

US Army Corps of Engineers
 San Francisco District
 1455 Market Street
 San Francisco, CA 94103

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Chart Date: Jan 13, 2017
Designed by: [Name]
Plotted by: [Name]
Checked by: [Name]
Drawn by: [Name]

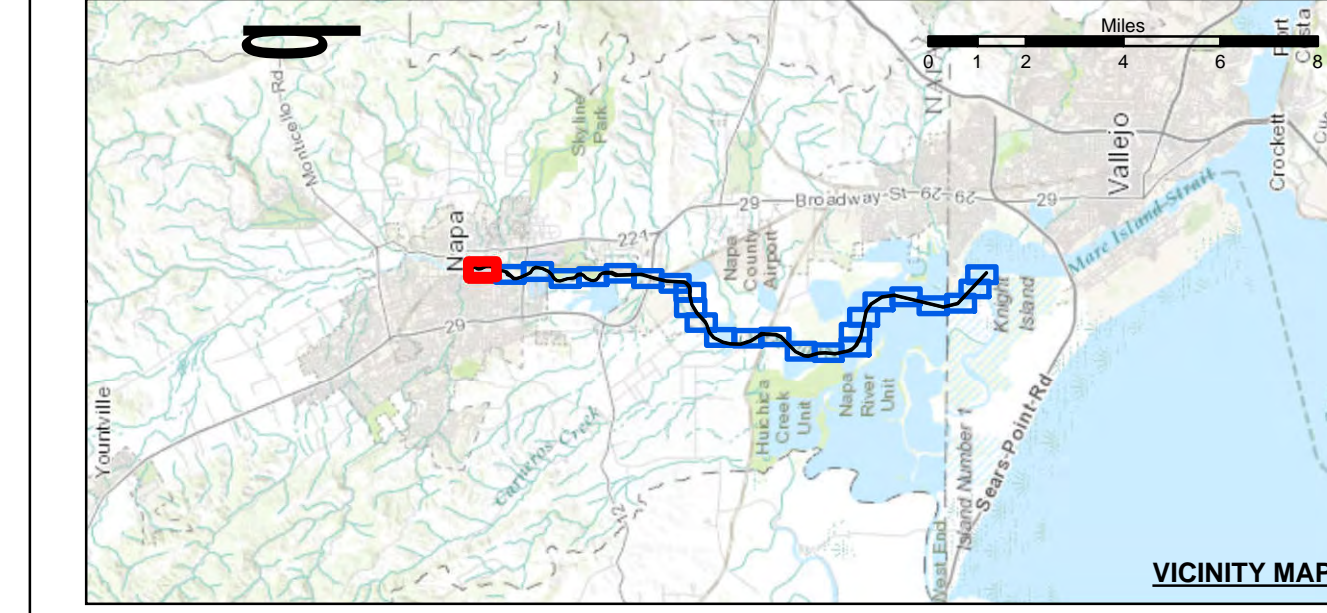
CALIFORNIA
NAPA RIVER
POSTREDGE SURVEY
30 DECEMBER 2016
Sheet Reference Number
1 of 25

NAD 83 CHANNEL ANGLE POINTS

Δ PT	X	Y	Δ PT	X	Y	Δ PT	X	Y
1	6048873.57	2300046.64	47	6048520.47	2285146.44	83	6048206.27	2255227.24
2	6050024.67	2299856.64	48	6048530.77	2284491.14	84	6048206.27	2255227.24
3	6050023.27	2299829.34	49	6048526.77	2283841.84	85	6048206.27	2255227.24
4	6050030.17	2299820.14	50	6048526.77	2283191.54	86	6048206.27	2255227.24
5	6050350.27	2299393.74	51	6048520.67	2282541.24	87	6048206.27	2255227.24
6	6050326.57	2299292.84	52	6048508.87	2281891.54	88	6048206.27	2255227.24
7	6050223.27	2299176.84	53	6048496.87	2281241.24	89	6048206.27	2255227.24
8	6050162.57	2299049.84	54	6048484.87	2280591.54	90	6048206.27	2255227.24
9	6050130.67	2298957.84	55	6048472.87	2280000.04	91	6048206.27	2255227.24
10	6050155.87	2298964.34	56	6048460.87	2279408.54	92	6048206.27	2255227.24
11	6050374.67	2298200.34	57	6048448.87	2278817.04	93	6048206.27	2255227.24
12	6050438.67	2297901.34	58	6048436.87	2278225.54	94	6048206.27	2255227.24
13	6050400.87	2297691.34	59	6048424.87	2277634.04	95	6048206.27	2255227.24
14	6049965.67	2297382.34	60	6048412.87	2277042.54	96	6048206.27	2255227.24
15	6049852.97	2296990.84	61	6048400.87	2276451.04	97	6048206.27	2255227.24
16	6049741.87	2296599.34	62	6048388.87	2275859.54	98	6048206.27	2255227.24
17	6049628.67	2296207.84	63	6048376.87	2275268.04	99	6048206.27	2255227.24
18	6049515.87	2295816.34	64	6048364.87	2274676.54	100	6048206.27	2255227.24
19	6049402.67	2295424.84	65	6048352.87	2274085.04			
20	6049289.87	2295033.34	66	6048340.87	2273493.54			
21	6049176.67	2294641.84	67	6048328.87	2272902.04			
22	6049063.87	2294250.34	68	6048316.87	2272310.54			
23	6048950.67	2293858.84	69	6048304.87	2271719.04			
24	6048837.87	2293467.34	70	6048292.87	2271127.54			
25	6048724.67	2293075.84	71	6048280.87	2270536.04			
26	6048611.87	2292684.34	72	6048268.87	2269944.54			
27	6048498.67	2292292.84	73	6048256.87	2269353.04			
28	6048385.87	2291901.34	74	6048244.87	2268761.54			
29	6048272.67	2291509.84	75	6048232.87	2268170.04			
30	6048159.87	2291118.34	76	6048220.87	2267578.54			
31	6048046.67	2290726.84	77	6048208.87	2266987.04			
32	6047933.87	2290335.34	78	6048196.87	2266395.54			
33	6047820.67	2289943.84	79	6048184.87	2265804.04			
34	6047707.87	2289552.34	80	6048172.87	2265212.54			
35	6047594.67	2289160.84	81	6048160.87	2264621.04			
36	6047481.87	2288769.34	82	6048148.87	2264029.54			
37	6047368.67	2288377.84	83	6048136.87	2263438.04			
38	6047255.87	2287986.34	84	6048124.87	2262846.54			
39	6047142.67	2287594.84	85	6048112.87	2262255.04			
40	6047029.87	2287203.34	86	6048100.87	2261663.54			
41	6046916.67	2286811.84	87	6048088.87	2261072.04			
42	6046803.87	2286420.34	88	6048076.87	2260480.54			
43	6046690.67	2286028.84	89	6048064.87	2259889.04			
44	6046577.87	2285637.34	90	6048052.87	2259297.54			
45	6046464.67	2285245.84	91	6048040.87	2258706.04			
46	6046351.87	2284854.34	92	6048028.87	2258114.54			
47	6046238.67	2284462.84						
48	6046125.87	2284071.34						

