100-Yr
EG Max WS - Existing 10-Yr
WS Max WS - Existing 10-Yr
EG Max WS - Existing 2-Yr
WS Max WS - Existing 2-Yr
Ground
Ineff
Bank Sta

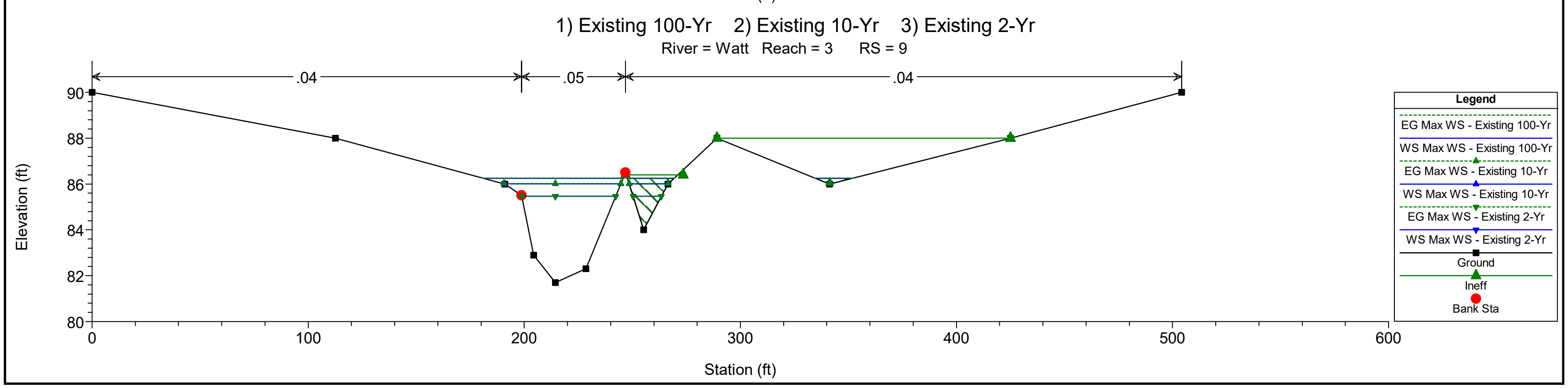
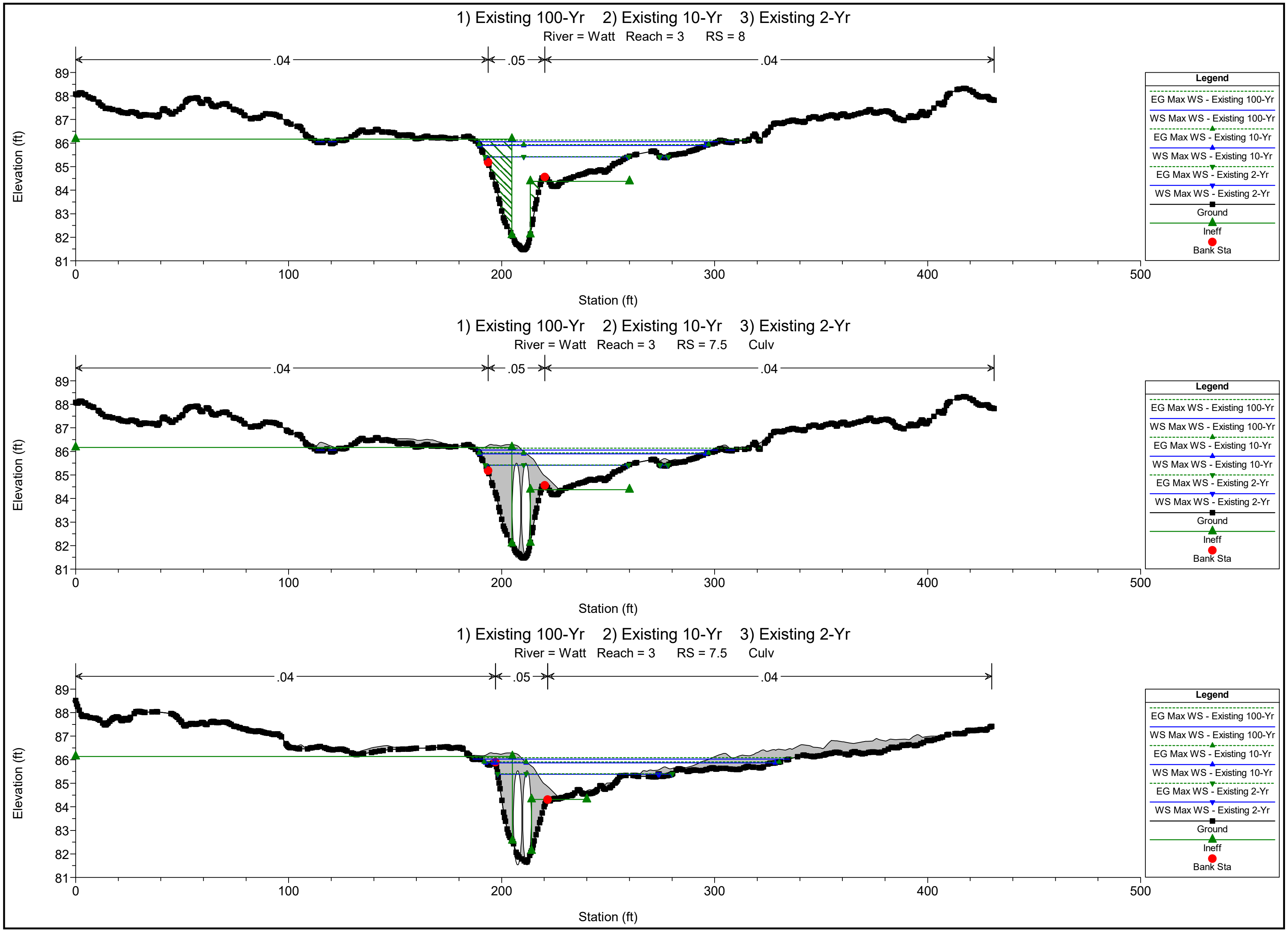

1) Existing 100-Yr 2) Existing 10-Yr 3) Existing 2-Yr
River = Watt Reach = 3 RS = 9
.04
.05
.04
Elevation (ft)
Station (ft)
Legend
EG Max WS - Existing 100-Yr
WS Max WS - Existing 100-Yr
EG Max WS - Existing 10-Yr
WS Max WS - Existing 10-Yr
EG Max WS - Existing 2-Yr
WS Max WS - Existing 2-Yr
Ground
Ineff
Bank Sta

EXHIBIT E

EXHIBIT C



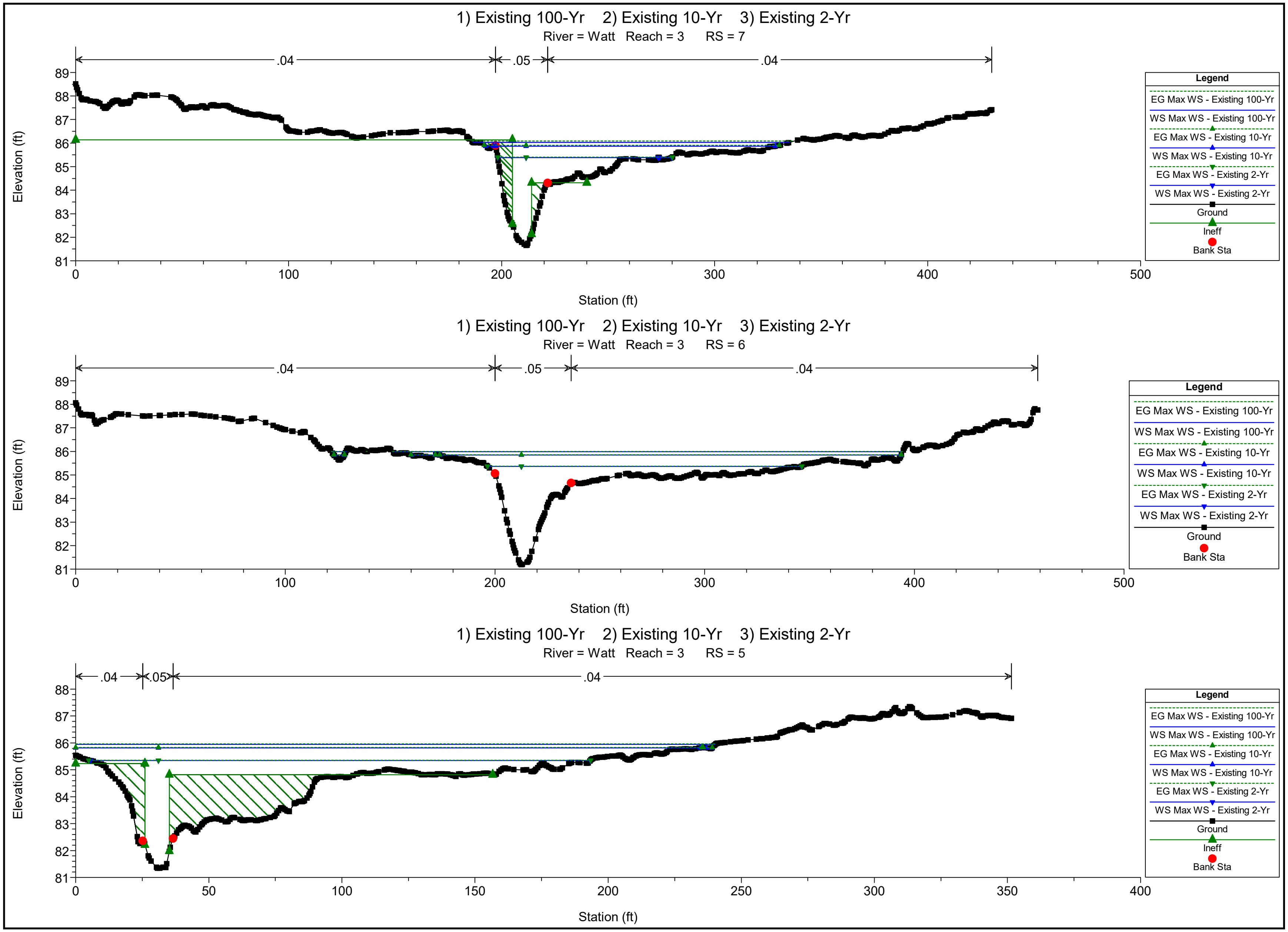

1) Existing 100-Yr 2) Existing 10-Yr 3) Existing 2-Yr
River = Watt Reach = 3 RS = 7
.04
.05
.04
Elevation (ft)
Station (ft)
Legend
EG Max WS - Existing 100-Yr
WS Max WS - Existing 100-Yr
EG Max WS - Existing 10-Yr
WS Max WS - Existing 10-Yr
EG Max WS - Existing 2-Yr
WS Max WS - Existing 2-Yr
Ground
Ineff
Bank Sta
1) Existing 100-Yr 2) Existing 10-Yr 3) Existing 2-Yr
River = Watt Reach = 3 RS = 6
.04
.05
.04
Elevation (ft)
Station (ft)
Legend
EG Max WS - Existing 100-Yr
WS Max WS - Existing 100-Yr
EG Max WS - Existing 10-Yr
WS Max WS - Existing 10-Yr
EG Max WS - Existing 2-Yr
WS Max WS - Existing 2-Yr
Ground
Bank Sta
1) Existing 100-Yr 2) Existing 10-Yr 3) Existing 2-Yr
River = Watt Reach = 3 RS = 5
.04
.05
.04
Elevation (ft)
Station (ft)
Legend
EG Max WS - Existing 100-Yr
WS Max WS - Existing 100-Yr
EG Max WS - Existing 10-Yr
WS Max WS - Existing 10-Yr
EG Max WS - Existing 2-Yr
WS Max WS - Existing 2-Yr
Ground
Ineff
Bank Sta

EXHIBIT E
EXHIBIT C

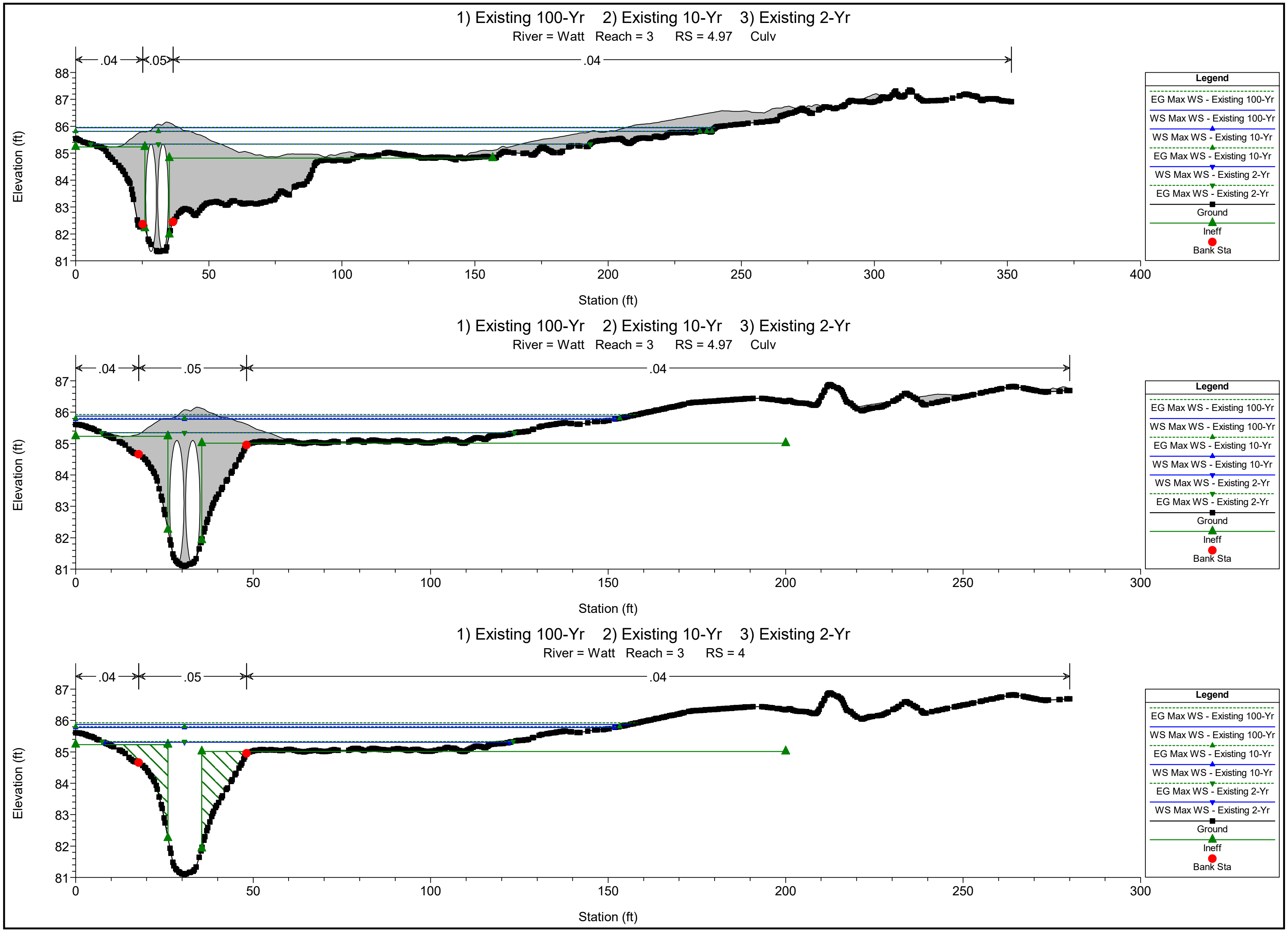


EXHIBIT C

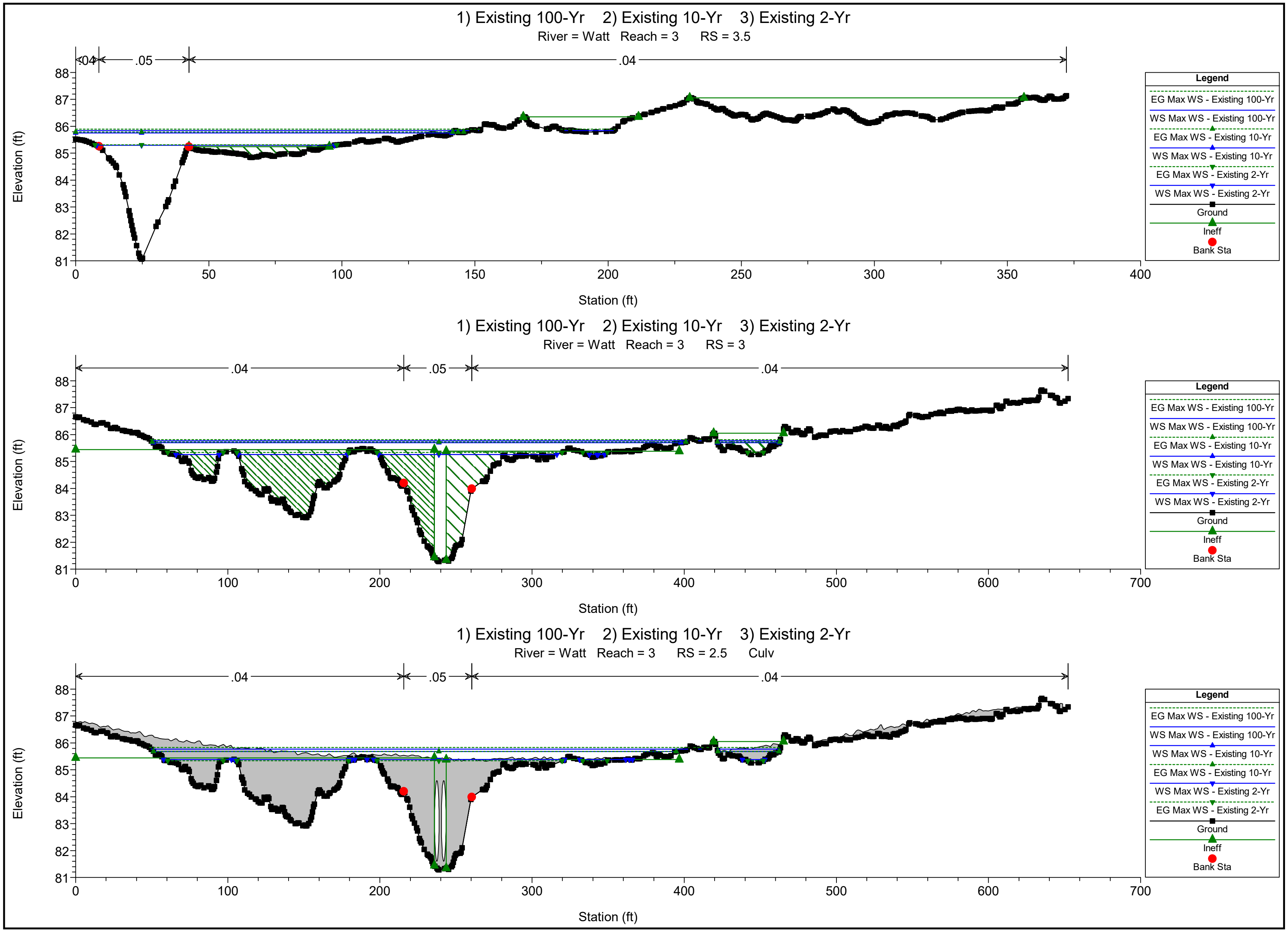
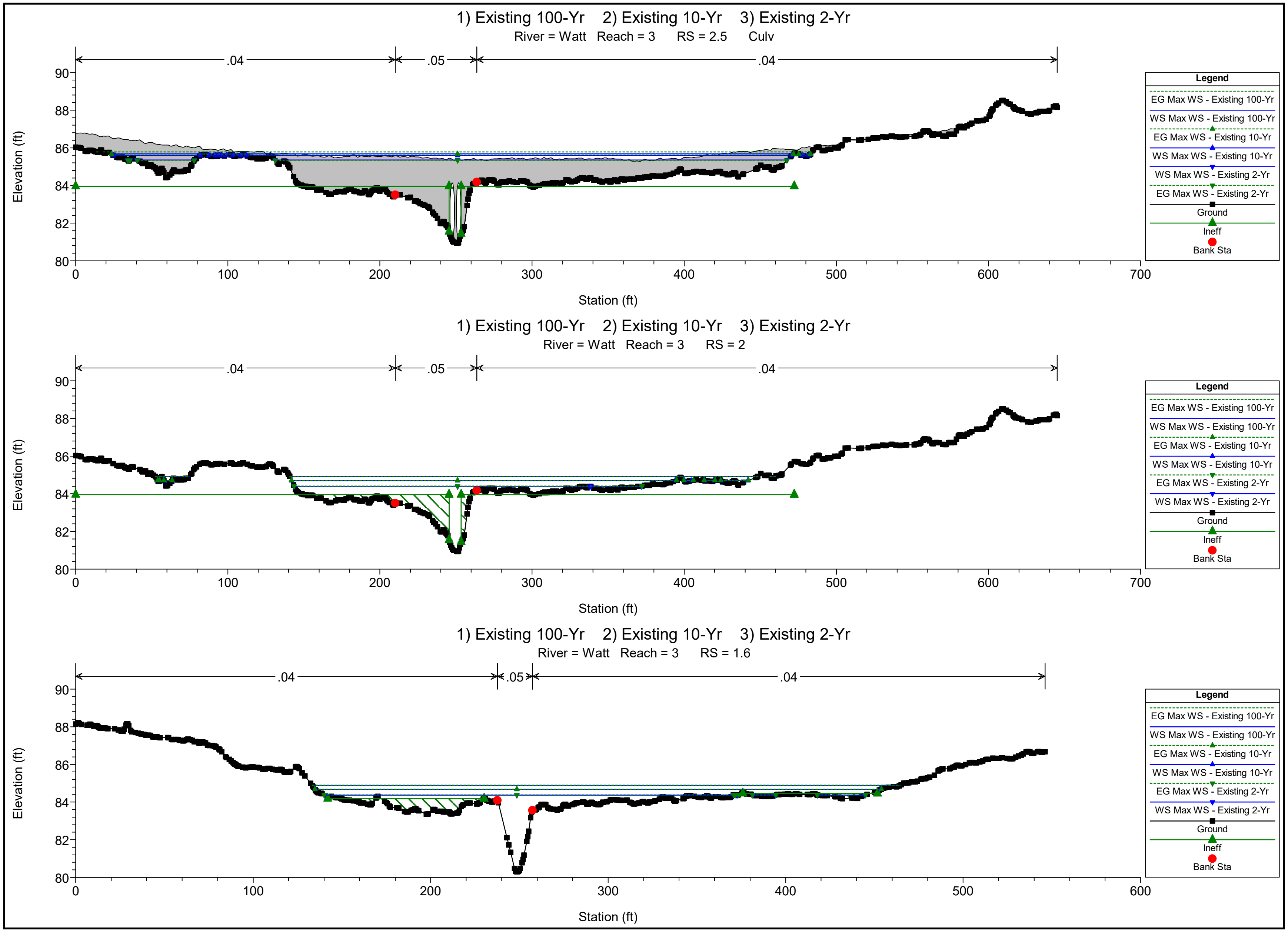
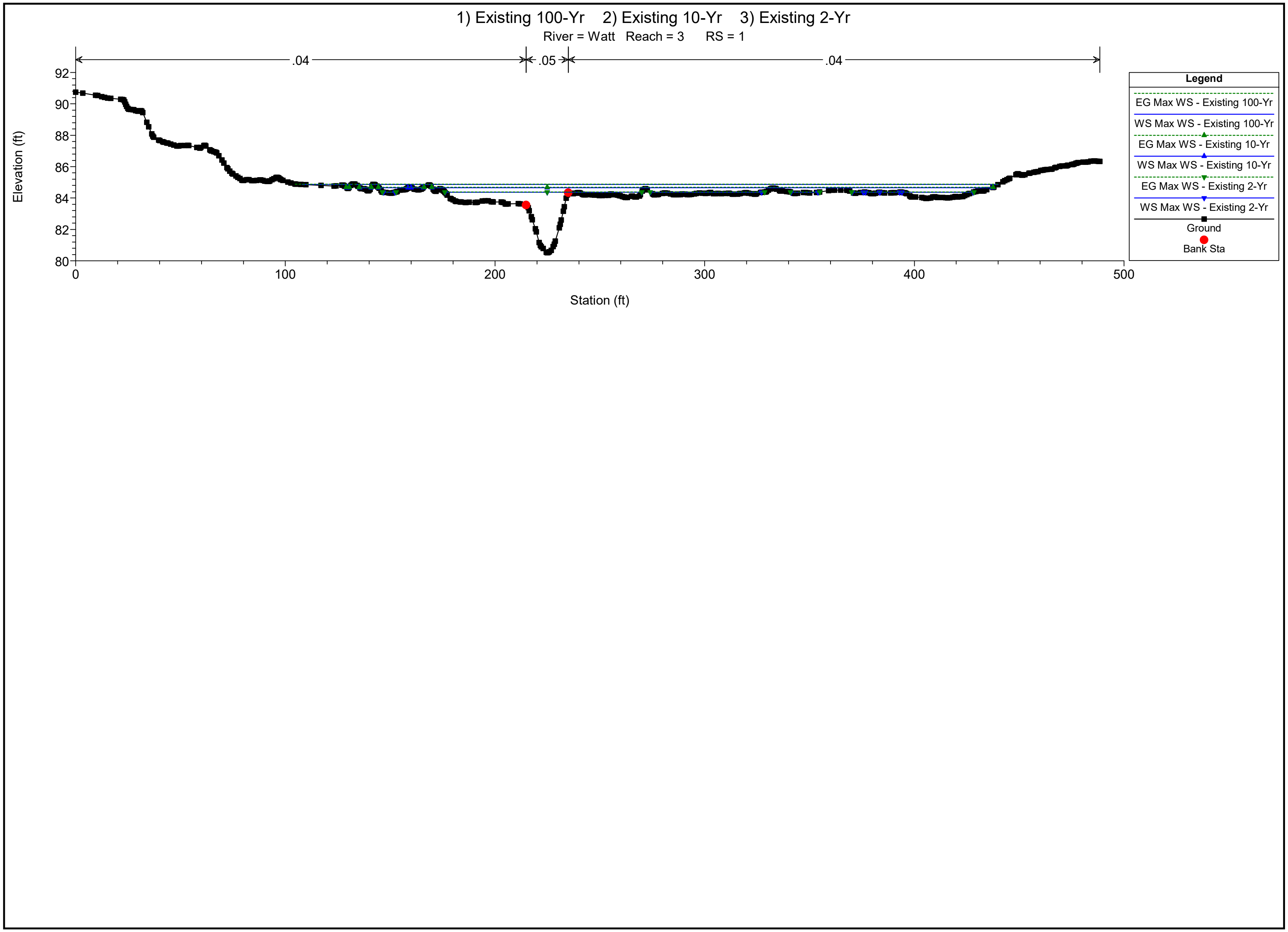

1) Existing 100-Yr 2) Existing 10-Yr 3) Existing 2-Yr
River = Watt Reach = 3 RS = 3.5
.04
.05
.04
Elevation (ft)
Station (ft)
Legend
EG Max WS - Existing 100-Yr
WS Max WS - Existing 100-Yr
EG Max WS - Existing 10-Yr
WS Max WS - Existing 10-Yr
EG Max WS - Existing 2-Yr
WS Max WS - Existing 2-Yr
Ground
Ineff
Bank Sta
1) Existing 100-Yr 2) Existing 10-Yr 3) Existing 2-Yr
River = Watt Reach = 3 RS = 3
.04
.05
.04
Elevation (ft)
Station (ft)
1) Existing 100-Yr 2) Existing 10-Yr 3) Existing 2-Yr
River = Watt Reach = 3 RS = 2.5 Culv
.04
.05
.04
Elevation (ft)
Station (ft)

EXHIBIT F
EXHIBIT C




1) Existing 100-Yr 2) Existing 10-Yr 3) Existing 2-Yr
River = Watt Reach = 3 RS = 1
.04
.05
.04
Elevation (ft)
Station (ft)
80
82
84
86
88
90
92
0
100
200
300
400
500
Legend
EG Max WS - Existing 100-Yr
WS Max WS - Existing 100-Yr
EG Max WS - Existing 10-Yr
WS Max WS - Existing 10-Yr
EG Max WS - Existing 2-Yr
WS Max WS - Existing 2-Yr
Ground
Bank Sta

Cut/Fill Report

Generated: 2021-09-30 17:38:21
By user: TGraf
Drawing: S:\2018\2018-132\hydrology\FLOODPLAIN VOLUME (TRIAL)\S:\2018\2018-132\hydrology\FLOODPLAIN VOLUME (TRIAL)\2018-132-VOLUME.dwg

Volume Summary

Name	Type	Cut Factor	Fill Factor	2d Area (Sq. Ft.)	Cut (Cu. Yd.)	Fill (Cu. Yd.)	Net (Cu. Yd.)
Surface VOLUME	full	1.000	1.000	41934.43	10.07	1576.59	1566.53<Fill>

Totals

	2d Area (Sq. Ft.)	Cut (Cu. Yd.)	Fill (Cu. Yd.)	Net (Cu. Yd.)
Total	41934.43	10.07	1576.59	1566.53<Fill>

* Value adjusted by cut or fill factor other than 1.0

NOTE: "CUT" REPRESENTS EXISTING GRATE HIGHER THAN THE 100-YEAR WATER SURFACE ELEVATION. THEREFORE, "CUT" IS NOT PART OF STORAGE.

BENCHMARK ELEV. 93.95'(NGVD29)
7/8" METAL DISC STAMPED "CO. B.M. 7-18" LOCATED IN TOP OF ROLL CURB, ABOVE D.I. APPROXIMATELY CENTER OF CURB RETURN @ THE NORTHEAST CORNER OF WATT AVE. & BAINBRIDGE DR. & APPROXIMATELY 150' NORTH OF "Q" ST.
FIELD BOOK NO.____ PG.____

JTS ENGINEERING CONSULTANTS, INC.
1808 J STREET
SACRAMENTO CALIFORNIA 95811 (916) 441-6708

DESIGNED:	N/A	SCALE: 1"=30'
DRAWN:	TAN/MAR	
CHECKED:	FNW	
SUBMITTED:	FRANK N. WALKER, P.E.	35635

REGISTERED PROFESSIONAL ENGINEER
FRANK N. WALKER
No.35635
Expires:09-30-23
CIVIL
STATE OF CALIFORNIA

NO	DATE	REVISION	APPROVAL	BY

EXISTING FLOODPLAIN
7403 WATT AVENUE
EXHIBIT G
SACRAMENTO COUNTY — APN: 208-0122-067 — CALIFORNIA

DATE: 1-05-21
SHEET 1 OF 1
JOB NO: 2018-132

EXHIBIT C

HEC-RAS River: Watt Reach: 3 Profile: Max WS

Reach	River Sta	Profile	Plan	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
3	20	Max WS	Existing 2-Yr	72.27	84.70	87.22		87.29	0.002964	2.15	33.69	21.28	0.30
3	19	Max WS	Existing 2-Yr	72.03	83.85	86.82		86.92	0.004622	2.50	28.78	19.96	0.37
3	18	Max WS	Existing 2-Yr	72.80	83.70	86.16		86.29	0.005488	2.91	25.03	15.38	0.40
3	17	Max WS	Existing 2-Yr	71.69	82.84	85.96		86.03	0.002728	2.13	33.67	19.95	0.29
3	16	Max WS	Existing 2-Yr	69.36	82.56	85.76		85.83	0.003120	2.25	30.76	18.33	0.31
3	15	Max WS	Proposed 2-Year Storm	58.14	82.40	85.67		85.69	0.000376	1.00	58.09	23.68	0.11
3	15	Max WS	Existing 2-Yr	68.37	82.40	85.69		85.71	0.000508	1.17	58.55	23.75	0.13
3	13	Max WS	Proposed 2-Year Storm	57.95	81.97	85.60		85.63	0.000839	1.39	41.59	18.55	0.16
3	13	Max WS	Existing 2-Yr	58.61	81.97	85.60		85.63	0.000855	1.41	41.64	18.56	0.17
3	11	Max WS	Proposed 2-Year Storm	56.65	81.70	85.50		85.53	0.001052	1.39	40.72	22.15	0.18
3	11	Max WS	Existing 2-Yr	55.64	81.70	85.50		85.53	0.001014	1.37	40.73	22.15	0.18
3	10	Max WS	Proposed 2-Year Storm	56.23	81.81	85.48		85.50	0.000444	1.11	51.90	33.23	0.13
3	10	Max WS	Existing 2-Yr	55.00	81.81	85.48		85.50	0.000424	1.09	51.95	33.25	0.12
3	9	Max WS	Proposed 2-Year Storm	55.95	81.70	85.46		85.46	0.000089	0.51	109.35	56.44	0.06
3	9	Max WS	Existing 2-Yr	54.42	81.70	85.46		85.46	0.000084	0.50	109.50	56.49	0.06
3	8	Max WS	Proposed 2-Year Storm	64.26	81.47	85.41		85.42	0.000521	1.22	64.89	69.86	0.14
3	8	Max WS	Existing 2-Yr	64.38	81.47	85.41		85.43	0.000520	1.22	65.07	70.08	0.14
3	7.5			Culvert									
3	7	Max WS	Proposed 2-Year Storm	63.99	81.65	85.38		85.40	0.000567	1.23	66.72	81.24	0.14
3	7	Max WS	Existing 2-Yr	64.28	81.65	85.38		85.40	0.000570	1.24	66.82	81.28	0.14
3	6	Max WS	Proposed 2-Year Storm	63.88	81.19	85.37		85.37	0.000163	0.65	124.72	149.70	0.08
3	6	Max WS	Existing 2-Yr	63.99	81.19	85.37		85.37	0.000163	0.65	124.94	149.74	0.08
3	5	Max WS	Proposed 2-Year Storm	65.82	81.34	85.34		85.36	0.000313	1.10	106.73	187.63	0.11
3	5	Max WS	Existing 2-Yr	65.92	81.34	85.34		85.36	0.000312	1.10	107.03	187.76	0.11
3	4.97			Culvert									
3	4	Max WS	Proposed 2-Year Storm	65.80	81.10	85.31		85.33	0.001451	1.36	58.99	114.20	0.21
3	4	Max WS	Existing 2-Yr	65.89	81.10	85.31		85.33	0.001445	1.36	59.19	114.28	0.20
3	3.95			Lat Struct									
3	3.5	Max WS	Proposed 2-Year Storm	65.79	81.06	85.29		85.31	0.000491	1.00	68.26	89.23	0.13
3	3.5	Max WS	Existing 2-Yr	65.88	81.06	85.29		85.31	0.000491	1.00	68.42	89.36	0.13
3	3	Max WS	Proposed 2-Year Storm	67.79	81.28	85.26		85.33	0.000917	2.24	30.26	226.27	0.20
3	3	Max WS	Existing 2-Yr	67.87	81.28	85.26		85.34	0.000918	2.24	30.27	226.65	0.20
3	2.5			Culvert									
3	2	Max WS	Proposed 2-Year Storm	67.77	80.93	84.40		84.41	0.001116	0.88	93.14	227.48	0.17
3	2	Max WS	Existing 2-Yr	67.83	80.93	84.40		84.41	0.001116	0.88	93.22	227.52	0.17
3	1.6	Max WS	Proposed 2-Year Storm	67.76	80.30	84.38		84.39	0.000368	1.01	106.60	270.36	0.11
3	1.6	Max WS	Existing 2-Yr	67.83	80.30	84.38		84.39	0.000370	1.01	106.16	270.42	0.11
3	1	Max WS	Proposed 2-Year Storm	67.76	80.51	84.37	82.08	84.38	0.000391	1.02	94.78	220.67	0.12
3	1	Max WS	Existing 2-Yr	67.83	80.51	84.37	82.08	84.38	0.000391	1.02	94.85	220.89	0.12

EXHIBIT H - 2-YEAR FLOODPLAIN DOWNSTREAM OF PROJECT SITE (SHEET 1/3)

JTS ENGINEERING CONSULTANTS, INC.
1808 J STREET
SACRAMENTO, CALIFORNIA 95811 (916) 441-6708
JOB NO: 2018-132

HEC-RAS River: Watt Reach: 3 Profile: Max WS

Reach	River Sta	Profile	Plan	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
3	20	Max WS	Existing 10-Yr	128.91	84.70	87.93		88.03	0.003169	2.55	50.48	103.44	0.32
3	19	Max WS	Existing 10-Yr	128.27	83.85	87.57		87.69	0.004006	2.79	46.93	32.89	0.36
3	18	Max WS	Existing 10-Yr	130.22	83.70	86.93		87.11	0.005627	3.42	38.11	18.62	0.42
3	17	Max WS	Existing 10-Yr	128.53	82.84	86.73		86.83	0.002903	2.52	50.93	24.46	0.31
3	16	Max WS	Existing 10-Yr	125.13	82.56	86.52		86.63	0.003269	2.69	47.41	32.73	0.33
3	15	Max WS	Proposed 10-Year Storm	124.50	82.40	86.45		86.49	0.000771	1.61	77.56	59.37	0.17
3	15	Max WS	Existing 10-Yr	123.86	82.40	86.45		86.49	0.000760	1.59	77.68	59.73	0.16
3	13	Max WS	Proposed 10-Year Storm	122.52	81.97	86.29		86.37	0.001719	2.22	55.24	150.18	0.24
3	13	Max WS	Existing 10-Yr	122.82	81.97	86.30		86.38	0.001718	2.22	55.36	150.53	0.24
3	11	Max WS	Proposed 10-Year Storm	121.50	81.70	86.08		86.15	0.002215	2.22	54.62	33.22	0.27
3	11	Max WS	Existing 10-Yr	121.80	81.70	86.08		86.16	0.002206	2.22	54.79	33.95	0.27
3	10	Max WS	Proposed 10-Year Storm	121.27	81.81	86.04		86.09	0.000998	1.88	68.15	139.71	0.19
3	10	Max WS	Existing 10-Yr	121.44	81.81	86.05		86.10	0.000991	1.88	68.44	140.24	0.19
3	9	Max WS	Proposed 10-Year Storm	121.13	81.70	85.99		86.01	0.000231	0.91	135.25	71.34	0.09
3	9	Max WS	Existing 10-Yr	121.09	81.70	86.00		86.01	0.000228	0.90	135.70	71.77	0.09
3	8	Max WS	Proposed 10-Year Storm	142.56	81.47	85.89		85.93	0.000997	1.90	102.77	105.89	0.19
3	8	Max WS	Existing 10-Yr	144.99	81.47	85.90		85.94	0.001020	1.92	103.24	106.04	0.20
3	7.5			Culvert									
3	7	Max WS	Proposed 10-Year Storm	142.40	81.65	85.87		85.90	0.000955	1.81	114.55	134.32	0.19
3	7	Max WS	Existing 10-Yr	144.65	81.65	85.87		85.91	0.000972	1.83	115.23	134.98	0.19
3	6	Max WS	Proposed 10-Year Storm	142.19	81.19	85.84		85.85	0.000259	0.92	212.87	235.38	0.10
3	6	Max WS	Existing 10-Yr	144.41	81.19	85.84		85.85	0.000263	0.93	214.07	235.92	0.10
3	5	Max WS	Proposed 10-Year Storm	144.07	81.34	85.81		85.82	0.000338	1.26	205.87	235.67	0.12
3	5	Max WS	Existing 10-Yr	146.32	81.34	85.82		85.83	0.000344	1.27	206.97	236.64	0.12
3	4.97			Culvert									
3	4	Max WS	Proposed 10-Year Storm	144.06	81.10	85.77		85.80	0.001288	1.56	120.44	151.66	0.20
3	4	Max WS	Existing 10-Yr	146.28	81.10	85.78		85.81	0.001311	1.58	121.04	151.83	0.20
3	3.95			Lat Struct									
3	3.5	Max WS	Proposed 10-Year Storm	139.02	81.06	85.75		85.78	0.000765	1.44	122.40	141.25	0.16
3	3.5	Max WS	Existing 10-Yr	141.13	81.06	85.76		85.78	0.000781	1.45	122.90	141.30	0.17
3	3	Max WS	Proposed 10-Year Storm	143.16	81.28	85.69		85.72	0.003350	1.69	122.45	385.94	0.30
3	3	Max WS	Existing 10-Yr	145.31	81.28	85.70		85.73	0.003350	1.69	123.90	387.44	0.30
3	2.5			Culvert									
3	2	Max WS	Proposed 10-Year Storm	142.92	80.93	84.69		84.70	0.000986	1.01	167.05	286.38	0.17
3	2	Max WS	Existing 10-Yr	145.07	80.93	84.70		84.71	0.000985	1.01	168.95	288.22	0.17
3	1.6	Max WS	Proposed 10-Year Storm	142.91	80.30	84.67		84.68	0.000557	1.33	189.49	318.43	0.14
3	1.6	Max WS	Existing 10-Yr	145.04	80.30	84.67		84.69	0.000545	1.32	193.67	318.73	0.14
3	1	Max WS	Proposed 10-Year Storm	147.92	80.51	84.65	82.82	84.67	0.000684	1.45	169.27	292.94	0.16
3	1	Max WS	Existing 10-Yr	150.16	80.51	84.66	82.83	84.68	0.000687	1.46	171.24	293.72	0.16

JTS ENGINEERING CONSULTANTS, INC.
1808 J STREET
SACRAMENTO, CALIFORNIA 95811 (916) 441-6708
JOB NO: 2018-132

EXHIBIT H - 10-YEAR FLOODPLAIN DOWNSTREAM OF PROJECT SITE (SHEET 2/3)

HEC-RAS River: Watt Reach: 3 Profile: Max WS

Reach	River Sta	Profile	Plan	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
3	20	Max WS	Existing 100-Yr	187.42	84.70	88.36		88.44	0.002378	2.44	104.14	155.66	0.29
3	19	Max WS	Existing 100-Yr	184.78	83.85	88.11		88.20	0.002566	2.62	93.91	138.53	0.30
3	18	Max WS	Existing 100-Yr	188.80	83.70	87.45		87.68	0.006222	3.90	48.37	37.31	0.45
3	17	Max WS	Existing 100-Yr	187.32	82.84	87.24		87.37	0.003347	2.93	64.02	27.39	0.34
3	16	Max WS	Existing 100-Yr	184.71	82.56	87.04		87.16	0.003117	2.93	71.77	110.33	0.33
3	15	Max WS	Proposed 100-Year Storm	184.00	82.40	86.94		87.01	0.001080	2.02	91.09	97.29	0.20
3	15	Max WS	Existing 100-Yr	183.33	82.40	86.95		87.01	0.001070	2.01	91.16	97.50	0.20
3	13	Max WS	Proposed 100-Year Storm	182.86	81.97	86.71		86.83	0.002544	2.85	64.17	176.09	0.30
3	13	Max WS	Existing 100-Yr	183.01	81.97	86.71		86.84	0.002541	2.85	64.24	176.30	0.30
3	11	Max WS	Proposed 100-Year Storm	182.67	81.70	86.37		86.50	0.003515	2.93	62.37	63.71	0.34
3	11	Max WS	Existing 100-Yr	182.77	81.70	86.37		86.51	0.003503	2.93	62.48	64.14	0.34
3	10	Max WS	Proposed 100-Year Storm	182.58	81.81	86.31		86.40	0.001593	2.52	79.54	158.84	0.25
3	10	Max WS	Existing 100-Yr	182.70	81.81	86.32		86.41	0.001586	2.52	79.74	159.15	0.25
3	9	Max WS	Proposed 100-Year Storm	182.55	81.70	86.24		86.26	0.000408	1.25	149.51	101.40	0.13
3	9	Max WS	Existing 100-Yr	182.52	81.70	86.24		86.27	0.000406	1.25	149.82	102.00	0.13
3	8	Max WS	Proposed 100-Year Storm	217.00	81.47	86.06		86.13	0.001620	2.51	118.71	124.75	0.25
3	8	Max WS	Existing 100-Yr	219.33	81.47	86.06		86.13	0.001649	2.53	118.88	125.04	0.25
3	7.5			Culvert									
3	7	Max WS	Proposed 100-Year Storm	217.05	81.65	86.03		86.08	0.001475	2.34	135.16	147.33	0.24
3	7	Max WS	Existing 100-Yr	218.95	81.65	86.03		86.09	0.001493	2.35	135.47	148.58	0.24
3	6	Max WS	Proposed 100-Year Storm	216.54	81.19	85.98		86.00	0.000414	1.21	248.65	249.95	0.12
3	6	Max WS	Existing 100-Yr	218.32	81.19	85.99		86.00	0.000419	1.22	249.12	250.00	0.13
3	5	Max WS	Proposed 100-Year Storm	218.56	81.34	85.94		85.96	0.000532	1.62	237.22	240.23	0.15
3	5	Max WS	Existing 100-Yr	219.90	81.34	85.94		85.96	0.000535	1.62	237.67	240.25	0.15
3	4.97			Culvert									
3	4	Max WS	Proposed 100-Year Storm	218.56	81.10	85.88		85.92	0.002126	2.08	136.29	156.16	0.26
3	4	Max WS	Existing 100-Yr	219.87	81.10	85.88		85.93	0.002142	2.09	136.51	156.22	0.26
3	3.95			Lat Struct									
3	3.5	Max WS	Proposed 100-Year Storm	209.40	81.06	85.84		85.89	0.001397	1.99	134.89	163.72	0.22
3	3.5	Max WS	Existing 100-Yr	209.53	81.06	85.84		85.89	0.001404	2.00	135.23	164.21	0.22
3	3	Max WS	Proposed 100-Year Storm	214.13	81.28	85.77		85.81	0.004454	2.04	147.63	395.70	0.35
3	3	Max WS	Existing 100-Yr	214.89	81.28	85.77		85.81	0.004364	2.03	149.03	396.10	0.35
3	2.5			Culvert									
3	2	Max WS	Proposed 100-Year Storm	222.07	80.93	84.90		84.92	0.000979	1.13	234.30	332.36	0.17
3	2	Max WS	Existing 100-Yr	224.53	80.93	84.91		84.92	0.000991	1.13	235.17	332.57	0.17
3	1.6	Max WS	Proposed 100-Year Storm	219.41	80.30	84.88		84.90	0.000593	1.44	258.32	330.96	0.15
3	1.6	Max WS	Existing 100-Yr	220.26	80.30	84.88		84.90	0.000582	1.43	260.96	331.01	0.15
3	1	Max WS	Proposed 100-Year Storm	226.52	80.51	84.86	83.35	84.89	0.000791	1.64	233.67	330.10	0.17
3	1	Max WS	Existing 100-Yr	227.76	80.51	84.86	83.35	84.89	0.000795	1.64	234.27	330.39	0.17

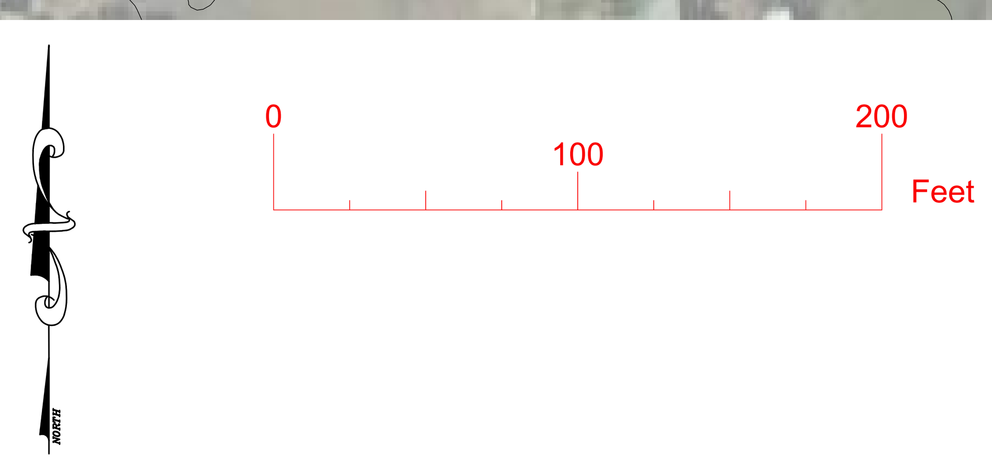


EXHIBIT H - 100-YEAR FLOODPLAIN DOWNSTREAM OF PROJECT SITE (SHEET 3/3)

JTS ENGINEERING CONSULTANTS, INC.
1808 J STREET
SACRAMENTO, CALIFORNIA 95811 (916) 441-6708
JOB NO: 2018-132

Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. — Tuesday, Apr 26 2022

Existing Overland Release Adjacent to Building of 7407 Watt Ave.

