

NAD 83 CHANNEL ANGLE POINTS

Δ PT	X	Y	Δ PT	X	Y	Δ PT	X	Y
1	6048873.57	2300046.64	47	6045420.47	2285146.44	83	6046298.27	2255227.24
2	6050231.27	2298956.64	48	6049530.77	2284491.14	84	6045254.57	2256380.54
3	6050305.17	2299201.14	50	6048268.97	2283841.84	85	6046228.77	2256914.24
4	6050350.27	2299393.74	51	6048202.67	2279884.34	86	6041162.17	2258203.54
5	6050326.57	2299292.84	52	6048508.87	2278592.34	87	6040567.87	2258659.04
6	6050223.27	2299176.84	53	6048361.87	2276586.34	88	6040716.47	2260379.94
7	6050162.57	2299074.94	54	6048224.67	2276357.34	100	6040339.47	2261458.94
8	6050130.67	2298978.84	55	6047934.87	2276096.34	101	6040309.17	2262182.24
9	6050155.87	2298984.34	56	6047695.87	2275999.34	102	6040008.17	2263335.04
10	6050374.67	2298200.34	57	6048161.67	2276013.34	103	6040056.67	2263787.24
11	6050438.67	2297901.34	58	6048587.87	2275808.34	104	6040535.87	2264731.14
12	6050400.87	2297791.34	59	6048741.67	2275832.34	105	6040392.17	2265208.54
13	6049965.87	2298886.34	60	6044027.67	2274440.34	106	6042363.87	2266814.94
14	6049852.97	2298190.84	61	6043887.87	2274244.34	107	6042461.77	2268207.44
15	6049747.87	2298286.34	62	6043927.87	2274311.34	108	6042771.07	2269896.74
16	6049702.87	2298116.54	63	6042289.87	2273518.34	109	6041765.47	2269501.94
17	6049627.87	2298425.54	64	6041777.87	2272548.34	110	6041425.07	2270626.74
18	6049130.87	2294461.94	65	6041569.87	2271791.34	111	6041470.17	2271908.57
19	6048535.47	2293521.84	66	6041525.87	2270640.34	112	6041184.17	2272583.44
20	6048167.87	2293266.34	67	6041855.57	2269548.54	113	6042029.87	2273680.14
21	6048093.67	2293038.34	68	6042372.87	2268724.04	114	6042778.37	2274606.64
22	6050217.67	2292725.34	69	6042635.67	2268399.34	115	6043647.07	2275336.34
23	6050058.67	2293016.14	70	6042521.47	2268775.44	116	6043968.57	2276221.64
24	6049827.47	2291521.44	71	6042925.47	2268266.44	117	6044915.47	2276733.54
25	6049743.97	2291348.14	72	6044617.87	2268471.34	118	6044821.07	2277900.74
26	6049406.27	2291022.14	73	6044160.57	2268371.04	119	6044908.77	2278115.54
27	6049065.77	2290811.74	74	6043114.97	2268317.64	120	6047548.97	2278101.64
28	6048939.07	2290703.64	75	6044048.87	2268196.34	121	6047853.87	2278225.44
29	6048911.87	2290796.74	76	6044349.87	2268145.34	122	6048144.07	2278498.94
30	6048733.37	2290422.44	77	6043317.87	2268084.34	123	6048226.67	2278626.34
31	6048676.07	2290113.14	78	6044901.87	2268993.34	124	6048279.57	2278854.64
32	6048905.17	2289316.14	79	6044861.87	2268492.34	125	6048408.57	2279071.74
33	6048982.87	2288867.44	80	6041115.47	2268219.34	126	6048724.37	2279911.74
34	6048906.87	2288543.54	81	6042227.87	2267612.54	127	6049106.27	2281073.74
35	6049300.77	2288276.54	82	6048792.87	2267005.84	128	6049165.47	2281483.74
36	6049392.87	2288149.34	83	6048649.57	2266449.54	129	6049122.77	2282092.54
37	6049384.87	22881836.34	84	6048392.27	2265824.24	130	6049384.97	22841194.74
38	6049251.87	2287756.34	85	6048565.17	2265382.84	131	6049371.87	2284554.34
39	6048947.87	2287266.34	86	6048207.47	2264599.84	132	6048230.87	2285737.34
40	6048701.87	2286771.34	87	6048556.47	2264102.84	133	6048875.07	2286989.14
41	6048675.87	2286525.34	88	6048864.47	2263583.94	134	6048667.47	2288204.44
42	6048736.87	2286239.34	89	6048778.47	2263081.04	135	6048999.77	2288521.54
43	6048924.87	2285828.34	90	6048485.77	2262499.64	136	6048652.57	2288792.74
44	6049286.87	2285788.34	91	6048104.57	2261861.44	137	6048879.77	2289298.14
45	6049459.87	2285526.34	92	6048463.57	2261289.24	138	6048886.47	2289711.64

