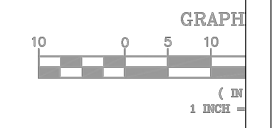


Figure 8 : Proposed Drainage Improvements

Project: 1155-1173 Hearst Avenue Project
 Date: 12/30/2015

LEGEND

A/C	ASPHA
BLDG.	BUILD
B.S.	BASE
B/W	BASE
C.O.	CLEAN
CONC.	CONCR
D/W	DRIVE
ELECT.	ELECT
E.M.	ELECT
E.P.	EDGE
F.F.	FINISH
F/L	FLOW
G.M.	GAS M
J.P.	JOINT
MT	METAL
OHW	OVERH
SS	SANITA
S/W	SIDEW
TOP	TOP C
TOP	TOP C
T.S.	TOP C
W.H.	WATER
W.M.	WATER
WT	WOOD
⊙	FOUND
—	WOOD



MORAN ENGI
 CIVIL ENGINEERS
 1930 SHATTUCK
 BERKELEY, CA
 (510)

Longitudinal Drainage Profile for Proposed Improvements - Transect A-A'

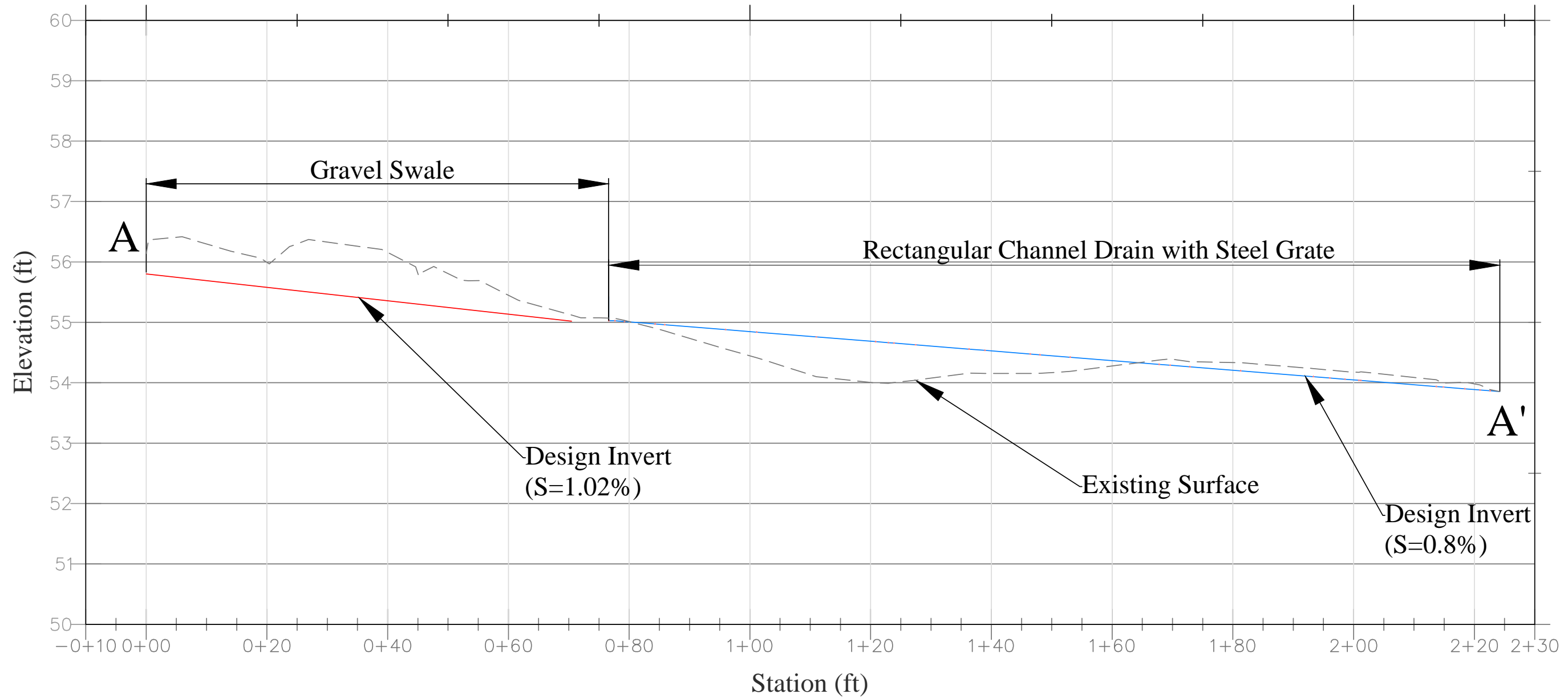


Figure 9 : Longitudinal Drainage Profile

Project: 1155-1173 Hearst Avenue Project
Date: 12/30/2015

Typical Drainage Channel Cross Sections

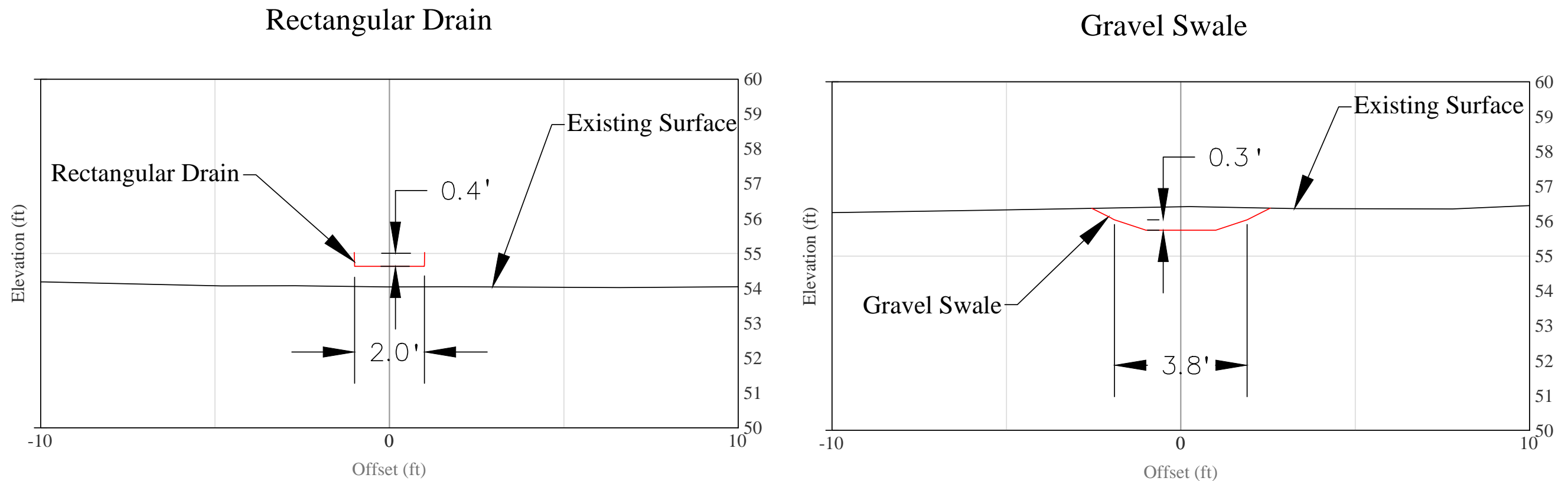
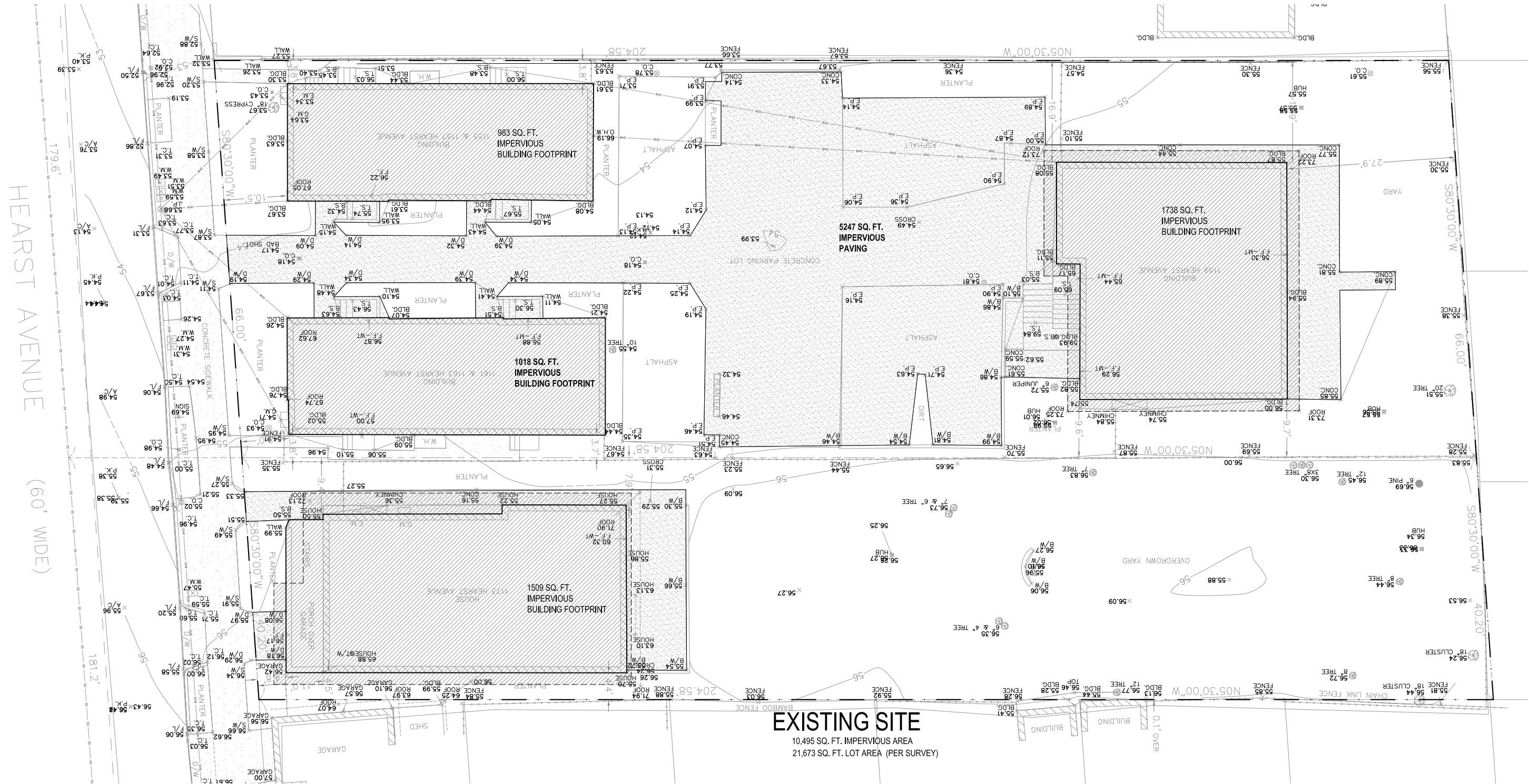


Figure 10 : Typical Cross Sections

Project: 1155-1173 Hearst Avenue Project
 Date: 12/30/2015

TECHNICAL APPENDIX:

- Existing and Project Plans with Topography
- Mean Annual Precipitation Map- Alameda County C3 Program
- Peak Discharge Computations- Hearst Ave. System
 - HEC-RAS Tabular Output Data Summaries
 - Flow Master Normal Depth Computation
- Peak Flow Computations: Pre- vs. Post-Project



EXISTING SITE
 10,495 SQ. FT. IMPERVIOUS AREA
 21,673 SQ. FT. LOT AREA (PER SURVEY)

1

IMPERVIOUS AREA EXISTING

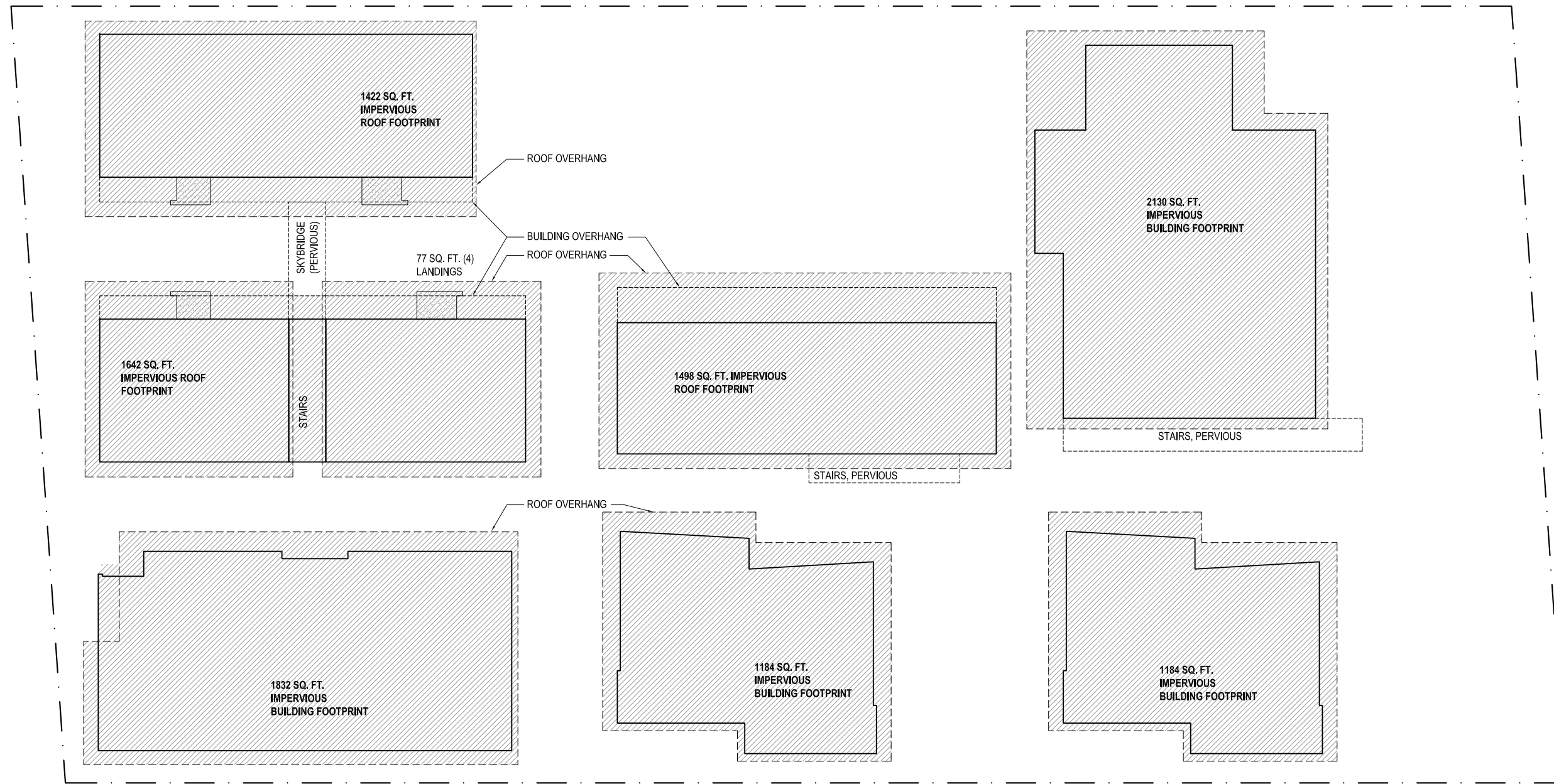
SCALE: 1/16" = 1'-0"

HEARST

DEVI DUTTA ARCHITECTURE

PRELIM

12/04/15



PROPOSED PROJECT

10,892 SQ. FT. IMPERVIOUS AREA
 21,673 SQ. FT. LOT AREA (PER SURVEY)

1

IMPERVIOUS AREA PROPOSED

SCALE: 1/16" = 1'-0"

HEARST

DEVI DUTTA ARCHITECTURE

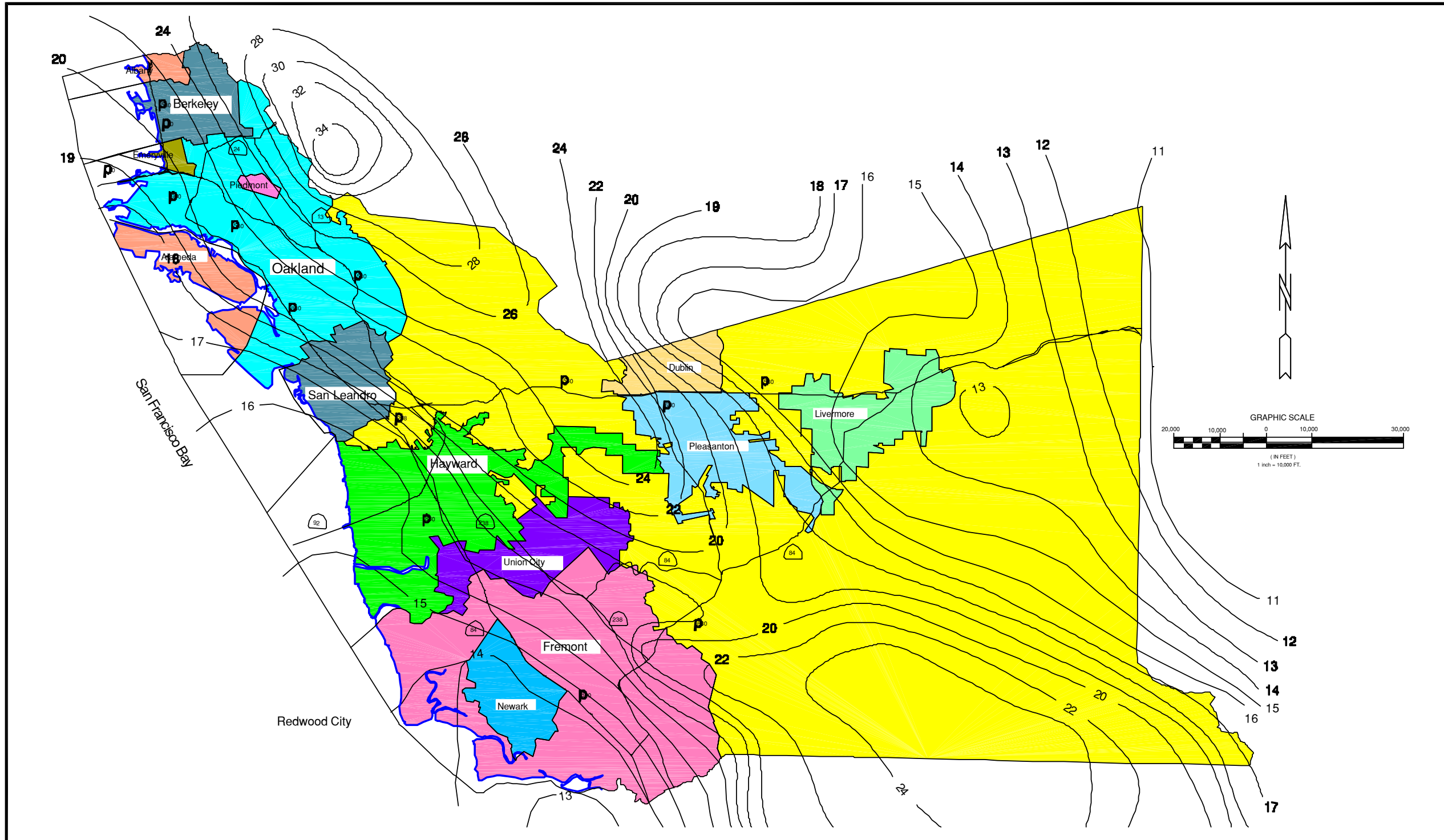
PRELIM

12/04/15

Appendix

D

Mean Annual Precipitation Map: Alameda County



ALAMEDA COUNTY FLOOD CONTROL
AND
WATER CONSERVATION DISTRICT

MEAN ANNUAL PRECIPITATION
(VALUES IN INCHES)

DATE: MAY 2003

ATTACHMENT-6

Rational Method (Rantz 1971')

*Rantz, S.E. 1971. *Suggested Criteria for Hydrologic Design of Storm Drainage Facilities in the San Francisco Bay Region, CA*. U.S. Geological Survey Open-File Report, Menlo Park, CA.

Q= CIA
 where C= runoff coeff.;
 i= rainfall intensity at duration equal to Tc;
 A= drainage area, ac.

Watershed Areas										
	A	B	C	D	E	F	G	H	I	J
Sq Ft	102,189.7	25,984.9	10,730.1	50,480.9	47,700.4	141,259.3	101,045.8	98,928.7	106,217.6	105,749.2
Sq Miles	0.0037	0.0009	0.0004	0.0018	0.0017	0.0051	0.0036	0.0035	0.0038	0.0038
Acres	2.35	0.60	0.25	1.16	1.10	3.24	2.32	2.27	2.44	2.43

For Watershed A

Area

2.35 Acres

a) Computing Time of Concentration

Overland flow = 222.3 ft slope = 0.82 %
 @Q2 20.5 minutes for C =0.325 From Fig 6 (Rantz1971)
 @Q10 20 minutes for C= 0.40
 @25 18 minutes for C= 0.52
 @Q100 15 minutes for C=0.61

Time of concentration Tc=
 @Q2 20.5 minutes
 @Q10 20 minutes
 @25 18 minutes
 @Q100 15 minutes

b) Runoff Coeff., C

Per Table 1 - impervious area for high end of medium density residential is 40% (Upper end of Med. Residential, or low end of Heavy Urbanization (apartments))

2 yr recurrence interval, C	0.45
10 yr recurrence interval, C	0.55
25 yr recurrence interval, C	0.7
100 yr recurrence interval, C	0.76

c) Precipitation Intensity, i

MAP from Alameda Cty C3 Depth 22 inches

2 yr	0.32 inch	0.94 inches per hour
10 yr	0.49 inch	1.46 inches per hour
25 yr	0.54 inch	1.81 inches per hour
100 yr	0.59 inch	2.35 inches per hour

From Table 4(Rantz 1971)

Therefore,

Q2	0.99	cks
Q10	1.88	cks
Q25	2.97	cks
Q100	4.19	cks

For Watershed B

Length

394.65 feet

Slope

0.01 %

Area

0.60 Acres

*Google earth elev change from 68 ft @ Curtis & Delaware to 66 ft at hearst & curtis

a) Computing Time of Concentration

Overland flow = 50 ft slope = 2%
 @Q2 7.5 minutes for C =0.325 From Fig 6 (Rantz1971)
 @Q10 7 minutes for C= 0.40
 @25 6 minutes for C= 0.52
 @Q100 5 minutes for C=0.61

Open channel flow (gutter flow)

394.653 slope 0.01 %

Channel Travel time $V = (1.49/n) * ((A/WP)^{(2/3)}) * S^{(1/2)}$
 Area of gutter flow from CAD 0.39 Sq ft
 Wetted perimeter 2.87 ft

V 2.16 ft per second
 therefore Channel travel time = $L/(60V)$ 3.04 Minutes

Time of concentration Tc=

Toverlandflow+ Tchnnelflow
 10.54 minutes for C as0.325 Q2
 10.04 minutes for C as0.40 Q10
 9.04 minutes for C as0.52 Q25
 8.04 minutes for C as0.61 Q100

b) Runoff Coeff., C

Per Table 1 - impervious area for medium density residential is 25%

2 yr recurrence interval, C	0.325
10 yr recurrence interval, C	0.4
25 yr recurrence interval, C	0.52
100 yr recurrence interval, C	0.61

c) Precipitation Intensity, i MAP from Alameda Cty C3 Depth 22 inches

2 yr	0.23 inch	1.32 inches per hour	From Table 4(Rantz 1971)
10 yr	0.34 inch	2.04 inches per hour	
25 yr	0.52 inch	3.44 inches per hour	
100 yr	0.57 inch	4.21 inches per hour	

Therefore,

Q2	0.26 cfs
Q10	0.49 cfs
Q25	1.07 cfs
Q100	1.53 cfs

For Watershed C

Length 253.91 feet
 Slope 2.36 % *Google earth elev change from 66 ft to 60 ft
 Area 0.25 Acres

a) Computing Time of Concentration

Overland flow = 50 ft slope = 2%
 @Q2 7.5 minutes for C =0.325 From Fig 6 (Rantz1971)
 @Q10 7 minutes for C = 0.40
 @25 6 minutes for C =0.52
 @Q100 5 minutes for C =0.61

Open channel flow (gutter flow) 253.91 slope 0.02 %

Channel Travel time $V = (1.49/n) * ((A/WP)^{(2/3)}) * S^{(1/2)}$
 Area of gutter flow from CAD 0.39 Sq ft
 Wetted perimeter 2.87 ft

V 4.67 ft per second
 therefore Channel travel time = $L/(60V)$ 0.91 Minutes

Time of concentration Tc =
 Toverlandflow+ Tchnnelflow
 8.41 minutes for C as0.325 Q2
 7.91 minutes for C as0.40 Q10
 6.91 minutes for C as0.52 Q25
 5.91 minutes for C as0.61 Q100

b) Runoff Coeff., C

Per Table 1 - impervious area for medium density residential is 25%

2 yr recurrence interval, C	0.325
10 yr recurrence interval, C	0.4
25 yr recurrence interval, C	0.52
100 yr recurrence interval, C	0.61

c) Precipitation Intensity, i MAP from Alameda Cty C3 Depth 22 inches

2 yr	0.12 inch	0.86 inches per hour	From Table 4(Rantz 1971)
10 yr	0.292 inch	2.22 inches per hour	
25 yr	0.313 inch	2.72 inches per hour	
100 yr	0.328 inch	3.33 inches per hour	

Therefore,

Q2	0.07 cfs
Q10	0.22 cfs
Q25	0.35 cfs
Q100	0.50 cfs

For Watershed D

Length 395.81 feet
 Slope 0.01 % *Google earth elev change from 68 ft @ Curtis & Delaware to 66 ft at hearst & curtis
 Area 1.16 Acres

a) Computing Time of Concentration

Overland flow = 50 ft slope = 2%
 @Q2 7.5 minutes for C =0.325 From Fig 6 (Rantz1971)
 @Q10 7 minutes for C = 0.40

	@25	6 minutes	for C= 0.52	
	@Q100	5 minutes	for C =0.61	
Open channel flow (gutter flow)	395.81	slope	0.01 %	
Channel Travel time	$V = (1.49/n) * ((A/WP)^{(2/3)) * S^{(1/2)}$			
	Area of gutter flow from CAD		0.39 Sq ft	
	Wetted perimeter		2.87 ft	
V	2.16 ft per second			
therefore Channel travel time =	$L/(60V)$	3.06 Minutes		
Time of concentration Tc=	Toverlandflow+ Tchnnellflow			
	10.56	minutes	for C as0.325	Q2
	10.06	minutes	for C as0.40	Q10
	9.06	minutes	for C as0.52	Q25
	8.06	minutes	for C as0.61	Q100

b)Runoff Coeff., C

Per Table 1 - impervious area for medium density residential is 25%

2 yr recurrence interval, C	0.325
10 yr recurrence interval, C	0.4
25 yr recurrence interval, C	0.52
100 yr recurrence interval, C	0.61

c) Precipitation Intensity, i

MAP from Alameda Cty C3

	Depth	22 inches
2 yr	0.23 inch	1.32 inches per hour
10 yr	0.34 inch	2.03 inches per hour
25 yr	0.37 inch	2.48 inches per hour
100 yr	0.40 inch	2.98 inches per hour

From Table 4(Rantz1971)

Therefore,

Q2	0.50	cfs
Q10	0.94	cfs
Q25	1.50	cfs
Q100	2.10	cfs

For Watershed E

Length 405.78 feet
 Slope 0.02 %
 Area 1.10 Acres

*Google earth elev change from 74 ft @Chestnut and Hearst to 66 ft at hearst & curtis

a)Computing Time of Concentration

Overland flow =

	50 ft	slope =	2%	
@Q2		7.5 minutes	for C =0.325	
@Q10		7 minutes	for C= 0.40	From Fig 6 (Rantz1971)
@25		6 minutes	for C= 0.52	
@Q100		5 minutes	for C =0.61	

Open channel flow (gutter flow)

	405.783	slope	0.02 %	
Channel Travel time	$V = (1.49/n) * ((A/WP)^{(2/3)) * S^{(1/2)}$			
	Area of gutter flow from CAD		0.39 Sq ft	
	Wetted perimeter		2.87 ft	
V	4.26 ft per second			
therefore Channel travel time =	$L/(60V)$	1.59 Minutes		
Time of concentration Tc=	Toverlandflow+ Tchnnellflow			
	9.09	minutes	for C as0.325	Q2
	8.59	minutes	for C as0.40	Q10
	7.59	minutes	for C as0.52	Q25
	6.59	minutes	for C as0.61	Q100

b)Runoff Coeff., C

Per Table 1 - impervious area for medium density residential is 25%

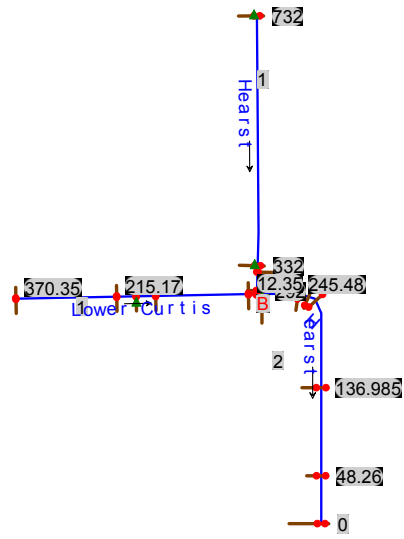
2 yr recurrence interval, C	0.325
10 yr recurrence interval, C	0.4
25 yr recurrence interval, C	0.52
100 yr recurrence interval, C	0.61

c) Precipitation Intensity, i

MAP from Alameda Cty C3=

	Depth	22 inches
2 yr	0.21 inch	1.39 inches per hour
10 yr	0.31 inch	2.15 inches per hour
25 yr	0.33 inch	2.63 inches per hour

From Table 4(Rantz 1971)



Plan: Plan 01 Hearst 1 RS: 732 Profile: Q2

E.G. Elev (ft)	67.77	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.27	Wt. n-Val.		0.013	
W.S. Elev (ft)	67.50	Reach Len. (ft)	400.00	400.00	400.00
Crit W.S. (ft)	67.58	Flow Area (sq ft)		1.08	
E.G. Slope (ft/ft)	0.021011	Area (sq ft)		1.08	0.10
Q Total (cfs)	4.47	Flow (cfs)		4.47	
Top Width (ft)	12.32	Top Width (ft)		7.70	4.62
Vel Total (ft/s)	4.15	Avg. Vel. (ft/s)		4.15	
Max Chl Dpth (ft)	0.26	Hydr. Depth (ft)		0.14	
Conv. Total (cfs)	30.8	Conv. (cfs)		30.8	
Length Wtd. (ft)	400.00	Wetted Per. (ft)		8.57	
Min Ch El (ft)	67.24	Shear (lb/sq ft)		0.16	
Alpha	1.00	Stream Power (lb/ft s)	40.00	0.00	0.00
Frctn Loss (ft)		Cum Volume (acre-ft)	0.00	0.01	0.00
C & E Loss (ft)		Cum SA (acres)	0.01	0.07	0.05

Errors Warnings and Notes

Warning:	Divided flow computed for this cross-section.
Note:	Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

Plan: Plan 01 Hearst 1 RS: 732 Profile: Q10

E.G. Elev (ft)	67.98	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.41	Wt. n-Val.	0.013	0.013	
W.S. Elev (ft)	67.57	Reach Len. (ft)	400.00	400.00	400.00
Crit W.S. (ft)	67.70	Flow Area (sq ft)	0.06	1.67	
E.G. Slope (ft/ft)	0.021005	Area (sq ft)	0.06	1.67	0.65
Q Total (cfs)	8.65	Flow (cfs)	0.08	8.57	
Top Width (ft)	22.15	Top Width (ft)	2.34	8.46	11.36
Vel Total (ft/s)	5.02	Avg. Vel. (ft/s)	1.37	5.14	
Max Chl Dpth (ft)	0.33	Hydr. Depth (ft)	0.02	0.20	
Conv. Total (cfs)	59.7	Conv. (cfs)	0.5	59.2	
Length Wtd. (ft)	400.00	Wetted Per. (ft)	2.34	9.66	
Min Ch El (ft)	67.24	Shear (lb/sq ft)	0.03	0.23	
Alpha	1.04	Stream Power (lb/ft s)	40.00	0.00	0.00
Frctn Loss (ft)		Cum Volume (acre-ft)	0.00	0.02	0.01
C & E Loss (ft)		Cum SA (acres)	0.03	0.08	0.12

Errors Warnings and Notes

Warning:	Divided flow computed for this cross-section.
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Plan: Plan 01 Hearst 1 RS: 732 Profile: Q25

E.G. Elev (ft)	68.16	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.53	Wt. n-Val.	0.013	0.013	
W.S. Elev (ft)	67.63	Reach Len. (ft)	400.00	400.00	400.00
Crit W.S. (ft)	67.73	Flow Area (sq ft)	0.27	2.15	
E.G. Slope (ft/ft)	0.021036	Area (sq ft)	0.27	2.15	1.49
Q Total (cfs)	13.50	Flow (cfs)	0.63	12.87	
Top Width (ft)	31.65	Top Width (ft)	5.20	8.48	17.97
Vel Total (ft/s)	5.57	Avg. Vel. (ft/s)	2.32	5.98	
Max Chl Dpth (ft)	0.39	Hydr. Depth (ft)	0.05	0.25	
Conv. Total (cfs)	93.1	Conv. (cfs)	4.3	88.7	
Length Wtd. (ft)	400.00	Wetted Per. (ft)	5.20	9.95	
Min Ch El (ft)	67.24	Shear (lb/sq ft)	0.07	0.28	
Alpha	1.11	Stream Power (lb/ft s)	40.00	0.00	0.00
Frctn Loss (ft)		Cum Volume (acre-ft)	0.01	0.02	0.02
C & E Loss (ft)		Cum SA (acres)	0.06	0.08	0.18

Errors Warnings and Notes

Warning: Divided flow computed for this cross-section.

Plan: Plan 01 Hearst 1 RS: 732 Profile: Q100

E.G. Elev (ft)	68.31	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.63	Wt. n-Val.	0.013	0.013	
W.S. Elev (ft)	67.68	Reach Len. (ft)	400.00	400.00	400.00
Crit W.S. (ft)	67.78	Flow Area (sq ft)	0.56	2.58	
E.G. Slope (ft/ft)	0.021040	Area (sq ft)	0.56	2.58	2.54
Q Total (cfs)	19.04	Flow (cfs)	1.94	17.10	
Top Width (ft)	38.14	Top Width (ft)	5.88	8.50	23.76
Vel Total (ft/s)	6.06	Avg. Vel. (ft/s)	3.45	6.63	
Max Chl Dpth (ft)	0.44	Hydr. Depth (ft)	0.10	0.30	
Conv. Total (cfs)	131.3	Conv. (cfs)	13.4	117.9	
Length Wtd. (ft)	400.00	Wetted Per. (ft)	5.92	10.21	
Min Ch El (ft)	67.24	Shear (lb/sq ft)	0.12	0.33	
Alpha	1.11	Stream Power (lb/ft s)	40.00	0.00	0.00
Frctn Loss (ft)		Cum Volume (acre-ft)	0.01	0.03	0.03
C & E Loss (ft)		Cum SA (acres)	0.07	0.08	0.23

Errors Warnings and Notes

Warning: Divided flow computed for this cross-section.

Plan: Plan 01 Hearst 1 RS: 332 Profile: Q2

E.G. Elev (ft)	59.77	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.25	Wt. n-Val.		0.013	
W.S. Elev (ft)	59.52	Reach Len. (ft)	10.00	10.00	10.00
Crit W.S. (ft)	59.60	Flow Area (sq ft)		1.11	
E.G. Slope (ft/ft)	0.018994	Area (sq ft)		1.11	0.13
Q Total (cfs)	4.47	Flow (cfs)		4.47	
Top Width (ft)	12.80	Top Width (ft)		7.71	5.08
Vel Total (ft/s)	4.02	Avg. Vel. (ft/s)		4.02	
Max Chl Dpth (ft)	0.26	Hydr. Depth (ft)		0.14	
Conv. Total (cfs)	32.4	Conv. (cfs)		32.4	
Length Wtd. (ft)	10.00	Wetted Per. (ft)		8.61	
Min Ch El (ft)	59.26	Shear (lb/sq ft)		0.15	
Alpha	1.00	Stream Power (lb/ft s)	40.00	0.00	0.00
Frctn Loss (ft)	7.99	Cum Volume (acre-ft)	0.00	0.00	0.00
C & E Loss (ft)	0.01	Cum SA (acres)	0.01	0.00	0.01

Errors Warnings and Notes

Warning:	Divided flow computed for this cross-section.
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note:	Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

Plan: Plan 01 Hearst 1 RS: 332 Profile: Q10

E.G. Elev (ft)	59.98	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.39	Wt. n-Val.	0.013	0.013	
W.S. Elev (ft)	59.60	Reach Len. (ft)	10.00	10.00	10.00
Crit W.S. (ft)	59.72	Flow Area (sq ft)	0.07	1.70	
E.G. Slope (ft/ft)	0.019011	Area (sq ft)	0.07	1.70	0.73
Q Total (cfs)	8.65	Flow (cfs)	0.10	8.55	
Top Width (ft)	23.11	Top Width (ft)	2.68	8.26	12.16
Vel Total (ft/s)	4.87	Avg. Vel. (ft/s)	1.43	5.01	
Max Chl Dpth (ft)	0.34	Hydr. Depth (ft)	0.03	0.21	
Conv. Total (cfs)	62.7	Conv. (cfs)	0.8	62.0	
Length Wtd. (ft)	10.00	Wetted Per. (ft)	2.68	9.50	
Min Ch El (ft)	59.26	Shear (lb/sq ft)	0.03	0.21	
Alpha	1.05	Stream Power (lb/ft s)	40.00	0.00	0.00
Frctn Loss (ft)	7.99	Cum Volume (acre-ft)	0.00	0.00	0.00
C & E Loss (ft)	0.01	Cum SA (acres)	0.01	0.00	0.01

Errors Warnings and Notes

Warning:	Divided flow computed for this cross-section.
----------	---

Errors Warnings and Notes (Continued)

Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
----------	--

Plan: Plan 01 Hearst 1 RS: 332 Profile: Q25

E.G. Elev (ft)	60.16	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.50	Wt. n-Val.	0.013	0.013	
W.S. Elev (ft)	59.66	Reach Len. (ft)	10.00	10.00	10.00
Crit W.S. (ft)	59.75	Flow Area (sq ft)	0.32	2.19	
E.G. Slope (ft/ft)	0.019012	Area (sq ft)	0.32	2.19	1.65
Q Total (cfs)	13.50	Flow (cfs)	0.74	12.76	
Top Width (ft)	32.93	Top Width (ft)	5.65	8.29	19.00
Vel Total (ft/s)	5.37	Avg. Vel. (ft/s)	2.32	5.81	
Max Chl Dpth (ft)	0.40	Hydr. Depth (ft)	0.06	0.26	
Conv. Total (cfs)	97.9	Conv. (cfs)	5.4	92.5	
Length Wtd. (ft)	10.00	Wetted Per. (ft)	5.65	9.80	
Min Ch El (ft)	59.26	Shear (lb/sq ft)	0.07	0.27	
Alpha	1.12	Stream Power (lb/ft s)	40.00	0.00	0.00
Frctn Loss (ft)	7.99	Cum Volume (acre-ft)	0.00	0.00	0.00
C & E Loss (ft)	0.01	Cum SA (acres)	0.01	0.00	0.01

Errors Warnings and Notes

Warning:	Divided flow computed for this cross-section.
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Plan: Plan 01 Hearst 1 RS: 332 Profile: Q100

E.G. Elev (ft)	60.30	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.59	Wt. n-Val.	0.013	0.013	
W.S. Elev (ft)	59.71	Reach Len. (ft)	10.00	10.00	10.00
Crit W.S. (ft)	59.80	Flow Area (sq ft)	0.62	2.62	
E.G. Slope (ft/ft)	0.019033	Area (sq ft)	0.62	2.62	2.78
Q Total (cfs)	19.04	Flow (cfs)	2.18	16.86	
Top Width (ft)	38.78	Top Width (ft)	5.88	8.31	24.60
Vel Total (ft/s)	5.87	Avg. Vel. (ft/s)	3.51	6.43	
Max Chl Dpth (ft)	0.45	Hydr. Depth (ft)	0.11	0.32	
Conv. Total (cfs)	138.0	Conv. (cfs)	15.8	122.2	
Length Wtd. (ft)	10.00	Wetted Per. (ft)	5.93	10.06	
Min Ch El (ft)	59.26	Shear (lb/sq ft)	0.12	0.31	
Alpha	1.10	Stream Power (lb/ft s)	40.00	0.00	0.00
Frctn Loss (ft)	8.00	Cum Volume (acre-ft)	0.01	0.00	0.00
C & E Loss (ft)	0.01	Cum SA (acres)	0.01	0.00	0.01

Errors Warnings and Notes (Continued)

Warning:	The cross-section end points had to be extended vertically for the computed water surface.
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Plan: Plan 01 Hearst 1 RS: 322 Profile: Q2

E.G. Elev (ft)	59.49	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.27	Wt. n-Val.	0.013	0.013	0.013
W.S. Elev (ft)	59.22	Reach Len. (ft)	30.00	30.00	30.00
Crit W.S. (ft)	59.29	Flow Area (sq ft)	0.88	0.21	0.24
E.G. Slope (ft/ft)	0.038883	Area (sq ft)	0.88	0.21	0.24
Q Total (cfs)	5.47	Flow (cfs)	3.49	1.01	0.97
Top Width (ft)	16.84	Top Width (ft)	11.84	2.01	2.99
Vel Total (ft/s)	4.14	Avg. Vel. (ft/s)	3.98	4.92	4.09
Max Chl Dpth (ft)	0.12	Hydr. Depth (ft)	0.07	0.10	0.08
Conv. Total (cfs)	27.7	Conv. (cfs)	17.7	5.1	4.9
Length Wtd. (ft)	30.00	Wetted Per. (ft)	11.85	2.01	3.08
Min Ch El (ft)	59.10	Shear (lb/sq ft)	0.18	0.25	0.19
Alpha	1.02	Stream Power (lb/ft s)	30.00	0.00	0.00
Frctn Loss (ft)	0.27	Cum Volume (acre-ft)	0.00	0.00	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.01	0.00	0.01

Errors Warnings and Notes

Warning:	The cross-section end points had to be extended vertically for the computed water surface.
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Plan: Plan 01 Hearst 1 RS: 322 Profile: Q10

E.G. Elev (ft)	59.69	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.43	Wt. n-Val.	0.013	0.013	0.013
W.S. Elev (ft)	59.26	Reach Len. (ft)	30.00	30.00	30.00
Crit W.S. (ft)	59.37	Flow Area (sq ft)	1.38	0.28	0.35
E.G. Slope (ft/ft)	0.041841	Area (sq ft)	1.38	0.28	0.35
Q Total (cfs)	10.53	Flow (cfs)	6.81	1.79	1.93
Top Width (ft)	19.26	Top Width (ft)	14.26	2.01	2.99
Vel Total (ft/s)	5.22	Avg. Vel. (ft/s)	4.93	6.32	5.47
Max Chl Dpth (ft)	0.16	Hydr. Depth (ft)	0.10	0.14	0.12
Conv. Total (cfs)	51.5	Conv. (cfs)	33.3	8.7	9.4
Length Wtd. (ft)	30.00	Wetted Per. (ft)	14.26	2.01	3.12
Min Ch El (ft)	59.10	Shear (lb/sq ft)	0.25	0.37	0.30
Alpha	1.03	Stream Power (lb/ft s)	30.00	0.00	0.00
Frctn Loss (ft)	0.28	Cum Volume (acre-ft)	0.00	0.00	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.01	0.00	0.01

Plan: Plan 01 Hearst 1 RS: 322 Profile: Q25

E.G. Elev (ft)	59.86	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.57	Wt. n-Val.	0.013	0.013	0.013
W.S. Elev (ft)	59.30	Reach Len. (ft)	30.00	30.00	30.00
Crit W.S. (ft)	59.44	Flow Area (sq ft)	1.96	0.36	0.46
E.G. Slope (ft/ft)	0.040955	Area (sq ft)	1.96	0.36	0.46
Q Total (cfs)	16.50	Flow (cfs)	10.89	2.62	3.00
Top Width (ft)	21.59	Top Width (ft)	16.59	2.01	2.99
Vel Total (ft/s)	5.94	Avg. Vel. (ft/s)	5.56	7.32	6.45
Max Chl Dpth (ft)	0.20	Hydr. Depth (ft)	0.12	0.18	0.16
Conv. Total (cfs)	81.5	Conv. (cfs)	53.8	12.9	14.8
Length Wtd. (ft)	30.00	Wetted Per. (ft)	16.59	2.01	3.16
Min Ch El (ft)	59.10	Shear (lb/sq ft)	0.30	0.45	0.38
Alpha	1.03	Stream Power (lb/ft s)	30.00	0.00	0.00
Frctn Loss (ft)	0.28	Cum Volume (acre-ft)	0.00	0.00	0.00
C & E Loss (ft)	0.01	Cum SA (acres)	0.01	0.00	0.01

Errors Warnings and Notes

Warning:	The cross-section end points had to be extended vertically for the computed water surface.
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Plan: Plan 01 Hearst 1 RS: 322 Profile: Q100

E.G. Elev (ft)	60.01	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.68	Wt. n-Val.	0.013	0.013	0.013
W.S. Elev (ft)	59.33	Reach Len. (ft)	30.00	30.00	30.00
Crit W.S. (ft)	59.49	Flow Area (sq ft)	2.59	0.43	0.57
E.G. Slope (ft/ft)	0.039447	Area (sq ft)	2.59	0.43	0.57
Q Total (cfs)	23.27	Flow (cfs)	15.66	3.48	4.12
Top Width (ft)	23.82	Top Width (ft)	18.82	2.01	2.99
Vel Total (ft/s)	6.48	Avg. Vel. (ft/s)	6.05	8.11	7.21
Max Chl Dpth (ft)	0.23	Hydr. Depth (ft)	0.14	0.21	0.19
Conv. Total (cfs)	117.2	Conv. (cfs)	78.9	17.5	20.8
Length Wtd. (ft)	30.00	Wetted Per. (ft)	18.82	2.01	3.19
Min Ch El (ft)	59.10	Shear (lb/sq ft)	0.34	0.53	0.44
Alpha	1.04	Stream Power (lb/ft s)	30.00	0.00	0.00
Frctn Loss (ft)	0.27	Cum Volume (acre-ft)	0.01	0.00	0.00
C & E Loss (ft)	0.01	Cum SA (acres)	0.01	0.00	0.01

Errors Warnings and Notes

Warning:	The cross-section end points had to be extended vertically for the computed water surface.
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Plan: Plan 01 Hearst 1 RS: 292 Profile: Q2

E.G. Elev (ft)	58.94	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.013	0.013	0.013
W.S. Elev (ft)	58.93	Reach Len. (ft)	10.00	10.00	10.00
Crit W.S. (ft)	58.66	Flow Area (sq ft)	5.66	0.97	4.44
E.G. Slope (ft/ft)	0.000071	Area (sq ft)	5.66	0.97	4.44
Q Total (cfs)	5.47	Flow (cfs)	2.98	0.52	1.97
Top Width (ft)	30.00	Top Width (ft)	13.60	2.38	14.02
Vel Total (ft/s)	0.49	Avg. Vel. (ft/s)	0.53	0.53	0.44
Max Chl Dpth (ft)	0.44	Hydr. Depth (ft)	0.42	0.41	0.32
Conv. Total (cfs)	647.7	Conv. (cfs)	353.1	61.3	233.3
Length Wtd. (ft)	10.00	Wetted Per. (ft)	14.04	2.38	14.25
Min Ch El (ft)	58.51	Shear (lb/sq ft)	0.00	0.00	0.00
Alpha	1.02	Stream Power (lb/ft s)	30.00	0.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.00	0.00	0.00
C & E Loss (ft)	0.01	Cum SA (acres)			

Errors Warnings and Notes

Warning:	The cross-section end points had to be extended vertically for the computed water surface.
Note:	Hydraulic jump has occurred between this cross section and the previous upstream section.