User-defined

Invert Elev (ft)	= 90.47
Slope (%)	= 0.30
N-Value	= 0.040

Calculations

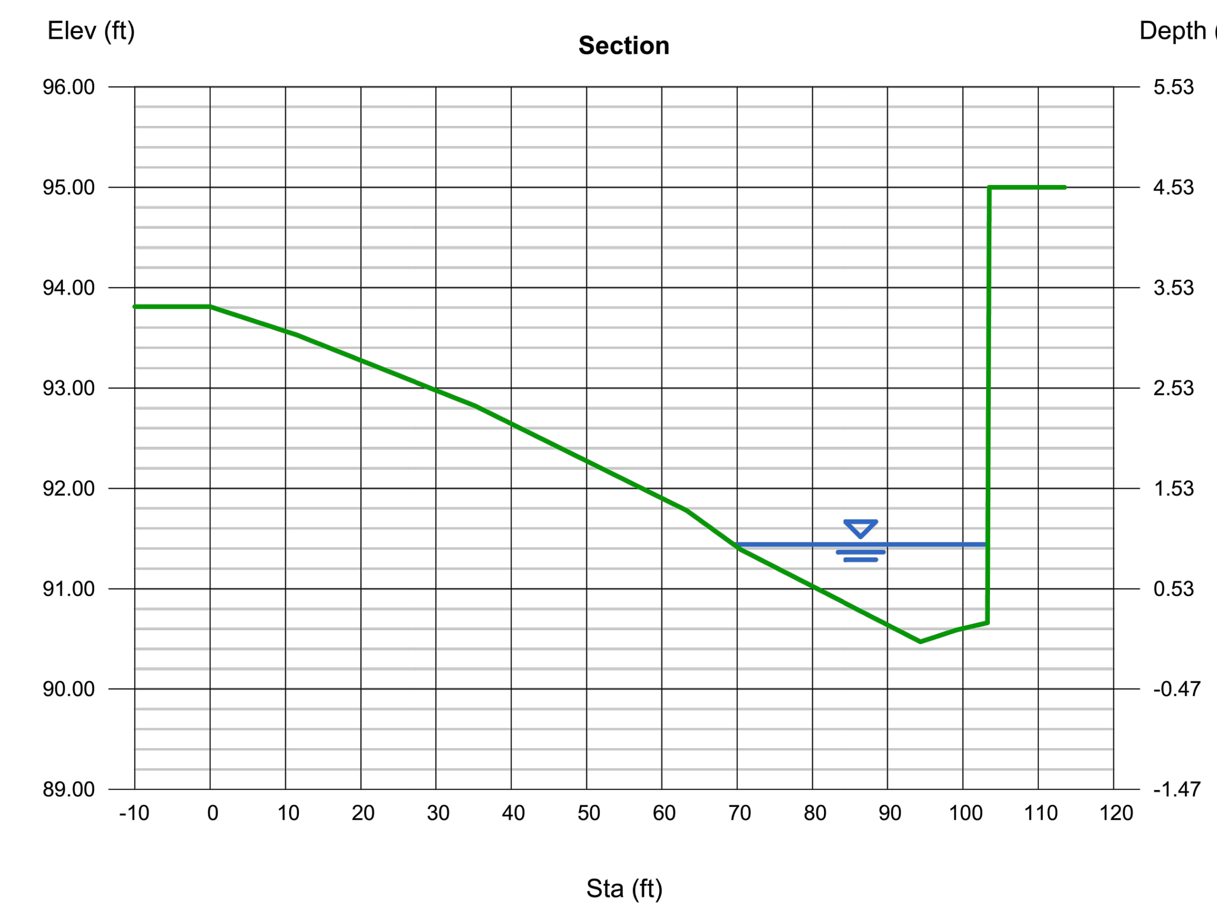
Compute by:	Known Q
Known Q (cfs)	= 27.53

Highlighted

Depth (ft)	= 0.97
Q (cfs)	= 27.53
Area (sqft)	= 19.95
Velocity (ft/s)	= 1.38
Wetted Perim (ft)	= 34.54
Crit Depth, Yc (ft)	= 0.57
Top Width (ft)	= 33.78
EGL (ft)	= 1.00

(Sta, El, n)-(Sta, El, n)...
(0.00, 93.81)-(11.45, 93.53, 0.040)-(35.28, 92.82, 0.040)-(63.27, 91.78, 0.040)-(70.45, 91.39, 0.040)-(94.36, 90.47, 0.040)-(99.20, 90.59, 0.040) -(103.27, 90.66, 0.040)-(103.50, 95.00, 0.040)

EX. WATER SURFACE ELEV.: 91.44-FT



BENCHMARK ELEVATION: 93.952 FT.

7/8" METAL DISC STAMPED "CO. B.M. 7-18" LOCATED IN TOP OF ROLL CURB, ABOVE D.I. APPROXIMATELY CENTER OF CURB RETURN @ THE NORTHEAST CORNER OF WATT AVE. & BAINBRIDGE DR. & APPROXIMATELY 150' NORTH OF "Q" ST.

FIELD BOOK NUMBER:_____ PAGE:____

JTS ENGINEERING CONSULTANTS, INC.
1808 J STREET
SACRAMENTO, CALIFORNIA 95811 (916) 441-6708

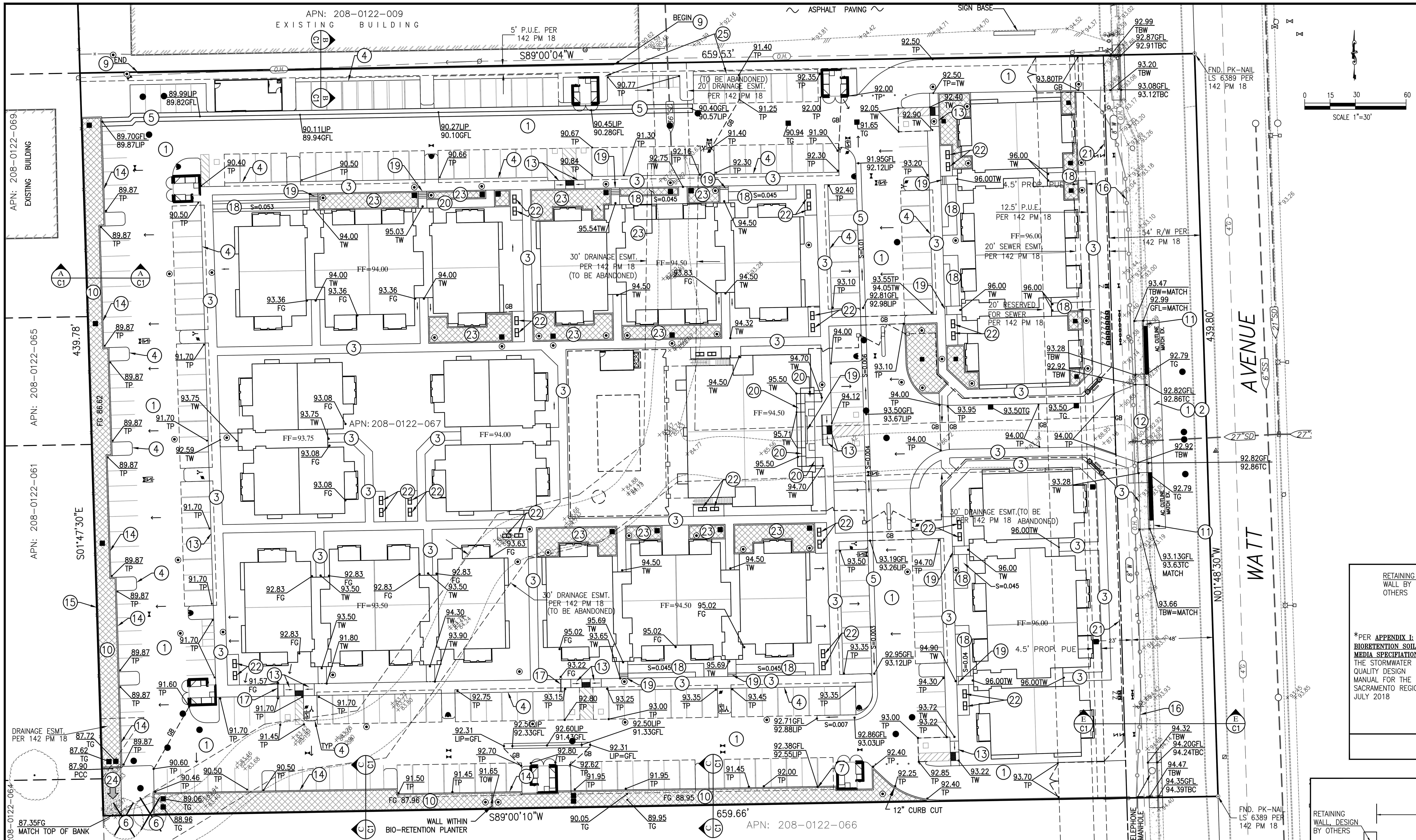
DESIGNED:	N/A	SCALE:	
DRAWN:	TEG	H:1"=30'	
CHECKED:	FNW	V:	
SUBMITTED:	FRANK N. WALKER, P.E.	RCE: 35635	

NO.	DESCRIPTION	ENGR INIT	APPROVAL BY	DATE

EXISTING OVERLAND RELEASE ANALYSIS
WATT AVE. APARTMENTS
7403 WATT AVE.
EXHIBIT I
COUNTY OF SACRAMENTO — APN: 208-0122-066 — CALIFORNIA

DATE: 4-28-22
SHEET 1 OF 1

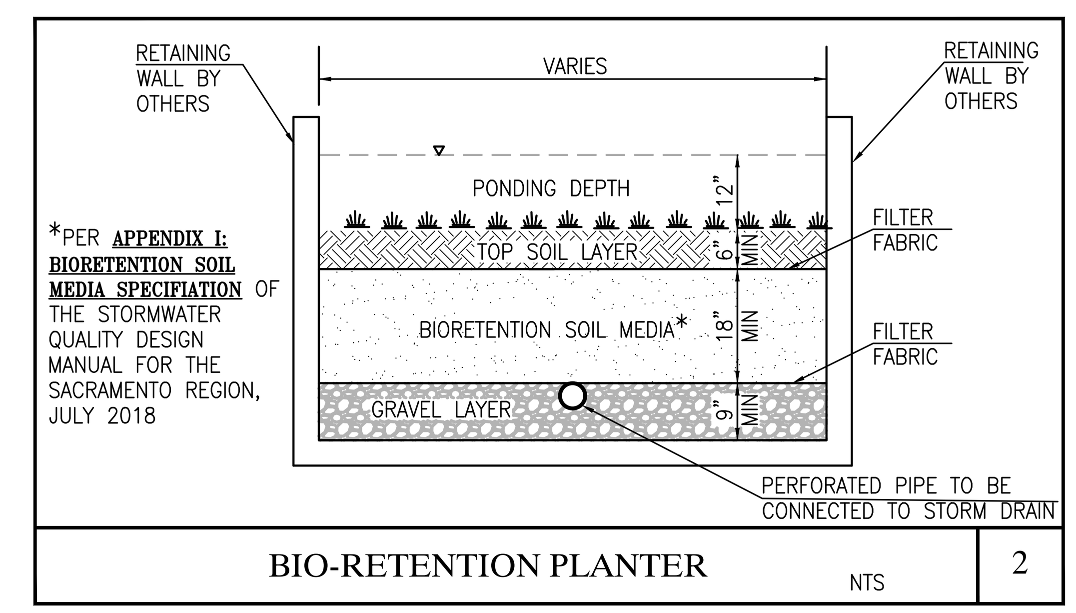
JOB NO: 2018-132



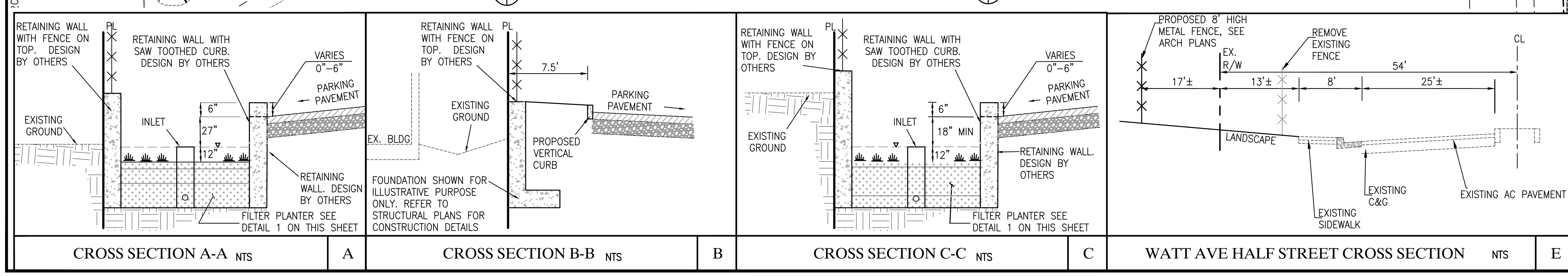
IMPROVEMENT NOTES:

1. AC PAVEMENT
2. SAWCUT AND REMOVE EXISTING AC PAVEMENT
3. PCC SIDEWALK
4. VERTICAL CURB
5. VEE GUTTER
6. REMOVE EXISTING TREE
7. PROVIDE 2' CURB OPENING.
8. SAWCUT AND REMOVE EXISTING SIDEWALK AND CURB & GUTTER.
9. RETAINING WALL BY OTHERS
10. BIO-RETENTION PLANTER. SEE DETAIL 1 ON THIS SHEET
11. VERTICAL CURB AND GUTTER
12. PROPOSED 46' TYPE-A DRIVEWAY
13. PROPOSED CURB RAMP
14. RETAINING WALL WITH SAW TOOTH CURB DESIGNED BY OTHERS.
15. RETAINING WALL DESIGNED BY OTHERS.
16. COORDINATE WITH OWNER FOR REMOVAL AND/OR RELOCATION OF EXISTING FENCE.
17. PROPOSED UNDER SIDEWALK DRAIN.
18. PROPOSED SLOPED WALK
19. PROPOSED STEPS
20. PROPOSED RAMP
21. PROPOSED 8' ORNAMENTAL METAL FENCE. SEE ARCHITECTURAL PLANS.
22. PROPOSED BIKE RACKS. SEE ARCHITECTURAL PLANS.
23. BIO-RETENTION PLANTER PER DETAIL 2 ON THIS SHEET.
24. CONCRETE MOW STRIP.
25. OVERLAND RELEASE PATHWAY. PLACE VERTICAL CURB WITH TOP OF CURB FLUSH WITH ASPHALT PAVEMENT. CONCRETE MOW STRIP TO BE PLACED IN LANDSCAPE FOR OVERLAND FLOOD RELEASE TO SATISFACTION OF DWR.

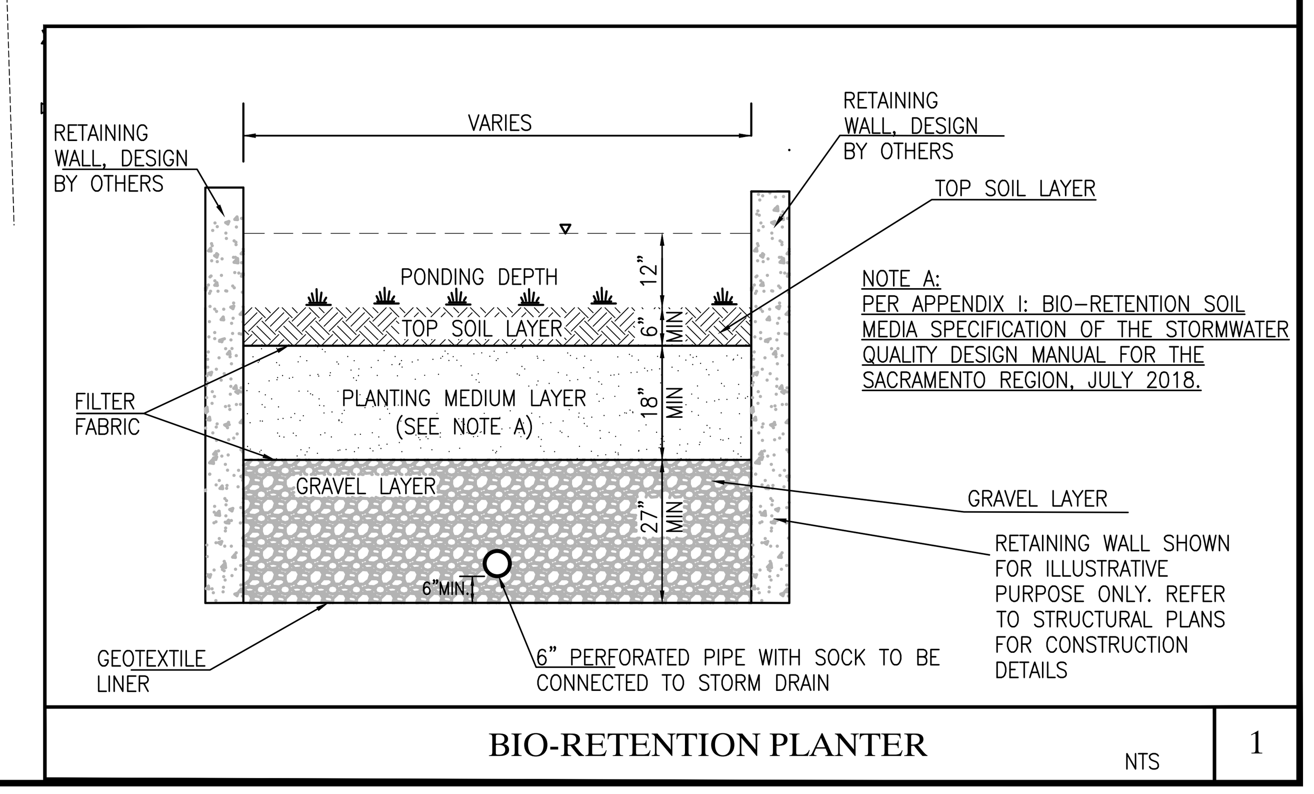
⇨ DENOTES OVERLAND RELEASE POINT OF DISCHARGE



BIO-RETENTION PLANTER NTS 2



CROSS SECTION A-A NTS A | CROSS SECTION B-B NTS B | CROSS SECTION C-C NTS C | WATT AVE HALF STREET CROSS SECTION NTS E



BIO-RETENTION PLANTER NTS 1

BENCHMARK ELEV. 93.95'(NGVD29)
7/8" METAL DISC STAMPED "CO. B.M. 7-18" LOCATED IN TOP OF ROLL CURB, ABOVE D.I. APPROXIMATELY CENTER OF CURB RETURN @ THE NORTHEAST CORNER OF WATT AVE. & BAINBRIDGE DR. & APPROXIMATELY 150' NORTH OF "O" ST.
FIELD BOOK NO.____ PG.____

JTS ENGINEERING CONSULTANTS, INC.
1808 J STREET
SACRAMENTO CALIFORNIA 95811 (916) 441-6708

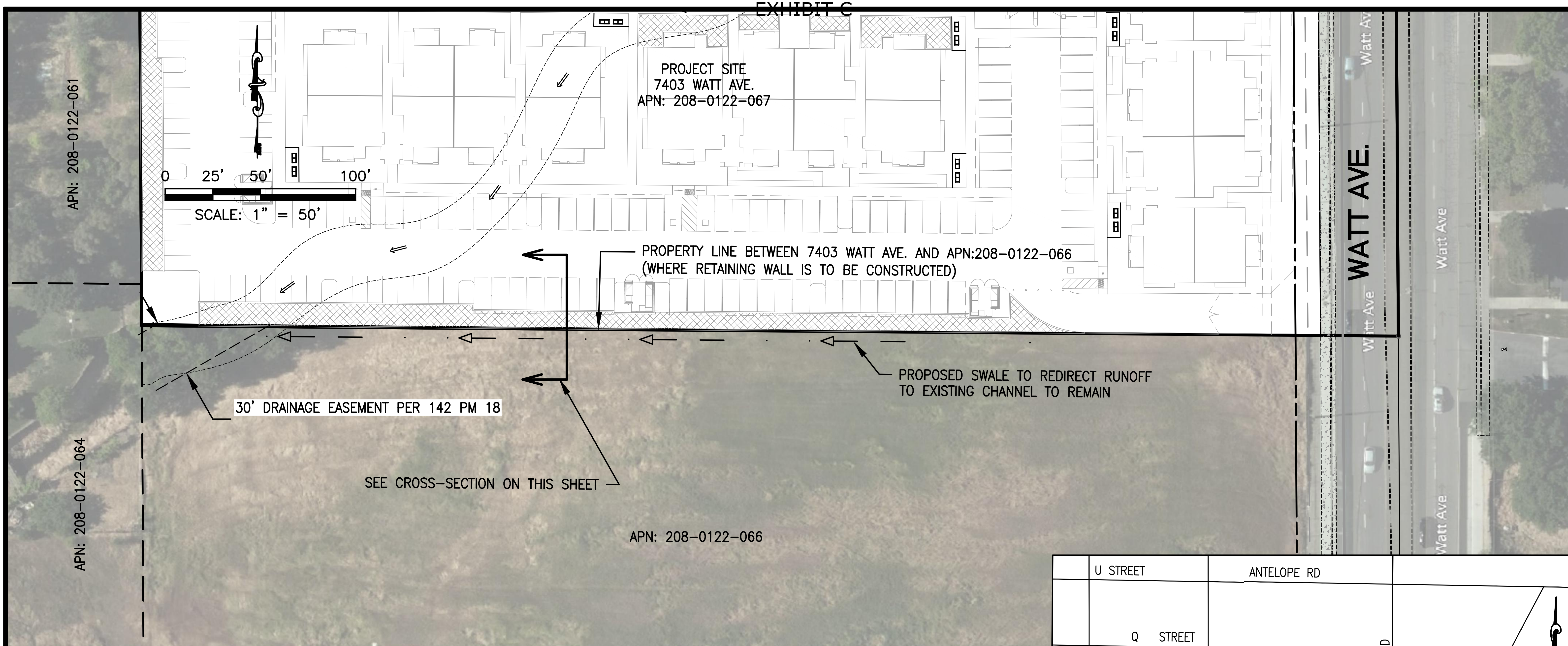
DESIGNED:	MAR	SCALE:	1"=30'
DRAWN:	TAN/MAR		
CHECKED:	JTS		
SUBMITTED:	JAVED T. SIDDIQUI, P.E.	25924	

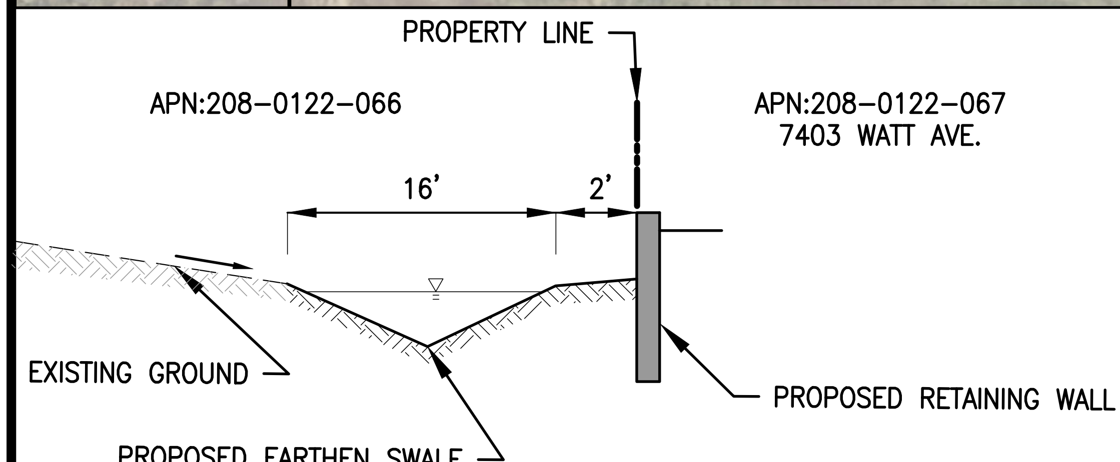
REGISTERED PROFESSIONAL ENGINEER JAVED T. SIDDIQUI No.25924 Expires:12-31-23 CIVIL STATE OF CALIFORNIA

NO	DATE	REVISION	APPROVAL	BY

PRELIMINARY GRADING PLAN
7403 WATT AVENUE
EXHIBIT J
SACRAMENTO COUNTY APN: 208-0122-067 CALIFORNIA

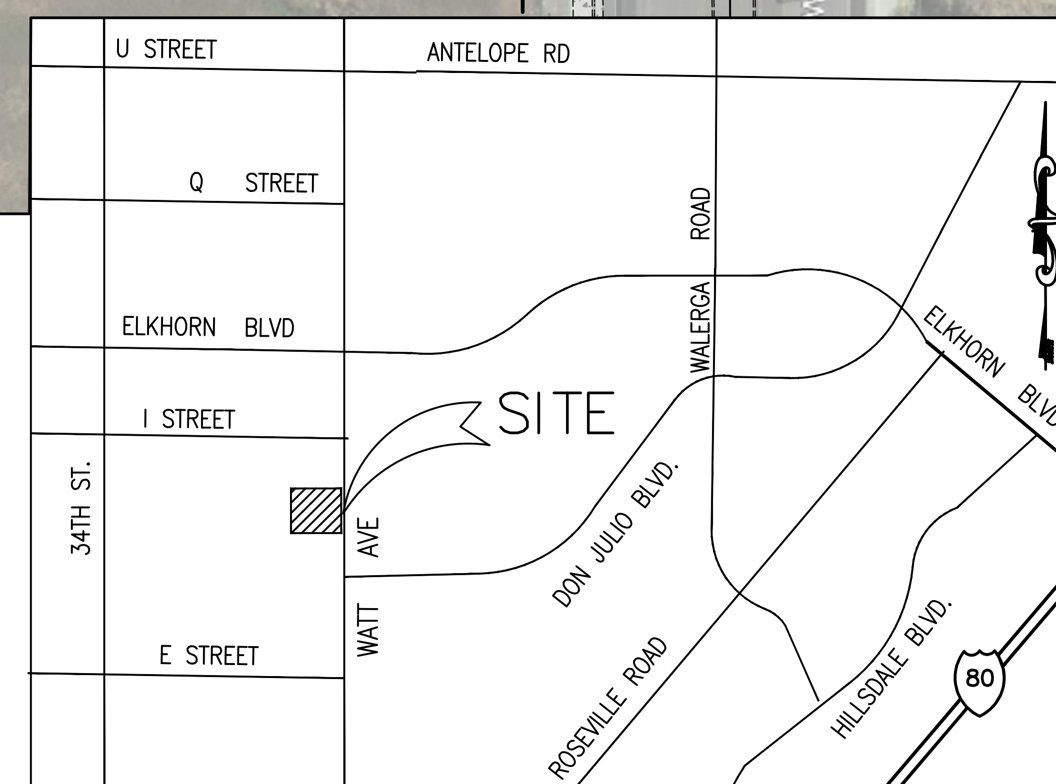
DATE: 6-30-22
SHEET C1 OF 2
JOB NO: 2018-132





CROSS-SECTION

NOT TO SCALE



VICINITY MAP

NOT TO SCALE

JTS ENGINEERING CONSULTANTS, INC. 1808 J STREET, SACRAMENTO, CA 95814 PH:(916) 441-6708 FX:(916) 441-5336	DATE: 4-28-22 DRAWN: TEG CHECKED: FNW JOB NO: 2018-132	EXHIBIT INDICATING EXTENT OF WORK WITHIN APN: 208-0122-066 COUNTY OF SACRAMENTO EXHIBIT K CALIFORNIA

Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Thursday, Jun 30 2022

Proposed Swale on APN: 309-0122-066

Triangular
Side Slopes (z:1) = 4.00, 4.00
Total Depth (ft) = 2.00

Invert Elev (ft) = 1.00
Slope (%) = 1.00
N-Value = 0.040

Calculations
Compute by: Known Q
Known Q (cfs) = 36.00

Highlighted
Depth (ft) = 1.67
Q (cfs) = 36.00
Area (sqft) = 11.16
Velocity (ft/s) = 3.23
Wetted Perim (ft) = 13.77
Crit Depth, Yc (ft) = 1.39
Top Width (ft) = 13.36
EGL (ft) = 1.83

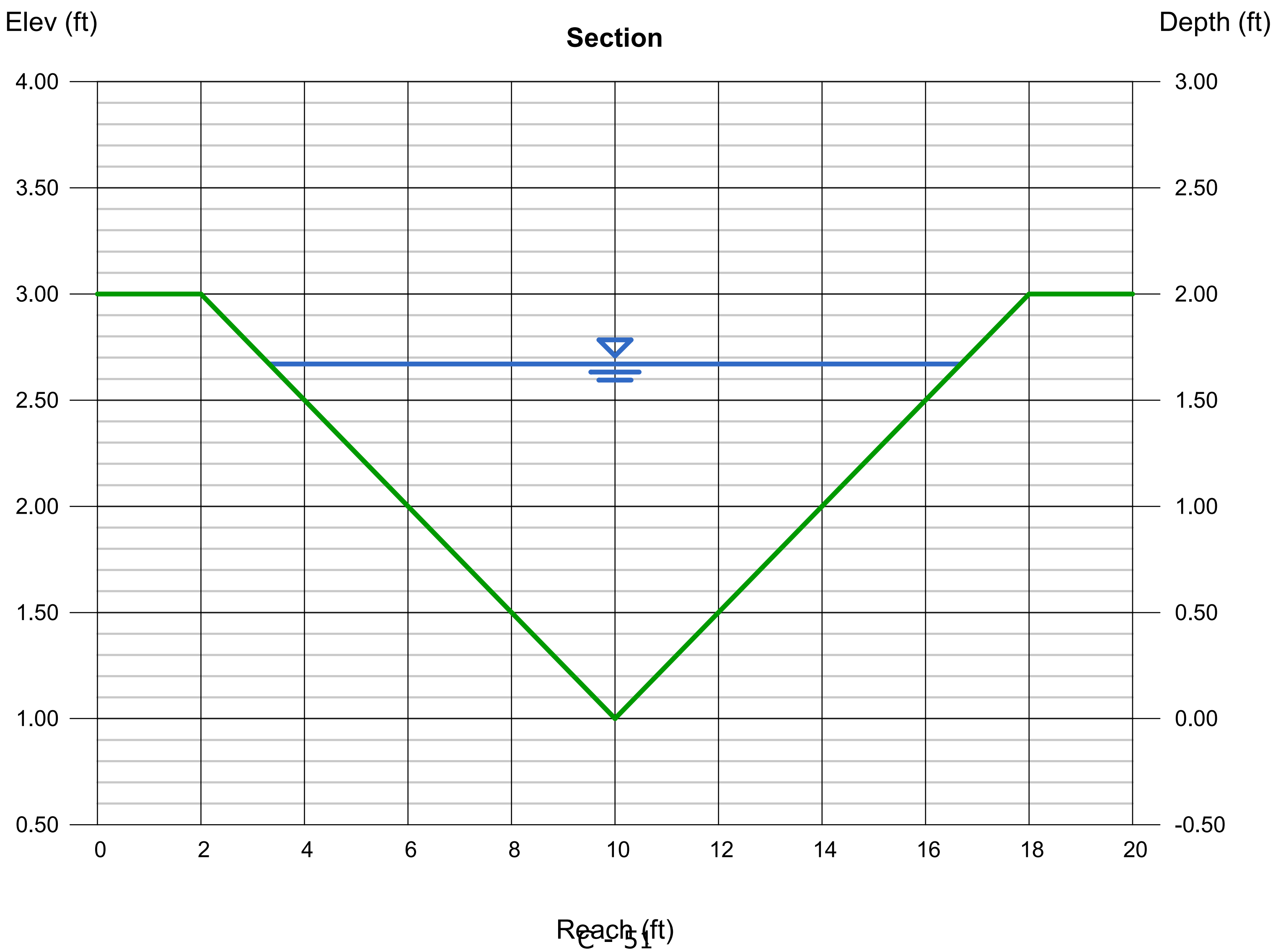


EXHIBIT C

EXHIBIT L

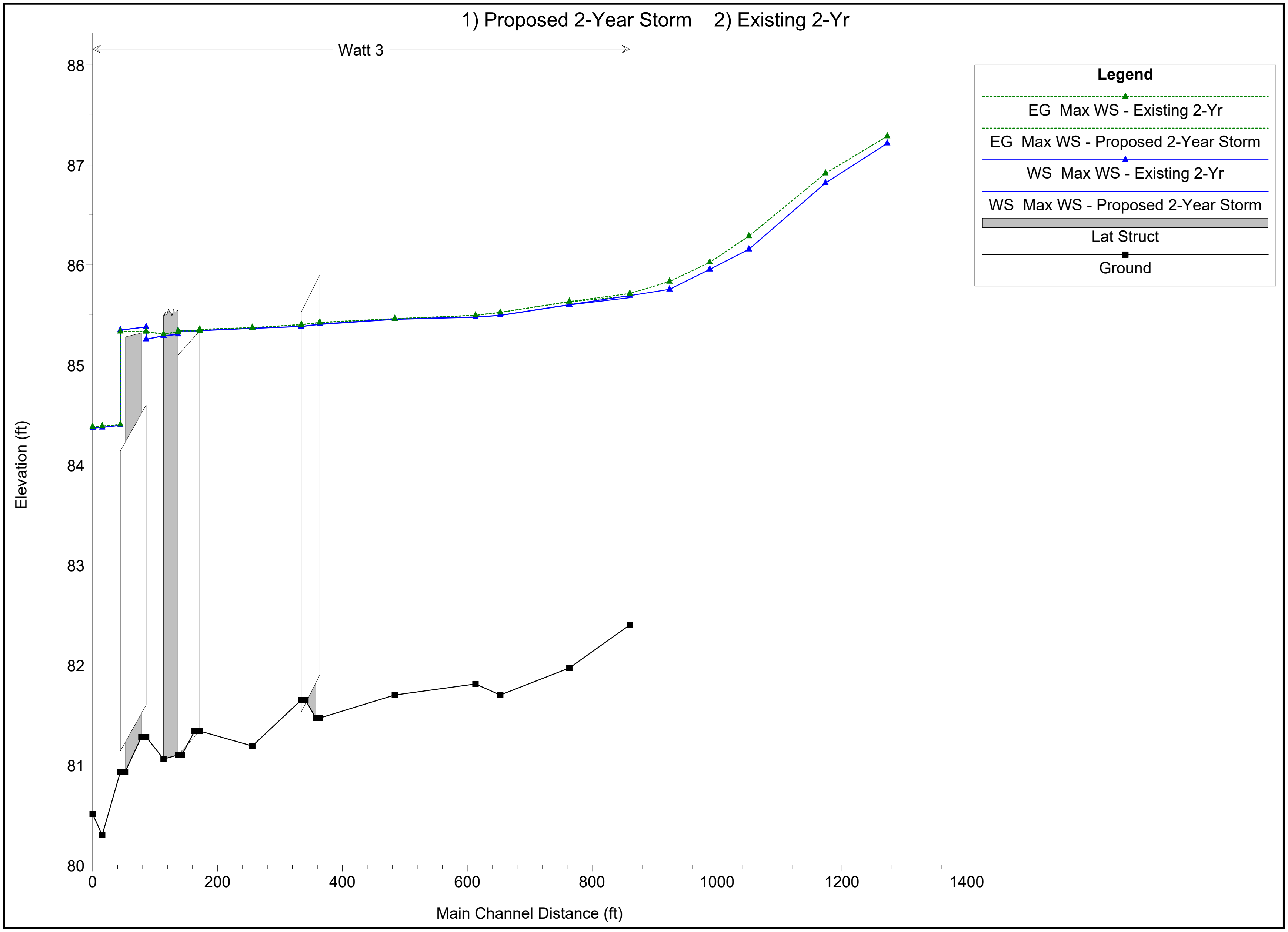


EXHIBIT C

EXHIBIT L

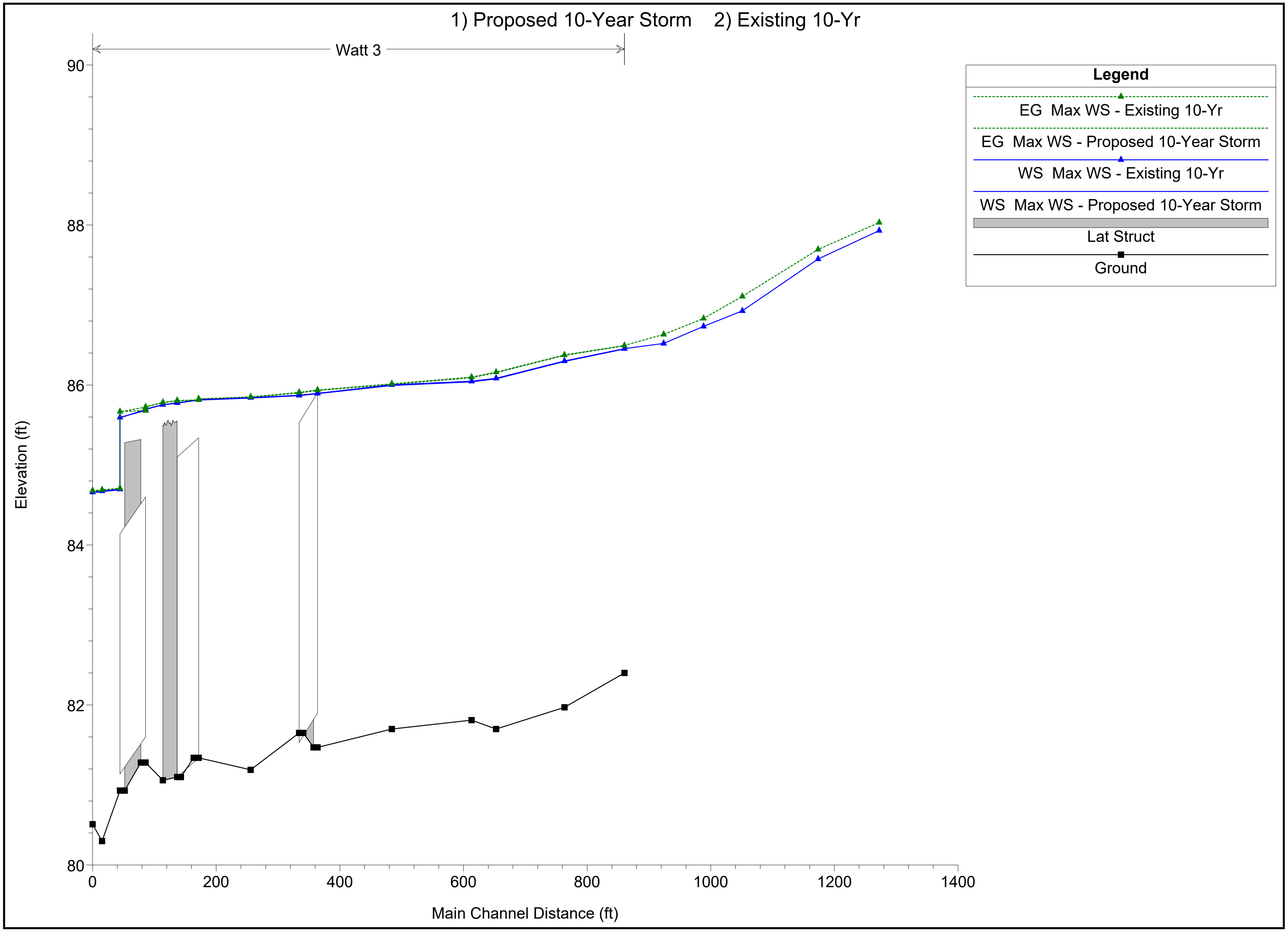
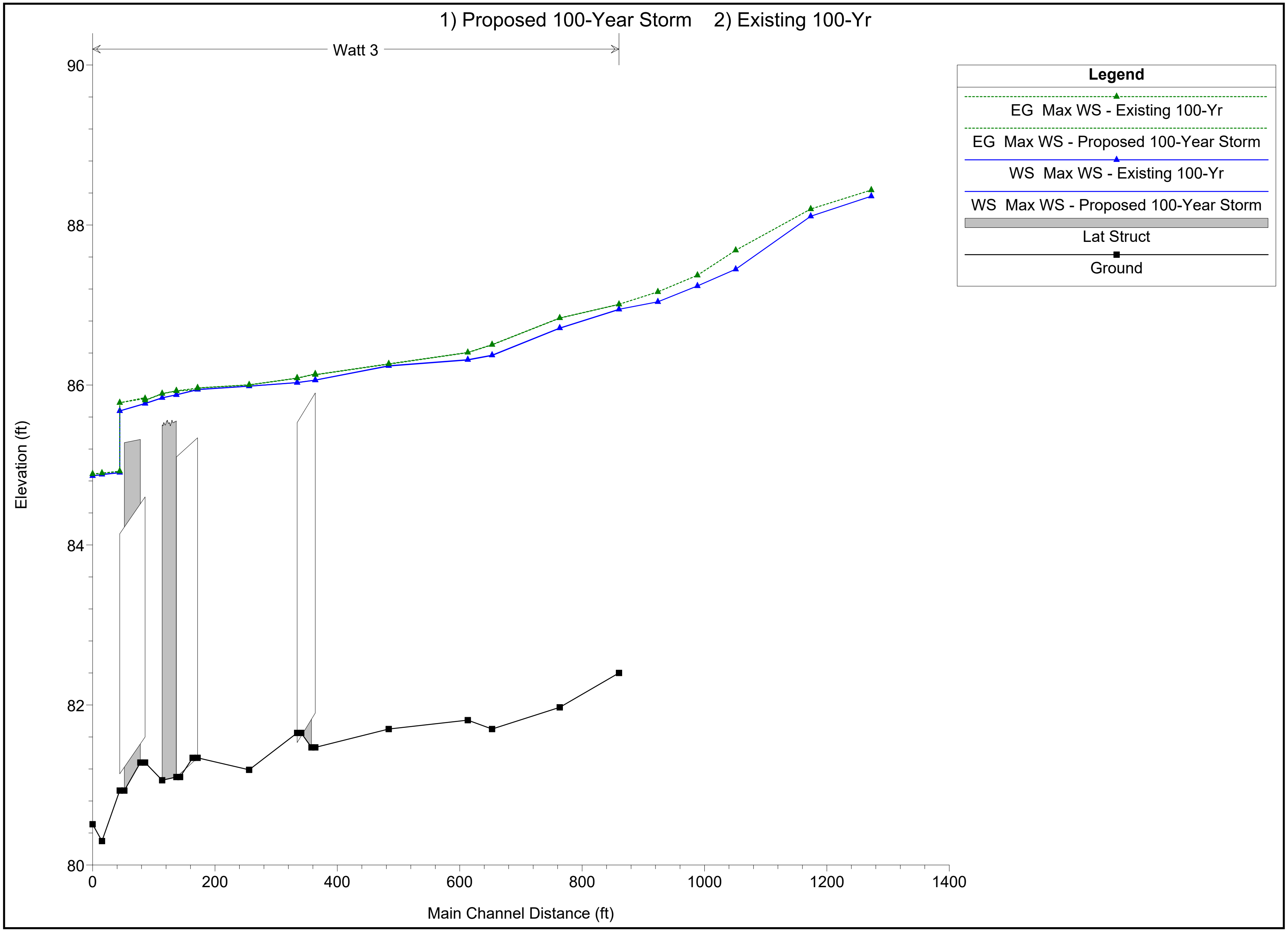
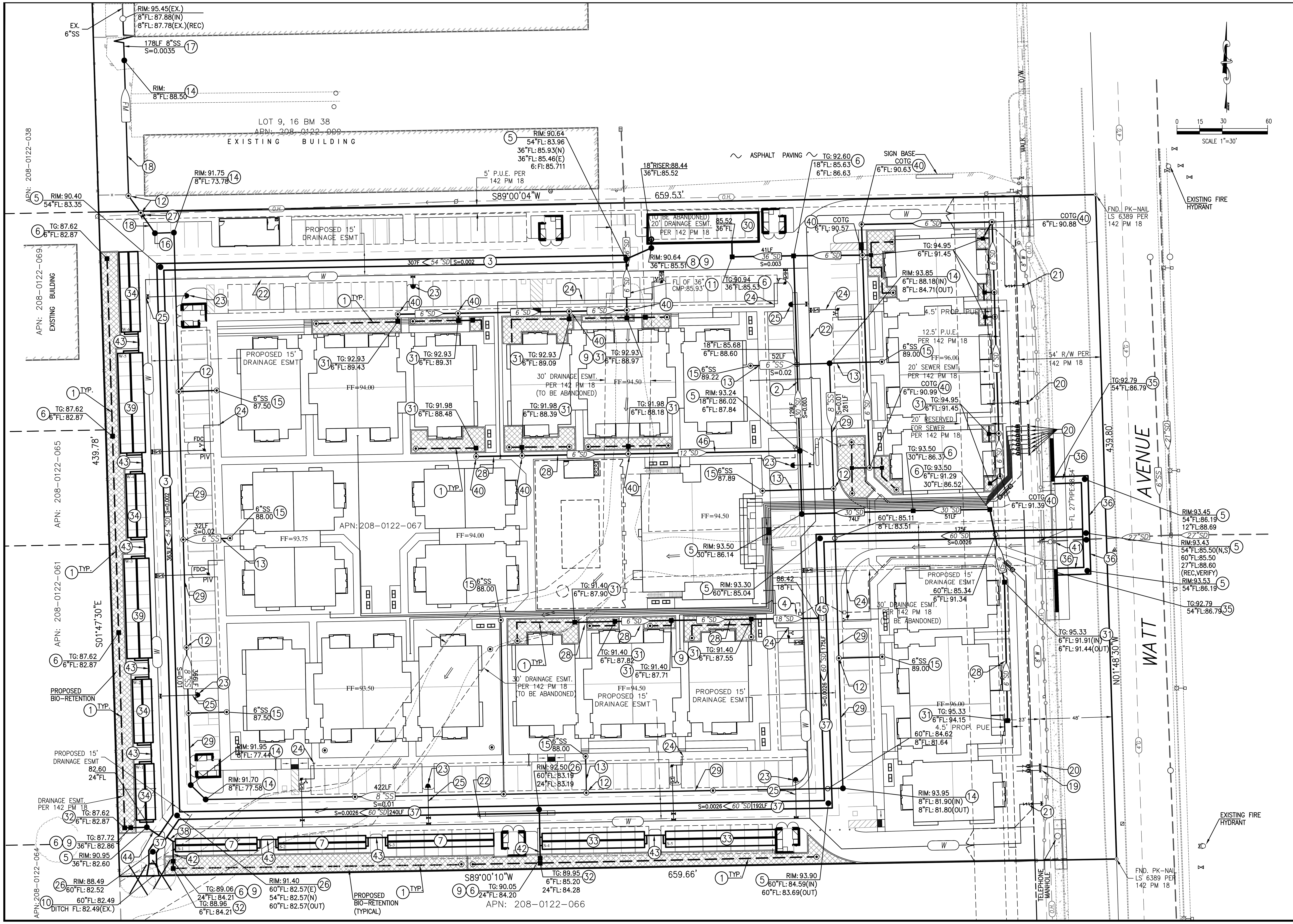


EXHIBIT C

EXHIBIT L





UTILITY CALLOUTS:

1. 6" PERFORATED PIPE.
2. PROPOSED STORM DRAIN PIPE.
3. PROPOSED 54" STORM DRAIN PIPE.
4. PROPOSED 18" STORM DRAIN PIPE.
5. PROPOSED SD MANHOLE.
6. STORM DRAIN INLET.
7. PLACE 48"X60" RECTANGULAR DETENTION PIPES
8. PROPOSED CONTECH STORMFILTER MANHOLE.
9. PROPOSED REM TRITON CPS-FTC FULL TRASH CAPTURE INSIDE MANHOLE OR INLET AT OUTLET PIPE.
10. PROPOSED HEADWALL PER COUNTY DETAIL 9-26H AND TRASH RACK PER COUNTY DETAIL 9-26G.
11. REMOVE EXISTING 36"SD.
12. 6" CLEANOUT TO GRADE.
13. PROPOSED 6"SS PIPE.
14. PROPOSED SS MANHOLE
15. PROPOSED TWO-WAY CLEANOUT TO GRADE.
16. SEWER LIFT STATION, DESIGN BY OTHERS.
17. PROPOSED PUBLIC 6"SS PIPE.
18. PROPOSED SEWER FORCE MAIN.
19. PROPOSED IRRIGATION SERVICE WITH BACK FLOW DEVICE.
20. PROPOSED DOMESTIC WATER SERVICE WITH METER AND RP DEVICE
21. PROPOSED DOUBLE CHECK VALVE ASSEMBLY.
22. PROPOSED WATER MAIN LOOP.
23. PROPOSED FIRE HYDRANT.
24. PROPOSED FIRE SERVICE.
25. PROPOSED FIRE HYDRANT SERVICE
26. PROPOSED SD JUNCTION STRUCTURE
27. PROPOSED SS ISOLATION VALVE
28. PROPOSED 6" STORM DRAIN PIPE.
29. PROPOSED 6"SS PIPE.
30. STORM DRAIN VAULT WITH RISER AND ORIFICE.
31. PROPOSED AREA DRAIN.
32. STORM DRAIN INLET WITH ORIFICE PLATE.
33. PLACE 60"X60" RECTANGULAR DETENTION PIPES.
34. PLACE 72"X60" RECTANGULAR DETENTION PIPES
35. PLACE CURB OPENING CATCH BASIN PER COUNTY DETAIL 301-1.
36. PLACE 54" STORM DRAIN PIPE
37. PLACE 60"X60" BOXED CULVERT
38. CONNECT DETENTION PIPES TO OUTLET PIPE WITH 30"SD
39. PLACE 96"X60" RECTANGULAR DETENTION PIPES
40. SD CLEANOUT.
41. EXISTING TYPE 'J' INLET TO BE REMOVED AND 27"SD TO BE REMOVED UP TO PROPOSED UPSTREAM MANHOLE.
42. PROPOSED 24" STORM DRAIN PIPE.
43. 24" STORM DRAIN PIPE TO INTERCONNECT DETENTION PIPES WITH FITTINGS.
44. CONNECT DETENTION PIPES TO OUTLET PIPE WITH 36"SD
45. GATE STRUCTURE TO BE RELOCATED TO THE SATISFACTION OF COUNTY DEPT. OF WATER RESOURCES.
46. PROPOSED 12" STORM DRAIN PIPE.