NAD 83 CENTERLINE ANGLE POINTS

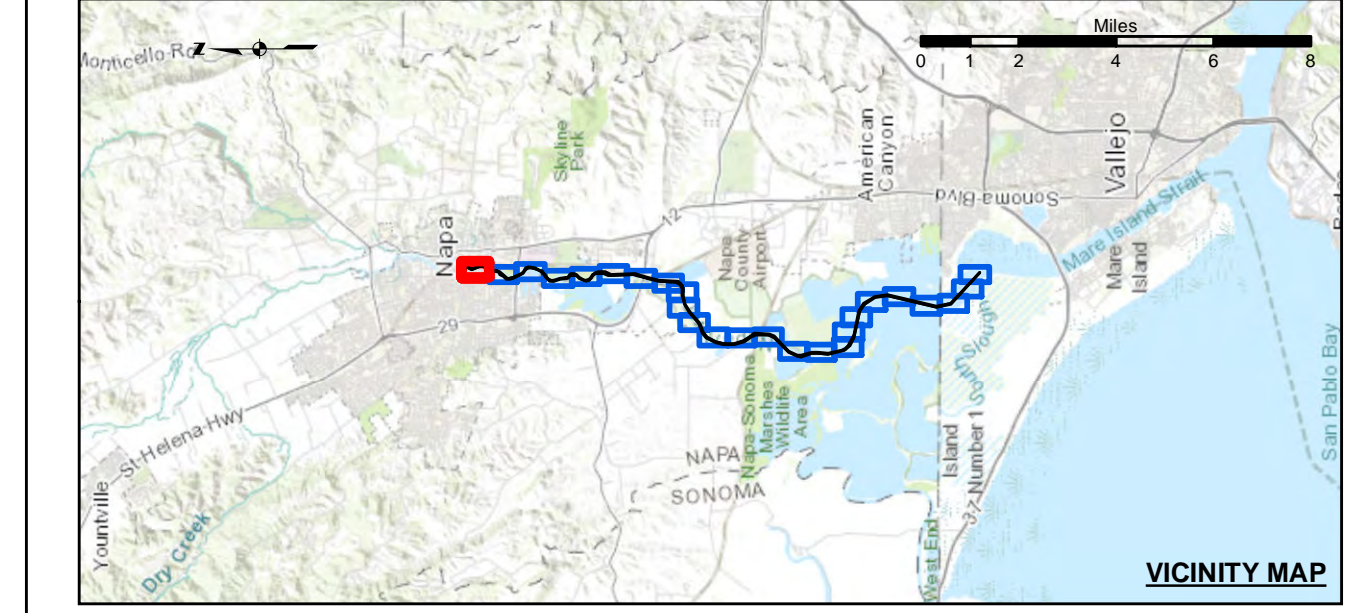
Δ PT	X	Y	Δ PT	X	Y
1	6049841.27	2300026.94	49	6049415.87	2285525.34
2	6049996.07	2299832.24	50	6049450.57	2285335.44
3	6050201.77	2299606.14	51	6049447.87	2284522.54
4	6050271.37	2299603.84	52	6049174.77	2283887.14
5	6050311.17	2299391.54	53	6049217.17	2283156.14
6	6050292.17	2299310.24	54	6049187.67	22821161.14
7	6050197.07	2299199.14	55	6048772.57	2281988.04
8	6050127.97	2299020.14	56	6048459.07	2281766.04
9	6050092.67	2298861.04	57	6048330.67	2281710.44
10	6050118.87	2298884.74	58	6048284.17	2281766.04
11	6050338.87	2298188.64	59	6048189.37	2281640.44
12	6050401.67	2297999.54	60	6047894.27	2281618.84
13	6050367.87	2297903.34	61	6047623.37	2281650.84
14	6049910.47	2297688.44	62	6046811.77	2281603.44
15	6049815.77	2296196.14	63	6046383.37	2281585.34
16	6049876.67	2295983.84	64	6044945.07	2281532.84
17	6049882.67	2295148.94	65	6045988.17	22814451.04
18	6049882.67	2294828.44	66	6043667.37	2281420.34
19	6049085.27	2294466.14	67	6042802.97	22814015.64
20	6049513.87	2294070.84	68	6042249.97	22813648.24
21	6049887.17	2293288.64	69	6041519.97	22811799.04
22	6049758.67	2293221.34	70	6041475.37	2281053.54
23	6050083.67	2292989.34	71	6041810.47	2280952.24
24	6050148.17	2292728.04	72	6042321.97	2280871.04
25	6050106.87	2292401.94	73	6042548.77	2280830.34
26	6050023.87	2292331.54	74	6042442.57	2280755.44
27	6049793.57	2291537.54	75	6042192.87	2280627.24
28	6049713.07	2291370.44	76	6040576.77	22804701.24
29	6049396.07	2291051.84	77	6041058.87	2280379.14
30	6049043.67	2290642.14	78	6040061.57	2280326.34
31	6048913.27	2290730.94	79	6040388.97	2280219.24
32	6048978.07	2290599.94	80	6040389.57	22801457.14
33	6048987.47	2290534.94	81	6040281.07	22800362.14
34	6048840.67	2290111.14	82	6040584.77	2280028.14
35	6048868.27	2289308.84	83	6040714.27	2280075.64
36	6048944.47	2288895.24	84	6041158.77	2280115.74
37	6048961.77	2288529.24	85	6042103.77	2280115.74
38	6048925.67	2288221.44	86	6044851.27	2280090.04
39	6049301.67	2288140.84	87	6045612.07	2280151.94
40	6049313.67	2287847.84	88	6046343.47	2280254.44
41	6049319.17	2287770.94	89	6046514.37	2280386.04
42	6049221.17	2287579.94	90	6046582.97	2280582.94
43	6048913.67	2287282.24	91	6046551.07	2280716.84
44	6048666.17	2286782.04	92	6048819.87	2280329.54
45	6048657.77	2286523.44			
46	6048702.07	2286224.34			
47	6048889.87	2285997.74			
48	6049258.67	2285762.84			

