

# Oroville Biomass Yard Concept & Property Profile

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# Oroville Biomass Facility Concept

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- **Location:** 43.29-acre site in Oroville, Butte County, California, addressed as 3050 South 5th Avenue.
- **Current Use:** Vacant biomass power plant constructed in 1984, now partially leased for forest debris processing and agricultural activities.
- **Community Partnership Commitment:** MRJD is dedicated to forming lasting partnerships with the Oroville community, the City of Oroville, and Butte County. This commitment underlines MRJD's long-term vision and investment in the region, spearheaded by the Gomez family's dedication to sustainable community development.
- **Renewable Energy Potential:** High potential for future biomass projects, aligning with California's Renewable Portfolio Standard for renewable energy production.
- **Regulatory Environment:** Projects under 50 MW are governed by the California Waste Management Board and Butte County Planning Division, ensuring compliance and sustainability.

# Oroville Biomass Facility Concept, Cont.

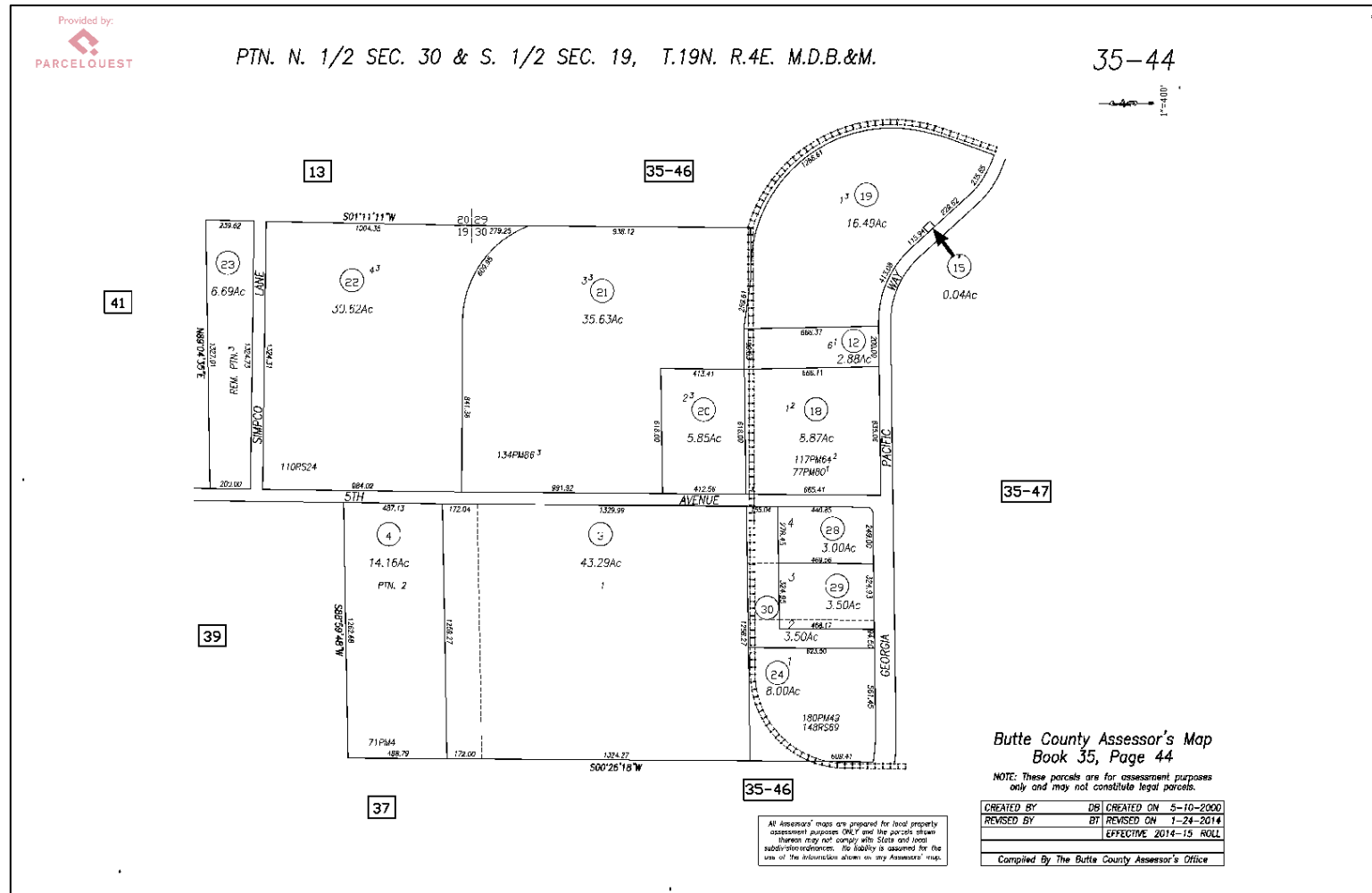
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- **Facilities Overview:** The site houses various structures, including boilers, chip and fuel storage areas, offices, and the main power plant.
- **Strategic Future Plans:** MRJD, holding full ownership of Pacific Oroville Power Inc. (POPI), is exploring a rebranding of POPI and seeking a strong partnership for the operation of the biomass power plant.
- **Training & Development:** In collaboration with the Butte College Training Center, MRJD intends to establish a training facility for arborists, emphasizing skill development and employment opportunities in the local community.
- **Innovative Energy and Resource Solutions:** MRJD is not only considering the implementation of solar and battery storage systems but is also keen on inviting a small sawmill operator to the site. This collaboration aims to utilize logs brought into the yard more efficiently, producing high-quality lumber for the local market, thereby enhancing resource utilization and supporting local industry.





