Sierra Pacific Industries (SPI) is requesting approval of a modification of an existing use permit for the construction and operation of a larger biomass cogeneration power plant at its existing lumber manufacturing facility located in Shasta County, near the City of Anderson. This section describes the characteristics of the proposed SPI Cogeneration Power Project (project), including the following information: (1) the location and boundaries of the proposed project on a regional and detail map; (2) a statement of the project's objectives; (3) a general description of the project's technical and environmental characteristics; and (4) a description of the intended uses of the EIR. Figures referenced throughout this section are located at the end of the section.

2.1 PROJECT LOCATION AND ENVIRONMENTAL SETTING

REGIONAL LOCATION

The project site is located in Shasta County, immediately northwest of the Anderson city limit, and southeast of the City of Redding. The project's regional location is depicted in Figure 2-1 and the project's vicinity is depicted in Figure 2-2.

The project is located on a 121.39-acre parcel (APNs: 050-110-023 and 050-110-025) at the end of Riverside Avenue, approximately five-tenths of a mile west of Interstate 5. The northeastern border of the project site is adjacent to the Sacramento River. The southwestern border of the project site is adjacent to State Route (SR) 273 and a Union Pacific Railroad line. The northwestern border of the project site is adjacent to undeveloped industrial land. The southeastern border of the project site is adjacent to Spring Gulch Creek. The northwest boundary of the site is bordered by Anderson Cottonwood Irrigation District (ACID) Canal Overflow ditch. The project site is accessed from Riverside Avenue. The project site and areas of proposed improvement are shown in Figure 2-3.

SURROUNDING LAND USES

The Siskiyou Forest Products manufacturing facility is located to the southwest of the project site. Lands to the northwest of the project site consist of undeveloped agricultural and vacant lands. The City of Anderson abuts a portion of the southeastern project boundary, as shown in Figure 2-2. Lands to the southeast of the project site include vacant lands and the SPI administrative offices. The Sacramento River is northeast of the property. Properties across the river from the project site are primarily used for recreational vehicle and residential mobile home parks. Properties adjacent to the project site to the north and south along the Sacramento River include vacant lands and commercial and light industrial uses. There are a number of existing residences located within a half-mile of the project site with the closest residences being those located across the Sacramento River and those across SR 273 to the southwest of the project site.

The General Plan land use designations for the project site and parcels in the vicinity of the project site are shown in Figure 2-7.

PROJECT SITE

The project site is owned by SPI. The project site is an active lumber manufacturing facility, which is used to manufacture lumber, wood poles, and metal/machinery components; generate power through an existing biomass co-generation facility; store and re-distribute manufacturing parts; repair trucks and machinery; and ship wood chips and lumber by truck and rail. The land was converted to a sawmill use following the purchase of the property by US Plywood Company in 1947. The site has supported sawmilling activities by various owners up through the present day. SPI has been operating the mill since 1987.

The project site is designated as Industrial (I) by the Shasta County General Plan Land Use Designation Map. The County zoning designation for the project site is General Industrial (M).

There are numerous existing structures located throughout the project site. These structures are shown on Figures 2-4 and 2-5, and are used to support the existing operations on the site. The project site contains several paved and unpaved service roads and parking areas. The project site is accessed from the southeast via Riverside Avenue.

The portion of the project site where the proposed improvements would be constructed is shown on Figure 2-3. This portion of the site is referred to as the Area of Potential Improvement (API) throughout this EIR. The API is currently used to store lumber, and also includes features associated with the existing cogeneration facility, including the boiler, ash bin, cooling tower and sawdust silo. The API is located in approximately the center of the 121-acre parcel. The API is relatively flat, and is covered by existing structures, gravel, and asphalt cement. The API is located adjacent to two industrial surface ponds which are used to supply water for fire suppression activities (daily watering of logs on site) and firefighting activities, if needed. These two industrial surface water ponds are fed primarily by natural underground springs and intermittently from ground water from an existing well on site, depending on weather and water demands at the facility. The API is void of vegetation and does not provide suitable habitat for any special-status plant or animal species.

The project also includes a new 115kV/12.5kV electric substation, which would be located adjacent to the proposed new boiler building. This area is currently is void of all vegetation. This area is shown on Figure 2-3.

EXISTING ON-SITE OPERATIONS

The existing sawmill is powered by an existing onsite four mega watt (MW) wood-fired cogeneration power plant. The fuel consists of the sawdust and woodchips that are byproducts from the sawing of lumber from logs. The fuel is stored in a large pile and covered fuel bin. Conveyors move the fuel to the existing boiler and a stream driven turbine converts mechanical energy into electrical energy. Excess steam is conveyed via above-ground pipeline to the lumber kilns to dry lumber. The existing cogeneration plant also utilizes a two-cell cooling tower and ash bins. The existing wood fired boiler was completed in March 1997. The existing turbine and electrical generator was operational in December 1997. The existing generator is rated to produce 4 MW of electricity and the boiler is rated to produce 80,000 lbs of steam.

