TREE REPLACEMENT PLAN

8475 & 8645 KELSEY CREEK ROAD [APN 007-037-08 & 007-038-07]
LAKE COUNTY, CALIFORNIA

PREPARED FOR:

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PROJECT № LAK064

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AUGUST 5, 2022

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1.0 INTRODUCTION

1.1 PURPOSE

The purpose of this Tree Replacement Plan (Plan) is to offset the loss of conifer and hardwood trees on the property located at 8475 & 8645 Kelsey Creek Drive in unincorporated Lake County (APN 007-037-08 & 007-038-07). Trees are proposed to be removed due to road widening for fire prevention access along the main access road, and commercial cultivation at the top of the ridge in the approximate location of a disused olive orchard. The site is composed of mixed oak and conifer woodland, with the dominant species being Black oak (*Quercus kelloggii*), Interior live oak (*Quercus wislizeni*), Gray pine (*Pinus sabiniana*), Ponderosa pine (*Pinus ponderosa*), and Madroño (*Arbutus menziesii*).

1.2 LOCATION

The project site is located at 8475 & 8645 Kelsey Creek Drive in unincorporated Lake County, 3.1 miles south of downtown Kelseyville (Figure 1). The property is comprised of Assessor's Parcel Numbers (APN) 007-037-08 & 007-038-07 that are deeded 12.76 & 43.11 acres respectively, and are zoned RL. The property is located in Section 34, Township 13 North, Range 9 West, on the USGS Kelseyville 7.5-minute quadrangle (Figure 2). The approximate latitude and longitude of the centroid of the property is 38.9291 (N), -122.8478 (W).

1.3 TREE REMOVAL MITIGATION RATIOS

A survey of trees to be removed due to fire safety road widening was performed on May 28, 2021. At that time the number, species, and size of trees to be removed was recorded. In general, we recommend that healthy trees >24" diameter at breast height (DBH) were recommended to be preserved wherever possible, since these trees are usually high quality wildlife habitat.

There is a total of 4 trees greater than 24" DBH that are proposed to be removed. If any of these trees cannot be preserved, then they should be replaced at a 10:1 ratio due to their large size and the fact that small trees do not replace the habitat functions and values of a 100+ year old tree.

Smaller trees that are greater than 6" DBH but less than 24" DBH provide valuable wildlife habitat. There are 91 of these trees currently proposed for removal. Due to the value of these trees for wildlife, and the much larger size of these trees than the trees proposed to be planted as mitigation, we are proposing a 3:1 replacement ratio for trees in this size class.

Saplings are trees less than or equal to 6" DBH but greater than 1" DBH. A total of 106 saplings of various species were recorded in the project area. These small trees contribute less significantly to wildlife habitat, and do contribute significantly to fire fuels. These saplings would normally be removed regularly by low intensity fires that historically occurred in the area, however due to fire suppression over the past 100+ years these small fuels have built up to dangerous levels in many areas. Due to these factors we propose a 1:1 replacement ratio of saplings onsite.

Table 1: Size, species, and number of trees to be removed due to road widening and other activities.

Species	**1-6" DBH**	**7-24" DBH**	**>24" DBH**
Black oak (*Quercus kelloggii*)	71	58	3
Ponderosa pine (*Pinus ponderosa*)	3	1	1
Madroño (*Arbutus menziesii*)	16	5	
Interior live oak (*Quercus wislizeni*)	15	11	
Gray pine (*Pinus sabiniana*)	1	16	
TOTAL	**106**	**91**	**4**

Table 2: Mitigation ratios for different size classes of trees.

Species	**ratio**	**removed**	**replanted**
1-6" DBH	1:1	106	106
7-24" DBH	3:1	91	273
>24" DBH	10:1	4	40
TOTAL		**106**	**419**

1.4 PROPOSED TREE PLANTING

The Planting Diagrams 1-8 detail the location of each tree proposed to be replaced due to compensatory mitigation for loss of trees onsite. The tables above estimate 419 trees need to be replaced using a variety of different mitigation ratios depending on the size of the tree removed. The planting diagrams as shown specify 435 trees for planting. This number incorporates an excess of trees in case some are lost after planting due to herbivory, irrigation failure, or other means. Most of the trees are concentrated in two locations, at the far northern portion of the property in a flat grassy field, and in the far southwest corner of the property in an area currently dominated by non-native annual grasses. Additional plantings are proposed for the edges of the roadcut, where fill is required on either the upslope or downslope sides of the roadbed. Specifications for planting are provided below.

