Public Review Draft Initial Study

Hickman Water Consolidation Project

Prepared By
City of Waterford
Planning Department
101 E Street
Waterford, California 95386

November 2020

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Appendix A Biological Assessment, dated December 17, 2019, prepared by Moore Biological, Inc.

Appendix B Cultural Resources Inventory Report for the Hickman Water Consolidation Project, dated December 2019, prepared by Far Western Anthropological Research Group, Inc.

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SECTION 1.0 - INTRODUCTION

1. PROJECT TITLE

Hickman Water Consolidation Project

2. LEAD AGENCY NAME AND ADDRESS

City of Waterford
101 E Street
Waterford, California 95386

3. CONTACT PERSON AND PHONE NUMBER

Mr. Mark Niskanen
Planning Manager
Planning Department
(209) 599-8377

4. PROJECT LOCATION

The Proposed Project is generally located within the City of Waterford, the County of Stanislaus, and the Community of Hickman. The Proposed Project is specifically located along Yosemite Boulevard (SR 132), between G Street and the northwestern point of the River Pointe Subdivision, and at the River Pointe water treatment facility. With the jurisdiction of Stanislaus County, the Proposed Project is located on Hickman Road, crossing the Hickman Road Bridge into the Community of Hickman. Within the Community of Hickman, the Proposed Project is located on Lake Road (between Hickman Road and I Street), I Street (between Lake Road and 4th Street), 4th Street (between I Street and Montpelier Road), Hickman Road (from Lake Road to Kim Street), and Montpelier Road (between Lake Road and 6th Street), and at the Hickman well sites.

For an illustration of the Proposed Project's location, refer to Figure 1 – Regional Location, and Figure 2 – Project Location.

5. PROJECT SPONSOR'S NAME AND ADDRESS

Same as Lead Agency.

6. EXISTING SETTING

The existing setting of the Proposed Project is generally within the City of Waterford, the County of Stanislaus, and the Community of Hickman. The Proposed Project is specifically located on Yosemite Boulevard (SR 132), between G Street and the northwestern point of the River Pointe Subdivision. Within the jurisdiction of Stanislaus County, the Proposed Project is located on Hickman Road, crossing the Hickman Road Bridge into the Community of Hickman. Within the Community of Hickman, the Proposed Project is located on Lake Road (between Hickman Road and I Street), I Street (between Lake Road and 4th Street), 4th Street (between I Street and Montpelier Road), Hickman Road (from Lake Road to Kim Street), and Montpelier Road (between Lake Road and 6th Street). The site is bounded by agricultural, and residential land uses to the north, east, south, and west. Figures One and Two illustrate the current site setting.

Figure 1 – Regional Location

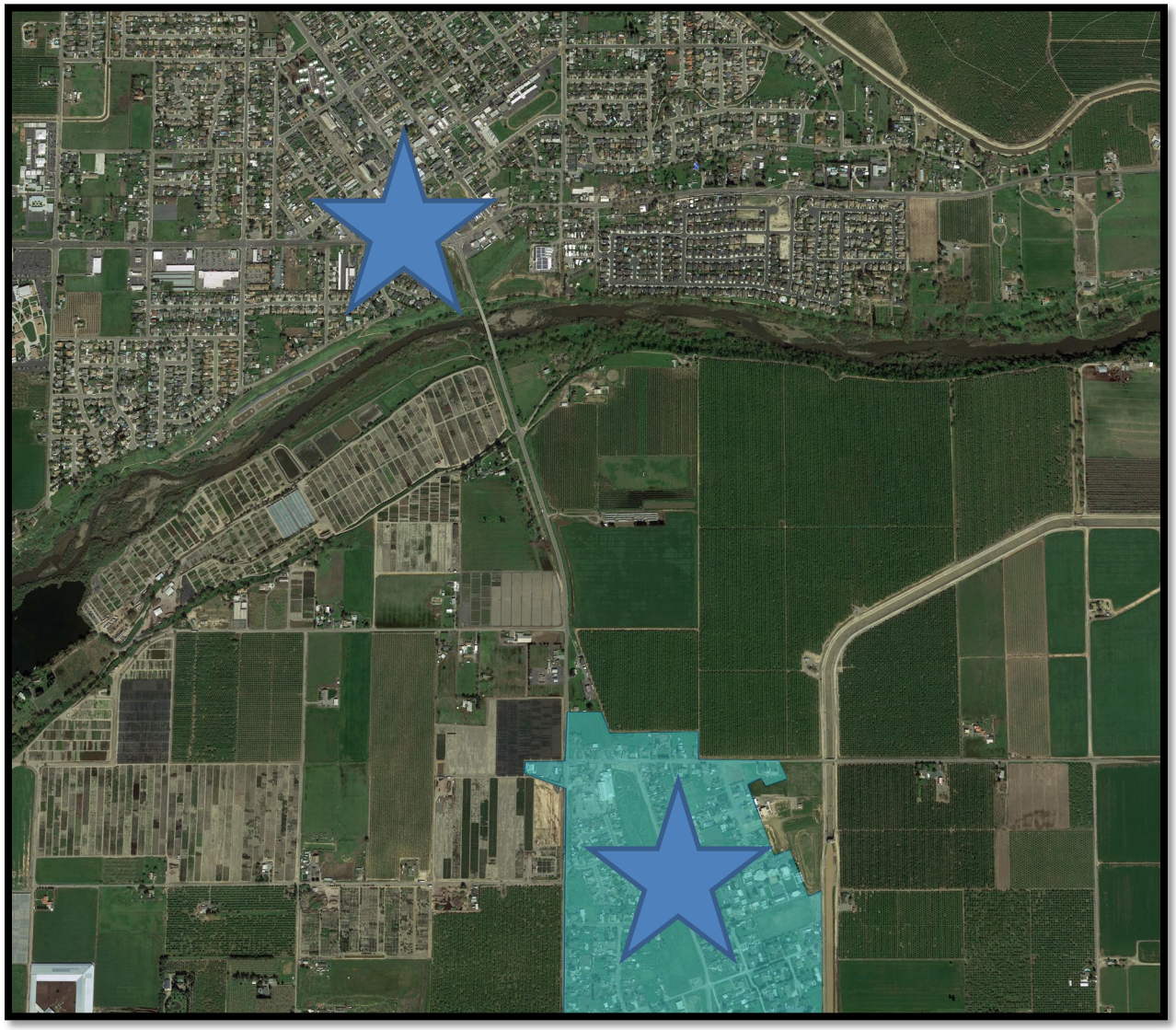
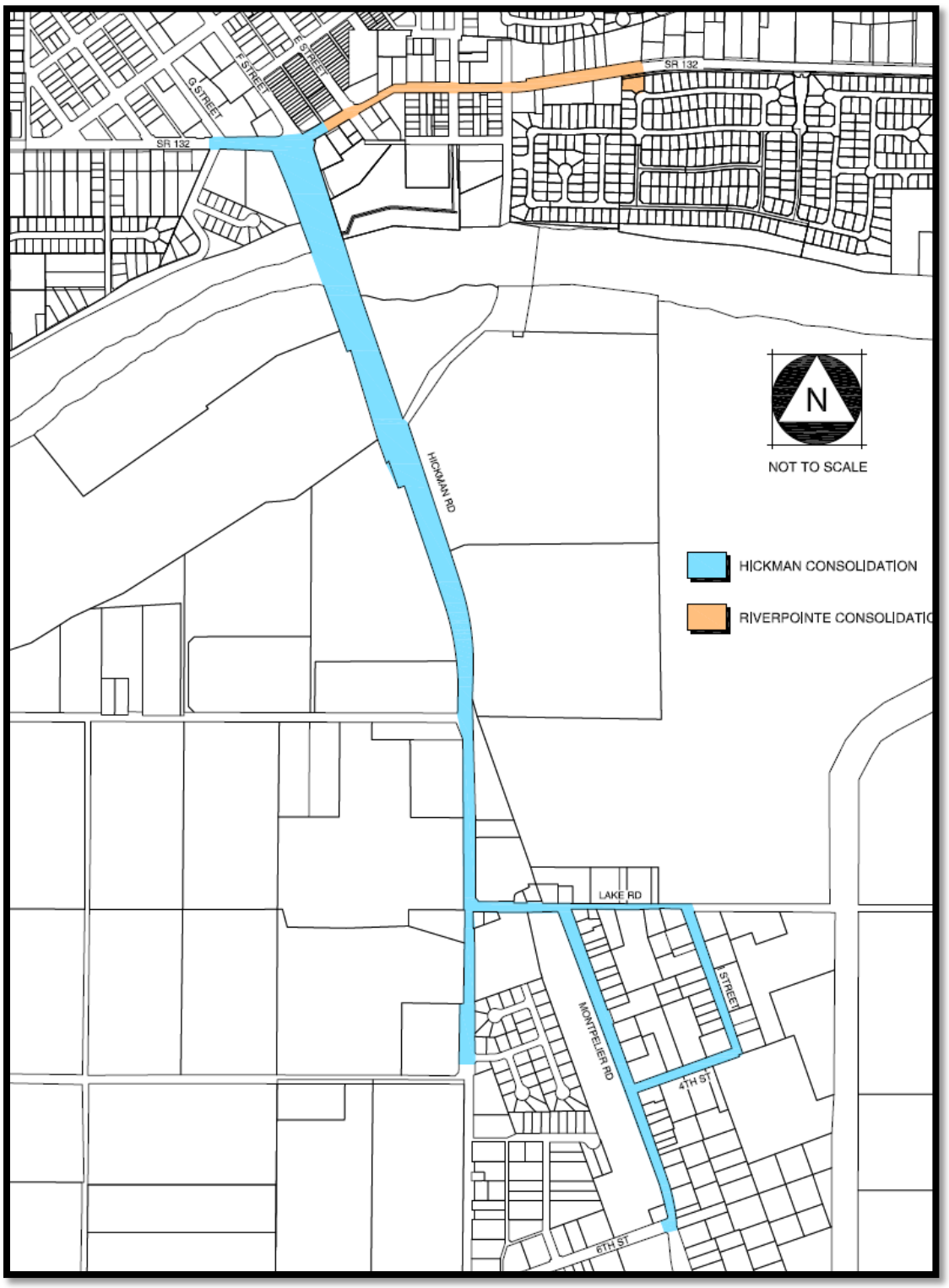


Figure 2 – Project Location



7. EXISTING GENERAL PLAN DESIGNATION

Not applicable. The Proposed Project is located within existing public right-of-way and is not assigned any land use designations by the City of Waterford General Plan or Stanislaus County General Plan.

8. EXISTING ZONING

Not applicable. The Proposed Project is not located within any zone districts assigned by the City of Waterford or Stanislaus County.

9. SURROUNDING LAND USES AND SETTING

The Proposed Project's surrounding land uses vary, but are primarily made up of agricultural, commercial, and residential land uses.

10. DESCRIPTION OF THE PROJECT

The Proposed Project generally consists of domestic and public safety water infrastructure improvements to the City of Waterford's water systems, in accordance with state water and fire codes, including improvements within the Community of Hickman. The City of Waterford is the water purveyor for the Community of Hickman. All work associated with the Proposed Project will occur within existing right-of way. In addition, while the Proposed Project consists of replacing some existing water lines with larger diameter water lines, this component of the Proposed Project is solely being done to address deficient fire suppression flows within the existing water system. The Proposed Project does not propose nor allow for the expansion of water service beyond the existing Waterford/Hickman service areas, as previously approved by the City of Waterford and the Community of Hickman. Specifically, the Proposed Project includes the following:

- Construct a 14" water main in Yosemite Blvd (SR 132) from the alleyway west of Waterford City Hall to the F Street intersection in Waterford (approximately 240').
- Construct a 14" water main in F Street from the Yosemite Blvd (SR 132) intersection to the north connection point of the proposed bridge crossing the Tuolumne River (approximately 550').
- Construct a 14" water main in the Hickman Road right-of-way from the south connection point of the proposed bridge crossing to the Hickman Road/Lake Road intersection in Hickman (approximately 4,150').
- Replace the existing 6" water main in Hickman Road between Lake Road and Kim Street with a new 10" water main (approximately 1,040').

- Replace the existing 6” water main in Lake Road between Hickman Road and Montpelier Road with a 12” water main (approximately 680’).
- Replace the existing 6” water main in Lake Road between Montpelier Road and I Street with a 10” water main (approximately 850’).
- Replace the existing 4” water main in Montpelier Road between Lake Road and 4th Street with a 10” water main (approximately 1,360’).
- Replace the existing 4” water main in Montpelier Road between 4th Street and 6th Street with an 8” water main (approximately 990’).
- Replace the existing 6” water main in I Street between Lake Road and 4th Street with an 8” water main (approximately 1,060’).
- Replace the existing 6” water main in 4th Street between Montpelier Road and I Street with a 10” water main (approximately 790’).

All work associated with the Proposed Project will occur within existing right-of-way. In addition, while the Proposed Project consists of replacing existing water lines with larger water lines, this component of the Proposed Project is solely being done to allow for adequate fire suppression flows within the existing water system. The Proposed Project does not include allowing for the expansion of the water service area beyond which is already approved for the City of Waterford and the Community of Hickman.

11. REQUIRED APPROVALS

The Proposed Project does not require any discretionary approvals from the City of Waterford.

12. OTHER PUBLIC AGENCIES WHOSE APPROVAL IS REQUIRED

- Encroachment Permit(s) from Stanislaus County for construction activities located with Stanislaus County right-of-way.
- Encroachment Permit(s) from the California Department of Transportation for construction activities located within State Route 132.

13. ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

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

	Aesthetics		Agriculture and Forestry Resources		Air Quality
	Biological Resources		Cultural Resources		Energy
	Geology and Soils		Greenhouse Gas Emissions Materials		Hazards and Hazardous
	Hydrology and Water Quality		Land Use and Planning		Mineral Resources
	Noise		Population and Housing		Public Services
	Recreation		Transportation/Traffic		Utilities and Service Systems
	Wildfire		Mandatory Findings of Significance		

14. LEAD AGENCY DETERMINATION:

On the basis of this initial evaluation:

	I find that based on the analysis contained in this Initial Study, the Proposed Project is exempt from further CEQA review in accordance with Section 15301 (Existing Facilities) the CEQA Guidelines and therefore, a Notice of Exemption will be filed with the Office of Planning and Research the Stanislaus County Clerk.
	I find that the Proposed Project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
X	I find that although the Proposed Project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the Proposed Project have been made by or agreed to by the Proposed Project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
	I find that the Proposed Project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
	I find that the Proposed Project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
	I find that although the Proposed Project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the Proposed Project, nothing further is required.

Roman Acosta

Mr. Roman Acosta, Contract Planner

NOVEMBER 30, 2020

Date

SECTION 2.0 EVALUATION INSTRUCTIONS:

1) A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).

2) All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.

3) Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, Less Than Significant with mitigation, or Less Than Significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.

4) "Negative Declaration: Less Than Significant with Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from Section XVII, "Earlier Analysis," may be cross-referenced).

5) Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:

   a) Earlier Analysis Used. Identify and state where they are available for review.
   b) Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.
   c) Mitigation Measures. For effects that are "Less Than Significant with Mitigation Measures Incorporated," describe the mitigation measures, which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

Pursuant to Section 15063(c)(3)(D) of the CEQA Guidelines, this Initial Study is tiered from the City's Vision 2025 General Plan Environmental Impact Report (EIR).

The City's Vision 2025 General Plan EIR is available for review at the City of Waterford City Hall, 101 E Street, Waterford, California 95386, or on the City's website: www.cityofwaterford.org.

6) Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.

7) Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.

8) This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.

9) The explanation of each issue should identify:

   a) The significance criteria or threshold, if any, used to evaluate each question; and
   b) The mitigation measure identified, if any, to reduce the impact to less than significance.

SECTION 3.0 INITIAL STUDY CHECKLIST

1. AESTHETICS -- WOULD THE PROJECT:

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
a) Have a substantial adverse effect on a scenic vista?			X	
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?			X	
c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage points.) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?			X	
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?			X	

IMPACT ANALYSIS

a. Would the project have a substantial adverse effect on a scenic vista?

The Proposed Project includes the construction and replacement of water lines and water mains to allow for adequate fire suppression flows within the existing water system. All construction will occur in existing right-of-way. The Proposed Project will not have a substantial adverse effect on any scenic vista as all work will be conducted within existing right-of-way. Therefore, the Proposed Project will have a **Less Than Significant Impact**.

b. Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings along a state scenic highway?

The Proposed Project will not substantially damage scenic resources as all construction will occur in existing right-of-way. Therefore, the Proposed Project will have a **Less Than Significant Impact**.

c. In non-urbanized areas, would the project substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage points.) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

The Proposed Project includes the replacement and construction of new water lines in existing right-of-way. The Proposed Project will not substantially degrade the existing visual character or quality of the site and its surroundings. Therefore, the Proposed Project will have a **Less Than Significant Impact.**

d. Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

The Proposed Project includes the construction and replacement of water lines and water mains to allow for adequate fire suppression flows within the existing water system. All construction will occur in existing right-of-way. The Proposed Project will not have a substantial adverse effect on any scenic vista as all work will be conducted within existing right-of-way. Therefore, the Proposed Project will have a **Less Than Significant Impact**.

MITIGATION MEASURES:

Mitigation is not required for this topic.

2. AGRICULTURE AND FORESTRY RESOURCES: Would the project:

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997, as updated) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the State's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the Project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?				X
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?				X
c) 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))?				X
d) Result in the loss of forest land or conversion of forest land to non-forest use?				X
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?				X

IMPACT ANALYSIS

a. Would the project convert Prime Farmland, Unique Farmland, Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

b. Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract?

c. *Would the project 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 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?*
d. *Would the project result in the loss of forest land or conversion of forest land to non-forest use?*
e. *Would the project 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?*

The Proposed Project includes the construction and replacement of water lines within existing right-of-way. There will not be conversion or development of land outside of existing right-of-way as a result of the Proposed Project. The Proposed Project will not be located within agricultural lands or land that could be used for future agricultural purposes. Therefore, the Proposed Project will have **No Impact**.

MITIGATION MEASURES:

Mitigation is not required for this topic.

3. AIR QUALITY -- WOULD THE PROJECT:

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied on to make the following determinations. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?			X	
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable Federal or State ambient air quality standard?			X	
c) Expose sensitive receptors to substantial pollutant concentrations?			X	
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?			X	

IMPACT ANALYSIS

a. Would the project conflict with or obstruct implementation of the applicable air quality plan?

The Proposed Project will be required to adhere to all San Joaquin Valley Air Pollution Control District (SJVAPCD) Rules and Regulations. The Proposed Project will not conflict with any applicable air quality plan. Therefore, the Proposed Project will have **a Less Than Significant Impact.**

The following discussion is an analysis for criteria (b) and (c):

b. Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable Federal or State ambient air quality standard??

c. Would the project expose sensitive receptors to substantial pollutant concentrations?

As stated previously, the Proposed Project will be required to adhere to all San Joaquin Valley Air Pollution Control District Rules and Regulations; and therefore, the Proposed Project will have **a Less Than Significant Impact.**

d. Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

The Proposed Project includes the replacement and construction of new water lines and is located within existing right-of-way. Further, the Proposed Project will be required to adhere to all San Joaquin Valley Air Pollution Control District Rules and Regulations. Additionally, the Proposed Project is not expected to create objectionable odors. All construction will be located within existing right-of-way. Further, the Proposed Project will be required to adhere to all San Joaquin Valley Air Pollution Control District Rules and Regulations. Therefore, the Proposed Project will have **a Less Than Significant Impact.**

MITIGATION MEASURES:

Mitigation is not required for this topic.

4. BIOLOGICAL RESOURCES -- WOULD THE PROJECT:

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

IMPACT ANALYSIS

a. *Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service?*

b. Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

c. Would the project have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

d. Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native residents or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

e. Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

f. Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

The analysis contained in this section of the Initial Study is based upon a Biological Assessment, dated December 17, 2019, prepared by Moore Biological, Inc. The Biological Assessment is included in this Initial Study as Appendix A.

As noted previously, the Proposed Project includes the construction and replacement of water lines within existing right-of-way. The Biological Assessment referenced above concluded the following:

- The site consists primarily of disturbed ruderal grassland habitats along heavily trafficked road shoulders. Overall, on-site habitats are biologically unremarkable.
- No potentially jurisdictional Waters of the U.S. or wetlands were observed within the proposed construction footprint. The Tuolumne River is in close proximity to the project site and is a jurisdictional Water of the U.S. but will not be disturbed during project construction.
- No riparian habitats or other sensitive natural communities were observed in the site.
- Due to a lack of suitable habitat, it is unlikely that special-status plants occur in the site.
- With the exception of Swainson's hawk and burrowing owl, no special-status wildlife species are expected to occur in or near the site on more than a very occasional or transitory basis. Installation of pipelines in the strips of ruderal grassland in the site will not result in a reduction of potential Swainson's hawk foraging habitat.
- Due to a lack of suitable denning habitat, the project will have no effect on San Joaquin kit fox. The site does not provide habitat for giant garter snake, California tiger salamander, California red-legged frog, or northern California legless lizard and will have no effect on these special-status amphibians and reptiles. Due to a lack of vernal pools or seasonal wetlands in the site, the project will have no effect on vernal pool fairy shrimp, longhorn fairy shrimp, or vernal pool tadpole shrimp. As the project will not involve work in rivers or streams and will not change regional drainage patterns, it will have no effect on any fish species.

- The project will have no effect on VELB or its potential habitat. The only blue elderberry shrub observed in relatively close proximity to the site is approximately 100 feet from the project footprint and will not be impacted by project construction.
- The project site is not within or near areas that are designated as critical habitat for federally listed species. Construction of the project will have no effect on designated critical habitat.
- Pre-construction surveys for nesting Swainson's hawks within 0.5 miles of the project site are recommended if construction commences between March 1 and September 15. If active nests are found, a qualified biologist should determine the need (if any) for temporal restrictions on construction. The determination should be pursuant to criteria set forth by CDFW (CDFG, 1994).
- Pre-construction surveys for burrowing owls within 250 feet of the site are recommended if construction commences between February 1 and August 31. If occupied burrows are found, a qualified biologist should determine the need (if any) for temporal restrictions on construction. The determination should be pursuant to criteria set forth by CDFW (CDFG, 2012).
- Trees, shrubs, and grasslands in and near the site could be used by birds protected by the MBTA and/or Fish and Game Code of California. If construction commences during the general avian nesting season (March 1 through July 31), a pre-construction survey for nesting birds will be required. If active nests are found, work in the vicinity of the nest will be delayed until the young fledge. With implementation of these take avoidance measures, the project will have no effect on Swainson's hawk, golden eagle, tricolored blackbird, or other birds protected by the Migratory Bird Treaty Act of 1918 and/or Fish and Game Code of California.

There will be no removal of trees or the disturbing of area outside of the existing right-of-way. The Proposed Project is not a part of an adopted Habitat Conservation Plan. Therefore, the Proposed Project will have a **Less Than Significant Impact with Mitigation Incorporated.** The applicable Mitigation Measures are defined below.

MITIGATION MEASURES:

The following Mitigation Measures will be incorporated into the Proposed Project:

Mitigation Measure BIO-1:

Pre-construction surveys for nesting Swainson's hawks within 0.5 miles of the project site are recommended if construction commences between March 1 and September 15. If active nests are found, a qualified biologist should determine the need (if any) for temporal restrictions on construction. The determination should be pursuant to criteria set forth by CDFW (CDFG, 1994).

Mitigation Measure BIO-2:

Pre-construction surveys for burrowing owls within 250 feet of the site are recommended if construction commences between February 1 and August 31. If occupied burrows are found, a qualified biologist should determine the need (if any) for temporal restrictions on construction. The determination should be pursuant to criteria set forth by CDFW (CDFG, 2012).

5. CULTURAL RESOURCES -- Would the project:

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
a) Cause a substantial adverse change in the significance of a historical resource as defined in '15064.5?			X	
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to '15064.5?			X	
c) Disturb any human remains, including those interred outside of formal cemeteries?			X	

IMPACT ANALYSIS

a. *Would the project cause a substantial cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?*
b. *Would the project cause a substantial adverse chance in the significance of an archaeological resource as defined in §15064.5?*
c. *Would the project disturb any human remains, including those interred outside of dedicated cemeteries?*

The analysis contained in this section of the Initial Study is based upon a Cultural Resources Inventory Report, dated December 2019, prepared by Far Western Anthropological Research Group, Inc. The Cultural Resources Inventory Report is included in this Initial Study as Appendix B.

As noted previously, the Proposed Project includes the construction and replacement of water lines within existing right-of-way. The Cultural Resources Inventory Report concluded the following:

Far Western conducted a cultural resources inventory and evaluation in support of identification efforts for compliance with Section 106 of the NHPA and CEQA for the proposed Hickman Water Consolidation Project. Identification efforts for this study included a records search and desktop literature and map review, a buried precontact site potential assessment, a historic-era site potential assessment, an intensive survey of the APE, and resource recordation. Far Western also assisted with Native American and historical society outreach efforts. To date there have been no concerns regarding this project from the interested parties contacted.

The records search identified three previously recorded cultural resources within the APE. However, results of the pedestrian survey confirmed that no elements of the previously recorded resources overlap with the APE. The pedestrian survey did, however, result in the identification of two historic-era resources which

intersect the APE within Hickman: 2743-01, a newly identified segment of the Oakdale Branch of the Southern Pacific Railroad (P-50-000001); and 2743-02, a canal segment of the Turlock Irrigation District. Far Western documented the two resources on updated California Department of Parks and Recreation 523 forms and, these resources were evaluated for listing in the National and California Registers and are each recommended ineligible.

Based on a review of the Proposed Project, there is ground disturbance planned for the installation of new waterlines, as well as excavation to remove the old waterlines. In the northeast portion of the APE where there is High sensitivity for the presence of buried archaeological deposits and no existing waterlines, project related excavation to the depth of six feet has the potential to affect native soils that have not been previously disturbed, where there is the possibility of identifying intact archaeological deposits. Where disturbance will occur to remove old waterlines, the subsurface deposits have already been subject to significant prior ground disturbances and the likelihood of identifying intact archaeological deposits is lower, except where the depth and width of the excavation trench exceeds the parameters of the previous waterline trench.

To ensure that the accidental discovery of archeological deposits are not impacted by the Proposed Project Mitigation Measure CUL-1 has been added below.

Based on the analysis provided above, and in Appendix B, as well as the implementation of Mitigation Measure CUL-1, the Proposed Project will have a **Less Than Significant Impact with Mitigation Incorporation.**

MITIGATION MEASURES:

The following Mitigation Measure will be incorporated into the Proposed Project:

Mitigation Measure CUL-1:

Cultural and Archaeological Resources – Stop Work if Buried Cultural Deposits are Encountered during Construction Activities.

If buried cultural resources are encountered during construction activities, the contractor will stop work. If cultural resources such as chipped stone or ground stone, historic debris, building foundations, or human bone are inadvertently discovered during ground disturbing activities, the contractor will stop work within a 100-foot radius of the find until a qualified archaeologist can assess the significance of the find and recommend additional treatment measures appropriate to the nature of the find.

6. ENERGY -- Would the project:

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?			X	
b) Conflict with or obstruct a State or local plan for renewable energy or energy efficiency?			X	

IMPACT ANALYSIS

The following discussion is an analysis for criteria (a) and (b):

a. *Would the project result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?*
b. *Would the project conflict with or obstruct a State or local plan for renewable energy or energy efficiency?*

The Proposed Project includes the construction and replacement of water lines within existing right-of-way. The Proposed Project will not result in any wasteful, inefficient, or unnecessary consumption of energy resources. The Proposed Project will not conflict with any State or Local plan for renewable energy or energy efficiency. Therefore, the Proposed Project will have a **Less Than Significant Impact**.

MITIGATION MEASURES:

Mitigation is not required for this topic.

7. GEOLOGY AND SOILS -- WOULD THE PROJECT:

	Potentially Significant Impact	*Less Than Significant with Mitigation*	*Less Than Significant Impact*	*No Impact*
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				X
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.				X
ii) Strong seismic ground shaking?				X
iii) Seismic-related ground failure, including liquefaction?				X
iv) Landslides?				X
b) Result in substantial soil erosion or the loss of topsoil?				X
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?				X
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?				X
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?				X
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?				X

IMPACT ANALYSIS

The following discussion is an analysis for criteria (a.1) through (a.4):

a.1. Would the project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake, 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?

a.2. Would the project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking?

a.3. Would the project expose people or structures to potential adverse effects, including risk of loss, injury, or death involving seismic-related ground failure, including liquefaction?

a.4. Would the project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving landslides?

b. Would the project result in substantial soil erosion or the loss of topsoil?

c. Would the project be located on a geologic unit or soil that is unstable as a result of the project, and potentially result in on or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?

d. Would the project be located on expansive soil, as defined in Table 1-B of the Uniform Building Code, creating substantial risks to life or property?

e. Would the project have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?

f. Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

The Proposed Project includes the construction and replacement of water lines within existing right-of-way. There will be no conversion or development of land outside of existing right-of-way as a result of the Proposed Project. Therefore, the Proposed Project will have **No Impact.**

MITIGATION MEASURES:

Mitigation is not required for this topic.

8. GREENHOUSE GAS EMISSIONS -- WOULD THE PROJECT:

	Potentially Significant Impact	*Less Than Significant with Mitigation*	*Less Than Significant Impact*	*No Impact*
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?			X	
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?			X	

IMPACT ANALYSIS

a. Would the project generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?

b. Would the project conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

The Proposed Project includes the construction and replacement of water lines within existing right-of-way. The Proposed Project will generate GHG emissions only during construction. This impact is considered temporary, and will not conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases. Therefore, the Proposed Project will have a **Less Than Significant Impact.**

MITIGATION MEASURES:

There are no mitigation measures for this topic.

9. HAZARDS AND HAZARDOUS MATERIALS -- WOULD THE PROJECT:

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?				X
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?				X
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?				X
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?				X
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?				X
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?				X
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?				X

IMPACT ANALYSIS

a. Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

b. Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

c. *Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school?*
d. *Would the project be located on a site included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?*
e. *For a project located within an airport land use plan, or where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?*
f. *Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?*
g. *Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?*

The Proposed Project includes the construction and replacement of water lines within existing right-of-way. The Proposed Project does not include the transport, use or disposal of hazardous materials. The Proposed Project is located near Hickman Elementary School; however, the Proposed Project will not involve hazardous emissions, materials or waste. The Proposed Project is not located on a site that is on a list of hazardous materials. The Proposed Project is not located near an airport; therefore, will not conflict with an airport land use plan. The Proposed Project will not interfere with an adopted emergency response plan or emergency evacuation plan. The Proposed Project will not expose people or structures to any wildland fire risks. Therefore, the Proposed Project will have **No Impact.**

MITIGATION MEASURES:

There are no mitigation measures for this topic.

10. HYDROLOGY AND WATER QUALITY -- Would the project:

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?				X
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?				X
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				X
i) Result in substantial on- or offsite erosion or siltation;				X
ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;				X
iii) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or				X
iv) Impede or redirect flood flows?				X
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?				X
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?				X

IMPACT ANALYSIS

The following discussion is an analysis for criteria (a) and (c):

a. Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?

c. *Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:*
    i. *Result in substantial on- or offsite erosion or siltation;*
    ii. *Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;*
    iii. *Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or*
    iv. *Impede or redirect flood flows?*

Construction activities associated with the Proposed Project will be required to comply with the Regional Water Quality Control Board (Regional Water Board) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activity (Construction General Permit). In addition, the Proposed Project is required to adhere to the City's Vision 2025 General Plan Goals and Policies, the Waterford Municipal Code (WMC) and adopted water master plan. As a result, the Proposed Project will have **No Impact**.

b. *Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?*

The Proposed Project includes the construction and replacement of water lines within existing right-of-way. The Proposed Project will not substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit. Therefore, the Proposed Project will have **No Impact.**

d. *In flood hazard, tsunami, or seiche zones, would the project risk release of pollutants due to project inundation?*

The Proposed Project would not alter the course of a stream or a river. No alteration of a stream or river is proposed. However, the Proposed Project will be required to adhere to construction- and operation-phase stormwater requirements through a Stormwater Pollution Prevention Plan (SWPPP) and Stormwater Control Plan (SCP) and would ensure that development of the Proposed Project would not result in substantial erosion or siltation on- or off-site. Therefore, the Proposed Project will have **No Impact**.

e. *Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?*

The Proposed Project is located within Flood Zone X, Area of Minimal Flooding (FIRM Map No. 06099C0369E, dated September 26, 2008), and is not located within a 100-year flood plain. Therefore, the Proposed Project will have **No Impact**.

The Proposed Project is not located near or adjacent to a levee or dam. Therefore, the risk of loss, injury, or death that occurs as a result of the failure of a dam or levee is minimal. The Proposed Project will have **No Impact**.

Seiches, Tsunamis, and mudflow generally occur on lands located near or adjacent to an ocean. The Proposed Project is located within the Central Valley, miles from the Pacific Ocean. Therefore, the Proposed Project will have **No Impact**.

MITIGATION MEASURES:

There are no mitigation measures for this topic.

11. LAND USE AND PLANNING - Would the project:

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
a) Physically divide an established community?				X
b) 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?				X

IMPACT ANALYSIS

a. Would the project physically divide an established community?

b. 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 Proposed Project includes the construction and replacement of water lines within existing right-of-way. The Proposed Project is to consolidate two (2) existing water systems into one (1) system to improve fire suppression flows throughout the area. The Proposed Project will not physically divide an established community, conflict with any applicable land use plan, or conflict with an applicable habitat conservation plan. Therefore, the Proposed Project will have **No Impact.**

MITIGATION MEASURES:

Mitigation is not required for this topic.

12. MINERAL RESOURCES -- WOULD THE PROJECT:

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the State?				X
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?				X

IMPACT ANALYSIS

The following discussion is an analysis for criteria (a) and (b):

a. *Would the project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the State?*
b. *Would the project 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?*

Based on a review of the City's Vision 2025 General Plan, the Proposed Project is not located within a site known to contain mineral resources of regional or statewide value, nor is it located on a mineral resource recovery site. Therefore, the Proposed Project will have **No Impact**.

MITIGATION MEASURES:

Mitigation is not required for this topic.

13. NOISE -- WOULD THE PROJECT RESULT IN:

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or in other applicable local, State, or Federal standards?			X	
b) Generation of excessive groundborne vibration or groundborne noise levels?			X	
c) 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 airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?			X	

IMPACT ANALYSIS

a. *Would the project result in the generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or in other applicable local, State, or Federal standards?*
b. *Would the project result in the Generation of excessive groundborne vibration or groundborne noise levels?*
c. *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 airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?*

The Proposed Project includes the construction and replacement of water lines within existing right-of-way. In addition, the Proposed Project is required to adhere to the City's Vision 2025 General Plan Goals and Policies, and the Waterford Municipal Code (WMC). Therefore, the Proposed Project will have a **Less Than Significant Impact.**

MITIGATION MEASURES:

Mitigation is not required for this topic.

14. POPULATION AND HOUSING -- WOULD THE PROJECT:

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?				X
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?				X

IMPACT ANALYSIS

a. Would the project induce substantial population in one area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

b. Would the project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

The Proposed Project would not result in the permanent creation of new jobs that would induce substantial population growth. Additionally, the Proposed Project includes the consolidation of two (2) water systems into one (1) system to improve fire suppression flows throughout the area. The Proposed Project will not displace any individuals. Therefore, there is **No Impact.**

MITIGATION MEASURES:

Mitigation is not required for this topic.

15. PUBLIC SERVICES – WOULD THE PROJECT:

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

IMPACT ANALYSIS

a. *Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for fire protection?*

b. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for police protection?

c. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for schools?

d. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for parks?

e. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental

facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for other public facilities?

The Proposed Project includes the construction and replacement of water lines within existing right-of-way. In addition, the Proposed Project is required to adhere to the City's Vision 2025 General Plan Goals and Policies, the Waterford Municipal Code (WMC) and adopted water master plan. Therefore, there is N**o Impact**.

MITIGATION MEASURES:

Mitigation is not required for this topic.

16. RECREATION - WOULD THE PROJECT:

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
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?				X
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?				X

IMPACT ANALYSIS

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 accelerated?

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?

The Proposed Project includes the construction and replacement of water lines within existing right-of-way. The Proposed Project will not encourage any growth with the area. The Proposed Project will not increase the use of existing neighborhood and regional parks. Therefore, the Proposed Project will have **No Impact.**

MITIGATION MEASURES:

Mitigation is not required for this topic.

17. TRANSPORTATION/TRAFFIC -- WOULD THE PROJECT:

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
a) Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?				X
b) Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?				X
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?				X
d) Result in inadequate emergency access?				X

IMPACT ANALYSIS

The following discussion is an analysis for criteria (a), (b), (c), and (d):

a. *Would the project conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?*
b. *Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?*
c. *Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?*
d. *Would the project result in inadequate emergency access?*

The Proposed Project includes the construction and replacement of water lines within existing right-of-way. In addition, the Proposed Project is required to adhere to the City's Vision 2025 General Plan Goals and Policies, the Waterford Municipal Code (WMC). Therefore, the Proposed Project will have **No Impact.**

MITIGATION MEASURES:

Mitigation is not required for this topic.

18. TRIBAL CULTURAL RESOURCES -- WOULD THE PROJECT:

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
a) Would the project 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 cultural value to a California Native American tribe, and that is:				
i) 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)?				X
ii) 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 Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?				X

IMPACT ANALYSIS

The following discussion is an analysis for criteria (a.1) and a.2):

a. Would the project cause a significant 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 cultural value to a California Native American tribe, and that is:

1. *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)?*
2. *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 Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?*

Tribal Cultural Resources (TCRs) consider the value of a resource to tribal cultural tradition, heritage, and identity, to establish potential mitigation options for TCRs, and to recognize that California Native American tribes have expertise concerning their tribal history and practices.

AB 52 requires lead agencies to conduct formal consultations with California Native American tribes during the CEQA process to identify TRCs that may be subject to significant impacts by a Proposed Project. Where a Proposed Project may have a significant impact on a tribal cultural resource, the lead agency's environmental document must discuss the impact and whether feasible alternatives or mitigation measures could avoid or substantially lessen the impact. This consultation requirement applies only if the tribes have sent written requests for notification of Proposed Projects to the lead agency.

The City of Waterford has not received any written requests for notification of Proposed Projects in accordance with AB 52. Therefore, the Proposed Project will have **No Impact**.

MITIGATION MEASURES:

Mitigation is not required for this topic.

19. UTILITIES AND SERVICE SYSTEMS -- WOULD THE PROJECT:

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
a) Require or result in the relocation or construction of construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunication facilities, the construction or relocation of which could cause significant environmental effects?				X
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?				X
c) Result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand, in addition to the provider's existing commitments?				X
d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?				X
e) Comply with Federal, State, and local management and reduction statutes and regulations related to solid waste?				X

IMPACT ANALYSIS

The following discussion is an analysis for criteria (a), (b), (c), (d) and (e):

a. *Would the project require or result in the relocation or construction of construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunication facilities, the construction or relocation of which could cause significant environmental effects?*
b. *Would the project have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?*

c. *Would the project result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand, in addition to the provider's existing commitments?*
d. *Would the project generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?*
e. *Would the project comply with Federal, State, and local management and reduction statutes and regulations related to solid waste?*

The Proposed Project will not produce any wastewater, would not require the construction of additional wastewater or water treatment facilities, would not require construction of new storm water drainage facilities or expansion of existing storm water drainage facilities. In addition, the Proposed Project is required to adhere to the City's Vision 2025 General Plan Goals and Policies, and the Waterford Municipal Code (WMC). Lastly, the Proposed Project will be required to comply with federal, state, and local statues and regulations. Therefore, the Proposed Project will have **No Impact.**

MITIGATION MEASURES:

Mitigation is not required for this topic.

20. WILDFIRE -- WOULD THE PROJECT:

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
If located in or near State responsibility areas or lands classified as very high fire hazard severity zones, would the project:				
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?				X
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?				X
c) Require the installation 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?				X
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?				X

IMPACT ANALYSIS

The following discussion is an analysis for criteria (a), (b), (c), and (d):

*a. Would the project s*ubstantially impair an adopted emergency response plan or emergency evacuation plan*?*

b. Would the project due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

c. Would the project require the installation 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?

d. Would the project 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?

The Proposed Project is not located in or near State responsibility areas or lands classified as very high fire hazard severity zones. Therefore, the Proposed Project will have **No Impact**.

MITIGATION MEASURES:

Mitigation is not required for this topic.

21. MANDATORY FINDINGS OF SIGNIFICANCE -- WOULD THE PROJECT:

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

IMPACT ANALYSIS

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, 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?*

The Proposed Project includes the construction and replacement of water lines within existing right-of-way. In addition, the Proposed Project is required to adhere to the City's Vision 2025 General Plan Goals and Policies, the Waterford Municipal Code (WMC). Last, the Proposed Project will be required to adhere to all State and federal regulations in addition to the Mitigation Measures presented in the Biological Resources portion of the Initial Study. With incorporation of the appropriate mitigation measures presented in the Biological Resources portion of this Initial Study, the Proposed Project does 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 species population to drop below self-sustaining levels,

or eliminate a plant or animal species. Therefore, the Proposed Project will have a **Less Than Significant Impact with Mitigation Incorporation .**

b. Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in the connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?

As described in this Initial Study, the potential environmental effects of the Proposed Project will either be less than significant or have no impact at all. Where the Proposed Project involves potentially significant impact, these impacts would have a **Less Than Significant Impact with Mitigation Incorporation.**

The potential environmental impacts identified in this Initial Study have been considered in conjunction with each other as to their potential to generate other potentially significant impacts. The various potential environmental impacts of the Proposed Project will not combine to generate any potentially significant cumulative impact.

The City of Waterford General Plan and EIR comprehensively account for ongoing and foreseeable urban development within the City's "Planning Area" and the cumulative environmental impacts of planned development and construction. Future development in Waterford includes the provision of roads, utilities, schools, and recreational facilities needed to serve City residents and visitors as their demands for urban services increase over time.

The Proposed Project will not contribute to planned urban development in the City of Waterford. The potential environmental impact associated with the Proposed Project represent a portion of the environmental consequences of the planning growth and development permitted by the City of Waterford General Plan. The Proposed Project may involve a minor addition to the potential environmental impacts identified in the General Plan EIR, but the Proposed Project will not result in any substantial contribution to any of the significant cumulative impacts identified in the 2023 General Plan EIR.

c. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

This Initial Study has considered the potential environmental impact of the Proposed Project in the discrete issue areas outlined in the CEQA Environmental Checklist. During the environmental analysis, the potential for the Proposed Project to result in substantial impact on human being in these issue areas, as well as the potential for substantial impact on human beings to occur outside of these issue areas, was considered, and were identified but they were identified to be **Less Than Significant with Mitigation Incorporation**.

REFERENCES

In accordance with Section 15063(a)(3) of the CEQA Guidelines, the following expert opinion, technical studies, and substantial evidence has been referenced and/or cited in the discussion included in the Initial Study Checklist:

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San Joaquin Valley Air Pollution Control District. *Rule 9510 Compliance Air Impact Assessment*. October 11, 2018.

Moore Biological Consultants, Waterford-Hickman Water Consolidation Project, Stanislaus County, California: Biological Assessment, December 17, 2019.

Far Western Anthropological Research Group, Inc., Cultural Resources Inventory Report for the Hickman Water Consolidation Project, Stanislaus County, California, December 2019.

Appendix A

Waterford-Hickman Water Consolidation Project, Stanislaus County, California: Biological Assessment, December 17, 2019, prepared by Moore Biological Consultants

MOORE BIOLOGICAL CONSULTANTS

December 17, 2019

Mr. David Niskanen
J.B. Anderson Land Use Planning
139 S. Stockton Avenue
Ripon, CA 95366

Subject: "WATERFORD – HICKMAN WATER CONSOLIDATION PROJECT", STANISLAUS COUNTY, CALIFORNIA: BIOLOGICAL ASSESSMENT

Dear David:

Thank you for asking Moore Biological Consultants to assist with the Waterford-Hickman Water Consolidation Project in eastern Stanislaus County, California (Figures 1 and 2). The purpose of this assessment is to describe existing biological resources in the project site, identify potentially significant impacts to biological resources from the project, and provide recommendations for how to reduce those impacts to a less-than-significant level. The work involved reviewing databases, aerial photographs, and documents, and conducting a field survey to document vegetation communities, potentially jurisdictional Waters of the U.S. and/or wetlands, and potentially suitable habitat for or presence of special-status species. This report details the methodology and results of our investigation.

Project Overview

The Waterford-Hickman Water Consolidation Project is located within the City of Waterford and the unincorporated community of Hickman in eastern Stanislaus County. The Proposed Project generally consists of domestic and public safety water infrastructure improvements to the City of Waterford's water system,

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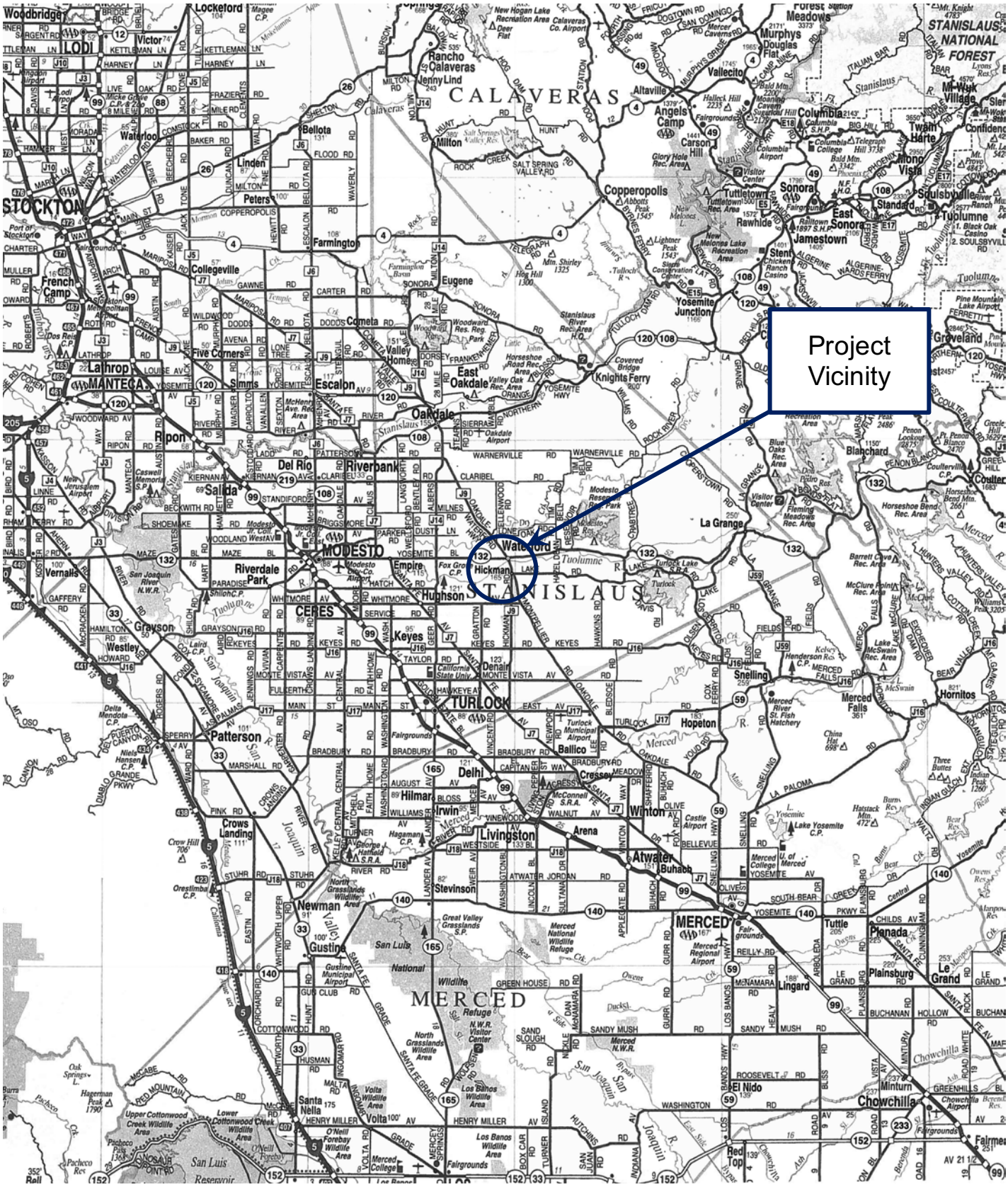

Source: California State Automobile Association

Moore Biological Consultants

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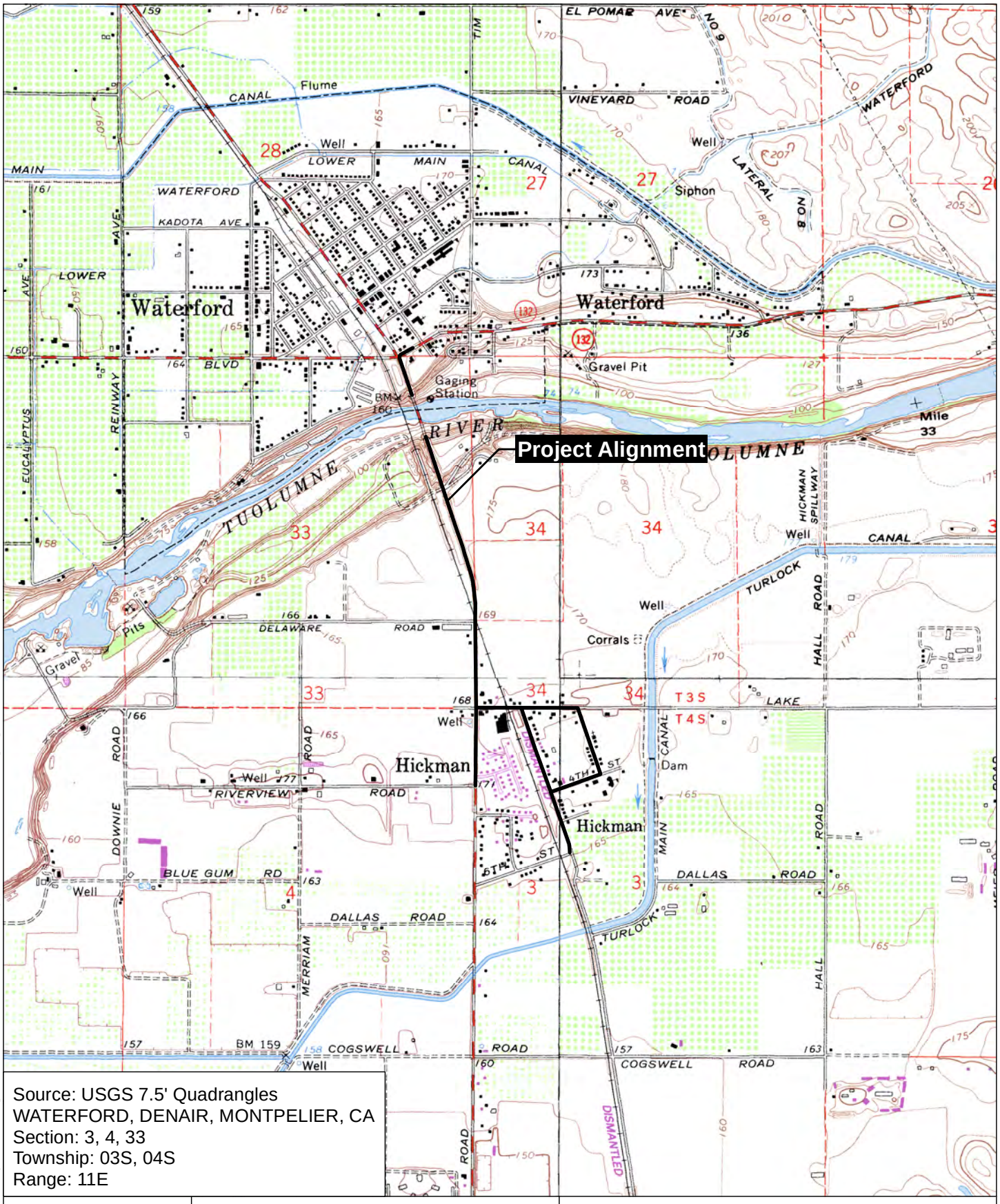
FIGURE 1

PROJECT VICINITY



Source: USGS 7.5' Quadrangles
WATERFORD, DENAIR, MONTPELIER, CA
Section: 3, 4, 33
Township: 03S, 04S
Range: 11E

Figure 2

Moore Biological Consultants

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Map Date: 10/21/19

USGS

Hickman & Waterford Water Consolidation Project

Stanislaus County, CA

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including improvements within the Community of Hickman; the City of Waterford is the water purveyor for the Community of Hickman (see project plans in Attachment A). The Proposed Project includes the following components:

- Construct a 14" water main in Yosemite Blvd (SR 132) from the alleyway west of Waterford City Hall to the F Street intersection in Waterford (approximately 240').

- Construct a 14" water main in F Street from the Yosemite Blvd (SR 132) intersection to the north connection point of the proposed bridge crossing the Tuolumne River (approximately 550').

- Construct a 14" water main within the Hickman Road right-of-way from the south connection point of the proposed bridge crossing to the Hickman Road/Lake Road intersection in Hickman (approximately 4,150').

- Replace the existing 6" water main in Hickman Road between Lake Road and Kim Street with a new 10" water main (approximately 1,040').

- Replace the existing 6" water main in Lake Road between Hickman Road and Montpelier Road with a 12" water main (approximately 680').

- Replace the existing 6" water main in Lake Road between Montpelier Road and I Street with a 10" water main (approximately 850').

- Replace the existing 4" water main in Montpelier Road between Lake Road and 4th Street with a 10" water main (approximately 1,360').

- Replace the existing 4" water main in Montpelier Road between 4th Street and 6th Street with an 8" water main (approximately 990').

- Replace the existing 6” water main in I Street between Lake Road and 4th Street with an 8” water main (approximately 1,060’).

- Replace the existing 6” water main in 4th Street between Montpelier Road and I Street with a 10” water main (approximately 790’).

All work associated with the Proposed Project will occur within existing right-of-way. In addition, while the Proposed Project consists of replacing existing water lines with larger water lines, this component of the Proposed Project is solely being done to allow for adequate fire suppression flows within the existing water system. The Proposed Project does not include allowing for the expansion of the water service area beyond which is already approved for the City of Waterford and the Community of Hickman.

Methods

Prior to the field survey, we conducted a search of California Department of Fish and Wildlife's (CDFW) California Natural Diversity Database (CNDDB, 2019). The CNDDB search was conducted on the USGS 7.5-minute Waterford, Paulsell, Denair, and Montpelier topographic quadrangles, encompassing approximately 240+/- square miles surrounding the site (Attachment B). The United States Fish and Wildlife Service (USFWS*)* IPaC Trust Resource Report of Federally Threatened and Endangered species that may occur in or be affected by projects in the project vicinity was also reviewed (Attachment B). This information was used to identify special-status wildlife and plant species that have been previously documented in the vicinity or have the potential to occur based on suitable habitat and geographical distribution. Additionally, the CNDDB depicts the locations of sensitive habitats. The USFWS on-line-maps of designated critical habitat in the area were also downloaded.

A field survey was conducted on October 15, 2019. The survey area included all areas of project improvements, as well as adjacent areas that may be subject to

construction disturbance, cumulatively referred to in this report as the "project site". The survey consisted of driving and walking throughout the site making observations of habitat conditions and noting surrounding land uses, habitat types, and plant and wildlife species. The fieldwork included an assessment of potentially jurisdictional Waters of the U.S. and wetlands as defined by the U.S. Army Corps of Engineers (ACOE, 1987; 2008) and a search for special-status species and suitable habitat for special-status species (e.g., blue elderberry shrubs, vernal pools). Trees in and near the site were assessed for the potential use by nesting raptors, especially Swainson's hawk (*Buteo swainsoni*). The cropland and grasslands in the site and adjacent areas visible from the site were searched for burrowing owls (*Athene cunicularia*) or ground squirrel burrows with evidence of past occupancy.

Results

GENERAL SETTING: The project site extends generally southeast between the City of Waterford and community of Hickman, in Stanislaus County, California (Figure 1). The site spans Sections 3, 4, and 33 within Townships 3 South and 4 South, within Range 11 East of the USGS 7.5-minute Waterford, Denair, and Montpelier topographic quadrangles (Figure 2). The site is at elevations of approximately 170 feet above mean sea level.

Surrounding land uses in this part of Stanislaus County are primarily agricultural with scattered residences and rural communities. The site is situated in an area that primarily consists of fields that are intensively farmed in annual crop or orchards (Figure 3). There are also fallow fields, residential subdivisions, ranchette-style homes, and small commercial areas in the project site.

VEGETATION: The project site is a network of roads that are adjacent to a few different habitats, with strips of ruderal grasses and weeds being immediately adjacent to the edge paved roads in most areas (see Figure 3 and photographs in Attachment C). The north end of the site is along a heavily trafficked

Figure 3

Moore Biological Consultants

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Map Date: 10/24/19

AERIAL

Hickman & Waterford Water Consolidation Project

Stanislaus County, CA

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intersection in the city of Waterford with parking lots and sidewalks adjacent to the roads; this portion of the site is essentially void of adjacent vegetation besides a few ornamental trees and shrubs associated with surrounding businesses. Although the project does not include the Hickman Bridge, the Tuolumne River corridor is adjacent to a portion of the site and supports several large trees. Further south of the bridge, there are orchards, fallow fields, irrigated pasture, and some larger parcels with ranchette-styled homes adjacent to the site. Finally, the south portion of the site is in the community of Hickman where it is adjacent to residential subdivisions, fallow fields, orchards, and community businesses such as a convenience store, school, and small church.

The highly disturbed ruderal grassland vegetation along a majority of the roads in the site consists almost entirely of non-native grasses and weeds. Oats (*Avena* sp.), soft chess brome (*Bromus hordeaceus*), ripgut brome (*B. diandrus*), and foxtail barley (*Hordeum murinum*) are some of the most common grasses in the ruderal grassland vegetation. Other grassland species such as yellow star-thistle (*Centaurea solstitalis*), black mustard (*Brassica nigra*), puncture vine (*Tribulus terrestris*), common sunflower (*Helianthus annuus*), common mallow (*Malva neglecta*), prickly lettuce (*Lactuca serriola*) and filaree (*Erodium* spp.) are intermixed with the grasses. Table 1 is a list of plant species observed in the site.

A few of the common ornamental trees and shrubs adjacent to the site include American sycamore (*Platanus occidentalis*), Deodor cedar (*Cedrus deodor*), California black walnut (*Juglans californica*), ornamental pine (*Pinus* sp.), gum tree (*Eucalyptus* sp.), tree of heaven (*Ailanthus altissima*), and oleander (*Nerium oleander*). Dominant trees within the Tuolumne River corridor include Fremont cottonwood (*Populus fremontii*), willows (*Salix* sp.), California black walnut, and valley oak (*Quercus lobata*).

There is a small blue elderberry shrub (*Sambucus nigra* ssp. *caerulea*) adjacent to the project site located near the intersection of South Appling Road and Hickman Road, approximately 100 feet northeast of Hickman Road (see

TABLE 1

PLANT SPECIES OBSERVED IN THE SITE

Acmispon americanus	American bird's foot trefoil
Ailanthus altissima	tree of heaven
Avena fatua	wild oat
Brassica nigra	black mustard
Bromus diandrus	ripgut brome
Bromus hordeaceus	soft chess brome
Cedrus deodara	Deodar cedar
Centaurea solstitialis	yellow star-thistle
Cirsium vulgare	bull thistle
Convolvulus arvenis	morning glory
Croton setigerus	turkey mullein
Cynodon dactylon	Bermuda grass
Datura innoxia	angel's trumpet
Erodium botrys	filaree
Erigeron bonariensis	flax-leaved horseweed
Erigeron canadensis	Canada horseweed
Eucalyptus sp.	gum tree
Grindelia camporum	common gumplant
Helianthus annuus	common sunflower
Hordeum murinum	foxtail barley
Juglans californica	California black walnut
Lactuca serriola	prickly lettuce
Lolium perenne	perennial ryegrass
Malva neglecta	common mallow
Nerium oleander	oleander
Pinus sp.	ornamental pine
Platanus occidentalis	American sycamore
Populus fremontii	Fremont's cottonwood
Quercus lobata	valley oak
Quercus wislizeni	interior live oak

TABLE 1 (continued)
PLANT SPECIES OBSERVED IN THE SITE

Raphanus sativa	radish
Rubus armeniacus	Himalayan blackberry
Rumex crispus	curly dock
Salix sp.	willow
Salsola iberica	Russian thistle
Sambucus nigra ssp. *caerulea*	blue elderberry
Sorghum halepense	Johnsongrass
Vicia sp.	vetch

photograph in attachment C). No other blue elderberry shrubs were observed in or near the site.

WILDLIFE: Only a few birds were observed in and adjacent to the site during the recent survey, all of which are common to urban and agricultural areas in Stanislaus County. Great egret (*Casmerodius albus*), turkey vulture (*Cathartes aura*), red-tailed hawk (*Buteo jamaicensis*), American kestrel (*Falco sparverius*), American crow (*Corvus brachyrhynchos*), California scrub jay (*Aphelocoma californica*), northern mockingbird (*Mimus polyglottos*), and mourning dove (*Zenaida macroura*) are representative bird species observed in and near the site. A complete list of birds and wildlife observed in the site are on Table 2.

The project site is situated in several different habitat types, with a few clusters and individual potential nest trees that are suitable for nesting raptors, including Swainson's hawks. There are several large trees along the Tuolumne River corridor and along Hickman Road. There are also a few larger trees associated with the homes adjacent to the site in the community of Hickman. Given the presence of trees and shrubs in and near the site, it is likely one or more pairs

TABLE 2

WILDLIFE SPECIES OBSERVED IN THE SITE

Birds	
Great egret	*Casmerodius albus*
Turkey vulture	*Cathartes aura*
Red-tailed hawk	*Buteo jamaicensis*
American kestrel	*Falco sparverius*
Mourning dove	*Zenaida macroura*
Northern flicker	*Colaptes auratus*
California scrub jay	*Aphelocoma californica*
American crow	*Corvus brachyrhynchos*
Northern mockingbird	*Mimus polyglottos*
White-crowned sparrow	*Zonotrichia leucophrys*
Brewer's blackbird	*Euphagus cyanocephalus*
Mammals	
California ground squirrel	*Spermophilus beecheyi*

of raptors and a variety of songbirds nest in and/or near the project site during most years. It is possible that ground-nesting songbirds such as killdeer and red-winged blackbird nest in the grassland habitats adjacent to the site.

A variety of mammals are likely to occur in the project site. However, California ground squirrel (*Spermophilus beecheyi*) was the only mammal observed in the site. Coyote (*Canis latrans*), black-tailed hare (*Lepus californicus*), raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), and Virginia opossum (*Didelphis virginiana*) are expected to occur at the project site. A number of species of small rodents including mice (*Mus musculus, Reithrodontomys megalotis,* and *Peromyscus maniculatus*) and voles (*Microtus californicus*) also likely occur.

Based on habitat types present, only a few amphibian and reptile species are expected to use habitats in the site. Western fence lizard (*Sceloporus occidentalis*) was the only reptile observed in the site and no amphibians were observed. Although none were observed, common species such as Pacific chorus frog (*Pseudacris regilla*), gopher snake (*Pituophis melanoleucus*), common king snake (*Lampropeltis getulus*), and common garter snake (*Thamnophis sirtalis*) are expected to occur at the site.

WATERS OF THE U.S. AND WETLANDS: Waters of the U.S., including wetlands, are broadly defined under 33 Code of Federal Regulations (CFR) 328 to include navigable waterways, their tributaries, and adjacent wetlands. State and federal agencies regulate these habitats and Section 404 of the Clean Water Act requires that a permit be secured prior to the discharge of dredged or fill materials into any waters of the U.S., including wetlands. ACOE, CDFW, and the California Regional Water Quality Control Board (RWQCB) have jurisdiction over modifications to riverbanks, lakes, stream channels and other wetland features.

"Waters of the U.S.", as defined in 33 CFR 328.4, encompasses Territorial Seas, Tidal Waters, and Non-Tidal Waters; Non-Tidal Waters includes interstate and intrastate rivers and streams, as well as their tributaries. The limit of federal jurisdiction of Non-Tidal Waters of the U.S. extends to the "ordinary high water mark". The ordinary high water mark is established by physical characteristics such as a natural water line impressed on the bank, presence of shelves, destruction of terrestrial vegetation, or the presence of litter and debris.

Jurisdictional wetlands are vegetated areas that meet specific vegetation, soil, and hydrologic criteria defined by the ACOE *Wetlands Delineation Manual* and Regional Supplement (ACOE, 1987; 2008). Jurisdictional wetlands are usually adjacent to or hydrologically associated with Waters of the U.S. Isolated wetlands are outside federal jurisdiction, but may still be regulated by state agencies including CDFW and RWQCB.

Jurisdictional wetlands and Waters of the U.S. include, but are not limited to, perennial and intermittent creeks and drainages, lakes, seeps, and springs; emergent marshes; riparian wetlands; and seasonal wetlands. Wetlands and Waters of the U.S. provide critical habitat components, such as nest sites and a reliable source of water, for a wide variety of wildlife species.

The only potentially jurisdictional wetland and Waters of the U.S. in or adjacent to the project site is the Tuolumne River. No potentially jurisdictional Waters of the U.S. or wetlands were observed within the footprint of the project site. The river corridor consists of an alluvial channel associated with a broad floodplain. The open water habitats are primarily low gradient run and pool habitats with gravel, cobble, and clay substrates; there are only a few areas of riffles. The edges of the Tuolumne River and much of the floodplain supports well-developed riparian vegetation, with a tree layer dominated by large cottonwoods, willows, and some valley oaks.

The Tuolumne River is a navigable water of the U.S. subject to Section 10 of the River and Harbor Act as well as Section 404 of the Clean Water Act. The river also falls under the jurisdiction of CDFW, the California Regional Water Quality Control Board (RWQCB), the State Lands Commission (SLC) and the Central Valley Flood Protection Board (CVFPB). There will be no disturbance to the Tuolumne River during project construction.

SPECIAL-STATUS SPECIES: Special-status species are plants and animals that are legally protected under the state and/or federal Endangered Species Act or other regulations. The Federal Endangered Species Act (FESA) of 1973 declares that all federal departments and agencies shall utilize their authority to conserve endangered and threatened plant and animal species. The California Endangered Species Act (CESA) of 1984 parallels the policies of FESA and pertains to native California species. Both FESA and CESA prohibit unauthorized “take” (i.e., killing) of listed species, with take broadly defined in both acts to include activities such as harassment, pursuit and possession.

Special-status wildlife species also includes species that are considered rare enough by the scientific community and trustee agencies to warrant special consideration, particularly with regard to protection of isolated populations, nesting or denning locations, communal roosts, and other essential habitat. The federal Migratory Bird Treaty Act and Fish and Game Code of California protect special-status bird species year-round, as well as their eggs and nests during the nesting season. Fish and Game Code of California also provides protection for mammals and fish.

Special-status plants are those which are designated rare, threatened, or endangered and candidate species for listing by the USFWS. Special-status plants also include species considered rare or endangered under the conditions of Section 15380 of the California Environmental Quality Act Guidelines, such as those plant species identified on Lists 1A, 1B and 2 in the Inventory of Rare and Endangered Vascular Plants of California (CNPS, 2019). Finally, special-status plants may include other species that are considered sensitive or of special concern due to limited distribution or lack of adequate information to permit listing or rejection for state or federal status, such as those included on CNPS List 3.

Table 3 provides a summary of the listing status and habitat requirements of special-status plant and wildlife species that have been documented in the greater project vicinity or for which there is potentially suitable habitat in the project area. This table also includes an assessment of the likelihood of occurrence of each of these species in the site. The evaluation of the potential for occurrence of each species is based on the distribution of regional occurrences (if any), habitat suitability, and field observations.

SPECIAL-STATUS PLANTS: Nine (9) species of special-status plants were identified in the CNDDB (2019) search. These include Hoover's calycadenia (*Calycadenia hooveri*), Hoover's spurge (*Chamaesyce hooveri*), Colusa grass (*Neostapfia colusana*), San Joaquin Valley Orcutt grass (*Orcuttia inaequalis*), hairy Orcutt grass (*Orcuttia pilosa*), beaked clarkia (*Clarkia rostrata*), subtle orache (*Atriplex*

TABLE 3

SPECIAL-STATUS PLANT AND WILDLIFE SPECIES DOCUMENTED IN THE GREATER PROJECT VICINITY

Common Name	Scientific Name	Federal Status[1]	State Status[1]	CNPS List[2]	Habitat	Likeliness of Occurrence in the Project Site
PLANTS						
Hoover's calycadenia	*Calycadenia hooveri*	None	None	1B	Rocky areas within valley and foothill grassland and cismontane woodlands.	Unlikely: there is no suitable habitat in the site to support Hoover's calycadenia. The nearest occurrence of Hoover's calycadenia in the CNDDB (2019) search area is approximately 4.5 miles east of the project site.
Hoover's spurge	*Chamaesyce hooveri*	None	None	1B	Vernal pools.	Unlikely: there are no vernal pools or seasonal wetlands in the site. The nearest occurrence Hoover's spurge in the CNDDB (2019) search area is approximately 5 miles southeast of Hickman.
Colusa grass	*Neostapfia colusana*	T	E	1B	Large, deep vernal pools.	Unlikely: there are no vernal pools or seasonal wetlands in the site. The nearest occurrences of Colusa grass recorded in the CNDDB (2019) search area are approximately 2.5 miles northwest and northeast of Waterford. The site is not in designated critical habitat for Colusa grass (USFWS 2005a).
San Joaquin Valley Orcutt grass	*Orcuttia inaequalis*	T	E	1B	Vernal pools.	Unlikely: there are no vernal pools or seasonal wetlands in the site. The nearest occurrence of this species recorded in the CNDDB (2019) search area is approximately 1.5 miles south of Hickman.
Hairy Orcutt grass	*Orcuttia pilosa*	E	E	1B	Vernal pools. Endemic to the Sacramento Valley.	Unlikely: there are no vernal pools or seasonal wetlands in the site. The nearest occurrence of hairy Orcutt grass in the CNDDB (2019) search area is approximately 3 miles east of Hickman. The site is not in designated critical habitat for hairy Orcutt grass (USFWS 2005a).
Beaked clarkia	*Clarkia rostrata*	None	None	1B	Cismontane woodland and valley and foothill grassland	Unlikely: the ruderal grassland vegetation in and near the site is ruderal and highly disturbed. The nearest occurrence of beaked clarkia recorded in the CNDDB (2019) search area is approximately 3 miles east of Hickman.