NAD 83 CENTERLINE ANGLE POINTS

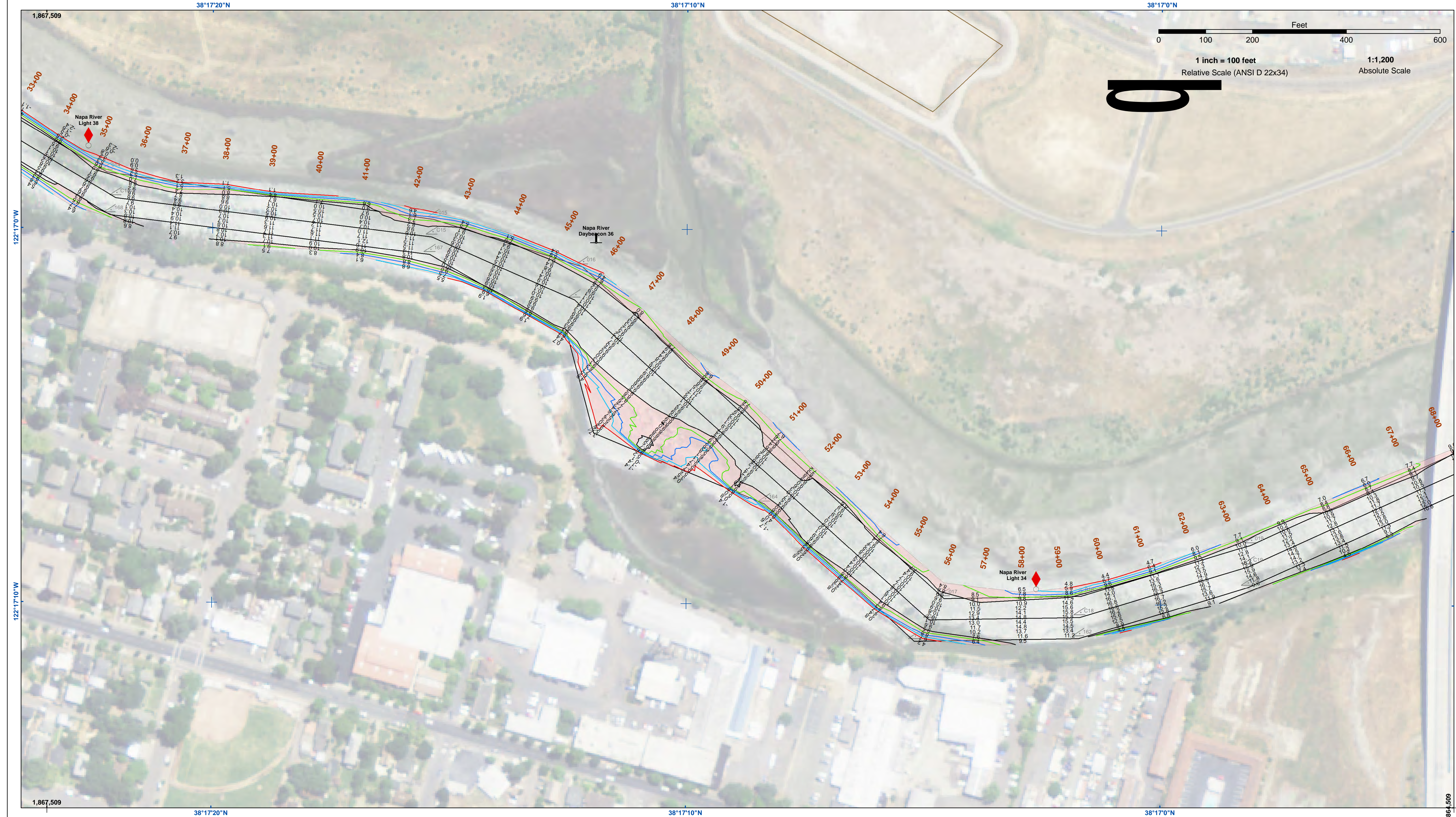
Δ PT	X	Y	Δ PT	X	Y
1	6049841.27	2300026.94	49	6049415.67	2285525.34
2	6049996.07	2299832.24	50	6049450.57	2285335.44
3	6050201.77	2299608.14	51	6049447.87	2284522.54
4	6050271.37	2299503.84	52	6049174.77	2283987.14
5	6050311.17	2299391.54	53	6049171.17	2283156.14
6	6050292.17	2299310.24	54	6049187.67	2282116.14
7	6050197.07	2299199.14	55	6048772.57	2278988.04
8	6050127.97	2299090.24	56	6048459.07	2278600.14
9	6050092.67	2298981.04	57	6048320.67	2278710.44
10	6050118.97	2298884.14	58	6048294.17	2278686.34
11	6050338.87	2298188.64	59	6048169.37	2278408.44
12	6050401.67	2297999.54	60	6047894.27	2278160.84
13	6050367.67	2297903.34	61	6047622.37	2278056.84
14	6049910.47	2297688.44	62	6046811.77	2278063.44
15	6049815.77	2297596.14	63	6046539.37	2278583.54
16	6049676.67	2297503.84	64	6046485.07	2278332.64
17	6049488.67	2297411.54	65	6046398.17	2278481.04
18	6049252.67	2297319.24	66	6046367.37	2278290.34
19	6049095.27	2297226.94	67	6046282.97	2278015.64
20	6048918.87	2297134.64	68	6046224.97	2277548.24
21	6048728.67	2297042.34	69	6046159.97	2277199.04
22	6048528.67	2296950.04	70	6046147.37	2276933.54
23	6048328.67	2296857.74	71	6046181.07	2276525.24
24	6048128.67	2296765.44	72	6046231.97	2276270.44
25	6047928.67	2296673.14	73	6046248.77	2276030.34
26	6047728.67	2296580.84	74	6046242.67	2275842.24
27	6047528.67	2296488.54	75	6046212.97	2275627.34
28	6047328.67	2296396.24	76	6046076.77	2275470.24
29	6047128.67	2296303.94	77	6046108.87	2275379.14
30	6046928.67	2296211.64	78	6046005.57	2275326.34
31	6046728.67	2296119.34	79	6046038.97	2275218.24
32	6046528.67	2296027.04	80	6046038.97	2275147.14
33	6046328.67	2295934.74	81	6046028.07	2275032.14
34	6046128.67	2295842.44	82	6046058.47	2274826.14
35	6045928.67	2295750.14	83	6046071.47	2274587.64
36	6045728.67	2295657.84	84	6046094.47	2274369.54
37	6045528.67	2295565.54	85	6046113.77	2274171.54
38	6045328.67	2295473.24	86	6046103.77	2273986.34
39	6045128.67	2295380.94	87	6046085.27	2273815.04
40	6044928.67	2295288.64	88	6046068.47	2273663.54
41	6044728.67	2295196.34	89	6046052.47	2273528.04
42	6044528.67	2295104.04	90	6046037.47	2273408.54
43	6044328.67	2295011.74	91	6046023.47	2273304.04
44	6044128.67	2294919.44	92	6046010.47	2273214.54
45	6043928.67	2294827.14			
46	6043728.67	2294734.84			
47	6043528.67	2294642.54			
48	6043328.67	2294550.24			



Legend:

- Federal Navigation Channel
- Shoaling Area
- Placement Area
- Anchorage Area
- Wreck Area
- Submerged Wreck
- Angle Point
- Beacon, General
- Obstruction Point
- Navigation Buoy
- Navigation Buoy
- Shoalest Sounding*
- Contours: -9, -8, -7, -6, -5

NOTES:
 THE LOCATION OF ALL NAVIGATION AIDS ARE BASED ON THE INFORMATION PROVIDED BY THE U.S. COAST GUARD. BUOY LOCATIONS REPRESENT THE POSITION OF THE SINKER ONLY. SURVEYED BY THE CORPS OF ENGINEERS.
 SOUNDINGS FOR THE OUTSIDE CHANNEL (100 FT. WIDE) TAKEN BY FATHOMETER; THE INSIDE CHANNEL (60 FT. WIDE) TAKEN BY LEADLINE, AND ARE SHOWN TO THE NEAREST FOOT AND TENTHS OF A FOOT.
 SOUNDINGS ARE BASED ON THE DATUM OF MEAN LOWER LOW WATER AT THE LOCALITY, NAVD 88.
 THE PROJECT DEPTH IS 15 FEET FROM ENTRANCE AT THE MARE ISLAND CAUSEWAY TO ASYLUM SLOUGH, THENCE 10 FEET TO HEAD OF NAVIGATION.
 VERTICAL CONTROLS:
 0+00 TO 17+00 - NRP4 - 30.541 NAVD88 - USACE - RTK BASE STATION TRANSECT 11 - 6.593m MLW - USACE - MLW LEVELED FROM 20 AND TIDAL 5 FROM TIDE STATION 941 5623 ON 3/29/2012.
 17+00 TO 22+00 - NAR01 - 2.652m MLW - 29.111m WGS-84 - USACE - RTK BASE STATION WGS-84 ELEVATION FROM OPUS SOLUTION MLW ELEV. CALCULATED FROM TRANSECT 11 AND NRP4 USING RTK OBSERVATIONS PID PENDING.
 22+00 TO 64+00 - NAR02 - 3.653m MLW - 28.241m WGS-84 - USACE - RTK BASE STATION WGS-84 ELEVATION FROM OPUS SOLUTION MLW ELEV. CALCULATED BY INTERPOLATING ELEVATIONS BETWEEN NOAA TIDE STATIONS 941 5623 AND 941 5218 PID PENDING.
 64+00 TO 89+00 - NAR03 - 3.553m MLW - 28.416m WGS-84 - USACE - RTK BASE STATION WGS-84 ELEVATION FROM OPUS SOLUTION MLW ELEV. TRANSFERRED FROM BM 5218 J 1976 VIA RTK ON 4/10/2012 PID PENDING.
 *SHOALEST SOUNDING PER QUARTER PER REACH