BENCHMARK ELEV. 93.95'(NGVD29)
7/8" METAL DISC STAMPED "CO. B.M. 7-18" LOCATED IN TOP OF ROLL CURB, ABOVE D.I. APPROXIMATELY CENTER OF CURB RETURN @ THE NORTHEAST CORNER OF WATT AVE. & BAINBRIDGE DR. & APPROXIMATELY 150' NORTH OF "Q" ST.
FIELD BOOK NO.____ PG.____

JTS ENGINEERING CONSULTANTS, INC.
1808 J STREET
SACRAMENTO CALIFORNIA 95811 (916) 441-6708

DESIGNED:	MAR	SCALE:	1"=30'
DRAWN:	TAN/MAR		
CHECKED:	JTS		
SUBMITTED:	JAVED T. SIDDIQUI, P.E.	25924	

REGISTERED PROFESSIONAL ENGINEER — JAVED T. SIDDIQUI — No.25924 — Expires:12-31-23 — CIVIL — STATE OF CALIFORNIA

NO	DATE	REVISION	APPROVAL	BY

PRELIMINARY UTILITY PLAN
7403 WATT AVENUE
EXHIBIT M
SACRAMENTO COUNTY — APN: 208-0122-067 — CALIFORNIA

DATE: 5-10-22
SHEET C2 OF 2
JOB NO: 2018-132

EXHIBIT N

Drainage Easement Width Calculation:

Easement Width = required trench width + two feet of additional width for every foot of depth as measured from the bottom of the pipe to the finished grade, per County improvement standard section 9-7 (E)

Required trench width = OD + 16” or (4/3)OD (whichever is greater)

Required trench width for 60”SD = 73.5” + 16” or (4/3)(73.5”) = 89.5” or 98”

Required trench width for 60”SD = 98” = 8.17’ Additional Width = 2’ x depth of 60”SD = 2’ x 7.92’ = 15.84’

Easement Width for 60”SD = 8.17’ + 15.84 = 24’

Required trench width for 54”SD = 66.5” + 16” or (4/3)(66.5”) = 82.5” or 88.67”

Required trench width for 54”SD = 88.67” = 7.39’ Additional Width = 2’ x depth of 54”SD = 2’ x 8.78’ = 17.56’

Easement Width for 54”SD = 7.39’ + 17.56 = 24.95’

Request for Variance:

The calculated easement width for proposed public storm drains running through the project site, is twenty five feet (25’). This easement width is impractical for the project because the drive aisle width is 26’ bounded by carports on both sides, and there are multiple wet utilities need to be laid in drive aisle to serve the proposed buildings. Therefore, we request approval from Director to reduce the easement width to 15’. The other wet utilities will still cross the easement and storm drain but it will help us to keep other wet utilities out of the easement.

Sacramento Hydrologic Calculator Report

January 6, 2022 15:42

Project Title: 7403 Watt Avenue
Method: Sacramento County HEC-1 method
Comments: This model represents the proposed off-site hydrology of the project site at 7403 Watt Avenue.
Date: 11/23/2021
Prepared by: TGraf

Watershed Hydrologic Summary Data

Watershed	Area (acres)	Mean Elevation (ft)	Lag Times		Basin "n"		Loss Rates		Percent Impervious	
			Method	Lag Time (min)	Method	Basin "n"	Method	Loss Rate (in/hr)	Method	Impervious Area (%)
SHED3	12.62	94	Basin "n"	-	Computed	-	Computed	-	Computed	-
SHED1	62.3	110	Basin "n"	-	Computed	-	Computed	-	Computed	-
SHED2	42.4	106	Basin "n"	-	Computed	-	Computed	-	Computed	-
SHED7	5.1	89	Basin "n"	-	Computed	-	Computed	-	Computed	-
SHED6	1.87	90	Basin "n"	-	Computed	-	Computed	-	Computed	-
SHED5B	3.01	90	Basin "n"	-	Computed	-	Computed	-	Computed	-
SHED5A	21.42	91	Basin "n"	-	Computed	-	Computed	-	Computed	-

Basin "n" Method Data for Lag Time Computation

Watershed	Channel Length (ft)	Centroid Length (ft)	Slope (ft/ft)	Channelization	Land Use Impervious Area Percent (% or acres)																	
					95	90	85	80	75	70	60	50	40	30	25	20	15	10	5	2	1	1*
SHED3	1165.9	541.7	.0069	Undeveloped		0																
				Developed		12.62																
SHED1	3300	1754	.01	Undeveloped		0		0					0									
				Developed		2		24.2					36									
SHED2	3036.2	1137.7	.010	Undeveloped		0		0					0							1.6		
				Developed		2.7		9.1					28.9							0		
SHED7	874	457	0.011	Undeveloped														5.1				
				Developed														0				
SHED6	577	249	0.019	Undeveloped														1.87				
				Developed														0				
SHED5B	624	257	.013	Undeveloped														100				
				Developed														0				
SHED5A	1237	840	.011	Undeveloped		7.1												10.15		2.28		
				Developed		1.13												0.68		0		

Refer to the Drainage manual for Land Use Impervious Area Percent

*Dense Oaks, Shrubs, Vines

EXHIBIT O
PROPOSED WATERSHED MAP

JTS ENGINEERING CONSULTANTS, INC.
1808 J STREET
SACRAMENTO, CALIFORNIA 95814 (916) 441-6708
JOB NO: 2018-132

EXHIBIT P
PROPOSED LANDUSE MAP

JTS ENGINEERING CONSULTANTS, INC.
1808 J STREET
SACRAMENTO, CALIFORNIA 95814 (916) 441-6708
JOB NO: 2018-132

BENCHMARK ELEV. 93.95'(NGVD29) 7/8" METAL DISC STAMPED "CO. B.M. 7-18" LOCATED IN TOP OF ROLL CURB, ABOVE D.I. APPROXIMATELY CENTER OF CURB RETURN @ THE NORTHEAST CORNER OF WATT AVE. & BAINBRIDGE DR. & APPROXIMATELY 150' NORTH OF "Q" ST. FIELD BOOK NO.____ PG.____	JTS ENGINEERING CONSULTANTS, INC. 1808 J STREET SACRAMENTO CALIFORNIA 95811 (916) 441-6708

DESIGNED:	MAR	SCALE: 1"=30'
DRAWN:	TAN/MAR	
CHECKED:	FNW	
SUBMITTED:	FRANK N. WALKER, P.E.	35635

REGISTERED PROFESSIONAL ENGINEER FRANK N. WALKER No.35635 Expires:09-30-23 CIVIL STATE OF CALIFORNIA

NO	DATE	REVISION	APPROVAL	BY

PROPOSED ONSITE WATERSHED MAP
7403 WATT AVENUE
EXHIBIT Q
SACRAMENTO COUNTY APN: 208-0122-067 CALIFORNIA

DATE: 06-28-22
SHEET 1 OF 1
JOB NO: 2018-132

EXHIBIT B
EXHIBIT C

Sacramento Hydrologic Calculator Report

June 30, 2022 11:51

Project Title:	7403 Watt Avenue	Method:	Sacramento County HEC-1 method
Comments:	This model will analyze the existing and proposed onsite hydrology in order to assess the volume of storage required onsite for mitigation of increased runoff.	Date:	9/30/2019
Prepared by:	TEG		

Watershed Hydrologic Summary Data

Watershed	Area (acres)	Mean Elevation (ft)	Lag Times		Basin "n"		Loss Rates		Percent Impervious	
			Method	Lag Time (min)	Method	Basin "n"	Method	Loss Rate (in/hr)	Method	Impervious Area (%)
E-WS	6.2	90	Basin "n"	-	Computed	-	Computed	-	Computed	-
P-WS	6.2	90	Travel Time	-	-	-	Computed	-	Computed	-

EXHIBIT C

Basin "n" Method Data for Lag Time Computation

Watershed	Channel Length (ft)	Centroid Length (ft)	Slope (ft/ft)	Channelization	Land Use Impervious Area Percent (% or acres)																
					95	90	85	80	75	70	60	50	40	30	25	20	15	10	5	2	1	1*
E-WS	829	390	.009	Undeveloped																100		
				Developed																0		

Refer to the Drainage manual for Land Use Impervious Area Percent

*Dense Oaks, Shrubs, Vines

EXHIBIT C

Travel Time Component Method Data for Lag Time Computation

	Overflow		Gutter Flow			Channel and Pipe Flow					
Watershed	Land Use	Slope (ft/ft)	Length (ft)	Slope (ft/ft)	Side Slope (ft/ft)	Type	Length (ft)	Slope (ft/ft)	Width or Diameter (ft)	Design or Flow (cfs)	Mannings "n"
P-WS	Commercial	-	-	-	-	Pipe	425	.003	3	33.75	0.015
						Pipe	670	.002	4.5	76.22	0.015
						Trapezoidal	45	.002	5	155.7	0.015

EXHIBIT C

Infiltration Loss Rate Data

Watershed	Soil Cover Group	Land Use Impervious Area Percent (% or acres)																
		95	90	85	80	75	70	60	50	40	30	25	20	15	10	5	2	1	1*
E-WS	B																		
	C																		
	D																100		
P-WS	B																		
	C																		
	D				100														

Refer to the help file for Land Use Impervious Area Percent

*Dense Oaks, Shrubs, Vines

EXHIBIT C

EXHIBIT R

View HEC-1 output

Sacramento method results
(Project: 7403 Watt Avenue)
(100-year, 1-day rainfall)

ID	Peak flow (cfs)	Time of peak (hours)	Basin area (sq. mi)	Peak stage (feet)	Peak storage (ac-ft)	Diversion volume (ac-ft)
E-WS	11.	12:16	.01			
P-WS	18.	12:05	.01			

Sub-Shed ID	Total Area		Proposed Impervious		Proposed Pervious		Percent Impervious
	(ft2)	(acres)	(ft2)	(acres)	(ft2)	(acres)	
Shed A-1	22115.26	0.51	17027.12	0.39	5088.14	0.12	77%
Shed A-2	65922.10	1.51	52000.26	1.19	13921.84	0.32	79%
Shed A-3	53920.62	1.24	43870.55	1.01	10050.07	0.23	81%
Shed A-4	13556.86	0.31	10807.74	0.25	2749.12	0.06	80%
Shed A-5	19353.07	0.44	13712.85	0.31	5640.22	0.13	71%
Shed A-6	6581.36	0.15	4537.96	0.10	2043.40	0.05	69%
Shed A-7	1836.71	0.04	1647.59	0.04	189.12	0.00	90%
Shed A-8	3967.25	0.09	3397.84	0.08	569.41	0.01	86%
Shed A-9	15681.00	0.36	14477.97	0.33	1203.03	0.03	92%
Shed A-10	5055.75	0.12	4605.66	0.11	450.09	0.01	91%
Shed A-11	30336.16	0.70	23300.63	0.53	7035.53	0.16	77%
Shed A-12	27667.73	0.64	21096.42	0.48	6571.31	0.15	76%
TOTAL	265993.87	6.11	210482.59	4.83	55511.28	1.27	79%

BENCHMARK ELEV. 93.95'(NGVD29)
7/8" METAL DISC STAMPED "CO. B.M. 7-18" LOCATED IN TOP OF ROLL CURB, ABOVE D.I. APPROXIMATELY CENTER OF CURB RETURN @ THE NORTHEAST CORNER OF WATT AVE. & BAINBRIDGE DR. & APPROXIMATELY 150' NORTH OF "Q" ST.
FIELD BOOK NO.____ PG.____

JTS ENGINEERING CONSULTANTS, INC.
1808 J STREET
SACRAMENTO CALIFORNIA 95811 (916) 441-6708

DESIGNED:	MAR	SCALE: 1"=30'
DRAWN:	TAN/MAR	
CHECKED:	FNW	
SUBMITTED:	FRANK N. WALKER, P.E.	35635

REGISTERED PROFESSIONAL ENGINEER FRANK N. WALKER No.35635 Expires:09-30-23 CIVIL STATE OF CALIFORNIA

NO	DATE	REVISION	APPROVAL	BY

PROPOSED ONSITE SUB-SHED MAP
7403 WATT AVENUE
EXHIBIT S
SACRAMENTO COUNTY APN: 208-0122-067 CALIFORNIA

DATE: 6-27-22
SHEET 1 OF 1
JOB NO: 2018-132

EXHIBIT C

EXHIBIT T

Sacramento Hydrologic Calculator Report

June 30, 2022 11:52

Project Title: On-Site Sub-shed Hydrology
Comments: Proposed On-Site Sub-sheds
Prepared by: TEG

Method: Sacramento County HEC-1 method
Date: 6/28/2022

Watershed Hydrologic Summary Data

Watershed	Area (acres)	Mean Elevation (ft)	Lag Times		Basin "n"		Loss Rates		Percent Impervious	
			Method	Lag Time (min)	Method	Basin "n"	Method	Loss Rate (in/hr)	Method	Impervious Area (%)
A10	0.12	95	Travel Time	-	-	-	Computed	-	Computed	-
A4	0.31	90	Travel Time	-	-	-	Computed	-	Computed	-
A3	1.24	90	Travel Time	-	-	-	Computed	-	Computed	-
A1	0.51	90	Travel Time	-	-	-	Computed	-	Computed	-
A2	1.51	90	Travel Time	-	-	-	Computed	-	Computed	-
A5	0.44	90	Travel Time	-	-	-	Computed	-	Computed	-
A6	0.15	90	Travel Time	-	-	-	Computed	-	Computed	-
A7	0.04	90	Travel Time	-	-	-	Computed	-	Computed	-
A9	0.36	90	Travel Time	-	-	-	Computed	-	Computed	-
A8	0.09	90	Travel Time	-	-	-	Computed	-	Computed	-
A11	0.7	90	Travel Time	-	-	-	Computed	-	Computed	-
A12	0.64	90	Travel Time	-	-	-	Computed	-	Computed	-

EXHIBIT C

EXHIBIT T

Travel Time Component Method Data for Lag Time Computation

Watershed	Overflow		Gutter Flow			Channel and Pipe Flow					
	Land Use	Slope (ft/ft)	Length (ft)	Slope (ft/ft)	Side Slope (ft/ft)	Type	Length (ft)	Slope (ft/ft)	Width or Diameter (ft)	Design or Flow (cfs)	Mannings "n"
A10	Commercial	-	-	-	-	-	-	-	-	-	-
A4	Commercial	-	-	-	-	-	-	-	-	-	-
A3	Commercial	-	-	-	-	-	-	-	-	-	-
A1	Commercial	-	-	-	-	-	-	-	-	-	-
A2	Commercial	-	-	-	-	-	-	-	-	-	-
A5	Commercial	-	-	-	-	-	-	-	-	-	-
A6	Commercial	-	-	-	-	-	-	-	-	-	-
A7	Commercial	-	-	-	-	-	-	-	-	-	-
A9	Commercial	-	-	-	-	-	-	-	-	-	-
A8	Commercial	-	-	-	-	-	-	-	-	-	-
A11	Commercial	-	-	-	-	-	-	-	-	-	-
A12	Commercial	-	-	-	-	-	-	-	-	-	-

EXHIBIT C

EXHIBIT T

Infiltration Loss Rate Data

Watershed	Soil Cover Group	Land Use Impervious Area Percent (% or acres)																	
		95	90	85	80	75	70	60	50	40	30	25	20	15	10	5	2	1	1*
A10	B																		
	C																		
	D		100																
A4	B																		
	C																		
	D				100														
A3	B																		
	C																		
	D				100														
A1	B																		
	C																		
	D					100													
A2	B																		
	C																		
	D				100														
A5	B																		
	C																		
	D						100												
A6	B																		
	C																		
	D						100												
A7	B																		
	C																		
	D		100																
A9	B																		
	C																		
	D	100																	
A8	B																		
	C																		
	D			100															
A11	B																		
	C																		
	D				100														
A12	B																		
	C																		
	D					100													

Refer to the help file for Land Use Impervious Area Percent

*Dense Oaks, Shrubs, Vines

EXHIBIT C

EXHIBIT T

View HEC-1 output

Sacramento method results
(Project: On-Site Sub-shed Hydrology)
(100-year, 1-day rainfall)

ID	Peak flow (cfs)	Time of peak (hours)	Basin area (sq. mi)	Peak stage (feet)	Peak storage (ac-ft)	Diversion volume (ac-ft)
A10	.4	12:02	.00			
A4	1.1	12:02	.00			
A3	4.4	12:02	.00			
A1	1.8	12:02	.00			
A2	5.4	12:02	.00			
A5	1.6	12:02	.00			
A6	.5	12:02	.00			
A7	.1	12:02	.00			
A9	1.3	12:02	.00			
A8	.3	12:02	.00			
A11	2.5	12:02	.00			
A12	2.3	12:02	.00			

(10-year, 1-day rainfall)

ID	Peak flow (cfs)	Time of peak (hours)	Basin area (sq. mi)	Peak stage (feet)	Peak storage (ac-ft)	Diversion volume (ac-ft)
A10	.2	12:02	.00			
A4	.6	12:02	.00			
A3	2.5	12:02	.00			
A1	1.0	12:02	.00			
A2	3.1	12:02	.00			
A5	.9	12:02	.00			
A6	.3	12:02	.00			
A7	.1	12:02	.00			
A9	.7	12:02	.00			
A8	.2	12:02	.00			
A11	1.4	12:02	.00			
A12	1.3	12:02	.00			

(2-year, 1-day rainfall)

ID	Peak flow (cfs)	Time of peak (hours)	Basin area (sq. mi)	Peak stage (feet)	Peak storage (ac-ft)	Diversion volume (ac-ft)
A10	.1	12:02	.00			
A4	.3	12:02	.00			

EXHIBIT C

A3	1.3	12:02	.00
A1	.6	12:02	.00
A2	1.6	12:02	.00
A5	.5	12:02	.00
A6	.2	12:02	.00
A7	.0	12:02	.00
A9	.4	12:02	.00
A8	.1	12:02	.00
A11	.8	12:02	.00
A12	.7	12:02	.00

EXHIBIT U
PROPOSED HYDRAULIC ROUTING MAP

JTS ENGINEERING CONSULTANTS, INC.
1808 J STREET
SACRAMENTO, CALIFORNIA 95814 (916) 441-6708
JOB NO: 2018-132

EXHIBIT C

EXHIBIT V

HEC-RAS River: Watt Reach: 3 Profile: Max WS

Reach	River Sta	Profile	Plan	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
3	15	Max WS	Proposed 100-Year Storm	184.00	82.40	86.94		87.01	0.001080	2.02	91.09	97.29	0.20
3	15	Max WS	Proposed 10-Year Storm	124.50	82.40	86.45		86.49	0.000771	1.61	77.56	59.37	0.17
3	15	Max WS	Proposed 2-Year Storm	58.14	82.40	85.67		85.69	0.000376	1.00	58.09	23.68	0.11
3	13	Max WS	Proposed 100-Year Storm	182.86	81.97	86.71		86.83	0.002544	2.85	64.17	176.09	0.30
3	13	Max WS	Proposed 10-Year Storm	122.52	81.97	86.29		86.37	0.001719	2.22	55.24	150.18	0.24
3	13	Max WS	Proposed 2-Year Storm	57.95	81.97	85.60		85.63	0.000839	1.39	41.59	18.55	0.16
3	11	Max WS	Proposed 100-Year Storm	182.67	81.70	86.37		86.50	0.003515	2.93	62.37	63.71	0.34
3	11	Max WS	Proposed 10-Year Storm	121.50	81.70	86.08		86.15	0.002215	2.22	54.62	33.22	0.27
3	11	Max WS	Proposed 2-Year Storm	56.65	81.70	85.50		85.53	0.001052	1.39	40.72	22.15	0.18
3	10	Max WS	Proposed 100-Year Storm	182.58	81.81	86.31		86.40	0.001593	2.52	79.54	158.84	0.25
3	10	Max WS	Proposed 10-Year Storm	121.27	81.81	86.04		86.09	0.000998	1.88	68.15	139.71	0.19
3	10	Max WS	Proposed 2-Year Storm	56.23	81.81	85.48		85.50	0.000444	1.11	51.90	33.23	0.13
3	9	Max WS	Proposed 100-Year Storm	182.55	81.70	86.24		86.26	0.000408	1.25	149.51	101.40	0.13
3	9	Max WS	Proposed 10-Year Storm	121.13	81.70	85.99		86.01	0.000231	0.91	135.25	71.34	0.09
3	9	Max WS	Proposed 2-Year Storm	55.95	81.70	85.46		85.46	0.000089	0.51	109.35	56.44	0.06
3	8	Max WS	Proposed 100-Year Storm	217.00	81.47	86.06		86.13	0.001620	2.51	118.71	124.75	0.25
3	8	Max WS	Proposed 10-Year Storm	142.56	81.47	85.89		85.93	0.000997	1.90	102.77	105.89	0.19
3	8	Max WS	Proposed 2-Year Storm	64.26	81.47	85.41		85.42	0.000521	1.22	64.89	69.86	0.14
3	7.5			Culvert									
3	7	Max WS	Proposed 100-Year Storm	217.05	81.65	86.03		86.08	0.001475	2.34	135.16	147.33	0.24
3	7	Max WS	Proposed 10-Year Storm	142.40	81.65	85.87		85.90	0.000955	1.81	114.55	134.32	0.19
3	7	Max WS	Proposed 2-Year Storm	63.99	81.65	85.38		85.40	0.000567	1.23	66.72	81.24	0.14
3	6	Max WS	Proposed 100-Year Storm	216.54	81.19	85.98		86.00	0.000414	1.21	248.65	249.95	0.12
3	6	Max WS	Proposed 10-Year Storm	142.19	81.19	85.84		85.85	0.000259	0.92	212.87	235.38	0.10
3	6	Max WS	Proposed 2-Year Storm	63.88	81.19	85.37		85.37	0.000163	0.65	124.72	149.70	0.08
3	5	Max WS	Proposed 100-Year Storm	218.56	81.34	85.94		85.96	0.000532	1.62	237.22	240.23	0.15
3	5	Max WS	Proposed 10-Year Storm	144.07	81.34	85.81		85.82	0.000338	1.26	205.87	235.67	0.12
3	5	Max WS	Proposed 2-Year Storm	65.82	81.34	85.34		85.36	0.000313	1.10	106.73	187.63	0.11
3	4.97			Culvert									
3	4	Max WS	Proposed 100-Year Storm	218.56	81.10	85.88		85.92	0.002126	2.08	136.29	156.16	0.26
3	4	Max WS	Proposed 10-Year Storm	144.06	81.10	85.77		85.80	0.001288	1.56	120.44	151.66	0.20
3	4	Max WS	Proposed 2-Year Storm	65.80	81.10	85.31		85.33	0.001451	1.36	58.99	114.20	0.21
3	3.95			Lat Struct									

HEC-RAS River: Watt Reach: 3 Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
3	3.5	Max WS	Proposed 100-Year Storm	209.40	81.06	85.84		85.89	0.001397	1.99	134.89	163.72	0.22
3	3.5	Max WS	Proposed 10-Year Storm	139.02	81.06	85.75		85.78	0.000765	1.44	122.40	141.25	0.16
3	3.5	Max WS	Proposed 2-Year Storm	65.79	81.06	85.29		85.31	0.000491	1.00	68.26	89.23	0.13
3	3	Max WS	Proposed 100-Year Storm	214.13	81.28	85.77		85.81	0.004454	2.04	147.63	395.70	0.35
3	3	Max WS	Proposed 10-Year Storm	143.16	81.28	85.69		85.72	0.003350	1.69	122.45	385.94	0.30
3	3	Max WS	Proposed 2-Year Storm	67.79	81.28	85.26		85.33	0.000917	2.24	30.26	226.27	0.20
3	2.5			Culvert									
3	2	Max WS	Proposed 100-Year Storm	222.07	80.93	84.90		84.92	0.000979	1.13	234.30	332.36	0.17
3	2	Max WS	Proposed 10-Year Storm	142.92	80.93	84.69		84.70	0.000986	1.01	167.05	286.38	0.17
3	2	Max WS	Proposed 2-Year Storm	67.77	80.93	84.40		84.41	0.001116	0.88	93.14	227.48	0.17
3	1.6	Max WS	Proposed 100-Year Storm	219.41	80.30	84.88		84.90	0.000593	1.44	258.32	330.96	0.15
3	1.6	Max WS	Proposed 10-Year Storm	142.91	80.30	84.67		84.68	0.000557	1.33	189.49	318.43	0.14
3	1.6	Max WS	Proposed 2-Year Storm	67.76	80.30	84.38		84.39	0.000368	1.01	106.60	270.36	0.11
3	1	Max WS	Proposed 100-Year Storm	226.52	80.51	84.86	83.35	84.89	0.000791	1.64	233.67	330.10	0.17
3	1	Max WS	Proposed 10-Year Storm	147.92	80.51	84.65	82.82	84.67	0.000684	1.45	169.27	292.94	0.16
3	1	Max WS	Proposed 2-Year Storm	67.76	80.51	84.37	82.08	84.38	0.000391	1.02	94.78	220.67	0.12

EXHIBIT C
EXHIBIT V

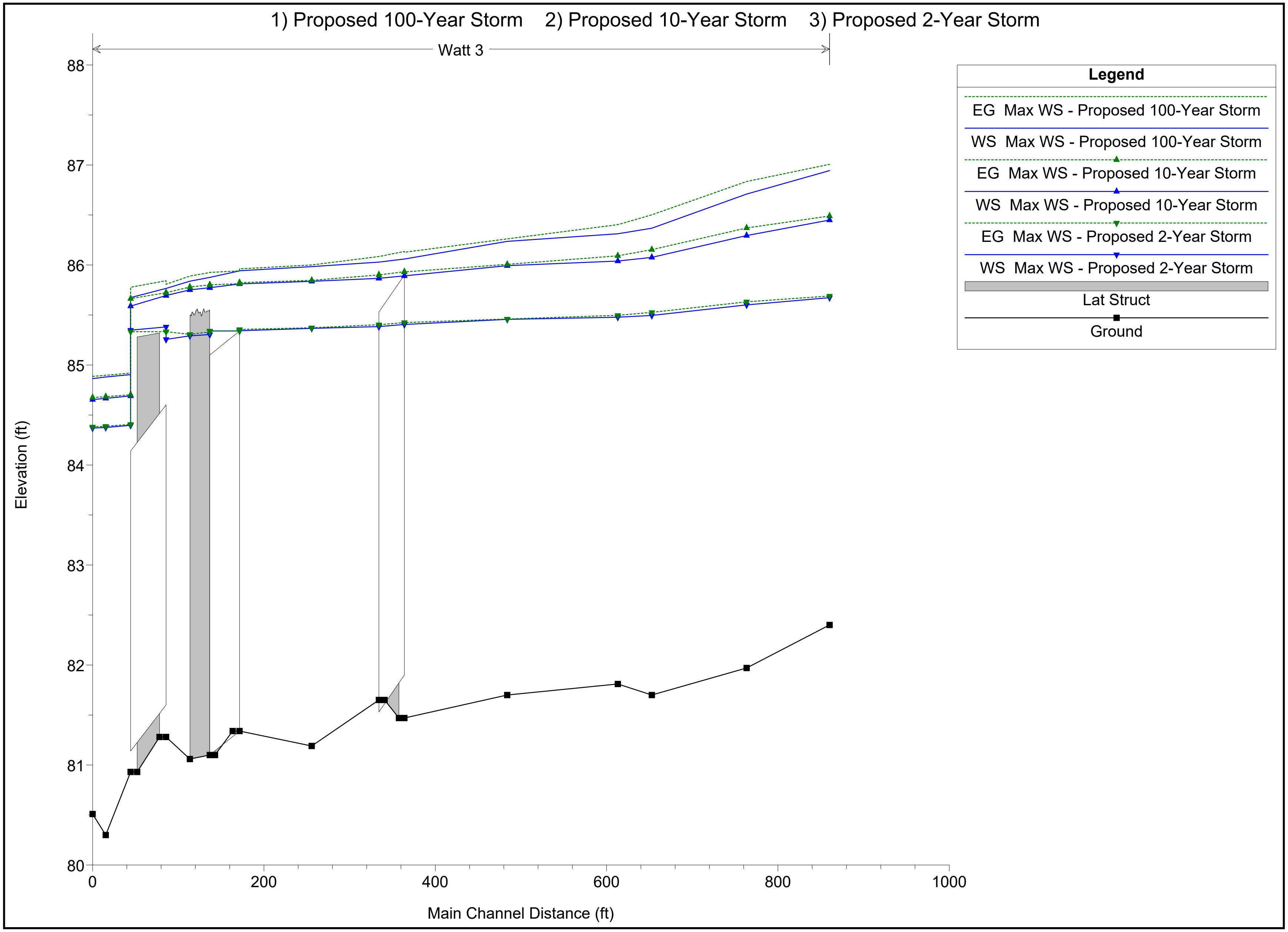


EXHIBIT C

EXHIBIT V

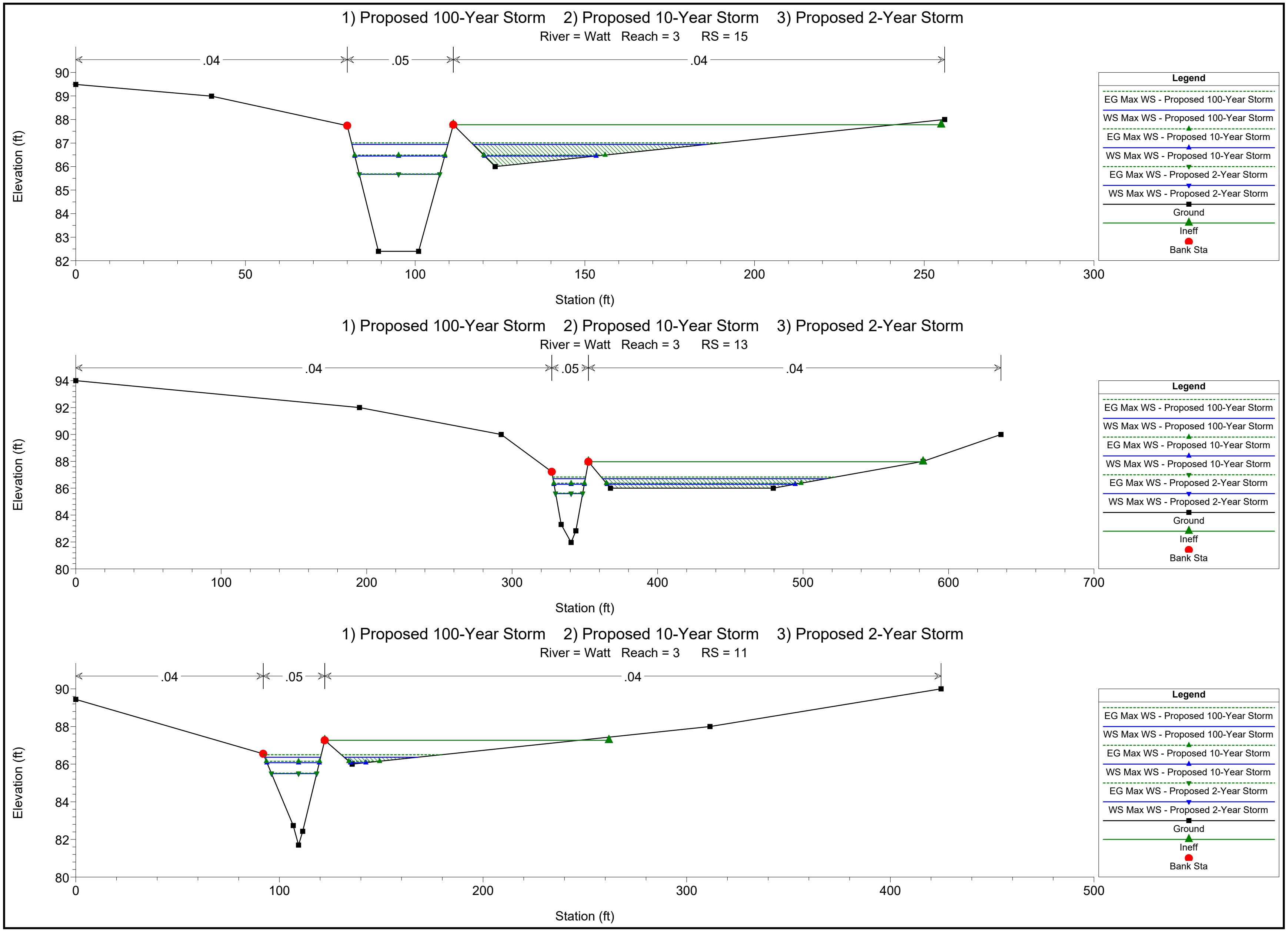


EXHIBIT C

EXHIBIT V

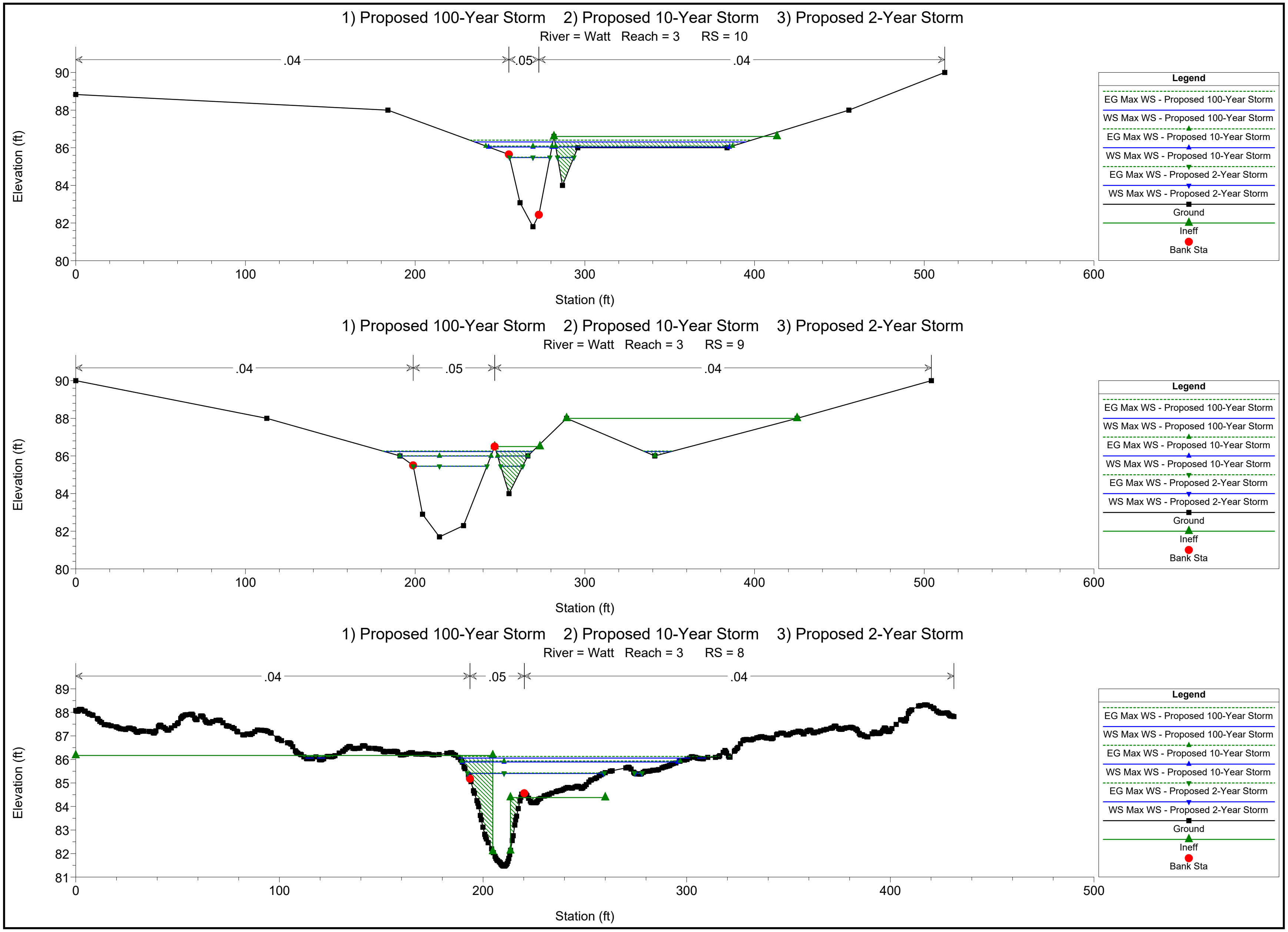


EXHIBIT C
EXHIBIT V

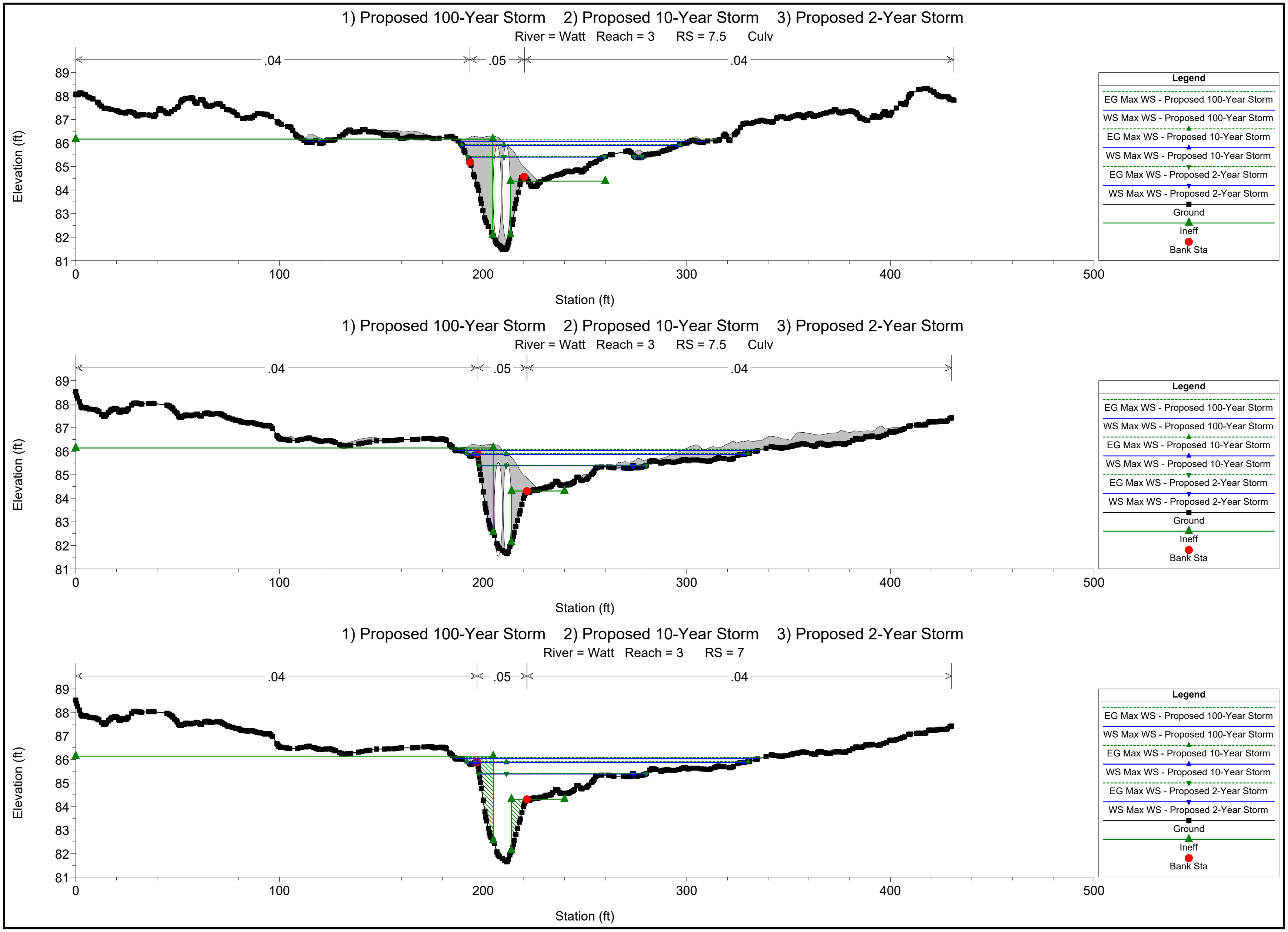
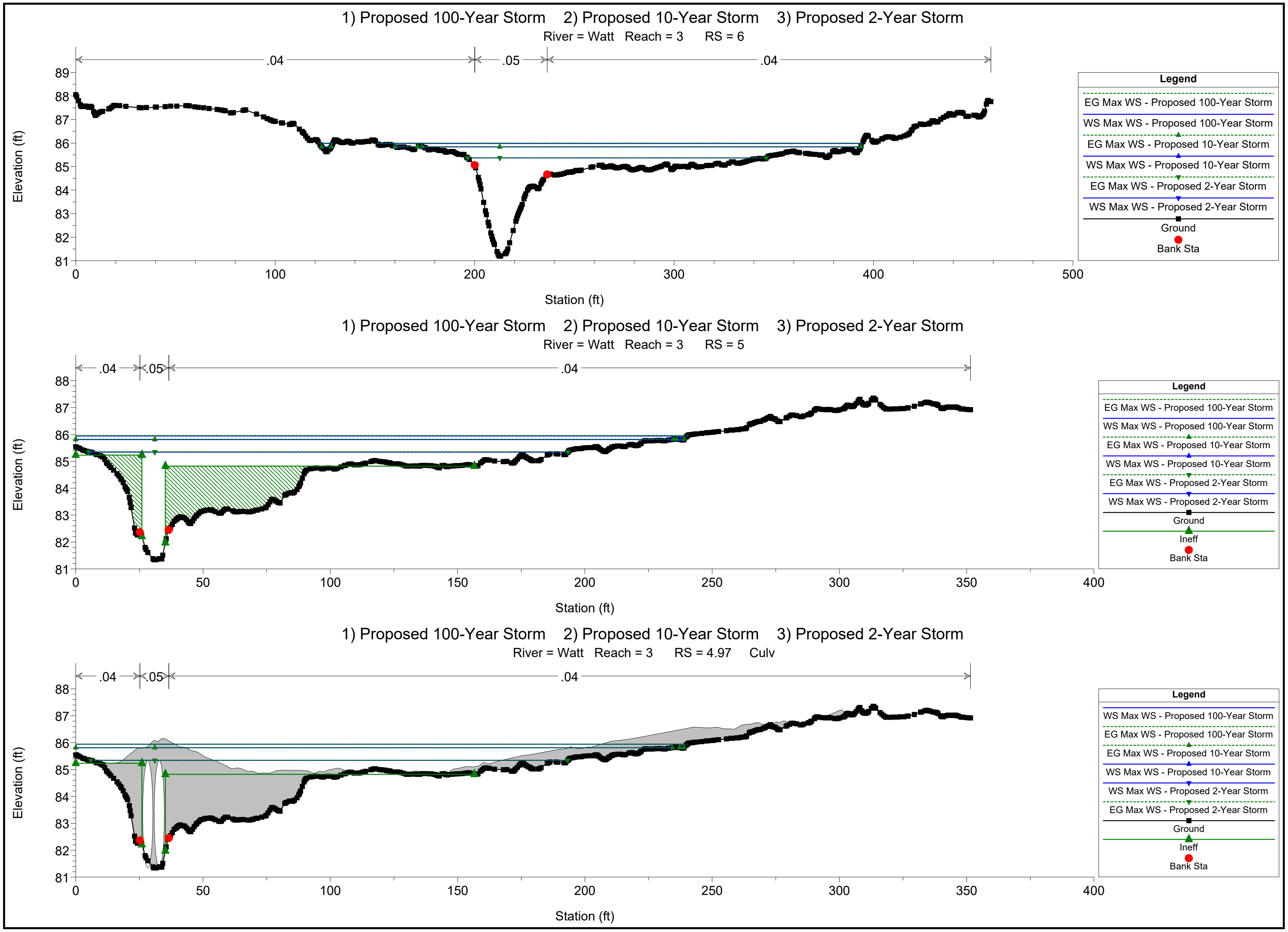


