Appendix D2
Creek Enhancement Report

Google Downtown San Jose
Los Gatos Creek Enhancement Project
Site Assessment Summary Report

H. T. Harvey Proposal #10170
March 5, 2020

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Methods

On February 20, 2020 Dan Stephens (ecologist) and Logan Egan (Landscape Architect) of H. T. Harvey & Associates, and Caitlin Gilmore (hydrologist) and Kiel Harms (hydrologist) of Schaaf and Wheeler conducted a Los Gatos Creek reconnaissance from West Santa Clara Street to San Carlos Street. The intent of the reconnaissance was to identify trees, logs, and log jams that could be removed in this highly constrained reach to improve flood conveyance.

The team waded the entire reach and recorded the following information:

1. Location, size and species (where possible) of live and dead trees to be removed
2. Location and approximate size of downed logs, including whether the logs are in the channel, suspended in the air, or on the bank outside base flow
3. Location and approximate size of log jams in the channel
4. Representative photos of creek features
5. Location and approximate size of areas that might be suitable for riparian mitigation planting

Results

Table 1 summarizes the trees and logs that may need to be removed. These removals cannot be confirmed until hydrologic modeling is conducted but at this time all these trees and logs are assumed to be removed.

Table 2 provides the logs and trees to be removed tallied by categories that allow a rough assessment of removals most likely to affect steelhead, specifically the In Channel Log category which covers the base flow position. All other categories are outside base flow. Following Table 2 are representative photographs, keyed to the categories in the table.

Table 1. Tally of Trees and Logs

Tree Number	Scientific Name	Common Name	Approximate Diameter (DBH) in Inches	Dead or Live	Notes
1	*Populus fremontii*	Fremont cottonwood	23,15,10	Dead	
2	*Populus fremontii*	Fremont cottonwood	14	Dead	Debris/logs in channel bed next to bed
3	*Populus fremontii*	Fremont cottonwood	49	Live	Stump, cut 4' above ground but sprouting
4	*Populus fremontii*	Fremont cottonwood	24	Dead	Log laying down on bank, GPS at midpoint
5	*Populus fremontii*	Fremont cottonwood	24	Dead	Downed log in channel bed
6	*Populus fremontii*	Fremont cottonwood	12	Dead	Downed log in channel bed
7	*Populus fremontii*	Fremont cottonwood	16	Dead	Downed log on lower creek bank
8	*Populus fremontii*	Fremont cottonwood	14	Dead	Across creek, up in air 8'
9	*Populus fremontii*	Fremont cottonwood	14	Live	Across creek, up in air 8'
10	*Populus fremontii*	Fremont cottonwood	10	Dead	Horizontal across creek, 6' in air
11	*Populus fremontii*	Fremont cottonwood	14,8	Live	Angled across creek
12	*Populus fremontii*	Fremont cottonwood	24	Dead	Horizontal across creek, 5' in air
13	Unknown	Unknown	48	Dead	Stump, 15' long in channel bed
14	*Populus fremontii*	Fremont cottonwood	13,8	Live	Angled across creek
15	*Populus fremontii*	Fremont cottonwood	24	Dead	Log in channel bed
16	Unknown	Unknown	10	Dead	Log horizontal across channel, 7' above bed
17	Unknown	Unknown	36	Dead	Log horizontal across channel, 6'-8' up
18	Unknown	Unknown	24		Log in channel bed
19	Unknown	Unknown	16		Log in channel bed
20	Unknown	Unknown	14	Live	Log at edge of bed
21	*Salix* sp.	Willow	14	Unknown	Anchoring across bed, do not remove
22	*Eucalyptus* sp.	Eucalyptus	48	Live	Base of slope

Tree Number	Scientific Name	Common Name	Approximate Diameter (DBH) in Inches	Dead or Live	Notes
23	*Acer negundo*	Box elder	16,10	Live	Laying down in channel, base resprouting profusely
24	*Populus fremontii*	Fremont cottonwood	12,8		Log in channel bed
25	*Populus fremontii*	Fremont cottonwood	8		Log angled across bed
26	*Populus fremontii*	Fremont cottonwood	28	Dead	15' long angled across bed
27	*Populus fremontii*	Fremont cottonwood	12,6	Live	
28	*Salix* sp.	Willow	18	Live	Angled across bed
29	*Arundo donax*	Giant reed	75' long x 25' wide patch	Live	Patch to remove on upper bank
30	*Ailanthus altissima*	Tree of heaven	6	Live	Moderate invasiveness (Cal-IPC)
31	*Ailanthus altissima*	Tree of heaven	14	Live	Moderate invasiveness (Cal-IPC)
32	*Populus fremontii*	Fremont cottonwood	12" - 24"	N/A	12+ POFR logs, Large 50' diameter log pile on lower creek bank *Ailanthus* and *Robinia* in this are to be removed
33	Open gap	Open gap	N/A	N/A	Large gap to plant trees in upper bank west side and above rock on east side
34	Plant trees	Plant trees	N/A	N/A	Plant 1-2 lines of tress at upper bank (in creek planting, need Valley Water to agree to mitigate on their land)
35	Ivy	Ivy	N/A	Live	High invasiveness (Cal-IPC)
36	Unknown	Unknown	40	Dead	Large short stump in bed
37	*Populus fremontii*	Fremont cottonwood	30	Dead	Log in channel bed
38	Unknown	Unknown	40,18,18	Dead	Group of trunks
38	Unknown	Unknown	24,16,8	Live	Group of trunks
39	*Populus fremontii*	Fremont cottonwood	8	Dead	Log in channel bed
40	*Populus fremontii*	Fremont cottonwood	20	Live	Edge of bed

Tree Number	Scientific Name	Common Name	Approximate Diameter (DBH) in Inches	Dead or Live	Notes
41	Unknown	Unknown	18	Dead	
42	*Populus fremontii*	Fremont cottonwood	14	Live	Horizontal across channel, 6' above bed
43	Concrete removal	Concrete removal	N/A	N/A	
43	Planting	Planting	N/A	N/A	150'-200' west side upper bank planting at ~20' wide at 2:1
44	Log jam	Log jam	12" - 28"	N/A	4-8 logs
45	Unknown	Unknown	24,12,12	Dead	
46	Log jam	Log jam	8" - 12"	N/A	5-6 logs on bench next to channel

