

Table 2-4: Local Discharge Existing Versus Proposed PA-3&4 ROMP Revision 1 | 2023

Existing Condition Subwatershed <sup>1</sup>	Tributary to	Existing Condition (PA3&4 ROMP)							Planning Area	2018 Outfall # (2018) <sup>7</sup>	Proposed Condition Subwatershed (Tributary to)	Ultimate Condition (PA3&4 ROMP)														
		Area	2	5	10	25	50	100				Area	Unmitigated					Mitigated								
		ac	cfs			cfs						ac	2	5	10	25	50	100	2	5	10	25	50	100		
3	Gobernadora	8.5	0.8	3.1	8.2	11.2	12.8	14.1	3	-	A <sup>1,3</sup> (Gobernadora)	-	-	-	-	-	-	-	-	-	-	-				
4A	Gobernadora	24.4	8.6	20.8	39.3	51.9	58.6	63.7		-		-	-	-	-	-	-	-	-	-	-	-				
4B	Gobernadora	42.0	8.2	28.2	58.0	77.6	89.5	96.3		8		-	-	-	-	-	-	-	-	-	-	-				
5A	Gobernadora	152.9	14.0	69.0	163.6	220.9	253.8	277.3		-		-	-	-	-	-	-	-	-	-	-	-				
5D	Gobernadora	57.1	8.0	33.6	72.8	97.8	111.7	121.8		-		-	-	-	-	-	-	-	-	-	-	-				
5B	Gobernadora	61.5	9.6	37.0	79.1	105.7	120.6	131.5		-		-	-	-	-	-	-	-	-	-	-	-				
5C	Gobernadora	187.2	9.0	68.0	183.0	249.9	286.7	316.5		9		-	-	-	-	-	-	-	-	-	-	-				
														510.2	214.0	387.7	636.6	831.1	949.3	1020.7	13.8	77.8	233.5	350.8	465.3	579.7
6	Gobernadora	9.9	2.5	7.1	13.9	18.4	21.0	22.6	3	-	B <sup>1,2</sup> (SJC)	-	-	-	-	-	-	-	-	-	-	-				
7	Gobernadora	74.0	8.3	37.2	85.8	115.8	132.6	145.1		-		-	-	-	-	-	-	-	-	-	-	-				
8	Gobernadora	49.3	6.5	28.2	61.0	81.7	92.5	101.7		-		-	-	-	-	-	-	-	-	-	-	-				
9A	Gobernadora	31.2	5.1	18.8	39.7	52.9	60.1	68.4		-		-	-	-	-	-	-	-	-	-	-	-				
9B	Gobernadora	12.3	2.2	7.6	16.0	21.2	24.2	26.3		-		-	-	-	-	-	-	-	-	-	-	-				
10	Gobernadora	48.7	6.3	27.8	60.2	80.6	91.3	100.4		-		-	-	-	-	-	-	-	-	-	-	-				
-	-	-	-	-	-	-	-	-		10		-	-	-	-	-	-	-	-	-	-	-				
11	SJC	52.8	2.9	21.2	53.3	72.2	82.4	91.1		11		-	-	213.7	78.8	146.9	251.9	330.0	374.2	407.9	8.4	16.8	35.4	47.3	67.4	88.4
12	SJC	283.8	10.7	81.7	233.2	321.9	371.2	412.3	3	-	C <sup>4,2,6</sup> (SJC)	-	-	-	-	-	-	-	-	-	-	-				
-	-	-	-	-	-	-	-	-		12		-	-	-	-	-	-	-	-	-	-	-				
13 <sup>5</sup>	SJC	103.0	5	37.0	98.0	133.0	153.0	168.0		13		-	-	-	-	-	-	-	-	-	-	-				
14 <sup>5</sup>	SJC	499.0	6	92	323.0	454.0	531.0	592.0		13.1		-	-	1292.3	470.5	812.7	1384.5	1810.8	2046.9	2253.2	153.3	463.9	826.6	996.8	1077.9	1134.3
15	SJC	47.0	5.5	21.1	46.3	62.0	70.9	77.7		-		-	-	-	-	-	-	-	-	-	-	-				
-	-	-	-	-	-	-	-	-																		
16	SJC	191.6	5.9	56.7	164.5	226.2	260.7	288.7	3	14	C <sup>4,2,6</sup> (SJC)	-	-	-	-	-	-	-	-	-	-	-				
-	-	-	-	-	-	-	-	-		-		-	-	-	-	-	-	-	-	-	-					
-	-	-	-	-	-	-	-	-		15		-	-	-	-	-	-	-	-	-	-					
17A	SJC	18.3	2.9	10.8	22.8	30.4	34.3	37.6		-		-	-	-	-	-	-	-	-	-	-					
17B	SJC	25.2	2.8	13.5	29.6	39.5	45.1	49.2		-		-	-	-	-	-	-	-	-	-	-					
-	-	-	-	-	-	-	-	-	16	-	-	-	-	-	-	-	-	-	-							
18	SJC	118.8	9.1	48.9	116.4	157.7	180.9	198.3	3	17	O <sup>1</sup> (SJC)	51.1	5.2	25.9	58.8	79.0	90.3	98.7	5.2	25.9	58.8	79.0	90.3	98.7		
-	-	-	-	-	-	-	-	-		18		-	-	-	-	-	-	-	-	-	-	-	-	-		
2	SJC	33.5	6.1	20.9	44.0	58.7	67.1	72.8	4	19	E <sup>1,2,6</sup> (SJC)	-	-	-	-	-	-	-	-	-	-	-	-	-		
3	SJC	130.9	6.3	57.8	138.2	186.7	213.8	234.8		20	-	-	171.0	94.5	167.2	274.2	358.2	408.3	435.8	1.7	3.9	101.3	176.4	208.2	232.5	
4	SJC	394.6	37.9	176.6	414.0	561.8	647.2	708.0	4	21	F <sup>1,2,6</sup> (SJC)	-	-	-	-	-	-	-	-	-	-	-	-	-		
5	SJC	78.0	13.8	43.4	93.6	125.7	143.5	156.6		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
6	SJC	105.9	6.4	42.4	107.7	146.2	167.0	184.5		22	-	-	553.8	162.3	345.8	646.8	865.7	991.4	1081.3	19.6	206.5	538.1	720.3	824.9	912.7	

<sup>1</sup>Rational method discharges were used for the existing condition and unmitigated ultimate condition less than 640 acres.

<sup>2</sup>Complex unit hydrograph peak discharges were used for the mitigated ultimate condition

<sup>3</sup>Subwatershed A mitigated peak discharges are from PCSWMM as the PCSWMM results are more conservative than the AES results. Additionally, there were instability issues in AES pipe routing (peak Q increased), which were removed in the models.

<sup>4</sup>Single area hydrograph peak discharges were used for the unmitigated ultimate condition for areas greater than 640 acres.

<sup>5</sup>Flows are from the PA-3.1 Rough Grade Condition analysis.

<sup>6</sup>Due to the location of the outlet, within the San Juan Creek Floodplain, flows higher than the existing condition are acceptable given that there are no other adverse effects to San Juan Creek.

<sup>7</sup>The outfalls are labeled 2018 due to the year they were permitted.

Table 2-5: Existing and Basin Outflow Comparison

2019 Outfall #	Existing Condition Watershed	Existing Condition (PA3&4 ROMP)							Ultimate Mitigated <sup>1</sup>						
		Area	2	5	10	25	50	100	Basin	2	5	10	25	50	100
		ac	cfs							cfs					
-	3	8.5	0.8	3.1	8.2	11.2	12.8	14.1	-	-	-	-	-	-	-
-	4A	24.4	8.6	20.8	39.3	51.9	58.6	63.7	-	-	-	-	-	-	-
8	4B	42.0	8.2	28.2	58.0	77.6	89.5	96.3	-	-	-	-	-	-	-
-	5A	152.9	14.0	69.0	163.6	220.9	253.8	277.3	-	-	-	-	-	-	-
-	5D	57.1	8.0	33.6	72.8	97.8	111.7	121.8	-	-	-	-	-	-	-
-	5B	61.5	9.6	37.0	79.1	105.7	120.6	131.5	3A-5	3.6	36.3	42.3	43.0	43.5	43.8
9	-	-	-	-	-	-	-	-	-	0.0	0.0	0.0	112.6	185.2	264.3
	5C	187.2	9.0	68.0	183.0	249.9	286.7	316.5	3A-6	2.9	28.9	70.1	70.1	70.8	71.4
-	6	9.9	2.5	7.1	13.9	18.4	21.0	22.6	3A-7	2.0	2.2	4.5	14.9	19.8	21.6
-	7	74.0	8.3	37.2	85.8	115.8	132.6	145.1	3A-9	1.2	2.5	43.2	74.9	81.8	84.4
-	8	49.3	6.5	28.2	61.0	81.7	92.5	101.7	3A-10	1.0	2.5	45.1	80.4	96.1	103.4
-	9A	31.2	5.1	18.8	39.7	52.9	60.1	68.4	3A-11	1.3	10.4	77.8	104.4	117.4	123.3
-	9B	12.3	2.2	7.6	16.0	21.2	24.2	26.3	-	-	-	-	-	-	-
-	10	48.7	6.3	27.8	60.2	80.6	91.3	100.4	-	-	-	-	-	-	-

<sup>1</sup>Basin peak discharges are from PCSWMM.



**Table 2-6: Local Node 13305 Discharge Results**

Storm Event	Existing Condition Model	Ultimate Condition			
		Single Area Model	Free Draining Model	Calibrated Model	Complex Model
100	3826	3859	3828	-	2849
50	3399	3435	3329	3423	2611
25	2845	2874	2815	2882	2289
10	1868	1941	1856	1895	1659
5	813	882	845	878	781
2	368	409	386	407	393

**Table 2-7: 100-year Debris Volume Calculation**

Watershed Debris Basin	Total Drainage Area (ac)	Undeveloped Drainage Area (A)	100-year - 1-hour Precipitation (P)	Relief Ratio (slope) (ft/mile) (RR)	Fire Factor (FF)	Dy Unit Debris Yield (yd <sup>3</sup> /mi <sup>2</sup> )	Dy Unit Debris Yield (ac-ft)	Parent Material	Soils	Channel Morphology	Hillslope Morphology	A-T Factor	Computed 100-year Debris Production (ac-ft)
C1 Debris Basin	829.8	117.2	145	430	4.5	8915	7.1	0.15	0.15	0.25	0.15	0.7	5.0
E Debris Basin 1	171.0	34.1	145	853	4.5	10913	1.8	0.15	0.15	0.25	0.15	0.7	1.3
E Debris Basin 2	171.0	20.8	145	815	4.5	9707	1.6	0.15	0.15	0.25	0.15	0.7	1.1
E Debris Basin 3	171.0	17.8	145	796	4.5	9303	1.5	0.15	0.15	0.25	0.15	0.7	1.1
F Debris Basin 1	553.8	23.6	145	1185	4.5	12521	6.7	0.15	0.15	0.25	0.15	0.7	4.7
F Debris Basin 2	553.8	269.2	145	580	4.5	12462	6.7	0.15	0.15	0.25	0.15	0.7	4.7
F Debris Basin 3	553.8	5.7	145	1947	4.5	13192	7.1	0.15	0.15	0.25	0.15	0.7	5.0
F Debris Basin 4	553.8	18.5	145	1823	4.5	15656	8.4	0.15	0.15	0.25	0.15	0.7	5.9
F Debris Basin 5	553.8	120.7	145	897	4.5	14140	7.6	0.15	0.15	0.25	0.15	0.7	5.3
F Debris Basin 6	553.8	1.2	145	314	4.5	14140	7.6	0.15	0.15	0.25	0.15	0.7	0.9

Table 2-8: Existing and Phase Area Comparison

Existing Condition				Phase Condition 1 (PA-1, -2 & -3)				Phase Condition 2 (PA-1, -2, -3 & -4)			
Regional Node	Subarea ID	Area (ac)	Total Area (ac)	Subarea Area (ac)	RM (ac)	Loss Rate (ac)	Differences (ac)	Subarea Area (ac)	RM (ac)	Loss Rate (ac)	Differences (ac)
119	S19	3358	49512	3358	49511.8	49511.8	0.0	3342	49495.7	49495.7	0.0
126	S26	1006	50518	894.3	50438.7	50438.6	0.1	910.1	50438.7	50438.7	0.0
127	S27	1562	52080	2031.0	52442.9	52442.8	0.1	2031.0	52442.8	52442.8	0.0
-	S28	1066	53147	1066.4	53506.2	53506.2	0.0	1066.4	53506.2	53506.2	0.0
133u	S29	966	54113	851.7	54354.0	54354.1	0.1	851.7	54354.0	54354.0	0.0
-	S30	2016	-	2016.1	-	-	-	2016.1	-	-	-
-	S31	1781	-	1780.7	-	-	-	1780.7	-	-	-
-	S32	1128	-	1127.6	-	-	-	1127.6	-	-	-
133c	S33	2190	61227	1716.1	60992.4	60992.4	0.0	1716.1	60992.3	60992.3	0.0
134u	S34	1244	62471	1705.5	62697.9	62698.0	0.1	1705.5	62697.9	62698.0	0.1
-	S35	1580	-	1579.8	-	-	-	1579.8	-	-	-
134c	S36	2503	66554	2279.9	66557.7	66557.7	0.1	2279.9	66557.6	66557.6	0.0
137	S37	1239	67793	1240.9	67798.3	67798.2	0.1	1240.9	67798.3	67798.3	0.0
138	S38	1333	69125	1303.7	69102.0	69102.0	0.0	1303.7	69102.0	69102.0	0.0
139	S39	428	69553	427.8	69529.8	69529.8	0.0	427.8	69529.8	69529.8	0.0

Table 2-9: Ultimate Approved and PA-3 Ultimate Area Comparison

Ranch Plan Ultimate Condition				PA-2 Ultimate Condition		PA-3&4 Ultimate Condition			
Regional Node	Subarea ID	Area (ac)	Total Area (ac)	Area (ac)	RM (ac)	Area (ac)	RM (ac)	Loss Rate (ac)	Differences (ac)
119	S19	3413.6	49567.3	3413.6	49567.3	3342.0	49495.7	49495.7	0.0
126	S26	969.1	50536.4	969.1	50536.4	910.1	50438.7	50438.7	0.0
127	S27	1414.5	51950.9	1414.5	51950.9	2031.0	52442.8	52442.8	0.0
-	S28	223.2	52174.1	223.2	52174.1	223.2	53666.0	53666.0	0.0
133u	S29	2166.6	54340.7	2166.6	54340.7	1755.4	54417.5	54417.5	0.0
-	S30	2015.8	-	2015.8	-	2016.2	-	-	-
-	S31	1780.7	-	1780.7	-	1780.7	-	-	-
-	S32	1127.5	-	1127.6	-	1127.6	-	-	-
133c	S33	2022.5	61291.2	1787.8	61052.6	1716.1	61055.8	61055.8	0.0
134u	S34	1186.0	62477.3	1691.6	62744.2	1691.6	62747.4	62747.4	0.0
-	S35	1579.0	-	1579.8	-	1579.8	-	-	-
134c	S36	2549.9	66602.0	2279.9	66603.8	2279.9	66607.1	66607.1	0.0
137	S37	1191.6	67794.0	1191.9	67795.7	1191.9	67799.0	67799.0	0.0
138	S38	1303.5	69097.0	1303.7	69099.4	1303.7	69102.6	69102.7	0.1
139	S39	427.8	69524.1	427.8	69527.2	427.8	69530.5	69530.5	0.0

Table 2-10: PA-3 Basin Footprint Comparison

Flood Control Basin Name	Tributary Area (ac)	Outlet #	Basin Area at Top (ac)	Max. Depth (ft)	Max. Storage (ac-ft)
S29.2 Basin*	710	12	12.6	8.1	95.5
S27.1 Basin*	736	13	14.0	8.3	110.8
3B-1	213.7	11	1.4	9	12.5
3B-4			4.0	24	53.8
3C-3	1292.3	13.1	16.1	19	169.5
Total Storage Identified for PA-3 in 2013 Ranch Plan ROMP				206.3 ac-ft	
Total Storage Provided for PA-3				235.8 ac-ft	

\* Denotes basins from 2013 Ranch Plan ROMP

Table 2-11: PA-4 Basin Footprint Comparison

Flood Control Basin Name	Tributary Area (ac)	Outlet #	Basin Area at Top (ac)	Max. Depth (ft)	Max. Storage (ac-ft)
S26.2 Basin*	442	21	10.9	4.8	47.7
S19.2 Basin*	742	19	10.9	9.2	94.7
4E-1	171	20	2.8	10	21.1
4F-1	553.8	21	3.5	10	29.3
Total Storage Identified for PA-4 in 2013 Ranch Plan ROMP				142.4 ac-ft	
Total Storage Provided for PA-4				50.4 ac-ft	

\* Denotes basins from 2013 Ranch Plan ROMP

Table 2-12: Regional Existing Condition Hydrology

Node	Area	100-year Expected Value Storm Event (cfs)					50-year Expected Value Storm Event (cfs)					25-year Expected Value Storm Event (cfs)					10-year Expected Value Storm Event (cfs)					5-year Expected Value Storm Event (cfs)					2-year Expected Value Storm Event (cfs)				
		Baseline 2008 <sup>1</sup>	Ranch Plan ROMP <sup>2</sup>	PA-3&4 ROMP			Baseline 2008 <sup>1</sup>	Ranch Plan ROMP <sup>2</sup>	PA-3&4 ROMP			Baseline 2008 <sup>1</sup>	Ranch Plan ROMP <sup>2</sup>	PA-3&4 ROMP			Baseline 2008 <sup>1</sup>	Ranch Plan ROMP <sup>2</sup>	PA-3&4 ROMP			Baseline 2008 <sup>1</sup>	Ranch Plan ROMP <sup>2</sup>	PA-3&4 ROMP			Baseline 2008 <sup>1</sup>	Ranch Plan ROMP <sup>2</sup>	PA-3&4 ROMP		
		(ac.)	Single Area	Existing Flow	Single Area	Free Draining	Existing Flow <sup>3</sup>	Single Area	Existing Flow	Single Area	Free Draining	Existing Flow <sup>3</sup>	Single Area	Existing Flow	Single Area	Free Draining	Existing Flow <sup>3</sup>	Single Area	Existing Flow	Single Area	Free Draining	Existing Flow <sup>3</sup>	Single Area	Existing Flow	Single Area	Free Draining	Existing Flow <sup>3</sup>	Single Area	Existing Flow	Single Area	Free Draining
119	49512	20221	20304	20326	20326	20326	17815	17836	17844	17844	17844	14999	14923	14939	14939	14939	7159	7195	7239	7238	7239	2462	2404	2403	2403	2403	538	525	534	534	534
126	50518	20284	20302	20352	20249	20352	17854	17810	17828	17767	17828	14798	14897	14924	14866	14924	7024	7101	7114	7145	7145	2340	2349	2380	2346	2380	531	516	514	525	525
127	53147	18254	20598	20460	20273	20460	17896	18013	17925	17779	17925	15014	15055	14964	14872	14964	6917	7076	6972	6990	6990	2331	2319	2303	2314	2314	456	513	494	514	514
133t	7115	3935	3982	3986	3926	3986	3430	3492	3500	3403	3500	2900	2937	2942	2856	2942	1846	1871	1875	1781	1875	776	796	781	786	786	329	364	354	350	354
133u	54113	20274	20362	20361	20213	20361	17849	17894	17911	17719	17911	14986	14923	14948	14829	14948	6769	6874	6908	6914	6914	2345	2287	2308	2298	2308	452	512	483	515	515
133c	61228	25162	21839	21636	21828	21828	18930	19145	19018	19143	19143	15936	15954	15882	15972	15972	7117	7148	7150	7172	7172	2464	2466	2458	2412	2458	576	586	583	568	583
134t	4083	2383	2409	2415	2415	2415	2110	2121	2124	2124	2124	1776	1787	1792	1792	1792	1024	1034	1039	1039	1039	385	381	329	329	329	124	148	121	121	121
134u	62471	21655	22026	21792	22000	22000	19068	19304	19119	19284	19284	15736	16077	15932	16080	16080	7123	7115	7015	7148	7148	2420	2413	2415	2409	2415	575	578	582	569	582
134c	66554	22515	22964	22661	22933	22933	19800	20143	19841	20118	20118	16390	16774	16536	16770	16770	7175	7247	7066	7275	7275	2504	2473	2470	2525	2525	601	605	610	600	610
137	67793	22575	23098	22728	23080	23080	19929	20253	19864	20237	20237	16424	16865	16526	16869	16869	7107	7236	7076	7267	7267	2531	2496	2501	2496	2501	600	608	617	604	617
138	69125	22752	23260	22878	23249	23249	20038	20388	19985	20380	20380	16567	16972	16654	16983	16983	7031	7219	7056	7270	7270	2529	2510	2510	2505	2510	598	622	625	612	625
139	69553	22846	23309	22805	23299	23299	20119	20429	19930	20423	20423	16507	17009	16621	17013	17013	7042	7224	7041	7270	7270	2516	2523	2531	2512	2531	597	635	640	617	640

<sup>1</sup> Approved 2008 Single Area Hydrology Analysis.