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Chart Date: Feb 18, 2022
 Designed by: PDT
 Drawn by: PDT
 Surveyed by: LT COLONEL P. ARNETT
 Flattened by: PDT
 Checked by: PDT
 PREPARED UNDER THE DIRECTION OF:
 KOLVIN, C.E. DISTRICT ENGINEER
 Hydro Survey Team Leader
 Chief, Hydro Survey Section
 Chief, Construction Branch

CALIFORNIA
 NAPA COUNTY
 NAPA RIVER
 UPPER NAPA
 CONDITION SURVEY
 02-10 FEBRUARY 2022
 Sheet Number
 1 of 25

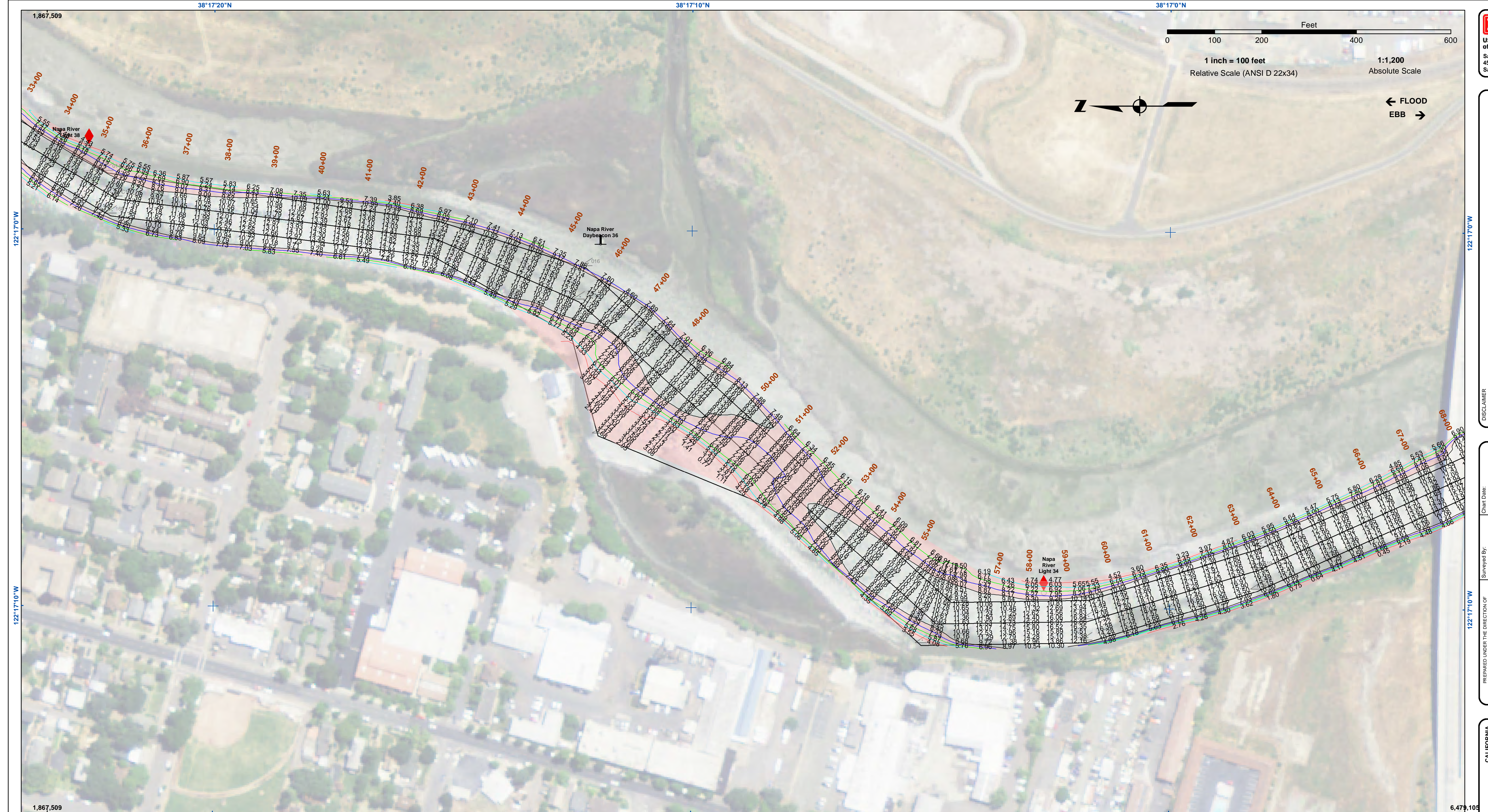


—	Federal Navigation Channel	↑	Beacon, General
—	Shoaling Area	⊗	Obstruction Point
—	Placement Area	◇	Navigation Buoy
- - -	Anchorage Area	◇	Navigation Buoy
⊠	Wreck Area	◇	Navigation Buoy
⋈	Submerged Wreck	◇	Navigation Buoy
∠	Angle Point	◇	Navigation Buoy
		◇	Shoalest Sounding*

Contours

- 9
- 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.
 THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF A SURVEY CONDUCTED ON THE DATE INDICATED AND CAN ONLY BE CONSIDERED TO REPRESENT THE GENERAL CONDITION EXISTING AT THAT TIME.
 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 OCEANIC AND ATMOSPHERIC ADMINISTRATION, U.S. DEPARTMENT OF COMMERCE, WASHINGTON, DC 20543.
 *SHORTEST 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 - NRPFP4 - 30.54ft - 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 - NAPA001 - 2.652m MLLW - 29.111m WGS-84 - USACE - RTK BASE STATION WGS-84 ELEVATION FROM OPUS SOLUTION MLLW ELEV.
 225+00 TO 640+00 - NAPA002 - 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 - NAPA003 - 3.553m MLLW - 28.41m 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.



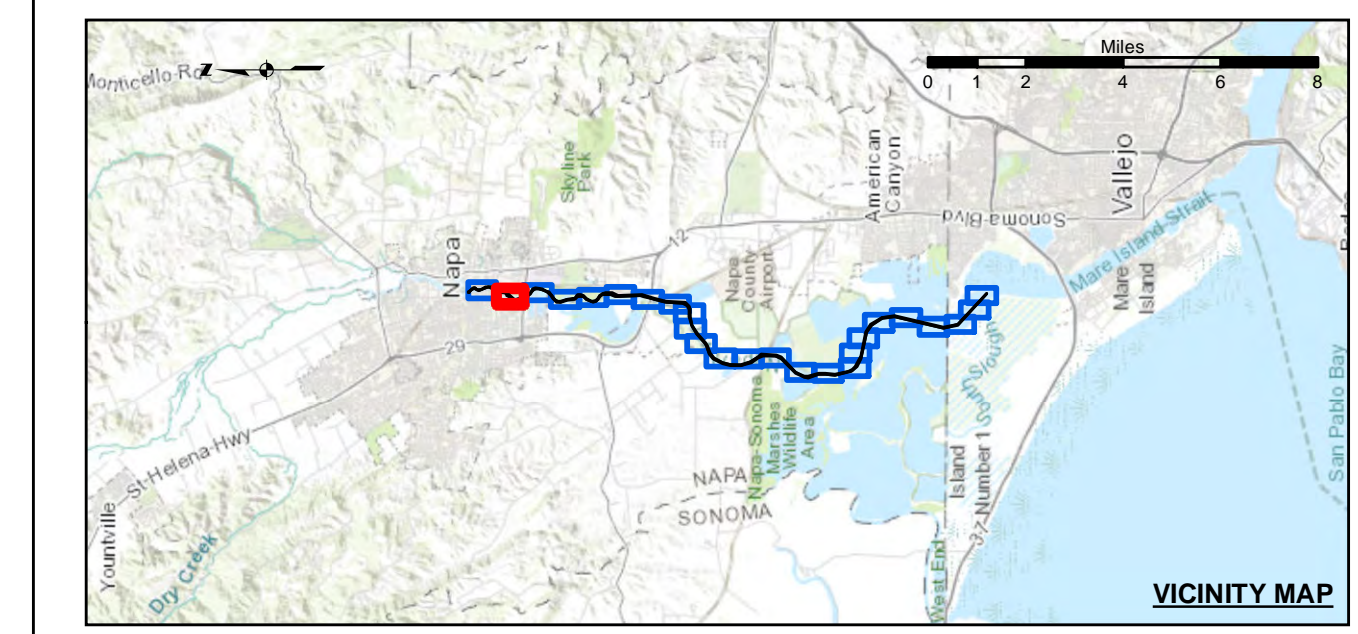
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Chart Date:	Feb 18, 2022
Designed by:	PDT
Drawn by:	PDT
Checked by:	PDT
Approved:	Chief, Construction Branch
Surveyed By:	KEVIN P. ARNETT
Plotted By:	PDT