Table 2. Categories of Logs and Trees

Standing Live Trees		Standing Dead Trees		In Channel Logs			Bank Logs	Aerial Logs
				Single Log (Tree Number)		Log Jam (Tree Number)		
Tree Number	DBH	Tree Number	DBH	DBH < 24"	DBH ≥ 24"		Tree Number	Tree Number
3	49	1	23, 15, 10	2	5	32	4	8
22	48	38	40, 18, 18	6	13	44	7	9
27	12, 6	41	18	19	15	46		10
30	6	45	24, 12, 12	20	18			11
31	14			24	23			12
38	24, 16, 8			39	36			14
40	20				37			16
								17
								21
								25
								26
								28
								42
Total	**7**		**4**	**6**	**7**	**3**	**2**	**13**
Total of All Categories								**42**

Representative Photos

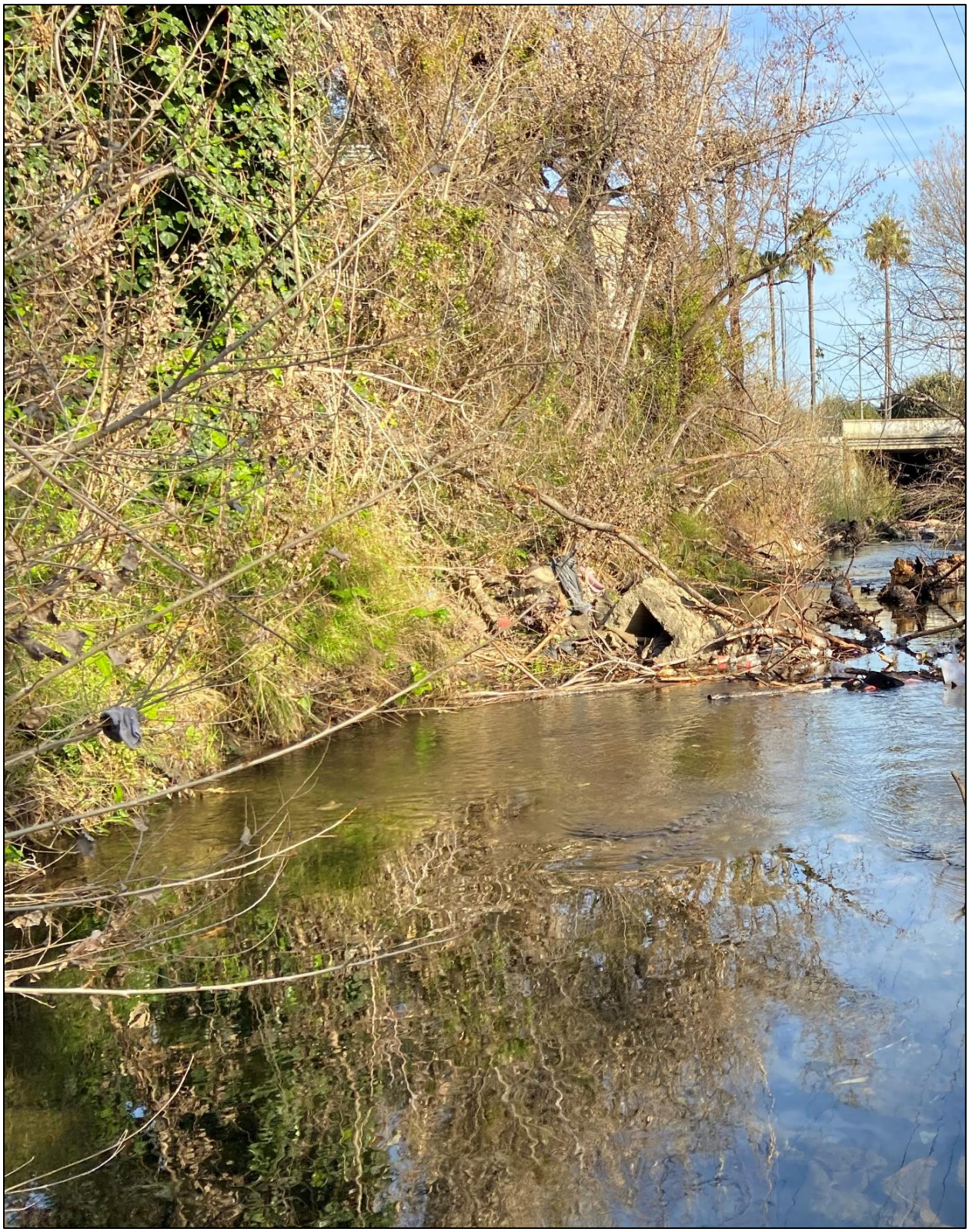


Photo 1. Standing Live Trees