<sup>2</sup> April 2013 Ranch Plan ROMP (Table 9-18 in the Approved ROMP). Q is selected from the higher discharge between Single Area and Free-draining model.

<sup>3</sup> Existing flow used for mitigation comparison from PA-3&4 ROMP for the 100-, 50-, and 25-year storms. Q is selected from the higher discharge between Single Area and Free-draining model.

Table 2-13: Phased Condition PA-1, -2 and -3 Developed Regional Hydrology San Juan Creek

Node	Area (ac)	100-year Expected Value Storm Event				50-year Expected Value Storm Event				25-year Expected Value Storm Event				10-year Expected Value Storm Event				5-year Expected Value Storm Event				2-year Expected Value Storm Event			
		Single Area Model	Free Draining Model	Calib Free Draining Model	w/Basin Model	Single Area Model	Free Draining Model	Calib Free Draining Model	w/Basin Model	Single Area Model	Free Draining Model	Calib Free Draining Model	w/Basin Model	Single Area Model	Free Draining Model	Calib Free Draining Model	w/Basin Model	Single Area Model	Free Draining Model	Calib Free Draining Model	w/Basin Model	Single Area Model	Free Draining Model	Calib Free Draining Model	w/Basin Model
119	49512	20326	20326	-	-	17854	17854	-	-	14919	14919	-	-	7197	7197	-	-	2407	2407	-	-	527	525	-	-
126	50439	20308	20080	-	20080	17785	17708	-	17683	14872	14798	-	14798	7095	7101	-	7101	2344	2345	-	2345	510	518	-	518
127	53506	20370	20203	-	20271	17807	17790	-	17838	14911	14825	-	14929	7346	6990	7429	7083	2441	2346	2436	2457	575	535	593	611
133t	6638	3876	3888	-	2921	3412	3401	-	2690	2868	2848	-	2300	1905	1869	-	1639	865	857	-	842	403	451	-	403
133u	54354	20539	20239	-	20280	18077	17822	-	17859	15128	14827	-	14904	7096	6933	-	7033	2446	2340	2443	2469	588	534	598	614
133c	60992	21745	21855	-	21704	19135	19234	-	19102	16012	16017	-	15941	7465	7349	-	7374	2687	2557	2683	2734	736	662	729	732
134t	3860	2323	-	-	-	2048	-	-	-	1726	-	-	-	1021	-	-	-	348	-	-	-	131	-	-	-
134u	62698	22058	22086	-	21935	19329	19429	-	19301	16174	16176	-	16101	7383	7365	-	7391	2749	2576	2725	2763	758	693	739	724
134c	66558	22841	22996	-	22830	20052	20251	-	20098	16749	16858	-	16768	7475	7525	-	7544	2827	2679	2824	2859	825	736	806	746
137	67798	22983	23146	-	22988	20083	20373	-	20227	16721	16962	-	16875	7528	7548	-	7563	2838	2706	2825	2852	826	766	806	775
138	69102	23082	23308	-	23151	20183	20500	-	20354	16810	17055	-	16977	7506	7550	-	7565	2836	2725	2840	2873	825	789	824	774
139	69530	22959	23378	-	23185	20115	20532	-	20391	16801	17077	-	16992	7482	7551	-	7566	2856	2733	2805	2846	841	802	825	774



Table 2-14: Phased Condition PA-1, -2 and -3 Developed Regional Hydrology San Juan Creek Mitigated Flow Comparison Table

Node	Area (ac)	100-year Expected Value Storm Event				50-year Expected Value Storm Event				25-year Expected Value Storm Event				10-year Expected Value Storm Event				5-year Expected Value Storm Event				2-year Expected Value Storm Event			
		Target Value (CFS)	Post Development (CFS)	Variance		Target Value (CFS)	Post Development (CFS)	Variance		Target Value (CFS)	Post Development (CFS)	Variance		Target Value (CFS)	Post Development (CFS)	Variance		Target Value (CFS)	Post Development (CFS)	Variance		Target Value (CFS)	Post Development (CFS)	Variance	
				%	CFS			%	CFS			%	CFS			%	CFS			%	CFS			%	CFS
119	49512	20326	-	-	-	17844	-	-	-	14939	-	-	-	7239	-	-	-	2403	-	-	524	-	-	-	
126	50439	20352	20080	-1.3	-272	17828	17683	-0.8	-145	14924	14798	-0.8	-126	7178	7101	-1.1	-77	2429	2345	-3.5	-84	533	518	-3.0	-16
127	53506	20460	20271	-0.9	-189	17925	17838	-0.5	-87	14964	14929	-0.2	-35	7159	7083	-1.1	-76	2414	2457	1.8	43	560	611	9.3	51
133u	54354	20361	20280	-0.4	-81	17911	17859	-0.3	-52	14948	14904	-0.3	-44	7221	7033	-2.7	-188	2575	2469	-4.3	-106	638	614	-3.8	-24
133c	60992	21828	21704	-0.6	-124	19143	19102	-0.2	-41	15972	15941	-0.2	-31	7374	7374	0.0	0	2758	2734	-0.9	-24	733	732	-0.1	-1
134u	62698	22000	21935	-0.3	-65	19284	19301	0.1	17	16080	16101	0.1	21	7265	7391	1.7	126	2702	2763	2.2	61	713	724	1.5	11
134c	66558	22933	22830	-0.5	-103	20118	20095	-0.1	-23	16770	16768	0.0	-2	7373	7544	2.2	171	2736	2859	4.5	123	718	746	3.8	28
137	67798	23080	22988	-0.4	-92	20237	20227	-0.1	-10	16869	16875	0.0	6	7433	7563	1.7	130	2796	2852	2.0	56	732	775	5.9	43
138	69102	23249	23151	-0.4	-98	20380	20354	-0.1	-26	16983	16977	-0.1	-6	7412	7565	2.0	153	2791	2873	2.9	82	737	774	4.9	37
139	69530	23299	23185	-0.5	-114	20423	20391	-0.2	-32	17013	16992	-0.1	-21	7415	7566	2.0	151	2807	2846	1.4	39	748	774	3.6	26

\*Target values for the 100-, 50-, and 25-year peak discharges are from Table 2-12 of the ROMP while target 10-, 5-, and 2-yr peak discharges are the 2013 Ranch Plan ultimate values from Tables 14-9 to 14-11.

Table 2-15: Phased Condition PA-1, -2, -3 and -4 Developed Regional Hydrology San Juan Creek

Node	Area (ac)	100-year Expected Value Storm Event				50-year Expected Value Storm Event				25-year Expected Value Storm Event				10-year Expected Value Storm Event				5-year Expected Value Storm Event				2-year Expected Value Storm Event			
		Single Area Model	Free Draining Model	Calib Free Draining Model	w/Basin Model	Single Area Model	Free Draining Model	Calib Free Draining Model	w/Basin Model	Single Area Model	Free Draining Model	Calib Free Draining Model	w/Basin Model	Single Area Model	Free Draining Model	Calib Free Draining Model	w/Basin Model	Single Area Model	Free Draining Model	Calib Free Draining Model	w/Basin Model	Single Area Model	Free Draining Model	Calib Free Draining Model	w/Basin Model
119	49496	20321	20321	-	-	17850	17850	-	-	14918	14918	-	-	7196	7196	-	-	2407	2407	-	-	525	525	-	-
126	50439	20337	20030	-	20043	17836	17633	-	17648	14917	14786	-	14799	7134	7114	-	7134	2381	2353	-	2400	525	522	-	520
127	53506	20405	20189	-	20266	17848	17757	-	17828	14962	14847	-	14942	7092	7005	-	7102	2481	2352	2441	2468	598	539	598	614
133t	6638	3876	3888	-	2921	3412	3401	-	2690	2868	2848	-	2300	1905	1869	-	1639	865	857	-	842	403	451	-	403
133u	54354	20597	20284	-	20337	18105	17833	-	17898	15152	14942	-	14945	7146	6948	-	7055	2473	2348	2449	2479	611	543	602	619
133c	60992	21778	21900	-	21758	19165	19242	-	19144	16039	16053	-	15990	7510	7384	-	7407	2715	2577	2667	2670	769	682	750	732
134t	3860	2323	-	-	-	2048	-	-	-	1726	-	-	-	1021	-	-	-	348	-	-	-	131	-	-	-
134u	62698	22092	22127	-	21992	19363	19438	-	19340	16205	16211	-	16148	7433	7400	-	7435	2778	2596	2746	2778	774	717	764	737
134c	66558	22876	23040	-	22884	20087	20259	-	20136	16787	16896	-	16813	7538	7562	-	7588	2857	2700	2845	2873	808	756	796	714
137	67798	22970	23190	-	23044	20115	20379	-	20267	16750	17001	-	16921	7565	7587	-	7608	2868	2728	2848	2863	835	789	820	765
138	69102	23113	23351	-	23205	20214	20508	-	20389	16837	17095	-	17020	7531	7588	-	7608	2866	2749	2864	2887	842	810	838	775
139	69530	22994	23378	-	23238	20147	20538	-	20427	16830	17116	-	17036	7531	7590	-	7608	2887	2757	2829	2850	858	823	848	775

Table 2-16: Phased Condition PA-1, -2, -3 and -4 Developed Regional Hydrology San Juan Creek Mitigated Flow Comparison Table

Node	Area (ac)	100-year Expected Value Storm Event				50-year Expected Value Storm Event				25-year Expected Value Storm Event				10-year Expected Value Storm Event				5-year Expected Value Storm Event				2-year Expected Value Storm Event			
		Target Value (CFS)	Post Development (CFS)	Variance		Target Value (CFS)	Post Development (CFS)	Variance		Target Value (CFS)	Post Development (CFS)	Variance		Target Value (CFS)	Post Development (CFS)	Variance		Target Value (CFS)	Post Development (CFS)	Variance		Target Value (CFS)	Post Development (CFS)	Variance	
				%	CFS			%	CFS			%	CFS			%	CFS			%	CFS			%	CFS
119	49496	20326	-	-	-	17844	-	-	-	14939	-	-	-	7239	-	-	-	2403	-	-	-	524	-	-	-
126	50439	20352	20043	-1.5	-309	17828	17648	-1.0	-180	14924	14799	-0.8	-126	7178	7134	-0.6	-44	2429	2400	-1.2	-29	533	520	-2.6	-14
127	53506	20460	20266	-1.0	-194	17925	17828	-0.5	-97	14964	14942	-0.1	-22	7159	7102	-0.8	-57	2414	2468	2.2	54	560	614	9.8	55
133u	54354	20361	20337	-0.1	-24	17911	17898	-0.1	-13	14948	14945	-0.0	-3	7221	7055	-2.4	-166	2575	2479	-3.8	-96	638	619	-3.0	-19
133c	60992	21828	21758	-0.3	-70	19143	19144	0.0	1	15972	15990	0.1	18	7374	7407	0.6	33	2758	2670	-3.3	-88	733	732	-0.1	-1
134u	62698	22000	21992	0.0	-8	19284	19340	0.3	56	16080	16148	0.4	68	7265	7435	2.3	170	2702	2778	2.8	78	713	737	3.2	24
134c	66558	22933	22884	-0.2	-49	20118	20136	0.1	18	16770	16813	0.3	43	7373	7588	2.9	215	2736	2873	5.0	137	718	714	-0.7	-4
137	67798	23080	23044	-0.2	-36	20237	20267	0.1	30	16869	16921	0.3	52	7433	7608	2.3	175	2796	2863	2.4	67	732	765	4.5	33
138	69102	23249	23205	-0.2	-44	20380	20389	0.0	9	16983	17020	0.2	37	7412	7608	2.6	196	2791	2887	3.4	96	737	775	5.0	38
139	69530	23299	23238	-0.3	-61	20423	20427	0.0	4	17013	17036	0.1	22	7415	7608	2.6	193	2807	2850	1.95	43	748	776	3.7	28

\*Target values for the 100-, 50-, and 25-year peak discharges are from Table 2-12 of the ROMP while target 10-, 5-, and 2-yr peak discharges are the 2013 Ranch Plan ultimate values from Tables 14-9 to 14-11.

Table 2-17: Ultimate Condition Regional Hydrology San Juan Creek

Node	Area (ac)	100-year Expected Value Storm Event				50-year Expected Value Storm Event				25-year Expected Value Storm Event				10-year Expected Value Storm Event				5-year Expected Value Storm Event				2-year Expected Value Storm Event			
		Single Area Model	Free Draining Model	Calib Free Draining Model	w/Basin Model	Single Area Model	Free Draining Model	Calib Free Draining Model	w/Basin Model	Single Area Model	Free Draining Model	Calib Free Draining Model	w/Basin Model	Single Area Model	Free Draining Model	Calib Free Draining Model	w/Basin Model	Single Area Model	Free Draining Model	Calib Free Draining Model	w/Basin Model	Single Area Model	Free Draining Model	Calib Free Draining Model	w/Basin Model
119	49496	20321	20321	-	-	17850	17850	-	-	14918	14918	-	-	7196	7196	-	-	2407	2407	-	-	525	525	-	-
126	50439	20337	20192	-	20205	17836	17733	-	17748	14917	14831	-	14845	7134	7124	-	7144	2381	2353	-	2360	525	522	-	528
127	52666	20486	20289	-	20371	17920	17808	-	17889	15000	14864	-	14949	7262	7017	7144	7112	2475	2358	2425	2452	599	539	587	603
133t	6638	3876	3888	-	2921	3412	3401	-	2690	2868	2848	-	2300	1905	1869	-	1639	865	857	-	842	403	451	-	403
133u	54418	20747	20435	-	20348	18145	17921	-	17869	15168	14906	-	14932	7240	6960	7178	7068	2540	2363	2498	2559	650	551	638	657
133c	61056	21797	22062	-	21742	19212	19342	-	19095	16052	16108	-	15912	7577	7441	-	7413	2789	2611	2760	2767	798	720	782	722
134t	3860	2323	-	-	-	2052	-	-	-	1726	-	-	-	1021	-	-	-	348	-	-	-	131	-	-	-
134u	62747	22103	22268	-	21935	19372	19511	-	19265	16209	16250	-	16050	7498	7455	-	7427	2836	2628	2766	2767	808	760	797	703
134c	66607	22889	23180	-	22835	20091	20329	-	20054	16787	16934	-	16717	7586	7621	-	7577	2917	2738	2836	2829	843	797	821	736
137	67799	22973	23324	-	22977	20135	20446	-	20174	16752	17035	-	16815	7638	7642	-	7593	2929	2766	2865	2851	843	829	-	726
138	69103	23117	23487	-	23142	20253	20572	-	20294	16841	17128	-	16913	7618	7645	-	7591	2924	2787	2852	2832	877	828	860	774
139	69531	22992	23532	-	23190	20169	20606	-	20337	16832	17161	-	16945	7606	7647	-	7592	2933	2796	2855	2835	884	863	869	752

Table 2-18: Ultimate Condition Regional Hydrology San Juan Creek Comparison Table

Node	Area (ac)	100-year Expected Value Storm Event				50-year Expected Value Storm Event				25-year Expected Value Storm Event				10-year Expected Value Storm Event				5-year Expected Value Storm Event				2-year Expected Value Storm Event			
		Target Value (CFS)	Post Development (CFS)	Variance		Target Value (CFS)	Post Development (CFS)	Variance		Target Value (CFS)	Post Development (CFS)	Variance		Target Value (CFS)	Post Development (CFS)	Variance		Target Value (CFS)	Post Development (CFS)	Variance		Target Value (CFS)	Post Development (CFS)	Variance	
				%	CFS			%	CFS			%	CFS			%	CFS			%	CFS			%	CFS
119	49496	20326	-	-	-	17844	-	-	-	14939	-	-	-	7239	-	-	-	2403		-	-	524	-	-	-
126	50439	20352	20205	-0.7	-147	17828	17748	-0.5	-80	14924	14845	-0.5	-79	7178	7144	-0.5	-34	2429	2360	-2.8	-69	533	528	-1.1	-6
127	52666	20460	20371	-0.4	-89	17925	17889	-0.2	-36	14964	14949	-0.1	-15	7159	7112	-0.7	-47	2414	2452	1.5	38	560	603	7.9	44
133u	54418	20361	20348	-0.1	-13	17911	17869	-0.2	-42	14948	14932	-0.1	-16	7221	7068	-2.2	-153	2575	2559	-0.7	-16	638	657	3.0	19
133c	61056	21828	21742	-0.4	-86	19143	19095	-0.3	-48	15972	15912	-0.4	-60	7374	7413	0.5	39	2758	2767	0.3	9	733	722	-1.5	-11
134u	62747	22000	21935	-0.3	-65	19284	19265	-0.1	-19	16080	16050	-0.2	-30	7265	7427	2.2	162	2702	2767	2.3	65	713	703	-1.4	-10
134c	66607	22933	22835	-0.4	-98	20118	20054	-0.3	-64	16770	16717	-0.3	-53	7373	7577	2.7	204	2736	2829	3.3	93	718	736	2.4	18
137	67799	23080	22977	-0.5	-103	20237	20174	-0.3	-63	16869	16815	-0.3	-54	7433	7593	2.1	160	2796	2851	2.0	55	732	726	-0.8	-6
138	69103	23249	23142	-0.5	-107	20380	20294	-0.4	-86	16983	16913	-0.4	-70	7412	7591	2.3	179	2791	2832	1.5	41	737	774	4.9	37
139	69531	23299	23190	-0.5	-109	20423	20337	-0.4	-86	17013	16945	-0.4	-68	7415	7592	2.4	177	2807	2835	1.0	28	748	752	0.4	4

\*Target values for the 100-, 50-, and 25-year peak discharges are from Table 2-12 of the ROMP while target 10-, 5-, and 2-yr peak discharges are the 2013 Ranch Plan ultimate values from Tables 14-9 to 14-11.