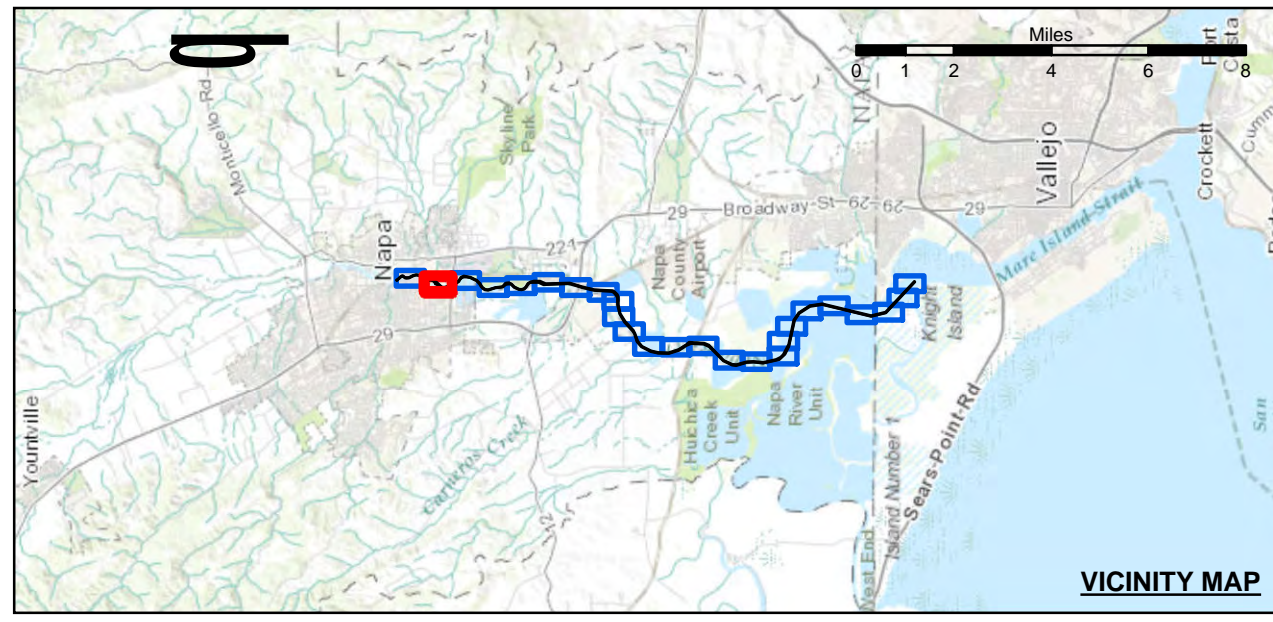
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Prepared Under the Direction of	Chart Date:	Jan 13, 2017
JOHN K. BAKER	Designed by:	
LT Colonel, C.E., District Engineer	Plotted by:	PDT
Hydro Survey Team Leader	Checked by:	PDT
Chief, Hydro Survey Section	Drawn by:	PDT
Approved:		
Chief, Construction Branch		

CALIFORNIA
NAPA RIVER
 POSTREDGE SURVEY
 30 DECEMBER 2016

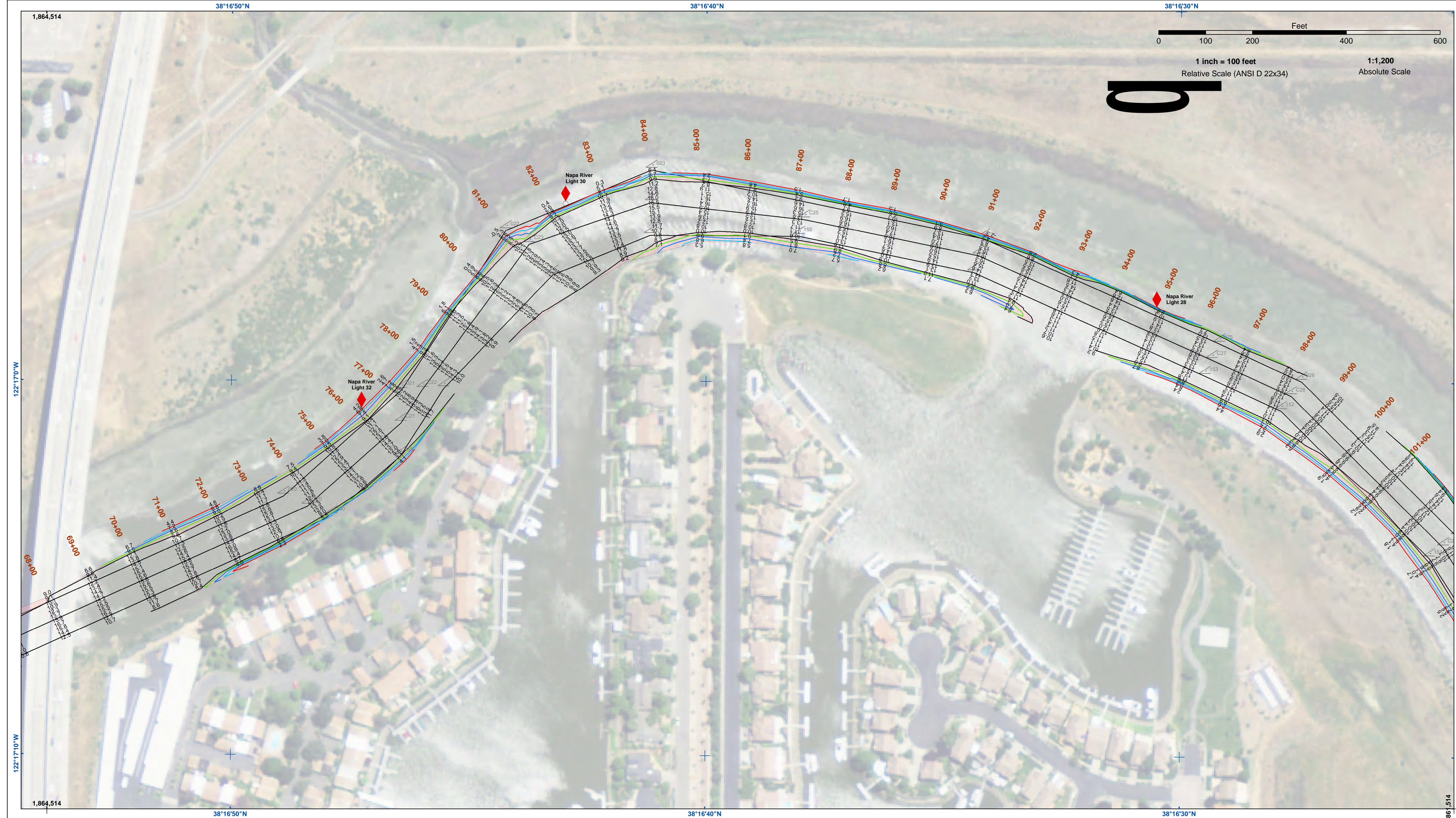
Sheet
Reference
Number
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Federal Navigation Channel	Beacon, General	Contours
Shoaling Area	Obstruction Point	
Placement Area	Navigation Buoy	
Anchorage Area	Navigation Buoy	
Wreck Area	Shoalest Sounding*	
Submerged Wreck		-9
Angle Point		-8
		-7
		-6
		-5

NOTES:
 HORIZONTAL COORDINATE SYSTEM:
 NORTH AMERICAN DATUM OF 1983 (NAD83), PROJECTED TO THE STATE PLANE COORDINATE SYSTEM (SPCS), CALIFORNIA ZONE II. DISTANCE UNITS IN U.S. SURVEY FEET.
 VERTICAL DATUM:
 SOUNDINGS ARE SHOWN IN FEET AND INDICATE DEPTHS BELOW MEAN LOWER LOW WATER.
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 PLANE GRID, BEARING AND COORDINATES ARE BASED ON THE STATE OF CALIFORNIA COORDINATE SYSTEM, LAMBERT CONFORMAL PROJECTION, ZONE II NAD 83, CALIFORNIA, AS DESCRIBED IN SPECIAL PUBLICATION NO. 235, PUBLISHED BY NATIONAL OCEAN SURVEY. BASE MAPS ARE USDA NAIP 2010.
 *SHOALEST SOUNDING PER QUARTER PER REACH