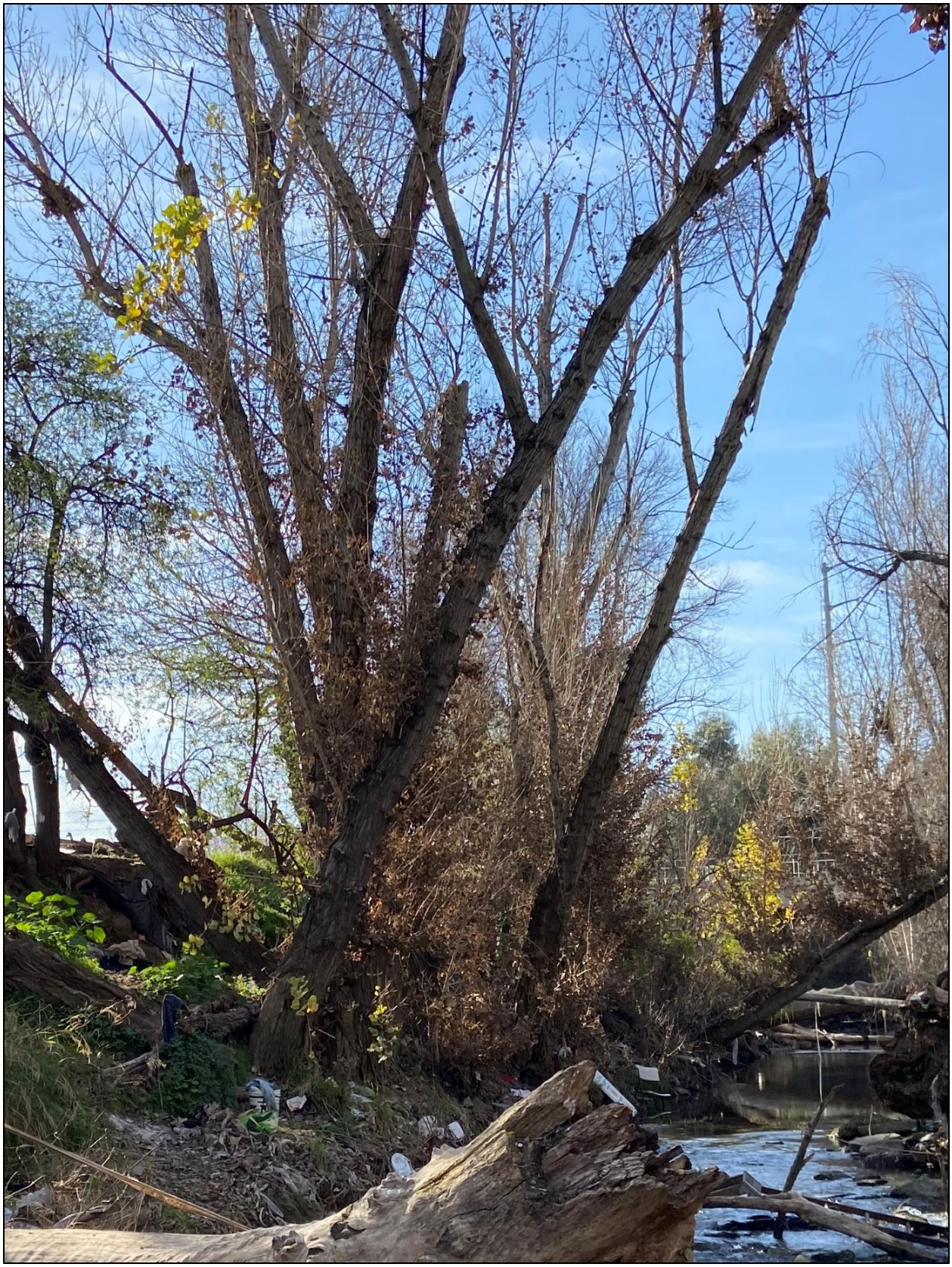


Photo 2. Standing Dead Trees

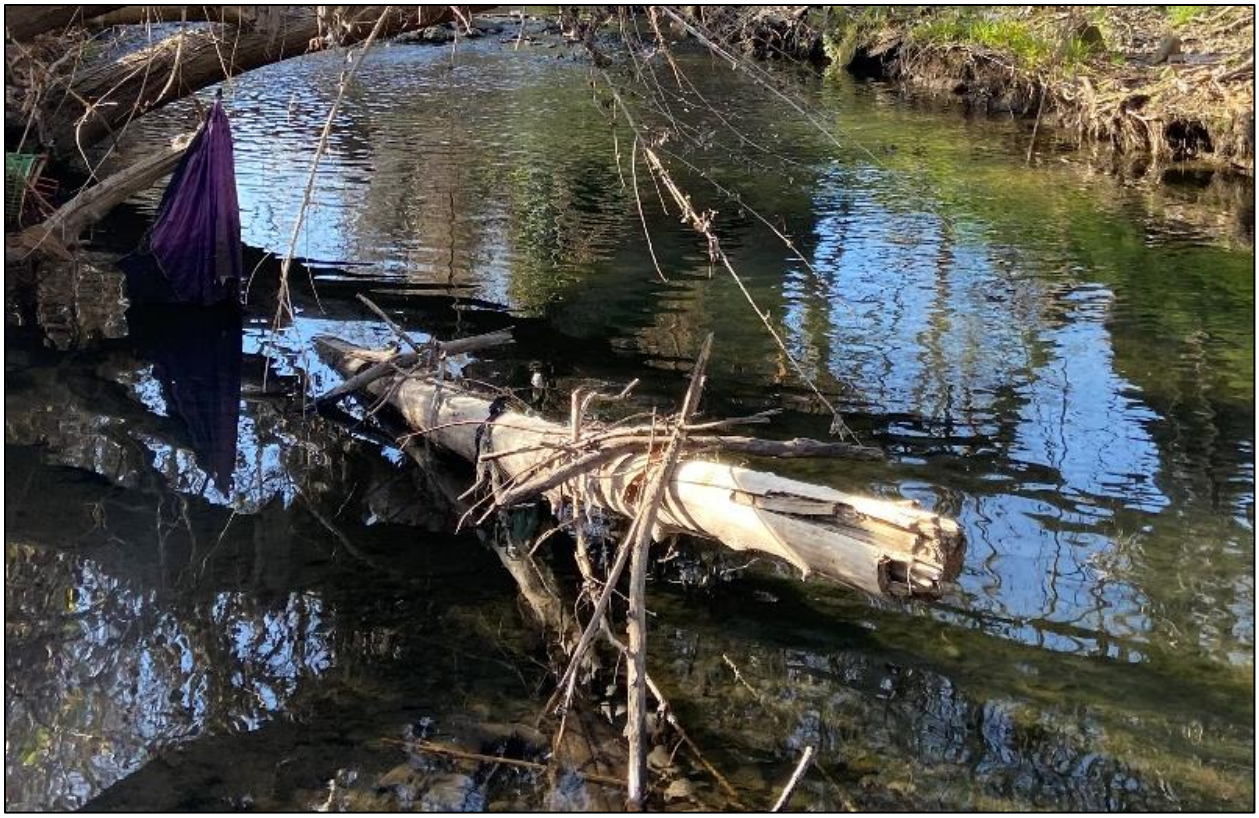


Photo 3. In Channel Single Log

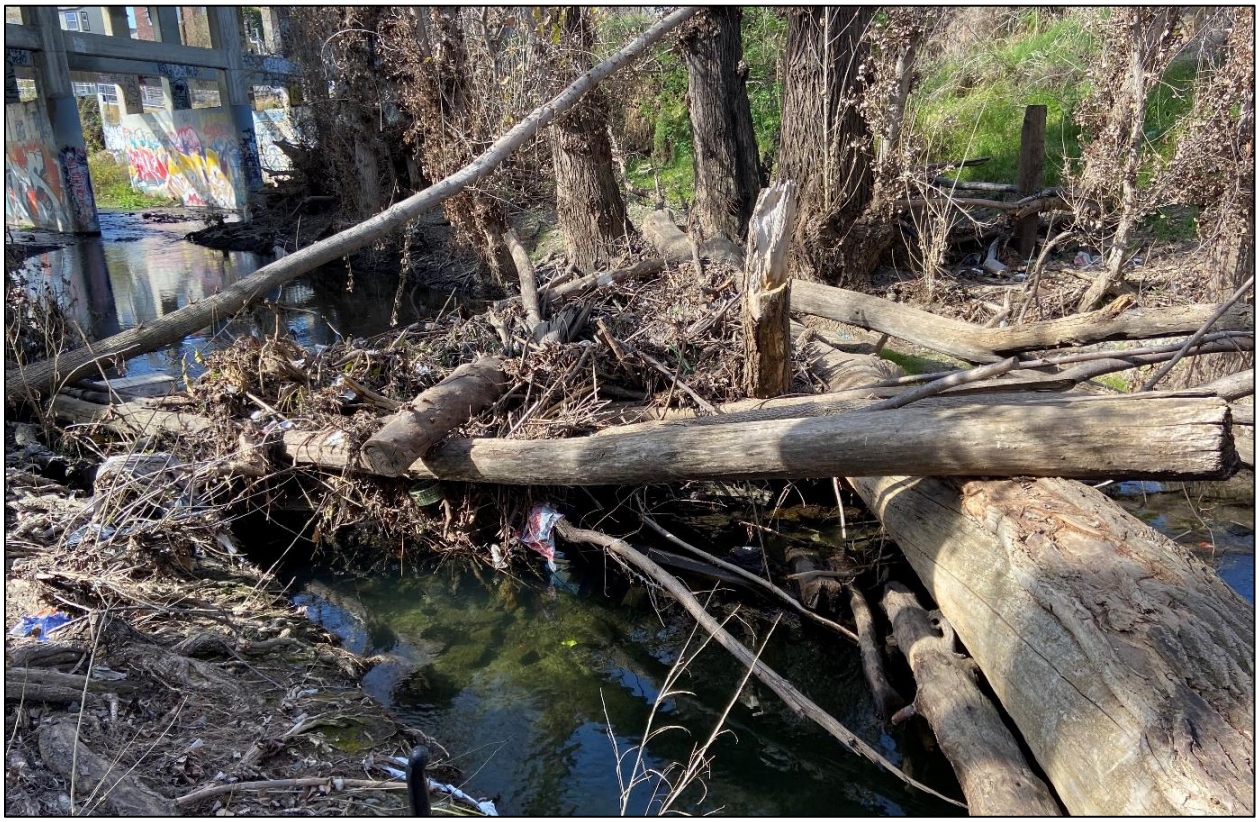


Photo 4. In Channel Log Jam

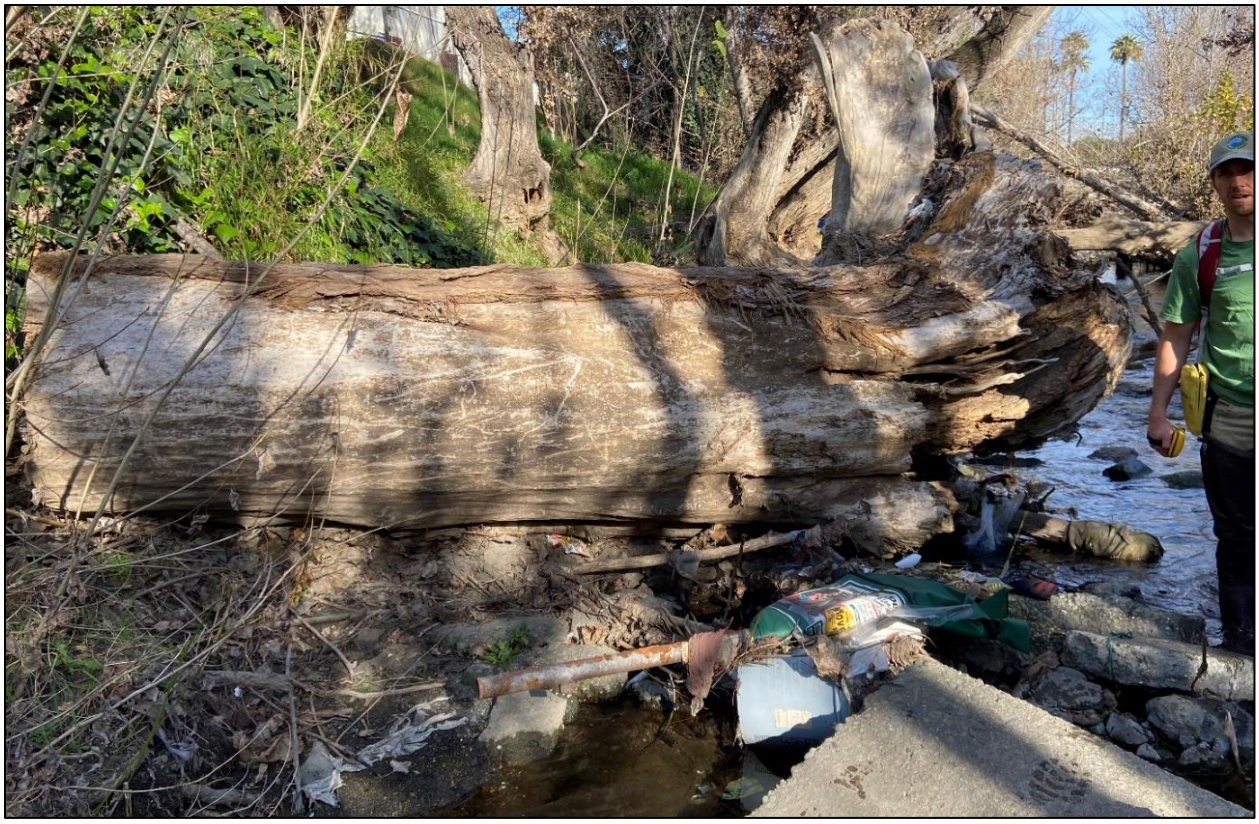


Photo 5. Bank Log

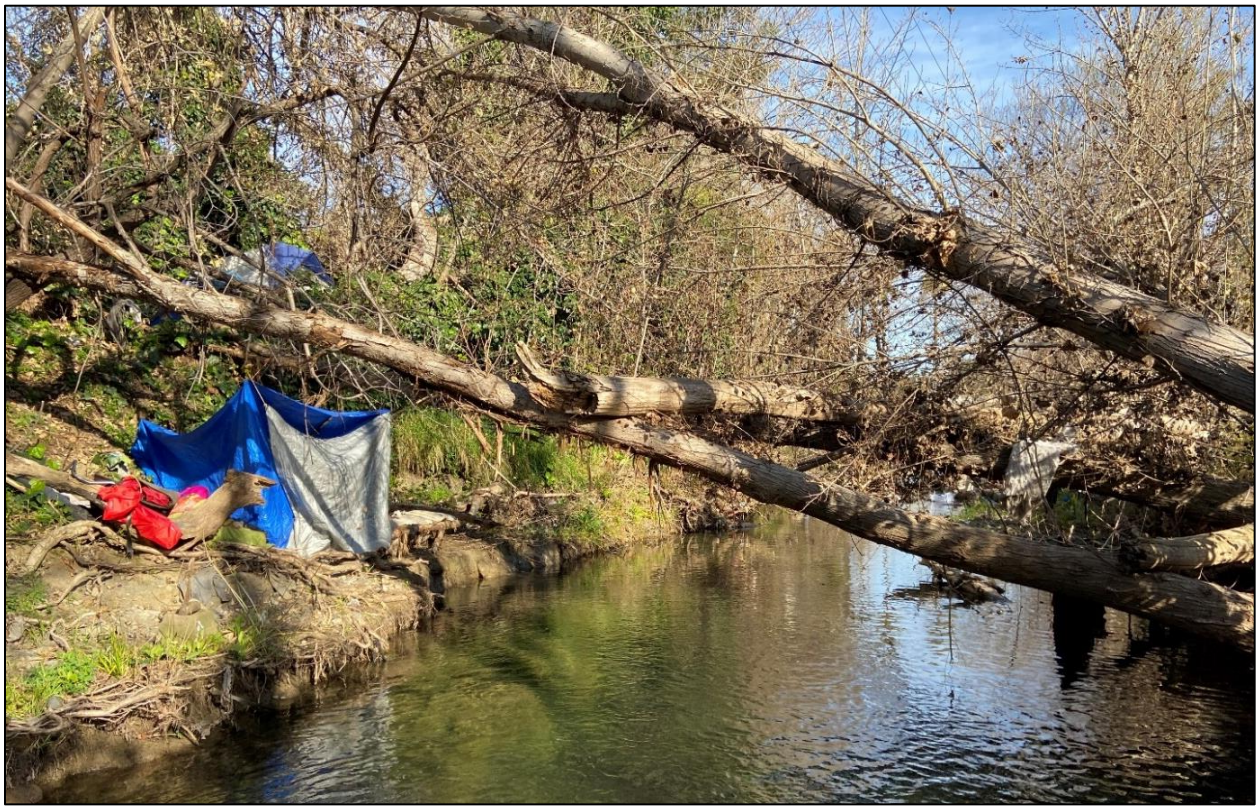


Photo 6. Aerial Log

Proposed Work

All proposed work will need to be developed based on further field studies, design work, collaboration with and approval by the site owner (Santa Clara Valley Water District), and the review and permitting with the relevant regulatory agencies, especially National Marine Fisheries and California Department of Fish and Wildlife.

Mitigation Planting Approach

A small number of nonnative and native trees may be removed (Table 1 and Figures 1-4). Live trees over 6 inches dbh should be mitigated at a minimum of 3:1 for native trees and 2:1 for nonnative trees, but no mitigation is proposed for invasive tree species. Live trees 2-6 inches dbh should be mitigated at a minimum of 1:1 for native trees and no mitigation for nonnative trees. In future design efforts it may be necessary to find locations for planting mitigation trees near the channel to mitigate loss of channel shading. Dead trees should be replaced by planting 1 native riparian tree for each dead tree removed. While dead trees can provide valuable habitat for birds, this reach of the creek has ample dead large branches on existing native trees to remain, so this resource is not considered particularly limited at this site, and a 1:1 replacement with a live tree is adequate mitigation. To the extent feasible all mitigation planting should occur within the project reach, on the channel banks at least 10 feet above the channel bed to avoid creating new flow impediments. Replanting areas within the reach include gaps in existing tree canopy, and areas with pervasive invasive plant species (giant reed, tree of heaven, etc.) that can be removed to provide a planting area.

