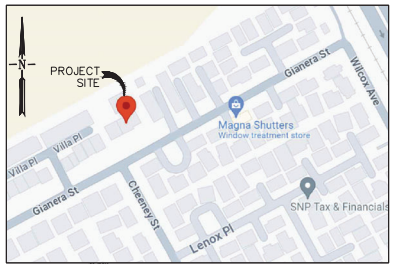
TENTATIVE TRACT MAP

2303 GIANERA STREET
SANTA CLARA, SANTA CLARA COUNTY, CALIFORNIA



LOCATION MAP
SCALE: 1" = 500'

BENCHMARK

VERTICAL DATUM: NAVD 88. ELEVATION WAS ESTABLISHED WITH GNSS OBSERVATION.

BASIS OF BEARINGS

THE BEARING N61°40'00"E BETWEEN FOUND MONUMENTS ON GIANERA STREET AS SHOWN ON 682 MAPS 23 AND 833 MAPS 47 WAS USED AS BASIS OF BEARING.

NOTE:

ALL DISTANCES AND DIMENSIONS SHOWN ARE IN FEET AND DECIMALS THEREOF UNLESS OTHERWISE NOTED.

UTILITY NOTE

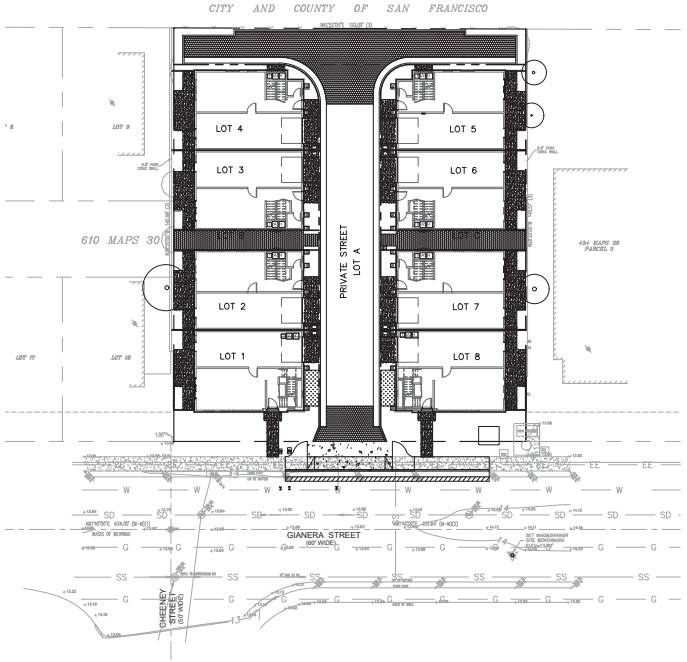
THE SURFACE UTILITIES SHOWN ON THIS DRAWING HAVE BEEN LOCATED BY FIELD SURVEY. THE UNDERGROUND UTILITIES SHOWN HAVE BEEN COMPILED FROM RECORDS OF THE VARIOUS AGENCIES. THE SURVEYOR ASSUMES NO RESPONSIBILITY FOR THEIR INDICATED LOCATION, SIZE, OR TYPE. RECORD UTILITY INFORMATION SHOULD BE CONFIRMED BY EXPOSING THE UTILITY.

LEGEND

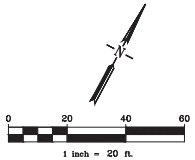
PROPOSED	DESCRIPTION	EXISTING
	TRACT / LOT BOUNDARY	
	LOT LINE	
	CENTER LINE	
	EASEMENT LINE	
	STORM DRAIN	
SS	SANITARY SEWER	SS
W	WATER	W
	CURB & GUTTER	EX C/G
	SIDEWALK	
	RETAINING WALL	
■	STORM WATER INLET	□
■	FIELD INLET	□
▶	DIRECTION OF FLOW	▷
●	MANHOLE	○
▲	FIRE HYDRANT	
●	BLOW OFF	
⋈	WATER VALVE	
	STREET LIGHT	
	FENCE	x x
	CONTOUR ELEVATIONS	130
x 525.2	SPOT ELEVATION	+525.2

ABBREVIATION

AB	AGGREGATE BASE
AC	ASPHALT CONCRETE
AD	AREA DRAIN
BW	BOTTOM OF WALL
CL	CENTER LINE
EX	EXISTING
FC	FACE OF CURB
FF	FINISHED FLOOR
FG	FINISHED GRADE
FL	FLOW LINE
GE	GARAGE ELEVATION
GB	GRADE BREAK
HP	HIGH POINT
INV	INVERT ELEVATION
P	PAD ELEVATION
PAE	PRIVATE ACCESS EASEMENT
PPAE	PRIVATE PEDESTRIAN ACCESS EASEMENT
PSDRE	PRIVATE STORM DRAIN RELEASE EASEMENT
PSE	PUBLIC SERVICE EASEMENT
PUE	PUBLIC UTILITY EASEMENT
R/W	RIGHT OF WAY
RYE	RECIPROCAL YARD EASEMENT
SWK	SIDEWALK
SDE	STORM DRAIN EASEMENT
SSE	SANITARY SEWER EASEMENT
TC	TOP OF CURB
TYP	TYPICAL
TW	TOP OF WALL
WLE	WATER LINE EASEMENT



SITE PLAN



PROJECT DATA

1.	OWNER:	GIANERAL ST ESTATE LLC 1885 LUNDY AVE, SUITE 200 SAN JOSE, CA CONTACT: V.C.I. ARCHITECTURE PHONE: 650 210 8800
2.	SUBDIVIDER:	GIANERAL ST ESTATE LLC 1885 LUNDY AVE, SUITE 200 SAN JOSE, CA CONTACT: V.C.I. ARCHITECTURE PHONE: 650 210 8800
3.	CIVIL ENGINEER:	ZEM ENGINEERS INC. 39116 FREMONT HUB #1045 FREMONT CA 94538 510-513-7795 CONTACT: SIMON ZHANG
4.	ASSESSOR'S PARCEL NUMBERS:	104-06-037
5.	PROPERTY DESCRIPTION:	ALL OF PARCEL 2, AS SHOWN ON THAT CERTAIN MAP ENTITLED, "PARCEL MAP OF A RESUBDIVISION OF PARCEL B, SHOWN UPON THE PARCEL MAP FILED IN BOOK 424 OF MAPS, PAGES 21 AND 22", WHICH MAP WAS FILED FOR RECORD IN THE OFFICE OF THE RECORDER OF THE COUNTY OF THE SANTA CLARA, STATE OF CALIFORNIA ON JANUARY 18, 1979, IN BOOK 434 OF MAPS, PAGE(S) 29.
6.	EXISTING USE:	RESIDENTIAL
7.	PROPOSED USE:	RESIDENTIAL
8.	EXISTING ZONING:	PD APPROVED IN 2007 FOR R3-18D
9.	GENERAL PLAN LAND USE	RESIDENTIAL NEIGHBORHOOD
10.	PROPOSED ZONING:	PLANNED DEVELOPMENT
11.	GROSS AREA:	0.388± ACRES
12.	NET AREA:	0.388± ACRES
13.	TOTAL NUMBER OF EXISTING UNITS	1 RESIDENTIAL UNIT
14.	TOTAL NUMBER OF PROPOSED LOTS	11 LOT (8 SINGLE-FAMILY LOTS & 3 HOA LOT)
15.	TOTAL NUMBER OF PROPOSED UNITS:	8 SINGLE FAMILY HOMES
16.	UTILITIES a. WATER: b. SANITARY SEWER: c. STORM DRAIN: d. GAS AND ELECTRIC: e. TELEPHONE: f. CABLE TV:	 CITY OF SANTA CLARA CITY OF SANTA CLARA CITY OF SANTA CLARA PACIFIC GAS AND ELECTRIC AT&T COMCAST
15.	TOPOGRAPHIC INFORMATION SHOWN IS BASED ON FIELD SURVEY BY ZHEN'S LAND SURVEYING CORP. IN OCTOBER 2022.	
16.	FLOOD ZONE: THE PROPERTY IS WITHIN ZONE X (AREAS WITH REDUCED FLOOD RISK DUE TO LEVEE) PER FLOOD INSURANCE RATE MAP, COMMUNITY PANEL NUMBER, 06085C0064H, DATED MAY 18, 2009.	