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 THE PROJECT DEPTH IS 15 FEET FROM ENTRANCE AT THE MARE ISLAND CAUSEWAY TO ASYLUM SLOUGH, THENCE 10 FEET TO HEAD OF NAVIGATION.
 VERTICAL CONTROLS:
 0+00 TO 175+00 - NRFP4 - 30.541 NAVD88 - USACE - RTK BASE STATION TRANSECT 11 - 6.593m MLLW - USACE - MLLW LEVELED FROM 20 AND TIDAL 5 FROM TIDE STATION 941 5623 ON 3/29/2012.
 176+00 TO 224+00 - NAPAR01 - 2.652m MLLW, -29.111m WGS-84 - USACE - RTK BASE STATION WGS-84 ELEVATION FROM OPUS SOLUTION MLLW ELEV. CALCULATED FROM TRANSECT 11 AND NRFP4 USING RTK OBSERVATIONS PID PENDING.
 225+00 TO 640+00 - NAPAR02 - 3.653m MLLW -28.241m WGS-84 - USACE - RTK BASE STATION WGS-84 ELEVATION FROM OPUS SOLUTION MLLW ELEV. CALCULATED BY INTERPOLATING ELEVATIONS BETWEEN NOAA TIDE STATIONS 941 5623 AND 941 5218 PID PENDING.
 641+00 TO 692+00 - NAPAR03 - 3.553m MLLW -28.416m WGS-84 - USACE - RTK BASE STATION WGS-84 ELEVATION FROM OPUS SOLUTION MLLW ELEV. TRANSFERRED FROM BM 5218 J 1976 VIA RTK ON 4/10/2012 PID PENDING.



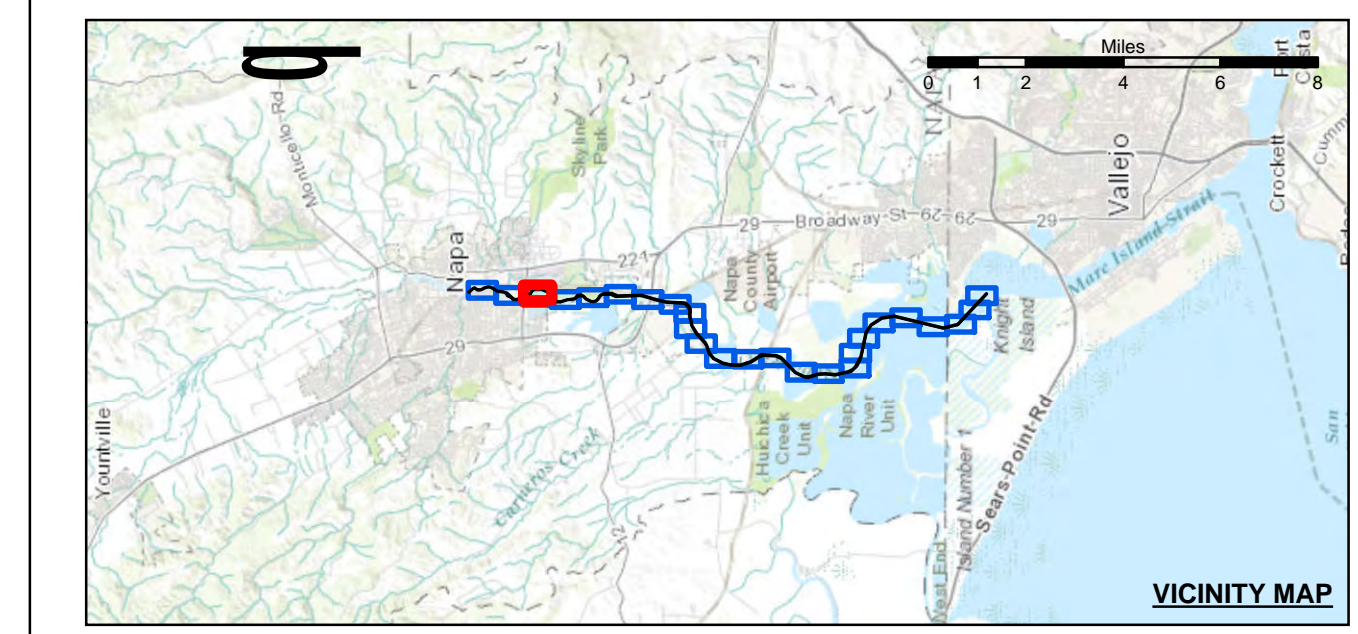
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Prepared Under the Direction of	JOHN K. BAKER	Chart Date:	Jan 13, 2017
Surveyed By:	PDT	Designed by:	PDT
Plotted By:	PDT	Drawn by:	PDT
Checked By:	PDT		

CALIFORNIA
NAPA RIVER
 POSTREDGE SURVEY
 30 DECEMBER 2016

Sheet
Number
3 of 25



Federal Navigation Channel	Beacon, General	Contours
Shoaling Area	Obstruction Point	-9
Placement Area	Navigation Buoy	-8
Anchorage Area	Navigation Buoy	-7
Wreck Area	Shoalest Sounding*	-6
Submerged Wreck		-5
Angle Point		

NOTES:
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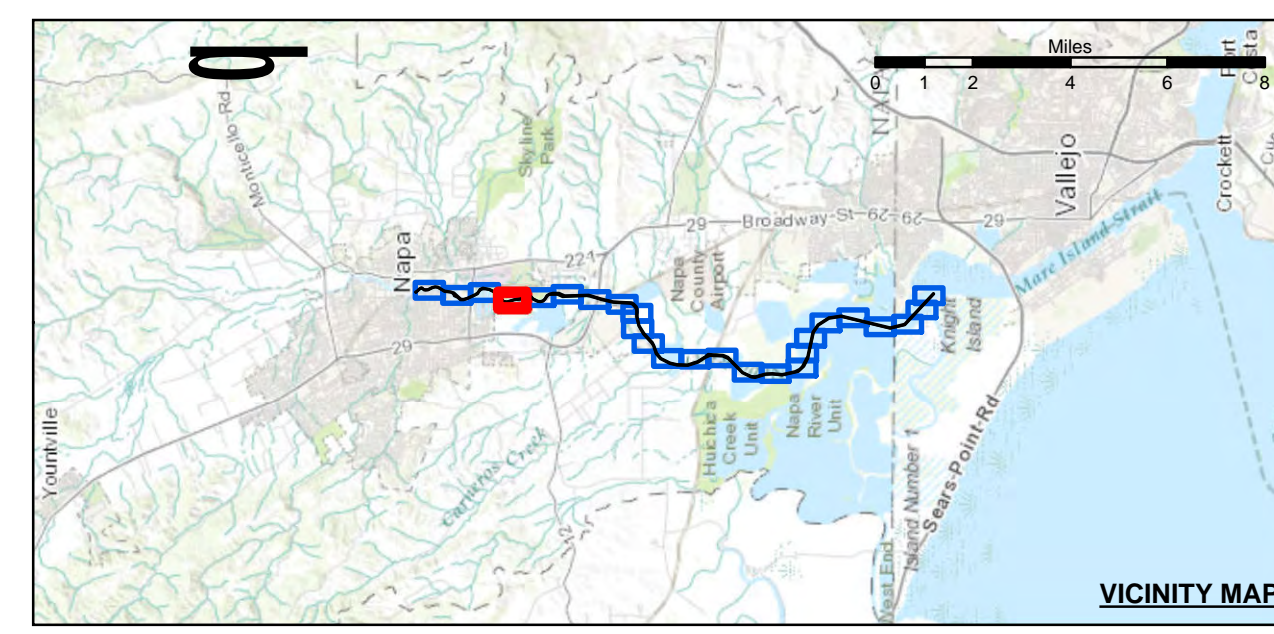


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LT Colonel, C.E., District Engineer		Designed by:	PDT
Hydro Survey Team Leader		Plotted by:	PDT
Chief, Hydro Survey Section		Checked by:	PDT
Chief, Construction Branch		Drawn by:	PDT