EXHIBIT C

EXHIBIT V



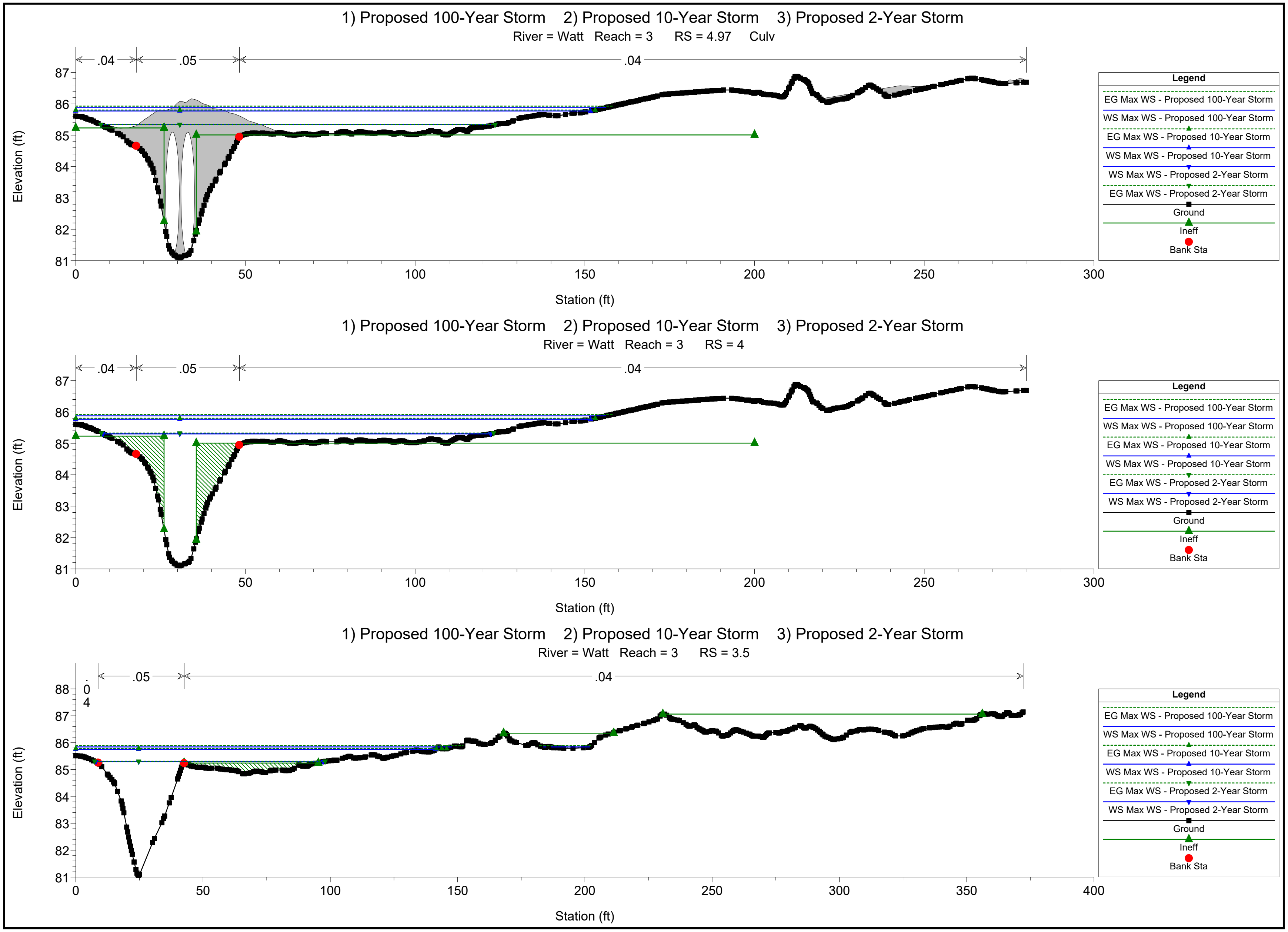
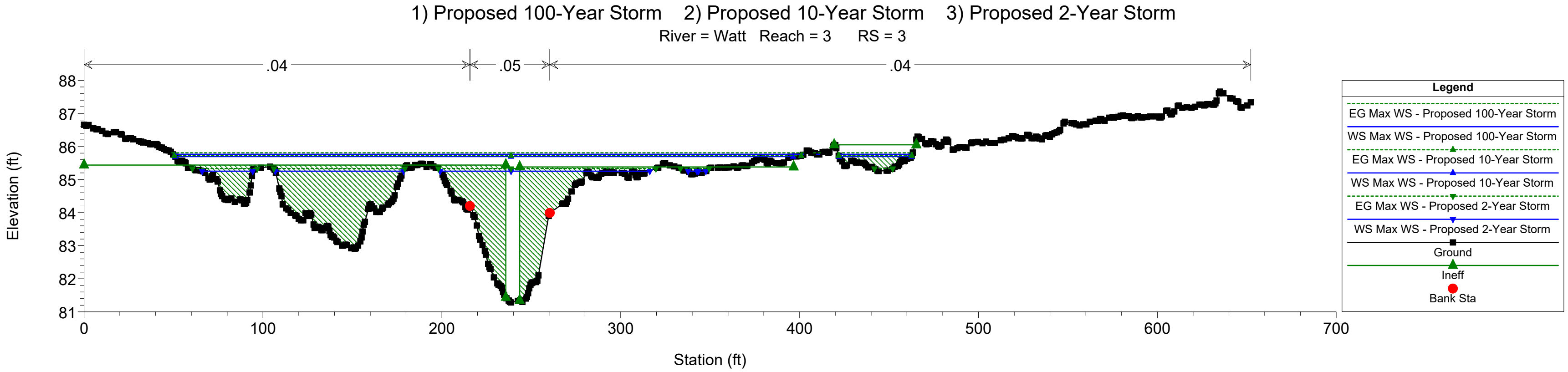
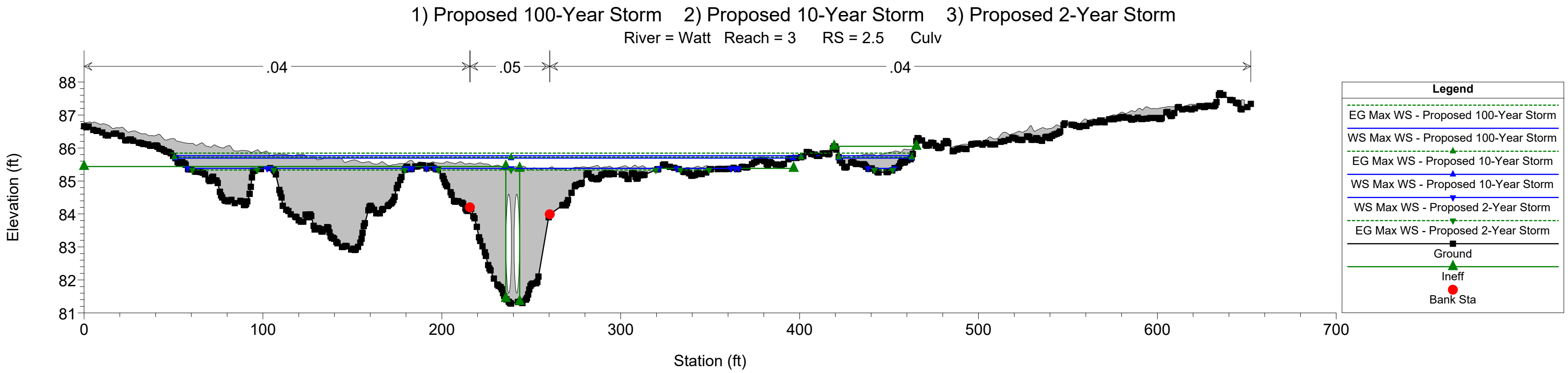

1) Proposed 100-Year Storm 2) Proposed 10-Year Storm 3) Proposed 2-Year Storm
River = Watt Reach = 3 RS = 4.97 Culv
.04 .05 .04
Elevation (ft)
Station (ft)
Legend
EG Max WS - Proposed 100-Year Storm
WS Max WS - Proposed 100-Year Storm
EG Max WS - Proposed 10-Year Storm
WS Max WS - Proposed 10-Year Storm
WS Max WS - Proposed 2-Year Storm
EG Max WS - Proposed 2-Year Storm
Ground
Ineff
Bank Sta
1) Proposed 100-Year Storm 2) Proposed 10-Year Storm 3) Proposed 2-Year Storm
River = Watt Reach = 3 RS = 4
.04 .05 .04
Elevation (ft)
Station (ft)
Legend
EG Max WS - Proposed 100-Year Storm
WS Max WS - Proposed 100-Year Storm
EG Max WS - Proposed 10-Year Storm
WS Max WS - Proposed 10-Year Storm
EG Max WS - Proposed 2-Year Storm
WS Max WS - Proposed 2-Year Storm
Ground
Ineff
Bank Sta
1) Proposed 100-Year Storm 2) Proposed 10-Year Storm 3) Proposed 2-Year Storm
River = Watt Reach = 3 RS = 3.5
.04 .05 .04
Elevation (ft)
Station (ft)
Legend
EG Max WS - Proposed 100-Year Storm
WS Max WS - Proposed 100-Year Storm
EG Max WS - Proposed 10-Year Storm
WS Max WS - Proposed 10-Year Storm
EG Max WS - Proposed 2-Year Storm
WS Max WS - Proposed 2-Year Storm
Ground
Ineff
Bank Sta

EXHIBIT C
EXHIBIT V





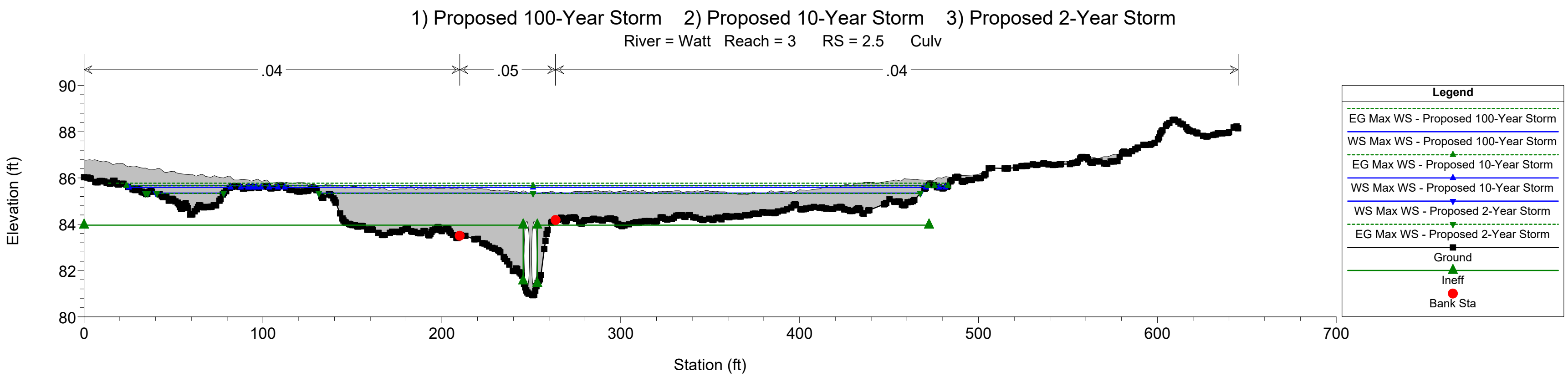
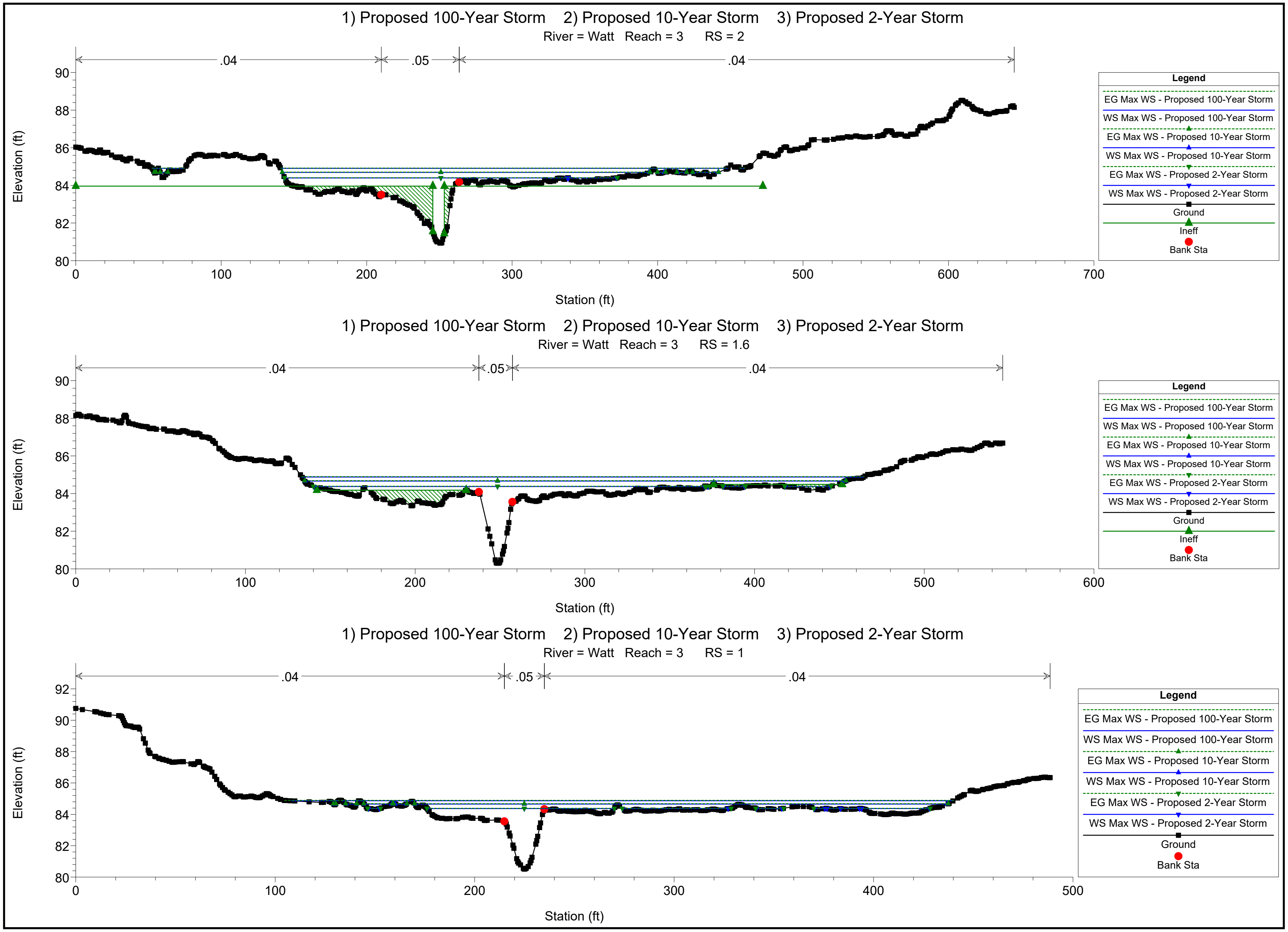


EXHIBIT C
EXHIBIT V



BENCHMARK ELEV. 93.95'(NGVD29)
7/8" METAL DISC STAMPED "CO. B.M. 7-18" LOCATED IN TOP OF ROLL CURB, ABOVE D.I. APPROXIMATELY CENTER OF CURB RETURN @ THE NORTHEAST CORNER OF WATT AVE. & BAINBRIDGE DR. & APPROXIMATELY 150' NORTH OF "Q" ST.
FIELD BOOK NO._____ PG.____

JTS ENGINEERING CONSULTANTS, INC.
1808 J STREET
SACRAMENTO CALIFORNIA 95811 (916) 441-6708

DESIGNED:	MAR	SCALE:	1"=30'
DRAWN:	TAN/MAR		
CHECKED:	FNW		
SUBMITTED:	FRANK N. WALKER, P.E.	35635	

REGISTERED PROFESSIONAL ENGINEER FRANK N. WALKER No.35635 Expires:09-30-23 CIVIL STATE OF CALIFORNIA

NO	DATE	REVISION	APPROVAL	BY

OVERLAND RELEASE EXHIBIT
7403 WATT AVENUE
EXHIBIT W
SACRAMENTO COUNTY APN: 208-0122-067 CALIFORNIA

DATE: 6-30-22
SHEET 1 OF 1
JOB NO: 2018-132

EXHIBIT C

EXHIBIT W

HEC-RAS Plan: Shed 3 Overland Release River: Proposed Site Reach: Overland Rlease Profile: PF 1

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Overland Rlease	730	PF 1	27.53	90.47	91.06	91.03	91.21	0.026822	3.08	8.93	24.33	0.90
Overland Rlease	700	PF 1	27.53	90.41	91.08		91.10	0.000785	1.29	21.36	60.92	0.38
Overland Rlease	450	PF 1	27.53	89.84	90.45	90.45	90.61	0.005647	3.24	8.51	26.94	1.02
Overland Rlease	390	PF 1	27.53	87.62	89.21	88.21	89.25	0.001028	1.62	16.98	10.68	0.23
Overland Rlease	380	PF 1	27.53	87.62	89.19		89.22	0.000775	1.40	19.78	12.68	0.20
Overland Rlease	235	PF 1	27.53	87.62	89.03		89.08	0.001359	1.72	15.98	11.33	0.26
Overland Rlease	65	PF 1	27.53	87.62	88.70		88.76	0.002724	2.04	13.54	12.62	0.35
Overland Rlease	30	PF 1	27.53	87.62	88.21	88.21	88.51	0.030186	4.38	6.29	10.67	1.01
Overland Rlease	5	PF 1	27.53	87.35	87.84	87.88	88.11	0.007411	4.98	9.52	24.81	1.25
Overland Rlease	1	PF 1	27.53	82.80	84.28	83.33	84.31	0.001471	1.28	21.44	17.17	0.20
Overland Rlease	0	PF 1	27.53	82.37	83.55	83.55	83.86	0.045108	4.50	6.12	9.88	1.01

EXHIBIT C

EXHIBIT W

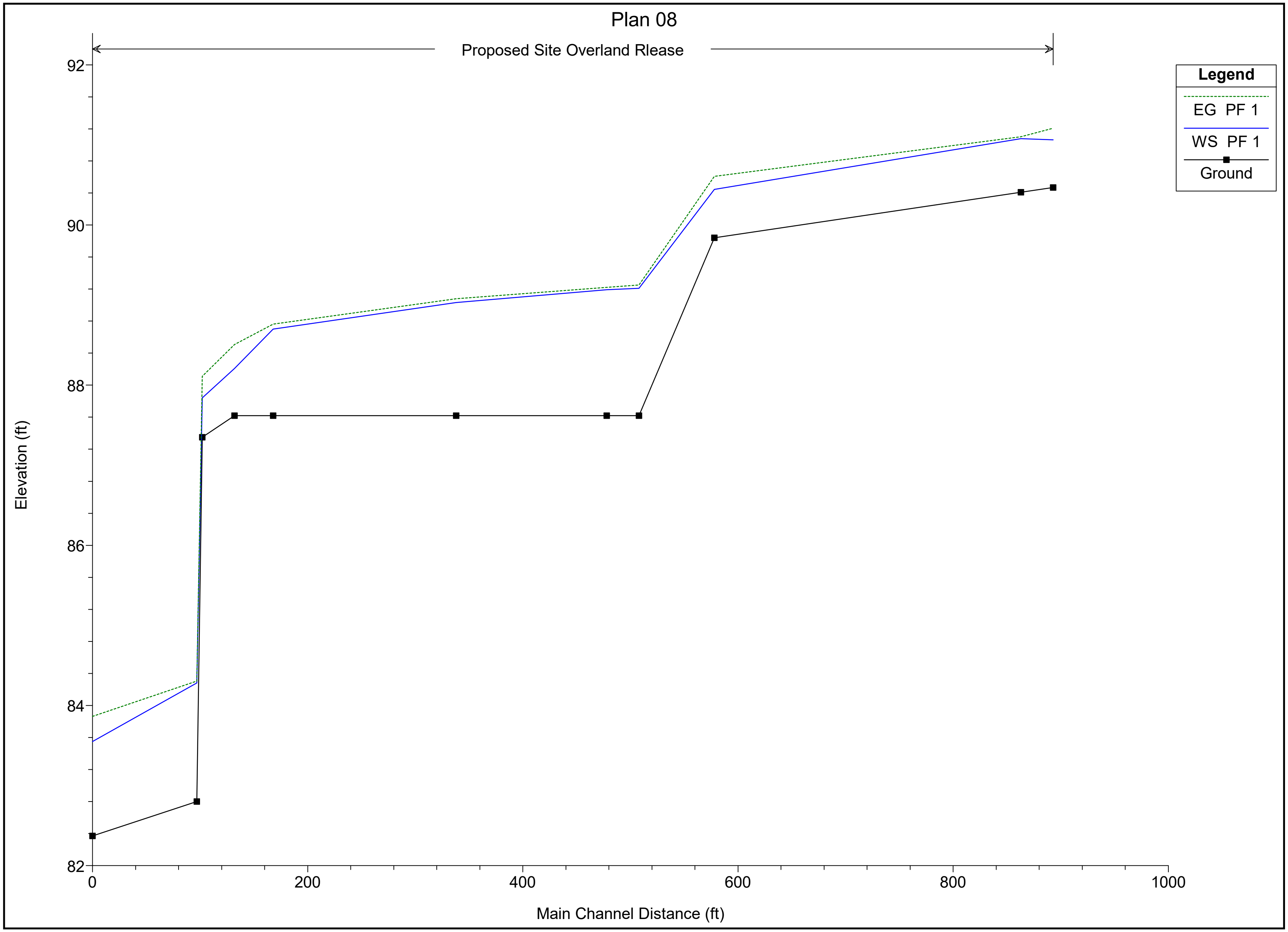
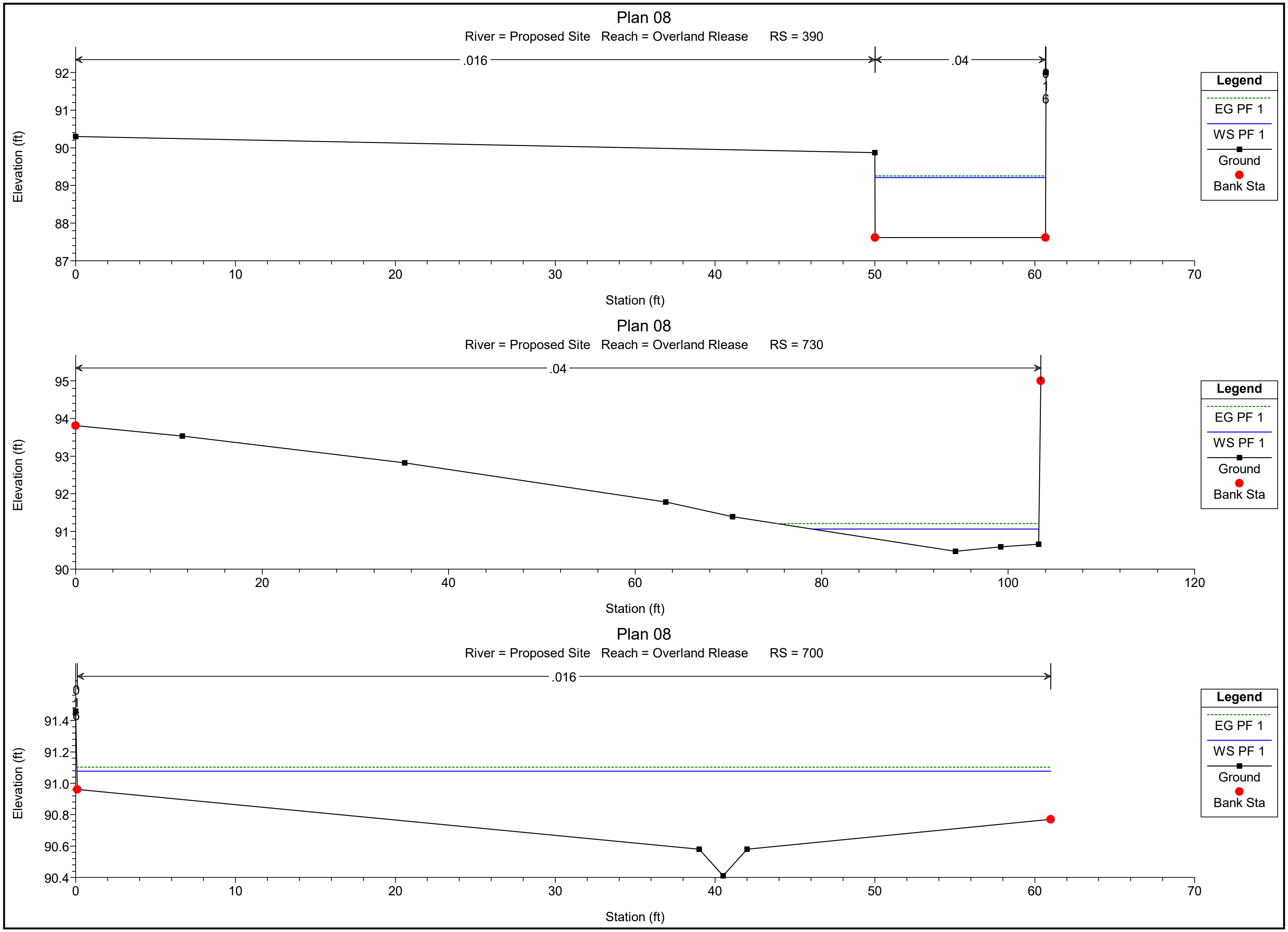


EXHIBIT C
EXHIBIT W



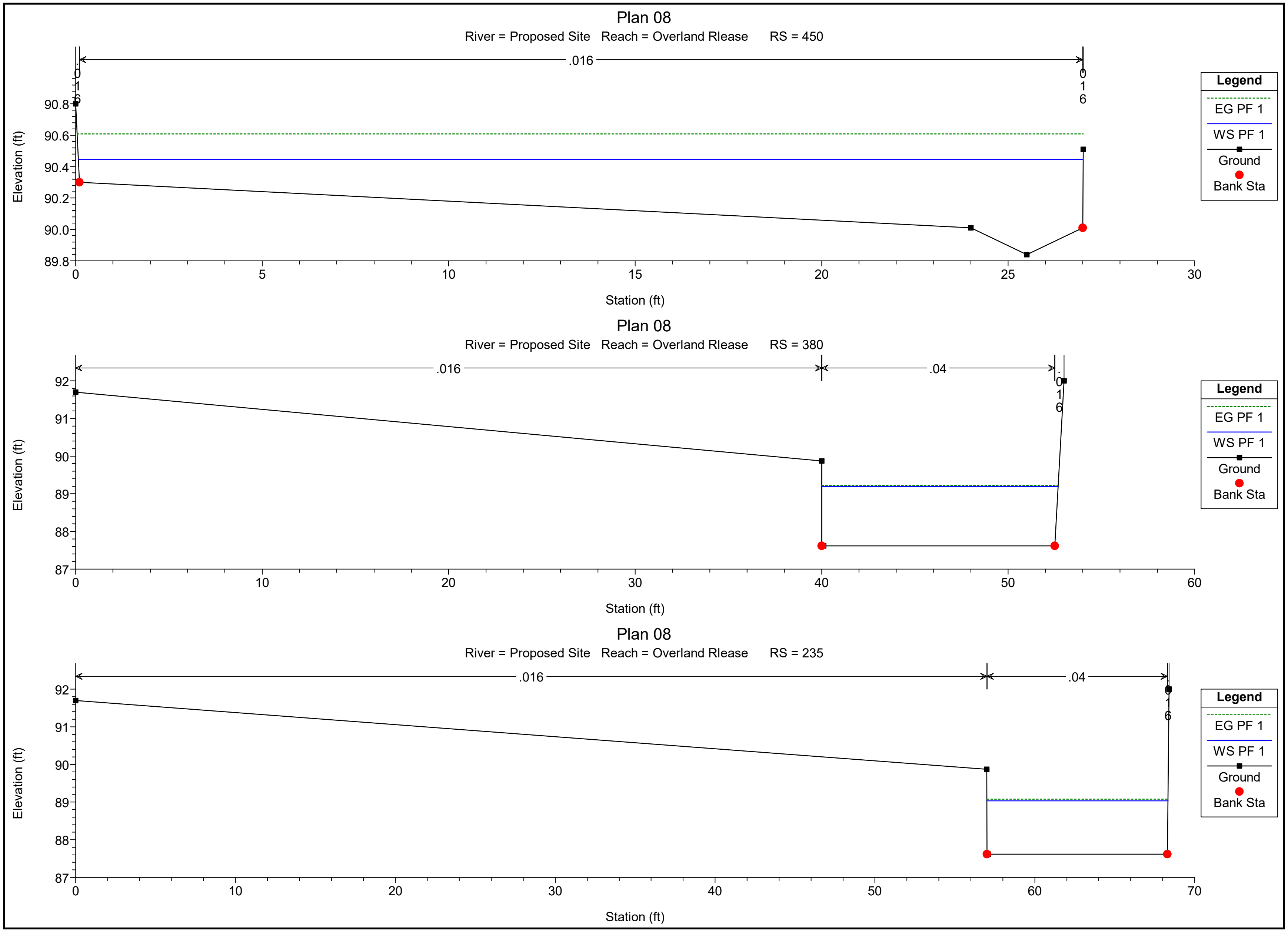
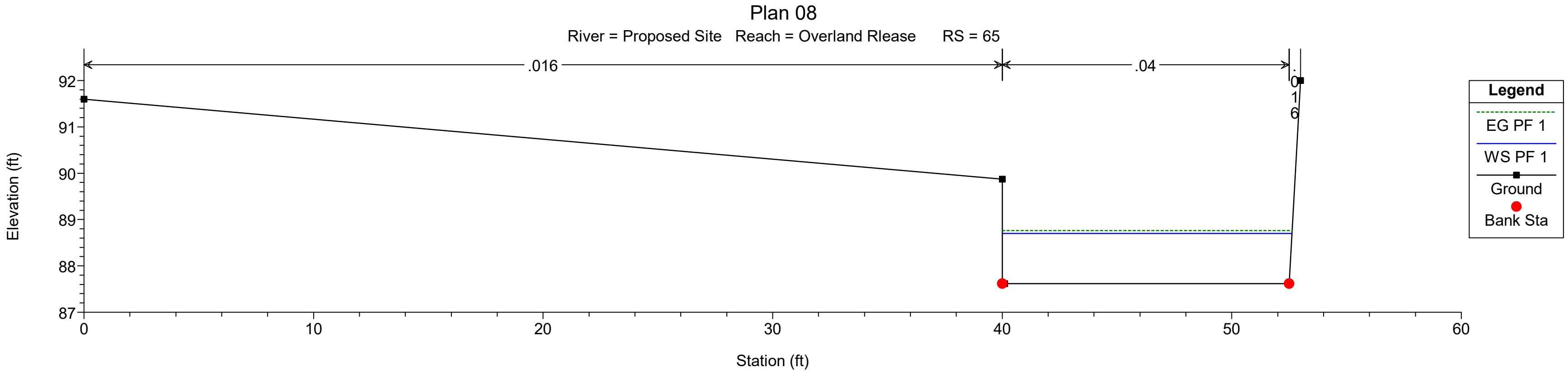
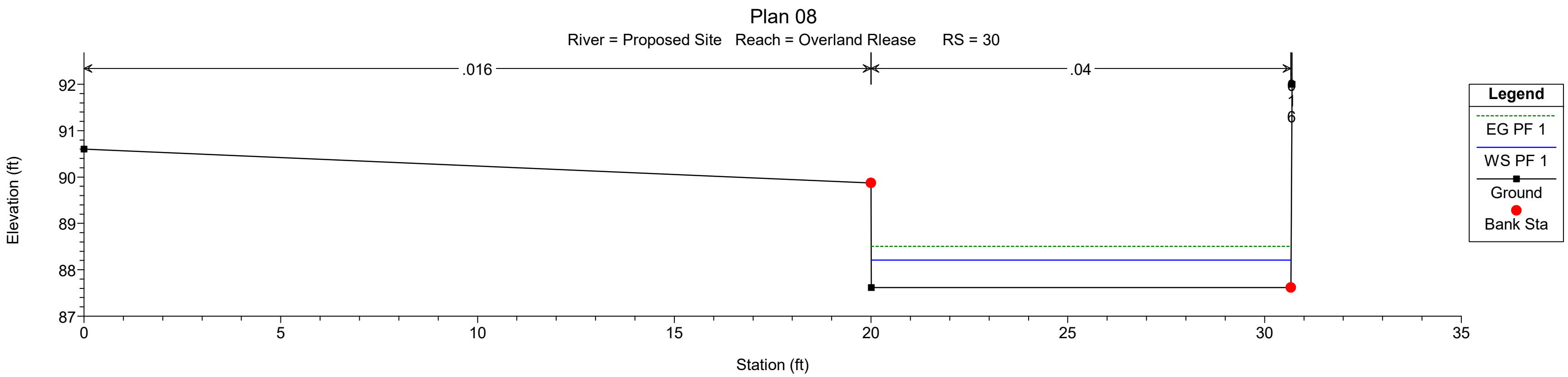

Plan 08
River = Proposed Site Reach = Overland Rlease RS = 450
.016
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Plan 08
River = Proposed Site Reach = Overland Rlease RS = 380
.016
.04
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Plan 08
River = Proposed Site Reach = Overland Rlease RS = 235
.016
.04
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

EXHIBIT C
EXHIBIT W





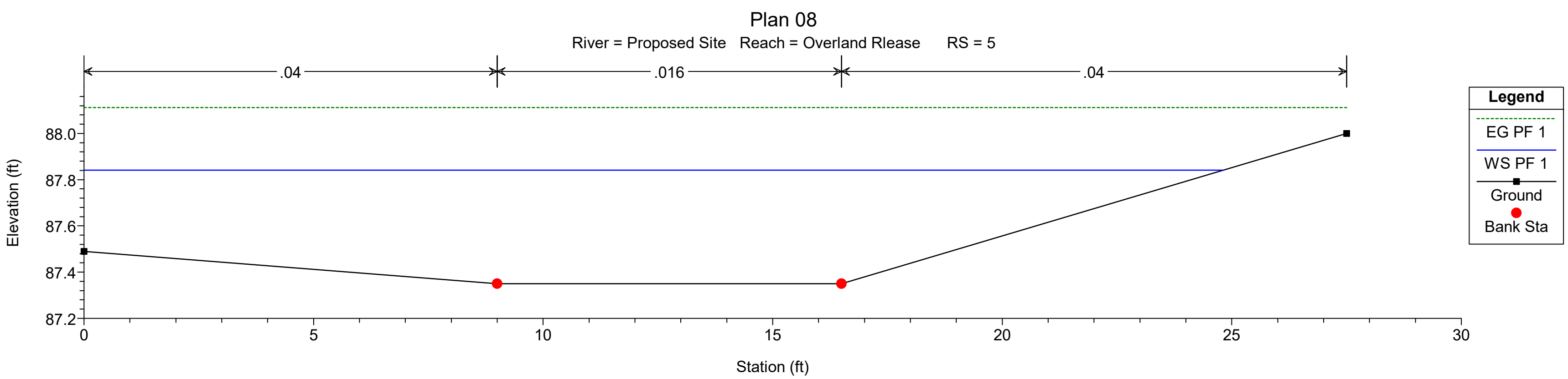


EXHIBIT C
EXHIBIT W

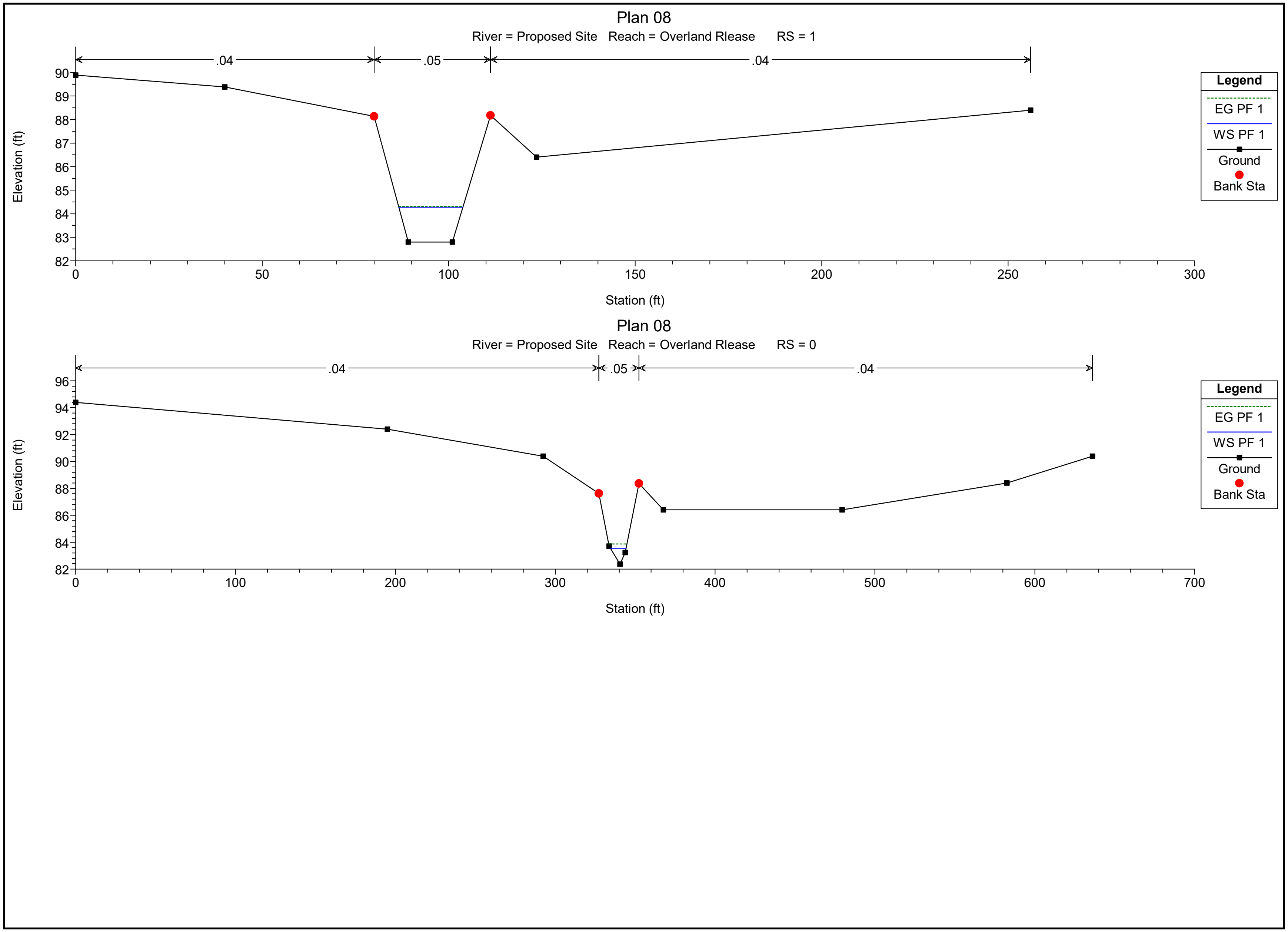


EXHIBIT C

EXHIBIT X

Sacramento Hydrologic Calculator Report

June 30, 2022 16:39

Project Title:	On-site Nolte Storm	Method:	Nolte method
Comments:	Nolte Analysis of On-site and off-site sub-sheds. On-site sheds all calculated as 80% impervious per land use type of HDR.	Date:	6/28/2022
Prepared by:	TEG		

Watershed Hydrologic Summary Data

Watershed	Area (acres)	Area Percent											
		Given as	90	85	80	75	70	60	50	40	30	25	20
A10	0.12	fraction			100								
A4	0.31	fraction			100								
A3	1.24	fraction			100								
A1	0.51	fraction			100								
A2	1.51	fraction			100								
A5	0.44	fraction			100								
A6	0.15	fraction			100								
A7	0.04	fraction			100								
A9	0.36	fraction			100								
A8	0.09	fraction			100								
SHED1	62.3	% absolute area	2		24.2				36				
SHED2	42.4	% absolute area	2.7		9.1				30.5				
SHED3	12.62	% absolute area	12.62										
A11	0.7	fraction			100								
A12	0.64	fraction			100								

Refer to the Drainage manual for Land Use Impervious Area Percent

EXHIBIT C

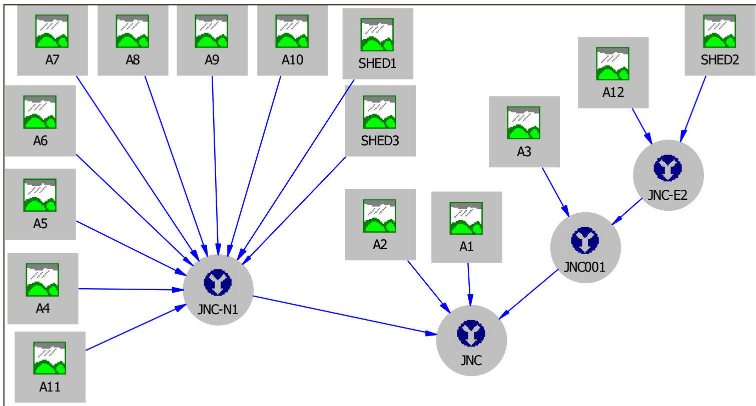
EXHIBIT X

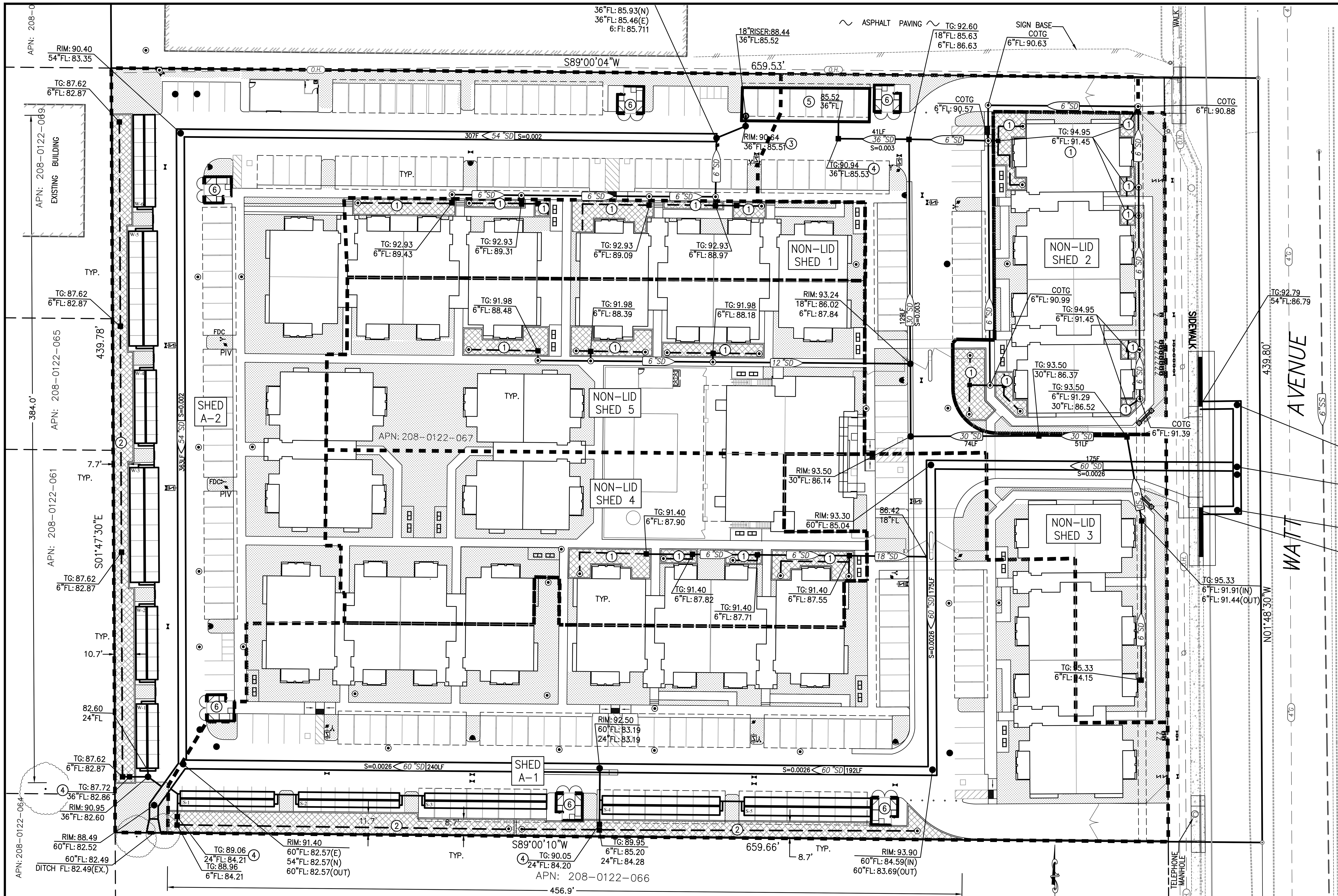
Nolte method results
(Project: On-site Nolte Storm)
(Hydrologic zone 2)

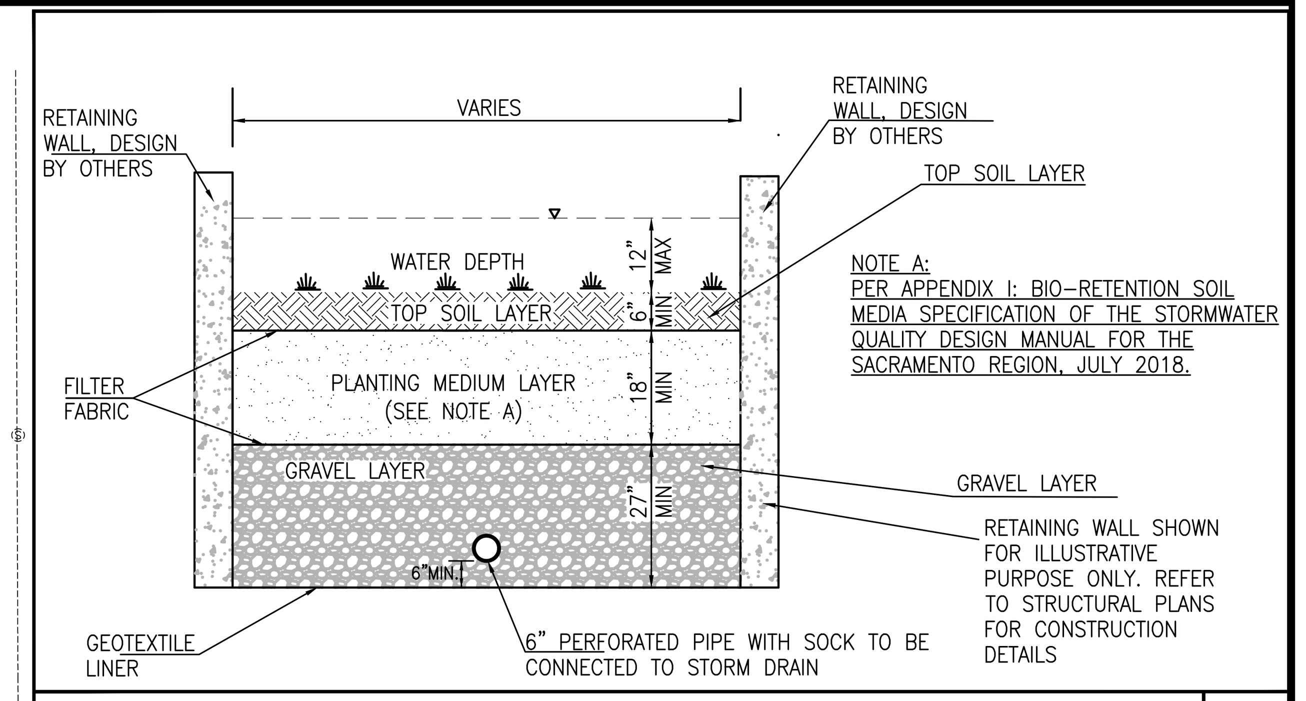
ID	Drainage area (acres)	Impervious area (%)	Design Q (cfs)
A1	0.51	80.00	0.23
A2	1.51	80.00	0.67
A10	0.12	80.00	0.05
A4	0.31	80.00	0.14
A5	0.44	80.00	0.20
A6	0.15	80.00	0.07
A7	0.04	80.00	0.02
A9	0.36	80.00	0.16
A8	0.09	80.00	0.04
SHED1	62.30	62.96	23.21
SHED3	12.62	90.00	6.47
A11	0.70	80.00	0.31
JNC-N1	77.13	67.87	30.53
A3	1.24	80.00	0.55
SHED2	42.40	59.01	13.62
A12	0.64	80.00	0.28
JNC-E2	43.04	59.32	13.94
JNC001	44.28	59.90	14.55
JNC	123.43	65.21	57.02