TABLE 3

SPECIAL-STATUS PLANT AND WILDLIFE SPECIES DOCUMENTED IN THE GREATER PROJECT VICINITY

Common Name	Scientific Name	Federal Status[1]	State Status[1]	CNPS List[2]	Habitat	Likeliness of Occurrence in the Project Site
Subtle orache	*Atriplex subtilis*	None	None	1B	Valley and foothill grassland, in areas with alkaline soils.	Unlikely: the upland grassland in the site is disturbed and does not provide suitable habitat for subtle orache; no alkaline soils were observed. The nearest occurrence of this species in the CNDDB (2019) search area is approximately 9.5 miles southwest of Hickman.
Heartscale	*Atriplex cordulata*	None	None	1B	Valley and foothill grassland, chenopod scrub; within areas with alkaline or saline soils.	Unlikely: the upland grassland in the site is disturbed and does not provide suitable habitat for heartscale; no areas of alkaline or saline soils were observed. The nearest occurrence of this species in the CNDDB (2019) search area is approximately 9.5 miles southwest of Hickman.
Greene's tuctoria	*Tuctoria greenei*	E	R	1B	Vernal pools within the Central Valley.	Unlikely: There are no vernal pools or seasonal wetlands in the site. The nearest occurrences of Greene's tuctoria recorded in the CNDDB (2019) search area are approximately 2.5 miles northwest and northeast of Waterford. The site is not in designated critical habitat for Greene's tuctoria (USFWS 2005a).
WILDLIFE						
BIRDS						
Tricolored blackbird	*Agelaius tricolor*	None	T	N/A	Nests in dense brambles and emergent wetland vegetation associated with open water habitat.	Unlikely: there is no suitable nesting habitat in the site. There are patches of willows, blackberries, and emergent wetland vegetation in the nearby Tuolumne River corridor that are suitable for nesting. This species may also occasionally fly over or forage in the grassland areas near the site. The nearest occurrence of tricolored blackbird in the CNDDB (2019) search area is approximately 6.5 miles east of the project site.
Burrowing owl	*Athene cunicularia*	None	SC	N/A	Open, dry annual or perennial grasslands, deserts and scrublands characterized by low-growing vegetation.	Unlikely: the ruderal grasslands in the project alignment are highly disturbed and provide poor quality habitat for burrowing owl. The few ground squirrel burrows that were observed adjacent to the project alignment did not show sign of burrowing owl occupancy. There are no occurrences of this species in the CNDDB (2019) search area.

TABLE 3

SPECIAL-STATUS PLANT AND WILDLIFE SPECIES DOCUMENTED IN THE GREATER PROJECT VICINITY

Common Name	Scientific Name	Federal Status[1]	State Status[1]	CNPS List[2]	Habitat	Likeliness of Occurrence in the Project Site
Swainson's hawk	*Buteo swainsoni*	None	T	N/A	Breeds in stands of tall trees in open areas. Requires adjacent suitable foraging habitats such as grasslands or alfalfa fields supporting rodents.	Moderate: there are numerous large trees along the Tuolumne River corridor and in parcels surrounding the project site that are suitable for nesting. Swainson's hawk may also forage in the grasslands or agricultural fields near the site. The nearest occurrence of nesting Swainson's hawks in the CNDDB (2019) search area is approximately 5.5 miles southwest of the Hickman.
MAMMALS						
San Joaquin kit fox	*Vulpes macrotis mutica*	E	T	N/A	Annual grasslands or grassy open stages with scattered shrubby vegetation.	Unlikely: the grasslands in the project site are highly disturbed and no denning habitat was observed in or adjacent to the project alignment. San Joaquin kit fox is not known from the area and there are no occurrences of this species in the CNDDB (2019) search area.
REPTILES & AMPHIBIANS						
California tiger salamander	*Ambystoma californiense*	T	T	N/A	Breeds in seasonal water bodies such as deep vernal pools or stock ponds. Requires small mammal burrows for summer refugia.	Unlikely: there are no areas in or near the site that could provide breeding habitat for California tiger salamander and the disturbed ruderal grassland in the site is not suitable for aestivation. The nearest occurrence of this species in the CNDDB (2019) search area is approximately 3.5 miles east of Hickman. The site is not in designated critical habitat for this species (USFWS, 2005b).
Northern California legless lizard	*Anniella pulchra*	None	SC	N/A	Sandy or loose loamy soils under sparse vegetation.	Unlikely: the highly disturbed ruderal grassland in the site provides poor quality habitat for this species. The nearest occurrence of northern California legless lizard in the CNDDB (2019) search area is approximately 10 miles southwest of Hickman.
California red-legged frog	*Rana aurora draytonii*	T	SC	N/A	Lowlands and foothills in or near permanent sources of water with vegetation.	Unlikely: there is no suitable aquatic habitat for California red-legged frog in or near the site. California red-legged frog is not known from the area and there are no recorded occurrences of this species in the CNDDB (2019) search area. The site is not in designated for California red-legged frog critical habitat (USFWS, 2006).

TABLE 3

SPECIAL-STATUS PLANT AND WILDLIFE SPECIES DOCUMENTED IN THE GREATER PROJECT VICINITY

Common Name	Scientific Name	Federal Status[1]	State Status[1]	CNPS List[2]	Habitat	Likeliness of Occurrence in the Project Site
Western spadefoot	*Spea hammondii*	None	SC	N/A	Breeds and lays eggs in seasonal water bodies such as deep vernal pools or stock ponds.	Unlikely: there is no suitable aquatic habitat for western spadefoot in or near the site. The nearest occurrence of western spadefoot in the CNDDB (2019) search area is approximately 5 miles east of Hickman.
Giant garter snake	*Thamnophis gigas*	T	T	N/A	Freshwater marsh and low gradient streams; adapted to drainage canals and irrigation ditches, primarily for dispersal or migration.	Unlikely: there is no suitable habitat in or near the site for giant garter snake. Giant garter snake is not known from the area and there are no recorded occurrences of this species in the CNDDB (2019) search area.
FISH						
Delta smelt	*Hypomesus transpacificus*	T	T	N/A	Shallow lower delta waterways with submersed aquatic plants and other suitable refugia.	Unlikely: there is no suitable aquatic habitat for delta smelt in or near the site. There are no occurrences of delta smelt recorded in the CNDDB (2019) within the search area. There is no designated critical habitat for delta smelt (USFWS, 1994) in or near the site.
Central Valley steelhead	*Oncorhynchus mykiss*	T	None	N/A	Riffle and pool complexes with adequate spawning substrates within Central Valley drainages.	Unlikely: the Tuolumne River provides suitable habitat for Central Valley steelhead, and there is a record of this species in the CNDDB (2019) in the river between Hickman and Waterford. The Tuolumne River is also designated critical habitat for Central Valley steelhead (NOAA, 2005).
Hardhead	*Mylopharodon conocephalus*	None	SC	N/A	Clear, deep pools with sand and gravel bottoms in tributaries to the San Joaquin and Sacramento River.	Unlikely: the Tuolumne River provides suitable habitat for this species. The nearest occurrence of hardhead in the CNDDB (2019) search area is in the Tuolumne River, approximately between Hickman and Waterford. The project does not involve work within the Tuolumne River.
INVERTEBRATES						
Conservancy fairy shrimp	*Branchinecta conservatio*	E	None	N/A	Vernal pools and seasonally inundated depressions in the Central Valley.	Unlikely: there are no vernal pools or seasonal wetlands in the site. There are no occurrences of Conservancy fairy shrimp recorded in the CNDDB (2019) search area. The site is not within designated critical habitat for this species (USFWS, 2005a).

TABLE 3

SPECIAL-STATUS PLANT AND WILDLIFE SPECIES DOCUMENTED IN THE GREATER PROJECT VICINITY

Common Name	Scientific Name	Federal Status[1]	State Status[1]	CNPS List[2]	Habitat	Likeliness of Occurrence in the Project Site
Vernal pool tadpole shrimp	*Lepidurus packardi*	E	None	N/A	Vernal pools and seasonally wet depressions within the Central Valley.	Unlikely: there are no vernal pools or seasonal wetlands in the site. The nearest occurrence of vernal pool tadpole shrimp in the CNDDB (2019) search area is approximately 6.5 miles east of Hickman. The site is not within designated critical habitat for vernal pool tadpole shrimp (USFWS, 2005a).
Vernal pool fairy shrimp	*Branchinecta lynchi*	T	None	N/A	Vernal pools and seasonally inundated depressions in the Central Valley.	Unlikely: there are no vernal pools or seasonal wetlands in the site. The nearest occurrence of vernal pool fairy shrimp in the CNDDB (2019) search area is approximately 6.5 miles southeast of Hickman. The site is not within designated critical habitat for vernal pool fairy shrimp (USFWS, 2005a).
Valley elderberry longhorn beetle	*Desmocerus californicus dimorphus*	T	None	N/A	Elderberry shrubs in the Central Valley and surrounding foothills	Possible: there is one small blue elderberry shrub adjacent to the project alignment. This shrub is young and did not show signs of past occupancy by the beetle. It is likely there are blue elderberry shrubs along the Tuolumne River corridor near the project alignment. The nearest occurrence of valley elderberry longhorn beetle recorded in the CNDDB (2019) search area is approximately 2.5 miles west of Hickman.
Crotch bumble bee	*Bombus crotchiii*	CE	None	N/A	Open grassland and scrub habitats throughout California; rarely found in the Central Valley	Unlikely: the grasslands in the project site are highly disturbed and provides poor quality habitat for Crotch bumble bee. The nearest occurrence of this species in the CNDDB (2019) search area is approximately 10 miles southwest of Hickman.

Notes:

1 T= Threatened; E = Endangered; CE= Candidate for Endangered; R = Rare; SC = Species of Special Concern per California Department of Fish and Wildlife.

2 CNPS List 1B includes species that are rare, threatened, or endangered in California and elsewhere.

subtilis), heartscale (*Atriplex cordulata*), and Greene's tuctoria (*Tuctoria greenei*) (Table 3 and Attachment B). A few of the species in the CNDDB (2019) search are also included in the USFWS IPaC Trust Resource Report (Attachment B).

Most of the special-status plants identified in the CNDDB (2019) query (Table 3) occur in relatively undisturbed areas in vegetation communities such as vernal pools, seasonal wetlands, cismontane woodland, and areas with unusual soils. Hoover's spurge, Colusa grass, San Joaquin Valley Orcutt grass, Hairy Orcutt grass, and Greene's tuctoria occur in vernal pools; there are no vernal pools in or adjacent to the project site. Hoover's calycadenia, beaked clarkia, subtle orache, and heartscale occur in valley and foothill grassland habitats, chenopod scrub, cismontane woodlands, and/or areas of unusual soils. The ruderal grassland areas along the edges of the roads, agricultural and fallow fields, and urban areas in the site are highly disturbed and do not provide suitable habitat for special-status species in Table 3 that occur in upland annual grassland habitats. Due to lack of suitable habitat, no special-status plant species are expected to occur in the site.

SPECIAL-STATUS WILDLIFE: The potential for intensive use of habitats within the project site by special-status wildlife species is generally low. Special-status wildlife species that have been recorded in greater project vicinity in the CNDDB (2019) include Swainson's hawk, tricolored blackbird (*Agelaius tricolor*), California tiger salamander (*Ambystoma californiense*), Northern California legless lizard (*Anniella pulchra*), western spadefoot (*Spea hammondii*), hardhead (*Mylopharodon conocephalus*), Central Valley steelhead (*Oncorhynchus mykiss*), vernal pool fairy shrimp (*Branchinecta lynchi*), vernal pool tadpole shrimp (*Lepidurus packardi*), valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) and Crotch bumble bee (*Bombus crotchii*). Although not included in the CNDDB within the search area, San Joaquin kit fox (*Vulpes macrotis mutica*), California red-legged frog (*Rana aurora draytonii*), giant garter snake (*Thamnophis gigas*), delta smelt (*Hypomesus transpacificus*), and Conservancy fairy shrimp (*Branchinecta conservatio*) were added to Table 3 because they are

included in the USFWS IPaC Trust Resource Report (Attachment B). Although not included in the CNDDB (2019) or IPaC Trust Report, burrowing owl was added to Table 3 as this project site is within the range of the species and habitat in the site provides low-quality, but potentially suitable nesting habitat for this burrowing owl.

The project site and surrounding areas may have provided habitat for several of the special-status wildlife species listed in Table 3 at some time in the past. However, farming, development, and construction and maintenance of roads have substantially modified natural habitats within the greater project vicinity, including those within the site. Of the wildlife species identified in the CNDDB, Swainson's hawk and burrowing owl are the two potential to occur within the project site on more than a transitory or very occasional basis. These species are discussed further below because Swainson's hawk could be disturbed by noise if they nested in or near the project site during construction and burrowing owls could be affected if they occupy burrows in close proximity to the project site. Although there is no habitat for this species in the site, valley elderberry longhorn beetle (VELB) is discussed below because if present, VELB could be adversely impacted if the blue elderberry shrub that is in relatively close proximity to the site if impacted during construction.

SWAINSON'S HAWK: The Swainson's hawk is a migratory hawk listed by the State of California as a Threatened species. The Migratory Bird Treaty Act and Fish and Game Code of California protect Swainson's hawks year-round, as well as their nests during the nesting season (March 1 through September 15). Swainson's hawk are found in the Central Valley primarily during their breeding season, a population is known to winter in the San Joaquin Valley.

Swainson's hawks prefer nesting sites that provide sweeping views of nearby foraging grounds consisting of grasslands, irrigated pasture, hay, and wheat crops. Most Swainson's hawks are migratory, wintering in Mexico and breeding in California and elsewhere in the western United States. This raptor generally

arrives in the Central Valley in mid-March, and begins courtship and nest construction immediately upon arrival at the breeding sites. The young fledge in early July, and most Swainson's hawks leave their breeding territories by late August.

The CNDDB (2019) contains only two records of nesting Swainson's hawk in the greater project vicinity. The nearest occurrence of nesting Swainson's hawk in the CNDDB (2019) search area is approximately 5.5 miles southwest of Hickman. There are several suitable nest trees near the project site, mainly along the Tuolumne River corridor, that could be used for nesting by this species and the annual cropland and grasslands in the region provide suitable foraging habitat for Swainson's hawk.

BURROWING OWL: The Migratory Bird Treaty Act and Fish and Game Code of California protect burrowing owls year-round, as well as their nests during the nesting season (February 1 through August 31). Burrowing owls are a year-long resident in a variety of grasslands as well as scrub lands that have a low density of trees and shrubs with low growing vegetation; burrowing owls that nest in the Central Valley may winter elsewhere.

The primary habitat requirement of the burrowing owl is small mammal burrows for nesting. The owl usually nests in abandoned ground squirrel burrows, although they have been known to dig their own burrows in softer soils. In urban areas, burrowing owls often utilize artificial burrows including pipes, culverts, and piles of concrete pieces. This semi-colonial owl breeds from March through August, and is most active while hunting during dawn and dusk. There are no occurrences of burrowing owl in the CNDDB (2019) search area.

The intensity of agricultural uses and development within and surrounding the project site reduces the likelihood of burrowing owls using the site for nesting. There were a few ground squirrel burrows observed in the grassland area north of Hickman bridge along the east side of Hickman Road, adjacent to the project

site (see Figure 3 and photographs in Attachment C). Additionally, there a few scattered ground squirrel burrows were observed along the edges of farm roads, orchards, and fallow fields adjacent to the project site, mainly in the community of Hickman. All of the ground squirrel burrows observed in and near the project site were carefully inspected for evidence of burrowing owl occupancy and none was observed. Further, no burrowing owls were observed in the project site.

VALLEY ELDERBERRY LONGHORN BEETLE: The valley elderberry longhorn beetle (VELB) is listed as a federally threatened species and its host plant is the blue elderberry shrub. Eggs are laid on the leaves or stems of the shrubs and upon hatching, the larvae bore in to the stem where they remain for 2+/- years feeding on the interior portions of the stems. Following several larval instars, the larvae chews an exit hole in the stem, pupates, and emerges after approximately a month as an adult. The adults live only 4 to 5 days, mates, lays eggs, and dies. The nearest occurrence of valley elderberry longhorn beetle in the CNDDB (2017) search area is approximately 4 miles southeast of the site.

The USFWS (2017) *Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle* direct that, if possible, elderberry shrubs should be avoided by a ground disturbance set back of at least 165 feet from the drip line of each shrub. A number of measures are also recommended to avoid and minimize project impacts to VELB and/or its habitat including fencing, worker training, and timing of construction, among others. The nearest occurrence of valley elderberry longhorn beetle in the CNDDB (2019) search area is along the north bank of the Tuolumne River approximately 2.5 miles west of Hickman.

No blue elderberry shrubs were observed in or immediately adjacent to the project site. However, there is a small blue elderberry shrub approximately 100 feet northeast of the intersection of South Appling Road and Hickman Road. This shrub is isolated and does not show signs of past occupancy by VELB. The shrub is approximately 100 feet from the project footprint and will not be impacted by project construction. It is likely there are a few other blue elderberry

shrubs within the Tuolumne River corridor, but this area was not included in the survey and is too far away to the project site to warrant inspection.

OTHER SPECIAL-STATUS SPECIES: The site does not provide suitable aquatic habitat for any type of fish, giant garter snake, California tiger salamander, California red-legged frog, or western spadefoot. The grasslands in the site are ruderal and highly disturbed and do not provide suitable sandy or loose soils for Northern California legless lizard. There is no emergent wetland habitat in the site for nesting tricolored blackbirds. There is no suitable denning habitat for San Joaquin kit fox in the project site and this species is not known from the project area. There are no vernal pools or seasonal wetlands in the site for vernal pool branchiopods (i.e., fairy and tadpole shrimp).

CRITICAL HABITAT: The site is not within designated critical habitat for California red-legged frog (USFWS, 2006), California tiger salamander (USFWS, 2005b), federally listed vernal pool shrimp or plants (USFWS, 2005a), delta smelt (USFWS, 1994), valley elderberry longhorn beetle (USFWS, 1980), or Central Valley steelhead (NOAA, 2005).

Conclusions and Recommendations

- The site consists primarily of disturbed ruderal grassland habitats along heavily trafficked road shoulders. Overall, on-site habitats are biologically unremarkable.

- No potentially jurisdictional Waters of the U.S. or wetlands were observed within the proposed construction footprint. The Tuolumne River is in close proximity to the project site and is a jurisdictional Water of the U.S., but will not be disturbed during project construction.

- No riparian habitats or other sensitive natural communities were observed in the site.

- Due to a lack of suitable habitat, it is unlikely that special-status plants occur in the site.

- With the exception of Swainson's hawk and burrowing owl, no special-status wildlife species are expected to occur in or near the site on more than a very occasional or transitory basis. Installation of pipelines in the strips of ruderal grassland in the site will not result in a reduction of potential Swainson's hawk foraging habitat.

- Due to a lack of suitable denning habitat, the project will have no effect on San Joaquin kit fox. The site does not provide habitat for giant garter snake, California tiger salamander, California red-legged frog, or northern California legless lizard and will have no effect on these special-status amphibians and reptiles. Due to a lack of vernal pools or seasonal wetlands in the site, the project will have no effect on vernal pool fairy shrimp, longhorn fairy shrimp, or vernal pool tadpole shrimp. As the project will not involve work in rivers or streams and will not change regional drainage patterns, it will have no effect on any fish species.

- The project will have no effect on VELB or its potential habitat. The only blue elderberry shrub observed in relatively close proximity to the site is approximately 100 feet from the project footprint and will not be impacted by project construction.

- The project site is not within or near areas that are designated as critical habitat for federally listed species. Construction of the project will have no effect on designated critical habitat.

- Pre-construction surveys for nesting Swainson's hawks within 0.5 miles of the project site are recommended if construction commences between March 1 and September 15. If active nests are found, a qualified biologist

should determine the need (if any) for temporal restrictions on construction. The determination should be pursuant to criteria set forth by CDFW (CDFG, 1994).

- Pre-construction surveys for burrowing owls within 250 feet of the site are recommended if construction commences between February 1 and August 31. If occupied burrows are found, a qualified biologist should determine the need (if any) for temporal restrictions on construction. The determination should be pursuant to criteria set forth by CDFW (CDFG, 2012).

- Trees, shrubs, and grasslands in and near the site could be used by birds protected by the MBTA and/or Fish and Game Code of California. If construction commences during the general avian nesting season (March 1 through July 31), a pre-construction survey for nesting birds will be required. If active nests are found, work in the vicinity of the nest will be delayed until the young fledge. With implementation of these take avoidance measures, the project will have no effect on Swainson's hawk, golden eagle, tricolored blackbird, or other birds protected by the Migratory Bird Treaty Act of 1918 and/or Fish and Game Code of California.

Thank you, again, for asking Moore Biological Consultants to assist with the project. Please call me at (209) 745-1159 with any questions.

Sincerely,

Diane S. Moore, M.S.
Principal Biologist

References and Literature Consulted

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USFWS. 2006. Part II, Department of the Interior, Fish and Wildlife Service. 50 CFR Part 17: Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for California Red-Legged Frog, and Special Rule Exemption Associated with Final Listing for Existing Routine Ranching Activities, Final Rule. Federal Register Vol. 71, No. 71, April 13.

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

Attachment A

Project Maps

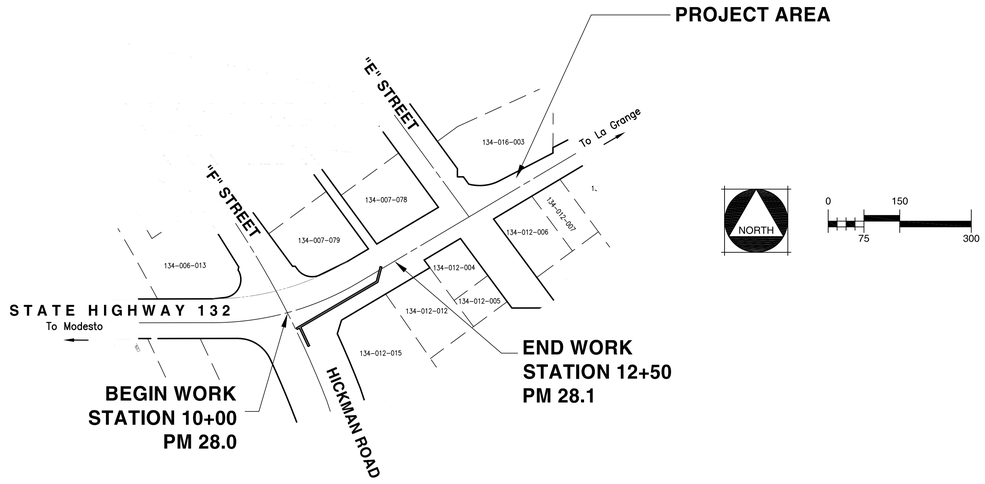
PROJECT PLANS FOR CONSTRUCTION ON
STATE HIGHWAY 132 (YOSEMITE BOULEVARD)
IN STANISLAUS COUNTY
IN WATERFORD
BETWEEN F STREET AND RIVERPOINTE DRIVE

To be supplemented by the Caltrans Standard Plans dated July, 2015

DIST	COUNTY	ROUTE	POST MILE TOTAL PROJECT	SHEET NO	TOTAL SHEETS
10	STA	132	28.0 – 28.1	1	9

MCR ENGINEERING, INC.
1242 DUPONT COURT
MANTECA, CA 95336

INDEX OF SHEETS



LEGEND

ITEM	EXISTING	PROPOSED
WATER VALVE	EX W	
AIR RELEASE VALVE	EX W	
BLOWOFF	EX W	
FIRE HYDRANT		N/A
WATER METER	W	N/A
IRRIGATION BOX	IR	N/A
SEWER MANHOLE	S	N/A
STORM MANHOLE	SD	N/A
DRAIN INLET		N/A
CURB INLET		N/A
CLEANOUT		N/A
WATER LINE	EX W	16"W
SANITARY SEWER		N/A
STORM DRAIN		N/A
TYPICAL ELECTROLIER		N/A
TYPICAL LUMINAIRE		N/A
ELECTRICAL VAULT	E	N/A
SURVEY MONUMENT		N/A
UTILITY POLE		N/A

ITEM	EXISTING	PROPOSED
SIGNAGE		N/A
ELEVATION	40.50TC 40.00P	N/A
DIRECTION OF FLOW	2.00%	N/A
ORIGINAL GROUND	+ 40.59	N/A
CONTOUR (0.5' INTERVAL)	40.00	N/A
BARBED WIRE FENCE		N/A
WOOD FENCE		N/A
CURB, GUTTER & SIDEWALK		N/A
TYPICAL RETURN WITH HANDICAP RAMP		N/A
PAVEMENT		N/A

ABBREVIATIONS

@	AT	MIN	MINIMUM
AB	AGGREGATE BASE	N	NORTH
AC	ASPHALT CONCRETE	NTS	NOT TO SCALE
BC	BEGIN CURVE	OG	ORIGINAL GROUND / GRADE
BDRY	BOUNDARY	P	PAVEMENT
BFV	BUTTERFLY VALVE	PP	POWER POLE
BVC	BEGIN VERTICAL CURVE	PL	PROPERTY LINE
C & G	CURB AND GUTTER	PRC	POINT OF REVERSE CURVATURE
CIP	CAST IN PLACE	PT	POINT
℄	CENTER LINE	PUE	PUBLIC UTILITY EASEMENT
CO	CLEAN OUT	PVC	POLYVINYL CHLORIDE PIPE
CONC	CONCRETE	RGRCP	RUBBER GASKETED REINFORCED CONCRETE PIPE
C.O.W.	CITY OF WATERFORD	RET	RETURN
CB	CATCH BASIN	R	RADIUS
DIA	DIAMETER	SHT	SHEET
DIP	DUCTILE IRON PIPE	SNS	STREET NAME SIGN
DW	DRIVEWAY	STA	STATION
D OR SD	DRAIN OR STORM DRAIN	STD	STANDARD
EC	END OF CURVE	S/W	SIDEWALK
ELEV	ELEVATION	SS	SANITARY SEWER
EP	EDGE OF PAVEMENT	S	SEWER
ESMT	EASEMENT	TC	TOP OF CURB
EVC	END OF VERTICAL CURVE	TEMP	TEMPORARY
EX OR EXIST	EXISTING	TG	TOP OF GRATE
FH	FIRE HYDRANT	THRU	THROUGH
FL	FLOW LINE	TI	TRAFFIC INDEX
GB	GRADE BREAK	TOW	TOP OF WALL
HORIZ	HORIZONTAL	TYP.	TYPICAL
HP	HIGH POINT	VERT	VERTICAL
INV	INVERT	VCP	VITRIFIED CLAY PIPE
IRR	IRRIGATION	W	WATER
LF	LINEAL FEET OR LINEAR FEET	WS	WATER SERVICE
LP	LOW POINT	WV	WATER VALVE
MAX	MAXIMUM	±	PLUS OR MINUS (NOT EXACT)
MH	MANHOLE		

REGISTERED PROFESSIONAL ENGINEER
TONY B. MARSHALL
No. C51015
EXP. 9-30-19
CIVIL
STATE OF CALIFORNIA

Project Engineer
Registered Civil Engineer

Date

Plans Approval Date

TITLE & LOCATION MAP
CV-1

Contract No.

The Contractor shall possess the Class (or Classes) of license as specified in the ''Notice to Contractors''.

PROJECT ENGINEER	DATE	PROJECT MANAGER	DATE

LAST REVISION 07-09-18
DATE PLOTTED: 07/09/2018
TIME PLOTTED: 12:00PM

FORM DC-OE-93-PF (REV. 3/88)

FOR REDUCED PLANS ORIGINAL SCALE IS IN INCHES 0 1 2

USERNAME: NBS
DWG FILE: C:\Dropbox (MCR Engineering)\2 Waterford\2018 Hickman Water Consolodation\Engineering\Drawings

CU 00000

EA 000000

DIST	COUNTY	ROUTE	POST MILE TOTAL PROJECT	SHEET No	TOTAL SHEETS
10	STA	132	28.0 – 28.1	2	7

REGISTERED CIVIL ENGINEER

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — TONY B. MARSHALL — No. C51015 EXP. 9-30-19 — CIVIL — STATE OF CALIFORNIA

MCR ENGINEERING, INC. SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF ELECTRONIC COPIES OF THIS PLAN SHEET.

MCR ENGINEERING
www.mcreng.com
MCR ENGINEERING, INC.
1242 DUPONT COURT
MANTECA, CA 95336
TEL: (209) 239 - 6229
FAX: (209) 239 - 8839

	DATE	REVISED BY
–	07/18	RM
–	07/18	RM

DATE REVISED

CALCULATED/DESIGNED BY

CHECKED BY

PROJECT ENGINEER

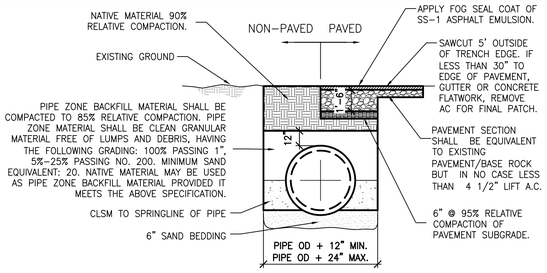
GENERAL NOTES:

1. ALL IMPROVEMENTS SHALL BE CONSTRUCTED IN STRICT ACCORDANCE WITH THE FOLLOWING: CITY OF WATERFORD STANDARD SPECIFICATIONS, AND ALL AMENDMENTS TO DATE. ALL WORK WITHIN THE CALTRANS R/W SHALL BE CONSTRUCTED IN STRICT ACCORDANCE WITH THE LATEST CALTRANS STANDARD PLANS AND STANDARD SPECIFICATIONS AND/OR ANY OTHER APPLICABLE GUIDELINES. ALL WORK SHALL BE UNDER THE INSPECTION OF THE RESPECTIVE ENTITY.
2. IT IS INTENDED THAT THESE PLANS AND SPECIFICATIONS REQUIRE ALL LABOR AND MATERIALS NECESSARY AND PROPER FOR THE WORK CONTEMPLATED AND THAT THE WORK BE COMPLETED IN ACCORDANCE WITH THEIR TRUE INTENT AND PURPOSE. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY REGARDING ANY DISCREPANCIES AND AMBIGUITIES WHICH MAY EXIST IN THE PLANS AND SPECIFICATIONS. IF THE PLANS OR SPECIFICATIONS DESCRIBE PORTIONS OF THE WORK IN GENERAL TERMS BUT NOT IN COMPLETE DETAIL, IT IS UNDERSTOOD THAT ONLY THE BEST GENERAL PRACTICE IS TO PREVAIL AND THAT ONLY MATERIALS AND WORKMANSHIP OF THE FIRST QUALITY ARE TO BE USED.
3. CONSTRUCTION STAKING FOR GRADING, CURB, GUTTER, SIDEWALK, SANITARY SEWER, STORM DRAIN AND WATER SHALL BE DONE UNDER THE DIRECTION OF M.C.R. ENGINEERING. THE CONTRACTOR SHALL NOTIFY THE ENGINEER SEVENTY–TWO (72) HOURS IN ADVANCE OF THIS NEED FOR STAKING. ANY STAKING REQUESTED BY THE CONTRACTOR OR HIS SUB–CONTRACTORS THAT IS ABOVE AND BEYOND NORMAL STANDARD SUBDIVISION STAKING NEEDS, WILL BE SUBJECT TO AN EXTRA BACK CHARGE TO THE CONTRACTOR.
4. THE CONTRACTOR SHALL EXERCISE DUE CAUTION AND SHALL CAREFULLY PRESERVE BENCH MARKS, REFERENCE POINTS AND ALL SURVEY STAKES, AND SHALL BEAR ALL EXPENSE FOR REPLACEMENT AND/OR ERRORS CAUSED BY THEIR UNNECESSARY LOSS OR DISTURBANCE.
5. CONTRACTOR AGREES THAT HE SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY; THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS; AND THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD THE OWNER, ENGINEER, COUNTY, AND STATE HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE OWNER OR THE ENGINEER.
6. UNLESS OTHERWISE STATED, ALL STATIONS INDICATED ON THE IMPROVEMENT PLANS ARE REFERENCED TO THE CENTERLINE OF THE STREET. ALL STATIONS OFF CENTER ARE PERPENDICULAR TO OR RADIALLY OPPOSITE CENTERLINE STATIONS, UNLESS OTHERWISE NOTED.
7. THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ANY FIELD CHANGES MADE WITHOUT WRITTEN AUTHORIZATION FROM THE ENGINEER.
8. THE CONTRACTOR SHALL PROVIDE ALL LIGHTS, SIGNS, BARRICADES, FLAGMEN OR OTHER DEVICES NECESSARY FOR PUBLIC SAFETY IN ACCORDANCE WITH THE CURRENT ISSUE OF "MANUAL OF TRAFFIC CONTROLS, WARNING SIGNS, LIGHTS AND DEVICES FOR USE IN PERFORMANCE OF WORK UPON HIGHWAY" PUBLISHED BY THE STATE OF CALIFORNIA BUSINESS AND TRANSPORTATION AGENCY.
9. P. G. & E., TELEPHONE AND CABLE TV UNDERGROUND WORK SHALL BE COMPLETED PRIOR TO CONSTRUCTION OF THE CURB, GUTTER, SIDEWALK AND PAVING.
10. CITY OF WATERFORD OR ASSOCIATED UTILITY COMPANY AND RESIDENCES TO BE AFFECTED SHALL BE NOTIFIED IMMEDIATELY UPON ANY UTILITY SERVICE DISRUPTION OTHER THAN SPECIFIED ON THESE IMPROVEMENT PLANS AND A 24 HOUR NOTICE SHALL BE GIVEN FOR ANY PLANNED DISRUPTION.
11. THE CONTRACTOR SHALL OBTAIN AN ENCROACHMENT PERMIT FROM CALTRANS PRIOR TO COMMENCEMENT OF WORK WITHIN EXISTING STATE RIGHT–OF–WAY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL PERMITS AND LICENSES REQUIRED FOR THE CONSTRUCTION AND COMPLETION OF THE PROJECT.
12. STREET SIGNS, TRAFFIC CONTROL SIGNS, AND PAVEMENT MARKINGS SHALL BE PROVIDED AND INSTALLED BY THE CONTRACTOR AT LOCATIONS ESTABLISHED BY THIS SET OF PLANS.
13. ASPHALT CONCRETE SHALL BE PLACED ONLY WHEN THE ATMOSPHERIC TEMPERATURE IS ABOVE 50°F.
14. CONTRACTOR IS RESPONSIBLE FOR COORDINATION OF THE REMOVAL OR RELOCATION OF ALL EXISTING UTILITIES WITH RESPECTIVE UTILITY COMPANIES.
15. PRIOR TO COMMENCING ANY WORK, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO HAVE EACH UTILITY COMPANY LOCATE, IN THE FIELD, THEIR MAIN AND SERVICE LINES. THE CONTRACTOR SHALL NOTIFY MEMBERS OF THE UNDERGROUND SERVICE ALERT (U.S.A.) 48 HOURS IN ADVANCE OF PERFORMING ANY EXCAVATION WORK BY CALLING THE TOLL–FREE NUMBER (800) 227–2600. THE CONTRACTOR SHALL RECORD THE U.S.A. ORDER NUMBER AND FURNISH ORDER NUMBER TO OWNER PRIOR TO ANY EXCAVATION. IT SHALL BE THE CONTRACTOR'S SOLE RESPONSIBILITY TO PROTECT ALL EXISTING UTILITIES SO THAT NO DAMAGE RESULTS TO THEM DURING THE PERFORMANCE OF THIS CONTRACT. ANY REPAIRS NECESSARY TO DAMAGED UTILITIES SHALL BE PAID FOR BY THE CONTRACTOR. THE CONTRACTOR SHALL BE REQUIRED TO COOPERATE WITH OTHER CONTRACTORS AND UTILITY COMPANIES INSTALLING NEW STRUCTURES, UTILITIES AND SERVICE TO THE DEVELOPMENT.
16. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING EXISTING IMPROVEMENTS FROM DAMAGE. COST OF REPLACING EXISTING IMPROVEMENTS SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEMS REQUIRING REMOVAL AND REPLACEMENT OF EXISTING IMPROVEMENTS.
17. WHENEVER PAVEMENT IS BROKEN OR CUT IN THE INSTALLATION OF THE WORK COVERED BY THESE SPECIFICATIONS, THE PAVEMENT SHALL BE REPLACED, AFTER PROPER BACKFILLING, WITH PAVEMENT MATERIALS EQUAL TO OR BETTER THAN THE MATERIALS USED IN THE ORIGINAL PAVING. THE FINISHED PAVEMENT SHALL BE SUBJECT TO THE APPROVAL OF THE CITY ENGINEER, OR CALTRANS, WHERE APPLICABLE.
18. PAYMENT FOR PAVEMENT WILL BE MADE ONLY FOR AREAS SHOWN ON THE PLANS REPLACEMENT OF PAVEMENT WHICH IS BROKEN OR CUT DURING THE INSTALLATION OF THE WORK COVERED BY THESE SPECIFICATIONS, AND WHICH LIES OUTSIDE OF SAID AREAS, SHALL BE INDICATED IN THE CONTRACTOR'S UNIT PRICE FOR PAVEMENT, AND NO ADDITIONAL PAYMENT SHALL BE MADE FOR SUCH WORK.
19. EXCAVATIONS OF 5 FEET OR MORE IN DEPTH WILL REQUIRE AN EXCAVATION PERMIT FROM THE CAL/OSHA (DIVISION OF OCCUPATIONAL SAFETY AND HEALTH). FOR TRENCHES 5 FEET OF MORE IN DEPTH, THE CONTRACTOR SHALL COMPLY WITH SECTION 5–1.02A OF THE CALTRANS STANDARDS, CHAPTER 9 OF THE STATE OF CALIFORNIA LABOR CODE, AND ANY LOCAL CODES OR ORDINANCES.
20. WE CALL YOUR ATTENTION TO TITLE 8 CALIFORNIA ADMINISTRATION CODE SECTION 1540 (A) (1) OF THE CONSTRUCTION SAFETY ORDERS ISSUED BY THE OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD PURSUANT TO THE CALIFORNIA OCCUPATIONS SAFETY AND HEALTH ACT OF 1973 AS AMENDED WHICH STATES: (1) PRIOR TO OPENING AN EXCAVATION EFFORT SHALL BE MADE TO DETERMINE WHETHER UNDERGROUND INSTALLATIONS; I.E. SEWER, WATER, FUEL, ELECTRICAL LINES, ETC., WILL BE ENCOUNTERED AND IF SO, WHERE SUCH UNDERGROUND INSTALLATIONS ARE LOCATED. WHEN THE EXCAVATION APPROACHES THE APPROXIMATE LOCATION OF SUCH INSTALLATION, THE EXACT LOCATION SHALL BE DETERMINED BY CAREFUL PROBING OR HAND DIGGING; AND, WHEN IT IS UNCOVERED, ADEQUATE PROTECTION SHALL BE PROVIDED FOR THE EXISTING INSTALLATION. ALL KNOWN OWNERS OF UNDERGROUND FACILITIES IN THE AREA CONCERNED SHALL BE ADVISED OF PROPOSED WORK AT LEAST 48 HOURS PRIOR TO THE START OF ACTUAL EXCAVATION.
21. ALL TRENCHES ON MAJOR AND COLLECTOR STREETS AND CROSS TRENCHES ON ALL STREETS SHALL BE PAVED WITH TEMPORARY PAVING THE SAME DAY THE PAVEMENT CUT IS MADE.
22. APPROPRIATE DUST CONTROL SHALL BE PROVIDED, AT THE CONTRACTOR'S EXPENSE TO MINIMIZE ANY DUST NUISANCE AND SHALL BE IN ACCORDANCE WITH SECTION 10 OF CALTRANS STANDARD SPECIFICATIONS AND THE REQUIREMENTS OF CITY OF WATERFORD AND THE APPROVED SWPPP.
23. THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER, PRIOR TO FINAL ACCEPTANCE, AS–BUILT DRAWINGS OF ALL IMPROVEMENTS REPRESENTED BY THE PROJECT PLANS AND SPECIFICATIONS.
24. AFTER CONSTRUCTION OF ALL IMPROVEMENTS, THE CITY ENGINEER SHALL SUBMIT ONE SET OF REPRODUCIBLE "RECORD DRAWING" PLANS. FINAL INVERT ELEVATIONS FOR SEWER AND STORM DRAIN LINES THAT ARE TO BE EXTENDED FOR FUTURE CONSTRUCTION SHALL ALSO BE SHOWN ON THE "RECORD DRAWING" PLANS ALL AS PROVIDED TO THE CITY ENGINEER BY THE CONTRACTOR.
25. THE CONTRACTOR SHALL NOTIFY M.C.R. ENGINEERING AT LEAST 48 HOURS PRIOR TO BACKFILLING OF ANY PIPE WHICH STUBS TO A FUTURE PHASE OF CONSTRUCTION FOR INVERT VERIFICATION. TOLERANCE SHALL BE IN ACCORDANCE WITH CALTRANS STANDARD SPECIFICATIONS.
26. ANY AND ALL SEDIMENT AND/OR EROSION CONTROL DETAILS CONTAINED WITHIN THESE PLANS ARE TO BE CONSIDERED AS "REFERENCE DETAILS" ONLY AND THE APPROVAL OF THESE PLANS AND "REFERENCE DETAILS" BY CALTRANS DOES NOT RELIEVE THE OWNER/DEVELOPER FROM COMPLIANCE WITH THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP) AS APPROVED BY THE STATE'S STORMWATER DIVISION.
27. IN ADDITION TO ALL OF THE OTHER REQUIRED PERMITS, THE CONTRACTOR SHALL HAVE A GRADING AND EROSION CONTROL PERMIT COMPLETE WITH AN APPROVED SWPPP.
28. THE CONTRACTOR SHALL COMPLY WITH THE REQUIREMENTS OF THE STATE WATER RESOURCES CONTROL BOARD (SWRCB) ORDER NO. 92–08–DWQ, NPDES GENERAL PERMIT NO. CAS000000. THE CONTRACTOR SHALL IMPLEMENT AND MONITOR A STORM WATER POLLUTION PREVENTION PLAN (SWPPP) IN ACCORDANCE WITH THE SWRCB REGULATIONS.
29. THE CONTRACTOR SHALL COORDINATE ALL CONSTRUCTION ACTIVITIES WITH ANY AND ALL ADJACENT PERMIT PROJECTS.
30. THE CONTRACTOR SHALL PROVIDE REQUIRED TEMPORARY STRIPING PRIOR TO RE–OPENING LANE TO TRAFFIC.
31. BENCHMARK: ELEVATION = 163.980
    DESCRIPTION = FOUND 3/4" IRON PIPE AT THE INTERSECTION OF WESTERN AVENUE & KADOTA AVENUE
32. ALL ASPHALT CONCRETE SHALL BE TYPE B AND CONFORM TO THE LATEST CALTRANS STANDARD SPECIFICATIONS.
33. CONTRACTOR TO INSTALL CURLEX EROSION BLANKET, OR APPROVED EQUAL ON ALL NEWLY FORMED SLOPES AND ALL ADJACENT BROKEN GROUND. CONTRACTOR SHALL REMOVE TEMPORARY EROSION BLANKET PRIOR TO PERMANENT EROSION CONTROL IS PLACED.
34. PROJECT CONTRACTOR SHALL COORDINATE HIS/HER WORK WITH ANY OTHER CONTRACTOR ON A SEPARATE PROJECT IF THE WORK AREAS OVERLAP TO MINIMIZE OPERATIONAL IMPACTS TO THE STATE HIGHWAY.

WATER:

1 ALL WATER LINES SHALL BE PRESSURE TESTED, DISINFECTED AND TESTED FOR BACTERIA IN CONFORMANCE WITH THE AWWA STANDARDS FOR NEW WATER LINE INSTALLATIONS.

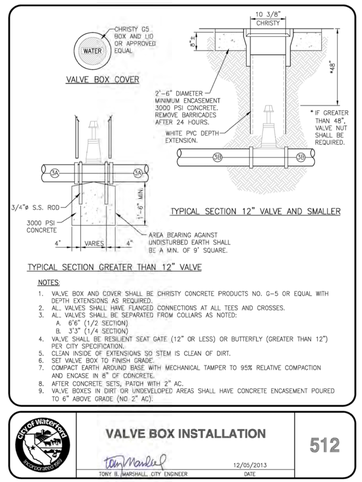
2. ALL VALVES, TEES AND CROSSES TO BE FLANGED TO THEIR RESPECTIVE FITTINGS. WATER VALVES TO BE RESILIENT SEAT ONLY.
3. ALL VALVE STEMS MUST BE BROUGHT TO A MINIMUM OF FOUR FEET (4') BELOW FINISHED GRADE WITH STEM EXTENSION UNITS.
4. THRUST BLOCKS SHALL BE PROVIDED, AT PIPES 12" OR LESS, AT ALL REQUIRED LOCATIONS ON WATER LINE IN ACCORDANCE WITH THE CITY OF WATERFORD SPECIFICATIONS AND DETAILS.
5. GATE VALVES SHALL BE USED AT VALVES 12" OR LESS, MEETING AWWA STANDARDS C509–01 AND SHALL BE MUELLER SERIES A–2360 OR EQUIVALENT.
6. BUTTERFLY VALVES SHALL BE USED AT VALVES GREATER THAN 12".



NOTES:
1. TRENCH SECTION SHALL BE BACKFILLED AND MECHANICALLY COMPACTED TO GRADE.
2. CONTRACTOR SHALL EXCAVATE 6" BELOW THE BOTTOM OF THE PIPE AND REPLACE WITH SAND OR AGGREGATE SUBBASE AND JOINTS SHALL BE SHAPED.
3. WHEN TRENCH AND EXCAVATION IS IN EXISTING PAVED STREETS, REPLACE PAVEMENT 5' ON EACH SIDE OF THE TRENCH.
4. MATURE PAVING THAT HAS BECOME BRITTLE IN THE ENGINEER'S JUDGEMENT, SHALL BE LINE CUT WITH A DIAMOND SAW.
5. CONTROLLED DENSITY FILL (CDF) MAY BE USED IN LIEU OF SPECIFIED BACKFILL METHOD. MINIMUM TRENCH WIDTH MAY BE REDUCED TO 2–1/2" CLEAR OF EACH SIDE OF PIPE.

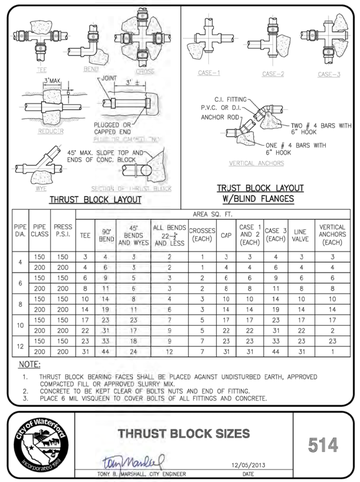
TYPICAL TRENCH DETAIL

STA: ALL SCALE: N.T.S.



NOTES:
1. VALVE BOX AND COVER SHALL BE CHRISTY CONCRETE PRODUCTS NO. G–5 OR EQUAL WITH DEPTH EXTENSIONS AS REQUIRED.
2. AL. VALVES SHALL HAVE FLANGED CONNECTIONS AT ALL TEES AND CROSSES.
3. AL. VALVES SHALL BE SEPARATED FROM COLLARS AS NOTED:
   A. 6"ø (1/2 SECTION)
   B. 3"ø (1/4 SECTION)
4. VALVE SHALL BE RESILIENT SEAT GATE (12" OR LESS) OR BUTTERFLY (GREATER THAN 12") PER CITY SPECIFICATION.
5. CLEAN INSIDE OF EXTENSIONS SO STEM IS CLEAN OF DIRT.
6. SET VALVE BOX TO FINISH GRADE.
7. COMPACT EARTH AROUND BASE WITH MECHANICAL TAMPER TO 95% RELATIVE COMPACTION AND ENCASE IN 8" OF CONCRETE.
8. AFTER CONCRETE SETS, PATCH WITH 2" AC.
9. VALVE BOXES IN DIRT OR UNDEVELOPED AREAS SHALL HAVE CONCRETE ENCASEMENT POURED TO 6" ABOVE GRADE (NO 2" AC).

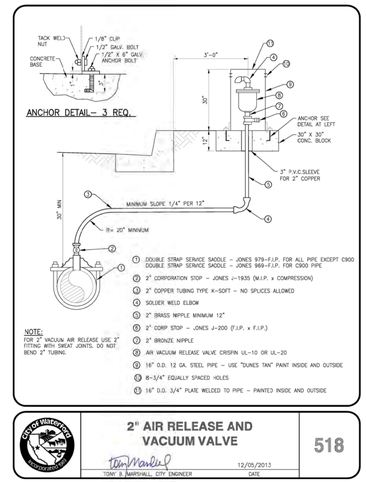
GREAT PUBLIC SCHOOLS NOW — VALVE BOX INSTALLATION — 512
TONY B. MARSHALL, CITY ENGINEER — 12/05/2013 — DATE



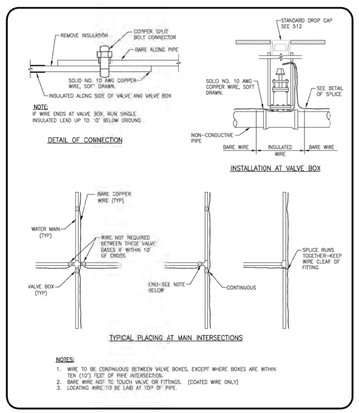
PIPE DIA.	PIPE CLASS	PRESS P.S.I.	AREA SQ. FT. TEE	90° BEND	45° BENDS AND WYES	ALL BENDS 22–2 AND LESS	CROSSES (EACH)	CAP	CASE 1 AND 2 (EACH)	CASE 3 (EACH)	LINE VALVE	VERTICAL ANCHORS (EACH)
4	150	150	3	4	3	2	1	2	3	4	3	3
	200	200	4	6	3	2	1	4	4	6	4	4
6	150	150	6	9	5	3	2	6	6	9	6	6
	200	200	8	11	6	3	2	8	8	11	8	8
8	150	150	10	14	8	4	3	10	10	14	10	10
	200	200	14	19	11	6	3	14	14	19	14	14
10	150	150	17	23	23	7	5	17	17	23	17	17
	200	200	22	31	17	9	5	22	22	31	22	2
12	150	150	23	33	18	9	7	23	23	33	23	23
	200	200	31	44	24	12	7	31	31	44	31	1

NOTE:
1. THRUST BLOCK BEARING FACES SHALL BE PLACED AGAINST UNDISTURBED EARTH, APPROVED COMPACTED FILL OR APPROVED SLURRY MIX.
2. CONCRETE TO BE KEPT CLEAR OF BOLTS NUTS AND END OF FITTING.
3. PLACE 6 MIL VISQUEEN TO COVER BOLTS OF ALL FITTINGS AND CONCRETE.

GREAT PUBLIC SCHOOLS NOW — THRUST BLOCK SIZES — 514
TONY B. MARSHALL, CITY ENGINEER — 12/05/2013 — DATE

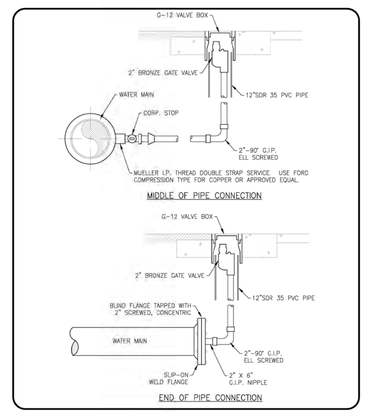


GREAT PUBLIC SCHOOLS NOW — 2" AIR RELEASE AND VACUUM VALVE — 518
TONY B. MARSHALL, CITY ENGINEER — 12/05/2013 — DATE



NOTES:
1. WIRE TO BE CONTINUOUS BETWEEN VALVE BOXES, EXCEPT WHERE BOXES ARE WITHIN TEN (10') FEET OF PIPE INTERSECTION.
2. BARE WIRE NOT TO TOUCH VALVE OR FITTINGS. (COATED WIRE ONLY)
3. LOCATING WIRE TO BE LAID AT TOP OF PIPE.

GREAT PUBLIC SCHOOLS NOW — PIPE LOCATING WIRE FOR WATER MAINS — 525
TONY B. MARSHALL, CITY ENGINEER — 12/05/2013 — DATE



GREAT PUBLIC SCHOOLS NOW — BLOW-OFF — 526
TONY B. MARSHALL, CITY ENGINEER — 12/05/2013 — DATE

NOTE SHEET & DETAILS
NS-1

LAST REVISION DATE PLOTTED: 07/29/2018 12:00PM
07–29–18 TIME PLOTTED:

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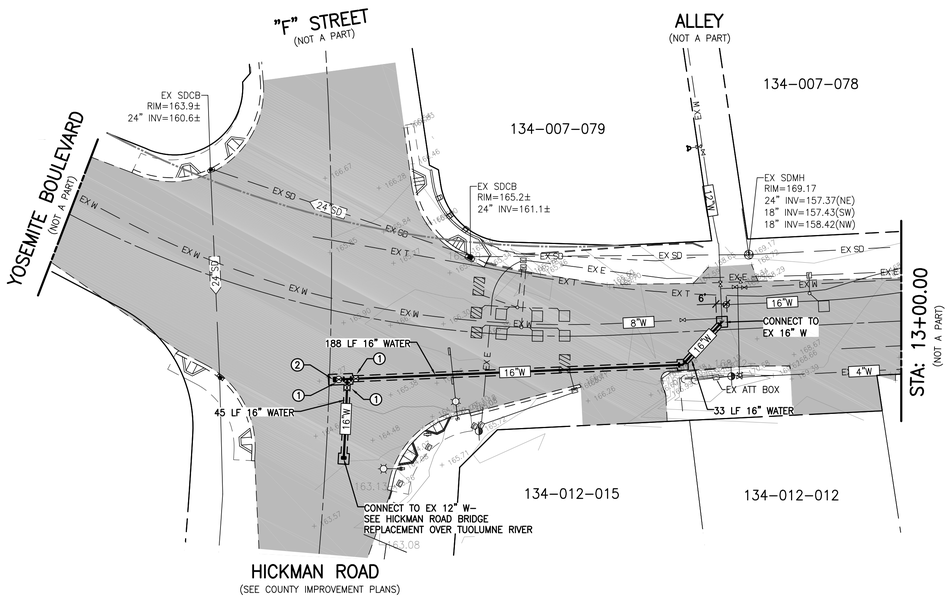
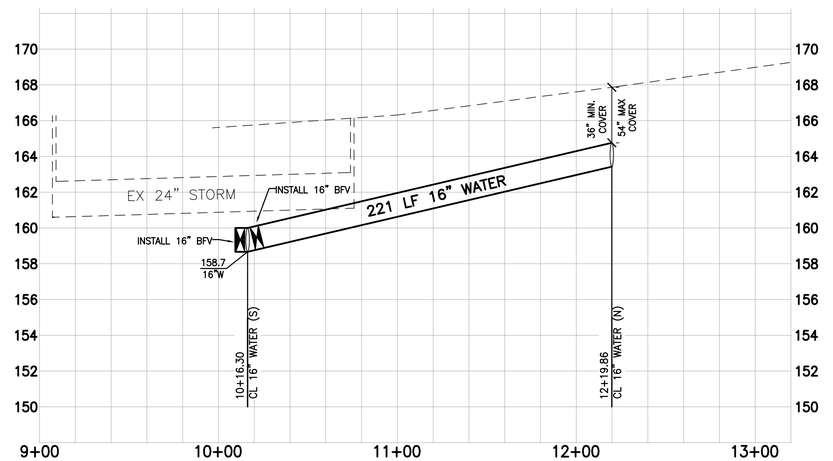
DIST	COUNTY	ROUTE	POST MILE TOTAL PROJECT	SHEET No	TOTAL SHEETS
10	STA	132	28.0 – 28.1	3	7

HIGHWAY 132 (YOSEMITE BOULEVARD)
STA: 10+00.00 TO 13+00.00





PROFILE SCALE
1" = 40' HORIZONTAL
1" = 4' VERTICAL

MCR ENGINEERING, INC.
1242 DUPONT COURT
MANTECA, CA 95336
TEL: (209) 239 - 6229
FAX: (209) 239 - 8839

REGISTERED CIVIL ENGINEER

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
TONY B. MARSHALL
No. C51015
EXP. 9-30-19
CIVIL
STATE OF CALIFORNIA

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0 20 40 80

NORTH

NOTES:

1. INSTALL 16" BUTTERFLY VALVE, VALVE BOX INSTALLATION PER WATERFORD STANDARD 512 (SEE SHEET NS-1).
2. BLIND FLANGE AT END.
3. ALL EXISTING UTILITIES WERE PLOTTED FROM RECORD INFORMATION AND FIELD TOPOGRAPHY. ACTUAL LOCATIONS MAY VARY AND ADDITIONAL CROSSINGS MAY EXIST IN THE FIELD. IT IS IMPERATIVE THAT "U.S.A." LOCATING SERVICES, LOCATE AND MARK UTILITIES PRIOR TO THE START OF EXCAVATION.
4. THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN EXPOSING EXISTING UTILITY CROSSINGS AND SERVICES.
5. ANY DAMAGE TO EXISTING UTILITIES WILL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
6. ANY DAMAGE TO EXISTING CONDUIT OR CONDUCTORS THAT WOULD CAUSE THE FAILURE OF THE SIGNAL OPERATION SHALL BE REPAIRED PRIOR TO THE END OF DAY.
7. ANY DAMAGE TO EXISTING EQUIPMENT SUCH AS TYPE A HANDHOLES, LOOPS AND PULL BOXED OTHER THEN THOSE REQUIRED ON THE JOB SHALL BE REPLACED BY THE CONTRACTOR.

WATER PLAN - STATION 10+00.00 TO 13+00.00
W-1

LAST REVISION	DATE PLOTTED: 07/29/2018 12:00PM
07-29-18	TIME PLOTTED:

PROJECT ENGINEER			
CALCULATED/ DESIGNED BY	NBS	07/18	-
CHECKED BY	RM	07/18	-
		DATE	REVISED BY
			DATE REVISED

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DIST	COUNTY	ROUTE	POST MILE TOTAL PROJECT	SHEET No	TOTAL SHEETS
10	STA	132	28.0 – 28.1	4	7

NOTES:

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2. THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN EXPOSING EXISTING UTILITY CROSSINGS AND SERVICES.

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4 ANY DAMAGE TO EXISTING CONDUIT OR CONDUCTORS THAT WOULD CAUSE THE FAILURE OF THE SIGNAL OPERATION SHALL BE REPAIRED PRIOR TO THE END OF DAY.

5 ANY DAMAGE TO EXISTING EQUIPMENT SUCH AS TYPE A HANDHOLES, LOOPS AND PULL BOXES OTHER THEN THOSE REQUIRED ON THE JOB SHALL BE REPLACED BY THE CONTRACTOR. REFER TO SPECIAL PROVISIONS STANDARD PLAN LIST, (THIS SHEET) FOR "ELECTRICAL SYSTEM" DETAILS.

6. REFER TO CALTRANS 2010 STANDARD SPSECIFICATION SECTION 86–2.09E ("METHOD B" FOR SPLICE INSTALLATION.

7. REFER TO CALTRANS 2010 STANDARD SPECIFICATIONS SECTION 86–5.01A(1) GENERAL FOR LOOP DETECTOR INSTALLATION REQUIREMENTS.

SPECIAL PROVISIONS STANDARD PLAN LIST

RSP ES–1A	ELECTRICAL SYSTEMS (LEGEND AND ABBREVIATIONS)
RSP ES–1B	ELECTRICAL SYSTEMS (LEGEND AND ABBREVIATIONS)
RSP ES–1C	ELECTRICAL SYSTEMS (LEGEND AND ABBREVIATIONS)
RSP ES–5A	ELECTRICAL SYSTEMS (LOOP DETECTORS)
RSP ES–5B	ELECTRICAL SYSTEMS (DETECTORS)
RSP ES–5D	ELECTRICAL SYSTEMS (CURB AND SHOULDER TERMINATION, TRENCH, AND HANDHOLE DETAILS)
RSP ES–8B	ELECTRICAL SYSTEMS (TRAFFIC PULL BOX)
RSP ES–13A	ELECTRICAL SYSTEMS (SPLICING DETAILS)

REGISTERED CIVIL ENGINEER

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — TONY B. MARSHALL — No. C51015 EXP. 9-30-19 — CIVIL — STATE OF CALIFORNIA

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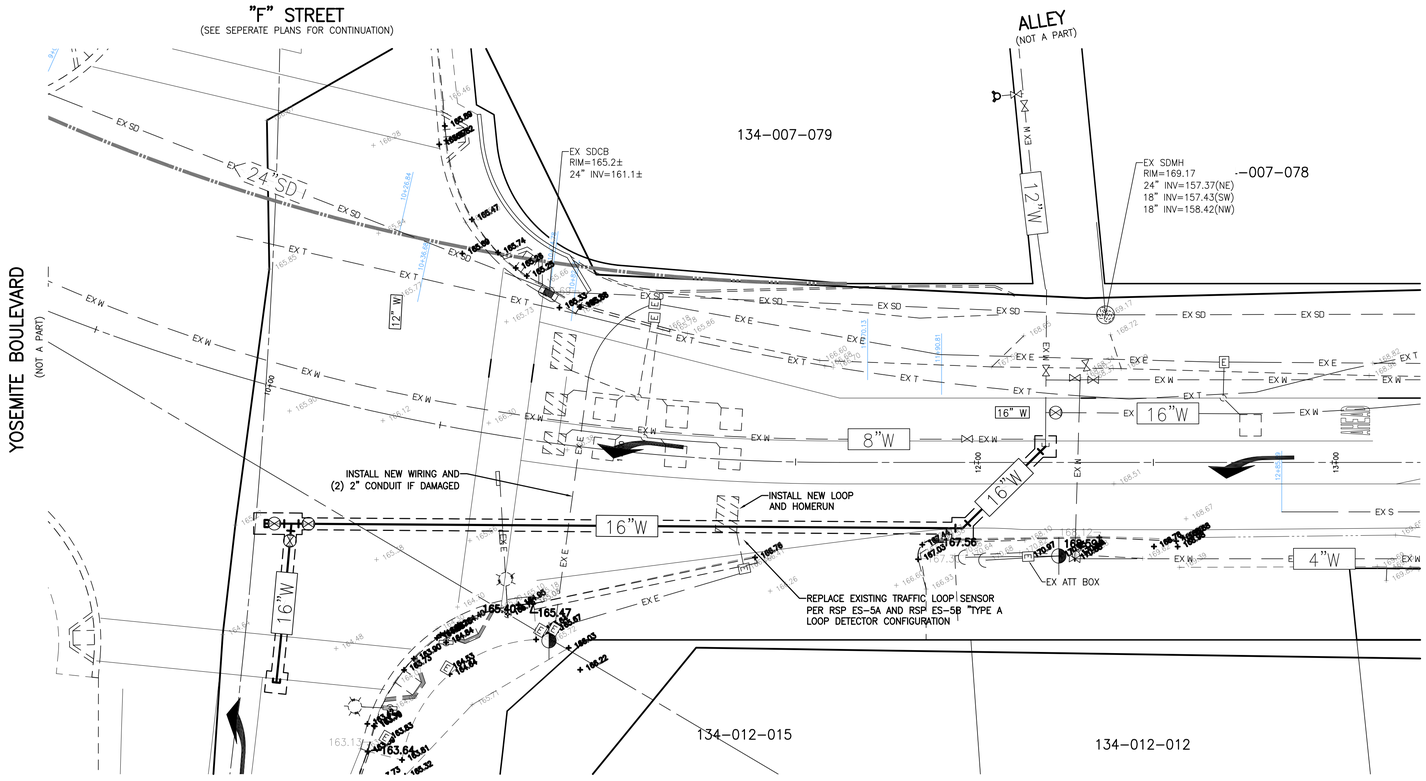
HIGHWAY 132 (YOSEMITE BOULEVARD)



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NORTH

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TRAFFIC LOOP PLAN
TL-1

		CALCULATED/ DESIGNED BY	
		CHECKED BY	
–	07/18	DRAWN BY	RM
–	07/18	REVISED BY	NBS
		DATE REVISED	07/18
		PROJECT ENGINEER	

LAST REVISION 07-29-18
DATE PLOTTED: 07/29/2018
TIME PLOTTED: 12:00PM

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REGISTERED CIVIL ENGINEER

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TONY B. MARSHALL
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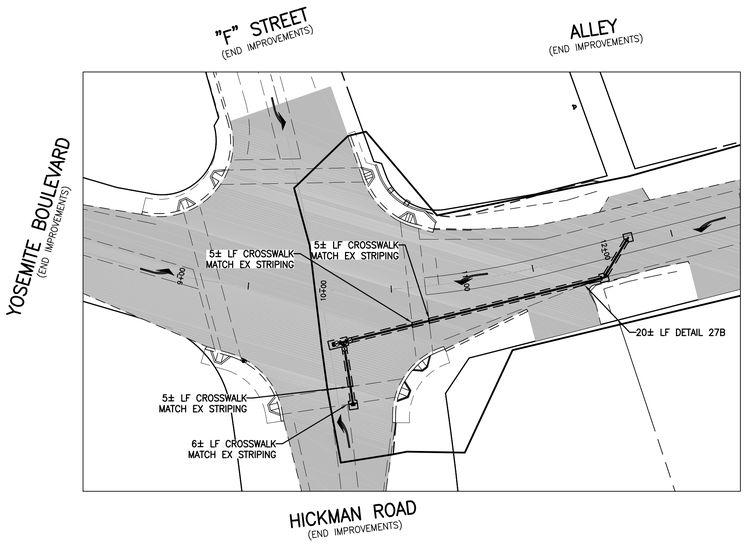
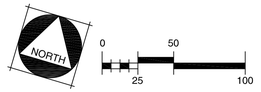




SIGNING AND STRIPING NOTES

1. INSTALLATION OF ALL STRIPING, SIGNS AND PAVEMENT MARKINGS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
2. ALL STRIPING AND SIGNING SHALL CONFORM TO THE MOST RECENT ADOPTED EDITIONS OF THE FOLLOWING MANUALS:
   - –MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD)
   - –CALTRANS TRAFFIC MANUAL
   - –CALTRANS STANDARD SPECIFICATIONS
3. ALL SIGNING AND STRIPING IS SUBJECT TO THE APPROVAL OF THE DISTRICT 10 ENGINEER AND THE CITY OF WATERFORD ENGINEER PRIOR TO INSTALLATION AND REMOVAL.
4. CONTRACTOR SHALL REMOVE ALL CONFLICTING STRIPING, PAVEMENT MARKINGS AND LEGENDS BY SANDBLASTING OR GRINDING. ANY DEBRIS SHALL BE PROMPTLY REMOVED BY THE CONTRACTOR.
5. ALL STRIPING SHALL BE THERMOPLASTIC AND SHALL MATCH THE EXISTING STRIPING, UNLESS NOTED OTHERWISE.

HIGHWAY 132 (YOSEMITE BOULEVARD)
STA 10+00.00 - 13+00.00

CALL BEFORE YOU DIG
USA
800.227.2600

STRIPING PLAN
SP-1

PROJECT ENGINEER	CALCULATED/ DESIGNED BY	CHECKED BY	NBS	RM	DATE 07/18	DATE 07/18	REVISED BY	DATE REVISED
							–	–

LAST REVISION 07-29-18
DATE PLOTTED: 07/29/2018 12:00PM
TIME PLOTTED:

FOR REDUCED PLANS ORIGINAL SCALE IS IN INCHES 0 1 2

USERNAME: NBS
DWG FILE: C:\Dropbox (MCR Engineering)\2 Waterford\2018 Hickman Water Consolodation\Engineering\Drawings

DIST	COUNTY	ROUTE	POST MILE TOTAL PROJECT	SHEET No	TOTAL SHEETS
10	STA	132	28.0 – 28.1	6	7

REGISTERED CIVIL ENGINEER

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — TONY B. MARSHALL — No. C51015 EXP. 9-30-19 — CIVIL — STATE OF CALIFORNIA

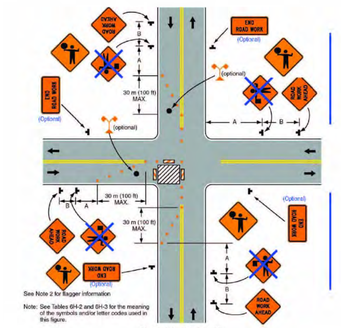
MCR ENGINEERING, INC. SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF ELECTRONIC COPIES OF THIS PLAN SHEET.

MCR ENGINEERING
www.mcreng.com
MCR ENGINEERING, INC.
1242 DUPONT COURT
MANTECA, CA 95336
TEL: (209) 239 - 6229
FAX: (209) 239 - 8839

PROJECT ENGINEER	CALCULATED/ DESIGNED BY	CHECKED BY	DATE REVISED	REVISED BY	DATE	
	NBS	RM	07/18	-	-	

California MUTCD
(FHWA's MUTCD 2003 including Revisions 1 and 2, as amended for use in California) — Page 6H-67

Figure 6H-27. Closure at Side of Intersection (TA-27)



Typical Application 27

Chapter 6H – Typical Applications — January 31, 2010
Part 6 – Temporary Traffic Control

Notes for Figure 6H-27—Typical Application 27

Closure at Side of Intersection

Guidance:
1. The situation depicted can be simplified by closing one or more of the intersection approaches. If this cannot be done, and/or when capacity is a problem, through vehicular traffic should be directed to detour routes or streets.
2. Depending on road user conditions, flagger(s) or uniformed law enforcement officer(s) should be used to direct road users within the intersection.

Standard:
3. At night, flagger stations shall be illuminated, except in emergencies.

Option:
4. ONE LANE ROAD AHEAD signs may also be used to provide adequate advance warning.
5. Flashing warning lights and/or flags may be used to call attention to the advance warning signs.
6. For short-duration work operations, the channelizing devices may be eliminated if a vehicle displaying high-intensity rotating, flashing, oscillating, or strobe lights is positioned in the work space.
7. A BE PREPARED TO STOP sign may be added to the sign series.

Guidance:
8. When used, the BE PREPARED TO STOP sign should be located ~~before~~ after the Flagger symbol sign.

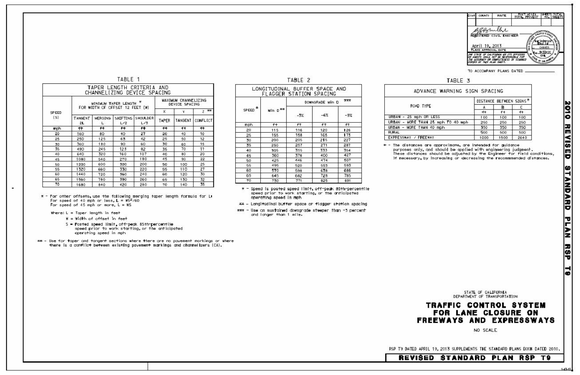
Support:
9. Turns can be prohibited as required by vehicular traffic conditions. Unless the streets are wide, it might be physically impossible to make certain turns, especially for large vehicles.

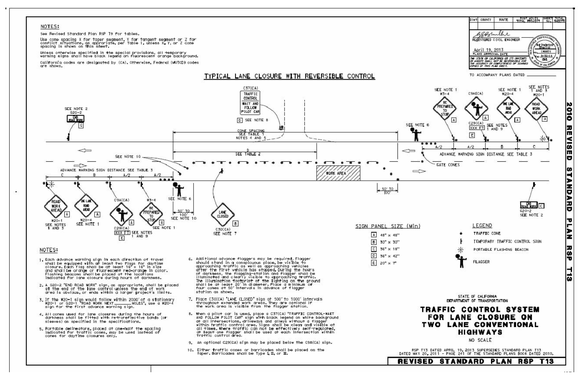
Option:
10. Vehicle hazard warning signals may be used to supplement high-intensity rotating, flashing, oscillating, or strobe lights.

Standard:
11. Vehicle hazard warning signals shall not be used instead of the vehicle's high-intensity rotating, flashing, oscillating, or strobe lights.