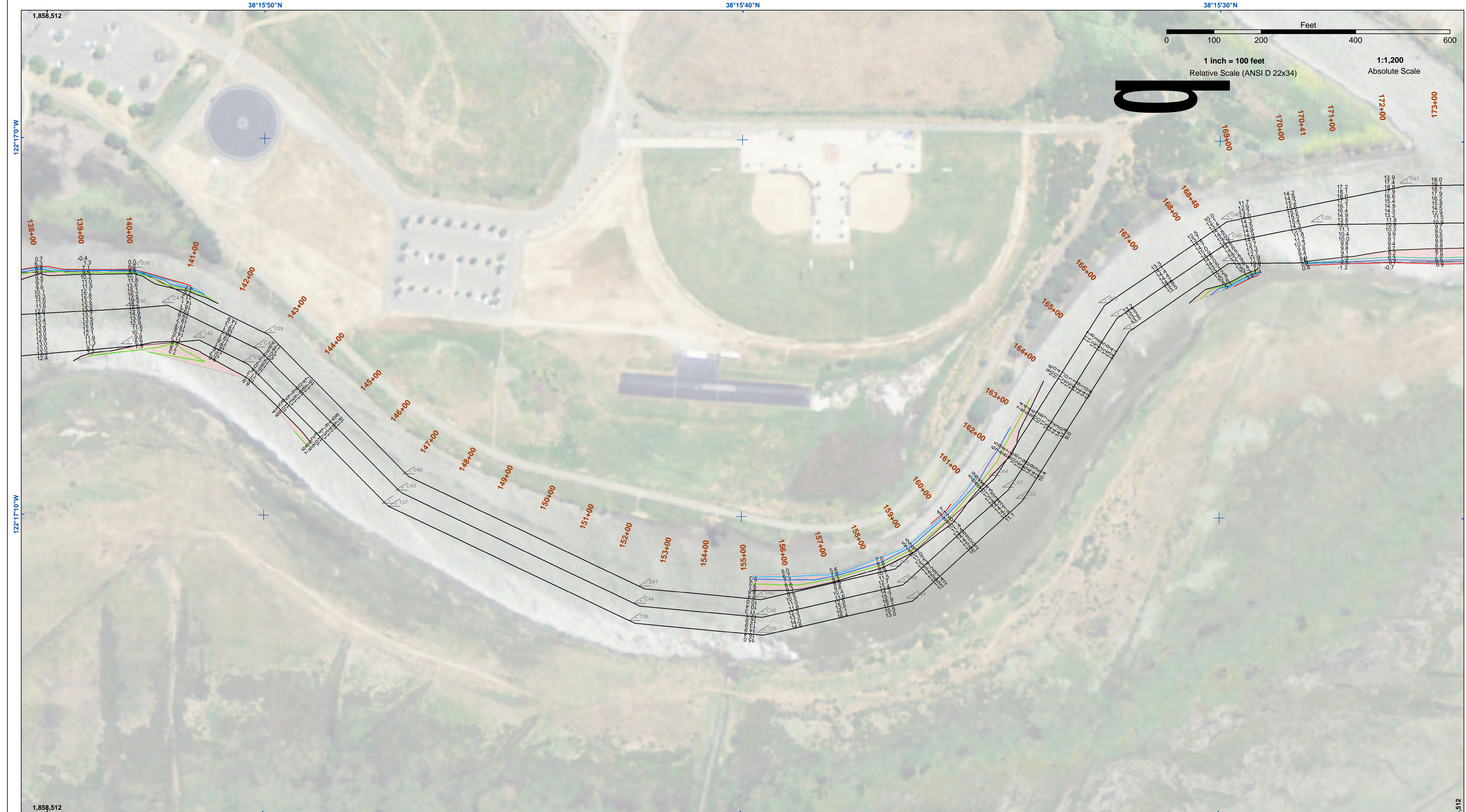
CALIFORNIA
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 POSTREDGE SURVEY
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- Federal Navigation Channel
- Shoaling Area
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- Navigation Buoy
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- 9
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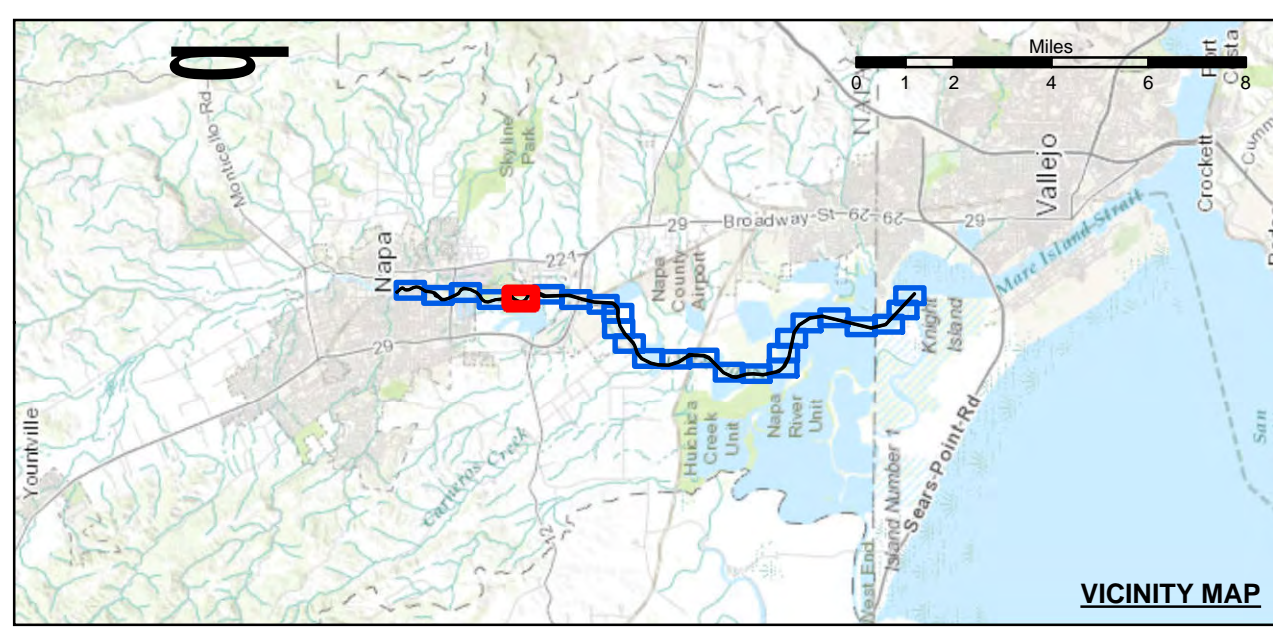
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Prepared Under the Direction of	Chart Date:	Jan 13, 2017
JOHN K. BAKER	Surveyed By:	
LT Colonel, C.E., District Engineer	Plotted By:	PDT
Subject:	Designed by:	
Hydro Survey Team Leader	Checked By:	PDT
Recommended:	Drawn by:	PDT
Chief, Hydro Survey Section	Approved:	
Chief, Construction Branch		



- | | | |
|----------------------------|--------------------|-----------------|
| Federal Navigation Channel | Beacon, General | Contours |
| Shoaling Area | Obstruction Point | -9 |
| Placement Area | Navigation Buoy | -8 |
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| Wreck Area | Shoalest Sounding* | -6 |
| Submerged Wreck | | -5 |
| Angle Point | | |

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CALIFORNIA
 NAPA COUNTY
NAPA RIVER
 POSTREDGE SURVEY
 30 DECEMBER 2016

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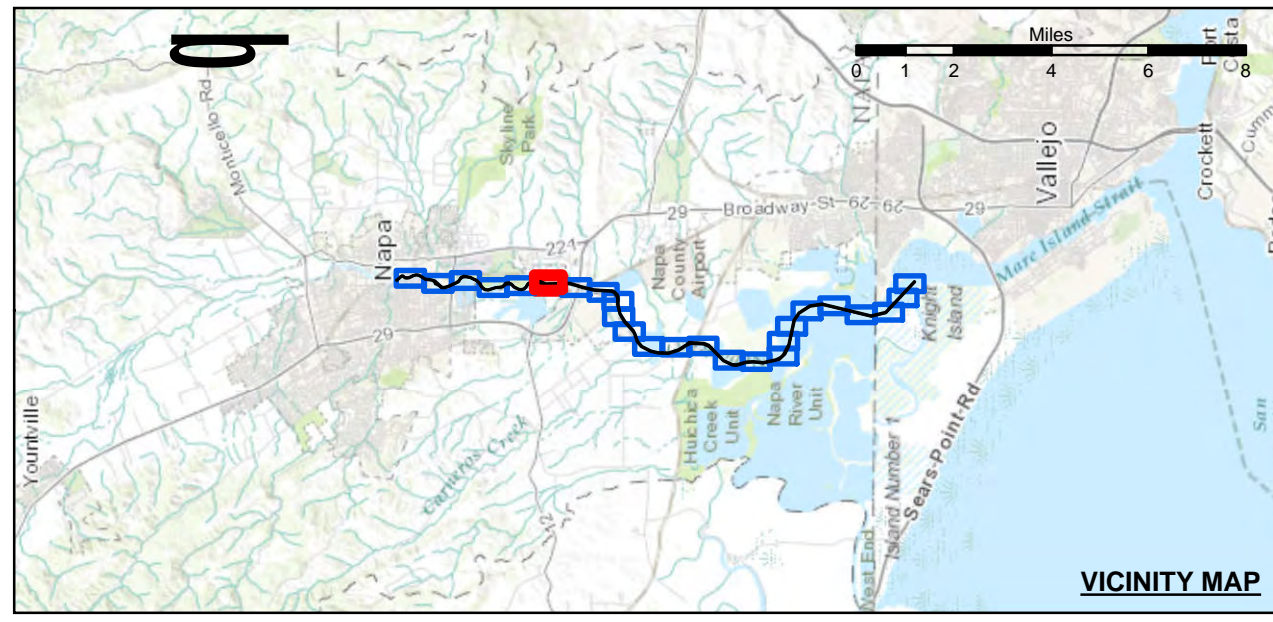
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Prepared Under the Direction of	JOHN K. BAKER	Chart Date	Jan 13, 2017
Subproject	Hydro Survey Team Leader	Plotted By	PDT
Recommended By	Chief, Hydro Survey Section	Checked By	PDT
Approved	Chief, Construction Branch	Drawn by	PDT