Plan: Plan 01 Hearst 1 RS: 292 Profile: Q10

E.G. Elev (ft)	59.00	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	Wt. n-Val.	0.013	0.013	0.013
W.S. Elev (ft)	58.99	Reach Len. (ft)	10.00	10.00	10.00
Crit W.S. (ft)	58.73	Flow Area (sq ft)	6.44	1.11	5.25
E.G. Slope (ft/ft)	0.000165	Area (sq ft)	6.44	1.11	5.25
Q Total (cfs)	10.53	Flow (cfs)	5.61	0.98	3.94
Top Width (ft)	30.00	Top Width (ft)	13.60	2.38	14.02
Vel Total (ft/s)	0.82	Avg. Vel. (ft/s)	0.87	0.88	0.75
Max Chl Dpth (ft)	0.50	Hydr. Depth (ft)	0.47	0.47	0.37
Conv. Total (cfs)	820.2	Conv. (cfs)	436.8	76.3	307.1
Length Wtd. (ft)	10.00	Wetted Per. (ft)	14.10	2.38	14.31
Min Ch El (ft)	58.51	Shear (lb/sq ft)	0.00	0.00	0.00
Alpha	1.02	Stream Power (lb/ft s)	30.00	0.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.00	0.00	0.00
C & E Loss (ft)	0.01	Cum SA (acres)			

Errors Warnings and Notes

Warning:	The cross-section end points had to be extended vertically for the computed water surface.
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Errors Warnings and Notes (Continued)

Note:	Hydraulic jump has occurred between this cross section and the previous upstream section.
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Plan: Plan 01 Hearst 1 RS: 292 Profile: Q25

E.G. Elev (ft)	59.09	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.02	Wt. n-Val.	0.013	0.013	0.013
W.S. Elev (ft)	59.07	Reach Len. (ft)	10.00	10.00	10.00
Crit W.S. (ft)	58.78	Flow Area (sq ft)	7.54	1.30	6.38
E.G. Slope (ft/ft)	0.000229	Area (sq ft)	7.54	1.30	6.38
Q Total (cfs)	16.50	Flow (cfs)	8.57	1.51	6.42
Top Width (ft)	30.00	Top Width (ft)	13.60	2.38	14.02
Vel Total (ft/s)	1.08	Avg. Vel. (ft/s)	1.14	1.16	1.01
Max Chl Dpth (ft)	0.58	Hydr. Depth (ft)	0.55	0.55	0.46
Conv. Total (cfs)	1090.3	Conv. (cfs)	566.3	99.7	424.3
Length Wtd. (ft)	10.00	Wetted Per. (ft)	14.18	2.38	14.39
Min Ch El (ft)	58.51	Shear (lb/sq ft)	0.01	0.01	0.01
Alpha	1.01	Stream Power (lb/ft s)	30.00	0.00	0.00
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	0.00	0.00	0.00
C & E Loss (ft)	0.01	Cum SA (acres)			

Errors Warnings and Notes

Warning:	The cross-section end points had to be extended vertically for the computed water surface.
Note:	Hydraulic jump has occurred between this cross section and the previous upstream section.

Plan: Plan 01 Hearst 1 RS: 292 Profile: Q100

E.G. Elev (ft)	59.18	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.03	Wt. n-Val.	0.013	0.013	0.013
W.S. Elev (ft)	59.15	Reach Len. (ft)	10.00	10.00	10.00
Crit W.S. (ft)	58.83	Flow Area (sq ft)	8.68	1.50	7.56
E.G. Slope (ft/ft)	0.000276	Area (sq ft)	8.68	1.50	7.56
Q Total (cfs)	23.27	Flow (cfs)	11.86	2.10	9.31
Top Width (ft)	30.00	Top Width (ft)	13.60	2.38	14.02
Vel Total (ft/s)	1.31	Avg. Vel. (ft/s)	1.37	1.40	1.23
Max Chl Dpth (ft)	0.66	Hydr. Depth (ft)	0.64	0.63	0.54
Conv. Total (cfs)	1399.6	Conv. (cfs)	713.0	126.4	560.1
Length Wtd. (ft)	10.00	Wetted Per. (ft)	14.26	2.38	14.48
Min Ch El (ft)	58.51	Shear (lb/sq ft)	0.01	0.01	0.01
Alpha	1.01	Stream Power (lb/ft s)	30.00	0.00	0.00
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	0.00	0.00	0.00
C & E Loss (ft)	0.01	Cum SA (acres)			

Errors Warnings and Notes (Continued)

Note:	Hydraulic jump has occurred between this cross section and the previous upstream section.
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Plan: Plan 01 Hearst 2 RS: 282 Profile: Q2

E.G. Elev (ft)	58.92	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.09	Wt. n-Val.	0.013	0.013	
W.S. Elev (ft)	58.83	Reach Len. (ft)	36.52	36.52	36.52
Crit W.S. (ft)	58.83	Flow Area (sq ft)	0.29	2.16	
E.G. Slope (ft/ft)	0.003649	Area (sq ft)	0.29	2.16	1.55
Q Total (cfs)	5.73	Flow (cfs)	0.28	5.45	
Top Width (ft)	31.99	Top Width (ft)	5.36	8.28	18.34
Vel Total (ft/s)	2.34	Avg. Vel. (ft/s)	0.98	2.53	
Max Chl Dpth (ft)	0.40	Hydr. Depth (ft)	0.05	0.26	
Conv. Total (cfs)	94.9	Conv. (cfs)	4.7	90.2	
Length Wtd. (ft)	36.52	Wetted Per. (ft)	5.36	9.74	
Min Ch EI (ft)	58.43	Shear (lb/sq ft)	0.01	0.05	
Alpha	1.11	Stream Power (lb/ft s)	40.00	0.00	0.00
Frctn Loss (ft)	0.14	Cum Volume (acre-ft)	0.00	0.01	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	0.05	0.01

Errors Warnings and Notes

Warning:	The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:	Divided flow computed for this cross-section.
Warning:	During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note:	Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

Plan: Plan 01 Hearst 2 RS: 282 Profile: Q10

E.G. Elev (ft)	58.99	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.08	Wt. n-Val.	0.013	0.013	0.030
W.S. Elev (ft)	58.91	Reach Len. (ft)	36.52	36.52	36.52
Crit W.S. (ft)	58.91	Flow Area (sq ft)	0.76	2.83	3.38
E.G. Slope (ft/ft)	0.002902	Area (sq ft)	0.76	2.83	3.38
Q Total (cfs)	11.02	Flow (cfs)	1.19	7.44	2.38
Top Width (ft)	39.00	Top Width (ft)	5.88	8.31	24.81
Vel Total (ft/s)	1.58	Avg. Vel. (ft/s)	1.57	2.63	0.71
Max Chl Dpth (ft)	0.48	Hydr. Depth (ft)	0.13	0.34	0.14
Conv. Total (cfs)	204.6	Conv. (cfs)	22.2	138.2	44.2
Length Wtd. (ft)	36.52	Wetted Per. (ft)	5.95	10.13	24.85
Min Ch EI (ft)	58.43	Shear (lb/sq ft)	0.02	0.05	0.02

Plan: Plan 01 Hearst 2 RS: 282 Profile: Q10 (Continued)

Alpha	2.02	Stream Power (lb/ft s)	40.00	0.00	0.00
Frctn Loss (ft)	0.10	Cum Volume (acre-ft)	0.00	0.02	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.01	0.06	0.04

Errors Warnings and Notes

Warning:	The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:	Divided flow computed for this cross-section.
Warning:	The cross-section end points had to be extended vertically for the computed water surface.
Warning:	During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Plan: Plan 01 Hearst 2 RS: 282 Profile: Q25

E.G. Elev (ft)	59.08	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.10	Wt. n-Val.	0.013	0.013	0.030
W.S. Elev (ft)	58.98	Reach Len. (ft)	36.52	36.52	36.52
Crit W.S. (ft)	58.97	Flow Area (sq ft)	1.16	3.39	5.06
E.G. Slope (ft/ft)	0.003124	Area (sq ft)	1.16	3.39	5.06
Q Total (cfs)	17.57	Flow (cfs)	2.47	10.26	4.83
Top Width (ft)	39.00	Top Width (ft)	5.88	8.31	24.81
Vel Total (ft/s)	1.83	Avg. Vel. (ft/s)	2.13	3.03	0.96
Max Chl Dpth (ft)	0.55	Hydr. Depth (ft)	0.20	0.41	0.20
Conv. Total (cfs)	314.3	Conv. (cfs)	44.3	183.6	86.5
Length Wtd. (ft)	36.52	Wetted Per. (ft)	6.02	10.40	24.91
Min Ch El (ft)	58.43	Shear (lb/sq ft)	0.04	0.06	0.04
Alpha	1.87	Stream Power (lb/ft s)	40.00	0.00	0.00
Frctn Loss (ft)	0.11	Cum Volume (acre-ft)	0.00	0.02	0.01
C & E Loss (ft)	0.01	Cum SA (acres)	0.01	0.06	0.04

Errors Warnings and Notes

Warning:	Divided flow computed for this cross-section.
Warning:	The cross-section end points had to be extended vertically for the computed water surface.

Plan: Plan 01 Hearst 2 RS: 282 Profile: Q100

E.G. Elev (ft)	59.17	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.09	Wt. n-Val.	0.013	0.013	0.030
W.S. Elev (ft)	59.08	Reach Len. (ft)	36.52	36.52	36.52
Crit W.S. (ft)	59.03	Flow Area (sq ft)	1.77	4.25	7.63
E.G. Slope (ft/ft)	0.002272	Area (sq ft)	1.77	4.25	7.63
Q Total (cfs)	24.80	Flow (cfs)	4.21	12.43	8.15

Plan: Plan 01 Hearst 2 RS: 282 Profile: Q100 (Continued)

Top Width (ft)	39.00	Top Width (ft)	5.88	8.31	24.81
Vel Total (ft/s)	1.82	Avg. Vel. (ft/s)	2.38	2.92	1.07
Max Chl Dpth (ft)	0.65	Hydr. Depth (ft)	0.30	0.51	0.31
Conv. Total (cfs)	520.3	Conv. (cfs)	88.4	260.8	171.1
Length Wtd. (ft)	36.52	Wetted Per. (ft)	6.12	10.82	25.02
Min Ch EI (ft)	58.43	Shear (lb/sq ft)	0.04	0.06	0.04
Alpha	1.70	Stream Power (lb/ft s)	40.00	0.00	0.00
Frctn Loss (ft)	0.09	Cum Volume (acre-ft)	0.00	0.03	0.01
C & E Loss (ft)	0.01	Cum SA (acres)	0.02	0.07	0.05

Errors Warnings and Notes

Warning:	Divided flow computed for this cross-section.
Warning:	The cross-section end points had to be extended vertically for the computed water surface.

Plan: Plan 01 Hearst 2 RS: 245.48 Profile: Q2

E.G. Elev (ft)	58.71	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.19	Wt. n-Val.		0.013	
W.S. Elev (ft)	58.52	Reach Len. (ft)	23.36	10.88	0.75
Crit W.S. (ft)	58.58	Flow Area (sq ft)		1.62	
E.G. Slope (ft/ft)	0.008419	Area (sq ft)		1.62	
Q Total (cfs)	5.73	Flow (cfs)		5.73	
Top Width (ft)	7.99	Top Width (ft)		7.99	
Vel Total (ft/s)	3.53	Avg. Vel. (ft/s)		3.53	
Max Chl Dpth (ft)	0.38	Hydr. Depth (ft)		0.20	
Conv. Total (cfs)	62.4	Conv. (cfs)		62.4	
Length Wtd. (ft)	10.93	Wetted Per. (ft)		8.29	
Min Ch EI (ft)	58.14	Shear (lb/sq ft)		0.10	
Alpha	1.00	Stream Power (lb/ft s)	27.00	0.00	0.00
Frctn Loss (ft)	0.19	Cum Volume (acre-ft)	0.00	0.01	0.00
C & E Loss (ft)	0.01	Cum SA (acres)	0.00	0.04	0.01

Errors Warnings and Notes

Warning:	The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
	This may indicate the need for additional cross sections.

Plan: Plan 01 Hearst 2 RS: 245.48 Profile: Q10

E.G. Elev (ft)	58.85	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.18	Wt. n-Val.	0.013	0.013	0.030
W.S. Elev (ft)	58.67	Reach Len. (ft)	23.36	10.88	0.75
Crit W.S. (ft)	58.71	Flow Area (sq ft)	0.01	3.04	0.87

Plan: Plan 01 Hearst 2 RS: 245.48 Profile: Q10 (Continued)

E.G. Slope (ft/ft)	0.004855	Area (sq ft)	0.01	3.04	0.87
Q Total (cfs)	11.02	Flow (cfs)	0.00	10.48	0.53
Top Width (ft)	22.61	Top Width (ft)	0.61	10.31	11.69
Vel Total (ft/s)	2.81	Avg. Vel. (ft/s)	0.49	3.45	0.61
Max Chl Dpth (ft)	0.53	Hydr. Depth (ft)	0.02	0.29	0.07
Conv. Total (cfs)	158.2	Conv. (cfs)	0.1	150.4	7.7
Length Wtd. (ft)	10.66	Wetted Per. (ft)	0.61	10.65	11.72
Min Ch EI (ft)	58.14	Shear (lb/sq ft)	0.00	0.09	0.02
Alpha	1.44	Stream Power (lb/ft s)	27.00	0.00	0.00
Frctn Loss (ft)	0.13	Cum Volume (acre-ft)	0.00	0.01	0.00
C & E Loss (ft)	0.01	Cum SA (acres)	0.00	0.05	0.02

Errors Warnings and Notes

Warning:	The cross-section end points had to be extended vertically for the computed water surface.
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Plan: Plan 01 Hearst 2 RS: 245.48 Profile: Q25

E.G. Elev (ft)	58.96	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.15	Wt. n-Val.	0.013	0.013	0.030
W.S. Elev (ft)	58.81	Reach Len. (ft)	23.36	10.88	0.75
Crit W.S. (ft)	58.81	Flow Area (sq ft)	0.28	4.44	2.47
E.G. Slope (ft/ft)	0.002791	Area (sq ft)	0.28	4.44	2.47
Q Total (cfs)	17.57	Flow (cfs)	0.32	14.98	2.27
Top Width (ft)	25.34	Top Width (ft)	3.34	10.31	11.69
Vel Total (ft/s)	2.44	Avg. Vel. (ft/s)	1.15	3.37	0.92
Max Chl Dpth (ft)	0.67	Hydr. Depth (ft)	0.08	0.43	0.21
Conv. Total (cfs)	332.6	Conv. (cfs)	6.1	283.6	42.9
Length Wtd. (ft)	10.62	Wetted Per. (ft)	3.34	10.65	11.86
Min Ch EI (ft)	58.14	Shear (lb/sq ft)	0.01	0.07	0.04
Alpha	1.65	Stream Power (lb/ft s)	27.00	0.00	0.00
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	0.00	0.02	0.00
C & E Loss (ft)	0.04	Cum SA (acres)	0.01	0.06	0.03

Errors Warnings and Notes

Warning:	The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:	The cross-section end points had to be extended vertically for the computed water surface.
Warning:	The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:	During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Plan: Plan 01 Hearst 2 RS: 245.48 Profile: Q100

E.G. Elev (ft)	59.07	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.17	Wt. n-Val.	0.013	0.013	0.030
W.S. Elev (ft)	58.90	Reach Len. (ft)	23.36	10.88	0.75
Crit W.S. (ft)	58.90	Flow Area (sq ft)	0.67	5.38	3.53
E.G. Slope (ft/ft)	0.002581	Area (sq ft)	0.67	5.38	3.53
Q Total (cfs)	24.80	Flow (cfs)	1.01	19.84	3.95
Top Width (ft)	27.00	Top Width (ft)	5.00	10.31	11.69
Vel Total (ft/s)	2.59	Avg. Vel. (ft/s)	1.51	3.69	1.12
Max Chl Dpth (ft)	0.76	Hydr. Depth (ft)	0.13	0.52	0.30
Conv. Total (cfs)	488.1	Conv. (cfs)	19.8	390.6	77.7
Length Wtd. (ft)	10.69	Wetted Per. (ft)	5.01	10.65	11.95
Min Ch EI (ft)	58.14	Shear (lb/sq ft)	0.02	0.08	0.05
Alpha	1.67	Stream Power (lb/ft s)	27.00	0.00	0.00
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	0.00	0.02	0.01
C & E Loss (ft)	0.04	Cum SA (acres)	0.01	0.06	0.03

Errors Warnings and Notes

Warning:	The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:	The cross-section end points had to be extended vertically for the computed water surface.
Warning:	The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:	During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning:	The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

Plan: Plan 01 Hearst 2 RS: 234.6 Profile: Q2

E.G. Elev (ft)	58.63	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	Wt. n-Val.	0.013	0.013	
W.S. Elev (ft)	58.62	Reach Len. (ft)	18.87	8.89	0.90
Crit W.S. (ft)	58.30	Flow Area (sq ft)	0.21	7.38	
E.G. Slope (ft/ft)	0.000158	Area (sq ft)	0.21	7.38	
Q Total (cfs)	5.73	Flow (cfs)	0.05	5.68	
Top Width (ft)	21.56	Top Width (ft)	2.83	18.73	
Vel Total (ft/s)	0.76	Avg. Vel. (ft/s)	0.25	0.77	
Max Chl Dpth (ft)	0.71	Hydr. Depth (ft)	0.07	0.39	
Conv. Total (cfs)	456.5	Conv. (cfs)	4.2	452.4	
Length Wtd. (ft)	8.94	Wetted Per. (ft)	2.83	18.78	
Min Ch EI (ft)	57.91	Shear (lb/sq ft)	0.00	0.00	

Plan: Plan 01 Hearst 2 RS: 234.6 Profile: Q2 (Continued)

Alpha	1.03	Stream Power (lb/ft s)	27.00	0.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.00	0.01	0.00
C & E Loss (ft)	0.01	Cum SA (acres)	0.00	0.04	0.01

Errors Warnings and Notes

Warning:	The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note:	Hydraulic jump has occurred between this cross section and the previous upstream section.

Plan: Plan 01 Hearst 2 RS: 234.6 Profile: Q10

E.G. Elev (ft)	58.76	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.02	Wt. n-Val.	0.013	0.013	0.030
W.S. Elev (ft)	58.74	Reach Len. (ft)	18.87	8.89	0.90
Crit W.S. (ft)	58.41	Flow Area (sq ft)	0.72	9.76	0.34
E.G. Slope (ft/ft)	0.000220	Area (sq ft)	0.72	9.76	0.34
Q Total (cfs)	11.02	Flow (cfs)	0.33	10.63	0.06
Top Width (ft)	27.00	Top Width (ft)	5.00	18.88	3.12
Vel Total (ft/s)	1.02	Avg. Vel. (ft/s)	0.46	1.09	0.17
Max Chl Dpth (ft)	0.83	Hydr. Depth (ft)	0.14	0.52	0.11
Conv. Total (cfs)	743.8	Conv. (cfs)	22.4	717.6	3.8
Length Wtd. (ft)	9.02	Wetted Per. (ft)	5.02	18.93	3.22
Min Ch El (ft)	57.91	Shear (lb/sq ft)	0.00	0.01	0.00
Alpha	1.11	Stream Power (lb/ft s)	27.00	0.00	0.00
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	0.00	0.01	0.00
C & E Loss (ft)	0.01	Cum SA (acres)	0.00	0.05	0.02

Errors Warnings and Notes

Warning:	The cross-section end points had to be extended vertically for the computed water surface.
Warning:	The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note:	Hydraulic jump has occurred between this cross section and the previous upstream section.

Plan: Plan 01 Hearst 2 RS: 234.6 Profile: Q25

E.G. Elev (ft)	58.88	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.03	Wt. n-Val.	0.013	0.013	0.030
W.S. Elev (ft)	58.85	Reach Len. (ft)	18.87	8.89	0.90
Crit W.S. (ft)	58.51	Flow Area (sq ft)	1.27	11.85	0.69
E.G. Slope (ft/ft)	0.000275	Area (sq ft)	1.27	11.85	0.69
Q Total (cfs)	17.57	Flow (cfs)	0.95	16.42	0.20
Top Width (ft)	27.00	Top Width (ft)	5.00	18.88	3.12
Vel Total (ft/s)	1.27	Avg. Vel. (ft/s)	0.75	1.39	0.29

Plan: Plan 01 Hearst 2 RS: 234.6 Profile: Q25 (Continued)

Max Chl Dpth (ft)	0.94	Hydr. Depth (ft)	0.25	0.63	0.22
Conv. Total (cfs)	1060.2	Conv. (cfs)	57.2	991.1	11.9
Length Wtd. (ft)	9.10	Wetted Per. (ft)	5.13	18.93	3.33
Min Ch EI (ft)	57.91	Shear (lb/sq ft)	0.00	0.01	0.00
Alpha	1.13	Stream Power (lb/ft s)	27.00	0.00	0.00
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	0.00	0.02	0.00
C & E Loss (ft)	0.01	Cum SA (acres)	0.00	0.05	0.03

Errors Warnings and Notes

Warning:	The cross-section end points had to be extended vertically for the computed water surface.
Warning:	The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
	This may indicate the need for additional cross sections.

Plan: Plan 01 Hearst 2 RS: 234.6 Profile: Q100

E.G. Elev (ft)	58.99	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.04	Wt. n-Val.	0.013	0.013	0.030
W.S. Elev (ft)	58.95	Reach Len. (ft)	18.87	8.89	0.90
Crit W.S. (ft)	58.61	Flow Area (sq ft)	1.75	13.67	0.99
E.G. Slope (ft/ft)	0.000325	Area (sq ft)	1.75	13.67	0.99
Q Total (cfs)	24.80	Flow (cfs)	1.74	22.67	0.39
Top Width (ft)	27.00	Top Width (ft)	5.00	18.88	3.12
Vel Total (ft/s)	1.51	Avg. Vel. (ft/s)	0.99	1.66	0.39
Max Chl Dpth (ft)	1.04	Hydr. Depth (ft)	0.35	0.72	0.32
Conv. Total (cfs)	1376.2	Conv. (cfs)	96.7	1258.1	21.4
Length Wtd. (ft)	9.21	Wetted Per. (ft)	5.23	18.93	3.43
Min Ch EI (ft)	57.91	Shear (lb/sq ft)	0.01	0.01	0.01
Alpha	1.13	Stream Power (lb/ft s)	27.00	0.00	0.00
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	0.00	0.02	0.01
C & E Loss (ft)	0.01	Cum SA (acres)	0.01	0.06	0.03

Errors Warnings and Notes

Warning:	The cross-section end points had to be extended vertically for the computed water surface.
Warning:	The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
	This may indicate the need for additional cross sections.

Plan: Plan 01 Hearst 2 RS: 225.71 Profile: Q2

E.G. Elev (ft)	58.61	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.09	Wt. n-Val.		0.013	
W.S. Elev (ft)	58.52	Reach Len. (ft)	88.73	88.73	88.73
Crit W.S. (ft)	58.52	Flow Area (sq ft)		2.38	
E.G. Slope (ft/ft)	0.004493	Area (sq ft)		2.38	

Plan: Plan 01 Hearst 2 RS: 225.71 Profile: Q2 (Continued)

Q Total (cfs)	5.73	Flow (cfs)		5.73	
Top Width (ft)	13.50	Top Width (ft)		13.50	
Vel Total (ft/s)	2.41	Avg. Vel. (ft/s)		2.41	
Max Chl Dpth (ft)	0.35	Hydr. Depth (ft)		0.18	
Conv. Total (cfs)	85.5	Conv. (cfs)		85.5	
Length Wtd. (ft)	88.73	Wetted Per. (ft)		13.53	
Min Ch EI (ft)	58.17	Shear (lb/sq ft)		0.05	
Alpha	1.00	Stream Power (lb/ft s)	27.00	0.00	0.00
Frctn Loss (ft)	0.39	Cum Volume (acre-ft)		0.01	0.00
C & E Loss (ft)	0.00	Cum SA (acres)		0.03	0.01

Errors Warnings and Notes

Warning:	The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:	During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Plan: Plan 01 Hearst 2 RS: 225.71 Profile: Q10

E.G. Elev (ft)	58.75	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.11	Wt. n-Val.		0.013	
W.S. Elev (ft)	58.63	Reach Len. (ft)	88.73	88.73	88.73
Crit W.S. (ft)	58.63	Flow Area (sq ft)		4.06	
E.G. Slope (ft/ft)	0.004009	Area (sq ft)		4.06	
Q Total (cfs)	11.02	Flow (cfs)		11.02	
Top Width (ft)	17.65	Top Width (ft)		17.65	
Vel Total (ft/s)	2.71	Avg. Vel. (ft/s)		2.71	
Max Chl Dpth (ft)	0.46	Hydr. Depth (ft)		0.23	
Conv. Total (cfs)	174.0	Conv. (cfs)		174.0	
Length Wtd. (ft)	88.73	Wetted Per. (ft)		17.68	
Min Ch EI (ft)	58.17	Shear (lb/sq ft)		0.06	
Alpha	1.00	Stream Power (lb/ft s)	27.00	0.00	0.00
Frctn Loss (ft)	0.35	Cum Volume (acre-ft)		0.01	0.00
C & E Loss (ft)	0.00	Cum SA (acres)		0.04	0.02

Errors Warnings and Notes

Warning:	The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:	During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated

Errors Warnings and Notes (Continued)

	water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
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Plan: Plan 01 Hearst 2 RS: 225.71 Profile: Q25

E.G. Elev (ft)	58.86	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.14	Wt. n-Val.	0.013	0.013	0.030
W.S. Elev (ft)	58.72	Reach Len. (ft)	88.73	88.73	88.73
Crit W.S. (ft)	58.72	Flow Area (sq ft)	0.05	5.75	0.17
E.G. Slope (ft/ft)	0.003461	Area (sq ft)	0.05	5.75	0.17
Q Total (cfs)	17.57	Flow (cfs)	0.03	17.46	0.08
Top Width (ft)	23.22	Top Width (ft)	1.98	18.92	2.32
Vel Total (ft/s)	2.94	Avg. Vel. (ft/s)	0.59	3.04	0.50
Max Chl Dpth (ft)	0.55	Hydr. Depth (ft)	0.03	0.30	0.07
Conv. Total (cfs)	298.7	Conv. (cfs)	0.5	296.7	1.4
Length Wtd. (ft)	88.72	Wetted Per. (ft)	1.98	18.95	2.39
Min Ch EI (ft)	58.17	Shear (lb/sq ft)	0.01	0.07	0.02
Alpha	1.06	Stream Power (lb/ft s)	27.00	0.00	0.00
Frctn Loss (ft)	0.32	Cum Volume (acre-ft)	0.00	0.01	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	0.05	0.03

Errors Warnings and Notes

Warning:	The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:	The cross-section end points had to be extended vertically for the computed water surface.
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:	During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Plan: Plan 01 Hearst 2 RS: 225.71 Profile: Q100

E.G. Elev (ft)	58.97	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.17	Wt. n-Val.	0.013	0.013	0.030
W.S. Elev (ft)	58.80	Reach Len. (ft)	88.73	88.73	88.73
Crit W.S. (ft)	58.80	Flow Area (sq ft)	0.35	7.31	0.36
E.G. Slope (ft/ft)	0.002989	Area (sq ft)	0.35	7.31	0.36
Q Total (cfs)	24.80	Flow (cfs)	0.35	24.18	0.27
Top Width (ft)	26.74	Top Width (ft)	5.50	18.92	2.32
Vel Total (ft/s)	3.09	Avg. Vel. (ft/s)	0.99	3.31	0.75
Max Chl Dpth (ft)	0.63	Hydr. Depth (ft)	0.06	0.39	0.15
Conv. Total (cfs)	453.6	Conv. (cfs)	6.4	442.4	4.9
Length Wtd. (ft)	88.73	Wetted Per. (ft)	5.50	18.95	2.47
Min Ch EI (ft)	58.17	Shear (lb/sq ft)	0.01	0.07	0.03

Plan: Plan 01 Hearst 2 RS: 225.71 Profile: Q100 (Continued)

Alpha	1.12	Stream Power (lb/ft s)	27.00	0.00	0.00
Frctn Loss (ft)	0.28	Cum Volume (acre-ft)	0.00	0.02	0.01
C & E Loss (ft)	0.00	Cum SA (acres)	0.01	0.05	0.03

Errors Warnings and Notes

Warning:	The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:	The cross-section end points had to be extended vertically for the computed water surface.
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:	During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning:	The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

Plan: Plan 01 Hearst 2 RS: 136.985 Profile: Q2

E.G. Elev (ft)	57.52	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.94	Wt. n-Val.		0.013	
W.S. Elev (ft)	56.58	Reach Len. (ft)	88.73	88.73	88.73
Crit W.S. (ft)	56.79	Flow Area (sq ft)		0.74	
E.G. Slope (ft/ft)	0.069096	Area (sq ft)		0.74	
Q Total (cfs)	5.73	Flow (cfs)		5.73	
Top Width (ft)	4.84	Top Width (ft)		4.84	
Vel Total (ft/s)	7.77	Avg. Vel. (ft/s)		7.77	
Max Chl Dpth (ft)	0.30	Hydr. Depth (ft)		0.15	
Conv. Total (cfs)	21.8	Conv. (cfs)		21.8	
Length Wtd. (ft)	88.73	Wetted Per. (ft)		5.61	
Min Ch El (ft)	56.28	Shear (lb/sq ft)		0.57	
Alpha	1.00	Stream Power (lb/ft s)	24.96	0.00	0.00
Frctn Loss (ft)	1.01	Cum Volume (acre-ft)		0.00	0.00
C & E Loss (ft)	0.08	Cum SA (acres)		0.02	0.01

Errors Warnings and Notes

Warning:	Divided flow computed for this cross-section.
Warning:	The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:	The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note:	Program found supercritical flow starting at this cross section.

Plan: Plan 01 Hearst 2 RS: 136.985 Profile: Q10

E.G. Elev (ft)	57.76	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.08	Wt. n-Val.		0.013	0.030
W.S. Elev (ft)	56.68	Reach Len. (ft)	88.73	88.73	88.73
Crit W.S. (ft)	56.91	Flow Area (sq ft)		1.31	0.05
E.G. Slope (ft/ft)	0.055706	Area (sq ft)		1.31	0.05
Q Total (cfs)	11.02	Flow (cfs)		10.97	0.05
Top Width (ft)	8.27	Top Width (ft)		6.45	1.82
Vel Total (ft/s)	8.08	Avg. Vel. (ft/s)		8.35	1.06
Max Chl Dpth (ft)	0.40	Hydr. Depth (ft)		0.20	0.03
Conv. Total (cfs)	46.7	Conv. (cfs)		46.5	0.2
Length Wtd. (ft)	88.73	Wetted Per. (ft)		7.62	1.82
Min Ch El (ft)	56.28	Shear (lb/sq ft)		0.60	0.10
Alpha	1.06	Stream Power (lb/ft s)	24.96	0.00	0.00
Frctn Loss (ft)	0.88	Cum Volume (acre-ft)		0.00	0.00
C & E Loss (ft)	0.10	Cum SA (acres)		0.02	0.02

Errors Warnings and Notes

Warning:	Divided flow computed for this cross-section.
Warning:	The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:	The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
	This may indicate the need for additional cross sections.
Note:	Program found supercritical flow starting at this cross section.

Plan: Plan 01 Hearst 2 RS: 136.985 Profile: Q25

E.G. Elev (ft)	57.98	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.22	Wt. n-Val.		0.013	0.030
W.S. Elev (ft)	56.77	Reach Len. (ft)	88.73	88.73	88.73
Crit W.S. (ft)	57.02	Flow Area (sq ft)		1.89	0.31
E.G. Slope (ft/ft)	0.051188	Area (sq ft)		1.89	0.31
Q Total (cfs)	17.57	Flow (cfs)		16.99	0.58
Top Width (ft)	12.24	Top Width (ft)		7.71	4.53
Vel Total (ft/s)	7.99	Avg. Vel. (ft/s)		8.99	1.87
Max Chl Dpth (ft)	0.49	Hydr. Depth (ft)		0.25	0.07
Conv. Total (cfs)	77.7	Conv. (cfs)		75.1	2.6
Length Wtd. (ft)	88.73	Wetted Per. (ft)		9.22	4.54
Min Ch El (ft)	56.28	Shear (lb/sq ft)		0.66	0.22
Alpha	1.23	Stream Power (lb/ft s)	24.96	0.00	0.00
Frctn Loss (ft)	0.77	Cum Volume (acre-ft)	0.00	0.01	0.00
C & E Loss (ft)	0.11	Cum SA (acres)	0.00	0.02	0.02

Errors Warnings and Notes

Warning:	Divided flow computed for this cross-section.
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Errors Warnings and Notes (Continued)

Warning:	The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:	The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
	This may indicate the need for additional cross sections.
Note:	Program found supercritical flow starting at this cross section.

Plan: Plan 01 Hearst 2 RS: 136.985 Profile: Q100

E.G. Elev (ft)	58.17	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.33	Wt. n-Val.	0.000	0.013	0.030
W.S. Elev (ft)	56.83	Reach Len. (ft)	88.73	88.73	88.73
Crit W.S. (ft)	57.13	Flow Area (sq ft)	0.00	2.43	0.68
E.G. Slope (ft/ft)	0.049178	Area (sq ft)	0.00	2.43	0.68
Q Total (cfs)	24.80	Flow (cfs)	0.00	23.19	1.61
Top Width (ft)	15.99	Top Width (ft)	0.59	8.70	6.70
Vel Total (ft/s)	8.00	Avg. Vel. (ft/s)	0.33	9.56	2.38
Max Chl Dpth (ft)	0.55	Hydr. Depth (ft)	0.00	0.28	0.10
Conv. Total (cfs)	111.8	Conv. (cfs)	0.0	104.6	7.2
Length Wtd. (ft)	88.73	Wetted Per. (ft)	0.59	10.47	6.71
Min Ch El (ft)	56.28	Shear (lb/sq ft)		0.71	0.31
Alpha	1.34	Stream Power (lb/ft s)	24.96	0.00	0.00
Frctn Loss (ft)	0.68	Cum Volume (acre-ft)	0.00	0.01	0.00
C & E Loss (ft)	0.12	Cum SA (acres)	0.00	0.02	0.02

Errors Warnings and Notes

Warning:	Divided flow computed for this cross-section.
Warning:	The cross-section end points had to be extended vertically for the computed water surface.
Warning:	The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:	The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
	This may indicate the need for additional cross sections.
Warning:	The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.
Note:	Program found supercritical flow starting at this cross section.

