Adobe Road Recycled Water Pipeline Project

CEQA Checklist

Petaluma Water Recycling Expansion Program EIR
State Clearinghouse #2007052146

City of Petaluma
11 English Street
Petaluma, CA 94952

September 10, 2024

Contents

Chapter 1. Introduction and Summary

California Environmental Quality Act (CEQA)

This Checklist has been prepared to determine whether the Adobe Road Recycled Water Pipeline Project (Project) is within the scope of the Program Environmental Impact Report (Program EIR) for the *Water Recycling Expansion Program* (WREP) (City of Petaluma, 2008), and whether subsequent environmental review is needed to examine the significant environmental impacts of the Project.

The WREP Program EIR was certified by the Petaluma City Council on November 3, 2008 (Clearinghouse #2007052146). There have been two subsequent addenda to the Program EIR. In 2015, an Addendum was prepared that extended the Recycled Water Service Area Boundary (Figure 2-2 of the Program EIR) and revised Project Measure PD-16 (Implement BMPs for Runoff, Erosion, and Agricultural Chemical Use), to reflect the City's *Rules and Regulations for Recycled Water Customers* regarding the use of recycled water. In 2018, an Addendum was prepared to again expand the Recycled Water Service Area Boundary. The Adobe Road Recycled Water Pipeline is within the expansion area included in the 2018 Addendum.

The WREP Program EIR is both a project-level and a program-level EIR. The program-level improvements include use of recycled water for irrigation and installation of recycled water distribution pipelines, both of which are proposed as part of the Adobe Road Recycled Water Pipeline Project.

This Checklist has been prepared under Section 15168(c) of the CEQA Guidelines and documents the City's evaluation of the Project site, Project construction, and Project operations to determine whether the environmental effects of the Project were adequately covered in the WREP Program EIR. This Checklist also serves to evaluate the Project pursuant to Section 15162 of the CEQA Guidelines to determine if the Project results in new significant impacts, substantially increases the severity of previously identified significant impacts, or requires new mitigation measures.

Chapter 3 of this Checklist is the Mitigation, Monitoring, and Reporting Program (MMRP) for the Project, which incorporates the feasible Project Measures and Mitigation Measures that were developed in the Program EIR that are applicable to the Project. Chapter 4 of this Checklist evaluates the Project, including consideration of changes to the environmental setting, cumulative projects, and pertinent regulations that have occurred since certification of the WREP Program EIR in 2008.

Summary of Results

As concluded by this Checklist in Chapter 4, no new significant environmental effects have been identified, and no new mitigation measures are required as compared to the WREP Program EIR. Project Measures (incorporated as part of design) and Mitigation Measures applicable to this Project are identified in the Checklist table and also in the MMRP in Chapter 3. This analysis concludes that the Project is within the scope of the WREP Program EIR, and that none of the

conditions listed in CEQA Guidelines Section 15162 would occur. Therefore, it has been determined that no further CEQA documentation is required.

The WREP Program EIR is available for review at Petaluma City Hall at 11 English Street, Petaluma, California, 94952.

Chapter 2. Project Description

Background and Purpose

In the 1980's, the City began providing recycled water for the irrigation of pasture land to avoid summertime discharge to the Petaluma River in compliance with the City's discharge permit. Later, the City expanded its recycled water irrigation program by adding a vineyard, golf courses, schools, parks, landscape assessment districts (LADs), and a commercial property.

The 2002 Ellis Creek Water Recycling Facility EIR and subsequent Addenda allows for the production of up to 8 million gallons per day of tertiary recycled water. The tertiary recycled water supports many of the various uses allowed by Title 22 for tertiary recycled water, including irrigation of food and pasture crops; irrigation of landscaping, parks, and schools; industrial and commercial uses; and indoor uses such as fire sprinkler systems and toilet flushing in commercial or institutional buildings.

The City has determined that expanding the recycled water distribution system to provide agricultural irrigation water in unincorporated portions of the County is a cost-effective means of reducing potable water demand, thereby freeing up the potable water for more essential services. As part of the Project, the City proposes to expand its recycled water system by installing a new recycled water pipeline to convey recycled water to new users located northeast of the City limits (see **Figure 1 Regional Map**). The expanded distribution system would allow the delivery of 200 to 400 acre-feet per year of tertiary recycled water to agricultural parcels (vineyards) located along Adobe Road between from Frates Road to just past Hamilton Road.

The relevant objectives of the City's Water Recycling Expansion Program that the proposed Project helps to achieve are:

- To enhance the City's water supply by providing recycled water for non-potable uses to create a new source of water that is sustainable, drought proof, and readily available within the City of Petaluma;
- To recycle tertiary water effectively to remain in compliance with regulatory permit requirements during the period of restricted discharge to the Petaluma River (May 1 through October 20);
- To meet regulatory requirements for reuse of approximately 1,025 to 1,070 million gallons (MG) a year of water through a flexible, economical program that provides water application locations in a drought or wet year making the program ecologically sustainable;
- To provide a comprehensive, phased program to construct, improve and expand the facilities, conveyance systems, and irrigation systems necessary for the distribution of recycled water to meet user demands and restricted discharge requirements as population buildout occurs under General Plan 2025;
- To provide tertiary recycled water for irrigation reuse applications, and other uses as permitted under Title 22, where the City is currently supplying potable water; and
- To continue to support the Water Conservation programs so as to offset potable water demands as described in the Water Conservation Plan.

Prior to this Checklist document, the City has prepared two Addenda and one Checklist document in support of individual activities implemented under the WREP. The following is a summary of the CEQA documents prepared to-date, including this CEQA Checklist.

November 2008	WREP EIR Certified	Project- and Program-level EIR covering infrastructure required to distribute & apply secondary and tertiary recycled water within and around City of Petaluma.
December 2015	Addendum #1	Extended Recycled Water Service Area Boundary southeast & modified PD-16.
June 2016	CEQA Checklist	2016 Urban Recycled Water System Expansion Project (2 recycled water pipelines & irrigation)
March 2018	Addendum #2	Extended Recycled Water Service Area Boundary northeast
October 2023	CEQA Checklist (this document)	Adobe Road Recycled Water Pipeline Project (1 pipeline & irrigation)

Project Location

The Project is located in unincorporated Sonoma County, northeast of the Petaluma City limits. The Project is located within the City's Recycled Water Service Boundary, as shown in Revised Figure 2-2 of the 2018 WREP EIR Addendum (City of Petaluma 2018).

The Project corridor extends for approximately 5,000 feet (see **Figure 1 Regional Map**). The pipeline would extend 1,500 feet along Frates Road southwest of the intersection of Frates Road and Adobe Road and 3,500 feet along Adobe Road northeast of the intersection to just past Hamilton Road. Three creeks/drainages are present within the Project corridor. The first is an unnamed seasonal swale culverted beneath Adobe Road, Hutchinson Creek and an unnamed seasonal stream. All three watercourses are culverted within the pipeline alignment and drain to Ellis Creek, which then flows to the Petaluma River.

Project Components

The Project will install a new 16-inch diameter PVC pipe within and alongside the Frates Road and Adobe Road public rights-of-way, as shown in **Appendix A Plan Sheets**.

The County of Sonoma right-of-way along Frates Road and Adobe Road extends 43 feet perpendicular to the centerline of the roadway within the project limits. The design maintains the pipeline within the existing public right-of-way, unless determined to be infeasible. Where the pipeline cannot be located entirely with public right-of-way, the Project would rely on easements from adjacent private property owners.

Two methods of pipe installation will be used: open-trench and Horizontal Directional Drilling (HDD). HDD will be used at the creek crossings. Each of these is described further below.

Open-Trench Pipeline Installation

The Project consists of a 16-inch diameter PVC pipe located within and alongside the Frates Road and Adobe Road public rights-of-way, as shown in **Appendix A Plan Sheets**.

The Project would use open-trench construction for approximately half of the pipeline. Construction activities would occur within a 30-foot-wide construction zone to provide adequate space for earthmoving activities and the movement of heavy machinery. The pipe trench would be approximately 3.5 to 4 feet wide and 6 to 8 feet deep. Open trenches would be covered with steel plates or backfill material at the end of each workday to restrict access. Open-trench pipeline installation is anticipated to proceed at a rate of approximately 100 feet per day.

Trenchless HDD Pipeline Installation Beneath Watercourses

The proposed recycled water pipeline would cross the following three culverted watercourses:

- **Unnamed, Seasonal Swale** near Frates Road / Old Adobe Road / Adobe Road
    - Approximate Distance of Underground Boring: 700 feet
- **Hutchinson Creek** near Pozza Road
    - Approximate Distance of Underground Boring: 1,300 feet
- **Unnamed Seasonal Stream** near Hamilton Road
    - Approximate Distance of Underground Boring: 800 feet

The three watercourse crossings would be completed using HDD techniques to install HDPE or fusible PVC pipe. At the point where the crossings occur, the watercourses are culverted. The trenchless HDD process involves creating a drilling pit and receiving pit on either side of a watercourse and drilling the pipe horizontally underground between the two pits. As required by Project Measure PD-17 (Frac-Out and Undercrossing Contingency Plan) of the Program EIR, the City would require the Contractor to implement a Frac-out and Undercrossing Contingency Plan for the HDD process to manage pressures and the volume of bentonite mix, as well as include contingencies to monitor and contain any unforeseen frac-out.

The absence of an open trench would avoid impacts to the watercourses and associated aquatic and riparian habitats. The drilling pit would be approximately 12 feet by 40 feet. The receiving pit would be approximately 4 feet by 10 feet. Pits would be set back between 200 and 500 feet from the top of the creek banks, depending on location. These setbacks exceed the minimum 50-foot setbacks required by Project Measure PD-21 (Riparian and Sensitive Habitat Protection).

Construction Staging and Schedule

Staging would occur along the construction zone of the roadways and/or in graveled shoulders and pullouts. A single-lane closure during portions of the pipeline installation may be required. As required by Project Measure PD-11 (Standard Traffic Control Procedures) of the Program EIR, the City would require the Contractor to implement standard traffic control measures to minimize traffic congestion, traffic hazards, and damage to roads to the extent feasible.

Construction of the Project is anticipated to begin in late spring 2024 and be completed within an approximately 6-month timeframe. Connections to the agricultural irrigation systems would occur shortly after completion of the pipeline. The new users would be responsible for installing private laterals to their property and for maintaining their respective irrigation system.

Compliance with Geotechnical Report

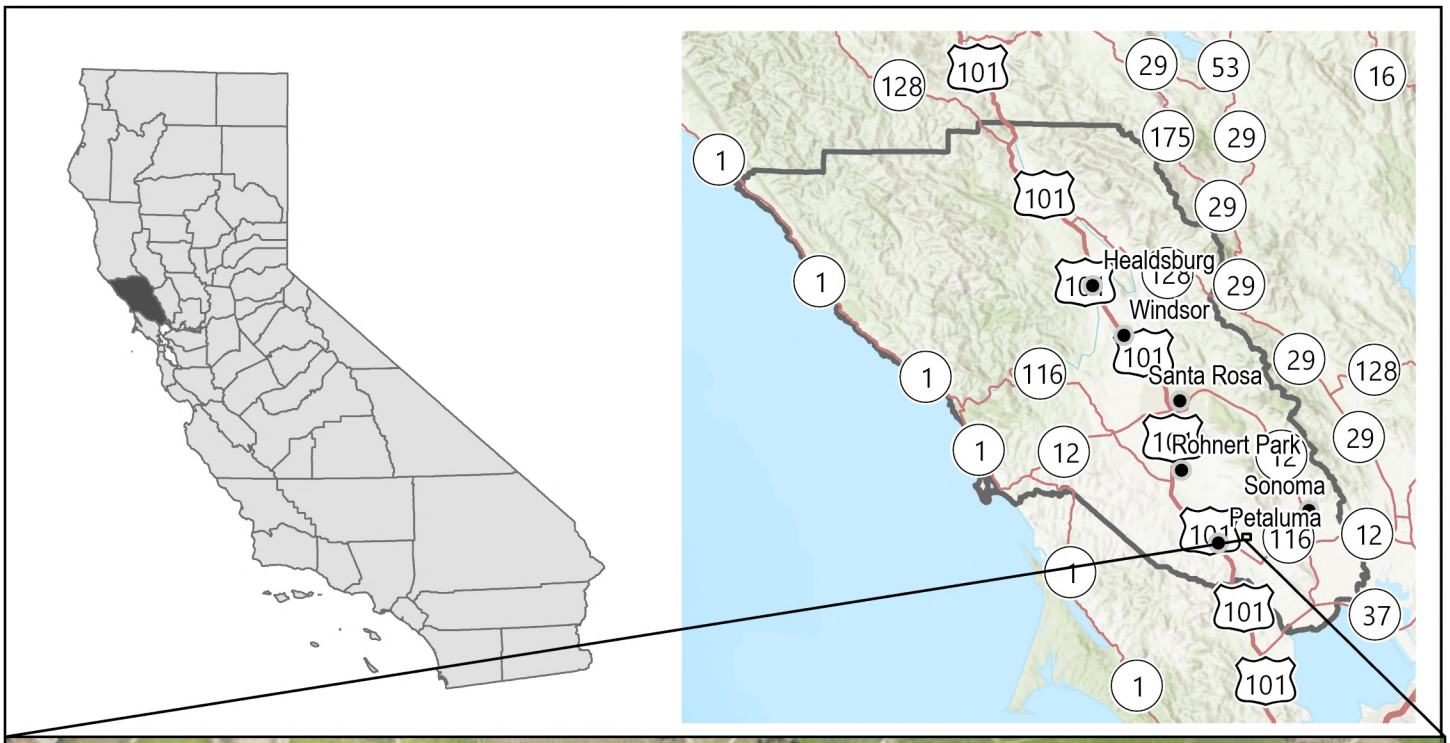
A *Geotechnical Investigation Report* has been prepared for the Project (Kleinfelder, 2020). The Project has been designed in compliance with recommendations provided in the report relative to unstable soils, liquefaction, corrosive soils, and seismic events, as required by Project Measures PD-4, PD-6, PD-7, and PD-8.

Other Required Agency Approvals

The following is a list of potentially applicable permits and approvals from state and local responsible agencies under CEQA. These agencies may need to issue approvals for the Project and, thus, may need to rely upon this CEQA Checklist and the WREP Program EIR.

Sonoma County

Construction within the Adobe Road and Frates Road rights-of-way would require an Encroachment Permit from the County.



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Map Projection: Mercator Auxiliary Sphere
Horizontal Datum: WGS 1984
Grid: WGS 1984 Web Mercator Auxiliary Sphere

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City of Petaluma
Adobe Road
Recycled Water Pipeline Project

Project No. **11152197**
Revision No. **-**
Date **Sep 2023**

Regional Map

FIGURE 1

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Chapter 3. Mitigation Monitoring and Reporting Program

Introduction

This Chapter presents the Mitigation and Monitoring and Reporting Program (MMRP) for the Project, identifying the Project Measures (incorporated during design) and Mitigation Measures from the WREP Program EIR that are applicable to the Project.

Program Implementation and Monitoring

The City of Petaluma shall be responsible for overall implementation and administration of the MMRP. The City may partner with others, such as recycled water users, who will need to implement the MMRP as well. The City shall designate a Coordinator to oversee implementation of the Mitigation Measures and ensure they are completed to the standards specified in the Program EIR. The Coordinator will also ensure that the Mitigation Measures are completed in a timely manner.

Duties of the Coordinator include the following:

- Coordinate with applicable agencies that have mitigation monitoring and reporting responsibility;
- Coordinate activities with the construction manager;
- Coordinate activities of all in-field monitors;
- Develop work plan and schedule for monitoring activities;
- Coordination of activities of consultants hired by the City when such expertise and qualifications are necessary;
- Routine inspections and reporting activities;
- Plan checks;
- Assure follow-up and response to citizen inquiries and complaints;
- Maintain the Mitigation Monitoring Checklist or other suitable mitigation compliance summary; and
- Coordinate and assure implementation of corrective actions or enforcement measures, as needed.

Measures Included in Project

The following Project Measures are applicable to the Adobe Road Recycled Water Pipeline and have been incorporated into the Project through the design process.

PD-4 Slope Stabilization

The City of Petaluma shall utilize a licensed geotechnical engineer and, when appropriate, a structural engineer to conduct construction-level geotechnical investigation for facilities. If the geotechnical investigations identify hazards due to unstable slopes or actively eroding soils, the engineer shall identify slope stability risk areas and provide engineering design and construction recommendations to stabilize slopes and soft or unstable soils.

Implementing Agency:	City of Petaluma, Design Engineer
Timing:	**Start:** At onset of Project design.
	Complete: Prior to the beginning of construction.
Monitoring Agency:	City of Petaluma
Validation:	Report that 90% design plans conform with measure.

PD-6 Standard Engineering Methods for Expansive Soils

The City shall utilize a qualified soil scientist or engineer to conduct a detailed, facility-specific soil survey and determine which facilities require shrink swell prevention measures. The survey shall record soil type and soil properties (including shrink swell characteristics). Where the detailed pre-design soil analysis has identified the presence of expansive soils, the City shall implement standard geotechnical practices to substantially lessen or avoid potential impacts from expansive soils. Measures could include the following standard methods:

- Removal of native soil and replacement with an engineered fill material not prone to shrinking and swelling;
- Soil stabilization, such as lime treatment to alter soil properties to reduce shrink-swell potential to an acceptable level; or
- Deepening footings or other support structures in the expansive soil to a depth where soil moisture fluctuation is minimized.

Implementing Agency:	City of Petaluma, Design Engineer
Timing:	**Start:** At onset of Project design.
	Complete: Upon completion of construction.
Monitoring Agency:	City of Petaluma
Validation:	Report that 90% design plans conform with measure.

PD-7 Standard Engineering Methods for Corrosive Soils

The City shall utilize a qualified soil scientist or engineer to conduct a detailed, facility-specific soil survey and determine which facilities require corrosion prevention measures. The survey shall record soil type and soil properties (including pH, salinity, chloride, and active sulfides).

The City shall design pipelines that traverse highly corrosive soils with non-corrodible materials or shall implement other effective corrosion avoidance and/or protection methods.

Implementing Agency:	City of Petaluma, Design Engineer
Timing:	**Start:** At onset of Project design.
	Complete: Upon completion of construction.
Monitoring Agency:	City of Petaluma
Validation:	Report that 90% design plans conform with measure.

PD-8 Seismic Design to Resist Ground Shaking

The City of Petaluma shall reduce the risk of damage to facilities from strong ground shaking to the extent feasible. All Project facilities sites are located in strong ground shaking areas due to the proximity of the San Andreas and Rogers Creek faults.

Construction of all facilities and earth embankments shall incorporate earthquake-resistant design and materials that meet or exceed the current seismic engineering standards of the Uniform Building Code Seismic Zone 4 requirements. To decrease the amount of damage or period of interruption that may occur during a seismic event, the City of Petaluma may elect to increase the performance objective for a given facility beyond the code adopted minimums depending on the additional costs that may be incurred and site specific design considerations that may be required.

Building codes are not intended to be applicable to some types of pipelines, pump station equipment that are not enclosed, and other types of non-building structures. However, there are generally accepted "consensus" standards that can be applied in a similar manner to adopted building code performance objectives. For all non-building structures, "consensus" standards will be used, when available, to set minimum performance objectives that allow for changes to occur to a pipeline or equipment during a seismic event but damage to be minimal.

The City of Petaluma may choose to raise the performance objective for a given non-building element beyond the "consensus" standard or minimum recommendation by the structural engineer, design specifications to decrease the amount of damage or period of interruption, depending on additional costs and require site specific design considerations.

Implementing Agency:	City of Petaluma, Design Engineer
Timing:	**Start:** At onset of Project design.
	Complete: Upon completion of construction.
Monitoring Agency:	City of Petaluma
Validation:	Report that 90% design plans conform with measure.

PD-9 Construction Management Program

The City of Petaluma shall manage construction to avoid or minimize potential impacts to public health and safety, to the extent feasible. The City shall develop and implement a Construction Management Program (Program), which may include the following measures:

- Excavations shall be guarded by readily visible barricades, rails or other effective means to avoid access by the public.
- Local police, public works and fire departments for each jurisdiction (city, county and state) where construction is expected to occur, shall receive advance notification of construction activities. Local residents and businesses shall also be notified and access shall be maintained if possible.
- Remove and clear away dry, combustible vegetation from construction sites in those areas that contain substantial forest fire risks and hazards, or are very high fire hazard severity zones as defined by California Division of Forestry and Fire Protection. Grass and other vegetation less than 18 inches in height above the ground may be maintained where necessary to stabilize the soil and prevent erosion. Vehicles shall not park in areas where exhaust systems contact combustible materials. Fire extinguishers shall be available on the construction site when working in high fire hazard areas to assist in quickly extinguishing any small fires. The Construction Manager shall have on site the phone number for the local fire department(s) and shall have a phone available when working in high fire hazard areas should additional firefighting capabilities be required.
- If State Water Resources Control Board Geotracker website indicates potential hazardous materials within the construction zone, then prior to construction, perform a Hazardous Material Project Assessment following portions of the American Society of Testing Materials (ASTM) guidelines along pipeline corridors and near other Project facilities to identify potential hazardous waste sites that may affect construction activities. If hazardous waste sites are discovered, during construction the City shall survey all pipeline alignments for contaminated soil and/or groundwater, recording the location, extent, and type of contamination.
- In the vicinity of hazardous materials/waste release sites, construction activities related that require excavation or exposure of soil or groundwater shall be monitored by the contractor for subsurface contamination. The City shall notify responsible agencies if any hazardous materials/wastes are encountered. Monitoring shall include, at minimum, visual observation by personnel with appropriate hazardous materials training, including 40 hours of Hazardous Waste Operations and Emergency Response (HAZWOPER) training.
- In the vicinity of hazardous materials/waste release sites, groundwater brought to the surface as a result of construction dewatering shall be handled in a manner appropriate to the construction related permits for dewatering. If contamination is suspected or noted during the construction phase, then the groundwater shall be containerized and analyzed for contamination by a laboratory, certified by the California Environmental Protection Agency (CalEPA) Environmental Laboratory Accreditation Program (ELAP), using United States Environmental Protection Agency (USEPA)-approved analytical methods. Where

contaminated groundwater is encountered, precautions shall be taken to assure that the installation of piping or other construction activities do not further disperse contamination.