CALIFORNIA
NAPA RIVER
 POSTREDGE SURVEY
 30 DECEMBER 2016

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Federal Navigation Channel	Beacon, General	Contours
Shoaling Area	Obstruction Point	-9
Placement Area	Navigation Buoy	-8
Anchorage Area	Navigation Buoy	-7
Wreck Area	Shoalest Sounding*	-6
Submerged Wreck		-5
Angle Point		

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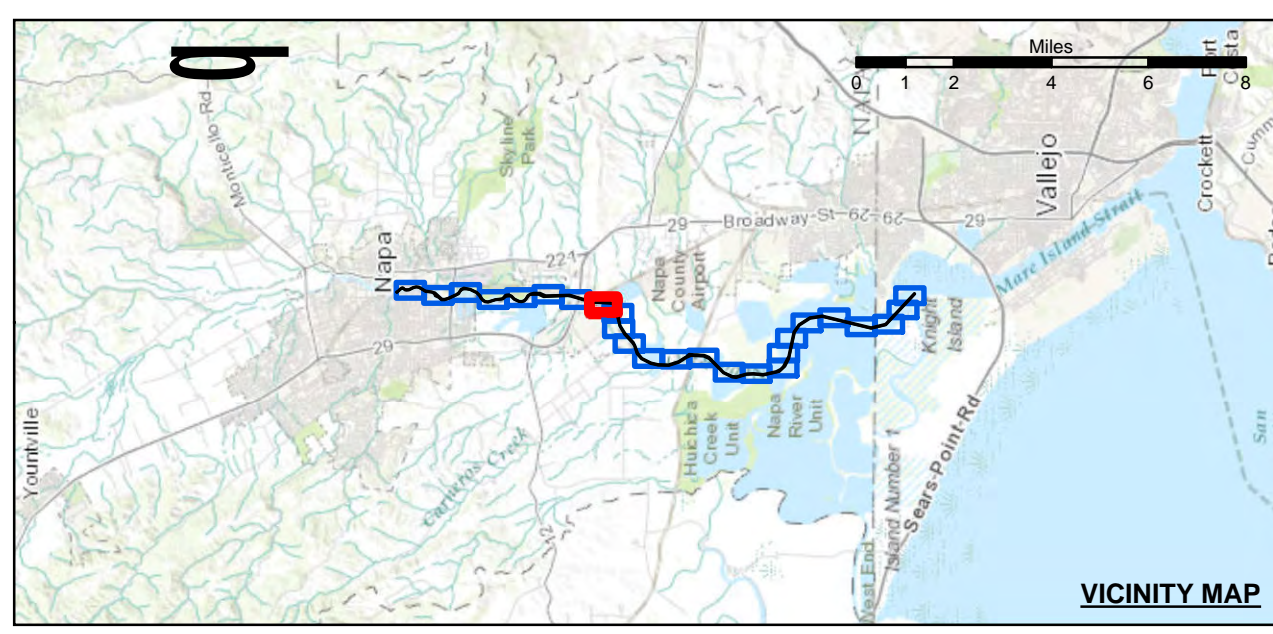
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Submittal:	Hydro Survey Team Leader	Plotted By:	PDT
Recommended:	Chief, Hydro Survey Section	Checked By:	PDT
Approved:	Chief, Construction Branch	Drawn by:	PDT

CALIFORNIA
 NAPA COUNTY
NAPA RIVER
 POSTREDGE SURVEY
 30 DECEMBER 2016

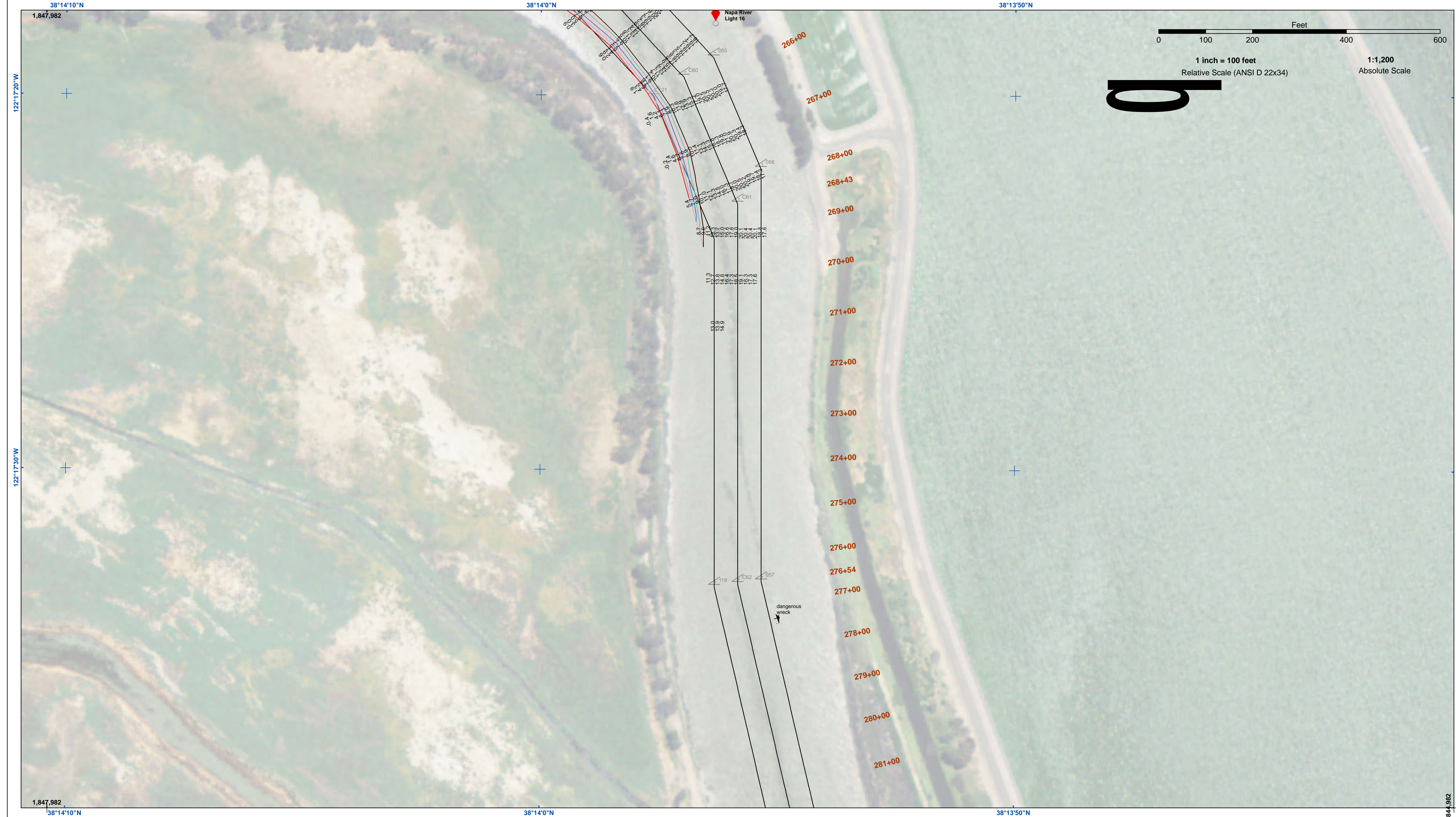
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- Federal Navigation Channel
- Shoaling Area
- Placement Area
- Anchorage Area
- Wreck Area
- Submerged Wreck
- Angle Point
- Beacon, General
- Obstruction Point
- Navigation Buoy
- Navigation Buoy
- Shoalest Sounding*
- Contours**
- 9
- 8
- 7
- 6
- 5