CALIFORNIA
 NAPA COUNTY
**NAPA RIVER
 UPPER NAPA
 CONDITION SURVEY
 02-10 FEBRUARY 2022**

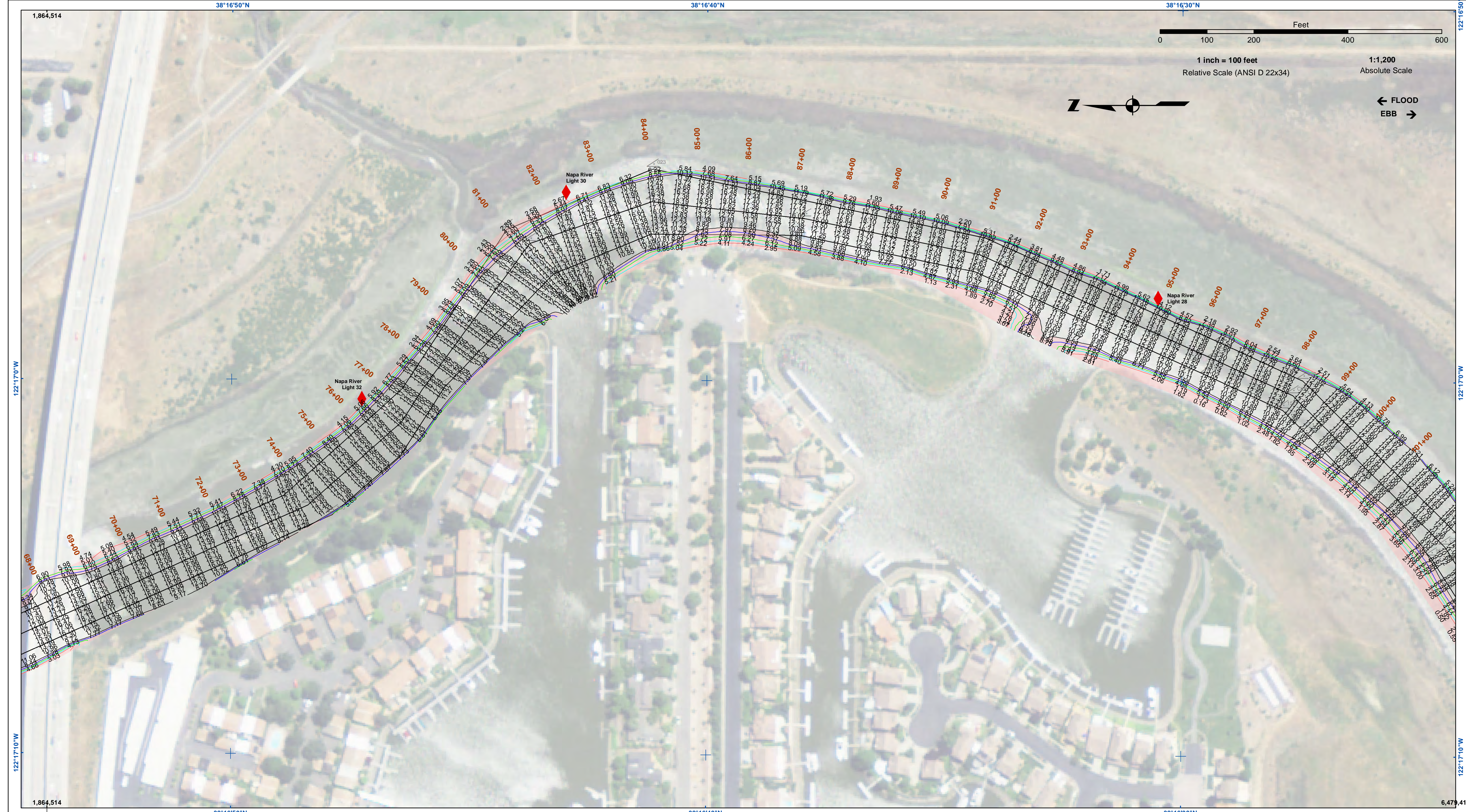
**Sheet
 Reference
 Number
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Federal Navigation Channel	Shoaling Area	Beacon, General	Contours
Placement Area	Obstruction Point	Navigation Buoy	-9
Anchorage Area	Navigation Buoy	Shoalest Sounding*	-8
Wreck Area	Shoalest Sounding*		-7
Submerged Wreck			-6
Angle Point			-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.
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 *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 - 30.54ft - 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.