On-site Nolte Storm

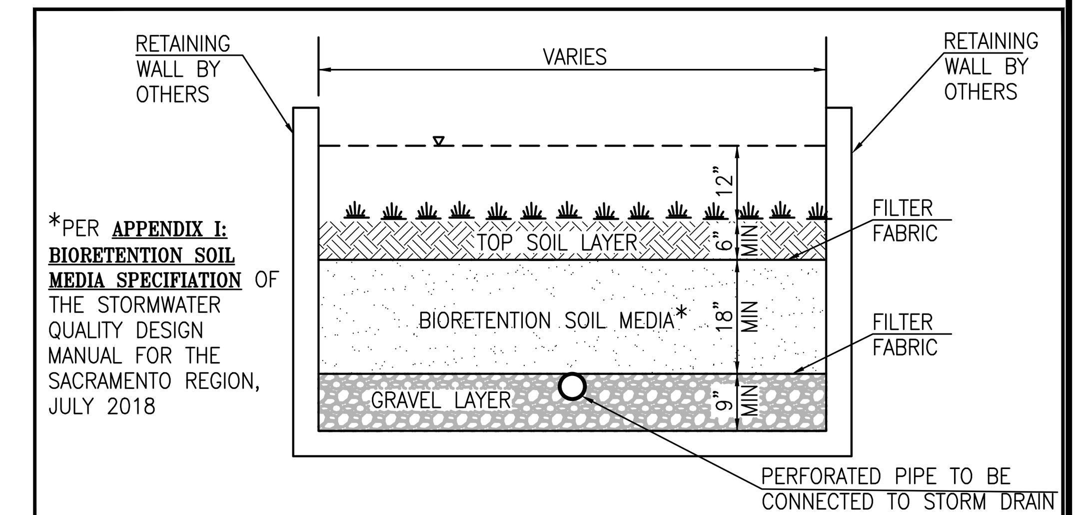
EXHIBIT X



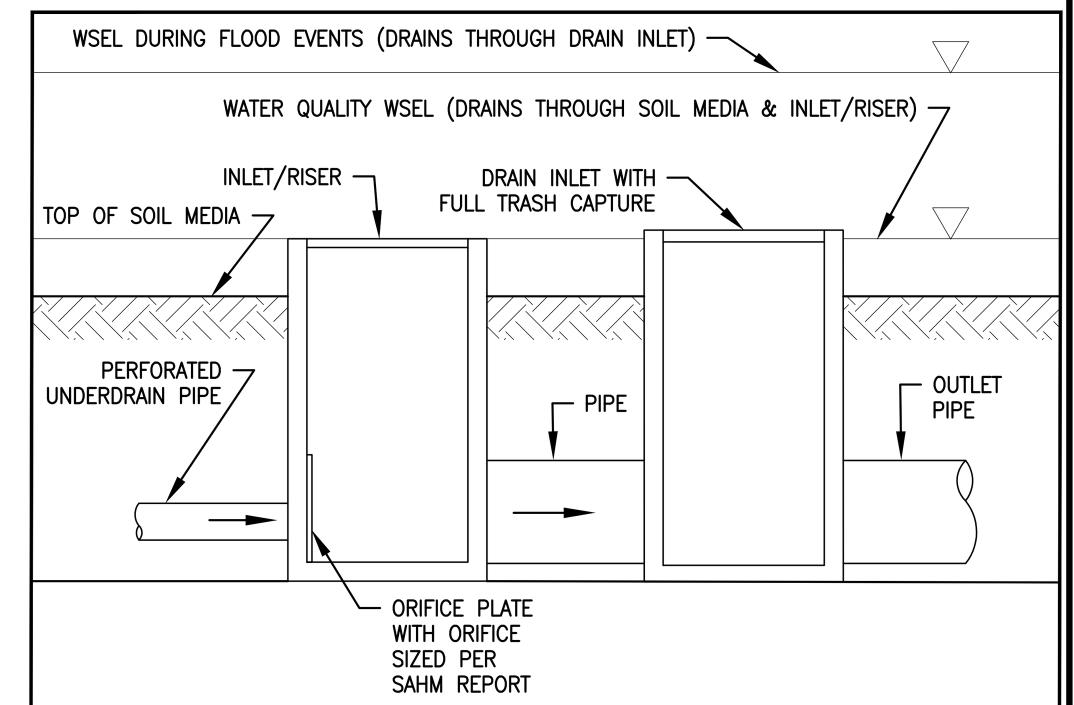




BIO-RETENTION PLANTER NTS 2



BIO-RETENTION PLANTER NTS 1



TYPICAL OUTFLOW DEVICE FOR PLANTERS WITH ALONG PROPERTY LINES NTS

CALLOUTS

1. BIO-RETENTION PLANTER PER DETAIL 1 ON THIS SHEET – ORIFICE/RISER PER SAHM REPORT.
2. BIO-RETENTION PLANTER PER DETAIL 2 ON THIS SHEET – ORIFICE/RISER PER SAHM REPORT.
3. CONTECH STORMFILTER BOX PER DETAIL ON THIS SHEET
4. FULL TRASH CAPTURE WITHIN INLET OR MANHOLE
5. VAULT WITH ORIFICE AND RISER PER SAHM REPORT. SEE DETAIL ON THIS SHEET.
6. TRASH ENCLOSURE

CALLOUTS

1. BIO-RETENTION PLANTER PER DETAIL 1 ON THIS SHEET
2. BIO-RETENTION PLANTER PER DETAIL 2 ON THIS SHEET
3. CONTECH STORMFILTER BOX
4. FULL TRASH CAPTURE WITHIN INLET OR MANHOLE
5. VAULT WITH ORIFICE AND RISER PER SAHM REPORT.
6. TRASH ENCLOSURE

SURFACE LEGEND

DENOTES LANDSCAPE/PERVIOUS AREA

DENOTES BIO-RETENTION PLANTER

Sub-Shed ID	Total Area (ft2)	Total Area (acres)	Existing Impervious (ft2)	Existing Impervious (acres)	Existing Pervious (ft2)	Existing Pervious (acres)	Proposed Impervious (ft2)	Proposed Impervious (acres)	Proposed Landscape (ft2)	Proposed Landscape (acres)	% Imperv.	Bio-Retention Planter (ft2)	Riser Diameter, Orifice Size, Underdrain diameter	Flow-Through / Infiltration	LID Points from Spreadsheet	WQF (ft3/s)	Adjusted LID	% of Site	Weighted LID Points
Shed A-1	76035.88	1.75	0	0.00	76035.88	1.75	60897.67	1.40	10871.23	0.25	80.09%	4266.98	6-in, 1.25-in, 6-in	Infiltration	209.1	0.01	200	29%	57.2
Shed A-2	65922.10	1.51	0	0.00	65922.10	1.51	52000.26	1.19	10265.52	0.24	78.88%	3656.32	6-in, 1.25-in, 6-in	Infiltration	213	0	200	25%	49.6
Non-LID 1	13556.86	0.31	0	0.00	13556.86	0.31	10807.29	0.25	1169.85	0.03	79.72%	1579.72	10-in, 0.75-in, 6-in	Flow-Through	395.9	0.00	9.7	5%	0.5
Non-LID 2	19353.07	0.44	0	0.00	19353.07	0.44	13712.85	0.31	3783.98	0.09	70.86%	1856.24	12-in, 0.94-in, 6-in	Flow-Through	383.6	0.00	20.5	7%	1.5
Non-LID 3	33122.07	0.76	0	0.00	36376.68	0	28667.02	0.66	4455.05	0.10	86.55%	0	-	-	13.2	0.11	13.2	12%	1.6
Non-LID 4	27667.73	0.64	0	0.00	27667.73	0.64	21096.42	0.48	5112.50	0.12	76.25%	1458.81	4-in, 1-in, 6-in	Flow-Through	210.9	0.00	18.8	10%	2.0
Non-LID 5	30336.16	0.70	0	0.00	30336.16	0.70	23300.63	0.53	5489.71	0.13	76.81%	1545.82	4-in, 1.1-in, 6-in	Flow-Through	204.3	0.01	18.6	11%	2.1
Total	265993.87	6.11	0	0.00	265993.87	6.11	210482.14	4.83	41147.84	0.94	79.13%	14363.89	-	-	-	0.13	480.8	100%	114.4

BENCHMARK ELEV. 93.95'(NGVD29)
7/8" METAL DISC STAMPED "CO. B.M. 7-18" LOCATED IN TOP OF ROLL CURB, ABOVE D.I. APPROXIMATELY CENTER OF CURB RETURN @ THE NORTHEAST CORNER OF WATT AVE. & BAINBRIDGE DR. & APPROXIMATELY 150' NORTH OF "Q" ST.
FIELD BOOK NO.____ PG.____

JTS ENGINEERING CONSULTANTS, INC.
1808 J STREET
SACRAMENTO CALIFORNIA 95811 (916) 441-6708

DESIGNED: MAR
DRAWN: TAN/MAR
CHECKED: FNW
SUBMITTED: FRANK N. WALKER, P.E. 35635
SCALE: 1"=30'

REGISTERED PROFESSIONAL ENGINEER FRANK N. WALKER No.35635 Expires:09-30-23 CIVIL STATE OF CALIFORNIA

NO	DATE	REVISION	APPROVAL	BY

STORMWATER QUALITY EXHIBIT
7403 WATT AVENUE
EXHIBIT Y
SACRAMENTO COUNTY APN: 208-0122-067 CALIFORNIA

DATE: 6-30-22
SHEET 1 OF 2
JOB NO: 2018-132

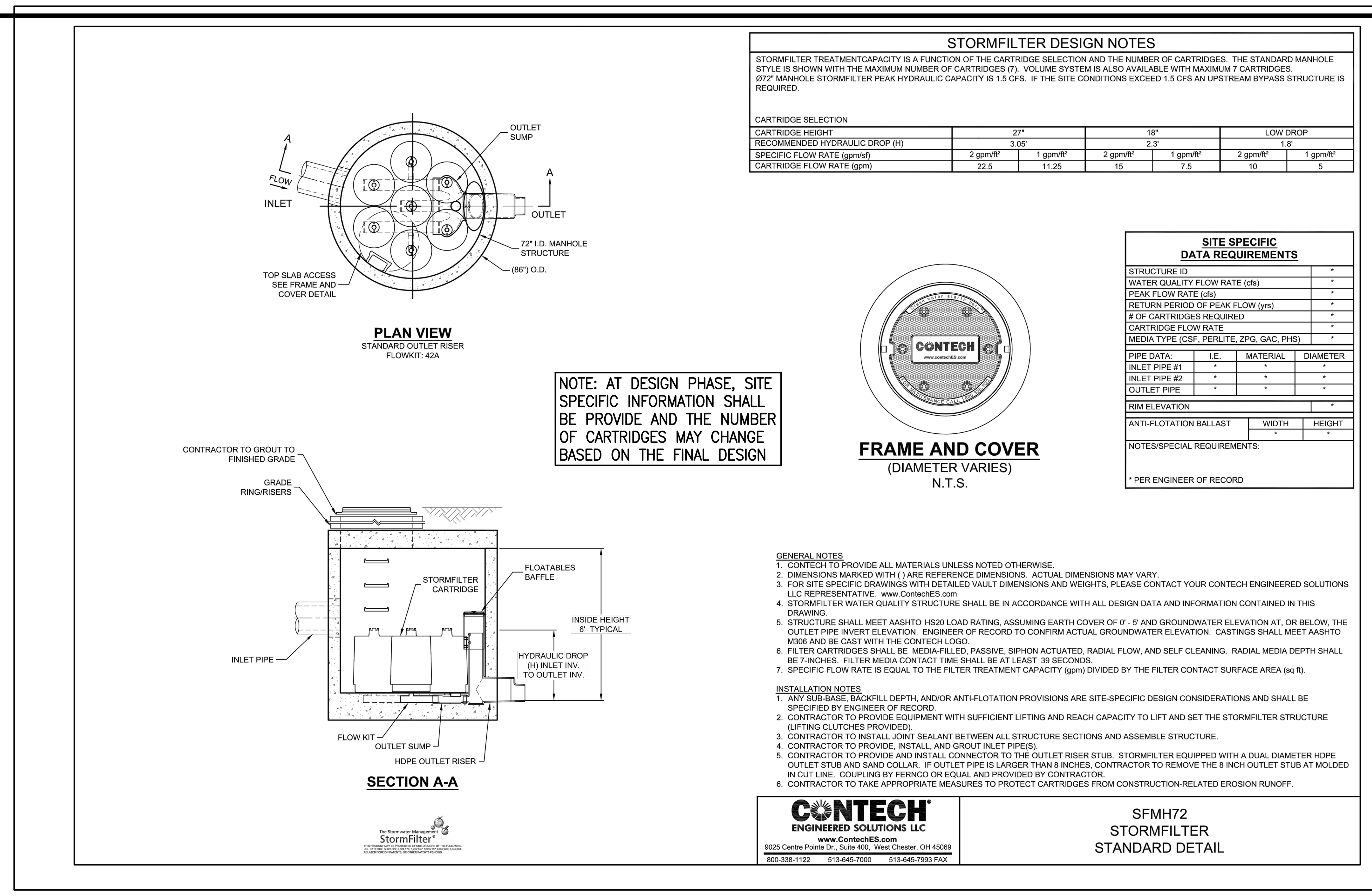
TREATMENT CALCULATION

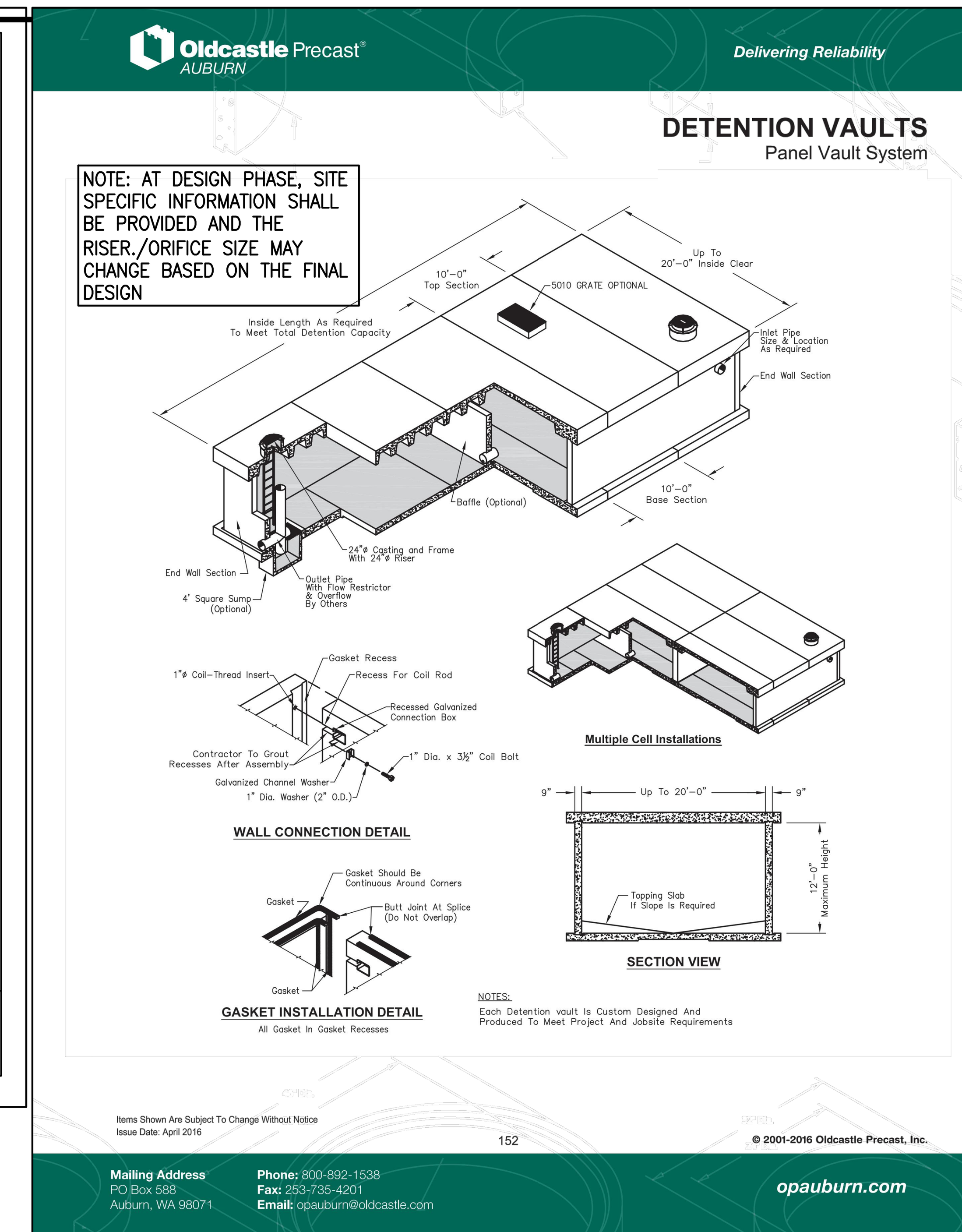
FILTER SIZE: 27"

CARTRIDGE FLOWRATE: 0.0034 CFS/CARTRIDGE

WATER QUALITY FLOW: 0.13-CFS

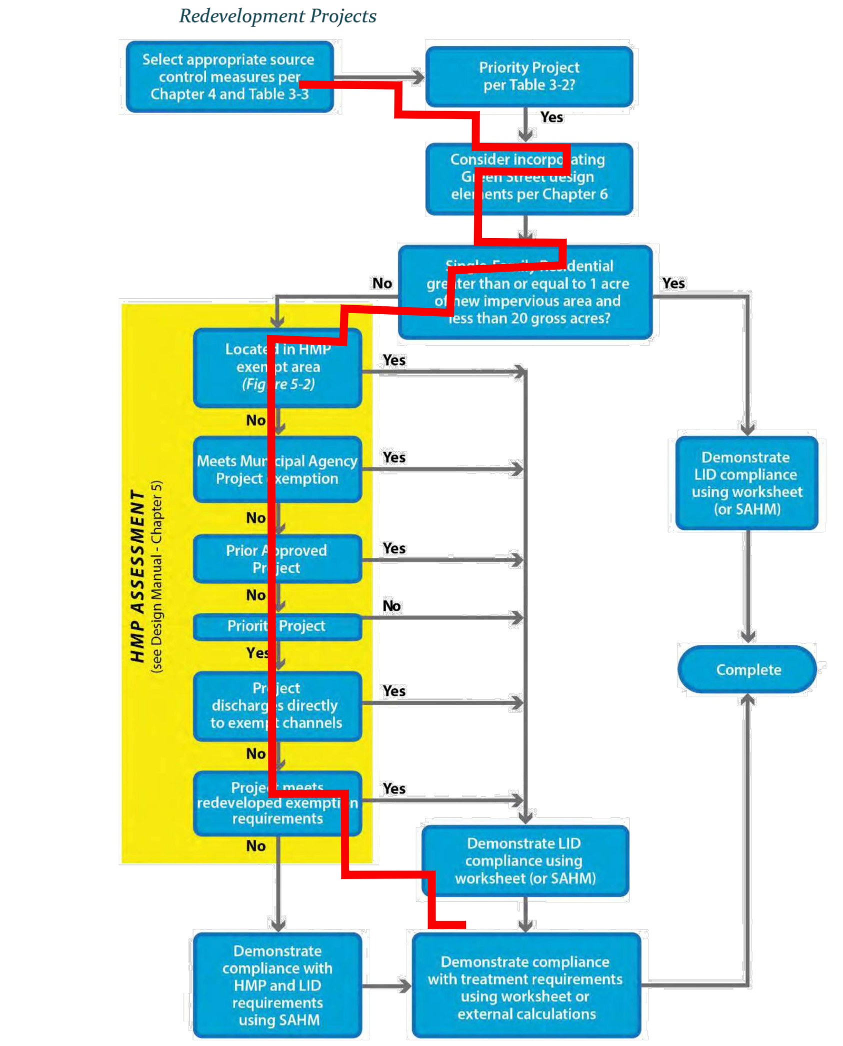
NUMBER OF CARTRIDGES = 0.13-CFS / 0.0034 CFS/CARTRIDGES = 4 CARTRIDGES





Chapter 3: Steps to Managing Stormwater Quality

Figure 3-1 Identifying Stormwater Quality Requirements for New Development and Redevelopment Projects



Click here to link to Figure 5-2, Applicability Map.

Page 3-8 Stormwater Quality Design Manual for the Sacramento Region July 2018

Sacramento County Supplemental Application: Preliminary Stormwater Quality Compliance Form

This form is provided for example purposes only.
Check with your local permitting agency for copies of forms and procedures appropriate for your project site.

1) Project Information

Applicant Name: Narinder Singh Phone Number: 916-240-4700

Address:

Project Contact: Javed Siddiqui Phone Number: 916-441-6708

Project name: Watt Ave. Apartments Assessor Parcel Number(s): 208-0122-067

Site Address: 7403 Watt Ave.

Project Category (check all that apply): *Refer to Design Manual Table 3-2 for Priority Project Categories*

- ☐ Residential (Single Family)
- ☑ Residential (Multi-Family)
- ☐ Commercial Development
- ☐ Automotive Repair Shop
- ☐ Retail Gasoline Outlet
- ☐ Restaurant
- ☐ Industrial Development
- ☐ Street/Road
- ☐ Hillside Development
- ☐ Parking Lot

Project Gross Acres: 6.11 Project Net Acres: 6.11

Existing Impervious Surface Area: 6.11 Proposed Impervious Surface Area: 4.77

Project Density (Residential Only): HDR Proposed Pervious Surface Area: 1.34

Watershed or Receiving Water: DRY CREEK

303(d) Listed Water Bodies: N/A

TMDLs: N/A

2) Source Controls (check source control measure or applicable pollutant sources, check Design Manual Chapter 4 for more information on source control measures)

Refer to Design Manual Table 3-2 for Requirements

- ☑ Storm Drain Message and Signage
- ☐ Fueling Areas
- ☐ Loading/Unloading Areas
- ☐ Outdoor Storage Areas
- ☐ Outdoor Work Areas
- ☐ Vehicle/Equipment Wash Areas
- ☑ Waste Management Areas
- ☐ Other. Describe:

3) Low Impact Development Measures

Refer to Design Manual Table 3-2 for Requirements

Will LID measures be utilized for this project? ☑ Yes ☐ No

If yes, check selected LID measures below; attach completed worksheet (Design Manual Appendix D).

- ☐ Alternative Driveway Design
- ☐ Disconnected Roof Drains
- ☐ Disconnected Pavement
- ☐ Green Roof
- ☐ Interceptor Trees
- ☐ Porous Pavement
- ☑ Other. Describe: BIO-RETENTION PLANTERS

4) Stormwater Quality Treatment Requirements

Refer to Design Manual Table 3-2 for Requirements

Is treatment required? ☑ Yes ☐ No

If no, form is complete with signature. If yes, complete this section.

Indicate number of drainage subwatersheds for the site: 12

Early consideration of stormwater quality during site planning may reduce the overall cost of treatment controls. Low Impact Development (LID) methods and innovative design options can reduce the size of treatment options. In addition, early consideration allows for non-proprietary treatment options that can significantly reduce construction and maintenance costs.

5) Attach Project Overview and Stormwater Quality Narrative

☐ Include Project description indicating nature of project (e.g., is it a newly developing site, replacement of a previously developed site, is it an infill site). Describe activities planned for site that may impact water quality such as a retail gasoline outlet as part of a development. Describe selected treatment options. Developers should keep in mind that proprietary devices require extensive maintenance by the owners of the property and do not qualify for LID credit, and should consider alternative treatment measures first. Project description should be no more than 1 page relating to stormwater quality.

☑ Include annotated copy of Figure 3-1 of the Design Manual demonstrating applicability of stormwater quality requirements.

☐ Include a copy of the discretionary level conditions of approval (if applicable).

6) Attach Site Plans* and/or Drawings Showing:

- ☑ Existing and natural hydrologic features
- ☑ Existing and proposed drainage system (including material, size, slope, and invert elevations)
- ☑ Locations where site discharges to municipal storm drain system and/or receiving waters
- ☑ Proposed grades/contours (agency may specify contour interval)
- ☑ Proposed drainage subwatersheds including **(Refer to item #4, if treatment is required)**
  - Name of subwatershed
  - Existing amount of pervious and impervious areas
  - Proposed amount of pervious and impervious areas
  - Proposed treatment option(s) for each subwatershed
  - WQV or WQF to be treated
- ☐ Pollutant source areas including loading docks, food service areas, refuse areas, outdoor processes and storage, vehicle cleaning, repair or maintenance, fuel dispensing, equipment washing, etc.
- ☐ Proposed design features to minimize impervious areas, applicable runoff reduction techniques, innovative design, and all treatment options selected.
- ☑ Details for post-construction control measures, including the following information, where applicable:
  - Dimensions and setbacks from property lines and structures
  - Profile view, including typical cross-sections and dimensions
  - Water surface elevations/freeboard
  - Inlets, outlet structures, and release points
  - Vegetation & growing medium specifications, including provisions for temporary irrigation if needed
  - Specifications for construction materials, such as filter fabric and infiltration materials
  - Installation requirements

*Note: Plans will not be checked for adequacy of treatment options until design review of drainage system. For information related to correct sizing and other requirements refer to *Stormwater Quality Design Manual for the Sacramento Region.*

7) Attach HMP Calculations (SAHM Output Report):

☑ Include SAHM output summary report demonstrating compliance with HMP flow duration criteria.

8) Attach LID Credit Backup:

☑ Include LID credit worksheet for either Residential or Commercial development (as applicable), or other backup documentation of LID credits.

9) Attach Treatment Calculations:

☑ Include miscellaneous treatment calculations for any BMPs that are not already included in item 7 (HMP calculations) or item 8 (LID Credit Spreadsheet) above.

10) List Subwatersheds and Selected Stormwater Quality Measures (as required)

Subwatershed Name	Total Subwatershed Area: Impervious Area	Total Subwatershed Area: Pervious Area	Flow (cfs) or Volume (ft³)	Control Measures Selected (for Hydromodification Management, LID, and/or Treatment)
	SEE TABLE ON SHEET 1			

11) Signature

Print Name: ______ Indicate Owner or Title: ______

Signature: ______ Date: ______

*Control measures may be those included in the *Stormwater Quality Design Manual for the Sacramento Region* or alternative measures. For projects proposing use of control measures not specified in the Design Manual, the review and approval process may take longer. Also, slight variations to design criteria stated in the manual may be approved on occasion, provided the agency determines that performance of the facility itself or other site structures/features is not compromised. For agencies in Sacramento County, proposals of alternative proprietary structural devices may be accepted if the manufacturer can satisfy the agencies' protocol or the regulatory agencies to conduct a pilot scale monitoring study.

To avoid delays, all alternative proposals should be discussed with the stormwater quality staff at the permitting agency as early as possible in the planning stages of the project, preferably at the pre-application meeting.

BENCHMARK ELEV. 93.95'(NGVD29)
7/8" METAL DISC STAMPED "CO. B.M. 7-18" LOCATED IN TOP OF ROLL CURB, ABOVE D.I. APPROXIMATELY CENTER OF CURB RETURN @ THE NORTHEAST CORNER OF WATT AVE. & BAINBRIDGE DR. & APPROXIMATELY 150' NORTH OF "Q" ST.
FIELD BOOK NO.____ PG.____

JTS ENGINEERING CONSULTANTS, INC.
1808 J STREET
SACRAMENTO CALIFORNIA 95811 (916) 441-6708

DESIGNED: MAR
DRAWN: TAN/MAR
CHECKED: FNW
SUBMITTED: FRANK N. WALKER, P.E. 35635
SCALE: 1"=30'

NO	DATE	REVISION	APPROVAL	BY

STORMWATER QUALITY EXHIBIT
7403 WATT AVENUE
EXHIBIT Y
SACRAMENTO COUNTY APN: 208-0122-067 CALIFORNIA

DATE: 6-30-22
SHEET 2 OF 2
JOB NO: 2018-132

Appendix D-2: Commercial Sites: Low Impact Development (LID) Credits and Treatment BMP Sizing Calculations

Name of Drainage Shed: Non-LID 1
Location of project: Sacramento

Fill in Blue Highlighted boxes

Step 1 - Open Space and Pervious Area Credits

Is your project within the drainage area of a common drainage plan that includes open space? If not, skip to 1 b.

1 a. Common Drainage Plan Area	0	acres	A_{CDP}
Common Drainage Plan Open Space (Off-project)	0	acres	A_{OS}
a. Natural storage reservoirs and drainage corridors	0	acres	
b. Buffer zones for natural water bodies	0	acres	
c. Natural areas including existing trees, other vegetation, and soil	0	acres	
d. Common landscape area/park	0	acres	
e. Regional Flood Control/Drainage basins	0	acres	

see area example below

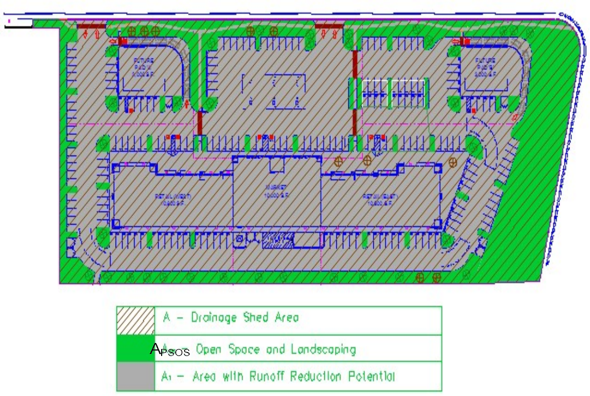
1 b. Project Drainage Shed Area (Total)	0.31	acres	A
Project-Specific Open Space (In-project, communal)**	0.03	acres	A_{PSOS}
a. Natural storage reservoirs and drainage corridors	0.00	acres	
b. Buffer zones for natural water bodies	0.00	acres	
c. Natural areas including existing trees, other vegetation, and soil	0.00	acres	
d. Landscape area/park	0.03	acres	
e. Flood Control/Drainage basins	0.00	acres	

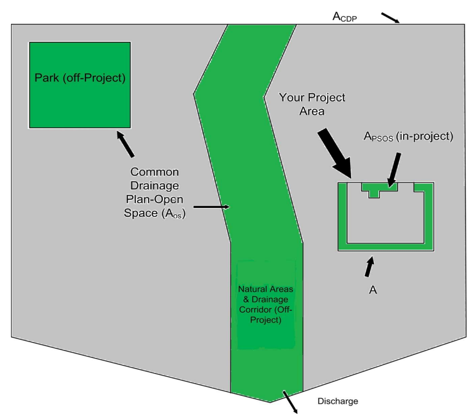
see area example below

** Doesn't include impervious areas within individual lots and surrounding individual units. That is accounted for below using Form D-1a in Step 2.

Area with Runoff Reduction Potential	$A - A_{PSOS} =$	0.28	acres	A_T
Assumed Initial Impervious Fraction	$A_T / A =$	0.90		I

Open Space & Pervious Area LID Credit (Step 1)
$(A_{OS}/A_{CDP}+A_{PSOS}/A)\text{x}100 =$ 10 pts





Step 2 - Runoff Reduction Credits

Runoff Reduction Treatments	Impervious Area Managed			Efficiency Factor		Effective Area Managed (A_C)	
Porous Pavement:							
Option 1: Porous Pavement (see Fact Sheet, excludes porous pavement used in Option 2)	0	acres	x		=	0.000	acres
Option 2: Disconnected Pavement (see Fact Sheet, excludes porous pavement used in Option 1)	use Form D-2a for credits			→		0.00	acres
Landscaping used to Disconnect Pavement (see Fact Sheet)	0.0000	acres			=	0.00	acres
Disconnected Roof Drains (see Fact Sheet and/or Table D-2b for summary of requirements)	0	acres			=	0.00	acres
Ecoroof (see Fact Sheet)	0	acres			=	0.00	acres
Interceptor Trees (see Fact Sheet)	use Form D-2b for credits			→		0.00	acres
Total Effective Area Managed by Runoff Reduction Measures				A_C		0.00	acres

Runoff Reduction Credit (Step 2) $(A_C / A_T)*100 =$ 0 pts

EXHIBIT Z

Table D-2a

Porous Pavement Type	Efficiency Multiplier
Cobblestone Block Pavement	0.40
Pervious Concrete/Asphalt	0.60
Modular Block Pavement &	0.75
Reinforced Grass Pavement	1.00

Table D-2b

Maximum roof size	Minimum travel distance
≤ 3,500 sq ft	21 ft
≤ 5,000 sq ft	24 ft
≤ 7,500 sq ft	28 ft
≤ 10,000 sq ft	32 ft

Form D-2a: Disconnected Pavement Worksheet

See Fact Sheet for more information regarding Disconnected Pavement credit guidelines

Effective Area Managed (A_C)

Pavement Draining to Porous Pavement

2. Enter area draining onto Porous Pavement — 0.00 acres — Box K1

3. Enter area of Receiving Porous Pavement — 0.00 acres — Box K2
(excludes area entered in Step 2 under Porous Pavement)

4. Ratio of Areas (Box K1 / Box K2) — 0.00 — Box K3

5. Select multiplier using ratio from Box K3 and enter into Box K4

Ratio (Box D)	Multiplier
Ratio is ≤ 0.5	1.00
Ratio is > 0.5 and < 1.0	0.83
Ratio is > 1.0 and < 1.5	0.71
Ratio is > 1.5 and < 2.0	0.55

1 — Box K4

6. Enter Efficiency of Porous Pavement (see table below) — Box K5

Porous Pavement Type	Efficiency Multiplier
Cobblestone Block Pavement	0.40
Pervious Concrete Asphalt Pavement	0.60
Modular Block Pavement Porous Gravel Pavement	0.75
Reinforced Grass Pavement	1.00

7. Multiply Box K2 by Box K5 and enter into Box K6 — 0.00 acres — Box K6

8. Multiply Boxes K1,K4, and K5 and enter the result in Box K7 — 0.00 acres — Box K7

9. Add Box K6 to Box K7 and multiply by 60%, and enter the Result in Box K8 — 0.00 acres
This is the amount of area credit to enter into the "Disconnected Pavement" Box of Form D-2

Form D-2b: Interceptor Tree Worksheet

See Fact Sheet for more information regarding Interceptor Tree credit guidelines

New Evergreen Trees

1. Enter number of new evergreen trees that qualify as Interceptor Trees in Box L1. — trees — Box L1

2. Multiply Box L1 by 200 and enter result in Box L2 — 0 sq. ft. — Box L2

New Deciduous Trees

3. Enter number of new deciduous trees that qualify as Interceptor Trees in Box L3. — trees — Box L3

4. Multiply Box L3 by 100 and enter result in Box L4 — 0 sq. ft. — Box L4

Existing Tree Canopy

5. Enter square footage of existing tree canopy that qualifies as Existing Tree canopy in Box L5. — 0 sq. ft. — Box L5

6. Multiply Box L5 by 0.5 and enter the result in Box L6 — 0 sq. ft. — Box L6

Total Interceptor Tree EAM Credits

Add Boxes L2, L4, and L6 and enter it into Box L7 — 0 sq. ft. — Box L7

Divide Box L7 by 43,560 and multiply by 20% to get effective area managed and enter result in Box L8 — 0.00 acres — Box L8
This is the amount of area credit to enter into the "Interceptor Trees" Box of Form D-2

Step 3 - Runoff Management Credits

Capture and Use Credits

Impervious Area Managed by Rain barrels, Cisterns, and automatically-emptied systems

(see Fact Sheet) | - | enter gallons, for simple rain barrels | 0.00 | acres

Automated-Control Capture and Use System

(see Fact Sheet, then enter impervious area managed by the system) | 0.00 | acres

Bioretention/Infiltration Credits

Impervious Area Managed by Bioretention BMPs

(see Fact Sheet)

Bioretention Area	1,579	sq ft		
Subdrain Elevation	6	inches		
Ponding Depth, inches	12	inches	0.54	acres

Impervious Area Managed by Infiltration BMPs

(see Fact Sheet)

	Drawdown Time, hrs		drawdown_hrs_inf		
	Soil Infiltration Rate, in/hr		soil_inf_rate		
Sizing Option 1:	Capture Volume, acre-ft	0.00	capture_vol_inf	0.00	acres
Sizing Option 2:	Infiltration BMP surface area, sq ft	0	soil_surface_area	0.00	acres

Basin or trench? | | approximate BMP depth | 0.00 | ft

Impervious Area Managed by Amended Soil or Mulch Beds

(see Fact Sheet) | Mulched Infiltration Area, sq ft | | mulch_area | 0.00 | acres

Total Effective Area Managed by Capture-and-Use/Bioretention/Infiltration BMPs | 0.54 | A_{LIDc}

Runoff Management Credit (Step 3) | $A_{LIDC}/A_T*200 =$ | 386.2 | pts

Total LID Credits (Step 1+2+3) | LID compliant, check for treatment sizing in Step 4 | 395.9

Does project require hydromodification management? If yes, proceed to using SacHM.

Adjusted Area for Flow-Based, Non-LID Treatment | $A_T - A_C - A_{LIDC} =$ | -0.26 | A_{AT}

Adjusted Impervious Fraction of A for Volume-Based, Non-LID Treatment | $A_{AT} / A =$ | -0.84 | I_A

STOP: No additional treatment needed

Step 4a Treatment - Flow-Based (Rational Method)

Calculate treatment flow (cfs): Flow = Runoff Coefficient x Rainfall Intensity x Area

Look up value for i in Table D-2c (Rainfall Intensity)	0.18	i
Obtain A_{AT} from Step 3	-0.26	A_{AT}
Use C = 0.95	0.95	C
Flow = 0.95 * i * A_{AT}	-0.04	cfs

Table D-2c

Rainfall Intensity			
Roseville	i =	0.20	in/hr
Sacramento	i =	0.18	in/hr
Folsom	i =	0.20	in/hr

Step 4b Treatment - Volume-Based (ASCE-WEF)

Calculate water quality volume (Acre-Feet): WQV = Area x Maximized Detention Volume (P_0)

Obtain A from Step 1	0.31	A
Obtain P_0: Maximized Detention Volume from figures E-1 to E-4 in Appendix E of this manual using I_A from Step 2.	0.00	P_0
Calculate treatment volume (acre-ft): **Treatment volume = A x (P_0 / 12)**	0.00	Acre-Feet

| hrs | Specified Draw Down time

v06232012

EXHIBIT Z

Appendix D-2: Commercial Sites: Low Impact Development (LID) Credits and Treatment BMP Sizing Calculations

Name of Drainage Shed: Non-LID 2 — Fill in Blue Highlighted boxes

Location of project: Sacramento

Step 1 - Open Space and Pervious Area Credits

Is your project within the drainage area of a common drainage plan that includes open space? If not, skip to 1 b.

1 a. Common Drainage Plan Area	0	acres	A_{CDP}
Common Drainage Plan Open Space (Off-project)	0	acres	A_{OS}
a. Natural storage reservoirs and drainage corridors	0	acres	
b. Buffer zones for natural water bodies	0	acres	
c. Natural areas including existing trees, other vegetation, and soil	0	acres	
d. Common landscape area/park	0	acres	
e. Regional Flood Control/Drainage basins	0	acres	

see area example below

1 b. Project Drainage Shed Area (Total)	0.44	acres	A
Project-Specific Open Space (In-project, communal)**	0.09	acres	A_{PSOS}
a. Natural storage reservoirs and drainage corridors	0.00	acres	
b. Buffer zones for natural water bodies	0.00	acres	
c. Natural areas including existing trees, other vegetation, and soil	0.00	acres	
d. Landscape area/park	0.09	acres	
e. Flood Control/Drainage basins	0.00	acres	

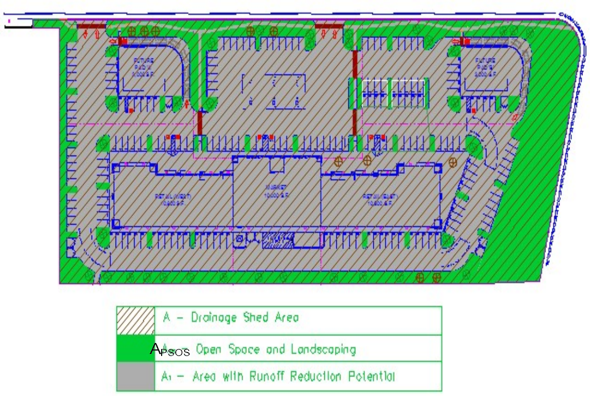
see area example below

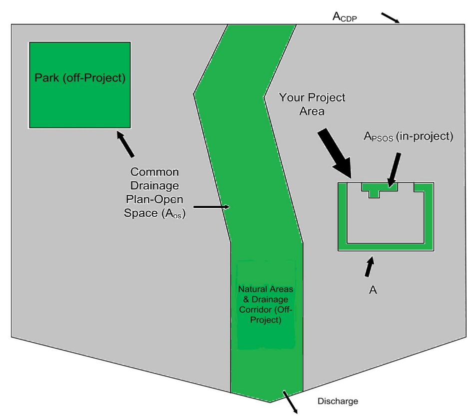
** Doesn't include impervious areas within individual lots and surrounding individual units. That is accounted for below using Form D-1a in Step 2.

Area with Runoff Reduction Potential	$A - A_{PSOS} =$	0.35	acres	A_T
Assumed Initial Impervious Fraction	$A_T / A =$	0.80		I

Open Space & Pervious Area LID Credit (Step 1)

$(A_{OS}/A_{CDP}+A_{PSOS}/A)\times100 =$ 20 pts





Step 2 - Runoff Reduction Credits

Runoff Reduction Treatments	Impervious Area Managed			Efficiency Factor		Effective Area Managed (A_C)	
Porous Pavement:							
Option 1: Porous Pavement (see Fact Sheet, excludes porous pavement used in Option 2)	0	acres	x		=	0.000	acres
Option 2: Disconnected Pavement (see Fact Sheet, excludes porous pavement used in Option 1)	use Form D-2a for credits →					0.00	acres
Landscaping used to Disconnect Pavement (see Fact Sheet)	0.0000	acres			=	0.00	acres
Disconnected Roof Drains (see Fact Sheet and/or Table D-2b for summary of requirements)	0	acres			=	0.00	acres
Ecoroof (see Fact Sheet)	0	acres			=	0.00	acres
Interceptor Trees (see Fact Sheet)	use Form D-2b for credits →					0.00	acres
Total Effective Area Managed by Runoff Reduction Measures				A_C		0.00	acres

Runoff Reduction Credit (Step 2) $(A_C / A_T)*100 =$ 0 pts

EXHIBIT 2

Table D-2a

Porous Pavement Type	Efficiency Multiplier
Cobblestone Block Pavement	0.40
Pervious Concrete/Asphalt	0.60
Modular Block Pavement &	0.75
Reinforced Grass Pavement	1.00

Table D-2b

Maximum roof size	Minimum travel distance
≤ 3,500 sq ft	21 ft
≤ 5,000 sq ft	24 ft
≤ 7,500 sq ft	28 ft
≤ 10,000 sq ft	32 ft

Form D-2a: Disconnected Pavement Worksheet

See Fact Sheet for more information regarding Disconnected Pavement credit guidelines

Effective Area Managed (A_C)

Pavement Draining to Porous Pavement

2. Enter area draining onto Porous Pavement — 0.00 acres — Box K1

3. Enter area of Receiving Porous Pavement — 0.00 acres — Box K2
(excludes area entered in Step 2 under Porous Pavement)

4. Ratio of Areas (Box K1 / Box K2) — 0.00 — Box K3

5. Select multiplier using ratio from Box K3 and enter into Box K4 — 1 — Box K4

Ratio (Box D)	Multiplier
Ratio is ≤ 0.5	1.00
Ratio is > 0.5 and < 1.0	0.83
Ratio is > 1.0 and < 1.5	0.71
Ratio is > 1.5 and < 2.0	0.55

6. Enter Efficiency of Porous Pavement (see table below) — Box K5

Porous Pavement Type	Efficiency Multiplier
Cobblestone Block Pavement	0.40
Pervious Concrete Asphalt Pavement	0.60
Modular Block Pavement Porous Gravel Pavement	0.75
Reinforced Grass Pavement	1.00

7. Multiply Box K2 by Box K5 and enter into Box K6 — 0.00 acres — Box K6

8. Multiply Boxes K1,K4, and K5 and enter the result in Box K7 — 0.00 acres — Box K7

9. Add Box K6 to Box K7 and multiply by 60%, and enter the Result in Box K8 — 0.00 acres
This is the amount of area credit to enter into the "Disconnected Pavement" Box of Form D-2

Form D-2b: Interceptor Tree Worksheet

See Fact Sheet for more information regarding Interceptor Tree credit guidelines

New Evergreen Trees

1. Enter number of new evergreen trees that qualify as Interceptor Trees in Box L1. — trees — Box L1

2. Multiply Box L1 by 200 and enter result in Box L2 — 0 sq. ft. — Box L2

New Deciduous Trees

3. Enter number of new deciduous trees that qualify as Interceptor Trees in Box L3. — trees — Box L3

4. Multiply Box L3 by 100 and enter result in Box L4 — 0 sq. ft. — Box L4

Existing Tree Canopy

5. Enter square footage of existing tree canopy that qualifies as Existing Tree canopy in Box L5. — 0 sq. ft. — Box L5

6. Multiply Box L5 by 0.5 and enter the result in Box L6 — 0 sq. ft. — Box L6

Total Interceptor Tree EAM Credits

Add Boxes L2, L4, and L6 and enter it into Box L7 — 0 sq. ft. — Box L7

Divide Box L7 by 43,560 and multiply by 20% to get effective area managed and enter result in Box L8 — 0.00 acres — Box L8
This is the amount of area credit to enter into the "Interceptor Trees" Box of Form D-2

Step 3 - Runoff Management Credits

Capture and Use Credits

Impervious Area Managed by Rain barrels, Cisterns, and automatically-emptied systems

(see Fact Sheet) | - | enter gallons, for simple rain barrels | 0.00 | acres

Automated-Control Capture and Use System

(see Fact Sheet, then enter impervious area managed by the system) | 0.00 | acres

Bioretention/Infiltration Credits

Impervious Area Managed by Bioretention BMPs

(see Fact Sheet)

Bioretention Area	1,856	sq ft		
Subdrain Elevation	6	inches		
Ponding Depth, inches	12	inches	0.64	acres

Impervious Area Managed by Infiltration BMPs

(see Fact Sheet)

Drawdown Time, hrs		drawdown_hrs_inf		
Soil Infiltration Rate, in/hr		soil_inf_rate		
Sizing Option 1: Capture Volume, acre-ft	0.00	capture_vol_inf	0.00	acres
Sizing Option 2: Infiltration BMP surface area, sq ft	0	soil_surface_area	0.00	acres

Basin or trench? | | approximate BMP depth | 0.00 | ft

Impervious Area Managed by Amended Soil or Mulch Beds

(see Fact Sheet) | Mulched Infiltration Area, sq ft | | mulch_area | 0.00 | acres

Total Effective Area Managed by Capture-and-Use/Bioretention/Infiltration BMPs | 0.64 | A_{LIDc}

Runoff Management Credit (Step 3) | $A_{LIDC}/A_T*200 =$ 363.2 | pts

Total LID Credits (Step 1+2+3) LID compliant, check for treatment sizing in Step 4 383.6

Does project require hydromodification management? If yes, proceed to using SacHM.

Adjusted Area for Flow-Based, Non-LID Treatment | $A_T - A_C - A_{LIDC} =$ -0.29 | A_{AT}

Adjusted Impervious Fraction of A for Volume-Based, Non-LID Treatment | $A_{AT} / A =$ -0.65 | I_A

STOP: No additional treatment needed

Step 4a Treatment - Flow-Based (Rational Method)

Calculate treatment flow (cfs): Flow = Runoff Coefficient x Rainfall Intensity x Area

Look up value for i in Table D-2c (Rainfall Intensity)	0.18	i
Obtain A_{AT} from Step 3	-0.29	A_{AT}
Use C = 0.95	0.95	C
Flow = 0.95 * i * A_{AT}	-0.05	cfs

Table D-2c

Rainfall Intensity			
Roseville	i =	0.20	in/hr
Sacramento	i =	0.18	in/hr
Folsom	i =	0.20	in/hr

Step 4b Treatment - Volume-Based (ASCE-WEF)

Calculate water quality volume (Acre-Feet): WQV = Area x Maximized Detention Volume (P_0)

Obtain A from Step 1	0.44	A
Obtain P_0: Maximized Detention Volume from figures E-1 to E-4 in Appendix E of this manual using I_A from Step 2.	0.00	P_0
Calculate treatment volume (acre-ft): **Treatment volume = A x (P_0 / 12)**	0.00	Acre-Feet

hrs Specified Draw Down time

v06232012

Appendix D-2: Commercial Sites: Low Impact Development (LID) Credits and Treatment BMP Sizing Calculations

Name of Drainage Shed: Non-LID 3

Location of project: Sacramento

Fill in Blue Highlighted boxes

Step 1 - Open Space and Pervious Area Credits

Is your project within the drainage area of a common drainage plan that includes open space? If not, skip to 1 b.