SHEET INDEX

REV	DATE	DESCRIPTION
	11/29/2023	SUBMITTAL
	01/30/2024	SUBMITTAL
	03/28/2024	SUBMITTAL

ZEM ENGINEERS INC.
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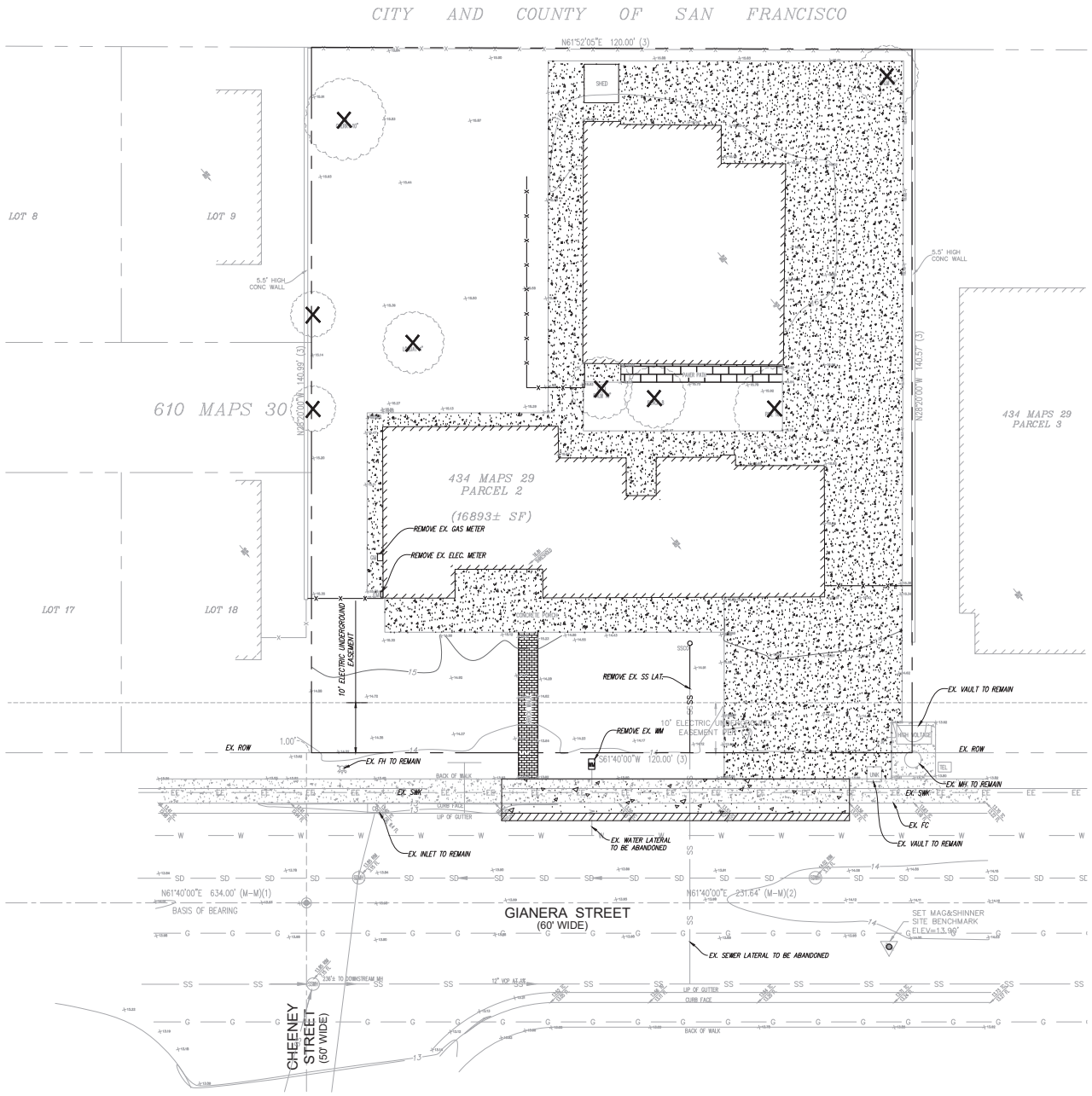
REGISTERED PROFESSIONAL ENGINEER
SIMON ZHANG
No. 76988
CIVIL
STATE OF CALIFORNIA

TENTATIVE TRACT MAP
TITLE SHEET

2303 GIANERA STREET
SANTA CLARA, CA 95054

Date	03/28/2024
Scale	AS SHOWN
Drawn	JH
Job	C22.00.39
Sheet	TM - 01

1 OF 8



LEGEND

- REMOVE EX. STRUCTURES
- REMOVE EX. SIDEWALK, C&G
- REMOVE EX. ON-SITE PAVER
- REMOVE EX. ON-OITE CONCRETE PAVEMENT
- EX. SIDEWALK TO REMAIN
- SAWCUT
- REMOVE EX. TREE
- REMOVE EX. FENCE

0 10 20 30

1 inch = 10 ft.

REV	DATE	DESCRIPTION
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	01/30/2024	SUBMITTAL
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XI ZHANG
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STATE OF CALIFORNIA