2.0 TREE PLANTING PLAN

2.1 PLANTING SPECIFICATIONS

Material used to start oak trees should be from Lake County, and preferably from acorns collected onsite. Plantings will require watering from an installed irrigation system, to assist in taking root in the arid climate. The area surrounding each plant will need weed control cloth or geotextiles such as burlap sacks or any permeable and biodegradable fiber based fabric that will inhibit weed growth, stop small scale erosion from initiating, and allow a stable substrate for plantings and seedlings to take root. Geotextiles should be pinned down using wooden stakes or other biodegradable material. Plantings inside the fabric covered area shall be made using a small incision into the fabric and only allowing as much bare soil as required to bury the root ball of the planting. All materials used should be 100% biodegradable except for the herbivore exclusion cages.

Mulches for erosion control and moisture retention should be spread wherever bare soil is observed after plants and weed cloth has been deployed. Mulch or loose straw is appropriate, but other nontoxic and biodegradable organic wood or grass-based mixture shall work if it contains no seed of species not native to the site. In general, straw is the most effective solution. Bales of straw may be purchased and distributed liberally throughout the entire remediated areas.

Herbivore exclusion devices such as welded wire cages or chicken wire enclosures shall be constructed around each plant to prevent mortality due to herbivory.

Applicant will monitor the progress of the plantings for a minimum of 5 years. Quantitative performance metrics shall be recorded as described below. Measurements of the number, species, location, and cause of mortality for all plantings shall be recorded at each time point and replacement plants obtained for all dead individuals.

2.2 SOURCES OF MATERIAL

Onsite collection and propagation is the easiest way to generate sufficient stock to plant the number of plants required by this project. We also have verbal agreements with several local farms that have onsite water and that are willing accommodate our grow-out needs if the amount of space required is more than can be sustained onsite. In order to provide sufficient horticultural material for the project and to maintain local genotypes on the property as much as possible, we will collect propagules (seeds and cuttings) of trees and shrubs onsite. Plant material of trees and shrubs will be collected onsite and propagules (seeds and cuttings) grown in a nursery facility comprised of nursery tables and shade cloth. If necessary, commercially purchased local Lake County plants can be used provided they come from local vendors and are from Lake County genotypes.

2.3 PERFORMANCE STANDARDS

Performance criteria for planting are related to survival. A standard 85% survival threshold for the success of the restoration is proposed. The initial number of trees prescribed is 419 thus at least 356 trees should be alive at the end of the monitoring period. An additional 16 trees were additionally included in the planting diagrams as a buffer, for a total of 435 trees planted. The abundance of trees in the planting diagrams was high to ensure that the loss of up to 15% of the trees would still result in a continuous canopy of trees eventually. If greater than 15% of the trees are lost at any time during the 5-year monitoring period, additional trees will be replanted to replace the missing individuals.

2.4 MONITORING & REPORTING

The period of time the plants shall be monitored is a standard 5-year time period. Each year the Applicant will keep for their records the number of trees lost and the condition of any other trees that appear to be in ill health. This report will include any documentation and/or recommendations provided by their project biologist that year, and recommend any corrective actions to increase survival.

Photo points will also be established to support documentation of annual growth and progress towards meeting performance standards. Photo points shall be taken of each feature and the same location and lighting used before and after work events or storm events. Each photo point shall be photographed before work is to begin, and after work commences each year at the same time.