1 a. Common Drainage Plan Area	0	acres	A_{CDP}
Common Drainage Plan Open Space (Off-project)	0	acres	A_{OS}
a. Natural storage reservoirs and drainage corridors	0	acres	
b. Buffer zones for natural water bodies	0	acres	
c. Natural areas including existing trees, other vegetation, and soil	0	acres	
d. Common landscape area/park	0	acres	
e. Regional Flood Control/Drainage basins	0	acres	

see area example below

1 b. Project Drainage Shed Area (Total)	0.76	acres	A
Project-Specific Open Space (In-project, communal)**	0.10	acres	A_{PSOS}
a. Natural storage reservoirs and drainage corridors	0.00	acres	
b. Buffer zones for natural water bodies	0.00	acres	
c. Natural areas including existing trees, other vegetation, and soil	0.00	acres	
d. Landscape area/park	0.10	acres	
e. Flood Control/Drainage basins	0.00	acres	

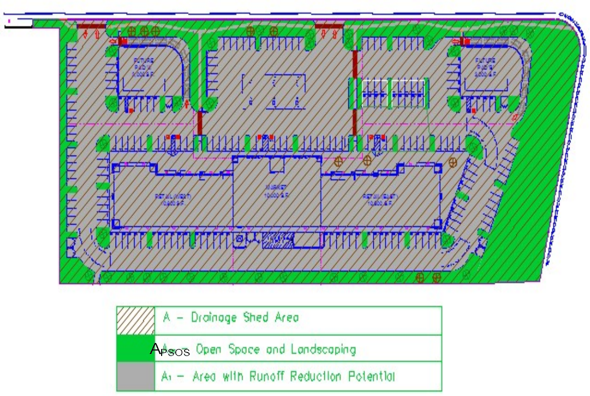
see area example below

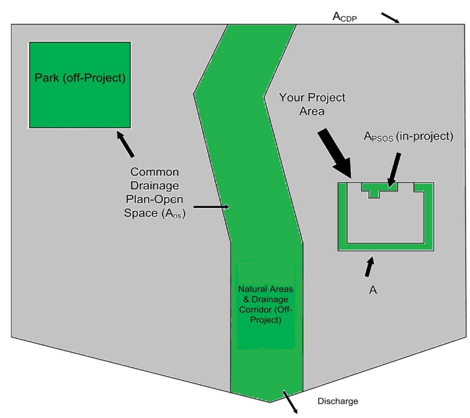
** Doesn't include impervious areas within individual lots and surrounding individual units. That is accounted for below using Form D-1a in Step 2.

Area with Runoff Reduction Potential	$A - A_{PSOS} =$	0.66	acres	A_T
Assumed Initial Impervious Fraction	$A_T / A =$	0.87		I

Open Space & Pervious Area LID Credit (Step 1)

$(A_{OS}/A_{CDP}+A_{PSOS}/A)\times100 =$ 13 pts





Step 2 - Runoff Reduction Credits

Runoff Reduction Treatments	Impervious Area Managed			Efficiency Factor		Effective Area Managed (A_C)	
Porous Pavement:							
Option 1: Porous Pavement (see Fact Sheet, excludes porous pavement used in Option 2)	0	acres	x		=	0.000	acres
Option 2: Disconnected Pavement (see Fact Sheet, excludes porous pavement used in Option 1)	use Form D-2a for credits					0.00	acres
Landscaping used to Disconnect Pavement (see Fact Sheet)	0.0000	acres			=	0.00	acres
Disconnected Roof Drains (see Fact Sheet and/or Table D-2b for summary of requirements)	0	acres			=	0.00	acres
Ecoroof (see Fact Sheet)	0	acres			=	0.00	acres
Interceptor Trees (see Fact Sheet)	use Form D-2b for credits					0.00	acres
Total Effective Area Managed by Runoff Reduction Measures				A_C		0.00	acres
Runoff Reduction Credit (Step 2)				$(A_C / A_T)*100 =$		0	pts

Table D-2a

Porous Pavement Type	Efficiency Multiplier
Cobblestone Block Pavement	0.40
Pervious Concrete/Asphalt	0.60
Modular Block Pavement &	0.75
Reinforced Grass Pavement	1.00

Table D-2b

Maximum roof size	Minimum travel distance
≤ 3,500 sq ft	21 ft
≤ 5,000 sq ft	24 ft
≤ 7,500 sq ft	28 ft
≤ 10,000 sq ft	32 ft

Form D-2a: Disconnected Pavement Worksheet

See Fact Sheet for more information regarding Disconnected Pavement credit guidelines

Effective Area Managed (A_C)

Pavement Draining to Porous Pavement

2. Enter area draining onto Porous Pavement	0.00	acres	Box K1
3. Enter area of Receiving Porous Pavement (excludes area entered in Step 2 under Porous Pavement)	0.00	acres	Box K2
4. Ratio of Areas (Box K1 / Box K2)	0.00		Box K3

5. Select multiplier using ratio from Box K3 and enter into Box K4

Ratio (Box D)	Multiplier
Ratio is ≤ 0.5	1.00
Ratio is > 0.5 and < 1.0	0.83
Ratio is > 1.0 and < 1.5	0.71
Ratio is > 1.5 and < 2.0	0.55

Box K4: 1

6. Enter Efficiency of Porous Pavement (see table below) Box K5

Porous Pavement Type	Efficiency Multiplier
Cobblestone Block Pavement	0.40
Pervious Concrete Asphalt Pavement	0.60
Modular Block Pavement Porous Gravel Pavement	0.75
Reinforced Grass Pavement	1.00

7. Multiply Box K2 by Box K5 and enter into Box K6	0.00	acres	Box K6
8. Multiply Boxes K1,K4, and K5 and enter the result in Box K7	0.00	acres	Box K7

9. Add Box K6 to Box K7 and multiply by 60%, and enter the Result in Box K8 0.00 acres
This is the amount of area credit to enter into the "Disconnected Pavement" Box of Form D-2

Form D-2b: Interceptor Tree Worksheet

See Fact Sheet for more information regarding Interceptor Tree credit guidelines

New Evergreen Trees

1. Enter number of new evergreen trees that qualify as Interceptor Trees in Box L1.		trees	Box L1
2. Multiply Box L1 by 200 and enter result in Box L2	0	sq. ft.	Box L2

New Deciduous Trees

3. Enter number of new deciduous trees that qualify as Interceptor Trees in Box L3.		trees	Box L3
4. Multiply Box L3 by 100 and enter result in Box L4	0	sq. ft.	Box L4

Existing Tree Canopy

5. Enter square footage of existing tree canopy that qualifies as Existing Tree canopy in Box L5.	0	sq. ft.	Box L5
6. Multiply Box L5 by 0.5 and enter the result in Box L6	0	sq. ft.	Box L6

Total Interceptor Tree EAM Credits

Add Boxes L2, L4, and L6 and enter it into Box L7	0	sq. ft.	Box L7
Divide Box L7 by 43,560 and multiply by 20% to get effective area managed and enter result in Box L8	0.00	acres	Box L8

This is the amount of area credit to enter into the "Interceptor Trees" Box of Form D-2

EXHIBIT C

Step 3 - Runoff Management Credits

Capture and Use Credits

Impervious Area Managed by Rain barrels, Cisterns, and automatically-emptied systems

(see Fact Sheet) | - | enter gallons, for simple rain barrels | 0.00 | acres

Automated-Control Capture and Use System

(see Fact Sheet, then enter impervious area managed by the system) | 0.00 | acres

Bioretention/Infiltration Credits

Impervious Area Managed by Bioretention BMPs

(see Fact Sheet)

Bioretention Area	-	sq ft		
Subdrain Elevation	6	inches		
Ponding Depth, inches	12	inches	0.00	acres

Impervious Area Managed by Infiltration BMPs

(see Fact Sheet)

	Drawdown Time, hrs		drawdown_hrs_inf		
	Soil Infiltration Rate, in/hr		soil_inf_rate		
Sizing Option 1:	Capture Volume, acre-ft	0.00	capture_vol_inf	0.00	acres
Sizing Option 2:	Infiltration BMP surface area, sq ft	0	soil_surface_area	0.00	acres

Basin or trench? | | approximate BMP depth 0.00 ft

Impervious Area Managed by Amended Soil or Mulch Beds

(see Fact Sheet) | Mulched Infiltration Area, sq ft | | mulch_area | 0.00 | acres

Total Effective Area Managed by Capture-and-Use/Bioretention/Infiltration BMPs | 0.00 | A_{LIDc}

Runoff Management Credit (Step 3) | A_{LIDC}/A_T*200 = | 0.0 | pts

Total LID Credits (Step 1+2+3) | Warning: More LID Is Required | 13.2

Does project require hydromodification management? If yes, proceed to using SacHM.

Adjusted Area for Flow-Based, Non-LID Treatment | A_T - A_C -A_{LIDC} = | 0.66 | A_{AT}

Adjusted Impervious Fraction of A for Volume-Based, Non-LID Treatment | A_{AT} / A = | 0.87 | I_A

Further treatment is required, see choose flow-based or volume-based sizing in Step 4

Step 4a Treatment - Flow-Based (Rational Method)

Calculate treatment flow (cfs): | Flow = Runoff Coefficient x Rainfall Intensity x Area

Look up value for i in Table D-2c (Rainfall Intensity)	0.18	i
Obtain A_{AT} from Step 3	0.66	A_{AT}
Use C = 0.95	0.95	C
Flow = 0.95 * i * A_{AT}	0.11	cfs

Table D-2c

Rainfall Intensity			
Roseville	i =	0.20	in/hr
Sacramento	i =	0.18	in/hr
Folsom	i =	0.20	in/hr

Step 4b Treatment - Volume-Based (ASCE-WEF)

Calculate water quality volume (Acre-Feet): | WQV = Area x Maximized Detention Volume (P_0)

Obtain A from Step 1	0.76	A	hrs	Specified Draw Down time
Obtain P_0: Maximized Detention Volume from figures E-1 to E-4 in Appendix E of this manual using I_A from Step 2.	0.73	P_0		
Calculate treatment volume (acre-ft): **Treatment volume = A x (P_0 / 12)**	0.05	Acre-Feet		

v06232012

Appendix D-2: Commercial Sites: Low Impact Development (LID) Credits and Treatment BMP Sizing Calculations

Name of Drainage Shed: Non-LID 5 — Fill in Blue Highlighted boxes

Location of project: Sacramento

Step 1 - Open Space and Pervious Area Credits

Is your project within the drainage area of a common drainage plan that includes open space? If not, skip to 1 b.

1 a. Common Drainage Plan Area	0	acres	A_{CDP}
Common Drainage Plan Open Space (Off-project)	0	acres	A_{OS}
a. Natural storage reservoirs and drainage corridors	0	acres	
b. Buffer zones for natural water bodies	0	acres	
c. Natural areas including existing trees, other vegetation, and soil	0	acres	
d. Common landscape area/park	0	acres	
e. Regional Flood Control/Drainage basins	0	acres	

see area example below

1 b. Project Drainage Shed Area (Total)	0.64	acres	A
Project-Specific Open Space (In-project, communal)**	0.12	acres	A_{PSOS}
a. Natural storage reservoirs and drainage corridors	0.00	acres	
b. Buffer zones for natural water bodies	0.00	acres	
c. Natural areas including existing trees, other vegetation, and soil	0.00	acres	
d. Landscape area/park	0.12	acres	
e. Flood Control/Drainage basins	0.00	acres	

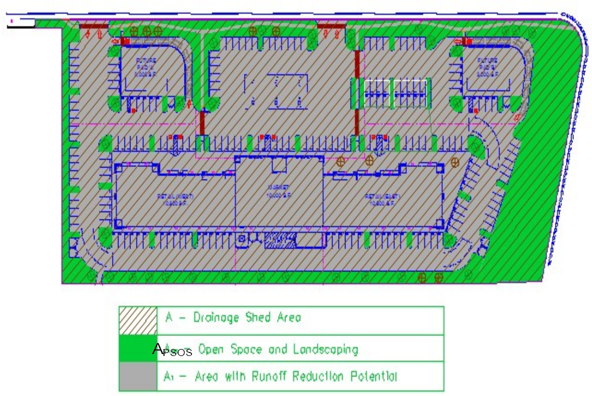
see area example below

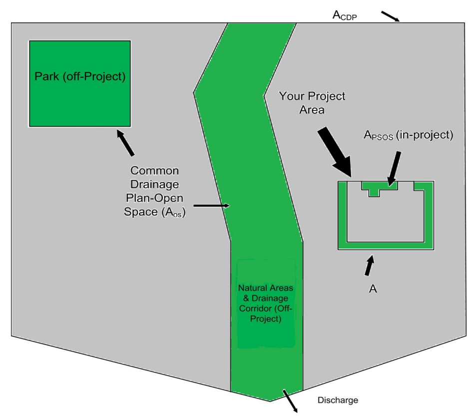
** Doesn't include impervious areas within individual lots and surrounding individual units. That is accounted for below using Form D-1a in Step 2.

Area with Runoff Reduction Potential	$A - A_{PSOS} =$	0.52	acres	A_T
Assumed Initial Impervious Fraction	$A_T / A =$	0.81		I

Open Space & Pervious Area LID Credit (Step 1)

$(A_{OS}/A_{CDP}+A_{PSOS}/A)x100 =$ 19 pts





Step 2 - Runoff Reduction Credits

Runoff Reduction Treatments	Impervious Area Managed			Efficiency Factor		Effective Area Managed (A_C)	
Porous Pavement:							
Option 1: Porous Pavement (see Fact Sheet, excludes porous pavement used in Option 2)	0	acres	x		=	0.000	acres
Option 2: Disconnected Pavement (see Fact Sheet, excludes porous pavement used in Option 1)	use Form D-2a for credits			→		0.00	acres
Landscaping used to Disconnect Pavement (see Fact Sheet)	0.0000	acres			=	0.00	acres
Disconnected Roof Drains (see Fact Sheet and/or Table D-2b for summary of requirements)	0	acres			=	0.00	acres
Ecoroof (see Fact Sheet)	0	acres			=	0.00	acres
Interceptor Trees (see Fact Sheet)	use Form D-2b for credits			→		0.00	acres
Total Effective Area Managed by Runoff Reduction Measures				A_C		0.00	acres

Runoff Reduction Credit (Step 2) $(A_C / A_T)*100 =$ 0 pts

Table D-2a

Porous Pavement Type	Efficiency Multiplier
Cobblestone Block Pavement	0.40
Pervious Concrete/Asphalt	0.60
Modular Block Pavement &	0.75
Reinforced Grass Pavement	1.00

Table D-2b

Maximum roof size	Minimum travel distance
≤ 3,500 sq ft	21 ft
≤ 5,000 sq ft	24 ft
≤ 7,500 sq ft	28 ft
≤ 10,000 sq ft	32 ft

Form D-2a: Disconnected Pavement Worksheet

See Fact Sheet for more information regarding Disconnected Pavement credit guidelines

Effective Area Managed (A_C)

Pavement Draining to Porous Pavement

2. Enter area draining onto Porous Pavement	0.00	acres	Box K1
3. Enter area of Receiving Porous Pavement (excludes area entered in Step 2 under Porous Pavement)	0.00	acres	Box K2
4. Ratio of Areas (Box K1 / Box K2)	0.00		Box K3

5. Select multiplier using ratio from Box K3 and enter into Box K4

Ratio (Box D)	Multiplier
Ratio is ≤ 0.5	1.00
Ratio is > 0.5 and < 1.0	0.83
Ratio is > 1.0 and < 1.5	0.71
Ratio is > 1.5 and < 2.0	0.55

Box K4: 1

6. Enter Efficiency of Porous Pavement (see table below) — Box K5

Porous Pavement Type	Efficiency Multiplier
Cobblestone Block Pavement	0.40
Pervious Concrete Asphalt Pavement	0.60
Modular Block Pavement Porous Gravel Pavement	0.75
Reinforced Grass Pavement	1.00

7. Multiply Box K2 by Box K5 and enter into Box K6	0.00	acres	Box K6
8. Multiply Boxes K1,K4, and K5 and enter the result in Box K7	0.00	acres	Box K7

9. Add Box K6 to Box K7 and multiply by 60%, and enter the Result in Box K8 — 0.00 acres
This is the amount of area credit to enter into the "Disconnected Pavement" Box of Form D-2

Form D-2b: Interceptor Tree Worksheet

See Fact Sheet for more information regarding Interceptor Tree credit guidelines

New Evergreen Trees

1. Enter number of new evergreen trees that qualify as Interceptor Trees in Box L1.		trees	Box L1
2. Multiply Box L1 by 200 and enter result in Box L2	0	sq. ft.	Box L2

New Deciduous Trees

3. Enter number of new deciduous trees that qualify as Interceptor Trees in Box L3.		trees	Box L3
4. Multiply Box L3 by 100 and enter result in Box L4	0	sq. ft.	Box L4

Existing Tree Canopy

5. Enter square footage of existing tree canopy that qualifies as Existing Tree canopy in Box L5.	0	sq. ft.	Box L5
6. Multiply Box L5 by 0.5 and enter the result in Box L6	0	sq. ft.	Box L6

Total Interceptor Tree EAM Credits

Add Boxes L2, L4, and L6 and enter it into Box L7	0	sq. ft.	Box L7
Divide Box L7 by 43,560 and multiply by 20% to get effective area managed and enter result in Box L8	0.00	acres	Box L8

This is the amount of area credit to enter into the "Interceptor Trees" Box of Form D-2

Step 3 - Runoff Management Credits

Capture and Use Credits

Impervious Area Managed by Rain barrels, Cisterns, and automatically-emptied systems

(see Fact Sheet) | - | enter gallons, for simple rain barrels | 0.00 acres

Automated-Control Capture and Use System

(see Fact Sheet, then enter impervious area managed by the system) | 0.00 acres

Bioretention/Infiltration Credits

Impervious Area Managed by Bioretention BMPs

(see Fact Sheet)

Bioretention Area	1,459	sq ft		
Subdrain Elevation	6	inches		
Ponding Depth, inches	12	inches	0.50	acres

Impervious Area Managed by Infiltration BMPs

(see Fact Sheet)

	Drawdown Time, hrs		drawdown_hrs_inf		
	Soil Infiltration Rate, in/hr		soil_inf_rate		
Sizing Option 1:	Capture Volume, acre-ft	0.00	capture_vol_inf	0.00	acres
Sizing Option 2:	Infiltration BMP surface area, sq ft	0	soil_surface_area	0.00	acres

Basin or trench? | approximate BMP depth 0.00 ft

Impervious Area Managed by Amended Soil or Mulch Beds

(see Fact Sheet) | Mulched Infiltration Area, sq ft | | mulch_area | 0.00 acres

Total Effective Area Managed by Capture-and-Use/Bioretention/Infiltration BMPs | 0.50 | A_{LIDc}

Runoff Management Credit (Step 3) | $A_{LIDC}/A_T*200 =$ 192.1 | pts

Total LID Credits (Step 1+2+3) LID compliant, check for treatment sizing in Step 4 210.9

Does project require hydromodification management? If yes, proceed to using SacHM.

Adjusted Area for Flow-Based, Non-LID Treatment | $A_T - A_C - A_{LIDC} =$ 0.02 | A_{AT}

Adjusted Impervious Fraction of A for Volume-Based, Non-LID Treatment | $A_{AT} / A =$ 0.03 | I_A

Further treatment is required, see choose flow-based or volume-based sizing in Step 4

Step 4a Treatment - Flow-Based (Rational Method)

Calculate treatment flow (cfs): Flow = Runoff Coefficient x Rainfall Intensity x Area

Look up value for i in Table D-2c (Rainfall Intensity)	0.18	i
Obtain A_{AT} from Step 3	0.02	A_{AT}
Use C = 0.95	0.95	C
Flow = 0.95 * i * A_{AT}	0.00	cfs

Table D-2c

Rainfall Intensity			
Roseville	i =	0.20	in/hr
Sacramento	i =	0.18	in/hr
Folsom	i =	0.20	in/hr

Step 4b Treatment - Volume-Based (ASCE-WEF)

Calculate water quality volume (Acre-Feet): WQV = Area x Maximized Detention Volume (P_0)

Obtain A from Step 1	0.64	A
Obtain P_0: Maximized Detention Volume from figures E-1 to E-4 in Appendix E of this manual using I_A from Step 2.	0.07	P_0
Calculate treatment volume (acre-ft): **Treatment volume = A x (P_0 / 12)**	0.00	Acre-Feet

hrs Specified Draw Down time

v06232012

Appendix D-2: Commercial Sites: Low Impact Development (LID) Credits and Treatment BMP Sizing Calculations

Name of Drainage Shed: Non-LID 5 | Fill in Blue Highlighted boxes

Location of project: Sacramento

Step 1 - Open Space and Pervious Area Credits

Is your project within the drainage area of a common drainage plan that includes open space? If not, skip to 1 b.

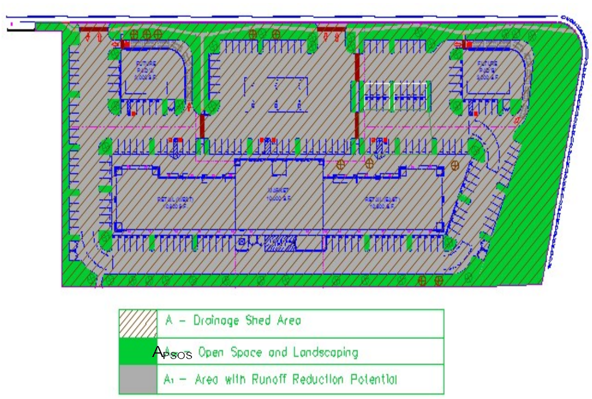
1 a. Common Drainage Plan Area	0	acres	A_{CDP}	
Common Drainage Plan Open Space (Off-project)	0	acres	A_{OS}	**see area example below**
a. Natural storage reservoirs and drainage corridors	0	acres		
b. Buffer zones for natural water bodies	0	acres		
c. Natural areas including existing trees, other vegetation, and soil	0	acres		
d. Common landscape area/park	0	acres		
e. Regional Flood Control/Drainage basins	0	acres		
1 b. Project Drainage Shed Area (Total)	0.70	acres	A	
Project-Specific Open Space (In-project, communal)**	0.13	acres	A_{PSOS}	
a. Natural storage reservoirs and drainage corridors	0.00	acres		
b. Buffer zones for natural water bodies	0.00	acres		**see area example below**
c. Natural areas including existing trees, other vegetation, and soil	0.00	acres		
d. Landscape area/park	0.13	acres		
e. Flood Control/Drainage basins	0.00	acres		

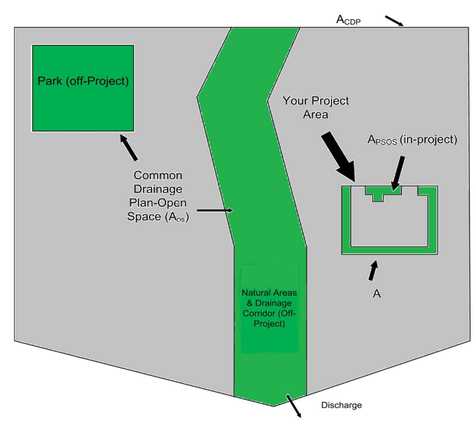
** Doesn't include impervious areas within individual lots and surrounding individual units. That is accounted for below using Form D-1a in Step 2.

Area with Runoff Reduction Potential	$A - A_{PSOS} =$	0.57	acres	A_T
Assumed Initial Impervious Fraction	$A_T / A =$	0.81		I

Open Space & Pervious Area LID Credit (Step 1)

$(A_{OS}/A_{CDP}+A_{PSOS}/A)x100 =$ 19 pts





Step 2 - Runoff Reduction Credits

Runoff Reduction Treatments	Impervious Area Managed			Efficiency Factor		Effective Area Managed (A_C)	
Porous Pavement:							
Option 1: Porous Pavement (see Fact Sheet, excludes porous pavement used in Option 2)	0	acres	x		=	0.000	acres
Option 2: Disconnected Pavement (see Fact Sheet, excludes porous pavement used in Option 1)	use Form D-2a for credits			→		0.00	acres
Landscaping used to Disconnect Pavement (see Fact Sheet)	0.0000	acres			=	0.00	acres
Disconnected Roof Drains (see Fact Sheet and/or Table D-2b for summary of requirements)	0	acres			=	0.00	acres
Ecoroof (see Fact Sheet)	0	acres			=	0.00	acres
Interceptor Trees (see Fact Sheet)	use Form D-2b for credits			→		0.00	acres
Total Effective Area Managed by Runoff Reduction Measures				A_C		0.00	acres
Runoff Reduction Credit (Step 2)				$(A_C / A_T)*100 =$		0	pts

Table D-2a

Porous Pavement Type	Efficiency Multiplier
Cobblestone Block Pavement	0.40
Pervious Concrete/Asphalt	0.60
Modular Block Pavement &	0.75
Reinforced Grass Pavement	1.00

Table D-2b

Maximum roof size	Minimum travel distance
≤ 3,500 sq ft	21 ft
≤ 5,000 sq ft	24 ft
≤ 7,500 sq ft	28 ft
≤ 10,000 sq ft	32 ft

Form D-2a: Disconnected Pavement Worksheet

See Fact Sheet for more information regarding Disconnected Pavement credit guidelines

Effective Area Managed (A_C)

Pavement Draining to Porous Pavement

2. Enter area draining onto Porous Pavement — 0.00 acres — Box K1

3. Enter area of Receiving Porous Pavement — 0.00 acres — Box K2
(excludes area entered in Step 2 under Porous Pavement)

4. Ratio of Areas (Box K1 / Box K2) — 0.00 — Box K3

5. Select multiplier using ratio from Box K3 and enter into Box K4

Ratio (Box D)	Multiplier
Ratio is ≤ 0.5	1.00
Ratio is > 0.5 and < 1.0	0.83
Ratio is > 1.0 and < 1.5	0.71
Ratio is > 1.5 and < 2.0	0.55

1 — Box K4

6. Enter Efficiency of Porous Pavement (see table below) — Box K5

Porous Pavement Type	Efficiency Multiplier
Cobblestone Block Pavement	0.40
Pervious Concrete Asphalt Pavement	0.60
Modular Block Pavement Porous Gravel Pavement	0.75
Reinforced Grass Pavement	1.00

7. Multiply Box K2 by Box K5 and enter into Box K6 — 0.00 acres — Box K6

8. Multiply Boxes K1,K4, and K5 and enter the result in Box K7 — 0.00 acres — Box K7

9. Add Box K6 to Box K7 and multiply by 60%, and enter the Result in Box K8 — 0.00 acres
This is the amount of area credit to enter into the "Disconnected Pavement" Box of Form D-2

Form D-2b: Interceptor Tree Worksheet

See Fact Sheet for more information regarding Interceptor Tree credit guidelines

New Evergreen Trees

1. Enter number of new evergreen trees that qualify as Interceptor Trees in Box L1. — trees — Box L1

2. Multiply Box L1 by 200 and enter result in Box L2 — 0 sq. ft. — Box L2

New Deciduous Trees

3. Enter number of new deciduous trees that qualify as Interceptor Trees in Box L3. — trees — Box L3

4. Multiply Box L3 by 100 and enter result in Box L4 — 0 sq. ft. — Box L4

Existing Tree Canopy

5. Enter square footage of existing tree canopy that qualifies as Existing Tree canopy in Box L5. — 0 sq. ft. — Box L5

6. Multiply Box L5 by 0.5 and enter the result in Box L6 — 0 sq. ft. — Box L6

Total Interceptor Tree EAM Credits

Add Boxes L2, L4, and L6 and enter it into Box L7 — 0 sq. ft. — Box L7

Divide Box L7 by 43,560 and multiply by 20% to get effective area managed and enter result in Box L8 — 0.00 acres — Box L8
This is the amount of area credit to enter into the "Interceptor Trees" Box of Form D-2

EXHIBIT C

Step 3 - Runoff Management Credits

Capture and Use Credits

Impervious Area Managed by Rain barrels, Cisterns, and automatically-emptied systems

(see Fact Sheet) - enter gallons, for simple rain barrels 0.00 acres

Automated-Control Capture and Use System

(see Fact Sheet, then enter impervious area managed by the system) 0.00 acres

Bioretention/Infiltration Credits

Impervious Area Managed by Bioretention BMPs

(see Fact Sheet)

Bioretention Area	1,546	sq ft		
Subdrain Elevation	6	inches		
Ponding Depth, inches	12	inches	0.53	acres

Impervious Area Managed by Infiltration BMPs

(see Fact Sheet)

Drawdown Time, hrs		drawdown_hrs_inf		
Soil Infiltration Rate, in/hr		soil_inf_rate		
Sizing Option 1: Capture Volume, acre-ft	0.00	capture_vol_inf	0.00	acres
Sizing Option 2: Infiltration BMP surface area, sq ft	0	soil_surface_area	0.00	acres

Basin or trench? approximate BMP depth 0.00 ft

Impervious Area Managed by Amended Soil or Mulch Beds

(see Fact Sheet) Mulched Infiltration Area, sq ft mulch_area 0.00 acres

Total Effective Area Managed by Capture-and-Use/Bioretention/Infiltration BMPs 0.53 A_{LIDc}

Runoff Management Credit (Step 3) $A_{LIDC}/A_T*200 =$ 185.7 pts

Total LID Credits (Step 1+2+3) LID compliant, check for treatment sizing in Step 4 204.3

Does project require hydromodification management? If yes, proceed to using SacHM.

Adjusted Area for Flow-Based, Non-LID Treatment $A_T - A_C - A_{LIDC} =$ 0.04 A_{AT}

Adjusted Impervious Fraction of A for Volume-Based, Non-LID Treatment $A_{AT} / A =$ 0.06 I_A

Further treatment is required, see choose flow-based or volume-based sizing in Step 4

Step 4a Treatment - Flow-Based (Rational Method)

Calculate treatment flow (cfs): Flow = Runoff Coefficient x Rainfall Intensity x Area

Look up value for i in Table D-2c (Rainfall Intensity) 0.18 i

Obtain A_{AT} from Step 3 0.04 A_{AT}

Use C = 0.95 0.95 C

Flow = 0.95 * i * A_{AT} 0.01 cfs

Table D-2c

Rainfall Intensity			
Roseville	i =	0.20	in/hr
Sacramento	i =	0.18	in/hr
Folsom	i =	0.20	in/hr

Step 4b Treatment - Volume-Based (ASCE-WEF)

Calculate water quality volume (Acre-Feet): WQV = Area x Maximized Detention Volume (P_0)

Obtain A from Step 1 0.70 A   hrs Specified Draw Down time

Obtain P_0: Maximized Detention Volume from figures E-1 to E-4 in Appendix E of this manual using I_A from Step 2. 0.08 P_0

Calculate treatment volume (acre-ft):

Treatment volume = A x (P_0 / 12) 0.00 Acre-Feet

v06232012

Appendix D-2: Commercial Sites: Low Impact Development (LID) Credits and Treatment BMP Sizing Calculations

Name of Drainage Shed: Shed A-1 — Fill in Blue Highlighted boxes
Location of project: Sacramento

Step 1 - Open Space and Pervious Area Credits

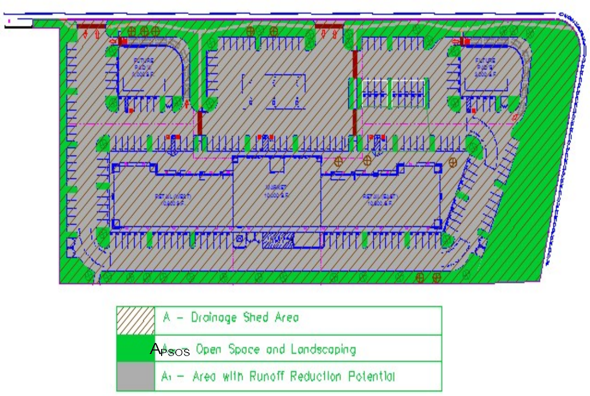
Is your project within the drainage area of a common drainage plan that includes open space? If not, skip to 1 b.

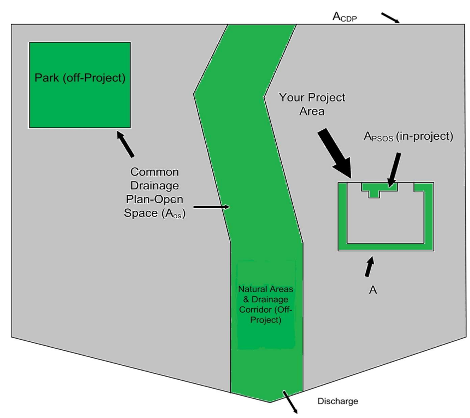
1 a. Common Drainage Plan Area	0	acres	A_{CDP}	
Common Drainage Plan Open Space (Off-project)	0	acres	A_{OS}	**see area example below**
a. Natural storage reservoirs and drainage corridors	0	acres		
b. Buffer zones for natural water bodies	0	acres		
c. Natural areas including existing trees, other vegetation, and soil	0	acres		
d. Common landscape area/park	0	acres		
e. Regional Flood Control/Drainage basins	0	acres		
1 b. Project Drainage Shed Area (Total)	1.75	acres	A	
Project-Specific Open Space (In-project, communal)**	0.25	acres	A_{PSOS}	
a. Natural storage reservoirs and drainage corridors	0.00	acres		
b. Buffer zones for natural water bodies	0.00	acres		**see area example below**
c. Natural areas including existing trees, other vegetation, and soil	0.00	acres		
d. Landscape area/park	0.25	acres		
e. Flood Control/Drainage basins	0.00	acres		

** Doesn't include impervious areas within individual lots and surrounding individual units. That is accounted for below using Form D-1a in Step 2.

Area with Runoff Reduction Potential	$A - A_{PSOS} =$	1.50	acres	A_T
Assumed Initial Impervious Fraction	$A_T / A =$	0.86		I

Open Space & Pervious Area LID Credit (Step 1)
$(A_{OS}/A_{CDP}+A_{PSOS}/A)\text{x}100 =$ 14 pts





Step 2 - Runoff Reduction Credits

Runoff Reduction Treatments	Impervious Area Managed			Efficiency Factor		Effective Area Managed (A_C)	
Porous Pavement:							
Option 1: Porous Pavement (see Fact Sheet, excludes porous pavement used in Option 2)	0	acres	x		=	0.000	acres
Option 2: Disconnected Pavement (see Fact Sheet, excludes porous pavement used in Option 1)	use Form D-2a for credits					0.00	acres
Landscaping used to Disconnect Pavement (see Fact Sheet)	0.0000	acres			=	0.00	acres
Disconnected Roof Drains (see Fact Sheet and/or Table D-2b for summary of requirements)	0	acres			=	0.00	acres
Ecoroof (see Fact Sheet)	0	acres			=	0.00	acres
Interceptor Trees (see Fact Sheet)	use Form D-2b for credits					0.00	acres
Total Effective Area Managed by Runoff Reduction Measures				A_C		0.00	acres

Runoff Reduction Credit (Step 2) $(A_C / A_T)*100 =$ 0 pts

Table D-2a

Porous Pavement Type	Efficiency Multiplier
Cobblestone Block Pavement	0.40
Pervious Concrete/Asphalt	0.60
Modular Block Pavement &	0.75
Reinforced Grass Pavement	1.00

Table D-2b

Maximum roof size	Minimum travel distance
≤ 3,500 sq ft	21 ft
≤ 5,000 sq ft	24 ft
≤ 7,500 sq ft	28 ft
≤ 10,000 sq ft	32 ft

Form D-2a: Disconnected Pavement Worksheet

See Fact Sheet for more information regarding Disconnected Pavement credit guidelines

Effective Area Managed (A_C)

Pavement Draining to Porous Pavement

2. Enter area draining onto Porous Pavement — 0.00 acres — Box K1

3. Enter area of Receiving Porous Pavement — 0.00 acres — Box K2
(excludes area entered in Step 2 under Porous Pavement)

4. Ratio of Areas (Box K1 / Box K2) — 0.00 — Box K3

5. Select multiplier using ratio from Box K3 and enter into Box K4 — 1 — Box K4

Ratio (Box D)	Multiplier
Ratio is ≤ 0.5	1.00
Ratio is > 0.5 and < 1.0	0.83
Ratio is > 1.0 and < 1.5	0.71
Ratio is > 1.5 and < 2.0	0.55

6. Enter Efficiency of Porous Pavement (see table below) — Box K5

Porous Pavement Type	Efficiency Multiplier
Cobblestone Block Pavement	0.40
Pervious Concrete Asphalt Pavement	0.60
Modular Block Pavement Porous Gravel Pavement	0.75
Reinforced Grass Pavement	1.00

7. Multiply Box K2 by Box K5 and enter into Box K6 — 0.00 acres — Box K6

8. Multiply Boxes K1,K4, and K5 and enter the result in Box K7 — 0.00 acres — Box K7

9. Add Box K6 to Box K7 and multiply by 60%, and enter the Result in Box K8 — 0.00 acres
This is the amount of area credit to enter into the "Disconnected Pavement" Box of Form D-2

Form D-2b: Interceptor Tree Worksheet

See Fact Sheet for more information regarding Interceptor Tree credit guidelines

New Evergreen Trees

1. Enter number of new evergreen trees that qualify as Interceptor Trees in Box L1. — trees — Box L1

2. Multiply Box L1 by 200 and enter result in Box L2 — 0 sq. ft. — Box L2

New Deciduous Trees

3. Enter number of new deciduous trees that qualify as Interceptor Trees in Box L3. — trees — Box L3

4. Multiply Box L3 by 100 and enter result in Box L4 — 0 sq. ft. — Box L4

Existing Tree Canopy

5. Enter square footage of existing tree canopy that qualifies as Existing Tree canopy in Box L5. — 0 sq. ft. — Box L5

6. Multiply Box L5 by 0.5 and enter the result in Box L6 — 0 sq. ft. — Box L6

Total Interceptor Tree EAM Credits

Add Boxes L2, L4, and L6 and enter it into Box L7 — 0 sq. ft. — Box L7

Divide Box L7 by 43,560 and multiply by 20% to get effective area managed and enter result in Box L8 — 0.00 acres — Box L8
This is the amount of area credit to enter into the "Interceptor Trees" Box of Form D-2

Step 3 - Runoff Management Credits
Capture and Use Credits

Impervious Area Managed by Rain barrels, Cisterns, and automatically-emptied systems
(see Fact Sheet) - enter gallons, for simple rain barrels 0.00 acres

Automated-Control Capture and Use System
(see Fact Sheet, then enter impervious area managed by the system) 0.00 acres

Bioretention/Infiltration Credits

Impervious Area Managed by Bioretention BMPs
(see Fact Sheet)
Bioretention Area 4,267 sq ft
Subdrain Elevation 6 inches
Ponding Depth, inches 12 inches 1.46 acres

Impervious Area Managed by Infiltration BMPs
(see Fact Sheet)
Drawdown Time, hrs drawdown_hrs_inf
Soil Infiltration Rate, in/hr soil_inf_rate

Sizing Option 1: Capture Volume, acre-ft 0.00 capture_vol_inf 0.00 acres

Sizing Option 2: Infiltration BMP surface area, sq ft 0 soil_surface_area 0.00 acres

Basin or trench? approximate BMP depth 0.00 ft

Impervious Area Managed by Amended Soil or Mulch Beds
(see Fact Sheet) Mulched Infiltration Area, sq ft mulch_area 0.00 acres

Total Effective Area Managed by Capture-and-Use/Bioretention/Infiltration BMPs 1.46 A_{LIDc}

Runoff Management Credit (Step 3) A_{LIDC}/A_T*200 = 194.8 pts

Total LID Credits (Step 1+2+3) LID compliant, check for treatment sizing in Step 4 209.1

Does project require hydromodification management? If yes, proceed to using SacHM.

Adjusted Area for Flow-Based, Non-LID Treatment $A_T - A_C - A_{LIDC}$ = 0.04 A_{AT}

Adjusted Impervious Fraction of A for Volume-Based, Non-LID Treatment A_{AT} / A = 0.02 I_A

Further treatment is required, see choose flow-based or volume-based sizing in Step 4

Step 4a Treatment - Flow-Based (Rational Method)

Calculate treatment flow (cfs): Flow = Runoff Coeffic P

Look up value for i in Table D-2c (Rainfall Intensity) 0.18 i

Obtain A_{AT} from Step 3 0.04 A_{AT}

Use C = 0.95 0.95 C

Flow = 0.95 * i * A_{AT} 0.01 cfs

Table D-2c

Rainfall Intensity			
Roseville	i =	0.20	in/hr
Sacramento	i =	0.18	in/hr
Folsom	i =	0.20	in/hr

Step 4b Treatment - Volume-Based (ASCE-WEF)

Calculate water quality volume (Acre-Feet): WQV = Area x Maximized Detention Volume (P_0)

Obtain A from Step 1 1.75 A hrs Specified Draw Down time

Obtain P_0: Maximized Detention Volume from figures E-1 to E-4 in Appendix E of this manual using I_A from Step 2. 0.06 P_0

Calculate treatment volume (acre-ft):
Treatment volume = A x (P_0 / 12) 0.01 Acre-Feet

v06232012

Appendix D-2: Commercial Sites: Low Impact Development (LID) Credits and Treatment BMP Sizing Calculations

Name of Drainage Shed: Shed A-2

Location of project: Sacramento

Fill in Blue Highlighted boxes

Step 1 - Open Space and Pervious Area Credits

Is your project within the drainage area of a common drainage plan that includes open space? If not, skip to 1 b.

1 a. Common Drainage Plan Area	0	acres	A_{CDP}
Common Drainage Plan Open Space (Off-project)	0	acres	A_{OS}
a. Natural storage reservoirs and drainage corridors	0	acres	
b. Buffer zones for natural water bodies	0	acres	
c. Natural areas including existing trees, other vegetation, and soil	0	acres	
d. Common landscape area/park	0	acres	
e. Regional Flood Control/Drainage basins	0	acres	

see area example below

1 b. Project Drainage Shed Area (Total)	1.51	acres	A
Project-Specific Open Space (In-project, communal)**	0.24	acres	A_{PSOS}
a. Natural storage reservoirs and drainage corridors	0.00	acres	
b. Buffer zones for natural water bodies	0.00	acres	
c. Natural areas including existing trees, other vegetation, and soil	0.00	acres	
d. Landscape area/park	0.24	acres	
e. Flood Control/Drainage basins	0.00	acres	

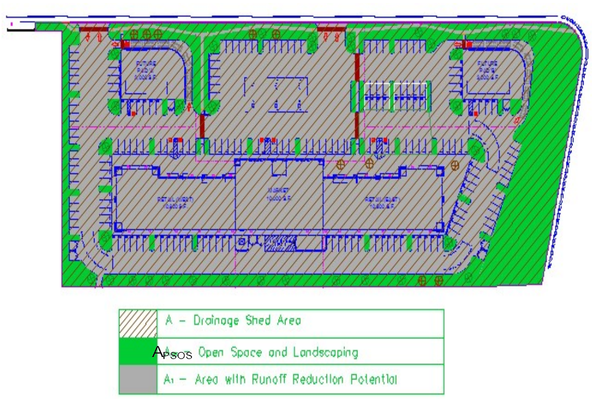
see area example below

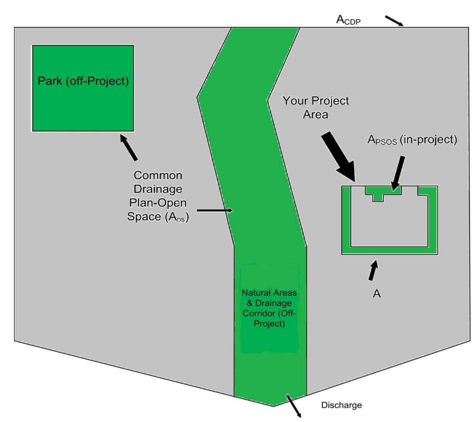
** Doesn't include impervious areas within individual lots and surrounding individual units. That is accounted for below using Form D-1a in Step 2.

Area with Runoff Reduction Potential	$A - A_{PSOS} =$	1.27	acres	A_T
Assumed Initial Impervious Fraction	$A_T / A =$	0.84		I

Open Space & Pervious Area LID Credit (Step 1)

$(A_{OS}/A_{CDP}+A_{PSOS}/A)x100 =$ 16 pts





Step 2 - Runoff Reduction Credits

Runoff Reduction Treatments	Impervious Area Managed			Efficiency Factor		Effective Area Managed (A_C)	
Porous Pavement:							
Option 1: Porous Pavement (see Fact Sheet, excludes porous pavement used in Option 2)	0	acres	x		=	0.000	acres
Option 2: Disconnected Pavement (see Fact Sheet, excludes porous pavement used in Option 1)	use Form D-2a for credits					0.00	acres
Landscaping used to Disconnect Pavement (see Fact Sheet)	0.0000	acres			=	0.00	acres
Disconnected Roof Drains (see Fact Sheet and/or Table D-2b for summary of requirements)	0	acres			=	0.00	acres
Ecoroof (see Fact Sheet)	0	acres			=	0.00	acres
Interceptor Trees (see Fact Sheet)	use Form D-2b for credits					0.00	acres
Total Effective Area Managed by Runoff Reduction Measures				A_C		0.00	acres
Runoff Reduction Credit (Step 2)				$(A_C / A_T)*100 =$		0	pts

EXHIBIT Z

Table D-2a

Porous Pavement Type	Efficiency Multiplier
Cobblestone Block Pavement	0.40
Pervious Concrete/Asphalt	0.60
Modular Block Pavement &	0.75
Reinforced Grass Pavement	1.00

Table D-2b

Maximum roof size	Minimum travel distance
≤ 3,500 sq ft	21 ft
≤ 5,000 sq ft	24 ft
≤ 7,500 sq ft	28 ft
≤ 10,000 sq ft	32 ft

Form D-2a: Disconnected Pavement Worksheet

See Fact Sheet for more information regarding Disconnected Pavement credit guidelines

Effective Area Managed (A_C)

Pavement Draining to Porous Pavement

2. Enter area draining onto Porous Pavement 0.00 acres Box K1

3. Enter area of Receiving Porous Pavement 0.00 acres Box K2
(excludes area entered in Step 2 under Porous Pavement)

4. Ratio of Areas (Box K1 / Box K2) 0.00 Box K3

5. Select multiplier using ratio from Box K3 and enter into Box K4

Ratio (Box D)	Multiplier
Ratio is ≤ 0.5	1.00
Ratio is > 0.5 and < 1.0	0.83
Ratio is > 1.0 and < 1.5	0.71
Ratio is > 1.5 and < 2.0	0.55

1 Box K4

6. Enter Efficiency of Porous Pavement (see table below) Box K5

Porous Pavement Type	Efficiency Multiplier
Cobblestone Block Pavement	0.40
Pervious Concrete Asphalt Pavement	0.60
Modular Block Pavement Porous Gravel Pavement	0.75
Reinforced Grass Pavement	1.00

7. Multiply Box K2 by Box K5 and enter into Box K6 0.00 acres Box K6

8. Multiply Boxes K1,K4, and K5 and enter the result in Box K7 0.00 acres Box K7

9. Add Box K6 to Box K7 and multiply by 60%, and enter the Result in Box K8 0.00 acres
This is the amount of area credit to enter into the "Disconnected Pavement" Box of Form D-2

Form D-2b: Interceptor Tree Worksheet

See Fact Sheet for more information regarding Interceptor Tree credit guidelines

New Evergreen Trees

1. Enter number of new evergreen trees that qualify as Interceptor Trees in Box L1. trees Box L1

2. Multiply Box L1 by 200 and enter result in Box L2 0 sq. ft. Box L2

New Deciduous Trees

3. Enter number of new deciduous trees that qualify as Interceptor Trees in Box L3. trees Box L3

4. Multiply Box L3 by 100 and enter result in Box L4 0 sq. ft. Box L4

Existing Tree Canopy

5. Enter square footage of existing tree canopy that qualifies as Existing Tree canopy in Box L5. 0 sq. ft. Box L5

6. Multiply Box L5 by 0.5 and enter the result in Box L6 0 sq. ft. Box L6

Total Interceptor Tree EAM Credits

Add Boxes L2, L4, and L6 and enter it into Box L7 0 sq. ft. Box L7

Divide Box L7 by 43,560 and multiply by 20% to get effective area managed and enter result in Box L8 0.00 acres Box L8
This is the amount of area credit to enter into the "Interceptor Trees" Box of Form D-2

Step 3 - Runoff Management Credits

Capture and Use Credits

Impervious Area Managed by Rain barrels, Cisterns, and automatically-emptied systems

(see Fact Sheet) | - | enter gallons, for simple rain barrels | 0.00 acres

Automated-Control Capture and Use System

(see Fact Sheet, then enter impervious area managed by the system) | 0.00 acres

Bioretention/Infiltration Credits

Impervious Area Managed by Bioretention BMPs

(see Fact Sheet)

Bioretention Area	3,656	sq ft	
Subdrain Elevation	6	inches	
Ponding Depth, inches	12	inches	1.25 acres

Impervious Area Managed by Infiltration BMPs

(see Fact Sheet)

Drawdown Time, hrs		drawdown_hrs_inf	
Soil Infiltration Rate, in/hr		soil_inf_rate	
Sizing Option 1: Capture Volume, acre-ft	0.00	capture_vol_inf	0.00 acres
Sizing Option 2: Infiltration BMP surface area, sq ft	0	soil_surface_area	0.00 acres

Basin or trench? | approximate BMP depth 0.00 ft

Impervious Area Managed by Amended Soil or Mulch Beds

(see Fact Sheet) | Mulched Infiltration Area, sq ft | | mulch_area | 0.00 acres

Total Effective Area Managed by Capture-and-Use/Bioretention/Infiltration BMPs | 1.25 | A_{LIDc}

Runoff Management Credit (Step 3) | A_{LIDC}/A_T*200 = 197.1 pts

Total LID Credits (Step 1+2+3) LID compliant, check for treatment sizing in Step 4 213.0

Does project require hydromodification management? If yes, proceed to using SacHM.