TENTATIVE TRACT MAP
EXISTING CONDITION & DEMOLITION PLAN

2303 GIANERA STREET
SANTA CLARA, CA 95054

Date	03/28/2024
Scale	AS SHOWN
Drawn	JH
Job	C22.00.39

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TM - 02
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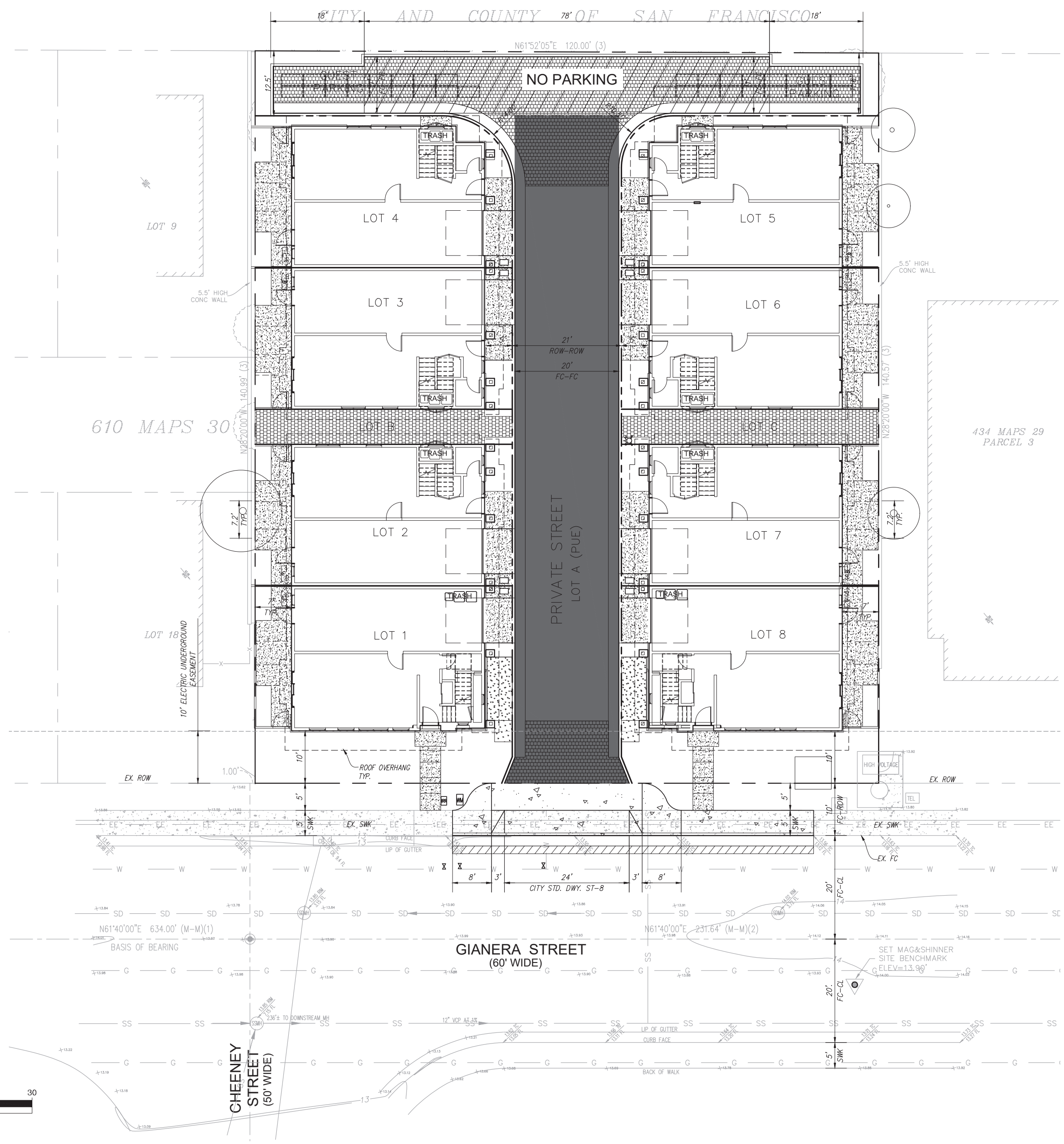
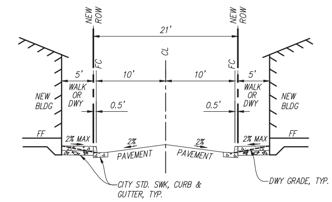
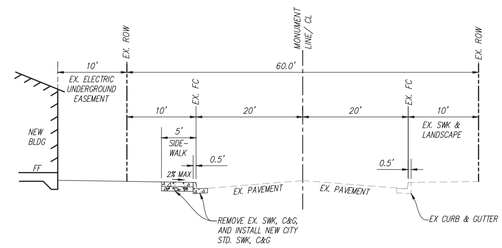




TYPICAL PRIVATE STREET SECTION
WITH WALK / DWY
N.T.S.



TYPICAL GIANERA STREET SECTION
N.T.S.

LEGEND

(dark fill)	NEW EVAE FOR FIRE ACCESS
(stippled)	NEW CITY STD. CONC. DRIVEWAY & SIDEWALK
(light stipple)	EX. CONC. CURB AND SIDEWALK
(hatched)	SAW CUT AND CONFIRM
(dotted)	STORM WATER TREATMENT AREA
(speckled)	FIRE LADDER PAD

REV DATE	DESCRIPTION
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01/30/2024	SUBMITTAL
03/28/2024	SUBMITTAL

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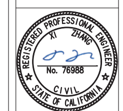
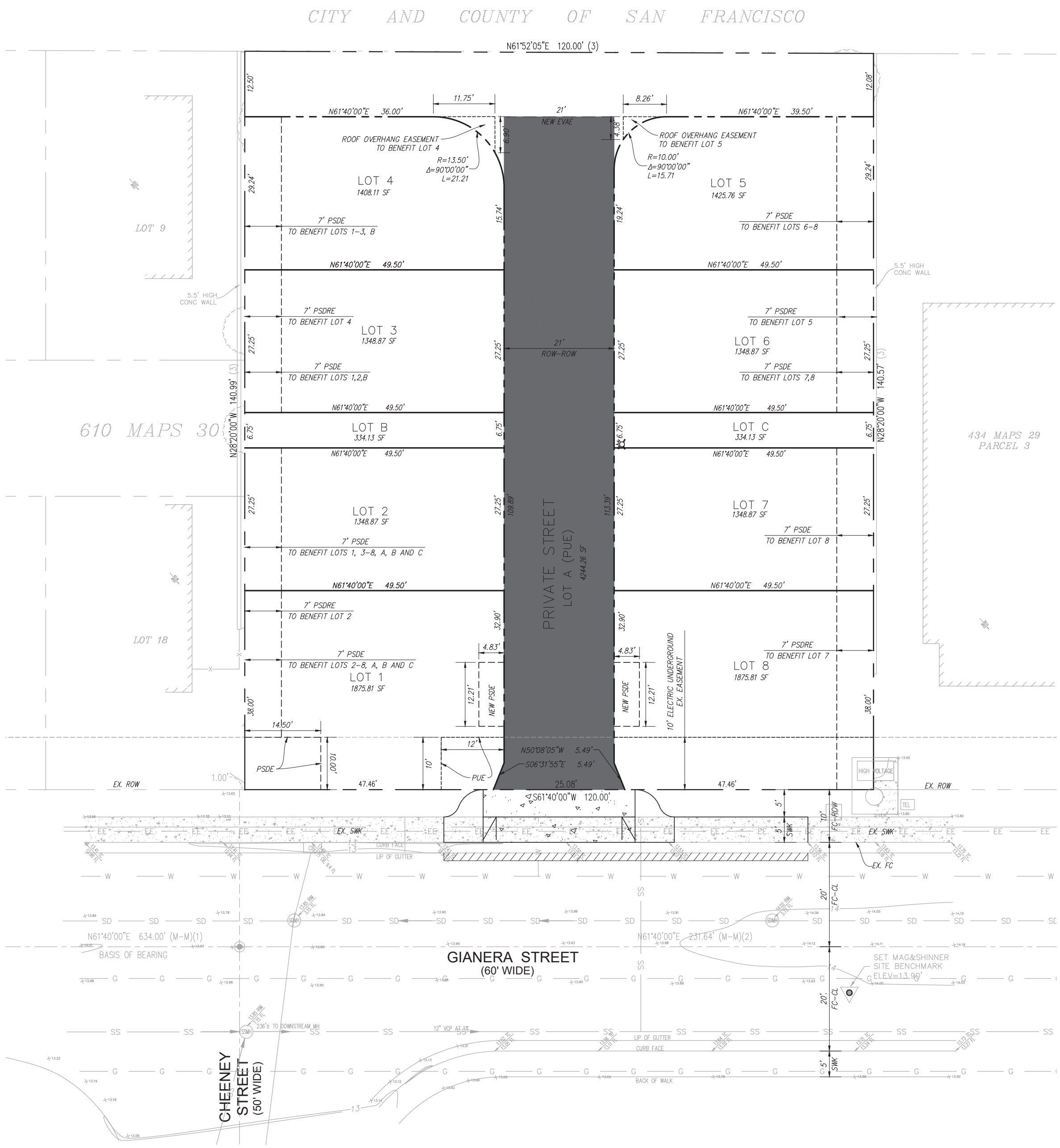


TENTATIVE TRACT MAP
SITE PLAN

2303 GIANERA STREET
SANTA CLARA, CA 95054

Date	03/28/2024
Scale	AS SHOWN
Drawn	JH
Job	C22.00.39
Sheet	TM - 03



LEGEND

(dark fill)	NEW EVAE AREA
(solid line)	NEW INTERIOR LOT LINE
(long dash line)	SUBDIVISION BOUNDARY LINE
(dash-dot line)	NEW PRIVATE STREET ROW
(short dash line)	NEW PRIVATE EASEMENT, SEE PLAN FOR TYPES
(dash line)	NEW EVAE
(light dash line)	EX. EASEMENT
EVAE	EMERGENCY VEHICLE ACCESS EASEMENT
PSDE	PRIVATE STORM DRAIN EASEMENT
PSDRE	PRIVATE STORM DRAIN OVERLAND RELEASE EASEMENT
PUE	PRIVATE UTILITY EASEMENT FOR WATER, SEWER, STORM DRAIN, AND JT

0 10 20 30
1 inch = 10 ft.