**Table 3-1: Gobernadora Hydraulic Model Flowrates**

Condition	Node	Cross-Section	Storm Event Flowrate (cfs)					
			2-year EV	5-year EV	10-year EV	25-year EV	50-year EV	100-year EV
Existing	13222	14717	386	839	1847	2693	3155	3627
	13308	6873	368	813	1868	2845	3399	3826
Ultimate w/Basins	13222	14717	377	754	1573	2037	2282	2530
	13308	6873	404	805	1695	2289	2611	2849

**Table 3-2: San Juan Hydraulic Model Flowrates**

Condition	Node	Cross-Section	Storm Event Flowrate (cfs)					
			2-year EV	5-year EV	10-year EV	25-year EV	50-year EV	100-year EV
Existing	126	52124	525	2380	7145	14924	17828	20352
	127	45373	514	2314	6990	14964	17925	20460
	133T	2096	354	786	1875	2942	3500	3986
	133U	39524	515	2308	6914	14948	17911	20361
	133C	39298	583	2458	7172	15972	19143	21828
	134U	35120	582	2415	7148	16080	19284	22000
	134C	33352	610	2525	7275	16770	20118	22933
	137	27635	617	2501	7267	16869	20237	23080
	138	22946	625	2510	7270	16983	20380	23249
	139	19802	640	2531	7270	17013	20423	23299
Phased PA-1, -2, -3, -4	126	52124	520	2400	7134	14799	17648	20043
	127	45373	614	2468	7102	14942	17828	20266
	133T	2096	403	842	1639	2300	2690	2921
	133U	39524	619	2479	7055	14945	17989	20337
	133C	39298	732	2670	7407	15990	19144	21758
	134U	35120	737	2778	7435	16148	19340	21992
	134C	33352	714	2873	7588	16813	20136	22884
	137	27635	765	2863	7608	16921	20267	23044
	138	22946	775	2887	7608	17020	20390	23205
	139	19802	775	2850	7608	17036	20427	23238
Phased PA-1, -2, -3	126	52124	518	2345	7101	14798	17683	20080
	127	45373	611	2457	7083	14929	17838	20271
	133T	2096	403	842	1639	2300	2690	2921
	133U	39524	614	2469	7033	14904	17859	20280
	133C	39298	732	2734	7374	15941	19102	21704
	134U	35120	724	2763	7391	16101	19301	21935
	134C	33352	746	2859	7544	16768	20098	22830
	137	27635	775	2852	7563	16875	20227	22988
	138	22946	774	2873	7565	16977	20354	23151
	139	19802	774	2846	7566	16992	20391	23185
Ultimate w/Basins	126	52124	528	2360	7144	14845	17748	20205
	127	45373	603	2452	7112	14949	17889	20371
	133T	2096	403	842	1639	2300	2690	2921
	133U	39524	657	2559	7068	14932	17869	20348
	133C	39298	722	2767	7413	15912	19095	21742
	134U	35120	703	2767	7427	16050	19265	21935
	134C	33352	736	2829	7577	16717	20054	22835
	137	27635	726	2851	7593	16815	20174	22977
	138	22946	774	2832	7591	16913	20294	23142
	139	19802	752	2835	7592	16945	20337	23190

Table 3-3: Gobernadora HEC-RAS 100-year EV – Mixed Flow Regime Comparison

Parameter	Existing 100-year					Ultimate 100-year				
	Flow Depth (ft)	Velocity (ft/s)	Flow area (Sq. ft)	Top Width (ft)	Froude #	Flow Depth (ft)	Velocity (ft/s)	Flow area (Sq. ft)	Top Width (ft)	Froude #
Minimum	0.9	0.98	293.4	47.8	0.1	0.1	0.8	172.7	41.9	0.1
Maximum	18.0	14.2	4631.9	973.4	1.1	17.1	16.5	3768.1	956.2	1.9
Average	5.9	5.3	966.3	453.9	0.5	5.2	5.1	762.1	419.3	0.6



**Table 3-4: Gobernadora HEC-RAS 100-year EV – Subcritical Flow Regime Comparison**

Parameter	Existing 100-year					Ultimate 100-year				
	Flow Depth (ft)	Velocity (ft/s)	Flow area (Sq. ft)	Top Width (ft)	Froude #	Flow Depth (ft)	Velocity (ft/s)	Flow area (Sq. ft)	Top Width (ft)	Froude #
Minimum	0.9	1.0	293.4	47.8	0.1	0.1	0.8	223.9	41.9	0.1
Maximum	18.0	13.0	4631.9	973.4	1.0	17.1	12.7	3768.1	956.2	1.1
Average	5.9	5.2	970.9	455.3	0.5	5.2	4.9	767.0	420.1	0.5

Table 3-5: San Juan Creek HEC-RAS 100-year EV – Mixed Flow Regime Comparison

Parameter	Existing 100-year					Phase No PA-4&5 100-year					Phase No PA5 100-year					Ultimate 100-year				
	Flow Depth (ft)	Velocity (ft/s)	Flow area (Sq. ft)	Top Width (ft)	Froude #	Flow Depth (ft)	Velocity (ft/s)	Flow area (Sq. ft)	Top Width (ft)	Froude #	Flow Depth (ft)	Velocity (ft/s)	Flow area (Sq. ft)	Top Width (ft)	Froude #	Flow Depth (ft)	Velocity (ft/s)	Flow area (Sq. ft)	Top Width (ft)	Froude #
Minimum	4.9	2.1	958.5	68.8	0.1	4.8	2.1	959.2	68.9	0.1	4.8	2.1	959.2	68.9	0.1	4.8	2.1	959.2	68.9	0.1
Maximum	30.8	25.7	9938.2	1538.9	2.1	30.8	25.7	9878.3	1538.9	1.0	30.8	25.7	9877.7	1538.9	2.1	30.8	25.7	9893.3	1538.9	2.1
Average	14.3	7.6	3923.2	540.8	0.5	14.1	7.7	3856.2	526.6	0.4	13.5	7.7	3858.4	526.8	0.5	14.1	7.7	3860.5	526.9	0.5

Table 3-6: San Juan Creek HEC-RAS 100-year EV – Subcritical Flow Regime Comparison

Parameter	Existing 100-year					Phase No PA-4&5 100-year					Phase No PA5 100-year					Ultimate 100-year				
	Flow Depth (ft)	Velocity (ft/s)	Flow area (Sq. ft)	Top Width (ft)	Froude #	Flow Depth (ft)	Velocity (ft/s)	Flow area (Sq. ft)	Top Width (ft)	Froude #	Flow Depth (ft)	Velocity (ft/s)	Flow area (Sq. ft)	Top Width (ft)	Froude #	Flow Depth (ft)	Velocity (ft/s)	Flow area (Sq. ft)	Top Width (ft)	Froude #
Minimum	6.7	2.1	958.5	68.8	0.1	6.3	2.1	959.2	68.9	0.1	6.4	2.1	959.2	68.9	0.1	6.3	2.1	959.2	68.9	0.1
Maximum	30.8	21.2	9938.2	1538.9	1.0	30.8	21.2	9879.3	1538.9	1.0	30.8	21.2	9877.7	1538.9	1.0	30.8	21.2	9893.3	1538.9	1.0
Average	14.3	7.5	3940.4	541.25	0.4	14.1	7.5	3873.0	527.1	0.4	13.5	7.5	3875.2	527.3	0.4	14.1	7.5	3896.1	532.1	0.4

**Table 4-1: Gobernadora Canyon inflow points and corresponding subareas**

HEC-RAS XS	Hydrology Node	Subareas
14183	13222	S31, S32
2096	13305	HZ-31100, HZ-31101, HZ-31102, HZ-31103, HZ-31104, HZ-31105, HZ-31106, HZ-31107, HZ-31108, HZ-31109, HZ-31110, HZ-31111, S33-01, HZ-206, S33-02, HZ-31112, HZ-207, HZ-31113, S33-05.5, HZ-31114, S33-05.6, HZ-31115
544	13308	HZ-31116, S33-06, HZ-208, HZ-31010, HZ-31010.2, HZ-31113.2

**Table 4-2: Gobernadora Canyon Sub-watershed Regional Coefficient (b)**

Event	Node 132C	Node 133T	$\beta$
100	0.459	0.455	0.455
50	0.459	0.455	0.455
25	0.458	0.454	0.454
10	0.460	0.453	0.453
5	0.448	0.442	0.442
2	0.435	0.429	0.429
-		<b>Max</b>	0.455
-	-	<b>Min</b>	0.429

Table 4-3: Chiquita Canyon Watershed Regional Coefficient (b)

Event	Ultimate Chiquita Node 134t ( $\beta$ )
100	0.456
50	0.454
25	0.452
10	0.450
5	0.428
2	0.404
<b>Max</b>	<b>0.456</b>
<b>Min</b>	<b>0.404</b>

**Table 4-4: Gobernadora Canyon Existing Conditions Sediment Yield**

Q (cfs)	132C	133T
	tons	
1.00	2	5
5.00	20	31
10.00	34	96
50.00	107	317
100.00	326	524
250.00	596	1841
500.00	900	2877
1000.00	1260	4446
3000.00	2157	8022

**Table 4-5: Gobernadora Canyon Ultimate Conditions Sediment Yield**

Q (cfs)	132C	133T
	tons	
1.00	2	2
5.00	20	15
10.00	34	44
50.00	107	143
100.00	328	278
250.00	602	857
500.00	909	1306
1000.00	1274	1960
3000.00	2184	3522



**Table 4-6: Chiquita Canyon Sediment Yield**

Q (cfs)	Existing	Ultimate
	Node 134T	
	Tons	
1.00	4	4
5.00	20	19
10.00	57	52
50.00	174	170
100.00	314	318
250.00	912	904
500.00	1440	1379
1000.00	2152	2033
3000.00	3835	3552

**Table 4-7: San Juan Creek Sediment Yield**

Q (cfs)	Existing	Ultimate
	Node 119T	
	Tons	
1.00	21	21
5.00	135	135
10.00	283	283
50.00	1326	1326
100.00	2314	2314
500.00	10975	10975
1000.00	23326	23326
25000.00	400771	400771
50000.00	608124	608124

Table 4-8: HEC6T available sediment transport functions and their original developed parameter range (USACE, 2003)

Available HEC6T sediment transport relationships	Data Source	Median Sediment Size (mm)	Sediment Size Range (mm)	Velocity (fps)	Depth (ft)	Effective Width (ft)	Energy Gradient (ft/ft)
Toffaleti (1968)	River	0.095 - 0.76	0.062 - 4	0.7 - 7.8	0.7 - 56.7	63 - 3,640	0.000002 - 0.0011
	Flume	0.91 - 0.45	0.062 - 4	0.7 - 6.3	0.07 - 1.1	0.8 - 8	0.00014 - 0.019
Meyer-Peter and Muller (1948)	Flume	-	0.4 - 29	1.2 - 9.4	0.03 - 3.9	0.5 - 6.6	0.0004 - 0.02
Schoklitsch (1930)	Flume	-	0.3 - 29	0.8 - 4.5	0.037 - 0.74	0.23 - 2	0.00012 - 0.055
Toffaleti (1968) and MPM (1948), combined		see individual listings for Toffaleti (1968) and MPM (1948)					
Toffaleti (1968) and Schoklitsch (1938), combined		see individual listings for Toffaleti (1968) and Schoklitsch (1938)					
Yang (1973, 1984)	River	-	0.15 - 1.7	0.8 - 6.4	0.04 - 50	0.44 - 1,750	0.000043 - 0.028
	Flume	-	2.5 - 7	1.4 - 5.1	0.08 - 0.72	0.7 - 1.3	0.0012 - 0.029
Duboy (Brown, 1950)	Flume	0.1 - 4	-	-	-	-	-
Einstein (1950)	Flume	-	0.78 - 29	0.9 - 9.4	0.03 - 3.6	0.66 - 6.6	0.00037 - 0.018
Ackers-White (1973)	Flume	-	0.04 - 7	0.07 - 7.1	0.01 - 1.4	0.23 - 4	0.00006 - 0.037
Colby (1964)	River	-	0.18 - 0.7	0.7 - 8.0	0.2 - 57	0.88 - 3,000	0.000031 - 0.01
Laursen (1958), modified (Copeland and Thomas, 1989)	River	0.08 - 0.7	-	0.068 - 7.8	0.67 - 54	63 - 3,640	0.0000021 - 0.0018
	Flume	0.011 - 29	-	0.7 - 9.4	0.03 - 3.6	0.25 - 6.6	0.00025 - 0.025
Laursen (1958), modified (Madden, 1963)		data not available					
Laursen (1958), modified (Madden, 1985; 1993)	River	-	0.04 - 4.8	0.85 - 7.7	0.25 - 54	3 - 3,640	0.0001 - 0.1
Engelund and Hansen		data not available					
Parker (1990)	River	18 - 28	2 - 102	2.6 - 3.7	1 - 1.5	16 - 20	0.0097 - 0.011
Ackers-White (1973), modified (Proffitt-Sutherland, 1983)	River	-	2.9 - 12	2 - 3.4	0.35 - 0.84	2 - 2	0.003 - 0.003
Brownlie (1981)	River	-	0.086 - 1.4	1.2 - 7.9	0.35 - 57	6.6 - 3,640	0.00001 - 0.0018
	Flume	-	0.086 - 1.4	0.7 - 6.6	0.11 - 1.8	0.83 - 8	0.00027 - 0.017

**Table 4-9: San Juan Creek Downstream Hydraulic Control at XS 18111**

<b>Q (cfs)</b>	<b>WSE (ft)</b>	<b>Flow Depth (ft)</b>
0	82.72	0.00
1,000	86.79	4.07
2,000	87.79	5.07
3,000	88.79	6.07
4,000	89.79	7.07
5,000	90.78	8.06
6,000	91.38	8.66
7,000	91.98	9.26
8,000	92.57	9.85
9,000	93.17	10.45
10,000	93.77	11.05
11,000	94.12	11.40
12,000	94.47	11.75
13,000	94.81	12.09
14,000	95.16	12.44
15,000	95.51	12.79
16,000	95.86	13.14
17,000	96.21	13.49
18,000	96.55	13.83
19,000	96.90	14.18
20,000	97.25	14.53
21,000	97.45	14.73
22,000	97.65	14.93
23,000	97.84	15.12
24,000	98.04	15.32
25,000	98.24	15.52
26,000	98.44	15.72
27,000	98.64	15.92
28,000	98.83	16.11
29,000	99.03	16.31
30,000	99.23	16.51

Table 4-10: Gobernadora Long-term Discharge Adjustment Factors

Node Translation	Adjustment Factor	
	Existing Conditions	Ultimate-Mitigated Conditions
139 to 133c	0.92	0.92
133C to 133t	0.118	0.118
133t to 132u	0.7017	0.7017

Table 4-11: San Juan Creek Long-term Discharge Adjustment Factors

Node Translation	Adjustment Factor		
	Existing Conditions	Phased-Mitigated Conditions	Ultimate-Mitigated Conditions
139 to 137	0.98	0.98	0.98
139 to 134C	0.97	0.97	0.97
139 to 134u	0.93	0.93	0.93
139 to 133c	0.92	0.92	0.92
139 to 133u	0.86	0.86	0.86
139 to 127	0.85	0.84	0.84
139 to 126	0.84	0.84	0.83

Table 5-1: PA-3 Water Quality Summary

Watershed	Sub Watershed (I.D.)	Area (AC) <sup>a</sup>	Impervious (%)	DCV (AF)
A <sup>c</sup>	3A-1 <sup>b</sup>	32.6	77%	1.78
	3A-3 <sup>b</sup>	27.0	65%	1.56
	3A-4 <sup>b</sup>	167.3	65%	9.64
	3A-5 <sup>b</sup>	97.5	55%	4.10
	3A-6 <sup>b</sup>	60.7	55%	2.55
	3A-7 <sup>b</sup>	66.9	55%	2.81
	3A-8a	25.4	22%	0.61
	3A-12	3.2	4%	0.04
B <sup>c</sup>	3B-5	35.6	44%	1.55
C <sup>c</sup>	C1	681.3	56%	28.62
	C2	462.7	49%	17.62
	C3	37.4	61%	1.69
	C4	73.8	59%	3.25
	C5	9.5	52%	0.38
	C6	8.7	24%	0.21
	C7	31.6	80%	1.76
<b>TOTAL:</b>		<b>1821.0</b>	<b>55%</b>	<b>78.16</b>

<sup>a</sup> The water quality areas do not include offsite tributaries.

<sup>b</sup> Subarea A values are from the 2022 Conceptual PA-3&4 WQMP, approved in December of 2022.

<sup>c</sup> Figure 5-1 and Exhibit 3b were further refined recently, which led to minor changes in areas, and values, when compared to the 2022 Conceptual PA-3&4 WQMP, approved in December of 2022. The DCV values included in the 2022 Conceptual PA-3&4 WQMP are more conservative. Additionally, future Rough Grade WQMPs will be developed and approved based on the 2022 Conceptual PA-3&4 WQMP, and will include a regional BMP tracking form at the end/close-out of a Rough Grade "A" TTM to ensure adequate capacity. See "Updated Guidelines for the Preparation of Water Quality Management Plans for the Ranch Plan Planned Community" (dated December 17, 2019) for additional information.