Plan: Plan 01 Hearst 2 RS: 48.26 Profile: Q2

E.G. Elev (ft)	54.40	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.44	Wt. n-Val.		0.013	0.030
W.S. Elev (ft)	53.96	Reach Len. (ft)	48.26	48.26	48.26
Crit W.S. (ft)	54.10	Flow Area (sq ft)		1.03	0.15
E.G. Slope (ft/ft)	0.019662	Area (sq ft)		1.03	0.15
Q Total (cfs)	5.73	Flow (cfs)		5.58	0.15
Top Width (ft)	8.03	Top Width (ft)		5.01	3.01
Vel Total (ft/s)	4.84	Avg. Vel. (ft/s)		5.42	0.95
Max Chl Dpth (ft)	0.41	Hydr. Depth (ft)		0.21	0.05

Plan: Plan 01 Hearst 2 RS: 48.26 Profile: Q2 (Continued)

Conv. Total (cfs)	40.9	Conv. (cfs)		39.8	1.0
Length Wtd. (ft)	48.26	Wetted Per. (ft)		5.24	3.02
Min Ch El (ft)	53.55	Shear (lb/sq ft)		0.24	0.06
Alpha	1.22	Stream Power (lb/ft s)	20.86	0.00	0.00
Frctn Loss (ft)	2.97	Cum Volume (acre-ft)		0.00	0.00
C & E Loss (ft)	0.15	Cum SA (acres)		0.01	0.00

Errors Warnings and Notes

Warning:	The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Plan: Plan 01 Hearst 2 RS: 48.26 Profile: Q10

E.G. Elev (ft)	54.68	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.63	Wt. n-Val.		0.013	0.030
W.S. Elev (ft)	54.05	Reach Len. (ft)	48.26	48.26	48.26
Crit W.S. (ft)	54.21	Flow Area (sq ft)		1.55	0.66
E.G. Slope (ft/ft)	0.021972	Area (sq ft)		1.55	0.66
Q Total (cfs)	11.02	Flow (cfs)		10.23	0.79
Top Width (ft)	16.07	Top Width (ft)		6.11	9.96
Vel Total (ft/s)	4.99	Avg. Vel. (ft/s)		6.62	1.20
Max Chl Dpth (ft)	0.50	Hydr. Depth (ft)		0.25	0.07
Conv. Total (cfs)	74.3	Conv. (cfs)		69.0	5.4
Length Wtd. (ft)	48.26	Wetted Per. (ft)		6.33	10.00
Min Ch El (ft)	53.55	Shear (lb/sq ft)		0.33	0.09
Alpha	1.63	Stream Power (lb/ft s)	20.86	0.00	0.00
Frctn Loss (ft)	2.94	Cum Volume (acre-ft)		0.00	0.00
C & E Loss (ft)	0.13	Cum SA (acres)		0.01	0.01

Errors Warnings and Notes

Warning:	The cross-section end points had to be extended vertically for the computed water surface.
Warning:	The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Plan: Plan 01 Hearst 2 RS: 48.26 Profile: Q25

E.G. Elev (ft)	54.87	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.75	Wt. n-Val.		0.013	0.030
W.S. Elev (ft)	54.12	Reach Len. (ft)	48.26	48.26	48.26
Crit W.S. (ft)	54.30	Flow Area (sq ft)		1.99	1.34

Plan: Plan 01 Hearst 2 RS: 48.26 Profile: Q25 (Continued)

E.G. Slope (ft/ft)	0.023580	Area (sq ft)		1.99	1.34
Q Total (cfs)	17.57	Flow (cfs)		14.91	2.66
Top Width (ft)	16.87	Top Width (ft)		6.91	9.96
Vel Total (ft/s)	5.27	Avg. Vel. (ft/s)		7.49	1.98
Max Chl Dpth (ft)	0.57	Hydr. Depth (ft)		0.29	0.13
Conv. Total (cfs)	114.4	Conv. (cfs)		97.1	17.3
Length Wtd. (ft)	48.26	Wetted Per. (ft)		7.14	10.07
Min Ch El (ft)	53.55	Shear (lb/sq ft)		0.41	0.20
Alpha	1.73	Stream Power (lb/ft s)	20.86	0.00	0.00
Frctn Loss (ft)	2.97	Cum Volume (acre-ft)	0.00	0.00	0.00
C & E Loss (ft)	0.14	Cum SA (acres)	0.00	0.01	0.01

Errors Warnings and Notes

Warning:	The cross-section end points had to be extended vertically for the computed water surface.
Warning:	The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Plan: Plan 01 Hearst 2 RS: 48.26 Profile: Q100

E.G. Elev (ft)	55.03	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.85	Wt. n-Val.		0.013	0.030
W.S. Elev (ft)	54.18	Reach Len. (ft)	48.26	48.26	48.26
Crit W.S. (ft)	54.40	Flow Area (sq ft)		2.42	1.94
E.G. Slope (ft/ft)	0.024531	Area (sq ft)		2.42	1.94
Q Total (cfs)	24.80	Flow (cfs)		19.82	4.98
Top Width (ft)	17.57	Top Width (ft)		7.61	9.96
Vel Total (ft/s)	5.69	Avg. Vel. (ft/s)		8.18	2.57
Max Chl Dpth (ft)	0.63	Hydr. Depth (ft)		0.32	0.19
Conv. Total (cfs)	158.3	Conv. (cfs)		126.5	31.8
Length Wtd. (ft)	48.26	Wetted Per. (ft)		7.84	10.13
Min Ch El (ft)	53.55	Shear (lb/sq ft)		0.47	0.29
Alpha	1.69	Stream Power (lb/ft s)	20.86	0.00	0.00
Frctn Loss (ft)	2.99	Cum Volume (acre-ft)	0.00	0.00	0.00
C & E Loss (ft)	0.14	Cum SA (acres)	0.00	0.01	0.01

Errors Warnings and Notes

Warning:	The cross-section end points had to be extended vertically for the computed water surface.
Warning:	The cross section had to be extended vertically during the critical depth calculations.
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:	The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant

Errors Warnings and Notes (Continued)

	method to find critical depth.
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Plan: Plan 01 Hearst 2 RS: 0 Profile: Q2

E.G. Elev (ft)	53.16	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.62	Wt. n-Val.		0.013	0.030
W.S. Elev (ft)	52.53	Reach Len. (ft)			
Crit W.S. (ft)	52.71	Flow Area (sq ft)		0.88	0.06
E.G. Slope (ft/ft)	0.034359	Area (sq ft)		0.88	0.06
Q Total (cfs)	5.73	Flow (cfs)		5.62	0.11
Top Width (ft)	5.15	Top Width (ft)		4.45	0.70
Vel Total (ft/s)	6.08	Avg. Vel. (ft/s)		6.38	1.77
Max Chl Dpth (ft)	0.40	Hydr. Depth (ft)		0.20	0.09
Conv. Total (cfs)	30.9	Conv. (cfs)		30.3	0.6
Length Wtd. (ft)		Wetted Per. (ft)		5.33	0.72
Min Ch El (ft)	52.13	Shear (lb/sq ft)		0.35	0.18
Alpha	1.08	Stream Power (lb/ft s)	40.00	0.00	0.00
Frctn Loss (ft)	1.23	Cum Volume (acre-ft)			
C & E Loss (ft)	0.02	Cum SA (acres)			

Errors Warnings and Notes

Warning:	Divided flow computed for this cross-section.
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Plan: Plan 01 Hearst 2 RS: 0 Profile: Q10

E.G. Elev (ft)	53.42	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.76	Wt. n-Val.		0.013	0.030
W.S. Elev (ft)	52.66	Reach Len. (ft)			
Crit W.S. (ft)	52.87	Flow Area (sq ft)		1.48	0.18
E.G. Slope (ft/ft)	0.030766	Area (sq ft)		1.48	0.18
Q Total (cfs)	11.02	Flow (cfs)		10.59	0.43
Top Width (ft)	6.84	Top Width (ft)		5.64	1.20
Vel Total (ft/s)	6.63	Avg. Vel. (ft/s)		7.14	2.39
Max Chl Dpth (ft)	0.53	Hydr. Depth (ft)		0.26	0.15
Conv. Total (cfs)	62.8	Conv. (cfs)		60.4	2.4
Length Wtd. (ft)		Wetted Per. (ft)		6.99	1.24
Min Ch El (ft)	52.13	Shear (lb/sq ft)		0.41	0.28
Alpha	1.12	Stream Power (lb/ft s)	40.00	0.00	0.00
Frctn Loss (ft)	1.25	Cum Volume (acre-ft)			
C & E Loss (ft)	0.01	Cum SA (acres)			

Errors Warnings and Notes

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Errors Warnings and Notes (Continued)

Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
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Plan: Plan 01 Hearst 2 RS: 0 Profile: Q25

E.G. Elev (ft)	53.63	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.86	Wt. n-Val.	0.013	0.013	0.030
W.S. Elev (ft)	52.77	Reach Len. (ft)			
Crit W.S. (ft)	53.04	Flow Area (sq ft)	0.00	2.18	0.33
E.G. Slope (ft/ft)	0.027427	Area (sq ft)	0.00	2.18	0.33
Q Total (cfs)	17.57	Flow (cfs)	0.00	16.63	0.93
Top Width (ft)	8.65	Top Width (ft)	0.30	6.71	1.64
Vel Total (ft/s)	6.98	Avg. Vel. (ft/s)	1.07	7.64	2.78
Max Chl Dpth (ft)	0.64	Hydr. Depth (ft)	0.01	0.32	0.20
Conv. Total (cfs)	106.1	Conv. (cfs)	0.0	100.4	5.6
Length Wtd. (ft)		Wetted Per. (ft)	0.30	8.50	1.69
Min Ch El (ft)	52.13	Shear (lb/sq ft)	0.02	0.44	0.34
Alpha	1.14	Stream Power (lb/ft s)	40.00	0.00	0.00
Frctn Loss (ft)	1.23	Cum Volume (acre-ft)			
C & E Loss (ft)	0.01	Cum SA (acres)			

Errors Warnings and Notes

Warning:	Divided flow computed for this cross-section.
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Plan: Plan 01 Hearst 2 RS: 0 Profile: Q100

E.G. Elev (ft)	53.85	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.99	Wt. n-Val.	0.013	0.013	0.030
W.S. Elev (ft)	52.86	Reach Len. (ft)			
Crit W.S. (ft)	53.16	Flow Area (sq ft)	0.08	2.80	0.51
E.G. Slope (ft/ft)	0.024045	Area (sq ft)	0.08	2.80	0.51
Q Total (cfs)	24.80	Flow (cfs)	0.22	23.07	1.51
Top Width (ft)	10.05	Top Width (ft)	1.32	6.71	2.02
Vel Total (ft/s)	7.32	Avg. Vel. (ft/s)	2.72	8.23	2.99
Max Chl Dpth (ft)	0.73	Hydr. Depth (ft)	0.06	0.42	0.25
Conv. Total (cfs)	159.9	Conv. (cfs)	1.4	148.8	9.8
Length Wtd. (ft)		Wetted Per. (ft)	1.32	8.87	2.08
Min Ch El (ft)	52.13	Shear (lb/sq ft)	0.09	0.47	0.36
Alpha	1.19	Stream Power (lb/ft s)	40.00	0.00	0.00
Frctn Loss (ft)	1.17	Cum Volume (acre-ft)			
C & E Loss (ft)	0.01	Cum SA (acres)			

Errors Warnings and Notes (Continued)

Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
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Plan: Plan 01 Lower Curtis 1 RS: 370.35 Profile: Q2

E.G. Elev (ft)	59.78	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.		0.013	
W.S. Elev (ft)	59.78	Reach Len. (ft)	155.18	155.18	155.18
Crit W.S. (ft)	59.78	Flow Area (sq ft)		0.00	
E.G. Slope (ft/ft)	0.005005	Area (sq ft)		0.00	
Q Total (cfs)	0.00	Flow (cfs)		0.00	
Top Width (ft)	0.15	Top Width (ft)		0.15	
Vel Total (ft/s)	0.38	Avg. Vel. (ft/s)		0.38	
Max Chl Dpth (ft)	0.02	Hydr. Depth (ft)		0.01	
Conv. Total (cfs)	0.0	Conv. (cfs)		0.0	
Length Wtd. (ft)	155.18	Wetted Per. (ft)		0.15	
Min Ch EI (ft)	59.76	Shear (lb/sq ft)			
Alpha	1.00	Stream Power (lb/ft s)	40.00	0.00	0.00
Frctn Loss (ft)		Cum Volume (acre-ft)	0.02	0.01	0.04
C & E Loss (ft)		Cum SA (acres)	0.03	0.01	0.06

Plan: Plan 01 Lower Curtis 1 RS: 370.35 Profile: Q10

E.G. Elev (ft)	59.79	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	Wt. n-Val.		0.013	
W.S. Elev (ft)	59.78	Reach Len. (ft)	155.18	155.18	155.18
Crit W.S. (ft)	59.78	Flow Area (sq ft)		0.00	
E.G. Slope (ft/ft)	0.016275	Area (sq ft)		0.00	
Q Total (cfs)	0.00	Flow (cfs)		0.00	
Top Width (ft)	0.15	Top Width (ft)		0.15	
Vel Total (ft/s)	0.71	Avg. Vel. (ft/s)		0.71	
Max Chl Dpth (ft)	0.02	Hydr. Depth (ft)		0.01	
Conv. Total (cfs)	0.0	Conv. (cfs)		0.0	
Length Wtd. (ft)	155.18	Wetted Per. (ft)		0.16	
Min Ch EI (ft)	59.76	Shear (lb/sq ft)			
Alpha	1.00	Stream Power (lb/ft s)	40.00	0.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.02	0.01	0.05
C & E Loss (ft)	0.00	Cum SA (acres)	0.03	0.01	0.06

Errors Warnings and Notes

Warning:	The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:	The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

Errors Warnings and Notes (Continued)

	This may indicate the need for additional cross sections.
Warning:	During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Plan: Plan 01 Lower Curtis 1 RS: 370.35 Profile: Q25

E.G. Elev (ft)	59.80	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	Wt. n-Val.		0.013	
W.S. Elev (ft)	59.79	Reach Len. (ft)	155.18	155.18	155.18
Crit W.S. (ft)	59.79	Flow Area (sq ft)		0.00	
E.G. Slope (ft/ft)	0.012646	Area (sq ft)		0.00	
Q Total (cfs)	0.00	Flow (cfs)		0.00	
Top Width (ft)	0.22	Top Width (ft)		0.22	
Vel Total (ft/s)	0.79	Avg. Vel. (ft/s)		0.79	
Max Chl Dpth (ft)	0.03	Hydr. Depth (ft)		0.02	
Conv. Total (cfs)	0.0	Conv. (cfs)		0.0	
Length Wtd. (ft)	155.18	Wetted Per. (ft)		0.23	
Min Ch EI (ft)	59.76	Shear (lb/sq ft)		0.01	
Alpha	1.00	Stream Power (lb/ft s)	40.00	0.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.03	0.01	0.05
C & E Loss (ft)	0.00	Cum SA (acres)	0.04	0.01	0.07

Errors Warnings and Notes

Warning:	The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:	The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:	During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Plan: Plan 01 Lower Curtis 1 RS: 370.35 Profile: Q100

E.G. Elev (ft)	59.81	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	Wt. n-Val.		0.013	
W.S. Elev (ft)	59.80	Reach Len. (ft)	155.18	155.18	155.18
Crit W.S. (ft)	59.80	Flow Area (sq ft)		0.00	
E.G. Slope (ft/ft)	0.010047	Area (sq ft)		0.00	
Q Total (cfs)	0.00	Flow (cfs)		0.00	
Top Width (ft)	0.26	Top Width (ft)		0.26	
Vel Total (ft/s)	0.79	Avg. Vel. (ft/s)		0.79	
Max Chl Dpth (ft)	0.04	Hydr. Depth (ft)		0.02	
Conv. Total (cfs)	0.0	Conv. (cfs)		0.0	

Plan: Plan 01 Lower Curtis 1 RS: 370.35 Profile: Q100 (Continued)

Length Wtd. (ft)	155.18	Wetted Per. (ft)		0.27	
Min Ch EI (ft)	59.76	Shear (lb/sq ft)		0.01	
Alpha	1.00	Stream Power (lb/ft s)	40.00	0.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.03	0.01	0.06
C & E Loss (ft)	0.00	Cum SA (acres)	0.04	0.01	0.08

Errors Warnings and Notes

Warning:	The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:	The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:	During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Plan: Plan 01 Lower Curtis 1 RS: 215.17 Profile: Q2

E.G. Elev (ft)	58.94	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.		0.013	
W.S. Elev (ft)	58.94	Reach Len. (ft)	30.00	30.00	30.00
Crit W.S. (ft)	58.90	Flow Area (sq ft)		0.01	
E.G. Slope (ft/ft)	0.000026	Area (sq ft)		0.01	
Q Total (cfs)	0.00	Flow (cfs)		0.00	
Top Width (ft)	0.38	Top Width (ft)		0.38	
Vel Total (ft/s)	0.05	Avg. Vel. (ft/s)		0.05	
Max Chl Dpth (ft)	0.06	Hydr. Depth (ft)		0.03	
Conv. Total (cfs)	0.1	Conv. (cfs)		0.1	
Length Wtd. (ft)	30.00	Wetted Per. (ft)		0.40	
Min Ch EI (ft)	58.88	Shear (lb/sq ft)		0.00	
Alpha	1.00	Stream Power (lb/ft s)	40.00	0.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.02	0.01	0.04
C & E Loss (ft)	0.00	Cum SA (acres)	0.03	0.01	0.06

Errors Warnings and Notes

Warning:	The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note:	Hydraulic jump has occurred between this cross section and the previous upstream section.

Plan: Plan 01 Lower Curtis 1 RS: 215.17 Profile: Q10

E.G. Elev (ft)	59.00	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.		0.013	
W.S. Elev (ft)	59.00	Reach Len. (ft)	30.00	30.00	30.00
Crit W.S. (ft)	58.90	Flow Area (sq ft)		0.04	

Plan: Plan 01 Lower Curtis 1 RS: 215.17 Profile: Q10 (Continued)

E.G. Slope (ft/ft)	0.000003	Area (sq ft)		0.04	
Q Total (cfs)	0.00	Flow (cfs)		0.00	
Top Width (ft)	0.45	Top Width (ft)		0.45	
Vel Total (ft/s)	0.03	Avg. Vel. (ft/s)		0.03	
Max Chl Dpth (ft)	0.12	Hydr. Depth (ft)		0.08	
Conv. Total (cfs)	0.7	Conv. (cfs)		0.7	
Length Wtd. (ft)	30.00	Wetted Per. (ft)		0.57	
Min Ch El (ft)	58.88	Shear (lb/sq ft)		0.00	
Alpha	1.00	Stream Power (lb/ft s)	40.00	0.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.02	0.01	0.05
C & E Loss (ft)	0.00	Cum SA (acres)	0.03	0.01	0.06

Errors Warnings and Notes

Warning:	The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
	This may indicate the need for additional cross sections.
Note:	Hydraulic jump has occurred between this cross section and the previous upstream section.

Plan: Plan 01 Lower Curtis 1 RS: 215.17 Profile: Q25

E.G. Elev (ft)	59.09	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.		0.013	
W.S. Elev (ft)	59.09	Reach Len. (ft)	30.00	30.00	30.00
Crit W.S. (ft)	58.91	Flow Area (sq ft)		0.10	
E.G. Slope (ft/ft)	0.000002	Area (sq ft)		0.10	
Q Total (cfs)	0.00	Flow (cfs)		0.00	
Top Width (ft)	1.20	Top Width (ft)		1.20	
Vel Total (ft/s)	0.03	Avg. Vel. (ft/s)		0.03	
Max Chl Dpth (ft)	0.21	Hydr. Depth (ft)		0.08	
Conv. Total (cfs)	1.8	Conv. (cfs)		1.8	
Length Wtd. (ft)	30.00	Wetted Per. (ft)		1.54	
Min Ch El (ft)	58.88	Shear (lb/sq ft)		0.00	
Alpha	1.00	Stream Power (lb/ft s)	40.00	0.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.03	0.01	0.05
C & E Loss (ft)	0.00	Cum SA (acres)	0.04	0.01	0.07

Errors Warnings and Notes

Warning:	Divided flow computed for this cross-section.
Warning:	The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
	This may indicate the need for additional cross sections.
Note:	Hydraulic jump has occurred between this cross section and the previous upstream section.

Plan: Plan 01 Lower Curtis 1 RS: 215.17 Profile: Q100

E.G. Elev (ft)	59.18	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.013	0.013	0.030
W.S. Elev (ft)	59.18	Reach Len. (ft)	30.00	30.00	30.00
Crit W.S. (ft)	58.92	Flow Area (sq ft)	0.04	0.23	0.01
E.G. Slope (ft/ft)	0.000000	Area (sq ft)	0.04	0.23	0.01
Q Total (cfs)	0.00	Flow (cfs)	0.00	0.00	0.00
Top Width (ft)	3.05	Top Width (ft)	1.03	1.39	0.63
Vel Total (ft/s)	0.01	Avg. Vel. (ft/s)	0.01	0.02	0.00
Max Chl Dpth (ft)	0.30	Hydr. Depth (ft)	0.04	0.16	0.01
Conv. Total (cfs)	6.7	Conv. (cfs)	0.6	6.2	0.0
Length Wtd. (ft)	30.00	Wetted Per. (ft)	1.04	1.96	0.63
Min Ch EI (ft)	58.88	Shear (lb/sq ft)	0.00	0.00	0.00
Alpha	1.15	Stream Power (lb/ft s)	40.00	0.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.03	0.01	0.06
C & E Loss (ft)	0.00	Cum SA (acres)	0.04	0.01	0.08

Errors Warnings and Notes

Warning:	Divided flow computed for this cross-section.
Warning:	The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
	This may indicate the need for additional cross sections.
Note:	Hydraulic jump has occurred between this cross section and the previous upstream section.

Plan: Plan 01 Lower Curtis 1 RS: 185.17 Profile: Q2

E.G. Elev (ft)	58.94	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.013	0.013	0.030
W.S. Elev (ft)	58.93	Reach Len. (ft)	30.00	30.00	30.00
Crit W.S. (ft)	58.81	Flow Area (sq ft)	0.00	0.26	0.80
E.G. Slope (ft/ft)	0.000057	Area (sq ft)	0.00	0.26	1.84
Q Total (cfs)	0.12	Flow (cfs)	0.00	0.06	0.06
Top Width (ft)	20.63	Top Width (ft)	0.30	1.89	18.45
Vel Total (ft/s)	0.11	Avg. Vel. (ft/s)	0.05	0.23	0.08
Max Chl Dpth (ft)	0.24	Hydr. Depth (ft)	0.01	0.14	0.10
Conv. Total (cfs)	16.1	Conv. (cfs)	0.0	7.7	8.4
Length Wtd. (ft)	30.00	Wetted Per. (ft)	0.30	1.92	8.25
Min Ch EI (ft)	58.69	Shear (lb/sq ft)	0.00	0.00	0.00
Alpha	2.10	Stream Power (lb/ft s)	40.00	0.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.02	0.01	0.04
C & E Loss (ft)	0.00	Cum SA (acres)	0.03	0.01	0.05

Errors Warnings and Notes

Warning:	Divided flow computed for this cross-section.
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Errors Warnings and Notes (Continued)

Warning:	The cross-section end points had to be extended vertically for the computed water surface.
Warning:	The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
	This may indicate the need for additional cross sections.
Note:	Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

Plan: Plan 01 Lower Curtis 1 RS: 185.17 Profile: Q10

E.G. Elev (ft)	59.00	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.013	0.013	0.030
W.S. Elev (ft)	59.00	Reach Len. (ft)	30.00	30.00	30.00
Crit W.S. (ft)	58.84	Flow Area (sq ft)	0.05	0.38	3.16
E.G. Slope (ft/ft)	0.000016	Area (sq ft)	0.05	0.38	3.16
Q Total (cfs)	0.23	Flow (cfs)	0.00	0.06	0.17
Top Width (ft)	24.64	Top Width (ft)	1.05	1.89	21.70
Vel Total (ft/s)	0.06	Avg. Vel. (ft/s)	0.06	0.15	0.05
Max Chl Dpth (ft)	0.31	Hydr. Depth (ft)	0.04	0.20	0.15
Conv. Total (cfs)	58.1	Conv. (cfs)	0.7	14.5	42.9
Length Wtd. (ft)	30.00	Wetted Per. (ft)	1.05	1.92	21.97
Min Ch EI (ft)	58.69	Shear (lb/sq ft)	0.00	0.00	0.00
Alpha	1.94	Stream Power (lb/ft s)	40.00	0.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.02	0.01	0.04
C & E Loss (ft)	0.00	Cum SA (acres)	0.03	0.01	0.06

Errors Warnings and Notes

Warning:	The cross-section end points had to be extended vertically for the computed water surface.
Note:	Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

Plan: Plan 01 Lower Curtis 1 RS: 185.17 Profile: Q25

E.G. Elev (ft)	59.09	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.013	0.013	0.030
W.S. Elev (ft)	59.09	Reach Len. (ft)	30.00	30.00	30.00
Crit W.S. (ft)	58.87	Flow Area (sq ft)	0.19	0.54	5.08
E.G. Slope (ft/ft)	0.000016	Area (sq ft)	0.19	0.54	5.08
Q Total (cfs)	0.50	Flow (cfs)	0.02	0.11	0.38
Top Width (ft)	25.69	Top Width (ft)	2.10	1.89	21.70
Vel Total (ft/s)	0.09	Avg. Vel. (ft/s)	0.09	0.20	0.07
Max Chl Dpth (ft)	0.40	Hydr. Depth (ft)	0.09	0.29	0.23
Conv. Total (cfs)	125.5	Conv. (cfs)	4.2	26.8	94.5
Length Wtd. (ft)	30.00	Wetted Per. (ft)	2.11	1.92	22.06
Min Ch EI (ft)	58.69	Shear (lb/sq ft)	0.00	0.00	0.00
Alpha	1.71	Stream Power (lb/ft s)	40.00	0.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.03	0.01	0.05

Plan: Plan 01 Lower Curtis 1 RS: 185.17 Profile: Q25 (Continued)

C & E Loss (ft)	0.00	Cum SA (acres)	0.04	0.01	0.06
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Errors Warnings and Notes

Warning:	The cross-section end points had to be extended vertically for the computed water surface.
Warning:	The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note:	Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

Plan: Plan 01 Lower Curtis 1 RS: 185.17 Profile: Q100

E.G. Elev (ft)	59.18	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.013	0.013	0.030
W.S. Elev (ft)	59.18	Reach Len. (ft)	30.00	30.00	30.00
Crit W.S. (ft)	58.89	Flow Area (sq ft)	0.43	0.72	7.10
E.G. Slope (ft/ft)	0.000011	Area (sq ft)	0.43	0.72	7.10
Q Total (cfs)	0.72	Flow (cfs)	0.04	0.14	0.54
Top Width (ft)	26.80	Top Width (ft)	3.21	1.89	21.70
Vel Total (ft/s)	0.09	Avg. Vel. (ft/s)	0.10	0.19	0.08
Max Chl Dpth (ft)	0.49	Hydr. Depth (ft)	0.13	0.38	0.33
Conv. Total (cfs)	220.4	Conv. (cfs)	13.0	42.8	164.7
Length Wtd. (ft)	30.00	Wetted Per. (ft)	3.22	1.92	22.15
Min Ch El (ft)	58.69	Shear (lb/sq ft)	0.00	0.00	0.00
Alpha	1.60	Stream Power (lb/ft s)	40.00	0.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.03	0.01	0.06
C & E Loss (ft)	0.00	Cum SA (acres)	0.04	0.01	0.07

Errors Warnings and Notes

Warning:	The cross-section end points had to be extended vertically for the computed water surface.
Warning:	The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note:	Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

Plan: Plan 01 Lower Curtis 1 RS: 155.17 Profile: Q2

E.G. Elev (ft)	58.93	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.013	0.013	0.030
W.S. Elev (ft)	58.93	Reach Len. (ft)	142.82	142.82	142.82
Crit W.S. (ft)		Flow Area (sq ft)	0.32	0.43	0.42
E.G. Slope (ft/ft)	0.000018	Area (sq ft)	0.32	0.43	0.42
Q Total (cfs)	0.12	Flow (cfs)	0.04	0.07	0.02
Top Width (ft)	9.43	Top Width (ft)	2.89	1.39	5.15
Vel Total (ft/s)	0.10	Avg. Vel. (ft/s)	0.11	0.16	0.04
Max Chl Dpth (ft)	0.44	Hydr. Depth (ft)	0.11	0.31	0.08

Plan: Plan 01 Lower Curtis 1 RS: 155.17 Profile: Q2 (Continued)

Conv. Total (cfs)	28.7	Conv. (cfs)	8.6	16.1	3.9
Length Wtd. (ft)	142.82	Wetted Per. (ft)	2.90	2.25	5.16
Min Ch EI (ft)	58.49	Shear (lb/sq ft)	0.00	0.00	0.00
Alpha	1.72	Stream Power (lb/ft s)	40.00	0.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.02	0.01	0.04
C & E Loss (ft)	0.00	Cum SA (acres)	0.03	0.01	0.04

Errors Warnings and Notes

Warning:	Divided flow computed for this cross-section.
Warning:	The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
	This may indicate the need for additional cross sections.

Plan: Plan 01 Lower Curtis 1 RS: 155.17 Profile: Q10

E.G. Elev (ft)	59.00	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.013	0.013	0.030
W.S. Elev (ft)	59.00	Reach Len. (ft)	142.82	142.82	142.82
Crit W.S. (ft)		Flow Area (sq ft)	0.53	0.51	0.81
E.G. Slope (ft/ft)	0.000023	Area (sq ft)	0.53	0.51	0.81
Q Total (cfs)	0.23	Flow (cfs)	0.08	0.10	0.05
Top Width (ft)	12.13	Top Width (ft)	3.61	1.39	7.13
Vel Total (ft/s)	0.12	Avg. Vel. (ft/s)	0.15	0.20	0.06
Max Chl Dpth (ft)	0.51	Hydr. Depth (ft)	0.15	0.37	0.11
Conv. Total (cfs)	47.5	Conv. (cfs)	16.9	21.2	9.4
Length Wtd. (ft)	142.82	Wetted Per. (ft)	3.63	2.37	7.14
Min Ch EI (ft)	58.49	Shear (lb/sq ft)	0.00	0.00	0.00
Alpha	1.75	Stream Power (lb/ft s)	40.00	0.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.02	0.01	0.04
C & E Loss (ft)	0.00	Cum SA (acres)	0.03	0.01	0.05

Errors Warnings and Notes

Warning:	Divided flow computed for this cross-section.
Warning:	The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
	This may indicate the need for additional cross sections.

Plan: Plan 01 Lower Curtis 1 RS: 155.17 Profile: Q25

E.G. Elev (ft)	59.09	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.013	0.013	0.030
W.S. Elev (ft)	59.09	Reach Len. (ft)	142.82	142.82	142.82
Crit W.S. (ft)		Flow Area (sq ft)	0.86	0.64	1.56
E.G. Slope (ft/ft)	0.000033	Area (sq ft)	0.86	0.64	1.56
Q Total (cfs)	0.50	Flow (cfs)	0.21	0.17	0.13

Plan: Plan 01 Lower Curtis 1 RS: 155.17 Profile: Q25 (Continued)

Top Width (ft)	15.51	Top Width (ft)	4.12	1.39	10.00
Vel Total (ft/s)	0.16	Avg. Vel. (ft/s)	0.24	0.26	0.08
Max Chl Dpth (ft)	0.60	Hydr. Depth (ft)	0.21	0.46	0.16
Conv. Total (cfs)	87.7	Conv. (cfs)	36.4	28.9	22.4
Length Wtd. (ft)	142.82	Wetted Per. (ft)	4.28	2.55	10.01
Min Ch EI (ft)	58.49	Shear (lb/sq ft)	0.00	0.00	0.00
Alpha	1.79	Stream Power (lb/ft s)	40.00	0.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.02	0.01	0.05
C & E Loss (ft)	0.00	Cum SA (acres)	0.03	0.01	0.05

Errors Warnings and Notes

Warning:	Divided flow computed for this cross-section.
Warning:	The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
	This may indicate the need for additional cross sections.

Plan: Plan 01 Lower Curtis 1 RS: 155.17 Profile: Q100

E.G. Elev (ft)	59.18	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.013	0.013	0.030
W.S. Elev (ft)	59.18	Reach Len. (ft)	142.82	142.82	142.82
Crit W.S. (ft)		Flow Area (sq ft)	1.29	0.77	2.71
E.G. Slope (ft/ft)	0.000024	Area (sq ft)	1.29	0.77	2.71
Q Total (cfs)	0.72	Flow (cfs)	0.32	0.19	0.22
Top Width (ft)	21.14	Top Width (ft)	5.07	1.39	14.67
Vel Total (ft/s)	0.15	Avg. Vel. (ft/s)	0.25	0.24	0.08
Max Chl Dpth (ft)	0.69	Hydr. Depth (ft)	0.25	0.55	0.18
Conv. Total (cfs)	145.3	Conv. (cfs)	64.2	37.6	43.6
Length Wtd. (ft)	142.82	Wetted Per. (ft)	5.43	2.74	14.68
Min Ch EI (ft)	58.49	Shear (lb/sq ft)	0.00	0.00	0.00
Alpha	1.93	Stream Power (lb/ft s)	40.00	0.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.03	0.01	0.05
C & E Loss (ft)	0.00	Cum SA (acres)	0.04	0.01	0.06

Errors Warnings and Notes

Warning:	Divided flow computed for this cross-section.
Warning:	The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
	This may indicate the need for additional cross sections.

Plan: Plan 01 Lower Curtis 1 RS: 12.35 Profile: Q2

E.G. Elev (ft)	58.93	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.013	0.013	0.030
W.S. Elev (ft)	58.93	Reach Len. (ft)	18.10	18.10	18.10

Plan: Plan 01 Lower Curtis 1 RS: 12.35 Profile: Q2 (Continued)

Crit W.S. (ft)		Flow Area (sq ft)	10.12	2.29	20.79
E.G. Slope (ft/ft)	0.000000	Area (sq ft)	10.12	2.29	20.79
Q Total (cfs)	0.26	Flow (cfs)	0.11	0.02	0.13
Top Width (ft)	39.23	Top Width (ft)	15.64	1.89	21.70
Vel Total (ft/s)	0.01	Avg. Vel. (ft/s)	0.01	0.01	0.01
Max Chl Dpth (ft)	1.54	Hydr. Depth (ft)	0.65	1.21	0.96
Conv. Total (cfs)	1985.5	Conv. (cfs)	817.8	188.8	978.9
Length Wtd. (ft)	18.10	Wetted Per. (ft)	17.01	3.75	22.42
Min Ch EI (ft)	57.39	Shear (lb/sq ft)	0.00	0.00	0.00
Alpha	1.24	Stream Power (lb/ft s)	40.00	0.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.00	0.00	0.00
C & E Loss (ft)	0.01	Cum SA (acres)			

Errors Warnings and Notes

Warning:	The cross-section end points had to be extended vertically for the computed water surface.
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Plan: Plan 01 Lower Curtis 1 RS: 12.35 Profile: Q10

E.G. Elev (ft)	59.00	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.013	0.013	0.030
W.S. Elev (ft)	59.00	Reach Len. (ft)	18.10	18.10	18.10
Crit W.S. (ft)		Flow Area (sq ft)	11.13	2.41	22.16
E.G. Slope (ft/ft)	0.000000	Area (sq ft)	11.13	2.41	22.16
Q Total (cfs)	0.49	Flow (cfs)	0.21	0.05	0.24
Top Width (ft)	39.97	Top Width (ft)	16.38	1.89	21.70
Vel Total (ft/s)	0.01	Avg. Vel. (ft/s)	0.02	0.02	0.01
Max Chl Dpth (ft)	1.61	Hydr. Depth (ft)	0.68	1.28	1.02
Conv. Total (cfs)	2223.7	Conv. (cfs)	931.5	205.4	1086.7
Length Wtd. (ft)	18.10	Wetted Per. (ft)	17.76	3.75	22.49
Min Ch EI (ft)	57.39	Shear (lb/sq ft)	0.00	0.00	0.00
Alpha	1.23	Stream Power (lb/ft s)	40.00	0.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.00	0.00	0.01
C & E Loss (ft)	0.01	Cum SA (acres)			

Errors Warnings and Notes

Warning:	The cross-section end points had to be extended vertically for the computed water surface.
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Plan: Plan 01 Lower Curtis 1 RS: 12.35 Profile: Q25

E.G. Elev (ft)	59.09	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.013	0.013	0.030
W.S. Elev (ft)	59.09	Reach Len. (ft)	18.10	18.10	18.10
Crit W.S. (ft)		Flow Area (sq ft)	12.58	2.58	24.07
E.G. Slope (ft/ft)	0.000000	Area (sq ft)	12.58	2.58	24.07
Q Total (cfs)	1.07	Flow (cfs)	0.47	0.09	0.51
Top Width (ft)	40.00	Top Width (ft)	16.41	1.89	21.70
Vel Total (ft/s)	0.03	Avg. Vel. (ft/s)	0.04	0.04	0.02
Max Chl Dpth (ft)	1.70	Hydr. Depth (ft)	0.77	1.37	1.11
Conv. Total (cfs)	2611.7	Conv. (cfs)	1137.4	229.7	1244.6
Length Wtd. (ft)	18.10	Wetted Per. (ft)	17.87	3.75	22.57
Min Ch El (ft)	57.39	Shear (lb/sq ft)	0.00	0.00	0.00
Alpha	1.25	Stream Power (lb/ft s)	40.00	0.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.00	0.00	0.01
C & E Loss (ft)	0.01	Cum SA (acres)			

Errors Warnings and Notes

Warning:	The cross-section end points had to be extended vertically for the computed water surface.
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Plan: Plan 01 Lower Curtis 1 RS: 12.35 Profile: Q100

E.G. Elev (ft)	59.18	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.013	0.013	0.030
W.S. Elev (ft)	59.18	Reach Len. (ft)	18.10	18.10	18.10
Crit W.S. (ft)		Flow Area (sq ft)	14.11	2.76	26.10
E.G. Slope (ft/ft)	0.000000	Area (sq ft)	14.11	2.76	26.10
Q Total (cfs)	1.53	Flow (cfs)	0.69	0.13	0.71
Top Width (ft)	40.00	Top Width (ft)	16.41	1.89	21.70
Vel Total (ft/s)	0.04	Avg. Vel. (ft/s)	0.05	0.05	0.03
Max Chl Dpth (ft)	1.79	Hydr. Depth (ft)	0.86	1.46	1.20
Conv. Total (cfs)	3049.1	Conv. (cfs)	1372.6	256.4	1420.0
Length Wtd. (ft)	18.10	Wetted Per. (ft)	17.97	3.75	22.67
Min Ch El (ft)	57.39	Shear (lb/sq ft)	0.00	0.00	0.00
Alpha	1.26	Stream Power (lb/ft s)	40.00	0.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.00	0.00	0.01
C & E Loss (ft)	0.01	Cum SA (acres)			

Errors Warnings and Notes

Warning:	The cross-section end points had to be extended vertically for the computed water surface.
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PIPE-BASED DRAINAGE SCENARIOS FOR HEARST AVE. PROJECT AND TOPOGRAPHIC DEPRESSION

Compute pipe discharge capacities for possible subsurface drainage of Hearst Ave. Project site:

For pipe flow: use Manning formula for full flow
 $Q=vA$ Peak Q10 for Subwatersheds A + B= 2.37 cfs
 Peak Q25 for Subwatersheds A + B= 4.04 cfs

$v= (0.59/n)*(D^{0.67})*(S^{0.5})$ where: n= pipe hydraulic roughness (King et al. 1949)
 D= pipe diameter, ft.
 S= pipe slope, ft/ft. (for east boundary to Hearst Ave. outlet, S= 0.008)

For 4-inch, smooth wall pipe: n= 0.011
 D= 0.33 ft.
 S= 0.008 ft/ft.
 A= 0.085541
 v= 2.282489
 Q= 0.195246
 Therefore, for 2@ 4-inch pipes, total capacity= 0.4 cfs, which is insufficient for site stormwater evacuation.

Try 6-inch, smooth wall pipe: D= 0.5 ft.
 S= 0.008 ft/ft.
 A= 0.196375
 v= 3.015187
 Q= 0.592107
 Therefore, for 2@ 6-inch pipes, total capacity= 1.18 cfs, still insufficient for site stormwater evacuation.

Also, 6-inch pipes will not fit physically between the sidewalk and 10-yr. HGL

Thus, analyze the potential for a shallow surface swale or various configurations (see FlowMaster computations).

Hearst Ave. Proj: Rect Channel (S=0.8%) @Qmax

Project Description

Friction Method Manning Formula
 Solve For Normal Depth

Input Data

Roughness Coefficient 0.011
 Channel Slope 0.00800 ft/ft
 Bottom Width 2.00 ft
 Discharge 4.00 ft³/s

Results

Normal Depth 0.39 ft
 Flow Area 0.77 ft²
 Wetted Perimeter 2.77 ft
 Top Width 2.00 ft
 Critical Depth 0.50 ft
 Critical Slope 0.00381 ft/ft
 Velocity 5.17 ft/s
 Velocity Head 0.41 ft
 Specific Energy 0.80 ft
 Froude Number 1.46
 Flow Type Supercritical

GVF Input Data

Downstream Depth 0.00 ft
 Length 0.00 ft
 Number Of Steps 0

GVF Output Data

Upstream Depth 0.00 ft
 Profile Description
 Profile Headloss 0.00 ft
 Downstream Velocity Infinity ft/s
 Upstream Velocity Infinity ft/s
 Normal Depth 0.39 ft
 Critical Depth 0.50 ft
 Channel Slope 0.00800 ft/ft
 Critical Slope 0.00381 ft/ft

Hearst Ave. Proj.- Typ. XS- Rect._Channel@Qmax

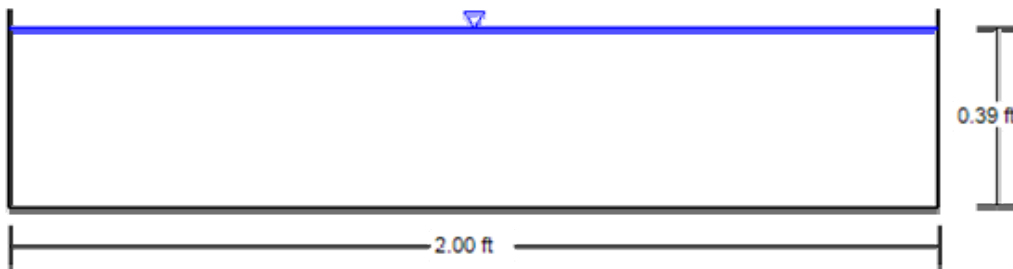
Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

Roughness Coefficient	0.011
Channel Slope	0.00800 ft/ft
Normal Depth	0.39 ft
Bottom Width	2.00 ft
Discharge	4.00 ft ³ /s

Cross Section Image



V: 1
H: 1

Apply USGS Rational Method (Rantz 1971*)

*Rantz, S.E. 1971. *Suggested Criteria for Hydrologic Design of Storm Drainage Facilities in the San Francisco Bay Region, CA*. U.S. Geological Survey Open-File Report, Menlo Park, CA.

$Q = CiA$

where C= runoff coeff.;

i= rainfall intensity at duration equal to Tc;

A= drainage area, ac.