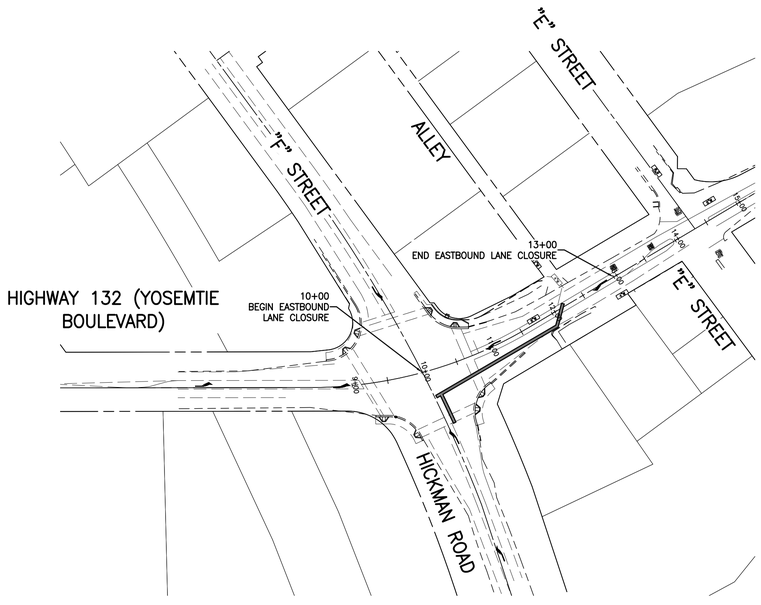
TRAFFIC CONTROL NOTES

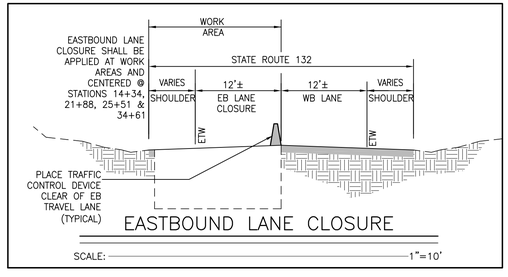
1. WORK IS RESTRICTED TO APPROVED CALTRANS LANE CLOSURE CHARTS.
2. LANE OPEN TO TRAFFIC DURING LANE CLOSURE SHALL HAVE A MINIMUM CLEARANCE OF 12 FEET.
3. FOR ADDITIONAL DETAILS FOR TRAFFIC CONTROL SYSTEM, SEE THE LATEST CALTRANS STANDARD PLAN T13.
4. EACH ADVANCE WARNING SIGN IN EACH DIRECTION OF TRAVEL SHALL BE EQUIPPED WITH AT LEAST TWO FLAGS FOR DAYTIME CLOSURE. EACH FLAG SHALL BE AT LEAST 16" X 16" IN SIZE AND SHALL BE ORANGE OR FLUORESCENT RED–ORANGE IN COLOR. FLASHING BEACONS SHALL BE PLACED AT THE LOCATIONS INDICATED FOR LANE CLOSURE DURING HOURS OF DARKNESS.
5. ADDITIONAL ADVANCE FLAGGERS MAY BE REQUIRED. FLAGGER SHOULD STAND IN A CONSPICUOUS PLACE, BE VISIBLE TO APPROACHING TRAFFIC AS WELL AS APPROACHING VEHICLES AFTER THE FIRST VEHICLE HAS STOPPED.
6. ACCESS TO INTERSECTING ROADS, PRIVATE DRIVEWAYS AND PUBLIC DRIVEWAY SHALL BE COORDINATED WITH THE CITY OF WATERFORD AND ALL LOCAL AGENCIES AND PRIVATE PROPERTY OWNERS. ADVANCED CLOSURE SIGNS AND BARRICADES WILL BE REQUIRED.
7. ALTERNATE TRAFFIC HANDLING PLAN(S) ARE SUBJECT TO CALTRANS APPROVAL. CONTRACTOR SHALL SUBMIT ALTERNATE PLAN A MINIMUM OF 3 WEEKS BEFORE COMMENCEMENT OF WORK FOR REVIEW BY CALTRANS. SUBMITTAL OF ALTERNATE PLAN(S) DOES NOT CONSTITUTE AUTOMATIC APPROVAL.
8. UNLESS OTHERWISE SPECIFIED IN THE SPECIAL PROVISIONS, ALL TEMPORARY WARNING SIGNS SHALL HAVE BLACK LEGEND ON ORANGE BACKGROUND.
9. CALIFORNIA CODE ARE DESIGNATED BY (CA). OTHERWISE, FEDERAL (MUTCD) CODES ARE SHOWN.
10. CONTRACTOR SHALL COORDINATE INTERSECTING ROAD CLOSURES AND DETOURS WITH THE CITY OF WATERFORD FOR APPROVAL.





KEY MAP
TRAFFIC CONTROL LOCATIONS





TRAFFIC HANDLING PLAN
THP-1

LAST REVISION	DATE PLOTTED:
07-29-18	TIME PLOTTED:

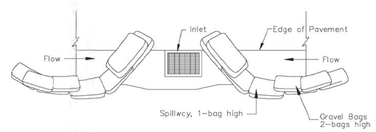
FOR REDUCED PLANS ORIGINAL SCALE IS IN INCHES (0 1 2)

USERNAME: NBS
DWG FILE:

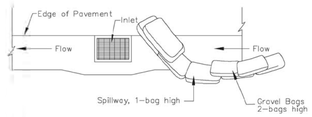
EROSION CONTROL NOTES

1. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE EFFECTIVE FOR THE DURATION OF THE CONSTRUCTION ACTIVITY.
2. EROSION CONTROL BEST MANAGEMENT PRACTICES (BMPs) SHALL BE INSTALLED AND MAINTAINED DURING THE WET SEASON (OCTOBER 1 THROUGH APRIL 30). SEDIMENT CONTROL BMPs SHALL BE INSTALLED AND MAINTAINED YEAR ROUND.
3. EFFECTIVE EROSION CONTROL BMPs SHALL BE IN PLACE PRIOR TO ANY STORM EVENTS.
4. THE NAME, ADDRESS AND 24-HOUR TELEPHONE NUMBER OF THE PERSON RESPONSIBLE FOR IMPLEMENTATION OF THE EROSION AND SEDIMENTATION CONTROL PLAN SHALL BE PROVIDED.
5. ALL DRAINAGE INLETS IMMEDIATELY DOWNSTREAM OF THE WORK AREAS AND WITHIN THE WORK AREAS SHALL BE PROTECTED WITH SEDIMENT CONTROL AND INLET FILTER BAGS YEAR ROUND. INLET FILTER BAGS SHALL BE REMOVED FROM THE DRAINAGE INLETS UPON COMPLETION OF CONSTRUCTION.
6. THE CONTRACTOR(S) SHALL KEEP ALL PUBLIC ROADWAYS ADJACENT TO THE PROJECT SITE FREE AND CLEAR OF MUD AND SILT DURING THE TERM OF THIS CONTRACT. THIS INCLUDES MUD CAUSED BY RAIN OR BY THE CONTRACTOR(S) WATERING PROCEDURES FOR DUST CONTROL.
7. ALL STABILIZED CONSTRUCTION ACCESS LOCATIONS SHALL BE CONSTRUCTED WHERE CONSTRUCTION TRAFFIC ENTERS OR LEAVES PAVED AREAS. THE STABILIZED ACCESS SHALL BE MAINTAINED ON A YEAR ROUND BASIS UNTIL THE COMPLETION OF CONSTRUCTION.
8. WHEN NECESSARY, WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED ROCK THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR BASIN. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING ANY STORM DRAIN, DITCH, OR WATERCOURSE THROUGH USE OF SANDBAGS, GRAVEL, BOARDS, OR OTHER APPROVED METHODS.
9. SEDIMENT CONTROL BMPs SHALL BE PLACED ALONG THE PROJECT PERIMETER WHERE DRAINAGE LEAVES THE PROJECT. SEDIMENT CONTROL BMPs SHALL BE MAINTAINED YEAR ROUND UNTIL THE CONSTRUCTION IS COMPLETE OR THE DRAINAGE PATTERN HAS BEEN CHANGED AND NO LONGER LEAVES THE SITE.
10. ALL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE MAINTAINED UNTIL DISTURBED AREAS ARE STABILIZED. CHANGES TO THE EROSION AND SEDIMENTATION CONTROL PLAN SHALL BE MADE TO MEET FIELD CONDITIONS, BUT ONLY WITH THE APPROVAL OF OR AT THE DIRECTION OF THE CITY ENGINEER.
11. DURING THE RAINY SEASON ALL SIDEWALK AND PAVED AREAS SHALL BE KEPT CLEAR OF EARTH MATERIAL AND DEBRIS. THE SITE SHALL BE MAINTAINED SO AS TO MINIMIZE SEDIMENT LADEN RUNOFF FROM ENTERING ANY STORM DRAINAGE SYSTEM.
12. THE EROSION AND SEDIMENTATION CONTROL PLAN COVERS ONLY THE FIRST WINTER DURING WHICH CONSTRUCTION IS TO TAKE PLACE. PLANS ARE TO BE RESUBMITTED PRIOR TO SEPTEMBER 1 OF EACH SUBSEQUENT YEAR UNTIL THE CITY ACCEPTS THE SITE IMPROVEMENTS.
13. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO INSPECT AND REPAIR ALL EROSION CONTROL FACILITIES AT THE END OF EACH WORK DAY DURING THE RAINY SEASON.
14. IT IS THE RESPONSIBILITIES OF THE CONTRACTOR TO PROTECT TEMPORARY BORROW AREAS AND/OR STOCKPILES WITH APPROPRIATE EROSION CONTROL MEASURES SATISFACTORY TO THE CITY ENGINEER.
15. THE CLEANING OF PAVED STREETS, DURING AND AT THE COMPLETION OF CONSTRUCTION, SHALL BE PERFORMED WITH MECHANICAL SWEEPERS. THE USE OF WATER TRUCKS TO "WASH DOWN" THE STREET IS PROHIBITED.
16. ALL MATERIALS STORED ON SITE SHALL HAVE PROPER ENCLOSURES AND/OR COVERINGS.
17. CONTRACTOR SHALL PLACE FIBER ROLLS AROUND THE SITE PERIMETER. THE CONTRACTOR SHALL INSPECT AND REPAIR FIBER ROLLS AFTER EACH STORM EVENT AND REMOVE SEDIMENT WHEN NECESSARY. REMOVED SEDIMENT SHALL BE DEPOSITED TO AN AREA THAT WILL NOT CONTRIBUTE TO SEDIMENT RUN-OFF AND CAN BE PERMANENTLY STABILIZED.
18. NO ON-SITE FUELING SHALL TAKE PLACE.
19. THE CONTRACTOR SHALL KEEP THE WORK SITE FREE AND CLEAR OF RUBBISH AND DEBRIS.
20. THROUGHOUT ALL PHASES OF CONSTRUCTION, INCLUDING SUSPENSION OF WORK, AND UNTIL FINAL ACCEPTANCE OF THE PROJECT, THE CONTRACTOR SHALL KEEP THE PREMISES OCCUPIED BY HIM IN A CLEAN AND ORDERLY CONDITION, DISPOSING OF REFUSE AND LITTER IN A MANNER SATISFACTORY TO THE CITY.
21. THE FOLLOWING PLANS ARE ACCURATE FOR EROSION CONTROL PURPOSES ONLY.
22. THE INFORMATION ON THIS PLAN IS INTENDED TO BE USED AS A GUIDELINE FOR THE CONTRACTOR AND SUBCONTRACTORS TO COMPLY WITH THE REQUIREMENTS OF THE STATE WATER RESOURCES CONTROL BOARD. FIELD CONDITIONS MAY NECESSITATE MODIFICATIONS TO THIS PLAN.

Storm Drain Inlet Protection SC-10



TYPICAL PROTECTION FOR INLET WITH OPPOSING FLOW DIRECTIONS



TYPICAL PROTECTION FOR INLET WITH SINGLE FLOW DIRECTION

NOTES:
1. Intended for short-term use.
2. Use to inhibit non-storm water flow.
3. Allow for proper maintenance and cleanup.
4. Bags must be removed after adjacent operation is completed
5. Not applicable in areas with high silts and clays without filter fabric.

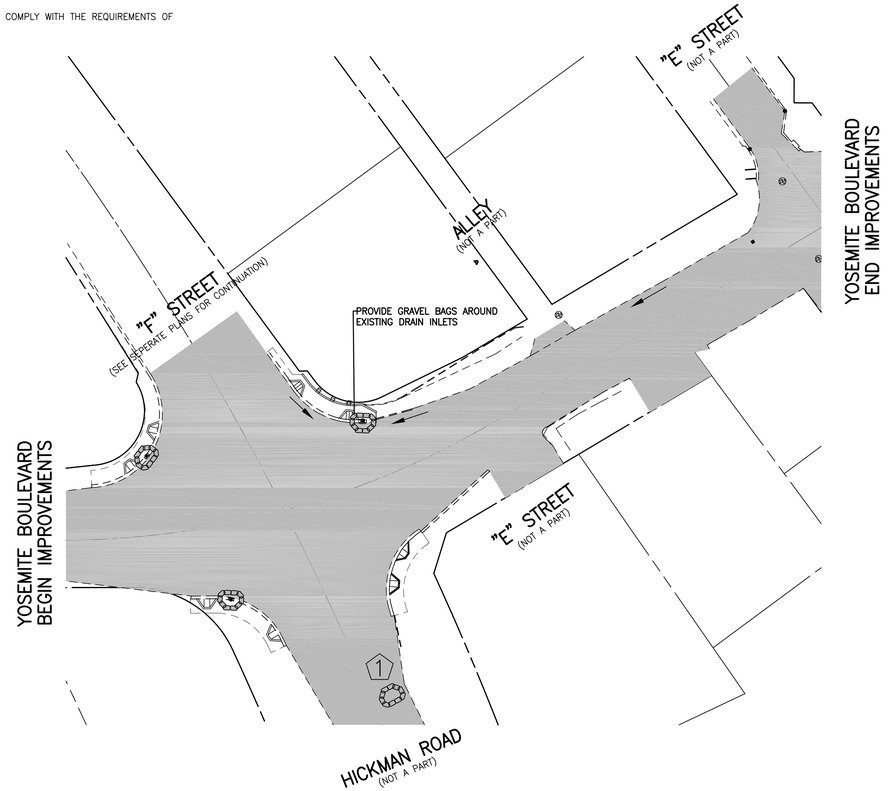
LEGEND

DRAIN INLET PROTECTION (SEE DETAIL THIS SHEET)

DIRECTION OF FLOW

NOTE

(1) PROVIDE GRAVEL BAGS AND INLET PROTECTION AT NEAREST DOWNSTREAM CURB INLET ON EACH CROSS STREET.



NORTH

0 25 50 100

WATER POLLUTION CONTROL PLAN
WPCP-1

DIST	COUNTY	ROUTE	POST MILE TOTAL PROJECT	SHEET No	TOTAL SHEETS
10	STA	132	28.0 – 28.1	7	7

REGISTERED CIVIL ENGINEER

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
TONY B. MARSHALL
No. C51015
EXP. 9-30-19
CIVIL
STATE OF CALIFORNIA

MCR ENGINEERING, INC. SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF ELECTRONIC COPIES OF THIS PLAN SHEET.

MCR ENGINEERING, INC.
1242 DUPONT COURT
MANTECA, CA 95336
TEL: (209) 239 - 6229
FAX: (209) 239 - 8839

CALCULATED/ DESIGNED BY	NBS	DATE 07/18	-
CHECKED BY	RM	07/18	DATE REVISED
			REVISED BY

PROJECT ENGINEER

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DATE PLOTTED:
TIME PLOTTED:

CALL BEFORE YOU DIG 811 800-227-2600

FOR REDUCED PLANS ORIGINAL SCALE IS IN INCHES 0 1 2

USERNAME: NBS
DWG FILE:

IMPROVEMENT PLANS FOR:

2018 HICKMAN WATER CONSOLIDATION

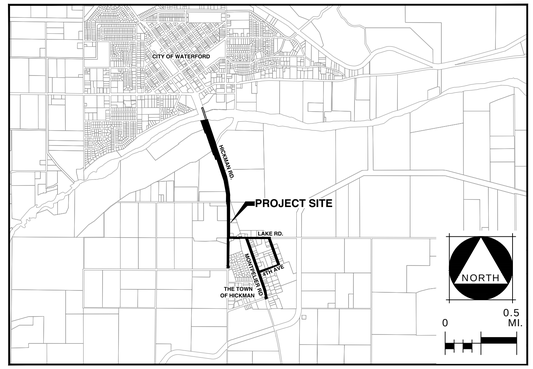
IN STANISLAUS COUNTY, CALIFORNIA

SHEET INDEX

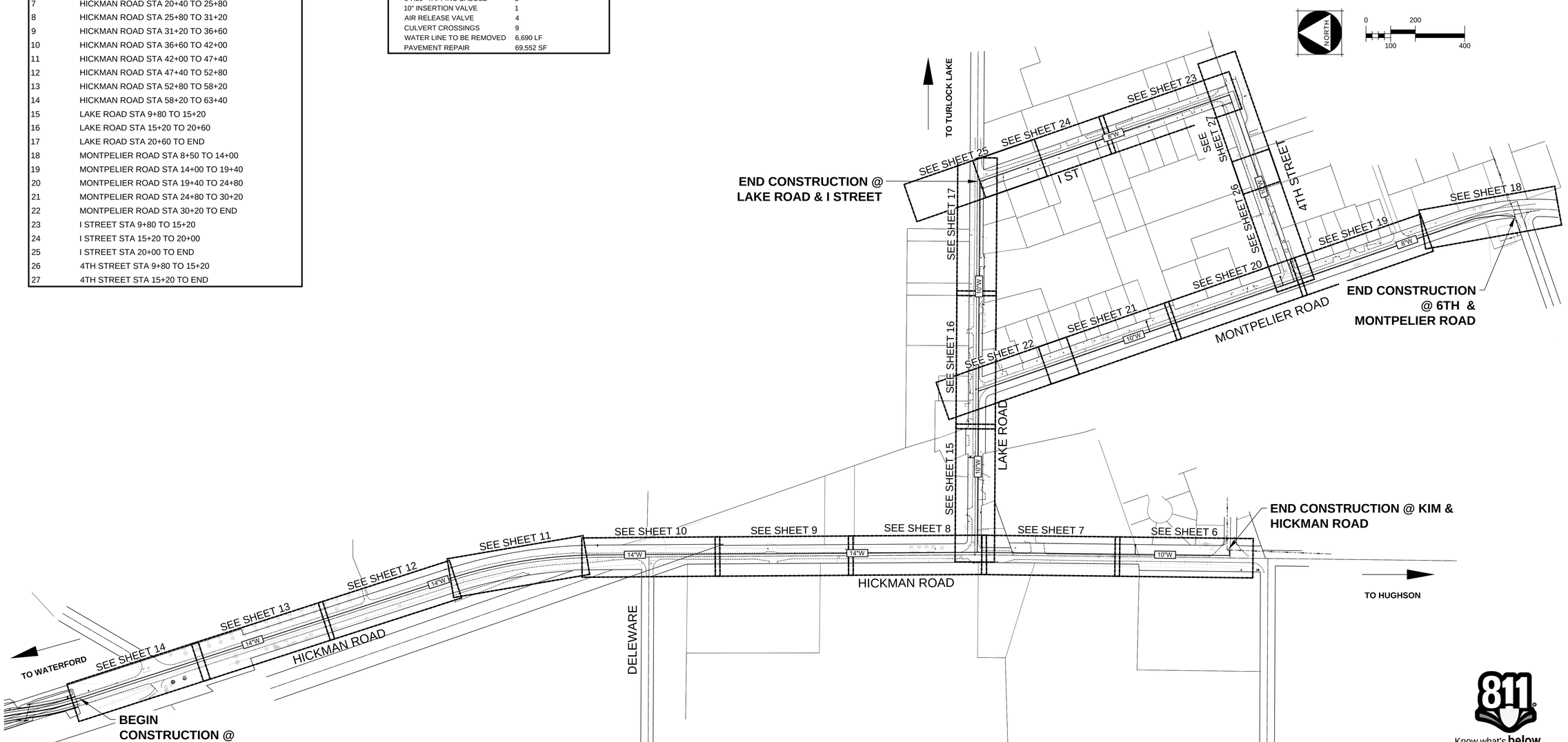
QUANTITES

ITEM	QUANTITY
14" WATER LINE	4,236 LF
10" WATER LINE	4,657 LF
8" WATER LINE	2,010 LF
14" BUTTERFLY VALVE	8
10" GATE VALVE	17
8" GATE VALVE	7
FIRE HYDRANT ASSEMBLY	8
1" SERVICE LINE	29
8"X10" TAPPING SADDLE	1
10" INSERTION VALVE	1
AIR RELEASE VALVE	4
CULVERT CROSSINGS	9
WATER LINE TO BE REMOVED	6,690 LF
PAVEMENT REPAIR	69,552 SF

VICINITY MAP



SITE MAP



811 Know what's **below.** **Call** before you dig. 811 / 800-227-2600

PUBLIC WORKS PROJECT
CITY OF WATERFORD
330' E. STREET WATERFORD, CA. 95386

PROFESSIONAL ENGINEER TONY B. MARSHALL No. C51015 EXP. 9-30-19 REGISTERED STATE OF CALIFORNIA

MCR ENGINEERING, INC.
1242 DUPONT COURT
MANTECA, CA 95336
TEL: (209) 239 - 6229
FAX: (209) 239 - 8839

mcr ENGINEERING WWW.MCRENGINEERING.COM

PREPARED UNDER THE DIRECTION OF: TONY B. MARSHALL R.C.E. C51015 EXP. 9-30-19 DATE

PLAN REVISIONS

NO.	DESCRIPTIONS	DATE
1		
2		
3		
4		
5		
6		
7		
8		

JOB NO. 18-001
DATE MARCH 2018
SCALE AS SHOWN
DR. BY JEH
CK. BY RM
FILE:

COVER SHEET

2018 HICKMAN WATER CONSOLIDATION

WATERFORD/HICKMAN, CALIFORNIA

SHEET 1 OF 27 SHEETS

GENERAL NOTES:

1. ALL IMPROVEMENTS SHALL BE CONSTRUCTED IN STRICT ACCORDANCE WITH THE CITY OF WATERFORD STANDARD SPECIFICATIONS AND DETAILS AND STANISLAUS COUNTY STANDARD SPECIFICATIONS AND DETAILS. ALL WORK SHALL BE PERFORMED UNDER THE INSPECTION OF THE CITY OF WATERFORD.

2. IT IS INTENDED THAT THESE PLANS AND SPECIFICATIONS REQUIRE ALL LABOR AND MATERIALS NECESSARY AND PROPER FOR THE WORK CONTEMPLATED AND THAT THE WORK BE COMPLETED IN ACCORDANCE WITH THEIR TRUE INTENT AND PURPOSE. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY REGARDING ANY DISCREPANCIES AND AMBIGUITIES WHICH MAY EXIST IN THE PLANS AND SPECIFICATIONS. IF THE PLANS OR SPECIFICATIONS DESCRIBE PORTIONS OF THE WORK IN GENERAL TERMS BUT NOT IN COMPLETE DETAIL, IT IS UNDERSTOOD THAT ONLY THE BEST GENERAL PRACTICE IS TO PREVAIL AND THAT ONLY MATERIALS AND WORKMANSHIP OF THE FIRST QUALITY ARE TO BE USED.

3. CONSTRUCTION STAKING SHALL BE PERFORMED BY MCR ENGINEERING, INC. THE CONTRACTOR SHALL NOTIFY THE ENGINEER SEVENTY-TWO (72) HOURS IN ADVANCE OF HIS NEED FOR STAKING. ANY STAKING REQUESTED BY THE CONTRACTOR OR HIS SUB-CONTRACTORS, THAT IS ABOVE AND BEYOND NORMAL STAKING NEEDS, WILL BE SUBJECT TO AN EXTRA BACK CHARGE TO THE CONTRACTOR.

4. THE CONTRACTOR SHALL EXERCISE DUE CAUTION AND SHALL CAREFULLY PRESERVE BENCH MARKS, REFERENCE POINTS AND ALL SURVEY STAKES, AND SHALL BEAR ALL EXPENSE FOR REPLACEMENT AND/OR ERRORS CAUSED BY THEIR UNNECESSARY LOSS OR DISTURBANCE. ALL CENTERLINE AND/OR SURVEY MONUMENTS SHALL BE PRESERVED OR RESET AT THE END OF CONSTRUCTION.

5. CONTRACTOR AGREES THAT HE SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY; THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS; AND THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD THE OWNER, ENGINEER AND THE CITY HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE OWNER OR THE ENGINEER.

6. UNLESS OTHERWISE STATED, ALL STATIONS INDICATED ON THE IMPROVEMENT PLANS ARE REFERENCED TO THE CENTERLINE OF THE STREET. ALL STATIONS OFF CENTER ARE PERPENDICULAR TO OR RADIALLY OPPOSITE CENTERLINE STATIONS, UNLESS OTHERWISE NOTED.

7. THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ANY FIELD CHANGES MADE WITHOUT WRITTEN AUTHORIZATION FROM THE CITY ENGINEER.

8. THE CONTRACTOR SHALL PROVIDE ALL LIGHTS, SIGNS, BARRICADES, FLAG MAN OR OTHER DEVICES NECESSARY FOR PUBLIC SAFETY IN ACCORDANCE WITH THE CURRENT ISSUE OF "MANUAL OF TRAFFIC CONTROLS, WARNING SIGNS, LIGHTS AND DEVICES FOR USE IN PERFORMANCE OF WORK UPON HIGHWAY" PUBLISHED BY THE STATE OF CALIFORNIA BUSINESS AND TRANSPORTATION AGENCY.

9. THE OFFICE OF THE CITY ENGINEER SHALL BE NOTIFIED AT LEAST 24 HOURS IN ADVANCE OF ANY WORK.

10. THE CITY OF WATERFORD AND ASSOCIATED UTILITY COMPANIES AND RESIDENCES TO BE AFFECTED SHALL BE NOTIFIED IMMEDIATELY UPON ANY UTILITY SERVICE DISRUPTION OTHER THAN SPECIFIED ON THESE IMPROVEMENT PLANS AND A 24 HOUR NOTICE SHALL BE GIVEN FOR ANY PLANNED DISRUPTION.

11. STREET SIGNS, TRAFFIC CONTROL SIGNS, AND PAVEMENT MARKINGS SHALL BE PROVIDED AND INSTALLED BY THE CONTRACTOR AT LOCATIONS ESTABLISHED BY THE ENGINEER.

12. ASPHALT CONCRETE SHALL BE PLACED ONLY WHEN THE ATMOSPHERIC TEMPERATURE IS ABOVE 50°F.

13. CONTRACTOR IS RESPONSIBLE FOR COORDINATION OF THE REMOVAL OR RELOCATION OF ALL EXISTING UTILITIES WITH RESPECTIVE UTILITY COMPANIES.

14. DRAWING NUMBERS SHOWN ON THE PLANS REFER TO DRAWINGS CONTAINED IN THE CITY OF WATERFORD STANDARD SPECIFICATIONS, THUS: (I.E. DETAIL 330).

15. PRIOR TO COMMENCING ANY WORK, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO HAVE EACH UTILITY COMPANY LOCATE, IN THE FIELD, THEIR MAIN AND SERVICE LINES. THE CONTRACTOR SHALL NOTIFY MEMBERS OF THE UNDERGROUND SERVICE ALERT (U.S.A.) 48 HOURS IN ADVANCE OF PERFORMING ANY EXCAVATION WORK BY CALLING THE TOLL-FREE NUMBER (800) 227-2600. THE CONTRACTOR SHALL RECORD THE U.S.A. ORDER NUMBER AND FURNISH ORDER NUMBER TO OWNER PRIOR TO ANY EXCAVATION. IT SHALL BE THE CONTRACTOR'S SOLE RESPONSIBILITY TO PROTECT ALL EXISTING UTILITIES SO THAT NO DAMAGE RESULTS TO THEM DURING THE PERFORMANCE OF THIS CONTRACT. ANY REPAIRS NECESSARY TO DAMAGED UTILITIES SHALL BE PAID FOR BY THE CONTRACTOR. THE CONTRACTOR SHALL BE REQUIRED TO COOPERATE WITH OTHER CONTRACTORS AND UTILITY COMPANIES INSTALLING NEW STRUCTURES, UTILITIES AND SERVICE TO THE DEVELOPMENT.

16. THE TYPES, LOCATIONS, SIZES, AND/OR DEPTHS OF EXISTING UNDERGROUND UTILITIES AS SHOWN ON THESE IMPROVEMENT PLANS WERE OBTAINED FROM SOURCES OF VARYING RELIABILITY, THE CONTRACTOR IS CAUTIONED THAT ONLY ACTUAL EXCAVATION WILL REVEAL THE TYPES, EXTENT, SIZES, LOCATIONS AND DEPTHS OF SUCH UNDERGROUND UTILITIES, AND SHALL PLAN ACCORDINGLY.

17. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING EXISTING IMPROVEMENTS FROM DAMAGE. COST OF REPLACING EXISTING IMPROVEMENTS SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEMS REQUIRING REMOVAL AND REPLACEMENT OF EXISTING IMPROVEMENTS.

18. WHENEVER PAVEMENT IS BROKEN OR CUT IN THE INSTALLATION OF THE WORK COVERED BY THESE SPECIFICATIONS, THE PAVEMENT SHALL BE REPLACED, AFTER PROPER BACKFILLING, WITH PAVEMENT MATERIALS EQUAL TO OR BETTER THAN THE MATERIALS USED IN THE ORIGINAL PAVING. THE FINISHED PAVEMENT SHALL BE SUBJECT TO THE APPROVAL OF THE CITY ENGINEER, OR CALTRANS, WHERE APPLICABLE.

19. PAYMENT FOR PAVEMENT WILL BE MADE ONLY FOR AREAS SHOWN ON THE PLANS REPLACEMENT OF PAVEMENT WHICH IS BROKEN OR CUT DURING THE INSTALLATION OF THE WORK COVERED BY THESE SPECIFICATIONS, AND WHICH LIES OUTSIDE OF SAID AREAS, SHALL BE INDICATED IN THE CONTRACTOR'S UNIT PRICE FOR PAVEMENT, AND NO ADDITIONAL PAYMENT SHALL BE MADE FOR SUCH WORK.

20. PRIOR TO ANY CORRECTIVE ACTION BY THE CONTRACTOR IS NECESSARY DUE TO ALLEGED STAKING ERROR, THE CONTRACTOR SHALL NOTIFY MCR ENGINEERING, INC. FOR RESTAKING AND VERIFICATION OF PREVIOUS STAKING. SHOULD ANY CORRECTIVE WORK BE DONE PRIOR TO NOTIFICATION THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COSTS INCURRED FOR THIS WORK. WHERE IT HAS BEEN DETERMINED THAT ANY CORRECTIVE ACTION WILL REQUIRE FINANCIAL PARTICIPATION BY MCR ENGINEERING, INC., THAT AMOUNT SHALL BE AGREED TO IN WRITING. FAILURE TO OBTAIN WRITTEN ACCEPTANCE BY MCR ENGINEERING, INC. WILL NEGATE ALL REQUIREMENTS OF THEIR FINANCIAL ASSISTANCE.

21. APPROPRIATE DUST CONTROL SHALL BE PROVIDED AT THE CONTRACTOR'S EXPENSE TO MINIMIZE ANY DUST NUISANCE, AND SHALL BE IN ACCORDANCE WITH SECTION 10 OF CALTRANS STANDARD SPECIFICATIONS AND THE REQUIREMENTS OF THE SAN JOAQUIN VALLEY AIR POLLUTION CONTROL DISTRICT (SJVAPCD). CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING PERMIT PER SJVAPCD REGULATION VII FUGITIVE PM10.

22. EXCAVATIONS OF 5 FEET OR MORE IN DEPTH WILL REQUIRE AN EXCAVATION PERMIT FROM THE STATE OF CALIFORNIA DEPARTMENT OF INDUSTRIAL SAFETY. FOR TRENCHES 5 FEET OF MORE IN DEPTH, THE CONTRACTOR SHALL COMPLY WITH SECTION 5-1.02A OF THE CALTRANS STANDARDS, CHAPTER 9 OF THE STATE OF CALIFORNIA LABOR CODE, AND ANY LOCAL CODES OR ORDINANCES.

23. WE CALL YOUR ATTENTION TO TITLE 8 CALIFORNIA ADMINISTRATION CODE SECTION 1540 (A) (1) OF THE CONSTRUCTION SAFETY ORDERS ISSUED BY THE OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD PURSUANT TO THE CALIFORNIA OCCUPATIONS SAFETY AND HEALTH ACT OF 1973 AS AMENDED WHICH STATES: (1) PRIOR TO OPENING AN EXCAVATION EFFORT SHALL BE MADE TO DETERMINE WHETHER UNDERGROUND INSTALLATIONS; I.E. SEWER, WATER, FUEL, ELECTRICAL LINES, ETC., WILL BE ENCOUNTERED AND IF SO, WHERE SUCH UNDERGROUND INSTALLATIONS ARE LOCATED. WHEN THE EXCAVATION APPROACHES THE APPROXIMATE LOCATION OF SUCH INSTALLATION, THE EXACT LOCATION SHALL BE DETERMINED BY CAREFUL PROBING OR HAND DIGGING; AND, WHEN IT IS UNCOVERED, ADEQUATE PROTECTION SHALL BE PROVIDED FOR THE EXISTING INSTALLATION. ALL KNOWN OWNERS OF UNDERGROUND FACILITIES IN THE AREA CONCERNED SHALL BE ADVISED OF PROPOSED WORK AT LEAST 48 HOURS PRIOR TO THE START OF ACTUAL EXCAVATION.

24. ALL TRENCHES IN PAVED AREAS SHALL BE PAVED WITH TEMPORARY PAVING THE SAME DAY THE PAVEMENT CUT IS MADE.

25. THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER, PRIOR TO FINAL ACCEPTANCE, AS-BUILT DRAWINGS OF ALL IMPROVEMENTS REPRESENTED BY THE PROJECT PLANS AND SPECIFICATIONS.

26. REGULATING DISCHARGES OF STORM WATER ASSOCIATED WITH CONSTRUCTION ACTIVITY FROM SOIL DISTURBANCES OF ONE (1) ACRE OR MORE, A NOTICE OF INTENT (NOI) TO COMPLY WITH THE TERMS OF THE GENERAL PERMIT TO DISCHARGE STORM WATER ASSOCIATED WITH CONSTRUCTION ACTIVITY MUST BE FILED AND APPROPRIATE FEE PAID PRIOR TO COMMENCEMENT OF CONSTRUCTION IN ADDITION, AT THE CONCLUSION OF THE PROJECT A NOTICE OF TERMINATION MUST ALSO BE FILED, SUBMIT THE FEE, A NOTICE OF INTENT, AND NOTICE OF TERMINATION TO THE STATE RESOURCES CONTROL BOARD AT THE FOLLOWING ADDRESS:

    STATE WATER RESOURCES CONTROL BOARD
    P.O. BOX 100
    SACRAMENTO, CA 95812-0100
    ATTN. STORM WATER PERMITTING SECTION

27. IF YOU HAVE ANY QUESTIONS CALL WATER QUALITY CONTROL ENGINEER, CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD, CENTRAL VALLEY REGION AT (916) 464-3291.

28. THE CONTRACTOR SHALL COMPLY WITH THE REQUIREMENTS OF THE STATE WATER RESOURCES CONTROL BOARD (SWCRB) ORDER NO. 2009-0009-DWQ. THE CONTRACTOR SHALL IMPLEMENT AND MONITOR A STORM WATER POLLUTION PREVENTION PLAN (SWPPP) IN ACCORDANCE WITH THE SWRCB REGULATIONS.

29. CONTRACTOR SHALL COMPLY WITH BUSINESS AND PROFESSIONS CODE, SECTION 8771 (b) REGARDING REFERENCING, PRESERVING, AND RECONSTRUCTING MONUMENTS, WHETHER OR NOT THE MONUMENTS ARE SHOWN ON THE PLANS.

GRADING NOTES:

1. EARTHWORK SHALL BE PERFORMED IN ACCORDANCE WITH THE CITY OF WATERFORD STANDARDS. ALL FILL AREAS SHALL BE TESTED AS REQUIRED BY THE CITY OF WATERFORD AND SHALL BE PAID FOR BY THE CONTRACTOR.

2. ALL FILL SOILS SHALL BE PLACED IN 6" LIFTS, MOISTURE CONDITIONED AS NECESSARY, AND COMPACTED TO ACHIEVE 95 PERCENT OF MAXIMUM DENSITY.

3. THE CITY SHALL BE RESPONSIBLE FOR COST OF INITIAL TEST FOR MOISTURE DENSITY CURVE. IF THE FIRST TEST FAILS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR COST OF ALL SUBSEQUENT CURVES AND TESTS.

4. THE CONTRACTOR SHALL REVIEW SITE PRIOR TO BIDDING. ALL VEGETATION AND DELETERIOUS MATERIALS, INCLUDING ROOTS SHALL BE REMOVED FROM THE SITE AT THE EXPENSE OF THE CONTRACTOR AND SHALL BE INCLUDED IN THE LUMP SUM CLEARING COST.

5. THE CONTRACTOR SHALL PRESERVE ALL STAKES AND POINTS SET FOR LINES, GRADES OR MEASUREMENT OF THE WORK IN THEIR PROPER PLACES UNTIL AUTHORIZED TO REMOVE THEM BY THE ENGINEER. ALL EXPENSES INCURRED IN REPLACING STAKES THAT HAVE BEEN REMOVED WITHOUT PROPER AUTHORITY SHALL BE PAID FOR BY THE GENERAL CONTRACTOR.

6. MITIGATION MEASURE GEO-4A: STOCKPILE EXCAVATED TOPSOIL FOR ONSITE RE-USE. THE PROPONENT WILL REQUIRE THE CONTRACTORS RETAINED FOR PROJECT CONSTRUCTION TO STOCKPILE EXCAVATED TOPSOIL SO IT CAN BE REUSED FOR REVEGETATION ON THE PROJECT SITE. TOPSOIL WILL BE STOCKPILED SEPARATELY FROM OTHER EXCAVATED MATERIALS TO ENSURE THAT AS MUCH AS POSSIBLE CAN BE EFFECTIVELY SALVAGED.

WATER NOTES:

1. ALL WATER CONSTRUCTION, MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE CITY OF WATERFORD STANDARD SPECIFICATIONS AND PLANS.

2. THE CONTRACTOR SHALL EXPOSE EXISTING WATER LINES TO VERIFY EXISTING ELEVATION AND LOCATION PRIOR TO START OF CONSTRUCTION.

3. ALL WATER LINES SHALL BE TESTED AND DISINFECTED IN CONFORMANCE WITH THE REQUIREMENTS OF THE CITY OF WATERFORD AND THE AMERICAN WATER WORKS ASSOCIATION (AWWA) STANDARDS, SECTION C-651. CONTRACTOR SHALL ISOLATE NEW PIPE SECTIONS USING TEMPORARY BLIND FLANGES FOR PRESSURE TESTING AND DISINFECTION. PROVIDE TEMPORARY BLOW OFFS AS NEEDED FOR FILLING, FLUSHING, AND AIR RELEASE. PRESSURE TESTING OF PIPE SHALL INCLUDE A 2-HOUR TEST AT 150 PSI. AN ACCEPTABLE PRESSURE TEST WILL INDICATE NO MEASURABLE LOSS IN PRESSURE USING A PRESSURE GAUGE CAPABLE OF ACCURATELY MEASURING TO 1 PSI.

4. THE CITY OF WATERFORD SHALL PAY FOR THE INITIAL BACTERIOLOGICAL TESTS. THE CONTRACTOR SHALL PAY FOR ALL TESTING NECESSITATED BY FAILURE OF THE INITIAL TEST(S). IF TRENCH WATER HAS ENTERED THE NEW MAIN DURING CONSTRUCTION OR, IF IN THE OPINION OF THE CITY OF WATERFORD, EXCESSIVE QUANTITIES OF DIRT OR DEBRIS HAVE ENTERED THE NEW MAIN, BACTERIOLOGICAL SAMPLES SHALL BE TAKEN AT INTERVALS OF APPROXIMATELY 200 FEET AND SHALL BE IDENTIFIED BY LOCATION. THE CONTRACTOR SHALL INSTALL ADDITIONAL WATER SERVICE TAPS AND SAMPLING STATIONS AS REQUIRED. THE CONTRACTOR SHALL ALSO REMOVE SAMPLING STATIONS AND SERVICES UPON SATISFACTORY COMPLETION OF TESTING. THE CONTRACTOR SHALL PAY FOR TESTING OF THE CONTAMINATED AREAS. CONTRACT PRICE SHALL INCLUDE FULL COMPENSATION FOR FURNISHING ALL LABOR, MATERIALS, TOOLS, EQUIPMENT, AND INCIDENTALS, AND FOR DOING ALL OF THE WORK INVOLVED IN TESTING AND DISINFECTION OF THE WATER MAINS.

5. CONTRACTOR SHALL PROVIDE ALL LIGHTS, SIGNS, BARRICADES, FLAG MEN, OR OTHER DEVICES NECESSARY FOR PUBLIC SAFETY.

6. WATER LINES SHALL BE A MINIMUM OF 10 FEET OUTSIDE OF PIPE TO OUTSIDE OF PIPE FROM SEWER MAINS. CROSSINGS SHALL MEET STATE HEALTH STANDARDS.

7. ALL VALVE BOXES TO BE ADJUSTED TO FINISH GRADE AFTER PAVING. COST FOR RAISING FACILITIES TO BE INCLUDED IN UNIT PRICES FOR VALVES.

8. THE CONTRACTOR SHALL PROVIDE ALL SHORING, BRACING, SLOPING OR OTHER PROVISIONS NECESSARY TO PROTECT WORKMEN FOR ALL AREAS TO BE EXCAVATED TO A DEPTH OF 5' OR MORE. SAID PROTECTION TO BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE CITY OF WATERFORD DEPARTMENT OF PUBLIC WORKS, AND STATE REGULATIONS.

9. ALL CONNECTIONS TO EXISTING CITY FACILITIES SHALL BE MADE IN THE PRESENCE OF THE CITY ENGINEER, OR HIS APPOINTED REPRESENTATIVE.

POLLUTION AND DUST NOTES:

1. THE CONTRACTOR SHALL KEEP THE WORK SITE FREE AND CLEAR OF RUBBISH AND DEBRIS.

2. THE CONTRACTOR SHALL EXERCISE CARE TO PRESERVE AND PROTECT NATURAL HABITAT ADJACENT TO THE PROJECT SITE.

3. THE CONTRACTOR SHALL NOT DISCHARGE SMOKE, DUST, OR ANY OTHER AIR CONTAMINANTS INTO THE ATMOSPHERE IN SUCH A QUANTITY AS WILL VIOLATE THE REGULATIONS OF ANY LEGALLY CONSTITUTED AUTHORITY.

4. THE CONTRACTOR SHALL KEEP ALL AREAS GENERATING DUST WITHIN THE LIMITS OF THE PROJECT WELL WATERED DURING THE TERM OF THIS CONTRACT. THIS INCLUDES BUT IS NOT LIMITED TO ACCESS RAMPS, THE HAUL ROADS, THE EMBANKMENT FILL AREA, AND ANY OTHER AREAS THAT MAY GENERATE DUST AS A RESULT OF CONTRACTOR'S OPERATIONS. THE CONTRACTOR SHALL PROVIDE DUST CONTROL MEASURES DURING EVENINGS, WEEKENDS, AND HOLIDAYS WHEN REQUESTED BY THE DISTRICT AT NO ADDITIONAL COST TO THE DISTRICT.

5. THE CONTRACTOR(S) SHALL KEEP ALL PUBLIC ROADWAYS ADJACENT TO THE PROJECT SITE FREE AND CLEAR OF MUD AND SILT DURING THE TERM OF THIS CONTRACT. THIS INCLUDES MUD CAUSED BY RAIN OR BY THE CONTRACTOR(S) WATERING PROCEDURES FOR DUST CONTROL.

6. THROUGHOUT ALL PHASES OF CONSTRUCTION, INCLUDING SUSPENSION OF WORK, AND UNTIL FINAL ACCEPTANCE OF THE PROJECT, THE CONTRACTOR SHALL KEEP THE PREMISES OCCUPIED BY HIM IN A CLEAN AND ORDERLY CONDITION, DISPOSING OF REFUSE AND LITTER IN A MANNER SATISFACTORY TO THE CITY OF WATERFORD.

811 Know what's **below.** **Call** before you dig. **811 / 800-227-2600**

PUBLIC WORKS PROJECT
CITY OF WATERFORD
330' E. STREET WATERFORD, CA. 95386

REGISTERED PROFESSIONAL ENGINEER — TONY B. MARSHALL — No. C51015 EXP. 9-30-19 — STATE OF CALIFORNIA — CIVIL

MCR ENGINEERING, INC.
1242 DUPONT COURT
MANTECA, CA 95336
TEL: (209) 239-6229
FAX: (209) 239-8839
WWW.MCRENGR.COM
PREPARED UNDER THE DIRECTION OF:
TONY B. MARSHALL R.C.E. C51015 EXP. 9-30-19 DATE

PLAN REVISIONS

NO.	DESCRIPTIONS	DATE
1		
2		
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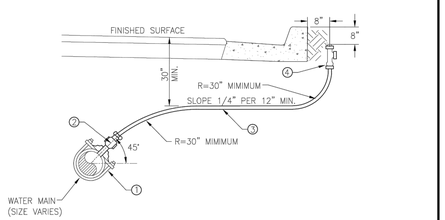
JOB NO. 18-001
DATE MARCH 2018
SCALE AS SHOWN
DR. BY JEH
CK. BY RM
FILE:

GENERAL NOTES & TYPICAL SECTIONS

2018 HICKMAN WATER CONSOLIDATION

WATERFORD/HICKMAN, CALIFORNIA

SHEET **2** OF 27 SHEETS



① DOUBLE STRAP SERVICE SADDLE, FOR ALL PIPE EXCEPT C900 – JONES 979 (F.I.P.)
DOUBLE STRAP SERVICE SADDLE, FOR C900 PIPE – JONES 969 (F.I.P.)

② 1" CORP STOP – JONES J-1936 (M.I.P. x COMPRESSION)

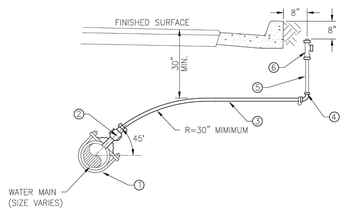
③ 1" POLYETHLENE PIPE

④ ANGLE METER STOP – JONES J-4201 (COMPRESSION x METER COUPLING)

NOTE:
1. USE A LINER ON ALL COMPRESSION CONNECTIONS WITH POLYETHLENE PIPE.
2. ANGLE METER STOP TO BE EITHER 1" x 3/4" OR 1" x 1" TO FIT METER SIZE.
3. ALL FITTING SUBSTITUTIONS MUST BE SUBMITTED AND APPROVED BY THE CITY ENGINEER PRIOR TO CONSTRUCTION.

1" STANDARD SERVICE INSTALLATION — **501**

TONY B. MARSHALL, CITY ENGINEER — 12/05/2013 — DATE



① DOUBLE STRAP SERVICE SADDLE, FOR ALL PIPE EXCEPT C900 – JONES 979 (F.I.P.)
DOUBLE STRAP SERVICE SADDLE, FOR C900 PIPE – JONES 969 (F.I.P.)

② 1" CORP STOP – JONES J-1936 (M.I.P. x COMPRESSION)

③ 1" POLYETHLENE PIPE

④ 1" ELL – JONES J-2621(F.I.P. x COMPRESSION)–FOR USE WITH BRASS NIPPLE
1" ELL – JONES J-2611(COMPRESSION x COMPRESSION)–FOR USE WITH POLYETHLENE NIPPLE

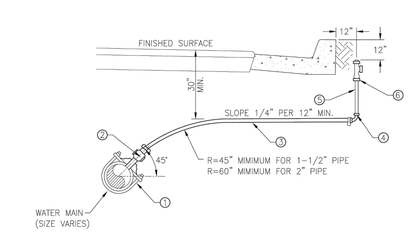
⑤ 1" BRASS NIPPLE MINIMUM 12", OR 1" POLYETHLENE PIPE

⑥ ANGLE METER STOP – JONES J-1527W (F.I.P. x METER COUPLING)

NOTE:
1. USE A LINER ON ALL COMPRESSION CONNECTIONS WITH POLYETHLENE PIPE.
2. ANGLE METER STOP TO BE EITHER 1" x 3/4" OR 1" x 1" TO FIT METER SIZE.
3. ALL FITTING SUBSTITUTIONS MUST BE SUBMITTED AND APPROVED BY THE GENERAL MANAGER PRIOR TO CONSTRUCTION.

1" ALTERNATE SERVICE INSTALLATION — **502**

TONY B. MARSHALL, CITY ENGINEER — 12/05/2013 — DATE



① DOUBLE STRAP SERVICE SADDLE, FOR ALL PIPE EXCEPT C900 – JONES 979 (F.I.P.)
DOUBLE STRAP SERVICE SADDLE, FOR C900 PIPE – JONES 969 (F.I.P.)

② CORP STOP – JONES J-1936 (M.I.P. x COMPRESSION)

③ POLYETHLENE PIPE

④ ELL – JONES J-2621(F.I.P. x COMPRESSION)–FOR USE WITH BRASS NIPPLE,
ELL – JONES J-2611(COMPRESSION x COMPRESSION)–FOR USE WITH POLYETHLENE NIPPLE

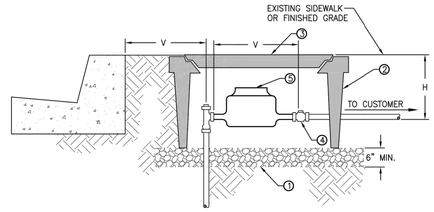
⑤ BRASS NIPPLE MINIMUM 12", OR POLYETHLENE PIPE

⑥ ANGLE CURB STOP – JONES J-1527-F (F.I.P. x FLG.)

NOTE:
1. USE A LINER ON ALL COMPRESSION CONNECTIONS WITH POLYETHLENE PIPE.
2. ANGLE STOP TO BE EITHER 1–1/2" x 1–1/2" OR 2" x 2" TO FIT METER SIZE.
3. ALL FITTING SUBSTITUTIONS MUST BE SUBMITTED AND APPROVED BY THE CITY ENGINEER PRIOR TO CONSTRUCTION.

1-1/2" & 2" STANDARD SERVICE INSTALLATION — **503**

TONY B. MARSHALL, CITY ENGINEER — 12/05/2013 — DATE



① 3/4" CRUSHED AGGREGATE BASE

② WATER METER BOX

③ CONCRETE LID

④ 1" JONES 1925
1–1/2" & 2" JONES 1939

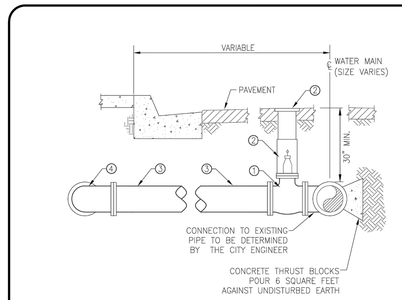
⑤ METER TO BE FURNISHED BY THE CITY

SIZES	METER BOX	COVER	V	H
1"	CHRISTY B–30	CHRISTY B–30D	8"	8"
1–½" & 2"	CHRISTY B–36	CHRISTY B–36D	12"	12"

NOTES:
1. USE A LINER ON ALL COMPRESSION CONNECTIONS WITH POLYETHLENE PIPE.
2. ALL FITTING SUBSTITUTIONS MUST BE SUBMITTED AND APPROVED BY THE CITY ENGINEER PRIOR TO CONSTRUCTION.

1", 1-1/2", & 2" METER ASSEMBLY — **504**

TONY B. MARSHALL, CITY ENGINEER — 12/05/2013 — DATE



① 6" GATE VALVE (FLG. x FLG.) ON NEW OR REPLACEMENT PIPES OR TAPPING VALVE ON EXISTING PIPE

② CITY STANDARD VALVE BOX, STD. DWG. 512

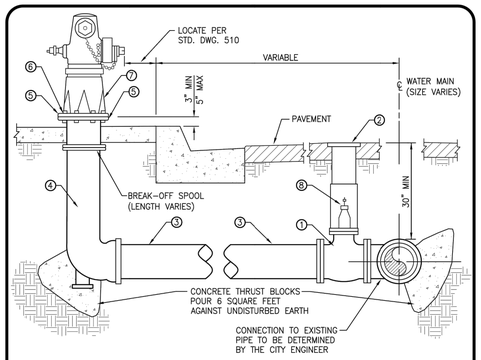
③ DUCTILE IRON OR STANDRAD STEEL ML&C (FLG. x FLG.)

④ LONG RADIUS 90° BEND (FLG. x FLG.) – USE ONLY FOR PARALLEL INSTALLATION

NOTES:
1. DEPTH VARIES, WITH 42" MINIMUM, DEPENDENT ON REQUIREMENTS FOR METER AND VALVE SIZES
2. DISTANCE BEHIND CURB VARIES TO MEET REQUIREMENTS FOR PERPENDICULAR OR PARALLEL METER INSTALLATION
3. ALL FITTINGS AND PIPES MUST MEET AWWA STANDARDS

4" TO 8" SERVICE INSTALLATION — **505**

TONY B. MARSHALL, CITY ENGINEER — 12/05/2013 — DATE



① 6" GATE VALVE ON NEW OR REPLACEMENT PIPES OR TAPPING VALVE ON EXISTING PIPE – (FLG. x FLG.)

② VALVE BOX PER CITY STANDARD 512

③ 6" STANDARD STEEL PIPE ML&C OR DUCTILE IRON

④ 6" DUCTILE IRON BURY WITH FOOT AND M.J.

⑤ BREAKAWAY SPOOL

⑥ BREAKAWAY BOLTS

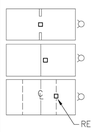
⑦ JONES J-4040 FIRE HYDRANT OR APPROVED EQUAL

⑧ SHUT–OFF VALVES SHALL BE A MINIMUM OF 10 FEET FROM THE HYDRANT

FIRE HYDRANT INSTALLATION — **509**

TONY B. MARSHALL, CITY ENGINEER — 12/05/2013 — DATE

REFLECTOR MARKERS:
1. ALL FIRE HYDRANTS SHALL HAVE REFLECTORS.
2. LOCATION OF ALL REFLECTORS SHALL BE AS CLOSE TO THE CENTERLINE OF THE STREET AS POSSIBLE, OR LANE LINES, BUT NEVER IN THE TRAVEL LANE.



TWO LANE STREET WITH PAINTED BROKEN LINE;
PLACE IN THE LINE WITH PAINTED LINE

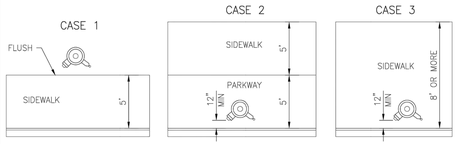
TWO WAY LANE WITH PAINTED SOLID LINE;
PLACE AS CLOSE TO PAINTED LINE AS POSSIBLE

FOUR WAY STREET;
PLACE IN LINE WITH PAINTED LINE

OTHER MARKERS IN THE STREET;
WHEN THERE ARE TRAFFIC MARKERS ALREADY IN THE STREET, FIRE DEPARTMENT REFLECTORS SHOULD NOT BE USED ON THIS STREET AT ALL.

BLUE REFLECTIVE MARKERS SHALL BE HAWKINS V16C–DB OR EQUAL

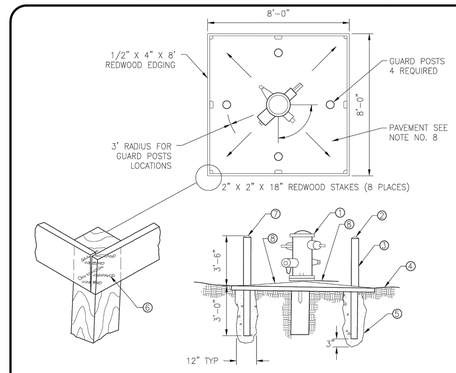
REFLECTOR LOCATION



HYDRANT LOCATION

FIRE HYDRANT AND REFLECTOR LOCATION — **510**

TONY B. MARSHALL, CITY ENGINEER — 12/05/2013 — DATE



① INSTALL FIRE HYDRANT PER CITY STANDARD DRAWING 510

② FILL ALL GUARD POST WITH 2000# CONCRETE, ROD TO REMOVE AIR VOIDS, DOME FINISH TOP

③ 4" O.D. X 8 GA. STEEL POSTS (TYP.)

④ HAND TAMP EXSITING EARTH AROUND FROM PRIOR TO PAVING MATCH EXISTING GROUND LEVEL

⑤ SET GUARD POSTS IN 1'–0" DIAMETER HOLE WITH 2000# CONCRETE

⑥ LAP ENDING TOE NAIL DRIVE – 3D–14 GA. NAIL AS SHOWN

⑦ RED OXIDE PRIMER PIPE & PAINT RUST–O–LEUM 659 YELLOW

⑧ PLACE 1–1/2" PEAGRAVEL – HAND FINISH WITH HOT ASPHALT TO TOP OF FORMS AND 2" AROUND HIGHER

FIRE HYDRANT PROTECTION IN UNIMPROVED AREAS — **511**

TONY B. MARSHALL, CITY ENGINEER — 12/05/2013 — DATE

811 Know what's **below.** **Call** before you dig. 811 / 800-227-2600

PUBLIC WORKS PROJECT
CITY OF WATERFORD
330 E. STREET WATERFORD, CA. 95386

PREPARED UNDER THE DIRECTION OF:
TONY B. MARSHALL — R.C.E. 61015 — EXP. 9-30-19 — DATE

PROFESSIONAL ENGINEER — TONY B. MARSHALL — No. C51015 EXP. 9-30-19 — CIVIL — STATE OF CALIFORNIA

MCR ENGINEERING
MCR ENGINEERING, INC.
1242 DUPONT COURT
MANTECA, CA 95336
TEL: (209) 239-6229
FAX: (209) 239-8839
WWW.MCRENGINEERING.COM

PLAN REVISIONS

NO.	DESCRIPTIONS	DATE
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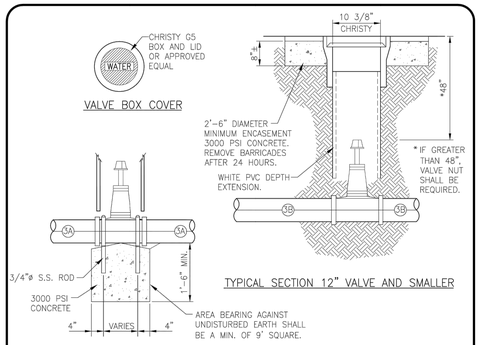
JOB NO. 18-001
DATE MARCH 2018
SCALE AS SHOWN
DR. BY JEH
CK. BY RM
FILE:

STANDARD DETAILS

2018 HICKMAN WATER CONSOLIDATION

WATERFORD/HICKMAN, CALIFORNIA

SHEET 3 OF 27 SHEETS



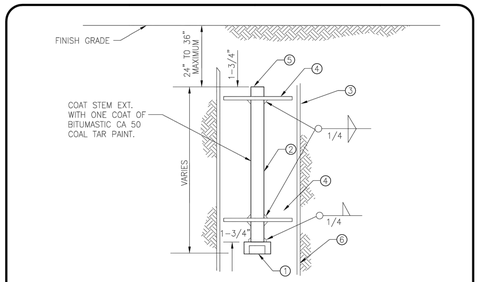
TYPICAL SECTION GREATER THAN 12" VALVE

NOTES:

1. VALVE BOX AND COVER SHALL BE CHRISTY CONCRETE PRODUCTS NO. G-5 OR EQUAL WITH DEPTH EXTENSIONS AS REQUIRED.
2. ALL VALVES SHALL HAVE FLANGED CONNECTIONS AT ALL TEES AND CROSSES.
3. ALL VALVES SHALL BE SEPARATED FROM COLLARS AS NOTED:
   A. 6'6" (1/2 SECTION)
   B. 3'3" (1/4 SECTION).
4. VALVE SHALL BE RESILIENT SEAT GATE (12" OR LESS) OR BUTTERFLY (GREATER THAN 12") PER CITY SPECIFICATION.
5. CLEAN INSIDE OF EXTENSIONS SO STEM IS CLEAN OF DIRT.
6. SET VALVE BOX TO FINISH GRADE.
7. COMPACT EARTH AROUND BASE WITH MECHANICAL TAMPER TO 95% RELATIVE COMPACTION AND ENCASE IN 8" OF CONCRETE.
8. AFTER CONCRETE SETS, PATCH WITH 2" AC.
9. VALVE BOXES IN DIRT OR UNDEVELOPED AREAS SHALL HAVE CONCRETE ENCASEMENT POURED TO 6" ABOVE GRADE (NO 2" AC).

VALVE BOX INSTALLATION — 512

TONY B. MARSHALL, CITY ENGINEER — 12/05/2013 — DATE



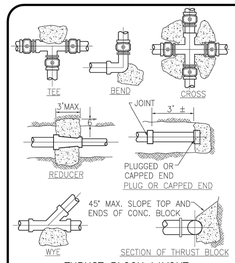
① 2" SQUARE STEEL SOCKET
② 1-1/2" STD. STEEL PIPE
③ VALVE BOX SLEEVE PVC SDR 35
④ 1/4" STEEL PLATE X 5-1/2" DIA.
⑤ 2" SQUARE STEEL OPERATING NUT
⑥ CITY STANDARD 512

NOTES

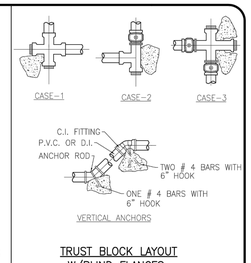
1. COAT STEM EXTENSION WITH ONE COAT BITUMASTIC 50 COAL TAR PAINT
2. PROVIDE VAVLE STEM EXTENSION WHEN DEPTH TO OPERATING NUT EXCEEDS 48 INCHES
3. EXTENSION SHALL BE FIELD FABRICATED

VALVE STEM EXTENSION — 513

TONY B. MARSHALL, CITY ENGINEER — 12/05/2013 — DATE



THRUST BLOCK LAYOUT



TRUST BLOCK LAYOUT W/BLIND FLANGES

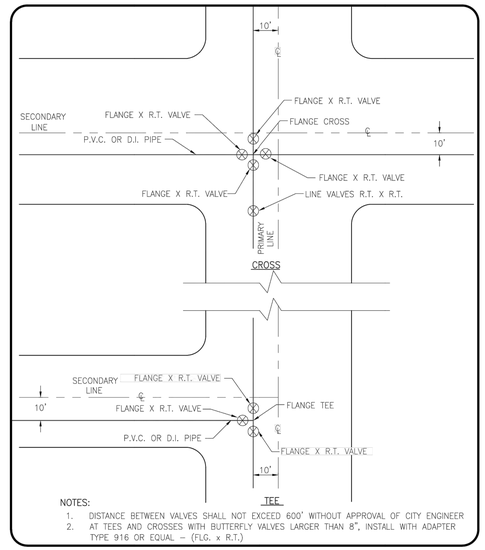
PIPE DIA.	PIPE CLASS	PRESS P.S.I.	AREA SQ. FT. TEE	90° BEND	45° BENDS AND WYES	ALL BENDS 22-1/2° AND LESS	CROSSES (EACH)	CAP	CASE 1 AND 2 (EACH)	CASE 3 (EACH)	LINE VALVE	VERTICAL ANCHORS (EACH)
4	150	150	3	4	3	2	1	3	3	4	3	3
	200	200	4	6	3	2	1	4	4	6	4	4
6	150	150	6	9	5	3	2	6	6	9	6	6
	200	200	8	11	6	3	2	8	8	11	8	8
8	150	150	10	14	8	4	3	10	10	14	10	10
	200	200	14	19	11	6	3	14	14	19	14	14
10	150	150	17	23	23	7	5	17	17	23	17	17
	200	200	22	31	17	9	5	22	22	31	22	2
12	150	150	23	33	18	9	7	23	23	33	23	23
	200	200	31	44	24	12	7	31	31	44	31	1

NOTE:

1. THRUST BLOCK BEARING FACES SHALL BE PLACED AGAINST UNDISTURBED EARTH, APPROVED COMPACTED FILL OR APPROVED SLURRY MIX.
2. CONCRETE TO BE KEPT CLEAR OF BOLTS NUTS AND END OF FITTING.
3. PLACE 6 MIL VISQUEEN TO COVER BOLTS OF ALL FITTINGS AND CONCRETE.

THRUST BLOCK SIZES — 514

TONY B. MARSHALL, CITY ENGINEER — 12/05/2013 — DATE

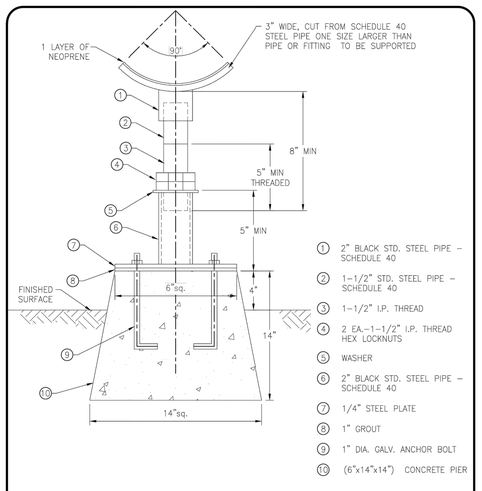


NOTES:

1. DISTANCE BETWEEN VALVES SHALL NOT EXCEED 600' WITHOUT APPROVAL OF CITY ENGINEER
2. AT TEES AND CROSSES WITH BUTTERFLY VALVES LARGER THAN 8", INSTALL WITH ADAPTER TYPE 916 OR EQUAL - (FLG. x R.T.)

INTERSECTION CONNECTIONS AND VALVE LOCATIONS — 515

TONY B. MARSHALL, CITY ENGINEER — 12/05/2013 — DATE



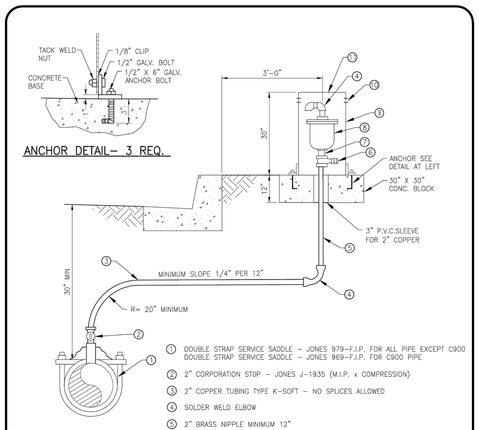
① 2" BLACK STD. STEEL PIPE - SCHEDULE 40
② 1-1/2" STD. STEEL PIPE - SCHEDULE 40
③ 1-1/2" I.P. THREAD
④ 2 EA.-1-1/2" I.P. THREAD HEX LOCKNUTS
⑤ WASHER
⑥ 2" BLACK STD. STEEL PIPE - SCHEDULE 40
⑦ 1/4" STEEL PLATE
⑧ 1" GROUT
⑨ 1" DIA. GALV. ANCHOR BOLT
⑩ (6"x14"x14") CONCRETE PIER

NOTE:

1. ALL EXPOSED METAL SURFACES TO BE PAINTED IN ACCORDANCE WITH CITY SPECIFICATIONS.
2. PIER IS NOT REQUIRED IF SUPPORT IS MOUNTED ON CONCRETE SLAB OR FLOOR.

ADJUSTABLE PIPE SUPPORT — 516

TONY B. MARSHALL, CITY ENGINEER — 12/05/2013 — DATE



NOTE:
FOR 2" VACUUM AIR RELEASE USE 2" FITTING WITH SWEAT JOINTS. DO NOT BEND 2" TUBING.