**Table 5-2: Gobernadora Canyon LID Basin Summary**

Basin ID	Tributary Area (ac)	Runoff Coefficient	Rainfall Intensity (in/ hr)	LID Design Storm Depth (in)	Water Quality Flow (cfs)	LID Design Volume (ac-ft)	Design Types	BMP Invert Area Required (ac)	BMP Invert Area Available (ac)	Ponding Depth (ft)	Draw-down time (hrs)	Design Infiltration Rate (in/ hr)
3A-1	32.57	0.73	0.2625	0.90	6.23	1.78	Biofiltration	0.75	0.78	1.5	7.2	N/A
3A-3	27.00	0.64	0.2625	1.08	4.50	1.54	Infiltration	0.36	0.39	4.25	70.1	0.73
3A-4	167.31	0.64	0.2625	1.08	27.89	9.56	Infiltration	2.25	2.33	4.25	70.1	0.73
3A-5	97.53	0.56	0.2625	0.90	14.22	4.06	Biofiltration	1.58	1.71	1.5	7.2	N/A
3A-6	60.73	0.56	0.2625	0.90	8.86	2.53	Biofiltration	0.99	1.18	1.5	7.2	N/A
3A-7	66.88	0.56	0.2625	0.90	9.75	2.79	Biofiltration	1.08	1.57	1.5	7.2	N/A
3A-8a	25.35	0.32	0.2625	0.90	2.12	0.61	Biofiltration	0.17	1.01	1.5	7.2	N/A
3A-12	3.17	0.18	0.2625	0.90	0.15	0.04	Biofiltration	0.004	0.13	1.5	7.2	N/A

Note: A factor of safety was applied to the measured infiltration rate to generate the design infiltration rate. The safety factors were determined by Worksheet 3 of the TGD and are included in Appendix M.



Table 5-3: San Juan Creek LID Basin Summary

Basin ID	Tributary Area (ac)	Runoff Coefficient	LID Design Storm Depth (in)	LID Design Volume (ac-ft)	Design Types	BMP Invert Area Required (ac)	BMP Invert Area Available (ac)	Ponding Depth (ft)	Draw-down time (hrs)	Design Infiltration Rate (in/ hr)
3B-5	35.64	0.48	1.08	1.55	Infiltration <sup>1</sup>	0.49	0.58	3.2	71.3	0.53
3C-2	1,304.88	0.55	0.89 <sup>3</sup>	53.53	Infiltration <sup>2</sup>	5.76	6.99 <sup>3</sup>	9.3 <sup>3</sup>	22.3 <sup>3</sup>	5.00 <sup>3</sup>
4E-2	171.10	0.47	0.90	5.97	Infiltration	5.97	5.99	1.0	34.7	0.35
4F-2	116.19	0.69	1.08	7.18	Infiltration	3.59	3.63	2.0	69.5	0.35

Note: A factor of safety was applied to the measured infiltration rate to generate the design infiltration rate. The safety factors were determined by Worksheet 3 of the TGD and are included in Appendix M.

<sup>1</sup>Infiltration basin has been oversized for the drainage area as shown in this report for anticipation of changes in drainage pattern and land use in the near future.

<sup>2</sup> Current basin grading shows that the basin has a capacity of approximately 60 ac ft. The additional capacity will allow for changes to the land use and/ or the basin's tributary drainage area.

<sup>3</sup> Values are from the 2022 Conceptual PA-3&4 WQMP, approved in December of 2022.

**Table 5-4: Gobernadora Canyon Annual Water Balance**

Total Average Annual Water Balance Volume (ac-ft)					
POC	Existing Node	Proposed Basin ID	Predeveloped	Inflow to Mitigated	Mitigated
G1	30311		4.91		
G2	30418	3A-1	37.28	28.86	22.04
G3	30538	3A-3, A-4	112.87	152.46	60.64
G4	30560	3A-2, 3A-5, 3A-6	105.94	121.26	123.03
G5	30608	3A-8a	7.53	18.43	14.67
G6	30711, 30809, 30918	3A-9, 3A-10, 3A-11, 3A-12	94.82	130.40	117.82
G7	31010		17.21	3.63	2.92
<b>Total</b>			<b>380.54</b>	<b>455.05</b>	<b>341.12</b>

Table 5-5: San Juan Creek Annual Water Balance

Total Average Annual Water Balance Volume (ac-ft)					
POC	Existing Node	Proposed Basin ID	Predeveloped	Inflow to Mitigated	Mitigated
SJ1	31113, 31215	3B-1, 3B-2, 3B-4, 3B-5	175.04	69.35	48.49
SJ2	31310, 31420, 31510, 31613	3C-1A, 3C-1B, 3C-1C, 3C-2, 3C-3, 3C-5	303.28	1130.77	315.60
SJ3	31720, 31821, 40313	4E-1, 4E-2	124.66	257.33	58.70
SJ4	40453, 40519	4F-1, 4F-2	59.20	238.26	49.34
<b>Total</b>			<b>662.18</b>	<b>1,695.71</b>	<b>472.13</b>

Table 5-6: Volume Mitigation

Stream	100-year Expected Value Storm Event				50-year Expected Value Storm Event				25-year Expected Value Storm Event				10-year Expected Value Storm Event				5-year Expected Value Storm Event				2-year Expected Value Storm Event			
	Existing (ac-ft)	Ultimate (ac-ft)	Required Volume Mitigation (ac-ft)	Volume Mitigated (ac-ft)	Existing (ac-ft)	Ultimate (ac-ft)	Required Volume Mitigation (ac-ft)	Volume Mitigated (ac-ft)	Existing (ac-ft)	Ultimate (ac-ft)	Required Volume Mitigation (ac-ft)	Volume Mitigated (ac-ft)	Existing (ac-ft)	Ultimate (ac-ft)	Required Volume Mitigation (ac-ft)	Volume Mitigated (ac-ft)	Existing (ac-ft)	Ultimate (ac-ft)	Required Volume Mitigation (ac-ft)	Volume Mitigated (ac-ft)	Existing (ac-ft)	Ultimate (ac-ft)	Required Volume Mitigation (ac-ft)	Volume Mitigated (ac-ft)
Gobernadora	93.5	86.2	-	17.4	80.5	77.7	-	17.4	67.3	66.9	-	17.4	48.8	53.4	-	17.4	24.5	32.9	-	17.4	9.7	19.5	-	17.4
San Juan Creek	259.8	494.6	-	214.0	238.8	445.0	-	195.9	191.4	388.5	-	192.6	139.4	304.9	-	188.1	64.9	189.7	-	181.8	26.1	114.6	-	117.3
Total	353.3	580.9	227.6	231.4	319.3	522.7	203.5	213.3	258.7	455.5	196.8	210.0	188.2	358.3	170.1	205.5	89.4	222.7	133.3	199.2	35.8	134.1	98.3	134.7

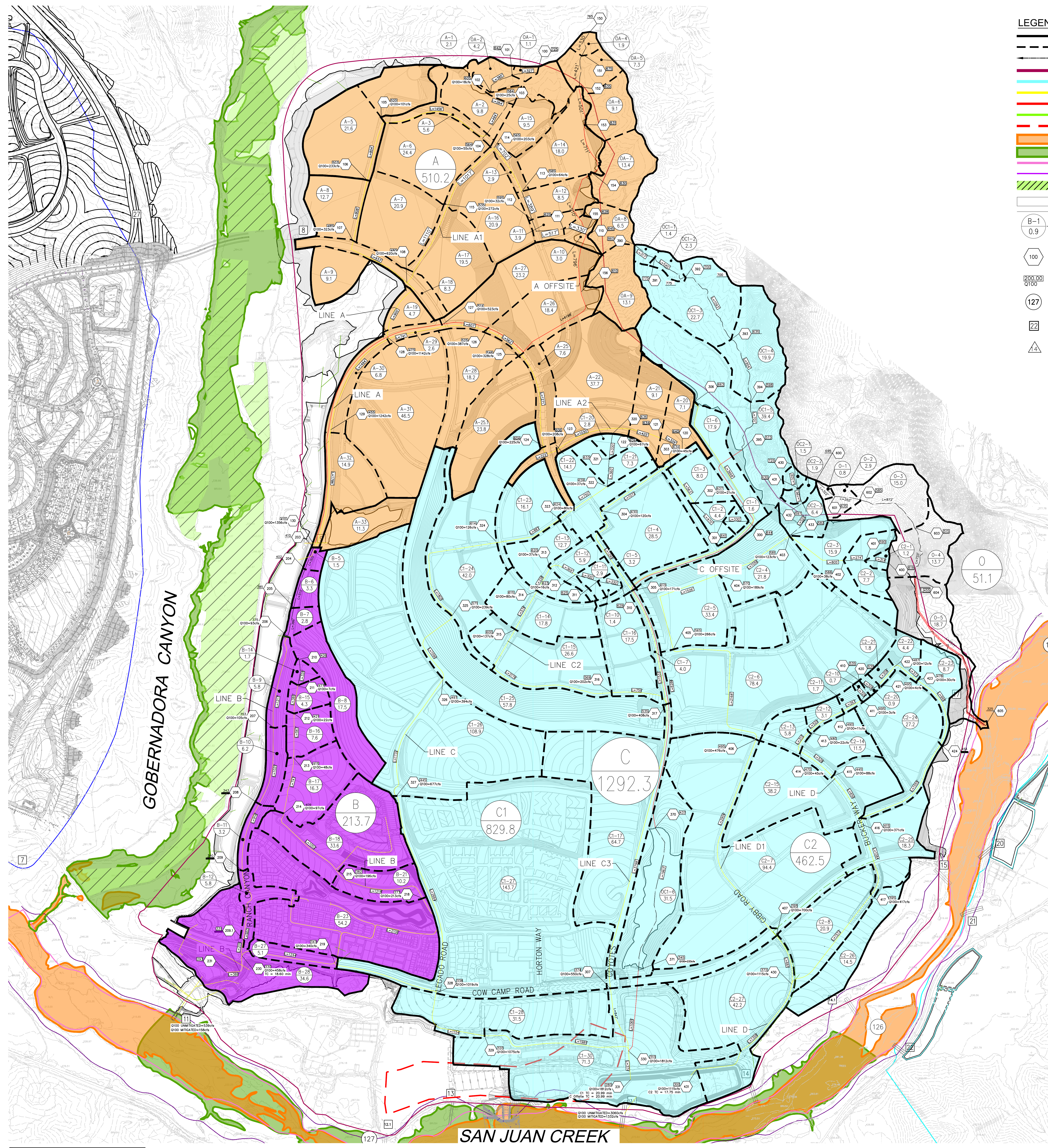
Table 7-1: Regional Discharge Comparison

Node	PA-3&4 Ultimate Area (ac)	100-year Expected Value Storm Event				50-year Expected Value Storm Event				25-year Expected Value Storm Event				10-year Expected Value Storm Event				5-year Expected Value Storm Event				2-year Expected Value Storm Event			
		PA-3&4 ROMP Existing	PA-2 ROMP Ultimate	Ranch Plan ROMP	PA-3&4 Ultimate Conditions <sup>1</sup>	PA-3&4 ROMP Existing	PA-2 ROMP Ultimate	Ranch Plan ROMP	PA-3&4 Ultimate Conditions <sup>1</sup>	PA-3&4 ROMP Existing	PA-2 ROMP Ultimate	Ranch Plan ROMP	PA-3&4 Ultimate Conditions <sup>1</sup>	PA-3&4 ROMP Existing	PA-2 ROMP Ultimate	Ranch Plan ROMP	PA-3&4 Ultimate Conditions <sup>1</sup>	PA-3&4 ROMP Existing	PA-2 ROMP Ultimate	Ranch Plan ROMP	PA-3&4 Ultimate Conditions <sup>1</sup>	PA-3&4 ROMP Existing	PA-2 ROMP Ultimate	Ranch Plan ROMP	PA-3&4 Ultimate Conditions <sup>1</sup>
		Existing	w/Basin Model	w/Basin Model	w/Basin Model	Existing	w/Basin Model	w/Basin Model	w/Basin Model	Existing	w/Basin Model	w/Basin Model	w/Basin Model	Existing	w/Basin Model	w/Basin Model	w/Basin Model	Existing	w/Basin Model	w/Basin Model	w/Basin Model	Existing	w/Basin Model	w/Basin Model	w/Basin Model
119	49496	20326	-	20326 <sup>2</sup>	20321 <sup>2</sup>	17844	-	17837 <sup>2</sup>	17850 <sup>2</sup>	14939	-	14921 <sup>2</sup>	14918 <sup>2</sup>	7239	-	7216 <sup>2</sup>	7196 <sup>2</sup>	2403	-	2409 <sup>2</sup>	2407 <sup>2</sup>	534	-	524 <sup>2</sup>	525 <sup>2</sup>
126	50439	20352	-	20303	20205	17828	-	17811	17748	14924	-	14898	14845	7145	-	7178	7144	2380	-	2429	2360	525	-	534	528
127	52666	20460	-	20283	20371	17925	-	17756	17889	14964	-	14875	14949	6990	-	7159	7112	2314	-	2414	2452	514	-	559	603
133t	6638	3986	2800	3085	2921	3500	2514	2761	2690	2942	2179	2371	2300	1875	1480	1649	1639	786	671	836	842	354	275	417	403
133u	54418	20361	20110	20260	20348	17911	17648	17793	17869	14948	14753	15028	14932	6914	6999	7221	7068	2308	2523	2575	2559	515	643	638	657
133c	61056	21828	21110	21162	21742	19143	18541	18610	19095	15972	15477	15566	15912	7172	7152	7374	7413	2458	2568	2758	2767	583	657	733	722
134t	3860	2415	2262	2422	-	2124	1984	2128	-	1792	1666	1790	-	1039	1003	1103	-	329	317	430	-	121	122	191	-
134u	62747	22000	21316	21310	21935	19284	18708	18723	19265	16080	15618	15657	16050	7148	7162	7265	7427	2415	2629	2702	2767	582	651	713	703
134c	66607	22933	22123	22157	22835	20118	19415	19470	20054	16770	16203	16274	16717	7275	7263	7373	7577	2525	2651	2736	2829	610	672	718	736
137	67799	23080	22274	22352	22977	20237	19534	19634	20174	16869	16299	16415	16815	7267	7275	7433	7593	2501	2653	2796	2851	617	682	732	726
138	69103	23249	22443	22504	23142	20380	19666	19761	20294	16983	16400	16513	16913	7270	7276	7412	7591	2510	2667	2791	2832	625	674	737	774
139	69531	23299	22492	22553	23190	20423	19700	19802	20337	17013	16432	16549	16945	7270	7276	7415	7592	2531	2678	2807	2835	640	679	748	752

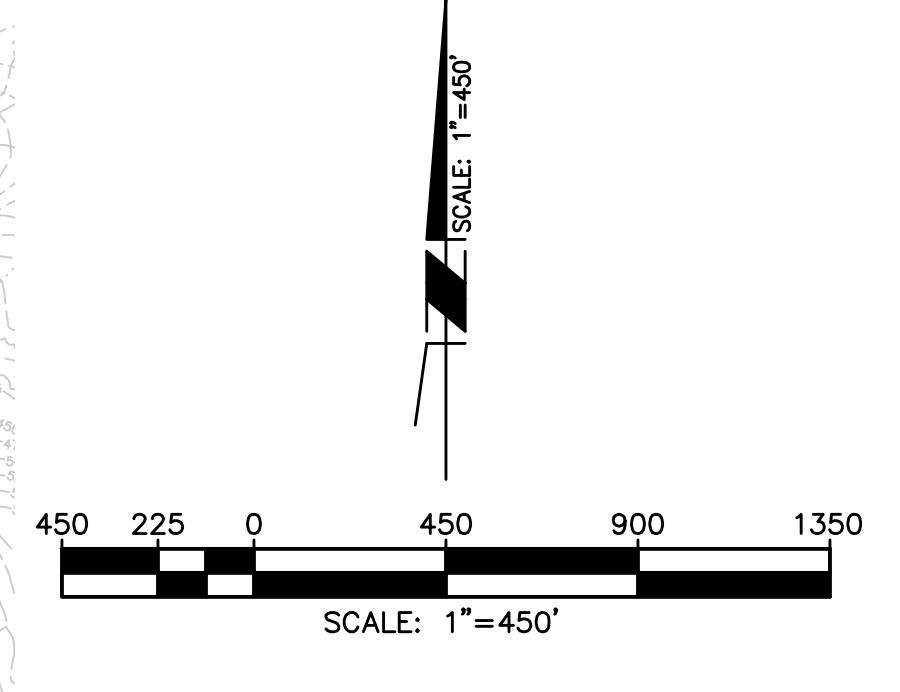
<sup>1</sup>Ultimate Conditions (with basin model) shows the results of the PA-3&4 ROMP regional complex hydrology analysis.

<sup>2</sup>Discharge is selected from the higher discharge between the Single Area and Free Draining models.