The existing lumber manufacturing facility utilizes several types of heavy equipment during its daily operations, including: log trucks, log loaders, portal cranes, hydraulic lifts, conveyors, debarkers, optical scanners, computers, wood saws, lumber sorters, chip and sawdust conveyors, utility pole manufacturing, fork lifts, dry kilns, lumber planers, lumber stackers, lumber wrappers, lumber trucks, water trucks, and rail cars. Truck and machinery repair equipment is housed in the onsite truck shop. There are also existing gas and diesel refueling stations on the site.

The metal manufacturing facility utilizes computers, plotters, metal saws, lathes, welders, cutting torches, grinders, metal presses, paint and electrical components to construct machinery to be used at SPI manufacturing facilities (both on- and off-site facilities).

The sawmill employs 153 people. Seven administrative staff support the sawmill operations. The fabrication shop has 38 employees. The pole plant has six employees. The warehouse staff includes four employees. Additionally, 31 truck drivers and four mechanics and employed.

Operations at the existing facility occur between 16 and 24 hours per day, depending on market conditions and demand.

EXISTING UTILITIES AND SERVICES

The site is accessed via Riverside Avenue along the eastern boundary of the project site. As stated above, the project site contains a network of paved and unpaved service roads. A network of railways also traverses the site. Electricity used at the site is produced by the existing onsite cogeneration power plant. Potable water for the site is produced from two existing on-site wells, which currently pump approximately 645 acre-feet per year to meet existing potable and non-potable water demands at the SPI site. Non-potable water is generated from the surface water ponds, which are fed by natural underground springs, and is supplemented with groundwater pumped from the on-site wells as-needed. Wastewater generated on the site is disposed of through an existing septic system. Water sprinkled on the log decks is captured in the ponds on-site and recycled. Solid waste is trucked by SPI to the Anderson Solid Waste landfill, operated by Waste Management Incorporated.

2.2 PROJECT DESCRIPTION

OVERVIEW

The proposed project consists of the construction and operation of a new cogeneration power facility, including a new fuel shed, boiler building, turbine building, cooling tower, electrostatic precipitator, ash silo and electric substation, on the project site. The boiler associated with the plant would burn biomass fuel (i.e., non-treated wood and agricultural crop surpluses, as well as urban wood waste) generated by the lumber manufacturing facility on-site, regional lumber manufacturing facilities, and other biomass fuel sources to produce up to 250,000 pounds of steam per hour. The steam would be used to dry lumber in existing kilns and to power a steam turbine. The steam turbine would drive a generator that would produce up to 31 MW of electricity for on-site use as well as for sale to the local power grid. Approximately 7 MW will be used to power on-site equipment; the remainder will be sold on the open market. The electricity that is

sold would originate from the on-site electric substation and be transferred to the local power grid for distribution to the purchaser

The project applicant estimates that up to 485 acre-feet per year of groundwater would be required for the operation of the proposed cogeneration plant. A schematic flow diagram for the cogeneration facility is presented in Figure 2-6.

The existing smaller cogeneration plant on-site would be maintained as a backup facility so that the sawmill operation can be normalized during maintenance operations on the new cogeneration plant. The two on-site cogeneration plants would not be permitted to operate simultaneously.

REQUESTED ENTITLEMENTS

The project applicant is requesting a use permit from the County to operate the proposed facility. If approved, the use permit would modify the existing use permit held by the applicant, and would consolidate all existing and new conditions of approval imposed on the applicant by the County. No other entitlements have been requested.

DESIGN

The final design of the biomass-fired boiler has not been determined. It would have a maximum annual average heat input of approximately 425.4 million British thermal units per hour (MMBtu/hr) and a maximum steam generation rate of 250,000 pounds per hour (lb/hr). Over short-term periods, the boiler may be fired at heat input rates that exceed the annual average rate: an hourly maximum of 468.0 MMBtu/hr (10 percent greater than the annual average), and a maximum 24-hour average of 446.7 MMBtu/hr (5 percent greater than the annual average). The boiler would be equipped with two natural gas burners, each with a maximum rated heat input of 62.5 MMBtu/hr, for start up and flame stabilization. The cogeneration unit design would incorporate a selective non-catalytic reduction (SNCR) system to reduce emissions of oxides of nitrogen (NOx), as well as a multiclone and electrostatic precipitator (ESP) to control emissions of particulate matter (PM). A closed-loop two-cell cooling tower would be used to dispose of waste heat from the steam turbine.

FUEL SUPPLY

Fuel for the cogeneration unit would come from the existing SPI facilities in California at Arcata, Anderson, Shasta Lake, and Red Bluff, as well as in-forest materials from SPI-owned or controlled timberlands, and various sources of agricultural and urban wood wastes. There will not be a public drop-off for agricultural or urban wood wastes. Agricultural and timber wood wastes would include wood chips from trees, brush and slash from timber harvest operations or wildland fire fuel reduction projects, as well as wood chips from orchard removals, rice hulls or nut shells. Urban biomass fuel would include chipped pallets and urban wood fuel from commercial and residential source separated material programs. Urban fuels would not include railroad ties or any other treated or painted wood. Construction debris may be used, but only if it is a clean source separated material, such as ground up wood that does not include such things as wallboard an general debris.