3.0 PLANTING DIAGRAMS


PLANTING KEY
hardwood
conifer
mitigation site for Leptosiphon
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N
50 feet
20 conifers
75 hardwoods
approx. limits of disturbance
Planting Diagram 1
SOURCES: Google Earth; PRC, Inc. (prepared August 4, 2022)
APN 007-037-08 & 007-038-07
8475 & 8645 Kelsey Creek Dr., Kelseyville, CA 95451


PLANTING KEY
hardwood
conifer
mitigation site for Leptosiphon
Planting Diagram 2
APN 007-037-08 & 007-038-07
8475 & 8645 Kelsey Creek Dr., Kelseyville, CA 95451
20 conifers
255 hardwoods
50 feet
N
Pinecrest Environmental Consulting
www.pinecrestenvironmental.org
SOURCES: Munselle Civil Engineering; Google Earth; PRC. Inc. (revised August 2, 2022)


PLANTING KEY
hardwood
conifer
MATCHLINE SEE SHEET 6 OF 26
STATION 5+00
<P> 20' ROAD
START OF LIME TREATMENT SEE NOTE DETAIL S1 - SHEET 20 STATION 4+06
<P> 20' ROADWAY
<P> APPROACH TO BE CLEARED FOR WIDER ROAD
<P> ADDRESS SIGN
KELSEY CREEK DR
ALIGNMENT START ELV: 1369.90 LONG: W122° 50' 47" LAT: N38° 56' 00"
Planting Diagram 3
20 hardwoods
N
50 feet
Pinecrest Environmental Consulting
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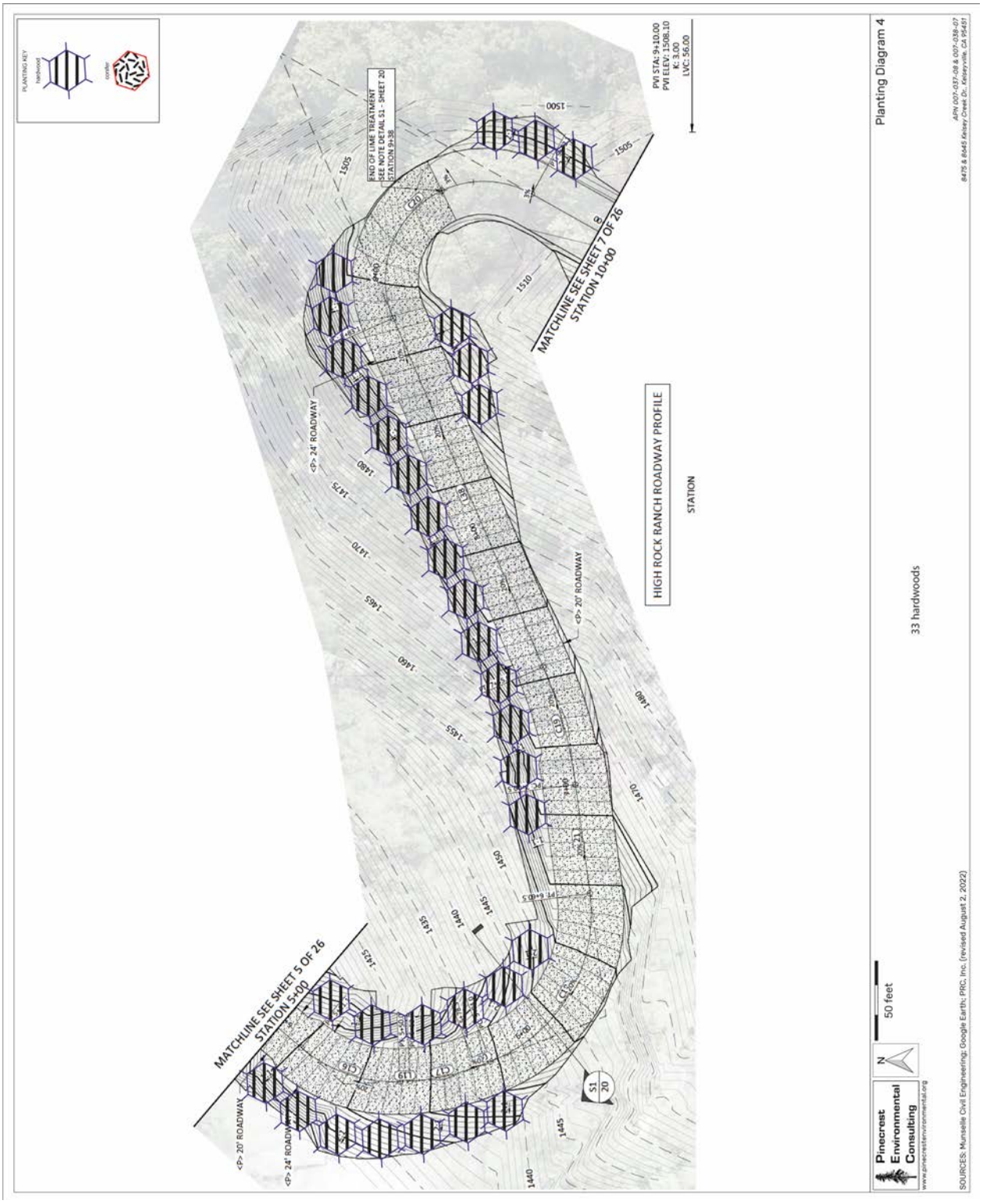
8475 & 8645 Kelsey Creek Dr., Kelseyville, CA 95451
SOURCES: Munselle Civil Engineering; Google Earth; PRC, Inc. (revised August 2, 2022)