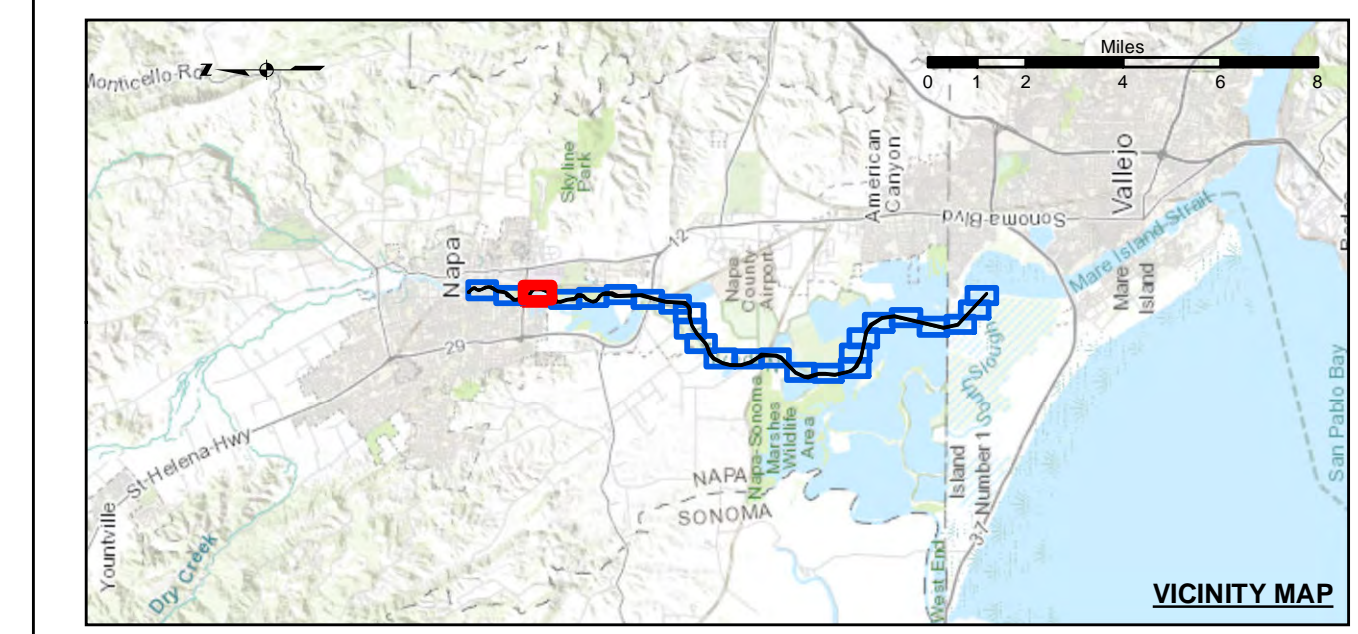
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Designed by:	PDT
Drawn by:	PDT
Checked by:	PDT
Approved:	Chief, Construction Branch

CALIFORNIA
 NAPA COUNTY
**NAPA RIVER
 UPPER NAPA
 CONDITION SURVEY
 02-10 FEBRUARY 2022**

**Sheet
 Reference
 Number
 3 of 25**



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

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 225+00 TO 640+00 - NAPA02 - 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 - NAPA03 - 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.



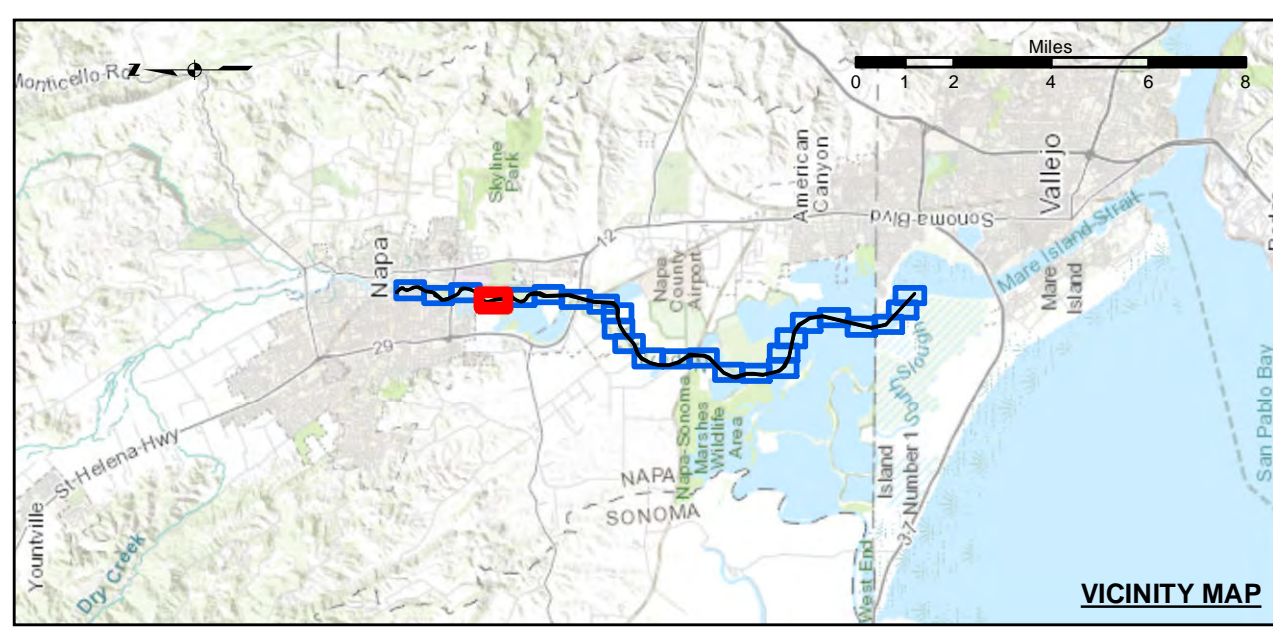
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Chart Date:	Feb 18, 2022
Designed by:	PDT
Drawn by:	PDT
Checked by:	PDT
Approved:	Chief, Construction Branch
Submitted:	Hydro Survey Team Leader
Recommended:	Chief, Hydro Survey Section
Prepared Under the Direction of:	LT Colonel, C.E. District Engineer
Surveyed By:	KEVIN P. ARNETT