① DOUBLE STRAP SERVICE SADDLE - JONES 979-F.I.P. FOR ALL PIPE EXCEPT C900 DOUBLE STRAP SERVICE SADDLE - JONES 969-F.I.P. FOR C900 PIPE
② 2" CORPORATION STOP - JONES J-1935 (M.I.P. x COMPRESSION)
③ 2" COPPER TUBING TYPE K-SOFT - NO SPLICES ALLOWED
④ SOLDER WELD ELBOW
⑤ 2" BRASS NIPPLE MINIMUM 12"
⑥ 2" CORP STOP - JONES J-200 (F.I.P. x F.I.P.)
⑦ 2" BRONZE NIPPLE
⑧ AIR VACUUM RELEASE VALVE CRISPIN UL-10 OR UL-20
⑨ 16" O.D. 12 GA. STEEL PIPE - USE "DUNES TAN" PAINT INSIDE AND OUTSIDE
⑩ 8-3/4" EQUALLY SPACED HOLES
⑪ 16" O.D. 3/4" PLATE WELDED TO PIPE - PAINTED INSIDE AND OUTSIDE

2" AIR RELEASE AND VACUUM VALVE — 518

TONY B. MARSHALL, CITY ENGINEER — 12/05/2013 — DATE

ALLOWABLE LEAKAGE PER 50 JOINTS OF C-900 P.V.C. PIPE

PIPE SIZE INCHES	TEST PRESSURE AT POINT OF TEST - psi 100	125	150	200	225
	LEAKAGE - GPH				
4	0.27	0.30	0.33	0.38	0.41
6	0.41	0.45	0.50	0.57	0.61
8	0.54	0.60	0.66	0.76	0.81
10	0.68	0.76	0.83	0.96	1.01
12	0.81	0.91	0.99	1.15	1.22

ALLOWABLE LEAKAGE PER 1000 FEET OF DUCTILE IRON PIPING

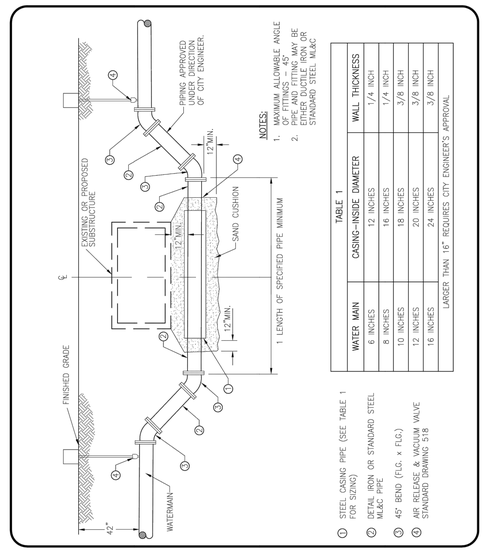
PIPE DIAMETER INCHES	TEST PRESSURE AT LOWEST POINT IN LINE - psi 100	125	150	200	225
	LEAKAGE - GPH				
4	0.30	0.34	0.37	0.43	0.45
6	0.45	0.50	0.55	0.64	0.68
8	0.60	0.67	0.74	0.85	0.90
10	0.75	0.84	0.92	1.06	1.13
12	0.90	1.01	1.10	1.28	1.35
14	1.05	1.18	1.29	1.48	1.58
16	1.20	1.34	1.47	1.70	1.80
18	1.35	1.51	1.66	1.91	2.03
20	1.50	1.68	1.84	2.12	2.25
24	1.80	2.01	2.21	2.55	2.70
30	2.25	2.52	2.76	3.19	3.38
36	2.70	3.02	3.31	3.82	4.05

NOTES:

1. ALL PRESSURE TESTING TO BE DONE IN ACCORDANCE WITH AWWA SPECIFICATIONS C605-94, FOR C600-99 FOR DUCTILE IRON PIPE
2. TEST TO BE CONDUCTED AT 150% OF MAXIMUM ANTICIPATED WORKING PRESSURE BUT NOT LESS THAN 125% OF NORMAL WORKING PRESSURE AT THE HIGHEST POINT
3. THE ALLOWABLE LEAKAGE FOR A PIPELINE IS PURSUANT TO AWWA SPECIFICATION

ALLOWABLE LEAKAGE CHART FOR LINE PRESSURE TESTING — 522

TONY B. MARSHALL, CITY ENGINEER — 12/05/2013 — DATE



NOTES:
1. MAXIMUM ALLOWABLE ANGLE OF FITTINGS = 45°
2. PIPE AND FITTINGS MAY BE EITHER DUCTILE IRON OR STANDARD STEEL M.L&C

TABLE 1

WATER MAIN	CASING-INSIDE DIAMETER	WALL THICKNESS
6 INCHES	12 INCHES	1/4 INCH
8 INCHES	16 INCHES	1/4 INCH
10 INCHES	18 INCHES	3/8 INCH
12 INCHES	20 INCHES	3/8 INCH
16 INCHES	24 INCHES	3/8 INCH
LARGER THAN 16" REQUIRES CITY ENGINEER'S APPROVAL		

① STEEL CASING PIPE (SEE TABLE 1 FOR SIZING)
② DETAIL IRON OR STANDARD STEEL M.L&C PIPE
③ 45° BEND (F.L.G. x F.L.G.)
④ AIR RELEASE & VACUUM VALVE STANDARD DRAWING 518

STANDARD STORM DRAIN CROSSING — 523

TONY B. MARSHALL, CITY ENGINEER — 12/05/2013 — DATE

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PUBLIC WORKS PROJECT
CITY OF WATERFORD
330 E. STREET WATERFORD, CA. 95386

PROFESSIONAL ENGINEER — TONY B. MARSHALL — No. C51015 EXP. 9-30-19 — STATE OF CALIFORNIA — REGISTERED

MCR ENGINEERING, INC.
1242 DUPONT COURT
MANTECA, CA 95336
TEL: (209)239-6229
FAX: (209)239-8839
WWW.MCRENGINEERING.COM

PREPARED UNDER THE DIRECTION OF: TONY B. MARSHALL R.C.E. C51015 EXP. 9-30-19 DATE

PLAN REVISIONS

NO.	DESCRIPTIONS	DATE
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JOB NO. 18-001
DATE MARCH 2018
SCALE AS SHOWN
DR. BY JEH
CK. BY RM
FILE:

STANDARD DETAILS CONTINUED

2018 HICKMAN WATER CONSOLIDATION

WATERFORD/HICKMAN, CALIFORNIA

SHEET 4 OF 27 SHEETS

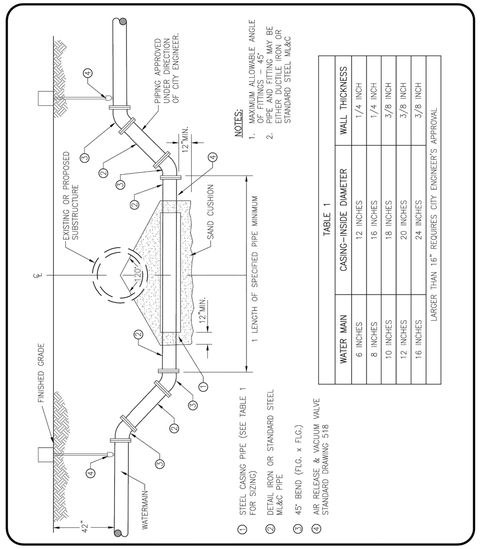
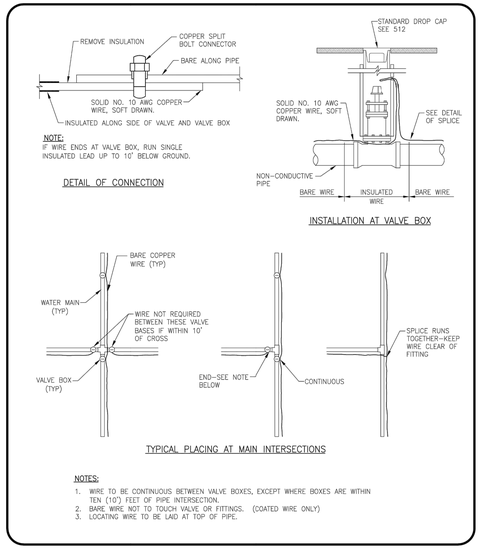


TABLE 1	
CASING–INSIDE DIAMETER	WALL THICKNESS
12 INCHES	1/4 INCH
16 INCHES	1/4 INCH
18 INCHES	3/8 INCH
20 INCHES	3/8 INCH
24 INCHES	3/8 INCH
LARGER THAN 16" REQUIRES CITY ENGINEER'S APPROVAL	

WATER MAIN
6 INCHES
8 INCHES
10 INCHES
12 INCHES
16 INCHES

STANDARD CULVERT CROSSING — 524

TONY B. MARSHALL, CITY ENGINEER — 12/05/2013 — DATE



PIPE LOCATING WIRE FOR WATER MAINS — 525

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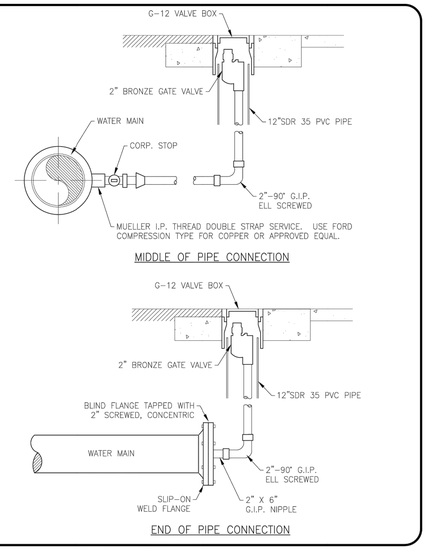

BLOW-OFF — 526

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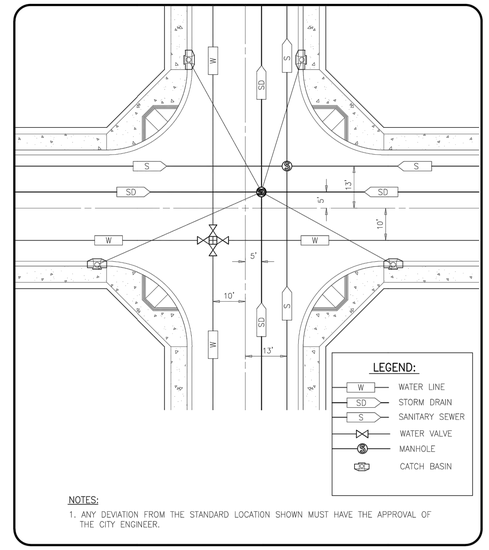
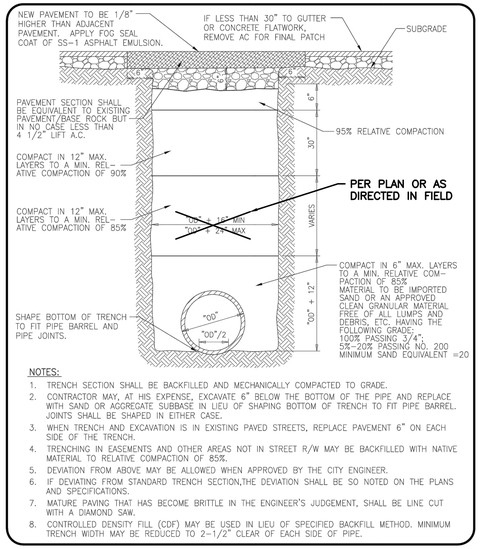


LOCATION OF CITY UTILITIES — 801

TONY B. MARSHALL, CITY ENGINEER — 12/05/2013 — DATE



TRENCH SECTION EXISTING STREETS — 803

TONY B. MARSHALL, CITY ENGINEER — 12/05/2013 — DATE

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MANTECA, CA 95336
TEL: (209) 239 - 6229
FAX: (209) 239 - 8839

REGISTERED PROFESSIONAL ENGINEER TONY B. MARSHALL No. C51015 EXP. 9-30-19 STATE OF CALIFORNIA CIVIL

PREPARED UNDER THE DIRECTION OF:
TONY B. MARSHALL R.C.E. C51015 EXP. 9-30-19 DATE

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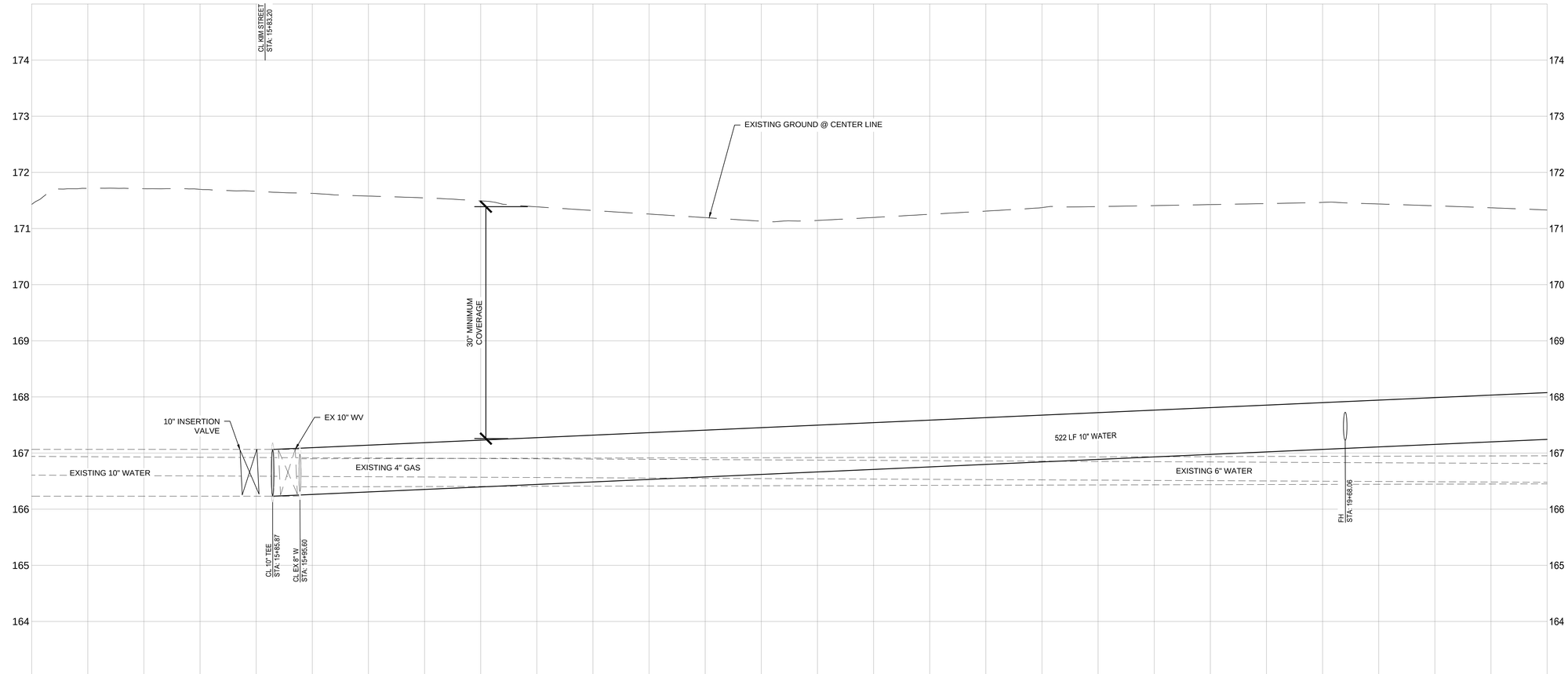
STANDARD DETAILS CONTINUED
2018 HICKMAN WATER CONSOLIDATION
WATERFORD/HICKMAN, CALIFORNIA

SHEET 5 OF 27 SHEETS



PROFILE

PROFILE SCALE
1" = 20' HORIZONTAL
1" = 1' VERTICAL

NOTES:

1. ALL EXISTING UTILITIES WERE PLOTTED FROM RECORD INFORMATION AND FIELD TOPOGRAPHY. ACTUAL LOCATIONS MAY VARY AND ADDITIONAL CROSSINGS MAY EXIST IN THE FIELD. IT IS IMPERATIVE THAT "U.S.A." LOCATION SERVICES, LOCATED AND MARK UTILITIES PRIOR TO THE START OF EXCAVATION.
2. THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN EXPOSING EXISTING UTILITY CROSSINGS AND SERVICES
3. ALL UTILITIES ARE ASSUMED TO BE PRESERVED AND PROTECTED UNLESS OTHERWISE NOTED OR DIRECTED BY ENGINEER. ANY DAMAGE TO EXISTING UTILITIES WILL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
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7. THRUST BLOCKING SHALL BE INSTALLED AT ALL APPLICABLE LOCATIONS PER C.O.W. STANDARD DETAIL 514
8. EXISTING WATER LINES AND APPURTENANCES SHALL BE ISOLATED & REMOVED AFTER INSTALLATION AND ACCEPTANCE OF THE PROPOSED WATER LINES.
9. EXISTING WATER LINE ALIGNMENT UNKNOWN IN VARIOUS LOCATIONS. LOWERINGS OF PROPOSED WATER LINE PER CITY OF WATERFORD STANDARD DETAIL 524 SHALL BE REQUIRED WHERE EXISTING WATER LINE IS FOUND IN CONFLICT WITH PROPOSED WATER LINE DURING CONSTRUCTION. LIKELY CROSSING LOCATIONS SHOWN ON PLANS.
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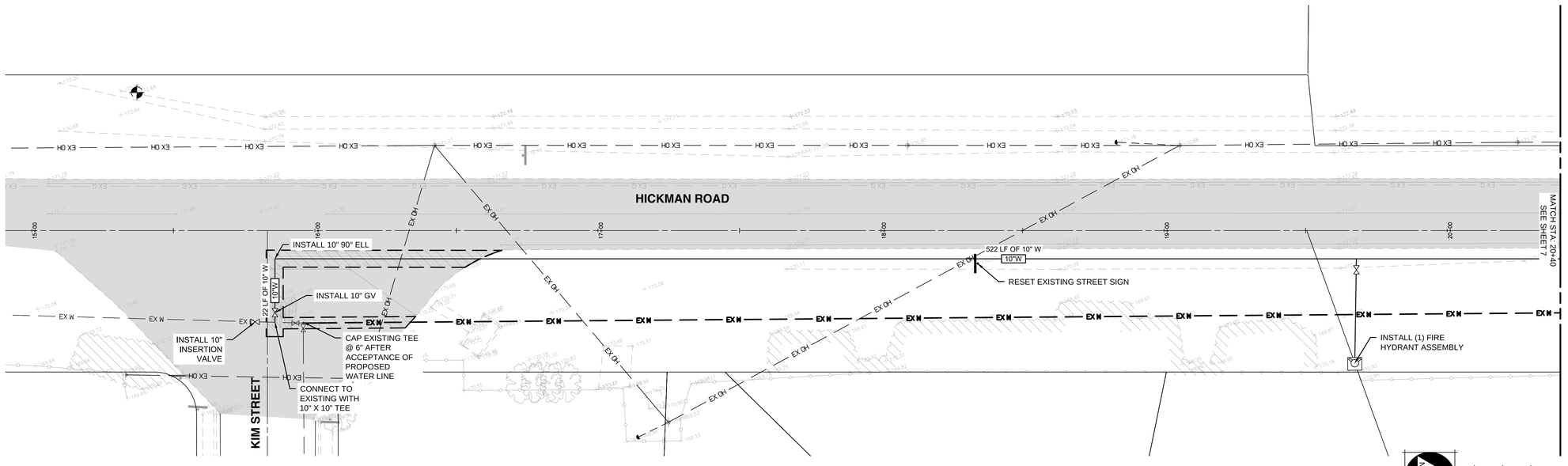

IMPROVEMENT PLAN

IMPROVEMENT LEGEND:
SEE SHEET 1 FOR QUANTITIES.

- TRENCH REPAIR PAVEMENT PER DETAIL 803 SHEET 5
- EXISTING ASPHALT TO REMAIN
- EXISTING WATER LINE TO BE REMOVED
- PROPOSED WATER LINE TO BE INSTALLED
- PROPOSED WATER VALVE TO BE INSTALLED
- PROPOSED HYDRANT TO BE INSTALLED
- PROPOSED ARV TO BE INSTALLED

NORTH

0 20' 40'

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MCR ENGINEERING, INC.
1242 DUPONT COURT
MANTECA, CA 95336
TEL: (209) 239 - 6229
FAX: (209) 239 - 8839

PREPARED UNDER THE DIRECTION OF:
TONY B. MARSHALL R.C.E. C51015 EXP. 9-30-19 DATE

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JOB NO. 18-001
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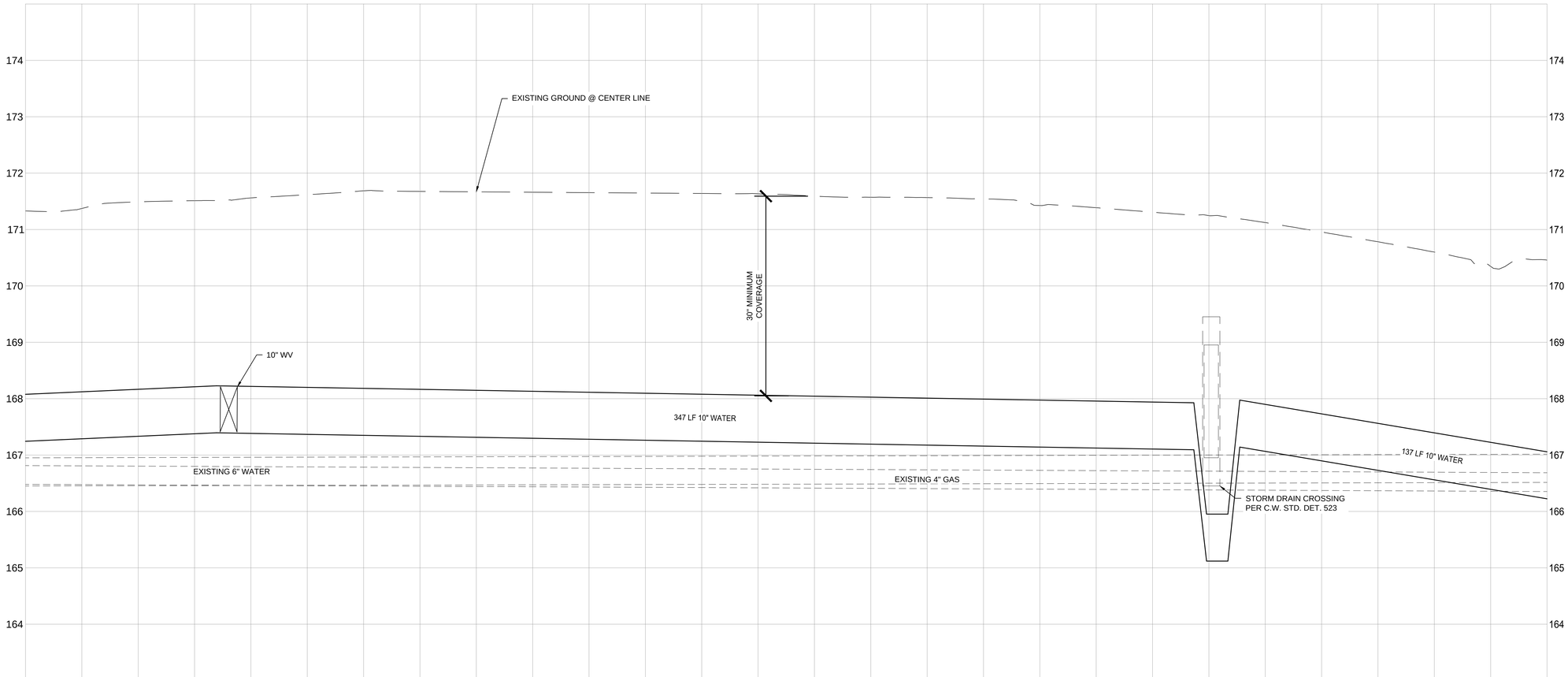
CK. BY RM
FILE:

HICKMAN ROAD STA 15+00 TO 20+40
2018 HICKMAN WATER CONSOLIDATION
WATERFORD/HICKMAN, CALIFORNIA

SHEET
6
OF 27 SHEETS



PROFILE

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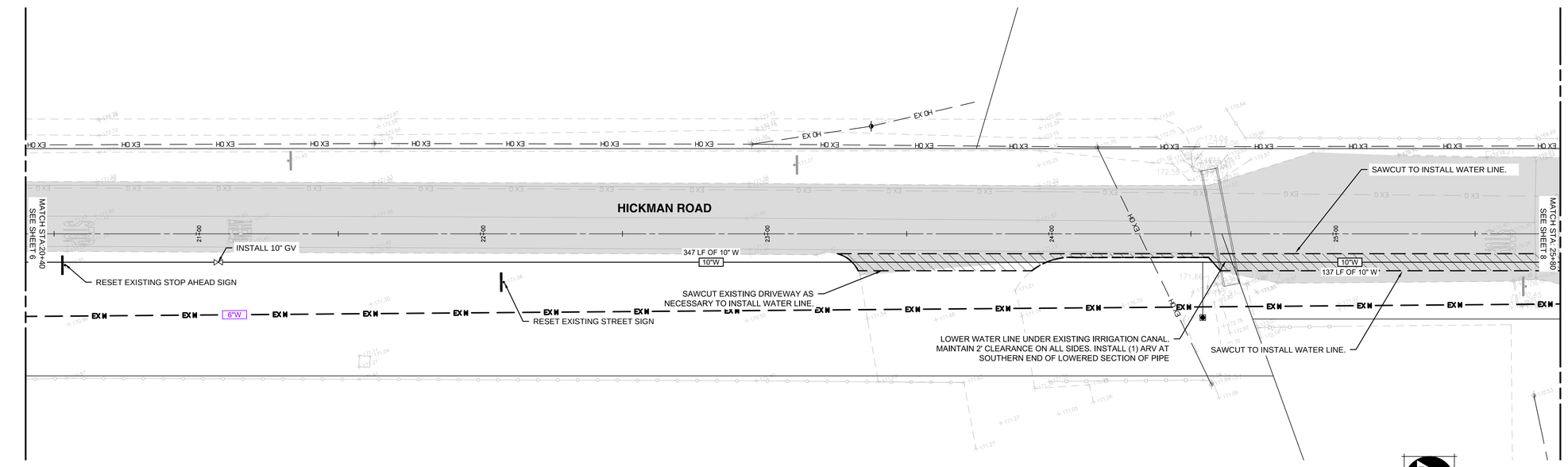

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- PROPOSED ARV TO BE INSTALLED

NORTH
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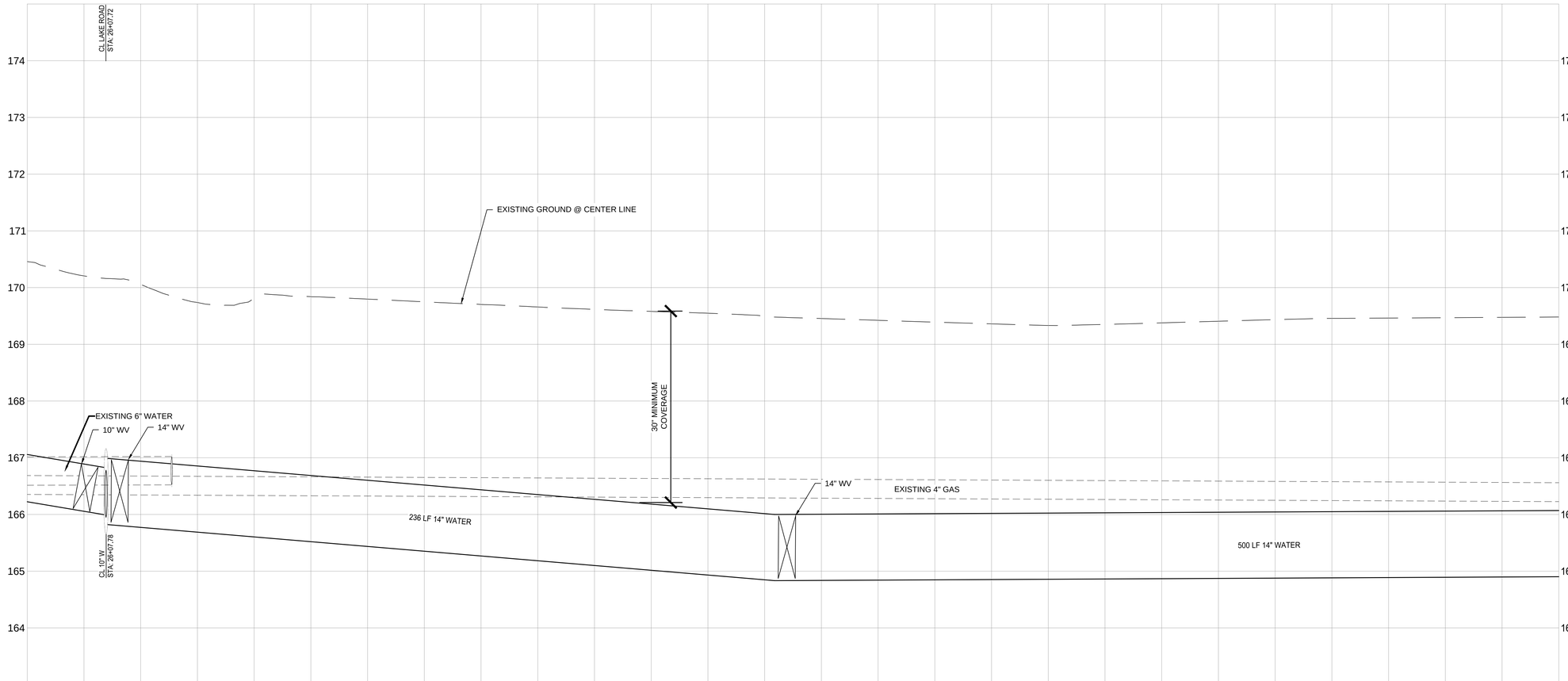
CK. BY RM
FILE:

HICKMAN ROAD STA 20+40 TO 25+80
2018 HICKMAN WATER CONSOLIDATION
WATERFORD/HICKMAN, CALIFORNIA

SHEET 7 OF 27 SHEETS



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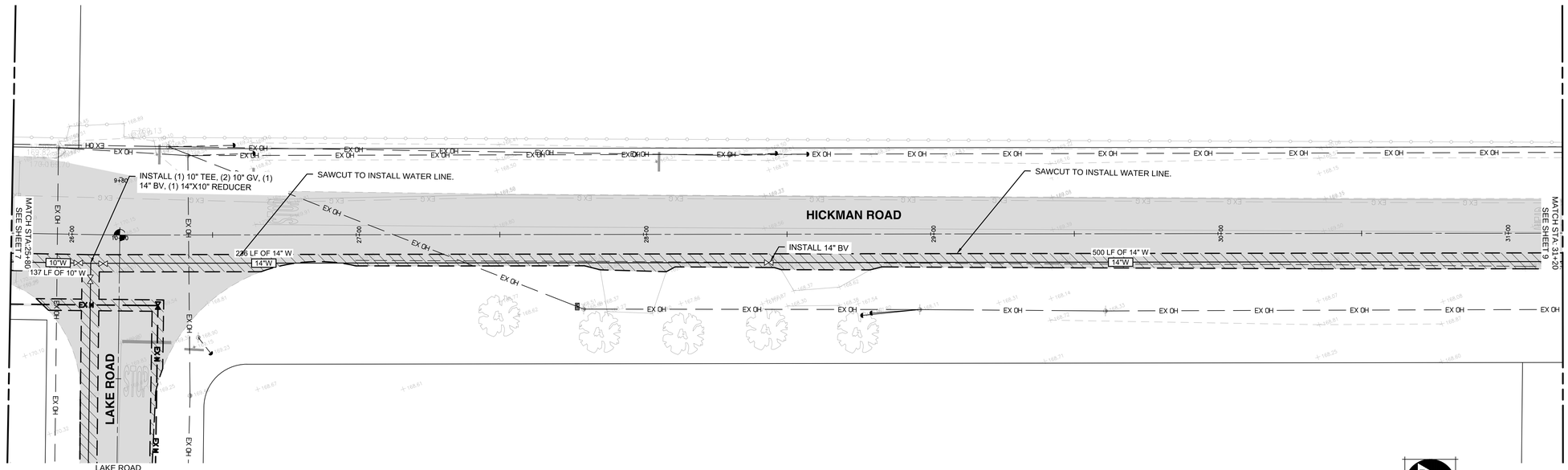

IMPROVEMENT PLAN

IMPROVEMENT LEGEND:
SEE SHEET 1 FOR QUANTITIES.

- TRENCH REPAIR PAVEMENT PER DETAIL 803 SHEET 5
- EXISTING ASPHALT TO REMAIN
- EXISTING WATER LINE TO BE REMOVED (EXW)
- PROPOSED WATER LINE TO BE INSTALLED (14"W)
- PROPOSED WATER VALVE TO BE INSTALLED
- PROPOSED HYDRANT TO BE INSTALLED
- PROPOSED ARV TO BE INSTALLED

NORTH

0 20' 40'

Know what's **below.** **Call** before you dig.
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PUBLIC WORKS PROJECT
CITY OF WATERFORD
330 'E' STREET WATERFORD, CA. 95386

PROFESSIONAL ENGINEER TONY B. MARSHALL No. C51015 EXP. 9-30-19 CIVIL STATE OF CALIFORNIA RE-REGISTERED

MCR ENGINEERING, INC.
1242 DUPONT COURT
MANTECA, CA 95336
TEL: (209) 239 - 6229
FAX: (209) 239 - 8839
www.mcreng.com

PREPARED UNDER THE DIRECTION OF:
TONY B. MARSHALL R.C.E. C51015 EXP. 9-30-19 DATE

PLAN REVISIONS

NO.	DESCRIPTIONS	DATE
1		
2		
3		
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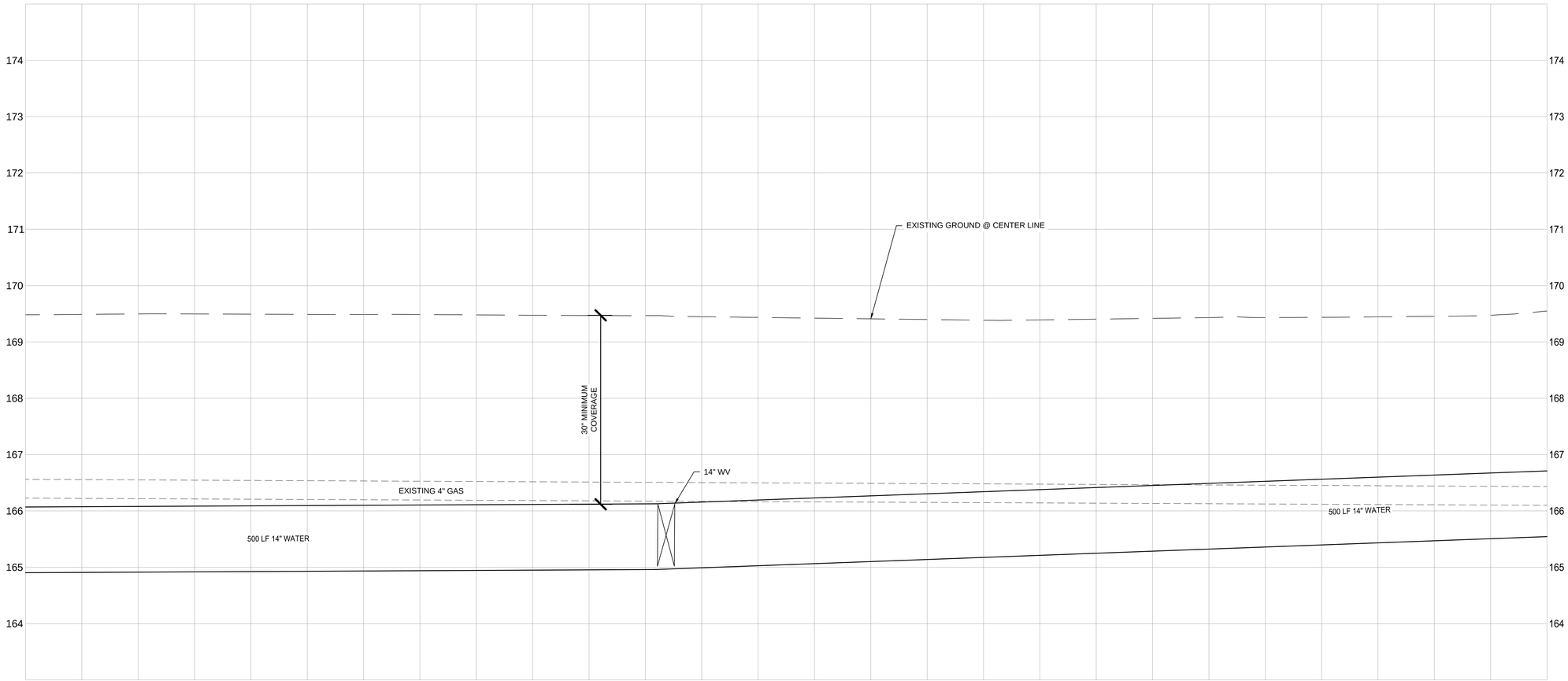
JOB NO. 18-001
DATE MARCH 2018
SCALE AS SHOWN
DR. BY JEH
CK. BY RM
FILE:

HICKMAN ROAD STA 25+80 TO 31+20
2018 HICKMAN WATER CONSOLIDATION
WATERFORD/HICKMAN, CALIFORNIA

SHEET
8
OF 27 SHEETS



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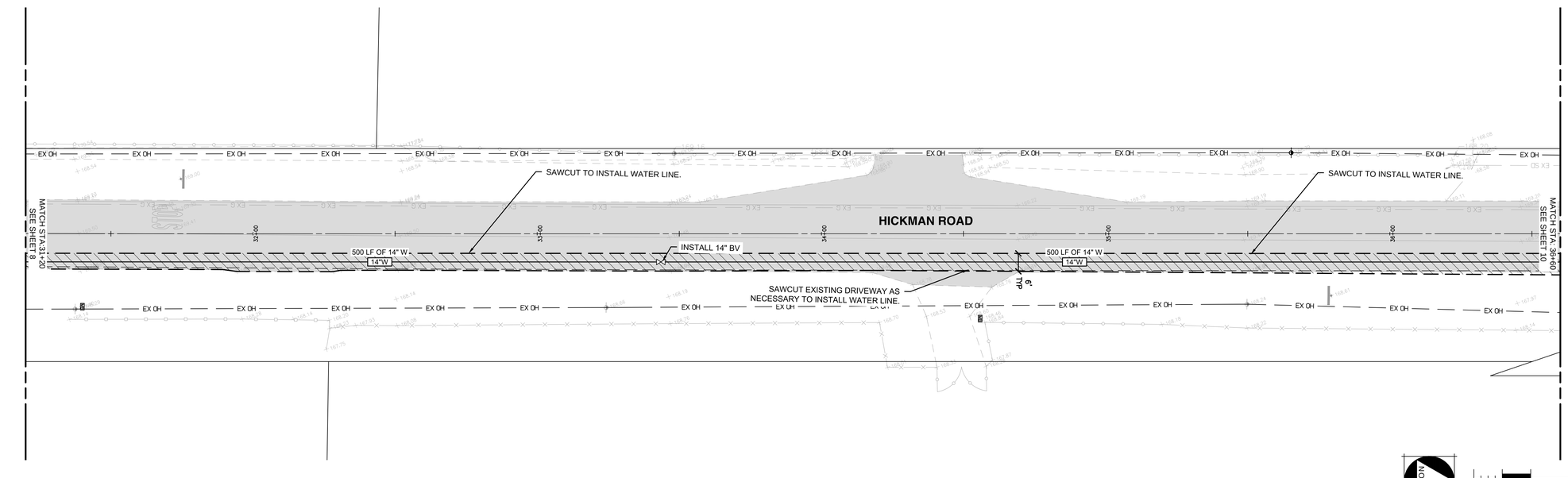

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NORTH

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PUBLIC WORKS PROJECT
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330 'E' STREET WATERFORD, CA. 95386

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MANTECA, CA 95336
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PLAN REVISIONS

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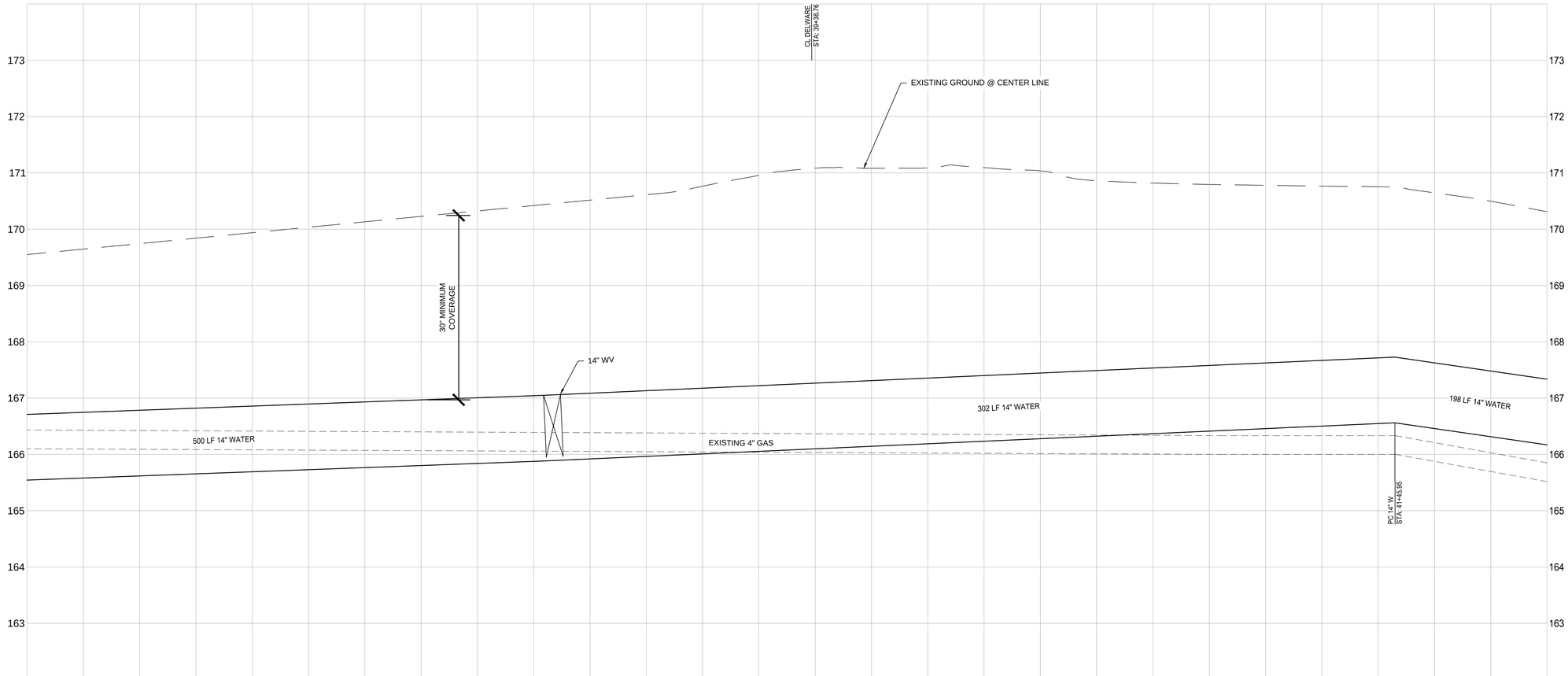
JOB NO. 18-001
DATE MARCH 2018
SCALE AS SHOWN
DR. BY JEH
CK. BY RM
FILE:

HICKMAN ROAD STA 31+20 TO 36+60
2018 HICKMAN WATER CONSOLIDATION
WATERFORD/HICKMAN, CALIFORNIA

SHEET
9
OF 27 SHEETS



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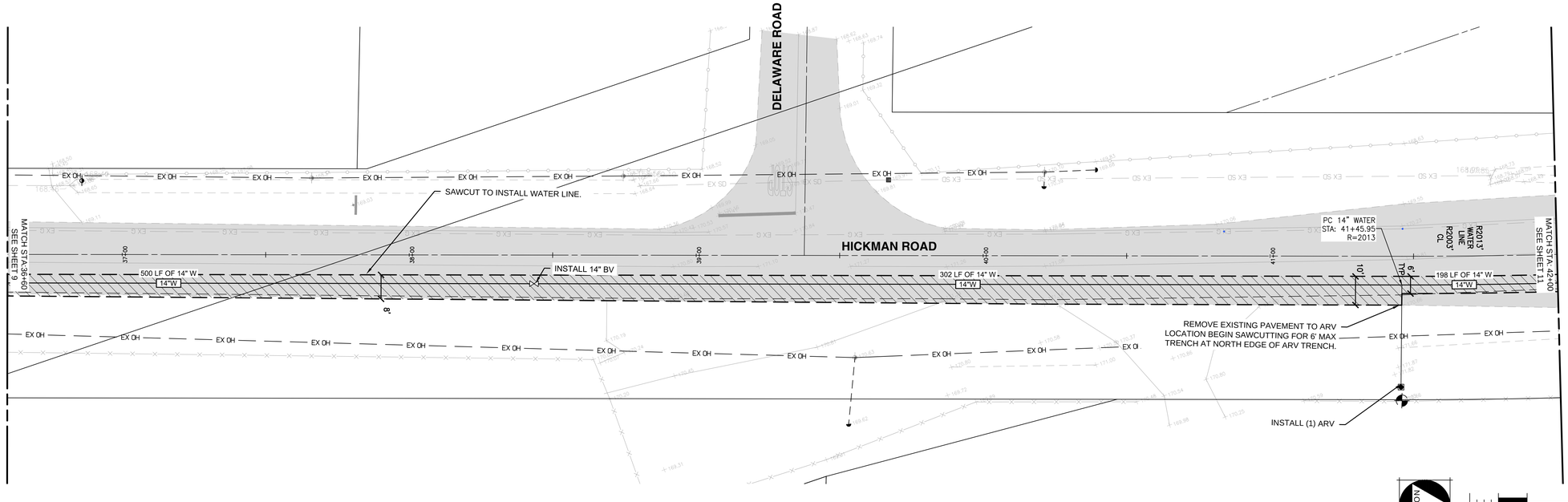

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NORTH

0 20' 40'

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330 'E' STREET WATERFORD, CA. 95386

PROFESSIONAL ENGINEER * REGISTERED * TONY B. MARSHALL * No. C51015 EXP. 9-30-19 * CIVIL * STATE OF CALIFORNIA *

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FAX: (209) 239 - 8839
PREPARED UNDER THE DIRECTION OF:
TONY B. MARSHALL R.C.E. C51015 EXP. 9-30-19 DATE

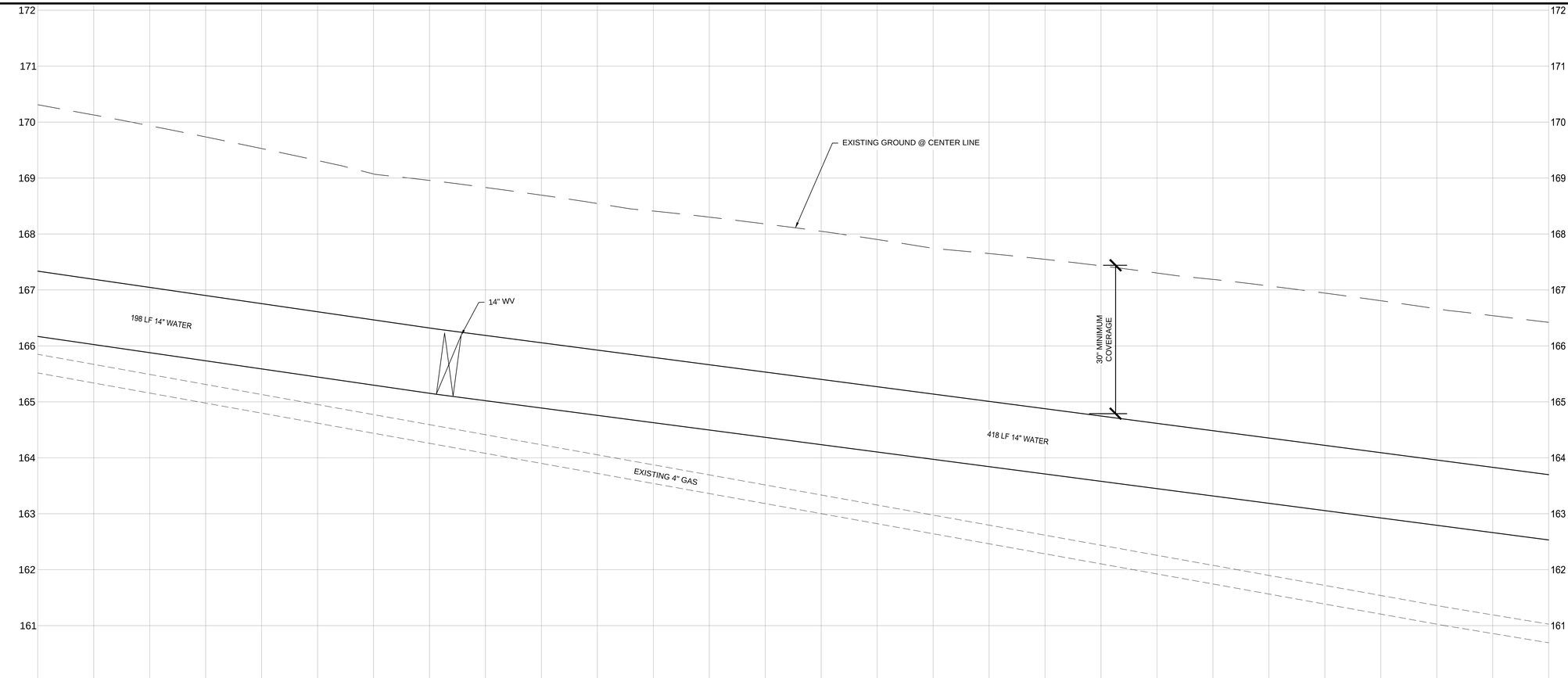
PLAN REVISIONS

NO.	DESCRIPTIONS	DATE

JOB NO. 18-001
DATE MARCH 2018
SCALE AS SHOWN
DR. BY JEH
CK. BY RM
FILE:

HICKMAN ROAD STA 36+60 TO 42+00
2018 HICKMAN WATER CONSOLIDATION
WATERFORD/HICKMAN, CALIFORNIA

SHEET
10
OF 27 SHEETS



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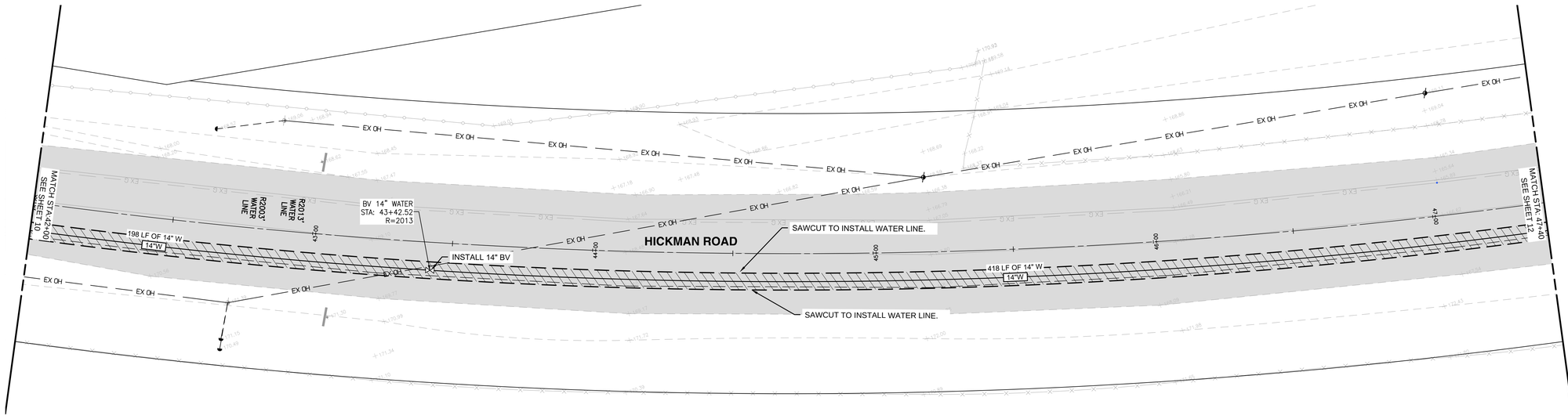

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NORTH

0 20' 40'

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330 'E' STREET WATERFORD, CA. 95386

PROFESSIONAL ENGINEER TONY B. MARSHALL No. C51015 EXP. 9-30-19 CIVIL STATE OF CALIFORNIA

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1242 DUPONT COURT
MANTECA, CA 95336
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PREPARED UNDER THE DIRECTION OF: TONY B. MARSHALL R.C.E. C51015 EXP. 9-30-19 DATE

PLAN REVISIONS

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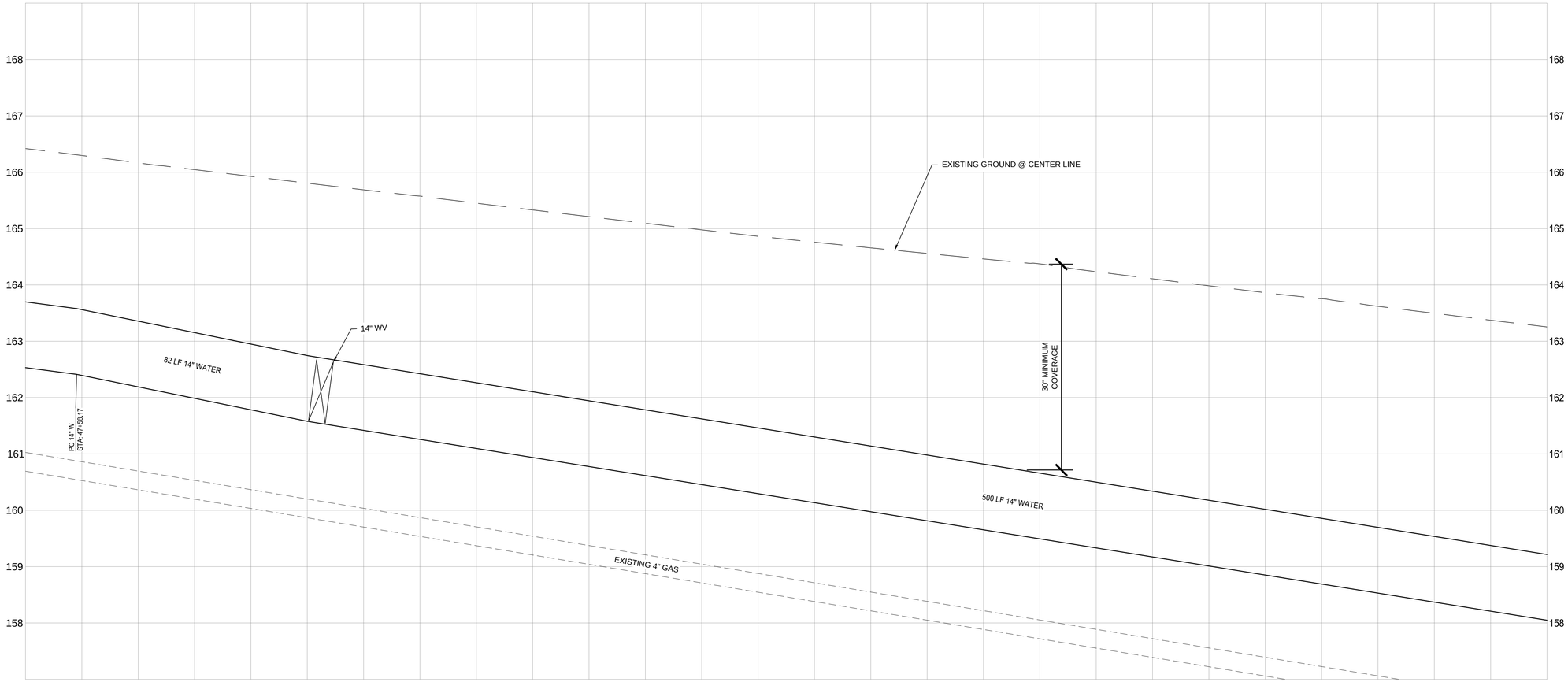
JOB NO. 18-001
DATE MARCH 2018
SCALE AS SHOWN
DR. BY JEH
CK. BY RM
FILE:

HICKMAN ROAD STA 42+00 TO 47+40
2018 HICKMAN WATER CONSOLIDATION
WATERFORD/HICKMAN, CALIFORNIA

SHEET
11
OF 27 SHEETS



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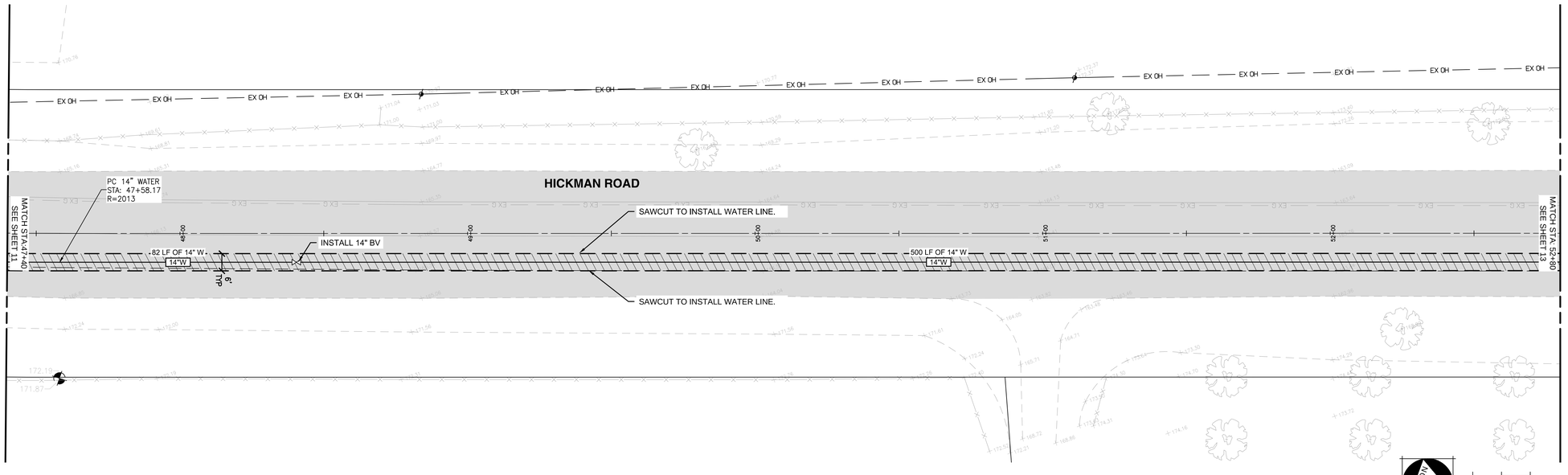

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NORTH

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DR. BY JEH
CK. BY RM
FILE:

HICKMAN ROAD STA 47+40 TO 52+80
2018 HICKMAN WATER CONSOLIDATION
WATERFORD/HICKMAN, CALIFORNIA

SHEET
12
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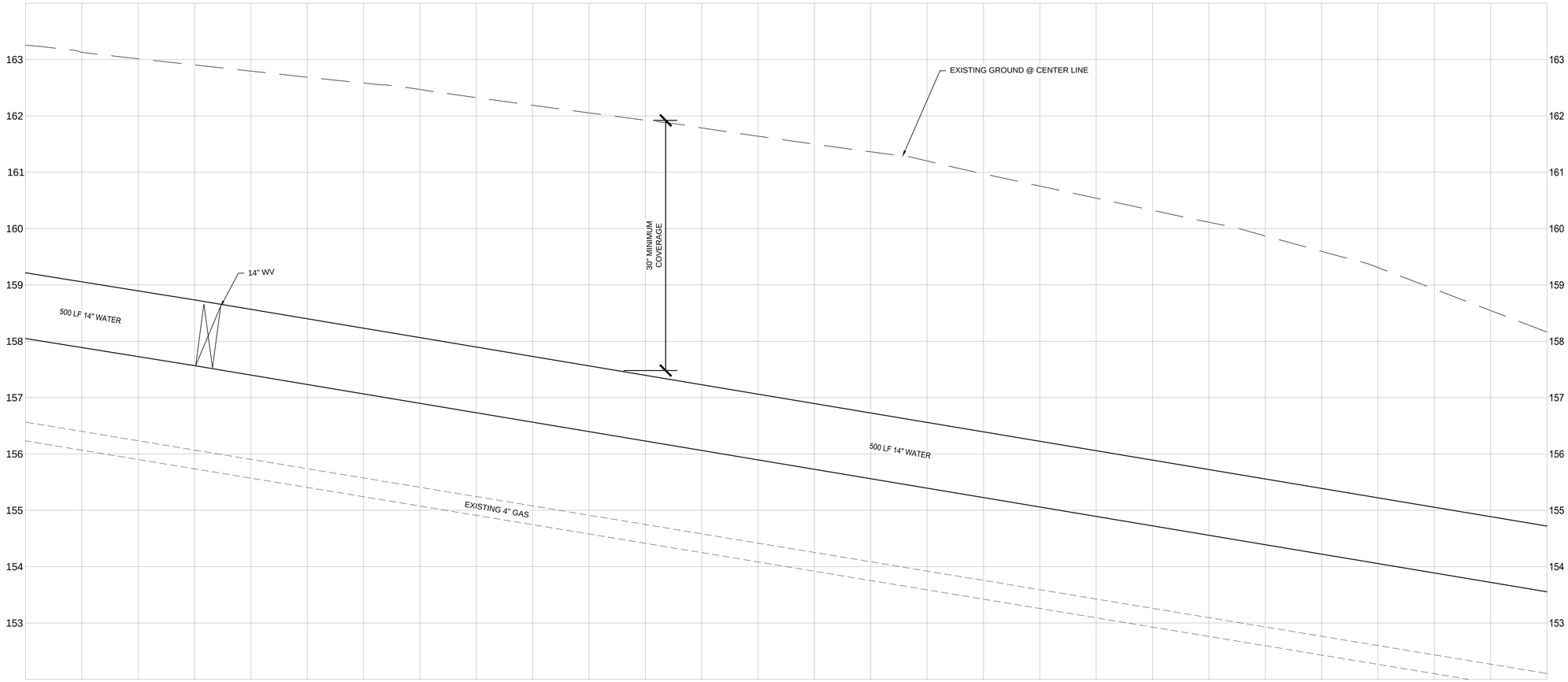

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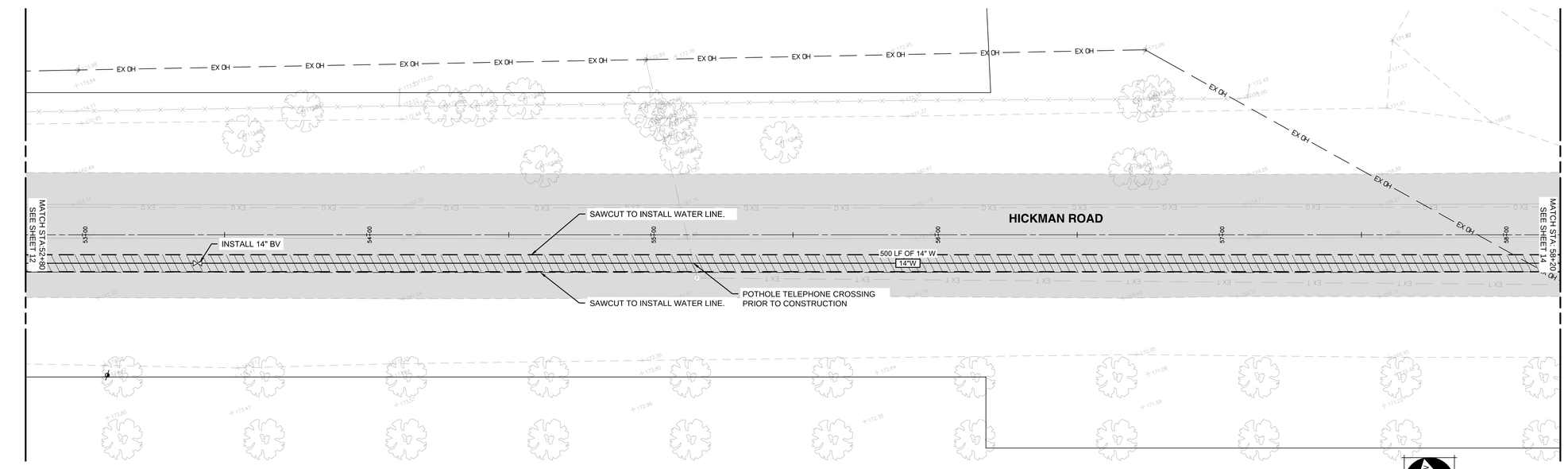

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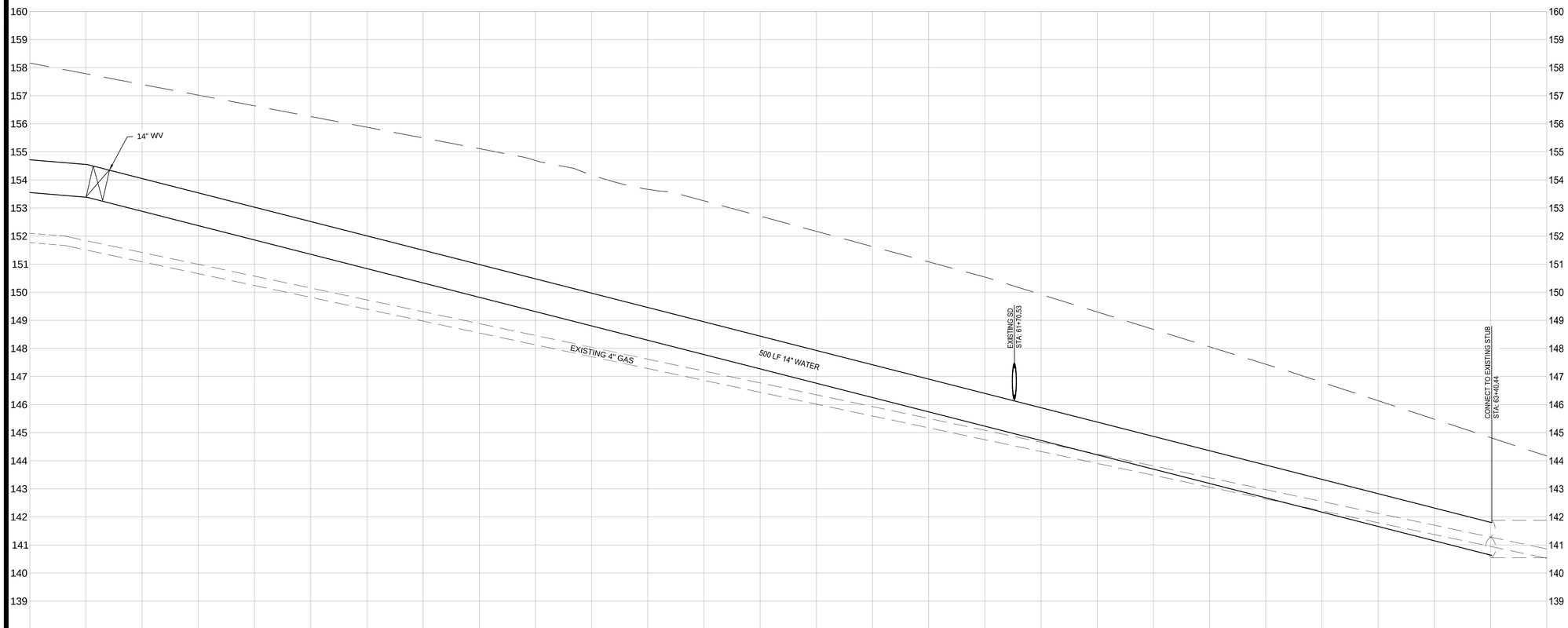
SHEET 13 OF 27 SHEETS



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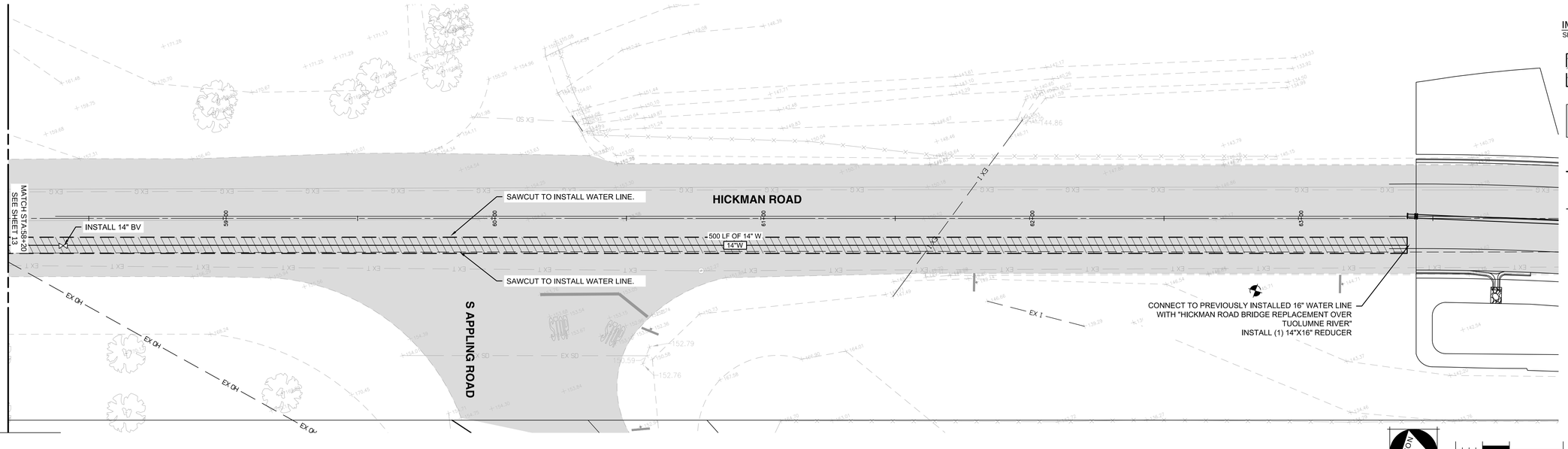
PROFILE SCALE
1" = 20' HORIZONTAL
1" = 2' VERTICAL



IMPROVEMENT PLAN

IMPROVEMENT LEGEND:
SEE SHEET 1 FOR QUANTITIES.