# Parcel Map



# Site Information

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- Assessor's Parcel Numbers 035-440-003, Oroville, Butte County, California.
- 43.29 acres in size within the City of Oroville.
- Site is addressed as 3050 South 5th Avenue.
- NW 1/4 of NE 1/4 of Section 30, Township 19 North, Range 4 East, and in the SW 1/8 and SE 1/8 of the SE 1/4 of Section 19, Township 19 North, Range 4 East, Mount Diablo Base, and Meridian.
- The Zoning for the Site and surrounding properties to the north, east, and south are listed as Intensive Industrial (M-2).
- The site is bounded to the north by the Oroville Yard and the Sewerage Commission, Oroville Region – a wastewater treatment plant. To the south, an old railroad spur was constructed between 1969 and 1972, and Sierra Silica Resources – a sand and gravel supplier. To the east, across South 5th Avenue, Sierra Pacific Industries is a lumber manufacturing company. An empty parcel is located to the west of the site.

# Site Information, Cont.

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- Site Elevation 49'
- Butte County Air Quality Management District
- Sacramento Valley Air Basin
- Federal Qualified Opportunity Zone (06007003002)
- FEMA FLOOD ZONE SUBTYPE: Area of Minimal Flood Hazard
- Located in a Marginal Nonattainment Area
  - A "Marginal Nonattainment Area" refers to a classification under the United States Environmental Protection Agency (EPA) for areas that do not meet the National Ambient Air Quality Standards (NAAQS) for ground-level ozone. Areas are classified based on how much they exceed the standard and how much improvement is needed.
  - A Marginal Nonattainment Area is the least severe classification for areas that are closest to meeting the standard. These areas typically have three years to meet the air quality standards without implementing major new control measures. The requirements for planning and control measures to achieve attainment are less stringent for Marginal areas compared to those with more severe ozone problems.
- Phase I Environmental Site Assessment completed on 07/08/2020
- HazWaste Characterization completed on 10/30/2023

# POPI – Past Use

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- Online 12/01/1985
- Covanta Pacific Oroville Power Inc. (POPI) facility processed more than 500 tons of biomass waste materials daily.
- The plant received approximately 5,000 tons per year of agricultural green waste.
- It could utilize about 40 truckloads (40' to 50' chip trailers) daily or 320,000 tons annually.
- It had a generation capacity of 20 megawatts.
- The plant produces enough energy daily to generate approximately 16.5-megawatt hours (net) of electricity, powering 16,500 homes.
- Retired 10/20/2012

|                                                                                                                |                                                                            |
|----------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|
| Facility Name                                                                                                  | Pacific Oroville Power, Inc.                                               |
| Technology                                                                                                     | Biomass                                                                    |
| Capacity (MW)                                                                                                  | 18 MW nameplate capacity                                                   |
| Capacity Factor                                                                                                | Approximately 78%                                                          |
| Expected Generation (GWh/Year)                                                                                 | Approximately 123 GWh/yr                                                   |
| Amendment Effective date                                                                                       | September 1, 2011                                                          |
| Amendment Term (Years)                                                                                         | 3 years with two options to extend, for a maximum term of 4 years 7 months |
| Location (City and State)                                                                                      | Oroville, CA                                                               |
| Control Area (e.g., California Independent System Operator ("CAISO"), Bonneville Power Administration ("BPA")) | CAISO                                                                      |



# Site Structures & Improvements

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- The facility, constructed as a power plant, consists of administration buildings, electrical and mechanical shops, a trailer depot for spare parts and waste oil storage, control buildings, the turbine and generator building, the electrostatic-precipitator and cooling tower structures, and a fire suppression house.
- There are at least 29 structures, including; boilers, chip storage, fuel storage areas, storage sheds and trailers, offices, and the power plant facility, including the support structures such as cooling towers, chemical storage areas, water treatment, and conveyor belt control centers.
- The site is serviced by a 60 kV PG&E Pacific Oroville Power Tap. PG&E has this .77 miles of conductor and 13 wood poles from 000/001 to 000/013 listed for removal.

# Pacific Oroville Power Tap

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- Owned by PG&E
- kV: 60
- Length: 0.77 miles of conductor and 13 wood poles from 000/001 to 000/013.
- Pole 004/094 (Palermo-Oroville #1 60kV) to 000/013, 13 spans energized.
- De-energization at the transmission line pad completed on 6/4/2021.
- PG&E has listed to be removed since it is idle.