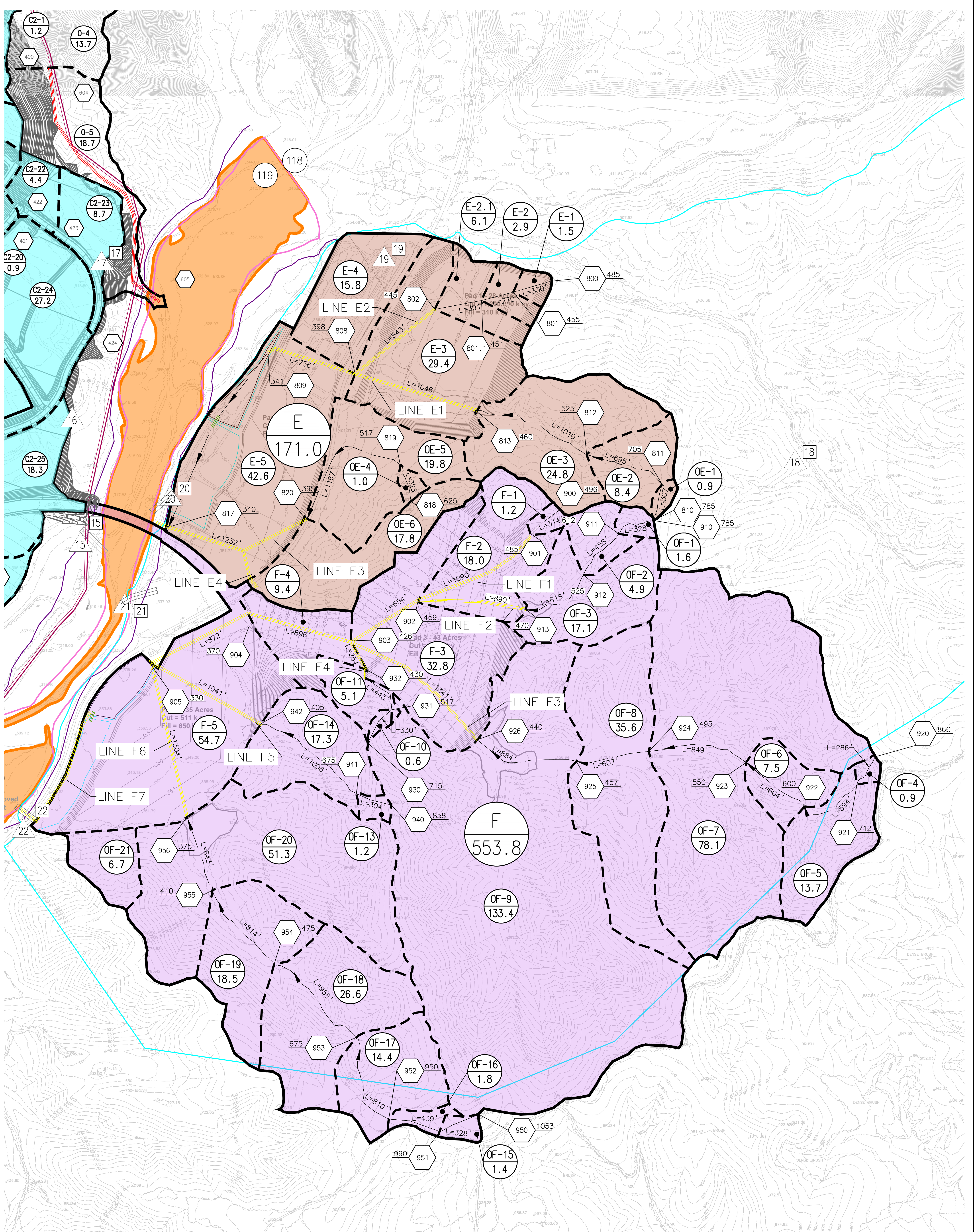




- LEGEND**
- DRAINAGE BOUNDARY
  - SUBAREA BOUNDARY
  - FLOW PATH
  - PA3 BOUNDARY
  - PA4 BOUNDARY
  - FLOOD CONTROL STORM DRAIN
  - OFFSITE STORM DRAIN
  - WATER QUALITY STORM DRAIN
  - GOOD INFILTRATION AREA
  - 10-YR FLOODPLAIN
  - 100-YR PROPOSED FLOODPLAIN
  - SEVERE EROSION
  - LONG TERM EROSION
  - GERA
  - PRELIMINARY OUTLET LOCATION
  - SUBAREA DESIGNATION AREA (ACRES)
  - HYDROLOGY NODE
  - NODE ELEVATION/Q 100-YEAR HC
  - REGIONAL NODE
  - 2018 PROPOSED OUTLET NUMBER
  - 2013 ROMP OUTLET NUMBER

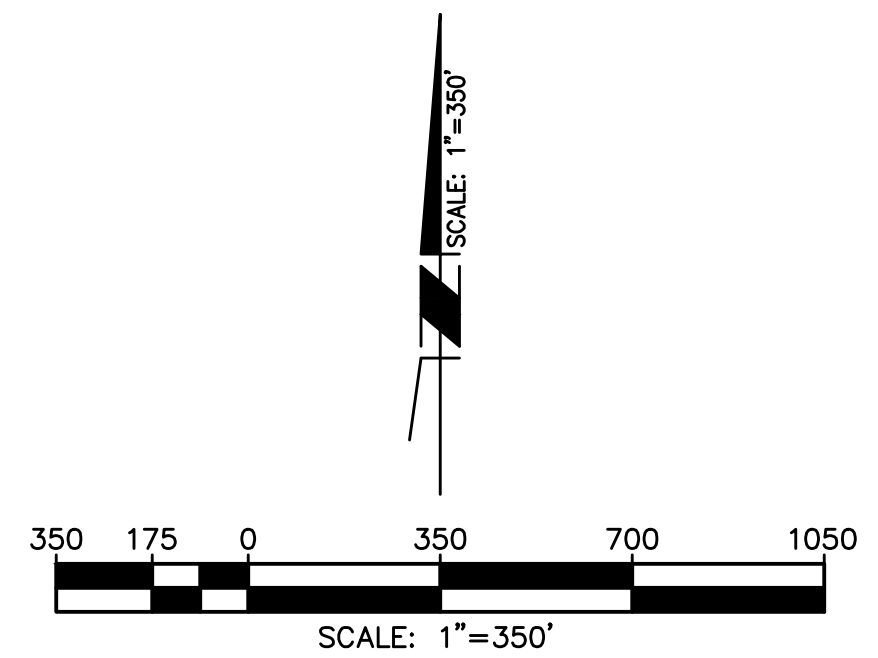






**LEGEND**

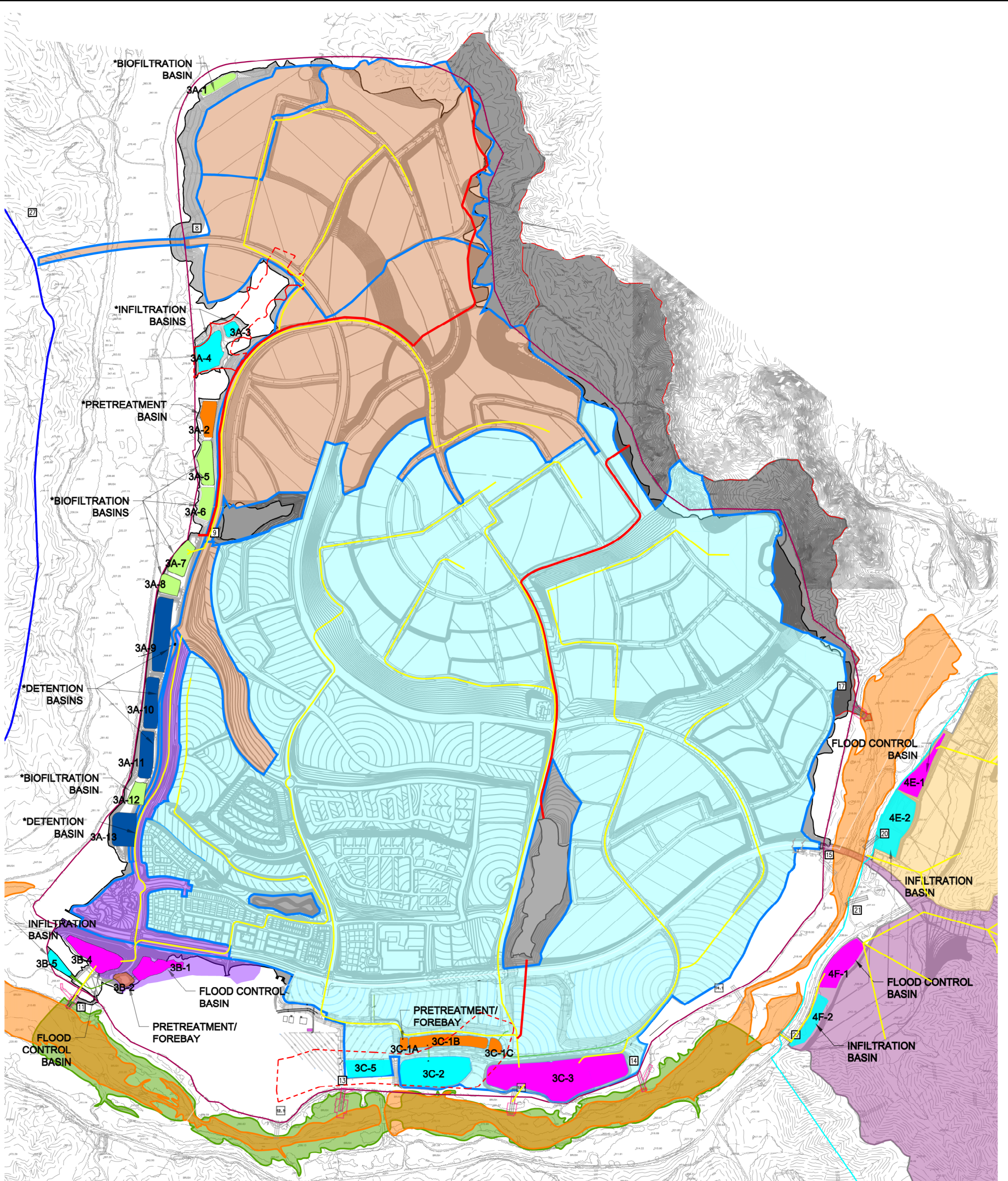
- |  |                                     |  |                             |
|--|-------------------------------------|--|-----------------------------|
|  | DRAINAGE BOUNDARY                   |  | PA3 BOUNDARY                |
|  | SUBAREA BOUNDARY                    |  | PA4 BOUNDARY                |
|  | FLOW PATH                           |  | FLOOD CONTROL STORM DRAIN   |
|  | SUBAREA DESIGNATION<br>AREA (ACRES) |  | OFFSITE STORM DRAIN         |
|  | HYDROLOGY NODE                      |  | WATER QUALITY STORM DRAIN   |
|  | NODE ELEVATION                      |  | 10-YR FLOODPLAIN            |
|  | REGIONAL NODE                       |  | 100-YR PROPOSED FLOODPLAIN  |
|  | 2018 PROPOSED OUTLET NUMBER         |  | SEVERE EROSION              |
|  | 2013 ROMP OUTLET NUMBER             |  | LONG TERM EROSION           |
|  |                                     |  | PRELIMINARY OUTLET LOCATION |

















**Michael Baker**  
INTERNATIONAL

**EXHIBIT 2**  
**RANCHO MISSION VIEJO**  
**PA-4 DEVELOPMENT LOCAL HYDROLOGY MAP**

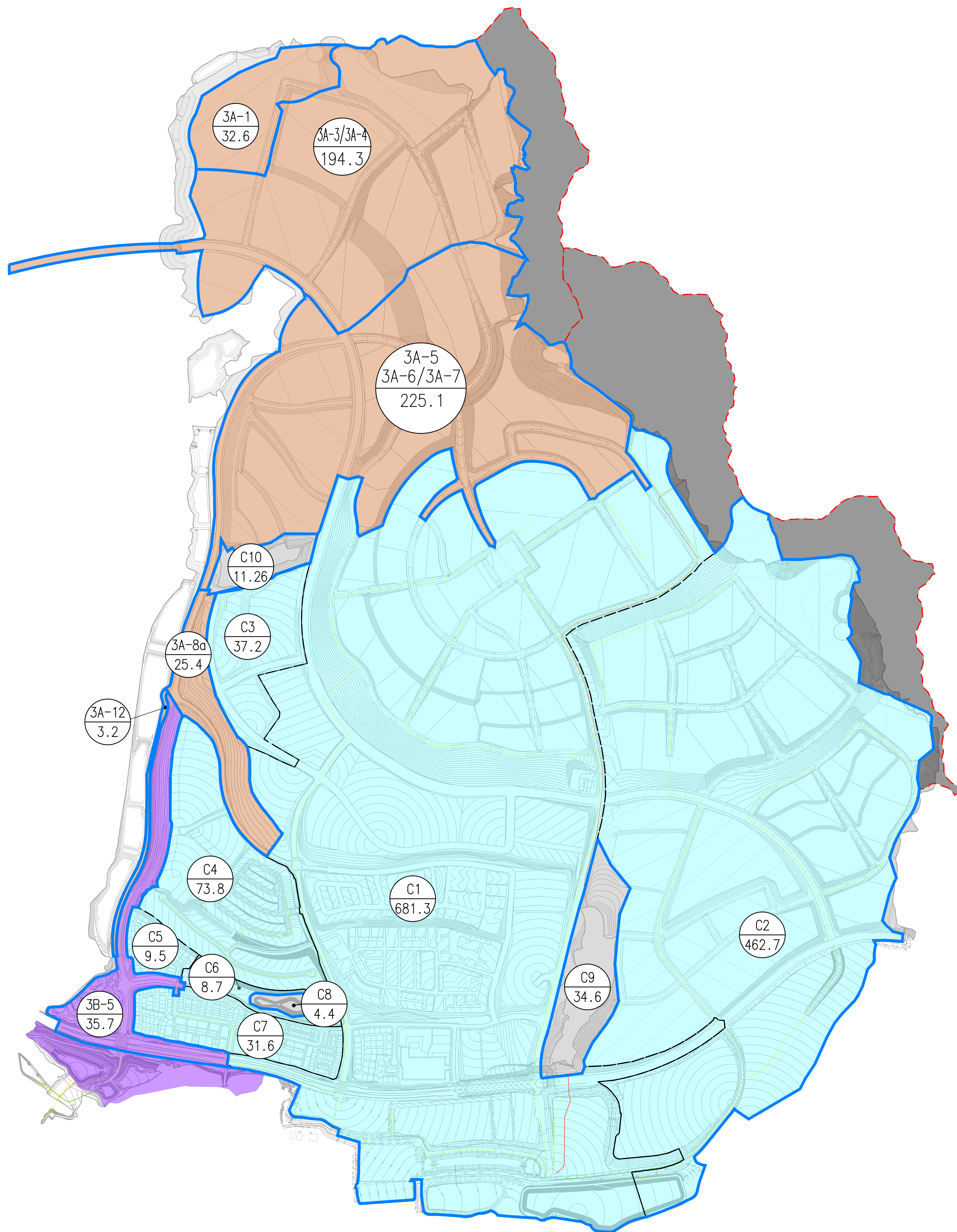




**LEGEND**

- |   |   |   |                         |
|---|---|---|-------------------------|
|  | DRAINAGE BOUNDARY                       |  | PRETREATMENT FOREBAY    |
|  | PA3 BOUNDARY                            |  | FLOOD CONTROL BASIN     |
|  | PA4 BOUNDARY                            |  | BIOFILTRATION BASIN     |
|  | SAN JUAN CREEK 10-YEAR FLOODPLAIN       |  | HYDROMODIFICATION BASIN |
|  | PRELIMINARY OUTLET LOCATION             |  | INFILTRATION            |
|  | STORM DRAIN                             |   |                         |
|  | GOOD INFILTRATION AREA                  |   |                         |
|  | RANCH PLAN ROMP                         |   |                         |
|  | STORM DRAIN OUTFALL                     |   |                         |
|   | * INDICATES BMP HAS HYDROMOD MITIGATION |   |                         |





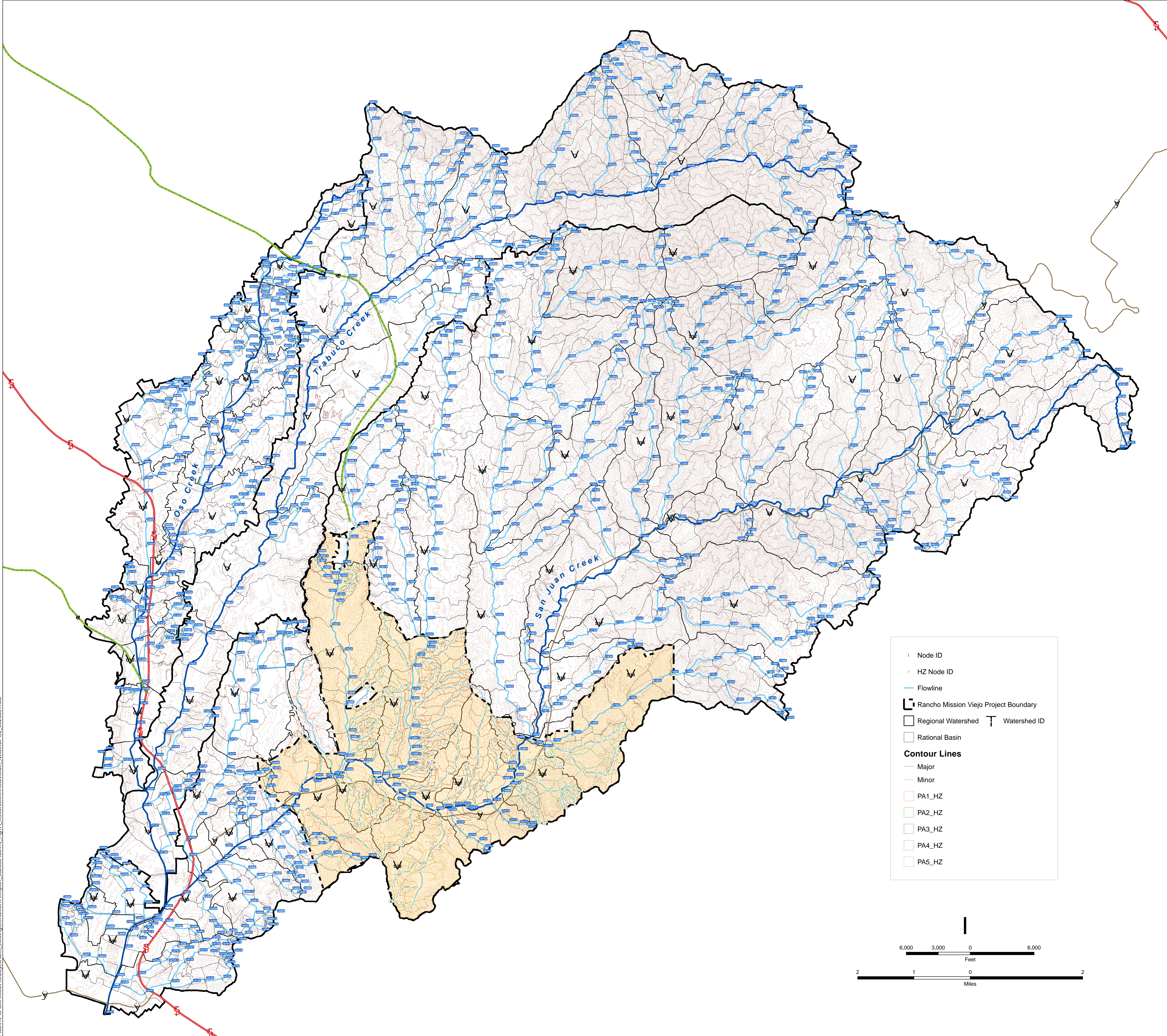
- LEGEND**
- DRAINAGE BOUNDARY
  - - - SUBAREA BOUNDARY
  - - - OFFSITE DRAINAGE BOUNDARY
  - WATER QUALITY STORM DRAIN
  - FLOOD CONTROL STORM DRAIN
  - OFFSITE STORM DRAIN
  - B-1  
0.9 SUBAREA DESIGNATION  
AREA (ACRES)
  - WATERSHED A
  - WATERSHED B
  - WATERSHED C
  - OFFSITE AREA
  - NOT-FOR-LID

Subarea Designation	Area (Acres)
3A-1	32.6
3A-3/3A-4	194.3
3A-5 3A-6/3A-7	225.1
C10	11.26
3A-8a	25.4
C3	37.2
3A-12	3.2
C4	73.8
C1	681.3
C5	9.5
C6	8.7
C2	462.7
3B-5	35.7
C7	31.6
C8	4.4
C9	34.6