The available supply from SPI-owned or controlled facilities and timberlands totals 400,000 bone dry tons (BDT) per year. In addition, there are 50,000 BDT of agricultural and urban wood wastes available to SPI annually. The new boiler would consume an average of approximately 25 BDT of biomass fuel per hour which equates to 219,000 BDT per year since it is expected to operate as near to continuously as is practicable.

The Anderson facility currently produces approximately 160,000 BDT of wood wastes per year of which 60,000 BDT are consumed by the existing cogeneration facility, 20,000 BDT are trucked to other biomass power plants, and the balance is trucked to other markets (e.g., wood chips to pulp mills). The new facility would consume 219,000 BDT per year, 80,000 BDT of which would be generated by SPI's Anderson facility, while the balance (139,000 BDT) would transported by truck from other SPI sources. An additional 23 truck trips per day are expected to be needed to deliver the additional fuel to the facility.

Fuel from the existing onsite sawmill would be transported by conveyor to the proposed fuel shed. Fuel in the shed would be transported to the boiler via conveyor. Fuel from the existing onsite planer and pole yard would be gathered in overhead bins and moved across the yard by truck. Fuel delivered to the site by truck from offsite sources would be dumped at the front of the fuel shed using an electric hydraulic truck dump installed at the front of the fuel shed (see Figure 2-5). Primary fuel storage and fuel mixing would occur in the fuel shed. Moving fuel into the shed would require the use of a front end loader or dozer. If the fuel shed becomes full, excess fuel would be stockpiled at the outdoor fuel pile. The outdoor fuel pile would be maintained by a front end loader or dozer, and would be moved to the fuel shed as necessary to turnover the fuel at least every 30 days.

ASH DISPOSAL

Conveyor belts within the boiler would move ash to an enclosed overhead ash bin. Ash from the bin would be gravity fed into a trailer for transport. The ash bin would need to be emptied approximately once every 19 hours.

The existing cogeneration facility generates approximately 4,300 tons/year of ash, which has been utilized on the adjoining agricultural fields as a soil amendment. When ash is added to the adjacent agricultural fields, it is trucked along existing private dirt roads using an SPI truck. The ash is deposited on the fields, spread uniformly, wetted with water and disked into the soil. Under the existing agricultural crop rotation, it has not been necessary for SPI to truck ash to the Anderson Landfill.

The proposed facility would generate approximately 11,155 tons/year of ash. Ash from the proposed facility would either be disked into the adjacent agricultural fields as a soil amendment, used as an amendment in bagged soil and compost products, as a cement amendment, or it would be sent to the Anderson Landfill. The project applicant estimates fewer than one (1) truck trip per month to dispose of ash at the landfill or a facility that produces compost products or cement products would be required.

ACCESS

Vehicles accessing the site for construction and operation of the project would use the Riverside Avenue entrance.

SITE IMPROVEMENTS

Project improvements include construction of a new fuel shed, boiler building, turbine building, cooling tower, electrostatic precipitator, ash silo and electric substation.

Site preparation and grading will include the over-excavation of incompetent fill material and its replacement with recompacted engineered fill material. The construction of the new cogeneration facility would not require the removal of vegetation. The amount of over-excavation necessary to meet the foundation specifications is yet to be determined and will depend on the extent to which the bearing strength of the soil, supporting the building foundations, relies on pilings or engineered fill. The construction of the new fuel shed would require removal of two existing sawdust silos and reconfiguration of the fuel conveyors to the existing boiler. These features are shown on Figure 2-5. An existing fire hydrant and fire suppression shed would need to be relocated within the API to accommodate the new fuel shed. Electric power from the generator would be conveyed to the new electric substation, which would be located within the API. The electric power would be conveyed by overhead electric utility lines to the existing electric substation located near the southeast corner of the property, as shown in Figures 2-4 and 2-5.

The location of the existing and proposed structures is shown in Figure 2-5. The dimensions of the proposed structures are shown below in Table 2-1.

TABLE 2-1: DIMENSIONS OF PROPOSED STRUCTURES

STRUCTURE	FOOTPRINT DIMENSIONS (IN FEET)	HEIGHT (IN FEET)
Fuel Shed	180'x100'	48'
Boiler Building	135'x65'	115'
Cooling Tower	85'x45'	38'
Turbine Building	100'x50'	38'
Ash Silo	15' Diameter	35'
Electrostatic Precipitator	35'x25'	85'
Electric Substation	75'x60'	35"
Truck Dump	70'x20'	60'

SOURCE: SIERRA PACIFIC INDUSTRIES

LIGHTING

The proposed facility would include exterior lighting to allow for safe access to the co-generation facility in the dark. Since the power plant would operate 24 hrs a day the lighting is persistent during hours that the sun is not up. The new co-generation facility would be appropriately lit so that all areas of the facility may be accessed safely. The highest light source would be along the catwalks at the top of the boiler and smoke stack, which provides access to the sensors at those locations. A specific lighting plan has not yet been developed for the proposed facility.