PLANTING KEY
hardwood
conifer
END OF LIME TREATMENT
SEE NOTE DETAIL S1 - SHEET 20
STATION 9+38
PVI STA: 9+10.00
PVI ELEV: 1508.10
K: 3.00
LVC: 56.00
MATCHLINE SEE SHEET 7 OF 26
STATION 10+00
MATCHLINE SEE SHEET 5 OF 26
STATION 5+00
<P> 24' ROADWAY
<P> 20' ROADWAY
HIGH ROCK RANCH ROADWAY PROFILE
STATION
Planting Diagram 4
33 hardwoods
50 feet
N
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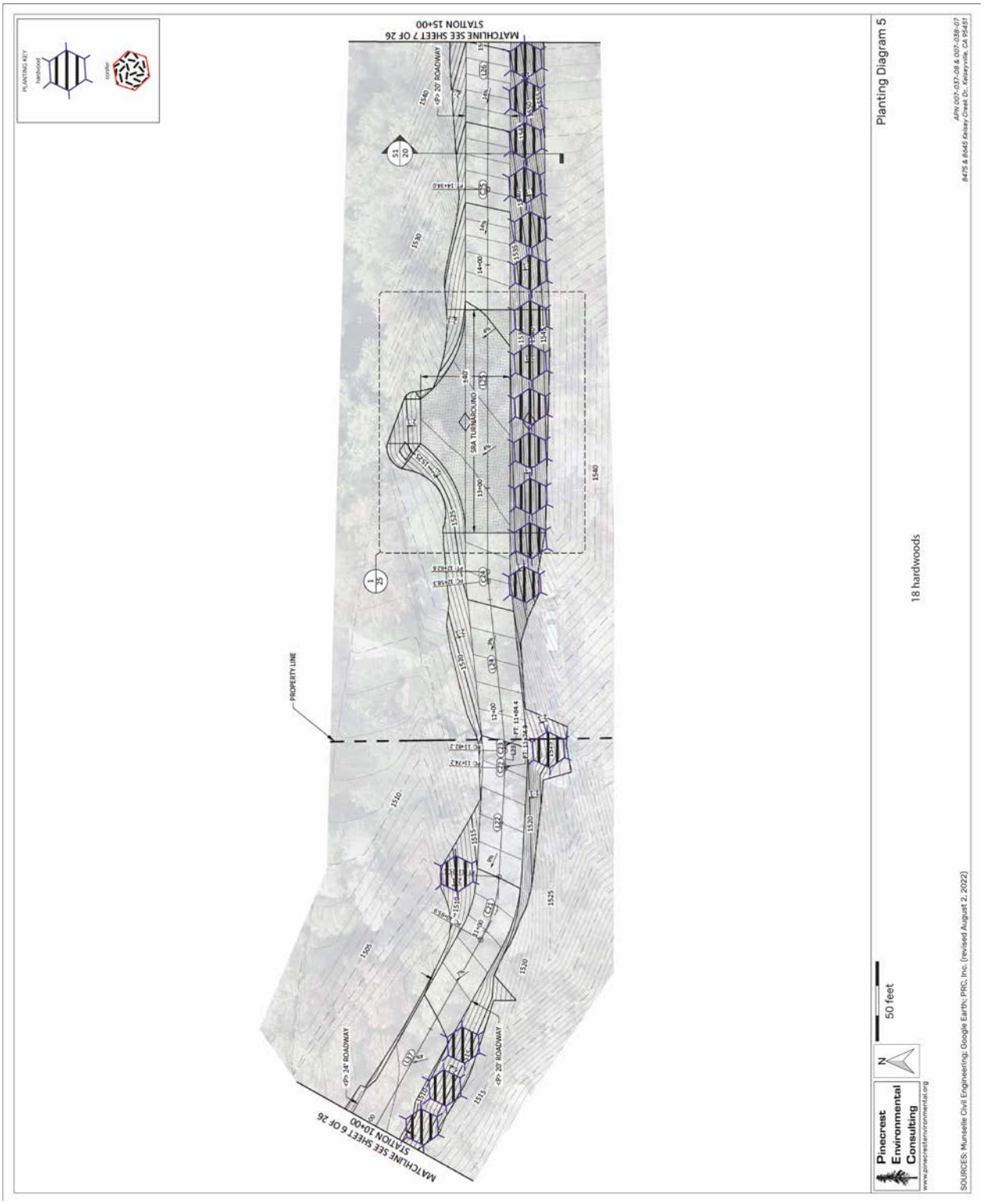
8475 & 8645 Kelsey Creek Dr., Kelseyville, CA 95451
SOURCES: Munselle Civil Engineering; Google Earth; PRC, Inc. (revised August 2, 2022)