A= 21,673 sf- 0.5 acre

	Watershed Impervious Area	
	Exist.	Post-Project
Sq Ft	10,495.00	10,892.00
Acres	0.2409	0.2500
% Imperv.	48.42	50.26
% Incr.		1.83

For Site Watershed Existing Condition

Total Area	0.50 Acres	
Longest path	311.00 feet	[NE corner to NW corner, then south to SW prop. Corner]
Slope	0.80 %	(55.81-53.32)/311 ft/ft

a) Computing Time of Concentration

Tc= T overland (all turf lawn for existing condition)

Overland flow distance=	311 ft	slope=	0.8%	C2=0.15 (lawn, heavy soil at <2%)
@Q10		27 minutes	for C= 0.30	C10= 0.30 (Fig. 5 Rantz)
@Q100		24 minutes	for C =0.40	C100= 0.40 (" ")

b) Runoff Coeff., C

Per Table 1 - impervious area is 48%

10 yr recurrence interval, C	0.65
100 yr recurrence interval, C	0.83

Precipitation Intensity, i

MAP from Alameda County 22 inches

10 yr	0.57 inch	1.27 inches per hour
100 yr	0.77 inch	1.93 inches per hour

From Table 4(Rantz 1971)

Therefore, $Q = CiA$:	
Q10	0.41 cfs
Q100	0.80 cfs

Compute volumetric storage requirement for project modification of 10-yr. design rainstorm hydrograph:

Assume SCS triangular synthetic hydrograph:

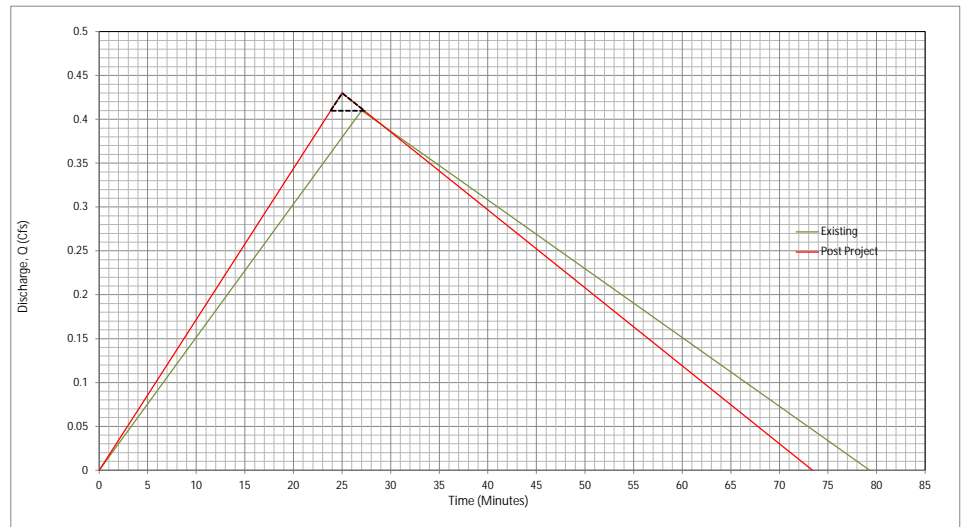
T_p = hydrograph time to peak, min. = $0.6 T_c + 0.5 D$ where T_c = time of concentration for runoff, D = duration of rainfall excess
 T_r = hydrograph recession time, min. = $1.67 T_p$ for current analysis, D = Tc
 T_b = hydrograph base time = $T_p + T_r$

From Site Pre- vs. Post-Project Peak Discharge Computations:
 D = 27 min. for Q10 under existing conditions (Note: there was no difference in the pre- vs. post Q10 peak discharges.)
 D = 25 min. for Q10 under post-Project conditions

For existing condition:		For post-Project condition:	
$T_p = 1.1 (27) =$	29.7 min.	$T_p = 1.1 (25) =$	27.5
$T_r = 1.67 (27) =$	49.6 min.	$T_r = 1.67 (25) =$	45.9
$T_b =$	79.3	$T_b =$	73.4

See superimposed hydrographs below for surcharge volume required to maintain existing Q10 peak discharge:

Volume of storage required = 1.9 cubic feet This volume can be captured and detained during runoff events by a 4 ft. rain cistern attached to the roof gutter of one of the Project buildings.



February 8, 2016

Hearst Avenue Cottages, LLC
c/o Rhoades Planning Group
1611 Telegraph Avenue, Suite 200
Oakland, CA 94612

Sent via email:
mark@rhoadesplanninggroup.com

RE: 1155-1173 Hearst Avenue, Application #ZP2016-0028
Use Permit for a residential development of 18 units (including BMR units), including community garden, play area, and vehicle and bicycle parking (1155-1173 Hearst Ave). Density Bonus requested for 5 units and one tandem parking.

Dear applicant:

On behalf of the City of Berkeley, I would like to introduce myself as the project planner for the above referenced application. Staff from various City departments will be reviewing your application, including the Building and Safety, Land Use Planning and Transportation divisions, as well as other interested parties, to ensure that the project application is complete. If any questions arise, City staff will either contact you in writing or by phone at the number supplied on your application. Unless you inform us otherwise, you will be the primary contact during the application process

You can expect site visits by various staff members in the next couple of weeks. These visits will be from the public right-of-way, unless staff makes an appointment with you in advance. I will be contacting you within 30 days of your application date to follow-up with the status of the project and to request any additional information needed to complete the application.

Please note that due to staffing reductions and the level of permit activity, applicants should be prepared to expect longer processing times than in the past. The City has consultants available to expedite applications for an additional fee.

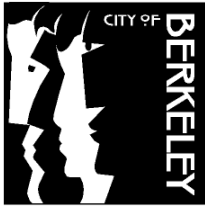
Please feel free to contact me if you are interested in using this service to expedite your application or if you have other questions or comments about your application. I can be reached by email at lmendez@cityofberkeley.info or by phone at (510) 981-7426.

I look forward to working with you.

Sincerely,



Leslie Mendez
Associate Planner



Planning and Development Department
Land Use Planning Division

March 3, 2016

Mark Rhoades
Heart Avenue Cottages, LLC
1611 Telegraph, Suite 200
Oakland, CA 94612

Re: Use Permit #ZP2016-0028 – 1155-1173 Hearst Avenue

Mr. Rhoades,

The Land Use Division has reviewed the above referenced application, submitted on February 2, 2016, to construct eleven new dwelling units on two parcels that currently contain four buildings with a total of seven dwelling units. Staff has determined that the application is incomplete. Below, please find staff comments and items required for submittal and/or correction. Please submit both a paper and an electronic (on CD) copy of required items.

Items Required for Submittal or Correction:

- **Density Bonus Calculations** – The project involves the retention of seven existing dwelling units that may not be counted as part of the Housing Development per Government Code Section 65915. Revise the project to calculate the BMR units and density bonus on the 6 units being constructed as part of the maximum residential density (13 total – 7 existing = 6 unit housing development). As such, if you wish to include 11% VLI, it would amount to 1 BMR unit and the resulting permissible density bonus would be 3 units (35% of 6 = 2.1 which rounds up to 3) for a total of 16 units. Revise the plan accordingly.

An alternative option you may wish to consider is to wait for the revised Demolition Ordinance (BMC 23C.08) to become effective (est. April 2016, see attached). The new ordinance would permit the demolition of rent controlled units when certain conditions are met.

Let me know how you wish to proceed. Many of the following items may need revision or new items may be required depending on which option you wish to pursue.

- **Property Owner Signature** – Provide the property owner's signature on the project application and/or a signed letter of authorization.

- **Floor Plans** – Provide both existing and proposed floor plans with all rooms labeled.
- **Elevations** – Provide elevations of all existing buildings.
- **Tabulation Form for Base Project** – For the base project, provide a tabulation form so that staff can clearly identify what qualifies for a waiver and what requires AUP/UP approval to modify.
- **Shadow Study** – The shadow study submitted as part of the application is difficult to read as it is tiny and too shaded. Revise as following:
 - Only include the subject property and neighboring properties affected by shading by the subject property;
 - Only include existing and proposed shading from the project site, no other shadows
 - If a shadow (existing or future) hits the wall of an adjacent structure, (1) show where existing shadow hits the wall, and (2) indicate locations of windows on walls affected.
 - If increased shadowing caused by the proposed project would affect any windows on residential buildings, then indicate the use of those windows (garage, bedroom, bathroom, living room, etc.).
- **Historical Resource Evaluation** – As the project proposes substantial changes to buildings over 40 years old, submit a State of California Department of Parks and Recreation (DPR) 523 form for the structures. The evaluation(s) shall include references to development history documentation (including but not limited to photographs, building permits, Sanborn maps, and directory listings). The DPR forms must be completed by a qualified historian, architectural historian or historic architect. Guidelines are available online at: <http://ohp.parks.ca.gov/pages/1054/files/manual95.pdf>.
- **Structural and Pest Report** – As substantial work and additions are being proposed on the existing buildings, the City needs to ensure no unintentional demolitions occur. Therefore, submit a report by an independent, fully credentialed pest control operator that evaluates whether, in the operator’s opinion, retention of structural elements not proposed for removal is actually feasible. This evaluation exceeds State requirements for pest reports in that it requires removal of exterior siding and/or interior drywall/plaster in order to allow examination of structural elements proposed to be retained. (This will not be required if you are pursuing the demolition option.)
- **Impervious Surface Questionnaire** – Please resubmit the impervious surface questionnaire to correct the addition/type in column c.
- **Rent Controlled Unit Size/Configuration** – For any rent controlled unit that is changing in size and/or configuration (e.g. number of bedrooms), please provide information on how this will affect the rents of existing tenants who will have a right to return.
- **Applicant Fees** – At this time due to the revisions required above, I am unable to discern the complete fees to which this project will be subject. The following fees, however, will be required regardless:
 - \$6,043: Level 2 Use Permit for construction of a new dwelling unit(s), per BMC 23D.28.030—this is a base fee for the first 24 hours of staff time (each additional hour will be charged \$207); and
 - \$414: Additional Use Permit for construction of 6 or more bedrooms on a parcel, per BMC 23D.32.050 (2 hours of staff time); and

- \$640: Use Permit Traffic Engineering Review base fee for up to 4 hours

At the time of project submittal you paid \$6,043. I have included an invoice for the additional \$1,054. As stated above, more fees may be assessed once the project scope is revised.

Please be aware, that as a cost recovery project, the current invoice will account for 26 hours of staff time. You will be billed periodically to keep a balance to cover staff hours beyond the initial 26 hours.

Staff Comments:

Please be aware that while the new units may be applied for as condominiums, the existing units are required to go through the condo conversion process.

Please be aware that as the project is proposing ownership units, the project will be subject to the inclusionary housing ordinance (BMC 23C.12) for ownership projects, not the affordable housing mitigation fee.

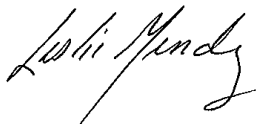
You made a statement regarding Useable Open Space in the application materials. Please be aware that Useable Open Space is required for all constructed dwelling unit, inclusive of density bonus units. One could request a waiver for the density bonus units.

You also made a statement in your application materials that the existing rent controlled units are at 50% AMI. Although that may be correct they are not deed restricted units and do not count as the inclusionary units. Additionally, as the units are being retained, they are not being replaced. If the project requests a density bonus the inclusionary units must be newly constructed units.

Staff will not support any project on rent controlled buildings that would require a new occupancy permit and, therefore, the elimination of the rent controlled unit. This would apply to any structure currently containing one or two units which is proposed for three or more. I strongly suggest your revise the plans accordingly.

I look forward to working with you on this project. Do not hesitate to contact me if you have any questions or if you would like to set up a meeting. I can be reached at (510) 981-7426 or lmendez@ci.berkeley.ca.us. Please be aware that if you do not take action on the above items within 60 days, staff will deem the project in active and will withdraw the application.

Sincerely,



Leslie Mendez
Associate Planner



Planning and Development Department
Land Use Planning Division

March 11, 2016

Mark Rhoades
Heart Avenue Cottages, LLC
1611 Telegraph, Suite 200
Oakland, CA 94612

Re: Use Permit #ZP2016-0028 – 1155-1173 Hearst Avenue

Hi Mark,

This letter serves as an addendum/amendment to the incomplete letter I sent out on March 2, 2016.

Density Bonus – In regards to the “Density Bonus Calculations” comments, I have re-evaluated the definition of “Housing Development” per Government Code Section 65915:

(i) "Housing development," as used in this section, means a development project for five or more residential units. For the purposes of this section, "housing development" also includes a subdivision or common interest development, as defined in Section 4100 of the Civil Code, approved by a city, county, or city and county and consists of residential units or unimproved residential lots and either a project to substantially rehabilitate and convert an existing commercial building to residential use or the substantial rehabilitation of an existing multifamily dwelling, as defined in subdivision (d) of Section 65863.4, where the result of the rehabilitation would be a net increase in available residential units. For the purpose of calculating a density bonus, the residential units shall be on contiguous sites that are the subject of one development application, but do not have to be based upon individual subdivision maps or parcels. The density bonus shall be permitted in geographic areas of the housing development other than the areas where the units for the lower income households are located.

As long as the project involves the rehabilitation of multi-family dwellings, those dwellings **can** be counted as part of the Housing Development. This has been confirmed by the City Attorney. Please be aware, however, that for the purposes of the above section, "multifamily dwelling" means any structure designed for human habitation that has been divided into two or more legally created independent living quarters (Government Code 65863.4.d). As such,

the housing development includes the rehabilitated 2-unit Azalea, Begonia, and Freesia structures, but **not** the one-unit Camelia.

The revised density bonus calculation should be as follows:

- 13 total units maximum residential density – 1 existing single-family dwelling = 12 unit housing development
- 11% VLI of 12 units = 1.32 or 2 VLI units
- 11% VLI provides a 35% bonus. 35% of 12 = 4.2 or 5 density bonus units for a total of 17 units.

Please be aware that while 17 may be the maximum number of units permissible on the property, it is not necessarily the appropriate number of units for the project. Please reevaluate both the proposed density and the massing to consider the maximum desirable over the maximum allowable.

Although it will no longer be relevant due to the above comments, be aware that on page A0.4 of the plan set, you state the baseline project has 13 units, but you list 14 units.

Parking and Driveways – Upon resubmittal, and/or in conjunction with traffic engineering review, ensure the site plan is revised to comply with site location and screening of uncovered parking spaces and driveways (23D.12.080). In particular:

- C. No off-street parking space shall be located closer than ten feet in horizontal distance from a door or a window of any building containing three or more dwelling units, which is located on the same or approximately the same level, unless authorized by an AUP. For the purposes of this section, a window whose bottom edge or point is more than six feet in vertical height from the level of the subject off-street parking space shall not be considered on the same or approximately the same level.
- F. Screening must be provided for two or more off-street parking spaces, or any parking space located partly or entirely within a required rear yard, in a manner that effectively screens parked vehicles from view from buildings and uses on adjacent, abutting and confronting lots. Such screening must consist of a continuous view-obscuring wood fence, masonry wall or evergreen hedge, not less than four feet, and not more than six feet in height, which may be broken only for access driveways and walkways.
- G. In the case of parking areas of four or more off-street spaces, the parking area must be separated from an adjacent rear or interior side lot line by a landscaped strip which averages at least four feet in width along the applicable property line.
- J. Driveways must be spaced at least 75 feet from one another, as measured along any continuous property line abutting a street for each lot in any residential District.

Sincerely,



Leslie Mendez
Associate Planner

Memorandum

To: Leslie Mendez, City of Berkeley Planning & Development Department
From: Mark Rhoades, Rhoades Planning Group
Date: April 26, 2016
Re: 1155-1173 Hearst Avenue/ZP2016-0028 Response to March 3, 2016 Incomplete Letter & March 11, 2016 Addendum.

Dear Ms. Mendez,

This letter and the attached materials are provided as a response to your incomplete letter, dated March 3, 2016 and the March 11, 2016 addendum to the incomplete letter for the property located at 1155-1173 Hearst Avenue. The following are the responses using the headings that were in the March 3 2016 letter and March 11, 2016 addendum.

1. Density Bonus Calculations (from March 11, 2016 addendum)

Response: We believe that the correct reading and interpretation of GC 65915(i) applies generally to ANY residential development that meets the affordability criteria and includes the substantial rehabilitation of a multi-family building where there will be a net increase in units. The state law does NOT say that ONLY rehabbed buildings that would include a net increase in density can be included. Also – we know that density bonus law also applies to single family residential subdivisions. In the case of the Hearst project there are several buildings that will result in a net increase in units and there is one existing single family residence. That single family residence is proposed to become a part of a multifamily development that includes the rehab of other multifamily buildings. Coupled with the fact that the all of the existing rent controlled units on site will be kept at affordable pricing per the requirements of 65915 we do not believe that there is room to interpret the law so narrowly. Simply put, the law states that the density bonus is applied to projects meeting the standards of GC 65915 and including rehabbed multifamily buildings. It does not support the staff's interpretation that ONLY rehabbed multifamily buildings can be considered as a part of the base project.

2. Parking and Driveways (from the March 11, 2016 addendum)

“Upon resubmittal, and/or in conjunction with traffic engineering review, ensure the site plan is revised to comply with site location and screening of uncovered parking spaces and driveways (230.12.080). In particular:

- C. No off-street parking space shall be located closer than ten feet in horizontal distance from a door or a window of any building containing three or more dwelling units, which is located on the same or approximately the same level, unless authorized by an AUP. For the purposes of this section, a window whose bottom edge or point is more than six feet

in vertical height from the level of the subject off-street parking space shall not be considered on the same or approximately the same level.

- F. Screening must be provided for two or more off-street parking spaces, or any parking space located partly or entirely within a required rear yard, in a manner that effectively screens parked vehicles from view from buildings and uses on adjacent, abutting and confronting lots. Such screening must consist of a continuous view-obscuring wood fence, masonry wall or evergreen hedge, not less than four feet, and not more than six feet in height, which may be broken only for access driveways and walkways.
- G. In the case of parking areas of four or more off-street spaces, the parking area must be separated from an adjacent rear or interior side lot line by a landscaped strip which averages at least four feet in width along the applicable property line.
- J. Driveways must be spaced at least 75 feet from one another, as measured along any continuous property line abutting a street for each lot in any residential district."

Response: Please see attached revised plan set, Pages A1.5 and A1.6, showing location of screening of uncovered parking spaces and driveways. The driveways are existing and will not be modified. The applicant/owner requests a waiver of the above requirement that driveways be at least 75 feet from one another, per state density bonus law.

3. Property Owner's Signature (from March 3, 2016 letter)

"Provide the property owner's signature on the project application and/or a signed letter of authorization."

Response: Mark Rhoades is a property owner and is therefore authorized to sign the project application.

4. Floor Plans (from the March 3, 2016 letter)

"Provide both existing and proposed floor plans with all rooms labeled."

Response: Please find attached floor plans of existing buildings with all rooms labeled.

5. Elevations (from the March 3, 2016 letter)

"Provide elevations for all existing floor plans."

Response: Please find attached revised plan set, including elevations for all existing buildings.

6. Tabulation Form for Base Project (from March 3, 2016 letter)

"For the base project, provide a tabulation form so that staff can clearly identify what qualifies for a waiver and what requires AUP/UP approval to modify."

Response: Please find attached tabulation form for the base project.

7. Shadow Study (from March 3, 2016 letter)

"The shadow study submitted as part of the application is difficult to read as it is tiny and too shaded. Revise as following:

- Only include the subject property and neighboring properties affected by shading by the subject property;
- Only include existing and proposed shading from the project site, no other shadows.
- If a shadow (existing or future) hits the wall of an adjacent structure, (1) show where existing shadow hits the wall, and (2) indicate locations of windows on walls affected.
- If increased shadowing caused by the proposed project would affect any windows on residential buildings, then indicate the use of those windows (garage, bedroom, bathroom, living room, etc.)."

Response: Please find attached revised shadow study in revised plan set.

8. Historical Resource Evaluation (from March 3, 2016 letter)

"As the project proposes substantial changes to buildings over 40 years old, submit a State of California Department of Parks and Recreation (DPR) 523 form for the structures. The evaluation(s) shall include references to development history documentation (including but not limited to photographs, building permits, Sanborn maps, and directory listings). The DPR forms must be completed by a qualified historian, architectural historian or historic architect."

Response: Please find attached DPR forms for the subject property.

9. Structural Pest Report (from March 3, 2016 letter)

"As substantial work and additions are being proposed on the existing buildings, the City needs to ensure no unintentional demolitions occur. Therefore, submit a report by an independent, fully credentialed pest control operator that evaluates whether, in the operator's opinion, retention of structural elements not proposed for removal is actually feasible. This evaluation exceeds State requirements for pest reports in that it requires removal of exterior siding and/or interior drywall/plaster in order to allow examination of structural elements proposed to be retained. (This will not be required if you are pursuing the demolition option.)"

Response: The project will involve removal of roof framing, but will not involve removal of exterior walls of the existing structures. Per III.E. of the zoning project submittal requirements, a structural pest report is for projects removing 25% of more of a main building's exterior walls and roof framing, therefore, owner does not need to obtain a structural pest report.

10. Impervious Surface Questionnaire (from March 3, 2016 letter)

"Please resubmit the impervious surface questionnaire to correct the addition/type in column C."

Response: Please find attached revised impervious surface questionnaire (stormwater checklist).

11. Rent Controlled Unit Size/Configuration (from March 3, 2016 letter)

"For any rent controlled unit that is changing in size and/or configuration (e.g. number of bedrooms), please provide information on how this will affect rents of existing tenants who will have the right to return."

Response: The rent controlled units will not change in size or configuration.

12. Fees (from March 3, 2016 letter)

"At this time due to the revisions required above, I am unable to discern the complete fees to which this project will be subject. The following fees will be required regardless...[fees listed]"

Response: Applicant/owner will pay all fees in full.



PLANNING & DEVELOPMENT

Land Use Planning, 2120 Milvia Street, Berkeley, CA 94704
 Tel: 510.981.7410 TDD: 510.981.9603 Fax: 510.981.7420 Email: Planning@ci.berkeley.ca.us

TABULATION FORM

Project Address: 1155-73 Hearst Ave Date: April 26, 2016
 Applicant's Name: Rhoades Planning Group
 Zoning District R-2A

Please print in ink the following numerical information for Use Permit, Variance, and other Zoning Ordinance related permit applications:

		<i>Existing</i> (Base Project)	<i>Proposed</i>	<i>Permitted/ Required</i>
Units; Parking Spaces				
Number of Dwelling Units	(#)	7	18	N/A
Number of Parking Spaces	(#)	7	18	18
Yards and Height				
Front Yard Setback	(ft.)	7'-10"	7'-10"	15'
Side Yard Setbacks: (facing property)	Left: (ft.)	3.8'	3.8'	4' @ 1,2 stories, 6'@ 3rd
	Right: (ft.)	4-6'	4-6'	4' @ 1,2 stories, 6'@ 3rd
Rear Yard Setback	(ft.)	28'	28'	15'
Building Height*	(# Stories)	2	3	3 w/ AUP
Average*	(ft.)	23'	35'	28' avg, 35' w/ AUP
Maximum*	(ft.)	23'	35'	35' w/ AUP
Areas				
Lot Area	(SqFt.)	21,673	21,673	N/A
Gross Floor Area* Total Area Covered by All Floors	(SqFt.)	7,226	20,490	N/A
Building Footprint* Total of All Structures	(SqFt.)	4,847	8,670	N/A
Lot Coverage* (Footprint/Lot Area)	(%)	22%	40%	3 stories: 35% 2 stories: 40%
Useable Open Space*	(SqFt.)	N/A	6,458	5,400
Floor Area Ratio* Non-Residential Projects only (except ES-R)		N/A	N/A	N/A

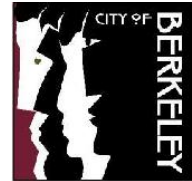
*See Definitions – Zoning Ordinance Title 23F.

Revised: 09/02
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C.3.i Stormwater Requirements Checklist
 Municipal Regional Stormwater Permit (MRP)
 Stormwater Controls for Development Projects

City of Berkeley
 Public Works Dept.
 Engineering Division



I. C.3.i Project Information

This form applies to development projects creating and/or replacing ≥ 2500 ft² to $< 10,000$ ft² of impervious surface which are not Special Land Use Categories projects (auto service facilities, retail gasoline outlets, restaurants, and uncovered parking lots). This form also applies to detached single-family home projects, which create and /or replace ≥ 2500 ft² of impervious surface. Interior remodeling projects and routine maintenance or repair projects such as roof or exterior wall surface replacement and pavement resurfacing within the existing footprint are exempt from C.3.i stormwater requirement.

I.A. Enter Project Data

I.A.1 Project Name: HEARST GARDENS

I.A.2 Project Address (include cross street): 115-1173 HEARST AVE @ CURTIS

I.A.3 Project APN: 057-208601300 & 057-208601400

I.A.4 Applicant Name: RHOADES PLANNING GROUP

I.A.5 Applicant Address: 1611 TELEGRAPH AVE, OAKLAND, CA 94612

I.A.6 Applicant Phone: 510/545-4341 Applicant Email Address: mark@rhoadesplanninggroup.com

I.A.7 Development type: (check all that apply)
 Residential Commercial Industrial Mixed-Use
 'Redevelopment' as defined by MRP: creating, adding and/or replacing exterior existing impervious surface on a site where past development has occurred

I.A.8 Project Description: (Also note any past or future phases of the project.)
THIS PROJECT PROPOSES ADDING 11 SINGLE FAMILY UNITS TO A DOUBLE LOT THAT CURRENTLY CONTAINS 7 EXISTING UNITS, WHICH ARE TO BE RETAINED

I.A.9 Total Area of Site: 21,902 ft²
 Total Area of land disturbed during construction (include clearing, grading, excavating and stockpile area: 14,513 ft²

I.B. Enter the amount of impervious and pervious surface¹ created and/or replaced by the project.

Table of Impervious and Pervious Surfaces

Type of Impervious Surface	a	b	c	d
	Pre-Project Impervious Surface (sq.ft.)	Existing Impervious Surface to be Replaced ³ (sq.ft.)	New Impervious Surface to be Created ³ (sq.ft.)	Post-project landscaping (sq.ft.), if applicable
Roof area(s) – excluding any portion of the roof that is vegetated (“green roof”)	4532	4532	4314	N/A
Impervious ¹ sidewalks, patios, paths, driveways	528	0	0	
Impervious ¹ uncovered parking ²	4616	0	0	
Totals:	9676	4532	4314	6459
Area of Existing Impervious Surface to remain in place	N/A			
Total New Impervious Surface (sum of totals for columns b and c):	8846			

¹ Per the MRP, pavement that meets the following definition of pervious pavement is NOT an impervious surface. Pervious pavement is defined as pavement that stores and infiltrates rainfall at a rate equal to immediately surrounding unpaved, landscaped areas, or that stores and infiltrates the rainfall runoff volume described in Provision C.3.d.

² Uncovered parking includes top level of a parking structure.

³ “Replace” means to install new impervious surface where existing impervious surface is removed. “Create” means to install new impervious surface where there is currently no impervious surface.

C.3.i Stormwater Requirements Checklist

I.C. Identify C.6 Construction-Phase Stormwater Requirements

- | | | | | |
|-------|--|--------------------------|-------------------------------------|--|
| | | Yes | No | |
| I.C.1 | Is the site a "High Priority Site" that disturbs less than 1.0 acre (43,560 sq.ft.) of land? (Municipal staff will make this determination.) | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| | <ul style="list-style-type: none"> ▪ "High Priority Sites" are sites that require a grading permit, are adjacent to a creek, or are otherwise high priority for stormwater protection during construction (see MRP Provision C.6.e.ii(2)) | | | |
| ➤ | NOTE TO APPLICANT: All projects require appropriate stormwater best management practices (BMPs) during construction. Refer to the Section II.C to identify appropriate construction BMPs. | | | |
| ➤ | NOTE TO MUNICIPAL STAFF: If the answer is "Yes" to question I.C.1, refer this project to construction site inspection staff to be added to their list of projects that require stormwater inspections at least monthly during the wet season (October 1 through April 30). | | | |

II. Implementation of C.3.i Stormwater Requirements

II.A. Select Appropriate Site Design Measures

- Starting December 1, 2012, projects that create and/or replace 2,500 - 10,000 sq.ft. of impervious surface, and stand-alone single family homes that create/replace 2,500 sq.ft. or more of impervious surface, **must include one or more of the following Site Design Measures a through f**, and are encouraged to implement the other Site Design Measures as practicable. See attached fact sheets for guidance on rain barrels / cisterns, vegetated areas and permeable surfaces, and attached sheets on recommended Source Control Measures and Construction BMPs.

II.A.1 Is the site design measure included in the project plans?

Yes	No	If Yes, show Plan Sheet No.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	a. Direct roof runoff into cisterns or rain barrels and use rainwater for irrigation or other non-potable use.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	b. Direct roof runoff onto vegetated areas.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	c. Direct runoff from sidewalks, walkways, and/or patios onto vegetated areas.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	d. Direct runoff from driveways and/or uncovered parking lots onto vegetated areas.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	e. Construct sidewalks, walkways, and/or patios with permeable surfaces.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	f. Construct bike lanes, driveways, and/or uncovered parking lots with permeable surfaces.
		OPTIONAL site design measures g through m: implement as practicable.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	g. Minimize land disturbance and impervious surface (especially parking lots).
<input checked="" type="checkbox"/>	<input type="checkbox"/>	h. Maximize permeability by clustering development and preserving open space.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	i. Use micro-detention, including distributed landscape-based detention.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	j. Protect sensitive areas, including wetland and riparian areas, and minimize changes to the natural topography.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	k. Self-treating area (see Section 4.1 of the C.3 Technical Guidance)
<input type="checkbox"/>	<input checked="" type="checkbox"/>	l. Self-retaining area (see Section 4.2 of the C.3 Technical Guidance)
<input type="checkbox"/>	<input checked="" type="checkbox"/>	m. Plant or preserve interceptor trees (Section 4.5, C.3 Technical Guidance)

II.B. C.3.i projects are encouraged to implement the following Source Control Measure as practicable.

Features that require source control measures	Source control measures (Refer to Local Source Control List for detailed requirements)
Storm Drain	Mark on-site inlets with the words "No Dumping! Flows to Bay" or equivalent.
Floor Drains	Plumb interior floor drains to sanitary sewer ¹ [or prohibit].
Parking garage	Plumb interior parking garage floor drains to sanitary sewer. ¹
Landscaping	<ul style="list-style-type: none"> ▪ Retain existing vegetation as practicable. ▪ Select diverse species appropriate to the site. Include plants that are pest- and/or disease-resistant, drought-tolerant, and/or attract beneficial insects. ▪ Minimize use of pesticides and quick-release fertilizers. ▪ Use efficient irrigation system; design to minimize runoff.
Pool/Spa/Fountain	Provide connection to the sanitary sewer to facilitate draining. ¹
Food Service Equipment (non-residential)	<p>Provide sink or other area for equipment cleaning, which is:</p> <ul style="list-style-type: none"> ▪ Connected to a grease interceptor prior to sanitary sewer discharge.¹ ▪ Large enough for the largest mat or piece of equipment to be cleaned. ▪ Indoors or in an outdoor roofed area designed to prevent stormwater run-on and run-off, and signed to require equipment washing in this area.
Refuse Areas	<ul style="list-style-type: none"> ▪ Provide a roofed and enclosed area for dumpsters, recycling containers, etc., designed to prevent stormwater run-on and runoff. ▪ Connect any drains in or beneath dumpsters, compactors, and tallow bin areas serving food service facilities to the sanitary sewer.¹
Outdoor Process Activities ²	Perform process activities either indoors or in roofed outdoor area, designed to prevent stormwater run-on and runoff, and to drain to the sanitary sewer. ¹
Outdoor Equipment/ Materials Storage	<ul style="list-style-type: none"> ▪ Cover the area or design to avoid pollutant contact with stormwater runoff. ▪ Locate area only on paved and contained areas. ▪ Roof storage areas that will contain non-hazardous liquids, drain to sanitary sewer¹, and contain by berms or similar.
Vehicle/ Equipment Cleaning	<ul style="list-style-type: none"> ▪ Roofed, pave and berm wash area to prevent stormwater run-on and runoff, plumb to the sanitary sewer⁴, and sign as a designated wash area. ▪ Commercial car wash facilities shall discharge to the sanitary sewer.¹
Vehicle/ Equipment Repair and Maintenance	<ul style="list-style-type: none"> ▪ Designate repair/maintenance area indoors, or an outdoors area designed to prevent stormwater run-on and runoff and provide secondary containment. Do not install drains in the secondary containment areas. ▪ No floor drains unless pretreated prior to discharge to the sanitary sewer.¹ ▪ Connect containers or sinks used for parts cleaning to the sanitary sewer.¹
Fuel Dispensing Areas	<ul style="list-style-type: none"> ▪ Fueling areas shall have impermeable surface that is a) minimally graded to prevent ponding and b) separated from the rest of the site by a grade break. ▪ Canopy shall extend at least 10 ft in each direction from each pump and drain away from fueling area.
Loading Docks	<ul style="list-style-type: none"> ▪ Cover and/or grade to minimize run-on to and runoff from the loading area. ▪ Position downspouts to direct stormwater away from the loading area. ▪ Drain water from loading dock areas to the sanitary sewer.¹ ▪ Install door skirts between the trailers and the building.
Fire Sprinklers	Design for discharge of fire sprinkler test water to landscape or sanitary sewer. ¹
Miscellaneous Drain or Wash Water	<ul style="list-style-type: none"> ▪ Drain condensate of air conditioning units to landscaping. Large air conditioning units may connect to the sanitary sewer.¹ ▪ Roof drains shall drain to unpaved area where practicable. ▪ Drain boiler drain lines, roof top equipment, all washwater to sanitary sewer.¹
Architectural Copper	<ul style="list-style-type: none"> ▪ Discharge rinse water to sanitary sewer¹, or collect and dispose properly offsite. See flyer "Requirements for Architectural Copper."

¹ Any connection to the sanitary sewer system is subject to sanitary district approval.

² Businesses that may have outdoor process activities/equipment include machine shops, auto repair, industries with pretreatment facilities.

II.C. Implement construction Best Management Practices (BMPs) where applicable.

Best Management Practice (BMP)

Attach the municipality's construction BMP plan sheet to project plans and require contractor to implement the applicable BMPs on the plan sheet.

Temporary erosion controls to stabilize all denuded areas until permanent erosion controls are established.

Delineate with field markers clearing limits, easements, setbacks, sensitive or critical areas, buffer zones, trees, and drainage courses.

Provide notes, specifications, or attachments describing the following:

- Construction, operation and maintenance of erosion and sediment controls, include inspection frequency;
 - Methods and schedule for grading, excavation, filling, clearing of vegetation, and storage and disposal of excavated or cleared material;
 - Specifications for vegetative cover & mulch, include methods and schedules for planting and fertilization;
 - Provisions for temporary and/or permanent irrigation.
-

Perform clearing and earth moving activities only during dry weather.

Use sediment controls or filtration to remove sediment when dewatering and obtain all necessary permits.

Protect all storm drain inlets in vicinity of site using sediment controls such as berms, fiber rolls, or filters.

Trap sediment on-site, using BMPs such as sediment basins or traps, earthen dikes or berms, silt fences, check dams, soil blankets or mats, covers for soil stock piles, etc.

Divert on-site runoff around exposed areas; divert off-site runoff around the site (e.g., swales and dikes).

Protect adjacent properties and undisturbed areas from construction impacts using vegetative buffer strips, sediment barriers or filters, dikes, mulching, or other measures as appropriate.

Limit construction access routes and stabilize designated access points.

No cleaning, fueling, or maintaining vehicles on-site, except in a designated area where washwater is contained and treated.

Store, handle, and dispose of construction materials/wastes properly to prevent contact with stormwater.

Contractor shall train and provide instruction to all employees/subcontractors re: construction BMPs.

Control and prevent the discharge of all potential pollutants, including pavement cutting wastes, paints, concrete, petroleum products, chemicals, washwater or sediments, rinse water from architectural copper, and non-stormwater discharges to storm drains and watercourses.

State of California	The Resources Agency	Primary#
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PRIMARY RECORD		Trinomial
		NRHP Status Code
	Other Listings	
	Review Code	Reviewer
		Date

Page 1 of 14 !!! Resource Name or #: (Assigned by recorder) 11553163 Hearst Avenue!
 P1. Other Identifier: APN-10571208601400!

*P2. Location: Unrestricted !!
 ! *a. County R Alameda !!!!!!!!!!!!!!!!!!!!!
 ! *b. USGS 7.5: Oakland West Quadrangle
 c. Address !! 11553163 Hearst Avenue, Berkeley, California 94702!
 d. Other Locational Data: (e.g., parcel#, directions to resource, elevation, decimal degrees, etc., as appropriate)

*P3a. Description: (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)
 The bungalow court at 11553163 Hearst Avenue includes two separate buildings with two units in each. The buildings are arranged in a double bar configuration, with all four units facing each other across a central vehicular drive. The single story, wood frame buildings have smooth stucco walls and are covered by flat roofs. The buildings retain their original fenestration patterns, but some of the original wood windows have been replaced with vinyl windows. Each unit has a small entrance porch accessed by concrete steps with a wide, stepped, stuccoed wall serving as a railing. Porch hoods are gabled, supported by carved wood brackets, and covered with Spanish clay tile. Some of the units retain their original, wood, multi light doors. At the end of the vehicular drive is a large parking area. To the north of that is a single family residence (11591 Hearst Avenue). At the property perimeter at the west and east are narrow side yards. The yard at the west is accessed through an arched gate, likely original. Landscaped front yards buffer the buildings from the street. (See Continuation Sheet)

P5a. Photograph or Drawing (Photograph required for buildings, structures, and objects.)



*P3b. Resource Attributes: (List attributes and codes): HP3-Multiple Family Property!
 *P4. Resources Present: X Building Structure Object Site District Element of District Other!
 *P5b. Description of Photo: (view, date, accession #)
 Looking northwest, April 2016!
 *P6. Date Constructed/ Age and Source: c. 1925 (need to see permits to confirm!)
 *P7. Owner and Address: Hearst Cottages, LLC!
 *P8. Recorded by: (Name, affiliation, and address): B. Maley and S. Watson architecture+ history, llc
 1715 Green Street !!!!!!!!!!!!!!!!!!!!!!!!!!!!!
 San Francisco, CA, 94123 !
 !!!
 *P9. Date Recorded: April 2016 !!!!!!!!!!!!!

!!!!!!!!!!!!!!!!!!!!
 *P10. Survey Type: (Describe Site specific survey) !
 *P11. Report Citation: (Cite survey report and other sources, or enter "none.") None !
 !!!
 *Attachments: Building, Structure, and Object Record (BSO) and Continuation Sheet !!

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***P3a.!! Description!(continued)!**

Character defining features include the double bar plan configuration, with all four units facing each other across a central vehicular drive. Smooth stucco walls, flat roofs, some original windows and doors, entrance porches with concrete steps and wide, stepped, stuccoed wall, gabled porch hoods with carved, wood brackets and Spanish clay tile narrow side yards and landscaped front yards.

B6.!! Construction!History!(continued)!

The original building permit has not yet been found. The buildings appear on the 1929 Sanborn Fire Insurance Company map (volume 1, sheet 29). Research into occupant history shows that the two duplexes at 115531 163 Hearst Avenue were constructed c. 1925. In September 1926, the *Berkeley Daily Gazette* announced the application for permits to construct two garages on the property for \$100 a piece.² An aerial photograph from 1958 appears to show that a dwelling (1159 Hearst Avenue) had been constructed at the rear of the subject property sometime after 1950 (it does not appear on the 1950 Sanborn map).³ It is difficult to tell in historic aerial images when the garages at the rear of the duplexes were demolished. Both appear to be extant through at least 1980. At least the east garage appears to be extant in an aerial photograph taken in 2000.

***B10.!! Significance!(continued)!**

Born in Ireland c. 1820, Michael Curtis arrived in California during the Gold Rush.⁴ Sometime in the early or mid 1850s, Curtis purchased a 150 acre farm in what was then known as Ocean View (now northwest Berkeley). The farm was bordered roughly by University Avenue at the south, San Pablo Avenue at the west, Hopkins Street at the north (another account says Cedar Street), and Sacramento Street at the east. Curtis built a large house for his family on University Avenue, just west of Curtis Street. According to historian Charles Wollenberg, Berkeley's first Catholic religious services were held in Michael Curtis's barn.⁵

Curtis eventually subdivided his property into what became the Curtis Tract. The Curtis Tract appears on maps as early as 1877.

History of 1100 Block of Hearst Avenue!

The subject property is located on what was originally denoted as Block 1 of the Curtis Tract. Later, after a second subdivision was created around 1880, the block name changed to Block 2. An 1892 map of the Curtis Tract shows that the northwest half of the 1100 block of Bristol Avenue (the street name before it became Hearst), where the subject property exists today, was one large parcel, labeled "M. Curtis", presumably because it was the northernmost part of Michael Curtis's property on University Avenue.⁶

By 1911, the Sanborn map shows the 1100 block of Bristol Avenue was still largely undeveloped. The north side of the block was developed at the west side with two, single family dwellings and a saloon at the west corner. The parcels on the northwest side, where the subject property exists today, had been subdivided but were vacant. The south side of the block contained a single family dwelling with several outbuildings. Surrounding parcels were vacant.

The 1929 Sanborn map shows that by this time Bristol had been renamed Hearst Avenue. A majority of the parcels on the north side of the block had been developed, mostly with single family homes and a few two flat buildings. The subject property was developed with two connected single story duplex buildings and two single story garages. The south side of the block was less developed. There was a three story apartment building at the west (1120 Hearst Avenue) and two, single family dwellings.

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***B10. Significance (continued)**

By 1950, the 1100 block of Hearst Avenue was almost fully developed except for single parcels at the north and south. The north side of the block contained a combination of single and multi-family dwellings and a large bungalow court (113331 139 Hearst Avenue) that stretched from University Avenue at the south, across Hearst, to Delaware Avenue at the north. The subject property remained unchanged. The south side of the block contained an apartment building, duplexes, bungalow courts, and one single-family dwelling.

Occupant History

The following paragraphs present a history of known owner and occupants of 115531 163 Hearst Avenue. This information was compiled from city directories, census data, and newspaper articles. Historical background information is provided for occupants who lived in the units longer than five years.

Note: When the two-story residence was constructed at the rear of the parcel sometime between 1950 and 1958, the addresses at the property changed. The following list shows the dates associated with each address:

- 1155 Hearst Avenue (southwest duplex unit): c. 1925 to present (no change)
- 1157 Hearst Avenue (northwest duplex unit): c. 1925 to present (no change)
- 1159 Hearst Avenue
 - c. 1925 to 1955 (southeast duplex unit)
 - c. 1955 to present (two-story residence)
- 1161 Hearst Avenue!
 - c. 1925 to 1955 (northeast duplex unit)
 - c. 1955 to present (southeast duplex unit)
- 1163 Hearst Avenue!
 - c. 1925 to c. 1955 (single-family residence on separate parcel to immediate east)
 - c. 1955 to present (northeast duplex unit on subject parcel)

1155 Hearst Avenue

Elwyn and Zula Hardwick rented the unit at 1155 Hearst Avenue in 1928. Elwyn was a linotype operator and Zula was a bookkeeper. Edward R. Josephson (occupation unknown) rented the unit in 1930. Lester E. Weaver, a salesman, and Vivian R. Weaver, stenographer, rented from 1932 to 1934.

The longest-term tenants at 1155 Hearst Avenue were Howard W. Pilot and his wife, Verle V. Pilot. They rented the unit from c. 1936 to 1951. Howard Pilot was born in Colorado c. 1908. He moved to Berkeley from Los Angeles in 1935. He worked as a claims agent for a steamship company. Verle Pilot was born in Iowa c. 1908.

Other known occupants at 1155 Hearst Avenue include P. Chiodo (1954) and L. Beaus (1980-1981).

1157 Hearst Avenue

The unit at 1157 Hearst Avenue appears to be the only occupied unit on the property. From c. 1927 to 1936, William L. and Elizabeth (Bessie) Stevens were the owners. William Stevens held the following occupations: fireman, salesman, boiler maker, and cook. In 1926, the Stevens were listed in city directories at 1159 Hearst Avenue. Advertisements in the *Oakland Tribune* show that the unit was available for rent in 1929, 1931, and 1933.