EMPLOYMENT

Implementation of the proposed project would generate the need for up to six additional employees at the SPI project site. It is anticipated that these six new employees would be split between two to three rotating shifts per day/night.

CONSTRUCTION STAGING

Materials and equipment for construction of the proposed project would be staged within the API, as identified in Figure 2-3.

2.3 PROJECT GOALS AND OBJECTIVES

Consistent with CEQA Guidelines Section 15124(b), a clear statement of objectives and the underlying purpose of the project shall be discussed. The project applicant has identified the following goals and objectives for the proposed project:

1. To increase the available supply of biomass-generated electricity produced and used at the project site.
2. To efficiently utilize wood by-products that are generated during the milling of lumber at SPI sawmill facilities in Shasta County.
3. To provide excess sources of biomass energy available for sale to the local power grid.
4. To assist the State of California in reaching its goal of 20% of the State's power coming from renewable sources by 2010.

2.4 USES OF THE EIR AND REQUIRED AGENCY APPROVALS

Shasta County will be the Lead Agency for the proposed project, pursuant to the State Guidelines for Implementation of the California Environmental Quality Act (CEQA), Section 15050. This EIR may be used for the following direct and indirect actions regarding the proposed project:

SHASTA COUNTY

Actions taken by the Shasta County may include, but are not limited to, the following:

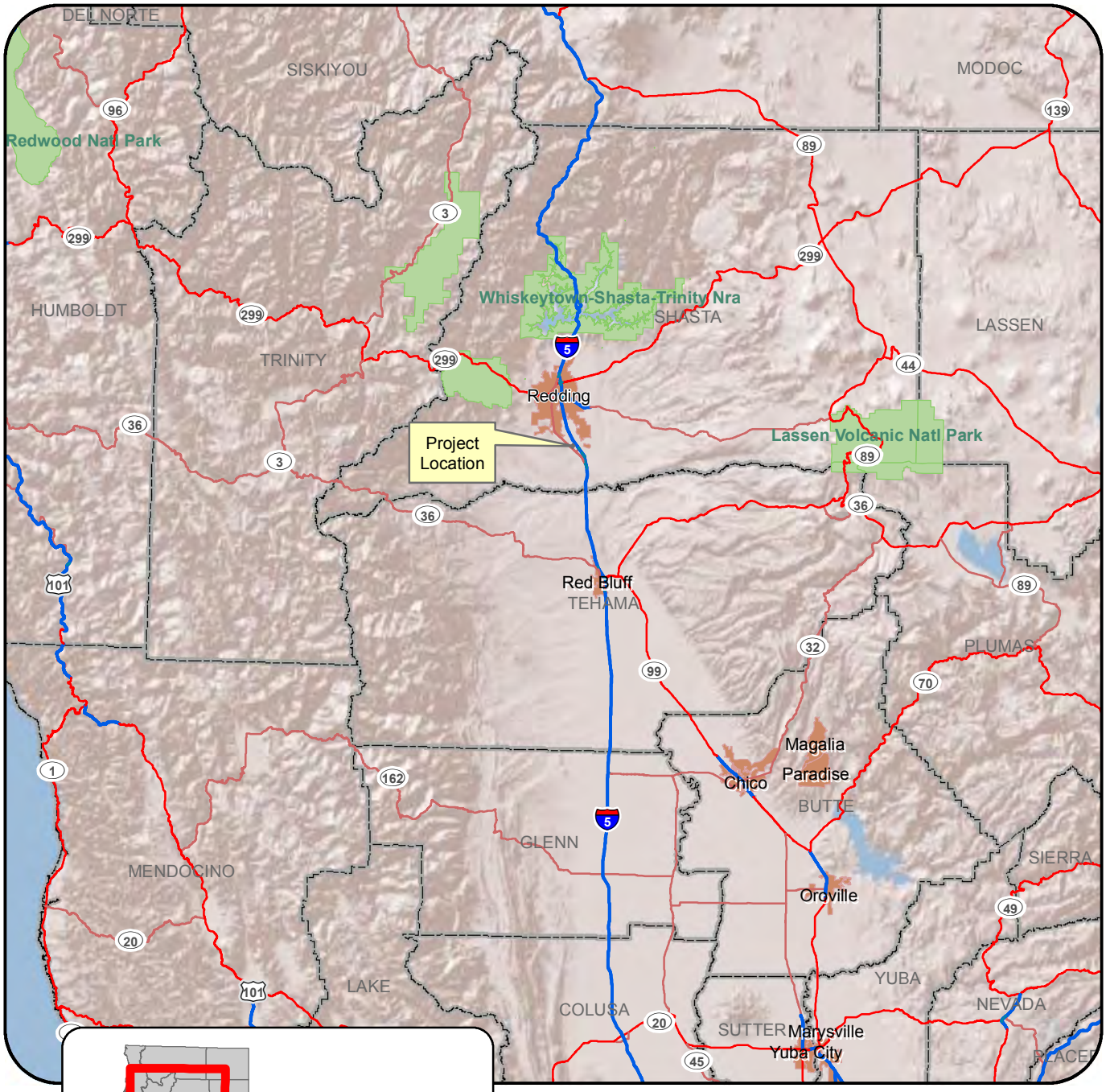
- Certification of the EIR

- Adoption of the Mitigation Monitoring and Reporting Program
- Approval of a Use Permit
- Approval of site and improvement plans
- Issuance of required permits (grading, building, etc.)