Instream Logs Mitigation Approach

Some of the log jams and single logs in the channel to be removed (Table 2) provide velocity refugia for steelhead moving through this reach during high flows and are thus valuable habitat features. The proposed mitigation approach for these removals is as follows:

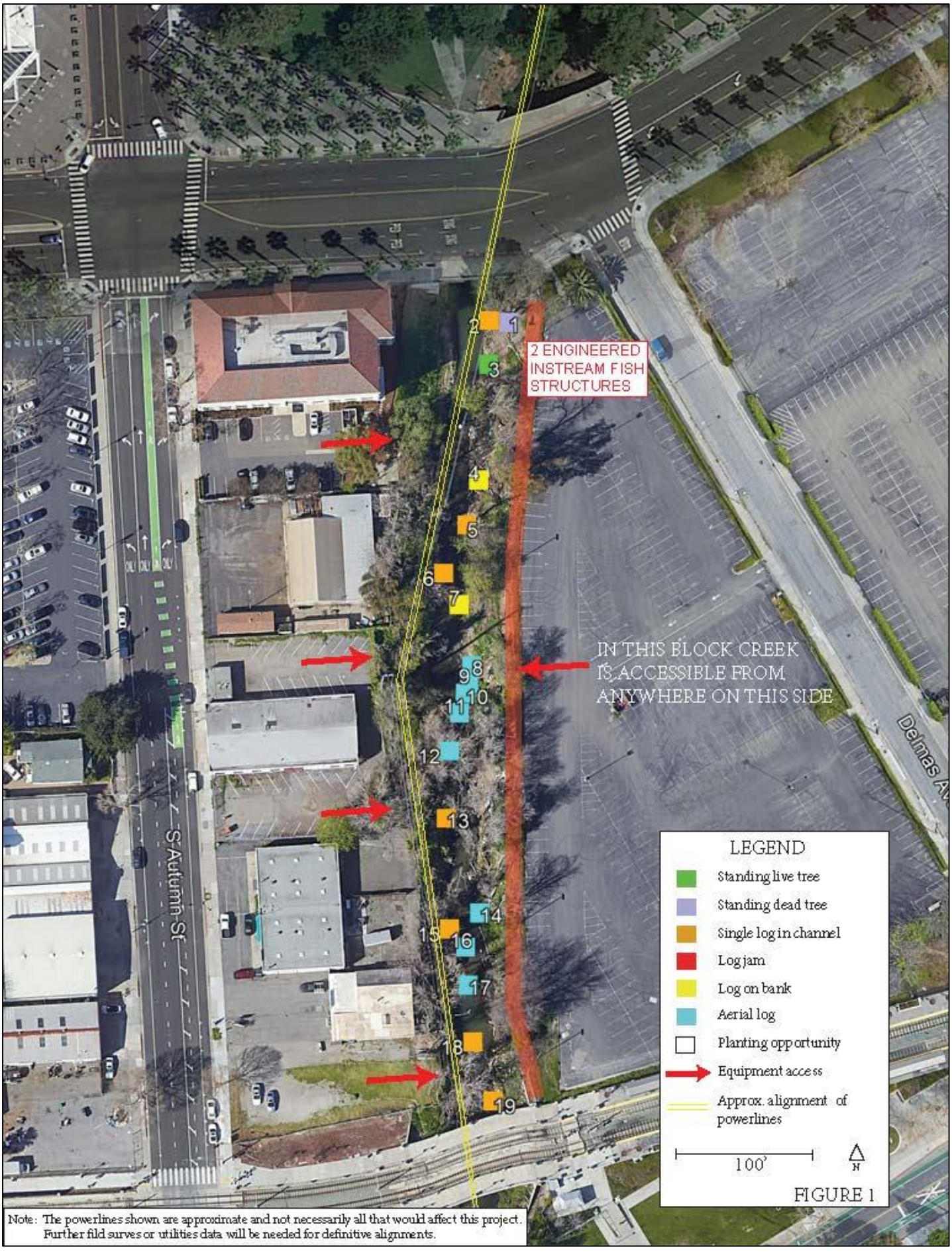
1. Design and install engineered fish habitat enhancement log structures (EFHELS) at locations accessible by heavy equipment to create high quality in-channel habitat and velocity refuge
2. Maintain EFHELS over time to ensure that they do not increase flood risk but that they continue to provide high quality habitat.

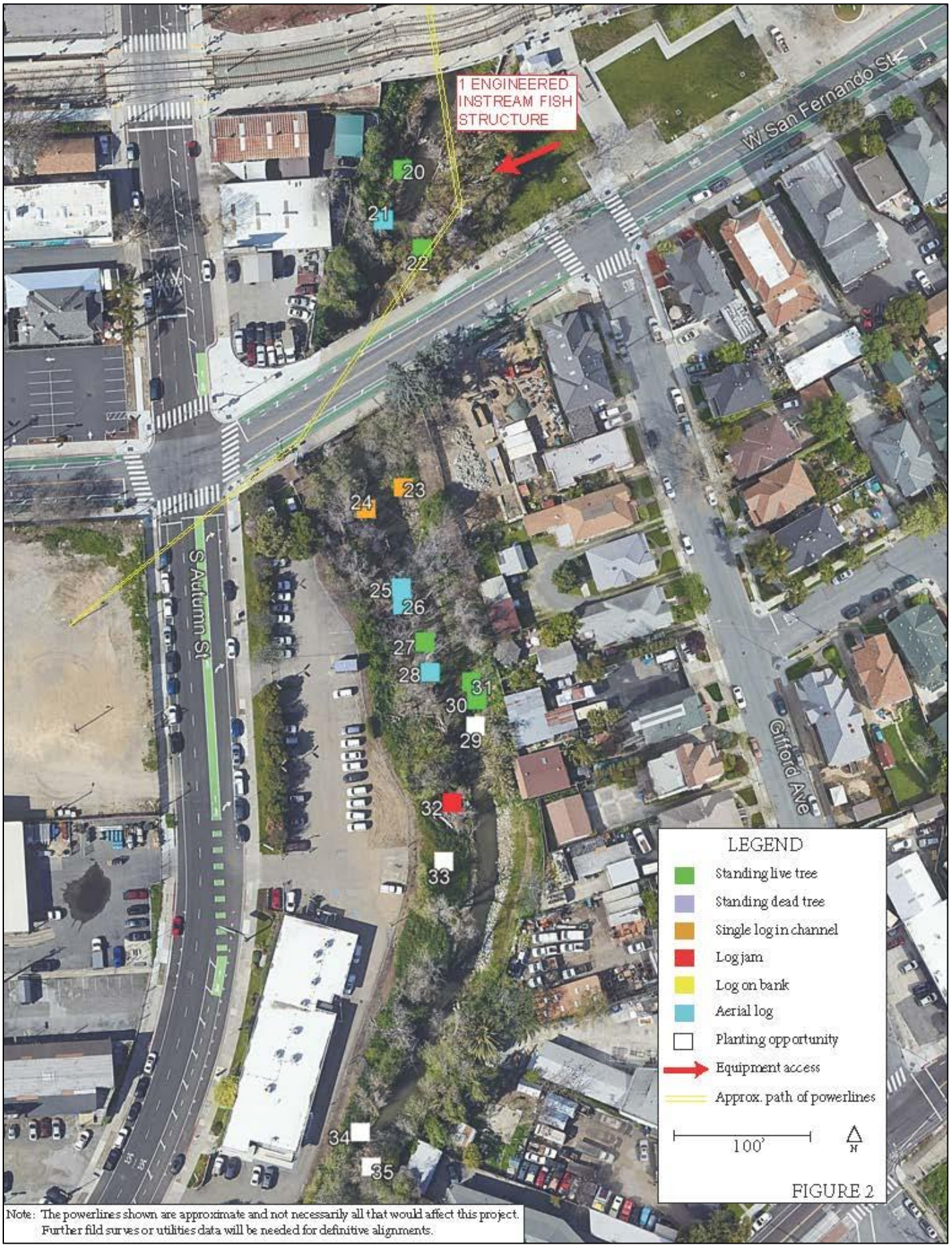
EFHELS should be designed and placed at locations to maximize low or no velocity conditions during Q2 and Q5 flow events. EFHELS construction may include some excavation in and adjacent to the channel, cabling or other methods to stabilize structures, and where possible re-use of logs (preferably with root wads) that are being removed. We estimate that 5 engineered log structures could be placed in the creek from 3 main access locations to increase habitat for steelhead and mitigate for removal of the 3 logjams and several key pieces that currently exist in the channel. This is a preliminary estimate of a mitigation approach and will need further field study, design work, and review with regulatory agencies to be confirmed.