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***B10. Significance (continued)**

The unit was owned by Geremya (Gerry) and Maria Tallone from c. 1935 to 1957. Gerry and Maria were born in Italy c. 1908 and c. 1910. Gerry worked as a laborer and garbage truck driver. Maria was a housekeeper.

Other known tenants (renters) after 1957 are: Fred Bullock (1980-1981), Isobel M. Cramer, Jennifer Linden, and Ann Howard.

1159 Hearst Avenue (southeast duplex unit, c. 1925-1955) / 1161 Hearst Avenue (southeast duplex unit, c. 1955 to present)

From 1926 to 1938, the unit at 1159/1161 Hearst Avenue was occupied by a series of short-term tenants, including the following: William and Elizabeth Stevens (1926) h Charles M. (laborer, collector) and Mabel D. McVay (1928-1934) h B. Sandvick / Stanwyck (crew of S.S. 'Jane Christensen', ocean steamer) (1935-1936) h Charles F. Perine (trucker) (1936) h Eldon S. Mouser (clerk) (1938).

One of the known longest-term occupants at 1159/1161 Hearst Avenue was Mawry S. and Alberta J. Buchanan, who rented the unit from c. 1938 to 1955. Mawry was born in Pennsylvania c. 1897 and worked as a teacher in a public high school. Alberta was born in Oregon c. 1916. She worked as a stenographer at an insurance company. The only known occupant of 1159/61 Hearst Avenue after 1955 is Betty Carman, a renter in 1981.

1161 Hearst Avenue (northeast duplex, c. 1925-1955) / 1163 Hearst Avenue (northeast duplex unit, c. 1955 to present)

Allen L. Weber rented the unit at 1161/1163 Hearst Avenue in 1930. George B. and Bessie Smith were renters from c. 1938 to 1941. George was born in Ohio c. 1899, and Bessie was born in Illinois c. 1902. George worked as a chauffeur at a private home. The Smiths had a daughter, Janet.

William Bell Jr. lived at 1161/1163 Hearst Avenue from c. 1943 to 1946. The only known occupant of 1161/1163 Hearst Avenue after 1955 is Jonathan Wagner, a renter in 1981.

Building Type: Bungalow Courts

Bungalow courts are a type of multi-family housing typically consisting of small, detached units or conjoined units (commonly duplexes) arranged around a vehicular drive or a landscaped courtyard. Bungalow courts are thought to have originated in Southern California. Generally developed from the early 1900s through World War II, bungalow courts were originally used as seasonal residences, but eventually evolved into permanent housing. They were designed in many architectural styles.⁸

Bungalow court units are either connected or separate, one story or two stories. Units are accessed directly from the vehicular drive or the courtyard. Units generally face away from the street. Stephanos Polyzoides et al., in *Courtyard Housing in Los Angeles* (1992), describe several types of court housing, generally based on the site configuration: single bar (single row of units) h double bar (double row of units) h U court (units arranged in an L shape) h U court (units arranged in a U shape) h and complete courtyard (units arranged around a central courtyard).⁹

As noted in the neighborhood context, the blocks surrounding 115531 163 Hearst Avenue feature a collection of bungalow courts and other forms of multi-family housing. (See Sanborn map in P53 - Photographs.)

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!
*B10.!! Significance!(continued)!
!

Architectural Style!

The bungalow court at 1155 Hearst Avenue in Berkeley Spanish Colonial Revival or Spanish Eclectic in character. The style became hugely popular in California from the 1910s into the 1930s. In 1915, the Panama Canal opened to shipping traffic. To celebrate, San Diego, the first United States port of call on the Pacific Coast, hosted a World's Fair or Exposition. The chief designer for the event was architect Bertram Grosvenor Goodhue, who had a fascination for Spanish or Mediterranean styles of architecture. Goodhue did not want to employ the cold, formal Renaissance and Neoclassical architecture that was normally used for exposition architecture. Instead, he envisioned a fairytale city with a festive, Mediterranean flavor. The style subsequently developed and became popular as a residential idiom, featuring low pitched roofs with little or no overhang covered with red roofing tiles. Spanish Colonial Revival houses almost always are of wood frame construction with a stucco finish. The use of the arch was very common, especially above doors, porch entries and main windows.¹⁰ The stucco finish and decorative red roofing tiles at the entries give the bungalow court its Spanish character.!

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***B10. Significance (continued)**

California Register of Historical Resources Evaluation

The buildings at 115531 163 Hearst Avenue have not been intensively evaluated in past historic resource survey efforts.

The buildings do not appear to be eligible for the California Register of Historical Resources under any of the four criteria of evaluation at the national, state, or local levels of significance.

Criterion 1: 'Event or Patterns of Events'

It is associated with the events or patterns of events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States.

Historical research has determined that the bungalow court at 115531 163 Hearst Avenue in Berkeley does not qualify individually under California Register Criterion 1: Event/Patterns of Events. While the buildings possess an association with the development of the Curtis Tract in Berkeley, as well as the development of bungalow courts in Berkeley, the buildings do not appear to be individually significant within the context of those themes. These buildings do not appear to qualify under California Register Criterion 1: Significant Event(s).

Criterion 2: 'Important Person(s)'

It is associated with the lives of persons important to local, California, or national history.

Historical research does not indicate that the buildings at 115531 163 Hearst Avenue are associated with any individuals who have had an important role in local, California, or national history. There does not appear to be a link between the owners/occupants and any historical events related to Berkeley history. No information was found that would indicate that known occupants/tenants would rise to a level of significance to justify individual listing in the California Register. These buildings do not appear to qualify under California Register Criterion 2: Important Person(s).

Criterion 3: 'Design/Construction'

It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of a master, or possesses high artistic values.

The small residential complex at 115531 163 Hearst Avenue is an example of a mid-1920s bungalow court in Berkeley. It is one of several similar court housing complexes within the 1100 block of Hearst Avenue. However, the duplexes at 115531 163 Hearst do not appear to be a representative, outstanding, or intact example of the bungalow court property type. Further, as their associated auto garages are not longer present and some alterations have occurred over time, the overall integrity of the complex has been somewhat impaired. The buildings are not a particularly strong example of Spanish Eclectic or Spanish Colonial Revival architecture. They do not appear to be the work of a master architect or a master builder (need to see building permits to confirm). These buildings do not appear to qualify under California Register Criterion 3: Design or Construction.

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***B10. Significance (continued)**

Criterion 4: Information Potential

It has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California, or the nation.

Evaluation of archaeological resources was outside the scope of this report. There is the possibility that archaeological resources could be present on the site. This should be taken into consideration, and standard monitoring practices should be employed if construction involves extensive excavation.

Historic District

There are no designated historic districts located in the vicinity of 115531 163 Hearst Avenue.

Integrity

For resources to be eligible for the California Register they must possess both historic significance and retain historic integrity. There are seven aspects of historic integrity: location, design, setting, materials, workmanship, feeling, and association. The buildings do not possess historic significance therefore, a full integrity evaluation has not been conducted. However, some alterations and the loss of the associated auto garages has somewhat impacted the overall integrity of the complex.

City of Berkeley's Landmarks Preservation Ordinance

The buildings do not appear to qualify under the City of Berkeley's Landmarks Preservation Ordinance. A Landmark of Architectural Merit is one that is:

A. Property that is the first, last, only or most significant architectural property of its type in the region or

B. Properties that are prototypes of or outstanding examples of periods, styles, architectural movements or construction, or examples of the more notable works of the best surviving work in a region of an architect, designer or master builder or

C. Architectural examples worth preserving for the exceptional values they add as part of the neighborhood fabric.

The buildings do not qualify under any of these local Landmark criteria for many of the same reasons listed above under the California Register evaluation. Furthermore, the buildings do not qualify as a City of Berkeley Structure of Merit, as they do not possess architectural merit and/or cultural, educational, or historic interest or value. The small bungalow court at 115531 163 Hearst Avenue is one of several similar court type housing complexes in this block, but there are also many other types of buildings within the immediate vicinity. They are not part of a strong neighborhood, block, or a street frontage grouping or collection.

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***B12. References:**

Architectural Resources Group. *Berkeley' Downtown' Survey' and' Context' Statement.* August 2007.

Berkeley Architectural Heritage Association. Historic Building Permit and property ownership files.

Berkeley' Daily' Gazette. Various articles from Newspaper Archive Library Edition (via San Francisco Public Library).

Berkeley 3 Oakland Telephone Directories. Various years Berkeley Public Library, Berkeley History Room.

Blumenson, John. *Identifying' American' Architecture: 'A' Pictorial' Guide' to' Styles' and' Terms: '1 600' to' '1 945.* New York: W. W. Norton & Co., 1981.

Carley, Rachel. *'The' Visual' Dictionary' of' American' Domestic' Architecture.* New York: Henry Holt and Company, 1994.

Cerny, Susan Dinkelspiel. *An' Architectural' Guidebook' to' the' San' Francisco' Bay' Area.* Salt Lake City: Gibbs Smith, 2007.

Cerny, Susan Dinkelspiel. *Berkeley' Landmarks.* Berkeley, CA: Berkeley Architectural Heritage Association, 2001.

City of Berkeley, Department of Planning and Development—building permit and property records.

Gebhard, David. *Architecture' in' San' Francisco' and' Northern' California.* Salt Lake City: Peregrine Smith, 1985.

Lowell, Waverly B. *Architectural' Records' in' the' San' Francisco' Bay' Area: 'A' Guide' to' Research.* New York: Garland Publishing, Inc., 1988.

Markel, Wendy P. *Berkeley: 'Postcard' History' Series.* San Francisco: Arcadia Publishing, 2009.

Massey, James and Shirley Maxwell. *House' Styles' in' America.* New York: Penguin Group, 1996.

McAlister, Virginia and Lee. *'A' Field' Guide' to' American' Houses.* New York: Knoff, 1992.

Pettitt, George A. *'A' History' of' Berkeley.* Berkeley, CA: Alameda County Historical Society, 1976.

Polk 3 Husted. Oakland, Berkeley, Alameda City Directories, various years online through the San Francisco Public Library and hard copies at the Berkeley Public Library, Berkeley History Room.

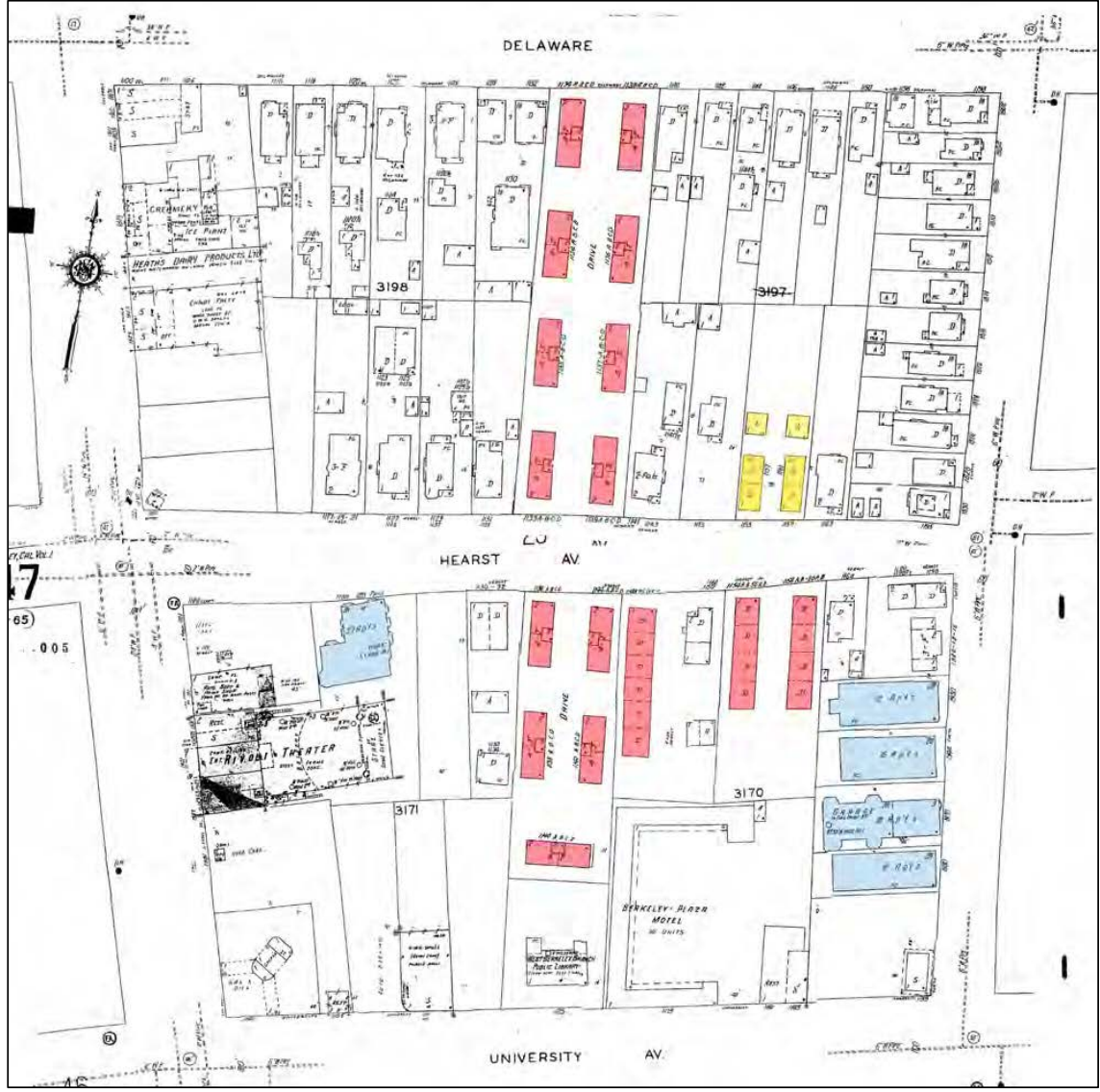
Polyzoides, Stephanos, Roger Sherwood and James Tice. *'Courtyard' Housing' in' Los' Angeles.* New York: Princeton Architectural Press, Second edition, 1992.

Rifkind, Carol. *'A' Field' Guide' to' American' Architecture.* New American Library, 1980.

Sanborn Map Company. Fire Insurance Maps of Berkeley, California, 1911, 1929, 1951.

State of California The Resources Agency ! Primary #!
DEPARTMENT OF PARKS AND RECREATION ! HRI # ! ! !
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Trinomial!
CONTINUATION SHEET ! ! ! !
Property Name: 115531 163 Hearst Avenue, Berkeley, CA 94702
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P5b. Photographs (continued)



Composite of 1950 Sanborn Fire Insurance Company maps showing the mix of building types surrounding the subject property (115531 163 Hearst Avenue). The subject property is shaded in yellow. Bungalow courts are shaded in red. Apartment buildings are shaded in blue. Single family residences, flats, and commercial buildings are not shaded (white).

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P5b. Photographs (continued)



1155d 161 Hearst Avenue, looking northwest (April 2016)



1155d 161 Hearst Avenue, looking northeast (April 2016)

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P5b. Photographs (continued)



Detail view of 1155 Hearst Avenue, looking northeast (April 2016)



Entrance detail, 1155 Hearst Avenue, looking northwest (April 2016)

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CONTINUATION SHEET Trinomial
Property Name: 11553163 Hearst Avenue, Berkeley, CA 94702
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P5b. Photographs (continued)



Rear view of 1163 Hearst Avenue, looking southeast (April 2016)

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Property Name: 115531 163 Hearst Avenue, Berkeley, CA 94702	
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Endnotes!

¹ Charles Wollenberg, *Berkeley: A City in History* (Berkeley: University of California Press, 2008).

² *Berkeley Daily Gazette*, September 18, 1926. (SFPL Newspaper Archive Library Edition.)

³ See HistoricAerials.com.

⁴ Walter P. Crinnion, "A Short History of the Beginnings of Our Family in the West," December 1994. From the Worst & Crinnion Family History webpage, accessed at <http://www.wurstcrinnionfamilyhistory.com/crinnions3and3curtis.html>.

⁵ Wollenberg.

⁶ Curtis Tract map, William G. Raymond and James L. Bay, publishers, 1892.

⁷ *Oakland Tribune*, Friday, June 7, 1929. (Newspapers.com)

⁸ City of Pasadena, "Bungalow Courts in Pasadena." Accessed at http://www.cityofpasadena.net/Planning/Bungalow_Courts_in_Pasadena/.

⁹ Stephanos Polyzoides, Roger Sherwood and James Tice, *Courtyard Housing in Los Angeles* (New York: Princeton Architectural Press, second edition, 1992).

¹⁰ Virginia McAlester, *A Field Guide to American Houses*; Carol Rifkind, *A Field Guide to American Architecture*; and James and Shirley Maxwell, *House Styles in America* were referenced for style information.

State of California	The Resources Agency	Primary#
DEPARTMENT OF PARKS AND RECREATION		HRI#
PRIMARY RECORD		Trinomial
		NRHP Status Code
	Other Listings	
	Review Code	Reviewer
		Date

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P1. Other Identifier: APN-10571208601400
***Resource Name or #:** (Assigned by recorder) 1159 Hearst Avenue

***P2. Location:** Unrestricted
***a. County:** Alameda
***b. USGS 7.5:** Oakland West Quadrangle
c. Address: 1159 Hearst Avenue, Berkeley, California 94702
d. Other Locational Data: (e.g., parcel#, directions to resource, elevation, decimal degrees, etc., as appropriate)

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)
 The residence at 1159 Hearst Avenue is two stories and has a roughly square footprint. The wood frame building is covered by a hipped roof with overhanging, boxed eaves. The walls are sheathed in stucco, except for at the southeast corner of the second floor, near the entrance that wall features narrow, wood siding applied vertically. The primary entrance is located off a porch at the southeast corner of the building. The porch is accessed by brick stairs with a wrought iron railing. The hipped porch roof is supported by a wrought iron column. The entrance door is obscured by a screen. A secondary entrance is located at the first floor of the south facade near the southeast corner. Windows at the south facade are metal and tripartite, featuring a fixed window flanked by operable casements on either side. Windows visible on the west facade appear to be metal (some casements). A brick chimney is located at the south side of the east facade. (See continuation sheet.)

P5a. Photograph or Drawing: (Photograph required for buildings, structures, and objects.)



***P3b. Resource Attributes:** (List attributes and codes): HP2-Single Family Property
***P4. Resources Present:** X Building Structure Object Site District Element of District Other
P5b. Description of Photo: (view, date, accession #)
 Looking northwest, April 2016
***P6. Date Constructed/ Age and Source:** c. 1955 (need to see permits to confirm)
***P7. Owner and Address:**
 Hearst Cottages, LLC
***P8. Recorded by:** (Name, affiliation, and address): B. Maley and S. Watson architecture + history, LLC
 1715 Green Street
 San Francisco, CA 94123
***P9. Date Recorded:**
 April 2016

***P10. Survey Type:** (Describe) Site specific survey
***P11. Report Citation:** (Cite survey report and other sources, or enter "none.") None
***Attachments:** Building, Structure, and Object Record (BSO) and Continuation Sheet

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***P3a.!! Description!(continued)!**

Character[defining]features[include:]hipped[roof]with[overhanging,]boxed[leaves]walls[shathed]in[stucco]and[vertical,]wood[siding]Zsecond[floor]entrance[porch]with[brick]stairs[and]wrought[iron]railing[Zhipped]porch[roof]with[wrought[iron]column]Zmetal,[tripartite]windows[Zbrick]chimney.!

B6.!! Construction!History!(continued)!

The[original]building[permit]has[not]yet[been]found. The[building]does[not]appear[on]the[1950]Sanborn[Fire]Insurance[Company]map. An[aerial]photograph[from]1958[appears]to[show]that[the]building[had]been[constructed]at[the]rear[of]the[subject]parcel.² No[visible]alterations[have]occurred.!

***B10.!! Significance!(continued)!**

Born[in]Ireland[c.]1820, Michael[Curtis]arrived[in]California[during]the[Gold]Rush.³ Sometime[in]the[early]or[mid]1850s, Curtis[purchased]a[150]acre[farm]in[what]was[then]known[as]Ocean[View](now[northwest]Berkeley). The[farm]was[bordered]roughly[by]University[Avenue]at[the]south, San[Pablo]Avenue[at]the[west], Hopkins[Street]at[the]north,(another[account]says[Cedar]Street), and[Sacramento]Street[at]the[least]. Curtis[built]a[large]house[for]his[family]on[University]Avenue, just[west]of[Curtis]Street. According[to]historian[Charles]Wollenberg, Berkeley's[first]Catholic[religious]services[were]held[in]Michael[Curtis]'s[barn].⁴!

Curtis[eventually]subdivided[his]property[into]what[became]the[Curtis]Tract. The[Curtis]Tract[appears]on[maps]as[early]as[1877].!

History of 1100 Block of Hearst Avenue!

The[subject]property[is]located[on]what[was]originally[denoted]as[Block]1[off]the[Curtis]Tract. Later, [after]a[second]subdivision[was]created[around]1880, the[block]name[changed]to[Block]2. An[1892]map[of]the[Curtis]Tract[shows]that[the]northwest[half]of[the]1100[block]of[Bristol]Avenue(the[street]name[before]it[became]Hearst), where[the]subject[property]exists[today], was[one]large[parcel], labeled["M. Curtis,"]presumably[because]it[was]the[northernmost]part[of]Michael[Curtis]'s[property]on[University]Avenue.⁵!

By[1911], the[Sanborn]map[shows]the[1100]block[of]Bristol[Avenue]was[still]largely[undeveloped]. The[north]side[of]the[block]was[developed]at[the]west[side]with[two]single[family]dwellings[and]a[saloon]at[the]west[corner]. The[parcels]on[the]northwest[side], where[the]subject[property]exists[today], had[been]subdivided[but]were[vacant]. The[south]side[of]the[block]contained[a]single[family]dwelling[with]several[outbuildings]. Surrounding[parcels]were[vacant].!

The[1929]Sanborn[map]shows[that]by[his]time[Bristol]had[been]renamed[Hearst]Avenue. A[majority]of[the]parcels[on]the[north]side[of]the[block]had[been]developed, mostly[with]single[family]homes[and]a[few]two[flat]buildings. The[subject]property[was]developed[with]two[connected]single[story]duplex[buildings]and[two]single[story]garages. The[south]side[of]the[block]was[less]developed. There[was]a[three]story[apartment]building[at]the[west](1120[Hearst]Avenue)[and]two, single[family]dwellings.!

By[1950], the[1100]block[of]Hearst[Avenue]was[almost]fully[developed]except[for]single[parcels]at[the]north[and]south. The[north]side[of]the[block]contained[a]combination[of]single[and]multi[family]dwellings[and]a[large]bungalow[court](1133[1139]Hearst[Avenue])that[stretched]from[University]Avenue[at]the[south,] across[Hearst,]to[Delaware]Avenue[at]the[north]. The[subject]property[remained]unchanged. The[south]side[of]the[block]contained[an]apartment[building], duplexes, bungalow[courts], and[one]single[family]dwelling.!

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***B10. Significance (continued)**

Occupant History

The following paragraphs present a history of known owner and occupants of 1159 Hearst Avenue. This information was compiled from city directories, census data, and newspaper articles. Historical background information is provided for occupants who lived in the units longer than five years.

Note: When the subject property was constructed at the rear of the parcel sometime between 1950 and 1958, the addresses of the other buildings on the property changed. 1159 Hearst Avenue, originally the address of the southwest duplex unit, was assigned to the subject residence. For reference, the following list shows how addresses at the property changed after c. 1955.

- 1155 Hearst Avenue (southwest duplex unit): c. 1925 to present (no change)
- 1157 Hearst Avenue (northwest duplex unit): c. 1925 to present (no change)
- 1159 Hearst Avenue
 - c. 1925 to 1955 (southeast duplex unit)
 - c. 1955 to present (two-story residence)
- 1161 Hearst Avenue
 - c. 1925 to 1955 (northeast duplex unit)
 - c. 1955 to present (southeast duplex unit)
- 1163 Hearst Avenue
 - c. 1925 to c. 1955 (single-family residence on separate parcel to immediate east)
 - c. 1955 to present (northeast duplex unit on subject parcel)

From c. 1959 to 1965, Geremya (Gerry) Tallone was listed at 1159 Hearst Avenue. Tallone, and his wife, Maria, owned one of the duplex units on the property (1157 Hearst Avenue) from c. 1935 to 1957. Gerry and Maria were born in Italy c. 1908 and c. 1910. Gerry worked as a laborer and garbage truck driver. Maria was a housekeeper.

After 1965, the residence at 1159 Hearst Avenue was occupied by a series of short-term tenants, including A. Howard, Pierre R., and Carol Laplant, and C. J. Powell (1981).

Architectural Style—Mid-Century Modern/ Stucco Box

The house at 1159 Hearst Avenue is Modern in its style, massing, and expression. Encompassing a broad range of twentieth-century architectural design, the Modern Style was influenced by the design tenets espoused by early 20th century European architects, such as Eric Mendelsohn, Mies van der Rohe, Peter Behrens, Henry Van de Velde, Le Corbusier (Charles Edouard Jenneret), and others. Introduced to the United States by immigrants such as Rudolf Schindler, Mies van der Rohe, Richard Neutra, and Walter Gropius, the clean lines of Modernism replaced the overly decorative Revival styles popular in the 1920s.⁶

In the years following World War II, Modernism found a more expressive form in America in the "Early Modern" or "Mid-Century Modern" style that became popular throughout California. These houses emphasize geometric forms and textures, strong linear qualities, spare ornamentation, and outdoor living.⁷ These types of houses were embraced by builders throughout California using plans illustrated in magazines and trade journals of the day. Architects such as Cliff May and others marketed the small Modern house throughout California. The example at 1159 Hearst includes many elements of this type of design.

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***B10. Significance (continued)**

including the boxy shape of the house, the flat roof with wide overhang eaves, the stucco finish, and the tripartite aluminum windows

California Register of Historical Resources Evaluation

The building at 1159 Hearst Avenue has not been intensively evaluated in past historic resource survey efforts.

The building does not appear to be eligible for the California Register of Historical Resources under any of the four criteria of evaluation at the national, state, or local levels of significance.

Criterion 1: (Event or Patterns of Events)

It is associated with events or patterns of events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States.

Historical research has determined that the building at 1159 Hearst Avenue in Berkeley does not qualify individually under California Register Criterion 1: Event/Patterns of Events. It was constructed after the initial waves of development in the Curtis Tract. It does not appear to possess an association with important event or themes related to the history of Berkeley.

Criterion 2: (Important Person(s))

It is associated with the lives of persons important to local, California, or national history.

Historical research does not indicate that the building at 1159 Hearst Avenue is associated with any individuals who have had an important role in local, California, or national history. There does not appear to be a link between the owners/occupants and any historical events related to Berkeley history. No information was found that would indicate that known occupants/tenants would rise to a level of significance to justify individual listing in the California Register. This building does not appear to qualify under California Register Criterion 2: Important Person(s).

Criterion 3: (Design/Construction)

It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of a master, or possesses high artistic values.

The building at 1159 Hearst Avenue is not a distinctive example of a 1950s Modern inspired, single family residence in Berkeley. It does not have distinctive characteristics of a particular style, type, or method of construction that would justify individual listing in the California Register. It does not appear to be the work of a master architect or a master builder (need to see building permits to confirm). This building does not appear to qualify under California Register Criterion 3: Design or Construction.

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***B10. Significance (continued)**

Criterion 4: Information Potential
It has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California, or the nation.

Evaluation of archaeological resources was outside the scope of this report. There is the possibility that archaeological resources could be present on the site. This should be taken into consideration, and standard monitoring practices should be employed if construction involves extensive excavation.

Historic District

There are no designated historic districts located in the vicinity of 1159 Hearst Avenue.

Integrity

For resources to be eligible for the California Register they must possess both historic significance and retain historic integrity. There are seven aspects of historic integrity: location, design, setting, materials, workmanship, feeling, and association. The building at 1159 Hearst Avenue does not possess historic significance. Therefore, an integrity evaluation is not required.

City of Berkeley's Landmarks Preservation Ordinance

The building at 1159 Hearst Avenue does not appear to qualify under the City of Berkeley's Landmarks Preservation Ordinance. A Landmark of Architectural Merit is one that is:

A. Property that is the first, last, only or most significant architectural property of its type in the region or

B. Properties that are prototypes of or outstanding examples of periods, styles, architectural movements or construction, or examples of the more notable works of the best surviving work in a region of an architect, designer or master builder or

C. Architectural examples worth preserving for the exceptional values they add as part of the neighborhood fabric.

The building at 1159 Hearst Avenue does not qualify under any of these local Landmark criteria for many of the same reasons listed above under the California Register evaluation. Furthermore, the building does not qualify as a City of Berkeley Structure of Merit, as it does not possess architectural merit and/or cultural, educational, or historic interest or value. It is not part of a strong neighborhood, block, or a street frontage grouping or collection.

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***B12. References:**

Architectural Resources Group. *Berkeley Downtown Survey and Context Statement*. August 2007.

Berkeley Architectural Heritage Association. Historic Building Permit and property ownership files.

Berkeley Daily Gazette, various articles from Newspaper Archive Library Edition (via San Francisco Public Library).

Berkeley [Oakland Telephone Directories, various years Berkeley Public Library, Berkeley History Room.

Blumenson, John. *Identifying American Architecture: A Pictorial Guide to Styles and Terms, 1600 to 1945*. New York: W.W. Norton & Co., 1981.

Carley, Rachel. *The Visual Dictionary of American Domestic Architecture*. New York: Henry Holt and Company, 1994.

Cerny, Susan Dinkelspiel. *An Architectural Guidebook to the San Francisco Bay Area*. Salt Lake City: Gibbs Smith, 2007.

Cerny, Susan Dinkelspiel. *Berkeley Landmarks*. Berkeley, CA: Berkeley Architectural Heritage Association, 2001.

City of Berkeley, Department of Planning and Development—building permit and property records.

Gebhard, David. *Architecture in San Francisco and Northern California*. Salt Lake City: Peregrine Smith, 1985.

Lowell, Waverly B. *Architectural Records in the San Francisco Bay Area: A Guide to Research*. New York: Garland Publishing, Inc., 1988.

Markel, Wendy P. *Berkeley: Postcard History Series*. San Francisco: Arcadia Publishing, 2009.

Massey, James and Shirley Maxwell. *House Styles in America*. New York: Penguin Group, 1996.

McAlister, Virginia and Lee. *A Field Guide to American Houses*. New York: Knoff, 1992.

Pettitt, George A. *A History of Berkeley*. Berkeley, CA: Alameda County Historical Society, 1976.

Polk [Husted, Oakland, Berkeley, Alameda City Directories, various years online through the San Francisco Public Library and hard copies at the Berkeley Public Library, Berkeley History Room.

Rifkind, Carol. *A Field Guide to American Architecture*. New American Library, 1980.

Sanborn Map Company. *Fire Insurance Maps of Berkeley, California, 1911, 1929, 1951*.

State of California The Resources Agency Primary#
DEPARTMENT OF PARKS AND RECREATION HRI# ! !
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Trinomial!
CONTINUATION SHEET ! ! !!
Property Name: ! ! ! ! 1159 Hearst Avenue, Berkeley, CA 94702
Page ! 8 of ! 11

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***B12. References:**
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Whiffen, Marcus. *American Architecture Since 1780*. Cambridge, MA: The MIT Press, 1999.!

Wollenberg, Charles. *Berkeley: A City in History*. Berkeley: University of California Press, 2008.!!

Woodbridge, Sally. *San Francisco Architecture*. San Francisco: Chronicle Books, 1992.!!

United States Census Records, 1920, 1930 and 1940! - Ancestry.com!

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State of California The Resources Agency ! Primary #!
DEPARTMENT OF PARKS AND RECREATION ! HR # ! ! !
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Property Name: ! ! ! ! 1159 Hearst Avenue, Berkeley, CA 94702
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P5b. Photographs (continued)



1159 Hearst Avenue, south facade, looking north (April 2016)



1159 Hearst Avenue, south facade, looking northwest (April 2016)

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P5b. Photographs (continued)



1159 Hearst Avenue, west façade and side yard, looking northwest (April 2016)



1159 Hearst Avenue, entrance detail, looking northeast (April 2016)

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!	!	Trinomial	!
CONTINUATION SHEET			
Property Name: 1159 Hearst Avenue, Berkeley, CA 94702			
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Endnotes

- ¹ Charles Wollenberg, *Berkeley: A City in History* (Berkeley: University of California Press, 2008).
- ² See HistoricAerials.com.
- ³ Walter P. Crinnion, "A Short History of the Beginnings of Our Family in the West," December 1994. From the *Wurst & Crinnion Family History* webpage, accessed at <http://www.wurstcrinnionfamilyhistory.com/crinnionsandcurtis.html>.
- ⁴ Wollenberg.
- ⁵ Curtis Tract map, William G. Raymond and James L. Bay, publishers, 1892.
- ⁶ Kenneth Frampton, *Modern Architecture: A Critical History*, 1985.
- ⁷ William Curtis Jr. *Modern Architecture Since 1900*, 1987.

State of California	The Resources Agency	Primary#
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PRIMARY RECORD		Trinomial
		NRHP Status Code
	Other Listings	
	Review Code	Reviewer
		Date

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P1. Other Identifier: APN: 10571208601300
Resource Name or #: (Assigned by recorder) 1173 Hearst Avenue

***P2. Location:** Unrestricted
***a. County:** Alameda
***b. USGS 7.5:** Oakland West Quadrangle
c. Address: 1173 Hearst Avenue, Berkeley, California 94702
d. Other Locational Data: (e.g., parcel#, directions to resource, elevation, decimal degrees, etc., as appropriate)

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)

The wood frame residence at 1173 Hearst Avenue is one story over a garage and has a rectangular footprint. The building is covered by a low hipped roof with overhanging eaves and exposed rafter tails. The walls are sheathed in stucco. The primary entrance is located off a porch at the southeast corner of the building. The porch is accessed by stairs with a wide, stuccoed railing. The hipped porch roof is supported by thick, stuccoed piers. The entrance door is obscured by a metal screen. Multi light wood windows on the south and west facades that are visible from the street appear to retain their original configuration and wood surrounds. Windows visible on the east façade appear to be a combination of original wood windows and replacement windows (material unknown) the configuration and wood surrounds appear to be original. A stuccoed chimney is located at the south side of the west façade. A garage door is located at the east side of the south façade at the ground level. (See Continuation Sheet)



***P3b. Resource Attributes:** (List attributes and codes): HP2 - Single Family Property

***P4. Resources Present:** X Building Structure Object Site District Element of District Other

***P5b. Description of Photo:** (view, date, accession #)
 Looking northeast, April 2016

***P6. Date Constructed/Age and Source:** c. 1927 (Berkeley Daily Gazette)

***P7. Owner and Address:**
 Hearst Cottages, LLC

***P8. Recorded by:** (Name, affiliation, and address): B. Maley and S. Watson architecture + history, llc
 1715 Green Street
 San Francisco, CA 94123

***P9. Date Recorded:**
 April 2016

***P10. Survey Type:** (Describe Site specific survey)

***P11. Report Citation:** (Cite survey report and other sources, or enter "none.") None

***Attachments:** Building, Structure, and Object Record (BSO) and Continuation Sheet

State of California The Resources Agency	Primary#
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***P3a. Description (continued)**

The house has elements of both the Craftsman Style and the Prairie Style. Character defining features of the residence at 1173 Hearst Avenue include: hipped roof with overhanging eaves and exposed rafter tails; stuccoed walls; entrance porch; and multi-light wood windows with wood surrounds.

B6. Construction History (continued)

The original building permit has not yet been found. The building appears on the 1929 Sanborn Fire Insurance Company map (volume 1, sheet 29). In February 1927, the *Berkeley Daily Gazette* announced an application for a permit to construct a one-story, six-room dwelling, at 1163 Hearst Avenue (the subject property's address at the time) for \$2,500. The applicant was Enrico Bertoli.² A search of the *Berkeley Daily Gazette* through the SFPL Newspaper Archive indicates that Enrico Bertoli did not apply for other permits indicating that he was perhaps the owner, not the builder. Sanborn Fire Insurance Company maps and aerial photographs after 1927 show that the building has retained its original form. No major alterations appear to have occurred.

***B10. Significance (continued)**

Born in Ireland c. 1820, Michael Curtis arrived in California during the Gold Rush.³ Sometime in the early or mid-1850s, Curtis purchased a 150-acre farm in what was then known as Ocean View (now northwest Berkeley). The farm was bordered roughly by University Avenue at the south, San Pablo Avenue at the west, Hopkins Street at the north (another account says Cedar Street), and Sacramento Street at the east. Curtis built a large house for his family on University Avenue, just west of Curtis Street. According to historian Charles Wollenberg, Berkeley's first Catholic religious services were held in Michael Curtis's barn.⁴

Curtis eventually subdivided his property into what became the Curtis Tract. The Curtis Tract appears on maps as early as 1877.

History of 1100 Block of Hearst Avenue

The subject property is located on what was originally denoted as Block 1 of the Curtis Tract. Later, after a second subdivision was created around 1880, the block name changed to Block 2. An 1892 map of the Curtis Tract shows that the northwest half of the 1100 block of Bristol Avenue (the street name before it became Hearst), where the subject property exists today, was one large parcel, labeled "M. Curtis," presumably because it was the northernmost part of Michael Curtis's property on University Avenue.⁵

By 1911, the Sanborn map shows the 1100 block of Bristol Avenue was still largely undeveloped. The north side of the block was developed at the west side with two, single-family dwellings and a saloon at the west corner. The parcels on the northwest side, where the subject property exists today, had been subdivided but were vacant. The south side of the block contained a single-family dwelling with several outbuildings. Surrounding parcels were vacant.

The 1929 Sanborn map shows that by this time Bristol had been renamed Hearst Avenue. A majority of the parcels on the north side of the block had been developed, mostly with single-family homes and a few two-flat buildings. The subject property was developed with a one-story overgarage, single-family residence. The south side of the block was less developed. There was a three-story apartment building at the west (1120 Hearst Avenue) and two, single-family dwellings.

State of California The Resources Agency	Primary#
DEPARTMENT OF PARKS AND RECREATION	HRI#
	Trinomial
CONTINUATION SHEET	
Property Name: 1173 Hearst Avenue, Berkeley, CA 94702	
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***B10. Significance (continued)**

By 1950, the 1100 block of Hearst Avenue was almost fully developed except for single parcels at the north and south. The north side of the block contained a combination of single and multi-family dwellings and a large bungalow court (1133-1139 Hearst Avenue) that stretched from University Avenue at the south, across Hearst, to Delaware Avenue at the north. The subject property remained unchanged. The south side of the block contained an apartment building, duplexes, bungalow courts, and one single-family dwelling.

Occupant History

The following paragraphs present a history of known owner and occupants of 1173 Hearst Avenue. This information was compiled from city directories, census data, and newspaper articles. Historical background information is provided for occupants who lived in the house longer than five years.

Note: When a two-story residence was constructed at the rear of the parcel immediately to the west (1155-1163 Hearst Avenue) sometime between 1950 and 1958, the address of the subject property changed. Prior to c. 1955, the property address was 1163 Hearst Avenue. After c. 1955 it was 1173 Hearst Avenue.

The first known occupants at 1163/1173 Hearst Avenue were Sarafino and Linda Gabrielli, from c. 1928-1934. Sarafino Gabrielli was a long-time florist at the Oakland Wholesale Flower Market.

The Gabriellis were followed by Antone and Wilhelmina Silva, residents from c. 1936 to 1938, and Michael and Maria Palladino, from c. 1940 to 1942. Michael Palladino was a construction worker, born in Italy c. 1890. Mary Palladino was born in Italy c. 1891. They moved to Berkeley from Chicago after 1935.

Later tenants included Charles R. (service station operator) and Della Glaze (c. 1942-1946) and Paul Hern, a World War I vet and employee at Shell Development Corp. (c. 1949-1955).

Architecture—Craftsman with some Prairie Influences

This is one of many Craftsman style houses in this area of Berkeley. The house at 1173 Hearst Avenue also has some Prairie influences such as the low-pitched hipped roof. Popular from 1900 into the late 1920s, the style was influenced by the English Arts and Crafts movement and emphasized handcrafted products over machine-made details in reaction to the profusion of the mass-manufactured ornamentation of the Victorian styles. The movement embodied every aspect of residential design from furniture, to the bucolic setting of one's yard, to the art pottery and the wallpaper that decorated house interiors. Popular literature, examples of which include *The Craftsman*, *Ladies' Home Journal*, *Bungalow Magazine*, and *House Beautiful*, distributed the movement's ideals to the middle class and Craftsman style homes were embraced by California developers and builders. The Craftsman style particularly flourished in California, as the mild climate allowed for an integration of interior and exterior spaces, as exemplified by large porches and balconies. In California, the Craftsman style often incorporated varying influences, including California's Mission tradition, Shingle style, as well as Middle Eastern and Asian influences and elements of the what the Prairie Style.⁶ Berkeley is known for its many excellent examples of the Craftsman bungalow.

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Property Name: 1173 Hearst Avenue, Berkeley, CA 94702	
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***B10. Significance (continued)**

California Register of Historical Resources Evaluation

The building at 1173 Hearst Avenue has not been intensively evaluated in past historic resource survey efforts.

The building does not appear to be eligible for the California Register of Historical Resources under any of the four criteria of evaluation at the national, state, or local levels of significance.

Criterion 1: 'Event or Patterns of Events'

It is associated with the events or patterns of events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States.

Historical research has determined that the building at 1173 Hearst Avenue in Berkeley does not qualify individually under California Register Criterion 1: Event/Patterns of Events. While the building possesses an association with the development of the Curtis Tract in Berkeley, it does not appear to be individually significant within the context of residential development. It does not possess an association with an important event within this context that rises to a level of significance that would justify individual listing in the California Register. This building does not appear to qualify under California Register Criterion 1: Significant Event(s).

Criterion 2: 'Important Person(s)'

It is associated with the lives of persons important to local, California, or national history.

Historical research does not indicate that the building at 1173 Hearst Avenue is associated with any individuals who have had an important role in local, California, or national history. There does not appear to be a link between the owners/occupants and any historical events related to Berkeley history. No information was found that would indicate that known occupants/tenants would rise to a level of significance to justify individual listing in the California Register. This building does not appear to qualify under California Register Criterion 2: Important Person(s).

Criterion 3: 'Design/Construction'

It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of a master, or possesses high artistic values.

The building at 1173 Hearst Avenue is one of many similar Craftsman style residences constructed in Berkeley in the 1920s. It is not a distinctive or strong example of an early 1920s Craftsman style single family residence in Berkeley. It does not have distinctive characteristics of a particular style, type, or method of construction that would justify individual listing in the California Register. It does not appear to be the work of a master architect or a master builder (need to see building permits to confirm). This building does not appear to qualify under California Register Criterion 3: Design or Construction.