REV	DATE	DESCRIPTION
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	01/30/2024	SUBMITTAL
	03/28/2024	SUBMITTAL

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REGISTERED PROFESSIONAL ENGINEER
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CIVIL
STATE OF CALIFORNIA

TENTATIVE TRACT MAP
LOTTING PLAN

2303 GIANERA STREET
SANTA CLARA, CA 95054

Date 03/28/2024
Scale AS SHOWN
Drawn JH
Job C22.00.39
Sheet

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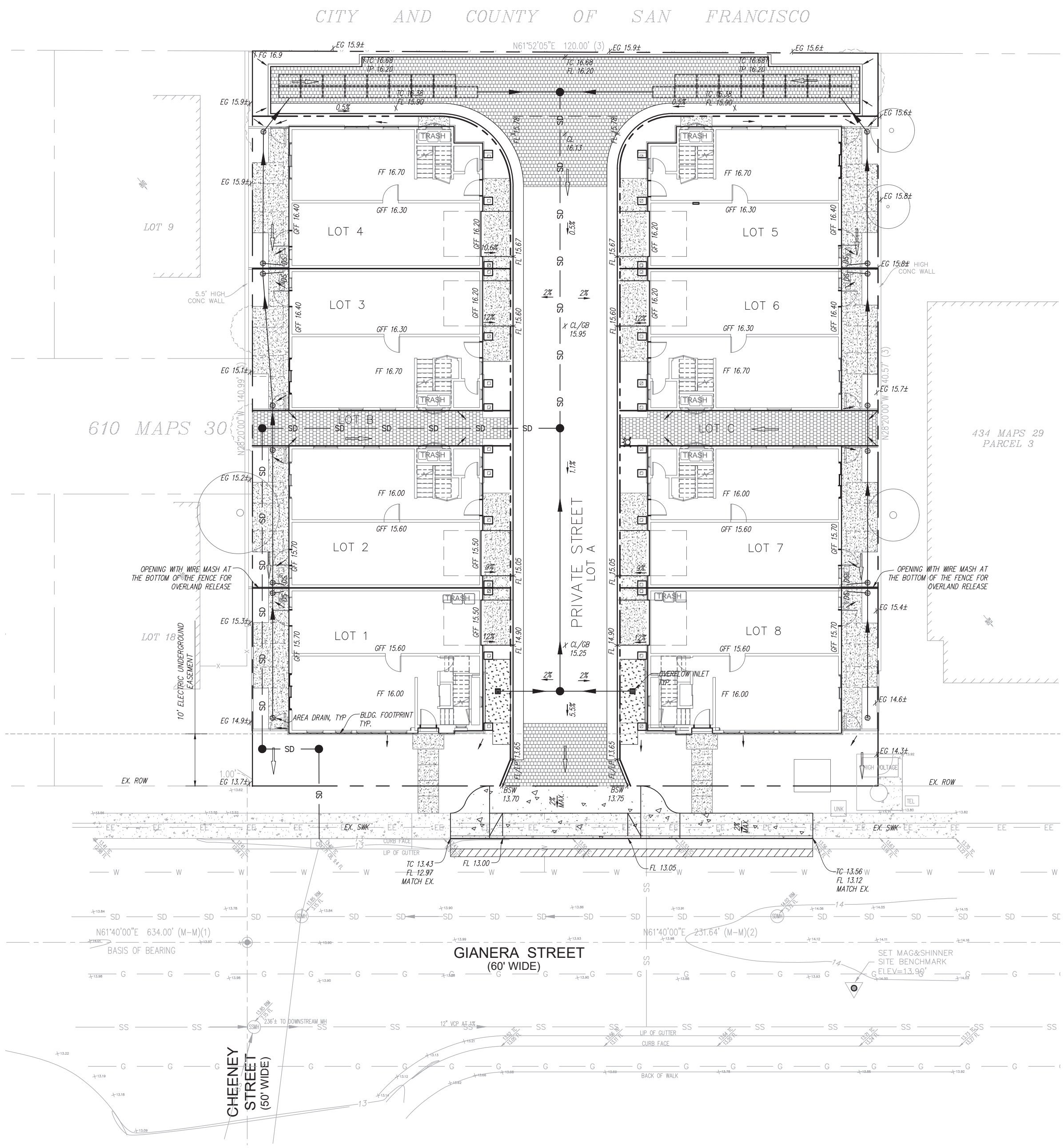
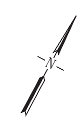


LEGEND

- NEW CITY STD. CONC. DRIVEWAY & SIDEWALK
- EX. CONC. CURB AND SIDEWALK
- SAW CUT AND CONFIRM
- STORM WATER TREATMENT AREA
- DRAINAGE PATTERN
- X% GRADING SLOPE
- OVERLAND RELEASE



0 10 20 30

1 inch = 10 ft.

REV	DATE	DESCRIPTION
	11/29/2023	SUBMITTAL
	01/30/2024	SUBMITTAL
	03/28/2024	SUBMITTAL

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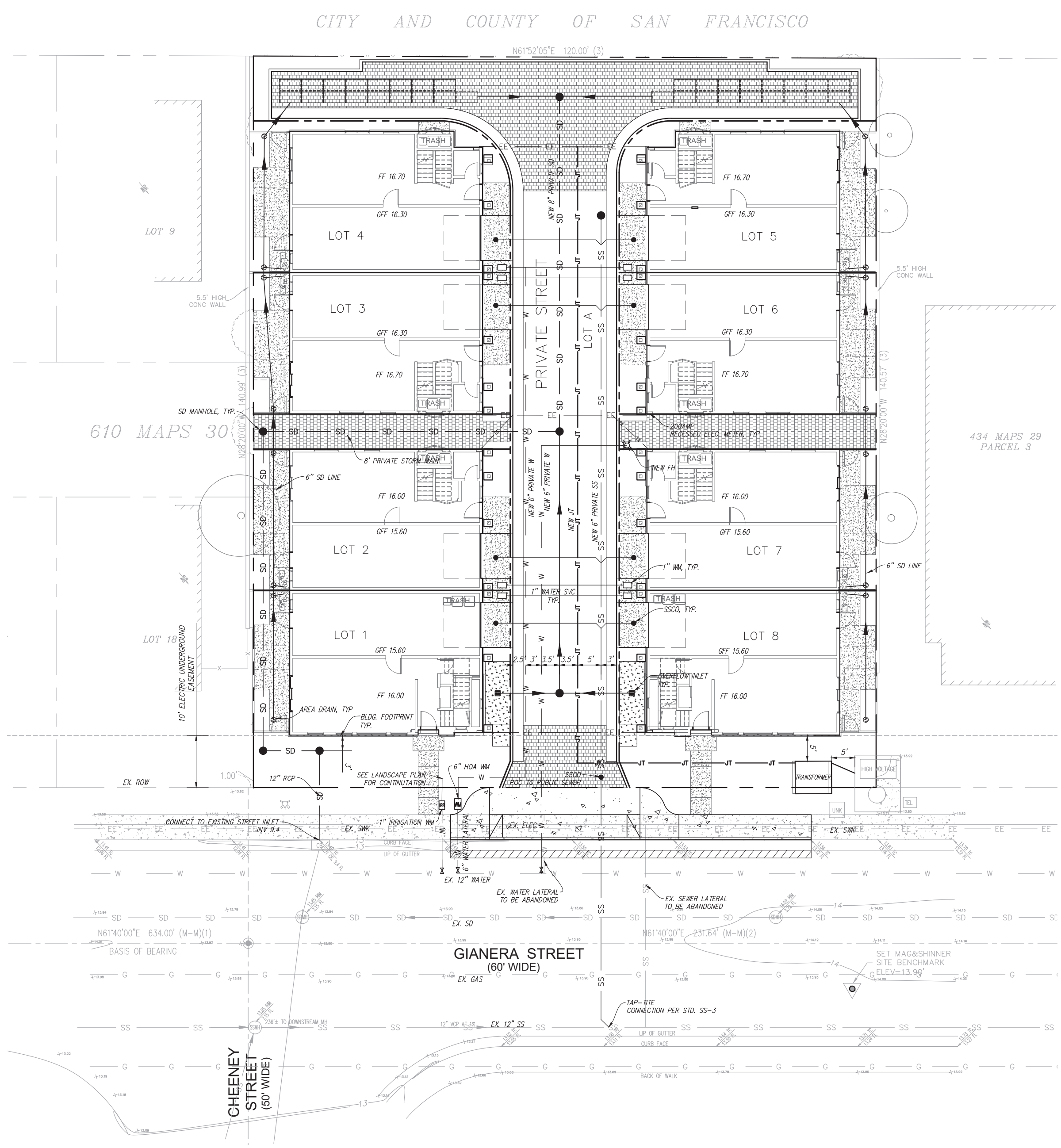
REGISTERED PROFESSIONAL ENGINEER XI ZHANG No. 76988 CIVIL STATE OF CALIFORNIA