CALIFORNIA
 NAPA COUNTY
**NAPA RIVER
 UPPER NAPA
 CONDITION SURVEY
 02-10 FEBRUARY 2022**

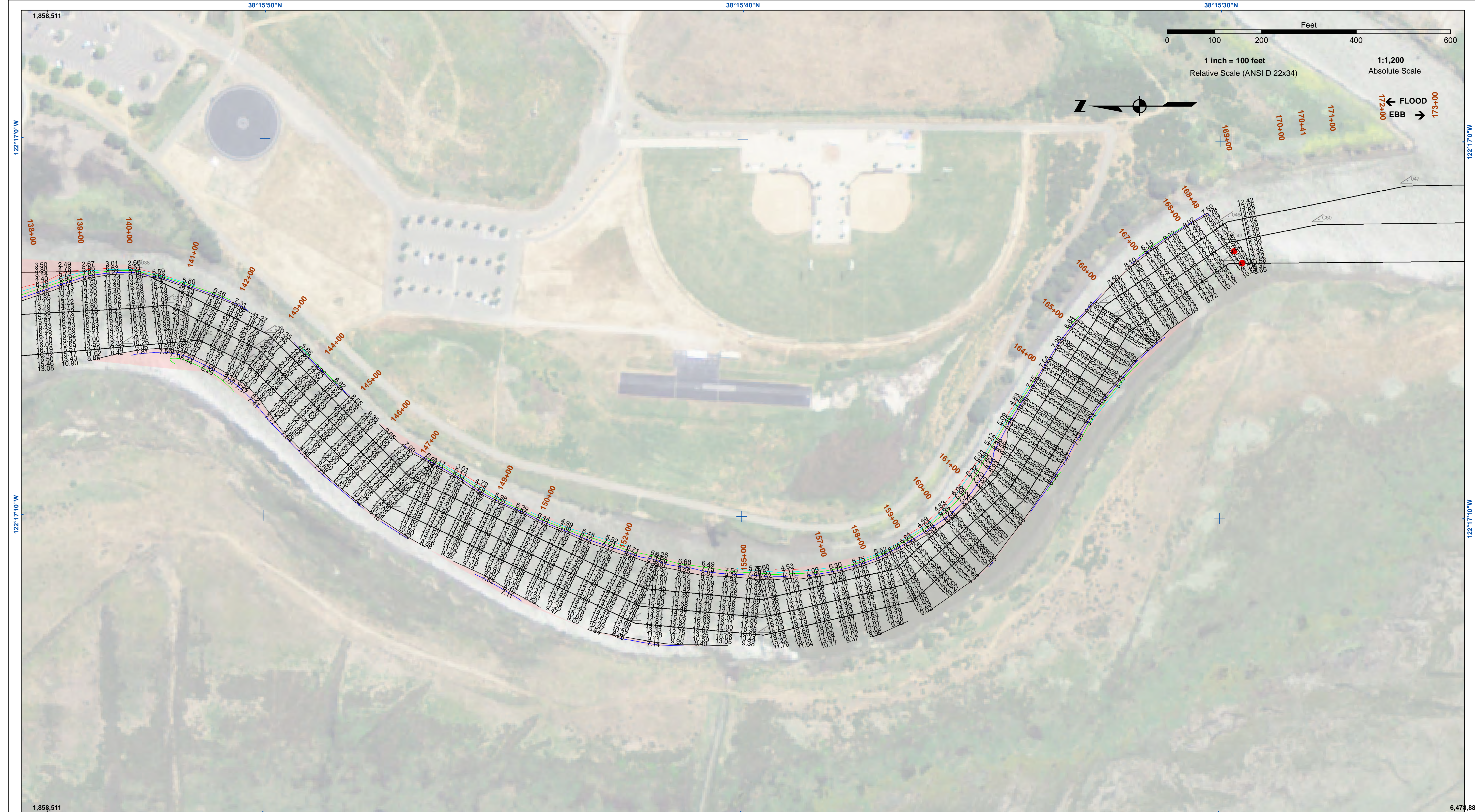
**Sheet
 Reference
 Number
 4 of 25**



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

NOTES:
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 THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF A SURVEY CONDUCTED ON THE DATE INDICATED AND CAN ONLY BE CONSIDERED TO REPRESENT THE GENERAL CONDITION EXISTING AT THAT TIME.
 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

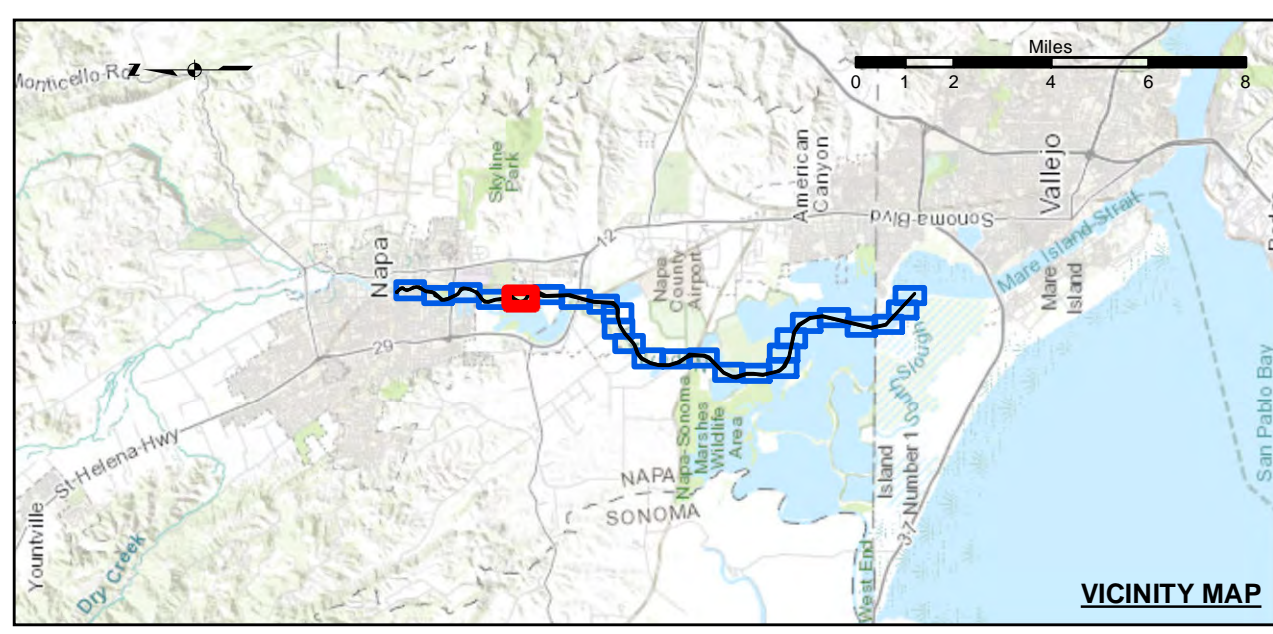
DRAWING NOT TO BE USED FOR NAVIGATION. ONLY CHANNEL CONDITION AT DATE OF SURVEY.
 THE LOCATION OF ALL NAVIGATION AIDS ARE BASED ON INFORMATION PROVIDED BY THE U.S. COAST GUARD. BUOY LOCATIONS REPRESENT THE POSITION OF THE SINKER ONLY. SURVEYED BY THE CORPS OF ENGINEERS.
 SOUNDINGS FOR THE OUTSIDE CHANNEL (100FT. 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.
 THE PROJECT DEPTH IS 15' 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 - 30.54ft - 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 - NAPA01 - 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 - NAPA02 - 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 - NAPA03 - 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.



US Army Corps of Engineers
 San Francisco District
 450 Market Street
 San Francisco, CA 94102

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Prepared Under the Direction of	Chart Date:	Feb 18, 2022
KEVIN P. ARNETT	Surveyed By:	
LT COLONEL, C.E., DISTRICT ENGINEER	Plotted By:	PDT
Subject:	Recommended:	Checked By:
Hydro Survey Team Leader	Chief, Hydro Survey Section	PDT
Approved:	Chief, Construction Branch	PDT



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

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:
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CALIFORNIA
 NAPA COUNTY
**NAPA RIVER
 UPPER NAPA
 CONDITION SURVEY
 02-10 FEBRUARY 2022**

**Sheet
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