# Current Uses

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- The existing power plant was constructed in 1984 and was operational until 2012.
- Currently, the buildings at the site are vacant and unused.
- Currently, 5 acres on the southeast side of the property are operated by MFE as a forest debris processing area. The work includes processing and chipping forest waste such as trees and brush.
- The approximate 10 acres of paved area on the west side of the property are also being leased for agricultural purposes. This area is used to dry agricultural waste such as plum pits and nut shells, which are later mixed with gypsum (stored on site as a large pile) to make a natural fertilizer.

# Strategic Advantages of Oroville for Biomass Cogeneration

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- **Forestry Resource Abundance:** Ample forest residue offers a sustainable and robust feedstock supply.
- **Wildfire Risk Reduction:** Utilizes excess forest material, aiding in wildfire mitigation efforts.
- **Policy Incentives:** Supportive state policies, like the Renewable Portfolio Standard, encourage renewable energy projects.
- **Local Economic Boost:** Job creation and economic stimulation through plant operations and related services.
- **High Energy Demand:** Meets regional energy needs and provides grid stability in an area with significant demand.

# Strategic Advantages of Oroville for Biomass Cogeneration, Cont.

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- **Ready Infrastructure:** Utilizes existing facilities and local expertise to minimize startup costs and accelerate deployment.
- **Educational Partnerships:** Proximity to Butte College for workforce training and development programs.
- **Community Support:** Historically informed community likely to back renewable energy initiatives.
- **Efficient Logistics:** Strong transportation infrastructure for feedstock inflow and energy distribution.
- **Enhanced Waste Management:** Converts agricultural and urban wood waste into energy, reducing landfill dependency.



# Biomass Facilities

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There are currently 24 operating solid fuel biomass power plants in 15 counties throughout California.



# Drive for Renewable Energy

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## California's Renewable Portfolio Standard:

- Energy service providers like PG&E have the following obligations under the law.
  - By 2020, they must procure 33% of their electricity from eligible renewable energy sources.
  - By 2030, they must procure 60% of their electricity from eligible renewable energy sources.
  - By 2045, they must procure 100% of their electricity from eligible renewable or carbon-free energy sources.



# Forest Biomass

- Forest biomass is a byproduct of forest activities.
- Currently, this biomass is mostly open burned or left in the forest to decompose.
- These approaches result in substantial greenhouse gas (GHG) emissions, including climate “super pollutants” in the forms of methane and black carbon.
- At the scale of treating one million acres per year, which is anticipated to generate hundreds of millions of new tons of biomass over the next 1-2 decades, such approaches could undermine the state’s ambition to achieve net-zero GHG emissions by 2045.

# Forest Residue Feedstock

- California has set an ambitious goal to increase the pace and scale of forest treatments to one million acres per year by 2025 to reduce wildfire risk and improve forest health.
  - This goal was set in partnership with the United States Forest Service (USFS), which owns 57% of forested lands in California.
  - To achieve the goal, the USFS and the state are each responsible for treating 500,000 acres.
- Currently, the state treats about 200,000 acres annually, excluding commercial timber harvest.
- An expansion to this level of forest treatments is expected to generate hundreds of millions of new tons of waste forest biomass over the course of the next 1-2 decades.
- California's world-leading climate policies and federal policies are important potential drivers of forest biofuel deployment in the state.

# Feedstock Supply Challenges

There are several reasons why an investment grade feedstock agreement is difficult to obtain:

1. Volatile markets
2. Declining USFS budgets and staffing capacity
3. The low value of biomass as compared to its high transportation costs
4. Administrative challenges of contract management
5. Few investment-grade entities in the supply chain with the balance sheet strength to support bankable agreements.

All these factors lead to the vexing reality that while feedstock agreements are a necessary component to securing finance for new wood product businesses, they are difficult to obtain.