- TRENCH REPAIR PAVEMENT PER DETAIL 803 SHEET 5
- EXISTING ASPHALT TO REMAIN
- EXISTING WATER LINE TO BE REMOVED
- PROPOSED WATER LINE TO BE INSTALLED
- PROPOSED WATER VALVE TO BE INSTALLED
- PROPOSED HYDRANT TO BE INSTALLED
- PROPOSED ARV TO BE INSTALLED

811 Know what's **below.** **Call** before you dig. **811 / 800-227-2600**

NORTH

0 20' 40'

PUBLIC WORKS PROJECT
CITY OF WATERFORD
330 'E' STREET WATERFORD, CA. 95386

PROFESSIONAL ENGINEER * TONY B. MARSHALL * No. C51015 EXP. 9-30-19 * CIVIL * STATE OF CALIFORNIA * REGISTERED

MCR ENGINEERING, INC.
1242 DUPONT COURT
MANTECA, CA 95336
TEL: (209) 239 - 6229
FAX: (209) 239 - 8839
www.mcreng.com

PREPARED UNDER THE DIRECTION OF:

TONY B. MARSHALL R.C.E. C51015 EXP. 9-30-19 DATE

PLAN REVISIONS

NO.	DESCRIPTIONS	DATE
1		
2		
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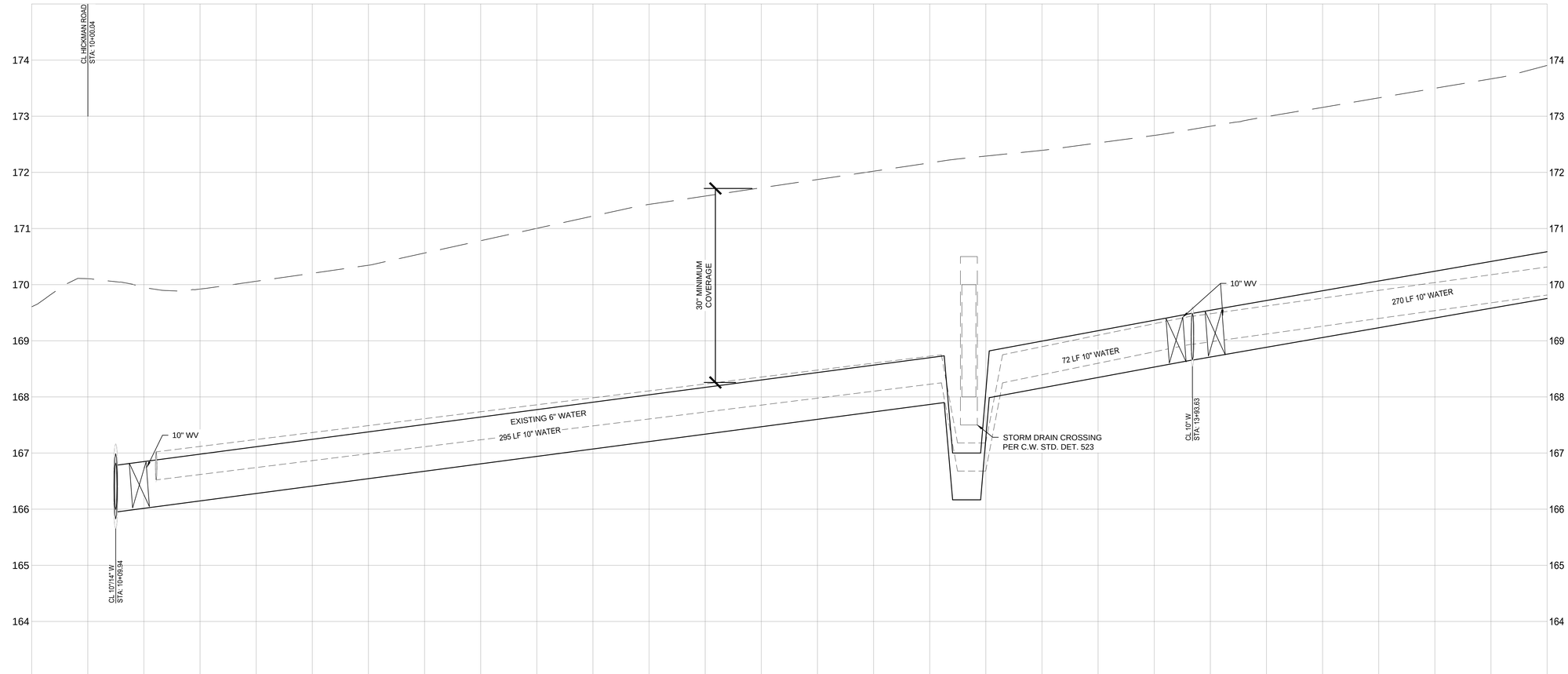
JOB NO. 18-001
DATE MARCH 2018
SCALE AS SHOWN
DR. BY JEH
CK. BY RM
FILE:

HICKMAN ROAD STA 58+20 TO 63+40
2018 HICKMAN WATER CONSOLIDATION
WATERFORD/HICKMAN, CALIFORNIA

SHEET
14
OF 27 SHEETS



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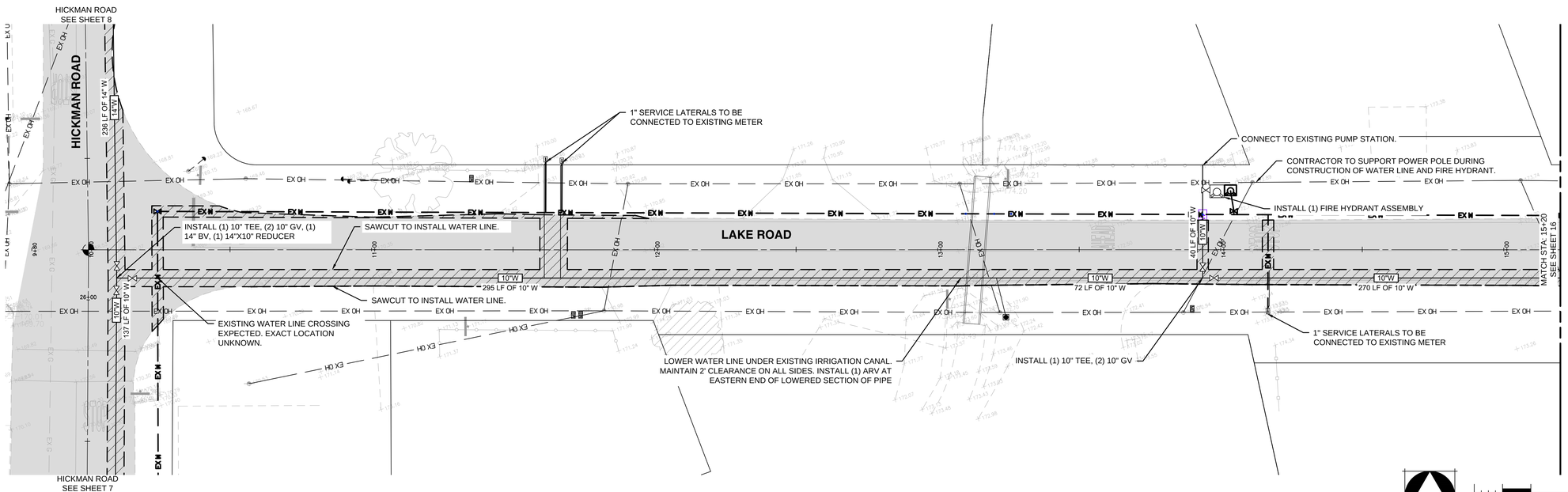

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330 'E' STREET WATERFORD, CA. 95386

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PREPARED UNDER THE DIRECTION OF:
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PLAN REVISIONS

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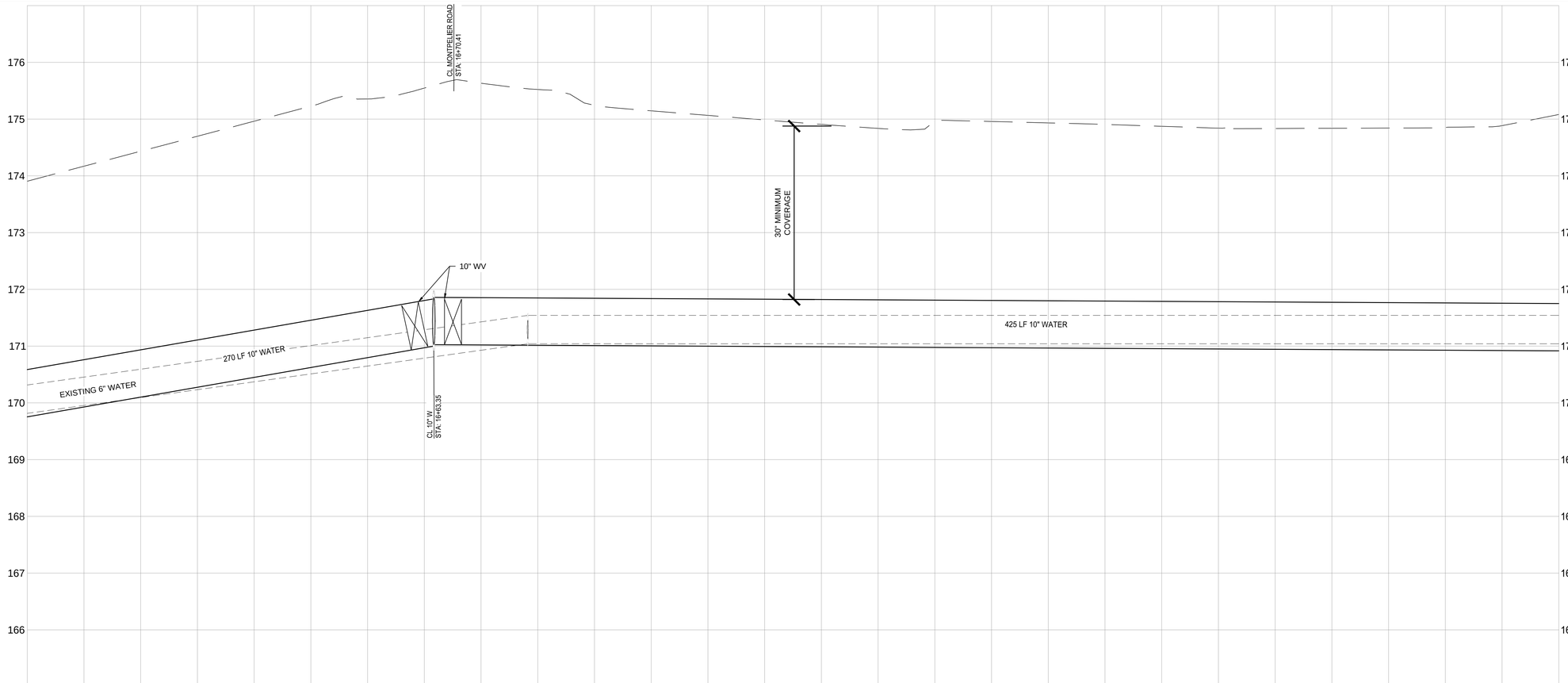
JOB NO. 18-001
DATE MARCH 2018
SCALE AS SHOWN
DR. BY JEH
CK. BY RM
FILE:

LAKE ROAD STA 9+80 TO 15+20
2018 HICKMAN WATER CONSOLIDATION
WATERFORD/HICKMAN, CALIFORNIA

SHEET
15
OF 27 SHEETS



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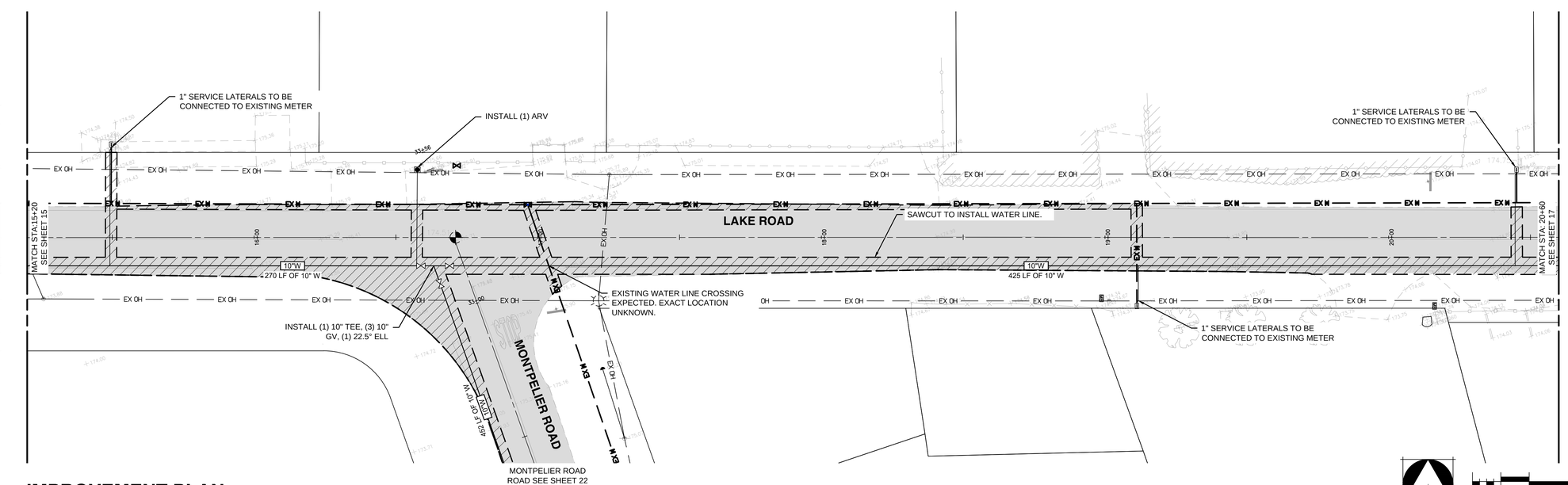

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330 'E' STREET WATERFORD, CA. 95386

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TONY B. MARSHALL R.C.E. C51015 EXP. 9-30-19 DATE

PLAN REVISIONS

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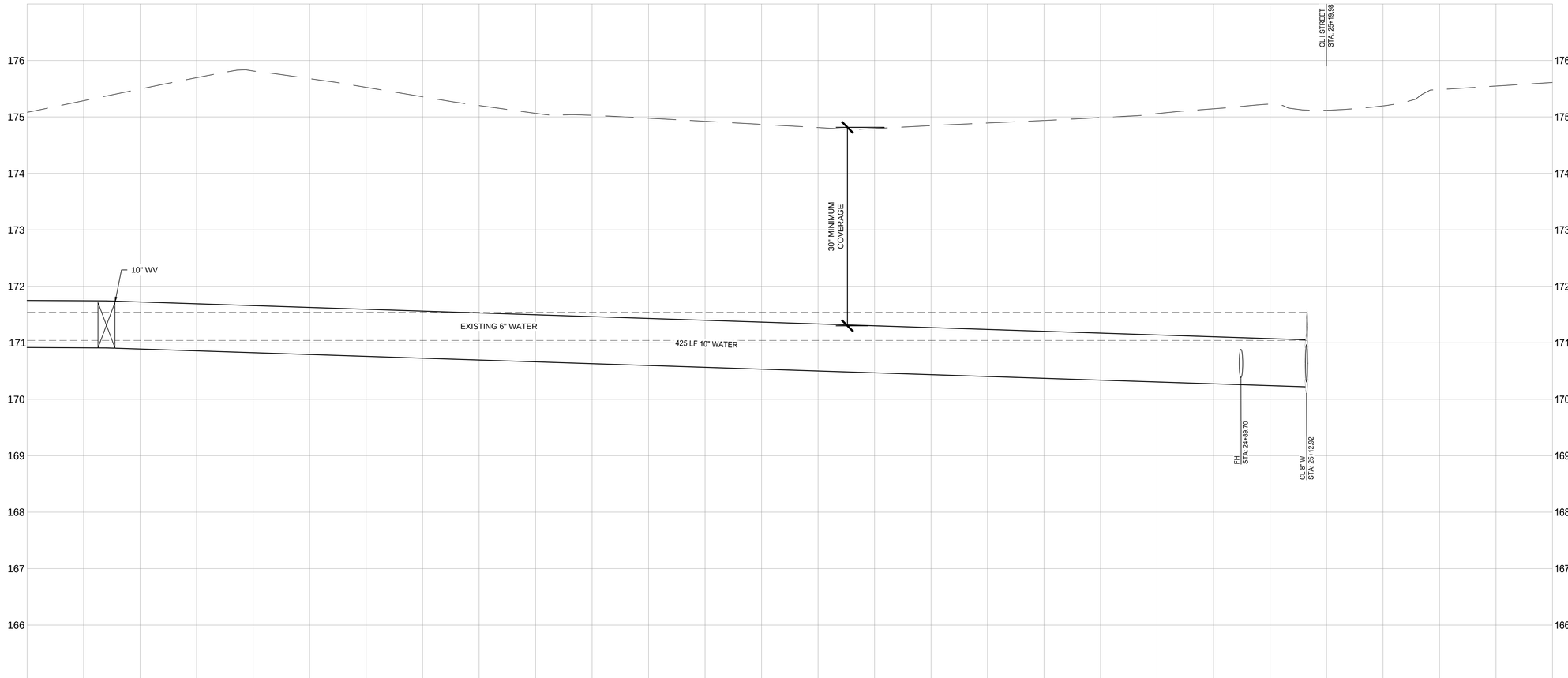
JOB NO. 18-001
DATE MARCH 2018
SCALE AS SHOWN
DR. BY JEH
CK. BY RM
FILE:

LAKE ROAD STA 15+20 TO 20+60
2018 HICKMAN WATER CONSOLIDATION
WATERFORD/HICKMAN, CALIFORNIA

SHEET
16
OF 27 SHEETS



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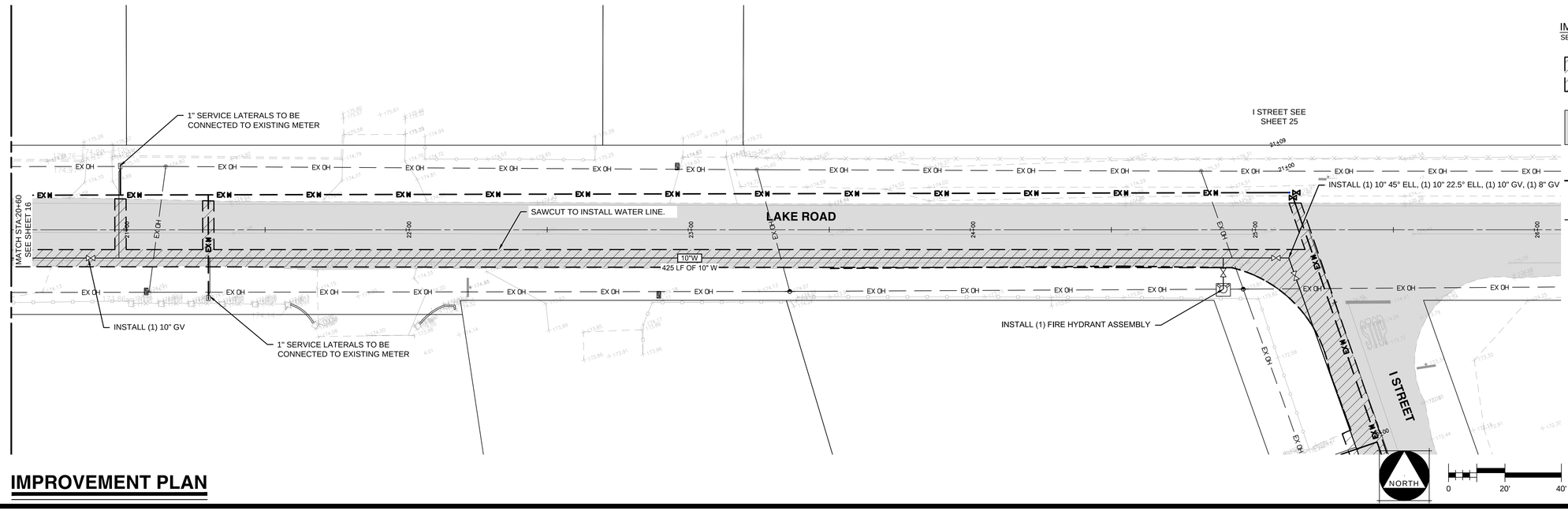

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330 'E' STREET WATERFORD, CA. 95386

PROFESSIONAL ENGINEER * TONY B. MARSHALL * No. C51015 EXP. 9-30-19 * CIVIL * STATE OF CALIFORNIA * REGISTERED

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1242 DUPONT COURT
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TONY B. MARSHALL R.C.E. C51015 EXP. 9-30-19 DATE

PLAN REVISIONS

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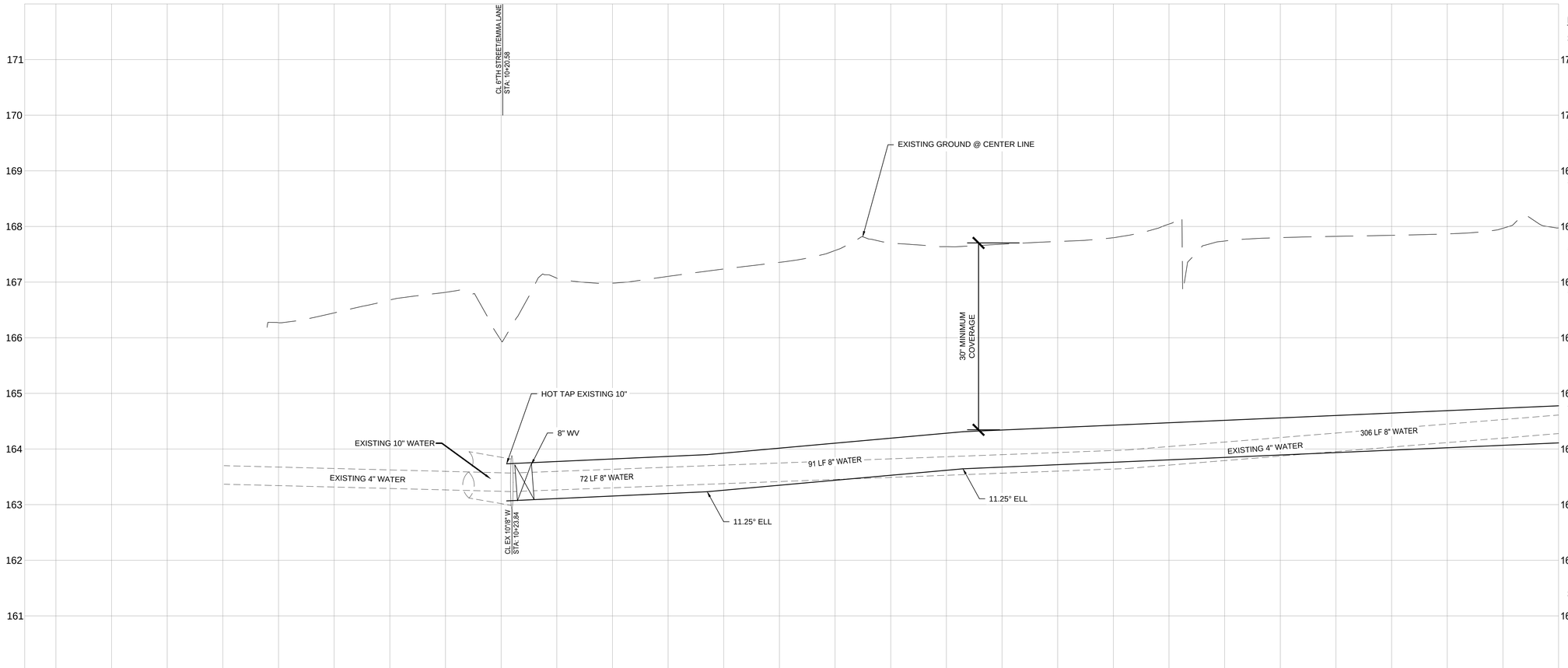
JOB NO. 18-001
DATE MARCH 2018
SCALE AS SHOWN
DR. BY JEH
CK. BY RM
FILE:

LAKE ROAD STA 20+60 TO END
2018 HICKMAN WATER CONSOLIDATION
WATERFORD/HICKMAN, CALIFORNIA

SHEET 17
OF 27 SHEETS



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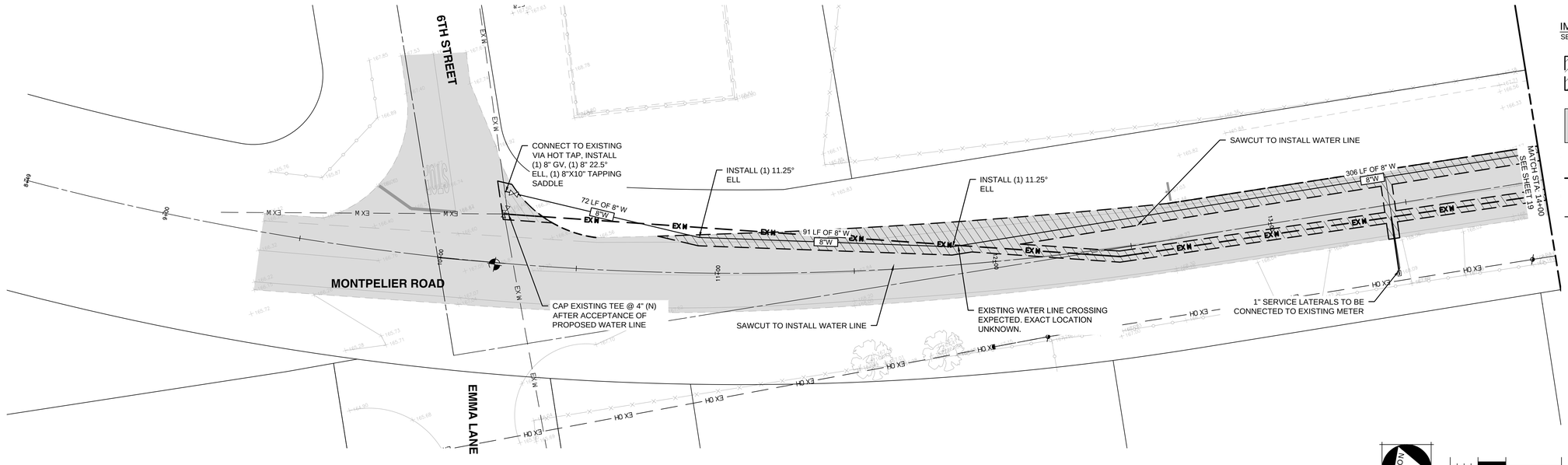

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NORTH
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JOB NO. 18-001
DATE MARCH 2018
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DR. BY JEH
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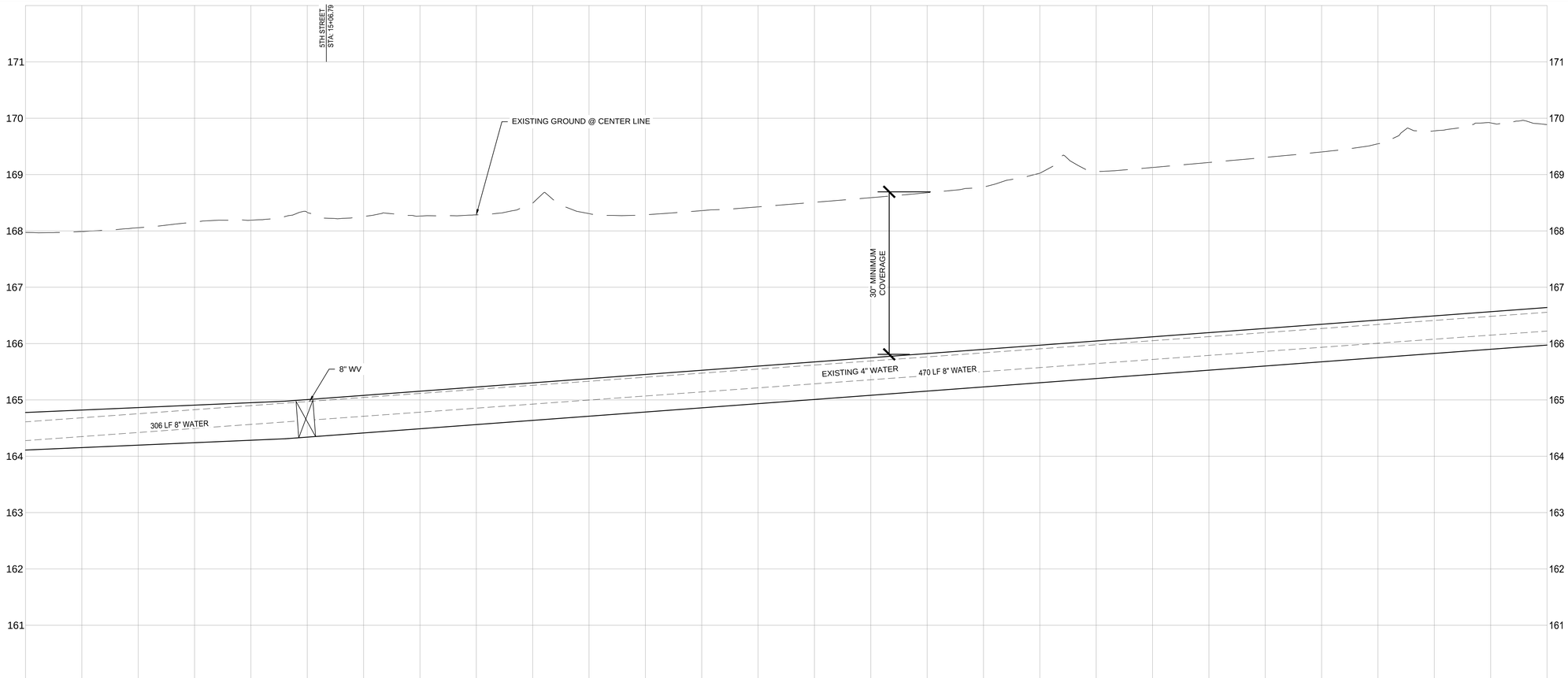
FILE:

MONTPELIER ROAD STA 8+50 TO 14+00
2018 HICKMAN WATER CONSOLIDATION
WATERFORD/HICKMAN, CALIFORNIA

SHEET
18
OF 27 SHEETS



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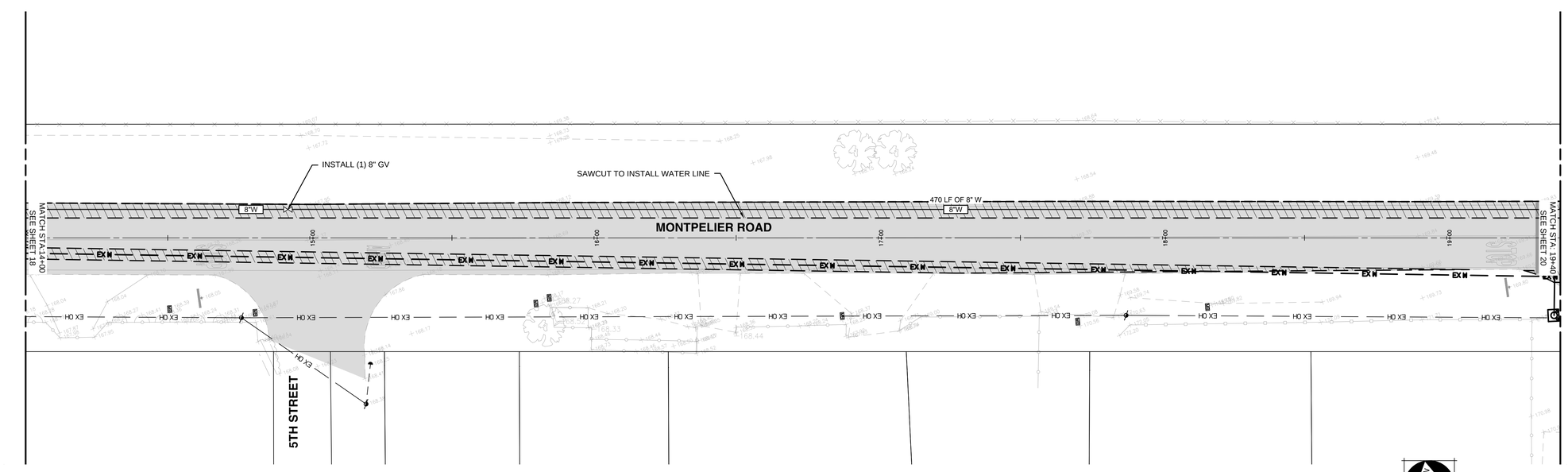

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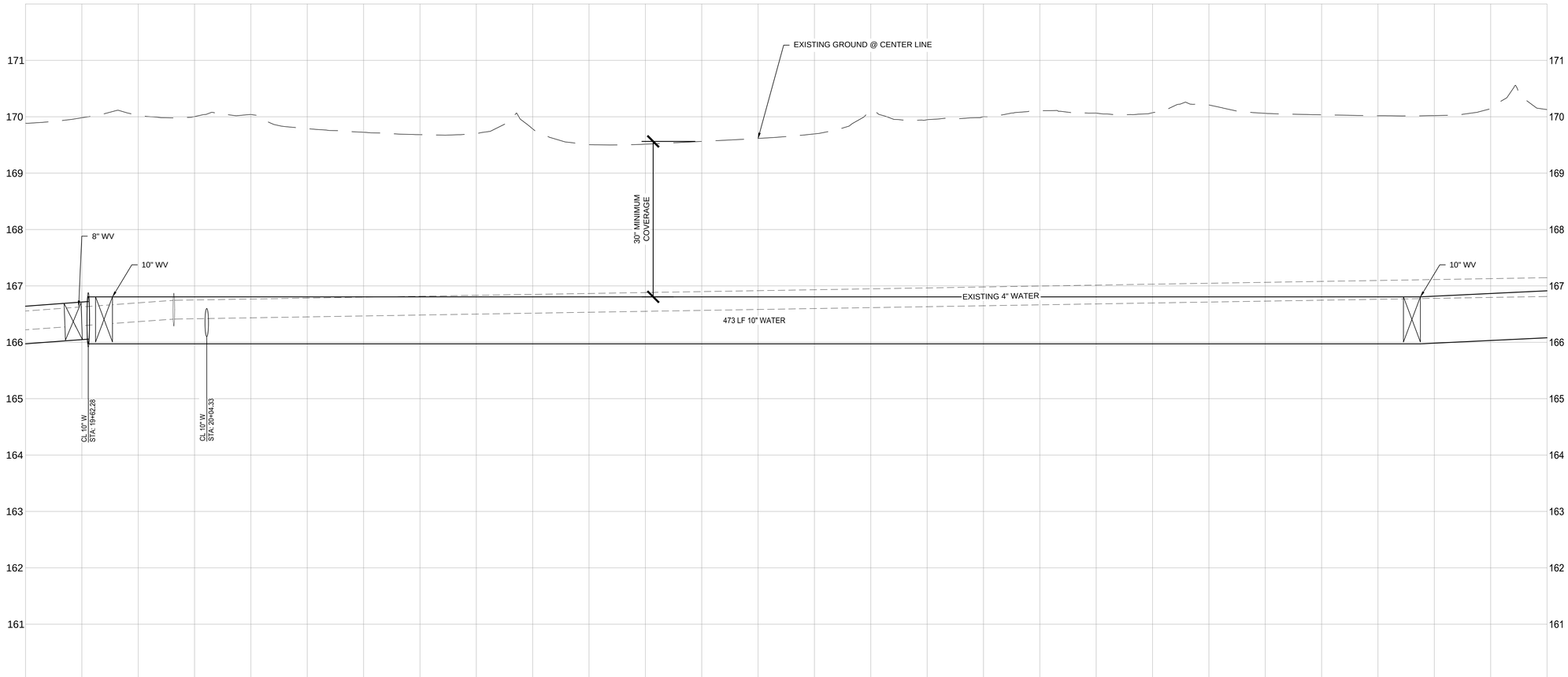

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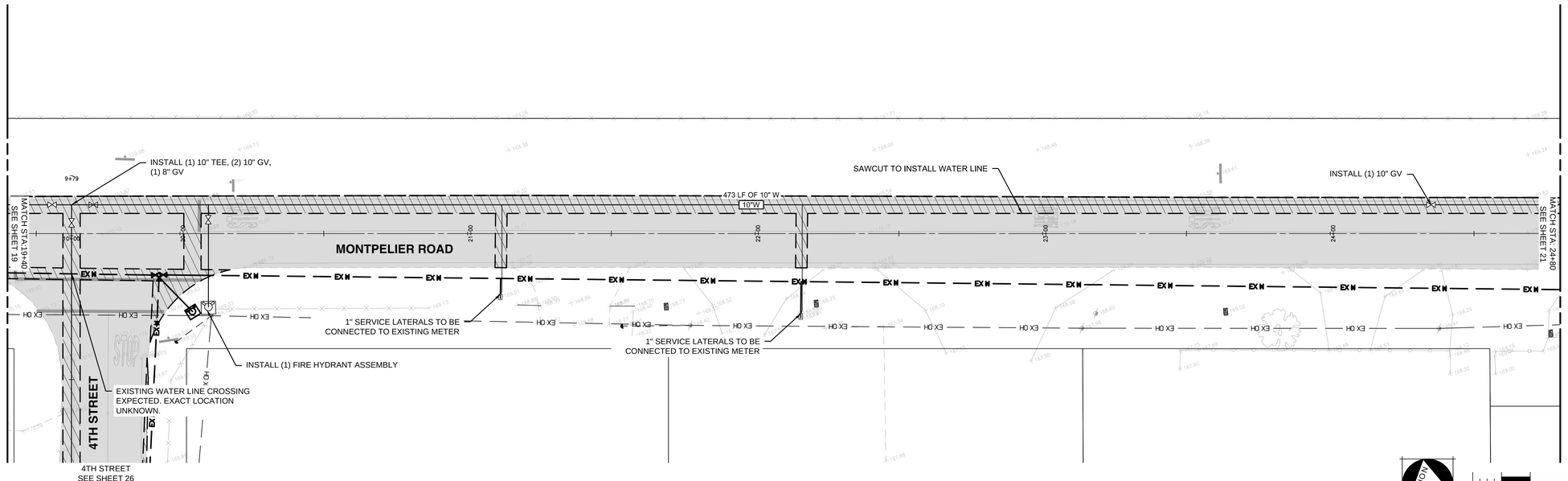

IMPROVEMENT PLAN

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- EXISTING ASPHALT TO REMAIN
- EXISTING WATER LINE TO BE REMOVED
- PROPOSED WATER LINE TO BE INSTALLED
- PROPOSED WATER VALVE TO BE INSTALLED
- PROPOSED HYDRANT TO BE INSTALLED
- PROPOSED ARV TO BE INSTALLED

NORTH
0 20' 40'

811 Know what's **below.** **Call** before you dig. **811 / 800-227-2600**

PUBLIC WORKS PROJECT
CITY OF WATERFORD
330 'E' STREET WATERFORD, CA. 95386

PROFESSIONAL ENGINEER * TONY B. MARSHALL * No. C51015 EXP. 9-30-13 * CIVIL * STATE OF CALIFORNIA * REGISTERED

MCR ENGINEERING, INC.
1242 DUPONT COURT
MANTECA, CA 95336
TEL: (209) 239 - 6229
FAX: (209) 239 - 8839
PREPARED UNDER THE DIRECTION OF:
TONY B. MARSHALL R.C.E. C51015 EXP. 9-30-13 DATE

PLAN REVISIONS

NO.	DESCRIPTIONS	DATE
1		
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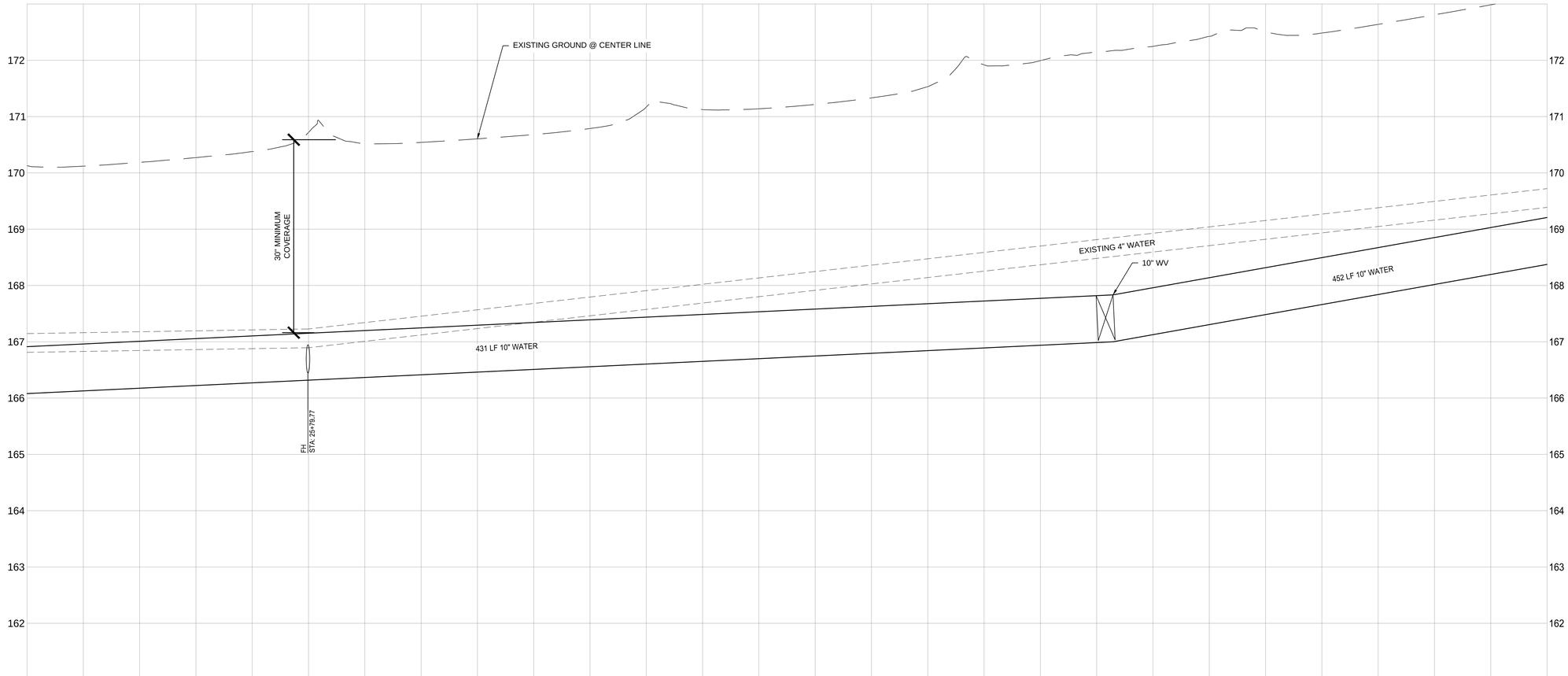
JOB NO. 18-001
DATE MARCH 2018
SCALE AS SHOWN
DR. BY JEH
CK. BY RM
FILE:

MONTPELIER ROAD STA 19+40 TO 24+80
2018 HICKMAN WATER CONSOLIDATION
WATERFORD/HICKMAN, CALIFORNIA

SHEET
20
OF 27 SHEETS



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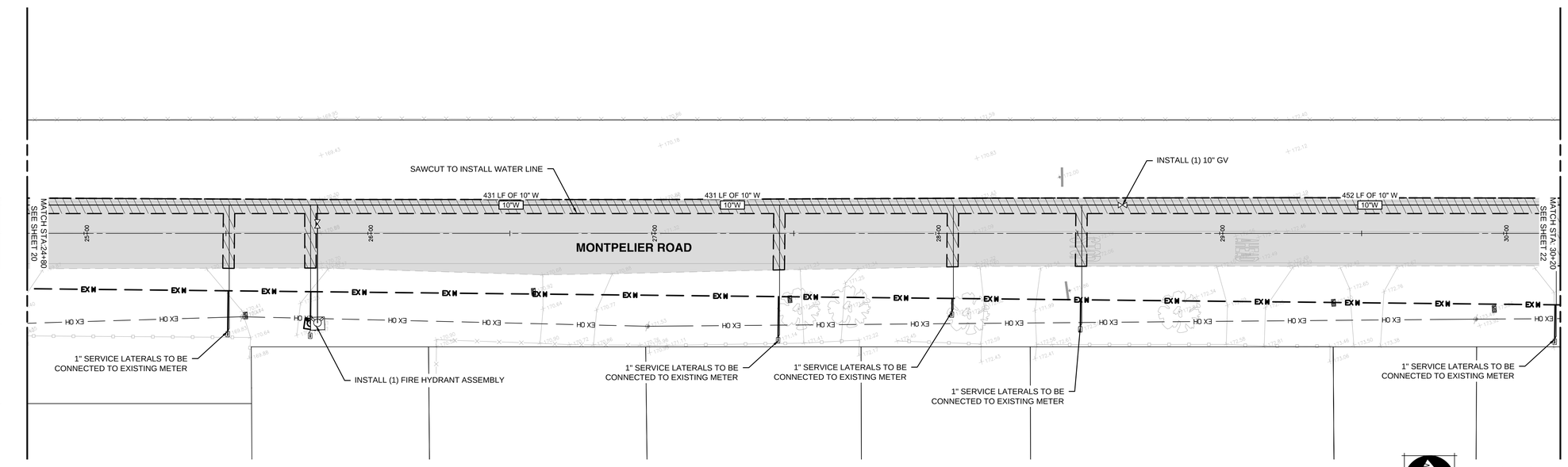

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NORTH

0 20' 40'

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JOB NO. 18-001
DATE MARCH 2018
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DR. BY JEH
CK. BY RM
FILE:

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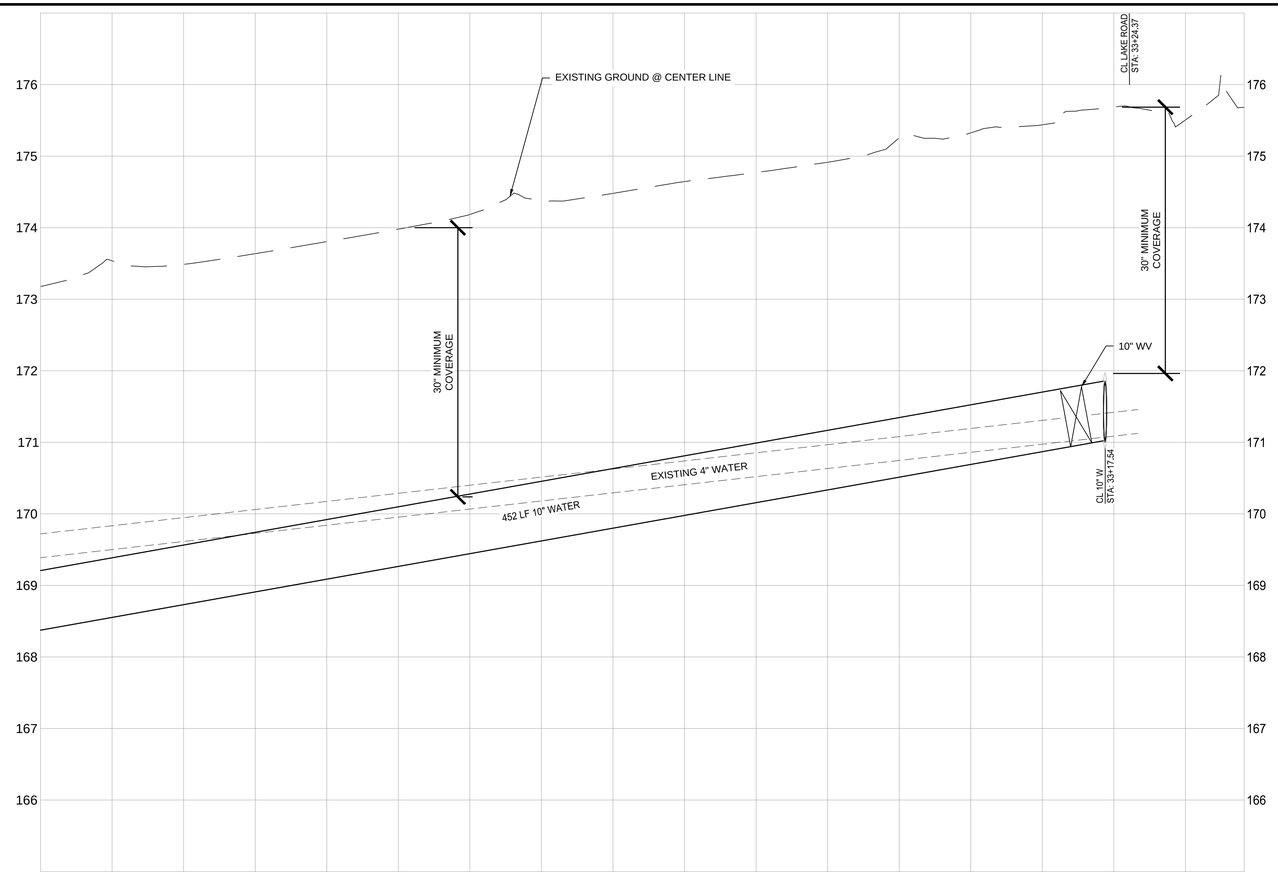
WATERFORD/HICKMAN, CALIFORNIA

SHEET
21
OF 27 SHEETS



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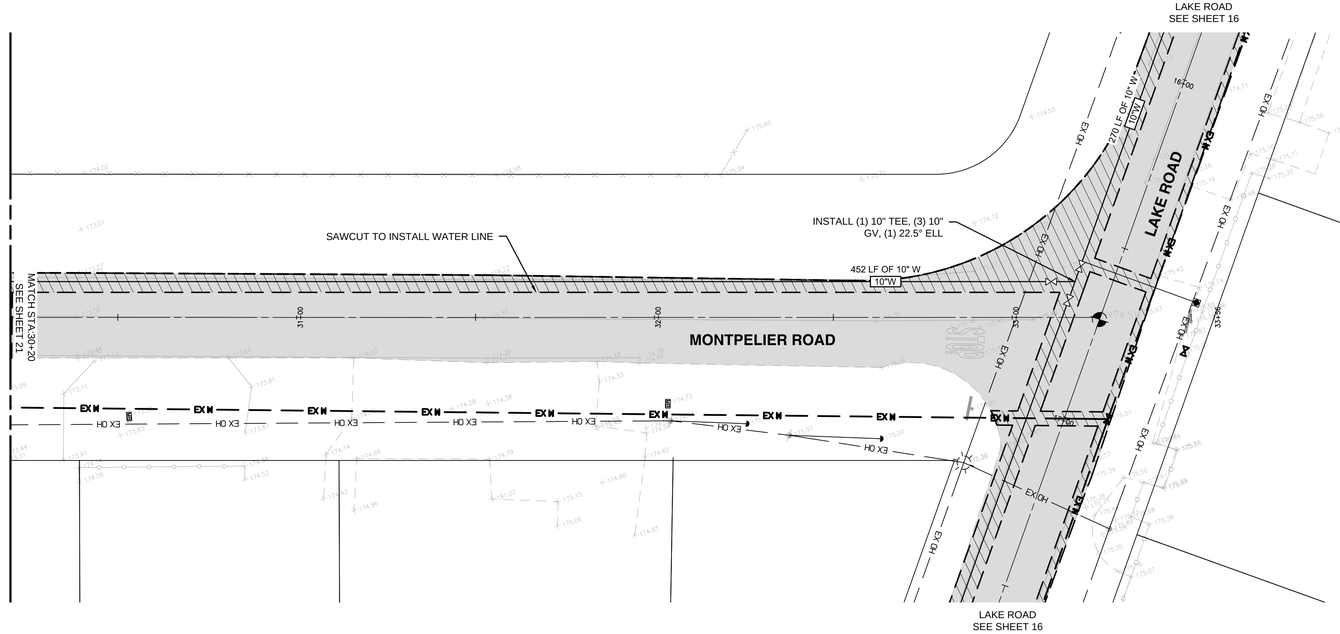

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- EXISTING WATER LINE TO BE REMOVED — EXIST —
- PROPOSED WATER LINE TO BE INSTALLED — PW —
- PROPOSED WATER VALVE TO BE INSTALLED
- PROPOSED HYDRANT TO BE INSTALLED
- PROPOSED ARV TO BE INSTALLED

NORTH
0 20' 40'

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JOB NO. 18-001
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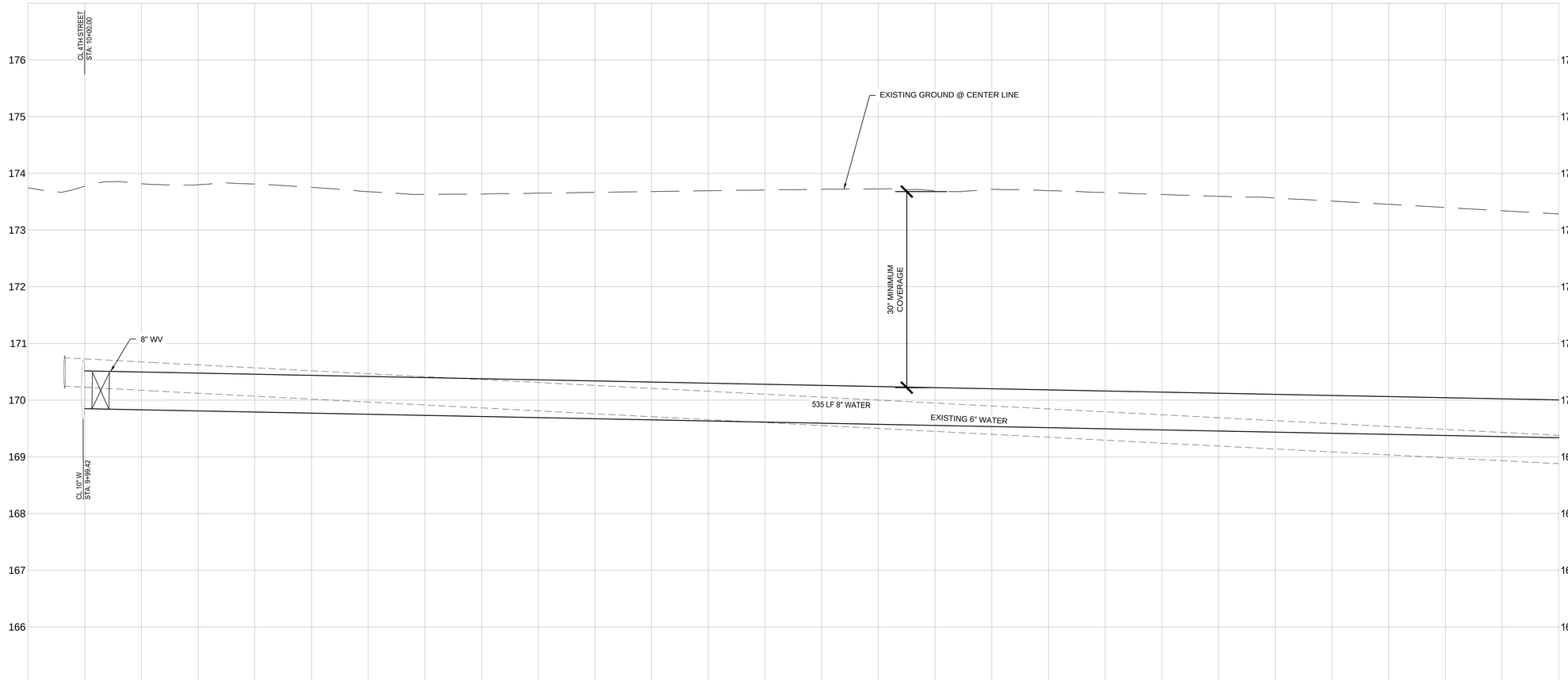
SCALE AS SHOWN
DR. BY JEH
CK. BY RM
FILE:

MONTPELIER ROAD STA 30+20 TO END
2018 HICKMAN WATER CONSOLIDATION
WATERFORD/HICKMAN, CALIFORNIA

SHEET
22
OF 27 SHEETS



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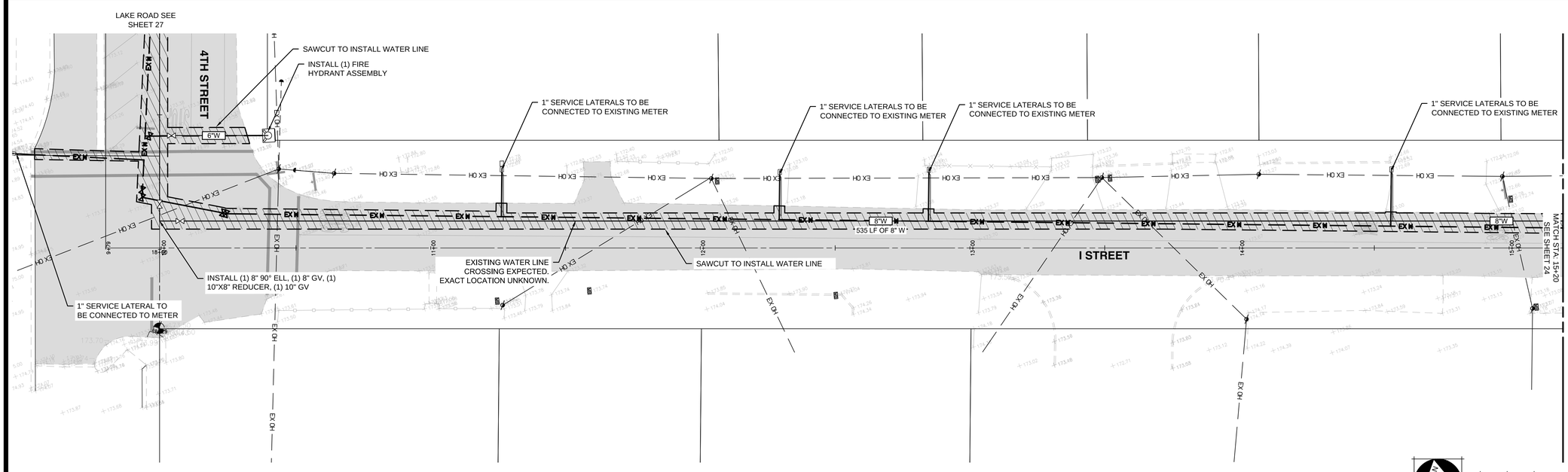

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NORTH

0 20' 40'

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CITY OF WATERFORD
330 'E' STREET WATERFORD, CA. 95386

PROFESSIONAL ENGINEER * TONY B. MARSHALL * No. C51015 EXP. 9-30-13 * STATE OF CALIFORNIA * CIVIL * REGISTERED

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TONY B. MARSHALL R.C.E. C51015 EXP. 9-30-13 DATE

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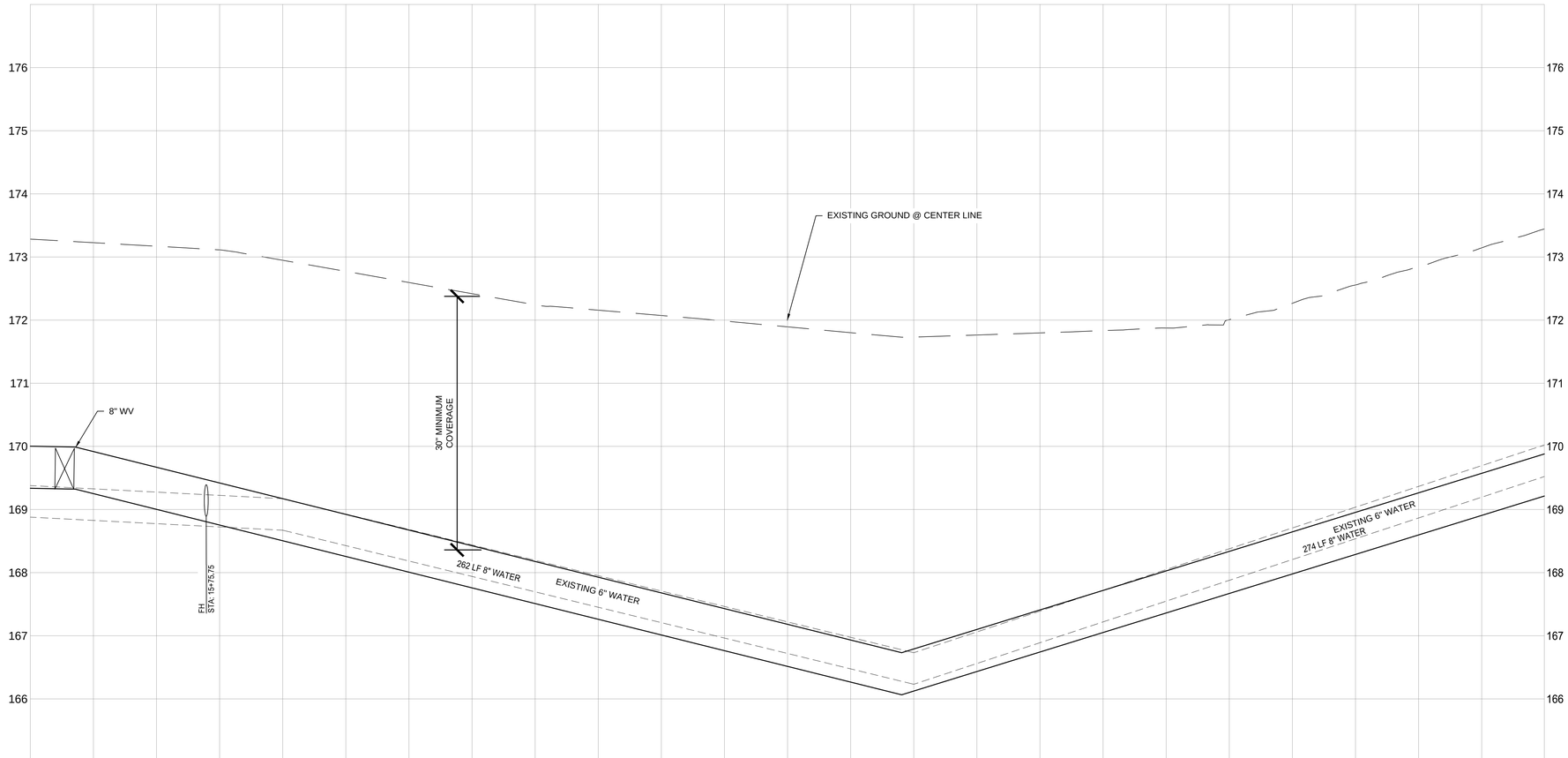
JOB NO. 18-001
DATE MARCH 2018
SCALE AS SHOWN
DR. BY JEH
CK. BY RM
FILE:

I STREET STA 9+80 TO 15+20
2018 HICKMAN WATER CONSOLIDATION
WATERFORD/HICKMAN, CALIFORNIA

SHEET
23
OF 27 SHEETS



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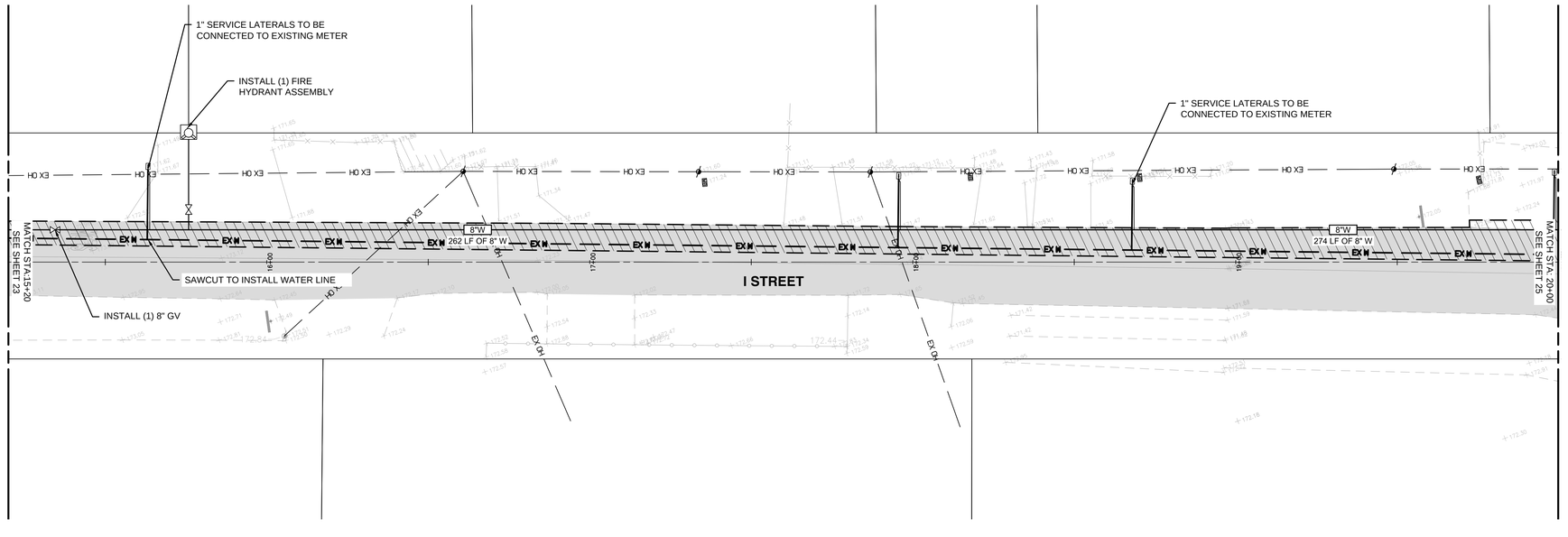

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NORTH
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RE REGISTERED PROFESSIONAL ENGINEER TONY B. MARSHALL No. C51015 EXP. 9-30-19 CIVIL STATE OF CALIFORNIA

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SHEET
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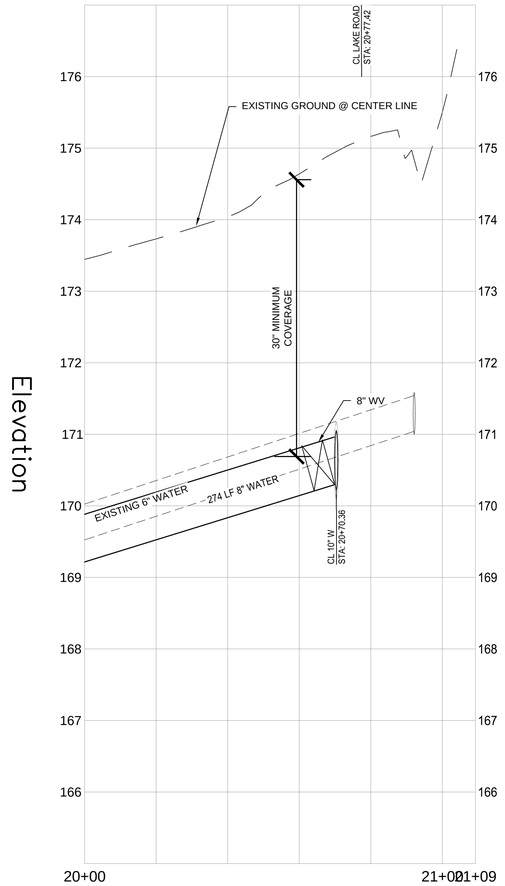
OF 27 SHEETS

PROFILE



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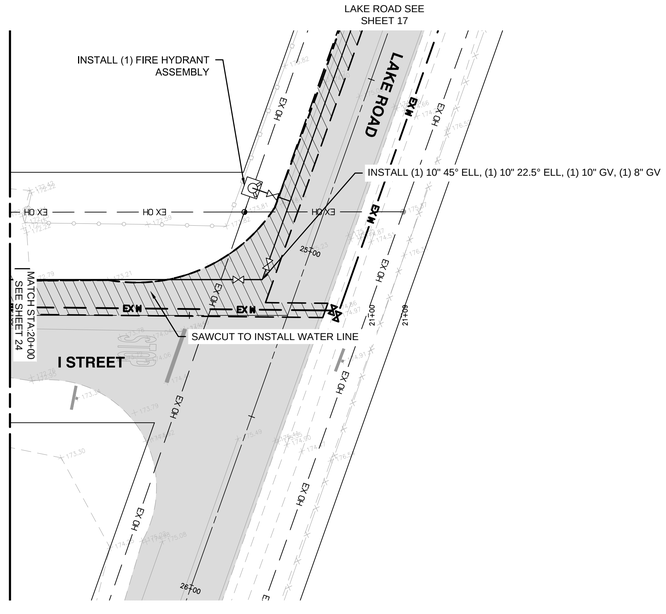
IMPROVEMENT PLAN



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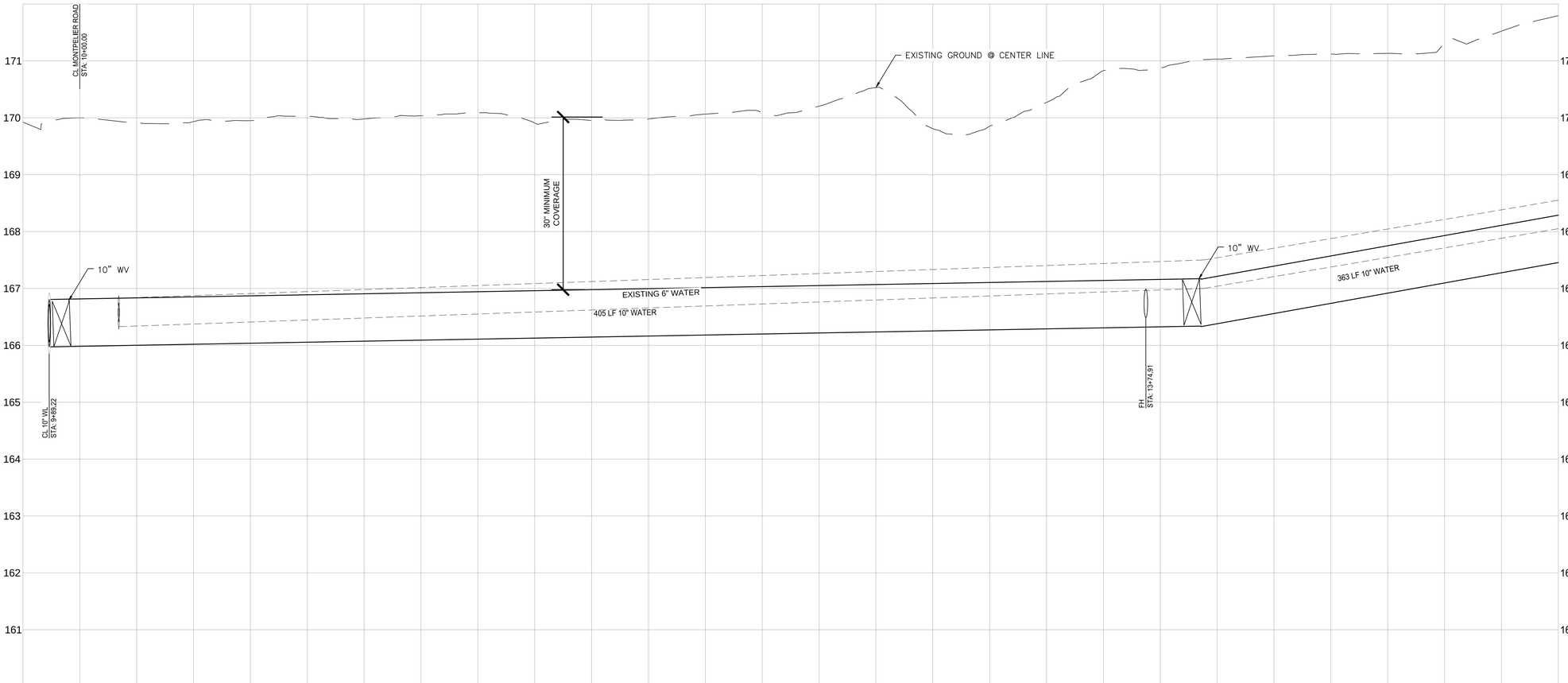

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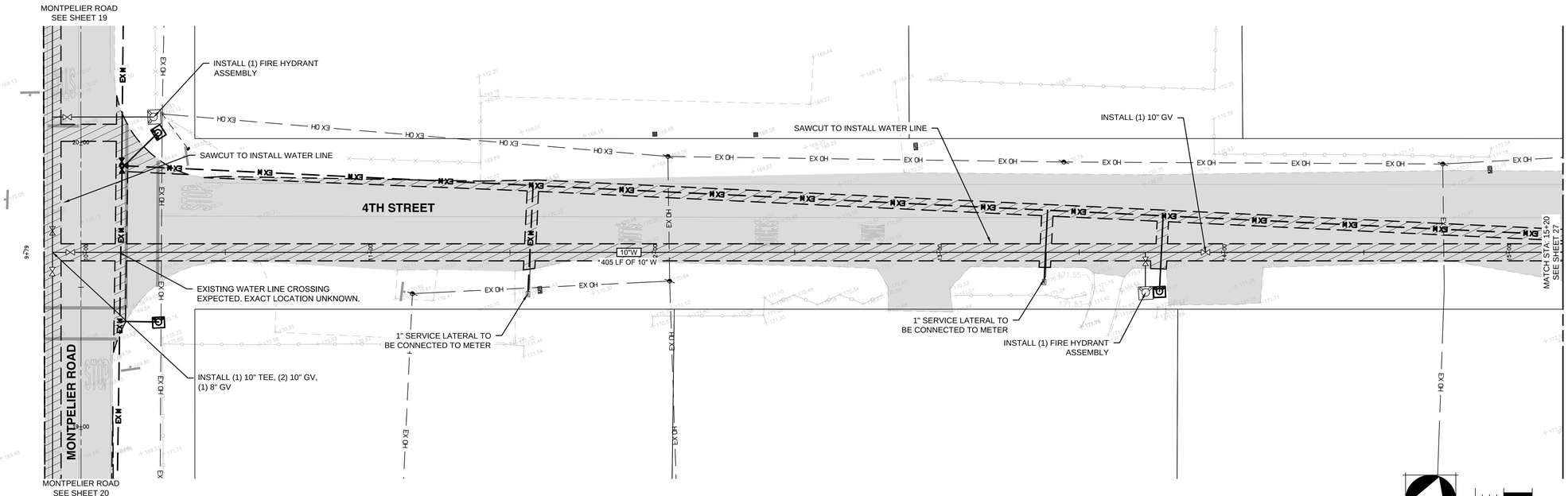
8. EXISTING WATER LINES AND APPURTENANCES SHALL BE ISOLATED & REMOVED AFTER INSTALLATION AND ACCEPTANCE OF THE PROPOSED WATER LINES.
9. EXISTING WATER LINE ALIGNMENT UNKNOWN IN VARIOUS LOCATIONS. LOWERINGS OF PROPOSED WATER LINE PER CITY OF WATERFORD STANDARD DETAIL 524 SHALL BE REQUIRED WHERE EXISTING WATER LINE IS FOUND IN CONFLICT WITH PROPOSED WATER LINE DURING CONSTRUCTION. LIKELY CROSSING LOCATIONS SHOWN ON PLANS.
10. SAWCUTTING SHOWN OVER EXISTING WATER LINE TO BE ADJUSTED TO LOCATIONS FOUND IN FIELD. MINIMUM 4' SAWCUT SHALL BE MAINTAINED OVER PROPOSED WATER LINE.



IMPROVEMENT PLAN

IMPROVEMENT LEGEND:
SEE SHEET 1 FOR QUANTITIES.