The project proposes to remove "aerial" logs that have fallen across the channel but remain suspended, generally 4-20 feet above the base flow (Table 2). These aerial logs do not provide habitat for steelhead and minimal habitat value for other wildlife species. Therefore no mitigation is proposed for removal of these obstructions.

The project also proposes to removal logs situated on the banks of the creek, several feet above base flow. These bank logs do not provide habitat for steelhead, or other special status wildlife species, and minimal habitat value for other wildlife species. Therefore no mitigation is proposed for removal of these obstructions, furthermore downed smaller branches are prevalent in the site and so is a fairly abundant resource.

Figures 1-4 show the location of potential access for creek work (note that power lines need further study but are preliminarily shown), and preliminary locations for placement of engineered instream fish structures as mitigation.


2 ENGINEERED INSTREAM FISH STRUCTURES
IN THIS BLOCK CREEK IS ACCESSIBLE FROM ANYWHERE ON THIS SIDE
S Autumn St
Delmas Av
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
LEGEND
Standing live tree
Standing dead tree
Single log in channel
Log jam
Log on bank
Aerial log
Planting opportunity
Equipment access
Approx. alignment of powerlines
100'
N
FIGURE 1
Note: The powerlines shown are approximate and not necessarily all that would affect this project. Further fild surves or utilities data will be needed for definitive alignments.


1 ENGINEERED INSTREAM FISH STRUCTURE
W San Fernando St
S Autumn St
Gifford Ave
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
LEGEND
Standing live tree
Standing dead tree
Single log in channel
Log jam
Log on bank
Aerial log
Planting opportunity
Equipment access
Approx. path of powerlines
100'
N
FIGURE 2
Note: The powerlines shown are approximate and not necessarily all that would affect this project.
Further fild surves or utilities data will be needed for definitive alignments.