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CONTINUATION SHEET	
Property Name: 1173 Hearst Avenue, Berkeley, CA 94702	
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***B10. Significance (continued)**

Criterion 4: Information Potential
It has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California, or the nation.

Evaluation of archaeological resources was outside the scope of this report. There is the possibility that archaeological resources could be present on the site. This should be taken into consideration, and standard monitoring practices should be employed if construction involves extensive excavation.

Historic District

There are no designated historic districts located in the vicinity of 1173 Hearst Avenue.

Integrity

For resources to be eligible for the California Register they must possess both historic significance and retain historic integrity. There are seven aspects of historic integrity: location, design, setting, materials, workmanship, feeling, and association. The building does not possess historic significance; therefore an integrity evaluation is not required.

City of Berkeley's Landmarks Preservation Ordinance

The building does not appear to qualify under the City of Berkeley's Landmarks Preservation Ordinance. A Landmark of Architectural Merit is one that is:

- A. Property that is the first, last, only or most significant architectural property of its type in the region] or!
- B. Properties that are prototypes of or outstanding examples of periods, styles, architectural movements or construction, or examples of the more notable works of the best surviving work in a region of an architect, designer or master builder] or!
- C. Architectural examples worth preserving for the exceptional values they add as part of the neighborhood fabric.!

This building does not qualify under any of these local Landmark criteria for many of the same reasons listed above under the California Register evaluation. Furthermore, the building does not qualify as a City of Berkeley Structure of Merit, as it does not possess architectural merit and/or cultural, educational, or historic interest or value. It is not part of a strong neighborhood, block or a street frontage grouping or collection.

State of California The Resources Agency	Primary#
DEPARTMENT OF PARKS AND RECREATION	HRI#
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***B12. References:**

Architectural Resources Group. *Berkeley' Downtown' Survey' and' Context' Statement.* August 2007.

Berkeley Architectural Heritage Association. Historic Building Permit and property ownership files.

Berkeley Daily Gazette, various articles from Newspaper Archive Library Edition (via San Francisco Public Library).

Berkeley [Oakland Telephone Directories, various years Berkeley Public Library, Berkeley History Room.

Blumenson, John. *Identifying American Architecture: A Pictorial Guide to Styles and Terms: 1600 to 1945.* New York: W. W. Norton & Co., 1981.

Carley, Rachel. *The Visual Dictionary of American Domestic Architecture.* New York: Henry Holt and Company, 1994.

Cerny, Susan Dinkelspiel. *An Architectural Guidebook to the San Francisco Bay Area.* Salt Lake City: Gibbs Smith, 2007.

Cerny, Susan Dinkelspiel. *Berkeley Landmarks.* Berkeley, CA: Berkeley Architectural Heritage Association, 2001.

City of Berkeley, Department of Planning and Development—building permit and property records.

Gebhard, David. *Architecture in San Francisco and Northern California.* Salt Lake City: Peregrine Smith, 1985.

Lowell, Waverly B. *Architectural Records in the San Francisco Bay Area: A Guide to Research.* New York: Garland Publishing, Inc., 1988.

Markel, Wendy P. *Berkeley: Postcard History Series.* San Francisco: Arcadia Publishing, 2009.

Massey, James and Shirley Maxwell. *House Styles in America.* New York: Penguin Group, 1996.

McAlister, Virginia and Lee. *A Field Guide to American Houses.* New York: Knoff, 1992.

Pettitt, George A. *A History of Berkeley.* Berkeley, CA: Alameda County Historical Society, 1976.

Polk [Husted, Oakland, Berkeley, Alameda City Directories, various years online through the San Francisco Public Library and hard copies at the Berkeley Public Library, Berkeley History Room.

Rifkind, Carol. *A Field Guide to American Architecture.* New American Library, 1980.

Sanborn Map Company. *Fire Insurance Maps of Berkeley, California, 1911, 1929, 1951.*

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P5b. Photographs (continued)



1173 Hearst Avenue, looking northeast (April 2016)



Detail of south and west facades, 1173 Hearst Avenue, looking northeast (April 2016)

State of California The Resources Agency	!	Primary#		
DEPARTMENT OF PARKS AND RECREATION	!	HRI#	!!	!
!	!	Trinomial	!!	!
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Property Name: 1173 Hearst Avenue, Berkeley, CA 94702				
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P5b. Photographs (continued)



East façade, 1173 Hearst Avenue, looking northeast (April 2016)

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State of California The Resources Agency	!	Primary#
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!	!	Trinomial
CONTINUATION SHEET		
Property Name: 1173 Hearst Avenue, Berkeley, CA 94702		
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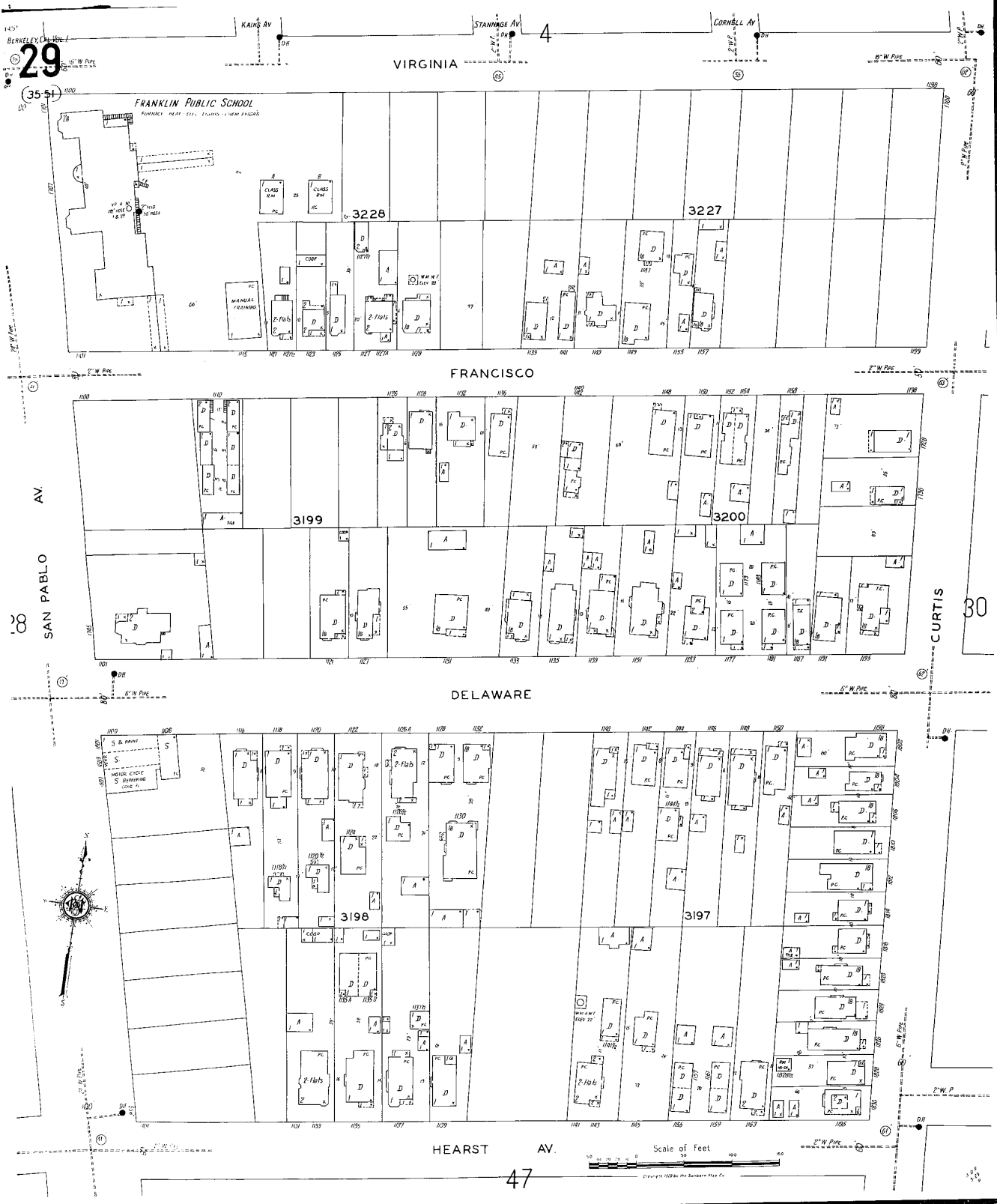
Endnotes

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- ¹ Charles Wollenberg, *Berkeley: A City in History* (Berkeley: University of California Press, 2008).
- ² "Real Estate and Building," *Berkeley Daily Gazette*, February 19, 1927. (SFPL Newspaper Archive Library Edition.)
- ³ Walter P. Crinnion, "A Short History of the Beginnings of Our Family in the West," December 1994. From the Wurst & Crinnion Family History webpage, accessed at <http://www.wurstcrinnionfamilyhistory.com/crinnionsandcurtis.html>.
- ⁴ Wollenberg.
- ⁵ Curtis Tract map, William G. Raymond and James L. Bay, publishers, 1892.
- ⁶ Virginia McAlester, *A Field Guide to American Houses*; Carol Rifkind, *A Field Guide to American Architecture*; and James and Shirley Maxwell, *House Styles in America* were referenced for style information.

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Sanborn!Maps!for!the!subject!properties!



29

VIRGINIA

FRANCISCO

DELAWARE

HEARST AV.

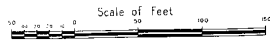
Scale of Feet

47

SAN PABLO AV.

CURTIS

30





california department of parks and recreation (DPR) forms
historic resource evaluation
1155-1173 hearst avenue, Berkeley, ca

completed for:
hearst cottages, llc
april 21, 2016

submitted by:

architecture + history, llc
in association with Watson Heritage Consulting
san francisco, ca
415 760 4318
bridget@architecture-history.com
www.architecture-history.com

APPLICANT:

RHOADES PLANNING GROUP
 1611 TELEGRAPH AVE. SUITE 200
 OAKLAND, CA 94612
 [510] 545-4341

PROJECT:

**HEARST GARDENS
 BERKELEY, CA 94702**

ARCHITECT:

DEVI DUTTA-CHOUDHURY, AIA
 DEVI DUTTA ARCHITECTURE INC.
 1958A UNIVERSITY AVENUE
 BERKELEY, CA 94704
 [510] 705-1937
 hello@devidutta.com

DESCRIPTION:

DEVELOPMENT OF TWO EXISTING LOTS AT HEARST STREET BETWEEN SAN PABLO & CURTIS STREET. THE EXISTING LOTS ARE OVER 21,000 SF, AND CURRENTLY HAVE 7 RESIDENCES ON SITE. THESE ARE TO BE MAINTAINED AND RENOVATED WHILE ALSO ADDING 11 ADDITIONAL HOMES TO THE SITE, 5 OF WHICH ARE DENSITY BONUS. UNITS ARE ARRANGED AROUND A CENTRAL PASEO THAT PROVIDES ACCESS TO ALL UNITS AND AMPLE OPEN SPACE.

OWNER:

HEARST AVE COTTAGES, LLC
 1958A UNIVERSITY AVENUE
 BERKELEY, CA 94704

SITE ADDRESS:

HEARST GARDENS
 BERKELEY, CA 94702

ASSESSOR'S PARCEL #:

LOT 1173: 057 208601300
 LOT 1157: 057 208601400

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COVER SHEET
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 BASELINE VS. DENSITY BONUS
 EXISTING PROJECT
 BASELINE PROJECT
 DENSITY BONUS TABLE
 DIAGRAM - NEIGHBORHOOD CONTEXT
 VICINITY MAP
 STREET STRIP - HEARST AVENUE
 NEIGHBORHOOD PHOTOS
 SITE PHOTOS
 EXISTING SITE PLAN
 EXISTING PLANS & ELEVATIONS
 EXISTING PLANS & ELEVATIONS_CAMELLIA
 EXISTING PLANS & ELEVATIONS_FREESIA
 NOT USED
 SITE PLAN, PROPOSED
 GROUND FLOOR
 SECOND FLOOR
 THIRD FLOOR
 ROOF PLAN
 SOUTH ELEVATION

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A0.2	WEST ELEVATION	A2.3
A0.3	SITE SECTIONS LOOKING WEST	A3.0
A0.4	SITE SECTIONS LOOKING EAST	A3.1
A0.5	SITE SECTIONS LOOKING NORTH	A3.2
A0.6	SITE SECTIONS LOOKING SOUTH	A3.3
A0.7	BUILDING SECTIONS	A3.4
A0.8	BUILDING SECTIONS	A3.5
A0.9	EAST DUPLEXES	A4.0
A0.10	NORTH BUILDING - FREESIA	A4.1
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	SHADOW STUDIES JANUARY 15 COMPARISON	A6.4





APPLICABLE CODES:

(INCLUDES LOCAL AMENDMENTS)
 2013 California Building Code (CBC)
 2013 California Residential Code (CRC)
 2013 California Energy Code
 2013 California Electrical Code (CEC)
 2013 California Plumbing Code (CPC)
 2013 California Mechanical Code (CMC)
 2013 California Fire Code (CFC)
 2013 CALGreen
 BERKELEY MUNICIPAL CODE

PROJECT:

**1155 HEARST AVE
 BERKELEY, CA 94705**

ASSESSOR'S PARCEL #:

LOT 1173: 057 208601300
 LOT 1157: 057 208601400



HEIGHT & STORIES	ZONING:	EXISTING:	PROPOSED:
STORIES:	3 W/AUP	2	3
HEIGHT:	28' AVG 35' W/AUP	23'	35'
SETBACKS (Min. dimensions shown - see site plan)			
FRONT	15'	7'-10" EXISTING	7'-10" ADDITION
SIDE	4' @ 1ST STORY 4' @ 2ND STORY 6' @ 3RD STORY	3'-10" @ WEST 4'- 6" @ EAST	3' - 10" @ West (3 - STORY) 4' - 6" @ EAST (2 - STORY) 5' - 4" @ FREESIA ADDITION
BACK	15'	27'-10"	27'-10"
BUILDING SEPARATION	8' @ 1ST STORY 12' @ 2ND STORY 16' @ 3RD STORY	13'- 3"	9' - 2" - 25' - 6"
LOT AREA		21673 (Merge 2 lots)	21673
LOT COVERAGE	3 - STORY: 35% 2 - STORY: 40%	4974 SF : 22%	8670 SF: 40%
GROSS FLOOR AREA		7,302 SF	15,178 * 1.35 = 20,490 SF (Includes density bonus area, see A0.2)
PARKING: CARS			
RESIDENTIAL	1/UNIT 18 REQUIRED	7 (1 Covered @ Camelia; 6 @ Surface Lot)	18 Including 1 ADA/Van accessible (10 @ surface lot, 6 covered @ Geranium, 2 @ Camelia @ garage)
TOTAL			
PARKING: BIKE			
RESIDENTIAL		0	19

UNIT COUNT	ZONING:	EXISTING:	PROPOSED:
* Note: See Sheet A0.3 for unit mix and sizes			
	1 / 1650 SF LOT AREA 21673/1650 = 13 UNITS	7 UNITS	4.55 ADDITIONAL UNITS 13 X 35% = 18 TOTAL (PER DENSITY BONUS)
OPEN SPACE (See Site Plan for details)			
	300 SF / UNIT		18 UNITS = 6,458 SF REAR: 3,193 SF PASEO: 2,133 SF C/D: 410 SF D/E: 722 SF
BUILDING OCC.			
A, B, G & F: S-2 & R-2 @ GROUND FLOOR; R-2 @ LVLS. 2 & 3. EAST OF PASEO: R-3 @ C, D, E			
PROPOSED CONSTRUCTION TYPE			
NEW V-A STRUCTURES & REMODEL TO EXISTING DETACHED V-B RESIDENCE			
EXCAVATION			
APPROXIMATELY 55 CUBIC YARDS, FOR NEW FOUNDATIONS ONLY.			

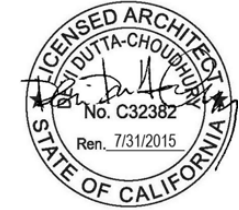
PROJECT DESCRIPTION:

THIS MULTIFAMILY PROJECT PROPOSES THREE NEW RESIDENTIAL STRUCTURES, AS WELL AS NEW SURFACE & COVERED PARKING, TWO STORY ADDITIONS TO THREE EXISTING SINGLE STORY RESIDENTIAL STRUCTURES, AND AN INTERIOR REMODEL TO AN EXISTING RESIDENTIAL STRUCTURE.

A LANDSCAPED "PASEO" ACTS AS THE PRIMARY PEDESTRIAN LINK FROM HEARST AVE, TO ACCESS RESIDENCE ENTRANCES, PARKING, AND COMMON AMENITY AREAS AND OPEN SPACE.

ZONING INFORMATION:

ADDRESS:	1155 HEARST AVE BERKELEY, CA 94702
USE DESCRIPTION	CURRENT RESIDENTIAL PROPERTY CONVERTED TO 5 OR MORE UNITS SINGLE FAMILY RESIDENTIAL, USED AS SUCH.
GENERAL PLAN:	MDR
ZONING DISTRICT:	R-2A
FLOOD ZONE:	NO
FIRE ZONE:	1
ENV. MGMT. AREA:	NO
LANDMARK STRUCTURES MERIT:	NO
LOT AREA 1173:	8,405 SF
LOT AREA: 1157	13,497 SF
TOTAL:	21,902 SF

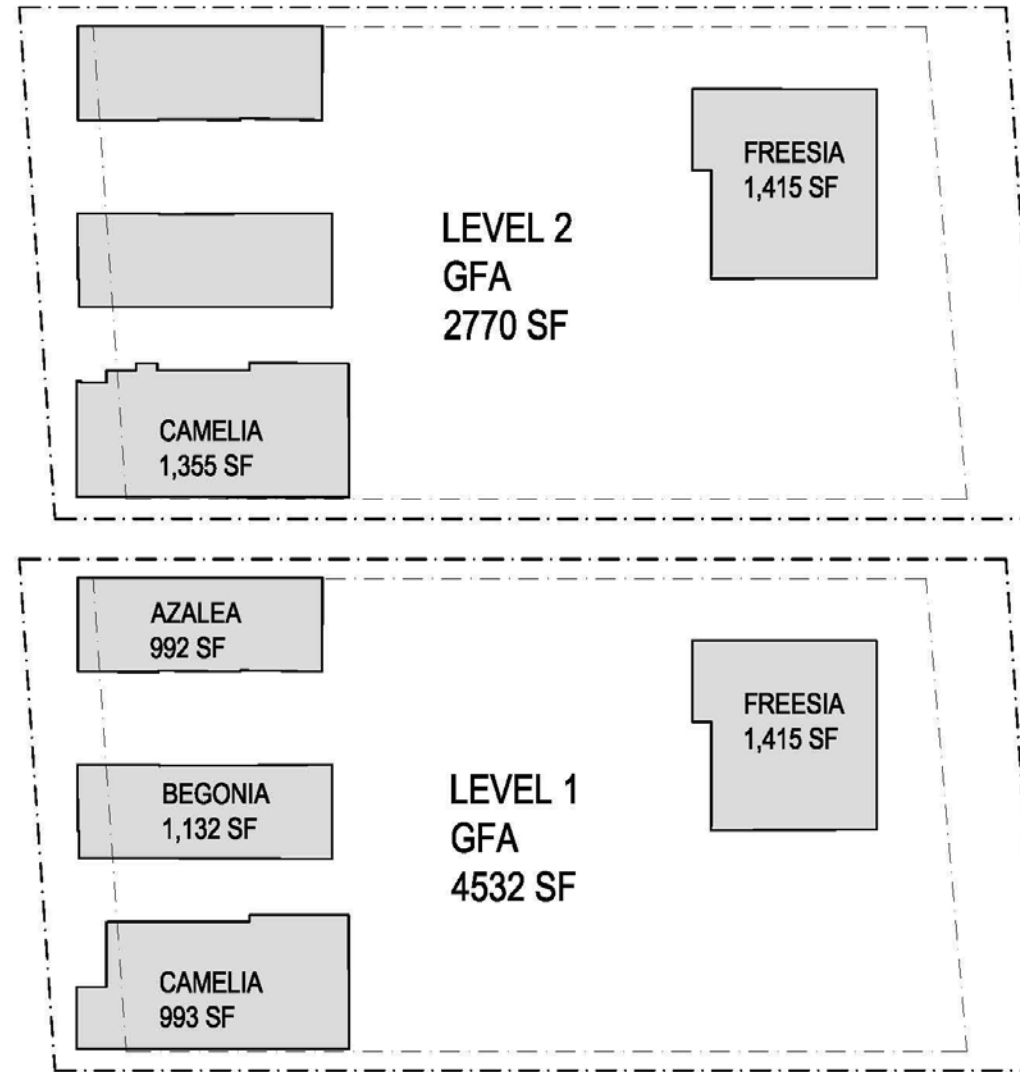


EXISTING CONDITIONS	
GROSS FLOOR AREA	7,226 GFA
AVERAGE UNIT SIZE	1,032 GFA
LOT AREA	21,673 SF (PER SURVEY)
LOT COVERAGE	4,847 SF
TOTAL ALLOWABLE AREA W/ DENSITY BONUS	N/A
PARKING	1 PER UNIT REQ'D. 7 PROVIDED.
OPEN SPACE	N/A
HEIGHT & STORIES	W/O USE PERMIT 2 STORIES PROVIDED ~23' EXISTING HEIGHT
SETBACKS	7'-10" EXISTING NON-CONFORMING 3.8' EXISTING NON-CONFORMING 28' PROVIDED
EXISTING DWELLING UNITS	7

BASELINE DEVELOPMENT STANDARDS	
GROSS FLOOR AREA	15,178 GFA
AVERAGE UNIT SIZE	1,168 GFA
LOT AREA	21,673 SF (PER SURVEY)
LOT COVERAGE	40% ALLOWED (8,670 SF) 40% PROVIDED (8,670 SF)
TOTAL ALLOWABLE AREA W/ DENSITY BONUS	N/A
PARKING	1 PER UNIT REQ'D. (13) 13 PROVIDED
OPEN SPACE	300 SQ FT/ UNIT = 3,900 REQUIRED 3,900 PROVIDED
HEIGHT & STORIES	2 STORIES PERMITTED 28' HEIGHT ALLOWED
SETBACKS	15' FRONT YARD REQ'D 4' SIDE YARD REQ'D 15' BACK YARD REQ'D
ALLOWED DWELLING UNITS	13

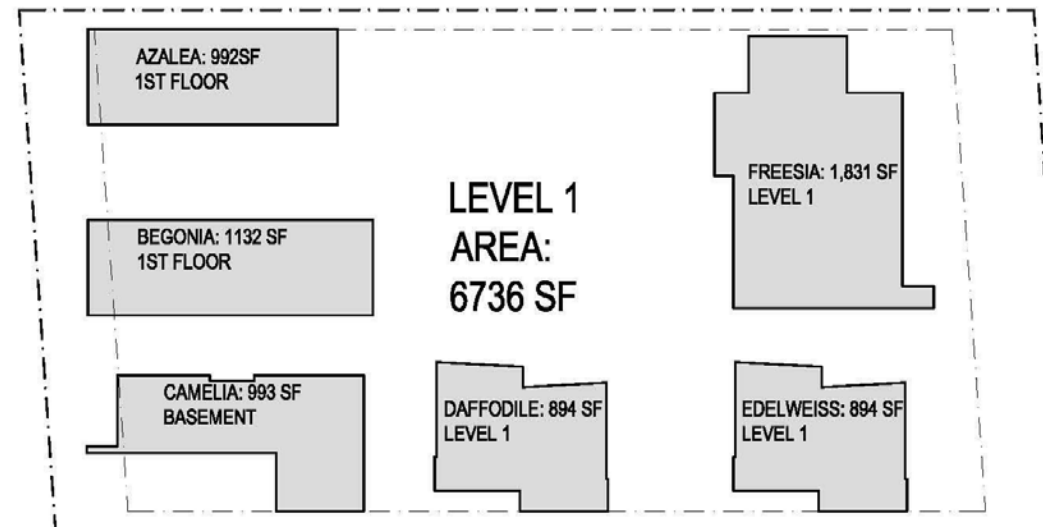
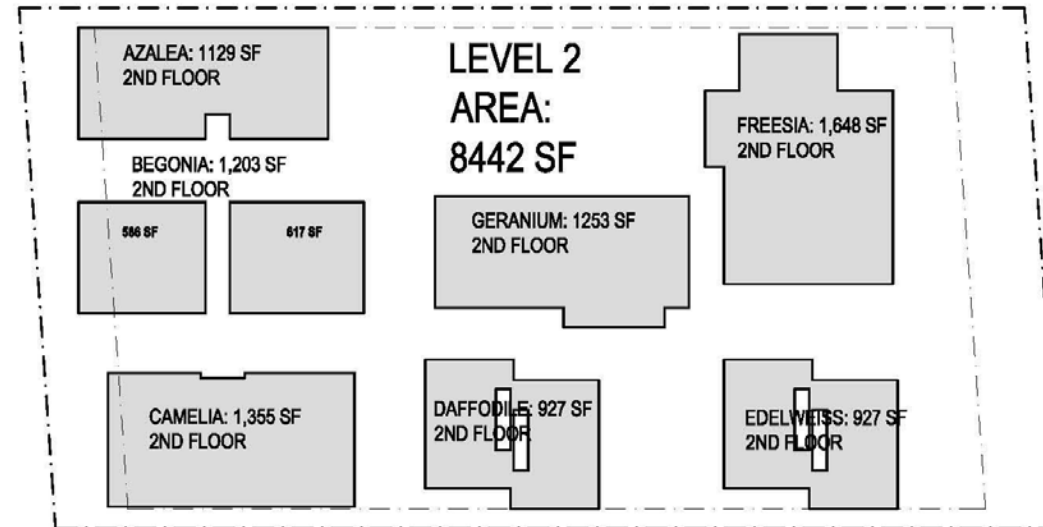
DENSITY BONUS DEVELOPMENT STANDARDS	
GROSS FLOOR AREA	20,040GFA (1% BELOW DENSITY BONUS ALLOWANCE OF 20,490 GFA)
AVERAGE UNIT SIZE	1,113 GFA
LOT AREA	21,673 SF (PER SURVEY)
LOT COVERAGE	35% ALLOWED W/3 STORY (7,586 SF) 40% PROVIDED (8,670 SF)
TOTAL ALLOWABLE AREA W/ DENSITY BONUS	15,178 GFA*1.35 = 20,490 GFA ALLOWED
CAR PARKING	(1) PER UNIT REQ'D. (18). 18 PROVIDED
OPEN SPACE	300 SQ FT/UNIT = 5,400 REQUIRED 6,458 SF PROVIDED
HEIGHT & STORIES	3 STORIES PERMITTED 35' HEIGHT ALLOWED 3 STORIES PROVIDED 35' HEIGHT SHOWN
SETBACKS	15' FRONT YARD REQ'D 7'-10" EXISTING NON-CONFORMING 4' SIDE YARD REQ'D LEVEL 1&2 3.8' EXISTING NON-CONFORMING 6' SIDE YARD REQ'D LEVEL 3 4' PROVIDED 15' BACK YARD REQ'D 28' PROVIDED
PROPOSED 35% DENSITY BONUS	18

EXISTING CONDITIONS, 7 UNITS				
BUILDING	UNIT #	UNIT TYPE	UNIT GROSS FLOOR AREA	EXISTING/NEW? BELOW MARKET RATE?
AZALEA	A101	1 BED, 1 BATH	496 GFA	(E), BMR
	A102	1 BED, 1 BATH	496 GFA	(E), BMR
BEGONIA	B101	1 BED, 1 BATH	566 GFA	(E), BMR
	B102	1 BED, 1 BATH	566 GFA	(E), BMR
CAMELIA	C101	2 BED, 1 BATH	1,355 LVL2 + 933 BASEMENT = 2,348 GFA (PARKING EXCLUDED FROM GFA)	(E)
FREESIA	F101	3 BED, 3 BATH	1,415 GFA	(E) BMR
	F201	3 BED, 3 BATH	1,415 GFA	(E) BMR
TOTALS	7 UNITS	N/A	7,302 GFA	N/A



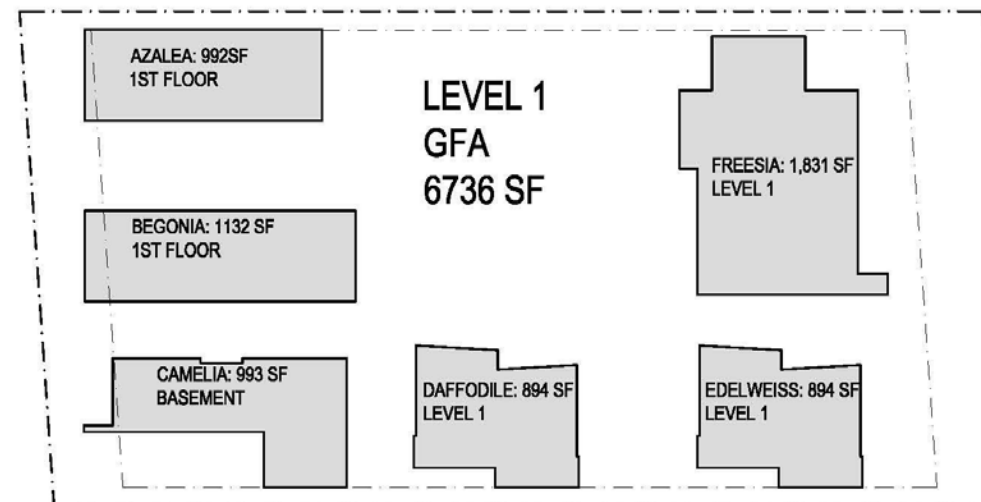
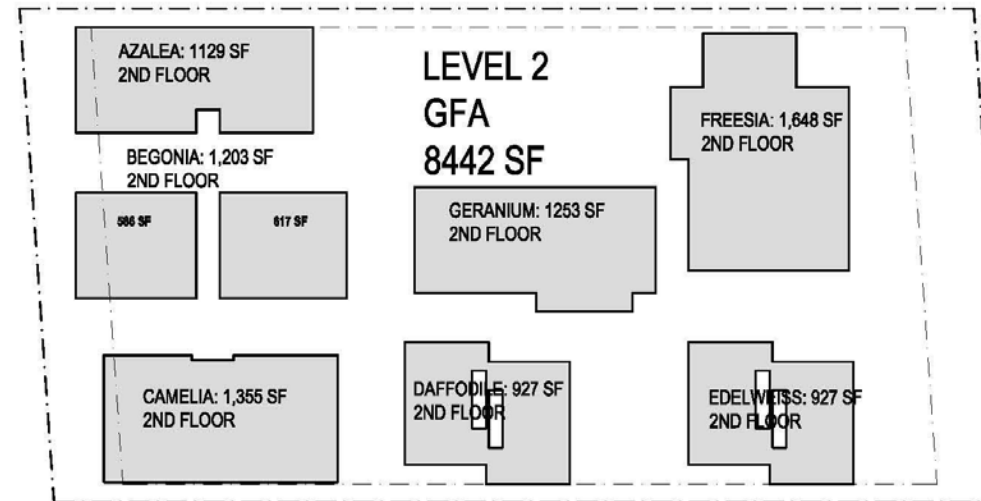
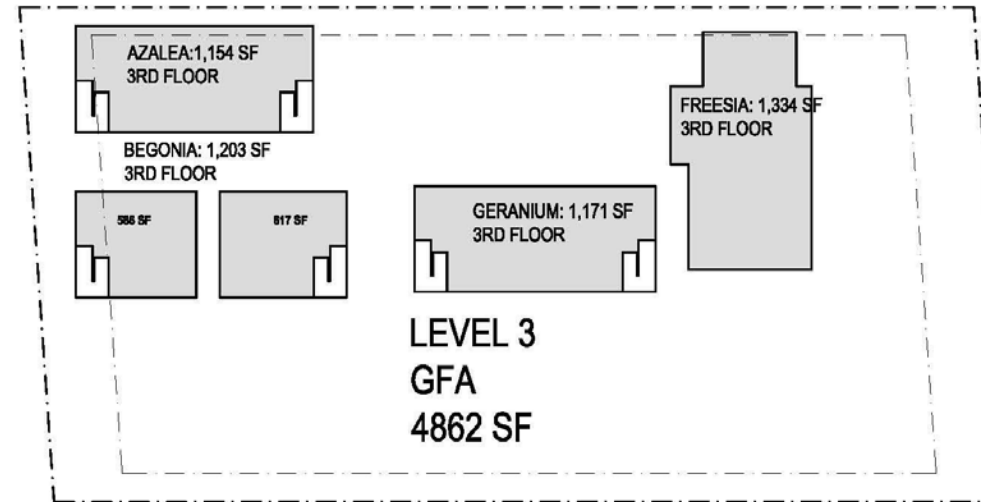


BASELINE PROJECT, 13 UNITS				
BUILDING	UNIT #	UNIT TYPE	UNIT GROSS FLOOR AREA	EXISTING/NEW? BELOW MARKET RATE?
AZALEA	A101	1 BED, 1 BATH	496 GFA	(E), BMR
AZALEA	A102	1 BED, 1 BATH	496 GFA	(E), BMR
AZALEA	A201	2 BED, 2.5 BATH	1129 GFA	NEW
BEGONIA	B101	1 BED, 1 BATH	566 GFA	(E), BMR
BEGONIA	B102	1 BED, 1 BATH	566 GFA	(E), BMR
BEGONIA	B201	2 BED, 2.5 BATH	1,203 GFA	NEW
CAMELIA	C101	2 BED, 1 BATH	1,355 LVL 2+ 993 LVL 1 = 2,348 GFA *	(E)
DAFFODIL	D101	2 BED, 2.5 BATH	894 GFA	NEW
DAFFODIL	D201	2 BED, 2.5 BATH	927 GFA	
EDELWEISS	E101	2 BED, 2.5 BATH	894 GFA	NEW
EDELWEISS	E201	2 BED, 2.5 BATH	927 GFA	NEW
FREESIA	F101	3 BED, 3 BATH	1,831 GFA	(E) + NEW, BMR
FREESIA	F201	3 BED, 3 BATH	1,648 GFA	(E) + NEW, BMR
GERANIUM	G201	2 BED, 2.5 BATH	1,253 GFA	NEW
TOTALS	13 UNITS	N/A	15,178 GFA	N/A

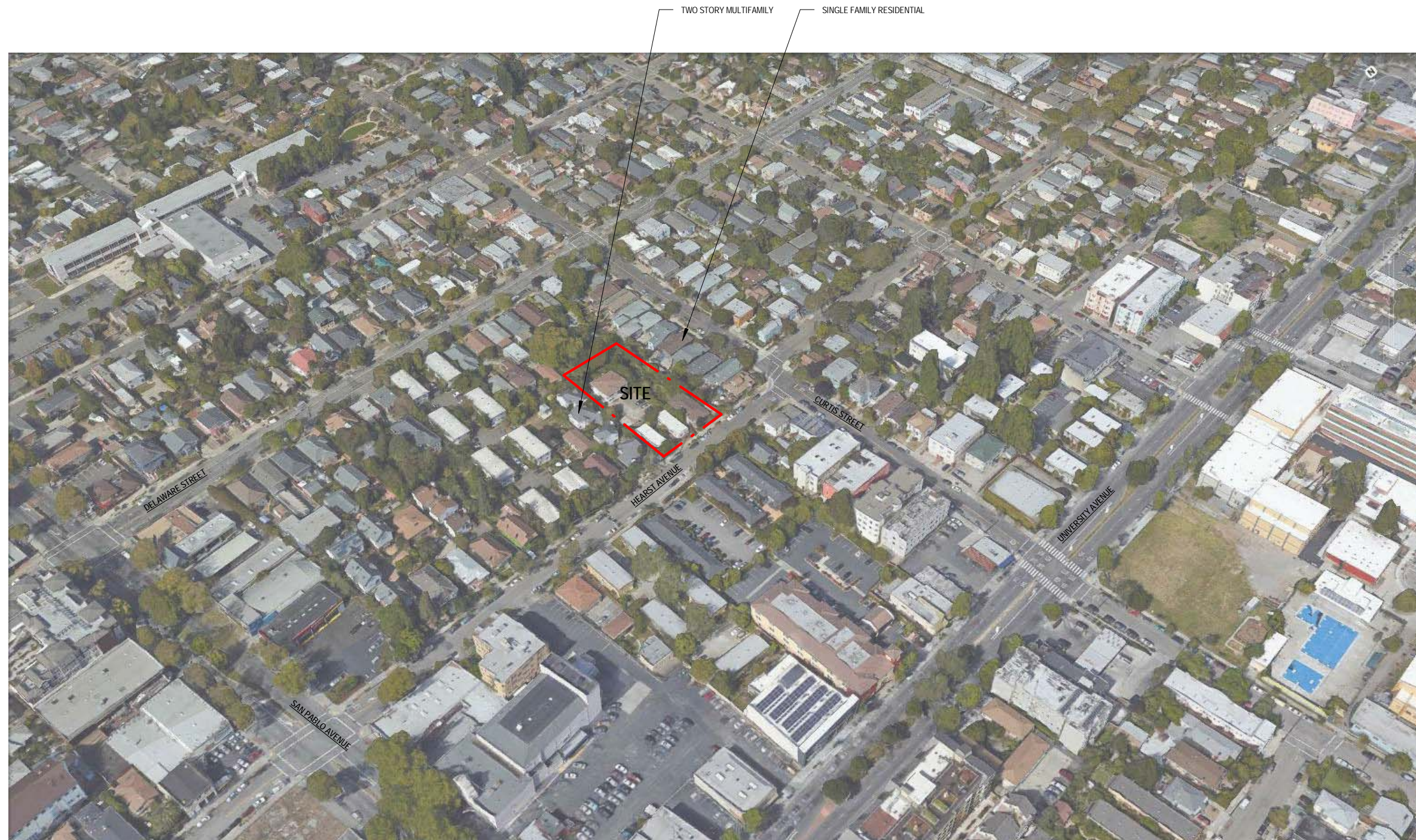
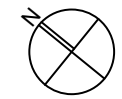


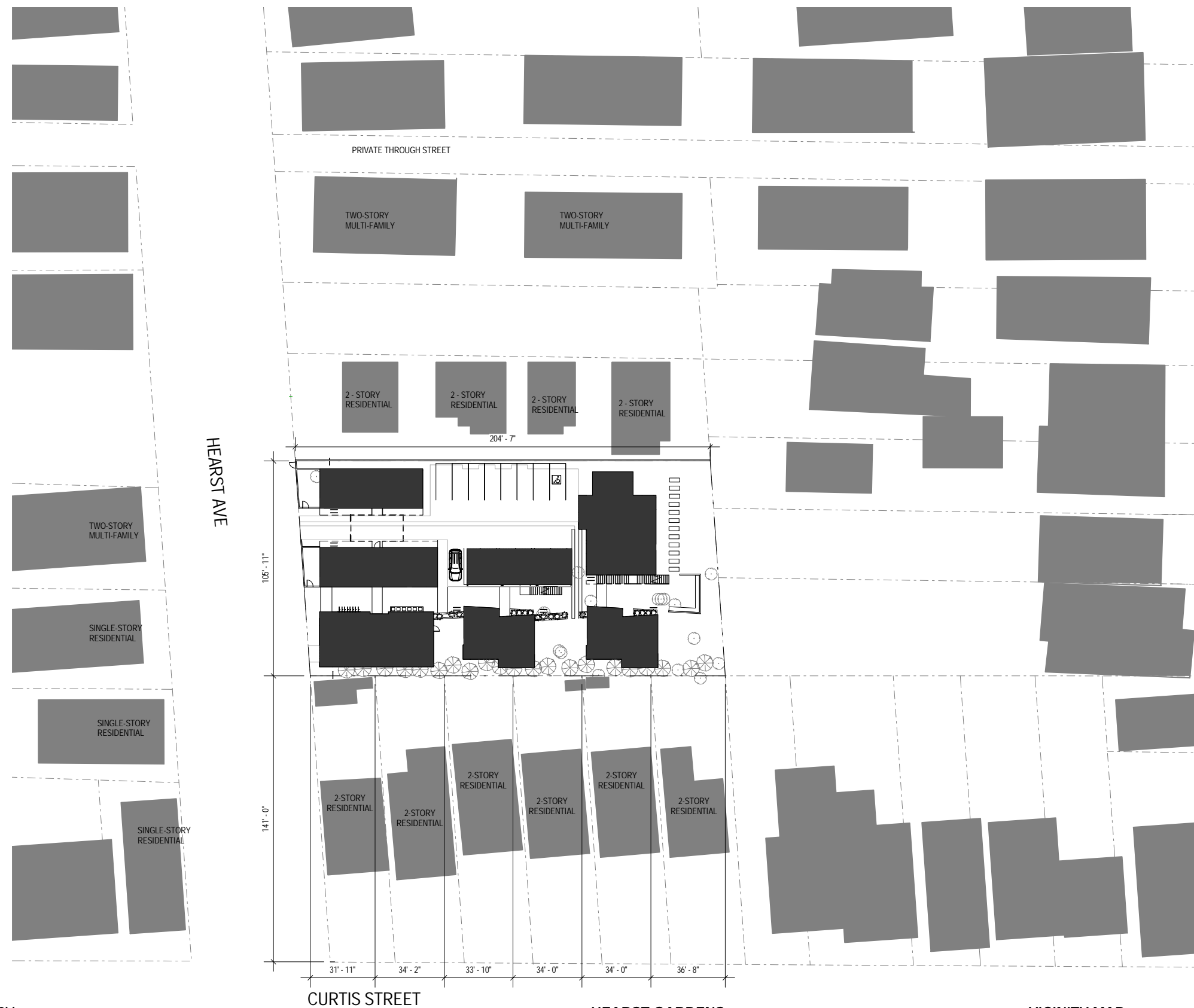


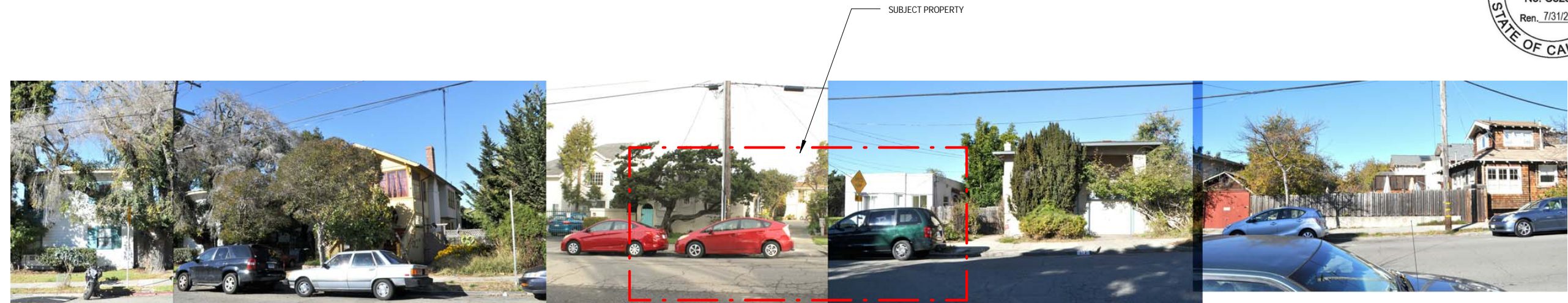
DENSITY BONUS PROJECT, 18 UNITS				
BUILDING	UNIT #	UNIT TYPE	UNIT GROSS FLOOR AREA	EXISTING/NEW? BELOW MARKET RATE?
AZALEA	A101	1 BED, 1 BATH	496 GFA	(E), BMR
AZALEA	A102	1 BED, 1 BATH	496 GFA	(E), BMR
AZALEA	A201	2 BED, 2.5 BATH	1129GFA	NEW
AZALEA	A202	2 BED, 2.5 BATH	1154 GFA	NEW
BEGONIA	B101	1 BED, 1 BATH	566GFA	(E), BMR
BEGONIA	B102	1 BED, 1 BATH	566 GFA	(E), BMR
BEGONIA	B201	2 BED, 2.5 BATH	1203 GFA	NEW
BEGONIA	B202	2 BED, 2.5 BATH	1203 GFA	NEW
CAMELIA	C101	2 BED, 1 BATH	1,355 LVL2 + 993 LVL1 = 2,348 GFA (PARKING EXCLUDED FROM GFA) **	(E)
DAFFODIL	D101	2 BED, 2.5 BATH	894 GFA	NEW
DAFFODIL	D102	2 BED, 2.5 BATH	927 GFA	NEW
EDELWEISS	E101	2 BED, 2.5 BATH	894 GFA	NEW
EDELWEISS	E102	2 BED, 2.5 BATH	927 GFA	NEW
FREESIA	F101	3 BED, 3 BATH	1,831 GFA	(E) + NEW, BMR
FREESIA	F201	3 BED, 3 BATH	1,648 GFA	(E) + NEW, BMR
FREESIA	F301	3 BED, 3 BATH	1,330 GFA	NEW
GERANIUM	G201	2 BED, 2.5 BATH	1,253 GFA	NEW
GERANIUM	G202	2 BED, 2.5 BATH	1,171 GFA	NEW
TOTALS	18 UNITS	N/A	20,040 GFA	N/A