- All potentially contaminated materials encountered during construction shall be evaluated in the context of applicable local, state and federal regulations and/or guidelines governing hazardous waste. All materials deemed to be hazardous shall be remediated and/or disposed of in accordance with the most recent edition of applicable federal, state, and local regulations, standards, laws, ordinances and codes including, but not limited to, those applicable to worker and public safety, training, licensing and certifications, compliance notifications, abatement, waste sampling, transportation, and disposal. Where conflicts occur, the most stringent requirements shall be adhered to. All evaluation, remediation, treatment, and/or disposal of hazardous waste shall be supervised and documented by qualified hazardous waste personnel.

Implementing Agency:	City of Petaluma, Design Engineer
	City of Petaluma, Construction Manager
Timing:	**Start:** At onset of design.
	Complete: At the completion of the construction phase.
Monitoring Agency:	City of Petaluma, Construction Manager
Validation:	Report that 90% plans conform with measure.

PD-11 Standard Traffic Control Procedures

The City of Petaluma shall adopt standard traffic control measures to minimize traffic congestion, traffic hazards, and damage to roads to the extent feasible. Construction flagging and signage, use of plates, and other safety measures shall be in conformance with the "California Manual on Uniform Traffic Control Devices" (California MUTCD). Other measures shall include:

Encroachment Permits

- Obtain all necessary Encroachment and Transportation Permits from the appropriate agencies. The City of Petaluma shall consult with the County of Sonoma Department of Transportation and Public Works (DTPW), Caltrans, and other affected agencies regarding site-specific details of construction prior to the preliminary design stage.

Emergency Response, Transit and School Bus Routes

- If temporary lane or road closures are required, the City shall contact emergency response (hospitals, police, fire, and ambulance), transit, and school bus providers and inventory the locations of their primary routes that may be affected by the construction.
- Where construction necessitates lane or road closures along emergency response routes, the City shall recommend and obtain approval of alternate routes or other means from the affected service providers, at a minimum of one week prior to construction.
- During construction, the City shall notify the service providers on a weekly basis of the timing, location, and duration of construction activities.

Lane and Road Closures

- Consistent with construction requirements, the minimum number of through traffic lanes shall be closed and the duration of such closures shall be minimized. Where construction requires closure of the road, temporary bypass roads may be built within the construction right-of-way allowing temporary access.
- Where temporary road closure is necessary, a temporary road closure plan shall be developed by the construction manager and submitted to, and approved by, the Traffic Engineer of the affected jurisdiction. The temporary road closure plan shall include alternate detour routing and notification of local fire and police departments and emergency service, transit and school bus providers.

Access to Businesses and Residences

- The City shall provide public facilities, businesses, and residences within 500 feet of the construction zone with a notification packet that describes the construction activities scheduled for their neighborhood.
- The City shall maintain pedestrian and vehicular access to public facilities, businesses, and residences along the route during commute hours, and shall minimize the closure of pedestrian and vehicular access at other times. Peak commute hours are between 7:00 AM and 9:00 AM in the morning and 4:00 PM and 6:00 PM in the evening.

Repair Road Damage

- Prior to construction, the City shall prepare a summary of baseline conditions for roads scheduled to have construction on or adjacent to them. The survey shall identify road name, length, and width; surface type and condition; and shoulder surface type and condition.
- Within one year of completion of construction, roads damaged by construction traffic or pipeline construction shall be restored to their former state as near as may be possible.

Park within Construction Easements

- The City shall establish construction staging areas. Construction worker vehicles, construction equipment not in use, and stored materials shall be kept within the staging area. Designated areas within the construction easements shall be designed to accommodate all construction-related activity, and the designated areas shall be maintained for parking throughout the duration of the construction.

Traffic Control Plans

- The City shall prepare a Traffic Control Plan which would identify construction traffic routes, time of travel and other provisions for lessening construction traffic impacts in the central traffic district.

Coordination of Construction Schedules

- The City shall coordinate construction schedules with other City Projects so as to minimize traffic congestion impacts to the extent feasible.

Implementing Agency:	City of Petaluma, Design Engineer City of Petaluma, Construction Manager
Timing:	**Start:** During design the contractor shall be constrained to meet these criteria, during construction the construction manager will monitor conformance with bid documents. **Complete:** Implementation shall continue throughout construction.
Monitoring Agency:	City of Petaluma, Construction Manager
Validation:	City shall comply with this measure prior to starting construction near the affected roadway.

PD-13 Minimize Temporary and Permanent Visual Impacts

The City shall avoid or substantially lessen impacts by reducing construction disturbance, relocating facilities, or using design features to decrease visual contrast. Measures may include:

- The size of construction zones and staging areas may be the minimum operable size. The location of such zones would be adjusted to minimize the visual impacts.
- Alignments may be adjusted to avoid visually sensitive features and conditions that would result in mature landscape removal. Visually sensitive features may include significant stands of oaks and other mature trees, and highly visible roadside foreground areas.

Implementing Agency:	City of Petaluma, Design Engineer
Timing:	**Start:** During design.
	Complete: Prior to the beginning of construction.
Monitoring Agency:	City of Petaluma
Validation:	Report on 90% plans to confirm consistency with measure.

PD-14 Adjust Facility Design to Avoid Wells and Septic Systems

The City shall site facilities to avoid impacts to public or private wells or septic systems. Final design shall be prepared in accordance with CCR Title 17 and Title 22 separation guidelines. One or more of the following options shall be implemented, depending upon site-specific conditions:

Septic System and Reserve Areas

- Native, fine-grained, compacted soil or Controlled Low Strength Material (CLSM)[1] shall be used as backfill around pipelines when constructing greater than 25 feet but less than 50 feet from a septic system or reserve area.
- CLSM shall be used as backfill around the pipeline when constructing between 15 and 24 feet from a septic system or reserve area.
- If closer than 15 feet but not through a septic system or reserve area, portions of leachlines shall be relocated, if possible, in another portion of the property to obtain a minimum setback of 15 feet from the pipeline. CLSM shall be used as backfill over the pipeline (as referenced above).
- Construction of the pipeline through or below a leachfield shall be avoided whenever feasible. If avoidance is infeasible, then the City shall contact the Sonoma County PRMD Well and Septic Division, and shall incorporate the Division's recommendations.
- Relocation of septic system lines shall require a review and approval of plans by the property owner and the Sonoma County PRMD Well and Septic Division prior to leachline relocation. If leachlines that need to be relocated cannot be relocated due to limited space or poor soil conditions, other mitigations shall be implemented on a case-by-case basis by consulting with the Sonoma County PRMD Well and Septic Division personnel and property owner.

Wells/Water Sources for Consumption

- Pipelines shall not be constructed closer than 100 feet from a domestic well.
- The horizontal distance between pressurized potable water and recycled water lines shall be at least 10 feet. Potable and recycled water lines shall not be installed in a common trench.
- Where potable and recycled water lines cross, potable water lines shall be at least one foot above recycled water lines.
- No irrigation with recycled water shall take place within 50 feet of any domestic water well unless all of the following conditions have been met:
    - A geological investigation demonstrates that an aquitard exists at the well between the uppermost aquifer being drawn from and the ground surface.
    - The well contains an annular seal that extends from the surface into the aquitard.

[1] Also known as Controlled Density Fill (CDF).

- The well is housed to prevent any recycled water spray from coming into contact with the wellhead facilities.
- The ground surface immediately around the wellhead is contoured to allow surface water to drain away from the well.
- The owner of the well approves of the elimination of the buffer zone requirement.

Monitoring Wells

- Pipeline trenches shall be set back a minimum of 5 feet from the center of a monitoring well. A 3-foot set back is permissible with approval of the San Francisco Bay Regional Water Quality Control Board.
- Monitoring wells within the construction zone shall be clearly identified in the field prior to construction.

Implementing Agency: City of Petaluma, Design Engineer

Timing: **Start:** During preliminary design.

Complete: Prior to the beginning of construction.

Monitoring Agency: City of Petaluma

Validation: Report that 90% design plans conform with measure.

PD-16 Implement BMPs for Runoff, Erosion, and Agricultural Chemical Use

As a purveyor of recycled water, the City of Petaluma is required to ensure that all of the city's recycled water users are aware of their responsibilities regarding the proper use of recycled water. To ensure that users are informed of the proper use of recycled water, the City provides each recycled water user with a copy of "Guidelines for Recycled Water Users". These guidelines are consistent with those promulgated by the California State Department of Public Health (CDPH) to protect the health of the public and the employees of recycled water users.

The guidelines for developing BMPs for efficient irrigation are located in the "Operational Control" section of the "Guidelines for Recycled Water Users". See the City of Petaluma, Recycled Water System, Notice of Intent (NOI) and the Water Reuse Program Technical Report and Engineering Report for the Production, Distribution, and Use of Recycled Water (City of Petaluma August 2005).

The City shall meet the requirements of General Water Reuse Order 96-011 authorizing municipal wastewater reuse by producers, distributors, and users of non-potable recycled wastewater and follow all provisions of the NOI. The City shall implement BMPs to prevent runoff, control erosion and infiltration, reduce water waste, and reduce impacts of agricultural chemical application on properties receiving recycled water for irrigation. The following measures, or alternative measures of equivalent effectiveness to those listed in Order No. 96-011 (Refer to Appendix C of this document), shall be implemented, depending upon their applicability to site-specific conditions:

Runoff

- Application method and rate shall consistently be equivalent to crop demand.
- For frost control, application method and rate shall consistently be equivalent to crop protection need.
- Irrigation methods shall be suitable to the site.
- Use measures that EPA has assembled about the best available, economically achievable means of reducing pollution of surface and ground water from agriculture in *National Management Measures to Control Nonpoint Source Pollution from Agriculture* (http://www.epa.gov/owow/nps/agmm/index.html).

Erosion

- Agricultural practices shall be designed to retain soil in place on the hillside, using methods such as cover crops.

Irrigation Practices

- Avoid over- or under-watering trees or shrubs;
- Prevent irrigation from spraying the trunks and bases of existing trees and shrubs, at least during the dry season; and
- Avoid soil compaction around trees and shrubs.

General

- Prospective recycled water customers must submit to the Recycled Water Program an Application for a Recycled Water Use Permit. For sites where recycled water is to be used inside a building, a more formal Engineering Report must be filed. Upon receipt of the permit application, the City of Petaluma shall conduct a plan check to verify that all design requirements are met. If not met, the City of Petaluma may require resubmittal of the missing information and/or drawings. For retrofit sites, the City shall conduct a site inspection, and notify the customer of any repairs or modifications required. Upon completion of construction (or site modifications), the City of Petaluma shall conduct a final inspection to verify that all design requirements have been met and a cross-connection test to verify that there are no interconnections between the potable and recycled water systems. All final conditions must be recorded on the site drawings. Final approval for service shall be indicated by the City of Petaluma issuing a Recycled Water Permit. The Permit includes the customer's signed permit application, along with a listing of site-specific requirements, if any. The permit shall be the binding agreement between the City of Petaluma and the user.

Water Waste and Related Provisions

- A customer shall not allow potable or recycled water waste. Water waste is defined as water use in outdoor areas resulting in runoff; or breaks or leaks in the water delivery system.
- The Director may issue a written warning to anyone who violates the water waste prohibition. If a customer does not correct the violation within 72 hours of notification, or such other time as specified by the Director, the City may disconnect potable or recycled water service.
- Consumers shall furnish, construct, install, own, operate, maintain and repair that portion of the potable or recycled water system on the consumer's premises which begins at the coupling on the consumer's side of the water meter. The City, as determined by the Director, may require the consumer at his/her own expense to adjust, replace, repair, maintain or discontinue the use of any potable or recycled water receiving or regulating equipment on the consumer's side of the meter.
- Potable or recycled water service may be disconnected for the following reasons:
    - If the owner, occupant or consumer fails to comply with any of the regulations;
    - For public health and/or safety reasons;
    - If the utility customer who has received notice of violation of the water waste provisions fails to correct the conditions which caused the violation with 15 days, or other reasonable time as determined by the Director; or
    - For breach of the Recycled Water Use Permit as defined in the Recycled Water Regulations.

Implementing Agency: City of Petaluma

Timing: **Start:** Prior to the delivery of recycled water to any parcel.

Complete: When the landowner no longer utilizes recycled water.

Monitoring Agency: City of Petaluma

Validation: Monitoring Reports (user and City)

PD-17 Frac-Out and Undercrossing Contingency Plan

The City shall develop and follow procedures to prevent the bentonite mix from being discharged into the Petaluma River and streams when installing pipelines using microtunnel or horizontal directional drilling. The plan will address how the contractor would manage pressures and the volume of lubricant used to prevent frac-out.

The plan shall also address procedures to follow in the event a frac-out occurs. Drilling activities shall be visually monitored for any sign of lubricant frac-out and should frac-out occur, the contractor shall complete the following:

- Stop pumping lubrication.
- Locate the point and cause of the frac-out.
- Contain the spill to the maximum extent possible.
- Clean up the spill to the maximum extent possible.
- Wait at least two hours before pumping lubrication near the frac-out point to allow the ground to seal.
- Reduce pumping pressure and volume in the area of the frac-out.
- Notify all designated authorities that a frac-out occurred, including but not limited to the California Department of Fish and Game.

Implementing Agency:	City of Petaluma, Design Engineer
Timing:	**Start:** Before and during construction under the Petaluma River or other streams or creeks where microtunnel or horizontal directional drilling construction methods are used.
	Complete: At the completion of construction.
Monitoring Agency:	City of Petaluma, Construction Manager
Validation:	The City of Petaluma shall monitor compliance on a schedule consistent with the intensity of construction and the presence of creeks.

PD-18 Protect Creeks from Toxic Discharge

During construction, the City of Petaluma shall follow pertinent paragraphs of the Caltrans Manual, California Standard Specifications (Caltrans 1992), Section 7-1.01G which begins, "The contractor will exercise every reasonable precaution to protect streams from pollution with fuels, oils, bitumens, calcium chloride, and other harmful materials." Measures shall include:

- Construction byproducts and pollutants such as oil, cement, and washwater shall be prevented from discharging into streams and shall be collected and transported to a landfill authorized to accept hazardous wastes.
- No construction vehicles or equipment may be parked within the upland riparian corridor of any stream channel.
- Mobile equipment shall not be refueled or serviced within the riparian corridor.
- Construction material storage areas containing hazardous or potentially toxic materials shall be bermed to prevent the discharge of pollutants to runoff water. These materials shall be stored under cover.
- Utilize good housekeeping practices, safer alternative products where feasible, and employee training programs to prevent or reduce the discharge of pollutants to runoff water from construction activities.
- Construction vehicles and equipment shall be maintained to prevent contamination of soil (from leaking hydraulic fluid, fuel, oil, and grease). Any restrictions on lubricants shall not include lubricants used for tunnel construction which will be permanently encased or isolated from the stream after construction is complete.
- Concrete washout areas shall be designated. Wash-out of concrete vehicles and equipment shall be restricted to designated areas only.

Implementing Agency:	City of Petaluma, Design Engineer
Timing:	**Start:** At the start of construction.
	Complete: At the completion of construction.
Monitoring Agency:	City of Petaluma, Construction Manager
Validation:	City of Petaluma shall monitor compliance on a schedule consistent with the intensity of construction and the presence of creeks.

PD-19 Construction Noise Control

The City shall implement noise control measures which could include the following as applicable:

- Newer equipment with improved noise muffling shall be used. Equipment items shall have the manufacturers' recommended noise abatement measures, such as mufflers, engine covers, and engine vibration isolators intact and operational.
- Construction equipment shall be inspected weekly to ensure proper maintenance and presence of applicable noise control devices (e.g., mufflers, shrouding, etc.).
- Where possible, hydraulic tools shall be used instead of pneumatic impact tools.
- Sensitive noise receptors shall be specifically identified and notified in advance to keep windows and doors closed during peak construction activity. Sensitive noise receptors shall be notified when blasting will be conducted and instructed as to actions necessary to reduce noise impacts.
- Heavy truck trips shall be routed over streets that will cause the least noise disturbance to residences or businesses in the vicinity of the Project site, when feasible.
- Construction staging areas, maintenance yards, and other construction-oriented operations shall be avoided, if possible, within 500 feet of a sensitive receptor.

Implementing Agency:	City of Petaluma, Design Engineer
Timing:	**Start:** At onset of Project design.
	Complete: Prior to the beginning of construction.
Monitoring Agency:	City of Petaluma, Construction Manager
Validation:	Report that 90% design plans conform with measure.

PD-20 Air Quality Protection

The City shall implement air quality protection measures recommended by the BAAQMD to reduce diesel particulate matter and $PM_{2.5}$ from construction operations to ensure that short-term health impacts to nearby sensitive receptors are avoided.

- Water all active construction grading areas at least twice daily and more often during windy periods. Active areas adjacent to any residences should be kept damp at all times.
- Cover all hauling trucks or maintain at least two feet of freeboard.
- Pave, apply water at least twice daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas, and staging areas.
- Sweep daily (with water sweepers) all paved access roads, parking areas, and staging areas. Sweep streets daily (with water sweepers) if visible soil material is deposited onto adjacent roads.
- Hydroseed or apply (non-toxic) soil stabilizers to inactive construction areas (i.e., previously-graded areas that are inactive for 10 days or more).
- Enclose, cover, water twice daily, or apply (non-toxic) soil binders to exposed stockpiles.
- Limit traffic speeds on any unpaved roads to 15 mph.
- Replant vegetation in disturbed areas within 10 days after the completion of construction.
- Suspend construction activities that cause visible dust plumes that extend beyond the construction site.
- Prohibit use of “dirty” equipment. Equipment with noticeably dirty emissions shall be prohibited from operation at the site until proper maintenance has been performed to reduce the visible emissions to acceptable levels. Opacity shall be used to measure “dirty” and as an indicator of exhaust particulate emissions from off-road diesel powered equipment. The Project shall ensure that emissions from all construction diesel powered equipment used on the Project site do not exceed 40 percent opacity for more than three minutes in any one hour. Any equipment found to exceed 40 percent opacity (or Ringelmann 2.0) shall be repaired immediately.
- Reduce combustion emissions during construction as required in the California Air Resources Board Off-Road Diesel Rule. The "no idling" rule for in-use off-road diesel-fueled vehicles limits idling for such vehicles to no more than five minutes. Signs shall be clearly posted at the construction sites for the storage tank and reservoir indicating the idle times for construction-related equipment shall be minimized and noting that no diesel equipment shall idle for more than five minutes. Idling necessary to accomplish work for which a vehicle was designed (such as operating a crane) are exempt from the rule (see rule for additional exemptions). Properly tune and maintain equipment in accordance with manufacturer specifications.
- Stage construction equipment away from any sensitive uses.

Implementing Agency: City of Petaluma, Design Engineer

Timing:	**Start:** At onset of Project design.
	Complete: Prior to the beginning of construction.
Monitoring Agency:	City of Petaluma, Construction Manager
Validation:	Report that 90% design plans conform with measure.

PD-21 Riparian and Sensitive Habitat Protection

The City shall minimize impacts to all riparian areas, oak woodlands, and drainages within 50 feet of any construction area, construction staging area, or pipeline alignment. Silt fences or other fencing material shall be installed around the perimeter of the construction boundaries when construction activities occur within 50 feet of a wetland, riparian area, or drainage. The City shall install silt fencing or other erosion control material around culvert inlets along pipeline routes to prevent sedimentation and other construction debris from entering the culvert.

Implementing Agency:	City of Petaluma, Design Engineer
Timing:	**Start:** At onset of project design.
	Complete: Install prior to start of construction and maintain until construction complete.
Monitoring Agency:	City of Petaluma, Construction Manager
Validation:	Report that 90% design plans conform with measure.

Mitigation Measures

The following Mitigations Measures from the Program EIR would be applicable to the Adobe Road Recycled Water Pipeline Project.

BIO-3 Avoid Fill and Other Impacts to Jurisdictional Waters and Wetlands

The City of Petaluma shall avoid permanent fill of jurisdictional waters and wetlands, to the extent feasible. Preconstruction surveys shall identify waters and wetlands according to state and federal regulations.

If fill cannot be avoided, the City shall compensate for these impacts by creation, restoration, or preservation of wetlands and waters. The City shall prepare and implement a Waters and Wetlands Mitigation Plan (Plan) acceptable to the Corps, the Regional Water Quality Board, and Department of Fish and Game. The Plan shall be prepared by a biologist or horticulturalist with experience in native plant community and habitat restoration. Measures may include the following as applicable to the impacts and the project site:

- Removal of sediments and foreign materials deposited by construction activities from jurisdictional waters.
- Restoration of disturbed waters, wetlands or stream gradients to original contour and hydrologic condition.
- Bank stabilization prior to the onset of winter using straw, matting, wattles, or other suitable means.
- Reestablishment of riparian woodland and stands of sensitive status wetland plant cover using native seed stock, container plants, and/or cuttings collected from as close to the impact vicinity as possible.
- Protection and conservation of topsoil within riparian woodland and stands of sensitive status wetland plant cover.
- Creation of compensatory wetland acreage to mitigate permanent impacts. Compensatory wetlands shall be in-kind, if practicable and, if feasible, compensatory waters or wetlands shall be located within the same watershed as the impacted waters/wetlands. Mitigation efforts may be consolidated in one or more compensatory waters/wetland mitigation projects. Out-of-kind compensatory wetlands, if constructed, shall provide equal or greater wetland function and value than impacted waters.

Implementing Agency:	City of Petaluma
Timing:	**Start**: At onset of design.
	Complete: Construction measures – at completion of construction.
	Monitoring – five years after construction.
Monitoring Agency:	City of Petaluma, Construction Manager, Environmental Manager

Validation: Mitigation and revegetation success shall be monitored annually for five years using success criteria developed in coordination with the California Department of Fish and Game, appropriate Regional Water Quality Control Board(s), and the U.S. Army Corps of Engineers.