Adjusted Area for Flow-Based, Non-LID Treatment	$A_T - A_C - A_{LIDC}$ =	0.02	A_{AT}
Adjusted Impervious Fraction of A for Volume-Based, Non-LID Treatment	A_{AT} / A =	0.01	I_A

Further treatment is required, see choose flow-based or volume-based sizing in Step 4

Step 4a Treatment - Flow-Based (Rational Method)

Calculate treatment flow (cfs): Flow = Runoff Coefficient x Rainfall Intensity x Area

Look up value for i in Table D-2c (Rainfall Intensity)	0.18	i
Obtain A_{AT} from Step 3	0.02	A_{AT}
Use C = 0.95	0.95	C
Flow = 0.95 * i * A_{AT}	0.00	cfs

Table D-2c

Rainfall Intensity			
Roseville	i =	0.20	in/hr
Sacramento	i =	0.18	in/hr
Folsom	i =	0.20	in/hr

Step 4b Treatment - Volume-Based (ASCE-WEF)

Calculate water quality volume (Acre-Feet): WQV = Area x Maximized Detention Volume (P_0)

Obtain A from Step 1	1.51	A
Obtain P_0: Maximized Detention Volume from figures E-1 to E-4 in Appendix E of this manual using I_A from Step 2.	0.05	P_0
Calculate treatment volume (acre-ft): **Treatment volume = A x (P_0 / 12)**	0.01	Acre-Feet

hrs Specified Draw Down time

v06232012

EXHIBIT D

PLNP2021-00133

Watt Avenue Apartments

Arborist Report

APN: 208-0122-067
Address: 7403 Watt Avenue, Antelope
Control Number: Pending

August 2021 | 03974.00001.001

Prepared for:

Narinder Singh
New Green Properties, LLC
2224 Endeavor Way
Sacramento, CA 95834

Prepared by:

HELIX Environmental Planning, Inc.
Stephanie McLaughlin
ISA Certification Number: WE-12922A
11 Natoma Street, Suite 155
Folsom, CA 95630

This page intentionally left blank

Watt Avenue Apartments

Arborist Report

APN: 208-0122-067
Address: 7403 Watt Avenue, Antelope
Control Number: Pending

Prepared for:

Narinder Singh
New Green Properties, LLC
2224 Endeavor Way
Sacramento, CA 95834

Prepared by:

HELIX Environmental Planning, Inc.
Stephanie McLaughlin
ISA Certification Number: WE-12922A
11 Natoma Street, Suite 155
Folsom, CA 95630

August 2021 | 03974.00001.001

This page intentionally left blank

Statement of Qualifications

Mr. Aldridge is an International Society of Arboriculture (ISA) Certified Arborist (#WE-11778A). He received a Bachelor of Science with a major in Botany from Humboldt State University in 1998 and a PhD in Biology from the University of California, Irvine in 2005. Mr. Aldridge has over 15 years' experience at research and instruction in plant ecology – including tree biology and identification – in California and Colorado and has worked as a consulting biologist in California since 2011. Mr. Aldridge has conducted arboricultural surveys throughout California and has been based in Sacramento County since 2015.

Ms. McLaughlin is an ISA Certified Arborist (#WE-12922A). She received a Bachelor of Science with a major in Natural Resources and Environmental Sciences from the University of Illinois – Urbana/Champaign in 2011 and a Master of Science degree in Environmental Protection and Management from the University of Edinburgh in 2014. Ms. McLaughlin has over 9 years' experience in plant ecology and dendrology – including tree biology and identification – in California, Illinois and the United Kingdom and has worked as a consulting biologist in California since 2015. Ms. McLaughlin has conducted arboricultural surveys throughout California and has been based in Sacramento County since 2018.

This page intentionally left blank

TABLE OF CONTENTS

LIST OF APPENDICES

LIST OF TABLES

This page intentionally left blank

1.0 INTRODUCTION

This letter report documents the results of an arborist survey conducted for the proposed Watt Avenue Apartments Project (Study Area), which is located on Assessor's Parcel Number (APN) 208-122-067 at street address 7403 Watt Avenue in North Highlands, California (Figure 1). HELIX Environmental Planning, Inc. (HELIX) was tasked with conducting an arborist survey of trees in the Study Area, as well as providing general preservation and avoidance guidance for trees that may be preserved onsite during and after construction.

An initial arborist survey was conducted on November 8, 2019 by HELIX Biologist and International Society of Arboriculture (ISA) Certified Arborist George Aldridge, Ph.D. (#WE-11778A). An update to the initial survey was performed by ISA certified arborist Stephanie McLaughlin (#WE-12922A) on March 23, 2021 to verify the current conditions of the trees. At the time of the 2019 survey George Aldridge had 7 years of experience performing arborist surveys in Sacramento County. Stephanie McLaughlin has 3 years of experience performing arborist surveys in Sacramento County.

1.1 PROJECT LOCATION

The proposed project consists of a multi-family residential development on an approximately 6.2-acre site located at the street address 7403 Watt Avenue. The approximate center of the site is at latitude 38.700537 and longitude -121.384108, NAD 83.

1.2 REGULATORY BACKGROUND

Sacramento County has adopted measures for the preservation of native and non-native trees through the County Code and the General Plan.

Chapter 19.04 of the County Code regulates removal and impacts to public trees, heritage trees, and landmark trees. Public trees are defined as any tree or shrub planted or maintained by the County on an easement, planting easement, street, County park, or public premises; heritage trees are any California oak tree with a trunk sixty inches or greater in girth, which equates to a trunk diameter of approximately 19 inches; landmark trees include any especially prominent or stately tree. A tree permit is required to prune, remove, or otherwise disrupt any public tree.

Chapter 19.12 of the County Code, titled "Tree Preservation and Protection", provides protection for native oak trees in the designated urban area of the unincorporated county. Native oaks are defined as valley oak (*Quercus lobata*), interior live oak (*Q. wislizeni*), blue oak (*Q. douglasii*), and oracle oak (*Q.* x *morehus*) trees having a diameter at breast height (DBH) of at least 6 inches for a single stem tree or a combined DBH of 10 inches for a tree with multiple stems. Grading, trenching, or filling within the dripline, or removal, destruction, or killing of a tree as defined in the ordinance is prohibited without a tree permit. Tree permits are issued by the Director of Public Works or by the body approving a discretionary action such as a conditional use permit. Section 19.12.150 provides authority to approving bodies to adopt mitigation measures as conditions of approval for discretionary projects in order to protect other species of trees in addition to native oaks. The Tree Preservation Ordinance does not specify replacement obligations for native oaks removed under a tree permit; the approving body may impose "reasonable conditions of approval as are necessary to minimize the environmental, health, or safety effects of the development or use" and may require financial security to ensure completion of "additional work" specified in the conditions of approval. "Additional work" may include replanting.

The Conservation Element of the General Plan includes a section regarding landmark and heritage tree protection. The stated objective of the plan is that "heritage and landmark tree resources [are] preserved and protected for their historic, economic, and environmental functions." The plan states that:

> *"Conservation of native tree species other than oaks and preservation of native oaks and landmark trees is the primary intent of the policies in the section. However, if preservation cannot be attained, then loss of the protected trees shall be compensated. Compensation for tree loss may be achieved by on-site or off-site replacement or payment into a Tree Preservation Fund."*

The section discusses thresholds of significance under CEQA for impacts to trees and concludes that tree impacts are "circumstantial". The section states that projects that exceed the threshold of significance may have significant impacts even after mitigation, and conversely, tree loss of some species that exceeds the threshold in certain circumstances may not constitute a significant impact. The section states that final determination of significance will be made by the Environmental Coordinator. The section does not include a definition of "tree" based on DBH.

Policy CO-139 of the General Plan states that "Native trees other than oaks, which cannot be protected through development, shall be replaced with in-kind species in accordance with established tree planting specifications, the combined diameter of which shall equal the combined diameter of the trees removed." Tree replacement values are stipulated as follows:

- one D-pot seedling = 1-inch DBH
- one 15-gallon tree = 1-inch DBH
- one 24-inch box tree = 2-inches DBH
- one 36-inch box tree = 3-inches DBH

The Sacramento County General Plan contains policies aimed at preserving tree canopy in the County. The Conservation Element of the General Plan includes a section on urban forest management. The stated objective of the plan is a "coordinated and funded Urban Tree Management Plan and program sufficient to achieve a doubling of the County's tree canopy by 2050..."

Policy CO-146 of the General Plan states that "If new tree canopy cannot be created onsite to mitigate for the non-native tree canopy removed for new development, project proponents (including public agencies) shall contribute to the Greenprint funding in an amount proportional to the tree canopy of the specific project."

Additionally, the County considers selected native trees that are 4 inches or diameter or larger at breast height and large, healthy non-native trees in their CEQA review process.

1.3 PROJECT DESCRIPTION

The site is planned for development of an apartment complex consisting of seven three-story buildings containing a total of 168 units, as well as an associated pool, clubhouse, playground, parking lots, and landscaping. All trees located within the parcel boundaries will be removed to facilitate project construction.

2.0 METHODS

An initial arborist survey was conducted on November 8, 2019 by HELIX Biologist and ISA Certified Arborist George Aldridge, Ph.D. (#WE-11778A). An update to the initial survey was performed by ISA certified arborist Stephanie McLaughlin (#WE-12922A) on March 23, 2021 to verify the current conditions of the trees.

2.1 TREE MAP

All trees rooted in or overhanging the project site were mapped using an EOS Mapping Systems Arrow 100 GNSS receiver with sub-meter accuracy. Trees were identified in the field with permanent numbered metal tags. A tree map is provided in Figure 2.

2.2 TREE INVENTORY

In accordance with the County's arborist report submittal requirements, the tree inventory included all trees rooted in or overhanging the project site or that may be affected by off-site project-related construction and having a DBH of 4-inches or larger for single-stem trees or 10 inches or larger for multi-stem native oak and Northern California black walnut. Field data sheets are provided in Appendix B.

2.3 ASSESSMENT

Inventoried trees were assessed in the field for the parameters in the subsection below, including size, root protection zone, health, structure, dripline environment, overall condition and recommendation for protection or removal.

2.3.1 Size

Size is the measured diameter of the trunk at 54 inches above grade (referred to in this report as DBH), rounded to the nearest inch. For multi-stem trees, all stems at least 1-inch DBH were measured and summed. Measurements were made using either a Haglof 36 inch tree caliper or a U.S. Tape Company forester's diameter tape measure.

2.3.2 Root protection zone

Root protection zone is defined as a circle with a radius equal to the length of the longest limb measured from the trunk to the dripline.

2.3.3 Health

Health is an indication of the overall vigor and vitality of the tree expressed as a rating of Good, Fair, or Poor. Ratings for health were based on the criteria in Table 1.

Table 1
CRITERIA FOR RATING TREE HEALTH

Good	**Little or no Evidence of Stress, Disease, Infestation, or Nutrient Deficiency.** Foliage (if present on deciduous species) is of average or better density, size, and color for the species; foliage in the canopy is evenly distributed; twig elongation and bud density are normal for the species; there is no evidence of dieback; there is little or no epicormic growth (water sprouts); there are not excessive numbers of galls or excessive evidence of herbivory; callusing, if present, is vigorous; bark is healthy and intact; there are no signs of senescence.
Fair	**Moderate Evidence of Stress, Disease, Infestation, or Nutrient Deficiency.** Foliage is below average density, size, or color for the species; foliage density may be lower in some parts of the canopy; twig elongation and bud density may be moderately reduced; some evidence of dieback may be present; some epicormic growth may be present; gall or herbivore load is higher than average for the species; callusing of old wounds is not well-developed; there may be evidence of small areas of infection such as bark swelling or sloughing; the tree may be over-mature or beginning to senesce.
Poor	**Abundant Evidence of Stress, Disease, Infestation, or Nutrient Deficiency.** Foliage and/or buds are sparse; leaves are reduced in size or of unhealthy color; the canopy is sparse and underdeveloped; there is widespread evidence of dieback; twig elongation is severely reduced; there is abundant epicormic growth; gall load, insect exit holes, or evidence of herbivory is severe; old wounds are not callused; there is widespread evidence of bark swelling, splitting, or sloughing in the root crown, trunk, or major limbs; the tree is senescent.

2.3.4 Structure

Structure is an indication of the structural stability and failure potential of the tree expressed as a rating of Good, Fair, or Poor. Ratings for structure were based on the criteria in Table 2.

Table 2
CRITERIA FOR RATING TREE STRUCTURE

Good	**Low Potential for Failure.** No wounds, cavities, decay, or indications of hollowness evident in the root crown, trunk, or major limbs; no exposed anchor roots or circling roots; no codominant branching or multiple trunk attachments; no crossing limbs; little or no included bark at branch attachments; no dead major limbs; no major limb failures; no overburdened limbs; no excessive or unnatural lean; proper development of trunk taper; structure is more or less symmetrical.
Fair	**Moderate Potential for Failure.** Small to moderate wounds, cavities, decay, or indications of hollowness may be present in the root crown, trunk, or major limbs; minor exposure of anchor roots; no circling roots; codominant trunks or multiple trunk attachments are present but included bark is absent or not well-developed; no large crossing limbs are present; small or medium-sized dead limbs may be present in the canopy; no large limb failures; limbs may be slightly overburdened; natural or only minor lean is evident with well-developed reaction wood; canopy development may be slightly to moderately asymmetrical.
Poor	**High Potential for Failure.** Significant wounds, cavities, decay, or indications of hollowness evident in the root crown, trunk, or major limbs; anchor roots are exposed or the tree has lost anchorage; circling roots are present; codominant branching or multiple trunk attachments are present; large crossing limbs are present; significant amounts of included bark are present at trunk and branch attachments; large dead limbs are present in the canopy; evidence of past large limb failures; overburdened limbs; poor trunk taper; excessive or unnatural lean or drastically unbalanced canopy development.

2.3.5 Dripline Environment

A brief description of the growing condition of the area inside the dripline. Examples of growing conditions include vegetation, slope, existing impermeable surfaces or structures, utility lines, drainage, previous cuts or fills, fire damage, etc.

2.3.6 Overall Condition

A numerical rating of the tree based on the health and structural assessments, expressed as a scale of 0 (dead), 1 (severe decline), 2 (declining), 3 (fair), 4 (good), or 5 (excellent).

2.3.7 Recommendation for Preservation or Removal

All trees located within the parcel boundaries will be removed to facilitate project construction, thus recommendations for preservation or removal are not included.

3.0 RESULTS

3.1 GENERAL SITE CONDITIONS

The 6.46-acre Study Area is currently undeveloped and not associated with any land use, though it appears that the soil is regularly disked. There are no structures in the Study Area. Vegetation is predominantly non-native annual grasses and forbs. The only topographic feature in the Study Area is a Y-shaped excavated stormwater drainage channel. One branch of the channel enters the site at the eastern boundary through a culvert under Watt Avenue; the other branch begins inside the Study Area where a culvert daylights. The channel conveys flows offsite at the southwestern corner.

The Study Area is bounded on the north by a commercial development, on the west by single-family residential development, on the east by Watt Avenue, and on the south by vacant land. Based on historic aerial imagery, the Study Area has been in its present condition since the 1940s. Land uses surrounding the project site are single-family residential to the east, and west, commercial to the north, and vacant to the south. The Antelope-Elverta-Rio Linda region overall is developing rapidly with suburban residential, commercial, and light industrial uses.

3.2 IMPACTED TREES

A total of 18 trees were surveyed within or overhanging the Study Area during the initial arborist survey in 2019, consisting of six valley oaks (*Quercus lobata*), two Fremont cottonwoods (*Populus fremontii*), five Siberian elm (*Ulmus pumila*), one Callery pear (*Pyrus calleryana*), two California black walnut (*Juglans hindsii*), one mulberry *(Morus alba*), and one Chinese tallow tree (*Triadica sebifera*). Seven of these 18 trees were considered regulated by Sacramento County. Approximate tree locations are shown in Figure 2. Site topography and approximate tree locations are included in Figure 3.

There were several changes between the initial survey conducted in 2019 and the updated survey conducted in 2021: most notably, only 16 trees were present at the time of the survey in 2021. Tree #158 (California black walnut) is no longer present on the site and has been removed and Tree #159 (Chinese tallow tree) is dead and has fallen. Tree #158 was in good condition at the time of the 2019 survey but, did not meet the definition of a regulated tree based upon its DBH of 4 inches, and was growing in an area surrounded by trash and vines. Tree #159 did not meet the definition of a regulated tree either, as it is a non-native tree, and would not have required a permit or mitigation for removal. Tree #159 was also in good condition at the time of the survey in 2019 but was growing in a wetland swale that carries stormwater runoff. There were no significant changes in the condition of the remaining trees, although the DBH of most trees increased incrementally.

Of the 16 trees remaining on the site currently, seven are native species protected by Sacramento County and nine trees are non-native trees that are not regulated by the County. Six of the seven protected trees (Tree #139, #140, #157, #298, #155, and #297) are valley oaks and are in good to fair condition. The remaining protected tree (Tree #160) is a multi-stemmed California black walnut tree in good condition.

Removal of protected trees to facilitate development of the project would require a permit from the Sacramento County Director of Public Works. If any trees are preserved onsite, then the appropriate tree preservation and protection measures should be implemented.

Detailed tree data is provided in Appendix B. Representative photographs of the Site are provided in Appendix C. Tree Protection Recommendations are provided in Appendix D.

4.0 SUMMARY/CONCLUSION

A total of 16 trees are present within or overhanging the Study Area. Of these trees, seven are native trees protected by Sacramento County and nine are non-native trees that are not currently regulated but may require mitigation for loss of tree canopy per the County General Plan. Removal of protected trees to facilitate development of the project would require a permit from the Sacramento County Director of Public Works. All protected trees located on the site are currently proposed for removal and no trees are proposed for preservation.

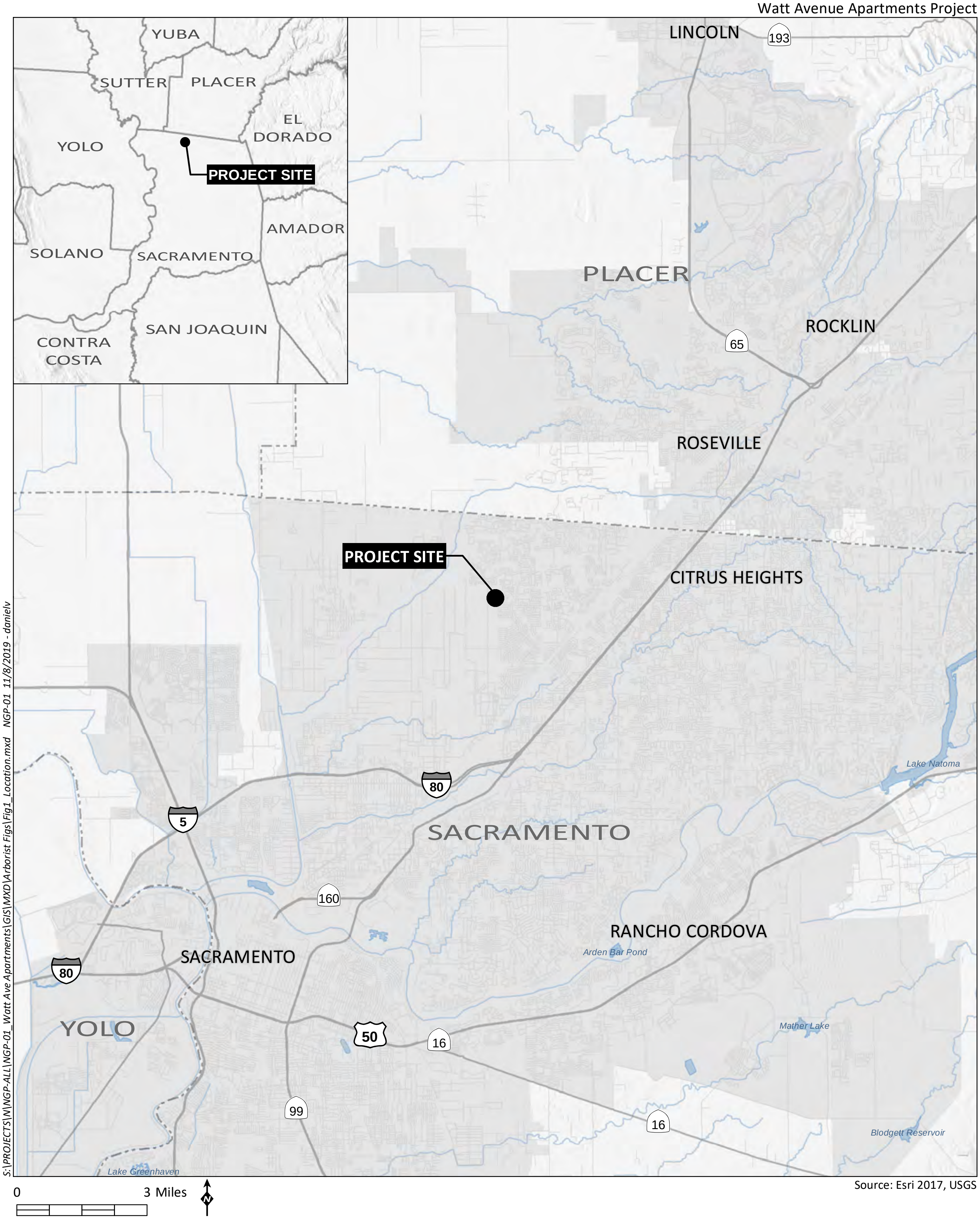
Appendix A

Figures

This page intentionally left blank

EXHIBIT D

Watt Avenue Apartments Project



Source: Esri 2017, USGS

HELIX
Environmental Planning

Regional Vicinity and Project Location

Figure 1

EXHIBIT D

Watt Avenue Apartments Project

0 100 Feet

Source: Basemap (Sac Regional GIS Coop 2018); Data (HELIX 2019)

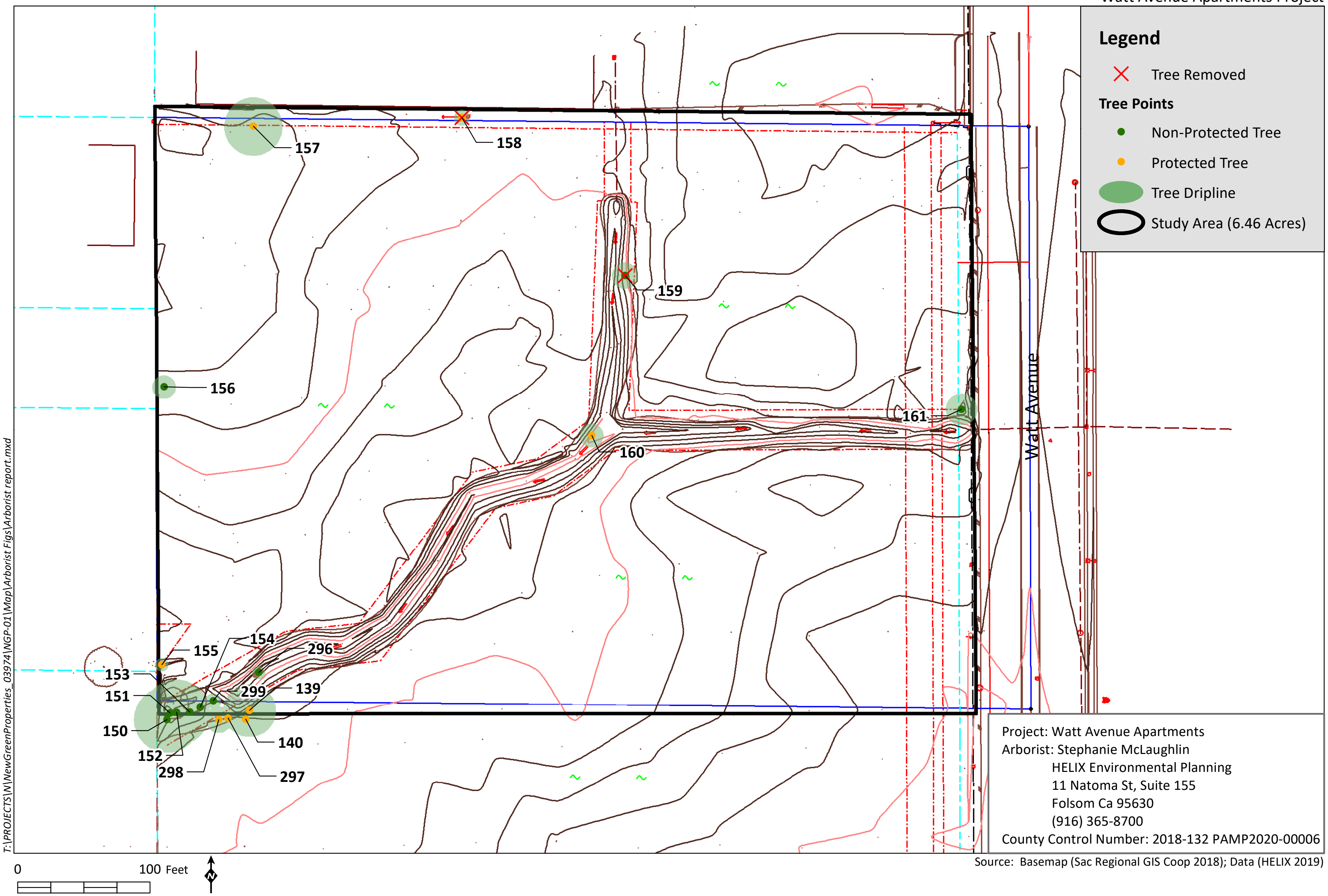
HELIX Environmental Planning

Tree Map

Figure 2

EXHIBIT D

Watt Avenue Apartments Project



Source: Basemap (Sac Regional GIS Coop 2018); Data (HELIX 2019)

HELIX Environmental Planning

Tree Map with Topography

Figure 3

This page intentionally left blank

Appendix B

Tree Data

This page intentionally left blank

EXHIBIT D

Appendix B
Tree Data

Tree Number	Species	DBH (in)	Root Protection Zone (ft)	Height (ft)	Health	Structure	Condition	Dripline Environment	Notes	Protected?
139	*Quercus lobata* valley oak	13	20	35	G	G	4	creek, grass		Yes
140	*Quercus lobata* valley oak	8	8	30	F	F	3	creek, grass	crowded; poor taper; galls; overhanging	Yes
150	*Ulmus pumila* Siberian elm	10, 7	25	35	G	P	3	creek	severe lean; undercut by creek; co-dominant leader	No
151	*Populus fremontii* Fremont cottonwood	9	3	30	P	P	1	creek	leans; broken main trunk; epicormic sprouts	No
152	*Ulmus pumila* Siberian elm	14	25	35	G	P	3	creek	co-dominant leader; overloaded limbs; undercut	No
153	*Populus fremontii* Fremont cottonwood	12	8	30	G	P	2	creek	undercut; poor scaffold branch development	No
154	*Ulmus pumila* Siberian elm	--	--	--	--	--	0	creek	dead	No
155	*Quercus lobata* valley oak	4	5	10	G	G	4	creek, grass		Yes
156	*Pyrus calleryana* Callery pear	9	9	17	G	F	3	disked field	many co-dominant leaders; crossing limbs	No
157	*Quercus lobata* valley oak	13, 11	22	40	G	F	3	disked field	co-dominant leaders, included bark	Yes
158	*Juglans hindsii* California black walnut	4 (in 2019)	--	--	--	--	0	disked field, utility pole, building	removed	Yes
159	*Triadica sebifera* Chinese tallow tree	8 (in 2019)	--	--	--	--	0	ditch	removed	No
160	*Juglans hindsii* California black walnut	8, 5	9	40	G	F	4	ditch	co-dominant leaders	Yes
161	*Morus alba* mulberry	9	12	20	G	P	3	ditch, roadside	re-sprouts from dead stump; many co-dominant leaders	No
299	*Ulmus pumila* Siberian elm	5	6	15	G	F	4	creek, grass	co-dominant leaders, included bark	No
298	*Quercus lobata* valley oak	9	10	30	G	G	4	creek, grass	overhanging; galls	Yes

Appendix B
Tree Data

Tree Number	Species	DBH (in)	Root Protection Zone (ft)	Height (ft)	Health	Structure	Condition	Dripline Environment	Notes	Protected?
297	*Quercus lobata* valley oak	8	8	30	G	G	4	creek, grass	overhanging	Yes
296	*Ulmus pumila* Siberian elm	3, 3, 3	5	10	F	F	2	creek, grass	co-dominant leaders, included bark, epicormic growth	No
									TOTAL NUMBER/PROTECTED:	**18/7**

Appendix C

Site Photos

This page intentionally left blank

Photo 1. View of disked ruderal habitat present throughout much of the Study Area.

Photo 2. View of dead and fallen Chinese tallow tree (Tree #159) located along the wetland swale.

Photo 3. View of the wetland swale running through the center of the Study Area.

Photo 4. View of Tree #157 located along the northern boundary of the Study Area.

Photo 5. View of Tree #156 along the western border of the Study Area.

Photo 6. View of a group of Siberian elms and valley oaks located in the southwestern corner of the Study Area.

Photo 7. View of a group of Siberian elms and valley oaks located in the southwestern corner of the Study Area.

Photo 8. View of Tree #161 located along the eastern border of the Study Area.

Appendix D

Tree Protection Recommendations

This page intentionally left blank

Appendix D
Tree Protection Recommendations

Tree protection recommendations are provided below to minimize the potential for injury or damage to occur to avoided trees adjacent to the project footprint. These recommendations should be integrated into the construction documents, as applicable to the project.

1. *Trenching procedure*. Trenching within the protected zone of a protected tree, when permitted, may only be conducted with hand tools or compressed air, or as otherwise directed by an arborist, in order to avoid root injury.

    a. When a trenching machine is being used adjacent to the dripline of protected trees, and roots are encountered smaller than two inches, the wall of the trench adjacent to the trees shall be hand-pruned, making clear, clean cuts through the roots. All damaged, torn, and cut roots shall be given a clean cut to remove ragged edges, which promote decay. Trenches shall be filled within 24 hours; where this is not possible, the side of the trench adjacent to the trees shall be kept shaded with four layers of dampened, untreated burlap, wetted as frequently as necessary to keep the burlap wet. Roots two inches or larger, when encountered, shall be reported immediately to the Project Arborist, who will decide whether the Contractor may cut the root as mentioned above or shall excavate by hand or with compressed air under the root. All exposed roots are to be protected with dampened burlap.

    b. Where possible, route pipes outside of the dripline of a protected tree to avoid conflict with roots.

    c. Where it is not possible to reroute pipes or trenches, the contractor shall bore or tunnel beneath the dripline of the tree. The boring shall take place not less than three feet below the surface of the soil in order to avoid encountering "feeder" roots. All boring equipment must be staged outside of the dripline of protected trees.

2. *Root, trunk, and crown protection*.

    a. No vehicles, construction or otherwise, and no materials, construction or otherwise, shall be placed for any period of time within the protected zone other than those described in this section.

    b. Staging areas for equipment shall be established far enough from existing trees to ensure adequate protection of the root zone.

    c. Entry and exit routes shall be established and fenced off with chain link or construction fencing. When planning routes, avoid utility access corridors.

    d. A six-inch layer of coarse mulch or wood chips is to be installed within the Tree Protection Zone of protected trees. Mulch shall be kept 12 inches away from the trunk.

    e. When determined necessary by an arborist, trunks of trees shall be protected with a single wrap of Geocomposite. Geocomposite shall be double sided, Geonet core with non-woven covering (such as Tenax Tendrain 770/2), or equivalent.

Appendix D
Tree Protection Recommendations

f. Trees that have been identified in the site inventory as posing a health or safety risk may be removed or pruned by no more than one-third, subject to approval of the required permit by the Planning Division. Pruning of existing limbs and roots shall only occur under the direction of the Project Arborist.

3. *Cutting roots*.

a. Minor roots less than one inch in diameter may be cut, but damaged roots shall be traced back and cleanly cut behind any split, cracked or damaged area.

b. Major roots over one inch in diameter may not be cut without approval of an Arborist. Depending upon the type of improvement being proposed, bridging techniques or a new site design may need to be employed to protect the root and the tree.

4. *Protective fencing*.

a. Type of fencing. A minimum five-foot high chain link or substitute fence approved by the Director shall be installed at the outermost edge of the protected zone of each protected tree or groups of protected trees. Exceptions to this policy may occur in cases where protected trees are located on slopes that will not be graded. However, approval must be obtained from the Department to omit fences in any area of the project.

b. Fence installation. The fences shall be installed in accordance with the approved fencing plan prior to the commencement of any grading operations or such other time as determined by the review body. The developer shall call the Department for an inspection of the fencing prior to grading operations.

c. Signing. Signs shall be installed on the fence in four equidistant locations around each individual protected tree. The size of each sign must be a minimum of two feet by two feet and must contain the following language: "WARNING, THIS FENCE SHALL NOT BE REMOVED OR RELOCATED WITHOUT WRITTEN AUTHORIZATION FROM THE CITRUS HEIGHTS COMMUNITY DEVELOPMENT DEPARTMENT." Signs placed on fencing around a grove of protected trees shall be placed at approximately 50-foot intervals.

d. Fence removal. Once approval has been obtained, the fences shall remain in place throughout the entire construction period and shall not be removed without obtaining written authorization from the Department.

5. *Grading*.

a. Every effort should be made to avoid cut and/or fill slopes within or in the vicinity of the protected zone of any protected tree.

b. No grade changes are permitted which cause water to drain to within twice the longest radius of the protected zone of any protected tree.

c. No grade changes are permitted that will lower the ground on all sides of the tree.

Appendix D
Tree Protection Recommendations

d. All grade changes within the dripline of a protected tree shall be supervised by the Project Arborist. Cuts or fills of soil within the dripline of a protected tree may have a retaining wall system installed as approved by the Project Arborist and City Staff.

6. *Certification letters*. Certification letters are required for all regulated activities within the protected zone of protected trees. The developer's Arborist will be required to submit a certification letter to the Department within five working days of completing any regulated activity, attesting that all work was conducted in accordance with the appropriate permits and the requirements of the TPO.

7. *Utility trenching pathway plan*. As a condition of the Tree Permit, the developer will be required to submit a utility trenching-pathway plan for approval following approval of the project improvement or civil plans.

8. *Impact avoidance measures*. The following practices shall be prohibited at all times unless specifically allowed in the Arborist Report or the Tree Permit Conditions of Approval:

    a. Run off or spillage of potentially damaging materials into the area below any tree canopy.

    b. Fires under and adjacent to trees.

    c. Discharge of exhaust into foliage.

    d. Securing of cable, chain, or rope to trees or shrubs.

    e. Application of soil sterilizers under pavement within driplines of existing trees.

This page intentionally left blank

Watt Avenue Apartments

Acoustical Analysis Report

November 2021 | 03974.00001.001

Prepared for:

Narinder SIngh
New Green Properties, LLC
2224 Endeavor Way
Sacramento, CA 95834

Prepared by:

HELIX Environmental Planning, Inc.
7578 El Cajon Boulevard
La Mesa, CA 91942

This page intentionally left blank

Watt Avenue Apartments

Acoustical Analysis Report

Prepared for:

Narinder Singh
New Green Properties, LLC
2224 Endeavor Way
Sacramento, CA 95834

Prepared by:

HELIX Environmental Planning, Inc.
7578 El Cajon Boulevard
La Mesa, CA 91942

November 2021 | 03974.00001.001

This page intentionally left blank

TABLE OF CONTENTS

TABLE OF CONTENTS (cont.)

LIST OF APPENDICES

LIST OF FIGURES

LIST OF TABLES

ACRONYMS AND ABBREVIATIONS

ADT	average daily trips
ANSI	American National Standards Institute
APN	Assessor's Parcel Number
CAD	Computer Aided Design
CadnaA	Computer Aided Noise Abatement
Caltrans	California Department of Transportation
CNEL	Community Noise Equivalent Level
dB	decibel
dBA	A-weighted decibel
HVAC	heating, ventilation, and air conditioning
Hz	Hertz
kHz	kilohertz
L_{DN}	Day Night sound level
L_{EQ}	time-averaged noise level
mph	miles per hour
mPa	micro Pascal
NSLU	noise sensitive land use
RCNM	Roadway Construction Noise Model
SF	square foot/feet
SPL	sound pressure level
STC	Sound Transmission Class
S_{WL}	Sound Power Level
TNM	Traffic Noise Model
USDOT	U.S. Department of Transportation

This page intentionally left blank

EXECUTIVE SUMMARY

This report presents an assessment of potential construction and operational noise impacts associated with the proposed Watt Avenue Apartments project (project). The project is located at 7403 Watt Avenue in unincorporated Sacramento County near the City of North Highlands. The project site is located within the North Watt Avenue Corridor Plan (Corridor Plan) area.

The proposed project includes the development of 172 apartment units in eight separate buildings. In addition, the project will include a pool, playground, and clubhouse for the apartments and 273 parking spaces.

The project would result in less than significant impacts from vibration, construction noise, and permanent increases in traffic noise due to the addition of the project. Impacts to the project's exterior use areas from Watt Avenue traffic would be less than significant. Elevated noise levels at the project's southernmost residential structure may exceed 60 L_{DN}, and interior residences may therefore exceed 45 L_{DN}. Impacts would be significant without mitigation. Mitigation Measure NOI-1 would require a future exterior-to-interior noise analysis to ensure that future residences maintain noise levels that do not exceed 45 L_{DN}.

This page intentionally left blank

1.0 INTRODUCTION

This report analyzes potential noise and vibration impacts associated with the proposed Watt Avenue Apartments project (project). The analysis includes a description of existing conditions in the project vicinity, an assessment of potential impacts associated with project construction, and an evaluation of project operational impacts. Analysis within this report addresses the relevant issues listed in Appendix G of the California Environmental Quality Act (CEQA) Guidelines.

1.1 PROJECT LOCATION

The project is located in unincorporated Sacramento County near the City of North Highlands, at 7403 Watt Avenue (see Figure 1, *Vicinity Map* and Figure 2, *Aerial Photograph*). The project site is located on an approximately 6.66-acre lot (Assessor's Parcel Number (APN] 208-0122-067-00).

The project site consists of one parcel that is currently undeveloped. The site is surrounded by commercial, industrial, and residential development. Directly north of the site is an industrial auto shop, farther north is a commercial center with various restaurants, banks, and other commercial uses. More commercial and industrial uses exist to the south and residential development surrounds the site to the east and west.

The property is zoned as a Special Planning Area (SPA). The SPA zoning designation provides for special development or conservation projects within the county. The project site is located within the North Watt Avenue Corridor Plan (Corridor Plan) area. An environmental impact report (EIR) for the Corridor Plan was certified by the County in April 2012 (County 2012).

1.2 PROJECT DESCRIPTION

The project would develop 172 multi-family residential apartments within 266,152 square feet (6.11 acres) in eight separate buildings of varying footprint size. In addition, the project would include a pool, playground, 273 parking stalls, and a clubhouse to serve residents of the apartment complex. The development would be surrounded by a perimeter metal fence containing a bio-retention planter. Public utilities, including sewer, water, and fire mains, would connect with existing lines at the project site. Vehicular access to the project site would be provided by one driveway from Watt Avenue. See Figure 3, *Site Plan*.

The project would be constructed in accordance with the energy-efficiency standards, water reduction goals, and other standards contained in the 2019 Title 24 Part 6 Building Energy Efficiency Standards and Part 11 (CALGreen) Building Standards.

1.3 NOISE AND SOUND LEVEL DESCRIPTORS AND TERMINOLOGY

All noise level or sound level values presented herein are expressed in terms of decibels (dB), with A-weighting (dBA) to approximate the hearing sensitivity of humans. Time-averaged noise levels are expressed by the symbol L_{EQ}, with a specified duration. The Community Noise Equivalent Level (CNEL) is a 24-hour average, where noise levels during the evening hours of 7:00 p.m. to 10:00 p.m. have an added 5 dBA weighting, and sound levels during the nighttime hours of 10:00 p.m. to 7:00 a.m. have an added 10 dBA weighting. This is similar to the Day Night sound level (L_{DN}), which is a 24-hour average with an added 10 dBA weighting on the same nighttime hours but no added weighting on the evening hours. Sound levels expressed in L_{DN} and CNEL are based on dBA and in many cases L_{DN} and CNEL are considered to be equivalent. These metrics are used to express noise levels for both measurement and municipal regulations, as well as for land use guidelines and enforcement of noise ordinances.

Sound can be described as the mechanical energy of a vibrating object transmitted by pressure waves through a liquid or gaseous medium (e.g., air) to a hearing organ, such as a human ear. Noise is defined as loud, unexpected, or annoying sound.

In the science of acoustics, the fundamental model consists of a sound (or noise) source, a receiver, and the propagation path between the two. The loudness of the noise source and obstructions or atmospheric factors affecting the propagation path to the receiver contribute to the sound level and characteristics of the noise perceived by the receiver. The field of acoustics deals primarily with the propagation and control of sound.

Continuous sound can be described by frequency (pitch) and amplitude (loudness). A low frequency sound is perceived as low in pitch. Frequency is expressed in terms of cycles per second, or Hertz (Hz) (e.g., a frequency of 250 cycles per second is referred to as 250 Hz). High frequencies are sometimes more conveniently expressed in kilohertz (kHz), or thousands of Hertz. The audible frequency range for humans is generally between 20 Hz and 20,000 Hz.

The amplitude of pressure waves generated by a sound source determines the loudness of that source. A logarithmic scale is used to describe sound pressure level (SPL) in terms of dBA units. The threshold of hearing for the human ear is about 0 dBA, which corresponds to 20 micro Pascals (mPa).

Because decibels are logarithmic units, SPL cannot be added or subtracted through ordinary arithmetic. Under the decibel scale, a doubling of sound energy corresponds to a 3 dBA increase. In other words, when two identical sources are each producing sound of the same loudness, the resulting sound level at a given distance would be 3 dBA higher than one source under the same conditions.

1.4 NOISE SENSITIVE LAND USES

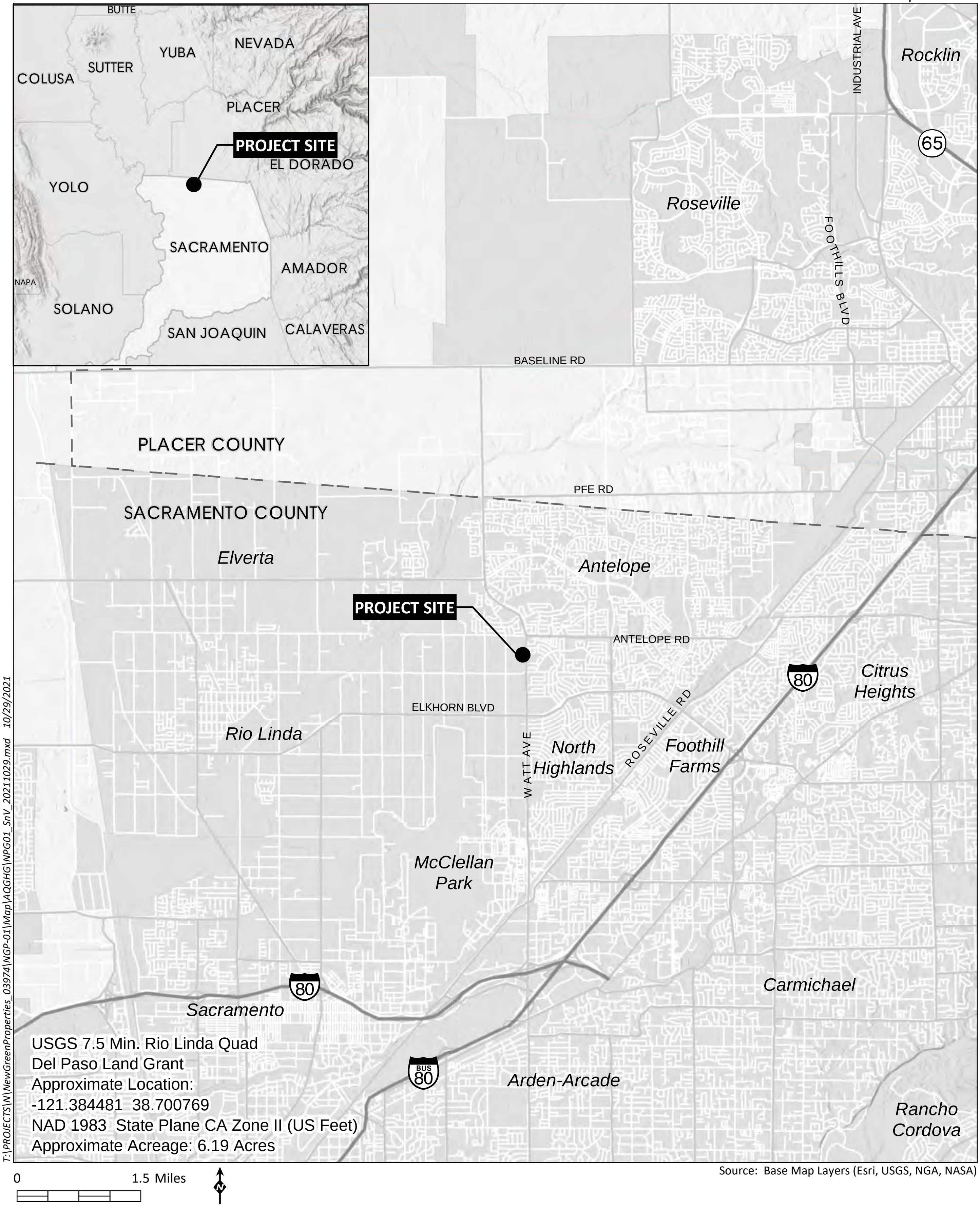
Noise-sensitive land uses (NSLUs) are land uses that may be subject to stress and/or interference from excessive noise, such as residential dwellings, schools, transient lodging (hotels), hospitals, educational facilities, and libraries. Industrial and commercial land uses are generally not considered sensitive to noise. NSLUs in the project area include residential development to the east and west of the site. Noise receptor sites designate where an occupant of a NSLU may be located.

1.5 REGULATORY FRAMEWORK

1.5.1 California Noise Control Act

The California Noise Control Act is a section within the California Health and Safety Code that describes excessive noise as a serious hazard to the public health and welfare and that exposure to certain levels of noise can result in physiological, psychological, and economic damage. It also finds that there is a continuous and increasing bombardment of noise in the urban, suburban, and rural areas. The California Noise Control Act declares that the State of California has a responsibility to protect the health and

Watt Avenue Apartments



Source: Base Map Layers (Esri, USGS, NGA, NASA)

HELIX
Environmental Planning

Vicinity Map

Figure 1

Watt Avenue Apartments

Source: GoogleEarth, 6/3/2021

HELIX
Environmental Planning

Aerial Photograph

Figure 2

Watt Avenue Apartments

CONCEPTUAL PROJECT DATA

GROSS LOT AREA:	290,054 SF± (6.66 ACRES)	
NET LOT AREA:	266,152 SF± (6.11 ACRES)	

UNIT COUNT

ONE BEDROOM UNITS:	60 UNITS	(34.9%)
TWO BEDROOM UNITS:	108 UNITS	(62.8%)
THREE BEDROOM UNITS:	4 UNITS	(2.3%)
TOTAL:	172 UNITS	
DENSITY:	25.8 DU/AC GROSS LOT AREA	
ALLOWABLE DENSITY:	15-25 DU/AC	

PARKING

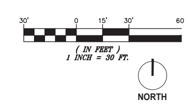
COVERED CARPORTS SPACES:	172 SPACES
UNCOVERED COMPACT SPACES:	47 SPACES
UNCOVERED STANDARD SPACES:	54 SPACES
TOTAL:	273 SPACES
PARKING RATIO:	1.59 SPACES/UNIT

BICYCLE PARKING

RESIDENT BICYCLE PARKING:	168 SPACES
GUEST BICYCLE PARKING:	24 SPACES

7403 WATT AVENUE CONCEPTUAL SITE PLAN

172 UNITS



Source: LCA Architects, 2021

HELIX Environmental Planning

Site Plan

Figure 3

welfare of its citizens by the control, prevention, and abatement of noise. It is the policy of the State to provide an environment for all Californians free from noise that jeopardizes their health or welfare.