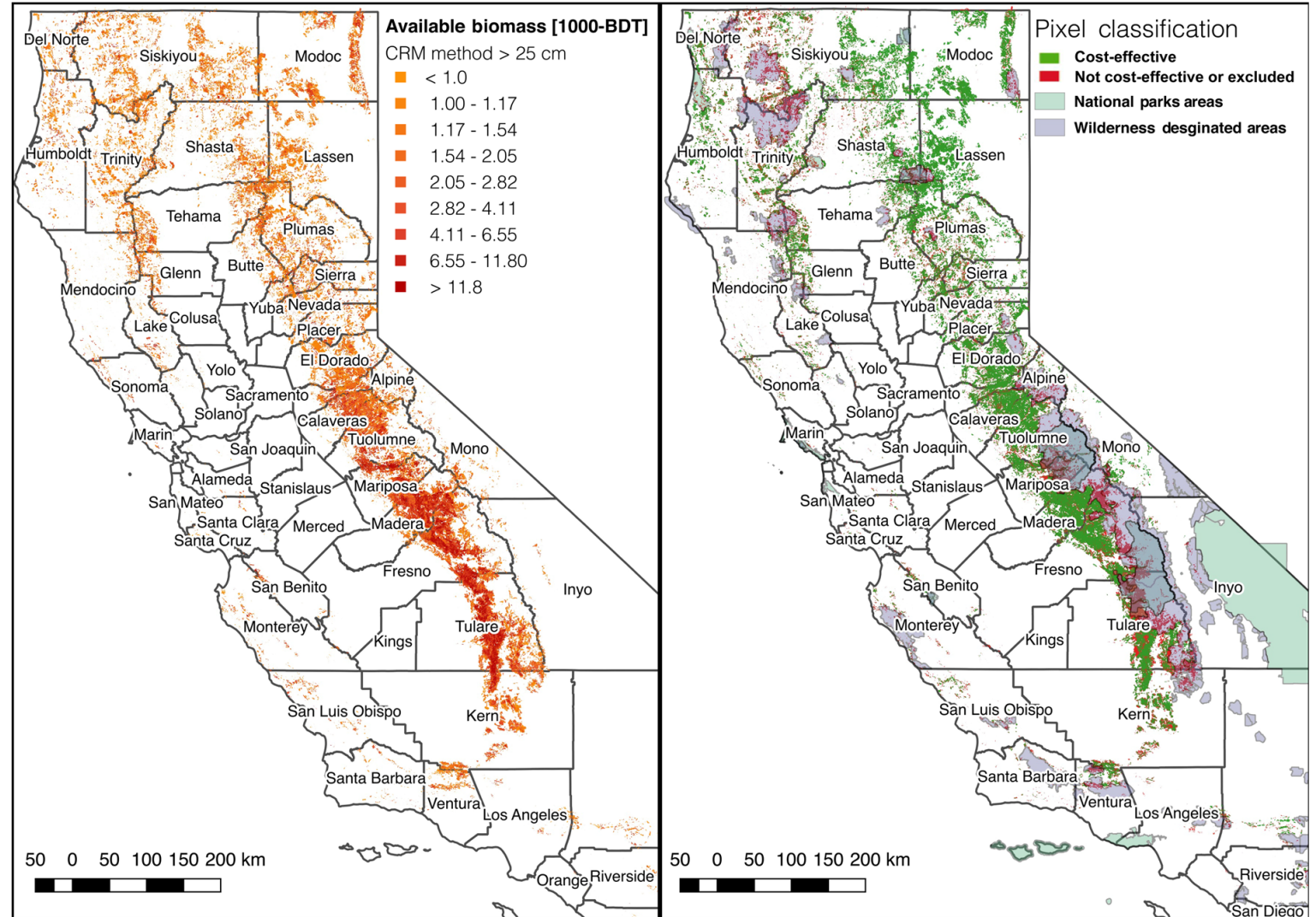
# Overcoming the Challenges

- Converting forest biomass into bioenergy, notably liquid and gaseous fuels including hydrogen, renewable natural gas, sustainable aviation fuel, renewable diesel, synthetic hydrocarbons, and ethanol, presents a promising alternative to current practices.
- Low-carbon transportation fuels are high value, owing to large incentives available under California's Low Carbon Fuel Standard (LCFS) and the federal government's Renewable Fuel Standard (RFS) programs.
- These incentives present an opportunity to overcome the challenging economics that affects forest biomass projects.



# Characterization of The Woody Biomass Feedstock Potential Resulting From California's Drought

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# Regulatory Environment for Biomass Projects

- The California Energy Commission (CEC) has jurisdiction over biomass facilities with 50 MW or greater capacities.
- For biomass projects below 50 MW, the California Waste Management Board is an advisory agency and reviews all applications.
- The Butte County Planning Division manages the permit process for these smaller biomass projects.
- Additionally, the Butte County Air Quality Management District is involved in overseeing the permit process for smaller biomass projects.

# Regulatory Environment for Biomass Projects

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Biomass projects are subject to various federal, state, and local regulations for industrial facilities.

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They are also subject to regulations specific to electricity generation.

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The California Energy Commission (CEC) has the authority, granted by the Warren-Alquist Act of 1975, to regulate the siting of thermal power plants larger than 50 MW, including biomass plants.

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Butte County has regulatory power over biomass facilities to ensure compliance with local general plan and zoning provisions.