BIO-4a Native Wildlife Nursery Protection Program

If construction occurs between February 1 and August 15, the City shall retain a qualified biologist to conduct a pre-construction survey at least two weeks prior to initiation of construction activities to determine if any active raptor or migratory bird nests occur within proposed construction corridor. A minimum 50-foot fence barrier shall be erected around the nest site of passerine (songbirds), 200-foot for raptor nests, and 500 feet for rookeries and maintained until the young have fledged and have left the nesting site.

During construction, a qualified biologist shall monitor each nest to evaluate potential nesting disturbances caused by the construction activities. The monitor shall have the authority to stop construction if it appears to be having a negative impact on the nesting birds. The monitor shall also monitor the nest to determine when the young have fledged.

In addition, a qualified biologist shall survey pastoral and annual grasslands for dens of native mammals including American badger. If active dens are identified consultation shall be initiated with CDFG and their recommendation implemented.

Implementing Agency:	City of Petaluma
Timing:	**Start:** Design measures – During component design. Construction measures – At the start of construction.
	Complete: Construction measures – at completion of construction.
Monitoring Agency:	City of Petaluma, Construction Manager
Validation:	Birds monitored and protected during construction.

CR-1b Identify and Avoid or Minimize Impacts to Cultural Resources

The City of Petaluma shall avoid impacts to cultural resources, to the extent feasible. The treatment of cultural resources to be affected by the Project shall be addressed under applicable cultural resource laws and regulations. Consultation to address potential adverse effects to cultural resources may involve interested parties, and any additional agencies which assert jurisdiction over the Project.

A four-step process shall be implemented to address potential impacts and the requirements of the cultural resource laws and regulations. Once the final Area of Potential Effects (APE) for the Project is selected, the first step will be identification of cultural resources within the APE. If cultural resources are identified, the second step will require that these resources be evaluated under appropriate significance criteria, in consultation with the State Historic Preservation Officer (SHPO), if necessary. If the resources are significant, the third step will be to determine whether they will be adversely affected by the Project. The fourth step will involve avoidance or mitigation of any adverse effects to significant resources. Measures to minimize impacts may include:

- Designing Project actions to conform with the Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring and Reconstructing Historic Buildings;
- Adhering to the city's Historic Commercial District Design Guidelines;
- Conducting archaeological data recovery in accordance with a research design approved by the relevant regulatory agencies;
- Consulting with regulatory agencies and associated communities to ensure the appropriate treatment of any Traditional Cultural Properties which may be impacted by the Project; and
- Monitoring culturally sensitive areas.

Implementing Agency:	City of Petaluma
Timing:	**Start:** At onset of design.
	Complete: Before and during Project construction
Monitoring Agency:	City of Petaluma, Construction Manager.
Validation:	Completion of mitigation as necessary.

Chapter 4. Checklist and Determination

The following Checklist has been prepared pursuant to Section 15168 (c) of the CEQA Guidelines to document the evaluation of the Project and to determine if the environmental effects of the Project are covered in the WREP Program EIR.

No new cumulative projects in the vicinity of the Project have been identified since preparation of the WREP Program EIR.

Table 4-1: Adobe Road Recycled Water System Project – CEQA Checklist

Significance Thresholds	Project Impact Discussion	Program Level of Significance	Project Level of Significance	Mitigation Measure
1. Land Use				
LU-1. Will the WREP conflict with any applicable land use plan, policy or regulation of an agency with jurisdiction over the Project?	The pipeline would primarily be located in public right-of-way (ROW) with a portion traversing undeveloped land, neither of which would change the type of above-ground land use. The use of recycled water for agricultural irrigation as opposed to potable water would not conflict with the policies of the Petaluma General Plan. Therefore, the Project improvements would not be in conflict with a plan, policy, or regulation adopted by the City of Petaluma.	No Impact	No Impact	No mitigation needed.
LU-2. Will the WREP be an incompatible land use type in the MRZ-2 classification or in a designated quarry area?	The pipeline alignment and recycled water irrigation areas are not located on a designated quarry or within MRZ-2 designated lands.	Less than Significant	No Impact	No mitigation needed.
LU-3. Will the WREP introduce inappropriate uses in a Sonoma County Community Separator or a Petaluma Urban Separator?	The pipeline alignment is not located within an Urban Separator (Petaluma General Plan Land Use Map, Petaluma 2008).	Less than Significant	No Impact	No mitigation needed.
LU-4. Will the WREP increase potential for conflict as a result of incompatible land uses?	The recycled water pipeline would be an underground facility and would not conflict with above-ground land uses. Use of recycled water for irrigation in lieu of potable water would not conflict with above-ground land uses.	No Impact	No Impact	No mitigation needed.

Significance Thresholds	Project Impact Discussion	Program Level of Significance	Project Level of Significance	Mitigation Measure
LU-5. Will the WREP convert non-urban land to urban uses for Project facilities?	The pipeline would primarily be located in public ROW with a portion traversing undeveloped land, neither of which would change the above-ground land use. Therefore, the Project would not convert non-urban land to urban uses.	No Impact	No Impact	No mitigation needed.
LU-6. Will the WREP convert public open space for Project facilities?	The recycled water pipeline would be an underground facility and would not directly or indirectly convert public open space to a non-open space use.	Less than Significant with mitigation	No Impact	No mitigation needed.
LU-7. Will the WREP result in loss of homes or businesses due to construction of facilities?	The pipeline would not result in the loss of homes or businesses.	No Impact	No Impact	No mitigation needed.
LU-C1 and C4. Will the WREP plus cumulative Projects conflict with any applicable land use plan, policy or regulation of an agency with jurisdiction over the Project, or increase potential for conflict as a result of incompatible land?	The Project would not conflict with any such adopted plans, therefore the Project would not contribute to a cumulative impact regarding conflict with adopted plans.	No Impact	No Impact	No mitigation needed.
LU-C2. Will the WREP plus cumulative Projects be an incompatible land use type in the MRZ-2 classification or in a designated quarry area?	The Project is not located on MRZ-2 classified land or a designated quarry area, therefore the Project would not contribute to a cumulative impact regarding such designated resources.	Less than significant	No Impact	No mitigation needed.

Significance Thresholds	Project Impact Discussion	Program Level of Significance	Project Level of Significance	Mitigation Measure
LU-C3. Will the WREP plus cumulative Projects introduce inappropriate uses in a Community Separator?	The Project would not introduce inappropriate uses in a Community Separator, therefore the Project would not contribute to a cumulative impact regarding inappropriate uses in a Community Separator.	Less than significant	No Impact	No mitigation needed.
LU-C5. Will the WREP plus cumulative Projects convert non-urban land to urban uses for Project facilities?	The Project would not convert non-urban land to urban uses, therefore the Project would not contribute to a cumulative impact regarding such conversion.	No Impact	No Impact	No mitigation needed.
LU-C6. Will the WREP plus cumulative Projects convert public open space for Project facilities?	The Project would not convert public open space, therefore the Project would not contribute to a cumulative impact regarding such conversion.	Less than significant	No Impact	No mitigation needed.
LU-C7. Will the WREP plus cumulative Projects result in loss of homes or businesses due to construction of facilities?	The Project would not cause loss of homes or businesses, therefore the Project would not contribute to a cumulative impact regarding loss of homes or businesses.	No Impact	No Impact	No mitigation needed.

Significance Thresholds	Project Impact Discussion	Program Level of Significance	Project Level of Significance	Mitigation Measure
Agriculture and Soil Quality				
AG-1. Will the WREP cause loss of farmland?	There are no status farmlands as designated by the Farmland Mapping and Monitoring Program (FMMP) Important Farmland Series Map within the pipeline construction zone. In addition, the pipeline is an underground facility and would not cause the loss of farmland. Although Prime Farmland exists immediately north of some portions of the pipeline alignment, the Prime Farmland would not be impacted. Therefore, the Project would not result in the loss of status farmlands.	No Impact	No Impact	No mitigation needed.
AG-2. Will the WREP cause Williamson Act contracts to be canceled?	There are no Williamson Act contracts within the pipeline construction zone. In addition, irrigation of agricultural land with recycled water would not be considered a conflict with a Williamson Act contract.	No Impact	No Impact	No mitigation needed.
AG-3. Will the WREP reduce agricultural soil and non-agricultural soil productivity due to erosion of topsoil from application of recycled water?	The Project would irrigate agricultural areas using Best Management Practices (BMPs) outlined in Project Measure PD-16, Implement BMPs for Runoff, Erosion, and Agricultural Chemical Use. Such managed irrigation on agricultural lands would not result in erosion of topsoil.	Less than Significant	Less than Significant	No mitigation needed.

Significance Thresholds	Project Impact Discussion	Program Level of Significance	Project Level of Significance	Mitigation Measure
AG-4. Will the WREP reduce agricultural soil and non-agricultural soil productivity due to build-up of trace elements and salinity?	The Project's proposed irrigation with recycled water would not cause a significant build-up of trace elements and salinity in soils. The recycled water produced by the Ellis Creek WRF is required to meet FAO Irrigation Water Guidelines established by the United Nations and Title 22 and irrigate agricultural areas using BMPs outlined in Project Measure PD-16.	Less than Significant	Less than Significant	No mitigation needed.
AG-5. Will the WREP cause damage to adjacent vineyards by increasing glassy-winged sharpshooter populations?	Construction of the Project would not require site revegetation.	Less than Significant with Mitigation	No Impact	No mitigation needed.
AG-C1 through C5. Will the WREP plus cumulative Projects create impacts to agricultural resources based on evaluation criteria 1 through 5?	The Project would have no impacts relative to status farmland, Williamson Act land, or glassy-winged sharpshooter populations. Therefore, the Project would not contribute to cumulative impacts relative to these resources. The Project's impacts to soil productivity (relative to erosion and build-up of trace elements and salinity) would affect only the land served by this Project. Project impacts would not overlap with impacts from any other Projects, and therefore would not contribute to cumulative impacts.	Less than Significant	Less than Significant	No mitigation needed.

Significance Thresholds	Project Impact Discussion	Program Level of Significance	Project Level of Significance	Mitigation Measure
3. Geology, Soils and Seismicity				
GS-1. Will the WREP be located on a geologic unit or an unstable area that could potentially result in on- or off-site landslides?	The Project would be located on flatland without landslides, as shown in Figure 4.3-5 of the WREP EIR.	Less than Significant	Less than Significant	No mitigation needed
GS-2. Will the WREP be located on a geologic unit or soil that is susceptible to liquefaction or lateral spreading during an earthquake?	The Project would be located on land designated “Low” potential for liquefaction risk as shown on Figure 4.3-6 of the WREP EIR.	Less than Significant	Less than Significant	No mitigation needed
GS-3. Will the WREP be located on expansive soil, as defined in the Sonoma County soil survey?	Project Measure PD-6, Standard Engineering Methods for Expansive Soils, would ensure less-than-significant effects relative to expansive soils or soils with high shrink-swell potential.	Less than Significant	Less than Significant	No mitigation needed
GS-4. Will the WREP be located on corrosive soil, as defined in the Sonoma County soil survey?	The recycled water pipeline has been designed to be PVC, which is not subject to corrosion.	Less than Significant	No Impact	No mitigation needed
GS-5. Will earthquake-induced strong ground shaking damage WREP facilities?	The Project would be located in areas with the potential for strong ground shaking due to the proximity of the Rodgers Creek and San Andreas fault systems (see Figure 4.3-4 in the WREP EIR). Project Measure PD-8, Seismic Design to Resist Ground Shaking, would be applicable to the Project and would reduce potential damage from strong ground shaking.	Less than Significant	Less than Significant	No mitigation needed

Significance Thresholds	Project Impact Discussion	Program Level of Significance	Project Level of Significance	Mitigation Measure
GS-6. Will construction of the WREP cause off-site water-related erosion?	Project construction does not trigger the need for a SWPPP. However, standard BMPs have been incorporated into the design to reduce the potential of off-site erosion, such as use of wattles near creek crossings. In addition, the construction zone is narrow, flat, and mostly within the roadway, thus minimizing the chance of erosion.	Less than Significant	Less than Significant	No mitigation needed.
GS-7. Will the WREP be subject to ground rupture due to location near a surface trace of an active fault?	The closest Alquist-Priolo earthquake fault zone is Rodgers Creek, located approximately two miles northeast of the Project. A major earthquake on the Rodgers Creek fault would generate strong seismic ground shaking, but would not likely cause ground rupture along the Project alignment. Thus, the potential for ground rupture would be less than significant.	Less than Significant	Less than Significant	No mitigation needed.
GS-C1 - C7. Will the WREP plus cumulative Projects create geologic or seismic impacts based on evaluation criteria 1 through 7?	Geologic hazards are site-specific, and therefore would not overlap with impacts from other Projects to cause cumulative impacts.	Less than Significant	Less than Significant	No mitigation needed.
4. Hydrology and Water Quality				
HWQ-1. Will operation of the WREP cause a violation of any narrative or numeric water quality standard or result in non-attainment of established TMDLs?	Recycled water would be contained within the proposed pipeline. Pipeline rupture is very unlikely. Project Measure PD-16, Implement BMPs for Runoff, Erosion, and Agricultural Chemical Use, would ensure that runoff from irrigated lands is minimized.	Less than Significant with Mitigation	Less than Significant	No mitigation needed.

Significance Thresholds	Project Impact Discussion	Program Level of Significance	Project Level of Significance	Mitigation Measure
HWQ-2. Will the construction and operation of the WREP result in a substantial degradation of surface water runoff quality?	Surface waters near the pipeline alignment include Hutchinson Creek and two unnamed culverted watercourses. Project construction would be subject to Project Measure PD-18, Protect Creeks from Toxic Discharge, which would serve to prevent significant impacts to water quality in the creeks. HDD methods will be used to install the pipeline beneath the watercourses, and Project Measure PD-17 would require the Contractor to implement a Frac-out and Undercrossing Contingency Plan for the HDD process. The depth of the pipeline would be sufficient to prevent the pipeline from interacting with the surface waters.	Less than Significant	Less than Significant	No mitigation needed.
HWQ-3. Will the WREP alter the existing drainage pattern of the site or area that would result in substantial erosion or siltation?	Trenching would occur mostly within roadways. Following construction, the surface roadway and shoulders along the trenched portions of the alignment would be returned to pre-project conditions. Thus, there would be no change in the post-construction drainage patterns.	Less than Significant	No Impact	No mitigation needed.
HWQ-4. Will operation of the WREP cause flooding?	The proposed recycled water pipeline is not located within a 100-year floodplain and would not cause flooding.	Less than Significant	No Impact	No mitigation needed.

Significance Thresholds	Project Impact Discussion	Program Level of Significance	Project Level of Significance	Mitigation Measure
HWQ-5. Will the WREP degrade groundwater quality at existing or future drinking water wells, resulting in a public health hazard?	Pipeline trenching that encounters groundwater could locally increase turbidity in groundwater; however, these effects would be temporary and localized. In addition, Project Measure PD-14, Adjust Facility Design to Avoid Wells and Septic systems, requires that irrigation areas and pipelines be separated from domestic wells by no less than 50 feet and 100 feet respectively. Project Measure PD-16, Implement BMPs for Runoff, Erosion, and Agricultural Chemical Use, requires application of recycled water at agronomic levels using smart irrigation controllers, which would further protect groundwater quality. The Project impact would be less than significant.	Less than Significant with Mitigation	Less than Significant	No mitigation needed.
HWQ-6. Will the WREP cause groundwater mounding or increase groundwater levels that cause surface water discharge in a non-stream environment?	Neither construction nor operation of the pipeline would contribute recycled water to the groundwater aquifer or cause mounding or surface discharge. Project Measure PD-16, Implement BMPs for Runoff, Erosion, and Agricultural Chemical Use would ensure that excessive irrigation would not occur, and therefore groundwater mounding would not occur.	Less than Significant	Less than Significant	No mitigation needed.

Significance Thresholds	Project Impact Discussion	Program Level of Significance	Project Level of Significance	Mitigation Measure
HWQ-7. Will the WREP substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level?	Pipeline construction may require temporary dewatering of the trenches or tunneling pits. Such dewatering would be temporary and localized. The pipeline would be below grade and would not substantially affect groundwater recharge. Irrigation with recycled water would not interfere with recharge.	Less than Significant	Less than Significant	No mitigation needed.
HWQ-C1-7. Will the WREP plus cumulative Projects result in hydrologic or water quality impacts based on criteria 1 through 7?	None of the cumulative Projects identified in the Program EIR are near the Project, and no new cumulative Projects in the vicinity of the Project have been identified. Therefore, no significant cumulative hydrologic or water quality impacts would result.	Less than Significant	Less than Significant	No mitigation needed.
5. Air Quality				
AQ-1. Will construction of the WREP generate emissions that expose people to high levels of dust and equipment exhaust?	Pipeline construction would generate dust and equipment exhaust. These activities would be localized and short-term. Typically, trenching would last only a few workdays in any one place. In addition, Project Measure PD-20, Air Quality Protection, would reduce the air quality impacts associated with construction to a less- than-significant level.	Less than Significant	Less than Significant	No mitigation needed.
AQ-2. Will the WREP emissions cumulatively exceed allowable limits?	The Project would have no operational emissions and therefore would not contribute to cumulative impacts on air quality.	Less than Significant	No Impact	No mitigation needed.

Significance Thresholds	Project Impact Discussion	Program Level of Significance	Project Level of Significance	Mitigation Measure
AQ-3. Will the WREP expose sensitive receptors to substantial levels of toxic air contaminants?	Pipeline construction equipment would emit exhaust which contains toxic air contaminants. Such construction would be localized and short-term. Typically, trenching would last only a few workdays in one place. In addition, Project Measure PD-20, Air Quality Protection, would reduce the toxic air contaminants associated with construction to a less-than-significant level.	Less than Significant	Less than Significant	No mitigation needed.
AQ-4. Will the WREP violate or contribute to violation of ambient air quality standards?	Operation of the pipeline and application of recycled water would not create emissions. Vehicle trips for maintenance activities would be infrequent and associated emissions would be less than significant.	Less than Significant	Less than Significant	No mitigation needed.
AQ-5. Will the WREP cause potential odors?	During construction, the various diesel powered vehicles and equipment could create localized odors. These odors would be temporary and not likely to be noticeable for extended periods of time much beyond the Project's site boundaries due to atmospheric dissipation. Operation of the pipeline and application of recycled water would not cause odors.	Less than Significant	Less than Significant	No mitigation needed.

Significance Thresholds	Project Impact Discussion	Program Level of Significance	Project Level of Significance	Mitigation Measure
AQ-6. Will the WREP increase greenhouse gas emission levels which exceed pre-Project levels by a substantial margin or conflict with AB 32 and its governing regulations?	Implementation of the Project would require energy for the distribution of recycled water. Delivery of recycled water requires less energy than the current delivery of potable water from the Sonoma County Water Agency. Therefore, the Project would reduce energy use, reduce greenhouse gas emissions generated as a result of energy production, and would not, therefore, conflict with AB 32.	Less than Significant	No Impact	No mitigation needed.
AQ-C1-C5. Will the WREP plus cumulative Projects create impacts to air quality based on evaluation criteria 1 through 6?	The significance of Impacts AQ-C1 through C4 is determined relative to cumulative emissions in the airshed, therefore, no additional cumulative analysis is needed. Relative to Impact AQ-C5 on odors, no cumulative projects have been identified where odor impacts would overlap with the Project's temporary and minor impacts. Therefore, the Project would not make a considerable contribution to a significant cumulative impact relative to odor.	Less than Significant	Less than Significant	No mitigation needed.
AQ-C6. Will the WREP plus cumulative Projects increase greenhouse gas emissions levels which exceed pre-Project levels by a substantial margin or conflict with AB 32 and its governing regulations?	The Project would reduce greenhouse gas emissions, therefore it would not contribute to a cumulative impact relative to greenhouse gas emissions.	Significant and unavoidable	No Impact	No mitigation needed.

Significance Thresholds	Project Impact Discussion	Program Level of Significance	Project Level of Significance	Mitigation Measure
6. Noise				
NOI-1. Will construction of the WREP generate noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	Pipeline construction would generate noise levels of about 86 dBA L_{eq} at a distance of 50 feet. The pipeline would be installed at a rate of approximately 100 feet or more per day. Therefore, construction noise levels at nearby sensitive receptors would only exceed 60 dBA L_{eq} for about 10 days at any individual receiver along the pipeline alignments. This would be a less than significant noise impact given the short duration. In addition, Project Measure PD-19, Construction Noise Control, would require implementation of noise control measures to further minimize construction noise impacts.	Less than Significant	Less than Significant	No mitigation needed.
NOI-2. Will construction of the WREP result in a substantial temporary or periodic increase in ambient noise levels above existing levels in the vicinity?	See NOI-1.	Less than Significant	Less than Significant	No mitigation needed.
NOI-3. Will operation of the WREP generate noise levels exceeding local regulatory criteria or cause a substantial permanent increase in ambient noise levels above existing levels in the vicinity?	Project operation would not generate measurable noise levels.	Less than Significant with Mitigation	No Impact	No mitigation needed.

Significance Thresholds	Project Impact Discussion	Program Level of Significance	Project Level of Significance	Mitigation Measure
NOI-C1 – C3. Will the WREP plus cumulative Projects disturb noise-sensitive receptors during or after construction based on evaluation criteria 1 through 3?	None of the cumulative projects identified in the Program EIR are near the Project, and no new cumulative projects in the vicinity of the Project have been identified. Therefore, no significant cumulative noise impacts would result.	Less than Significant	Less than Significant	No mitigation needed.
7. Public Health and Safety				
PHS-1. Will the WREP expose the public to pathogenic viruses, bacteria, or other disease organisms at concentrations detrimental to human health?	The City's recycled water must comply with disinfection standards from Title 22 and General Water Reuse Order 96-011. Project Measure PD-16, Implement BMPs for Runoff, Erosion, and Agricultural Chemical Use, would ensure that excessive irrigation and/or runoff would not occur. With required compliance with Title 22, the General Water Reuse Oder, and Project Measure PD-16, neither construction nor operation of Project would expose the public to significant health hazards.	Less than Significant	Less than Significant	No mitigation needed.
PHS-2. Will the WREP expose workers or the public to hazards from a known hazardous waste site?	All potentially contaminated materials encountered during construction activities would be evaluated in the context of applicable local, state and federal regulations and/or guidelines governing hazardous waste. All materials deemed to be hazardous would be remediated and/or disposed of following applicable agency regulations and/or guidelines.	Less than Significant	Less than Significant	No mitigation needed.