- TRENCH REPAIR PAVEMENT PER DETAIL 803 SHEET 5
- EXISTING ASPHALT TO REMAIN
- EXISTING WATER LINE TO BE REMOVED
- PROPOSED WATER LINE TO BE INSTALLED
- PROPOSED WATER VALVE TO BE INSTALLED
- PROPOSED HYDRANT TO BE INSTALLED
- PROPOSED ARV TO BE INSTALLED

NORTH
0 20' 40'

811
Know what's **below.**
Call before you dig.
811 / 800-227-2600

PUBLIC WORKS PROJECT
CITY OF WATERFORD
330 'E' STREET WATERFORD, CA. 95386

PROFESSIONAL ENGINEER * TONY B. MARSHALL * RE No. C51015 EXP. 9-30-19 CIVIL STATE OF CALIFORNIA

MCR ENGINEERING, INC.
1242 DUPONT COURT
MANTECA, CA 95336
TEL: (209) 239 - 6229
FAX: (209) 239 - 8839
www.mcreng.com

PREPARED UNDER THE DIRECTION OF:
TONY B. MARSHALL R.C.E. C51015 EXP. 9-30-19 DATE

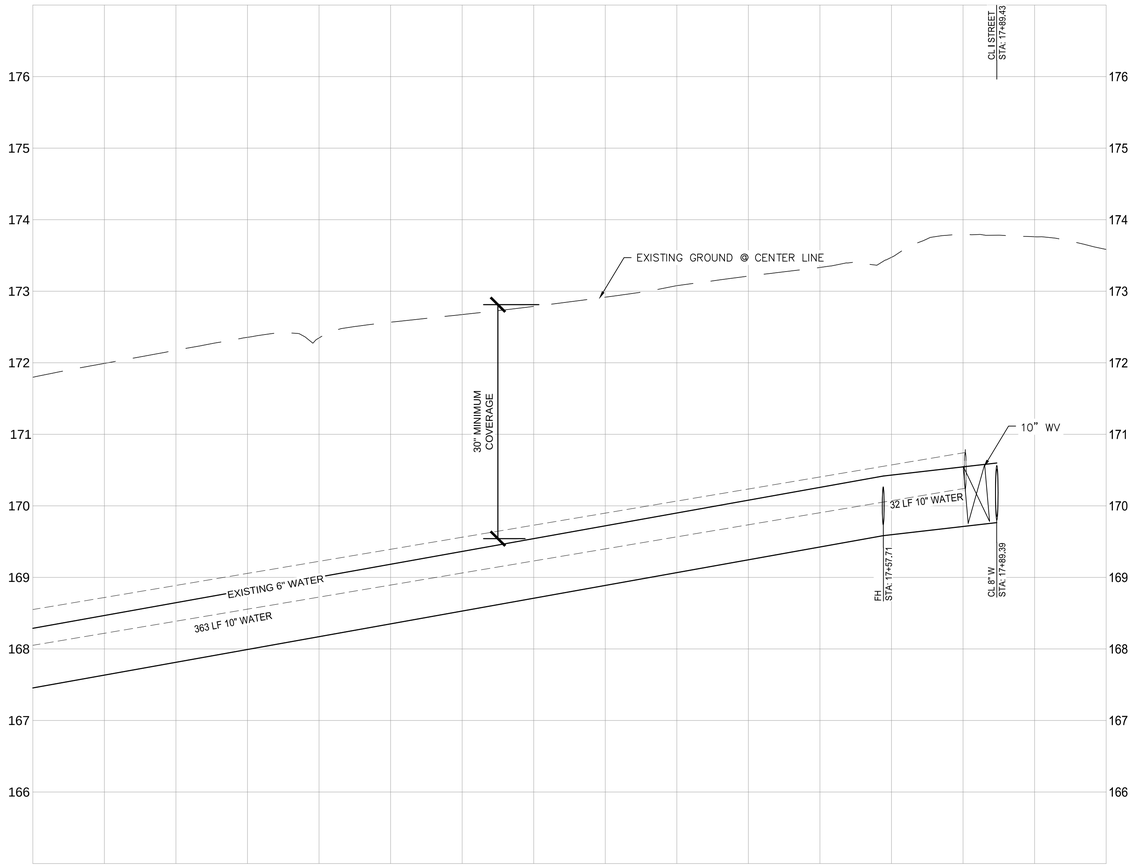
PLAN REVISIONS

NO.	DESCRIPTIONS	DATE
1		
2		
3		
4		
5		
6		
7		

JOB NO. 18-001
DATE MARCH 2018
SCALE AS SHOWN
DR. BY JEH
CK. BY RM
FILE:

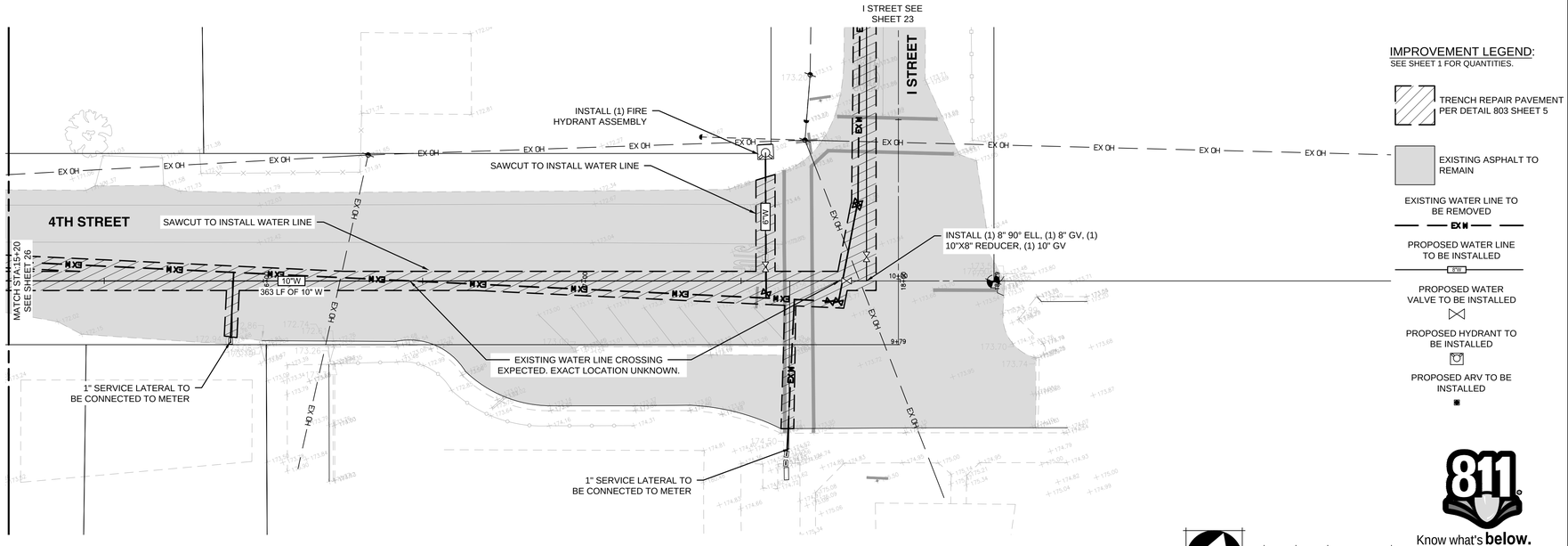
4TH STREET STA 9+80 TO 15+20
2018 HICKMAN WATER CONSOLIDATION
WATERFORD/HICKMAN, CALIFORNIA

SHEET
26
OF 27 SHEETS



PROFILE

PROFILE SCALE
1" = 20' HORIZONTAL
1" = 1' VERTICAL



IMPROVEMENT PLAN

IMPROVEMENT LEGEND:
SEE SHEET 1 FOR QUANTITIES.

- TRENCH REPAIR PAVEMENT PER DETAIL 803 SHEET 5
- EXISTING ASPHALT TO REMAIN
- EXISTING WATER LINE TO BE REMOVED
- PROPOSED WATER LINE TO BE INSTALLED
- PROPOSED WATER VALVE TO BE INSTALLED
- PROPOSED HYDRANT TO BE INSTALLED
- PROPOSED ARV TO BE INSTALLED

NORTH
0 20' 40'

Know what's **below.** **Call** before you dig.
811 / 800-227-2600

NOTES:

1. ALL EXISTING UTILITIES WERE PLOTTED FROM RECORD INFORMATION AND FIELD TOPOGRAPHY. ACTUAL LOCATIONS MAY VARY AND ADDITIONAL CROSSINGS MAY EXIST IN THE FIELD. IT IS IMPERATIVE THAT "U.S.A." LOCATION SERVICES, LOCATED AND MARK UTILITIES PRIOR TO THE START OF EXCAVATION.
2. THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN EXPOSING EXISTING UTILITY CROSSINGS AND SERVICES
3. ALL UTILITIES ARE ASSUMED TO BE PRESERVED AND PROTECTED UNLESS OTHERWISE NOTED OR DIRECTED BY ENGINEER. ANY DAMAGE TO EXISTING UTILITIES WILL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
4. ALL RIMS WITHIN PROPOSED ROADWAY SHALL BE ADJUSTED TO FINISH GRADE ELEVATION AS SHOWN.
5. CONTRACTOR SHALL VERIFY ALL EXISTING PIPE LOCATIONS, INVERTS AND SIZES AT PROPOSED PIPE CROSSINGS VIA POTHOLEING PRIOR TO SAWCUTTING.
6. CONTRACTOR SHALL VERIFY ALL WATER SERVICE SIZES PRIOR TO CONSTRUCTION. IF SIZES ARE FOUND TO DIFFER FROM WHAT IS SHOWN SERVICE SIZE OF SHALL MATCH EXISTING OR BE UPGRADED TO 1", WHICHEVER IS LARGER.
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PUBLIC WORKS PROJECT
CITY OF WATERFORD
330 'E' STREET WATERFORD, CA. 95386

PROFESSIONAL ENGINEER TONY B. MARSHALL No. C51015 EXP. 9-30-19 CIVIL STATE OF CALIFORNIA RE-ISSUED

MCR ENGINEERING, INC.
1242 DUPONT COURT
MANTECA, CA 95336
TEL: (209) 239 - 6229
FAX: (209) 239 - 8839
PREPARED UNDER THE DIRECTION OF:
TONY B. MARSHALL R.C.E. C51015 EXP. 9-30-19 DATE

PLAN REVISIONS

NO.	DESCRIPTIONS	DATE
1		
2		
3		
4		
5		
6		

JOB NO. 18-001
DATE MARCH 2018
SCALE AS SHOWN
DR. BY JEH
CK. BY RM
FILE:

4TH STREET STA 15+20 TO END
2018 HICKMAN WATER CONSOLIDATION
WATERFORD/HICKMAN, CALIFORNIA

SHEET
27
OF 27 SHEETS

Attachment B

CNDDB Summary Report and Exhibits

& USFWS IPaC Trust Report

Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Montpelier (3712056) OR Waterford (3712067) OR Paulsell (3712066) OR Denair (3712057))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Agelaius tricolor tricolored blackbird	ABPBXB0020	None	Threatened	G2G3	S1S2	SSC
Ambystoma californiense California tiger salamander	AAAAA01180	Threatened	Threatened	G2G3	S2S3	WL
Anniella pulchra northern California legless lizard	ARACC01020	None	None	G3	S3	SSC
Atriplex cordulata var. cordulata heartscale	PDCHE040B0	None	None	G3T2	S2	1B.2
Atriplex subtilis subtle orache	PDCHE042T0	None	None	G1	S1	1B.2
Bombus crotchii Crotch bumble bee	IIHYM24480	None	Candidate Endangered	G3G4	S1S2	
Branchinecta lynchi vernal pool fairy shrimp	ICBRA03030	Threatened	None	G3	S3	
Buteo swainsoni Swainson's hawk	ABNKC19070	None	Threatened	G5	S3	
Calycadenia hooveri Hoover's calycadenia	PDAST1P040	None	None	G2	S2	1B.3
Clarkia rostrata beaked clarkia	PDONA050Y0	None	None	G2G3	S2S3	1B.3
Desmocerus californicus dimorphus valley elderberry longhorn beetle	IICOL48011	Threatened	None	G3T2	S2	
Euphorbia hooveri Hoover's spurge	PDEUP0D150	Threatened	None	G1	S1	1B.2
Lasiurus cinereus hoary bat	AMACC05030	None	None	G5	S4	
Lepidurus packardi vernal pool tadpole shrimp	ICBRA10010	Endangered	None	G4	S3S4	
Linderiella occidentalis California linderiella	ICBRA06010	None	None	G2G3	S2S3	
Mylopharodon conocephalus hardhead	AFCJB25010	None	None	G3	S3	SSC
Neostapfia colusana Colusa grass	PMPOA4C010	Threatened	Endangered	G1	S1	1B.1
Northern Hardpan Vernal Pool Northern Hardpan Vernal Pool	CTT44110CA	None	None	G3	S3.1	
Oncorhynchus mykiss irideus pop. 11 steelhead - Central Valley DPS	AFCHA0209K	Threatened	None	G5T2Q	S2	

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Orcuttia inaequalis	PMPOA4G060	Threatened	Endangered	G1	S1	1B.1
San Joaquin Valley Orcutt grass						
Orcuttia pilosa	PMPOA4G040	Endangered	Endangered	G1	S1	1B.1
hairy Orcutt grass						
Spea hammondii	AAABF02020	None	None	G3	S3	SSC
western spadefoot						
Tuctoria greenei	PMPOA6N010	Endangered	Rare	G1	S1	1B.1
Greene's tuctoria						

Record Count: 23

dwarf downingia
Colusa grass
Hoover's calycadenia
stinkbells
Colusa grass
Colusa grass
Colusa grass
Colusa grass
forked hare-leaf
Greene's tuctoria
beaked clarkia
Greene's tuctoria
Colusa grass
San Joaquin Valley Orcutt grass
Colusa grass
Colusa grass
Colusa grass
Colusa grass
San Joaquin Valley Orcutt grass
Colusa grass
Colusa grass
Project Alignment
Greene's tuctoria
Hoover's calycadenia
Colusa grass
hairy Orcutt grass
Northern Hardpan Vernal Pool
Colusa grass
Hoover's spurge
hairy Orcutt grass
San Joaquin Valley Orcutt grass
San Joaquin Valley Orcutt grass
heartscale subtle orache
San Joaquin Valley Orcutt grass
Northern Hardpan Vernal Pool
San Joaquin Valley Orcutt grass
succulent owl's-clover

ESCALON
OAKDALE
KNIGHTS FERRY
RIVERBANK
WATERFORD
PAULSELL
COOPERSTOWN
CERES
DENAIR
MONTPELIER
TURLOCK LAKE
CRESSEY
WINTON

CNDDB PLANT

Hickman & Waterford Water Consolidation Project

Stanislaus County, CA

Map Date: 10/21/2019 Source: CDFW

N

0 1 2

Miles

steelhead - Central Valley DPS
California tiger salamander
Yuma myotis
vernal pool tadpole shrimp
vernal pool fairy shrimp
vernal pool tadpole shrimp
California tiger salamander
tricolored blackbird
Swainson's hawk
California linderiella
vernal pool tadpole shrimp
California tiger salamander
western spadefoot
steelhead - Central Valley DPS
hardhead hardhead
tricolored blackbird
California tiger salamander
valley elderberry longhorn beetle
Project Alignment
hardhead
California tiger salamander
western spadefoot
valley elderberry longhorn beetle
California tiger salamander
vernal pool tadpole shrimp
western spadefoot
vernal pool tadpole shrimp
vernal pool fairy shrimp
western spadefoot
Swainson's hawk
western spadefoot
northern California legless lizard
hoary bat
Crotch bumble bee
tricolored blackbird
least Bell's vireo
tricolored blackbird
Merced kangaroo rat
valley elderbe

OAKDALE
KNIGHTS FERRY
KEYSTONE
RIVERBANK
WATERFORD
PAULSELL
COOPERSTOWN
CERES
DENAIR
MONTPELIER
CRESSEY
WINTON

CNDDB WILDLIFE

Hickman & Waterford Water Consolidation Project

Stanislaus County, CA

Map Date: 10/21/2019 Source: CDFW

N

0 1 2

Miles

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

Stanislaus 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.
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:

Mammals

NAME	STATUS

San Joaquin Kit Fox Vulpes macrotis mutica — Endangered
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/2873

Reptiles

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

Amphibians

NAME	STATUS
California Red-legged Frog Rana draytonii There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/2891	Threatened
California Tiger Salamander Ambystoma californiense There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/2076	Threatened

Fishes

NAME	STATUS
Delta Smelt Hypomesus transpacificus There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/321	Threatened

Insects

NAME	STATUS
Valley Elderberry Longhorn Beetle Desmocerus californicus dimorphus There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/7850	Threatened

Crustaceans

NAME	STATUS

Conservancy Fairy Shrimp Branchinecta conservatio — Endangered
There is **final** critical habitat for this species. Your location is outside the critical habitat.
https://ecos.fws.gov/ecp/species/8246

Vernal Pool Fairy Shrimp Branchinecta lynchi — Threatened
There is **final** critical habitat for this species. Your location is outside the critical habitat.
https://ecos.fws.gov/ecp/species/498

Vernal Pool Tadpole Shrimp Lepidurus packardi — Endangered
There is **final** critical habitat for this species. Your location is outside the critical habitat.
https://ecos.fws.gov/ecp/species/2246

Flowering Plants

NAME	STATUS

Colusa Grass Neostapfia colusana — Threatened
There is **final** critical habitat for this species. Your location is outside the critical habitat.
https://ecos.fws.gov/ecp/species/5690

Greene's Tuctoria Tuctoria greenei — Endangered
There is **final** critical habitat for this species. Your location is outside the critical habitat.
https://ecos.fws.gov/ecp/species/1573

Hairy Orcutt Grass Orcuttia pilosa — Endangered
There is **final** critical habitat for this species. Your location is outside the critical habitat.
https://ecos.fws.gov/ecp/species/2262

Hoover's Spurge Chamaesyce hooveri — Threatened
There is **final** critical habitat for this species. Your location is outside the critical habitat.
https://ecos.fws.gov/ecp/species/3019

San Joaquin Orcutt Grass Orcuttia inaequalis — Threatened
There is **final** critical habitat for this species. Your location is outside the critical habitat.
https://ecos.fws.gov/ecp/species/5506

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.)

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
Song Sparrow Melospiza melodia This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds Feb 20 to Sep 5
Spotted Towhee Pipilo maculatus clementae 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/4243	Breeds Apr 15 to Jul 20
Yellow-billed Magpie Pica nuttalli This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9726	Breeds Apr 1 to Jul 31

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.

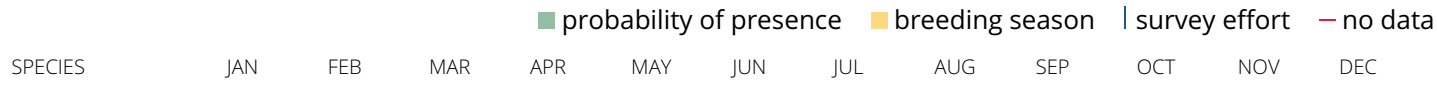
Breeding Season (▪)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

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.



Common Yellowthroat
BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)

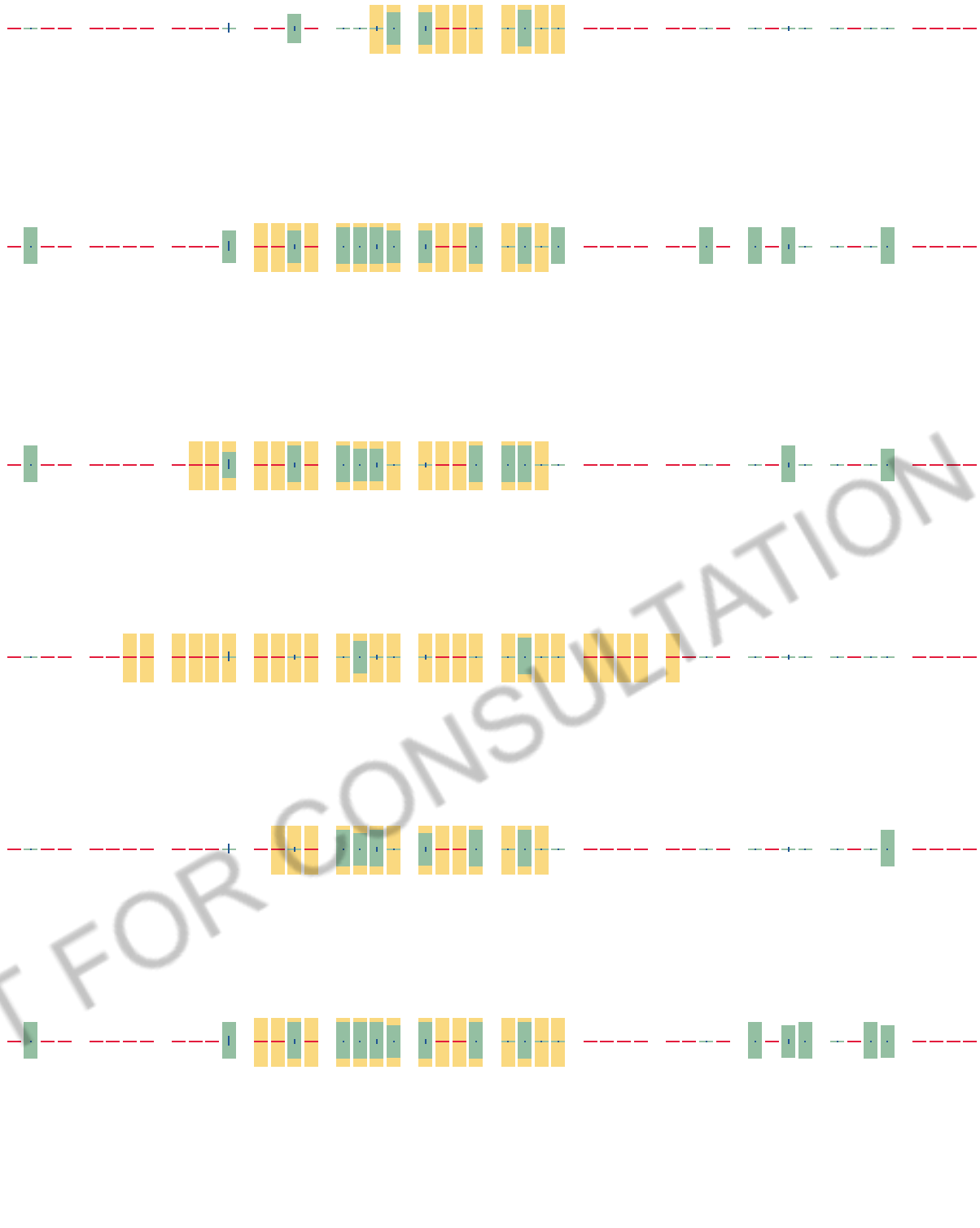
Nuttall's Woodpecker
BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)

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

Song Sparrow
BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)

Spotted Towhee
BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)

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 and/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

- PEM1C
- PEM1Fx
- PEM1A
- PEM1Kx
- PEM1Ch

FRESHWATER FORESTED/SHRUB WETLAND

- PSSC
- PFOA
- PSSA
- PFOC
- PSSCx

FRESHWATER POND

- PUBHx
- PUSKx
- PUBFx
- PUBKx
- PUSAx
- PUBFh

LAKE

- L1UBHx

RIVERINE

- R2UBH
- R2UBHx
- R4SBCx
- R5UBFx
- R2USC
- R2USA
- R4SBAx
- R5UBF

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.

Attachment C

Photographs

Ruderal grassland vegetation along the east edge of Hickman Road, looking southeast from approximately 200 feet south of the intersection of Yosemite Boulevard and Hickman Road; 10/15/19.

A few ground squirrel burrows along the east edge of Hickman Road, looking southeast from approximately 300 feet south of the intersection of Yosemite Boulevard and Hickman Road; 10/15/19.

Large trees along the Tuolumne River (circled), looking southeast from near the north end of the Hickman Bridge; 10/15/19.

Location of the pipeline alignment along the east edge of Hickman Road, looking north from near Delaware Road; 10/15/19. The alignment will be placed in the east lane within the existing pavement.

Lake Road, looking west from the intersection of Lake Road and I Street; 10/15/19. The pipeline will be placed on both sides of the road, along the pavement and road shoulder.

Ruderal vegetation along the east side of Hickman Road, looking northwest from the intersection of Appling Road and Hickman Road; 10/15/19. There is a blue elderberry shrub along the north edge of Appling road, approximately 90 feet east of the work area.

Road shoulder along the east edge of Hickman Road, looking north from the intersection of Hickman Road and Riverview Road; 10/15/19. The alignment will be placed along the east edge of the road, including the road shoulder and east lane.

Lake Road, looking east from approximately 200 feet east of the intersection of Lake Road and Hickman Road; 10/15/19. The pipeline alignment will be placed on both sides of the road, along the edge of the pavement and road shoulder.

Fourth Street, looking northeast from the intersection of Montpelier Road and Fourth Street; 10/15/19. The pipeline alignment will be placed in the pavement on both sides of the street.

Center of Montpelier Road, looking northwest from approximately 300 feet south of the intersection of Fourth Street and Montpelier Road; 10/15/19. The pipeline alignment will be placed in the pavement on both sides of the road.

Disturbed ruderal grassland vegetation along the west side of Montpelier Road, looking northwest; 10/15/19. The west edge of Montpelier Road is primarily ruderal grassland vegetation while the east edge is primarily graveled.

Road shoulder along the west edge of I Street, looking southeast from the intersection of I Street and Lake Road; 10/15/19. The pipeline will be placed along the west edge of the road, which is primarily graveled.

Appendix D

Designated Critical Habitat

- Steelhead
- Colusa grass
- Fleshy owl's-clover
- Greene's tuctoria
- Hairy Orcutt grass
- Hoover's spurge
- Vernal pool fairy shrimp
- Vernal pool tadpole shrimp

Project Alignment

OAKDALE
KNIGHTS FERRY
KEYSTONE
RIVERBANK
WATERFORD
PAULSELL
COOPERSTOWN
CERES
DENAIR
MONTPELIER
TURLOCK LAKE
CRESSEY
WINTON

CNDDB PLANT

Hickman & Waterford Water Consolidation Project

Stanislaus County, CA

Map Date: 10/21/2019 Source: USFWS

N

0 1 2

Miles

Appendix B

Cultural Resources Inventory Report for the Hickman Water Consolidation Project, Stanislaus County, California, December 2019, prepared by Far Western Anthropological Research Group, Inc.

Cultural Resources Inventory Report for the Hickman Water Consolidation Project, Stanislaus County, California

By:
Barb Siskin, M.A.

December 2019 FINAL

Submitted to:
David Niskanen
J. B. Anderson Land Use Planning
139 South Stockton Avenue
Ripon, CA 95366

FAR WESTERN ANTHROPOLOGICAL RESEARCH GROUP, INC.
2727 Del Rio Place, Suite A, Davis, California, 95618
http://www.farwestern.com 530-756-3941

Cultural Resources Inventory Report for the Hickman Water Consolidation Project, Stanislaus County, California

By:
Barb Siskin, M.A.

Contributions by:
Alexis Thomas, M.A.
Joshua McWaters, B.A.
Montse Osterlye, B.A.

December 2019 FINAL

Submitted to:
David Niskanen
J. B. Anderson Land Use Planning
139 South Stockton Avenue
Ripon, CA 95366

SUMMARY OF FINDINGS

Far Western Anthropological Research Group, Inc., conducted a cultural resources inventory to complete identification of historic properties in compliance with Section 106 of the National Historic Preservation Act and the California Environmental Quality Act for the proposed Hickman Water Consolidation Project. The City of Waterford Public Works Department proposes the installation of a 14-inch water line from the existing point of connection at the intersection of Yosemite and F Street to the town of Hickman, via an extension along the Waterford/Hickman Bridge and Hickman Road. The project also includes replacement and upgrades for existing water lines and facilities in the town of Hickman, including the replacement of undersized distribution pipes and installation of a new pump, motor, and electrical components at Well 309. Overall, the water pipeline replacement/installation project covers 2.31 miles.

Identification efforts for this study included a records search; desktop literature and map review; a buried precontact site potential assessment; a historic-era sensitivity assessment; Native American and historical society outreach; an intensive pedestrian survey of the Area of Potential Effects (APE); resource recordation; and evaluation of two historic-era built environment resources identified in the APE for potential listing in the National Register of Historic Places.

While the records search identified three previously recorded cultural resources within the APE, the pedestrian survey conducted on November 14, 2019, confirmed that no previously recorded resources intersect with the APE. The field survey and historical map research revealed unrecorded segments of two historic-era resources that were identified within the APE: (1) 2743-01, a rail segment of the Oakdale Branch of the Southern Pacific Railroad (P-50-000001); and (2) 2743-02, a canal segment of the Turlock Irrigation District Water Conveyance System (P-50-000073). Far Western documented the two resources on California Department of Parks and Recreation 523 form updates. Per the requirements of Section 106, these resources were evaluated and recommended ineligible for listing in the National Register of Historic Places and the California Register of Historical Resources.

Results of the buried site sensitivity assessment indicate that the majority of the APE (88.7%) has Low potential for encountering buried sites, and 11.3 percent of the APE has High potential for the presence of buried precontact archaeological deposits due to its location within the Recent Holocene floodplain within the Tuolumne River's meander belt. Based on the project description, there is ground disturbance planned for the installation of new waterlines, as well as excavation to remove the old waterlines. In the northeast portion of the APE where there is High sensitivity for the presence of buried archaeological deposits and no existing waterlines, project related excavation, to the depth of six feet, has the potential to affect native soils that have not been previously disturbed, where there is the possibility of identifying intact archaeological deposits. Where disturbance will occur to remove old waterlines, the subsurface deposits have already been subject to significant prior ground disturbances and the likelihood of identifying intact archaeological deposits is lower, except where the depth and width of the excavation trench exceeds the parameters of the previous waterline trench.

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APPENDICES

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1 – INTRODUCTION

The City of Waterford proposes a water pipeline and facilities replacement and improvement project in the town of Hickman, in Stanislaus County, California (Figures 1 and 2). The City of Waterford is applying for a State Water Resources Control Board (Water Board) Grant Application to assist in funding for the project. This grant includes both state and federal funds and is considered a federal undertaking; as such, this project requires compliance with the National Historic Preservation Act of 1966 (NHPA; 36 Code of Federal Regulations [CFR] §800, as amended 2006) and the California Environmental Quality Act (CEQA; California Public Resources Code, §21000 et seq., revised 2010), which mandate federal and California public agencies consider the effects of undertakings on historic properties and historical resources, including archaeological and tribal cultural resources. The Environmental Protection Agency (EPA) is the lead federal agency for this project. This report has been prepared by Far Western Anthropological Research Group, Inc., (Far Western) under contract with J. B. Anderson Land Use Planning on behalf of the City of Waterford Public Works Department.

The purpose of this report is to provide a detailed description of tasks completed to identify and evaluate cultural resources located within the Area of Potential Effects (APE). This report:

1. Provides a description of the regional project area, APE, and proposed actions;
2. Discusses the regional environmental, ethnographic, archaeological, and historical context of the project area;
3. Briefly outlines the research design as it relates to statutes and regulations pertinent to cultural resources;
4. Presents the results of previous studies; a geoarchaeological-based precontact buried site potential assessment; a historic-era sensitivity assessment; subsequent field survey; and research specific to resources identified in the project area; and
5. Evaluates cultural resources within the project area for their potential for listing in the National Register of Historic Places (National Register) and the California Register of Historical Resources (California Register).

PROJECT DESCRIPTION

The project will involve the installation of a 14-inch water line from the existing point of connection at the intersection of Yosemite Boulevard and F Street to the town of Hickman, via an extension along the Waterford/Hickman Bridge and Hickman Road. The project also includes replacement and upgrades for existing water lines and facilities in the town of Hickman, including the replacement of undersized distribution pipes and the installation of a new pump, motor, and electrical components at Well 309. Overall, the water pipeline replacement/installation project covers 2.31 miles.

AREA OF POTENTIAL EFFECTS

The Area of Potential Effects (APE) was developed in coordination with J. B Anderson Land Use Planning and the City of Waterford and based on digital data of the project area provided by J.B. Anderson Land Use Planning. The APE includes all vertical and horizontal areas subject to ground disturbance, including buried utility lines, access roads, or staging locations that are being constructed or improved for the project. The anticipated depth of ground disturbance for these activities will not exceed six feet below the existing ground surface. The deepest disturbance will be associated with trenching up to

Figure 1. Project Vicinity.

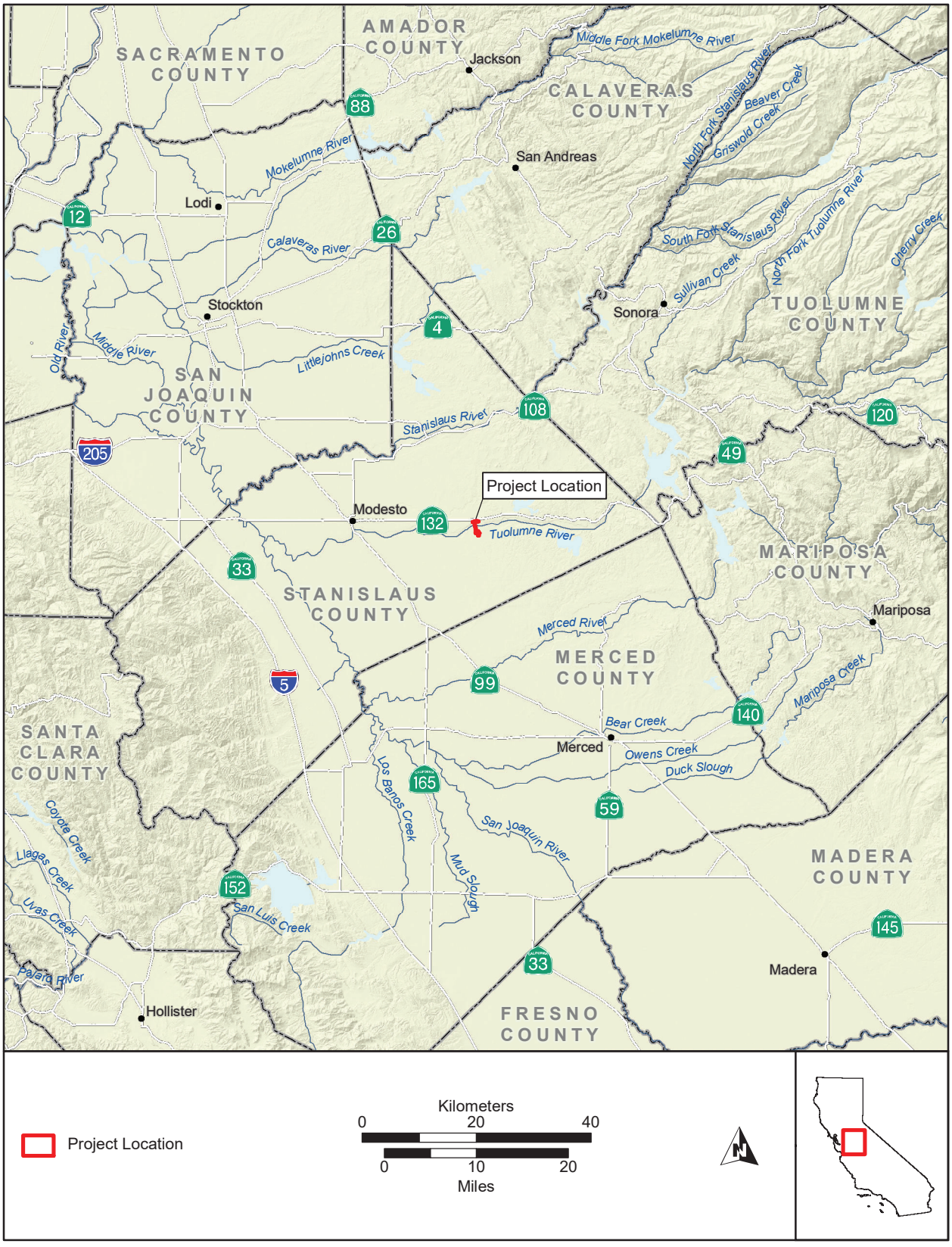

Figure 1. Project Vicinity.

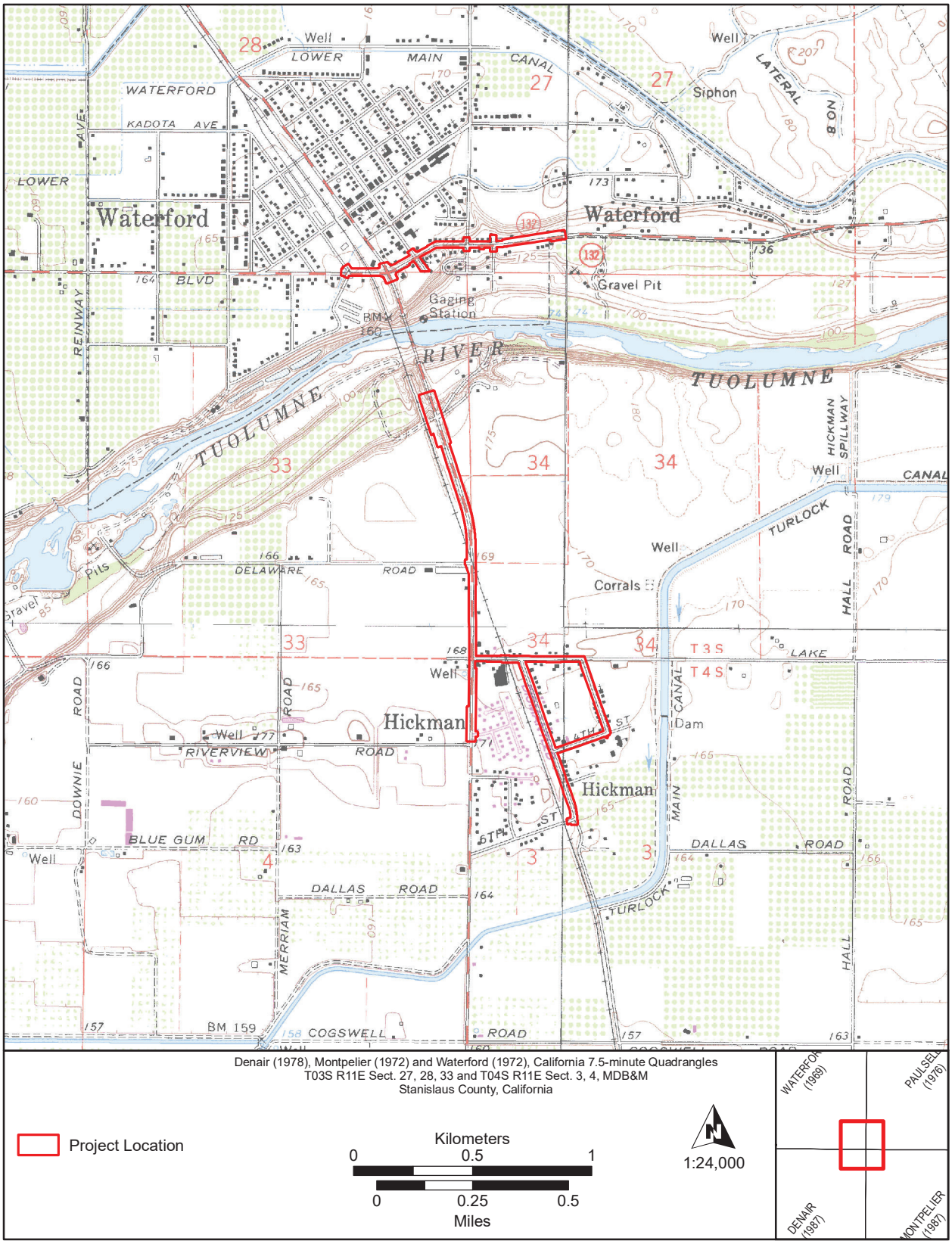

Figure 2. Project Location.

five feet in width in order to replace/install the water lines. The APE also encompasses a public right-of-way, plus a 10-foot buffer at the following locations in Hickman and Waterford (Figures 3 and 4):

Hickman APE

- Approximately 0.93 miles along Hickman Road, heading north from the intersection with Riverview Road;
- Lake Road from Hickman Road to "I" Street;
- "I" Street from Lake Road to 4th Street;
- 4th Street from "I" Street to Montpelier Road; and
- Montpelier Road from Lake Road to 6th Street/Emma Lane.

Waterford APE

- Approximately 0.60 miles along Yosemite Boulevard/State Route 132, heading east from the intersection of "G" Street and Riverside Road, expanding slightly into intersections with "F" Street, Hickman Road, "E" Street, Tim Bell Road, Baker Street, and Appling Road.

REGULATORY SETTING

The regulatory framework that mandates consideration of cultural resources in project planning includes federal, state, and local governments. Cultural resources include precontact and historic-period archaeological sites and objects, as well as extant historic structures, buildings, and locations of important historic events or sites of traditional and/or cultural significance to various groups. Archaeological or architectural resources may be determined significant under national, state, or local criteria. The City of Waterford Public Works Department is the lead non-federal agency, with oversight from the Water Board. The project relies on a Water Board Grant that includes both state and federal funds; therefore, this project requires compliance with California Environmental Quality Act and the National Historic Preservation Act.

State Regulations

California Environmental Quality Act (CEQA)

Under California law, effects to significant cultural resources—archaeological remains, historic-era structures, and traditional cultural properties—must be considered as part of the environmental analysis of a proposed project. Criteria for defining significant cultural resources are stipulated in CEQA (revised 2005). CEQA pertains to all proposed projects that require state or local government agency approval, including the enactment of zoning ordinances, the issuance of conditional use permits, and the approval of development project maps. Under CEQA, the lead non-federal agency (state, county, city, or other) must consider potential impacts from a project to important or unique cultural resources. The CEQA Statutes and Guidelines (Title 14, California Code of Regulations §15064.5) include procedures for identifying, analyzing, and disclosing potential adverse impacts to historical resources, which include all resources listed in or formally determined eligible for the National Register of Historic Places (National Register), the California Register of Historical Resources (California Register), or local registers. CEQA further defines a "historical resource" as a resource that meets any of the following criteria:

Figure 3. Area of Potential Effects – Hickman Road (1 of 10).

Figure 3. Area of Potential Effects – Hickman Road (3 of 10).

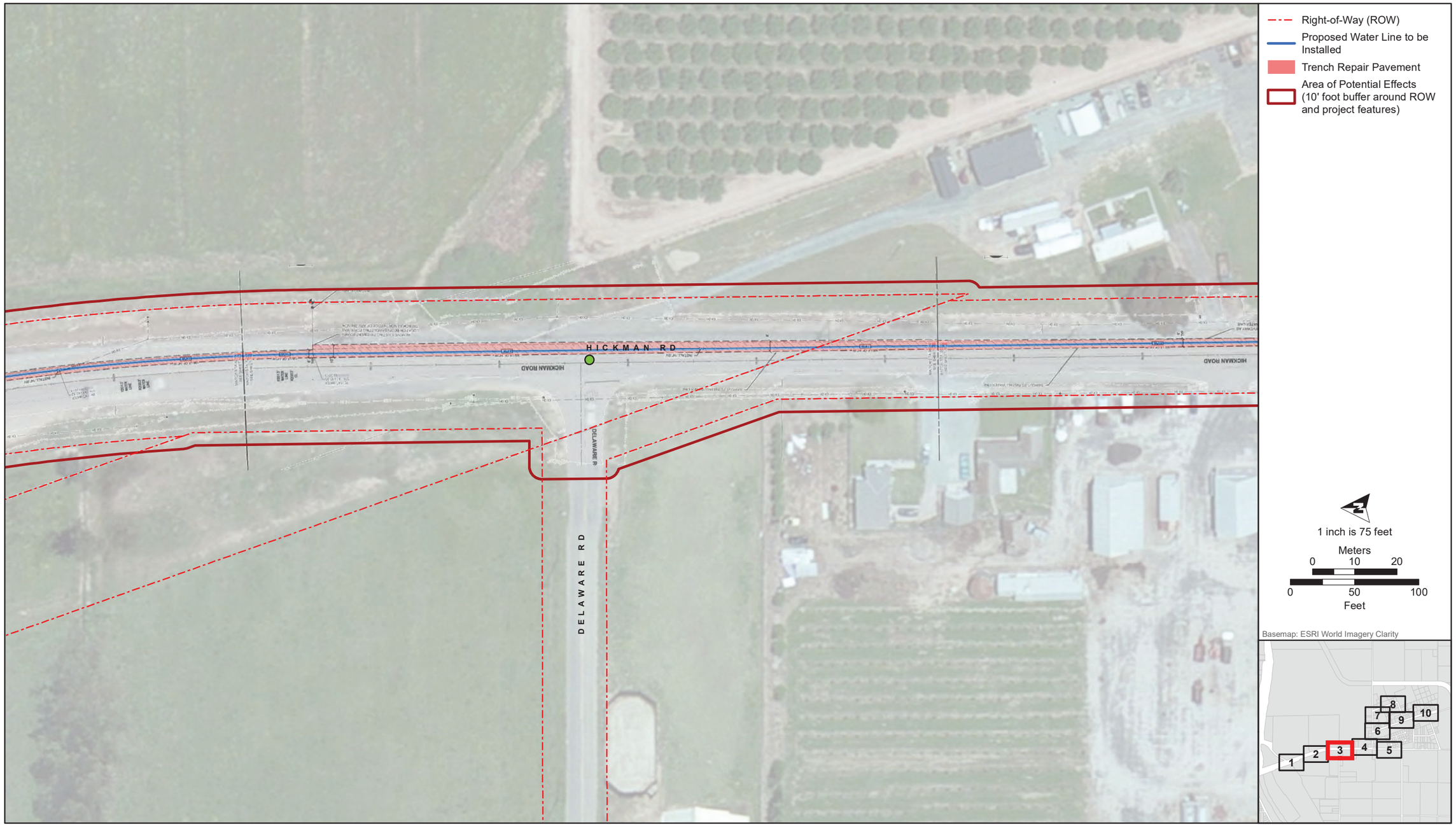

Figure 3. Area of Potential Effects – Hickman Road (4 of 10).

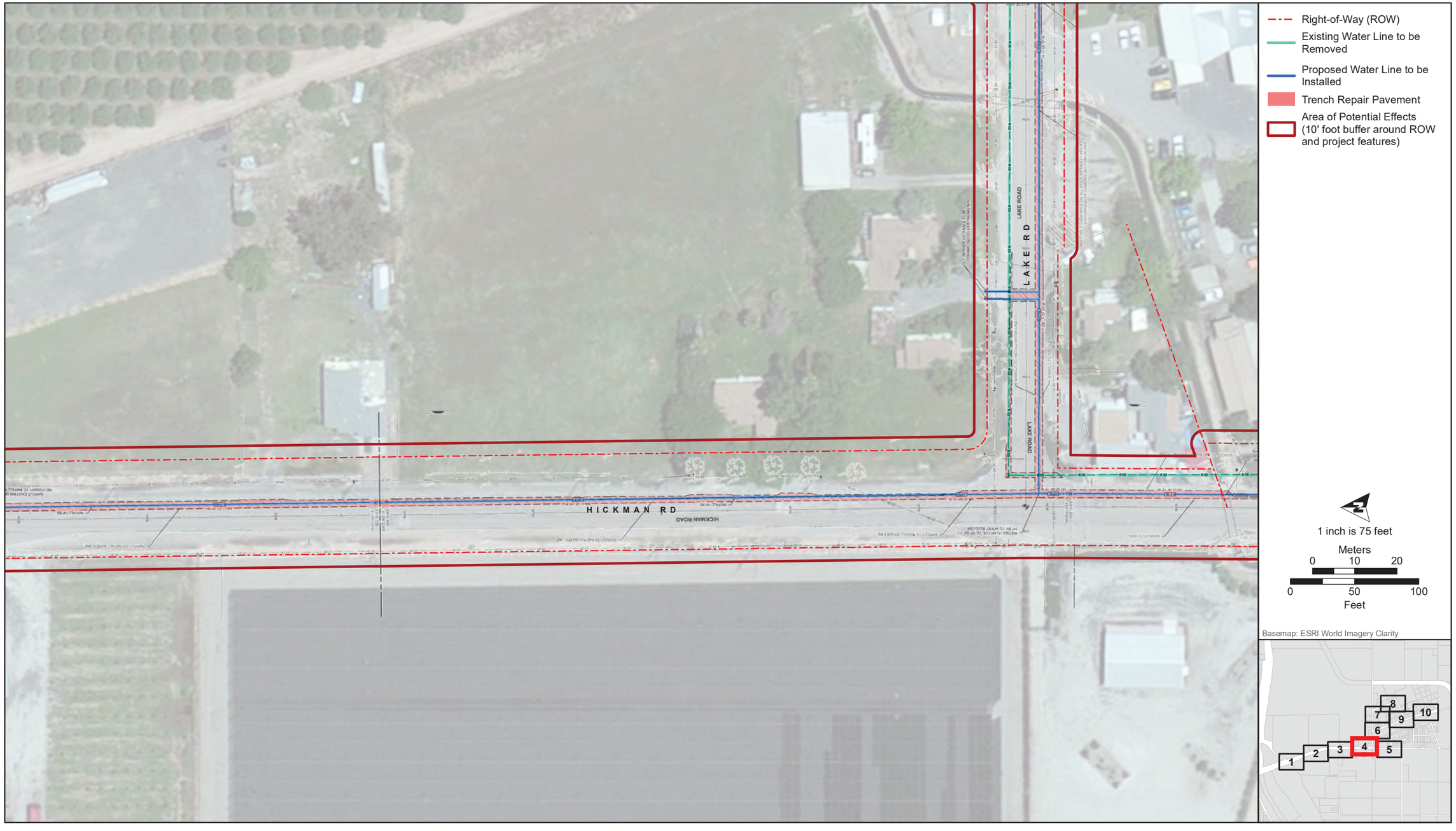

Figure 3. Area of Potential Effects – Hickman Road (5 of 10).

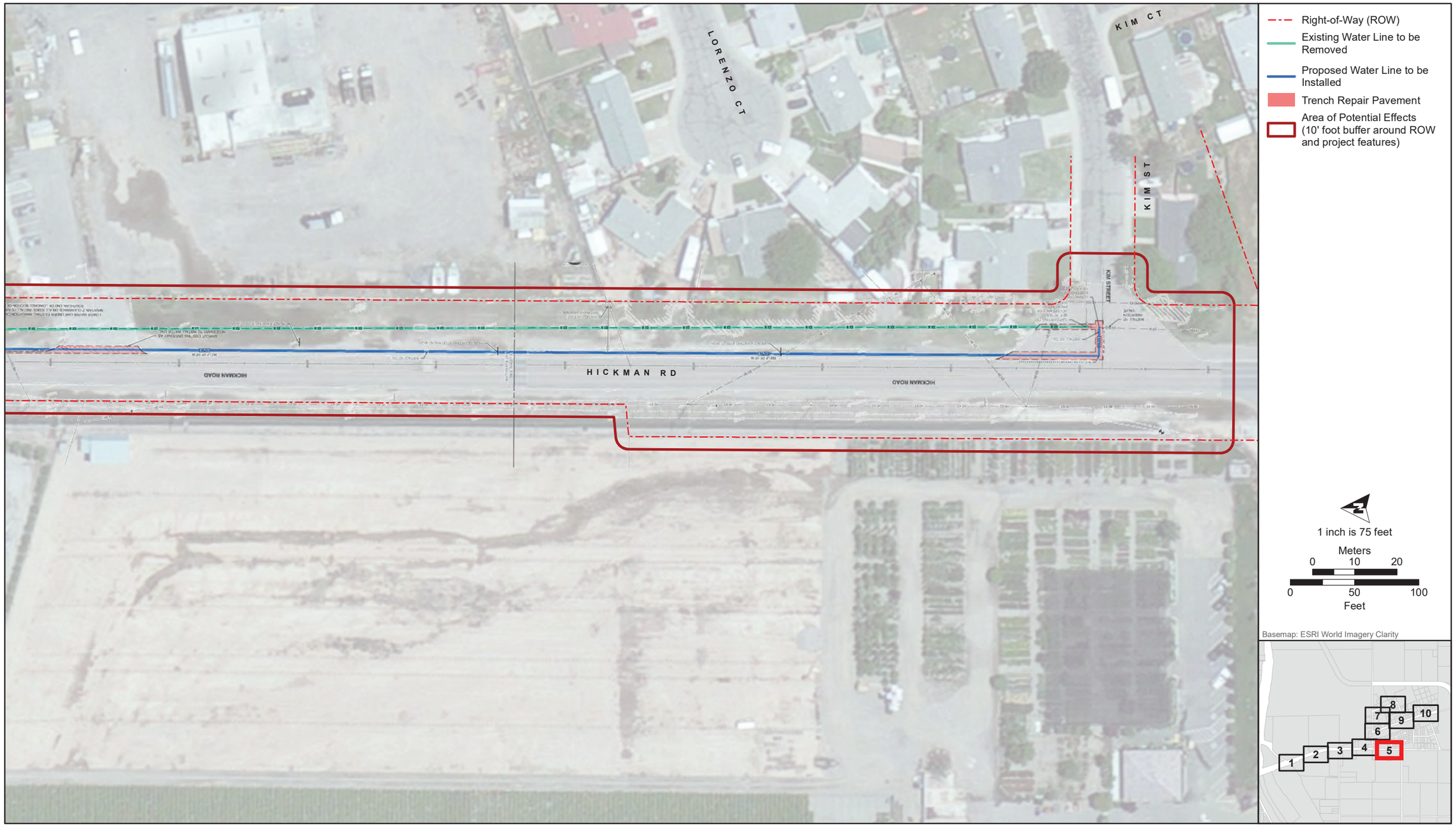

Figure 3. Area of Potential Effects – Hickman Road (6 of 10).

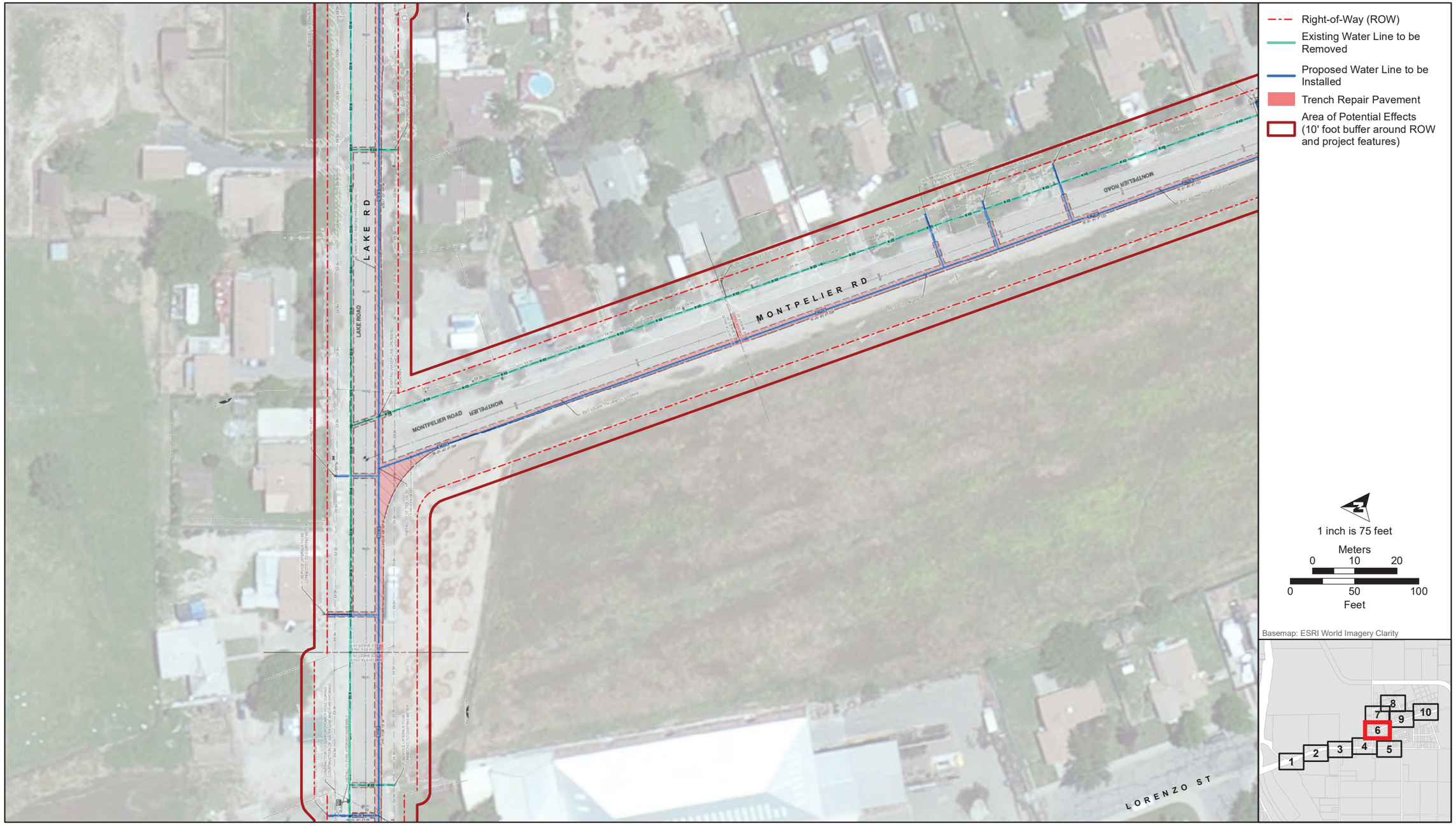

Figure 3. Area of Potential Effects – Hickman Road (7 of 10).

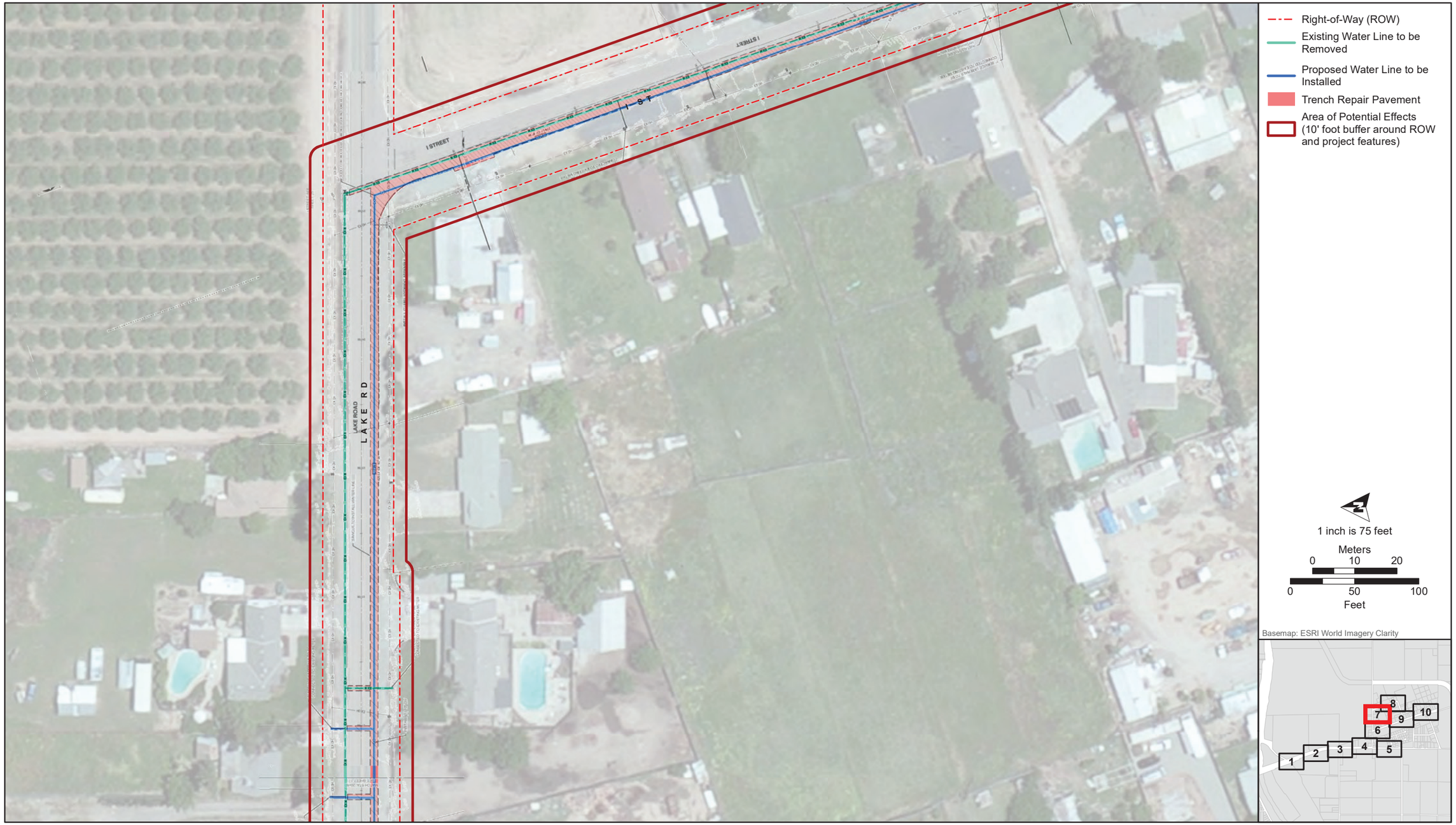

Figure 3. Area of Potential Effects – Hickman Road (8 of 10).

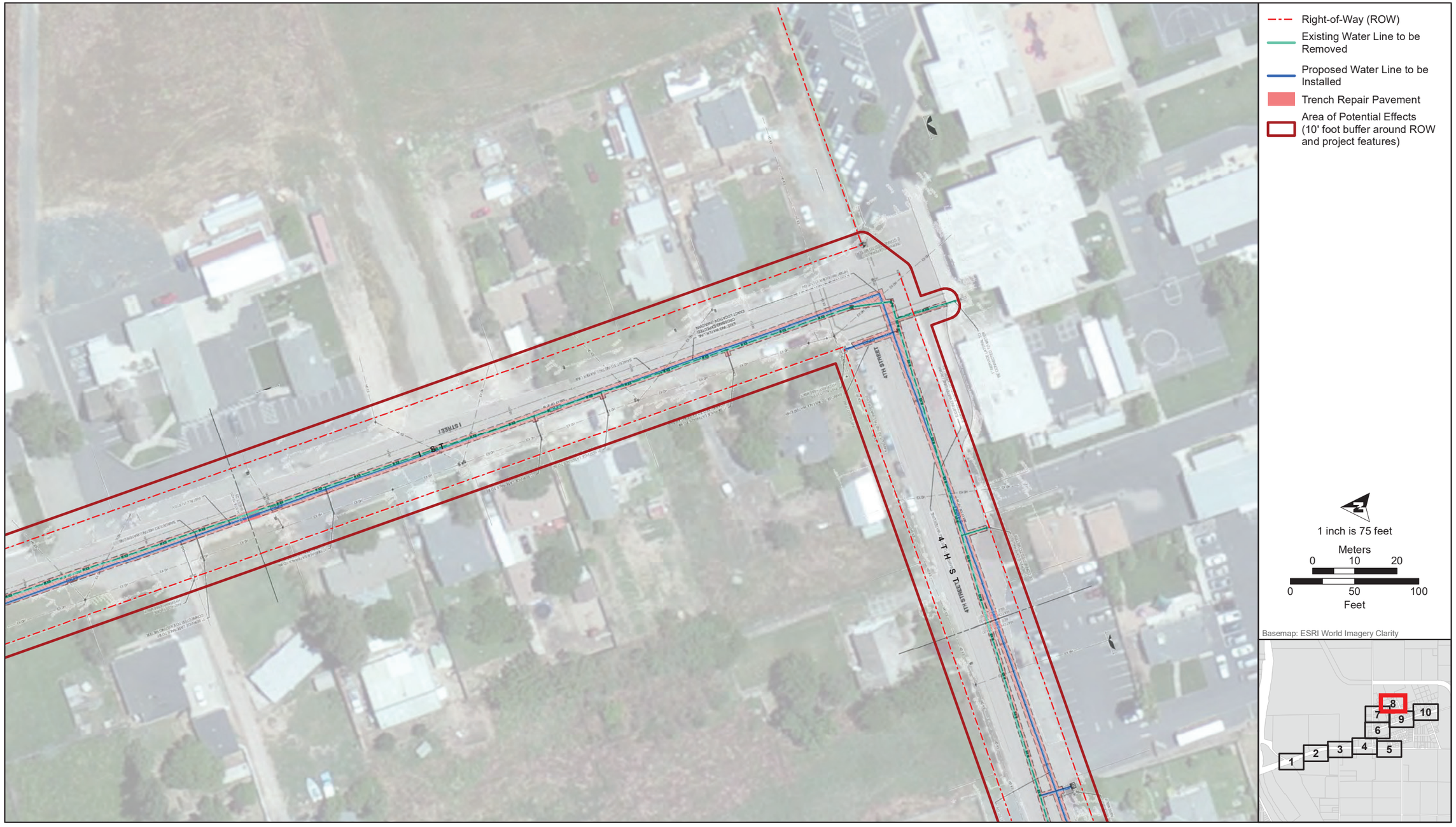

Figure 3. Area of Potential Effects – Hickman Road (9 of 10).

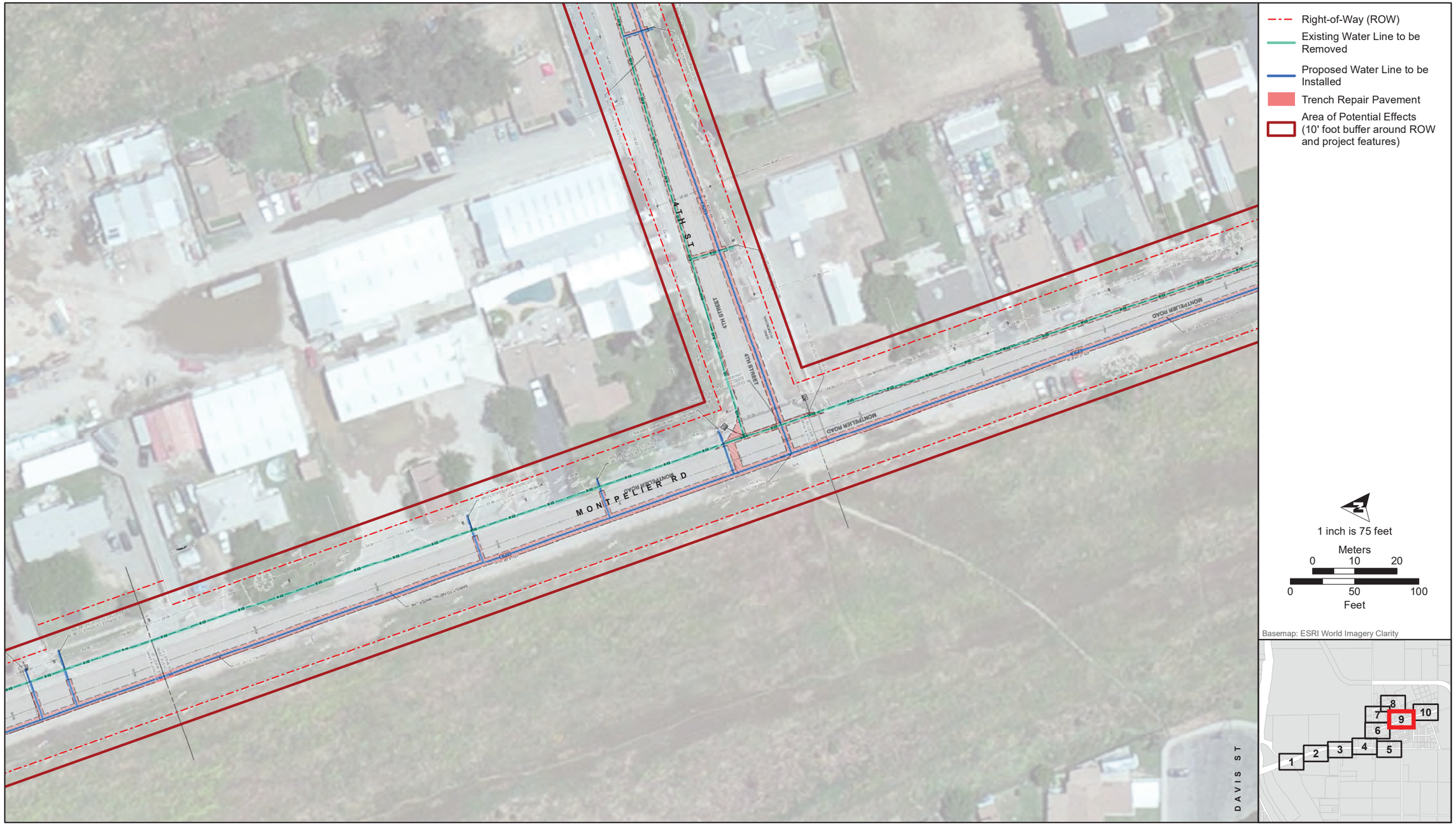

Figure 3. Area of Potential Effects – Hickman Road (10 of 10).

Figure 3. Area of Potential Effects – Hickman Road (2 of 10).

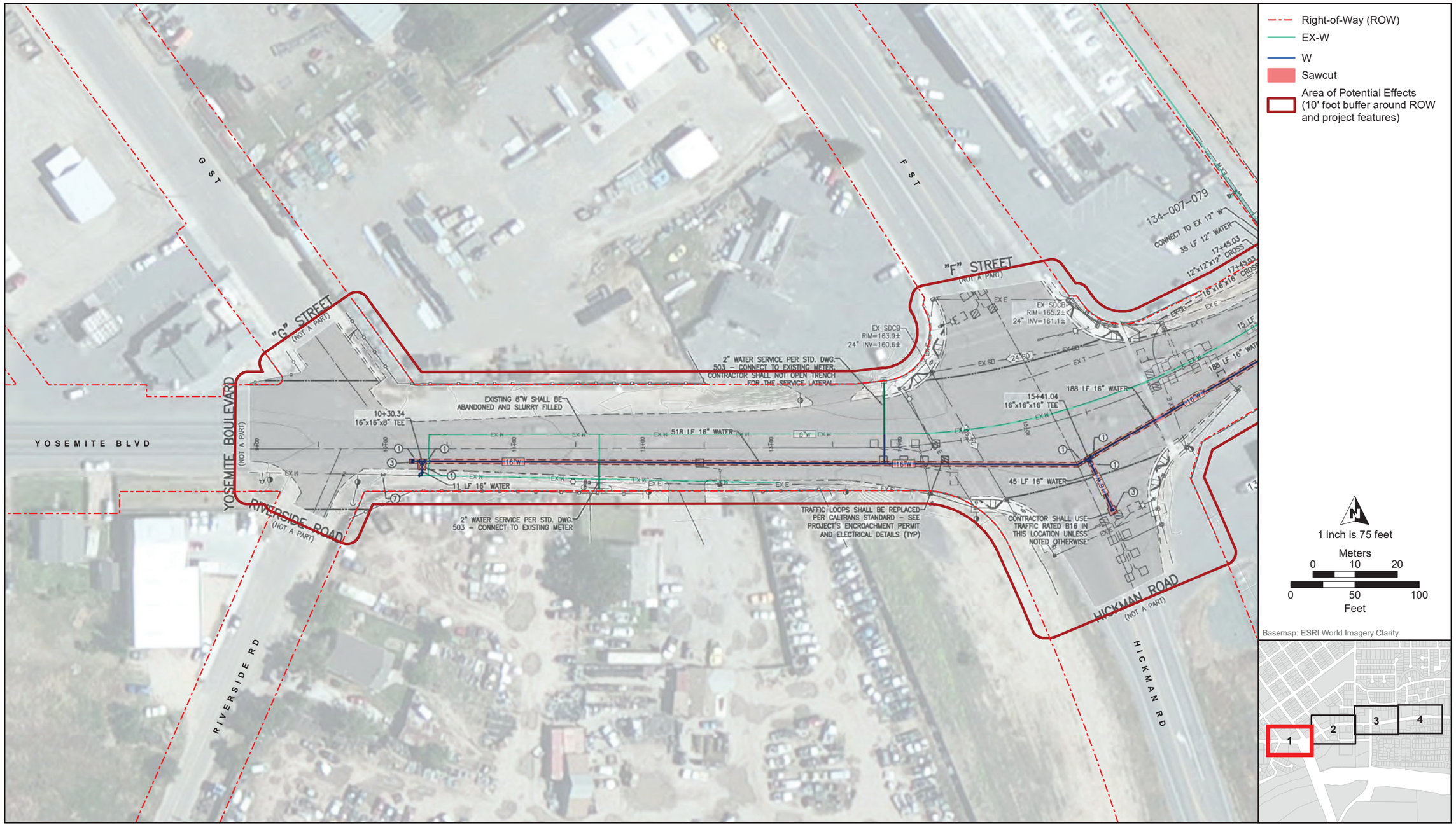

Figure 4. Area of Potential Effects – Yosemite Boulevard/State Route 132 (1 of 4).