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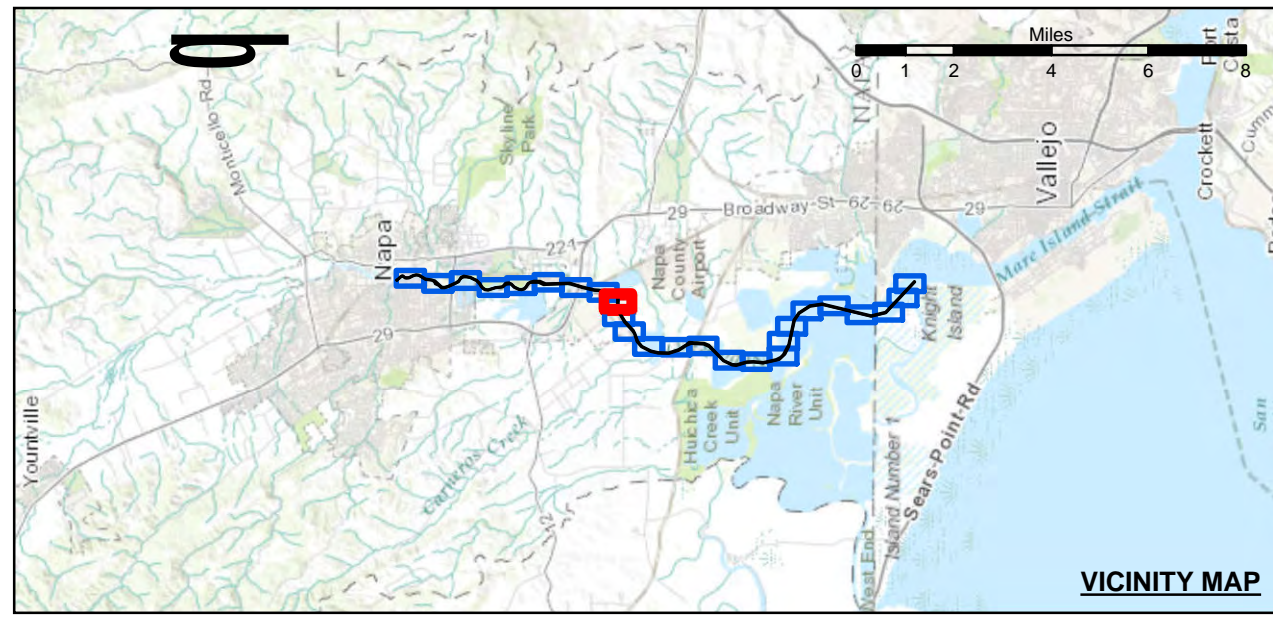


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Chart Date:	Jan 13, 2017
Designed by:	PDT
Drawn by:	PDT
Checked by:	PDT
Approved:	Chief, Construction Branch

CALIFORNIA
NAPA RIVER
 POSTREDGE SURVEY
 30 DECEMBER 2016

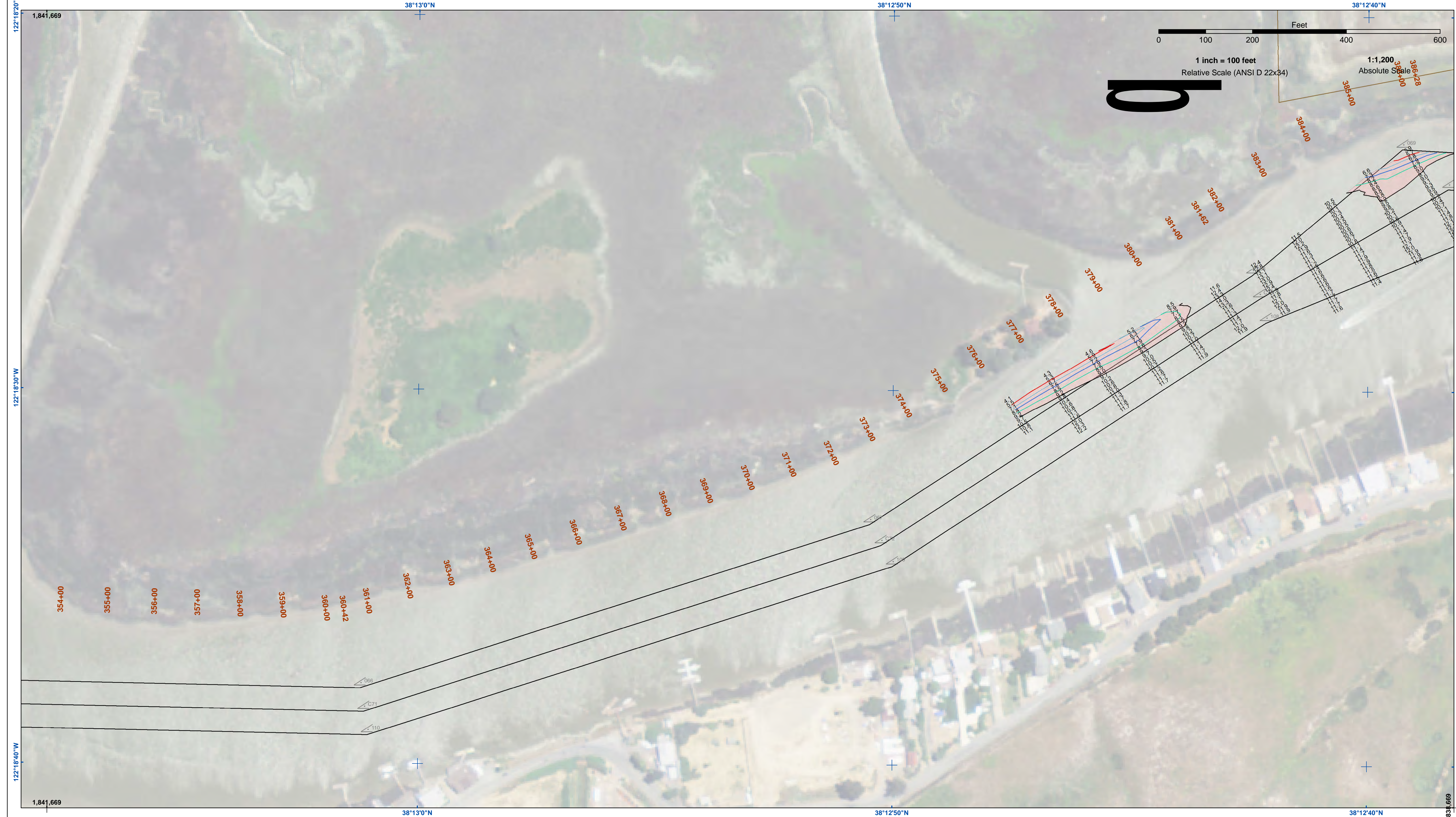
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| | Federal Navigation Channel | | Beacon, General | Contours | |
| | Shoaling Area | | Obstruction Point | | |
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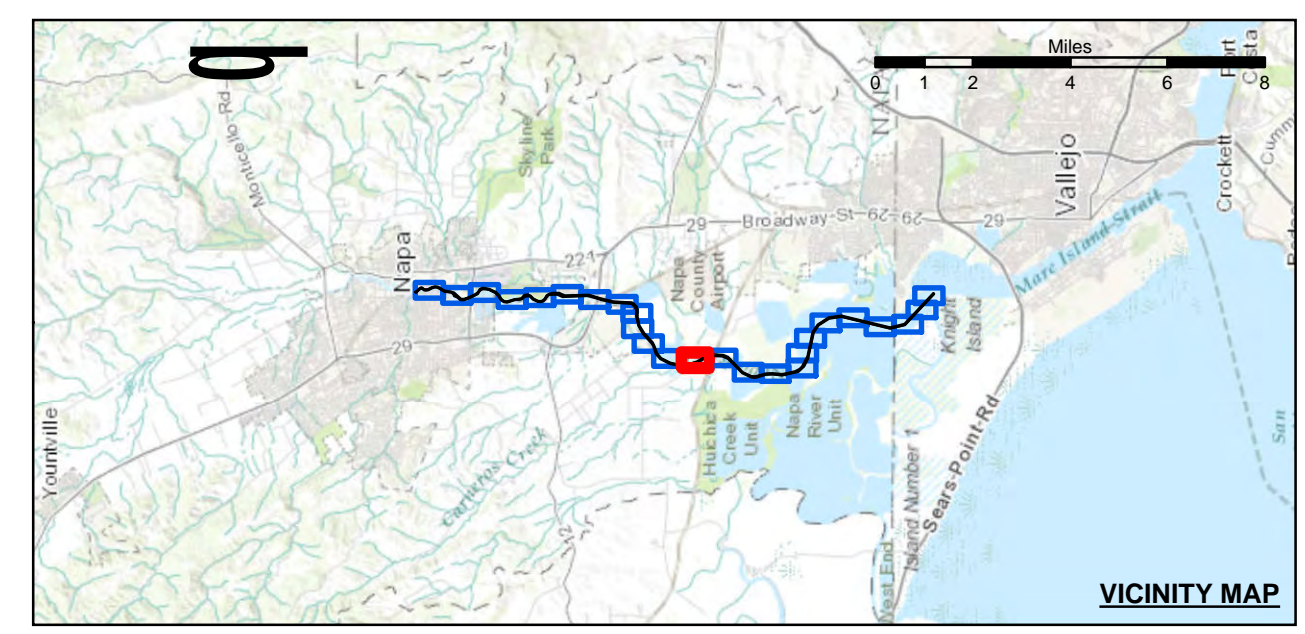
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Submet: Hydro Survey Team Leader	Plotted By: PDT	Jan 13, 2017
Recommended: Chief, Hydro Survey Section	Checked By: PDT	Designed by:
Approved: Chief, Construction Branch	Drawn by: PDT	