Significance Thresholds	Project Impact Discussion	Program Level of Significance	Project Level of Significance	Mitigation Measure
PHS-3. Will the WREP increase potential exposure of the public to hazardous materials due to a chemical release?	Minor amounts of hazardous materials would be used during Project construction (e.g., fuel for vehicles). Compliance with federal and State hazardous materials laws and regulations would be required and would minimize the risk to the public presented by these potential hazards.	Less than Significant	Less than Significant	No mitigation needed.
PHS-4. Will the WREP expose the public to safety hazards associated with operation of heavy machinery, vehicles, or equipment; or creation of accessible excavations (trenches, pits, or borings); or creation of an accessible open body of water?	Construction of the proposed recycled water pipeline would create excavations within public ROWs. Project construction would utilize heavy machinery, vehicles, and equipment. Such equipment would be required to be operated in accordance with State regulations regarding construction safety. During construction PD-9, Construction Management Program, requires excavations be guarded by readily visible barricades.	Less than Significant	Less than Significant	No mitigation needed.
PHS-5. Will the WREP increase the potential exposure of the public to disease vectors (i.e., mosquitoes)?	Neither construction nor operation of the pipeline would create an open body of water where mosquitoes could breed. Irrigation with recycled water is subject to the requirements of General Water Reuse Order 96-11, which prohibits ponding. Thus, no mosquito breeding habitat would be created.	Less than Significant	Less than Significant	No mitigation needed.

Significance Thresholds	Project Impact Discussion	Program Level of Significance	Project Level of Significance	Mitigation Measure
PHS-6. Will the WREP expose people or structures to a risk of loss, injury or death involving wildland fires?	The Project area is designated as Moderate and High FRAP Fire Hazard Severity Zone (Sonoma County 2020). Project construction may bring ignition sources into high fire hazard areas. However, Project Measure PD-9, Construction Management Program, requires procedures to reduce the risk and hazard from wildland fires.	Less than Significant	Less than Significant	No mitigation needed.
PHS-7. Will the WREP expose the public to a flooding hazard?	There would be no danger of flooding due to the use of recycled water and construction of pipelines.	Less than Significant	No Impact	No mitigation needed.
PHS-8. Will the WREP create a safety hazard for people residing or working near a public or private airport or airstrip?	The proposed recycled water pipeline is not located within the Safety Zone of the Petaluma Municipal Airport. In addition, the pipeline would be underground. Therefore, there would be no hazard related to being near an airport.	Less than Significant	No Impact	No mitigation needed.
PHS-C1 through C8. Will the WREP plus cumulative Projects have an impact on public health and safety based on criteria 1 through 8?	None of the cumulative projects identified in the Program EIR are near the Project, and no new cumulative projects in the vicinity of the Project have been identified. Therefore, no significant cumulative public health and safety impacts would result.	Less than Significant	Less than Significant	No mitigation needed.

Significance Thresholds	Project Impact Discussion	Program Level of Significance	Project Level of Significance	Mitigation Measure
8. Biological Resources				
BIO-1. Will the WREP result in the loss of any species identified as a threatened, endangered, candidate, sensitive or special-status species or its habitat?	The Project's ground disturbance would have no impact on special-status plants or their habitat (VNLC 2019). The Project's ground disturbance would have no impact on special-status animals or their habitat (VNLC 2019).[2] The use of recycled water instead of potable water for irrigation would not result in the loss of special-status species or their habitat. Project construction would occur near trees that may include nests for special-status birds, which could be a significant impact.	Less than Significant with Mitigation	Less than Significant with Mitigation	BIO-4a Native Wildlife Nursery Protection Program
BIO-2. Will the WREP have a substantial adverse effect on any riparian habitat or other sensitive natural community?	The Project would not affect riparian habitat or other sensitive natural community. HDD would be used to cross the watercourses, and pits are set back 200 to 500 feet from the top of the banks. PD-17 would be implemented to protect against possible frac-out.	Less than Significant with Mitigation	No Impact	No mitigation needed.

[2] VNLC's Technical Memorandum *Biological Evaluation Report Petaluma Recycled Water Expansion Project: Adobe Road Pipeline* dated February, 2019, identified potential California red-legged frog habitat at Hutchinson Creek. However, the City has revised the location of the bore pits to be further set back from the creek crossing to avoid the adjacent aquatic habitat and upland habitat, with the sending pit located on the gravel shoulder of the road.

Significance Thresholds	Project Impact Discussion	Program Level of Significance	Project Level of Significance	Mitigation Measure
BIO-3. Will the WREP have a substantial adverse effect on protected wetlands or waters through direct removal, filling, or other means?	The Project would not affect wetlands or waters.[3] HDD would be used to cross the watercourses and other seasonal wetlands are outside the Project construction footprint.	Less than Significant with Mitigation	No Impact	No mitigation needed.
BIO-4. Will the WREP 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?	The Project would not affect major wildlife migration or travel corridors, but Project construction would occur near trees that may include nests for special-status birds, which could be a significant impact.	Less than Significant with Mitigation	Less than Significant with Mitigation	BIO-4a Native Wildlife Nursery Protection Program
BIO-5. Will the WREP result in the loss of protected trees or Sonoma County designated critical habitat?	Construction of the pipeline would not require the removal of trees and would not be located within designated critical habitat for any federally listed special-status species.	Less than Significant with Mitigation	No Impact	No mitigation needed.
BIO-6. Will the WREP conflict with the provisions of an adopted Habitat Conservation Plan, or other approved local, regional, or state habitat conservation plan?	The Project would not conflict with any adopted plans relative to biological resources.	Less than Significant with Mitigation	No Impact	No mitigation needed.
BIO-7. Will the WREP expose organisms to hazardous levels of toxic substances?	Ecological risk assessments have shown that exposure of plants and animals to recycled water does not pose a significant risk.	Less than Significant	Less than Significant	No mitigation needed.

[3] VNLC's *Delineation of Potential Jurisdictional Waters* dated January 2019, identified 3 watercourses and several seasonal wetlands near Adobe Road. The City has revised the pipeline alignment to avoid all seasonal wetlands, and the Project would tunnel under the watercourses, so no impacts to wetlands or waters would occur.

Significance Thresholds	Project Impact Discussion	Program Level of Significance	Project Level of Significance	Mitigation Measure
BIO-C1. Will the WREP cumulatively impact biological resources?	The Project would have no permanent impact on biological resources. Project construction could temporarily affect nesting birds along the pipeline alignment; this impact would be reduced by Mitigation Measure BIO-4a. Therefore, the Project would not have a considerable contribution to a significant cumulative impact relative to biological resources.	Less than Significant	Less than Significant	No mitigation needed.
9. Transportation and Circulation				
TR-1. Will the WREP traffic cause congestion along Project area roadways?	Increase in traffic during construction is anticipated to be approximately 18 vehicles per day on average. Traffic increases would be temporary and are anticipated to be less than the available capacity of the roadways. Distribution and use of recycled water for irrigation would not generate traffic.	Less than Significant	Less than Significant	No mitigation needed.
TR-2. Will lane closures due to WREP construction cause traffic delays, transit delays, restricted access, and rerouting of traffic, including emergency vehicles?	Project construction would not require full road closures, but may require single-lane closures associated with the construction of the pipeline. At no time would the City restrict access of an emergency vehicle. In addition, Project Measure PD-11, Standard Traffic Control Procedures, would be implemented to reduce impacts related to traffic delays.	Less than Significant	Less than Significant	No mitigation needed.

Significance Thresholds	Project Impact Discussion	Program Level of Significance	Project Level of Significance	Mitigation Measure
TR-3. Will the WREP construction traffic increase traffic hazards to motor vehicles, bicyclists, or pedestrians?	Construction traffic would not substantially increase traffic hazards. In addition, Project Measure PD-11, Standard Traffic Control Procedures, would require construction to conform with the "California Manual on Uniform Traffic Control Devices", together with other safety procedures.	Less than Significant	Less than Significant	No mitigation needed.
TR-4. Will WREP construction traffic damage public or private roadbeds?	Heavy vehicles used during construction could damage affected roadways. Under Project Measure PD-11, Standard Traffic Control Procedures, the City would prepare a summary of baseline conditions for affected roads, and then would require repair of roadways to equal or better condition within one year after construction.	Less than Significant	Less than Significant	No mitigation needed.
TR-5. Will there be inadequate parking for WREP activities?	Construction activities would create a temporary demand for parking by workers and material suppliers. However, Project Measure PD-11, Standard Traffic Control Procedures, would require parking be restricted to designated areas within the construction easements.	Less than Significant	Less than Significant	No mitigation needed.
TR-6. Will WREP construction activities result in heavy vehicles on roadways not designated or suitable as truck routes?	Project construction activities are expected to avoid the central traffic district where truck traffic is restricted. Project Measure PD-11, Standard Traffic Control Procedures, would require preparation of a Traffic Control Plan, in the case that truck traffic would need to traverse restricted routes.	Less than Significant	Less than Significant	No mitigation needed.

Significance Thresholds	Project Impact Discussion	Program Level of Significance	Project Level of Significance	Mitigation Measure
TR-C1 through C6. Will the WREP plus cumulative Projects cause impacts to traffic based on evaluation criteria 1 through 6?	None of the cumulative projects identified in the Program EIR are near the Project and scheduled for construction at the same time as the Project, and no new cumulative projects in the vicinity of the Project have been identified. Therefore, no significant cumulative traffic impacts would result.	Significant and Unavoidable	Less than Significant	No mitigation needed.

Significance Thresholds	Project Impact Discussion	Program Level of Significance	Project Level of Significance	Mitigation Measure
10. Cultural and Paleontological Resources				
CR-1. Will the WREP cause a substantial adverse change in the significance of a historical or archeological resource as defined in Title 14, California Code of Regulations §15064.5 or have an adverse effect on any historic property that is included in, or eligible for inclusion in, the National Register of Historic Places?	There are no known historical or archaeological sites within the construction zone of the pipeline (ASC 2018). There is potential for buried or otherwise undiscovered historical and archaeological resources to be present in the construction area. If encountered during construction, this would be a significant impact. Mitigation Measure CR-1b, Identify and Avoid or Minimize Impacts to Cultural Resources, would reduce potential impacts to less than significant.	Less than Significant with Mitigation	Less than Significant with Mitigation	CR–1b Identify and Avoid or Minimize Impacts to Cultural Resources
CR-2. Will the WREP disturb any human remains, including those interred outside of formal cemeteries or will the Project disturb any Native American human remains, associated grave goods, or items of cultural patrimony?	Unknown human burials and associated grave goods and items of cultural patrimony may be present that could be impacted by Project activities. As is standard City practice, the requirements of Public Resources Code §5097.98, Health and Safety Code §7050.5, and the Native American Graves Protection and Repatriation Act, when applicable, shall govern the general notification and evaluation process should human remains be encountered.	Less than Significant	Less than Significant	No mitigation needed.
CR-3. Will the WREP directly or indirectly destroy a unique paleontological resource or site?	The pipeline is located in alluvial deposits, and not in potential fossil-bearing rock units (see WREP EIR Figure 4.3-1). Therefore, no impact to paleontological resources would occur.	Less than Significant with Mitigation	No Impact	No mitigation needed.

Significance Thresholds	Project Impact Discussion	Program Level of Significance	Project Level of Significance	Mitigation Measure
CR-C1 and C2. Will the WREP have a cumulative potential to impact cultural resources?	None of the cumulative projects identified in the Program EIR are near the Project, and no new cumulative projects in the vicinity of the Project have been identified. Therefore, no significant cumulative cultural resources impacts would result.	Less than Significant	Less than Significant	No mitigation needed.
CR-C3. Will the WREP have a cumulative potential to impact paleontological resources?	Because the Project would have no impact to paleontological resources, it would not contribute to cumulative impacts relative to such resources.	Less than Significant	No Impact	No mitigation needed.
11. Visual Resources				
VR-1. Will the WREP be inconsistent with the Sonoma County General Plan regarding Community Separators or the Petaluma General Plan regarding Urban Separators?	The recycled water pipeline is not located in an urban separator but is partially located within a Sonoma County Community Separator. Visual impacts during construction would be temporary and less than significant. In addition, Project Measure PD-13, Minimize Temporary and Permanent Visual Impacts, would further reduce impacts by minimizing the size of construction zones and staging areas. Following construction, the new recycled water pipeline would be buried and therefore not visible.	Less than Significant	Less than Significant	No mitigation needed.

Significance Thresholds	Project Impact Discussion	Program Level of Significance	Project Level of Significance	Mitigation Measure
VR-2. Will the WREP be inconsistent with the Sonoma County General Plan regarding Scenic Landscape Units?	The proposed recycled water pipeline is partially located within a Scenic Landscape Unit. However, the pipeline would be buried and therefore not visible. The Project would not be inconsistent with Scenic Landscape Units.	Less than Significant	No Impact	No mitigation needed.
VR-3. Will the WREP be inconsistent with the Sonoma County or Petaluma General Plans regarding scenic or major arterial corridors?	The proposed recycled water pipeline is located within a Scenic Corridor but would be buried and therefore not visible. The Project would not be inconsistent with scenic corridors.	Less than Significant	No Impact	No mitigation needed.
VR-4. Will the WREP be inconsistent with the Petaluma General Plan goal to preserve the scenic and natural resources of the open ridgelines and hillsides?	The new recycled water pipeline alignment would be located on flat lands and not on open ridgelines or hillsides. In addition, the pipeline would be buried, and therefore not visible.	Less than Significant	No impact.	No mitigation needed.
VR-5. Will the WREP cause an adverse effect on foreground or middle-ground views from a recreation area, other public use area, or private residence?	The new recycled water pipeline would be buried and therefore not visible from surrounding public viewpoints.	Less than Significant	No impact.	No mitigation needed.
VR-6. Will the WREP create a new source of substantial light and glare that would adversely affect day or nighttime views in the area?	Construction would take place during the day. No new lighting would be installed or used during construction or operation of the Project.	Less than Significant	No impact.	No mitigation needed.
VR-C1: Will the WREP cumulatively impact Visual Resources?	The new recycled water pipeline would be buried and therefore not visible. The Project does not have a permanent visual impact and therefore could not contribute to a cumulative impact.	Less than Significant	No Impact	No mitigation needed.

Significance Thresholds	Project Impact Discussion	Program Level of Significance	Project Level of Significance	Mitigation Measure
12. Public Services, Utilities and Energy				
PS-1. Will the WREP increase demand for police, fire, water, sewage treatment and disposal, solid waste removal, or energy to such a degree that accepted service standards are not maintained?	The expanded distribution system would not increase demand for police and fire protection services. Additional use of recycled water would decrease demand for potable water and would not increase demand for sewage treatment or disposal. Solid waste generated during Project construction would represent a small fraction of the daily permitted tonnage of local landfills and would be sufficiently accommodated. Following construction, the Project would not generate solid waste.	No Impact	Less than Significant	No mitigation needed.
PS-2. Will WREP construction disrupt police, fire, schools, parks and recreation facilities to such a degree that accepted service standards are not maintained?	No disruption to police or fire protection services, schools, or recreation facilities due to Project construction would occur, as no roadways would be closed. In addition, Project Measure PD-11, Standard Traffic Control Procedures, would require coordination with emergency response providers, transit, and schools when construction of pipelines blocks access to such facilities.	No Impact	No Impact	No mitigation needed.

Significance Thresholds	Project Impact Discussion	Program Level of Significance	Project Level of Significance	Mitigation Measure
PS-3. Will the WREP conflict with wells, septic fields, or water or wastewater utilities?	The new recycled water pipeline could result in potential conflicts with public or private utilities such as wells and septic systems. However, implementation of Project Measure PD-14, Adjust Facility Design to Avoid Wells and Septic Systems, would avoid conflicts by requiring compliance with Title 22 separation guidelines.	Less than Significant	No Impact	No mitigation needed.
PS-C1 and C2. Will the WREP plus cumulative Projects increase demand or disrupt facilities to such a degree that accepted service standards are not maintained based on criteria 1 and 2?	Relative to increased demand for services, the Project would not make a cumulatively considerable contribution to a significant cumulative impact, because the City maintains adequate existing personnel, equipment, and response times within the WREP study area. Relative to disruption of service, none of the cumulative projects identified in the WREP EIR are near the Project and none are scheduled to be constructed at the same time as the Project, and no new cumulative projects in the vicinity of the Project have been identified. Therefore, no significant cumulative service disruption impacts would result.	No Impact	No Impact	No mitigation needed.
PS-C3. Will the WREP plus cumulative Projects conflict with wells, septic fields, or water or wastewater utilities?	The Project would not conflict with nearby wells, septic fields, or wastewater facilities because it would comply with Title 22 separation guidelines. Therefore, the Project would not contribute to cumulative impacts of such facilities.	Less than Significant	No Impact	No mitigation needed.

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Vollmar Natural Lands Consulting. 2019. *Delineation of Potential Jurisdictional Waters*. January.

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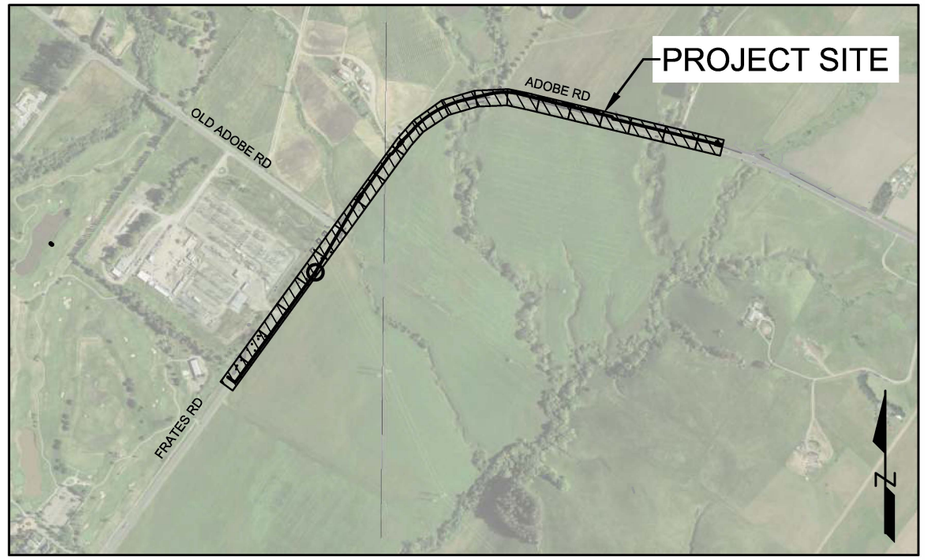
APPENDIX A PLAN SHEETS

ADOBE ROAD RECYCLED WATER PIPELINE PROJECT

FRATES RD., ADOBE RD.

C66501936



LOCATION MAP
SCALE: N.T.S.

SHEET INDEX

	SIGNATURE	DATE
CITY ENGINEER		
ENGINEERING MANAGER		
FIRE MARSHAL		
PARKS		
PLANNING		
POLICE		
UTILITY MANAGER		

☐ ALL PROJECT PLANS HAVE BEEN PREPARED AND REVIEWED TO COMPLY WITH CURRENT AMERICANS WITH DISABILITIES ACT (ADA) REQUIREMENTS AND/OR THE CALIFORNIA BUILDING STANDARDS CODE (CBSC).

☐ THESE PROJECT PLANS CONTAIN ELEMENT(S) THAT ARE NOT "TECHNICALLY FEASIBLE" AND/OR CAN'T MEET THE APPLICABLE CBSC BECAUSE IT WOULD CREATE AN "UNREASONABLE HARDSHIP." PLEASE SEE THE WRITTEN ANALYSIS SUPPORTING THIS DETERMINATION FILED UNDER THE PROJECT FILE.