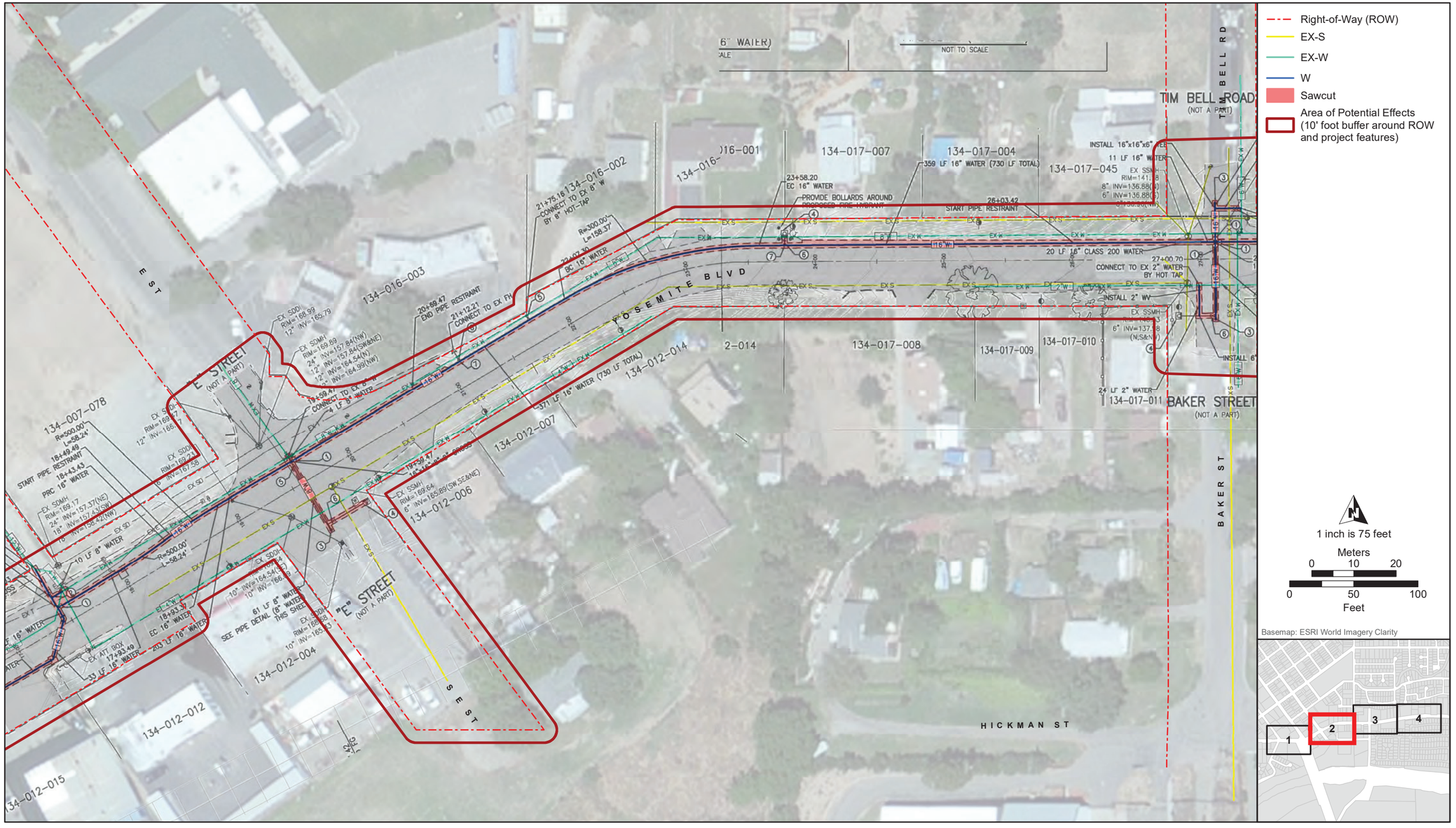

Figure 4. Area of Potential Effects – Yosemite Boulevard/State Route 132 (2 of 4).

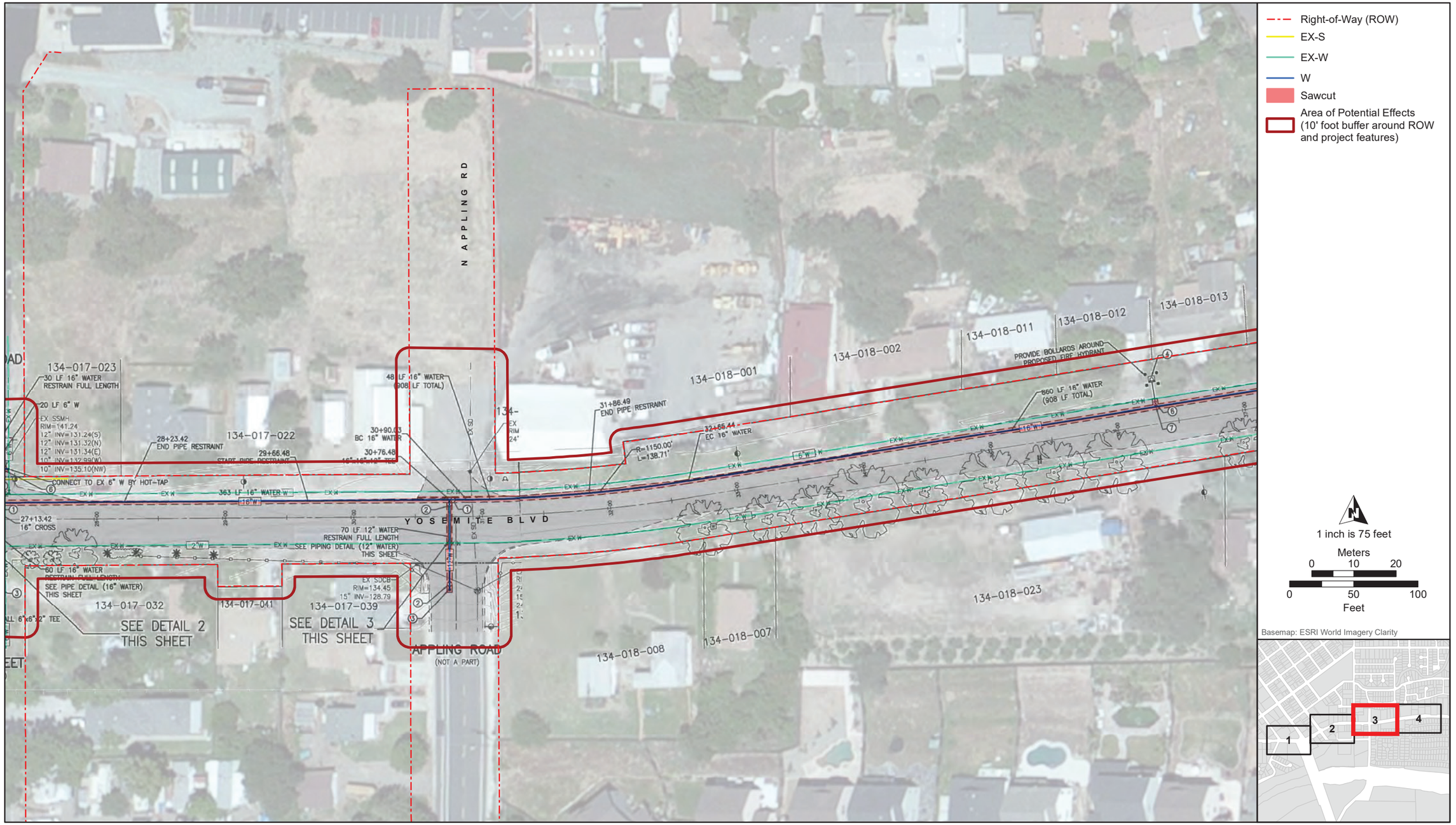

Figure 4. Area of Potential Effects – Yosemite Boulevard/State Route 132 (3 of 4).

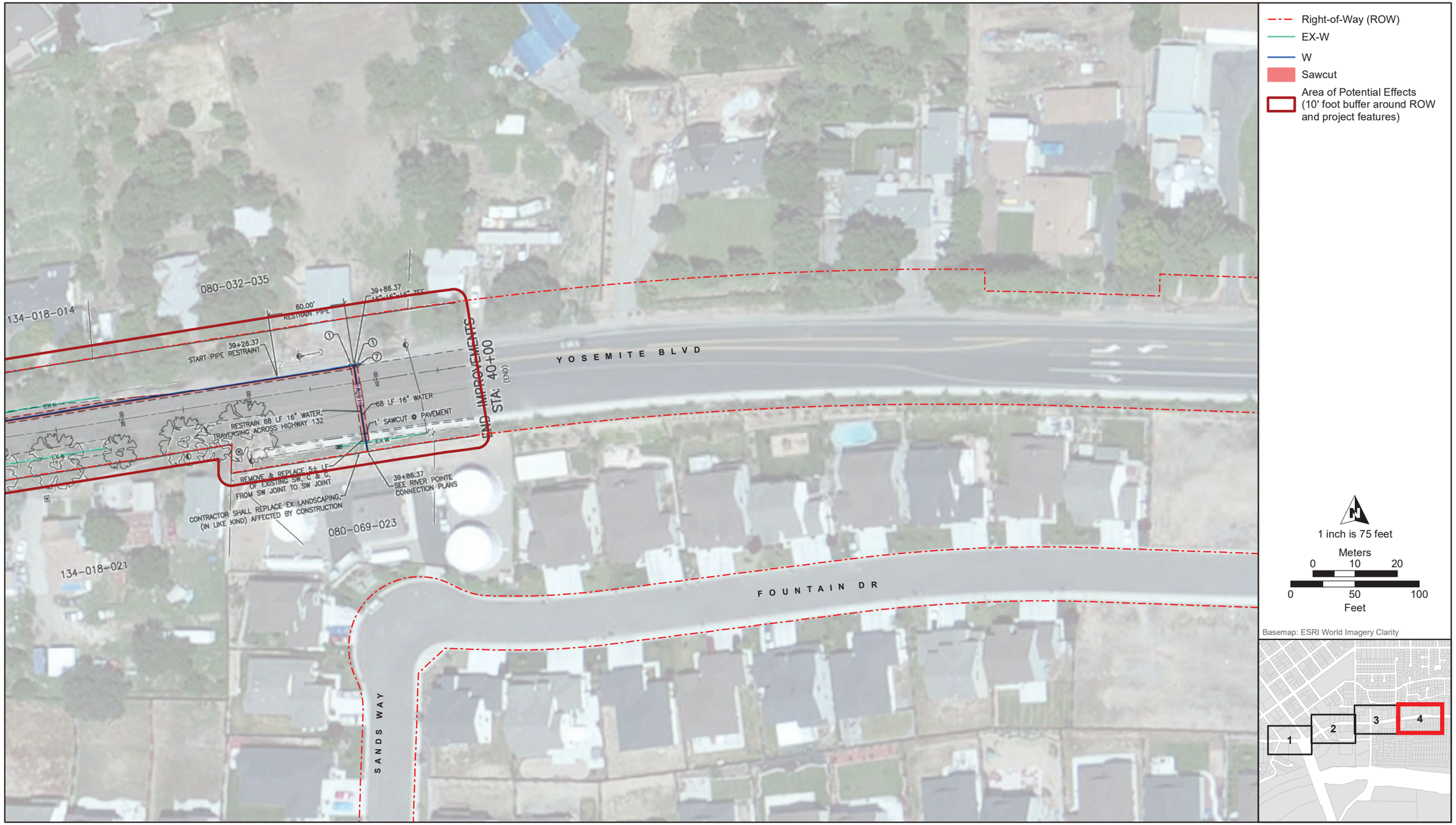

Figure 4. Area of Potential Effects – Yosemite Boulevard/State Route 132 (4 of 4).

- A resource listed in, or determined to be eligible for listing in, the National Register or California Register.
- A resource included in a local register of historical resources, as defined in Section 5020.1(k) of the Public Resources Code (PRC), unless the preponderance of evidence demonstrates that it is not historically or culturally significant.
- A resource identified as significant (rated 1–5) in a historical resource survey meeting the requirements of PRC Section 5024.1(g) Department of Parks and Recreation (DPR) Form 523, unless the preponderance of evidence demonstrates that it is not historically or culturally significant.
- Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California, provided the determination is supported by substantial evidence in light of the whole record. Generally, a resource is considered "historically significant" if it meets the criteria for listing on the California Register.

California Register of Historical Resources Criteria of Evaluation

The California Register is a listing of State of California resources that are significant within the context of California's history, and includes all resources listed in or formally determined eligible for the National Register. The California Register is a statewide program of similar scope to the National Register. In addition, properties designated under municipal or county ordinances are also eligible for listing in the California Register. A historic resource must be significant at the local, state, or national levels under one or more of the following four criteria defined in the California Code of Regulations, Title 14, Chapter 11.5, Section 4850:

1. It is associated with events or patterns of events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States (Criterion 1);
2. It is associated with the lives of persons important to local, California, or national history (Criterion 2);
3. It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of a master, or possesses high artistic values (Criterion 3); or
4. It has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California, or the nation (Criterion 4).

The California Register criteria are similar to the National Register criteria, and are tied to CEQA, as any resource that meets the previously mentioned criteria is considered a historical resource under CEQA.

Assembly Bill 52 (Native Americans: California Environmental Quality Act)

Assembly Bill (AB) 52 amended the California Environmental Quality Act to address California Native American tribal concerns regarding how cultural resources of importance to tribes are treated under CEQA. It now specifies that a project that may cause a substantial adverse change in the significance of a "tribal cultural resource" (as defined in PRC §21074(a)) is a project that may have a significant effect on the environment. According to the AB 52, tribes may have expertise in tribal history and "tribal knowledge about land and tribal cultural resources at issue should be included in environmental assessments for projects that may have a significant impact on those resources."

The AB 52 process entails the following:

- The CEQA lead agency must begin consultation with a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project, if the tribe requested to the lead agency, in writing, to be informed by the lead agency of proposed projects in that geographic area and the tribe requests consultation.
- A proposed Negative Declaration (ND), Mitigated Negative Declaration (MND), or a Draft Environmental Impact Report (EIR) cannot be released for public review before the tribe(s) has had the opportunity to request consultation.
- If the tribe(s) requests formal consultation, a MND cannot be released for public review until consultation between the tribe(s) and the lead agency is completed and mitigation measures acceptable to the tribe(s) are incorporated into the MND and the related Mitigation Monitoring or Reporting Program (MMRP).

AB 52 further defines the following legislative terms:

Tribal Cultural Resource: The passage of AB 52, created a new category of resource called a "tribal cultural resource" (TCR). The statute clearly identifies a TCR as a separate and distinct category of resource, separate from a historical resource. New PRC Section 21074 defines a "tribal cultural resource" as any of the following under its subsections (a) through (c):

(a) (1) Sites, features, places, and objects with cultural value to descendant communities or cultural landscapes that are any of the following:
- Included in the California Register.
- Included in a local register of historical resources as defined in subdivision (k) of Section 5020.1.
- Deemed to be significant pursuant to criteria set forth in subdivision (c) of Section 5024.1.

(2) Sacred places, including, but not limited to, Native American sanctified cemeteries, places of worship, religious or ceremonial sites, or sacred shrines that meet either of the following criteria:
- Listed on the California Native American Heritage Commission's Sacred Lands File pursuant to Section 5097.94 or 5097.96 and a California Native American tribe has submitted sufficient evidence to the lead agency demonstrating that the sacred places are of special religious or cultural significance to the California Native American tribe or contain known graves and cemeteries of California Native Americans.
- Listed or determined pursuant to criteria set forth in subdivision (g) of Section 5024.1 to be eligible for listing in the California Register.

(b) A cultural landscape that meets the criteria of subdivision (a) is a tribal cultural resource to the extent that the landscape is geographically defined in terms of the size and scope of the landscape.

(c) A historical resource described in Section 21084.1, a unique archaeological resource as defined in subdivision (g) of Section 21083.2, or a "nonunique archaeological resource" as defined in subdivision (h) of Section 21083.2 also may be a tribal cultural resource if it conforms with the criteria of subdivision (a).

- **California Native American Tribe**: New PRC Section 21074 defines a "California Native American Tribe" to mean a Native American tribe located in California that is on the contact list maintained by the Native American Heritage Commission (NAHC). This definition is broader than the concept of a "federally recognized tribe" that is typically used in implementing with various federal laws, including the National Environmental Policy Act (NEPA).

- **Formal Tribal Consultation**: Within 14 days of determining that an application for a project is complete or a decision by a public agency to undertake a project, the lead agency shall provide formal notification to the designated contact of, or a tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, which shall be accomplished by means of at least one written notification notice that includes a brief description of the proposed project and its location as well as the lead agency contact information, and a notification statement that the federally recognized California Native American tribe has 30 days to request consultation.
- **Treatment of Mitigation Measures and Alternatives**: New PRC Section 21080.3.2 provides that as part of the consultation process, parties could propose mitigation measures. If the California Native American tribe requests consultation to include project alternatives, mitigation measures, or significant effects, the consultation would be required to cover those topics. New Section 21082.3 provides that any mitigation measures agreed upon during this consultation "shall be recommended for inclusion in the environmental document and in an adopted mitigation monitoring program" if determined to avoid or lessen a significant impact on a tribal cultural resource.

Federal Regulations

The City of Waterford Public Works Department is applying for a Water Board Grant that includes federal funds. As a result, a cultural resources identification investigation was undertaken to identify, record, and evaluate historic properties within the APE in compliance with the NHPA (36 CFR §800). Regulations implementing Section 106 of the NHPA, as amended, require federal agencies to identify historic properties within the APE that may be impacted by their undertakings. The City of Waterford is the lead state agency, triggering compliance with CEQA, which requires that federal and California public agencies consider the effects of undertakings on historic properties. Section 106 guidelines are more stringent, and CEQA guidelines are typically met during the Section 106 process.

National Historic Preservation Act

Section 106 of the NHPA (36 CFR §800) requires that projects undertaken by federal agencies (and/or federally funded projects or projects requiring federal approval) consider the effects of their actions on properties that may be eligible for listing or are listed in the National Register. To determine whether an undertaking could affect National Register-eligible properties, cultural resources (including archaeological and architectural properties) must be inventoried and evaluated for listing in the National Register. Although compliance with Section 106 is the responsibility of the lead federal agency, in this case the US Army Corps of Engineers, others may undertake the work necessary to comply with Section 106. The Section 106 process entails four primary steps, listed below:

1. Initiation of consultation with consulting parties (36 CFR §800.3).
2. Identification and evaluation of historic properties within the APE (36 CFR §800.4).
3. Assessment of adverse effects on historic properties within the APE (36 CFR §800.5).
   - If there are historic properties that will be affected, consult with the California State Historic Preservation Officer (SHPO) regarding adverse effects on historic properties.
   - If there are no historic properties that will be affected, implementation of the project in accordance with the findings of no adverse effect shall proceed (36 CFR 36 §800.5[d][1]).
4. Resolution of adverse effects and proceeds in accordance with the Memorandum of Agreement (MOA), if determined appropriate (36 CFR §800.6).

National Register of Historic Places Criteria for Evaluation

The significance of cultural resources is determined using the National Register's four Criteria for Evaluation (Criteria A–D) at 36 CFR §60.4, which states that a historic property is any site, building, structure, or object that:

A. Is associated with events that made a significant contribution to the broad patterns of our history (Criterion A);
B. Is associated with the lives of persons significant to our past (Criterion B);
C. Embodies the distinctive characteristics of a type, period, or method of construction, or that represents the work of a master, or that possesses high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction (Criterion C); and/or,
D. Has yielded, or may be likely to yield, information important in prehistory or history (Criterion D).

If the SHPO determines that a cultural resource is eligible for inclusion to the National Register, then it is automatically eligible for the California Register. If a resource does not have the level of integrity necessitated by the National Register, it may still be eligible for the California Register, which allows for a lower level of integrity.

National Register of Historic Places Seven Aspects of Integrity

Cultural resources integrity is determined using the National Register's seven aspects of integrity at 36 CFR §60.4, which state that a historic property must not only be shown to be significant under the National Register criteria, but it also must retain historic integrity. The seven aspects of integrity include location, design, setting, materials, workmanship, feeling, and association. A property must meet one or more of the Criteria for Evaluation before a determination can be made about its integrity.

2 – REGIONAL CONTEXT

ENVIRONMENT

The APE is located along the Tuolumne River in the City of Waterford and Town of Hickman, California. The APE lies within the northern portion of the San Joaquin Valley, itself the central aspect of California's Great Central Valley (see Figure 1). The San Joaquin Valley is a large structural trough (syncline) located between the Sierra Nevada on the east and the Coast Ranges on the west. The San Joaquin Valley trough is partly filled by a thick sequence—up to 9.6 kilometers (6 miles) thick—of alluvial deposits that ranges from Late Mesozoic to Historic Period in age.

Summer days in the San Joaquin Valley often exceed 100 °F (37.8 °C); maximum average temperatures in June and July range between about 86 and 97 °F (30 and 36.1 °C). Along the northern end of the valley, prevailing westerly winds push moisture-laden marine air through the Carquinez Strait, moderating the seasonal temperatures (Reed and Romito 1992). In the winter (December to January), maximum average temperatures range between 53 and 56 °F (11.6 and 13.3 °C). More than 50 percent of annual rainfall occurs in December, January, and February. The dry summer months of June, July, and August receive only about one percent of average annual rainfall, typically originating from periodic thunderstorms.

San Joaquin Valley Marshes, Forests, and Prairie

The northern portion of the San Joaquin Valley is distinguished by the extensive wetlands of the Sacramento-San Joaquin Delta. This habitat provided abundant subsistence resources to the region's Native inhabitants, including plant foods, fish, water-birds, and terrestrial animals. In its pre-developed state, the Delta consisted of a sinuous mosaic of interconnected sloughs, overflow lakes, natural levees, and subtidal islands covered by freshwater tule marsh (Atwater 1980; Shlemon and Begg 1975; West 1977). The *tulares* (a name given to the freshwater marshes of the San Joaquin Valley by early Spanish explorers) extended south from the delta in a narrow strip along the San Joaquin River, then forming a broad tract surrounding the many sloughs and overflow channels of the low-lying basin near what is now Los Banos in central Merced County. Aquatic plants grew in areas of deeper, permanent water, such as oxbows in the delta and along the San Joaquin River. Trees were common on natural levees (West 1977). In the winter and spring, high river flows inundated much of the delta with fresh water, while during the late summer and fall, reduced fresh water flows commonly resulted in saltwater intrusion as far inland as Stockton (Shlemon and Begg 1975; West 1977).

Most of the major rivers draining the Sierra Nevada, including the Tuolumne, were largely or partially flanked by broad gallery forests extending from 30 to 200 meters (98 to 656 feet) wide on either side of the waterway (Burcham 1982). Riparian forests found on natural levees and low terraces along the middle and lower reaches of these rivers often formed dense, multi-tiered canopies of primarily deciduous species. On the levees and younger floodplains adjacent to the gallery forest, oak woodlands formed uniform tracts up to three to five kilometers (0.9 to 3.9 miles) wide, consisting almost exclusively of valley oak. Although the oak woodlands often created a dense canopy, the underlying savanna was open, carpeted by native bunch and annual grasses (Griffin 1977; West 1977).

The riparian river corridor through the San Joaquin Valley has been substantially modified by agricultural activities for over a century. Prior to historic-era disturbance, vegetation of the corridor probably consisted of an overstory of cottonwood (*Populus* spp.), willow (*Salix* spp.), sycamore (*Platanus* racemosa), box elder (*Acer negundo* var. *californicum*), alder (*Alnus* spp.), and occasionally valley oak (Quercus lobata). Understory plants would have included mulefat (*Baccharis salicifolia*), blackberry (*Rubus ursinus*), nettles (*Urtica* spp.), elderberry (*Sambucus mexicana*), and perhaps poison oak (*Toxicodendron*

diversilobum) (Griffin and Critchfield 1976; Küchler 1977). While these species are still present today, many stretches of the Tuolumne River are now flanked by urban development and/or agricultural fields. These landscape changes have altered the riparian vegetation and introduced multiple invasive species including, most commonly, giant reed (*Arundo donax*), tree of heaven (*Ailanthus altissima*), tree tobacco (*Nicotiana glauca*), Himalayan blackberry *(Rubus armeniacus*), eucalyptus (*Eucalyptus globulus*), English walnut (*Juglans regia*), and edible fig (*Ficus carica*) (Stillwater Sciences 2013).

San Joaquin Valley Fauna

Prominent among the many mammals native to the San Joaquin Valley were three species of ungulate: tule elk (*Cervus canadensis nannodes*), pronghorn (*Antilocapra Americana*), and black-tailed deer (*Odocoileus hemionus*). Early historical accounts indicate that elk were common in all habitats on the valley floor (Schulz 1981). Grizzly *(Ursus arctos horribilis*) and black bears (*Ursus americanus*) were once common throughout the San Joaquin Valley. Puma (*Puma concolor*), gray fox (*Urocyon cinereoargenteus*), bobcat (*Lynx rufus*), and coyote (*Canis latrans*) were the principle carnivores, along with badger (*Taxidea taxus*), spotted skunk (*Spilogale gracilis*), and striped skunk (*Mephitis mephitis*), all of which could have been found in a variety of valley habitats. Marsh grassland and riparian habitats were home to resident waterfowl such as duck (Anatidae), coot (*Fulica*), cormorant (Phalacrocoracidae), grebes (Podicipedidae), herons and egrets (Ardeidae), cranes (Gruidae), and gulls (Laridae). These species were joined between about November and February by enormous flocks of waterfowl migrating along the Pacific Flyway, including several species of ducks, geese, and swans (*Cygnus*). Diverse terrestrial avifauna were also present in the valley composed primarily of hawks and eagles (Accipitridae), dove (Columbidae), quail (*Callipepla californica*), flicker (*Colaptes auratus*), woodpeckers (Picidae), owls (Strigidae), and turkey vultures (*Cathartes aura*).

Open channels and lentic habitats of the northern San Joaquin Valley delta and river system each supported different types of fish. In the open fast-moving waters of rivers and larger streams were found Chinook salmon (*Oncorhynchus tshawytscha*), sturgeon (*Acipenser*), steelhead trout (*Oncorhynchus mykiss*), and lamprey (*Petromyzontiformes*). Resident hardhead (*Mylopharodon conocephalus*), Sacramento sucker (*Catostomus occidentalis*), and western pike-minnow (*Ptychocheilus grandis*) were common in both fast- and slow-water habitats, while the calmer waters of the delta and rivers were home to splittail (*Pogonichthys macrolepidotus*), hitch (*Lavinia exilicauda*), thicktail chub (*Gila crassicauda*), Sacramento blackfish (*Orthodon microlepidotus*), Sacramento perch (*Archoplites interruptus*), and tule perch (*Hysterocarpus traskii*). Aquatic environments also supported pond turtle (*Actinemys marmorata*) and populations of freshwater mussel (*Anodonta*).

PREHISTORIC CONTEXT

In general terms, this section describes broad patterns in the precontact history of the Central Valley. Overall, the limited archeological studies that have been conducted in the north/central San Joaquin Valley have contributed little to chronological understandings. Therefore, archaeologists working in this area have been forced to draw on chronologies constructed for the broader Central Valley, as presented in the following pages.

Paleoindian Period (13,200–11,500 cal BP)

The earliest material clue of human occupation in the Central Valley comes from eccentric crescents and basally thinned and "fluted" projectile points found at scattered locations in the San Joaquin Valley. Most similar to Clovis points, these distinctive projectiles have been well-dated elsewhere in North America to a brief interval between about 13,500 and 11,500 calibrated years before present (cal BP; Fiedel 1999).

The first fluted point reported from the Central Valley was collected in San Joaquin County near Tracy Lake on the eastern side of the modern Delta (Heizer 1938). An eccentric crescent was later discovered at this same locality (Beck 1971). On the west side of the San Joaquin Valley near Hills Ferry, Peak and Weber (1978) identified two Clovis-like projectile points and an eccentric crescent at the Woolfsen Mound (CA-MER-213), a site containing predominantly late Holocene material. At the far southern end of the San Joaquin Valley in the Tulare Basin, Clovis-like points have been found in large numbers in and around the Witt Site (KIN-32) on the southwestern shore of Tulare Lake (Hopkins and Garfinkel 2008; Riddell and Olsen 1969; Wallace and Riddell 1991). This locality has produced the largest collection of basally thinned, concave-based points in California, with as many as 200 specimens reported (Dillon 2002; Hopkins 1991:34).

Lower Archaic Period (11,500–7000 cal BP)

Well-preserved Lower Archaic archaeological deposits are rare in the Central Valley. Milling tools are one of the most commonly reported artifact classes from Lower Archaic sites on the fringes of the Central Valley (La Jeunesse and Pryor 1996a; Meyer and Rosenthal 1997; Peak and Crew 1990) and elsewhere in central California. Exclusive use of handstones and millingslabs along with a number of other cobble-based pounding, chopping, and scraping tools are characteristic of assemblages from this time period. Beginning as early as 10,500 cal BP, this assemblage of expedient tools becomes the predominant extractive and processing technology employed from coastal California to the uplands of the North Coast Ranges and Sierra Nevada (Fitzgerald and Hildebrandt 2001; Fitzgerald and Jones 1999; Hildebrandt 1983; Jones et al. 2002; La Jeunesse and Pryor 1996a, 1996b; Meyer and Rosenthal 1997; White et al. 2002).

Often characterized by dense accumulations of milling tools (i.e., handstones and millingslabs), these so-called "millingstone" sites appear to represent frequently re-used encampments, part of a mobile, yet seasonally structured settlement system (Basgall and True 1985; McGuire and Hildebrandt 1994; Moratto 2002; Rosenthal and McGuire 2004). In central California, nut crops associated with expanding woodlands may have been the primary focus of seasonal plant exploitation and not simply small seeds, as is commonly believed (cf. Basgall 1987; McGuire and Hildebrandt 1994; Rosenthal and McGuire 2004). Lower Archaic assemblages from central California are also often found to contain large broad-stemmed projectile or spear points.

Middle Archaic Period (7000–2500 cal BP)

Like evidence for Lower Archaic occupation, well substantiated cultural deposits assignable to the Middle Archaic (circa 7000 to 3000 cal BP) are rare in the Central Valley. In the southern delta, the archetypical Middle Archaic tradition is that of the Windmiller culture, dated as early as 5000 cal BP. Originally termed the "Early Horizon" (Heizer and Fenenga 1939), Windmiller deposits were first recognized from a handful of sites located at the confluence of the Mokelumne and Cosumnes Rivers. These settlements are found on levee ridges adjacent to what would have been emerging freshwater marshes and well-watered riparian settings in the lowlands.

As early as 5000 cal BP, use of the mortar and pestle is first apparent in the lowlands of the Central Valley, particularly in marsh-side and riparian settings (Meyer and Rosenthal 1997; Ragir 1972; Rosenthal and McGuire 2004). Various lines of evidence suggest that the shift to mortars and pestles accompanied more intensive subsistence practices and increased residential stability (Basgall 1987). The exchange of commodities such as obsidian, shell beads and ornaments, and perhaps other perishable items, was well established by the late Middle Archaic.

Upper Archaic Period (2500–930 cal BP)

Evidence for Upper Archaic human occupation in the Central Valley is extensive, particularly for the last 2,000 years. Perhaps as a result of greater temporal resolution and a much larger archaeological record, economic, technological, and socio-cultural developments are much better understood for the Upper Archaic than for preceding time periods. Cultural diversity that is first apparent in the Middle Archaic becomes much more pronounced in the Upper Archaic, as evidenced by a complex mosaic of distinct socio-political entities marked by contrasting burial postures, artifact styles, and other material culture elements (Bennyhoff and Fredrickson 1994; Rosenthal 1996).

Throughout Central California, the Upper Archaic witnessed the development and proliferation of many specialized technologies, including new types of bone tools including harpoons, shaft wrenches, and awls. Mortars and pestles were predominantly or exclusively used in the lowlands of the Central Valley, in conjunction with an increased focus on processing acorns (Wohlgemuth 1996). Most residential sites dating to the Upper Archaic include large quantities of fish bone and fishing implements, as well as a diverse assortment of mammal and bird remains. Well-defined exchange relationships are evident throughout Central California during the Upper Archaic.

Emergent Period (930–150 cal BP)

A wholesale shift in material culture is evident after about 900 years ago, marking the beginning of the Emergent or Late Prehistoric Period in the San Joaquin Valley and southern Delta region. Two subperiods are typically recognized within the Emergent Period: Phase 1 and Phase 2. The latter period represents the onset of cultural traditions most resembling those existing at the time of European contact. In addition to the distinctive big-head effigy ornaments and other decorative items (e.g., collared stone pipes, ear spools, and incised bird-bone whistles) introduced at the beginning of the Emergent Period, the most unique arrow point style in California, the Stockton Serrated point, was developed in the northern San Joaquin Valley or adjacent regions to the west during this period.

During the Emergent Period, large mound villages were established every few miles along the San Joaquin River and major tributaries. Fishing may have become a significant component of the native economy during this time, as fish bone and other fishing equipment are common in these sites, including several types of spears and harpoons, bone fishhooks, and gorge hooks. Mortars and pestles were used almost exclusively during the Emergent Period, and there is substantial archaeobotanical evidence suggesting that small seeds, in addition to acorn, were among the primary plant foods. Most residential sites dating to this time period also include high quantities of large and small mammal bone, as well as abundant remains of water birds.

ETHNOHISTORICAL CONTEXT

Historically, the Central Valley was home to no fewer than seven Native California ethnic groups, all related to a single linguistic superfamily—Penutian. It has been estimated that slightly more than 100,000 people lived in the Central Valley when Europeans first ventured into the basin about AD 1772 (Cook 1955, 1976; Moratto 1984:171). If this projection is correct, the valley alone was home to almost one third of the entire state's estimated precontact Native population (Cook 1955, 1976).

At the time of European contact, almost the entire San Joaquin Valley, including the APE, was held by the Yokuts; only the region immediately east and south of the delta was outside Yokuts territory, controlled instead by the Plains Miwok. At least 50 separate Yokuts groups lived in the San Joaquin Valley and adjacent Sierra Nevada foothills, each having a distinct name, dialect, and territory (Latta 1949). As Moratto (1984:173) points out, the Yokuts may have been the largest ethnic group in California with an

estimated precontact population approaching 41,000 people (Cook 1955). According to Milliken (2006), the project area falls within the territory of the *Sunomna* community of Yokuts, who lived along the Tuolumne River near the modern town of Waterford. A post-contact population estimate has not been calculated for the *Sunomna*, but Milliken (2006) estimates a post-contact population density of 4.74 persons per square mile, one of the higher population densities in the northern part of the San Joaquin Valley, for the neighboring *Tauhalamne* to the west, in the modern city of Modesto. The *Sunomna* and other Northern Valley Yokuts communities were subjected to early and extensive missionization and European contact during the Spanish, Mexican, and early American Periods. As a result, there is very little documentation regarding the traditional lifeways of these Native American communities (Wallace 1978).

Settlement and Political Organization

Traditionally, the Yokuts were organized into small, independent political groups referred to as tribelets. Each tribelet was controlled by a single headman and included a single principal settlement, occasionally with smaller associated hamlets. It was the primary task of the headman to organize ceremonies, mediate disputes, implement punishment for anti-social behavior, authorize exchange and food collecting expeditions, and assist the needy (Wallace 1978).

The principal village in a Yokuts community was home to the headman, his family, and as many as 250 to 300 community members. These settlements were typically located on an elevated levee ridge in the valley bottom or along a major tributary stream outside the active floodplain of the San Joaquin River. Wallace (1978) suggests that most settlements were situated east of the river, as the arid plains fringing the Coast Ranges were relatively unproductive. In contrast, the marshes, sloughs, and forests to the east contained a variety of economically important plant foods, fish, water birds, and terrestrial animals.

Yokuts houses were typically simple frame structures covered by tule mats. Single-family dwellings constructed in this manner appear to have been the norm among the Northern Valley groups, whereas, Southern Valley groups typically built large communal houses, providing shelter to as many as 10 families (Wallace 1978). Simple shade structures were also common in Yokuts settlements, constructed with a wooden framework covered by matting. Sweat houses were an important social and ceremonial structure present in all principal Yokuts villages. Sweat-houses were substantial, semi-subterranean, and earth-covered constructions.

Subsistence and Technology

Fishing was an important economic activity carried out by the Yokuts with nets and other devices, often from well-made tule boats. Salmon may have been among the most valued species captured by the Northern Valley Yokuts, but sturgeon and various resident fishes were probably as economically significant. Fish were often dried for later use, as was deer, elk, and pronghorn meat. Various water birds, which arrived in great abundance during the fall and winter, were also an important food source, probably second only to fish (Wallace 1978:464). These species were captured in nets, often with the help of decoys fashioned from tule stalks. Domestic dogs were kept by the Yokuts and probably also served as a source of food. Rabbits and pronghorn were hunted in communal drives, while deer and elk were hunted individually. Other small mammals were trapped or snared. Plant foods included acorns and other nut crops collected from dryer areas away from the river, as well as numerous types of small seeds, bulbs, roots, and greens. These foods were collected and stored in various kinds of baskets.

Historic Period Disruption

The Northern Valley Yokuts were among the first native groups encountered by Spanish expeditions venturing inland from the coast. As early as 1776, Lieutenant-Colonel Juan Bautista de Anza led

a party from Monterey Bay into the San Joaquin Valley after exploring the edges of San Francisco Bay. Anza's party followed the western edge of the Delta until a point near modern day Altamont Pass, where they headed inland via the Livermore Valley (Schenck 1926). Between 1776 and 1796, the Spanish established mission outposts and military settlements throughout the Coast Range valleys as far north as San Francisco. During that same period, at least two more Spanish expeditions passed through or near the *Tauhalamne* territory on their way up the San Joaquin River (Schenck 1926). These European distributions forced most Yokuts groups to leave their homeland for the Missions. Today, the Northern San Joaquin Valley is home to at least six Native American Tribes, which include the California Valley Miwok Tribe; the California Valley Miwok Tribe- Sheep Ranch Rancheria of Me-Wuk Indians; the North Valley Yokuts Tribe; the Southern Sierra Miwuk Nation; the Tule River Indian Tribe; and the Tuolumne Band of Me-Wuk Indians.

HISTORICAL CONTEXT

Exploration of the San Joaquin Valley

Spanish/Mexican Eras

During the Spanish and Mexican Periods of California history, colonial settlement was concentrated along the coast from San Diego to Sonoma. From these frontier outposts, explorers pushed into the unmapped interior. The first expedition into the San Joaquin Valley was led by Pedro Fages in 1772 who sought a new overland route between San Diego and Monterey. Fages traveled east from the coastline near present-day San Diego, turned north, and crossed the Tehachapi Mountains at Tejon Pass, thereby entering into the southern San Joaquin Valley. He proceeded in a northwesterly direction passing by Lake Buena Vista in present-day Kern County and crossing the Coast Ranges en route to the site of the new mission at San Luis Obispo.

Fages' initial overland route was south of the APE, but it provided the foundation for subsequent expeditions into the San Joaquin Valley for the next 30 years (Beck and Haase 1974; Hayes 2007). Gabriel Moraga carried out more extensive expeditions in 1806, traveling from Mission San Juan Bautista into the interior, scouting for new mission sites. Moraga and his party of 25 soldiers crossed the San Joaquin River near the present-day boundary between Merced and Fresno Counties and continued north as far as the Mokelumne River, which Moraga named at this time. Their return route skirted the east side of the valley to Tejon Pass. Moraga visited San Joaquin Valley again in 1808, this time from San Jose. On this expedition he crossed the San Joaquin River north of the APE and went as far south as the Merced River. In 1811, Father Ramon Abella embarked on an excursion up the San Joaquin River into present-day San Joaquin County. Led by Juan Ortega and Jose Pico, the military expedition left Monterey and passed through the area on the west side of the San Joaquin River in the vicinity of Firebaugh en route to the southern end of the valley in 1815 as part of the first expedition sent into the interior to return neophytes who had escaped from Mission San Miguel. This expedition engaged a group of Indians near the confluence of Fresno Slough and the San Joaquin River (Beck and Haase 1974; Clough and Secrest 1984; Hayes 2007).

By the beginning of the Mexican Period of political control over Alta California in the 1820s, the objective of inland expeditions changed from scouting new mission sites to punitive forays against the San Joaquin Valley Indians, primarily Miwoks and Yokuts. These Indians groups had engaged in sorties on missions, towns, and ranchos from San Jose to San Buenaventura to steal livestock for food and transportation since the early 1800s. By 1835, the inland tribes had experienced such success that livestock raiding by mounted parties from the San Joaquin Valley had become commonplace at missions and ranchos on the eastern fringe of Mexican colonial settlement. The Mexicans who pursued the Indian raiders did so with two objectives: to recapture stolen property and exact a measure of retribution by killing Native

Americans belonging to, or living with, interior tribes. This cycle of raids and reprisals across the coastal mountains continued until American settlers began to take up permanent residence in the valley in the mid-1840s (Beck and Haase 1974; Broadbent 1974; Cook 1976).

American Visitors

While Mexican troops engaged in punitive expeditions against the San Joaquin Valley tribes, American trappers and explorers made their journeys into the region, the first occurring by Jedediah S. Smith in 1827. He noted the abundant wildlife, and especially the herds of feral horses, but did not encounter any native people or observe signs of any tribal villages. Other trappers from the Hudson's Bay Company passed through the Central Valley, as well as Kit Carson and Peter Ogden Skene. John J. Warner traveled the length of the valley with trapper Ewing Young in 1833 and described the decimation of the Indians from disease, presumably malaria. Warner reported encountering very few Indians in the entire Central Valley. Warner's group built a canoe at the point where the San Joaquin flowed out of the Sierra Nevada, and subsequently trapped down the river, but reported no Indian villages along the way. John C. Fremont, perhaps the most famous explorer in the region at the time, describes traveling east down the Stanislaus River to the San Joaquin River in 1844. Fremont also remarked on the abundance of wild horses and game (Clough and Secrest 1984). A nautical expedition by the US Navy under the command of Cadwalader Ringgold explored San Francisco Bay and ascended the San Joaquin River in 1841, but these reports lack description of life or cultural remains along the river (Bancroft 1886; Wilkes 1845).

Early Settlement

While five Mexican-era Ranchos are recorded within current day Stanislaus County, the lower Tuolumne River area remained relatively free of permanent Euro-American settlement until the discovery of gold in 1848. By November of that year settlement in the foothills had increased exponentially as newcomers established mining claims, towns, and more informal camps and communities. New settlements were established along travel routes, especially along the Stanislaus River, including most notably the towns of New Hope, Adamsville, and Paradise (City of Modesto 2008:V-8-3; Fernandez 1996:4–5).

Development of Waterford and Hickman

Waterford, like many neighboring towns, emerged as a product of the Gold Rush of 1848. Pioneer William W. Baker established a homestead on the south side of the river in 1857, and the burgeoning town was named Bakersville (City of Waterford n.d.). Due to postal confusion with Bakersfield, the town was renamed Waterford in 1870, inspired by the nearby Roberts Ferry that served as the only ford in the area. The community of Hickman was named in 1891 for early settler, and onetime mayor of Stockton, Louis Hickman, who settled in the area in the late 1860s (Stanislaus County 2018).

Both Waterford and Hickman developed as satellite communities of the city of Modesto, approximately 12 miles west of the APE. Officially incorporated in 1884, Modesto and the surrounding area saw significant growth and economic success as its location along the railroad, influx of new residents, and large available labor pool allowed it to capitalize on the California wheat boom. These factors combined to make the Modesto area an important regional center for agriculture, commerce, and rail transportation throughout the 1880s and early 1890s.

The Oakdale Branch of the Southern Pacific Railroad (SPRR)was constructed in 1891 as an extension running from Oakdale to Merced. The SPRR filed to abandon the segment from Montpelier to Merced in 1942 (Nayyar and Jordan 2014:7). In 1973, the SPRR filed to abandon the segment of the Oakdale Branch that runs from Claribel to Montpelier, which includes the segment recorded as part of this study (2743-01).

When the California wheat economy collapsed in the early 1890s, it became apparent that access to reliable sources of water proved to be the greatest limiting factor to agricultural success in the Modesto area. In the early years of the twentieth century, however, area farmers were finally able to gain reliable access to irrigation water through developments associated with the Wright Act, a California law which allowed for the diversion of water from major rivers into the San Joaquin Valley for agricultural purposes (City of Modesto 2008:V-8-4).

The passing of the Wright Act in 1887 led to the formation of approximately 49 irrigation districts between 1887 and 1896; however, only seven remained by 1920 (California Department of Transportation [Caltrans] 2000:14). Two of these, the Turlock and Modesto Irrigation districts service the Project vicinity and are respectively the oldest and second oldest districts in the state.

Survey for the Turlock Irrigation District Water Conveyance System began in 1887 (Daly 2009). Construction of the first canal and dam began in 1890, and the canal from La Grange to Hickman was completed in 1898. Construction began on the main canal, Turlock Irrigation Canal, in 1898 with additional canals and laterals completed shortly after. Turlock Irrigation District is one of the few districts that produces and distributes hydroelectric power, jointly owning and operating the Don Pedro Reservoir and powerhouse with the Modesto Irrigation District, as well as a hydroelectric facility below the La Grange dam on the Tuolumne River (Caltrans 2000:68).

Construction of the canals included a variety of methods and the early canals were typically unlined, earthen ditches, while others were lined with dry-laid stone pavers or cobblestones (Caltrans 2000:85). Some canals required continual maintenance and were eventually realigned or lined with concrete to stabilize the canal and improve the efficiency of water flow. Check and regulation structures, as well as metering devices were installed to monitor water flow and usage. Smaller ditches and canals were added to service additional acreage added.

The stable source of water brought increased stability and opportunity, and thus fueled population and land-use changes throughout the region. At this time, alfalfa became the dominant cash crop, in support of a growing California dairy industry. Buttressed by increased irrigated water supplies, orchard crops also expanded rapidly, supporting a more diversified and stable agricultural economy. This expansion of the agricultural economy also fueled growth in supporting industries such as canning, financing, and construction.

Increases in population and agricultural activities in the late-nineteenth and early-twentieth centuries added increased pressures on local resources and infrastructure. In response to these increased demands between 1921 and 1923, the Modesto Irrigation District (which services Waterford) and Turlock Irrigation District (which services Hickman) constructed the Don Pedro Dam, which supplied an additional source of water and electricity for the broader Modesto area (City of Modesto 2008:V-8-4). Both systems have undergone continuous maintenance since their construction meaning that little of the original materials are left intact. Today, the communities of Waterford and Hickman are still very much centered around agriculture, with almonds, walnuts, peaches, apples, and corn among the most numerous crops.

3 – BACKGROUND RESEARCH

Far Western conducted both an in-house archival review and a formal records search of the APE including a one-quarter mile radius. An additional radius of one mile was incorporated to encompass any documented nearby precontact and Native American resources. The in-house review included an analysis of historical maps and aerial photographs, the creation of Geographic Information System-based precontact site potential models, and an assessment of the following inventories: the National and California Registers, California Historic Landmarks, and California Points of Historic Interest. The purpose of the search was to identify all previously recorded cultural resources and studies within and in close proximity to the APE, and to determine the potential for previously undocumented cultural resources. Additionally, Far Western requested a search of the Sacred Land Files by the Native American Heritage Commission and sent letters Native American individuals/groups listed by the NAHC and the City and to local historical repositories.

RECORDS SEARCH REVIEW

At the request of Far Western, on October 9, 2019, staff at the Central California Information Center (CCIC), located at the University of California, Stanislaus, conducted a records search that included the APE plus a quarter-mile radius. A search for precontact archaeological sites was extended to a one-mile radius.

The records search results indicate that a total of eight previous studies overlap portions of the APE, and an additional four previous studies have been conducted within the quarter-mile Records Search Extent. Previously conducted studies are presented in Table 1 and Figure 5.

Table 1. Studies in the Area of Potential Effects and Quarter-mile Records Search Extent.

STUDY NO. (S-)	TITLE	AUTHOR	YEAR	TYPE
00859	*An Archaeological Reconnaissance of the Robert's Ferry Reservoir and Water Extraction and Conveyance Systems, Stanislaus County, California: Phase II*	Chavez, D.	1976	Survey
03656	*An Archaeological Survey Report for Proposed AC Overlay and Shoulder Backing of State Route 132*	Jurich, D. M.	1999	Survey
03856	*Negative Archaeological Survey Report, 10-STA-Hickman Road Culvert C-785 at Dallas/Appling Ditch*	Davis-King, S.	2000	Survey
04849	*Clamper: Documentation of Monuments and Plaques Representing Estanislao Chapter No. 58 E Clampus Vitus*	Creighton, W.	2002	Architectural/ Historical Research
05005	*Historical Resource Compliance Report, Archaeological Survey of the River Pointe Subdivision, City of Waterford, Stanislaus County, California*	Jones & Stokes	2003	Survey
05479	*Historic Property Survey Report: Scour Countermeasures for the Tuolumne River Bridge #38C-004 (Hickman Road) Waterford, County of Stanislaus.*	Davis-King, S.	2004	Survey
05498	*Cultural Resources Inventory of Caltrans District 10 Rural Conventional Highways; Volume l: Summary of Methods and Findings*	Leach Palm et al.	2004	Survey
05501	*Cultural Resources Inventory of Caltrans District 10 Rural Conventional Highways; Volume III: Geoarchaeological Study*	Rosenthal and Meyer	2004	Geoarchaeological
05502	*Cultural Resources Inventory of Caltrans District 10 Rural Conventional Highways; Volume II G: Stanislaus County*	Leach Palm et al.	2004	Survey
06380	*Cultural Resources Investigations of the Lake Pointe Development Project, Stanislaus County, California*	Napton, L. K.	2007	Survey
07776	*Historic Properties Survey Report for the Proposed Tuolumne River Parkway Project, City of Waterford, Stanislaus County, California*	Davis-King, S.	2013	Survey
08839	*Historic Property Survey Report: 10 STA BRLS-5938 (199) Along Hickman Road where it crosses over the Tuolumne River at the town boundary of Waterford and Hickman, California*	Vallaire, K.	2016	Survey

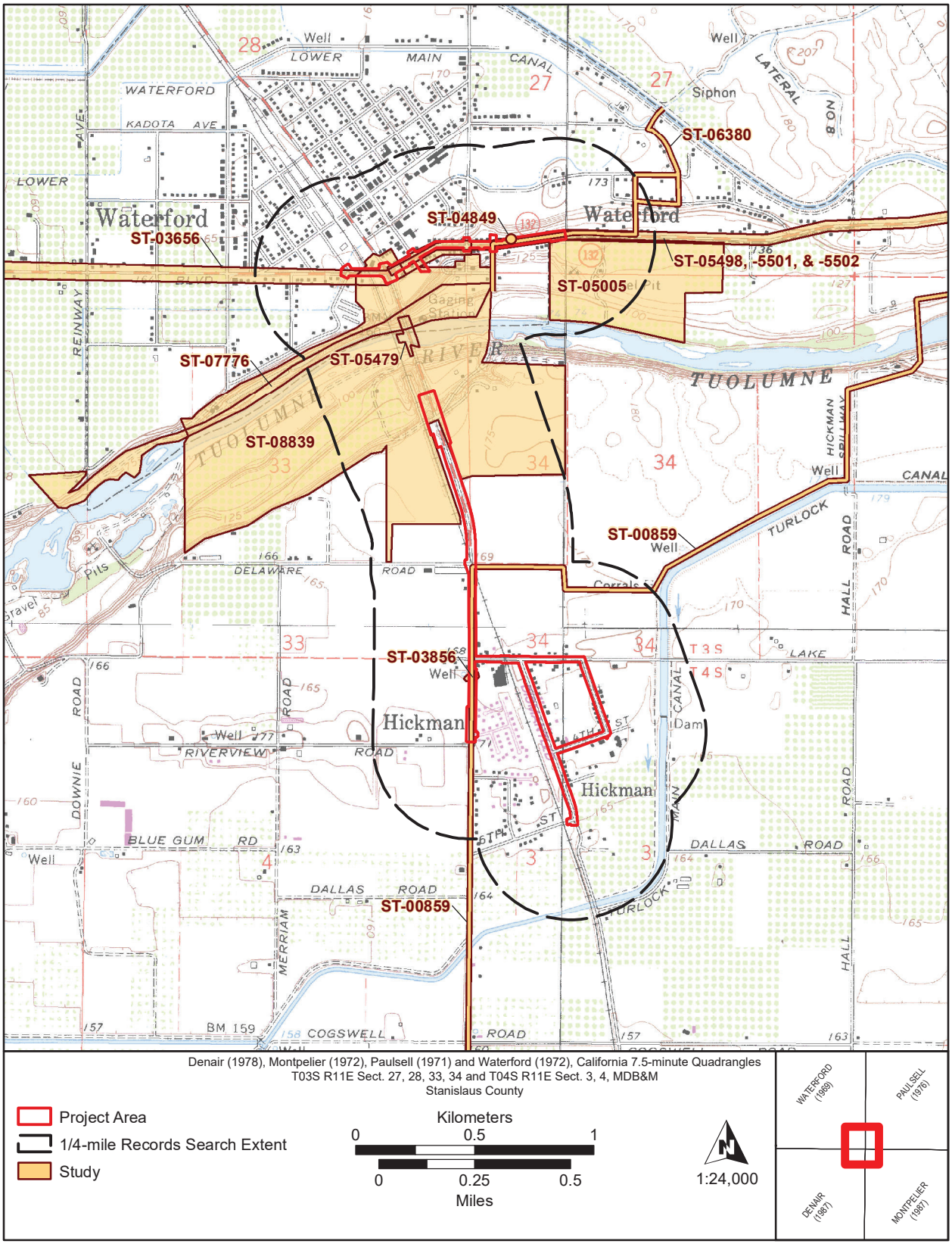

Figure 5. Studies in the Area of Potential Effects and Quarter-mile Records Search Extent.

The search identified three built environment resources and one historic-era isolate within the APE. No previously recorded precontact archaeological sites were identified within the records search area. Three historic-era archaeological sites (P-50-001859, -002112, and -002315) and two built environment resources (P-50-002111 and P-50-002314) have been previously recorded within a quarter-mile of the APE. Additionally, three unidentified resource listings on the Historic Properties Inventory (listed by address only) were identified within a quarter-mile of the APE. These listings likely refer to buildings however, no further information on the nature of the resources is available at the CCIC. One additional built environment resource, the Turlock Irrigation District (P-50-000073/STA-426H), was identified within a quarter-mile of the APE during an internal review of the Far Western cultural resources database. Previously recorded resources (both archaeological and built environment) are presented in Table 2 and Figure 6, and detailed resource descriptions are discussed below.

Table 2. Resources in the Area of Potential Effects and Records Search Extent.

Trinomial (CA-)	Primary No. (P-50-)	Name	Resource Age	Resource Type	Eligibility Status	Date Recorded	Distance from APE
STA-350H	000001	Southern Pacific Railroad	Historic-era	Railroad	Unevaluated	2016	Within
STA-426H	000073	Turlock Irrigation District Water Conveyance System	Historic-era	Canal	Recommend Ineligible	2009	680 feet east
	001780	Bridge #38-57	Historic-era	Bridge	Unevaluated	1979	Within
	001859	Maitland Hotel	Historic-era	Foundation, Refuse Deposit	Unevaluated	2002	1,100 feet north
	001895	FS-101	Historic-era	Concrete Steps	Ineligible	2002	Within
	002111	Waterford 1914 Bridge	Historic-era	Bridge Remains	Recommend Ineligible	2013	500 feet south
	002112	River Park Non-native Vegetation	Historic-era	Landscaping	Recommend Ineligible	2013	500 feet south
	002314	349 S. Appling Road	Historic-era	Buildings	Ineligible	2016	Within
	002315	LSA-HRB-1	Historic-era	Foundations	Unevaluated	2016	800 feet east
		12308 Yosemite Blvd	Historic-era	Unknown	Unknown	Unknown	920 feet west
		12316 Yosemite Blvd.	Historic-era	Unknown	Unknown	Unknown	900 feet west
		12408 Yosemite Blvd.	Historic-era	Unknown	Unknown	Unknown	540 feet west

Note: APE – Area of Potential Effects.

Previously Recorded Resources within the APE

CA-STA-350H; P-50-000001 – Southern Pacific Railroad

This resource consists of the former alignment of a segment of the Southern Pacific Railroad's Oakdale to Merced Branch where it crossed the Tuolumne River. The segment is located within the APE; however, based on the site record description, this appears to be gleaned from historical maps only. The original survey did not find any remaining evidence of the former grade or any associated features, nor was it evaluated for eligibility for listing in the National and California Registers (Vallaire 2016).

P-50-001895; FS-101

This resource consists of two isolated concrete steps associated with a former structure. The isolate is located within the APE near the intersection of Yosemite Boulevard and Tim Bell Road. The steps measure 5.5 feet east-west, and 13 inches wide north-south. Each step is six inches in height. FS-101 was recommended ineligible for listing in the National and California Registers (Leach-Palm 2004).

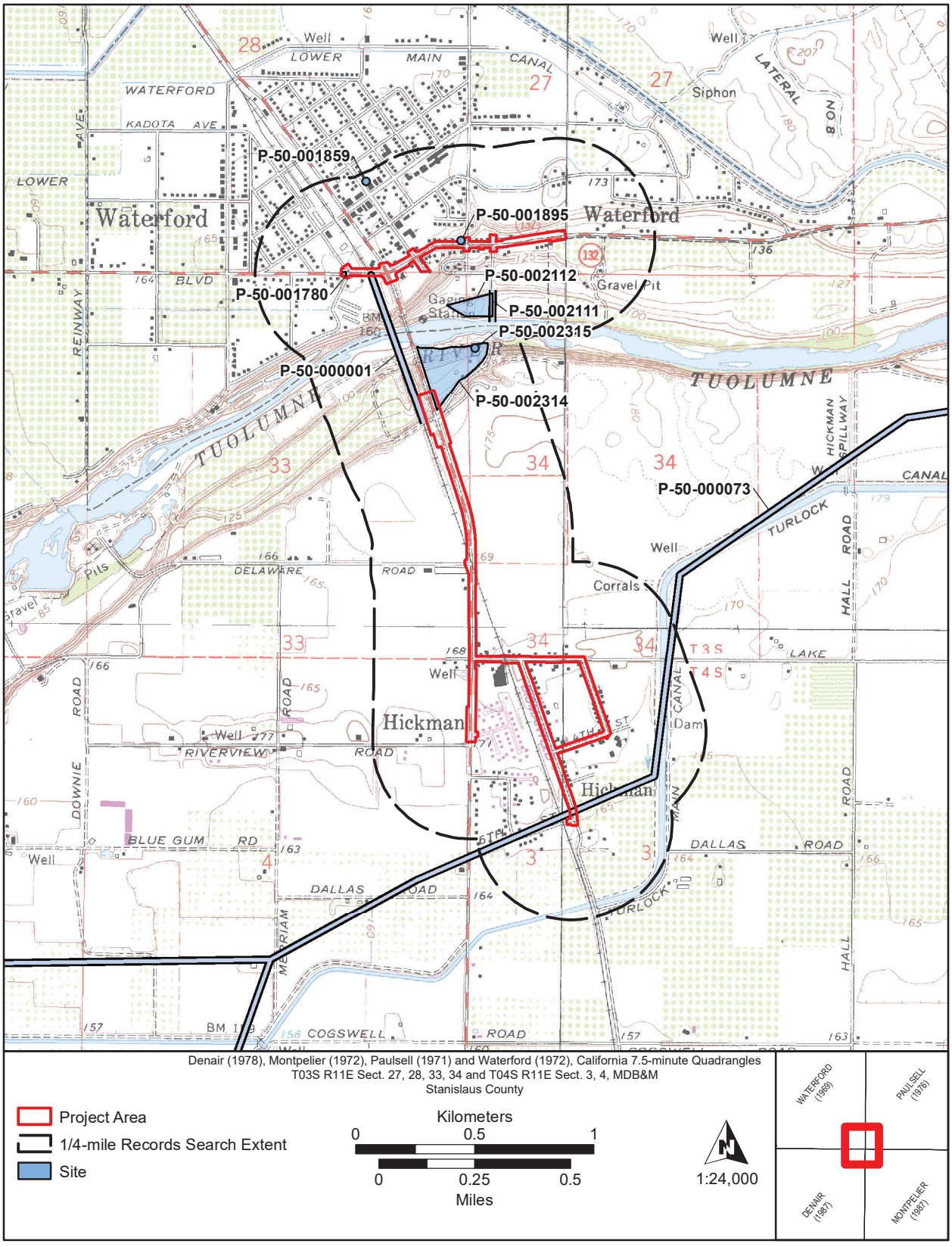

Figure 6. Previously Recorded Resources in the Records Search Extent.

P-50-001780 – Bridge #38-57

This resource consists of a bridge carrying State Route 132 over the Waterford Canal. The bridge record describes the bridge as "originally a reinforced concrete slab on wall pier and wall abutments. It was expanded by the state in 1954 by a double 11-x-4-foot reinforced concrete box culvert. It has two spans 11' each and is 28' long" (Pursell 1979). The location on file with the CCIC indicates that this resource is within the APE near the intersection of G Street and Yosemite Boulevard. However, several other locations are given for the bridge as well: handwritten text reading "St. Rt. 132 at Eucalyptus Road" is shown, though it is crossed out; above that is typed text showing "MP 25.20 on CA-132" as its location; and an accompanying sketch map shows its location at the intersection of CA-132 and Claribell Road. The bridge does not appear to have been evaluated for listing in the National and California Registers. See *Field Results* for resolution regarding location of bridge within the APE.

P-50-002314 – 349 S. Appling Road

This resource is a farmstead consisting of four structures: a main residence (Feature 1); a detached garage (Feature 2); a barn (Feature 3); and a former residence (Feature 4). The property is located on a bluff on the south side of the Tuolumne River and intersects with the APE on the east side of the Oakdale Waterford Highway. The farmstead is located on the site of the historic Appling ranch, which was established in 1889. The 349 S. Appling Road property has undergone several alterations and construction episodes from the early- to mid-twentieth century: Feature 1 was constructed in the early 1960s; Feature 2 was constructed in 1978; Feature 3, the barn, has the earliest date of construction at 1916; and the property's original residence, Feature 4, dates to 1922. No archaeological deposits are noted on the site record. Site P-50-002314 was recommended ineligible for listing in the National and California Registers. While the original 1889 residence on the Appling Ranch is not described on the site record, photographs included in the site documentation show that the residence was visible from the site. (Andreazzi 2016).

Previously Recorded Resources within a Quarter-mile of the APE

CA-STA-426H; P-50-000073 – Turlock Irrigation District Water Conveyance System

This resource consists of a canal system operated by the Turlock Irrigation District. Its nearest point is approximately 680 feet east of the APE and is part of the main canal. The initial canal from La Grange Reservoir to Hickman (itself completed in 1893) was finished in late 1898. Continuation of the main canal from Hickman began in December 1898. The entire system of canals and laterals was finished in 1900, making the district the oldest example of a publicly owned irrigation district in California.

While the canal system was originally comprised of earthen ditches, increased maintenance costs led the District to line them in concrete in 1917. The size of the canals vary, with an average depth of six to eight feet and average width of 15 feet. Related features include regulator gates, valves, checks, drops and chutes. Some of the drop gates have counterweights for automatic adjustment while others are manually operated with large iron wheels and screws.

The canal has been recommended ineligible for listing in the National and California Registers despite its claim as the first publicly owned irrigation system in the state. Ongoing maintenance of the system resulted in lost integrity of its materials, design, setting, and workmanship (Daly 2009).

P-50-001859 – Maitland Hotel

This resource is site of the former Maitland Hotel. The hotel was demolished by Mr. Van Rorabaugh under contract with the City of Waterford in the 1990s. In 2002, Waterford City Administrator Chuck

Deschenes contacted Dr. L. K. Napton of California State University, Stanislaus, to report potential post-contact artifact deposits on the site. Apparently, artifacts dating to the hotel occupation (circa 1910s) were salvaged during demolition and kept by Mr. Von Rorabaugh. Collected artifacts included marbles, bottles, nails, coins, horseshoes, etc. No controlled excavation or study has taken place since the demolition. Listed resource attributes include foundations and potential refuse deposits. The site has not been evaluated for listing in the National and California Registers.

P-50-002111 – Waterford 1914 Bridge Remains

This resource consists of two bridge approach embankments, a road remnant, and the archaeological remains of bridge abutments or possible tower footings. The remains are located approximately 500 feet from the APE. The approach to the bridge retains two concrete barriers with the addition of a monument that reads "baker Ferry 1866 and first bridge site 1889, preserved by Waterford Senior Citizens, 1976 Bicentennial." In 1914 a second bridge replaced the original, lasting until 1964 when it was demolished and replaced with the current span located 0.2 miles to the west. The 1914 bridge remains have been recommended ineligible but potential significance to the local community is acknowledged (Davis-King 2013).

P-50-002112 – River Park Non-native Vegetation

This resource consists of isolated and non-native vegetation over a 2.3-acre area that may be the remains of a residential lot. The resource is 500 feet east and south of the APE. Vegetation included citrus, prunus, cypress, roses, St. John's wort, non-native honeysuckle, and other cultivated species. The area has been developed as a park, and no other cultural resource features were observed. Historical maps dating between 1916 and 1979 depict up to two structures in the vicinity of the park that may have been associated with the remaining vegetation. The resource has been recommended ineligible for listing in the National and California Registers.

P-50-002315; LSA-HRB-1

This resource is a concrete structure pad measuring 10 x 6 x 2 feet on the surface. While historic research did not turn up any associated structures, the landowner informed the archaeologists at the time of recording that it was likely associated with a rock/gravel quarry that once operated on the property (Falke 2016). The resource does not appear to have been evaluated for listing in the National and California Registers.

NATIVE AMERICAN CONSULTATION

A formal request for a search of the Sacred Lands File and Native American Contacts List was submitted to the Native American Heritage Commission on November 13, 2019, in an effort to identify sacred sites, traditional cultural properties, and/or tribal cultural resources within the APE known to be of concern to local Native American groups. A record search of the Sacred Lands File was negative. The NAHC also provided a list of five contacts who might have information about tribal cultural resources within or near the APE, whom Far Western contacted by mail on November 26, 2019, and by phone on December 16, 2019 (Appendix A). A summary of consultation efforts is detailed in Table 3.

Table 3. Summary of Native American Consultation.

POINT OF CONTACT	AFFILIATION	SUMMARY OF CONSULTATION
Katherine Perez, Chairperson	North Valley Yokuts Tribe	Letter sent November 26, 2019. No return received. Placed follow-up phone call on December 13, 2019 and left voice message.
William Leonard, Chairperson	Southern Sierra Miwuk Nation	Letter sent November 26, 2019. No return received. Placed follow-up phone call on December 13, 2019 and left voice message.
Neil Peyron, Chairperson	Tule River Indian Tribe	Letter sent November 26, 2019. No return received. Placed follow-up phone call on December 13, 2019 and left voice message.
Joey Garfield, Tribal Archaeologist	Tule River Indian Tribe	Letter sent November 26, 2019. No return received. Placed follow-up phone call on December 13, 2019 and was informed that Mr. Garfield no longer works for the tribe.
Kerri Verra, Environmental Department	Tule River Indian Tribe	Letter sent November 26, 2019. No return received. Placed follow-up phone call on December 13, 2019 and left voice message.

HISTORICAL SOCIETY CONSULTATION

Far Western sent a letter to the local McHenry Museum and Historical Society in Modesto informing them of the project and requesting any additional archival information they could provide in relation to the project APE, and was later contacted by Janet Lancaster, a volunteer for the museum. Ms. Lancaster provided high-resolution images of an 1895 plat map and a 1937 aerial image depicting the vicinity of the project APE. Historical society correspondence is included in Appendix B.

ARCHIVAL AND LITERATURE REVIEW

Archival and Literature Review

Far Western historical archaeologists reviewed historical maps, and aerial photographs depicting features such as roads, buildings, other structures and infrastructure, waterways, and landscape modification to determine historic-period settlement and developments and provide the necessary information to determine the potential likelihood and sensitivity of subsurface historic-period archaeological resources within the APE. Historical maps, photographs, and other pertinent archival sources are available at several online repositories. This review included searches of the United States Geological Survey (USGS) Historical Topographic Map Inventory; the Bureau of Land Management (BLM) General Land Office (GLO) Records; the Proquest Digital Sanborn Map inventory; local/independent digital map repositories, including the Historic Map Works; the David Rumsey Map Collection; and NETRonline Historic Aerials. Relevant sources identified during the historical map review are summarized below.

Historical Maps

- T3S, R11E, Mount Diablo Base and Meridian (GLO 1854a)
- T4S, R11E, Mount Diablo Base and Meridian (GLO 1854b)
- Sheet No. 1, Northern Portion, Irrigation Map of the San Joaquin Valley, CA (Hall 1886)
- Waterford, CA (Sanborn 1914)
- Weber's Map of Stanislaus County (C. F. Weber & Co. 1914)
- Denair, CA (USGS 1916a, 1953a, 1969a, 1978)
- Waterford, CA (USGS 1916b, 1953b, 1969b, 1972a)
- Modesto East (USGS 1939)
- Montpelier (USGS 1972b)

Historical Aerial Photographs

- Historic Aerials (NETRonline 1967, 1998)

Results

The earliest maps reviewed date to 1854. These General Land Office survey plats show the earliest developments within the townsite of Waterford. Three homesteads are depicted on the north side of the Tuolumne River. Closest to the APE is "Southard's House," located in Lot 4 of Section 34, T3S, R11E, approximately 400–500 feet south the eastern extent of the APE along Yosemite Boulevard. This house is shown in the immediate vicinity of P-50-002112—described as a historic-era landscaping with fruit trees, roses, and other nonnative vegetation—and P-50-002111, the site of the original 1914 bridge and possibly, an earlier fording site across the Tuolumne River. The area immediately east of Southard's House is depicted as a field, likely the site of agricultural activities. Additional houses are shown farther east of the APE on both sides of the river. The 1854 plats also show several roads running roughly connecting Valley towns west to the foothills east. The road on the north side of the River approximates the current route of Yosemite Boulevard. No developments are shown within the southern APE in Hickman.

The next two maps chronologically (Hall 1886; C. F. Weber & Co. 1914) show large scale areas and as such do not provide enough detail for fine grained analysis of the APE. However, some observations are possible, as follows. In 1886, the name Waterford has been used for the first time, while Hickman has yet to be. A road follows the approximate route of Yosemite Boulevard, with a Tuolumne River crossing following today's North and South Appling Roads. The first bridge was not built until 1914, so this must have been a ford site (hence the name of the town). By 1914, Waterford appears to have expanded, while Hickman finally finds a place on the map. Growth of these towns is likely due to the construction of the Oakdale Branch of Southern Pacific Railroad (P-50-000001) with stops at both sites. The 1914 Sanborn map of Waterford shows the northwest-southeast by northeast-southwest street grid that still forms the core of the city but does not have an exposure of the project area.