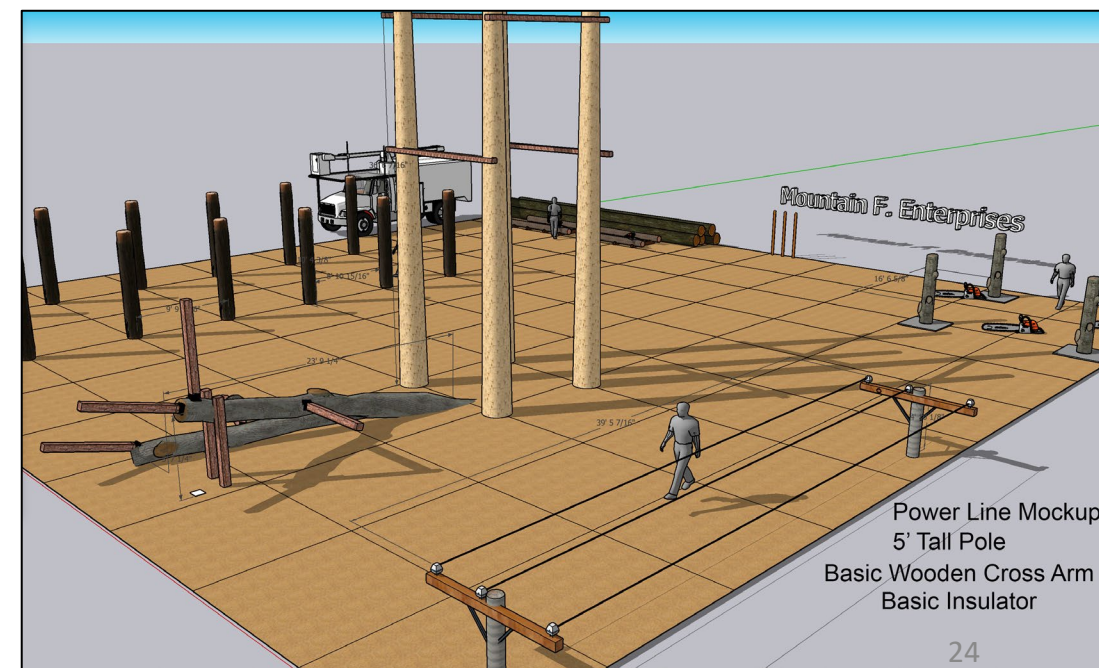
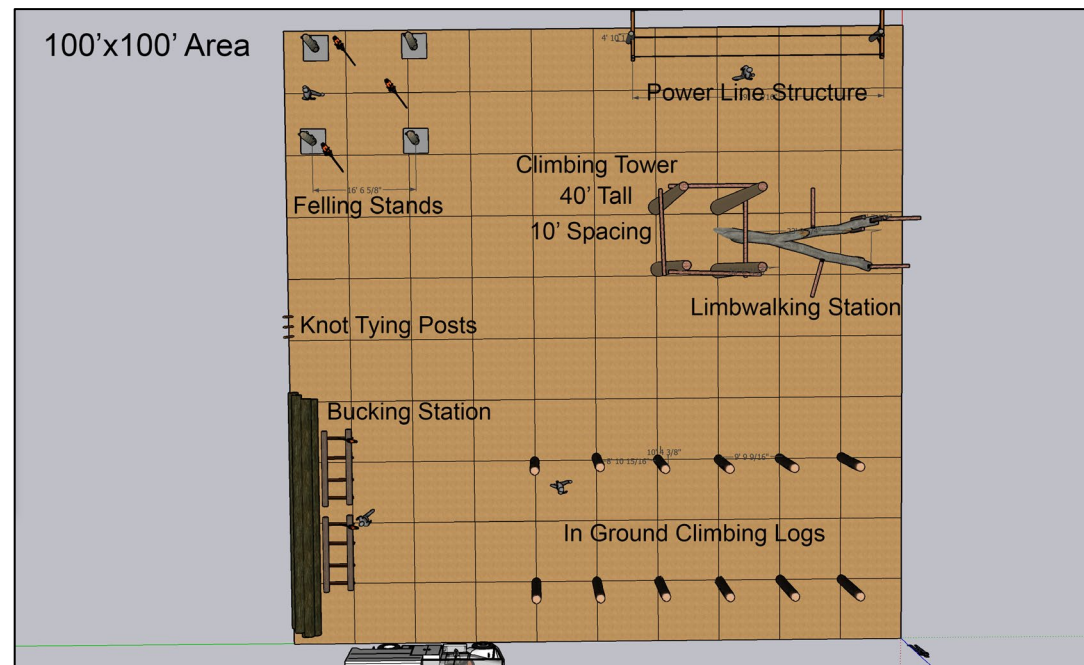
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For biomass projects with capacities under 50 MW, Butte County is the lead agency responsible for conducting the required environmental review under the California Environmental Quality Act.

# SB100 and the Role of Biomass Power Plants in Achieving a Carbon-Negative Grid

- **SB100 Overview:** Mandates 100% renewable energy for California's electricity by 2045.
- **Importance of BECCS:** Biomass Energy with Carbon Capture and Storage (BECCS) is pivotal for climate stabilization by century's end.
- **BECCS Mechanism:** Captures carbon emissions from biomass combustion, similar to existing CCS technologies in coal power plants.
- **Climate Benefit:** The carbon from biofuels, originally atmospheric, is sequestered underground—effectively reversing emission trends while generating power.
- **Modeling Insights:** Studies suggest that BECCS could make Western North America's grid carbon-negative by 2050.
- **UC Berkeley Findings:** Integration of BECCS, alongside renewables and fossil fuel reduction, could cut grid carbon emissions by 145% from 1990 levels by 2050.