DESIGNED BY

SIGNATURE DATE

APPROVED BY:

GINA BENEDETTI-PETNIC P.E. C42778
ASSISTANT DIRECTOR OF PUBLIC WORKS

DESIGNED BY:

MATTHEW G. KENNEDY P.E. C68304
PRINCIPAL ENGINEER

RECORD PLAN

I _____ HEREBY STATE THAT THESE RECORD PLAN CHANGES ARE COMPLETE FROM INFORMATION FURNISHED BY THE PROJECT CONTRACTOR, SOILS ENGINEER AND MY OFFICE. I HEREBY STATE THAT TO THE BEST OF MY KNOWLEDGE THE THE WORK WAS DONE IN ACCORDANCE WITH THE FINAL APPROVED PLANS. THE ENGINEER AND THE CITY WILL NOT BE RESPONSIBLE FOR ANY ERRORS OR OMISSIONS WHICH HAVE BEEN INCORPORATED INTO THIS DOCUMENT AS A RESULT. FIELD VERIFICATION OF CRITICAL FACTS AND DATA SHOULD BE MADE IF THESE DOCUMENTS ARE TO BE USED AS A BASIS FOR FUTURE WORK. ENGINEER'S SIGNATURE _____ DATE: _____

REGISTERED PROFESSIONAL ENGINEER
MATTHEW GLEN KENNEDY
No. C68304
CIVIL
STATE OF CALIFORNIA

DATE: DECEMBER 2020
DESIGNED BY: MK
DRAWN BY: MK
CHECKED BY: MK

PROJECT NO.
CXXXXXXXXXX

CITY OF PETALUMA
PUBLIC WORKS & UTILITIES
202 N. McDowell Blvd., PETALUMA, CALIFORNIA, 94954
PH. 707-778-4546 FAX. 707-778-4508

ADOBE ROAD RECYCLED WATER PIPELINE PROJECT

TITLE SHEET AND VICINITY MAP

SHEET
G-001

LEGEND

1	SURVEY CONTROL POINT
B-1	APPROXIMATE BORING LOCATION
PH1	POTHOLE LOCATION
	APPROXIMATE PARCEL BOUNDARY/ RIGHT OF WAY
	RECYCLED WATER EASEMENT BOUNDARY
X X X X X X X X X X X	(E) FENCE
W W W W	(E) WATER LINE
RW RW RW	(E) RECYCLED WATER LINE
S S S S	(E) SANITARY SEWER
G G G G	(E) GAS LINE
E E E E	(E) ELECTRICAL LINE
OHE OHE OHE	(E) OVERHEAD ELECTRICAL LINE
COM COM COM	(E) TELEPHONE OR COMMUNICATIONS LINE
	(E) STORM DRAIN
	(E) CATCH BASIN
	(E) POWER POLE
ELEC	(E) ELECTRIC VAULT
	(E) SIGN
OH	(E) WATER VALVE
149	MINOR CONTOUR
150	MAJOR CONTOUR
EP	(E) EDGE OF PAVEMENT
	(N) RECYCLED WATER LINE
	(N) BLOW OFF
	(N) AIR RELEASE VALVE
OH	(N) WATER VALVE
	(E) WETLAND AREA
	(E) RIPARIAN AREA
	(E) OTHER WATERS

ABBREVIATIONS

AB	AGGREGATE BASE, ABANDONED
ABAN	ABANDONED
AC	ASPHALTIC CONCRETE
	ASBESTOS CEMENT
ACP	ASBESTOS CONCRETE PIPE
AGG	AGGREGATE
AL	ARC LENGTH
APN	ASSESSORS PARCEL NUMBER
ARV	AIR RELEASE/VACUUM VALVE
AVE	AVENUE
BC	BEGINNING OF CURVE
BLDG	BUILDING
BO	BLOW-OFF
BSW	BACK OF SIDEWALK
COM	COMMUNICATION
C&G	CURB & GUTTER
CATV	CABLE TELEVISION
CB	CATCH BASIN
℄DF	CONTROL DENSITY FILL
	CENTERLINE
CL	CLASS
CO, C/O	CLEANOUT
COL	COLUMN
CONC	CONCRETE
CT	COURT
D	DEMOLISH
DBL	DOUBLE
DEPT	DEPARTMENT
DI	DROP INLET
DIA, Ø	DIAMETER
DIP	DUCTILE IRON PIPE
DR	DIMENSION RATIO
DWG	DRAWING
DWY	DRIVEWAY
(E)	EAST, EXISTING
E	ELECTRICAL
EC	END OF CURVE
EG	EXISTING GRADE
EJ	EXPANSION JOINT
EL, ELEV	ELEVATION
ELEC	ELECTRIC
ENT	ENTRY
EP	EDGE OF PAVEMENT
EQ	EQUAL
EX, EXIST	EXISTING
FC	FACE OF CURB
FCA	FLANGE COUPLING ADAPTER
FEN	FENCE
FG	FINISH GRADE (UNPAVED)
FH	FIRE HYDRANT
FL	FLOWLINE
F/FLG	FACE OF, FLANGE
FND	FOUNDATION
FPVC	FUSIBLE PVC
FS	FINISHED SURFACE
G	GAS
GB	GRADE BREAK
GV	GATE VALVE
HDD	HORIZONTAL DIRECTIONAL DRILLING
HDPE	HIGH DENSITY POLYETHYLENE
HMA	HOT MIX ASPHALT
HP	HIGH PRESSURE
HZ	HORIZONTAL
IC	INTERCONNECT
INV	INVERT
IRR	IRRIGATION
KV	KILOVOLT
L	LENGTH
LF	LINEAR FEET
LG	LIP OF GUTTER
LN	LANE
LT	LEFT OFFSET FROM CENTERLINE
MAX	MAXIMUM
MB	MAILBOX
ME	MATCH EXISTING
MH	MANHOLE
MI	MILE
MIN	MINIMUM, MINUTE
MON	MONUMENT
MUTCD	MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES
(N)	NEW, NORTH
(NE)	NORTHEAST
(NW)	NORTHWEST
No	NUMBER
NAVD	NORTH AMERICAN VERTICAL DATUM
NTS	NOT TO SCALE
OH	OVERHEAD
P	PAVEMENT
PB	POINT OF BEGINNING
PC	POINT OF CURVATURE
PCC	PORTLAND CEMENT CONCRETE
PED	PEDESTRIAN
PG&E	PACIFIC GAS AND ELECTRIC COMPANY
PI	POINT OF INTERSECTION
PL	PROPERTY LINE / POWER LINE
PM	PAVEMENT MARKING
PP	POWER POLE
PRC	POINT OF REVERSE CURVATURE
PT	POINT
PT	POINT OF TANGENCY
P.U.E.	PUBLIC UTILITY EASEMENT
PVC	POLYVINYL CHLORIDE
R	RADIUS
RC	RELATIVE COMPACTION
RD	ROAD
RET	RETAINING
ROW	RIGHT-OF-WAY
RPM	RAISED PAVEMENT MARKER
RT	RIGHT OFFSET FROM CENTERLINE
R/W	RIGHT OF WAY
RW	RECYCLED WATER
S	SLOPE, SEWER
(S)	SOUTH
SCH	SCHEDULE
SD	STORM DRAIN
SDMH	STORM DRAIN MANHOLE
SHT	SHEET
SL	STREET LIGHT
SS	SANITARY SEWER
SSCO	SANITARY SEWER CLEANOUT
SSMH	SANITARY SEWER MANHOLE
ST	STREET
STA	STATION
STD	STANDARD
SVC	SERVICE LATERAL
(SE)	SOUTHEAST
(SW)	SOUTHWEST
S/W	SIDEWALK
T, TEL	TELEPHONE
TB	TOP OF BANK
TC	TOP OF CURB
TG	TOP OF GRADE
TOC	TOP OF CONCRETE
TOE	TOE OF FEATURE
TOP	TOP OF PIPE
TOR	TOP OF RAMP
TOW	TOP OF WALL
TP	TOP OF CONCRETE PAD, TIE POINT
TYP	TYPICAL
UG	UNDERGROUND
UON	UNLESS OTHERWISE NOTED
VAR	VARIES
VERT, VT	VERTICAL
VLT	VAULT
(W)	WEST
W/	WITH
W	WATER
WM	WATER METER, WATER MAIN
WS	WATER SERVICE
WV	WATER VALVE

NOTE:
SOME ABBREVIATIONS MAY BE USED IN COMBINATION.

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Bar is one inch on 11" x 17" sheet
0 1"

No.	Issue	Checked	Approved	Date

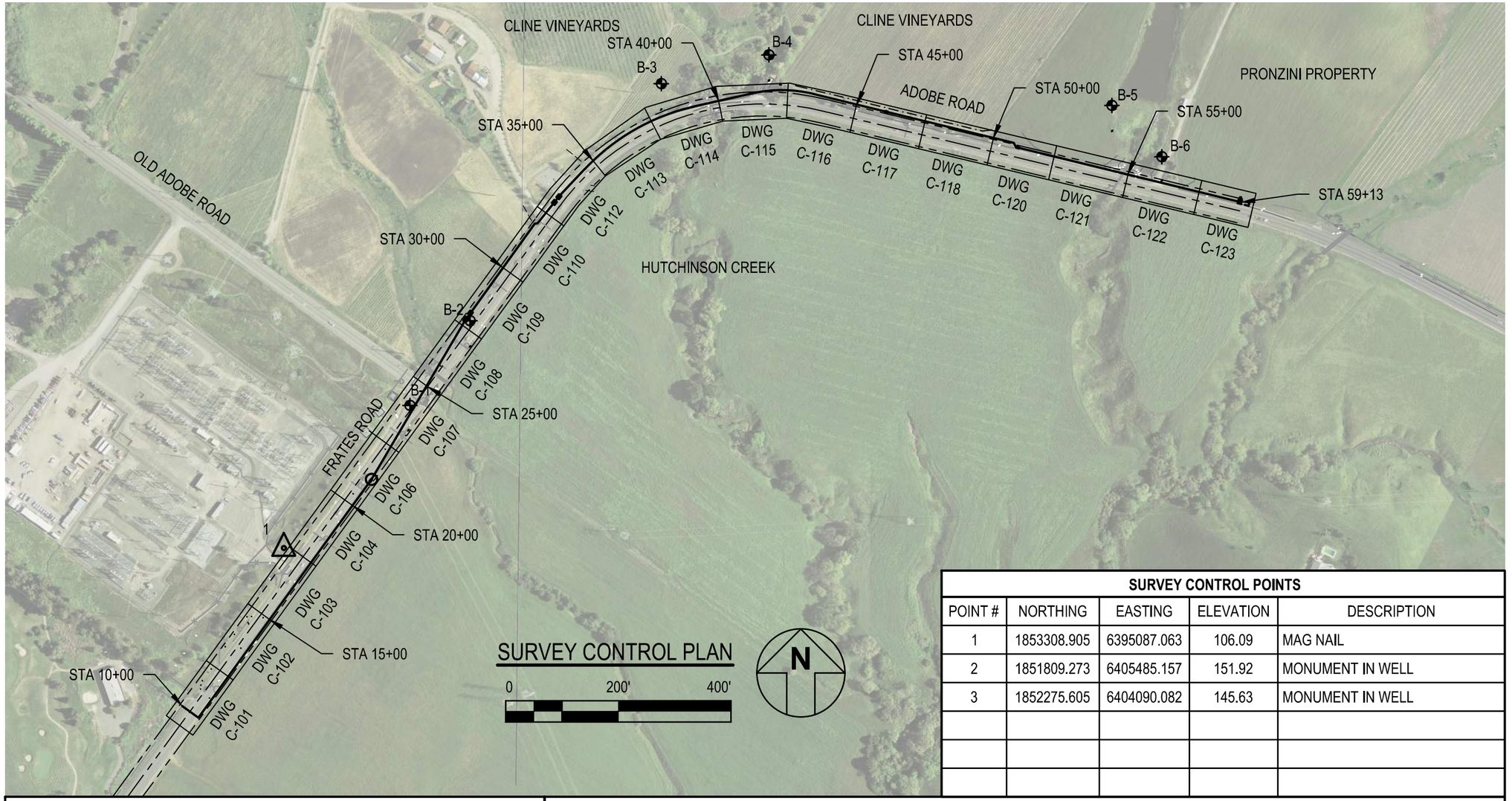
Author
Designer
Drafting Check MK
Design Check MK
Project Manager
Project Director

Client
CITY OF PETALUMA

Project
ADOBE ROAD RECYCLED WATER PIPELINE

Date 03/03/2023
Scale AS SHOWN
Project No. 11219037
Title **LEGEND AND ABBREVIATIONS**
Size ANSI B
Status Code
Drawing No. G-003
Sheet 3 of 32

Plot Date: 8 August 2023 - 5:16 PM Plotted By: Chris Bach Path and Filename: \\ghdnet\ghd\US\santa rosa\Projects\561\11219037\06 - digital design\acad 2018\Sheets\11219037 G-001-G-005.dwg



SURVEY CONTROL POINTS

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
1	1853308.905	6395087.063	106.09	MAG NAIL
2	1851809.273	6405485.157	151.92	MONUMENT IN WELL
3	1852275.605	6404090.082	145.63	MONUMENT IN WELL

SURVEY INFORMATION

BASIS OF BEARING:

CALIFORNIA COORDINATE SYSTEM '83

BENCHMARK:

MAG NAIL, LOCATION SHOWN HEREON, ELEVATION 106.09'
(DATUM NAVD 88 BY GPS OBSERVATIONS UTILIZING THE CALIFORNIA SURVEY & DRAFTING SUPPLY VSN)

SHEET GENERAL NOTES

1. FIELD TOPOGRAPHIC SURVEY WAS COMPLETED BY BKF ENGINEERS ON APRIL 24, 2019.
2. ALL ELEVATION INFORMATION IS IN FEET OR DECIMAL THEREOF.
3. UNAUTHORIZED CHANGES AND USES: THE PROFESSIONAL PREPARING THIS MAP WILL NOT BE RESPONSIBLE FOR, OR LIABLE FOR, UNAUTHORIZED CHANGES TO OR USES OF THIS MAP. CHANGES TO THIS MAP MUST BE REQUESTED IN WRITING AND MUST BE APPROVED BY THE PROFESSIONAL.
4. THE LOCATIONS OF EXISTING UNDERGROUND FACILITIES AND UTILITIES SHOWN ON THE DRAWINGS ARE APPROXIMATE AND BASED ON OBSERVED SURFACE FEATURES AND AVAILABLE INFORMATION. THE PROFESSIONAL PREPARING THIS MAP ASSUMES NO RESPONSIBILITY FOR THE ACCURACY OF THESE FACILITIES OR FOR THE INADVERTENT OMISSION OF RELATED INFORMATION.
5. BEARINGS AND DISTANCES ARE BASED ON SURVEY.
6. SURVEY CONTROL POINT #2 AND #3 ARE LOCATED OUTSIDE THE PROJECT AREA.

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REGISTERED PROFESSIONAL ENGINEER
MATTHEW GLEN KENNEDY
No. C68304
CIVIL
STATE OF CALIFORNIA

Bar is one inch on 11" x 17" sheet
0 1"

No.	Issue	Checked	Approved	Date

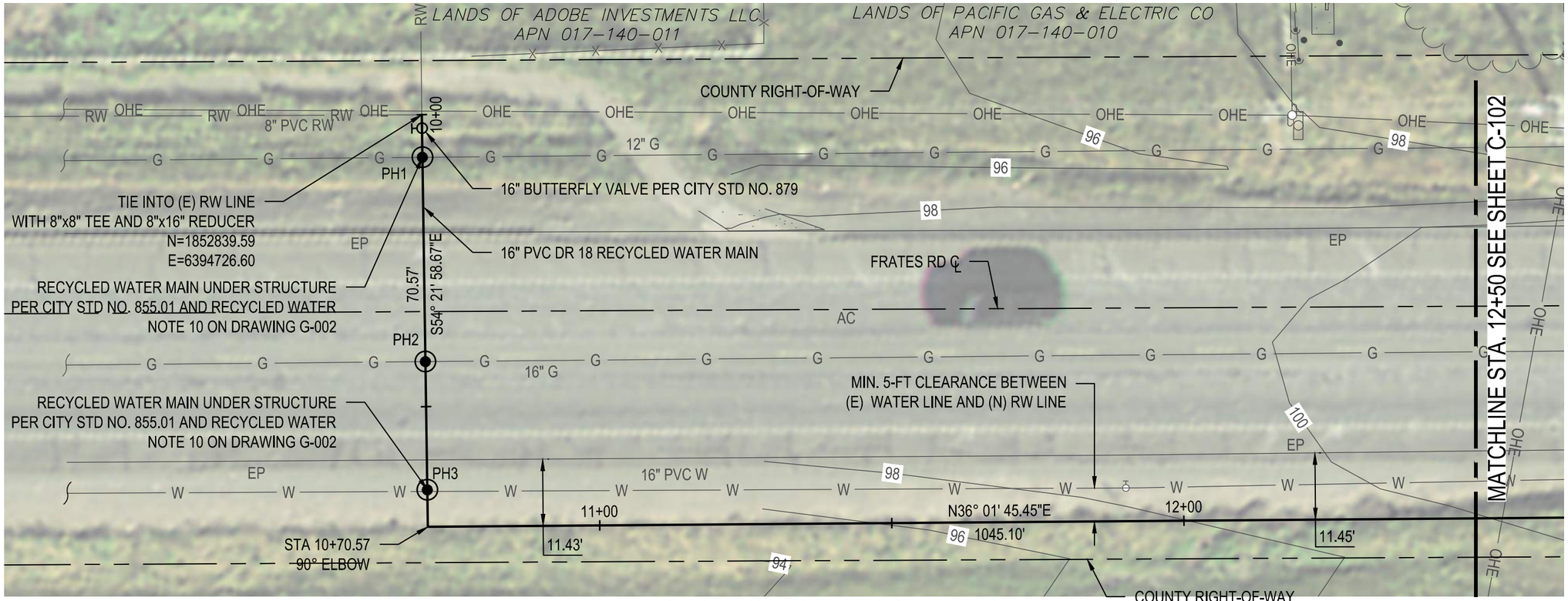
Author | Designer
Drafting Check: MK | Design Check: MK
Project Manager | Project Director

Client: CITY OF PETALUMA

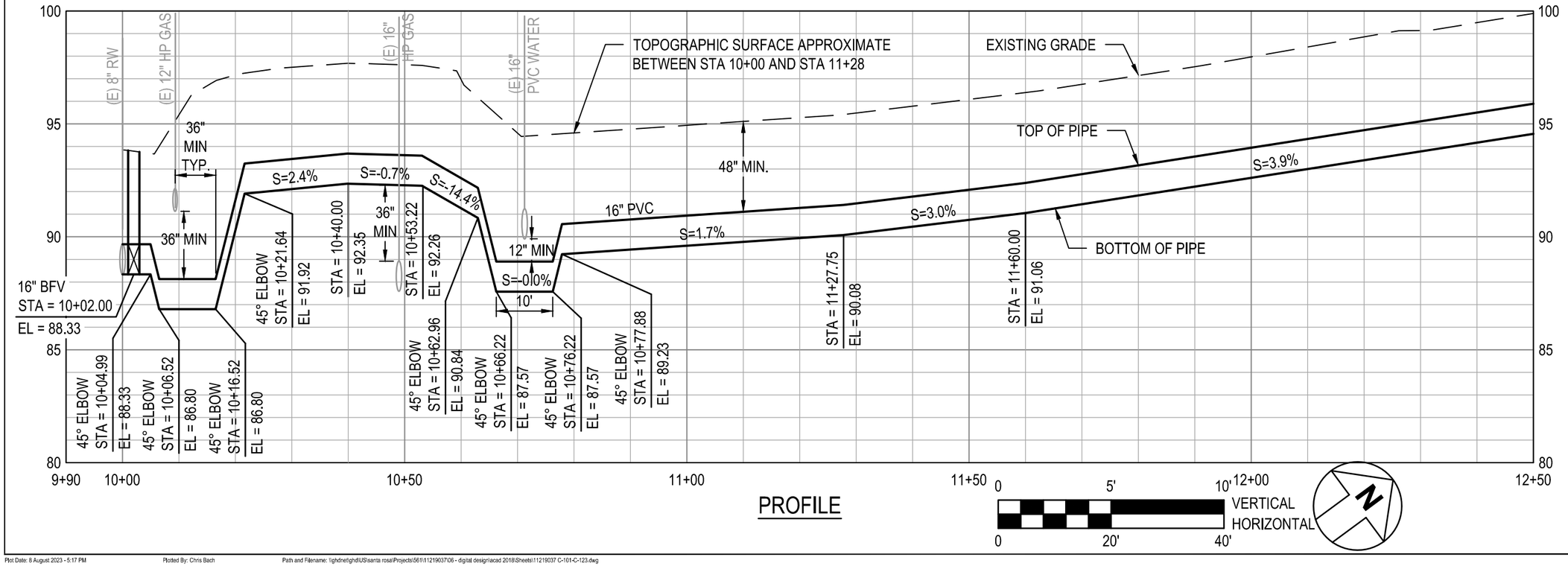
Project: ADOBE ROAD RECYCLED WATER PIPELINE

Date: 03/03/2023 | Scale: AS SHOWN
Project No.: 11219037
Title: SURVEY CONTROL PLAN AND KEY MAP
Size: ANSI B
Status Code
Drawing No.: G-004
Sheet: 4 of 32

Plot Date: 8 August 2023 - 5:16 PM Plotted By: Chris Bach Path and Filename: \\ghdnet\ghd\US\santa rosa\Projects\561\11219037\06 - digital design\acad 2018\Sheets\11219037 G-001-G-005.dwg



PLAN - FRATES ROAD (STA 10+00 TO STA 12+50)



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0 1"

No.	Issue	Checked	Approved	Date

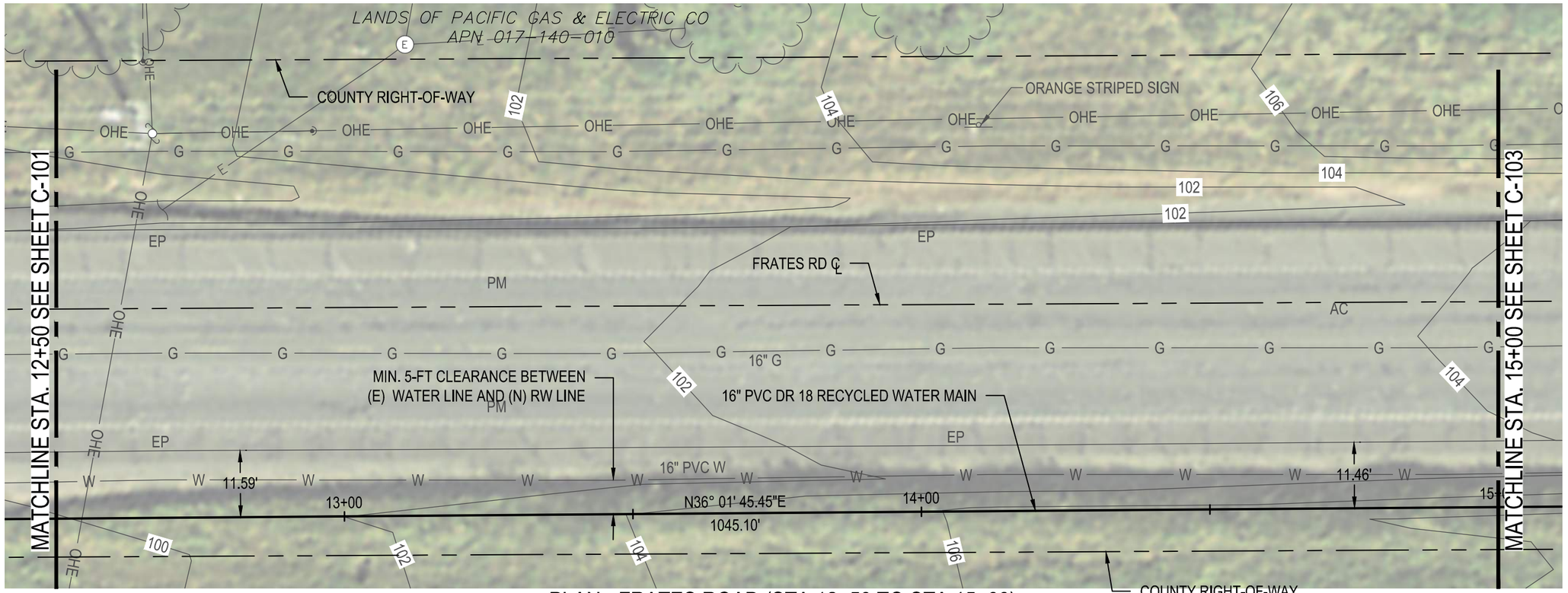
Author | Designer
Drafting Check MK | Design Check MK
Project Manager | Project Director