TENTATIVE TRACT MAP
PRELIMINARY GRADING AND DRAINAGE PLAN

2303 GIANERA STREET
SANTA CLARA, CA 95054

Date 03/28/2024
Scale AS SHOWN
Drawn JH
Job C22.00.39
Sheet

TM - 05



LEGEND

- NEW CITY STD. CONC. DRIVEWAY & SIDEWALK
- EX. CONC. CURB AND SIDEWALK
- SAW CUT AND CONFIRM
- STORM WATER TREATMENT AREA

NOTE

1. UTILITY SIZING ARE PRELIMINARY AND WILL BE STUDIED LATER
2. JT LAYOUT BY JT CONSULTANT

UTILITY SUMMARY TABLE			
TYPE	DESCRIPTION	EXIST OR NEW	SIZE
WATER	LATERAL	EXISTING TO BE ABANDONED	UNKNOWN
WATER	PRIVATE MAIN	NEW	6"
WATER	SERVICE LINE	NEW	1"
STORM DRAIN	PRIVATE MAIN	NEW	8"
STORM DRAIN	PRIVATE SD	NEW	6"
SEWER	LATERAL	EXISTING TO BE ABANDONED	6"
SEWER	PRIVATE SS	NEW	6"

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STATE OF CALIFORNIA

TENTATIVE TRACT MAP
PRELIMINARY COMPOSITE UTILITY PLAN

2303 GIANERA STREET
SANTA CLARA, CA 95054

Date 03/28/2024
Scale AS SHOWN
Drawn JH
Job C22.00.39
Sheet

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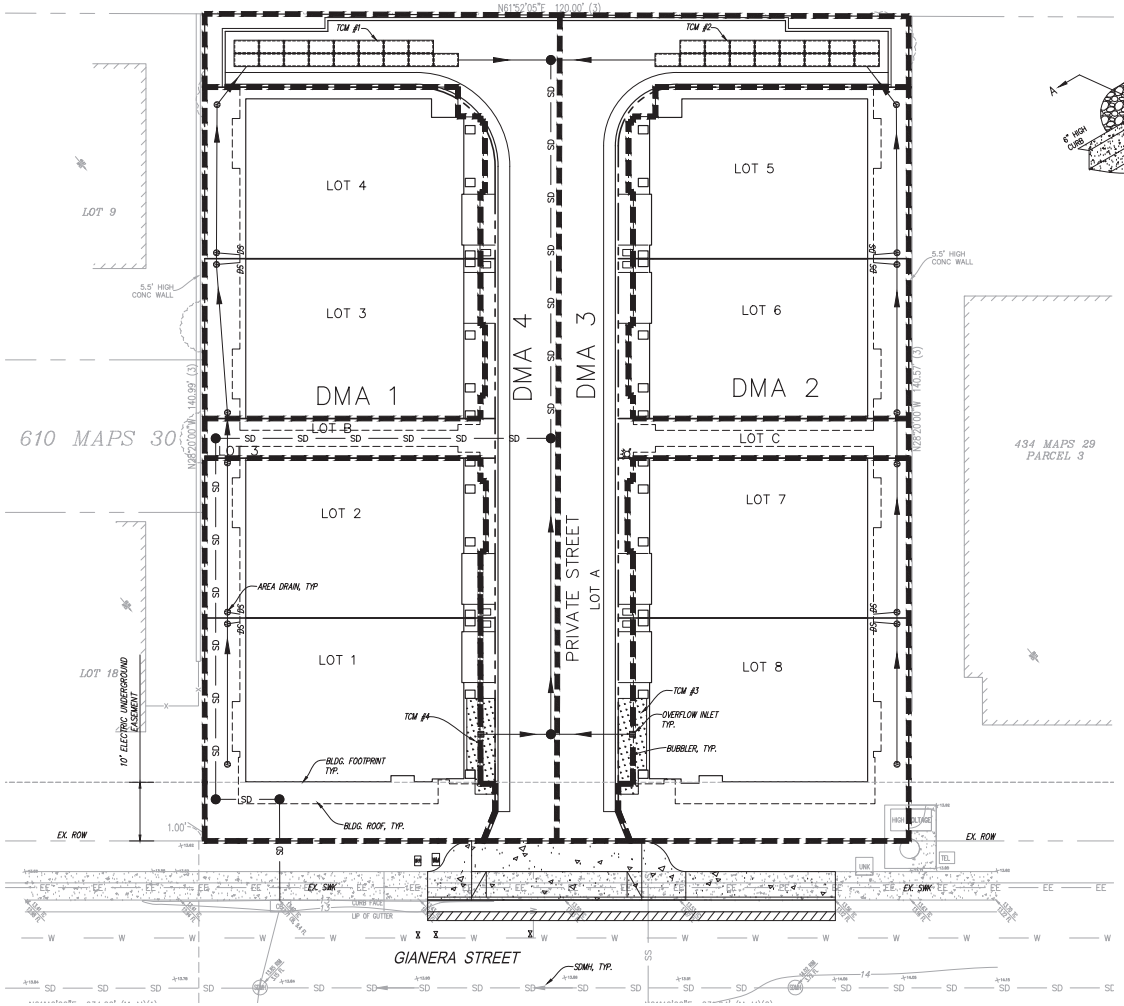
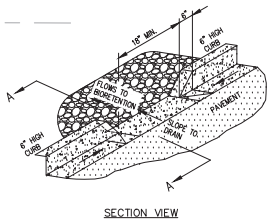
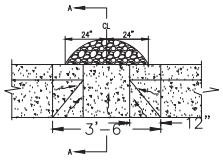
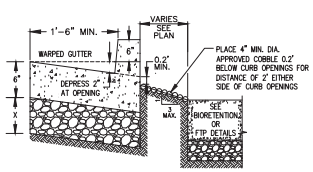




SECTION VIEW

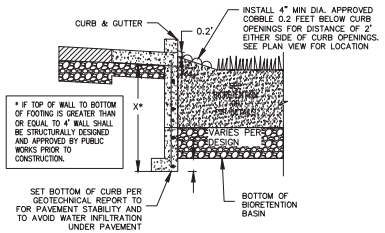


PLAN VIEW

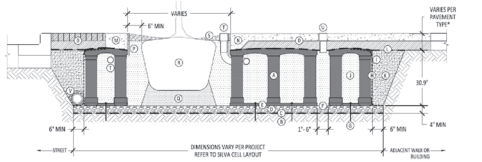


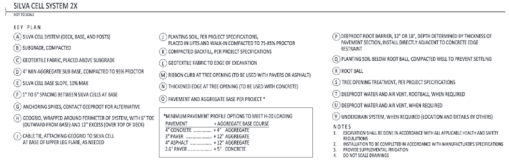
A–A

CURB OPENING
N.T.S.