PLANTING KEY
hardwood
conifer
MATCHLINE SEE SHEET 7 OF 26
STATION 15+00
<P> 20' ROADWAY
SRA TURNAROUND
PROPERTY LINE
MATCHLINE SEE SHEET 6 OF 26
STATION 10+00
<P> 24' ROADWAY
<P> 20' ROADWAY
Planting Diagram 5
18 hardwoods
N
50 feet
Pinecrest Environmental Consulting
www.pinecrestenvironmental.org
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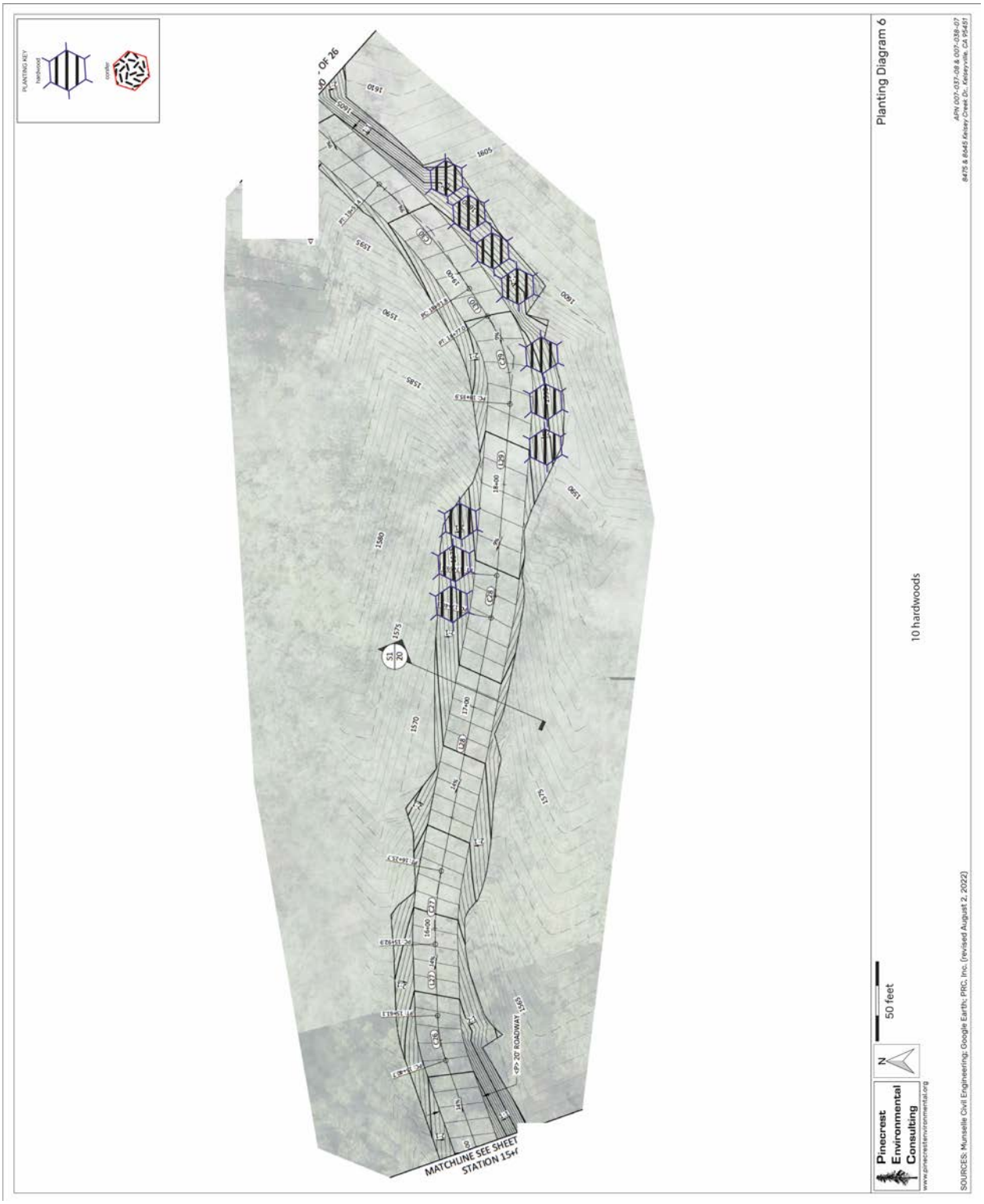
8475 & 8645 Kelsey Creek Dr., Kelseyville, CA 95451
SOURCES: Munselle Civil Engineering; Google Earth; PRC, Inc. (revised August 2, 2022)