Client
CITY OF PETALUMA

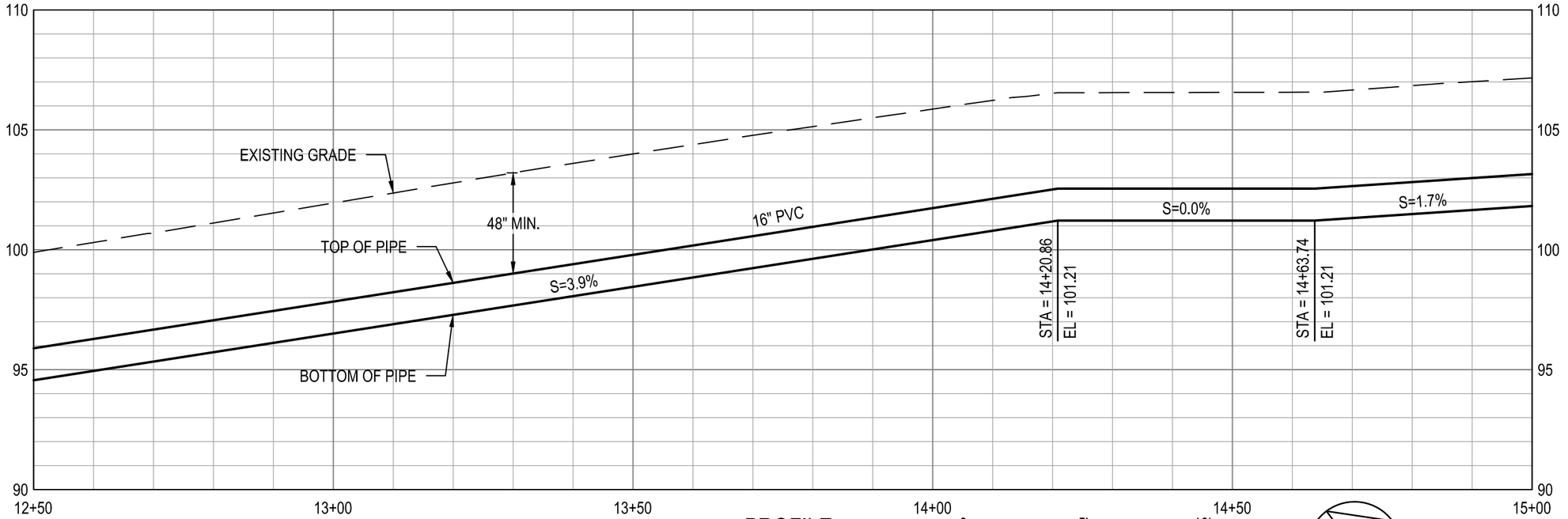
Project
ADOBE ROAD RECYCLED WATER PIPELINE

Date 03/03/2023 | Scale AS SHOWN
Project No. 11219037
Size ANSI B
Title PLAN AND PROFILE - FRATES ROAD (STA 10+00 TO STA 12+50)
Drawing No. C-101
Sheet 6 of 32

Plot Date: 8 August 2023 - 5:17 PM Plotted By: Chris Bach Path and Filename: \\ghdnet\ghd\US\santa rosa\Projects\561\11219037\06 - digital design\acad 2018\Sheets\11219037 C-101-C-123.dwg



PLAN - FRATES ROAD (STA 12+50 TO STA 15+00)



PROFILE

0 5' 10'
VERTICAL
HORIZONTAL
0 20' 40'

N

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0 1"

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Author	Designer
Drafting Check MK	Design Check MK
Project Manager	Project Director

Client
CITY OF PETALUMA

Project
ADOBE ROAD RECYCLED WATER PIPELINE

Date	Scale
03/03/2023	AS SHOWN

Project No.
11219037

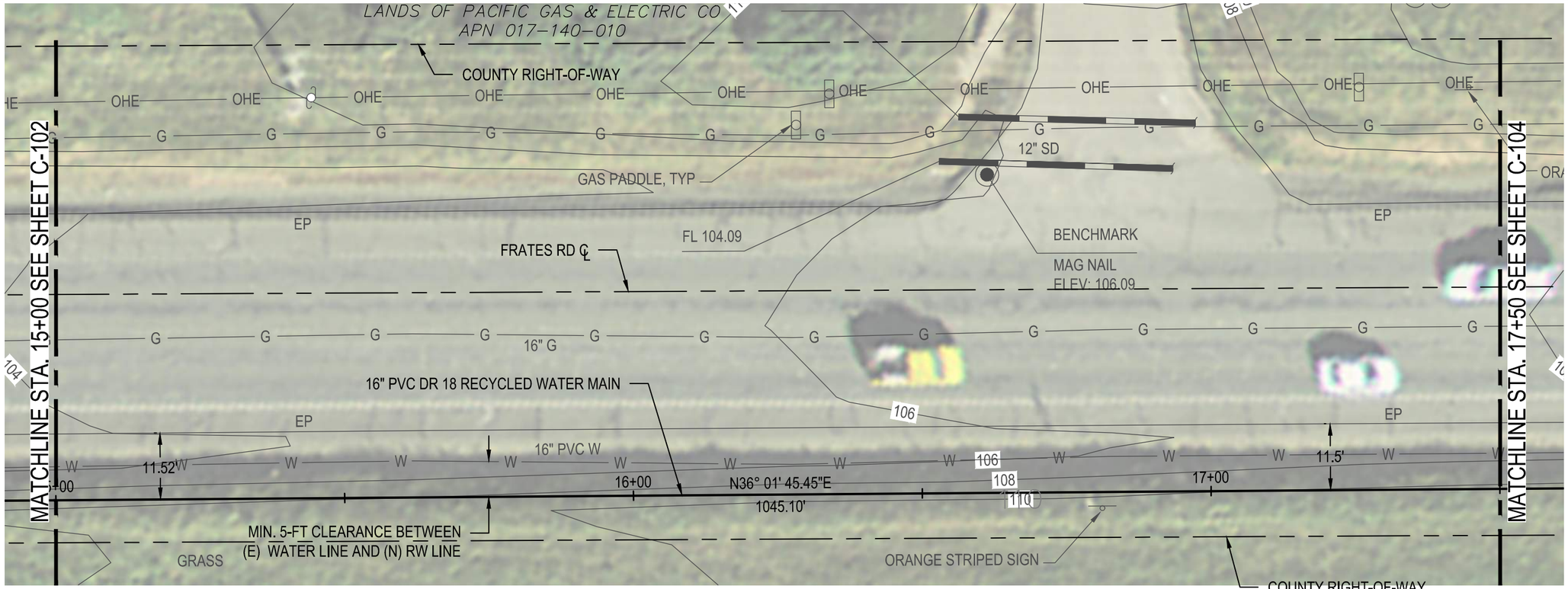
Title
PLAN AND PROFILE - FRATES ROAD (STA 12+50 TO STA 15+00)

Size
ANSI B

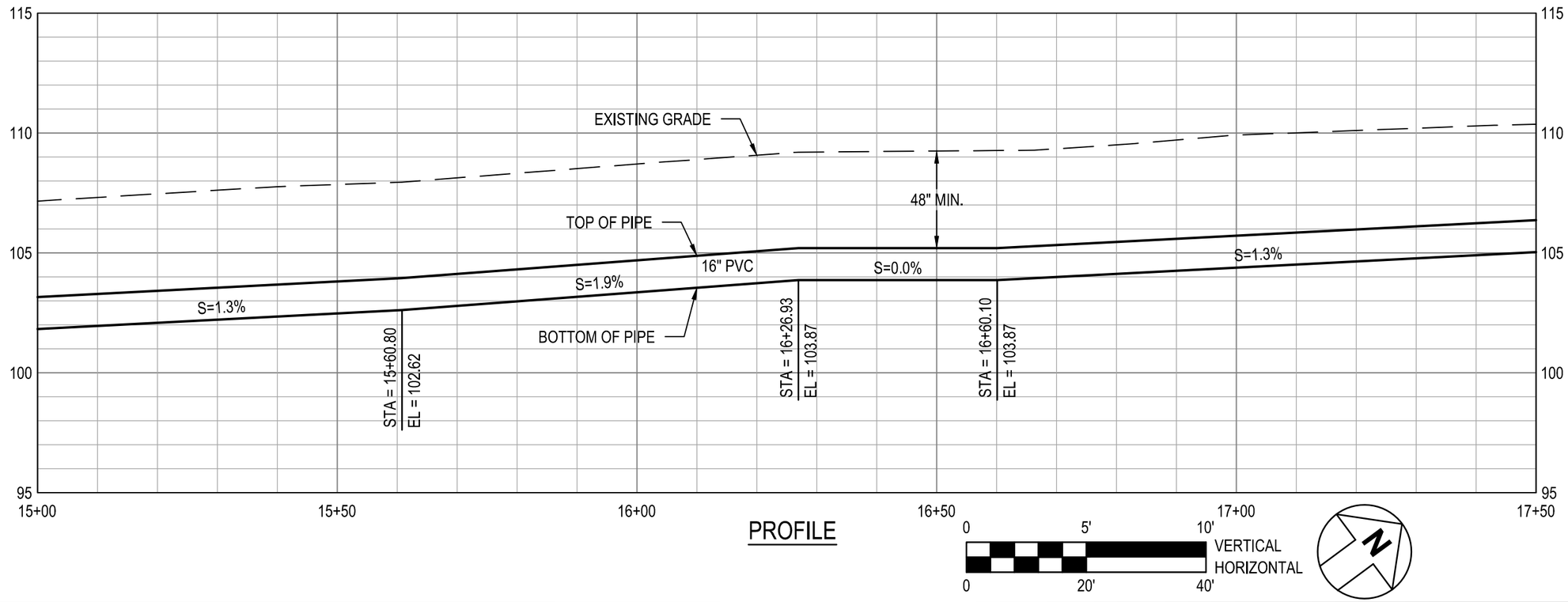
Drawing No.
C-102

Sheet
7 of 32

Plot Date: 8 August 2023 - 5:17 PM
Plotted By: Chris Bach
Path and Filename: \\ghdnet\ghd\US\santa rosa\Projects\561\11219037\06 - digital design\acad 2018\Sheets\11219037 C-101-C-123.dwg



PLAN - FRATES ROAD (STA 15+00 TO STA 17+50)



PROFILE

0 5' 10'
VERTICAL
HORIZONTAL
0 20' 40'

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STATE OF CALIFORNIA

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0 1"

No.	Issue	Checked	Approved	Date

Author
Designer
Drafting Check MK
Design Check MK
Project Manager
Project Director

Client
CITY OF PETALUMA

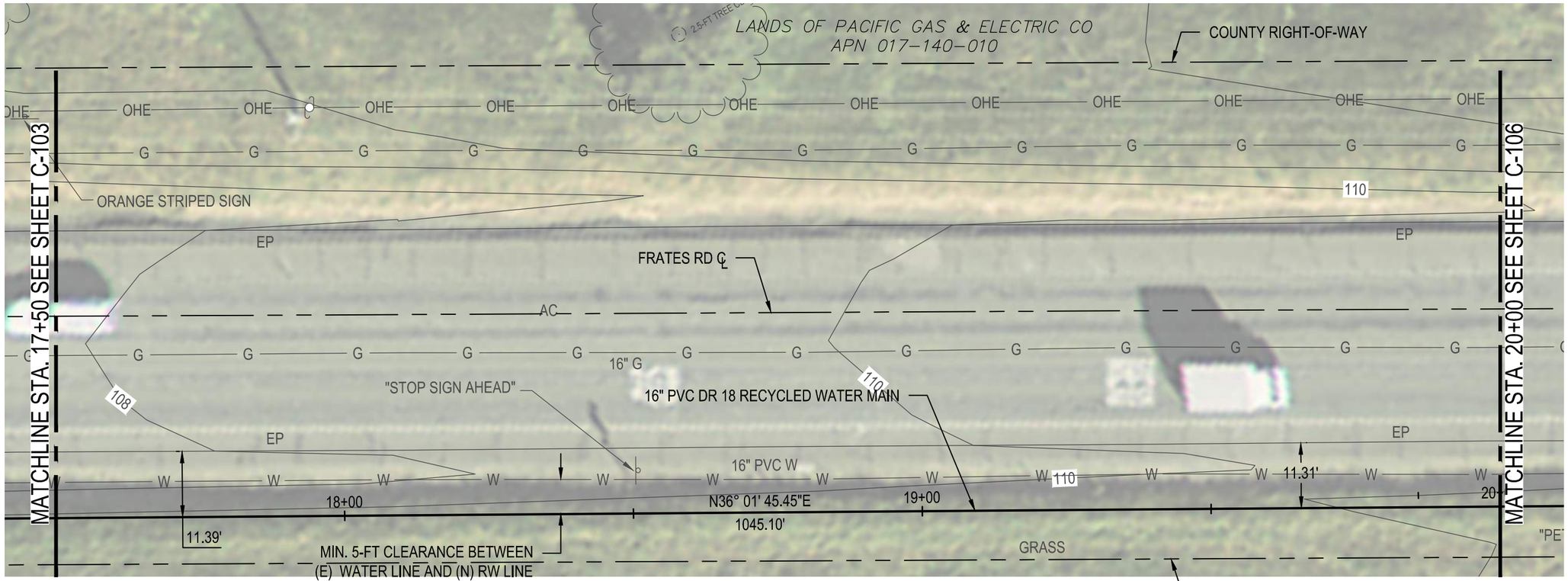
Project
ADOBE ROAD RECYCLED WATER PIPELINE

Date 03/03/2023
Scale AS SHOWN
Project No. 11219037
Size ANSI B

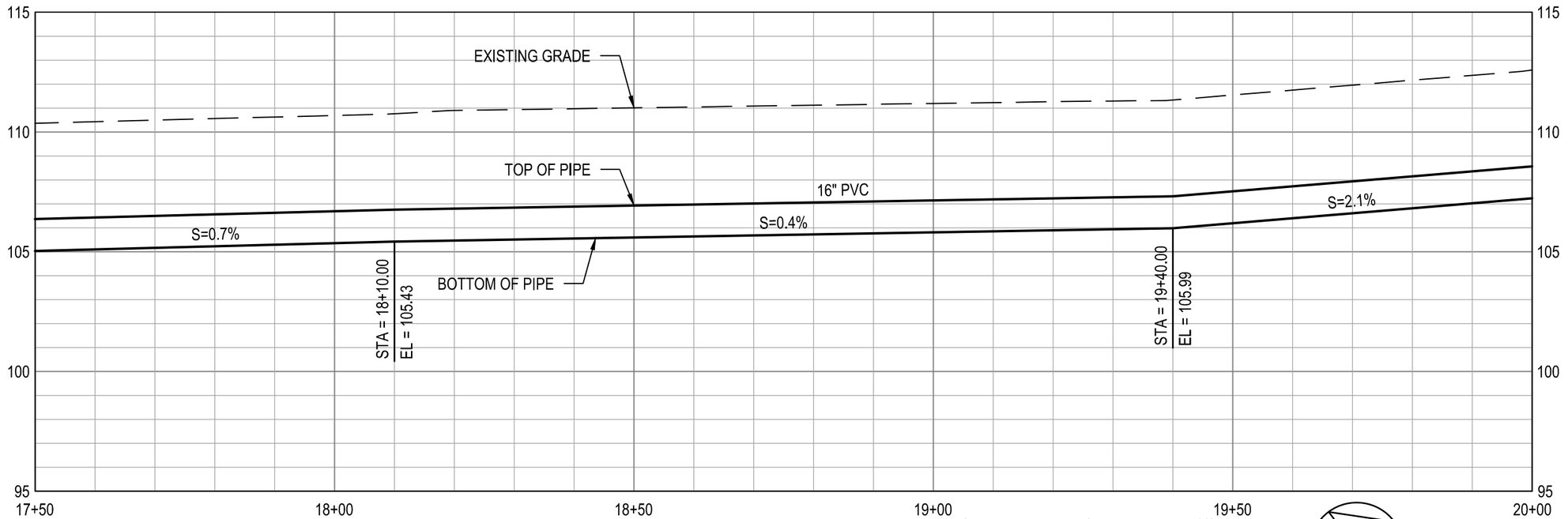
Title
PLAN AND PROFILE - FRATES ROAD (STA 15+00 TO STA 17+50)

Drawing No. C-103
Sheet 8 of 32

Plot Date: 8 August 2023 - 5:17 PM
Plotted By: Chris Bach
Path and Filename: \\ghdnet\ghd\US\santa rosa\Projects\561\11219037\06 - digital design\acad 2018\Sheets\11219037 C-101-C-123.dwg



PLAN - FRATES ROAD (STA 17+50 TO STA 20+00)



PROFILE

0 5' 10'
VERTICAL
HORIZONTAL
0 20' 40'

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0 1"

No.	Issue	Checked Approved	Date

Author | Designer
Drafting Check MK | Design Check MK
Project Manager | Project Director

Client
CITY OF PETALUMA

Project
ADOBE ROAD RECYCLED WATER PIPELINE

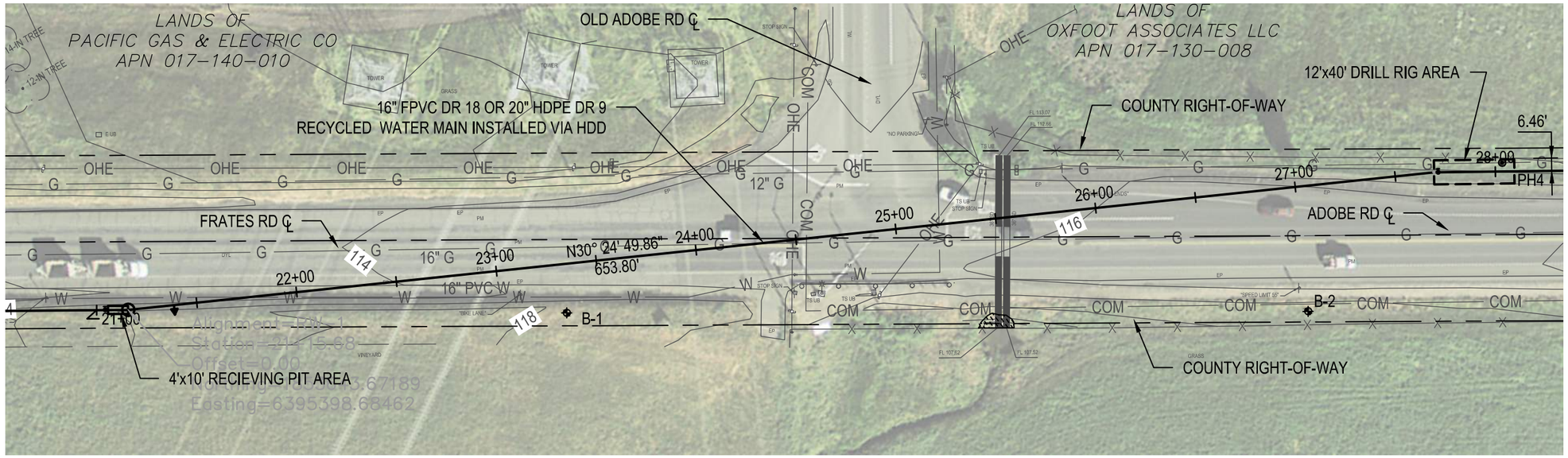
Date 03/03/2023 | Scale AS SHOWN
Project No. 11219037

Title
PLAN AND PROFILE - FRATES ROAD (STA 17+50 TO STA 20+00)

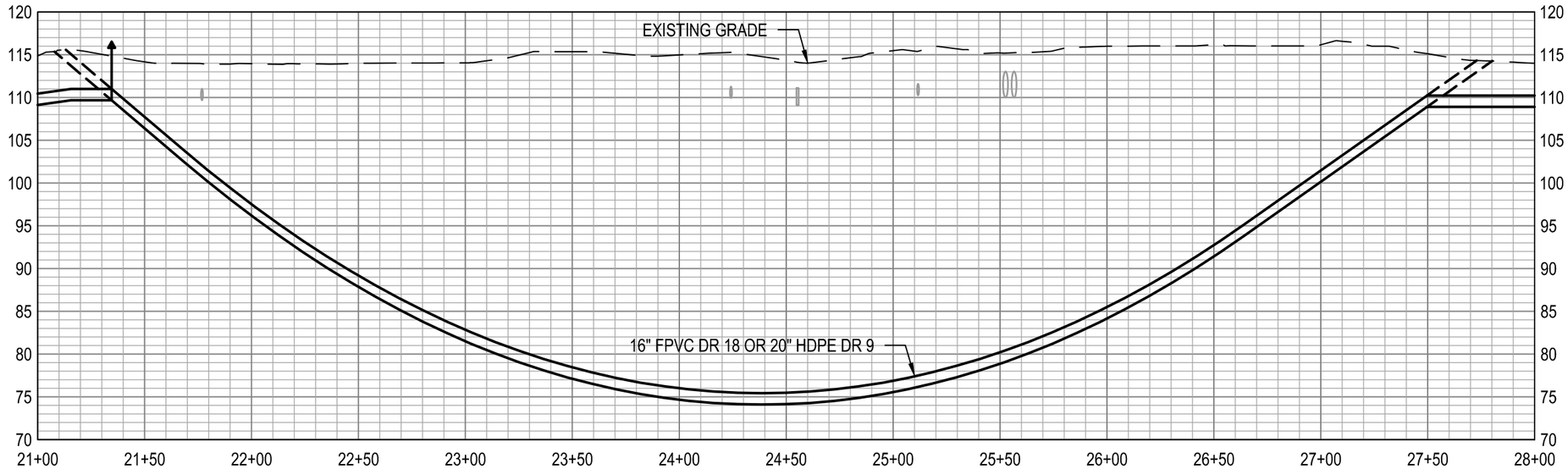
Size ANSI B

Drawing No. C-104
Sheet 9 of 32

Plot Date: 8 August 2023 - 5:17 PM
Plotted By: Chris Bach
Path and Filename: \\ghdnet\ghd\US\santa rosa\Projects\561\11219037\06 - digital design\acad 2018\Sheets\11219037 C-101-C-123.dwg