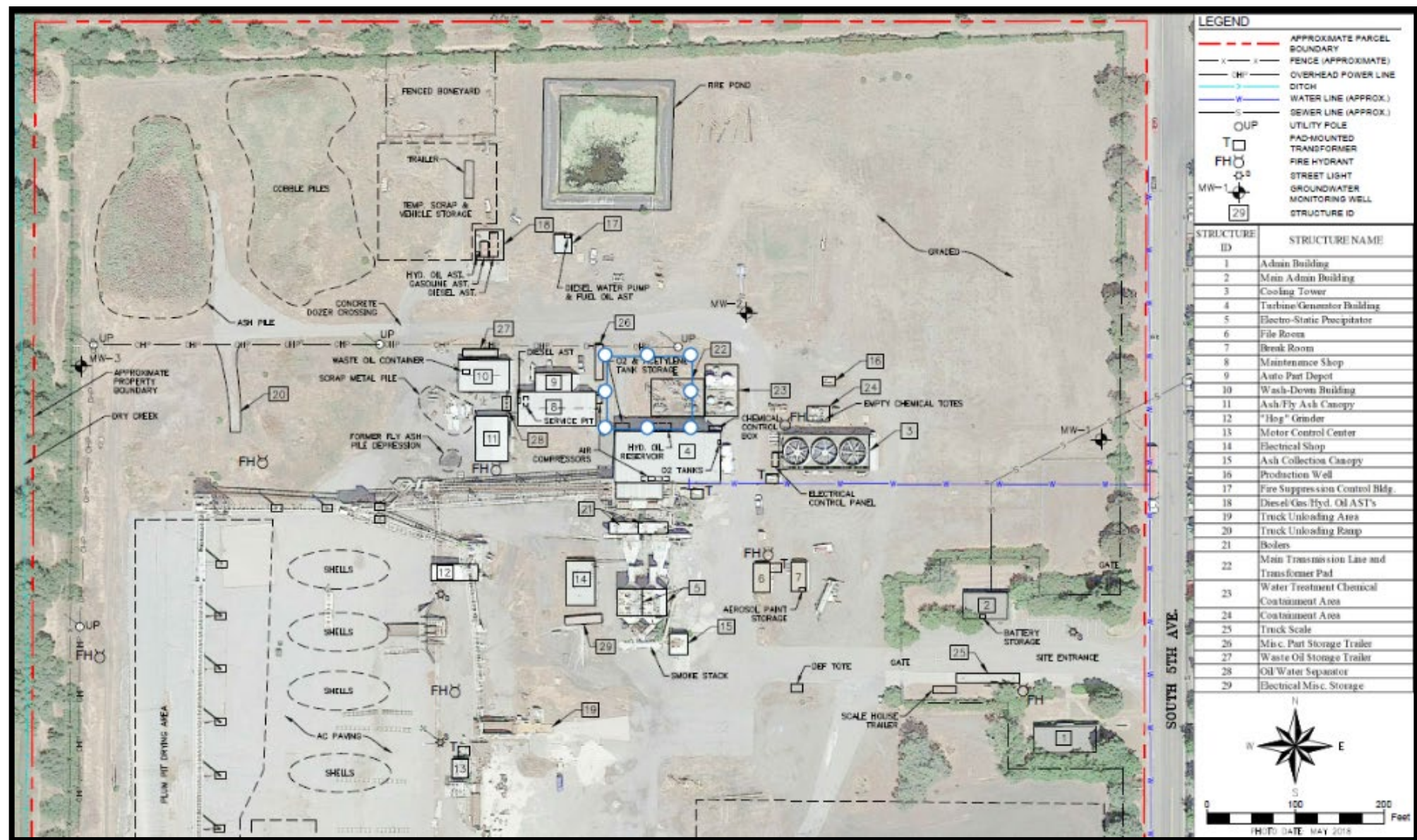
# Butte Community College Training Area













The oil/Water  
Separator  
Located  
Adjacent To The  
Wash-down  
Building

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# Partial View of Pad-mounted Transformer Located Near Cooling Tower

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# Partial View of Cooling Tower Structure