CURB ADJACENT TO BIORETENTION
N.T.S.





TREATMENT CONTROL MEASURE SUMMARY TABLE

DMA #	TCM #	Location[1]	Treatment Type[2]	LID or Non-LID	Sizing Method	Drainage Area (s.f.)	Impervious Area[4] (s.f.)	Pervious Area (Permeable Pavement) (s.f.)	Pervious Area (Other) (s.f.)	% Onsite Area Treated by LID or Non-LID TCM	Bioretention			Media Filter					Comments
											Bioretention Area Required (s.f.)	Bioretention Area Provided (s.f.)	Overflow Riser Height (in)	# of Cartridges Required	# of Cartridges Provided	Media Type	Cartridge Height (inches)	Treatment Credit (s.f.)	
1	1	Onsite	Subsurface Infiltration System	LID	3. Flow-Volume Combo	6,086	5,040	_	1,047	36.03%	_	_	_	_	_	_	_	_	Silva Cells for the Subsurface Infiltration System
2	2	Onsite	Subsurface Infiltration System	LID	3. Flow-Volume Combo	6,086	5,040	_	1,047	36.03%	_	_	_	_	_	_	_	_	Silva Cells for the Subsurface Infiltration System
3	3	Onsite	Flow-Through planter (concrete lined) w/ underdrain	LID	3. Flow-Volume Combo	2,361	2,137		224	13.97%	_	70	5.0						
4	4	Onsite	Flow-Through planter (concrete lined) w/ underdrain	LID	3. Flow-Volume Combo	2,361	2,137	_	224	13.97%	_	70	5.0	_	_	_	_	_	
					Totals:	16,894	14,353	0	2,541	100.00%									

LEGEND

NEW ON-SITE CONC. PAVEMENT

NEW STORM WATER TREATMENT AREA

DMA BOUNDARY

SD — NEW X" SDR-35 PVC. WITH A PIPE SLOPE OF 0.5% MIN., UNLESS NOTED.

DS NEW RAINWATER DOWNSPOUTS SEE ARCH. PLANS

0 10 20 30

1 inch = 10 ft.

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CIVIL
STATE OF CALIFORNIA

TENTATIVE TRACT MAP
STORMWATER CONTROL PLAN

2303 GIANERA STREET
SANTA CLARA, CA 95054

Date 03/28/2024
Scale AS SHOWN
Drawn JH
Job C22.00.39

Sheet
TM - 07
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SIZING FOR VOLUME BASED TREATMENT

DMA # 1
A= 6086.42 s.f.
Impervious Area = 5309.54 s.f. % Imperviousness= 87.24%

MAPsite = 15 Correction Factor= 1.0791
MAPgage = 13.9
Clay (D): Sandy Clay (D): Clay Loam (D):

Silt Loam/Loam (B): X Not Applicable (100% Impervious): X

Are the soils outside the building footprint graded/compacted? yes Yes/No

If yes, and the soil will be compacted during site preparation and grading, the soil infiltration rate will be decreased. Modify your answer to a soil with a lower infiltration rate (eg. Silt Loam to Clay)
Modified Soil Type: Silt Loam to Clay

S= 1.00%
UBS Volume for 1% Slope (UBS1%) = 0.50890366 inches (Use Figure B-2)
UBS Volume for 15% Slope (UBS15%) = 0.52520206 inches (Use Figure B-5)

UBS Volume for X% Slope (UBSX%) = 0.50890366 inches (Corrected Slope for the site)
Adjusted UBS = Correction Factor (Step 2) x UBSx% (Step 5)

Adjusted UBS = 0.5491766 inches
Design Volume = Adjusted UBS (Step 6) x Drainage Area (Step 1) x 1ft/12 inch

Design Volume = 278.54 ft^3

COMBO FLOW & VOLUME BIORETENTION CALCULATION

Total Drainage Area = 6,086 sq. ft
Impervious Area = 5,310 sq. ft
Pervious Area = 777 sq. ft
Equivalent Impervious Area = 78 sq. ft Total Equivalent Impervious = 5,387 sq. ft
Rainfall Intensity = 0.2 in/hr
Duration = Adjusted UBS (Step 6) / Rainfall Intensity
Duration = 2.7458831 hrs

Estimate the Surface Area = 154 sq. ft (Typically start with Total Impervious x 0.03)
Volume of Treated Runoff = 176.19416 cu. ft
Volume in Ponding Area = 102.34913 cu. ft
Depth of Ponding = 0.6646047 ft Depth of Ponding = 8 inches (Round up)

If Depth of Ponding is less than 6" the design can be optimized with a smaller surface area. (repeat)
If Depth of Ponding is greater than 12" a larger surface area will be required. (repeat)
If Depth of Ponding is between 6" to 12" this is the range allowable for Bioretention or Flow-Through Planters.

SIZING FOR VOLUME BASED TREATMENT

DMA # 2
A= 6086.42 s.f.
Impervious Area = 5309.54 s.f. % Imperviousness= 87.24%

MAPsite = 15 Correction Factor= 1.0791
MAPgage = 13.9
Clay (D): Sandy Clay (D): Clay Loam (D):

Silt Loam/Loam (B): X Not Applicable (100% Impervious): X

Are the soils outside the building footprint graded/compacted? yes Yes/No

If yes, and the soil will be compacted during site preparation and grading, the soil infiltration rate will be decreased. Modify your answer to a soil with a lower infiltration rate (eg. Silt Loam to Clay)
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Impervious Area = 5,310 sq. ft
Pervious Area = 777 sq. ft
Equivalent Impervious Area = 78 sq. ft Total Equivalent Impervious = 5,387 sq. ft
Rainfall Intensity = 0.2 in/hr
Duration = Adjusted UBS (Step 6) / Rainfall Intensity
Duration = 2.7458831 hrs

Estimate the Surface Area = 154 sq. ft (Typically start with Total Impervious x 0.03)
Volume of Treated Runoff = 176.19416 cu. ft
Volume in Ponding Area = 102.34913 cu. ft
Depth of Ponding = 0.6646047 ft Depth of Ponding = 8 inches (Round up)

If Depth of Ponding is less than 6" the design can be optimized with a smaller surface area. (repeat)
If Depth of Ponding is greater than 12" a larger surface area will be required. (repeat)
If Depth of Ponding is between 6" to 12" this is the range allowable for Bioretention or Flow-Through Planters.