OVERALL PLAN - HDD SECTION 1 - FRATES ROAD / ADOBE ROAD (STA 21+00 TO STA 28+00)



PROFILE

0 15' 30' VERTICAL
0 60' 120' HORIZONTAL

N

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0 1"

No.	Issue	Checked	Approved	Date

Author	Designer
Drafting Check MK	Design Check MK
Project Manager	Project Director

Client
CITY OF PETALUMA

Project
ADOBE ROAD RECYCLED WATER PIPELINE

Date	Scale
03/03/2023	AS SHOWN

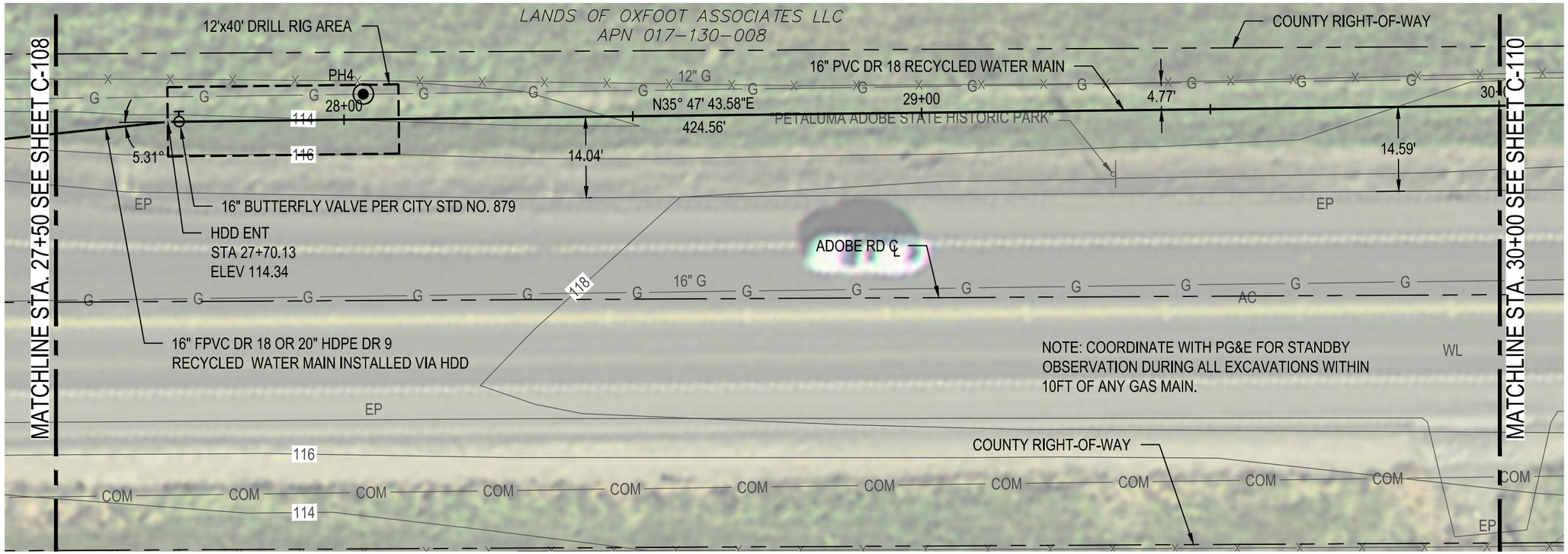
Project No.
11219037

Title
OVERALL PLAN AND PROFILE HDD SECTION 1

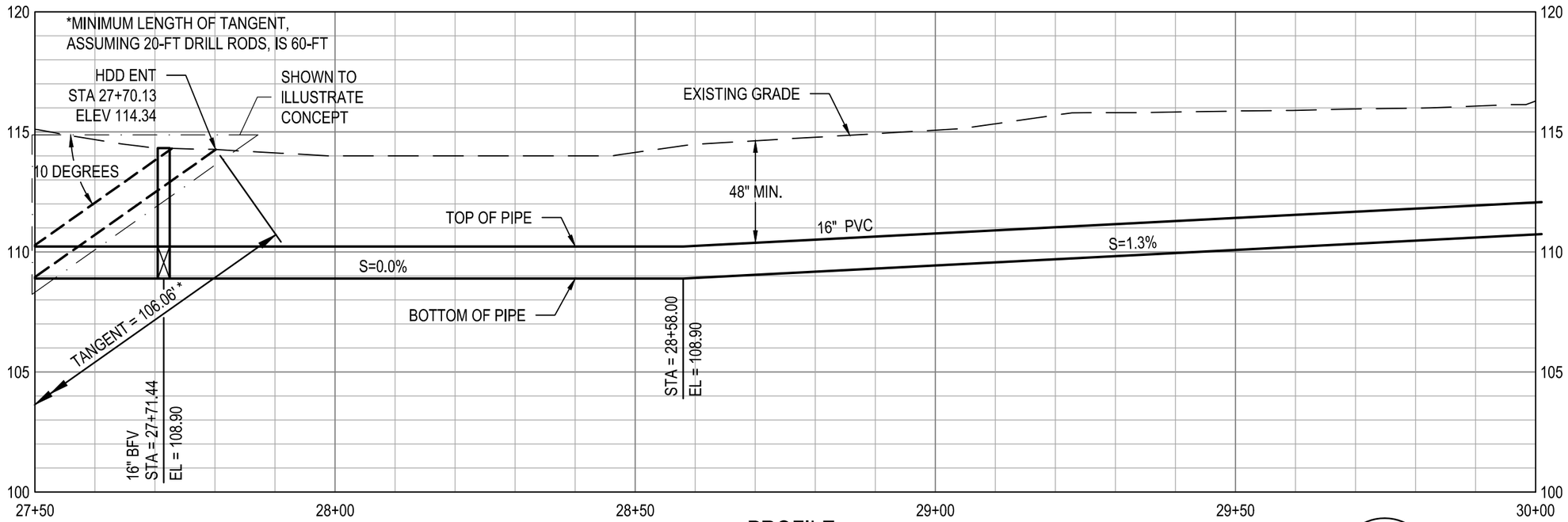
Size
ANSI B

Drawing No.
C-105

Sheet
10 of 32



PLAN - ADOBE ROAD (STA 27+50 TO STA 30+00)



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0 1"

No.	Issue	Checked	Approved	Date

Author
Designer
Drafting Check MK
Design Check MK
Project Manager
Project Director

Client
CITY OF PETALUMA

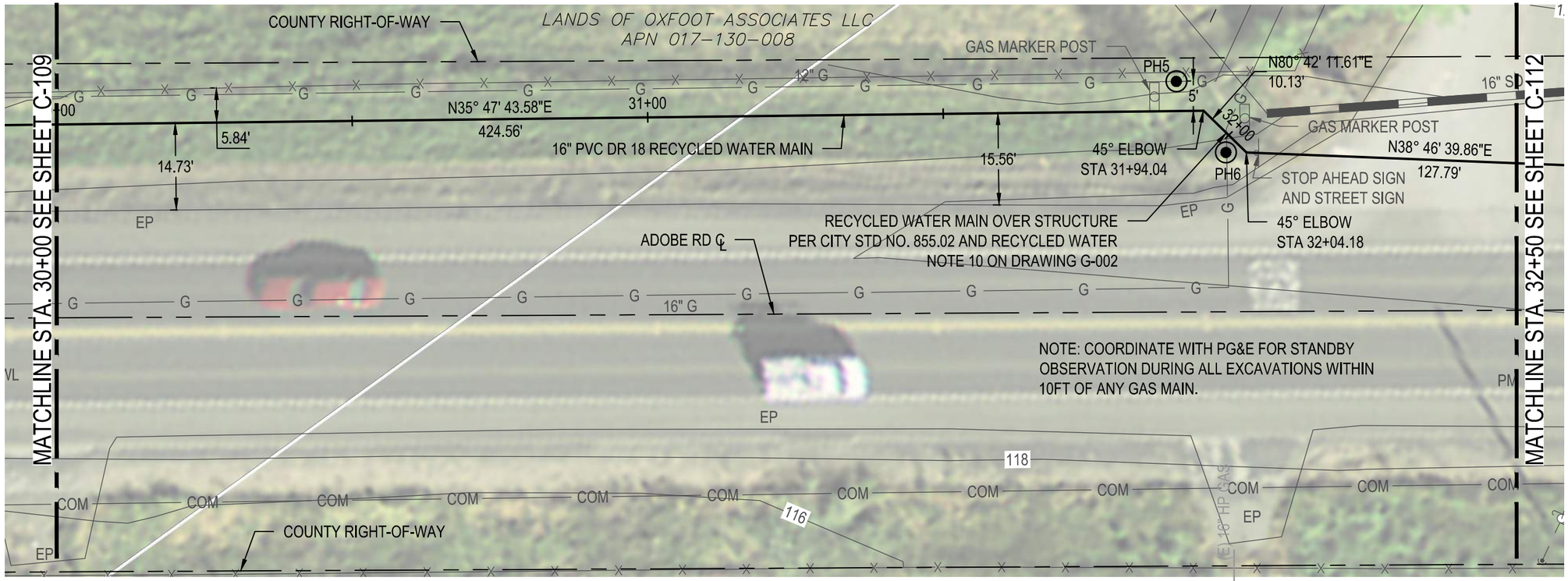
Project
ADOBE ROAD RECYCLED WATER PIPELINE

Date 03/03/2023
Scale AS SHOWN
Project No. 11219037
Size ANSI B

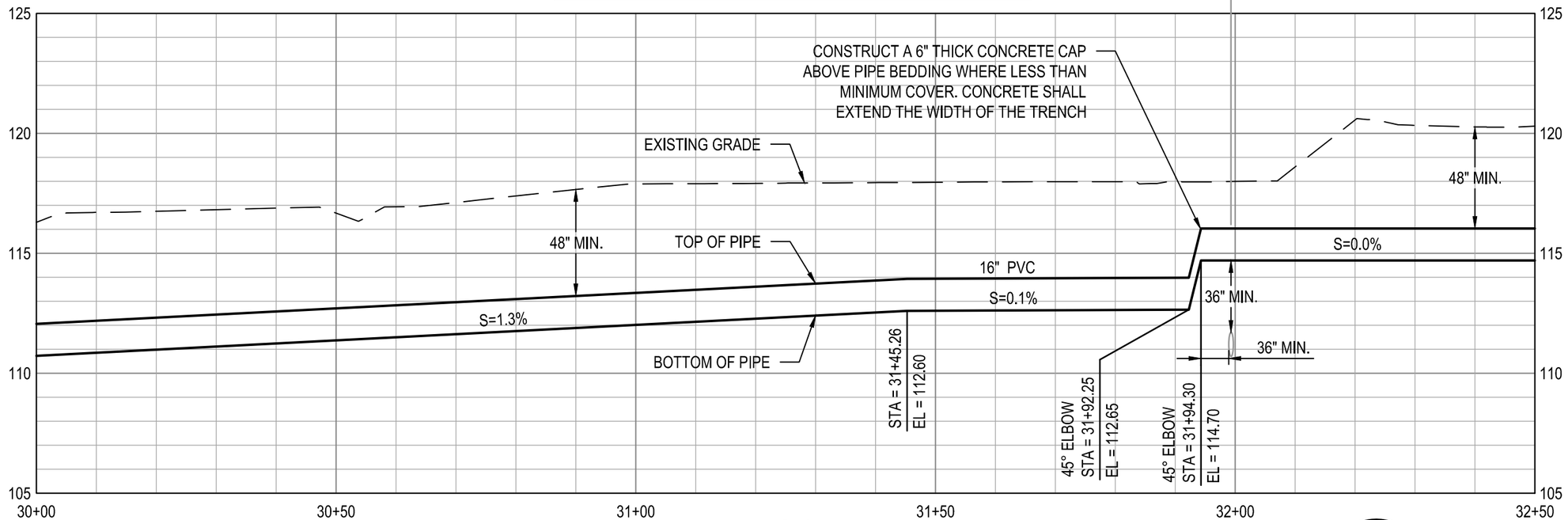
Title
PLAN AND PROFILE - ADOBE ROAD (STA 27+50 TO STA 30+00)

Drawing No. C-109
Sheet 14 of 32

Plot Date: 8 August 2023 - 5:17 PM Plotted By: Chris Bach Path and Filename: \\ghdnet\ghd\US\santa rosa\Projects\561\11219037\06 - digital design\acad 2018\Sheets\11219037 C-101-C-123.dwg



PLAN - ADOBE ROAD (STA 30+00 TO STA 32+50)



PROFILE

0 5' 10'
VERTICAL
HORIZONTAL
0 20' 40'

N

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CIVIL
STATE OF CALIFORNIA

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0 1"

No.	Issue	Checked	Approved	Date

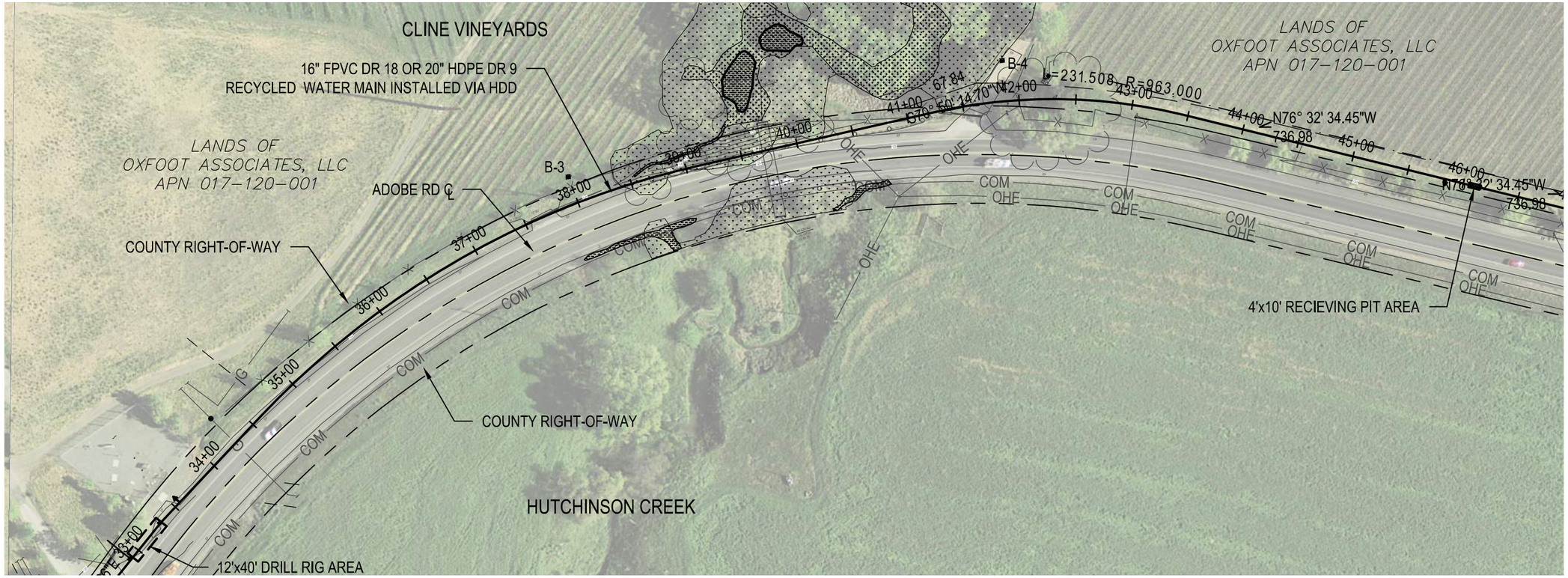
Author | Designer
Drafting Check MK | Design Check MK
Project Manager | Project Director

Client
CITY OF PETALUMA

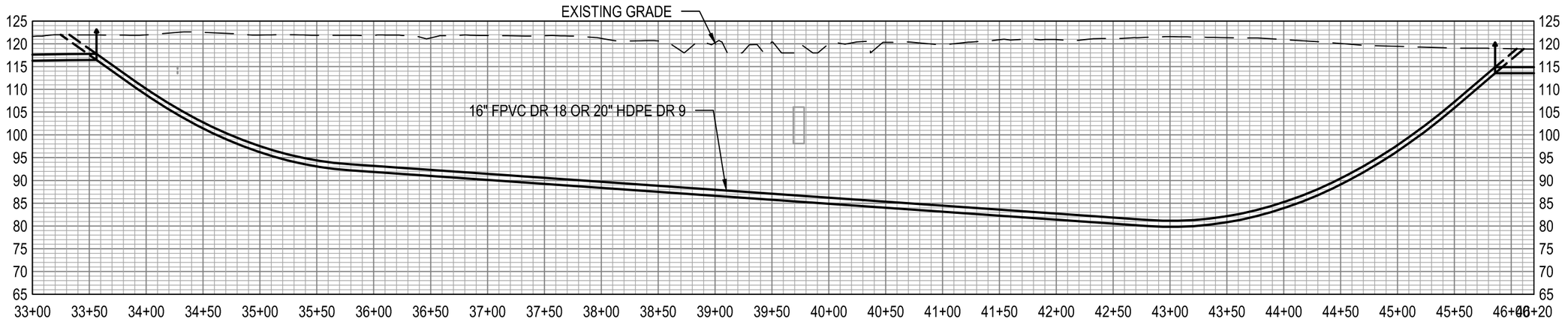
Project
ADOBE ROAD RECYCLED WATER PIPELINE

Date 03/03/2023 | Scale AS SHOWN
Project No. 11219037
Size ANSI B
Title **PLAN AND PROFILE - ADOBE ROAD (STA 30+00 TO STA 32+50)**
Drawing No. C-110
Sheet 15 of 32

Plot Date: 8 August 2023 - 5:17 PM Plotted By: Chris Bach Path and Filename: \\ghdnet\ghd\US\santa rosa\Projects\561\11219037\06 - digital design\acad 2018\Sheets\11219037 C-101-C-123.dwg



OVERALL PLAN HDD SECTION 2 - ADOBE ROAD (STA 33+00 TO STA 46+00)



PROFILE

0 25' 50'
VERTICAL
HORIZONTAL
0 100' 200'

N

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CIVIL
STATE OF CALIFORNIA

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0 1"

No.	Issue	Checked	Approved	Date

Author
Designer
Drafting Check MK
Design Check MK
Project Manager
Project Director

Client
CITY OF PETALUMA

Project
ADOBE ROAD RECYCLED WATER PIPELINE

Date 03/03/2023
Scale AS SHOWN
Project No. 11219037
Title **OVERALL PLAN AND PROFILE HDD SECTION 2**
Size ANSI B
Drawing No. C-111
Sheet 16 of 32

Plot Date: 8 August 2023 - 5:18 PM
Plotted By: Chris Bach
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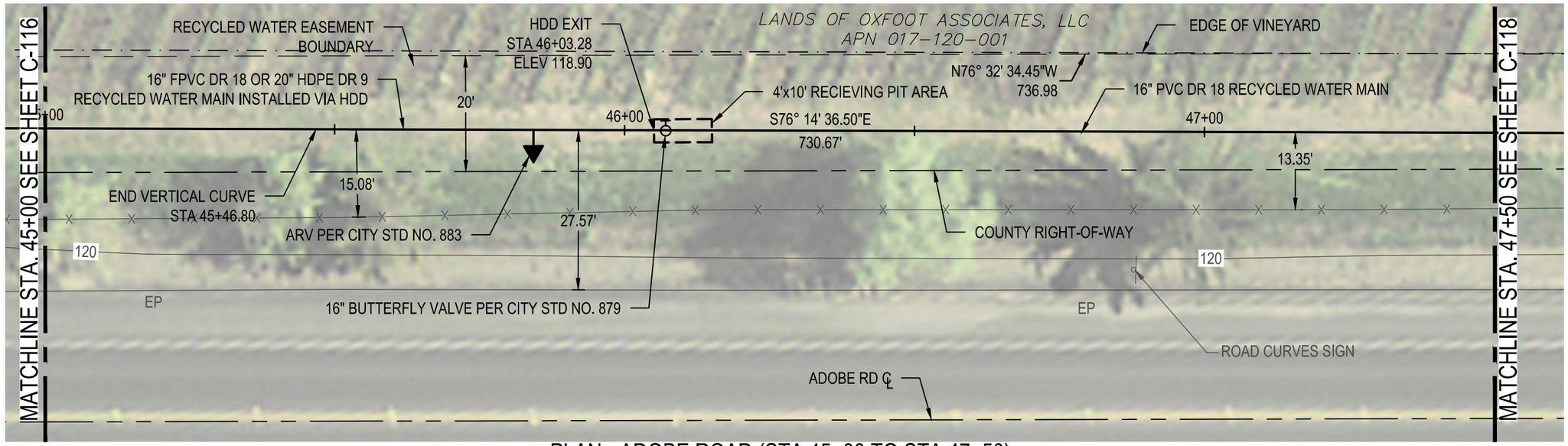
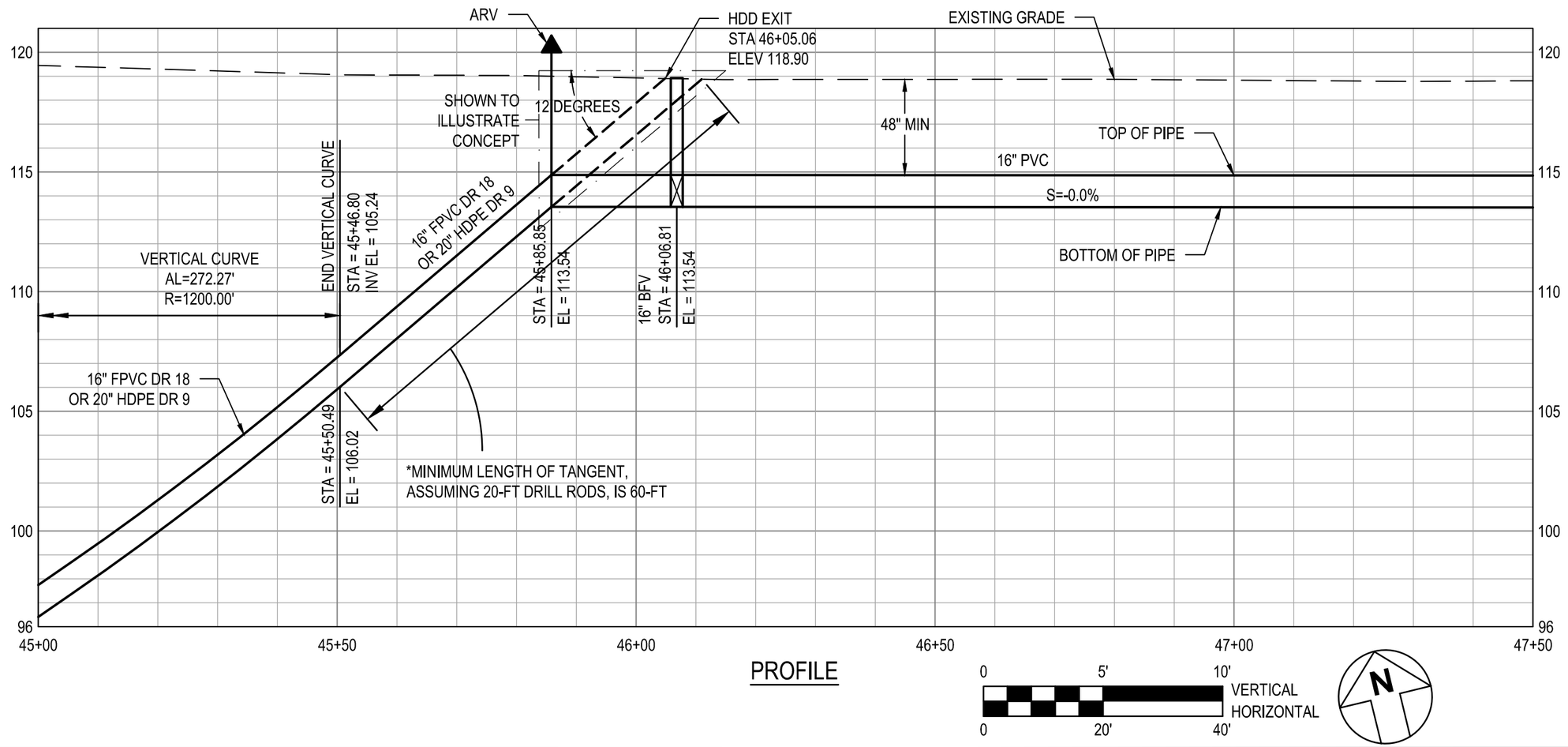