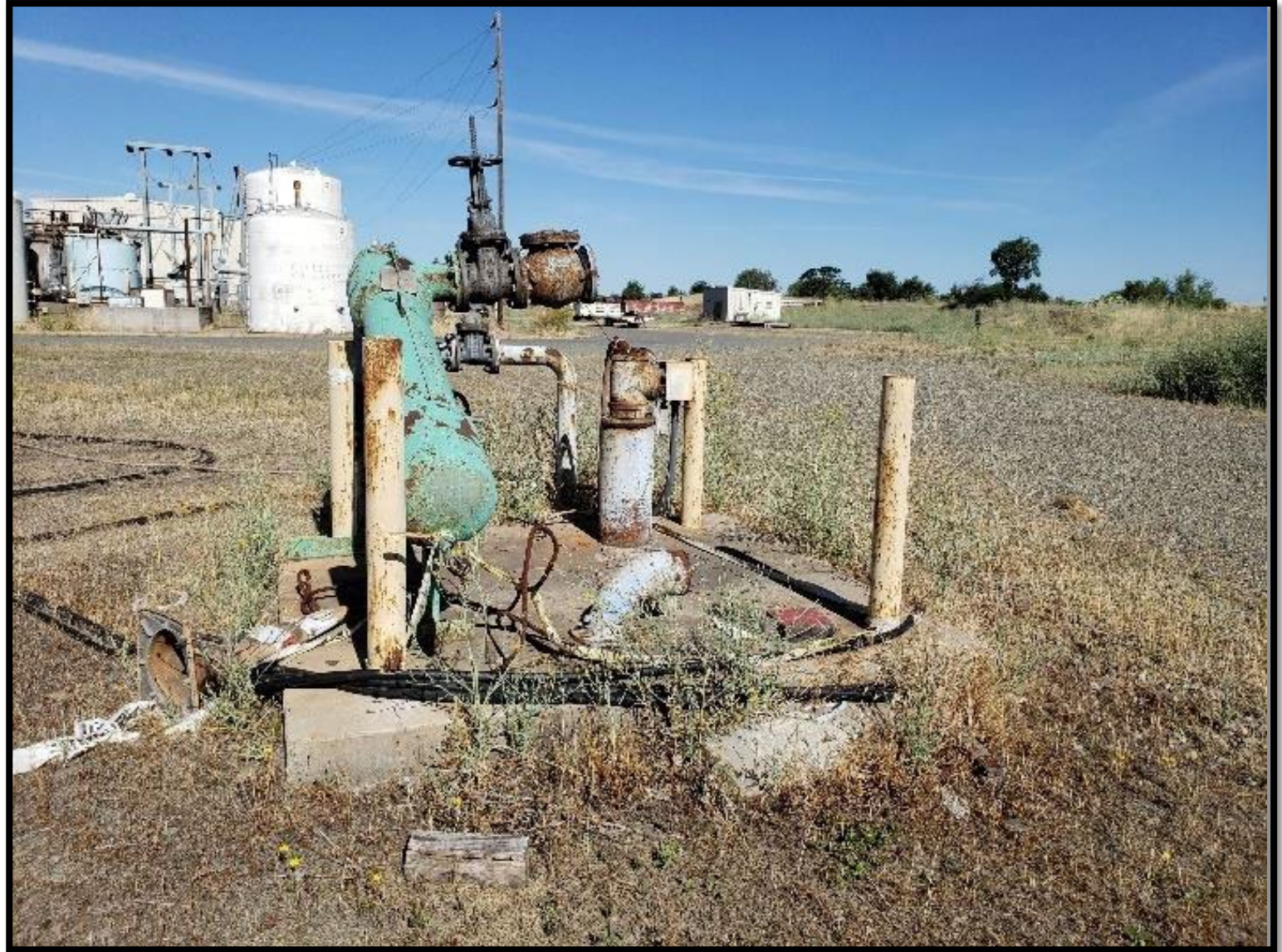
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# Production Water Well Located North of Cooling Towers

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## Partial View of Containment Area

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# Partial View of Miscellaneous Totes Stored Inside Containment Area

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# Partial View of “Acid” Storage Tank

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Partial View of  
One of Two  
Transformers  
Located within  
the Transmission  
Line Pad