1.5.2 California Noise Insulation Standards [California's Title 24 Noise Standards, Cal. Adm. Code Title 24, Chap. 2-35]

In 1974, the California Commission on Housing and Community Development adopted noise insulation standards for multi-family residential buildings (Title 24, Part 2, California Code of Regulations). Title 24 establishes standards for interior room noise (attributable to outside noise sources). The regulations also specify that acoustical studies must be prepared whenever a residential building or structure is proposed to be located near an existing or adopted freeway route, expressway, parkway, major street, thoroughfare, rail line, rapid transit line, or industrial noise source, and where such noise source or sources create an exterior CNEL (or L_{DN}) of 60 dBA or greater. Such acoustical analysis must demonstrate that the residence has been designed to limit intruding noise to an interior CNEL (or L_{DN}) of at least 45 dBA.

1.5.3 Sacramento County, Exterior Noise Standards, Section 6.68.070, Property Line Noise Limits

(a) The following noise standards, unless otherwise specifically indicated in this chapter, shall apply to all properties within a designated noise area. These standards are found in Table 1, *Applicable Noise Limits*.

Table 1
APPLICABLE NOISE LIMITS

Land Use Zone	Time of Day	One-hour Average Sound Level (dBA)
RE-1, RD-1, RE-2, RD-2, RE-3, RD-3, RD-4, R-1-A, RD-5, R-2, RD-10, R-2A, RD-20, R-3, R-D-30, RD-40, RM-1, RM-2, A-1-B, AR-1, A-2, AR-2, A-5, AR-5	7:00 a.m. to 10:00 p.m.	55
	10:00 p.m. to 7:00 a.m.	50

Source: Sacramento County, Code, Chapter 6.68, Noise Control

(b) It is unlawful for any person at any location within the County to create any noise which causes the noise levels on an affected property, when measured in the designated noise area, to exceed for the duration of time set forth following, the specified exterior noise standards in any one hour by the limits found in Table 2, *Allowable Decibel Limits:*

Table 2
ALLOWANCE DECIBEL LIMITS

Cumulative Duration of the Intrusive Sound	Allowance (dBA)
1. Cumulative period of 30 minutes per hour	0
2. Cumulative period of 15 minutes per hour	+5
3. Cumulative period of 5 minutes per hour	+10
4. Cumulative period of 1 minute per hour	+15
5. Level not to be exceeded for any time per hour	+20

Source: Sacramento County, Code, Chapter 6.68, Noise Control

(c) Each of the noise limits specified in subdivision (b) of this section shall be reduced by five dBA for impulsive or simple tone noises, or for noises consisting of speech or music.

(d) If the ambient noise level exceeds that permitted by any of the first four noise-limit categories specified in subdivision (b), the allowable noise limit shall be increased in five dBA increments in each category to encompass the ambient noise level. If the ambient noise level exceeds the fifth noise level category, the maximum ambient noise level shall be the noise limit for that category. (SCC 490 § 2, 1981; SCC 254 § 1, 1976.)

1.5.4 Sacramento County, Interior Noise Standards, Section 6.68.080

(a) In any apartment, condominium, townhouse, duplex or multiple dwelling unit it is unlawful for any person to create any noise from inside his unit that causes the noise level when measured in a neighboring unit during the period of 10:00 p.m. to 7:00 a.m. to exceed:

- 45 dBA for a cumulative period of more than 5 minutes in any hour;
- 50 dBA for a cumulative period of more than 1 minute in any hour;
- 55 dBA for any period of time.

(b) If the ambient noise level exceeds that permitted by any of the noise level categories specified in subdivision (a) of this section, the allowable noise limit shall be increased in 5 dBA increments in each category to encompass the ambient noise level. (SCC 254 § 1, 1976.)

1.5.5 Sacramento County Noise Standard Exemptions Section 6.68.090

Among other exceptions noise sources associated with construction, repair, remodeling, demolition, paving or grading of any real property, provided said activities do not take place between the hours of 8:00 p.m. and 6:00 a.m. on weekdays and Friday commencing at 8:00 p.m. through and including 7:00 a.m. on Saturday; Saturdays commencing at 8:00 p.m. through and including 7:00 a.m. on the next following Sunday and on each Sunday after the hour of 8:00 p.m. are exempt from the Sacramento County Noise Standards. Provided, however, when an unforeseen or unavoidable condition occurs during a construction project and the nature of the project necessitates that work in process be continued until a specific phase is completed, the contractor or owner shall be allowed to continue work after 8:00 p.m. and to operate machinery and equipment necessary until completion of the specific work in progress can be brought to conclusion under conditions which will not jeopardize inspection acceptance or create undue financial hardships for the contractor or owner.

1.5.6 Sacramento County General Plan Noise Element

The Sacramento County General Plan Noise Element (County 2011) establishes noise standards for new uses affected by traffic and railroad noise. The standards are found in Table 3, *Noise Standards from New Uses Affected by Traffic and Railroad Noise*. The standard for residential buildings is 65 L_{DN} for outdoor areas and 45 L_{DN} for interior areas.

Table 3
NOISE STANDARDS FROM NEW USES AFFECTED BY TRAFFIC AND RAILROAD NOISE

New Land Use	Sensitive Outdoor Area (L_{DN})	Sensitive Interior Area (L_{DN})
All Residential	65	45
Transient Lodging	65	45
Hospitals & Nursing Homes	65	45
Theaters & Auditoriums	--	35
Churches, Meeting Halls	65	40
Schools, Libraries, etc.	65	40
Office Buildings	65	45
Commercial Buildings	--	50
Playgrounds, Parks, etc.	70	--
Industry	65	50

The Sacramento General Plan Noise Element contains the following policies relevant to the project:

NO-1 The noise level standards for noise-sensitive areas of new uses affected by traffic or railroad noise sources in Sacramento County are shown by Table 3. Where the noise level standards of Table 3 are predicted to be exceeded at new uses proposed within Sacramento County which are affected by traffic or railroad noise, appropriate noise mitigation measures shall be included in the project design to reduce projected noise levels to a state of compliance with the Table 3 standards.

NO-13 Where noise mitigation measures are required to satisfy the noise level standards of this Noise Element, emphasis shall be placed on the use of setbacks and site design to the extent feasible, prior to consideration of the use of noise barriers.

NO-14 Noise analyses prepared for multi-family residential projects, town homes, mixed-use, condominiums, or other residential projects where floor ceiling assemblies or party-walls shall be common to different owners/occupants, shall be consistent with the State of California Noise Insulation standards.

NO-15 The County shall have the flexibility to consider the application of 5 dB less restrictive exterior noise standards than those prescribed in Table 3 in cases where it is impractical or infeasible to reduce exterior noise levels within infill projects to a state of compliance with the Table 3 standards. In such cases, the rational for such consideration shall be clearly presented and disclosure statements and noise easements should be included as conditions of project approval. The interior noise level standards of Table 3 would still apply. The maximum allowable long-term noise exposure permissible for nonindustrial uses is 75 dB.

NO-16 The following sources of noise shall be exempt from the provisions of this Noise Element:

a. Emergency warning devices and equipment operated in conjunction with emergency situations, such as sirens and generators which are activated during power outages. The routine testing of such warning devices and equipment shall also be exempt provided such testing occurs during daytime hours.

b. Activities associated with events for which a permit has been obtained from the County.

2.0 ENVIRONMENTAL SETTING

2.1 SURROUNDING LAND USES

Surrounding uses include industrial and commercial areas to the north, vacant land to the south, single-family residences to the west, and single and multi-family residences to the east across Watt Avenue. McClellan Airport is located approximately 1.5 miles to the southwest. The project site is located approximately 2.6 miles from Interstate-80 and approximately 1.8 miles from the Union Pacific railroad.

2.2 EXISTING NOISE ENVIRONMENT

2.2.1 Site Survey

One 15-minute traffic noise measurement and one 10-minute ambient measurement without a traffic count were conducted during a site visit on May 2, 2018 (see Appendix A, *On-site Noise Measurement Sheets*, for survey notes). The traffic measurement was performed approximately 50 feet west of the edge of Watt Avenue and approximately 50 feet north of the southern property line. During the traffic noise measurement, start and end times were recorded, and vehicle counts were made for cars, medium trucks (double-tires/two axles), and heavy trucks (three or more axles) along Watt Avenue. The measurement time length was sufficient for a representative traffic volume to occur and the noise level (L_{EQ}) to stabilize. The vehicle counts were then converted to one-hour equivalent volumes by applying an appropriate factor.

The measured noise level and related weather conditions are shown in Table 4, *Short-Term Noise Measurement Results*. Traffic counts for the timed measurement and the one-hour equivalent volumes are shown in Table 5, *Measured Traffic Volumes and Vehicular Distribution*.

Table 4
SHORT-TERM NOISE MEASUREMENT RESULTS

Measurement	Location	Conditions	Time	dBA L_{EQ}	Notes
S1	Southeast side of parcel (approximately 50 feet from Watt Avenue)	73.5°F, 0.7 mph wind, sunny	11:51 a.m. – 12:06 p.m.	57.9	Speed limit along Watt Avenue 45 mph; however, cars usually going slower due to nearby intersections and driveway entrance to apartments on the other side of Watt Avenue (Antelope Ranch Apartments).
S2	Northwest side of parcel (approximately 200 feet east of the western property boundary and 50 feet south of northern property boundary)	76.6°F, 0.6 mph wind, sunny	11:28 a.m. – 11:38 a.m.	50.7	Industrial machines at work on adjoining parcel to the north.

Table 5
MEASURED TRAFFIC VOLUMES AND VEHICULAR DISTRIBUTION

Roadway	Traffic	Autos	MT[1]	HT[2]
Watt Avenue (S1)	15-minute count	390	9	1
	One-hour Equivalent	1,560	36	4
	Percent	**97.5%**	**2%**	**0.5**

[1] MT=Medium Trucks (double tires/two axles)
[2] HT=Heavy Trucks (three or more axles)

3.0 ANALYSIS METHODOLOGY AND ASSUMPTIONS

3.1 METHODOLOGY AND EQUIPMENT

The following equipment was used to measure existing noise levels at the project site:

- Larson Davis System LxT Integrating Sound Level Meters
- Larson Davis Model CAL150 Calibrator
- Windscreen and tripod for the sound level meter

The sound level meter was field-calibrated immediately prior to the noise measurements to ensure accuracy. All measurements were made with a meter that conforms to the American National Standards Institute (ANSI) specifications for sound level meters (ANSI SI.4 1983 R2001). All instruments were maintained with National Bureau of Standards traceable calibration per the manufacturers' standards.

Modeling of the exterior noise environment for this report was accomplished using two computer noise models: Computer Aided Noise Abatement (CadnaA) version 2018 and Traffic Noise Model (TNM) version 2.5. CadnaA is a model-based computer program developed by DataKustik for predicting noise impacts in a wide variety of conditions. CadnaA assists in the calculation, presentation, assessment, and mitigation of noise exposure. It allows for the input of project related information, such as noise source data, barriers, structures, and topography to create a detailed CadnaA model, and uses the most up-to-date calculation standards to predict outdoor noise impacts. CadnaA traffic noise prediction is based on the data and methodology used in the TNM. TNM was released in February 2004 by the U.S. Department of Transportation (USDOT) and calculates the daytime average hourly L_{EQ} from three-dimensional model inputs and traffic data (Caltrans 2004). Computer Aided Design (CAD) plans provided by the project applicant were inputted into the models. Input variables included road alignment, elevation, lane configuration, area topography, existing and planned noise control features, projected traffic volumes, estimated truck composition percentages, and vehicle speeds.

The one-hour L_{EQ} noise level is calculated utilizing peak-hour traffic; peak-hour traffic volumes can be estimated based on the assumption that 10 percent of the average daily traffic would occur during a peak hour. The model-calculated one-hour L_{EQ} noise output is the equivalent to the CNEL (Caltrans 2013).

Project construction noise was analyzed using the Roadway Construction Noise Model (RCNM; USDOT 2008), which utilizes estimates of sound levels from standard construction equipment.

3.2 ASSUMPTIONS

3.2.1 Construction

Construction would require heavy equipment during, grading, building construction, and paving. Typical construction equipment that would be expected for the project include excavators, loaders, cranes, forklifts, cement mixers, and pavers.

3.2.2 Operation

The proposed operational noise sources for the apartment use include heating, ventilation, and air conditioning (HVAC) systems. In addition, the project would generate vehicular traffic that would increase noise levels on nearby roadways.

3.2.2.1 Heating, Ventilation, and Air Conditioning Units

Specific planning data for the future HVAC systems is not available at this stage of project design; however, analysis using a typical to larger-sized residential condenser on the rooftops provides a reasonable basis for analysis of the project's residential structures. The unit used in this analysis is a Carrier 38HDR060 split system condenser (see Appendix B, *Carrier 38HDR060 Condenser Data*). The manufacturer's noise data is provided below in Table 6, *Residential Condenser Noise Data*.

Table 6
RESIDENTIAL CONDENSER NOISE DATA

Source	Noise Levels in Decibels[1] (dB) Measured at Octave Frequencies							Overall Noise Level in A-weighted Scale (dBA)[1]
	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz	
Carrier 38HDR 060 Condenser	63.0	61.5	64.0	66.5	66.0	64.5	55.5	72.0

[1] Sound Power Levels (S_{WL})
Hz = Hertz; kHz = kilohertz

The project would use commercial-sized HVAC units located on the rooftop of the commercial structures. For the purposes of this analysis, the specifications for Carrier 50PG 12-ton HVAC units, which have a sound power level (S_{WL}) of 80.0 dBA, are used to analyze the noise impacts from the proposed project's units. The manufacturer's noise data for the HVAC units is provided below in Table 7, *Commercial Condenser Noise Data*; more detailed data can be found in Appendix C, *Carrier 50PG Condenser Data*.

Table 7
COMMERCIAL CONDENSER NOISE DATA

Source	Noise Levels in Decibels[1] (dB) Measures at Octave Frequencies								Overall Noise Level in A-weighted Scale (dBA)[1]
	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz	
Carrier 50PG 12-ton Unit	90.4	83.1	80.9	77.8	75.2	70.0	66.1	57.6	80.0

Source: Appendix B
[1] Sound Power Levels (S_{WL})
Hz = Hertz; kHz = kilohertz

3.2.2.2 Transportation

Vehicular Traffic Volumes

Traffic information was provided by communication with the Sacramento County Department of Transportation (County 2018) and default trip generation rates provided in the project's Air Quality and Greenhouse Gas Emissions Technical Report (HELIX 2021). The project is expected to generate 936 average daily trips (ADT). A daily traffic count conducted in 2017 shows the segment carries 29,318 vehicles per day.

A conservative two percent annual straight-line traffic growth projection was assumed for the adjacent roadway segment to yield the following planning information. Peak hour planning assumed 10 percent of ADT used as a basis for projecting roadway L_{DN} noise levels. The roadway noise analysis assumes 45 miles per hour speed limits, and the vehicle breakdown is analyzed at the same percentage observed during the traffic study. This breakdown is 97.5 percent automobiles, 2 percent medium trucks, and 0.5 percent heavy trucks. Traffic volumes for Watt Avenue are provided in Table 8, *Traffic Volumes With and Without the Project*.

Table 8
TRAFFIC VOLUMES WITH AND WITHOUT THE PROJECT

Roadway	ADT Existing[1]	ADT Existing + Project	ADT 2035 Conditions	ADT 2035 Conditions + Project
Watt Avenue	29,138	30,074	42,530	43,466

Source: County 2018; HELIX 2021

1 Existing is conservatively based on the lower 2017 count numbers

3.3 SUMMARY OF NOISE IMPACTS IN THE CORRIDOR PLAN EIR

The potential noise impacts of the North Watt Avenue Corridor Plan were analyzed in Section 10 of the Corridor Plan EIR. Impacts related to excessive construction-generated noise were considered to be less than significant provided that construction activities comply with the operational restrictions contained within Section 6.68.090 of the municipal code (Sacramento County Noise Standard Exemptions).

Impacts related to exterior noise exposure to residential uses was considered to be significant and unavoidable. Interior residential noise exposure impacts were found to be less than significant, assuming that standard façade construction for residential structures results in a minimum 25 dBA exterior-to-interior reduction in noise. Mitigation measure NS-1 requires setbacks for residential construction to remain outside of the 70 L_{DN} contour unless building materials can ensure interior noise levels do not exceed 45 L_{DN}.

Railroad noise exposure was considered a significant and unavoidable impact for planned residential uses in close proximity to the Union Pacific Railroad. Note that the project site is located approximately 1.8 miles from the Union Pacific Railroad and would not be affected by rail noise.

Operational (non-transportation) noise impacts were considered to be less than significant with the incorporation of mitigation measure NS-4, which specifies that for mixed-use projects no use shall be operated so as to generate recurring noises that are unreasonably loud, cause injury, or create a nuisance to any person of ordinary sensitivities. No nonresidential use shall be operated so as to generate any noise in an adjacent residential area that is louder than the noise which could be generally expected from uses permitted in that area.

3.4 GUIDELINES FOR THE DETERMINATION OF SIGNIFICANCE AND CONDITIONS OF APPROVAL

Based on Appendix G of the CEQA Guidelines (which have been updated since the certification of the Corridor Plan EIR), the following thresholds are used to determine the significance of impacts.

Threshold 1*:* *Would the project generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the Sacramento County General Plan or noise ordinance?*

Per the County Noise Ordinance, impacts would be significant if the project would generate noise levels at a common property line that would exceed the following one-hour average exterior noise levels: 55 dBA from 7:00 a.m. to 10:00 p.m. and 50 dBA from 10:00 p.m. to 7:00 a.m. Impacts on interior noise levels would be significant if the project would expose residential uses to noise levels exceeding 45 L_{DN} .

For traffic-related noise, impacts are considered significant in areas where implementation of the project would result in an increase of the ambient noise level by 3 dBA or more.

Construction activity would be considered significant for nearby residences if it occurs outside the hours stated in the Sacramento County Municipal Code. These hours are identified as between 6:00 a.m. and 8:00 p.m. on weekdays, and 8:00 a.m. and 8:00 p.m. on weekends.

Threshold 2: *Would the project generate excessive ground-borne vibration or ground-borne noise levels?*

Excessive ground-borne vibration is defined as equal to or in excess of 0.2 in/sec peak particle velocity (PPV). Construction activities within 200 feet and pile driving within 600 feet of a vibration sensitive use would be potentially disruptive to vibration-sensitive operations (Caltrans 2013).

Threshold 3: *For a project located within the vicinity of a private airstrip or an airport land use plan, or where such a plan has not been adopted, within two miles of a public use airport or private airstrip, would the project expose people residing or working in the project area to excessive noise?*

Excessive noise exposure is defined as noise levels that exceed the standards in the County General Plan Noise Element for the associated land use.

Threshold 4: Would the project cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

Impacts would be significant if the project would expose proposed residential uses to noise levels that exceed 65 $L_{DN,}$ which would be inconsistent with the General Plan Noise Element.

4.0 IMPACTS

4.1 ISSUE 1: EXCESSIVE NOISE LEVELS

Would the project generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the Sacramento County General Plan or noise ordinance?

4.1.1 Operational Noise Generation

The proposed project would have HVAC units on the rooftops of each structure. The nearest NSLUs would be the residential property 130 feet to the east across Watt Avenue, and the residences 165 feet to the west. At these distances, noise levels from the project's HVAC units (assumed to have the configuration described in Section 3.2.2.1 of this report) would not be expected to exceed 50 dBA at any nearby property lines. Operational noise levels would be less than significant.

4.1.2 Off-site Transportation Noise

TNM software was used to calculate the noise contour distances for off-site roadway segments in the project vicinity for the following scenarios: Existing, Existing + Project, 2035 Conditions, and 2035 Conditions + Project. The off-site roadway modeling represents a conservative analysis that does not take into account topography or attenuation provided by existing structures. The results of this analysis for the CNEL at the nearest land uses along the roadway segments are shown below in Table 9, *Off-site Traffic Noise Levels*.

Table 9
OFF-SITE TRAFFIC NOISE LEVELS

Roadway Segment	Distance to Nearest NSLU (feet)[1]	NSLU Type	CNEL at Nearest NSLU Existing			CNEL at Nearest NSLU Cumulative		
			Existing	Existing + Project	Change in CNEL	Existing + Buildout	Existing + Buildout + Project	Change in CNEL
Watt Avenue								
Antelope Road to Elkhorn Boulevard	75	SF/ MF	67.7	67.8	+0.1	69.3	69.4	+0.1

1 Distance measured from roadway centerline.
NSLU = Noise Sensitive Land Use; SF = Single-family residential; MF = Multi-family residential

A direct significant impact would occur if the project were to result in a doubling of traffic along Watt Avenue, which would cause a doubling of noise (or a 3-dBA increase). As shown in Table 9, the project-generated traffic would result in minimal increases in noise levels at the NSLUs along Watt Avenue under the Existing + Project and 2035 Conditions + Project scenarios. Therefore, impacts related to off-site noise generation from project-generated traffic would be less than significant.

4.1.3 Construction Noise

Construction of the project would involve grading, construction of new the structures, and paving of the site. Construction activity would be restricted to the hours between 6:00 a.m. and 8:00 p.m. on weekdays, between 8:00 a.m. and 8:00 p.m. on weekends. Because construction would take place during these hours, noise impacts would be less than significant, consistent with the conclusion in the Corridor Plan EIR

For informational purposes, noise calculations for typical construction equipment are provided. Construction equipment would not all operate at the same time or location and would not be in constant use during the 8-hour operating day. The nearest property lines would be approximately 150 feet from the residential structure construction. Table 10, *Construction Equipment Noise Levels,* provides the 150-foot distance noise level for expected construction equipment.

Table 10
CONSTRUCTION EQUIPMENT NOISE LEVELS

Unit	Percent Operating Time	L_{MAX} at 150 feet	dBA L_{EQ} at 150 feet
Backhoe	40	68.0	64.0
Concrete/Industrial Saw	20	80.0	73.0
Concrete Mixer Truck	40	69.3	65.3
Crane	16	71.0	63.0
Excavator	40	71.2	67.2
Front End Loader	40	69.6	65.6
Paver	50	67.7	64.7

Source: RCNM

4.1.4 Construction Traffic

This analysis assumes approximately 10,000 cubic yards total of soil import, or approximately 31 truckloads per day during grading, would be required for fill (HELIX 2021). The addition of 31 truckloads was doubled to assume round trips for a given NSLU. Over the course of an assumed 8-hour workday, approximately 8 truck trips per hour would be required. TNM software was used to calculate the noise contour distances for off-site roadway segments in the project vicinity for the addition of eight haul trucks per hour. Existing traffic numbers for Watt Avenue were conservatively used to calculate construction conditions. The off-site roadway modeling represents a conservative analysis that does not consider topography or attenuation provided by existing structures. The addition of eight haul trips would increase the noise levels along Watt Avenue from 67.7 L_{DN} to 67.9 L_{DN} at the nearest land uses. This would be an increase of 0.2 L_{DN} which would not be perceptible to nearby receptors. Impacts from construction traffic noise would therefore be less than significant.

4.2 ISSUE 2: EXCESSIVE VIBRATION

Would the project generate excessive ground-borne vibration or ground-borne noise levels?

4.2.1 Construction Vibration

An on-site source of vibration during project construction would be a vibratory roller (primarily used to achieve soil compaction as part of the foundation and paving construction), which is expected to be used approximately 165 feet of the nearest occupied residential structure. A vibratory roller creates approximately 0.210 in/sec PPV at a distance of 25 feet. A vibratory roller would fall below the 0.2 in/sec PPV threshold as defined in Threshold 2. Therefore, temporary impacts associated with the vibratory roller (and other potential equipment) would be less than significant.

4.2.2 Operational Vibration

The proposed land uses (residential) do not include equipment that would generate substantial vibration. Therefore, operational vibration impacts are less than significant.

4.3 ISSUE 3: AIRPORT NOISE EXPOSURE

For a project located within the vicinity of a private airstrip or an airport land use plan, or where such a plan has not been adopted, within two miles of a public use airport or private airstrip, would the project expose people residing or working in the project area to excessive noise?

4.3.1 Aircraft Noise

The project is located approximately 1.5 miles northeast of McClellan Airport. The project would be located outside the 60 CNEL noise contours from airport operations (Sacramento Area Council of Governments 2021). As such, aircraft noise at the project site would not exceed the General Plan's 65 dBA L_{DN} threshold for its residential land use, and impacts would be less than significant.

4.4 ISSUE 4: GENERAL PLAN NOISE ELEMENT COMPLIANCE

Would the project cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

The Sacramento County General Plan Noise Element (County 2011) establishes noise standards for new uses affected by traffic and railroad noise. The standard for residential buildings is 65 L_{DN} for outdoor areas and 45 L_{DN} for interior areas (see Section 1.5.6 of this report).

As noted in the assumptions, future traffic noise levels presented in this analysis are based on information provided by the County and standard trip generation defaults for multi-family uses provided in the project's Air Quality and Greenhouse Gas Emissions Technical Report.

Noise contours depicting the noise levels across the site are shown on Figure 4, *Future On-site Noise Level Contours*. As shown, noise levels at the project's pool and playground areas would not exceed the 65 L_{DN} threshold for exterior use areas. Private balconies or outdoor patios at the project's two easternmost buildings facing Watt Avenue would exceed 65 dBA L_{DN}, however individual patios and balconies are not considered sensitive outdoor areas and are therefore compatible with the General Plan.

4.4.1 Interior Noise Levels

Mitigation measure NS-1 within the Corridor Plan EIR requires setbacks for residential construction to remain outside of the 70 L_{DN} contour unless building materials can ensure interior noise levels do not exceed 45 L_{DN}. While the EIR assumed that standard façade construction for residential structures results in a minimum 25 dBA exterior-to-interior reduction in noise, Title 24 regulations specify that acoustical studies must be prepared whenever a residential building or structure is proposed to be located near an existing or adopted freeway route, expressway, parkway, major street, thoroughfare, rail line, rapid transit line, or industrial noise source, and where such noise source or sources create an exterior CNEL (or L_{DN}) of 60 dBA or greater. Such acoustical analysis must demonstrate that the residence has been designed to limit intruding noise to an interior CNEL (or L_{DN}) of at least 45 dBA.

As shown in Figure 4, noise levels at the northern, southern, and eastern façades of the project's easternmost residential structures would be exposed to noise levels of at least 60 L_{DN}. At locations where noise levels exceed 60 L_{DN}, interior noise levels may exceed the Title 24 interior noise standards of 45 L_{DN} and the residential buildings would be potentially significant. Mitigation Measure NOI-1 would reduce impacts to below a level of significance.

NOI-1 **Exterior-to-Interior Noise Reduction Measures:** Interior noise levels for the project's proposed residences shall be demonstrated to not exceed 45 L_{DN}. Once specific building plan information is available, additional exterior-to-interior noise analysis shall be conducted for all proposed residences that are exposed to an exterior noise level of 60 L_{DN} as depicted in Figure 4 of this report.

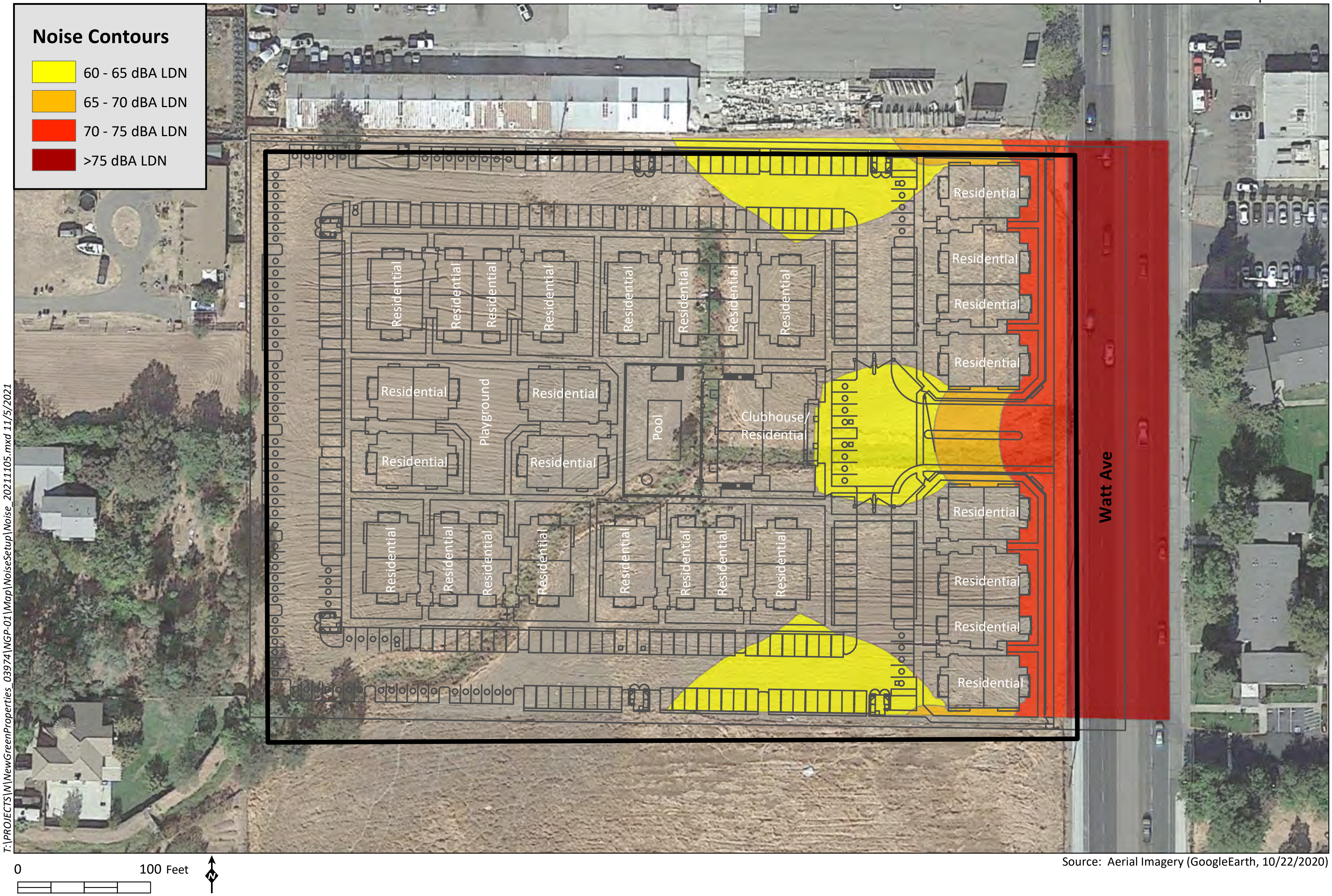
The information in the analysis shall include wall heights and lengths, room volumes, window and door tables typical for a building plan, as well as information on any other openings in the building shell. With this specific building plan information, the analysis shall determine the predicted interior noise levels at the planned on-site buildings. If predicted noise levels are found to be in excess of 45 L_{DN}, the report shall identify architectural materials or techniques that could be included to reduce noise levels to 45 L_{DN} in habitable rooms. Standard measures such as glazing with STC ratings from a STC 22 to STC 60, as well as walls with appropriate STC ratings (34 to 60), should be considered.

Appropriate means of air circulation and provision of fresh air would be provided to allow windows to remain closed for extended intervals of time so that acceptable interior noise levels can be maintained. The mechanical ventilation system would meet the criteria of the International Building Code (Chapter 12, Section 1203.3 of the 2001 California Building Code).

5.0 LIST OF PREPARERS

Charles Terry	Senior Acoustic Specialist
Jason Runyan	Acoustic Analyst
Joanne M. Dramko, AICP	Principal Noise Specialist, QA/QC

Watt Avenue Apartments



Source: Aerial Imagery (GoogleEarth, 10/22/2020)

HELIX Environmental Planning

Future On-Site Noise Level Contours

Figure 4

6.0 REFERENCES

California Department of Transportation (Caltrans). 2013. Technical Noise Supplement (TeNS) to the Traffic Noise Protocol. September.

2004. Traffic Noise Model (TNM).

HELIX Environmental Planning, Inc. (HELIX). 2021. Air Quality and Greenhouse Gas Emissions Technical Report. November.

U.S. Department of Transportation (USDOT). 2008. Roadway Construction Noise Model.

Sacramento, County of. 2018. Personal communication between Kamal Atwal of the County and Stephen Stringer of HELIX. April 24.

2012. Final Environmental Impact Report North Watt Avenue Corridor Plan, SCH Number 200992067. Available at: https://planning.saccounty.net/PlansandProjectsIn-Progress/Documents/Specific%20Plans/North_Watt_Area_CP_0512/07-17-12%20DERA%20-%20FEIR.pdf.

2011. 2030 General Plan Noise Element. November 9. Amended December 13, 2017.

Sacramento Area Council of Governments (SACOG). 2021. Airport Land Use Commission McClellan Airport Noise Contours. Available at: https://www.sacog.org/post/airport-land-use-commission

This page intentionally left blank

Appendix A

On-site Noise Measurement Sheets

This page intentionally left blank

Site Survey

Job # NGP-01		Project Name: Watt Ave Apartments	
Date: 5/2/18	Site #: 1		Engineer:
Address: 7403 watt Ave			
Meter:	Serial #:	Calibrator:	Serial #:

Notes:

Sketch:

Temp: 73.5° F	Wind Spd: 0.7 mph	Humidity: %
Start of Measurement: 11:51	End of Measurement: 12:06	57.9 dBA L_{EQ}

Cars (tally per 5 cars)	Medium Trucks (MT)	Heavy Trucks (HT)
390	9	1
Noise Measurement for Information Only		
No Through Roadways		
No Calibration Analysis Will Be Provided		

1-115 2-120 3-115 4-40
2nd -390

Site Survey

Job # NGP-01		Project Name: Watt Ave Apartments	
Date: 5/2/18	Site #: 2		Engineer:
Address: 7403 Watt Ave			
Meter:	Serial #:	Calibrator:	Serial #:

Notes: Industrial machines at work in adjoining Marble / Kitchen Cabnet site. Plane flew overhead last 30 seconds of measurement and increased dBA by 2

Sketch:

Temp: 76.6° F	Wind Spd: ~~[illegible]~~ 0.6 mph	Humidity: %
Start of Measurement: 11:28 AM	End of Measurement: 11:38 AM	50.7 dBA L_{EQ}

Cars (tally per 5 cars)	Medium Trucks (MT)	Heavy Trucks (HT)
Noise Measurement for Information Only		
No Through Roadways		
No Calibration Analysis Will Be Provided		

Appendix B

Carrier 38HDR060 Condenser Data

This page intentionally left blank

ELECTRICAL DATA

38HDR UNIT SIZE	V–PH–Hz	VOLTAGE RANGE*		COMPRESSOR		OUTDOOR FAN MOTOR			MIN CKT AMPS	FUSE/ HACR BKR AMPS
		Min	Max	RLA	LRA	FLA	NEC Hp	kW Out		
018	208/230–1–60	187	253	9.0	48.0	0.80	0.125	0.09	12.1	20
024	208/230–1–60	187	253	12.8	58.3	0.80	0.125	0.09	16.8	25
030	208/230–1–60	187	253	14.1	73.0	1.45	0.25	0.19	19.1	30
036	208/230–1–60	187	253	14.1	77.0	1.45	0.25	0.19	19.1	30
	208/230–3–60	187	253	9.0	71.0	1.45	0.25	0.19	12.7	20
	460–3–60	414	506	5.6	38.0	0.80	0.25	0.19	7.8	15
048	208/230–1–60	187	253	21.8	117.0	1.45	0.25	0.19	28.7	50
	208/230–3–60	187	253	13.7	83.1	1.45	0.25	0.19	18.6	30
	460–3–60	414	506	6.2	41.0	0.80	0.25	0.19	8.6	15
060	208/230–1–60	187	253	26.4	134.0	1.45	0.25	0.19	34.5	60
	208/230–3–60	187	253	16.0	110.0	1.45	0.25	0.19	21.5	35
	460–3–60	414	506	7.8	52.0	0.80	0.25	0.19	10.6	15

* Permissible limits of the voltage range at which the unit will operate satisfactorily

FLA – Full Load Amps
HACR – Heating, Air Conditininng, Refrigeration
LRA – Locked Rotor Amps
NEC – National Electrical Code
RLA – Rated Load Amps (compressor)

NOTE: Control circuit is 24–V on all units and requires external power source. Copper wire must be used from service disconnect to unit. All motors/compressors contain internal overload protection.

38HDR

SOUND LEVEL

Unit Size	Standard Rating (dB)	Typical Octave Band Spectrum (dBA) (without tone adjustment)						
		125	250	500	1000	2000	4000	8000
018	68	52.0	57.5	60.5	63.5	60.5	57.5	46.5
024	69	57.5	61.5	63.0	61.0	60.0	56.0	45.0
030	72	56.5	63.0	65.0	66.0	64.0	62.5	57.0
036	72	65.0	61.5	63.5	65.0	64.5	61.0	54.5
048	72	58.5	61.0	64.0	67.5	66.0	64.0	57.0
060	72	63.0	61.5	64.0	66.5	66.0	64.5	55.5

CHARGING SUBCOOLING (TXV-TYPE EXPANSION DEVICE)

UNIT SIZE–VOLTAGE, SERIES	REQUIRED SUBCOOLING °F (°C)
018	12 (6.7)
024	12 (6.7)
030	12 (6.7)
036	12 (6.7)
048	12 (6.7)
060	12 (6.7)

This page intentionally left blank

Appendix C

Carrier 50PG Condenser Data

This page intentionally left blank

50PG03−28
Ultra High Efficiency Single Package Electric Cooling with Optional Electric Heat Commercial Rooftop Units with PURON® (R−410A) Refrigerant, Optional EnergyX™ (Energy Recovery Ventilator)

Carrier®
Turn to the Experts.℠

Product Data

CENTURION

EnergyX model shown

DEALER DESIGN AWARDS
the NEWS | GOLD

BUILDINGS magazine
Editors' Choice
TOP 100 PRODUCTS
2005

Puron®
the environmentally sound refrigerant

Operation Air Quantity Limits

50PG03-16 Units

UNIT 50PG	COOLING (cfm)		HEATING (cfm) ELECTRIC HEAT	
	Min	Max	Min	Max
03	600	1000	600	1000
04	900	1500	900	1500
05	1200	2000	1200	2000
06	1500	2500	1500	2500
07	1800	3000	1800	3000
08	2250	3750	2250	3750
09	2550	4250	2550	4250
12	3000	5000	3000	5000
14	3750	6250	3750	6250
16	4500	7500	4500	7500

50PG

50PG20-28 Units

50PG	COOLING		ELECTRIC HEAT	ELECTRIC HEAT (Vertical)	ELECTRIC HEAT (Horizontal)
	Minimum Cfm	Maximum Cfm		Minimum Cfm	Minimum Cfm
20	5000	9,000	High Heat (75 kW)	4,500	5,400
			Medium Heat (50 kW)	3,750	4,800
			Low Heat (25 kW)	3,750	3,750
24	5500	10,000	High Heat (75 kW)	4,500	5,400
			Medium Heat (50 kW)	3,750	4,800
			Low Heat (25 kW)	3,750	3,750
28	6500	12,000	High Heat (75 kW)	4,500	5,400
			Medium Heat (50 kW)	3,750	4,800
			Low Heat (25 kW)	3,750	3,750

Outdoor Sound Power (Total Unit)

UNIT 50PG	A-WEIGHTED* (dB)	OCTAVE BAND LEVELS dB							
		63	125	250	500	1000	2000	4000	8000
03	75.0	82.6	79.9	75.7	73.3	70.0	64.3	58.4	50.5
04	73.2	79.8	77.2	74.1	70.1	68.0	63.6	58.4	51.9
05	71.9	79.7	79.6	72.6	69.6	66.0	61.4	56.4	48.5
06	78.5	82.2	82.6	79.5	75.7	73.9	68.6	64.0	56.3
07	78.5	87.5	83.0	78.5	76.3	73.8	68.4	63.8	56.5
08	80.0	91.7	83.6	81.0	77.9	75.0	69.9	66.0	59.3
09	79.9	89.1	82.7	80.0	77.7	75.0	70.2	66.3	57.8
12	80.0	90.4	83.1	80.9	77.8	75.2	70.0	66.1	57.6
14	83.3	86.4	85.9	85.3	81.8	78.2	72.2	67.9	59.9
16	84.0	90.3	85.2	83.5	81.1	79.0	73.7	70.5	65.4
20	81.7	90.2	84.8	80.7	79.0	77.6	71.4	66.7	60.7
24	84.9	90.0	86.3	83.6	82.9	80.3	74.9	71.4	66.5
28	84.9	90.0	86.3	83.6	82.9	80.3	74.9	71.4	66.5

LEGEND
db – Decibel
*Sound Rating ARI or Tone Adjusted, A–Weighted Sound Power Level in dB. For sizes 03–12, the sound rating is in accordance with ARI Standard 270–1995. For sizes 14–28, the sound rating is in accordance with ARI 370–2001.

Outdoor Sound Power (Total Unit) with High CFM EnergyX

UNIT 50PG w/ERV	A−WEIGHTED* (dB)	OCTAVE BAND LEVELS dB							
		63	125	250	500	1000	2000	4000	8000
03	83.0	82.8	81.4	79.7	78.1	77.9	76.5	72.5	70.1
04	82.7	80.2	79.6	79.1	77.3	77.6	76.5	72.5	70.1
05	82.6	80.1	81.1	78.8	77.2	77.4	76.4	72.4	70.0
06	83.8	82.4	83.4	81.6	79.1	78.8	76.9	72.9	70.2
07	83.8	87.6	83.8	81.1	79.3	78.8	76.9	72.9	70.2
08	87.3	92.0	86.8	84.5	82.4	81.8	80.5	78.0	74.2
09	87.2	89.6	86.4	84.1	82.4	81.8	80.5	78.1	74.2
12	87.3	90.8	86.5	84.5	82.4	81.8	80.5	78.0	74.2
14	88.2	87.2	88.0	87.0	84.2	82.7	80.8	78.2	74.3
16	91.4	93.2	92.8	88.2	86.3	85.5	84.4	83.4	78.4
20	91.2	93.1	92.7	87.4	85.8	85.2	84.2	83.3	78.3
24	91.7	93.0	93.0	88.2	86.9	85.8	84.5	83.5	78.5
28	91.7	93.0	93.0	88.2	86.9	85.8	84.5	83.5	78.5

LEGEND
dB − Decibel
* Sound Rating ARI or tone Adjusted, A−Weighted Sound Power Level in dB. For sizes 03−12, the sound rating is in accordance with ARI Standard 270−1995. For sizes 14−28, the sound rating is in accordance with ARI 370−2001.

PHYSICAL DATA

50PG03-07

BASE UNIT 50PG		03	04	05	06	07
NOMINAL CAPACITY (Tons)		2	3	4	5	6
OPERATING WEIGHT (lb)						
Unit*		704	704	775	829	874
Economizer						
Vertical		40	40	40	40	40
Horizontal		50	50	50	50	50
Humidi-MiZer™ Adaptive Dehumidification System		22	22	31	27	26
Roof Curb						
14-in.		122	122	122	122	122
24-in.		184	184	184	184	184
COMPRESSOR		Fully Hermetic Scroll				
Quantity		1	1	1	1	1
Oil Type		Copeland 3MA				
Number of Refrigerant Circuits		1	1	1	1	1
Oil (oz)		38	42	42	66	56
REFRIGERANT TYPE		R-410A (Puron® Refrigerant)				
Expansion Device		TXV	TXV	TXV	TXV	TXV
Operating Charge (lb) — Standard Unit		7.3	9.0	15.7	16.6	19.0
Operating Charge (lb) — Unit with Humidi-MiZer System		11.75	13.50	25.00	22.00	22.70
CONDENSER COIL		Enhanced Copper Tubes, Aluminum Lanced Fins				
Condenser A (Outer)						
Rows...Fins/in.		1…17	1…17	2…17	2…17	2…17
Face Area (sq ft)		12.6	12.6	12.6	12.6	12.6
Condenser B (Inner)						
Rows...Fins/in.		—	1…17	2…17	2…17	2…17
Face Area (sq ft)		—	12.6	12.6	12.6	12.6
HUMIDI−MIZER COIL		Enhanced Copper Tubes, Aluminum Lanced Fins				
Rows...Fins/in.		1…17	1…17	1…17	1…17	1…17
Face Area (sq ft)		6.4	6.4	9.3	9.3	9.3
CONDENSER FAN		Propeller				
Quantity…Diameter (in.)		1…24	1…24	1…24	1…24	1…24
Nominal Cfm (Total, all fans)		3500	3500	3500	4500	4500
Motor Hp		1/8	1/8	1/8	1/4	1/4
Nominal Rpm — High Speed		825	825	825	1100	1100
Nominal Rpm — Low Speed		300	300	300	300	300
EVAPORATOR COIL		Enhanced Copper Tubes, Aluminum Double-Wavy Fins, Face Split				
Rows…Fins/in.		2…15	2…15	2…15	3…15	4…15
Face Area (sq ft)		9.3	9.3	9.3	9.3	9.3
EVAPORATOR FAN		Centrifugal Type, Belt Drive				
Quantity…Size (in.)	Low	1...12 x 9	1...12 x 9	1...12 x 9	1...12 x 9	1...12 x 9
	High	1...12 x 9	1...12 x 9	1...12 x 9	1...12 x 9	1...12 x 9
Type Drive	Low	Belt	Belt	Belt	Belt	Belt
	High	Belt	Belt	Belt	Belt	Belt
Nominal Cfm		800	1200	1600	2000	2400
Maximum Continuous Bhp	Low	0.85	0.85	0.85	0.85/2.40†	2.40
	High	0.85	0.85	1.60/2.40†	1.60/2.40†	3.10
Motor Nominal Rpm		1620	1620	1620	1725	1725
Motor Frame Size	Low	48Y	48Y	48Y	56Y	56Y
	High	48Y	48Y	56Y	56Y	56Y
Fan Rpm Range	Low	482-736	482-736	596-910	690-978	796-1128
	High	656-1001	796-1128	828-1173	929-1261	1150-1438
Motor Bearing Type		Ball	Ball	Ball	Ball	Ball
Maximum Fan Rpm		2000	2000	2000	2000	2000
Motor Pulley Pitch Diameter Range (in.)	Low	1.9-2.9	1.9-2.9	1.9-2.9	2.4-3.4	2.4-3.4
	High	1.9-2.9	2.4-3.4	2.4-3.4	2.8-3.8	4.0-5.0
Fan Pulley Pitch Diameter (in.)	Low	6.8	6.8	5.5	6.0	5.2
	High	5.0	5.2	5.0	5.2	6.0
Nominal Motor Shaft Diameter (in.)	Low	1/2	1/2	1/2	5/8	5/8
	High	1/2	1/2	5/8	5/8	7/8
Belt…Pitch Length (in.)	Low	49.3	49.3	49.3	49.3	49.3
	High	49.3	49.3	49.3	49.3	52.3
Belt…Type	Low	AX	AX	AX	AX	AX
	High	AX	AX	AX	AX	AX
Pulley Center Line Distance Min. (in.)	Low	16.2	16.2	16.2	16.2	16.2
	High	16.2	16.2	16.2	16.2	16.2
Pulley Center Line Distance Max. (in.)	Low	20.2	20.2	20.2	20.2	20.2
	High	20.2	20.2	20.2	20.2	20.2
Speed Change per Full Turn of Movable Pulley Flange (rpm)	Low	48	48	59	58	66
	High	65	62	69	66	58
Movable Pulley Maximum Full Turns from Closed Position	Low	5	5	5	5	5
	High	5	5	5	5	5
Factory Pulley Setting (rpm)	Low	482	482	596	690	796
	High	656	796	828	929	1150
Fan Shaft Diameter at Pulley (in.)		3/4	3/4	3/4	3/4	3/4
HIGH-PRESSURE SWITCH (psig)						
Cutout		660 ± 10	660 ± 10	660 ± 10	660 ± 10	660 ± 10
Reset (Auto.)		505 ± 20	505 ± 20	505 ± 20	505 ± 20	505 ± 20
RETURN-AIR FILTERS		Throwaway				
Quantity…Size (in.)		4…16 x 20 x 2	4…16 x 20 x 2	4…16 x 20 x 2	4…16 x 20 x 2	4…16 x 20 x 2

LEGEND

TXV – Thermostatic Expansion Valve

*Aluminum evaporator coil/aluminum condenser coil.

† Single phase/three phase