CALIFORNIA
NAPA RIVER
 POSTREDGE SURVEY
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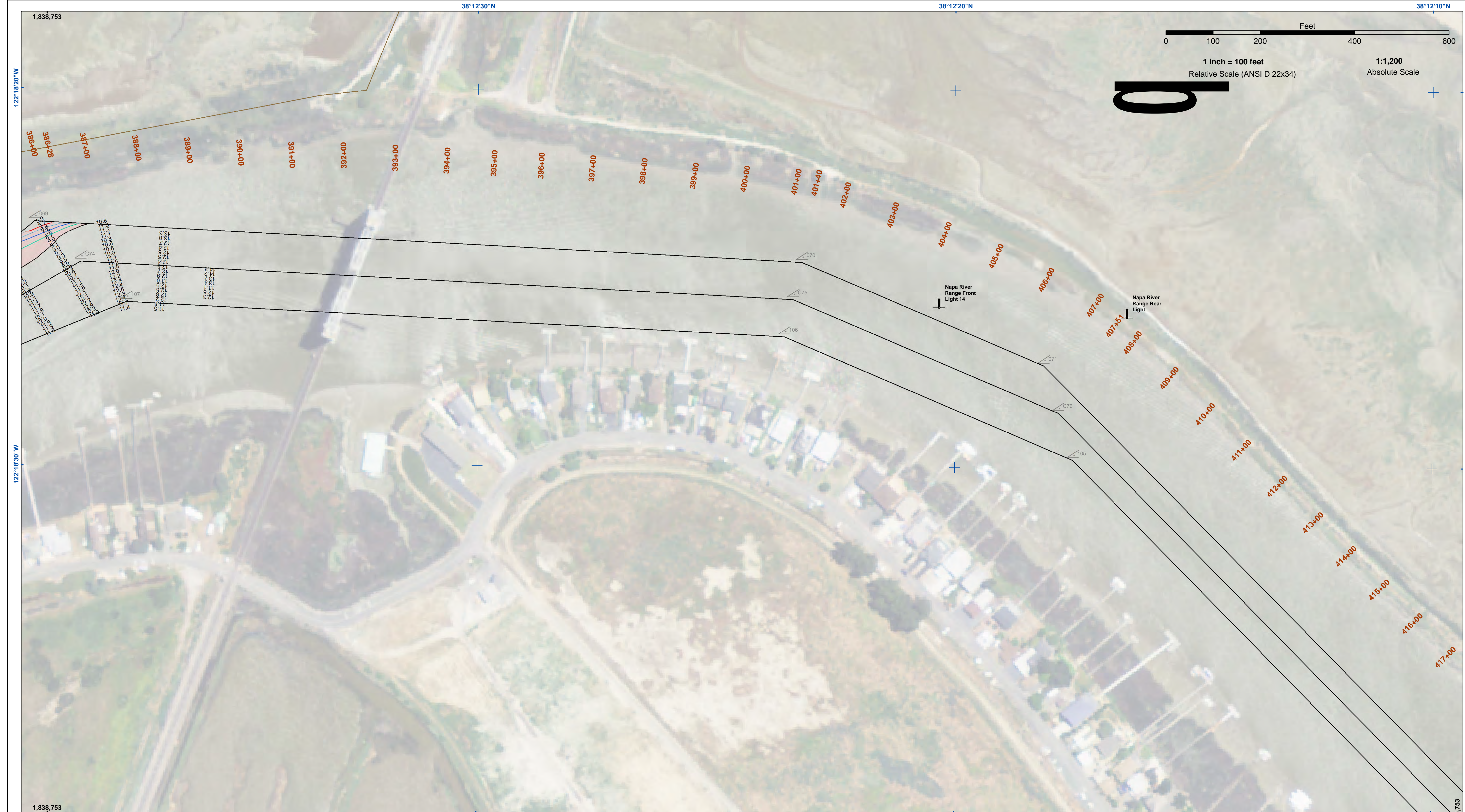
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Federal Navigation Channel	Beacon, General	Contours
Shoaling Area	Obstruction Point	
Placement Area	Navigation Buoy	
Anchorage Area	Navigation Buoy	
Wreck Area	Shoalest Sounding*	
Submerged Wreck		-9
Angle Point		-8
		-7
		-6
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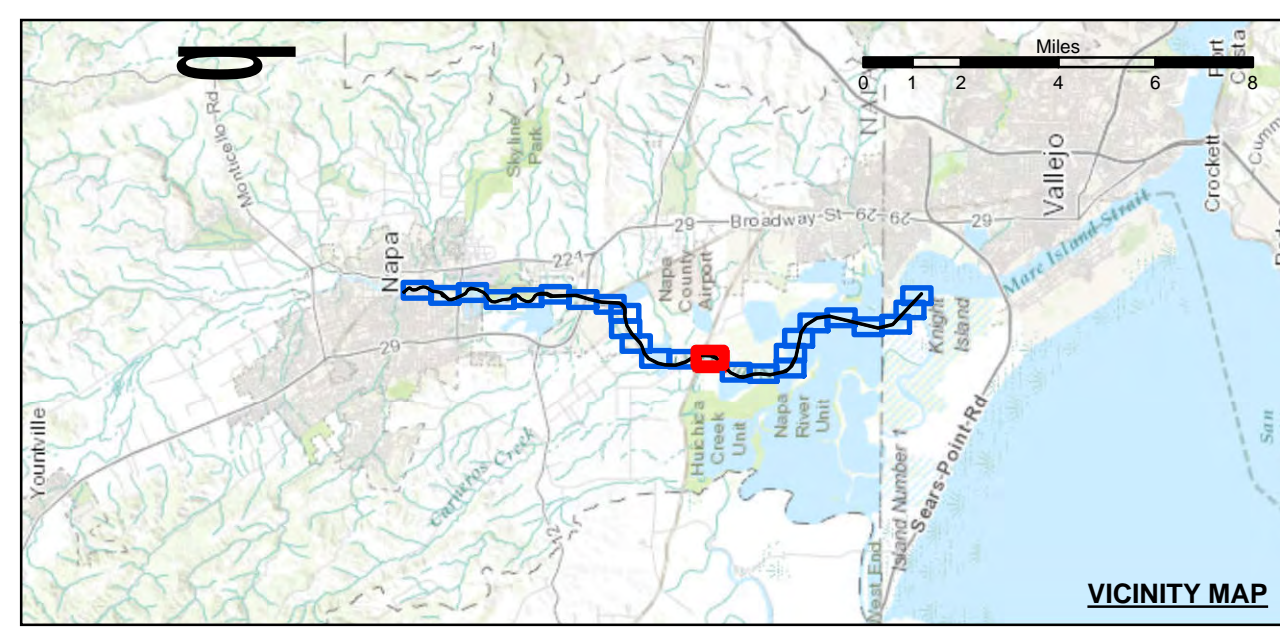


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Drawn by:	PDT
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CALIFORNIA
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	Federal Navigation Channel		Beacon, General	Contours	
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