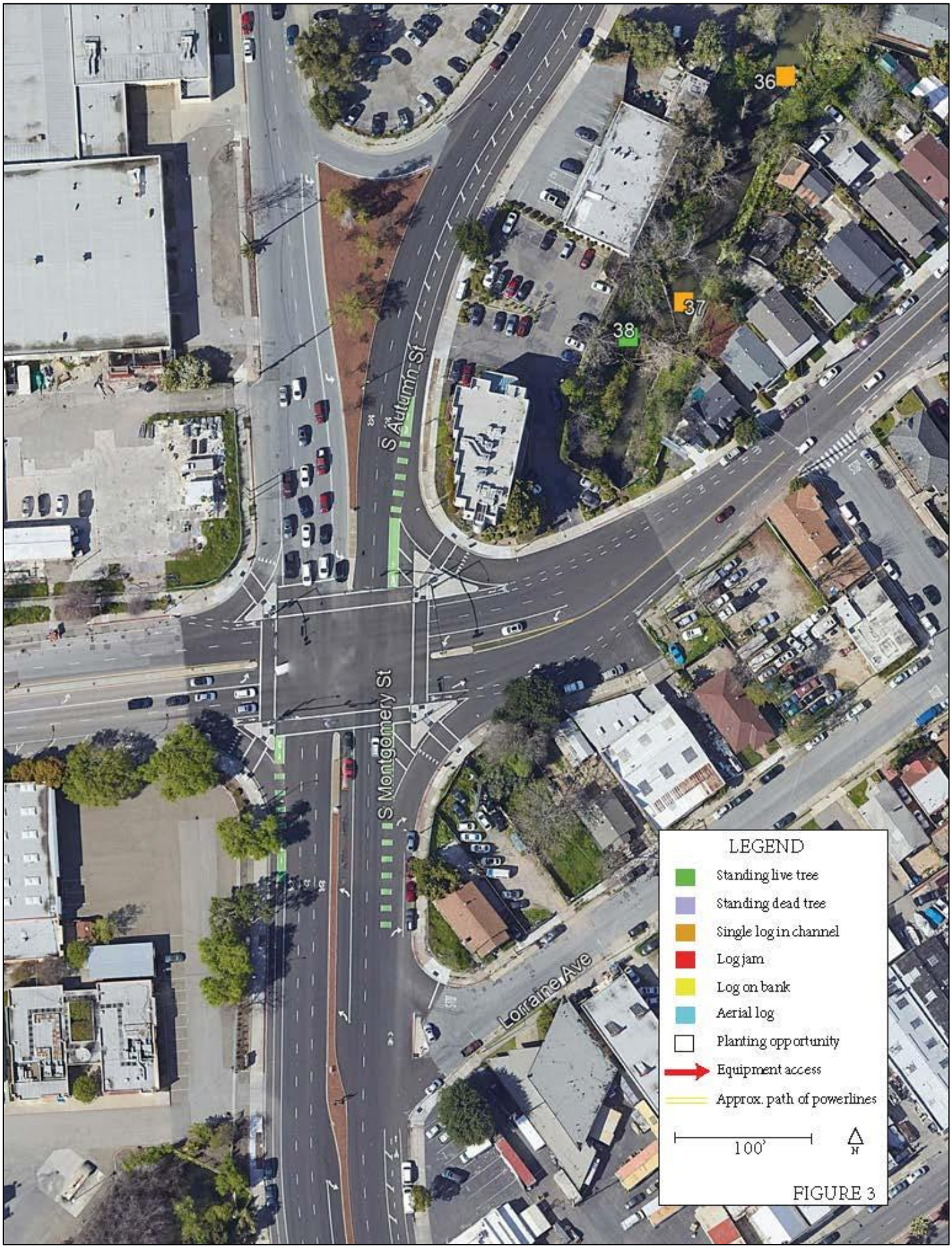
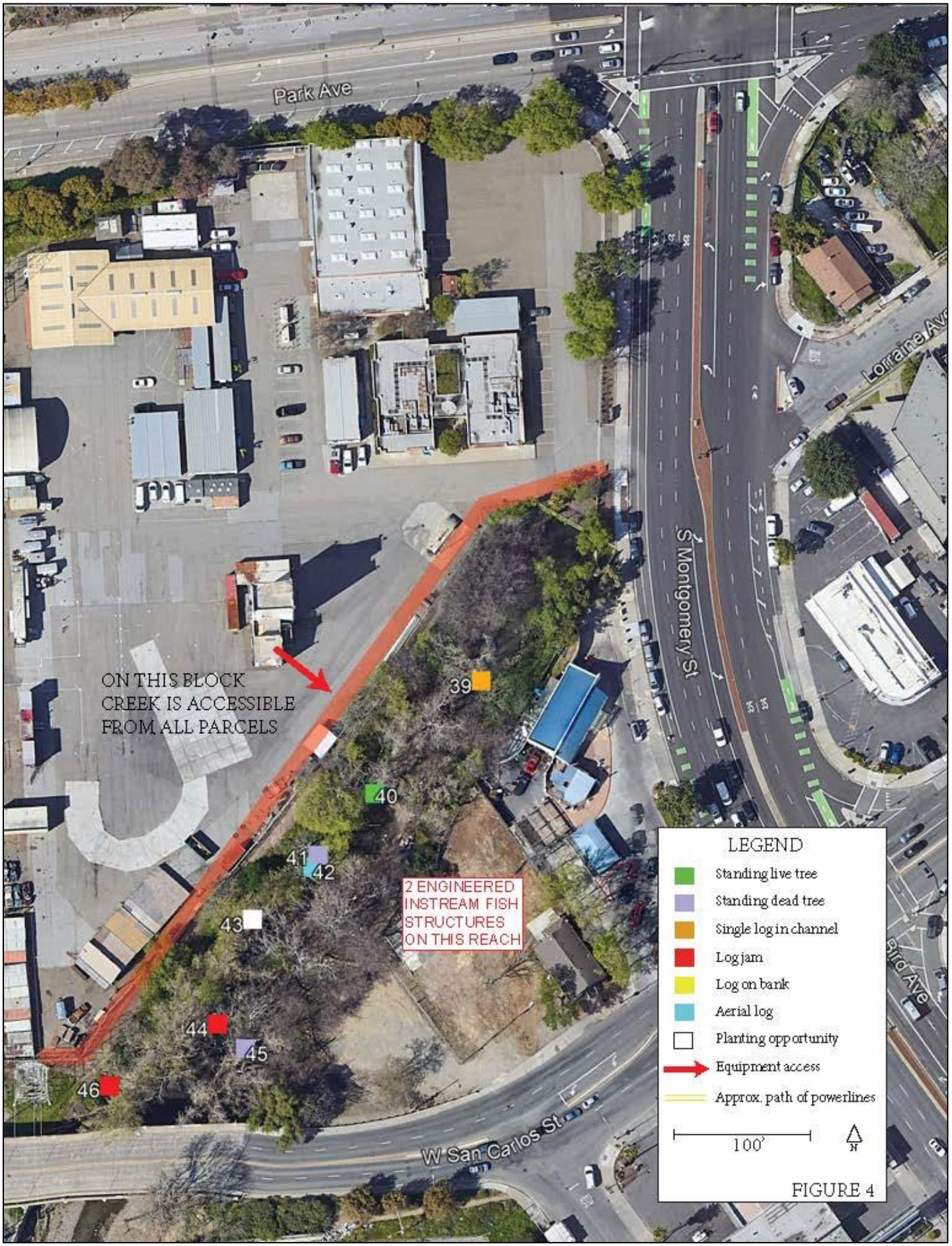

36
37
38
S Autumn St
S Montgomery St
Lorraine Ave
LEGEND
Standing live tree
Standing dead tree
Single log in channel
Log jam
Log on bank
Aerial log
Planting opportunity
Equipment access
Approx. path of powerlines
100'
N

FIGURE 3


Park Ave
Lorraine Ave
S Montgomery St
Bird Ave
W San Carlos St
ON THIS BLOCK
CREEK IS ACCESSIBLE
FROM ALL PARCELS
2 ENGINEERED
INSTREAM FISH
STRUCTURES
ON THIS REACH
39
40
41
42
43
44
45
46
LEGEND
Standing live tree
Standing dead tree
Single log in channel
Log jam
Log on bank
Aerial log
Planting opportunity
Equipment access
Approx. path of powerlines
100'
N
FIGURE 4