OTHER AGENCY APPROVALS

Actions and approvals that may be taken or issued by other agencies include, but are not limited to, the following:

- Central Valley Regional Water Quality Control Board (CVRWQCB) - Storm Water Pollution Prevention Plan (SWPPP) approval prior to construction activities.
- Shasta County Air Quality Management District (SCAQMD) - Approval of construction and operational air quality permits.



Reference Data Source: ESRI StreetMap North America
Shaded Relief: ArcGIS Online Resource Center

Figure 1. Regional Location Map

N
W E
S

0 5 10 20 30 40 50 60 Miles

1:1,500,000

De Novo Planning Group

A Land Use Planning, Design, and Environmental Firm

June 16, 2009

This page left intentionally blank.

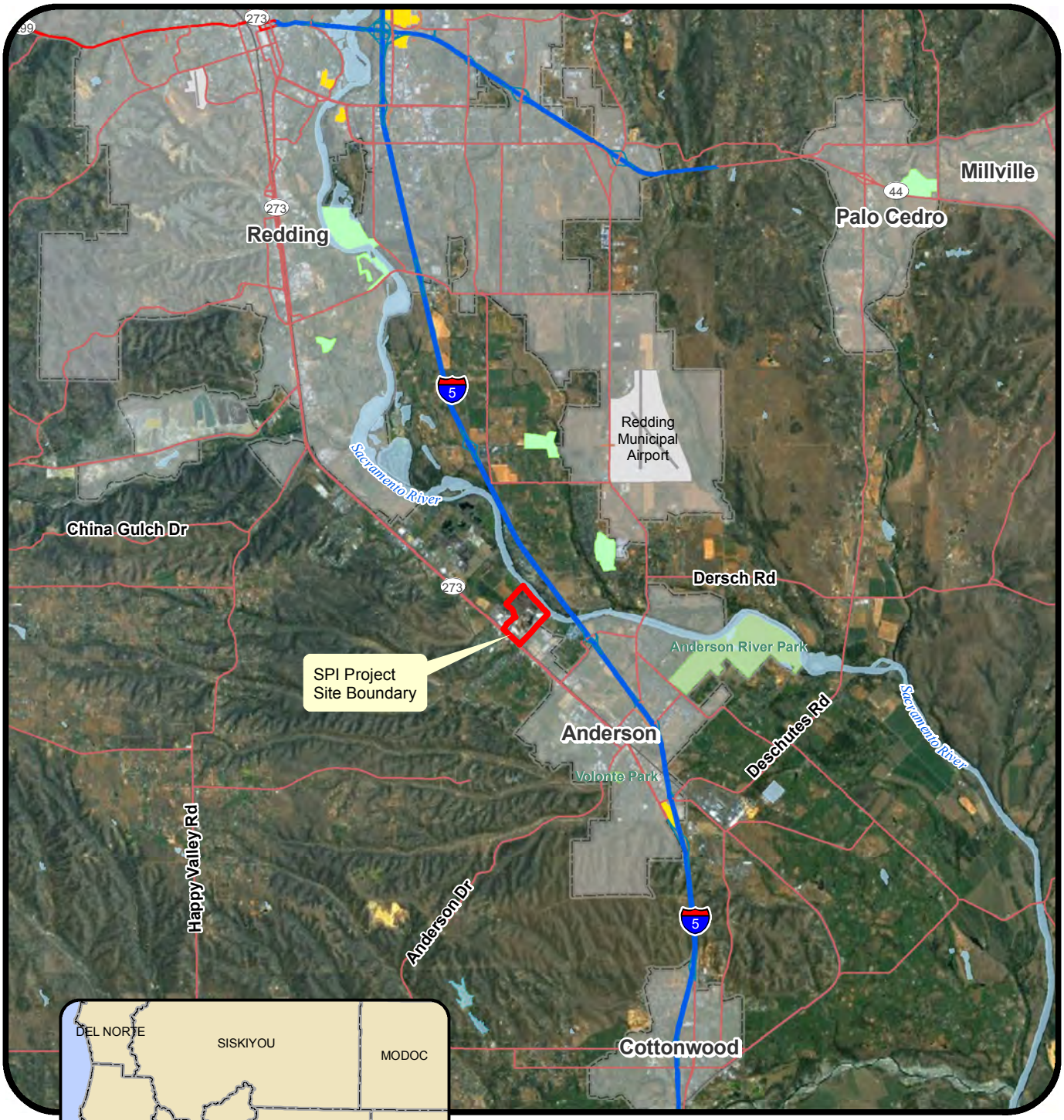


Figure 2-2. Project Vicinity Map

N
W E
S

0 0.5 1 2 3 4 Miles

1:125,000

De Novo Planning Group

A Land Use Planning, Design, and Environmental Firm

July 31, 2009

This page left intentionally blank.