BASE PROJECT AREA X 35%
 DENSITY BONUS AREA = 15178
 X 1.35 = 20,490 ALLOWABLE
 DENSITY BONUS AREA







Existing Hearst Ave Strip, North



Proposed Hearst Ave Strip



Existing Hearst Ave Strip, South



CURTIS STREET HOMES (2-STORY @ REAR)



DELAWARE STREET



1155 HEARST - AZALEA



1161 HEARST - BEGONIA



1173 HEARST - CAMELLIA



1163 & 1157 HEARST - BEGONIA / AZALEA



1157 HEARST - AZALEA



1157 HEARST - AZALEA



1155 HEARST - AZALEA



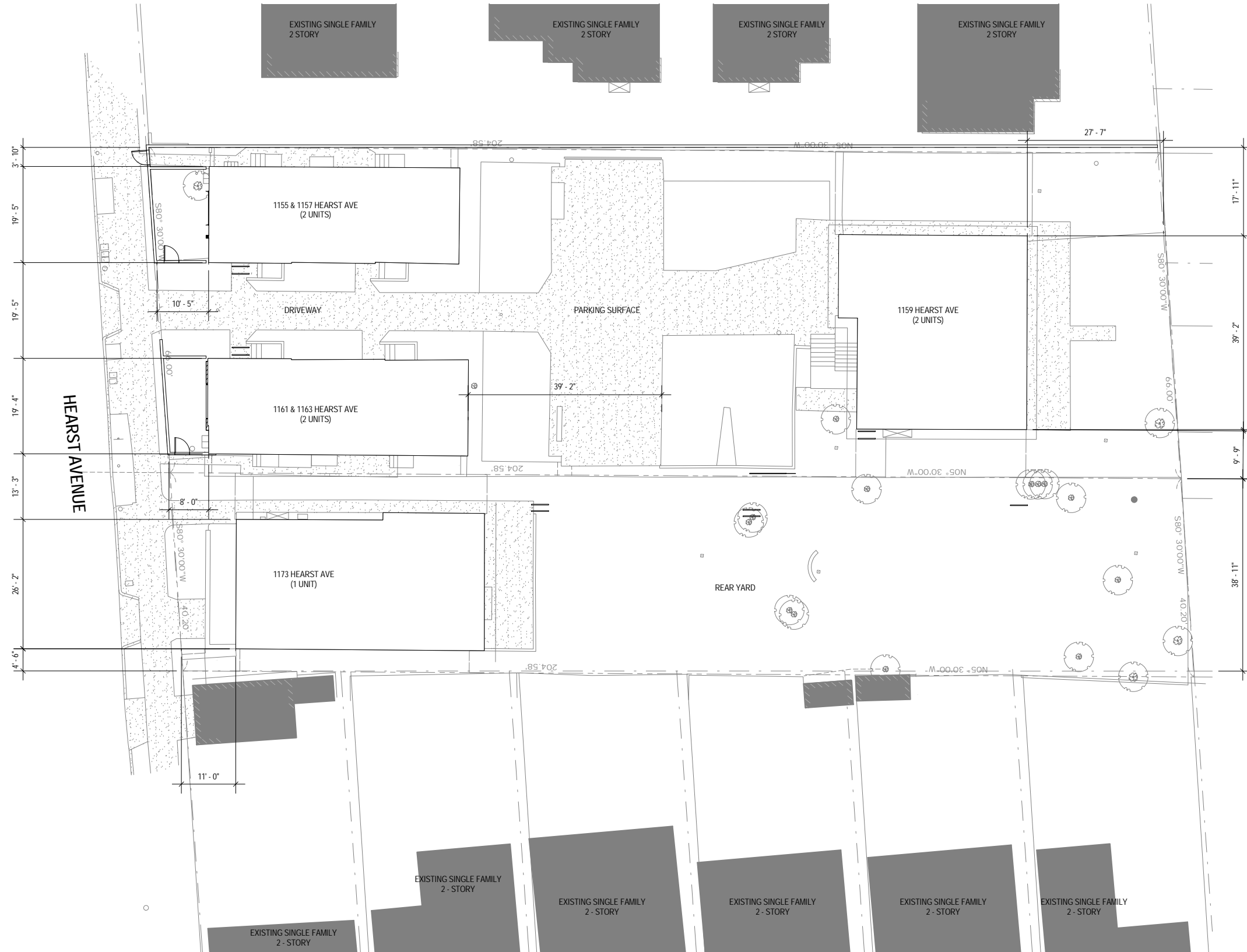
1179 HEARST - FREESIA

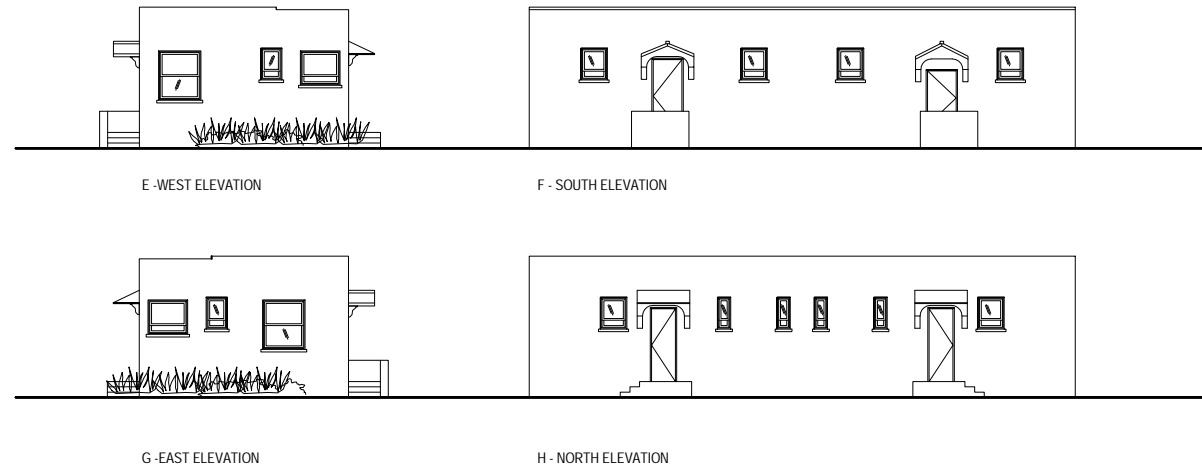
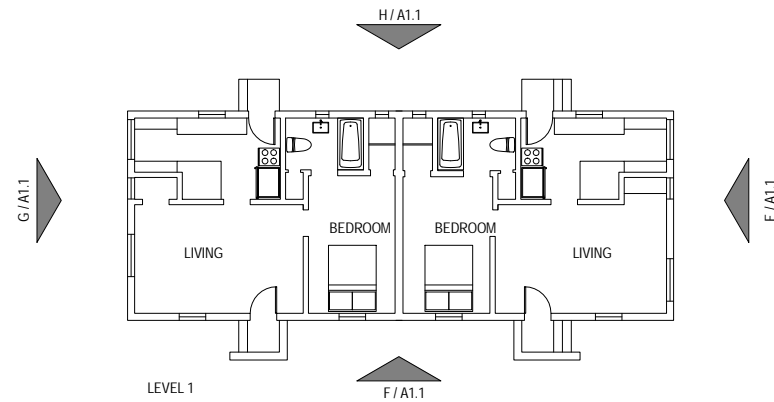


1179 HEARST - FREESIA

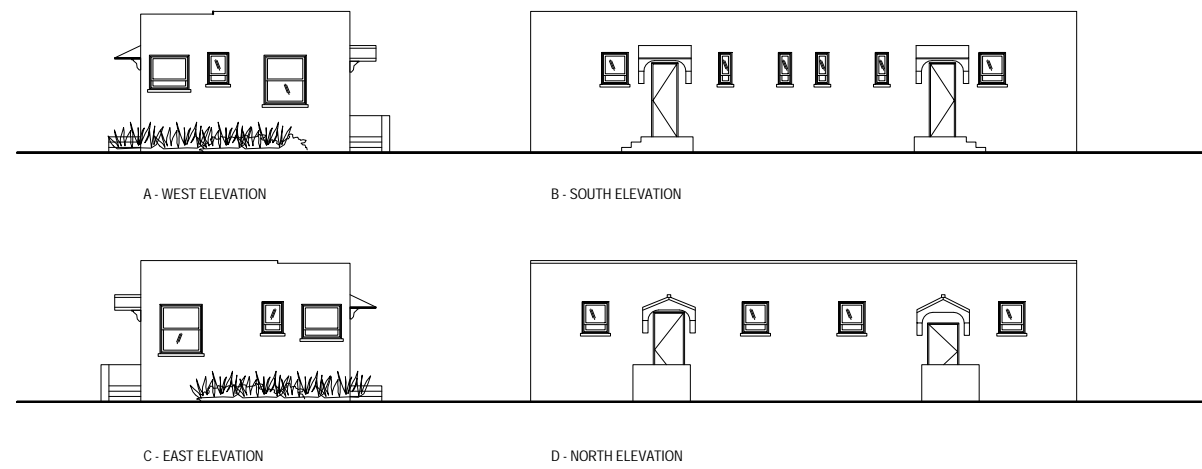
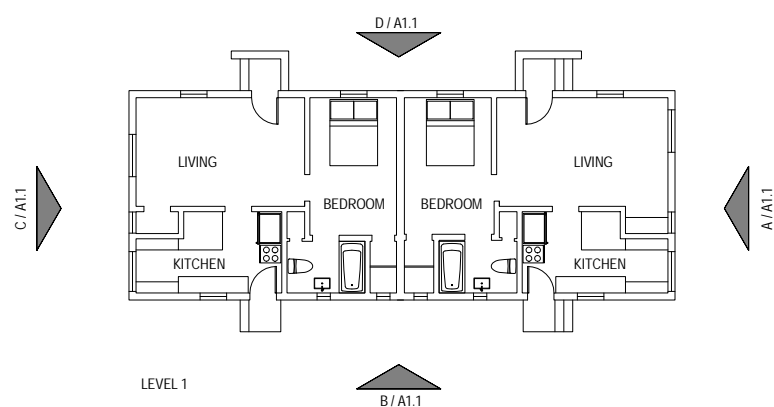


1179 HEARST - FREESIA

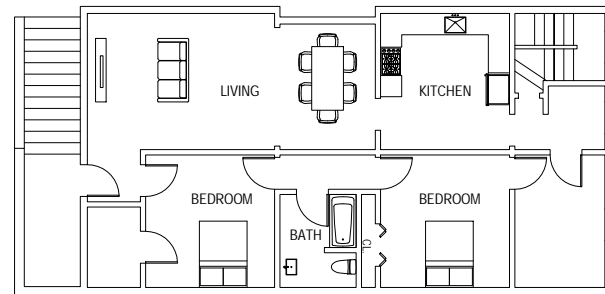




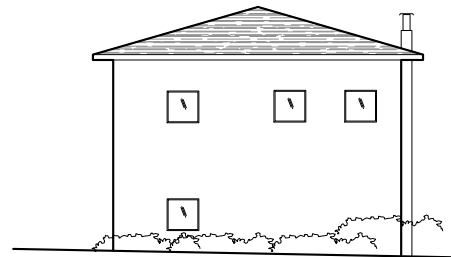
2 AZALEA 1155 & 1157 HEARST
 1/16" = 1'-0"



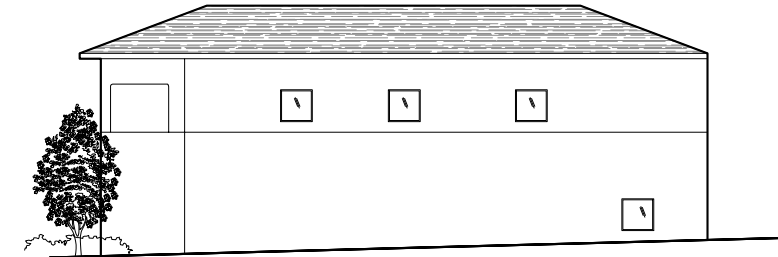
1 BEGONIA 1161 & 1163 HEARST
 1/16" = 1'-0"



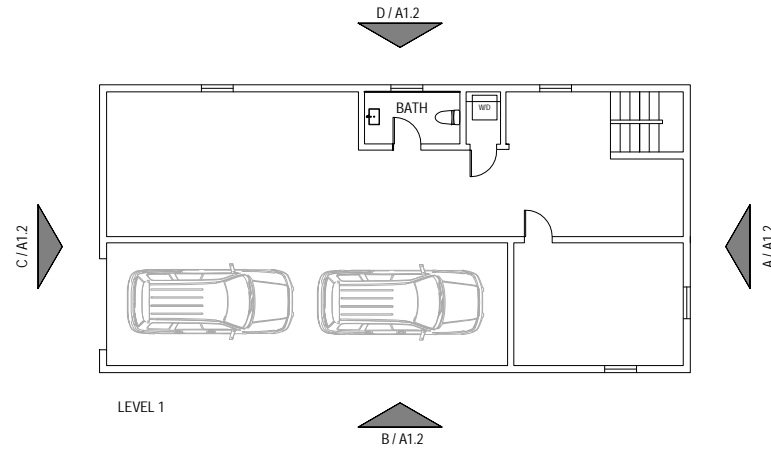
LEVEL 2



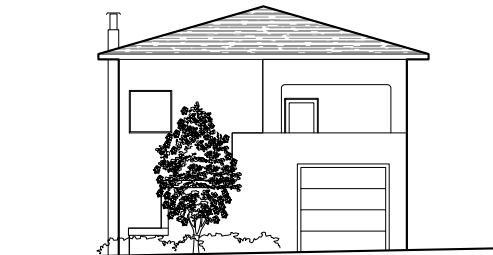
A - EAST ELEVATION



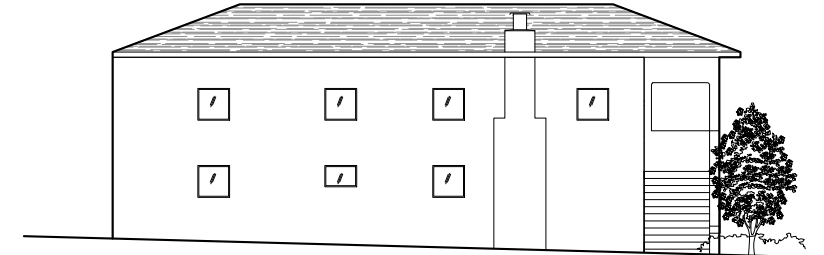
B - SOUTH ELEVATION



LEVEL 1



C - WEST ELEVATION

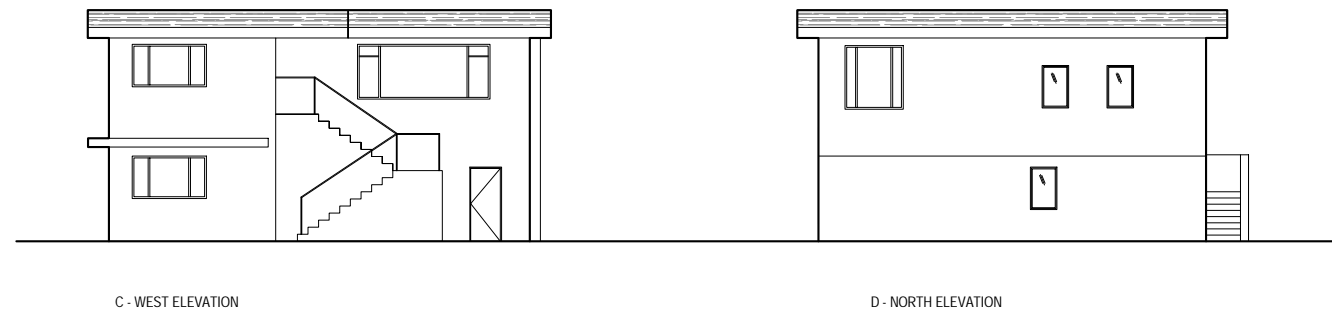
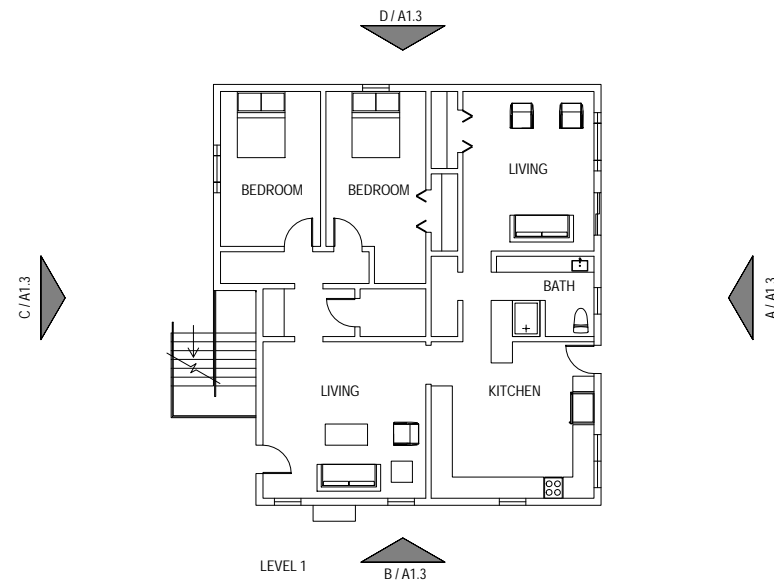
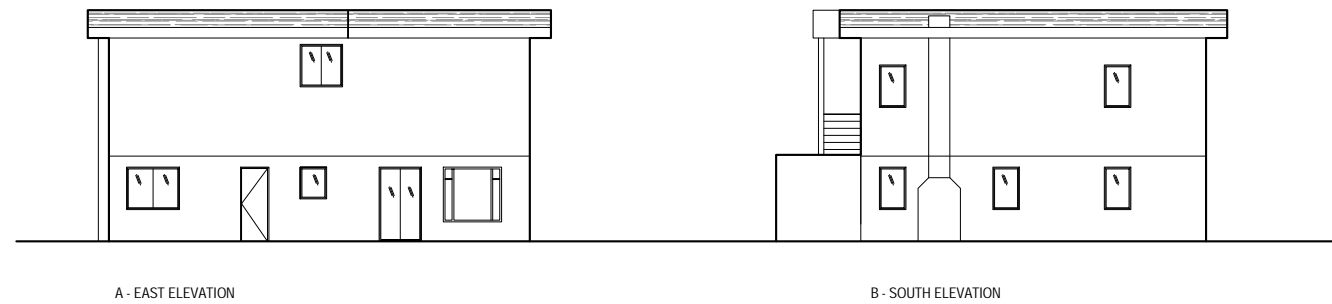
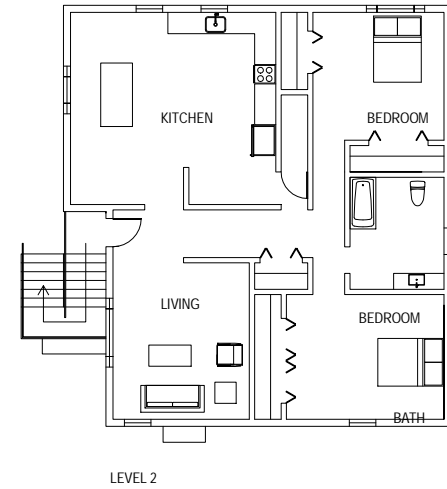


D - NORTH ELEVATION

**EXISTING PLANS & ELEVATIONS - CAMELLIA / 1173
 HEARST**

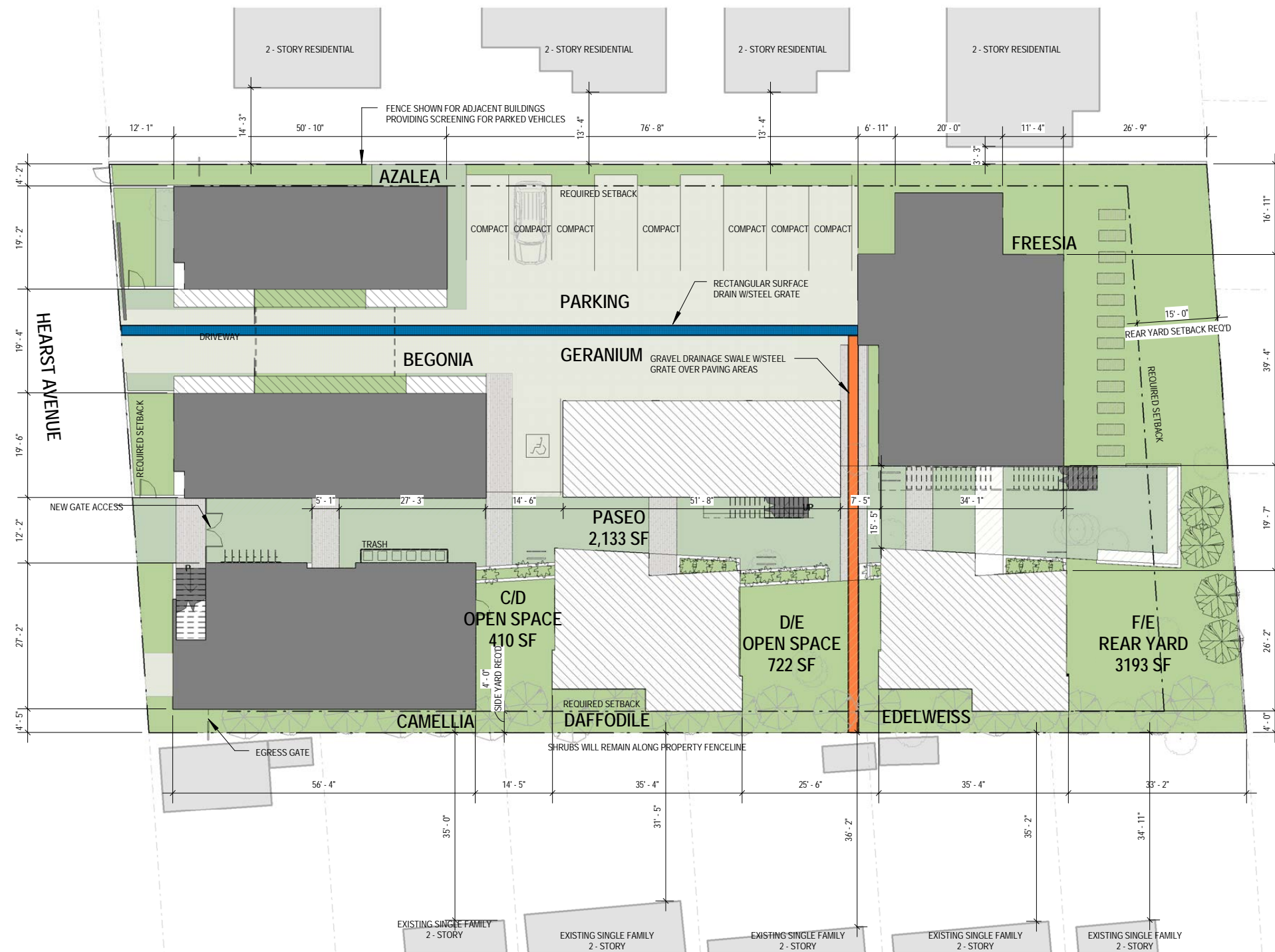
1

1/16" = 1'-0"

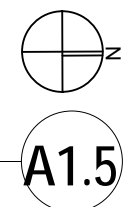


1 EXISTING PLANS & ELEVATIONS - FREESIA / 1179
 HEARST
 1/16" = 1'-0"



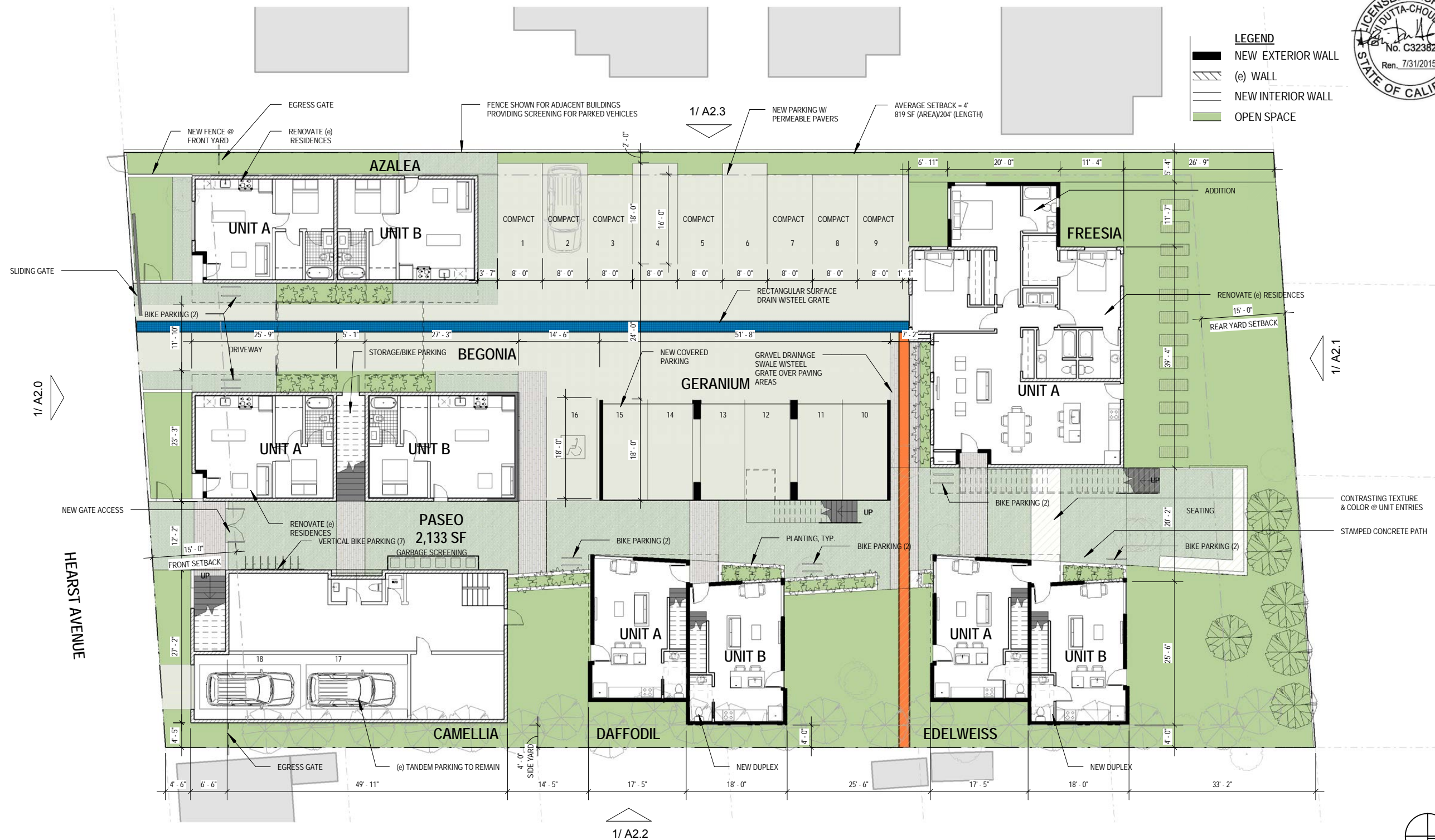


- LEGEND**
- NEW BUILDING
 - RENOVATED BUILDING (e)
 - OPEN SPACE





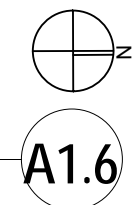
- LEGEND**
- NEW EXTERIOR WALL
 - (e) WALL
 - NEW INTERIOR WALL
 - OPEN SPACE



DRC - PRELIMINARY
 4.7.2016

HEARST GARDENS
 Devi Dutta Architecture Inc.

GROUND FLOOR
 SCALE: 1/16" = 1'-0"





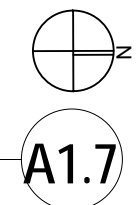
- LEGEND**
- NEW EXTERIOR WALL
 - (e) WALL
 - NEW INTERIOR WALL
 - OPEN SPACE



DRC - PRELIMINARY
 4.7.2016

HEARST GARDENS
 Devi Dutta Architecture Inc.

SECOND FLOOR
 SCALE: 1/16" = 1'-0"





- LEGEND**
- NEW EXTERIOR WALL
 - (e) WALL
 - NEW INTERIOR WALL
 - OPEN SPACE



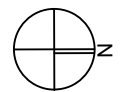
DRC - PRELIMINARY
 4.7.2016



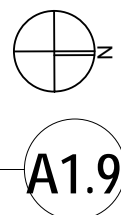
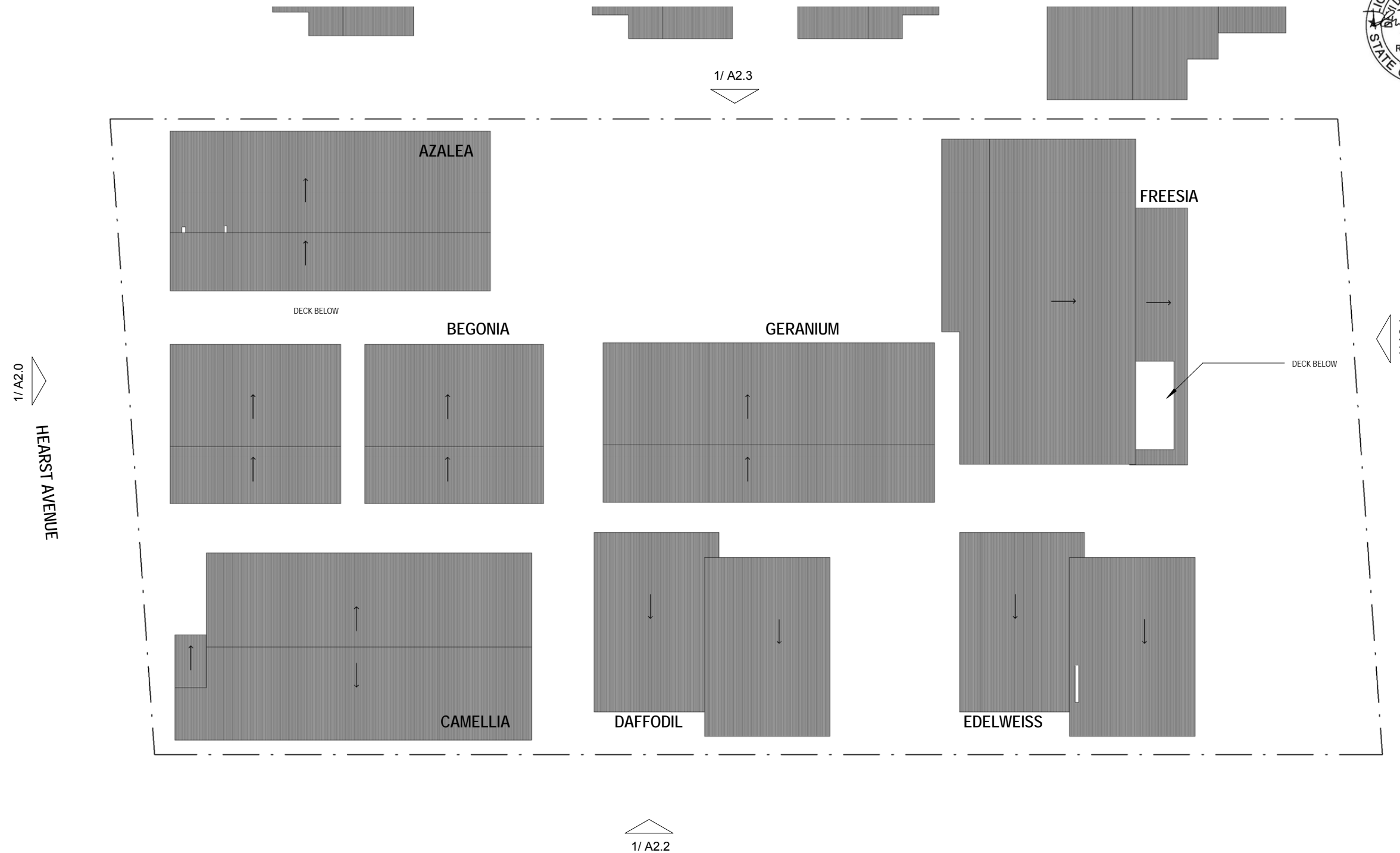
1/A2.2

HEARST GARDENS
 Devi Dutta Architecture Inc.

THIRD FLOOR
 SCALE: 1/16" = 1'-0"



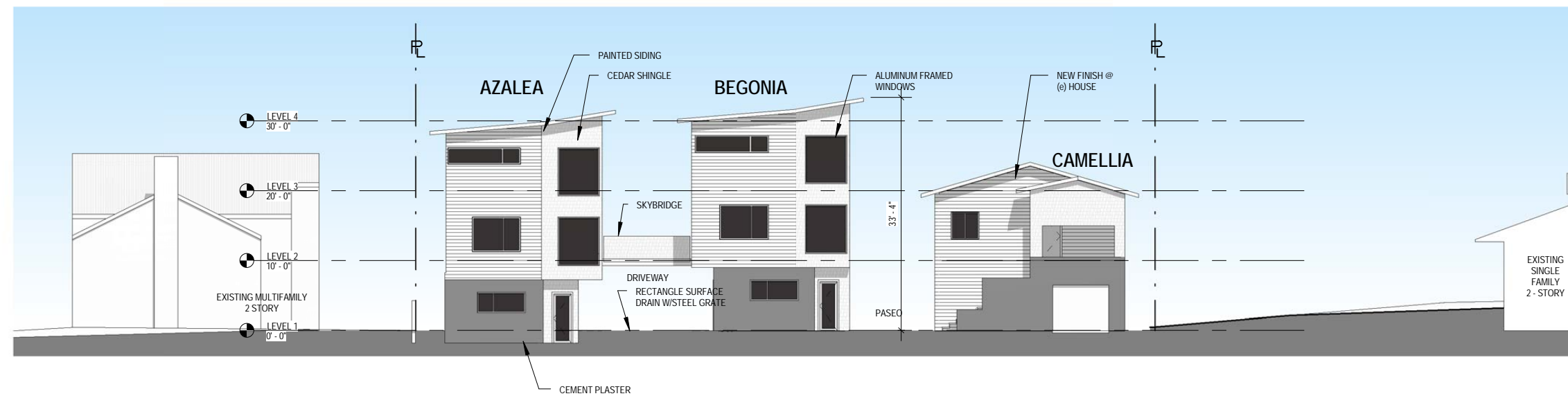
A1.8





MATERIAL LEGEND

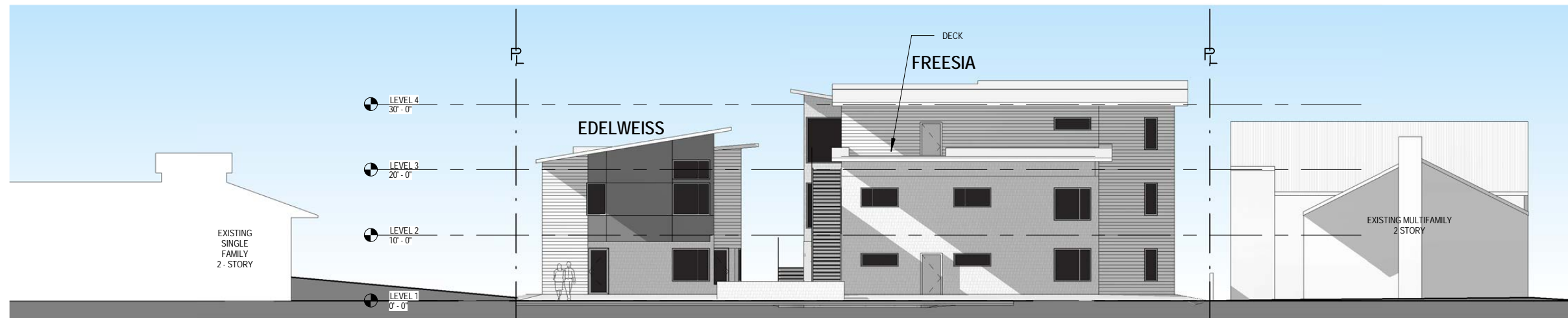
	PAINTED WOOD SIDING
	CEDAR SHINGLE SIDING
	CEMENT PLASTER





MATERIAL LEGEND

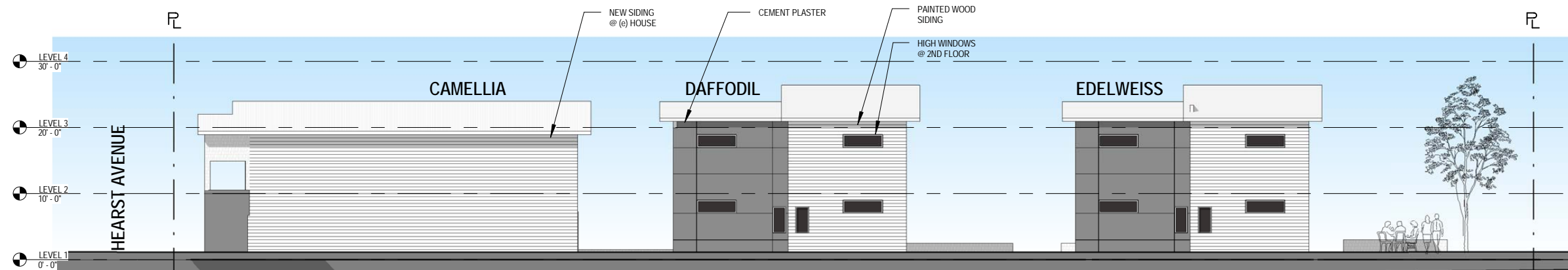
	PAINTED WOOD SIDING
	CEDAR SHINGLE SIDING
	CEMENT PLASTER








MATERIAL LEGEND

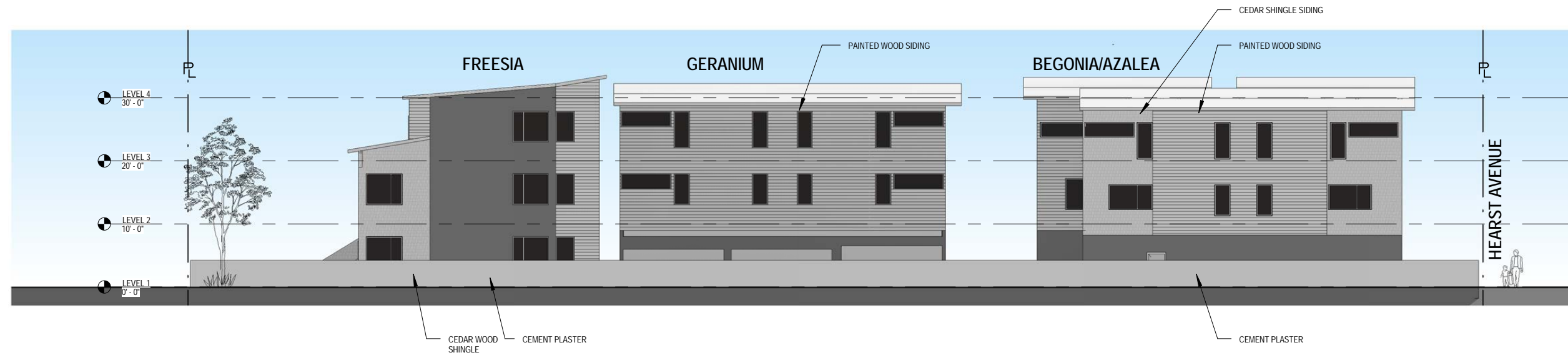
	PAINTED WOOD SIDING
	CEDAR SHINGLE SIDING
	CEMENT PLASTER