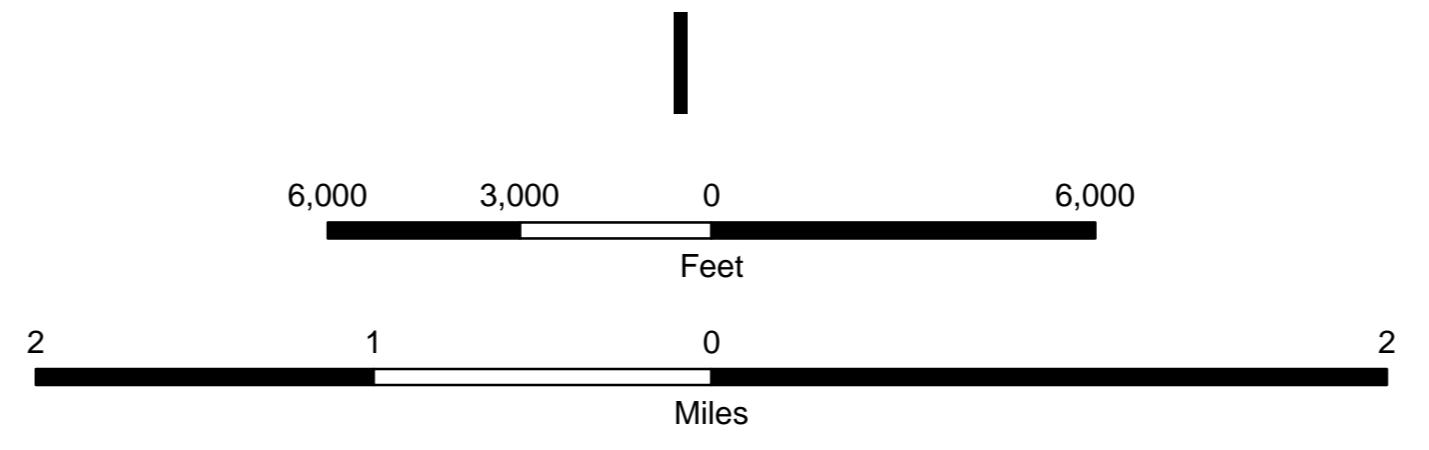
**EXHIBIT 3b**  
**RANCHO MISSION VIEJO**  
**PA-3 DEVELOPMENT WATER QUALITY DRAINAGE AREA MAP**



P:\8449E\_VeGIS\MapData\Study\Exhibits\_ExistingConditions\Report\_062608\8449E\_Fig1A\_RationalMethodModel\_NodalIDPC2\_062608.mxd



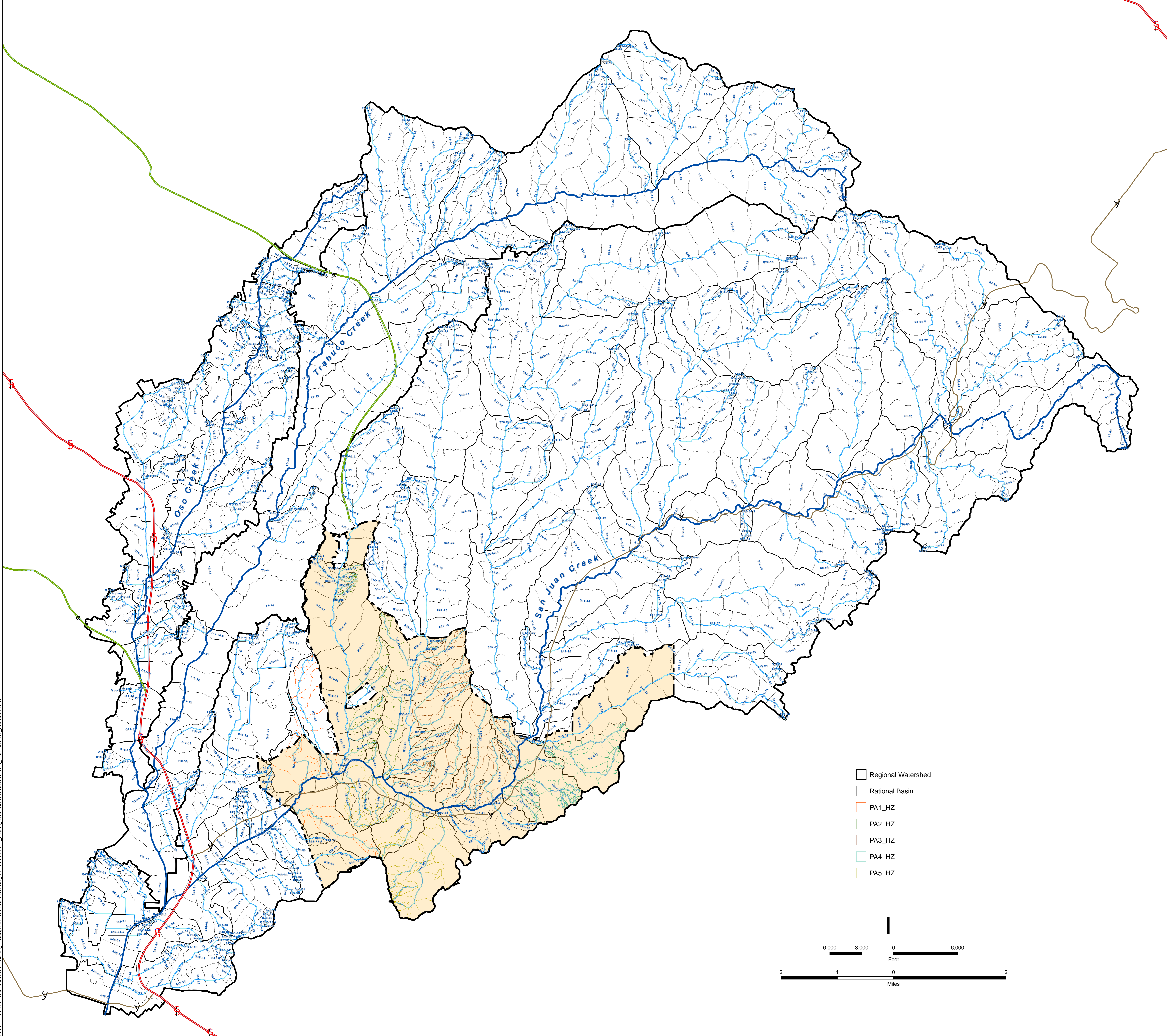
- Node ID
- HZ Node ID
- Flowline
- ▭ Rancho Mission Viejo Project Boundary
- ▭ Regional Watershed T Watershed ID
- ▭ Rational Basin
- Contour Lines**
- Major
- Minor
- PA1\_HZ
- PA2\_HZ
- PA3\_HZ
- PA4\_HZ
- PA5\_HZ



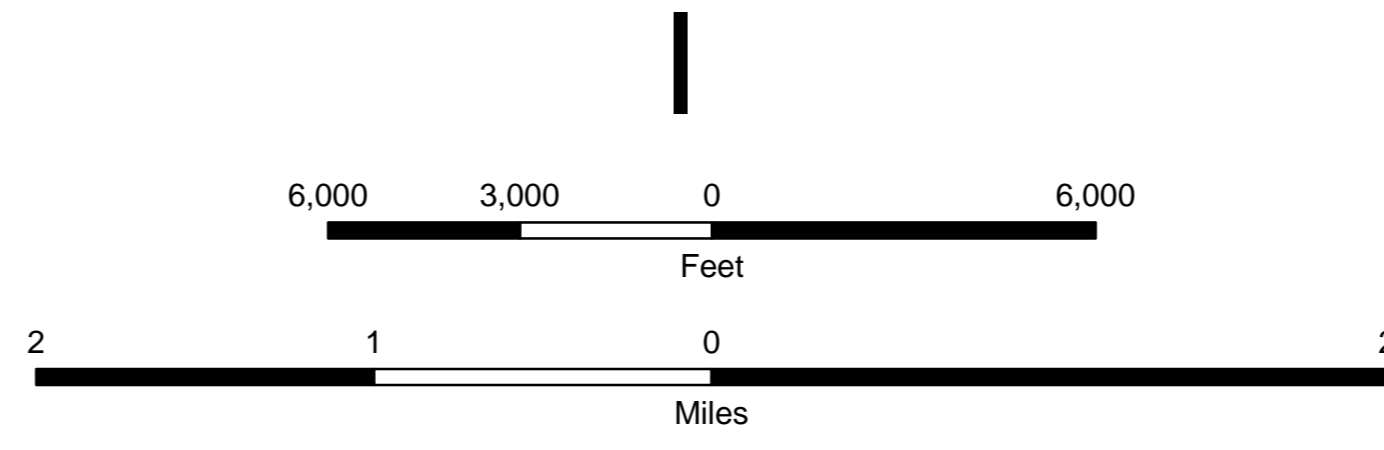
 <b>PACE</b> CIVIL ENGINEERING <small>17700 MAIN STREET, SUITE 100, COSTA MESA, CA 92626          PH: (714) 440-1500 FAX: (714) 440-1299</small>	SCALE 1" = 3000' DESIGNED CD DRAWING CD CHECKED CD DATE 11/03/07 JOB NO. 062608	TITLE <b>SAN JUAN CREEK - RUNOFF MANAGEMENT PLAN</b> EXISTING CONDITIONS RATIONAL METHOD MODEL NODE ID	JOB NO. 062608 ORANGE COUNTY CA
	EXHIBIT <b>7</b>		



P:\8449E\_VeGIS\MapDocs\Study\Exhibits\_ExistingConditions\Report\_062608\8449E\_Fig2A\_RationalMethodModel\BasinIDPC2\_062608.mxd



- Regional Watershed
- Rational Basin
- PA1\_HZ
- PA2\_HZ
- PA3\_HZ
- PA4\_HZ
- PA5\_HZ



EXHIBIT

SCALE	1" = 3000'
DESIGNED	CD
DRAWING	CD
CHECKED	CD
DATE	11/03/07
JOB NO.	8649E

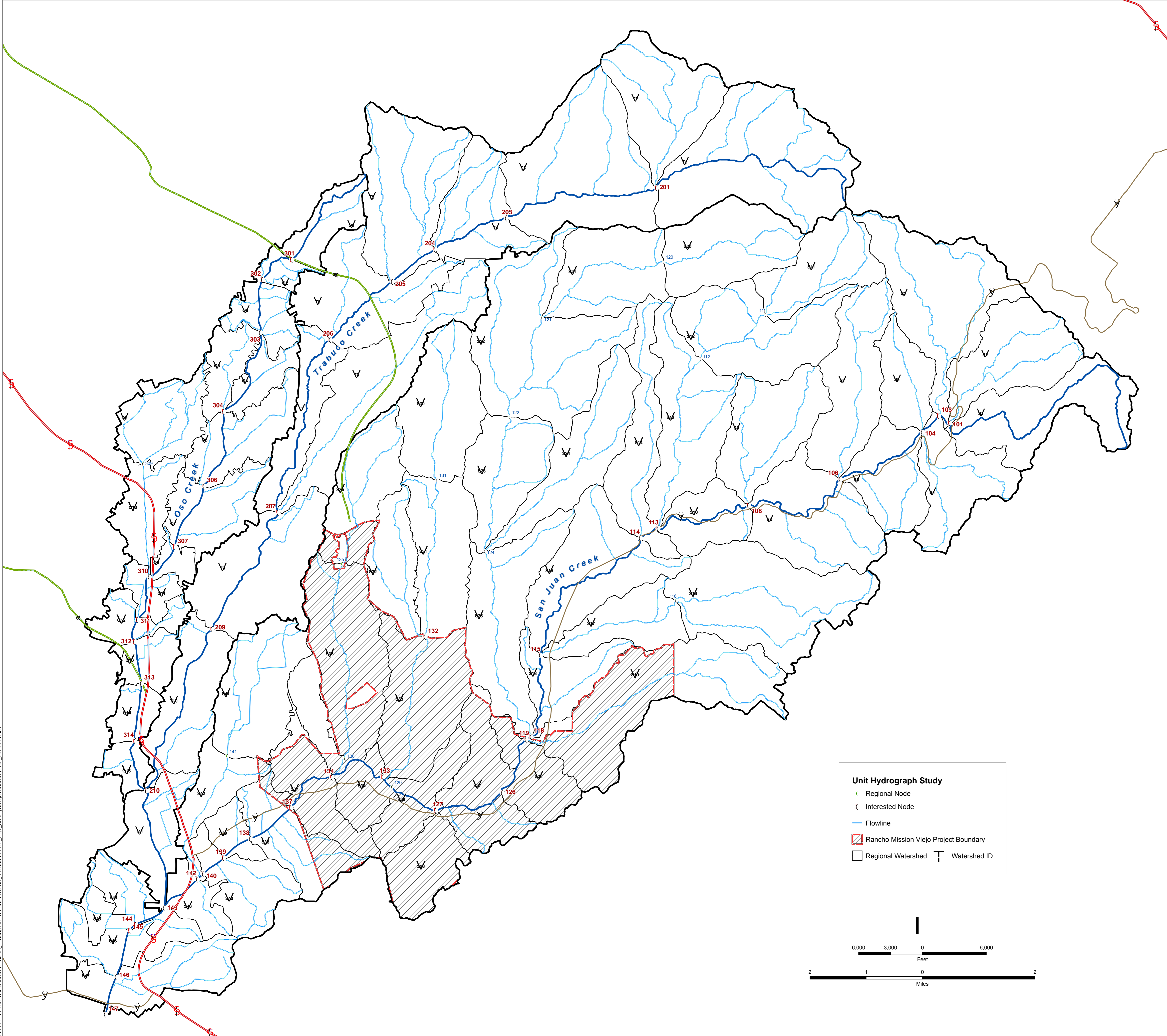
JOB  
SAN JUAN CREEK - RUNOFF MANAGEMENT PLAN  
ORANGE COUNTY

CA

TITLE  
EXISTING CONDITIONS  
RATIONAL METHOD MODEL BASIN ID

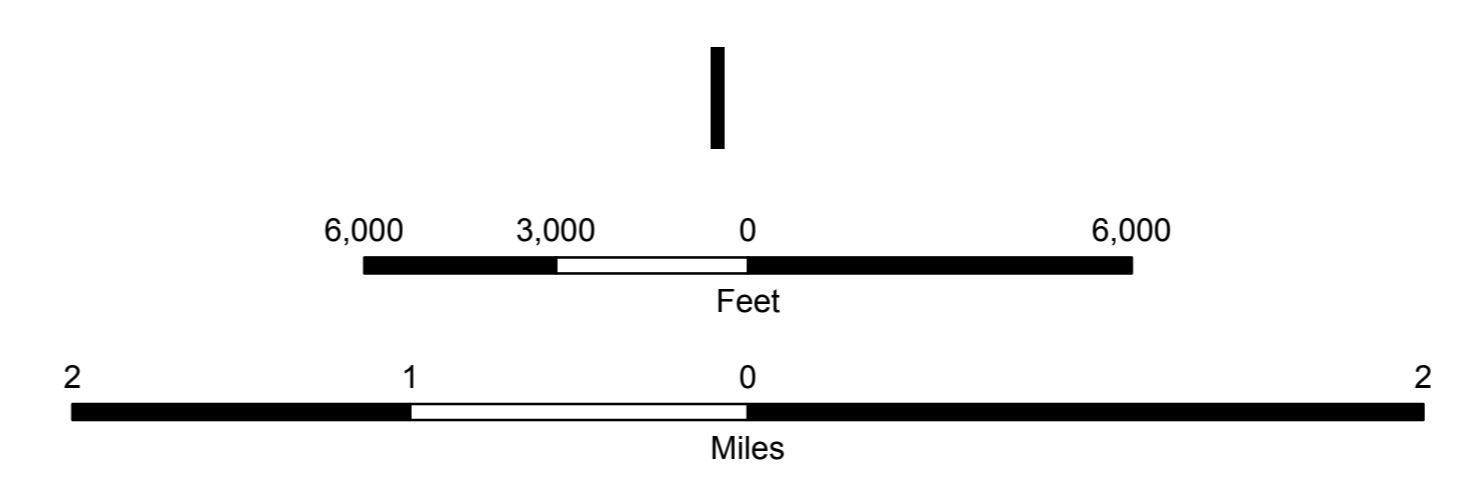


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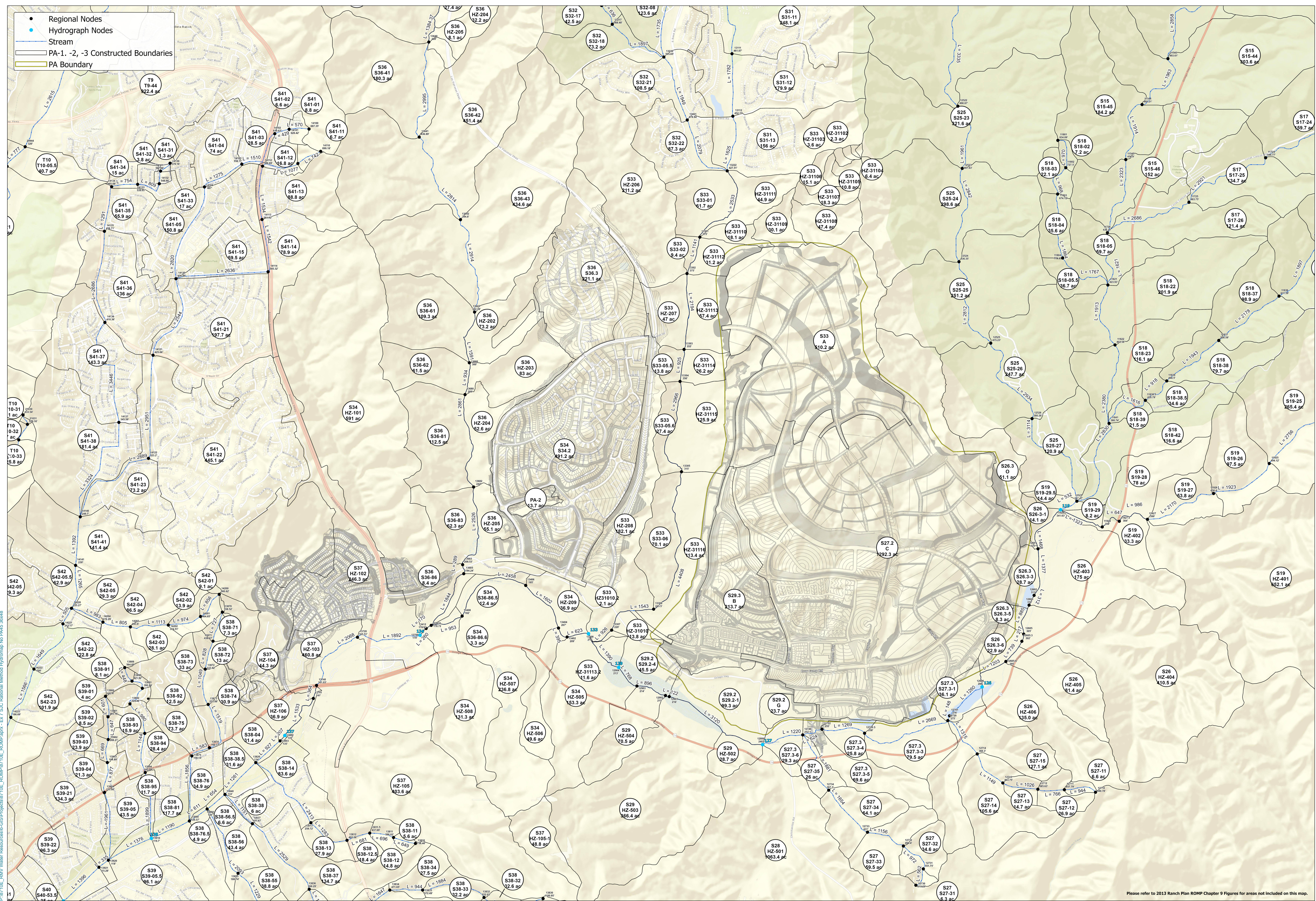
**Unit Hydrograph Study**