Figure 2-3. Project Site Map

SPI Project Site Boundary

Area of Proposed Improvements (API)

N
W E
S

0 250 500 1,000 1,500 Feet

1:7,500

Road Data Source: ESRI StreetMap North America
Aerial Photo Source: ArcGIS Online Resource Center
Parcel Data Source: Shasta County GIS

De Novo Planning Group

A Land Use Planning, Design, and Environmental Firm

May 10, 2010

This page left intentionally blank.

Layer Legend

- Building
- Chip Loading Bin
- Chip Loading Facility
- Chip Waste Conveyor
- Chipper
- Dust Bagger
- Electric Transformer
- Fire Hydrant
- Fire Pond
- Gasoline Tank
- Improved Roads
- Interstate 5
- Log Yard
- New Cogeneration Building
- New Overhead 115 KV transmission lines
- Nitrogen Tanks
- Oil / Water Separator
- Overhead Piping
- Parcel Boundary
- Pole Storage
- Portal Crane
- Power Lines
- Railroad
- Sacramento River
- Sawdust Silo
- Septic Disposal
- Spring Gulch
- Trailer Dolly Lift
- Truck Scales
- Unclassified Watercourse
- Wash Rack
- Water Tower

N W E S

05011023

05011025

Sacramento River

Portal Crane

Pole Storage

Scale Shack
Weigh Shack
Generator
Oil Storage
Sawmill
Control Room
Control Room Bathroom
Shop
Steam Pipe
Dry Shed
Dry Kiln
Fan
Office
Planner
Sorter
Stacker/Wrapper
Cogeneration Fuel Shed
New Fuel Shed
Ash Bin
Water Wells
Boiler
New Truck Dump
New Ash Silo
New ESP
Cooling Tower
New Boiler
New Cooling Tower
New Turbine
New 115KV Substation
Cement Bunkers
Cone Drying Shed
Shop
Hazardous Materials
Paint Spray Room
Storage
Fabrication Shop
Hardware & Parts Storage
Infeed
Debarker & Controls
Pole Plant
Office-MSDS/PPE
Substation 115KV/12.5KV
Electric Tower 480V
Diesel Storage
Truck Shop
Fuel Pumps
Chips
Riverside Avenue
Parallel Road
Highway 273
Yoke
Ox
Meister Way
Ox Yoke Rd.
Hirch Ct
A St.