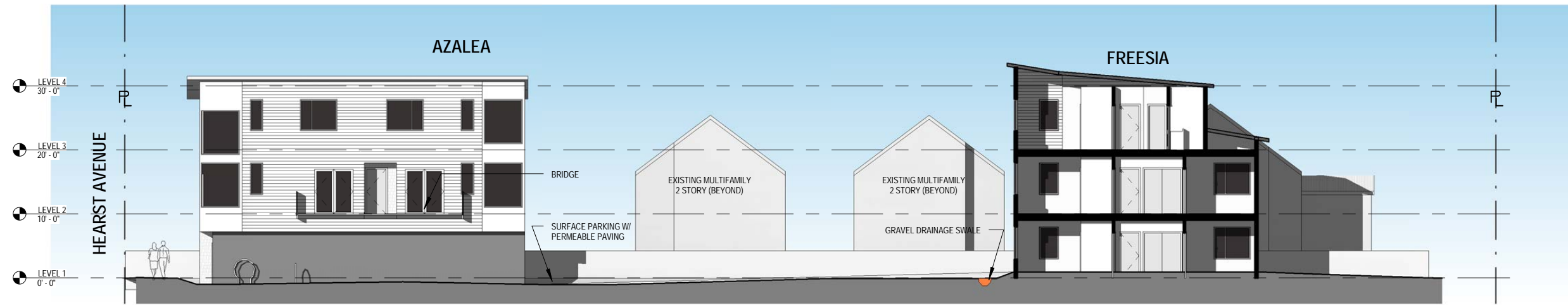




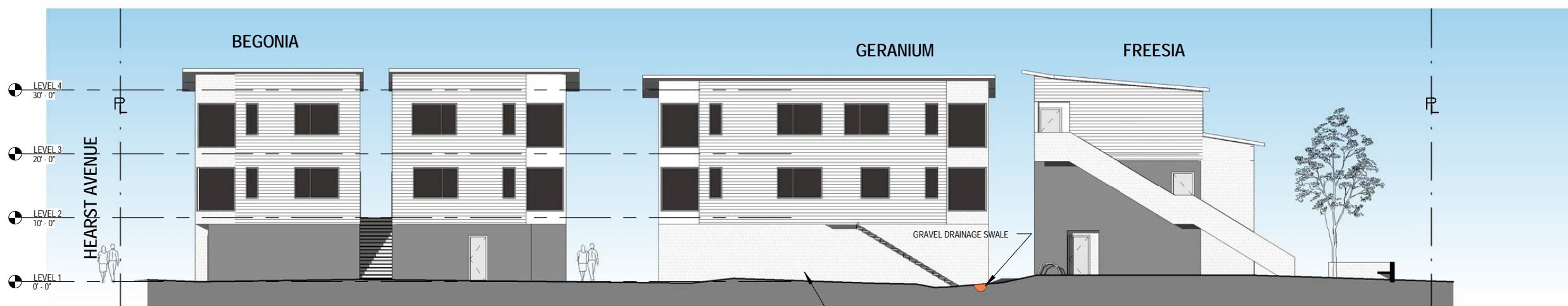
MATERIAL LEGEND

	PAINTED WOOD SIDING
	CEDAR SHINGLE SIDING
	CEMENT PLASTER

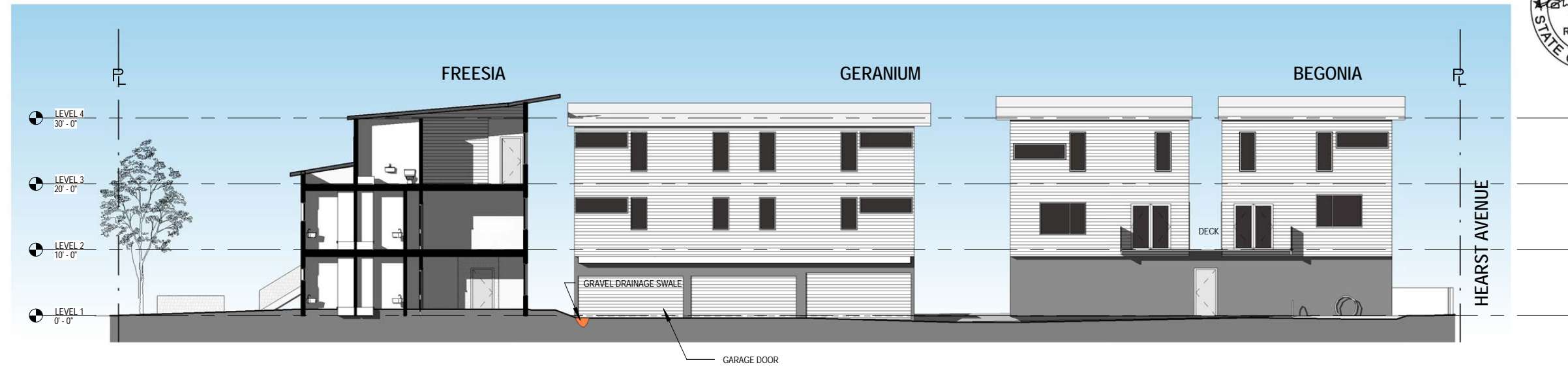




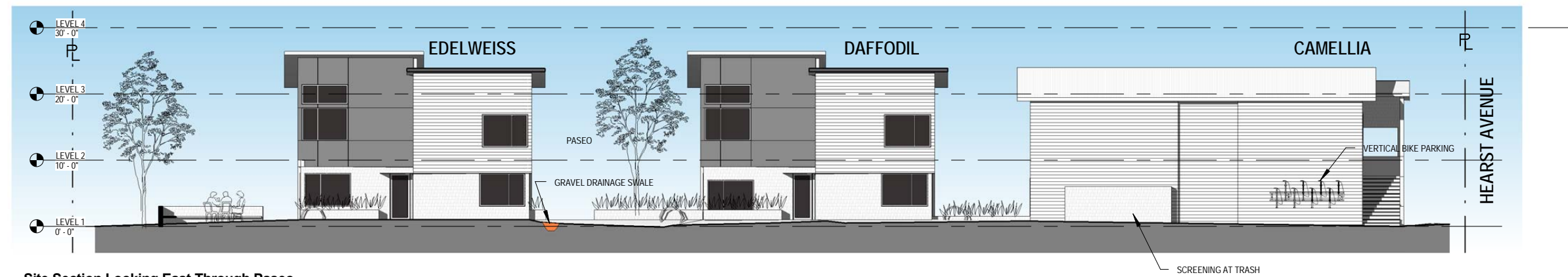
1 Site Section Looking West Through Driveway
 1/16" = 1'-0"



2 Site Section Looking West Through Paseo
 1/16" = 1'-0"



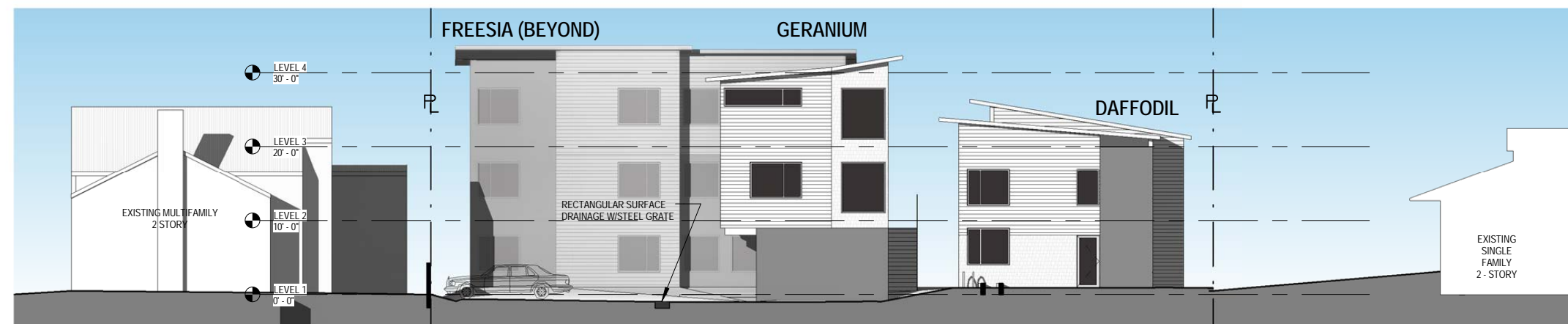
1 Site Section Looking East Through Driveway
 1/16" = 1'-0"



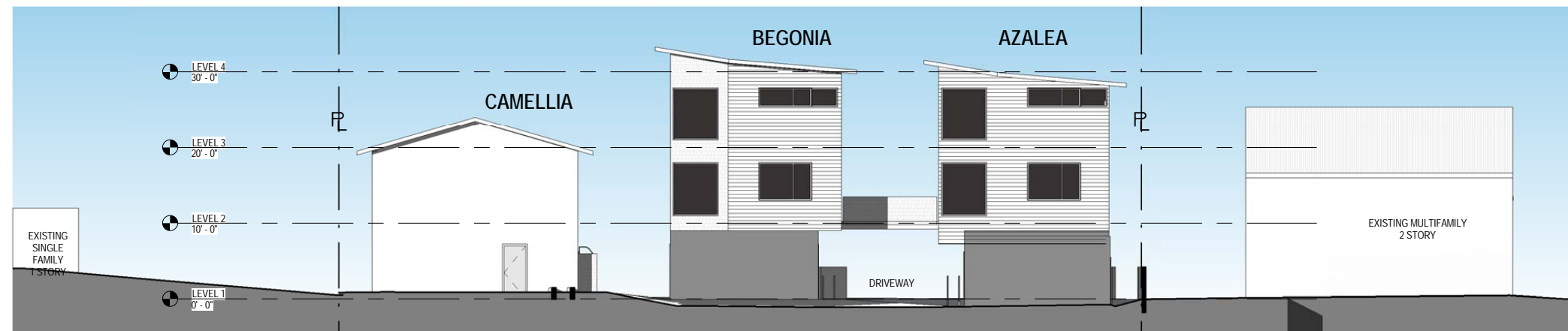
2 Site Section Looking East Through Paseo
 1/16" = 1'-0"



1 Site Section Looking North @ Freesia Building
 1/16" = 1'-0"

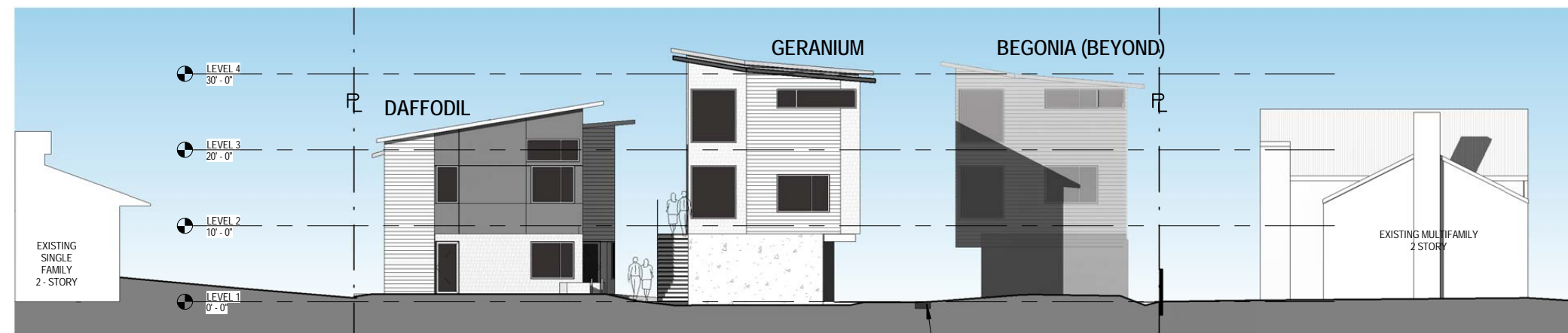


2 Site Section Looking North
 1/16" = 1'-0"



1 Site Section Looking South

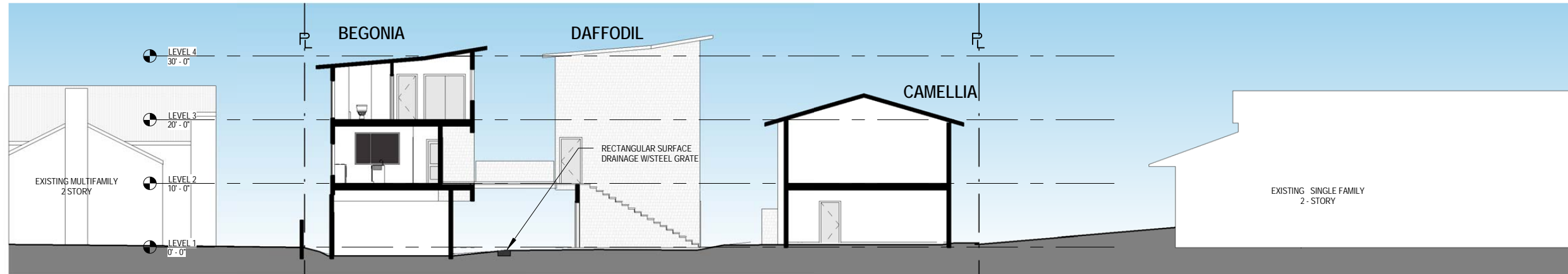
1/16" = 1'-0"



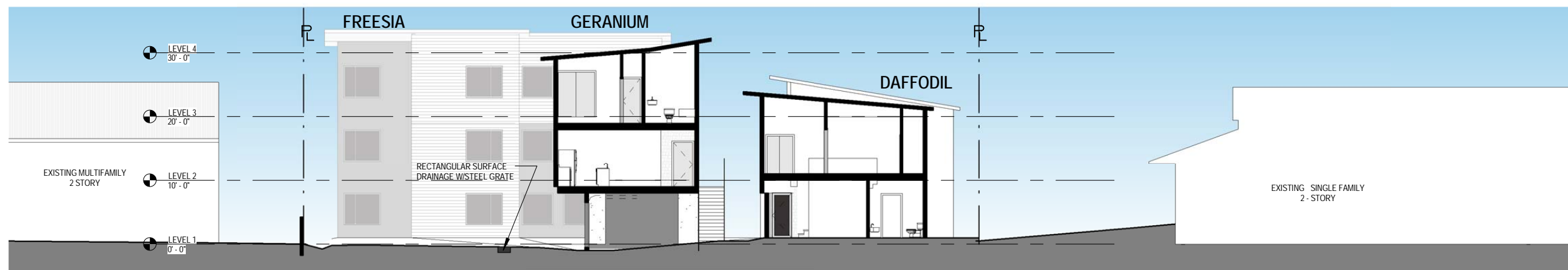
2 Site Section Looking South @ Parking Lot

1/16" = 1'-0"

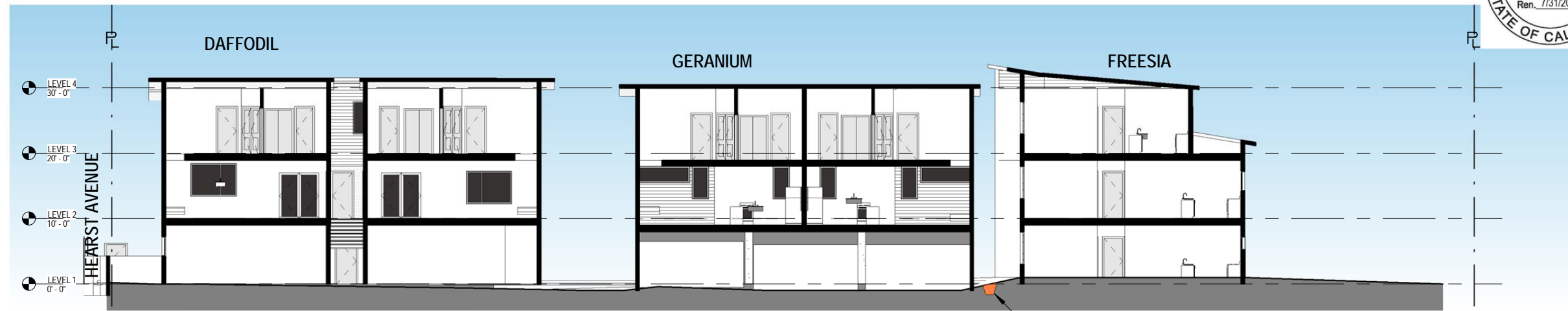
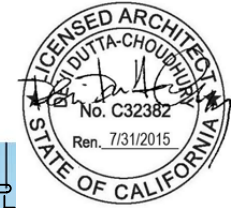
RECTANGULAR SURFACE
DRAIN W/ STEEL GRATE



1 Building Section Looking North Through Stair
 1/16" = 1'-0"



2 Building Section Through Covered Parking Looking North
 1/16" = 1'-0"



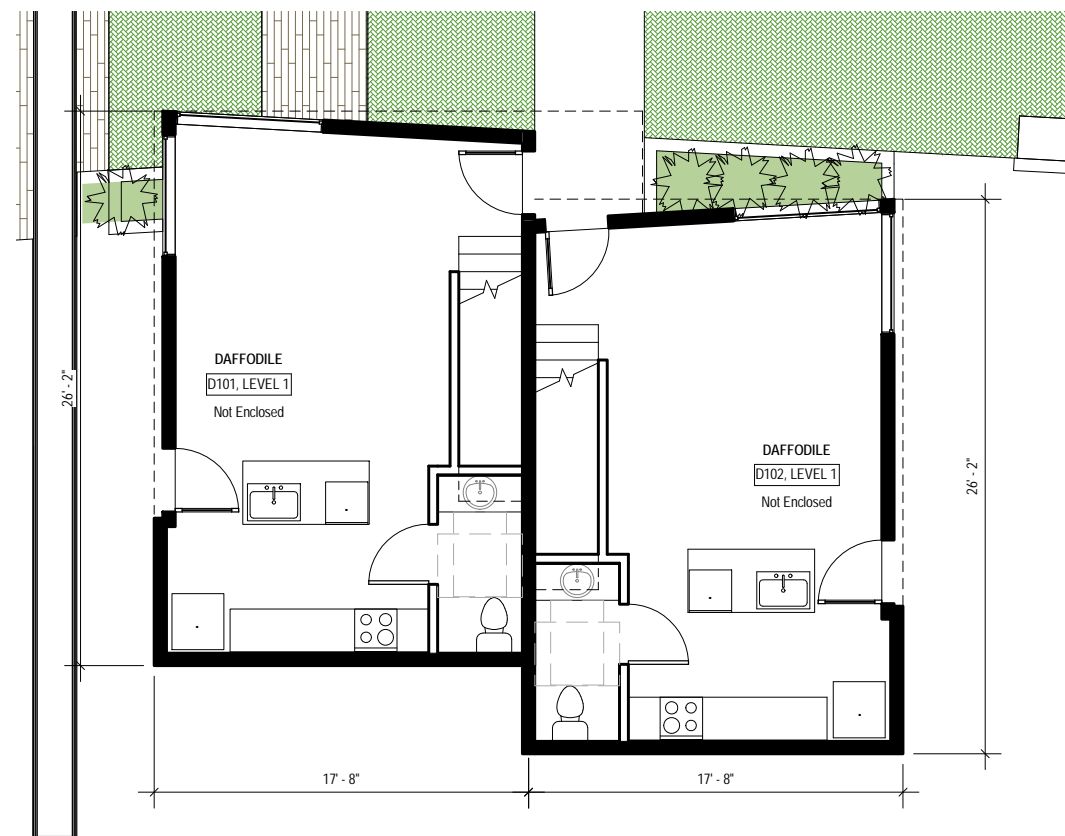
1 Building Section Looking West Through Parking
 1/16" = 1'-0"



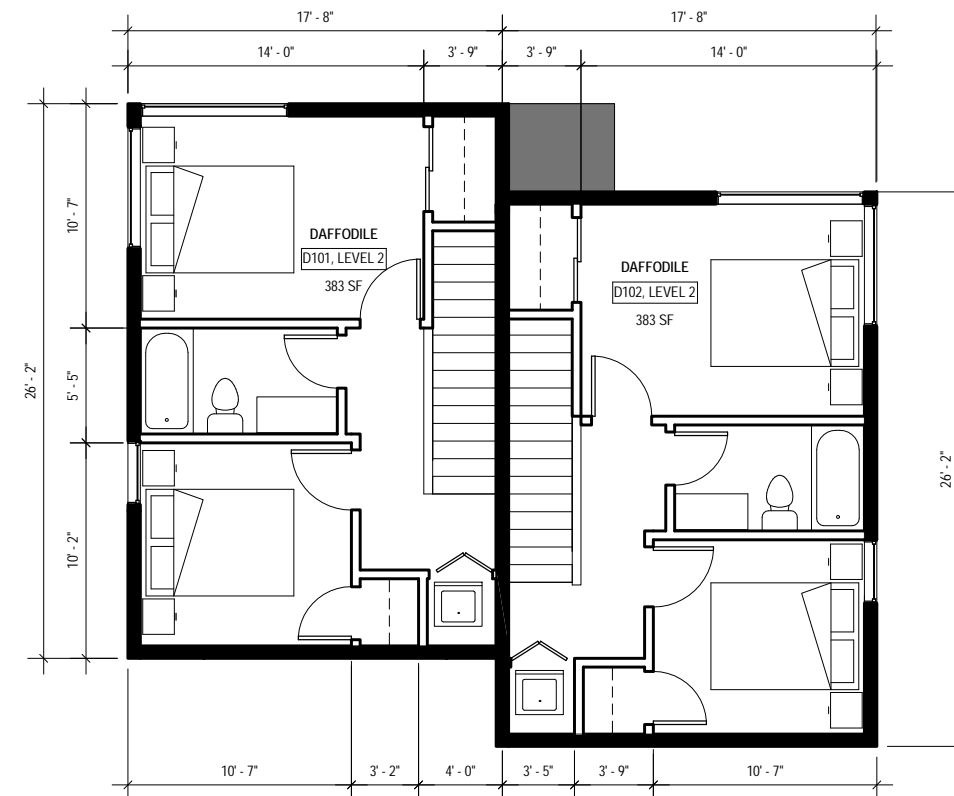
2 Building Section Looking West
 1/16" = 1'-0"



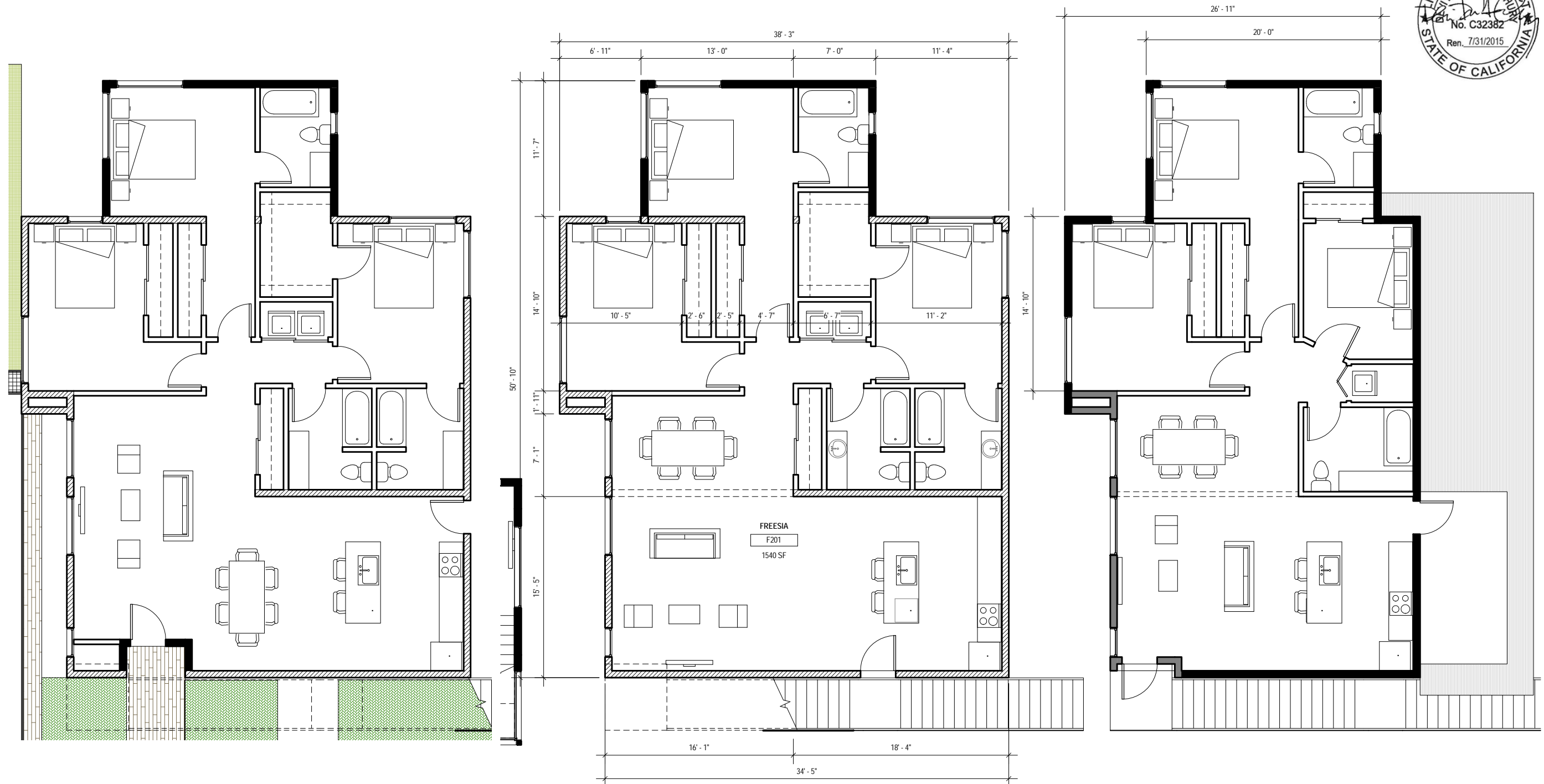
PASEO



DAFFODILE & EDELWEISS
LEVEL 1



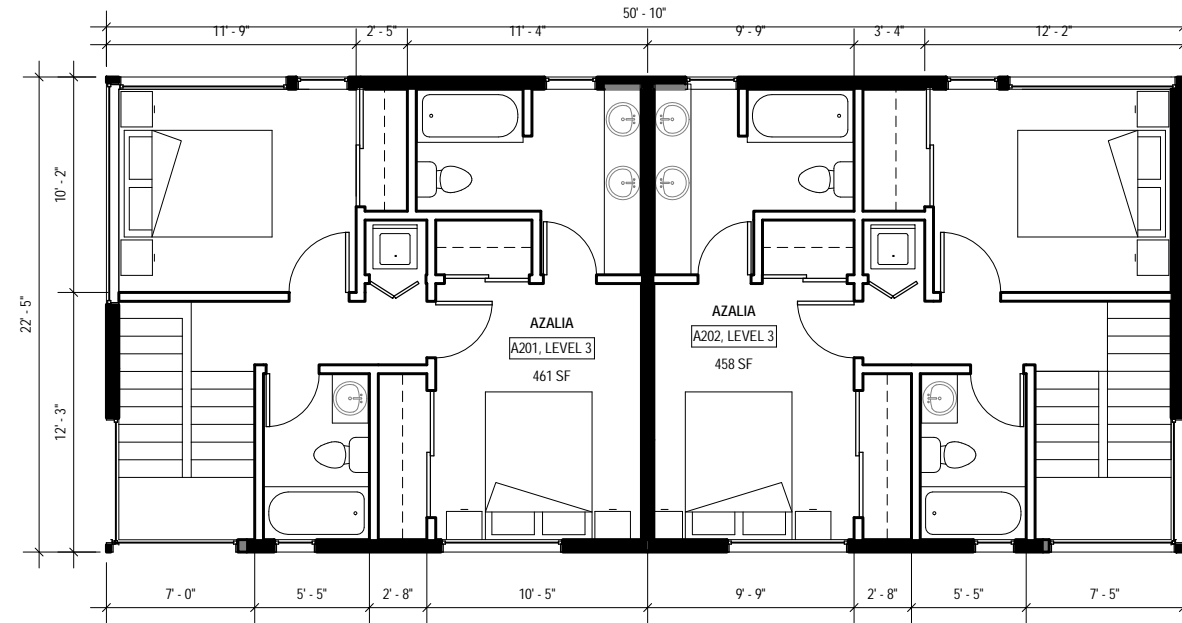
DAFFODILE & EDELWEISS
LEVEL 2



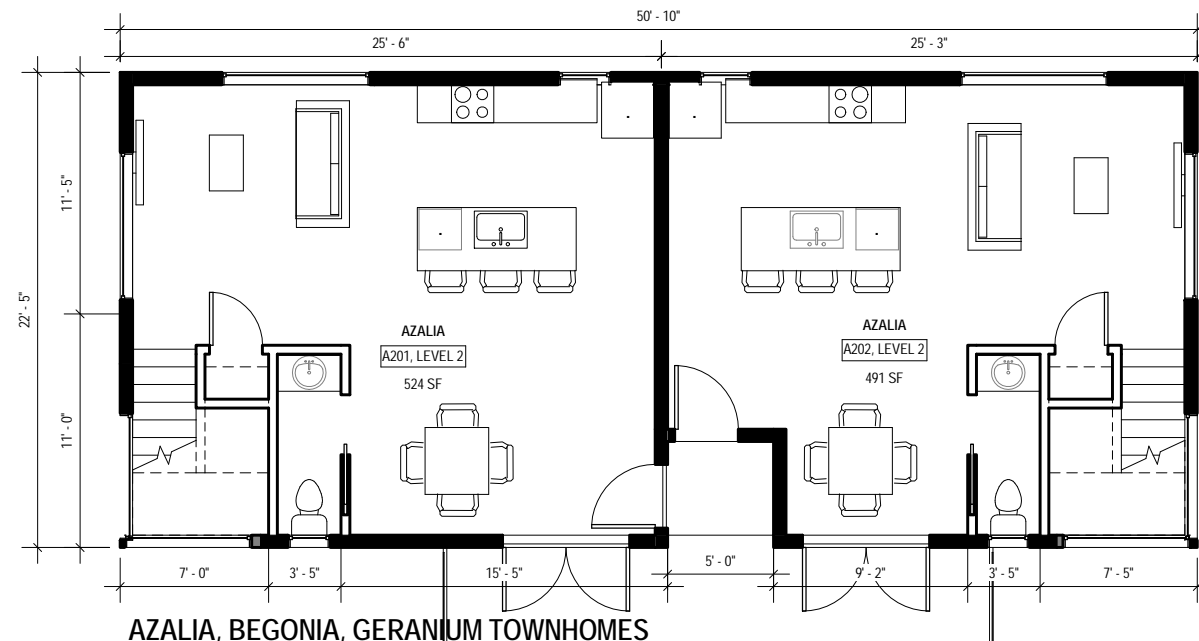
FRESIA
LEVEL 1

FRESIA
LEVEL 2

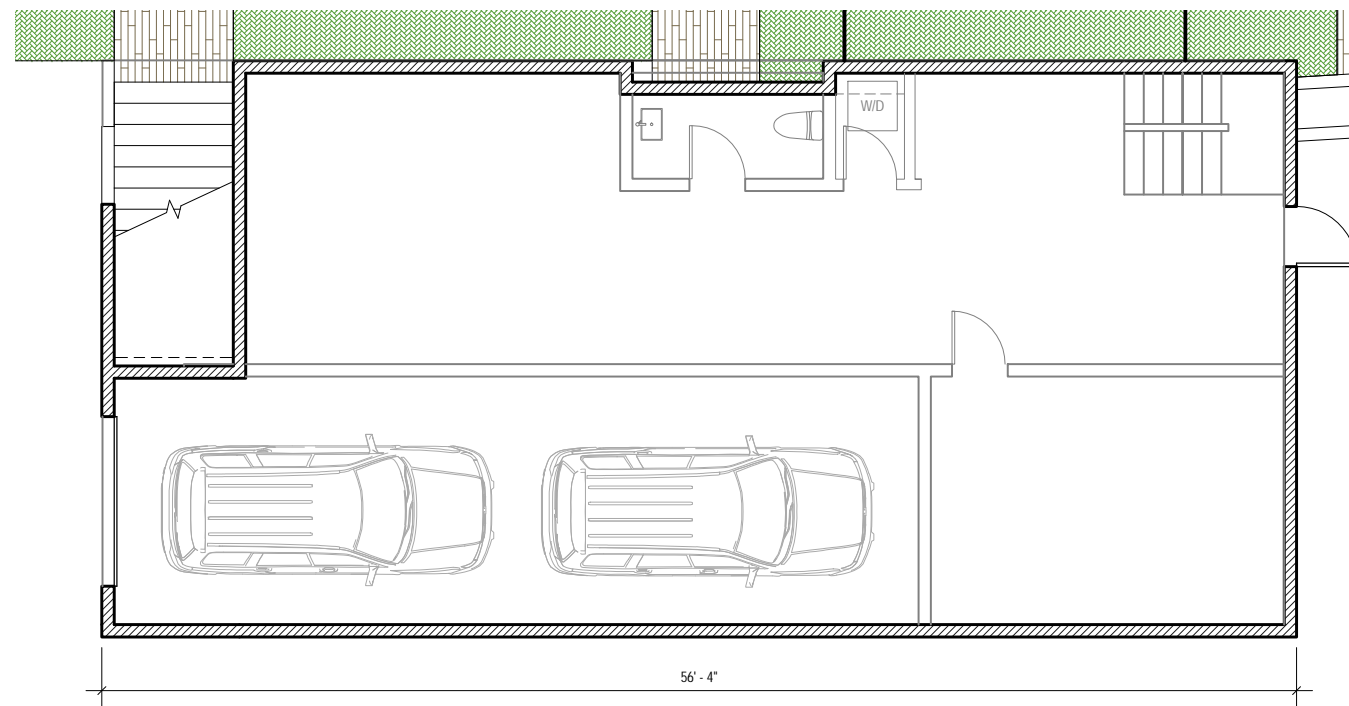
FRESIA
LEVEL 3 NEW



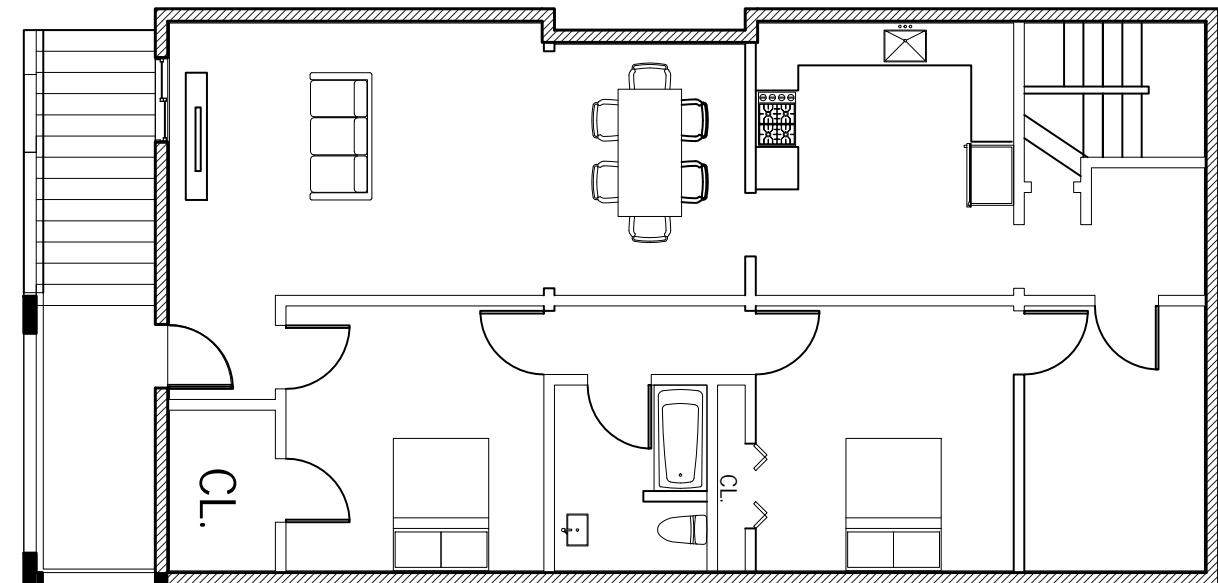
AZALIA, BEGONIA, GERANIUM TOWNHOMES
LEVEL 3



AZALIA, BEGONIA, GERANIUM TOWNHOMES
LEVEL 2



CAMELLIA BASEMENT PLAN (e) TO REMAIN



CAMELLIA LEVEL 2 (e) TO REMAIN





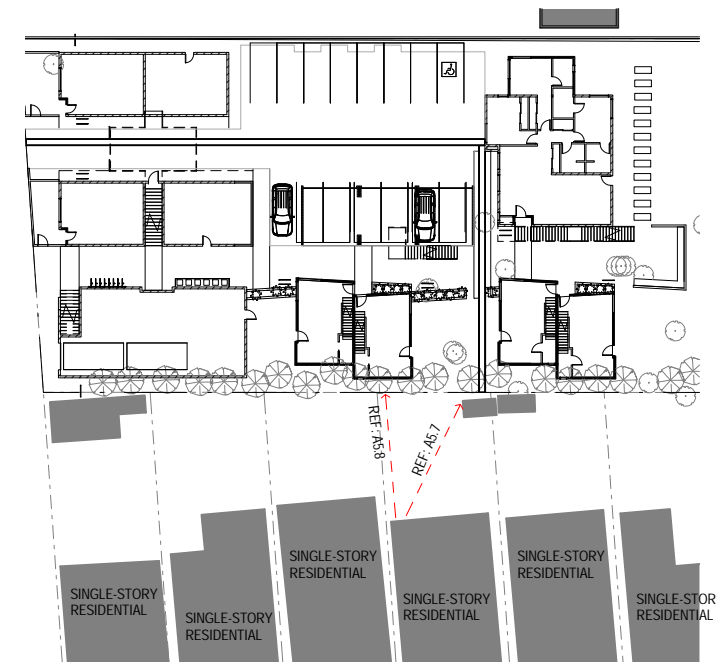
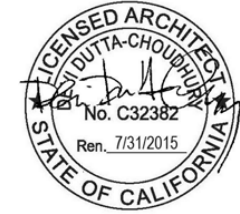




FOOTPRINT OF "GERANIUM" BUILDING IS SHOWN (WALLS & ROOF ARE HIDDEN)











LEGEND

- SHADOWS CAST FROM DENSITY BONUS PROJECT
- SHADOWS CAST FROM EXISTING PROJECT



07:47 AM - JUNE 21 - EXISTING

NOON - JUNE 21 - EXISTING

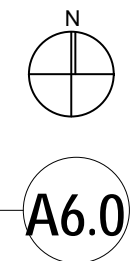
06:35 PM - JUNE 21 - EXISTING



08:03 AM - JUNE 21 - PROPOSED

NOON - JUNE 21 - PROPOSED

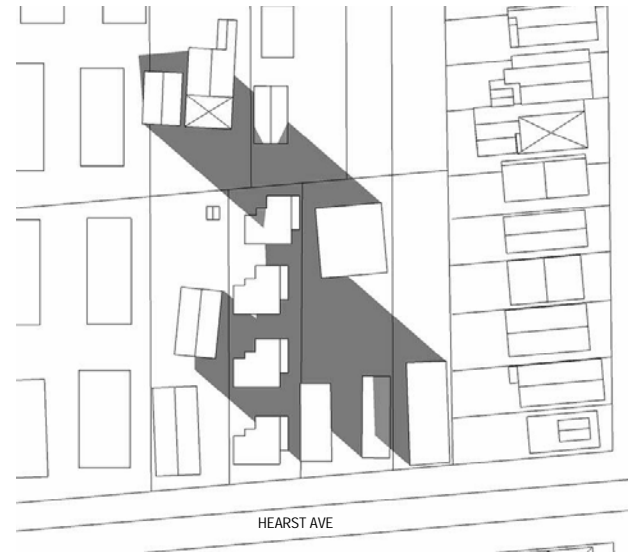
06:25 PM - JUNE 21 - PROPOSED





LEGEND

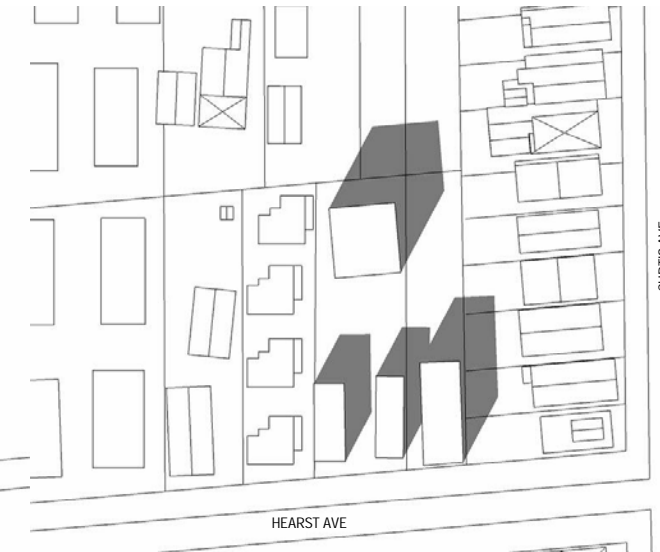
- SHADOWS CAST FROM DENSITY BONUS PROJECT
- SHADOWS CAST FROM EXISTING PROJECT



09:21 AM - DECEMBER 21 - EXISTING



NOON - DECEMBER 21 - EXISTING



2:53 PM - DECEMBER 21 - EXISTING



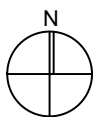
09:21 AM - DECEMBER 21 - PROPOSED



NOON - DECEMBER 21 - PROPOSED



2:53 PM - DECEMBER 21 - PROPOSED





LEGEND

- SHADOWS CAST FROM DENSITY BONUS PROJECT
- SHADOWS CAST FROM EXISTING PROJECT



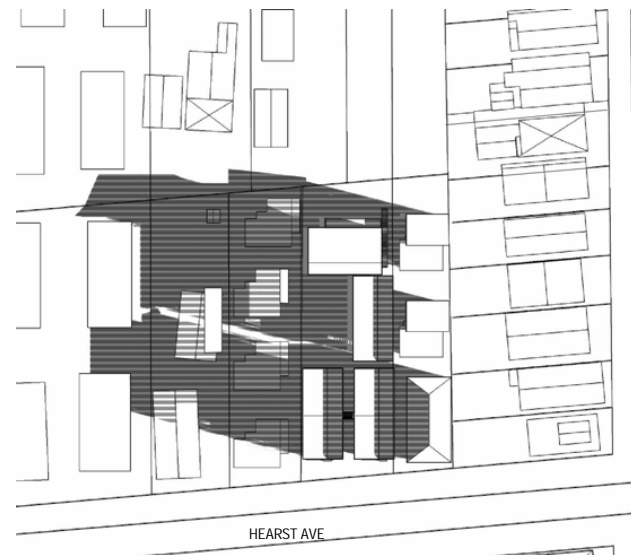
08:03 AM - OCTOBER 1 - EXISTING



NOON - OCTOBER 1 - EXISTING



6:03 PM - OCTOBER 1 - EXISTING



08:03 AM - OCTOBER 1 - PROPOSED



NOON - OCTOBER 1 - PROPOSED



6:03 PM - OCTOBER 1 - PROPOSED