- Regional Node
- ◐ Interested Node
- Flowline
- ▨ Rancho Mission Viejo Project Boundary
- Regional Watershed
- ⊥ Watershed ID



<p>SCALE: 1" = 3000'</p> <p>DESIGNED: CD</p> <p>DRAWING: CD</p> <p>CHECKED: CD</p> <p>DATE: 11/08/07</p> <p>JOB NO.: 8649E</p>		<p>JOB</p> <p><b>SAN JUAN CREEK - RUNOFF MANAGEMENT PLAN</b></p> <p>ORANGE COUNTY</p>	<p>TITLE</p> <p><b>EXISTING CONDITIONS</b></p> <p><b>UNIT HYDROGRAPH STUDY REGIONAL WATERSHED AND NODE</b></p> <p>CA</p>
<p><b>PACE</b> PACIFIC ADVANCED CIVIL ENGINEERING</p> <p>17700 MAIN STREET, SUITE 100 IRVINE, CALIFORNIA 92614-4299 TEL: 949.261.1500 FAX: 949.261.1299</p>		<p>EXHIBIT</p> <p>CS</p>	



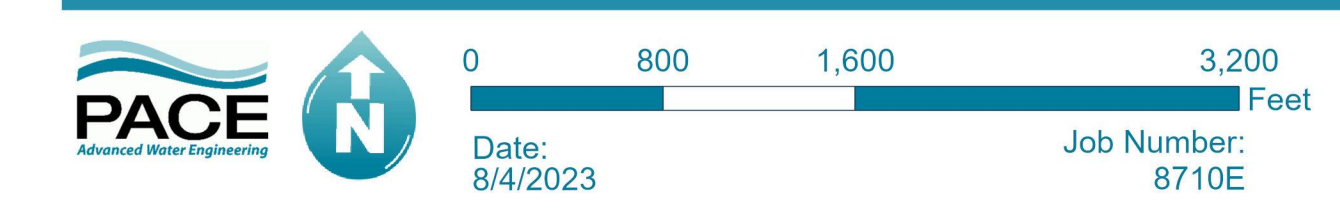


P:\3710E\_RMV\_Water\_Resources\GIS\Projects\3710E\_ROMP\3710E\_ROMP.aprx - E:\7\_S.C. Rational Method Hydromap No PA4s\_3648

Please refer to 2013 Ranch Plan ROMP Chapter 9 Figures for areas not included on this map.

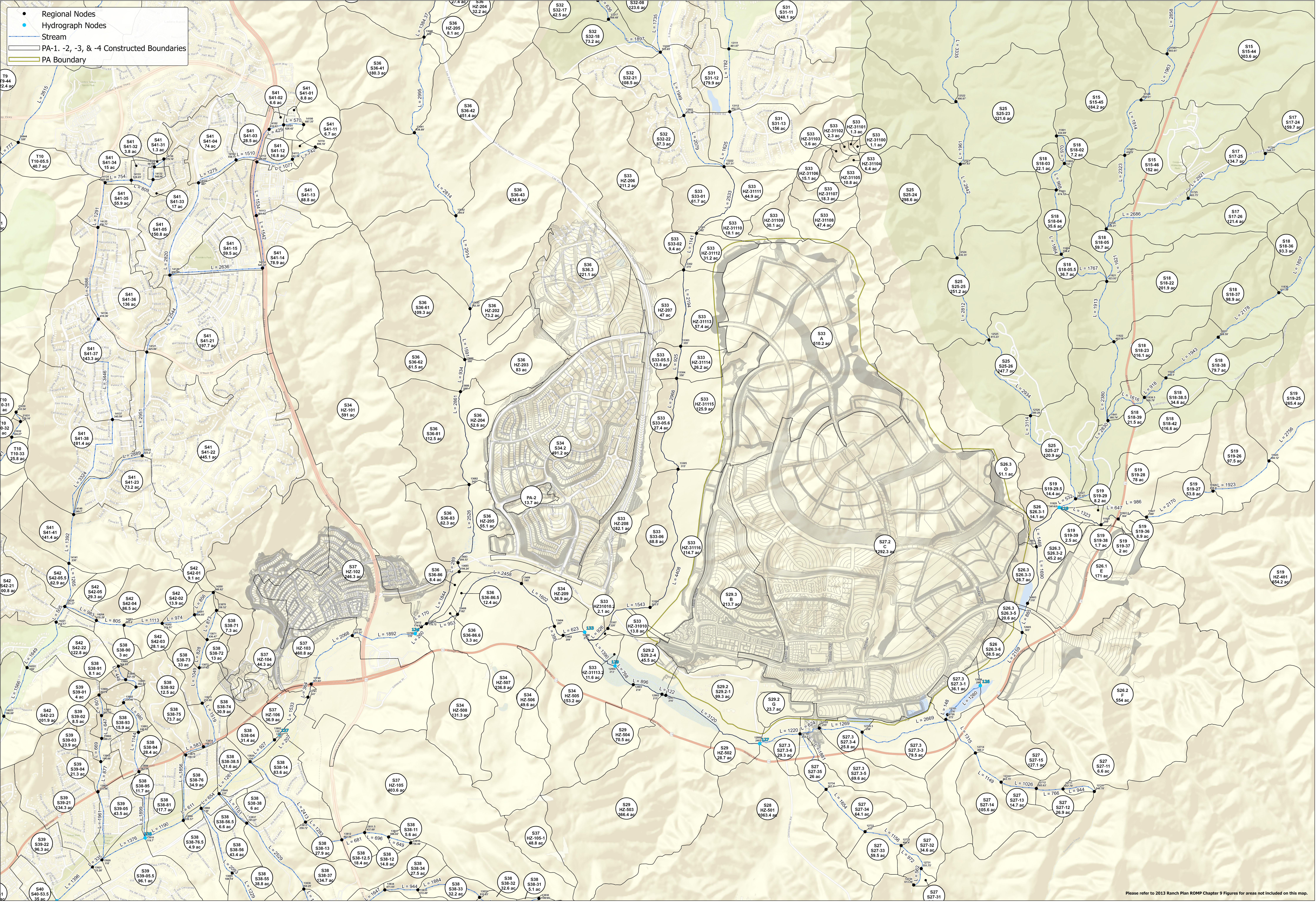
# RANCHO MISSION VIEJO PA-3&4 RUNOFF MANAGEMENT PLAN

## PHASE PA-1, -2 & -3 CONSTRUCTED RATIONAL METHOD HYDROLOGY MAP





• Regional Nodes  
 • Hydrograph Nodes  
 Stream  
 PA-1, -2, -3, & -4 Constructed Boundaries  
 PA Boundary



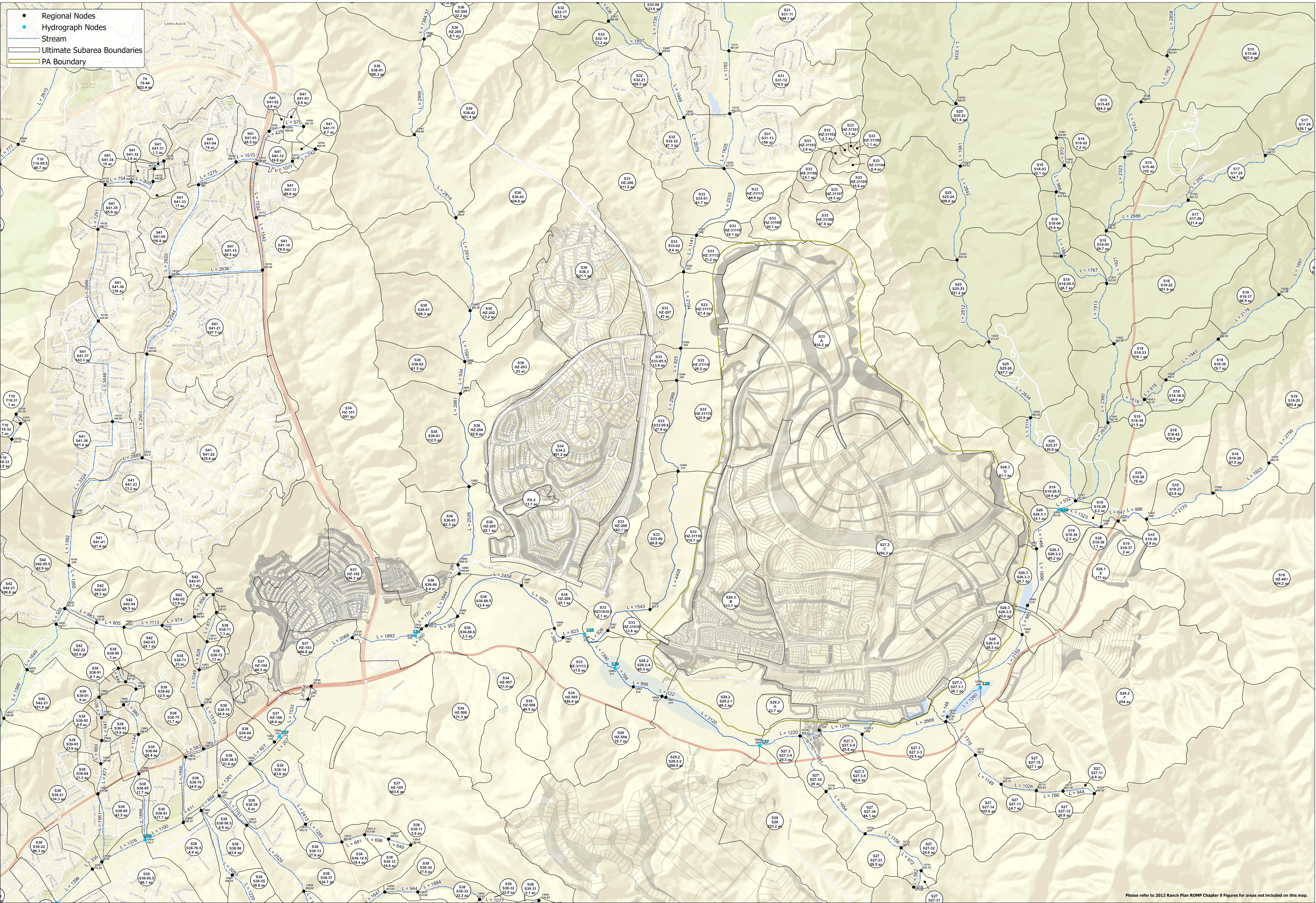
Please refer to 2013 Ranch Plan ROMP Chapter 9 Figures for areas not included on this map.

# RANCHO MISSION VIEJO PA-3&4 RUNOFF MANAGEMENT PLAN

## PHASE PA-1, -2, -3, & -4 CONSTRUCTED RATIONAL METHOD HYDROLOGY MAP

0 800 1,600 3,200 Feet  
 Date: 9/7/2023 Job Number: 8710E



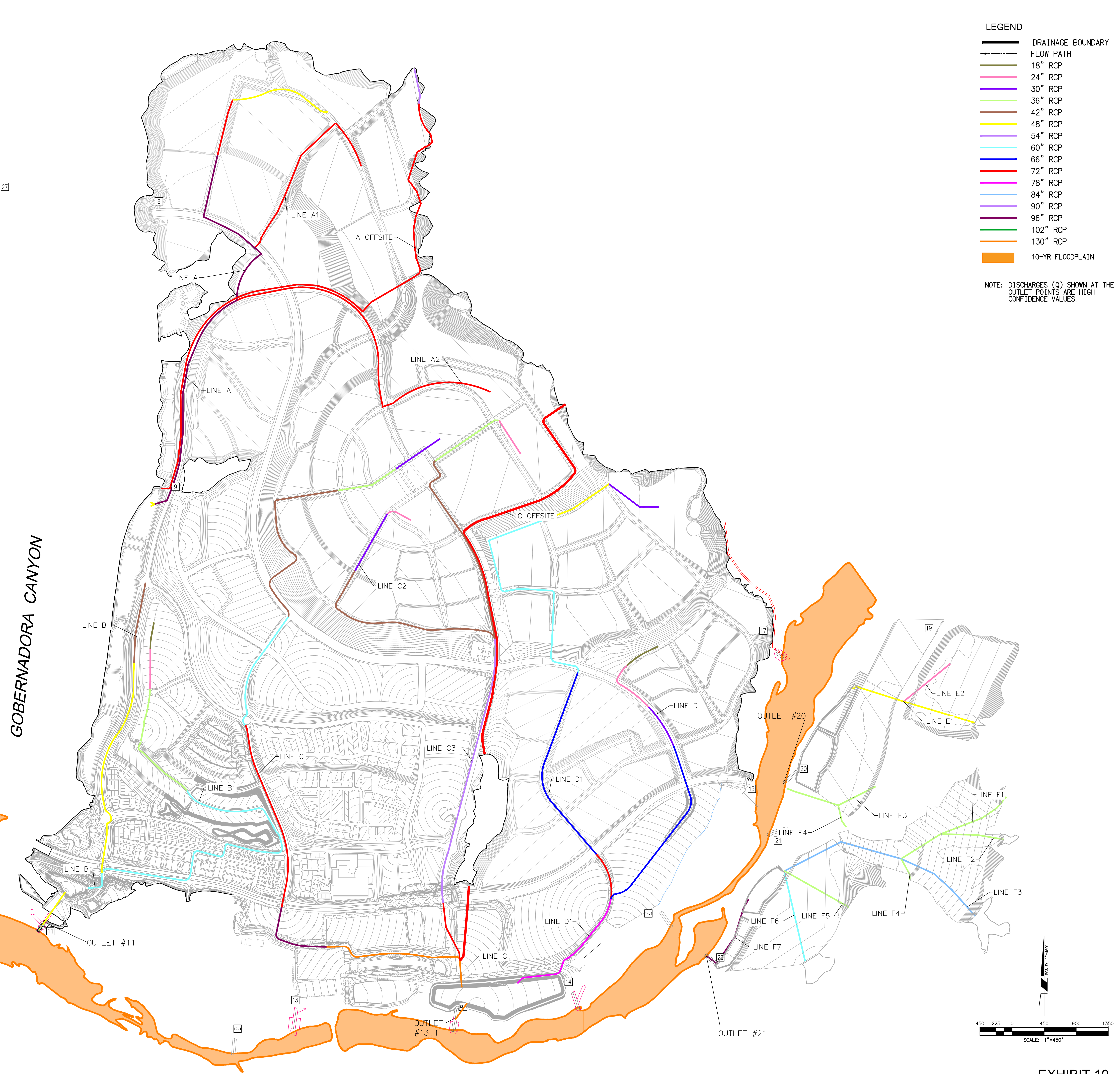


Please refer to 2013 Ranch Plan ROMP Chapter 9 Figures for areas not included on this map.