Feet
0 200 400 600 800

Sierra Pacific Industries - Anderson Facility

Site Map

06/29/10

Figure 2-4

This page left intentionally blank

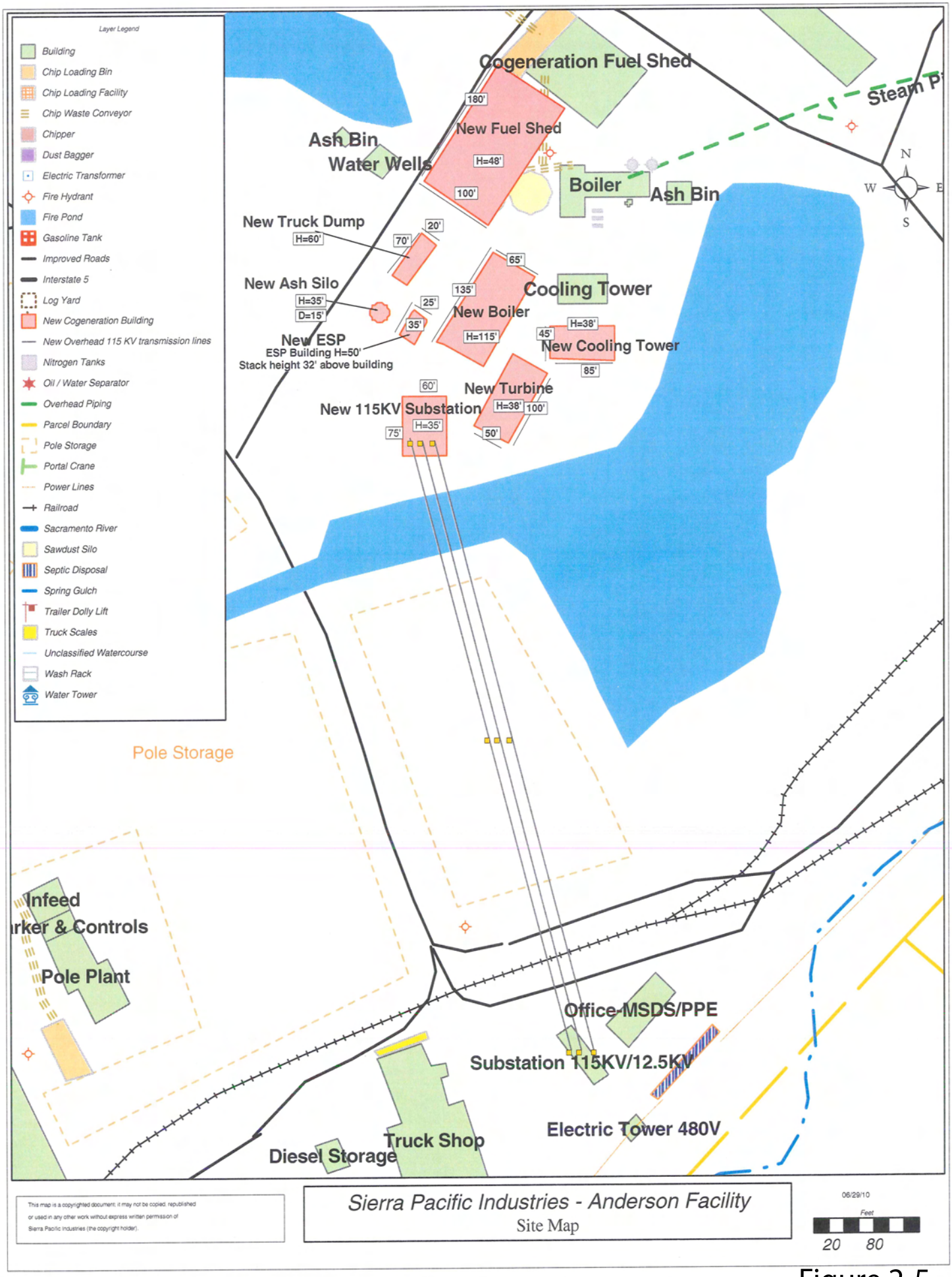
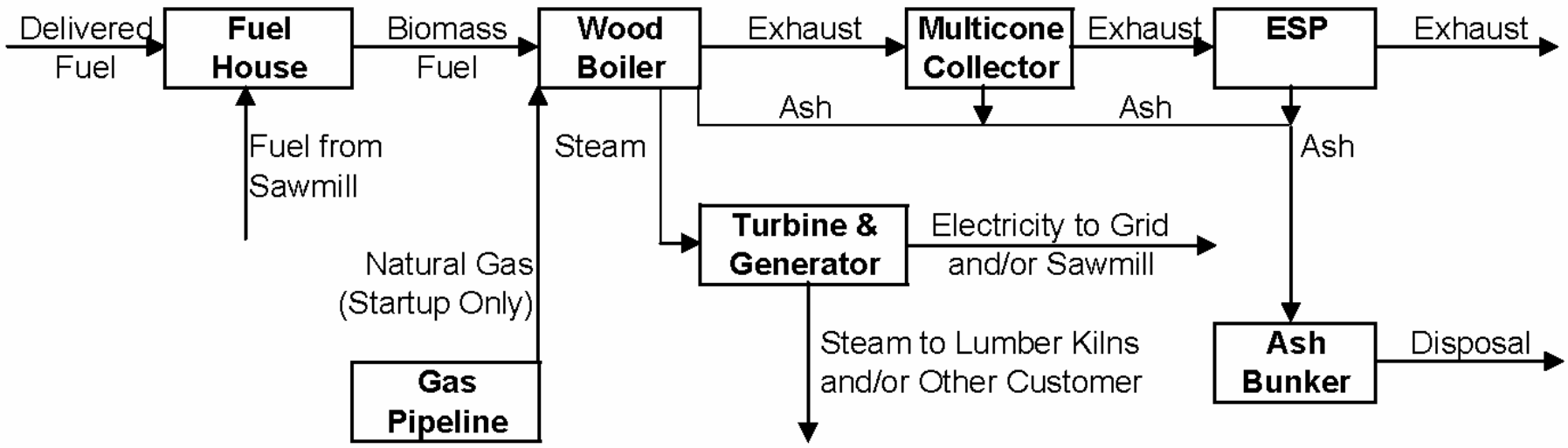

Layer Legend
Building
Chip Loading Bin
Chip Loading Facility
Chip Waste Conveyor
Chipper
Dust Bagger
Electric Transformer
Fire Hydrant
Fire Pond
Gasoline Tank
Improved Roads
Interstate 5
Log Yard
New Cogeneration Building
New Overhead 115 KV transmission lines
Nitrogen Tanks
Oil / Water Separator
Overhead Piping
Parcel Boundary
Pole Storage
Portal Crane
Power Lines
Railroad
Sacramento River
Sawdust Silo
Septic Disposal
Spring Gulch
Trailer Dolly Lift
Truck Scales
Unclassified Watercourse
Wash Rack
Water Tower
Cogeneration Fuel Shed
180'
New Fuel Shed
H=48'
100'
Ash Bin
Water Wells
Boiler
Ash Bin
Steam P
N
W
E
S
New Truck Dump
H=60'
20'
70'
New Ash Silo
H=35'
D=15'
25'
35'
New ESP
ESP Building H=50'
Stack height 32' above building
65'
135'
New Boiler
H=115'
Cooling Tower
H=38'
45'
New Cooling Tower
85'
60'
New 115KV Substation
H=35'
75'
New Turbine
H=38'
100'
50'
Pole Storage
Infeed
rker & Controls
Pole Plant
Office-MSDS/PPE
Substation 115KV/12.5KV
Electric Tower 480V
Truck Shop
Diesel Storage
This map is a copyrighted document; it may not be copied, republished or used in any other work without express written permission of Sierra Pacific Industries (the copyright holder).
Sierra Pacific Industries - Anderson Facility
Site Map
06/29/10
Feet
20
80

Figure 2-5

This page left intentionally blank.