SIZING FOR VOLUME BASED TREATMENT

DMA # 3
A= 2360.5 s.f.
Impervious Area = 2137 s.f. % Imperviousness= 90.53%

MAPsite = 15 Correction Factor= 1.07914
MAPgage = 13.9
Clay (D): Sandy Clay (D): Clay Loam (D):

Silt Loam/Loam (B): X Not Applicable (100% Impervious): X

Are the soils outside the building footprint graded/compacted? yes Yes/No

If yes, and the soil will be compacted during site preparation and grading, the soil infiltration rate will be decreased. Modify your answer to a soil with a lower infiltration rate (eg. Silt Loam to Clay)
Modified Soil Type: Silt Loam to Clay

S= 1.00%
UBS Volume for 1% Slope (UBS1%) = 0.52726139 inches (Use Figure B-2)
UBS Volume for 15% Slope (UBS15%) = 0.54451557 inches (Use Figure B-5)

UBS Volume for X% Slope (UBSX%) = 0.52726139 inches (Corrected Slope for the site)
Adjusted UBS = Correction Factor (Step 2) x UBSx% (Step 5)

Adjusted UBS = 0.56898711 inches
Design Volume = Adjusted UBS (Step 6) x Drainage Area (Step 1) x 1ft/12 inch

Design Volume = 111.92 ft^3

COMBO FLOW & VOLUME BIORETENTION CALCULATION

Total Drainage Area = 2,361 sq. ft
Impervious Area = 2,137 sq. ft
Pervious Area = 224 sq. ft
Equivalent Impervious Area = 22 sq. ft Total Equivalent Impervious = 2,159 sq. ft
Rainfall Intensity = 0.2 in/hr
Duration = Adjusted UBS (Step 6) / Rainfall Intensity
Duration = 2.84493553 hrs

Estimate the Surface Area = 70 sq. ft (Typically start with Total Impervious x 0.03)
Volume of Treated Runoff = 82.9772864 cu. ft
Volume in Ponding Area = 28.947219 cu. ft
Depth of Ponding = 0.4135317 ft Depth of Ponding = 5 inches (Round up)

If Depth of Ponding is less than 6" the design can be optimized with a smaller surface area. (repeat)
If Depth of Ponding is greater than 12" a larger surface area will be required. (repeat)
If Depth of Ponding is between 6" to 12" this is the range allowable for Bioretention or Flow-Through Planters.

SIZING FOR VOLUME BASED TREATMENT

DMA # 4
A= 2360.5 s.f.
Impervious Area = 2137 s.f. % Imperviousness= 90.53%

MAPsite = 15 Correction Factor= 1.07914
MAPgage = 13.9
Clay (D): Sandy Clay (D): Clay Loam (D):

Silt Loam/Loam (B): X Not Applicable (100% Impervious): X

Are the soils outside the building footprint graded/compacted? yes Yes/No

If yes, and the soil will be compacted during site preparation and grading, the soil infiltration rate will be decreased. Modify your answer to a soil with a lower infiltration rate (eg. Silt Loam to Clay)
Modified Soil Type: Silt Loam to Clay

S= 1.00%
UBS Volume for 1% Slope (UBS1%) = 0.52726139 inches (Use Figure B-2)
UBS Volume for 15% Slope (UBS15%) = 0.54451557 inches (Use Figure B-5)

UBS Volume for X% Slope (UBSX%) = 0.52726139 inches (Corrected Slope for the site)
Adjusted UBS = Correction Factor (Step 2) x UBSx% (Step 5)

Adjusted UBS = 0.56898711 inches
Design Volume = Adjusted UBS (Step 6) x Drainage Area (Step 1) x 1ft/12 inch

Design Volume = 111.92 ft^3

COMBO FLOW & VOLUME BIORETENTION CALCULATION

Total Drainage Area = 2,361 sq. ft
Impervious Area = 2,137 sq. ft
Pervious Area = 224 sq. ft
Equivalent Impervious Area = 22 sq. ft Total Equivalent Impervious = 2,159 sq. ft
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Duration = Adjusted UBS (Step 6) / Rainfall Intensity
Duration = 2.84493553 hrs

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Volume in Ponding Area = 28.947219 cu. ft
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If Depth of Ponding is less than 6" the design can be optimized with a smaller surface area. (repeat)
If Depth of Ponding is greater than 12" a larger surface area will be required. (repeat)
If Depth of Ponding is between 6" to 12" this is the range allowable for Bioretention or Flow-Through Planters.

deeproot

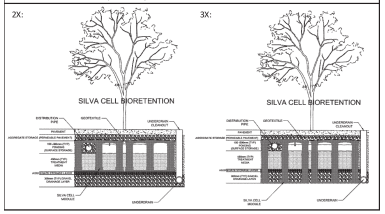
Silva Cell® Stormwater Design Tool

Only enter data in shaded cells
Outputs for design

Design Parameter	Input
Project name:	Gianera_DMA1
Project location & address:	2303 Gianera St
Purpose for Silva Cell design:	
Your name:	ZEM Engineers
Contact email:	

Design Parameter	Value	Notes
Drainage Area, DA (ac)	0.14	DA from project plans (1 ac is 43,560 ft²)
Treatment Volume, T_V (ft³)	176	T_V from stormwater calculations
Silva Cell Configuration	2X	Select one: 2X, 3X
Ponding / Surface Storage (in)	8	Select value between 0" to 12"
Treatment Media Depth (in)	23	Determined by SC configuration and surface storage
Permeable Paving Storage (in)	0	Min 0", Max. 12"
Aggregate Storage (in)	0	Min 0", Max. 12"
Gravel Drainage Layer Depth (in)	0	Minimum 0" depth

General section of Silva Cell® System designed for bioretention



Credits / Accountable in design	Value	Notes
Permeable Paving Storage	No	Select 'Yes' if layer is accepted as part of credit calculation
Aggregate Storage	No	Select 'Yes' if layer is accepted as part of credit calculation
Silva Cell Surface Storage	Yes	Select 'Yes' if layer is accepted as part of credit calculation
Filter Media	Yes	Select 'Yes' if layer is accepted as part of credit calculation
Gravel Drainage Layer	No	Select 'Yes' if layer is accepted as part of credit calculation

Void Ratios (V_R)	Value	Notes
Permeable Paving Storage	0.35	Typical value used - 0.35
Aggregate Storage	0.40	Typical value used - 0.40
Ponding / Surface Storage	0.92	See SC2 Tech Sheet for additional documentation
Treatment Media	0.25	Typical value used - 0.25
Gravel Drainage Layer	0.40	Typical value used - 0.40

Design Parameter	Value	
Design Storage Depth (in)	13.1	Surface Storage + Aggregate Storage
Design Surface Area, SA (ft²)	161	T_V / Design Storage Depth
Number of Silva Cell Units (ea)	17	Each SC unit = 9.5 ft2
SA/DA percentage	2.6%	Percentage area of Silva Cell (SA) to drainage area (DA)
Soil Volume (ft³)	309	Calculated from Surface Area and Filter Media Depth

deeproot

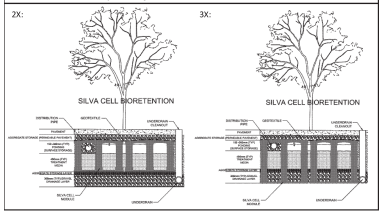
Silva Cell® Stormwater Design Tool

Only enter data in shaded cells
Outputs for design

Design Parameter	Input
Project name:	Gianera_DMA2
Project location & address:	2303 Gianera St
Purpose for Silva Cell design:	
Your name:	ZEM Engineers
Contact email:	

Design Parameter	Value	Notes
Drainage Area, DA (ac)	0.14	DA from project plans (1 ac is 43,560 ft²)
Treatment Volume, T_V (ft³)	176	T_V from stormwater calculations
Silva Cell Configuration	2X	Select one: 2X, 3X
Ponding / Surface Storage (in)	8	Select value between 0" to 12"
Treatment Media Depth (in)	23	Determined by SC configuration and surface storage
Permeable Paving Storage (in)	0	Min 0", Max. 12"
Aggregate Storage (in)	0	Min 0", Max. 12"
Gravel Drainage Layer Depth (in)	0	Minimum 0" depth

General section of Silva Cell® System designed for bioretention



Credits / Accountable in design	Value	Notes
Permeable Paving Storage	No	Select 'Yes' if layer is accepted as part of credit calculation
Aggregate Storage	No	Select 'Yes' if layer is accepted as part of credit calculation
Silva Cell Surface Storage	Yes	Select 'Yes' if layer is accepted as part of credit calculation
Filter Media	Yes	Select 'Yes' if layer is accepted as part of credit calculation
Gravel Drainage Layer	No	Select 'Yes' if layer is accepted as part of credit calculation

Void Ratios (V_R)	Value	Notes
Permeable Paving Storage	0.35	Typical value used - 0.35
Aggregate Storage	0.40	Typical value used - 0.40
Ponding / Surface Storage	0.92	See SC2 Tech Sheet for additional documentation
Treatment Media	0.25	Typical value used - 0.25
Gravel Drainage Layer	0.40	Typical value used - 0.40