# RANCHO MISSION VIEJO PA-3&4 RUNOFF MANAGEMENT PLAN

## ULTIMATE CONDITION RATIONAL METHOD HYDROLOGY MAP



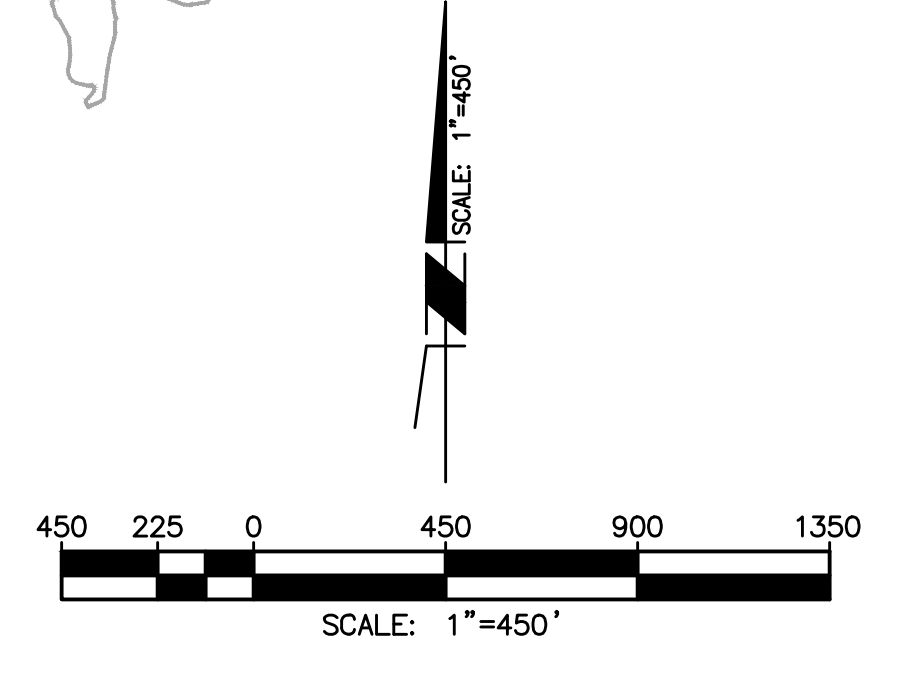


**LEGEND**

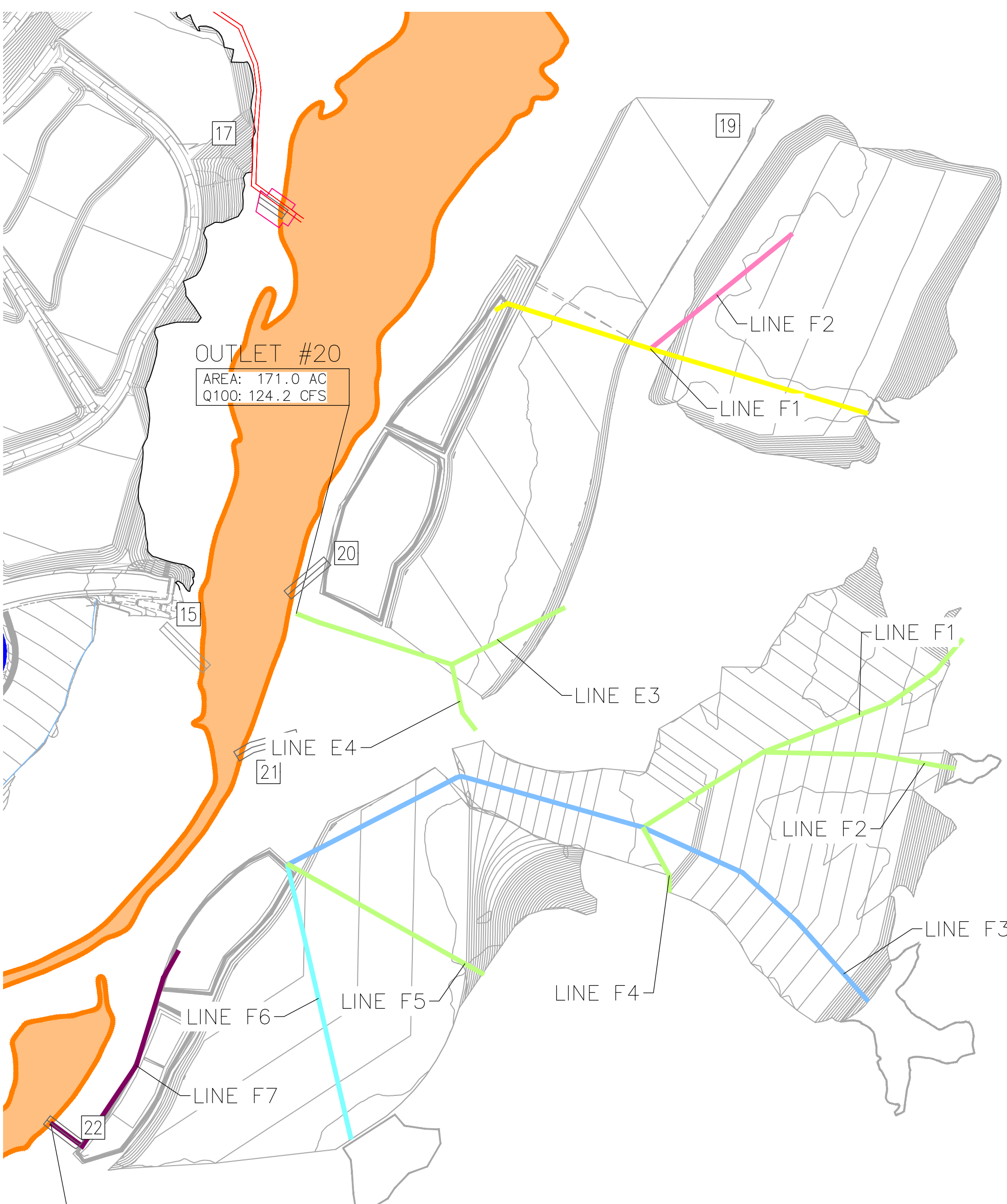
- DRAINAGE BOUNDARY
- - - FLOW PATH
- 18" RCP
- 24" RCP
- 30" RCP
- 36" RCP
- 42" RCP
- 48" RCP
- 54" RCP
- 60" RCP
- 66" RCP
- 72" RCP
- 78" RCP
- 84" RCP
- 90" RCP
- 96" RCP
- 102" RCP
- 130" RCP
- 10-YR FLOODPLAIN

NOTE: DISCHARGES (Q) SHOWN AT THE OUTLET POINTS ARE HIGH CONFIDENCE VALUES.

GOVERNADORA CANYON



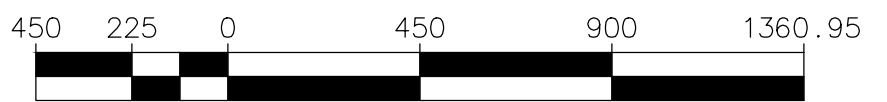




**LEGEND**

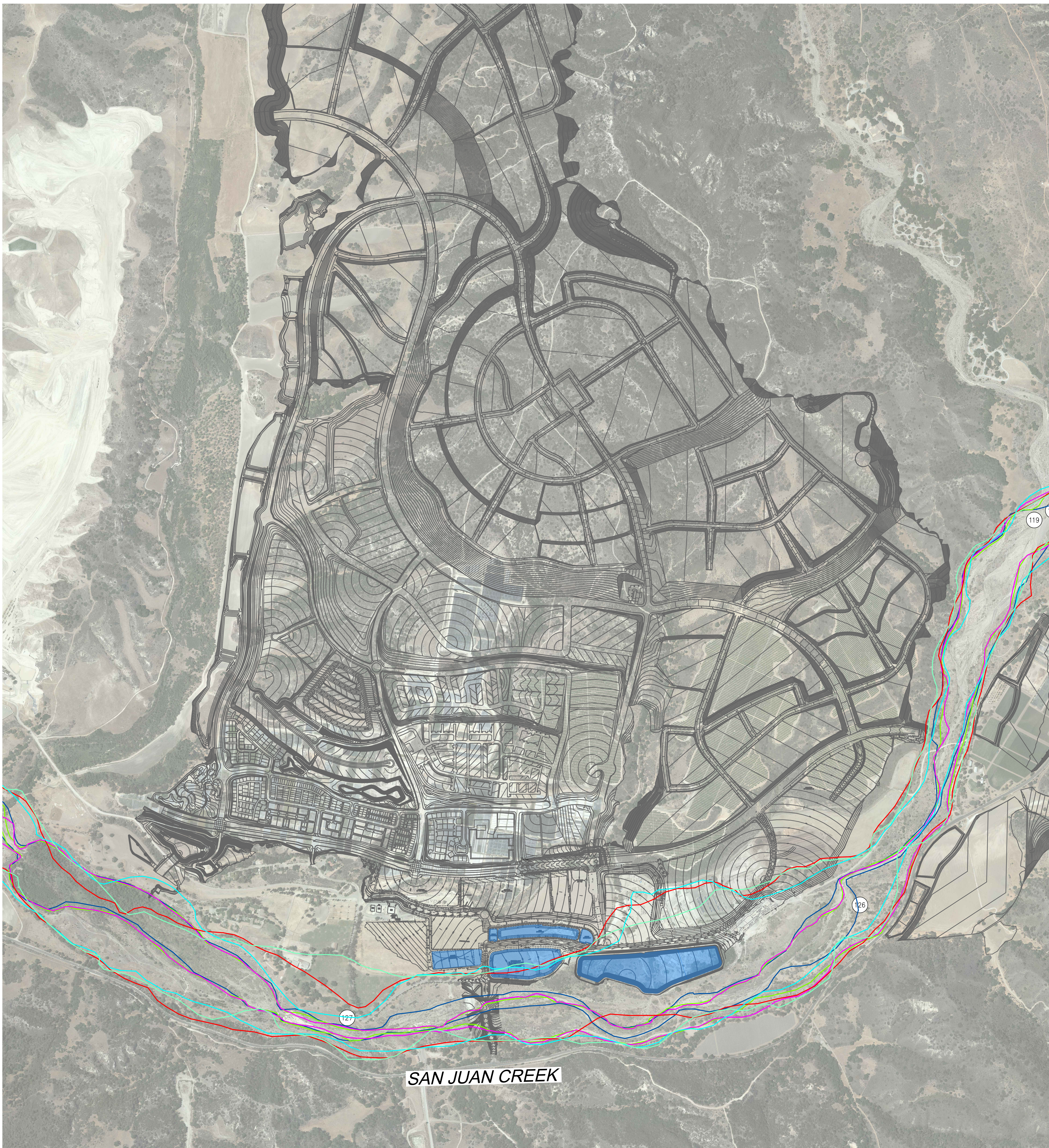
	DRAINAGE BOUNDARY		54" RCP
	SUBAREA BOUNDARY		60" RCP
	FLOW PATH		66" RCP
	18" RCP		72" RCP
	24" RCP		78" RCP
	30" RCP		84" RCP
	36" RCP		90" RCP
	42" RCP		96" RCP
	48" RCP		102" RCP
			130" RCP

NOTE: DISCHARGES (Q) SHOWN AT THE OUTLET POINTS ARE HIGH CONFIDENCE VALUES.



SCALE: 1"=450'

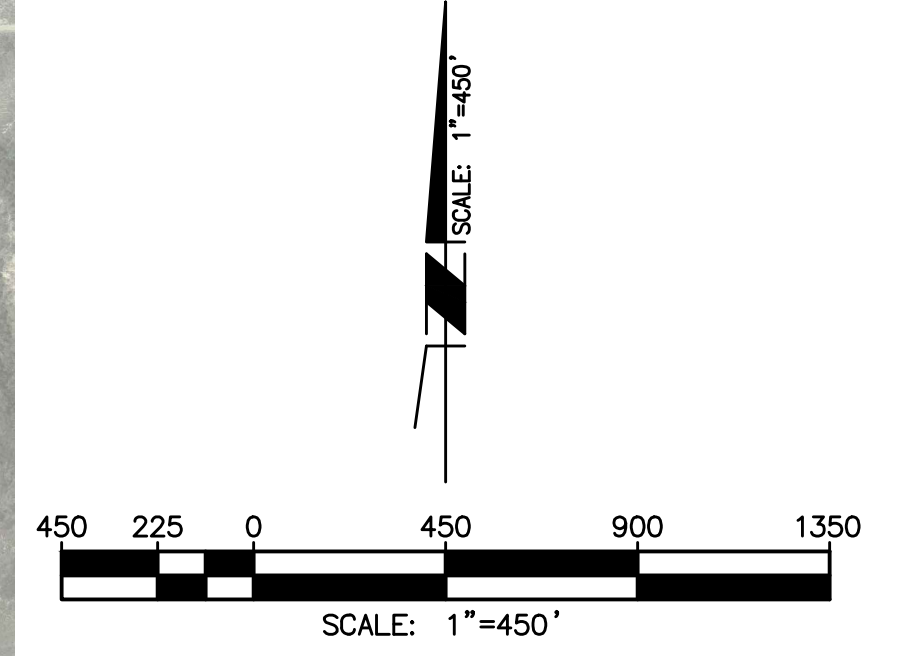




**LEGEND**





- 1938 BANK
- 1967 BANK
- 1980 BANK
- 1994 BANK
- 1997 BANK
- 2005 BANK
- C-COMPLEX BASINS

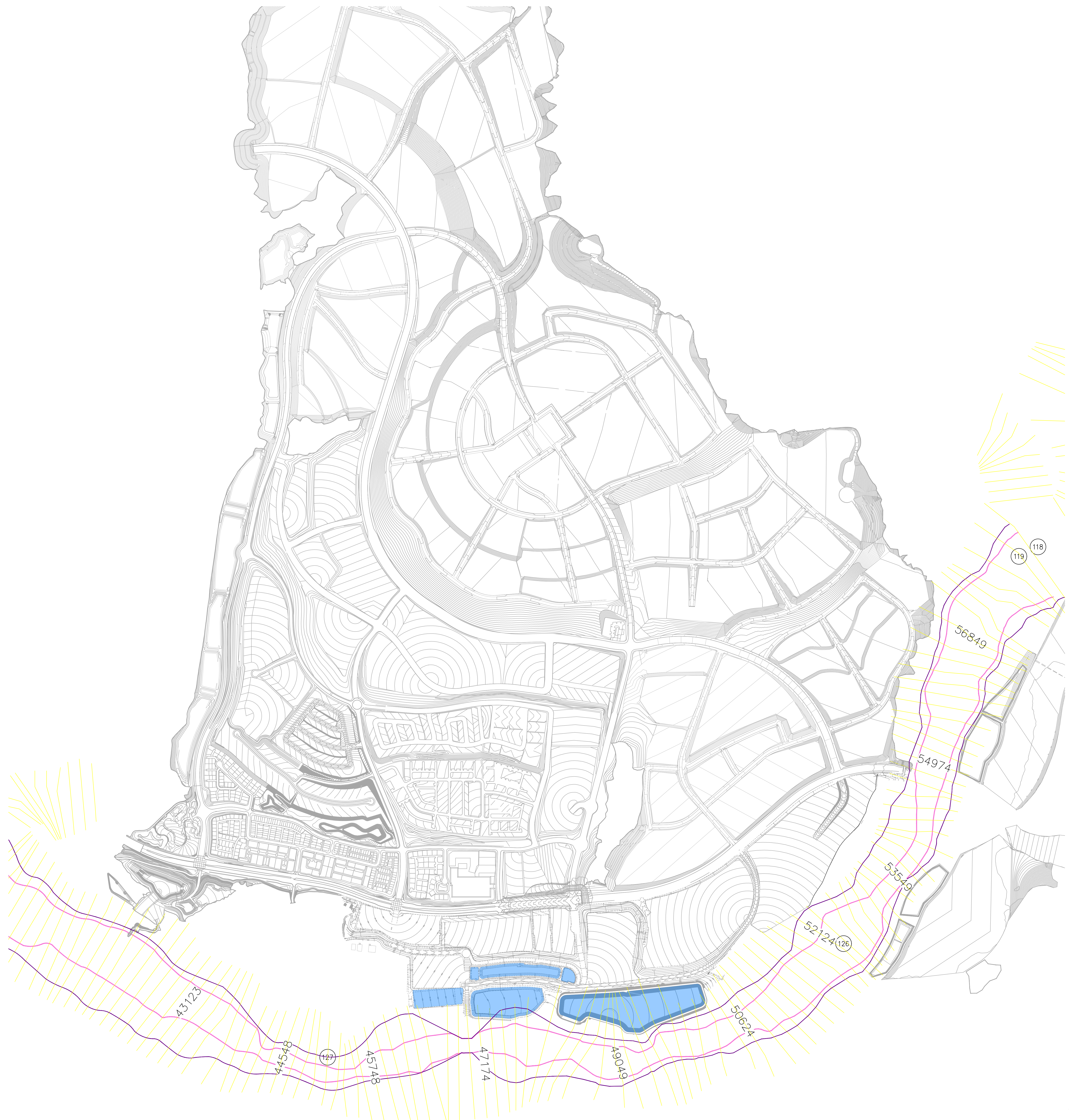
**SAN JUAN CREEK**



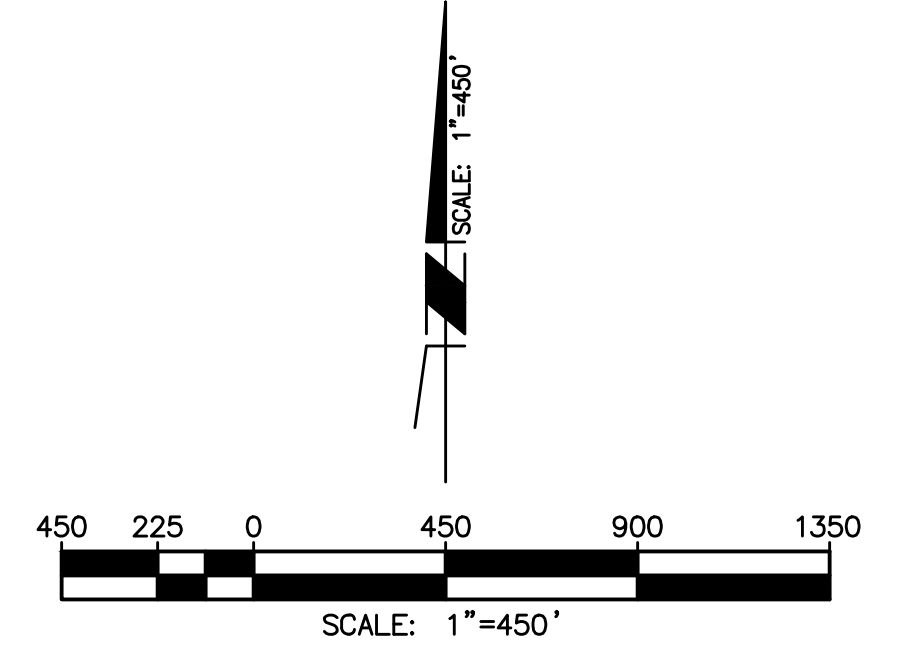


**LEGEND**

-  CROSS SECTION
-  LATERAL MIGRATION
-  SEVERE EROSION ZONE
-  C-COMPLEX BASINS



**SAN JUAN CREEK**

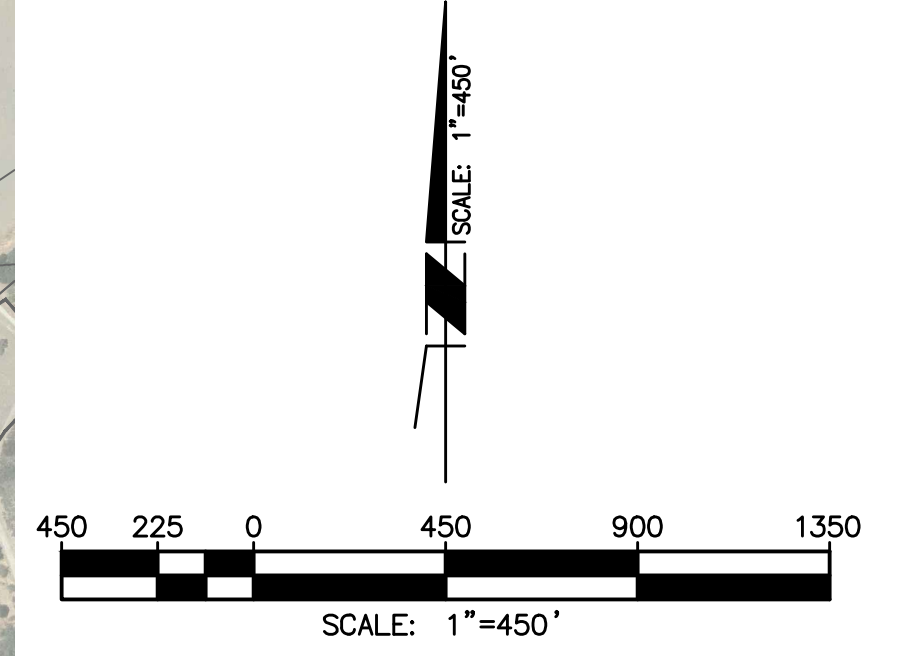






**LEGEND**

- 1938 BANK
- 1946 BANK
- 1967 BANK
- 1985 BANK
- 1994 BANK
- 2005 BANK





LEGEND

- ULTIMATE BANK
- LATERAL MIGRATION
- CROSS SECTION