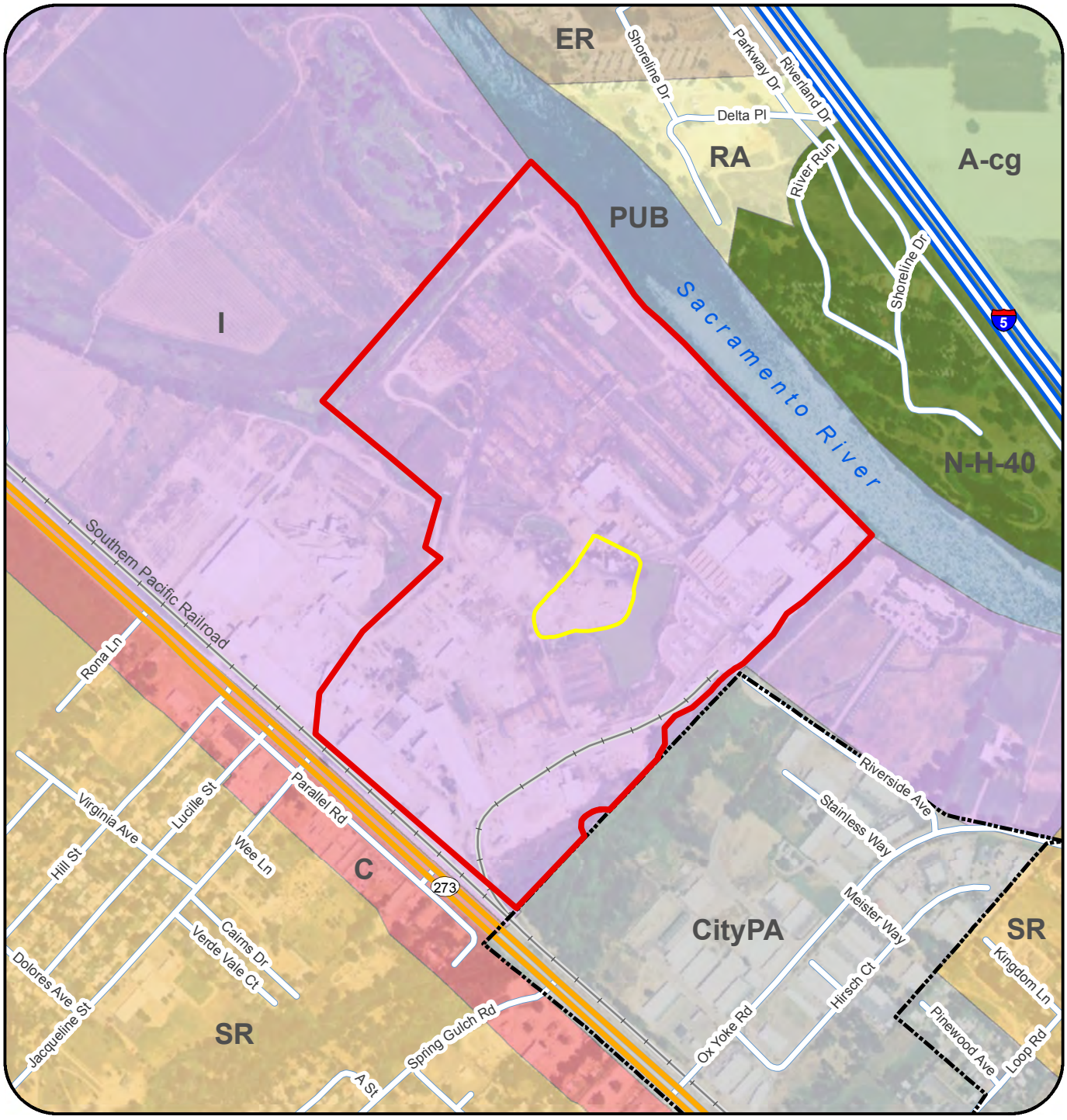


GEOMATRIX

PROJECT SCHEMATIC FLOW DIAGRAM
SPI Lumber Manufacturing Facility Cogeneration Project
Anderson, California

Figure
2-6

This page left intentionally blank.



C - Commercial
I - Industrial
PUB - Public Land
ER - ER
CityPA - City Planning Area
RA - Rural Residential A
SR - Suburban Residential
A-cg - Agricultural Small Scale Cropland/Grazing
N-H-40 - Habitat Resource 40 acre density

SPI Project Site Boundary
Area of Proposed Improvement (API)

Figure 2-7. General Plan Land Use Designations

N
W E
S

0 250 500 1,000 Feet

1:10,000

Data Sources: Shasta County GIS, ESRI StreetMap North America, ArcGIS Online Resource Center

De Novo Planning Group
A Land Use Planning, Design, and Environmental Firm

July 22, 2010

This page left intentionally blank.