Design Parameter	Value	
Design Storage Depth (in)	13.1	Surface Storage + Aggregate Storage
Design Surface Area, SA (ft²)	161	T_V / Design Storage Depth
Number of Silva Cell Units (ea)	17	Each SC unit = 9.5 ft2
SA/DA percentage	2.6%	Percentage area of Silva Cell (SA) to drainage area (DA)
Soil Volume (ft³)	309	Calculated from Surface Area and Filter Media Depth

REV	DATE	DESCRIPTION
	11/29/2023	SUBMITTAL
	01/30/2024	SUBMITTAL
	03/28/2024	SUBMITTAL

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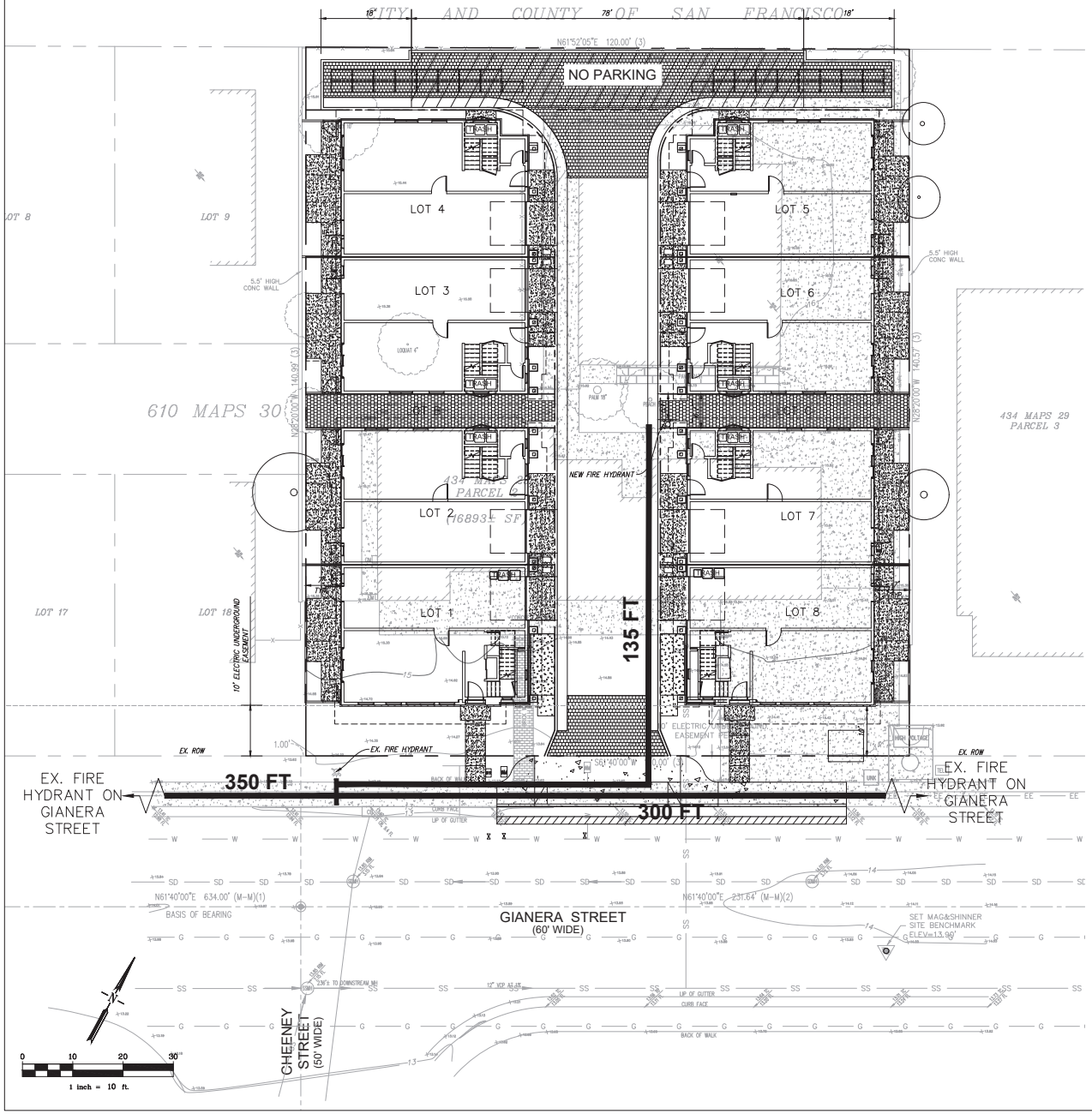
FREMONT, CA 94538
(510) 413-7785
ZEMENGINEERS.COM

REGISTERED PROFESSIONAL ENGINEER
JI JIANG
No. 76988
CIVIL
STATE OF CALIFORNIA

TENTATIVE TRACT MAP
STORMWATER CONTROL CALCULATIONS

2303 GIANERA STREET
SANTA CLARA, CA 95054

Date 03/28/2024
Scale AS SHOWN
Drawn JH
Job C22.00.39
Sheet
TM - 08
8 OF 8



FIRE FLOW/HYDRANT CALCULATION:

BUILDING TYPE: V-A RESIDENTIAL

NUMBER OF STORIES: 2

OCCUPANCY GROUP: R3

AUTOMATIC SPRINKLER SYSTEM: NFPA 13D (PER CFC 903.3.1.1)

TOTAL AREA OF LARGEST BUILDING (LOT 1 & 8): 4,987.5 SQFT

FIRE FLOW CALCULATIONS (PER CFC APPENDIX B):
PER TABLE B105.1(2) TYPE V-A 4,987.5 SQFT FIRE FLOW=1,500 GPM FOR 2 HOURS
HOUSE SPRINKLER SYSTEM NFPA 13D THEREFORE PER B105.1(1):
FIRE FLOW = 750 GPM FOR 1 HOUR

REQUIRED HYDRANTS (PER CFC APPENDIX C):
FIRE FLOW = 750 GPM

TABLE C102.1
REQUIRED NUMBER AND SPACING OF FIRE HYDRANTS

FIRE-FLOW REQUIREMENT (gpm)	MINIMUM NUMBER OF HYDRANTS	AVERAGE SPACING BETWEEN HYDRANTS[a, b, c, f, g] (feet)	MAXIMUM DISTANCE FROM ANY POINT ON STREET OR ROAD FRONTAGE TO A HYDRANT[d, f, g]
1,750 or less	1	500	250
2,000-2,250	2	450	225
2,500	3	450	225
3,000	3	400	225
3,500-4,000	4	350	210
4,500-5,000	5	300	180
5,500	6	300	180
6,000	6	250	150
6,500-7,000	7	250	150
7,500 or more	8 or more[e]	200	120

ONE (1) HYDRANT REQUIRED FOR 750 GPM FIRE FLOW FOR 1 HOUR WITH SPACING NOTED ABOVE IN TABLE C102.1

DESIGN CONCLUSIONS:

DISTANCE FROM EXISTING HYDRANT TO FURTHEST LOT'S FRONTAGE (LOT 4 AND 5)
= 185 FEET (MAX 250 FEET PER CFC)

DISTANCE BETWEEN FIRE HYDRANTS
= 350 FEET AND 300 FEET (MAX 500 FEET PER CFC)

REV	DATE	DESCRIPTION
	11/29/2023	SUBMITTAL
	01/30/2024	SUBMITTAL
	03/28/2024	SUBMITTAL

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STATE OF CALIFORNIA

TENTATIVE TRACT MAP
FIRE EXHIBIT

2303 GIANERA STREET
SANTA CLARA, CA 95054

Date	03/28/2024
Scale	AS SHOWN
Drawn	JH
Job	C22.00.39
Sheet	TM - 09