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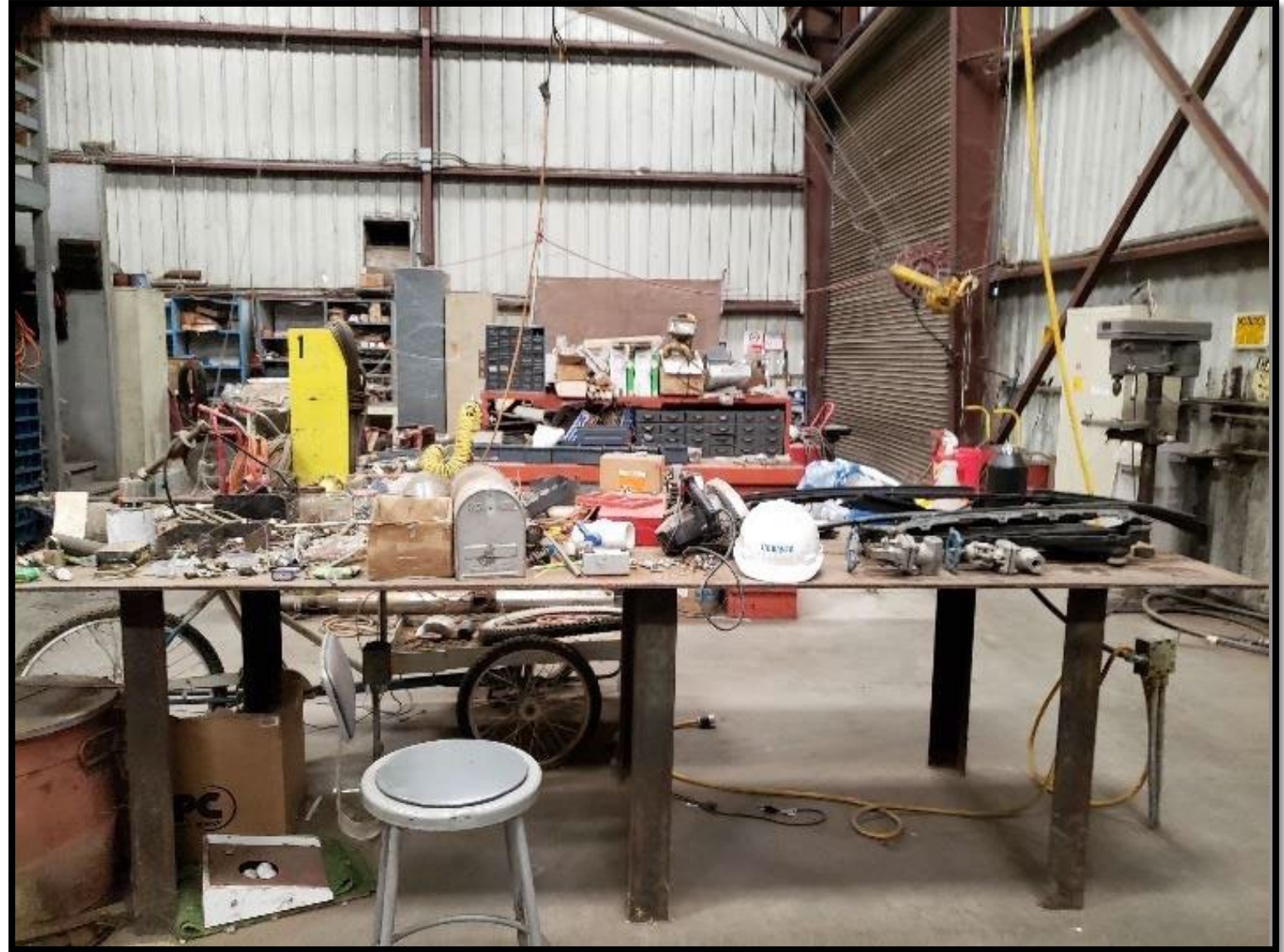
Partial View of  
One of Three  
Air  
Compressors  
Located Inside  
T/G Building

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# View of Maintenance Shop

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Partial View of  
Service Pit  
Inside  
Maintenance  
Shop Measuring  
~ 4' By 8'.

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# Partial View Into Fire House Showing Fuel AST and Engine

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# View of Three Empty Asts: Hydraulic Oil, Unleaded Gasoline and Diesel

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Partial view of  
Lined Fire Pond  
Near North  
Property Fence

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# View of Waste Oil Trailer Located Near Wash-Down Building

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Partial View Pit-  
Drying Area  
Located Over  
Paved Area Near  
W Side Perimeter  
Fence

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# Partial View of SE Corner of Site Showing Grinding & Chipping

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View of Pit  
Scale & Scale  
House Trailer  
Near The  
Entrance of The  
Site

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# Conclusion & Next Steps

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- **Harnessing Future Potential:** The Oroville site boasts considerable promise for biomass energy generation, a comprehensive grinding yard operation, and the integration of solar and battery storage solutions.
- **Strategic Collaboration Opportunities:** Our partnership with Butte College Training Center to establish an arborist training facility is poised to invigorate community involvement and foster workforce advancement.
- **Navigating Challenges & Considerations:** We recognize the intricacies involved in site development, including adherence to regulatory mandates, upholding environmental integrity, and managing the supply of feedstock.
- **Proactive Next Steps:**
  - **Partnership Development:** MRJD is actively pursuing a competent partner to manage and operate the biomass power plant.
  - **Rebranding Initiative:** A rebranding strategy for Pacific Oroville Power Inc. (POPI) is under consideration to better reflect our evolving vision.
  - **Renewable Energy Exploration:** We will further assess the site's capacity for renewable energy production to align with California's Renewable Portfolio Standard.
- **Biomass Power Plant Assessment:**
  - Conduct a thorough on-site inspection to assess the condition of the infrastructure, machinery, and equipment.
  - Identify any areas of corrosion, wear and tear, or damage that may have occurred during the dormant period.
  - Evaluate the condition of boilers, turbines, generators, and control systems.
- **Interconnection Agreement:** MRJD needs to obtain an interconnection agreement with PG&E to re-energize the plant.
- **Closing Gratitude:** We appreciate your time and focus. Anticipating a sustainable and prosperous partnership, we are excited to embark on the journey towards the Oroville Biomass Facility's bright future.