PLAN - ADOBE ROAD (STA 45+00 TO STA 47+50)



PROFILE

0 5' 10'
VERTICAL
HORIZONTAL
0 20' 40'

N

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STATE OF CALIFORNIA

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0 1"

No.	Issue	Checked	Approved	Date

Author	Designer
Drafting Check MK	Design Check MK
Project Manager	Project Director

Client
CITY OF PETALUMA

Project
ADOBE ROAD RECYCLED WATER PIPELINE

Date	Scale
03/03/2023	AS SHOWN

Project No.
11219037

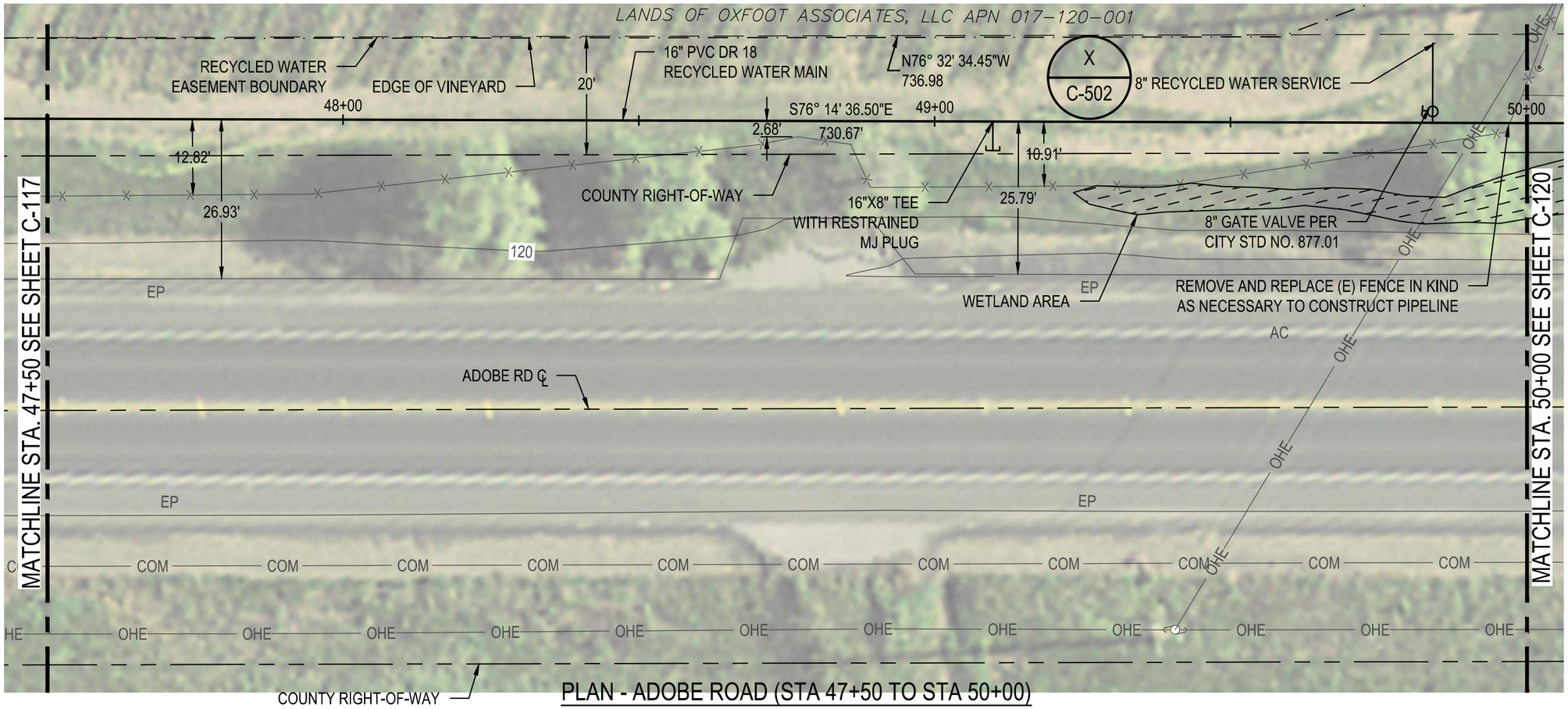
Title
PLAN AND PROFILE - ADOBE ROAD (STA 45+00 TO STA 47+50)

Size
ANSI B

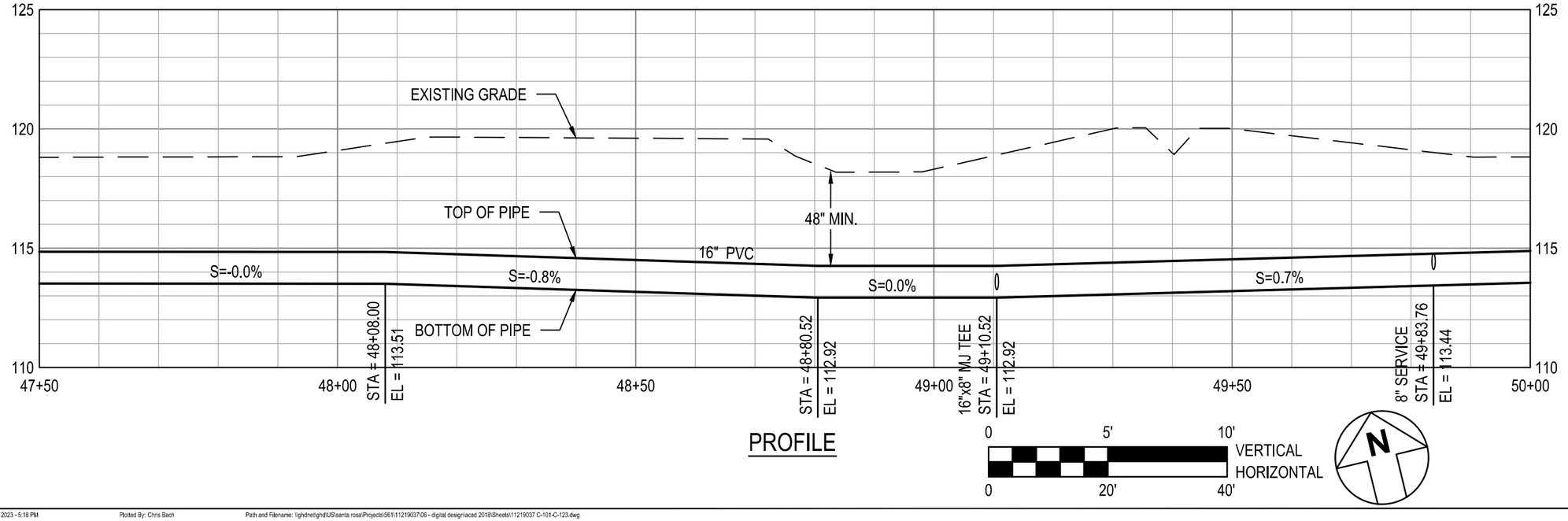
Drawing No.
C-117

Sheet
22 of **32**

Plot Date: 8 August 2023 - 5:18 PM Plotted By: Chris Bach Path and Filename: \\ghdnet\ghd\US\santa rosa\Projects\561\11219037\06 - digital design\acad 2018\Sheets\11219037 C-101-C-123.dwg



PLAN - ADOBE ROAD (STA 47+50 TO STA 50+00)



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CIVIL
STATE OF CALIFORNIA

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0 1"

No.	Issue	Checked	Approved	Date

Author		Designer	
Drafting Check	MK	Design Check	MK
Project Manager		Project Director	

Client
CITY OF PETALUMA

Project
ADOBE ROAD RECYCLED WATER PIPELINE

Date	Scale
03/03/2023	AS SHOWN

Project No.
11219037

Title
PLAN AND PROFILE - ADOBE ROAD (STA 47+50 TO STA 50+00)

Size
ANSI B

Drawing No.
C-118

Sheet
23 of 32

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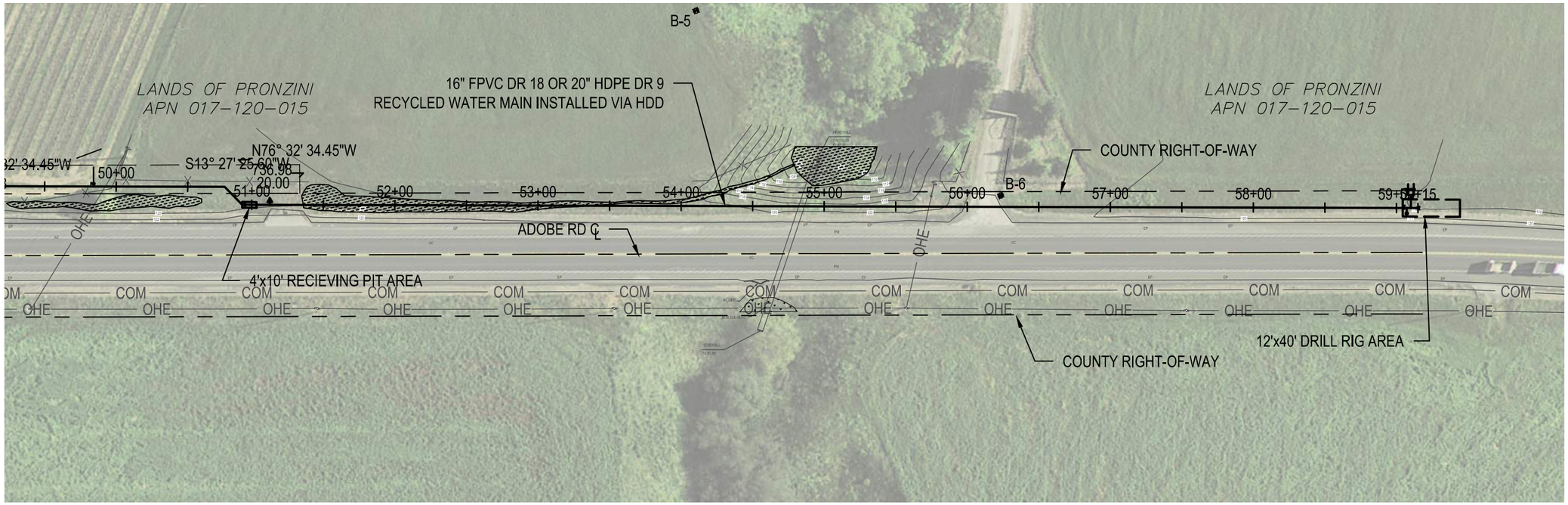
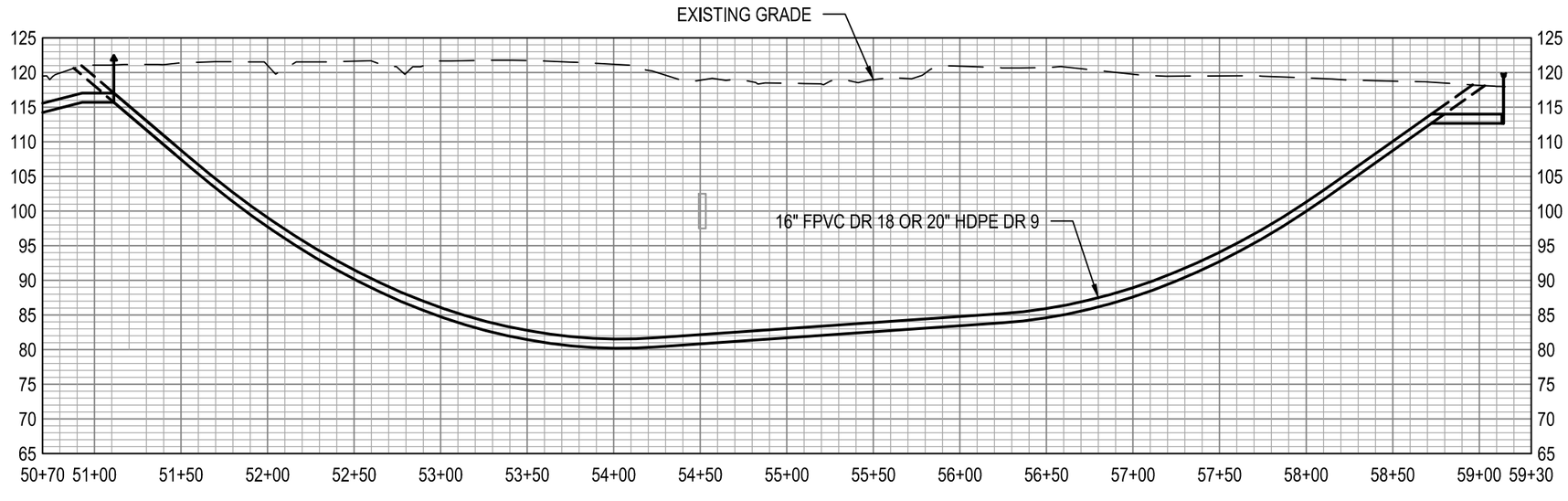


OVERALL PLAN - HDD SECTION 3 - FRATES ROAD (STA 51+00 TO STA 59+15)



PROFILE

0 20' 40'
VERTICAL
HORIZONTAL
0 80' 160'

N

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0 1"

No.	Issue	Checked	Approved	Date

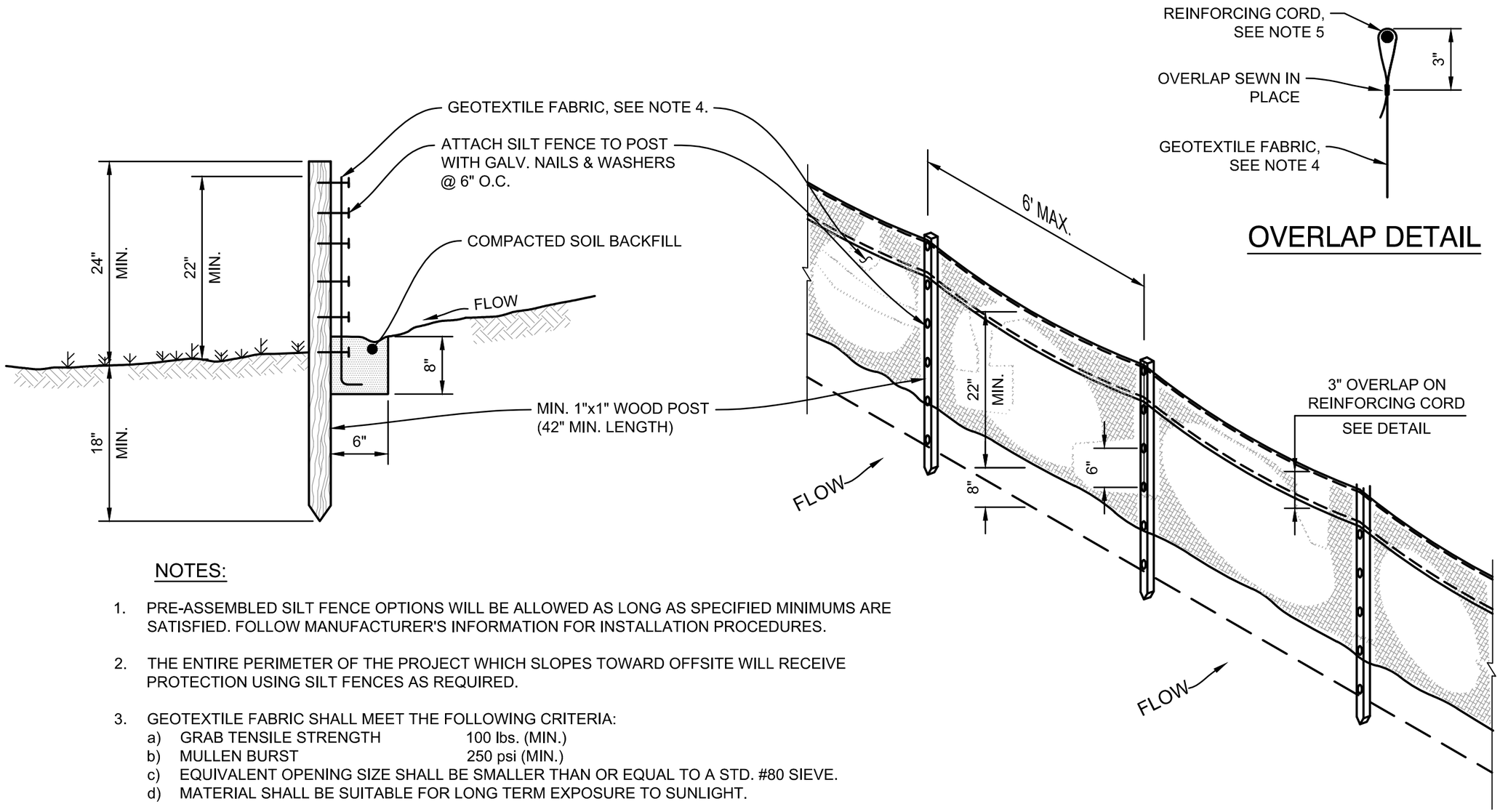
Author | Designer
Drafting Check MK | Design Check MK
Project Manager | Project Director

Client
CITY OF PETALUMA

Project
ADOBE ROAD RECYCLED WATER PIPELINE

Date 03/03/2023 | Scale AS SHOWN
Project No. 11219037
Title OVERALL PLAN HDD SECTION 1
Size ANSI B
Drawing No. C-119
Sheet 24 of 32

Plot Date: 8 August 2023 - 5:18 PM Plotted By: Chris Bach Path and Filename: \\ghdnet\ghd\US\santa rosa\Projects\561\11219037\06 - digital design\acad 2018\Sheets\11219037 C-101-C-123.dwg



OVERLAP DETAIL

NOTES:

1. PRE-ASSEMBLED SILT FENCE OPTIONS WILL BE ALLOWED AS LONG AS SPECIFIED MINIMUMS ARE SATISFIED. FOLLOW MANUFACTURER'S INFORMATION FOR INSTALLATION PROCEDURES.

2. THE ENTIRE PERIMETER OF THE PROJECT WHICH SLOPES TOWARD OFFSITE WILL RECEIVE PROTECTION USING SILT FENCES AS REQUIRED.

3. GEOTEXTILE FABRIC SHALL MEET THE FOLLOWING CRITERIA:
   a) GRAB TENSILE STRENGTH 100 lbs. (MIN.)
   b) MULLEN BURST 250 psi (MIN.)
   c) EQUIVALENT OPENING SIZE SHALL BE SMALLER THAN OR EQUAL TO A STD. #80 SIEVE.
   d) MATERIAL SHALL BE SUITABLE FOR LONG TERM EXPOSURE TO SUNLIGHT.

4. REINFORCING CORD SHALL HAVE A MIN. TENSILE STRENGTH OF 500 lbs.

NOT TO SCALE

1 TEMPORARY SILT FENCE

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REGISTERED PROFESSIONAL ENGINEER
MATTHEW GLEN KENNEDY
No. C68304
CIVIL
STATE OF CALIFORNIA

Bar is one inch on 11" x 17" sheet
0 1"

No.	Issue	Checked	Approved	Date

Author | Designer
Drafting Check MK | Design Check MK
Project Manager | Project Director

Client
CITY OF PETALUMA

Project
ADOBE ROAD RECYCLED WATER PIPELINE

Date 03/03/2023 | Scale AS SHOWN
Project No. 11219037
Title **DETAILS 2** | Size ANSI B
Drawing No. C-502 | Sheet 30 of 32

Plot Date: 8 August 2023 - 5:19 PM Plotted By: Chris Bach Path and Filename: \\ghdnet\ghd\US\santa rosa\Projects\56\11219037\06 - digital design\acad 2018\Sheets\11219037 C-501-C-504.dwg