The first detailed look at the APE within Waterford and Hickman is illustrated on the 1915–1916 maps (USGS 1915, 1916a, 1916b; Figure 7). In Waterford, there are several structures along Yosemite Boulevard adjacent to the APE, especially on the north side of that road. Tim Bell Road has been constructed, and the Appling Road Bridge (P-50-002111) has been built. Also shown are structures in the recorded locations of P-50-001855 and P-50-001859, outside the APE. The railroad crosses the Tuolumne adjacent to the present bridge connecting F Street to Hickman Road. A structure is also shown in the location of P-50-002315, a historic-era homestead, approximately 900 feet east-northeast of the Hickman Road APE. Within Hickman, the present street grid has been assembled, with sparse structures scattered throughout, but there does not appear to be any residences within the APE during this time. Several track sidings are present within the train station, apparently forming a large depot. To the east of the APE, the Turlock Ditch for the Turlock Irrigation District Water Conveyance System (P-50-000073) has been constructed.

As the APE is primarily located within older parts of the city, development is largely characterized by structural infill along the existing street grid and new infrastructure. By 1939, a new canal runs through the APE under Lake and Hickman Roads, irrigating farms north and west of Hickman. By 1953, the Waterford Canal has been built through that town (largely underground), meaning that the CA-132 bridge over the Waterford Canal (P-50-001780) had been built by that time (USGS 1953b). By 1967 the present bridge crossing the Tuolumne River has been constructed, connecting F Street with Hickman Road. The original Appling Street bridge is gone. The Southern Pacific Railroad is dismantled between 1977 and 1987 in Hickman, which also sees construction of a small residential tract between Hickman Road and the railroad in the early 1970s.

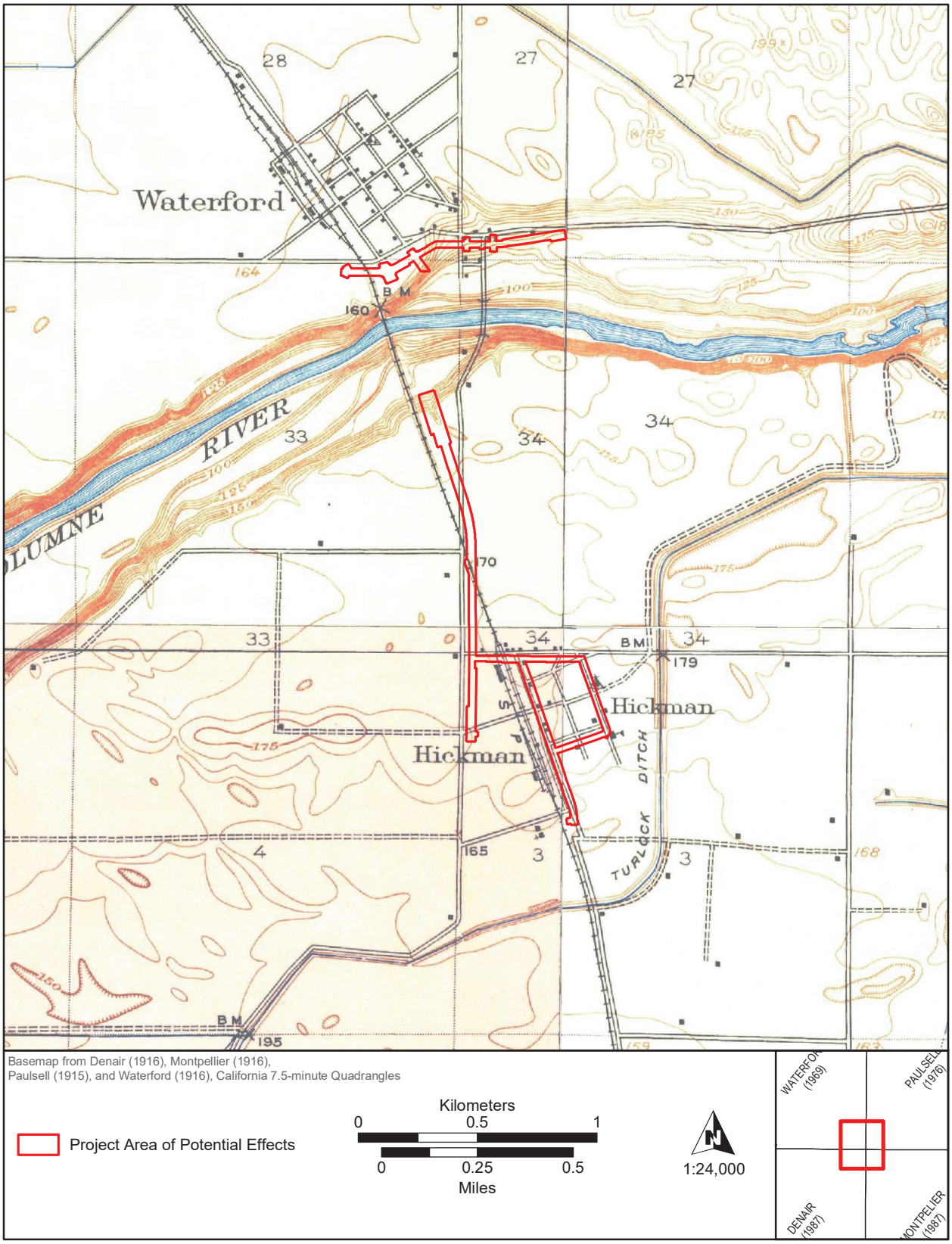

Figure 7. Area of Potential Effects on 1915–1916 US Geological Survey Topographic Quadrangles (USGS 1915, 1916a, 1916b).

HISTORICAL RESOURCE POTENTIAL AND SENSITIVITY

Historically, the APE appears to have been used as cultivated agricultural lands, namely grazing and orchards, bisected by the alignment of the Tuolumne River. The river does not appear to have been diverted in the vicinity of the APE. The APE saw development of its road alignments for Yosemite Boulevard and Hickman Road, beginning in the late nineteenth century as well as a large water conveyance system and associated canals. Based on a review of historical maps and aerial images, no buildings were identified within the APE. However, historical maps indicate that the now-defunct Oakdale Branch of the Southern Pacific Railroad crossed the APE in both Hickman and Waterford, and a segment of canal from the Turlock Irrigation District Water Conveyance System is depicted crossing the APE at Hickman and Lake Roads. For these reasons, there is a low potential for encountering historic-era archaeological deposits within the APE, as the known and anticipated resources that intersect the APE are related to ubiquitous and utilitarian transportation and water conveyance infrastructure, with little to no potential to yield subsurface archaeological deposits.

4 – BURIED SITE POTENTIAL ASSESSMENT

PRECONTACT BURIED SITE POTENTIAL ASSESSMENT
(Geoarchaeological analysis by Jack Meyer)

This section assesses the potential for prehistoric (precontact) Native American archaeological sites within the Project area based on a review and analysis of relevant data and documents. Simply stated, archaeological sites first must be identified if they are to be avoided, mitigated, or otherwise "managed." This can be a problem in areas where sites are covered by man-made deposits (e.g., artificial fill, mining debris) and in settings where natural sediment deposition can bury sites, and severely hamper the ability conventional surface surveys to identify sites. In order to avoid or reduce the additional costs and/or scheduling delays that can result when an archaeological resource is "accidentally discovered" during construction, it is important that the potential buried sites be assessed in advance of earth moving activities, as proposed by the current project. Assessments such as this are considered to be part of a "good-faith effort" to identified cultural resources as required by state (CEQA) and federal (e.g., NEPA, National Register) regulations that govern the treatment of archaeological resources.

As defined below, a "buried site" is former surface archaeological deposits that is now overlain by naturally deposited sediments due to geological processes. In contrast, a "capped site" is one that is now covered by artificial fill and/or built structures as a result of mechanical processes. A paleosol is an "old soil" that formed during a prolonged period of near-surface weathering on a relatively stable land surface in the past but is not actively forming at the present (Retallack 1988; Waters 1992; Yaalon 1971). The age of certain soils and landforms are expressed in calibrated years before present, or cal BP, where 1950 AD serves as 0 cal BP by convention.

Geomorphic Setting

Situated in the northeastern San Joaquin Valley, the APE lies on an alluvial fan and floodplain sediments deposited by the Tuolumne River, which drains part of the west-central Sierra Nevada Ranges to the east. In this area, the channel of the Tuolumne River flows through an active meander belt that is deeply incised below the surface of the fan. The meander belt contains active channel deposits and floodplain deposits that form a series of discontinuous, inset terraces along portions of the river that includes the northeast part of the Project APE. As such, the deposits within the active channel meander are generally younger than those found on the adjoining fan surface. More information about the geology and depositional history of particular landforms in the San Joaquin Valley can be found in Meyer et al. (2010).

Age of Surface Landforms

Because it appears that human colonization of North America did not occur until sometime after 15,000 years ago, precontact archaeological sites can only be buried in landforms that were deposited after that time. Review of Quaternary geologic (Marchand 1977; Marchand and Allwardt 1981) and soil survey data (Arkley 1964: NRCS 2019) suggest most of the landforms in the APE were deposited during the Holocene, or within the past 11,700 years or less (Figure 8). The surface landforms located in the Hickman area south of the river are estimated to be Early Holocene in age (11,700–8200 cal BP), based on their geomorphic position and degree of soil development.

In the Waterford area north of the river, the northwest portion of the APE contains landforms that appear to be Early Holocene in age, while those in the northeast part of APE are estimated to be Recent Holocene (1000–150 cal BP), or Historical to Modern (100 to 0 cal BP) in age based on soil development and the

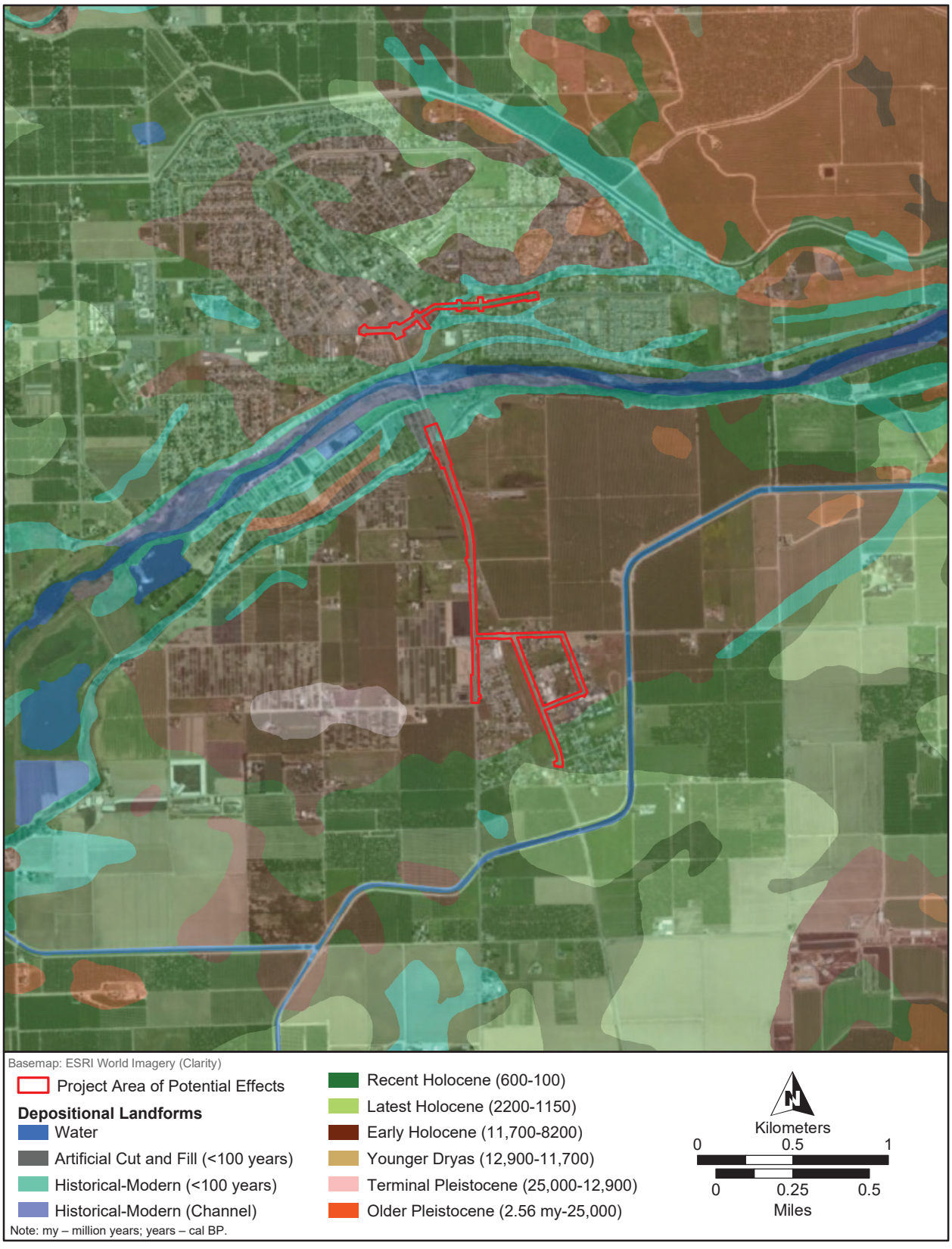

Figure 8. Estimated Age of Surface Landforms in and near the Area of Potential Effects.

geomorphic position within the meander belt. This is supported by a radiocarbon date of about 400 cal BP (W-3378) from a log buried 5.2 meters below the surface of a floodplain terrace, less than one mile west of the Project Area (Marchand and Allwardt 1981:63). Figure 8 shows the extent and estimated age of the surface deposits mapped in and near the Project Area.

Precontact Site Sensitivity

Precontact archaeological sites are not distributed randomly throughout the landscape but tend to occur in specific geo-environmental settings (Foster et al. 2005:4; Hansen et al. 2004:5; Pilgram 1987; Rosenthal and Meyer 2004). In this region, prehistoric occupation sites are most often associated with relatively level landforms that occur near perennial water sources (i.e., Tuolumne River), especially confluences (Pilgram 1987:44–47), and near other water sources such as lakes, springs, or wetlands where plant and animal populations are generally most diverse and concentrated. Since sediment deposition can also buried sites located in these settings, the distribution of known sites is useful for predicting where unidentified sites are likely to occur.

Sensitivity studies conducted in central California found the majority of known precontact sites, including buried sites, occur within 200 meters (656 feet) or less of a present or former water source, whether it is a lake, pond, spring, stream or river (Rosenthal and Meyer 2004, Table 4). Thus, distance to water is an important factor for modeling archaeological sensitivity in the region. Absolute elevation and surface slope can also be important factors in determining where sites tend to be located because people prefer to reside at lower elevations for many practical and energetic reason. Elevations in the APE range from near sea level to about 800 feet (244 meters) above mean sea level, which corresponds to the lower part of the Foothill-Woodland and Chaparral biologic zone that are generally more productive and archaeologically sensitive than higher-elevation biologic zones.

Table 4. Environmental Factors and Parameters Used to Model Archaeological Site Sensitivity.

Surface Factors	Highest	High	Moderate	Low	Lowest
1st Order H_2O Distance (meters)	<120	120–180	180–220	220–300	>300
Permanent H_2O Distance (meters)	<240	240–360	360–440	440–600	>600
Permanent H_2O Confluence Distance (meters)	<150	150–270	270–330	330–450	>450
Surface Slope (%)	<3.8	3.8–7.6	7.6–8.4	8.4–12	>12.0
Elevation (meters amsl)	<1,065	1,065–1,830	1,830–2,590	2,590–3,200	>3,200
Minimum Factor Value	3.7	2.8	2.3	1.4	0.0
Maximum Factor Value	5.0	3.7	2.8	2.3	1.4
Maximum Percentile	1.0	0.74	0.56	0.46	0.28

Note: amsl – above mean sea level

Buried Site Assessment

A geographic information system was used to analyze the relationships between water, slope, and elevation based on the factors and parameters listed in Table 4 to assess the archaeological sensitivity and potential for buried sites to occur in and around the APE. The modeling results indicate that the potential for buried sites is either Low or Lowest in more than 88 acres (88.7%) of the APE. This is because most of the landforms at the surface are either Early Holocene in age, and/or are located more than 440 meters from the Tuolumne River (Table 5 and Figure 9). In addition, there is Low potential for buried sites to occur in the Historical to Modern deposits that intersect portion of that area.

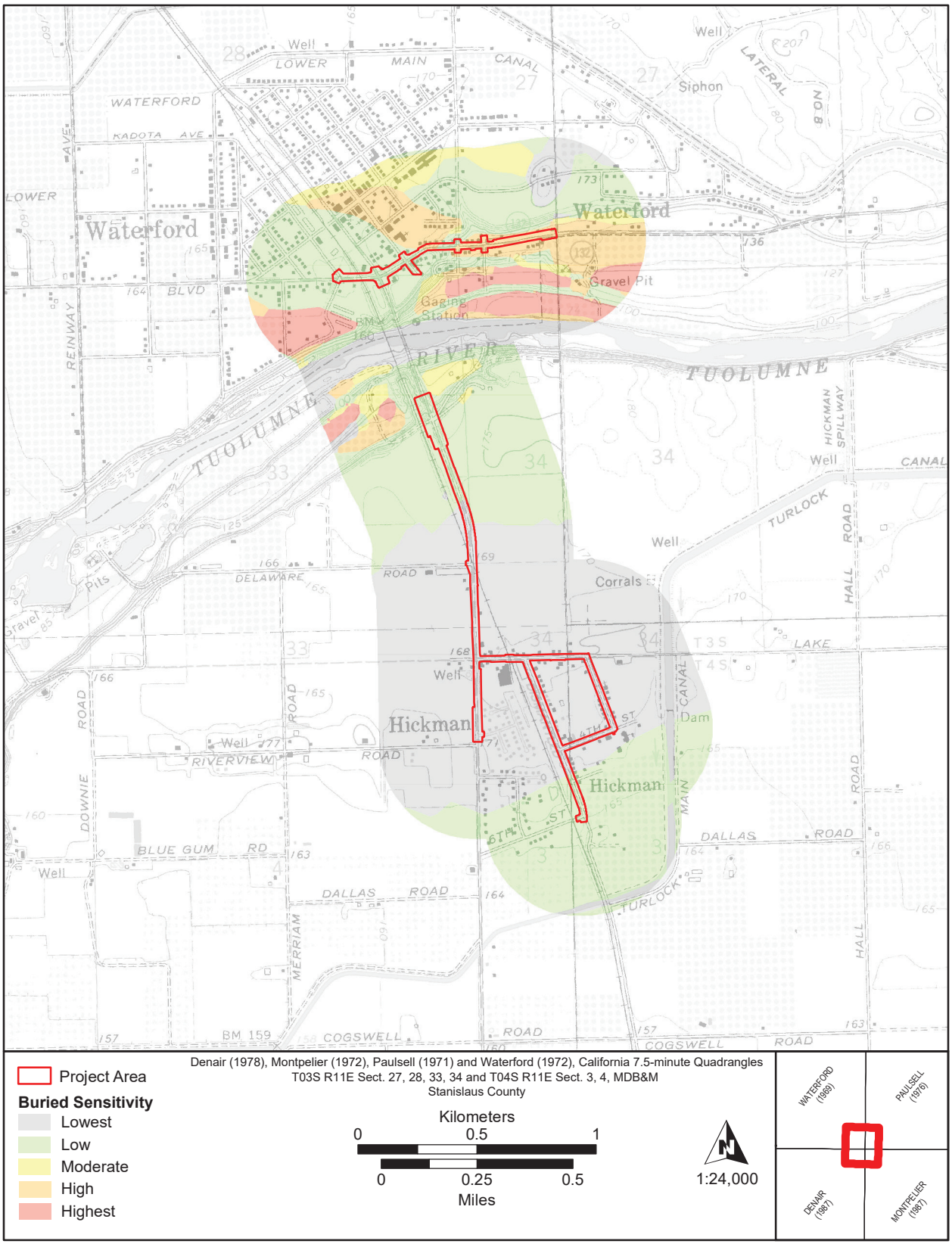

Figure 9. Estimated Potential for Prehistoric Archaeological Sites in the Project Area.

The buried site potential is, however, estimated to be High in four acres, or 11.3 percent of the APE that is associated with the Recent Holocene floodplain within the river's meander belt (Table 5; Figure 9). Because of this, buried archaeological remains could be encountered as part of project-related earth disturbances in the northeast segment of the APE.

Table 5. Extent and Estimated Potential for Buried Prehistoric Sites in the Area of Potential Effects.

BURIED POTENTIAL	ACRES	% TOTAL
High	4.0	11.3
Low	13.0	36.8
Lowest	18.3	51.9
Total	**35.3**	**100.0**

Management Considerations and Recommendations

When evaluating the need for archaeological study or fieldwork in a given management (or project) area, the crucial questions are: (1) what is the potential for surface or buried sites to occur in different parts of a given area? and (2) is there a reasonable expectation that an archaeological site(s) may be impacted by project activities? It is recommended that the sensitivity map (see Figure 9) be reviewed to help make reasonably informed decisions about (1) the potential for archaeological deposits in different areas; (2) whether or not additional study is needed to determine if archaeological sites are present or absent; and (3) the appropriate field methods and level-of-effort (e.g., surface survey and/or subsurface testing) needed to make these determinations given the nature and extent of earth-disturbances in the APE. Because sites can be impacted both horizontally and vertically (i.e., depth), it is very important to understand the nature and extent of earth disturbances planned in different parts of the assessment area.

If deep and/or extensive earth disturbances cannot be avoided in the areas of High potential for buried sites, it may be necessary to conduct subsurface excavation to ensure the identification of historic properties is complete. Because prehistoric deposits (including human remains) could be impacted by earth disturbances, it will sometimes be necessary to determine if archaeological materials are present or absent, particularly if the disturbances must occur in the northeast APE-segment where the potential for buried sites is High (see Figure 9). In this area, pre-emptive subsurface exploration can be conducted to determine if potentially important archaeological deposits might be adversely affected and to assess if any further work is needed. In this portion of the APE, where sensitivity for the presence of buried resources is High, the extent of ground disturbance appears to include installation of a new waterline as well as removal of the old water line. Where there is no existing water line, excavation to the depth of six feet has the potential to affect native soils that have not been previously disturbed, where there is the possibility of identifying intact archaeological deposits. Where disturbance will occur to remove old waterlines, the subsurface deposits have already been subject to significant prior ground disturbances, and the likelihood of identifying intact archaeological deposits is lower, except where the depth and width of the excavation trench exceeds the parameters of the previous waterline trench.

5 – FIELD SURVEY AND RESULTS

On November 14, 2019, Far Western Archaeologists Montse Osterlye, B.A., and Joshua McWaters, B.A., conducted intensive pedestrian survey within the APE. This section details the methods and results of this survey (Figure 10).

SURVEY METHODS

Survey transects were spaced at 10-meter intervals, using geographic features, property boundaries, printed maps, and a submeter Global Positioning System (GPS) unit to determine survey boundaries. All exposed areas, rodent holes, and cutbanks were carefully examined for the presence of cultural materials. The survey was documented using digital photographs, a handheld submeter GPS unit, and hand drawn sketch maps. Two linear resource segments were newly identified during the survey, including an abandoned rail segment (2743-01) of the Oakdale Branch of the Southern Pacific Railroad and a canal segment (2743-02) associated with the Turlock Irrigation District Water Conveyance System. These resources were documented and evaluated, as appropriate, using DPR 523 forms (Appendix C).

SURVEY RESULTS

The below results of the pedestrian survey are detailed below and organized into two geographic sections. The Hickman section summarizes that area of the APE south of the Tuolumne River, while the Waterford section encompasses that to the north. All photographs taken during the pedestrian survey are compiled in Appendix D.

Hickman

The portion of the APE within Hickman was surveyed with 100 percent coverage (see Figure 3). The majority of the Hickman APE is developed with roads, residences, and commercial buildings, limiting ground visibility to approximately five percent. Visible soils consisted of light grayish-brown sandy silt with some areas containing imported gravels. No resources were observed in the APE along Montpelier Road, 4th Street, "I" Street, or Hickman Road. The segment of P-50-000001 mapped parallel to the northwest edge of the Hickman Road APE was not visible. The portion of P-50-002315 that overlaps with the northeast corner of the Hickman Road APE consists of a large roadside berm, and all the components of the homestead site are located well to the east of Hickman Road and the APE. Two newly identified resources were recorded along Lake Road: 2743-01 and 2743-02.

Rail Segment: 2743-01

This resource consists of a previously unrecorded rail segment of the Oakdale Branch of the historic-era San Joaquin Valley/Southern Pacific Railroad (P-05-000001/STA-350H). The resource is a single exposed segment of rail immediately south of Lake Road at Universal Transverse Mercator (UTM) 10N, 698216.9mE/ 4166432.0mN. The rail measures approximately 11 feet long along a 166° to 344° axis. The rail appears to be buried to the south under soil and to the north under Lake Road. No additional rail was observed on the north side of Lake Road. Only a single rail was exposed, and it is unclear whether an additional rail is buried to the west. The rail is in a well-trod area and the surrounding soil has been highly compacted by vehicles and foot traffic (Figure 11). No associated artifacts were observed.

Figure 10. Survey Coverage and Newly Identified Resources.

Figure 11. Rail Segment 2743-01, Tape at Three Feet (view west).

Canal Segment: 2743-02

This resource is a previously unrecorded historic-era irrigation canal within the Turlock Irrigation District Water Conveyance System (P-50-000073). The canal intersects the survey in two segments: a northern segment crossing under Lake Road and a western segment crossing under Hickman Road. Each segment crosses its respective road through a culvert with board-formed concrete headwalls and then extends into private property outside the 10-foot survey corridor around each road (Figure 12). The canals have earthen berms with poured concrete interior walls about 10 feet wide at the maximum height level. The canal is three feet deep and dives an additional three feet and two inches under the roadway. The northern segment crosses Lake Road at UTM 698181mE/4166446mN and disappears underground after running about 130 feet north-northeast. The western segment crosses Hickman Road at UTM 698089mE/4166388mN and runs along the west shoulder of Hickman Road for about 900 feet before diving underground. The two segments are connected by about 350 feet of open canal.

Waterford

The portion of the APE within Waterford was surveyed with 100 percent coverage (see Figure 4). The majority of the Waterford APE is developed; roads (mainly Yosemite Boulevard/State Route 132), commercial buildings, and residences limit ground visibility to approximately five percent. Visible soils consist of compacted tan sandy silt with some areas containing imported gravels. No new resources were identified in the Waterford APE.

The area on the south side of Yosemite Boulevard, where a portion of P-50-000001 intersects the APE, is paved over. The original recording of the resource notes that the grade no longer exists, and no associated features were observed. Isolate P-50-001895, a set of concrete steps previously documented within the APE northwest of the corner of Yosemite Boulevard and Tim Bell Road (101 Tim Bell Road), was located; no new resources or changes were observed. The three addresses for unidentified resources (likely buildings) that the CCIC indicated on the Historic Properties Directory were located and determined to be outside the APE.

Based on careful survey, P-50-001780 (bridge for canal at Yosemite Boulevard) was not located within its recorded location in the APE. The Geographic Information System (GIS) data provided by the CCIC placed this resource within the APE at the intersection of Yosemite Boulevard, G Street, and Riverside Road. The DPR site record provides four potential locations for the bridge including the GIS data used by the CCIC; "MP 25.20 on CA-132" (Yosemite Boulevard); the intersection of CA-132 and Eucalyptus Avenue (although this is crossed out on the form); and a sketch map showing its location at the intersection of CA-132 and Claribell Road. The MP 25.20 location was not able to be verified in the field as no mile posts were observed during survey, and a review of modern road maps did not show an intersection with CA-132 and Claribell Road (they run parallel to each other). A bridge crossing of CA-132 over a canal at Eucalyptus Road was approximately 0.9 miles west of the APE, but it is unclear whether this is the same bridge. Modern topographic and street maps do show a canal crossing the Yosemite Boulevard, G Street, and Riverside Road intersection, so it may have been put underground since the 1979 recording.

Figure 12. Canal Segment 2743-02, South of Lake Road (view southwest).

6 – NATIONAL AND CALIFORNIA REGISTER EVALUTION

The pedestrian survey resulted in the identification of two historic-era resources within the Hickman portion of the APE: 2743-01, a newly identified segment of the Oakdale Branch of the Southern Pacific Railroad (P-50-000001); and 2743-02, a canal segment of the Turlock Irrigation District Water Conveyance System. Far Western documented the two resources on updated California Department of Parks and Recreation 523 forms. Per the requirements of Section 106 of the NHPA, these resources were evaluated for listing in the National Register and each are recommended ineligible for listing in the National and California Registers. These resources were researched and evaluated by Architectural Historian Alexis Thomas. Ms. Thomas augmented research conducted by Far Western with general and property-specific research to confirm contexts for the historic-era resources in the APE. This included research based on sources for irrigation development and railway development, county assessor data, historical topographic and GLO maps, as well as previous analysis of the railway and other irrigation canals in the region. Ms. Thomas developed individual histories of the project resources to aid with evaluations specific to the recorded built environment features.

2743-01 (P-50-000001)

Previous evaluations of the Oakdale Branch of the Southern Pacific Railroad (P-50-000001) were conducted in 1993, 1999 and 2014. Portions of the Oakdale Branch constructed after 1891 were determined to be not eligible due to lack of significance in 2014 (Schultz and Vanderslice 2007; Vallaire 2016; Coleman 2017).

The branch does not possess significance for its association with the Southern Pacific Railroad as it is not part of the initial railroad; it is not eligible under Criterion A. No direct association with Charles Crock, Leland Stanford, Mark Hopkins, Jr., and Collin P. Huntington could be found so it is not eligible under Criterion B. To be considered eligible under Criterion C, the railroad must display important design or construction features that represent the early evolution of railroad technology or construction practices. The Oakdale Branch does not appear to be an example of important design or construction, so it is not eligible under Criterion C. Railroads and their construction have been extensively documented over time and this branch does not provide additional information important to the history of railroads and their construction. Therefore, the branch segment is not eligible under Criterion D.

Integrity

The rail segment of the Oakdale Branch recorded as part of this study (2743-01) has been almost completely dismantled and partially paved over. Historic-era characteristics such as ties, tracks, and alignment are no longer evident, with only a portion of one rail exposed near Long Road. As such, the segment no longer retains the integrities of design, materials, workmanship, setting, feeling, and association.

Recommendation

Rail segment 2743-01 is recommended ineligible for listing in the National and California Registers because it is not significant under any of the criteria and no longer retains sufficient integrity.

2743-02 (P-50-000073)

The Turlock Irrigation District Water Conveyance System was found to be eligible for listing in the National Register as a district under Criterion A for its association with the development of the first publicly owned irrigation district in California; however, several individual canal segments were found to be non-contributing to the district due to lack of integrity (Daly 2009). The criteria outlined below was developed

from Water Conveyance Systems in California: Historic Context Development and Evaluation Procedures developed by Caltrans and JRP Historical Consulting, LLC (Caltrans 2000).

Under Criterion A, a water conveyance system may be eligible for an association with important events, such as irrigated farming and the formation of the irrigation system, community development, and mining. While the segment recorded as part of this study is located within the boundaries of the Turlock Irrigation District Water Conveyance System, research did not reveal the association to be a particularly significant one and it is not eligible (individually and as a contributing resource) under Criterion A. Additionally, research did not reveal an important association with the history of mining or community development in the Hickman area.

Under Criterion B, water conveyance systems must possess a direct association with a person important or prominent to the formation of the Turlock Irrigation District Water Conveyance System and irrigated farming in the area. Research did not reveal a direct association with the lives of persons important or prominent in the formation of the system and irrigated farming in Hickman area and it is not considered eligible under Criterion B.

Under Criterion C, water conveyance systems may possess significance for the engineering and design techniques and methods and must possess distinctive design characteristics, such as patterns of features common to a particular class of resource; individually or variation of features that occurs within the class; the evolution of that class; or the transition between classes of resources. The segment recorded as part of this study was found to be not eligible under Criterion C (individually and as a contributing resource) because the components of the unit are considered common irrigation features, with no distinctive method of canal design or construction. Additionally, it does not possess a distinct pattern of features, an association with a significant engineer or builder was not found.

The segment recorded as part of this study was found to be not eligible under Criterion D (either individually or as a contributing resource) because the construction of water conveyance systems has been thoroughly documented and further research and documentation is not likely to yield additional information important to history.

Integrity

In assessing historic integrity, a segment of a water conveyance system needs to retain its essential physical features and most, if not all, of the seven aspects of integrity to provide a sense of time, place, and experience to convey its association to the whole of the linear resource.

The canal segment recorded as part of this study was constructed sometime between 1917 and 1939. Canals during this period were constructed using concrete; however, historical aerials from 1967 indicate the canal was either removed in certain segments or reconstructed to be an underground canal. As a result, the segment no longer retains the integrity of design, materials, and workmanship. This is the historic location of this canal, and it retains the integrity of location. The integrities of setting, feeling, and association remain intact.

Recommendation

Canal segment 2743-02 is recommended ineligible for listing in the National and California Registers because it is not significant under any of the criteria and no longer retains sufficient integrity.

7 – CONCLUSION

Far Western conducted a cultural resources inventory and evaluation in support of identification efforts for compliance with Section 106 of the NHPA and CEQA for the proposed Hickman Water Consolidation Project. Identification efforts for this study included a records search and desktop literature and map review, a buried precontact site potential assessment, a historic-era site potential assessment, an intensive survey of the APE, and resource recordation. Far Western also assisted with Native American and historical society outreach efforts. To date there have been no concerns regarding this project from the interested parties contacted.

The records search identified three previously recorded cultural resources within the APE. However, results of the pedestrian survey confirmed that no elements of the previously recorded resources overlap with the APE. The pedestrian survey did, however, result in the identification of two historic-era resources which intersect the APE within Hickman: 2743-01, a newly identified segment of the Oakdale Branch of the Southern Pacific Railroad (P-50-000001); and 2743-02, a canal segment of the Turlock Irrigation District. Far Western documented the two resources on updated California Department of Parks and Recreation 523 forms and, these resources were evaluated for listing in the National and California Registers and are each recommended ineligible.

Based on the project description, there is ground disturbance planned for the installation of new waterlines, as well as excavation to remove the old waterlines. In the northeast portion of the APE where there is High sensitivity for the presence of buried archaeological deposits and no existing waterlines, project related excavation to the depth of six feet has the potential to affect native soils that have not been previously disturbed, where there is the possibility of identifying intact archaeological deposits.. Where disturbance will occur to remove old waterlines, the subsurface deposits have already been subject to significant prior ground disturbances and the likelihood of identifying intact archaeological deposits is lower, except where the depth and width of the excavation trench exceeds the parameters of the previous waterline trench.

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APPENDIX A

NATIVE AMERICAN CONSULTATION

STATE OF CALIFORNIA — Gavin Newsom, Governor

NATIVE AMERICAN HERITAGE COMMISSION
Cultural and Environmental Department
1550 Harbor Blvd., Suite 100
West Sacramento, CA 95691
Phone: (916) 373-3710
Email: nahc@nahc.ca.gov
Website: http://www.nahc.ca.gov
Twitter: @CA_NAHC

November 21, 2019

Montse Osterlye
Far Western Anthropological Research Group, Inc.

VIA Email to: Montse@farwestern.com

RE: Hickman Water Consolidation, Stanislaus County

Dear Ms. Osterlye:

A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were negative. However, the absence of specific site information in the SLF does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Attached is a list of Native American tribes who may also have knowledge of cultural resources in the project area. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated; if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call or email to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from tribes, please notify the NAHC. With your assistance, we can assure that our lists contain current information. If you have any questions or need additional information, please contact me at my email address: Nancy.Gonzalez-Lopez@nahc.ca.gov.

Sincerely,

Nancy Gonzalez-Lopez
Staff Services Analyst

Attachment

Native American Heritage Commission
Native American Contact List
Stanislaus County
11/21/2019

North Valley Yokuts Tribe
Katherine Perez, Chairperson
P.O. Box 717
Linden, CA, 95236
Phone: (209) 887 - 3415
canutes@verizon.net

Costanoan
Northern Valley
Yokut

Southern Sierra Miwuk Nation
William Leonard, Chairperson
P.O. Box 186
Mariposa, CA, 95338
Phone: (209) 628 - 8603

Miwok
Northern Valley
Yokut
Paiute

Tule River Indian Tribe
Neil Peyron, Chairperson
P.O. Box 589
Porterville, CA, 93258
Phone: (559) 781 - 4271
Fax: (559) 781-4610
neil.peyron@tulerivertribe-nsn.gov

Yokut

Tule River Indian Tribe
Joey Garfield, Tribal Archaeologist
P. O. Box 589
Porterville, CA, 93258
Phone: (559) 783 - 8892
Fax: (559) 783-8932
joey.garfield@tulerivertribe-nsn.gov

Yokut

Tule River Indian Tribe
Kerri Vera, Environmental Department
P. O. Box 589
Porterville, CA, 93258
Phone: (559) 783 - 8892
Fax: (559) 783-8932
kerri.vera@tulerivertribe-nsn.gov

Yokut

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed Hickman Water Consolidation, Stanislaus County.

26 November 2019

Joey Garfield
Tribal Archaeologist
Tule River Indian Tribe
P.O. Box 589
Porterville, CA 93258

RE: Initiation of Consultation for the Hickman Water Consolidation Project, Stanislaus County

Dear Joey Garfield,

I would like to inform you about an upcoming project in Waterford and Hickman, Stanislaus County. The City of Waterford Public Works Department proposes the installation of a 14-inch waterline, which will connect to an existing line at the intersection of Yosemite and F Streets in Waterford and travel south along Hickman Road to the town of Hickman in Stanislaus County. The EPA is the lead federal agency. Please find mapping enclosed with this letter that shows the location of the project.

The proposed project will also include replacement and upgrades to existing facilities within Hickman proper. Project elements include trenching for the waterline, valve improvements and installations, and lateral connections. Maximum depth of excavations is not expected to exceed eight feet below existing surface. Overall, the water pipeline replacement/installation project covers 2.31 miles.

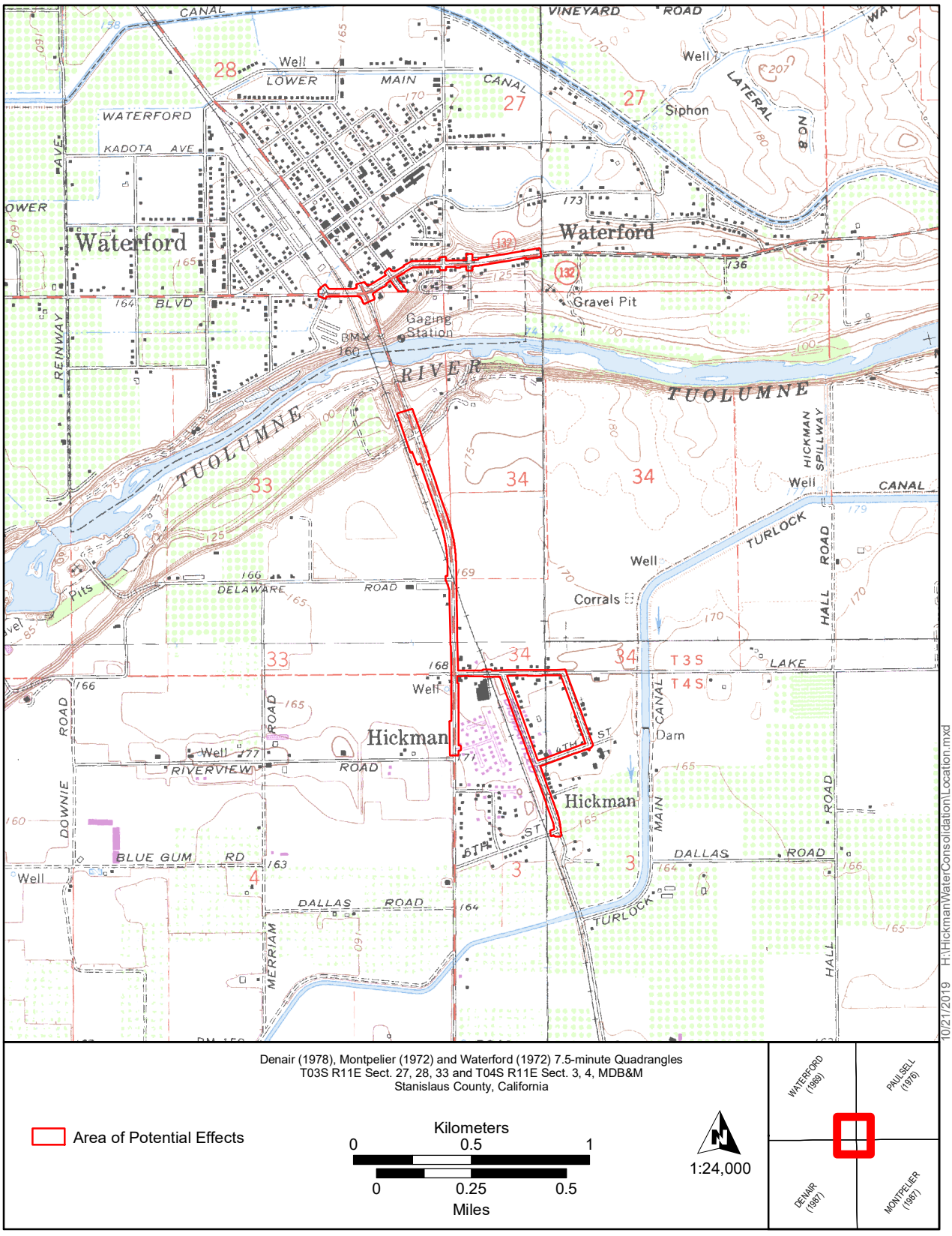
A review of cultural resource records on file at the Central California Information Center reveals that eight studies have been conducted in the project area, resulting in approximately 50% previous survey coverage of the project area. The records search and corresponding previous studies identified three built environment resources and one historic-era isolate within the project area and no previously recorded precontact or Native American resources within the project area or a one-mile radius. Far Western conducted pedestrian survey of the project area on November 14, 2019. No precontact or Native American archaeological resources were observed within any portion of the project area. Far Western requested a record search of the Sacred Lands File from the Native American Heritage Commission. On November 21, 2019 the Native American Heritage Commission responded in a letter stating that the results of the record search were negative and provided your contact information to consult on this project.

This project is just starting environmental process. We are reaching out to you now for early consultation and coordination. Please consider this letter as the initiation of Section 106 consultation pursuant to the National Historic Preservation Act and formal notification to you of a proposed project as required under the California Environmental Quality Act, specifically Assembly Bill (AB) 52 (Public Resources Code 21080.3.1 and Chapter 532 Statutes of 2014). If you would like to consult on this project, please respond within one month and provide us with a designated contact person for this project (per PRC 21080.3.1(d)). If you have any questions or concerns about this project, please feel free to contact me at 415- 413-1450 or montse@farwestern.com.

Sincerely,

Montse Osterlye
Staff Archaeologist, Far Western Anthropological Research Group, Inc.

Enclosure (1): Project Mapping



Denair (1978), Montpelier (1972) and Waterford (1972) 7.5-minute Quadrangles
T03S R11E Sect. 27, 28, 33 and T04S R11E Sect. 3, 4, MDB&M
Stanislaus County, California

10/21/2019 H:\HickmanWaterConsolidation\Location.mxd

Hickman Water Consolidation Project Location Map.

APPENDIX B

HISTORICAL SOCIETY CONSULTATION

Montserrat Osterlye

From: Montserrat Osterlye
Sent: Tuesday, November 19, 2019 4:33 PM
To: museum@mchenrymuseum.org
Subject: Question regarding a project in Waterford and Hickman
Attachments: Location.pdf

Hello,

I am a historical archaeologist working for Far Western Anthropological Research Group. We have been contracted to do historical and archaeological research in Waterford along Yosemite Boulevard/SR 132 and in Hickman. I have attached a map of the project area for your reference.

We are conducting historical and archival research for the project, and towards that end I always like to touch base with the local historical society and museum. If you have any knowledge regarding the history of this specific site or area, I would very much like to speak with you further. In addition, if you know of anyone who may know more I would appreciate you forwarding their contact.

Our preliminary research suggests the project area was limited to agricultural activities and, in the twentieth century, development of the towns of Waterford and Hickman.

Thanks in advance for your assistance in this research. Please feel free to give me a call if that is easier.

Montse Osterlye, BA
Staff Archaeologist
Far Western Anthropological Research Group, Inc.
Bay Area Branch
200 Gate 5 Road, Suite 102, Sausalito, CA 94965
Cell: 707.540.4470 | Office: 415.413.1450
montse@farwestern.com | www.farwestern.com

Montserrat Osterlye

From: janet lancaster <lanjanet@att.net>
Sent: Wednesday, November 20, 2019 5:03 PM
To: Montserrat Osterlye
Cc: Athina Osmuss
Subject: Re: Waterford/Hickman research

Hello Montse,
The 1895 map is a wall map - impossible to copy, but I'll photograph the area you designated. The aerial photo maps would give you a better "picture" of the terrain and the crops.
Janet at the McHenry Museum

On Wednesday, November 20, 2019, 11:31:29 PM UTC, Montserrat Osterlye <montse@farwestern.com> wrote:

Thank you for your quick response. The 1895 plat map would be of great help to us to further characterize the historical land use of the area. Also, thank you for specifying the crop types common in the area.

If you are able to send the 1895 map, that would be very much appreciated.

Montse

From: janet lancaster <lanjanet@att.net>
Sent: Wednesday, November 20, 2019 1:55 PM
To: Montserrat Osterlye <Montse@farwestern.com>
Cc: Athina Osmuss <aosmuss@mchenrymuseum.org>
Subject: RE: Waterford/Hickman research

Hello M. Osterlye,

The McHenry Museum is not a research facility. However, we do have plat maps from 1895 and aerial maps from 1937 as well as other historical text. Your request is too vague to search records. If you could better describe what type of information you seek, perhaps we could be of some help. You are correct that agriculture (mainly grain and some cattle with the recent introduction of almonds) has always been the main-stay of that area with some limited population along the main roads.

Janet Lancaster, volunteer

McHenry Museum

Modesto, California

APPENDIX C

CALIFORNIA DEPARTMENT OF PARKS AND RECREATION 523 FORMS

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary # P-50-000001 (UPDATE)
HRI #
Trinomial CA-STA-350H (UPDATE)
NRHP Status Code
Other Listings
Review Code **Reviewer** **Date**

 ***Resource Name or #:** 2743-01 (UPDATE)

P1. Other Identifier: San Joaquin Valley/Southern Pacific Railroad - Oakdale Branch Line
***P2. Location:** ☑ **Not for Publication** ☐ **Unrestricted** ***a. County:** Stanislaus
***USGS Quad(s):** Denair (1963; photorevised 1987)
NE ¼ of NE ¼ of Sec. 3, T4S R11E MDBM
c. Address:
d. UTM (NAD 83): Zone 10; 698217 mE 4166432 mN
e. Other Locational Data:
Located on the south side of Lake Road approximately 420 feet east of Hickman Road in Hickman, CA.

***P3a. Description:**
2745-01
This resource consists of the remains of a previously unrecorded segment of the Oakdale Branch of the historic-era San Joaquin Valley/Southern Pacific Railroad (P-05-000001/CA-STA-350H). The resource consists of a single exposed segment of rail immediately south of Lake Road at UTM: 10N, 698216.9 mE / 4166432.0 mN. The rail measures approximately 11 feet long and is oriented at a 166°-346° axis. The rail appears to be buried to the south under soil and to the north under Lake Road. No additional rail was observed on the north side of Lake Road. Only a single rail was exposed, and it is unclear whether an additional rail is buried to the west. The rail is in a well-trod area and the surrounding soil has been highly compacted by vehicles and foot traffic. No associated artifacts or features were observed.

***P3b. Resource Attributes:** AH07 (Roads/trails/railroad grades)
***P4. Resources Present:** ☐ Building ☐ Structure ☐ Object ☑ Site ☐ District ☐ Element of District ☐ Other (isolates, etc.)

***P5b. Description of Photo:**
Overview of 2743-01, view west.

***P6. Date Constructed/Age & Sources:**
☑ Historic ☐ Prehistoric ☐ Both

***P7. Owner and Address:**
Unknown

***P8. Recorded by:**
M. Osterlye and J. McWaters, Far Western Anthropological Research Group, Inc.

***P9. Date Recorded:** 11/14/2019
***P10. Survey Type:**
Intensive Pedestrian Survey

***P11. Citation:** Siskin, Barb. 2019. Cultural Resources Inventory Report for the Hickman Water Consolidation Project, Stanislaus County, California. Submitted to J. B. Anderson Land Use Planning, 139 South Stockton Avenue, Ripon, CA 9536

***Attachments:** ☐ None ☑ Location Map ☐ Sketch Map ☑ Continuation Sheet ☐ Building, Structure, and Object Record
☐ Archaeological Record ☐ District Record ☑ Linear Feature Record ☐ Milling Station Record ☐ Rock Art Record
☐ Artifact Record ☐ Photograph Record ☐ Other:

L1. Historic and/or Common Name: Oakdale Branch of Southern Pacific Railroad

L2a. Portion Described: ☐ Entire Resource ☑ Segment ☐ Point Observation **Designation:**

L2b. Location of Point or Segment:

Located on south side of Lake Road approximately 420 feet east of Hickman Road in Hickman California.

L3. Description:

This resource consists of the remains of a previously unrecorded segment of the Oakdale Branch of the historic-era San Joaquin Valley/Southern Pacific Railroad (P-05-000001/CA-STA-350H). The rail measures approximately 11 feet long and is oriented at a 166°-346° axis. The rail appears to be buried to the south under soil and to the north under Lake Road. No additional rail was observed on the north side of Lake Road. Only a single rail was exposed, and it is unclear whether an additional rail is buried to the west. The rail is in a well-trod area and the surrounding soil has been highly compacted by vehicles and foot traffic. No associated artifacts were observed.

L4. Dimensions:

a. Top Width: 3 inches

b. Bottom Width:

c. Height or Depth: Surface

d. Length of Segment: 11 feet

L5. Associated Resources:

L4e. Sketch of Cross-Section: **Facing:**

L6. Setting:

The rail segment is located within the City of Hickman California. It's located within the historic location of the Hickman rail station, which was one of the original stops built along the Oakdale Branch in 1891.

L7. Integrity Considerations:

The segment recorded as part of this study has been almost completely dismantled and partially paved over. Historic characteristics such as ties, tracks, and alignment are no longer evident, with only a portion of one rail exposed near Long Road. As such, the segment no longer retains the integrities of design, materials, workmanship, setting, feeling, and association.

L8b. Description of Photo/Map/Drawing:

Exposed rail section shown just across Lake Road, view south. Open area represents historic Hickman Station, which was once covered in various rail siding.

L9. Remarks:

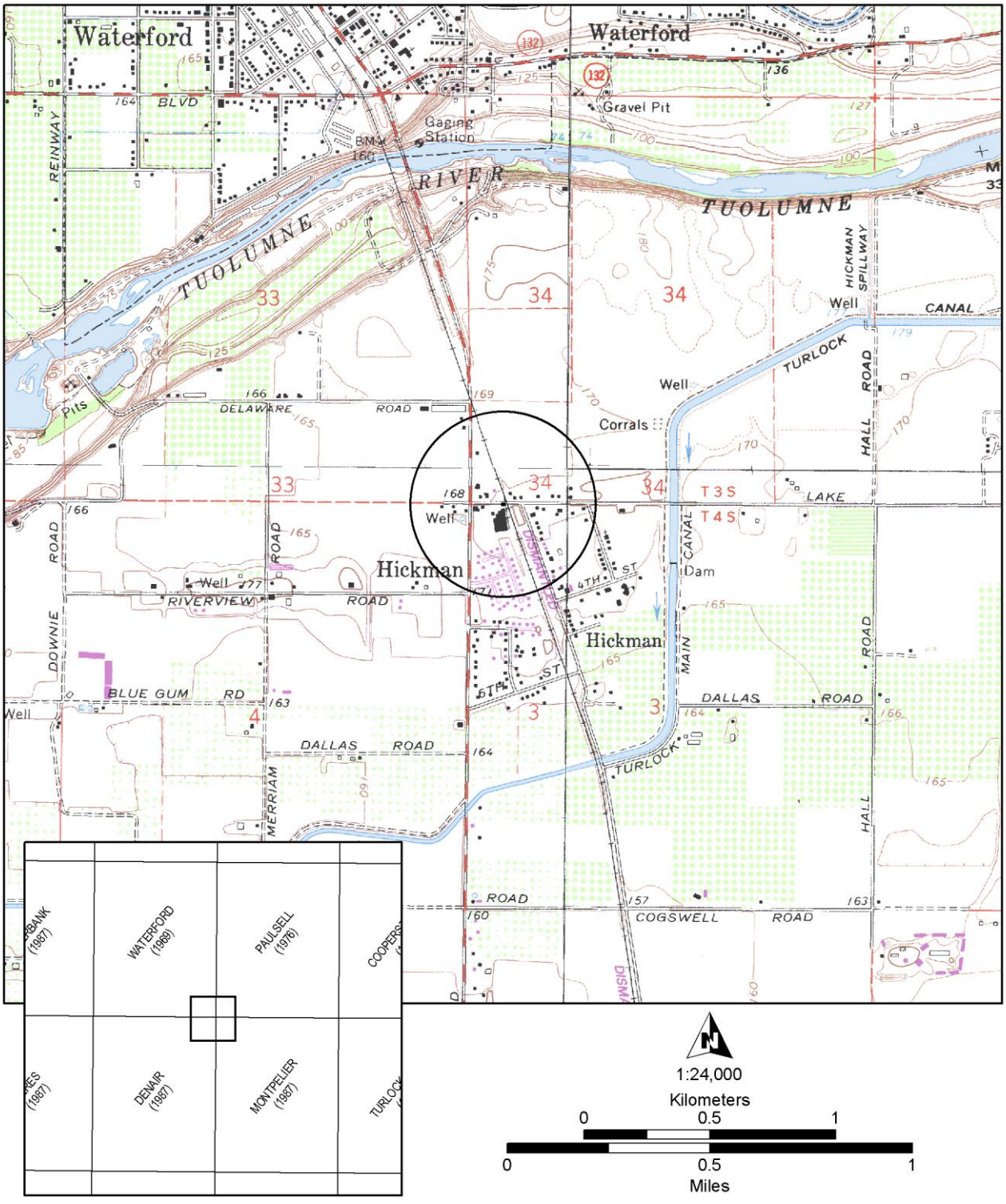
See Continuation Sheet.

L10. Form Prepared By:

M. Osterlye and J. McWaters

L11. Date: 11/14/2019

L9. Remarks
Previous evaluations of the Oakdale Branch were conducted in 1993, 1999 and 2014. Portions of the Oakdale Branch constructed after 1891 were determined to be not eligible due to lack of significance in 2014. This segment of the Oakdale Branch of the Southern Pacific does not meet any of the four criteria for nomination to the NRHP/CRHR and is not considered eligible (individually or as a contributing segment).



Joshua 12/10/2019 12:19:27 PM

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary # P-50-000073 (UPDATE)
HRI #
Trinomial CA-STA-426H (UPDATE)
NRHP Status Code
Other Listings
Review Code **Reviewer** **Date**

 ***Resource Name or #:** 2743-02 (UPDATE)

P1. Other Identifier: Turlock Irrigation District
***P2. Location:** ☑ **Not for Publication** ☐ **Unrestricted** ***a. County:** Stanislaus
***USGS Quad(s):** Waterford (1969), Denair (1963; photorevised 1987)
SW ¼ of SW ¼ of Sec. 34, T3S R11E MDBM
NW ¼ of NW ¼ of Sec. 3, T4S R11E MDBM
NE ¼ of NE ¼ of Sec. 4, T4S R11E MDBM
c. Address:
d. UTM (NAD 83): Zone 10; 698181 mE 4166446 mN north side of Lake Road
Zone 10; 698182 mE 4166432 mN south side of Lake Road
Zone 10; 698089 mE 4166388 mN east side of Hickman Road
e. Other Locational Data:

***P3a. Description:**
This resource is a previously unrecorded historic-era irrigation canal within the Turlock Irrigation District Water Conveyance System (P-50-000073). The canal intersects the survey in two segments: crossings under Hickman and Lake Roads. Each segment crosses its respective road through a culvert with board-formed concrete headwalls and extends into private property out of the 10-foot survey corridor around each road. The canals have earthen berms with poured concrete interior walls about 10 feet wide at the maximum height. The canal is three feet deep and dives an additional 3 feet two inches under the roadway. (See Continuation Sheet).

***P3b. Resource Attributes:** AH06 (Water conveyance system)
***P4. Resources Present:** ☐ Building ☐ Structure ☐ Object ☐ Site ☐ District ☑ Element of District ☐ Other (isolates, etc.)

***P5b. Description of Photo:**
Overview of canal undercrossing Hickman Road, view west-southwest.

***P6. Date Constructed/Age & Sources:**
☑ Historic ☐ Prehistoric ☐ Both

***P7. Owner and Address:**
Turlock Irrigation District

***P8. Recorded by:**
M. Osterlye and J. McWaters, Far Western Anthropological Research Group, Inc.

***P9. Date Recorded:** 11/14/2019
***P10. Survey Type:**
Intensive Pedestrian Survey

***P11. Citation:** Siskin, Barb. 2019. Cultural Resources Inventory Report for the Hickman Water Consolidation Project, Stanislaus County, California. Submitted to J. B. Anderson Land Use Planning, 139 South Stockton Avenue, Ripon, CA 9536

***Attachments:** ☐ None ☑ Location Map ☐ Sketch Map ☑ Continuation Sheet ☐ Building, Structure, and Object Record
☐ Archaeological Record ☐ District Record ☑ Linear Feature Record ☐ Milling Station Record ☐ Rock Art Record
☐ Artifact Record ☐ Photograph Record ☐ Other:

L1. Historic and/or Common Name: Turlock Irrigation District canal

L2a. Portion Described: ☐ Entire Resource ☐ Segment ☑ Point Observation **Designation:**

L2b. Location of Point or Segment:

The north segment crosses Lake Road at UTM: 698181mE/4166446mN and disappears underground after running about 130 feet north and north east.The western segment crosses Hickman Road UTM: 698089mE/4166388mN and runs on the west shoulder of Hickman Road for about 900 feet before diving underground. The segments are connected by about 350 feet of open canal.

L3. Description:

This resource is a previously unrecorded historic-era irrigation canal within the Turlock Irrigation District Water Conveyance System (P-50-000073). The canal intersects the survey in two segments: crossings under Hickman and Lake Roads. Each segment crosses its respective road through a culvert with board-formed concrete headwalls and extends into private property out of the 10-foot survey corridor around each road. The canals have earthen berms with poured concrete interior walls about 10 feet wide at the maximum height. The canal is three feet deep and dives an additional 3 feet two inches under the roadway.

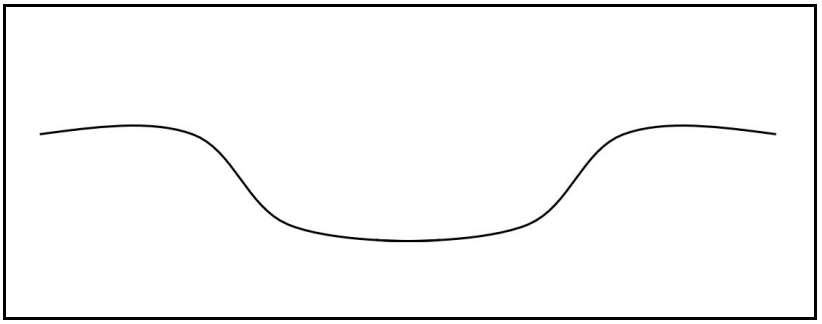
L4. Dimensions:

a. Top Width: 10 ft
b. Bottom Width: 3 ft
c. Height or Depth: 3-6 ft
d. Length of Segment: 20+ ft

L5. Associated Resources:

None.

L4e. Sketch of Cross-Section: **Facing:** North



L6. Setting:

Agricultural/Urban interface.

L7. Integrity Considerations:

(See Continuation Sheet).

L8b. Description of Photo/Map/Drawing:

Overview of canal on north side of Lake Road, view north.

L9. Remarks:

TID was found to be eligible for listing on the National Register as a district under Criterion A for its association with the development of the first publicly owned irrigation district in California; however, several individual canal segments were found to be non-contributing to the district due to lack of integrity (see original site record, Daly 2009).

L10. Form Prepared By:

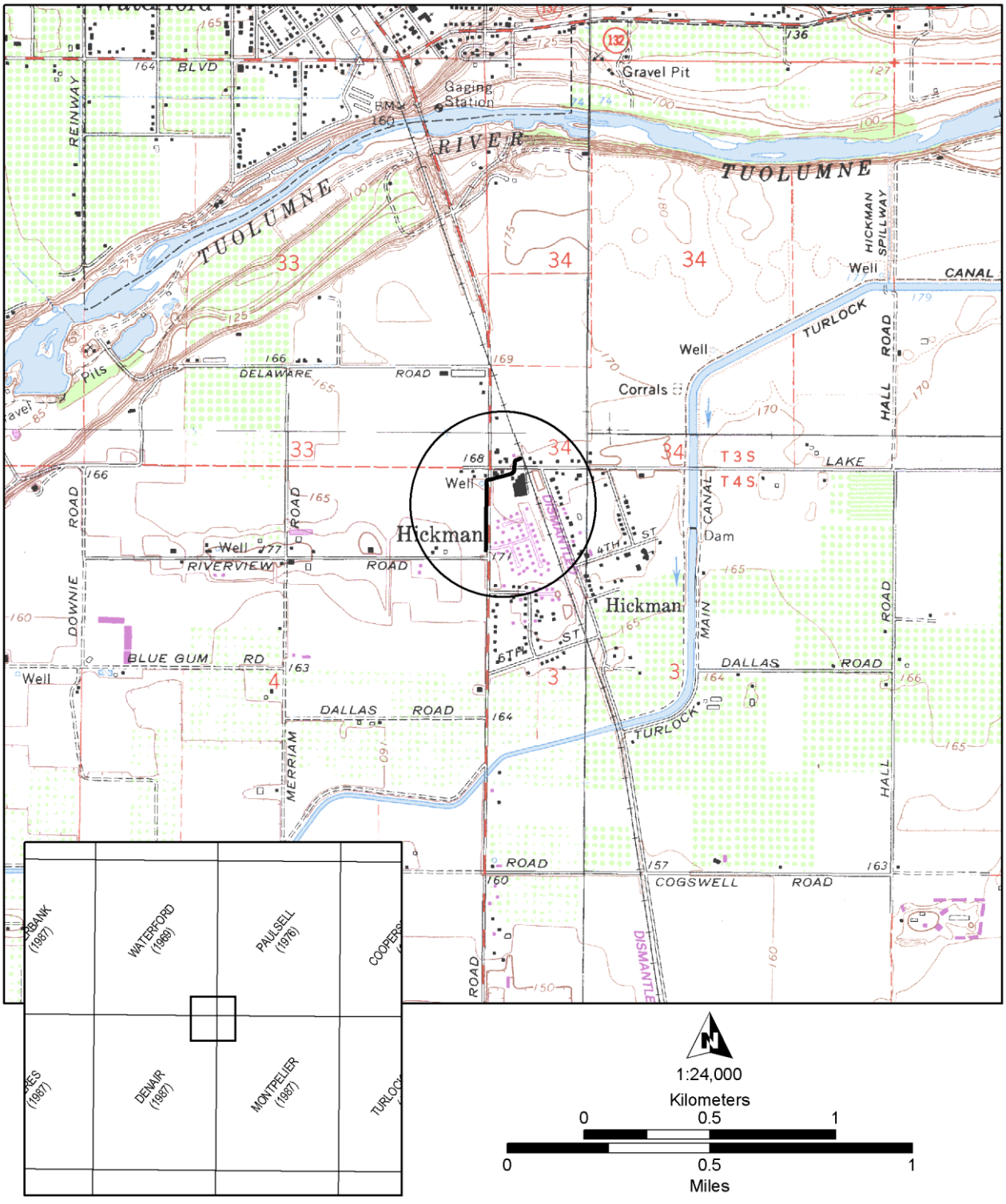
M. Osterlye and J. McWaters

L11. Date: 11/14/2019

P3a. Description
The northern segment crosses Lake Road and disappears underground after running about 130 feet north and north east. The western segment crosses Hickman Road and runs along the west shoulder of Hickman Road for about 900 feet before diving underground. The two segments are connected by about 350 feet of open canal.

The Turlock Irrigation District Water Conveyance System (P-50-000073) encompasses many main and lateral canals that have been previously evaluated for the National Register of Historic Places and though it was found potentionally eligible under Criterion A, it was recommended ineligible for listing due to lack of historical integrity.

L7. Integrity Considerations
The canal recorded as part of this study was constructed sometime between 1917 and 1939. Canals during this period were constructed using concrete; however, historic aerials from 1967 indicate the canal was either removed in certain segments or reconstructed to be an underground canal. As a result, the segment no longer retains the integrity of design, materials, and workmanship. This is the historic location for this canal and it retains the integrity of location. The integrities of setting, feeling, and association remain intact.



Joshua 12/10/2019 1:26:04 PM

APPENDIX D

SURVEY PHOTOGRAPHS

Far Western Digital Photo Log

Folder: Survey Photos

File: IMG_1313
Date/time: 11/14/2019 10:47:12 AM
Camera: iPhone XR
Resource:
Constituent:
Subject: South half of Montpelier Street. (View: 162°)

File: IMG_1314
Date/time: 11/14/2019 10:47:30 AM
Camera: iPhone XR
Resource:
Constituent:
Subject: North half of Montpelier Street. (View: 340°)

File: IMG_1315
Date/time: 11/14/2019 10:56:06 AM
Camera: iPhone XR
Resource:
Constituent:
Subject: South end of Montpelier Street. (View: 4°)

File: IMG_1316
Date/time: 11/14/2019 11:02:03 AM
Camera: iPhone XR
Resource:
Constituent:
Subject: Cut bank southeast of Montpelier/4th Street intersection. (View: 73°)

File: IMG_1317
Date/time: 11/14/2019 11:03:27 AM
Camera: iPhone XR
Resource:
Constituent:
Subject: Looking down 4th Street from Montpelier Street. (View: 70°)

File: IMG_1318
Date/time: 11/14/2019 11:07:34 AM
Camera: iPhone XR
Resource:
Constituent:
Subject: Looking down 4th Street from "I" Street. (View: 242°)

Far Western Digital Photo Log

Folder: Survey Photos

File: IMG_1319
Date/time: 11/14/2019 11:08:22 AM
Camera: iPhone XR
Resource:
Constituent:
Subject: Looking down "I" Street from 4th Street. (View: 340°)

File: IMG_1320
Date/time: 11/14/2019 11:13:15 AM
Camera: iPhone XR
Resource:
Constituent:
Subject: Looking down "I" Street from Lake Road. (View: 176°)

File: IMG_1321
Date/time: 11/14/2019 11:15:41 AM
Camera: iPhone XR
Resource:
Constituent:
Subject: Looking down Lake Road from "I" Street. (View: 250°)

File: IMG_1322
Date/time: 11/14/2019 11:36:28 AM
Camera: iPhone XR
Resource: CA-STA-350H
Constituent:
Subject: 2743-01 across road (location of former depot left of buildings). (View: 168°)

File: IMG_1323
Date/time: 11/14/2019 11:36:43 AM
Camera: iPhone XR
Resource:
Constituent:
Subject: 2743-01 across road. Location of former depot left of buildings. (View: 168°)

File: IMG_1324
Date/time: 11/14/2019 11:37:59 AM
Camera: iPhone XR
Resource: CA-STA-350H
Constituent:
Subject: 2743-01 (tape at 3 feet). (View: 260°)

Far Western Digital Photo Log

Folder: Survey Photos

File: IMG_1325
Date/time: 11/14/2019 11:41:54 AM
Camera: iPhone XR
Resource: CA-STA-426H
Constituent:
Subject: 2743-02 north side of Lake Road. (View: 0°)

File: IMG_1328
Date/time: 11/14/2019 11:43:17 AM
Camera: iPhone XR
Resource: CA-STA-426H
Constituent:
Subject: 2743-02 south side of Lake Road. (View: 180°)

File: IMG_1329
Date/time: 11/14/2019 11:53:38 AM
Camera: iPhone XR
Resource:
Constituent:
Subject: Looking down Lake Road from Hickman Road. (View: 115°)

File: IMG_1330
Date/time: 11/14/2019 11:56:51 AM
Camera: iPhone XR
Resource:
Constituent:
Subject: Looking north down Hickman Road from Lake Road. (View: 0°)

File: IMG_1331
Date/time: 11/14/2019 11:57:00 AM
Camera: iPhone XR
Resource:
Constituent:
Subject: Looking south down Hickman Road from Lake Road, 2743-02 visible in background. (View: 180°)

File: IMG_1332
Date/time: 11/14/2019 11:58:12 AM
Camera: iPhone XR
Resource: CA-STA-426H
Constituent:
Subject: 2743-02 crossing Hickman Road. (View: 35°)

Far Western Digital Photo Log

Folder: Survey Photos

File: IMG_1333
Date/time: 11/14/2019 11:58:21 AM
Camera: iPhone XR
Resource: CA-STA-426H
Constituent:
Subject: 2743-02 crossing Hickman Road. (View: 35°)

File: IMG_1334
Date/time: 11/14/2019 12:14:15 PM
Camera: iPhone XR
Resource:
Constituent:
Subject: Location along Hickman Road where map shows P-50-000001 (railroad) crossing. (View: 343°)

File: IMG_1335
Date/time: 11/14/2019 12:20:04 PM
Camera: iPhone XR
Resource:
Constituent:
Subject: North end of Hickman Road. P-50-0002314 to the right (out of frame) and mapped location of P-50-000001 to the left. (View: 350°)

File: IMG_1336
Date/time: 11/14/2019 12:24:29 PM
Camera: iPhone XR
Resource:
Constituent:
Subject: View of P-50-002314 from Hickman Road. (View: 45°)

File: IMG_1337
Date/time: 11/14/2019 1:26:36 PM
Camera: iPhone XR
Resource:
Constituent:
Subject: Yosemite Boulevard, from east side of "F" Street. (View: 70°)

File: IMG_1338
Date/time: 11/14/2019 1:29:42 PM
Camera: iPhone XR
Resource:
Constituent:
Subject: Intersection of Yosemite Boulevard and "F" Street. (View: 120°)

Far Western Digital Photo Log

Folder: Survey Photos

File: IMG_1339
Date/time: 11/14/2019 1:38:41 PM
Camera: iPhone XR
Resource:
Constituent:
Subject: Intersection of Yosemite Boulvard and Riverside Road. Mapped location of P-50-001780. (View: 21°)

File: IMG_1341
Date/time: 11/14/2019 1:58:28 PM
Camera: iPhone XR
Resource:
Constituent:
Subject: East end of Yosemite Boulevard APE. (View: 270°)

File: IMG_1342
Date/time: 11/14/2019 2:03:02 PM
Camera: iPhone XR
Resource:
Constituent:
Subject: P-50-0001780 at Yosemite Boulevard and Eucalyptus Avenue. (View: 239°)