PLANTING KEY
hardwood
conifer
Planting Diagram 6
10 hardwoods
50 feet
N
Pinecrest Environmental Consulting
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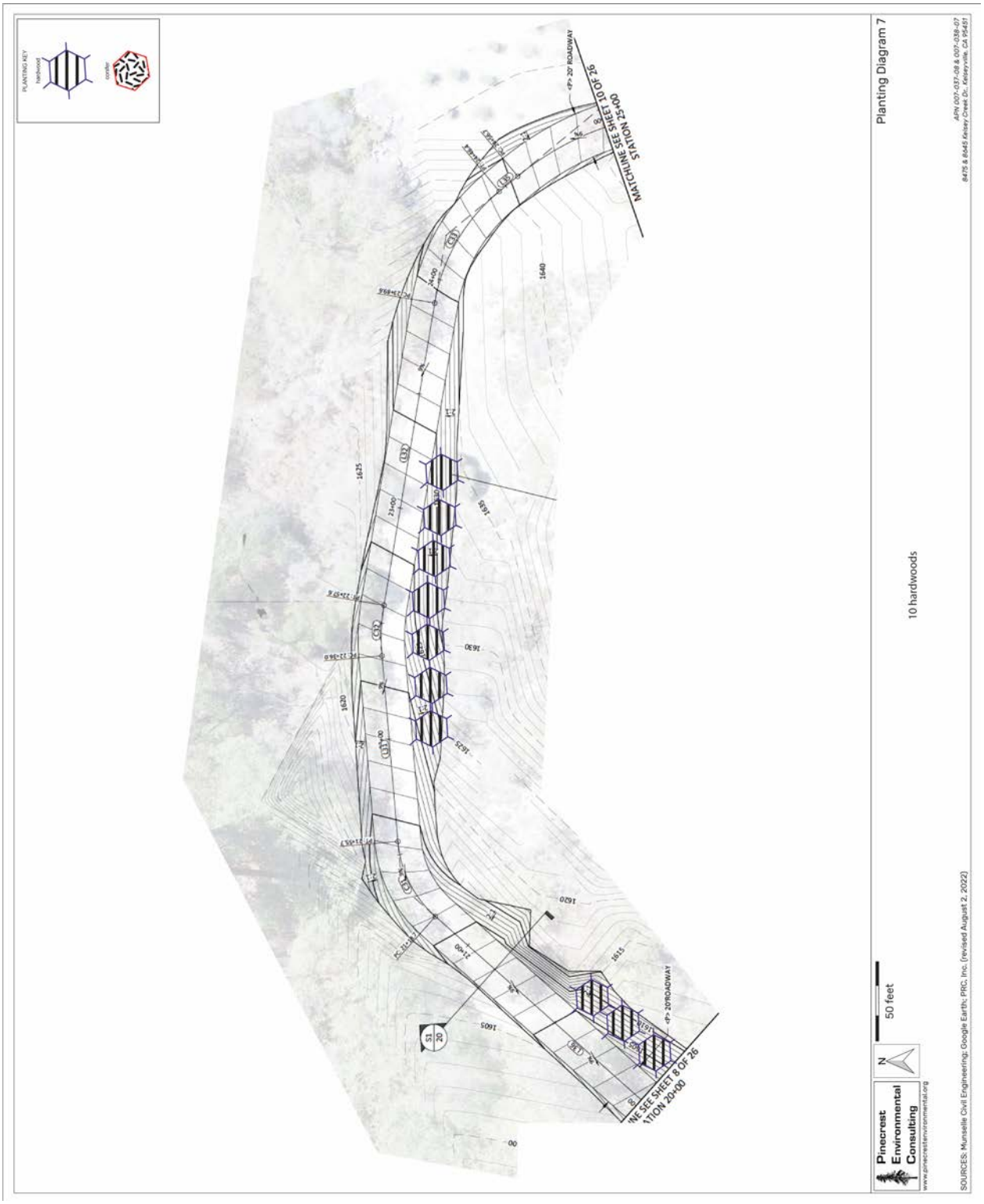
APN 007-037-08 & 007-038-07
8475 & 8645 Kelsey Creek Dr., Kelseyville, CA 95451
SOURCES: Munselle Civil Engineering; Google Earth; PRC, Inc. (revised August 2, 2022)
MATCHLINE SEE SHEET
STATION 15+
20' ROADWAY


PLANTING KEY
hardwood
conifer
MATCHLINE SEE SHEET 10 OF 26
STATION 25+00
<P> 20' ROADWAY
<P> 20'ROADWAY
NE SEE SHEET 8 OF 26
ATION 20+00
Planting Diagram 7
10 hardwoods
N
50 feet
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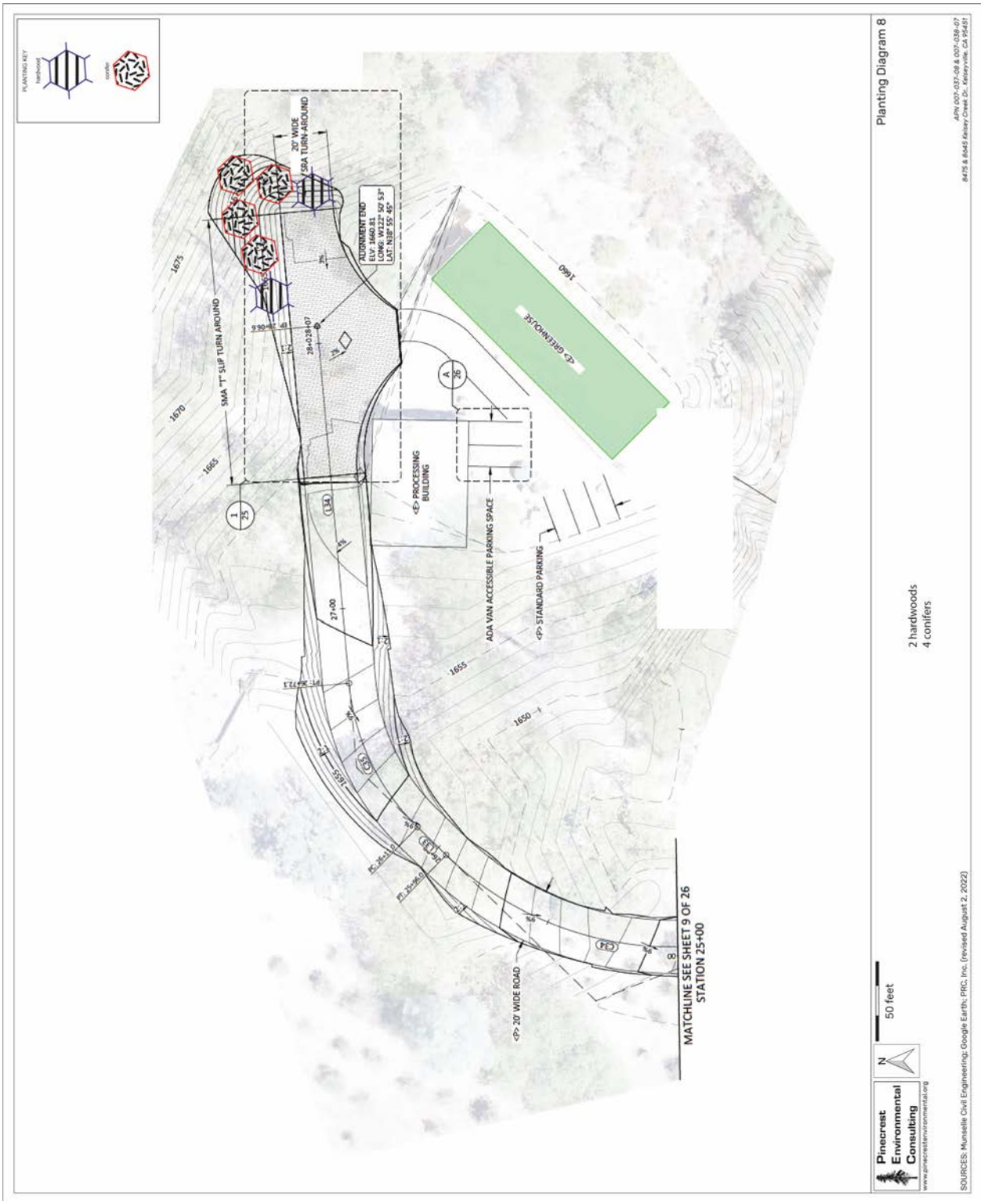
8475 & 8645 Kelsey Creek Dr., Kelseyville, CA 95451
SOURCES: Munselle Civil Engineering; Google Earth; PRC, Inc. (revised August 2, 2022)


PLANTING KEY
hardwood
conifer
20' WIDE SRA TURN-AROUND
ALIGNMENT END
ELV: 1660.81
LONG: W122° 50' 53"
LAT: N38° 55' 45"
28+028.07
SMA "T" SLIP TURN AROUND
1675
1670
1665
1660
1655
1650
<E> GREENHOUSE
<E> PROCESSING BUILDING
ADA VAN ACCESSIBLE PARKING SPACE
<P> STANDARD PARKING
27+00
<P> 20' WIDE ROAD
MATCHLINE SEE SHEET 9 OF 26
STATION 25+00
Planting Diagram 8
2 hardwoods
4 conifers
N
50 feet
Pinecrest Environmental Consulting
www.pinecrestenvironmental.org
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8475 & 8645 Kelsey Creek Dr., Kelseyville, CA 95451
SOURCES: Munselle Civil Engineering; Google Earth; PRC, Inc. (revised August 2, 2022)