

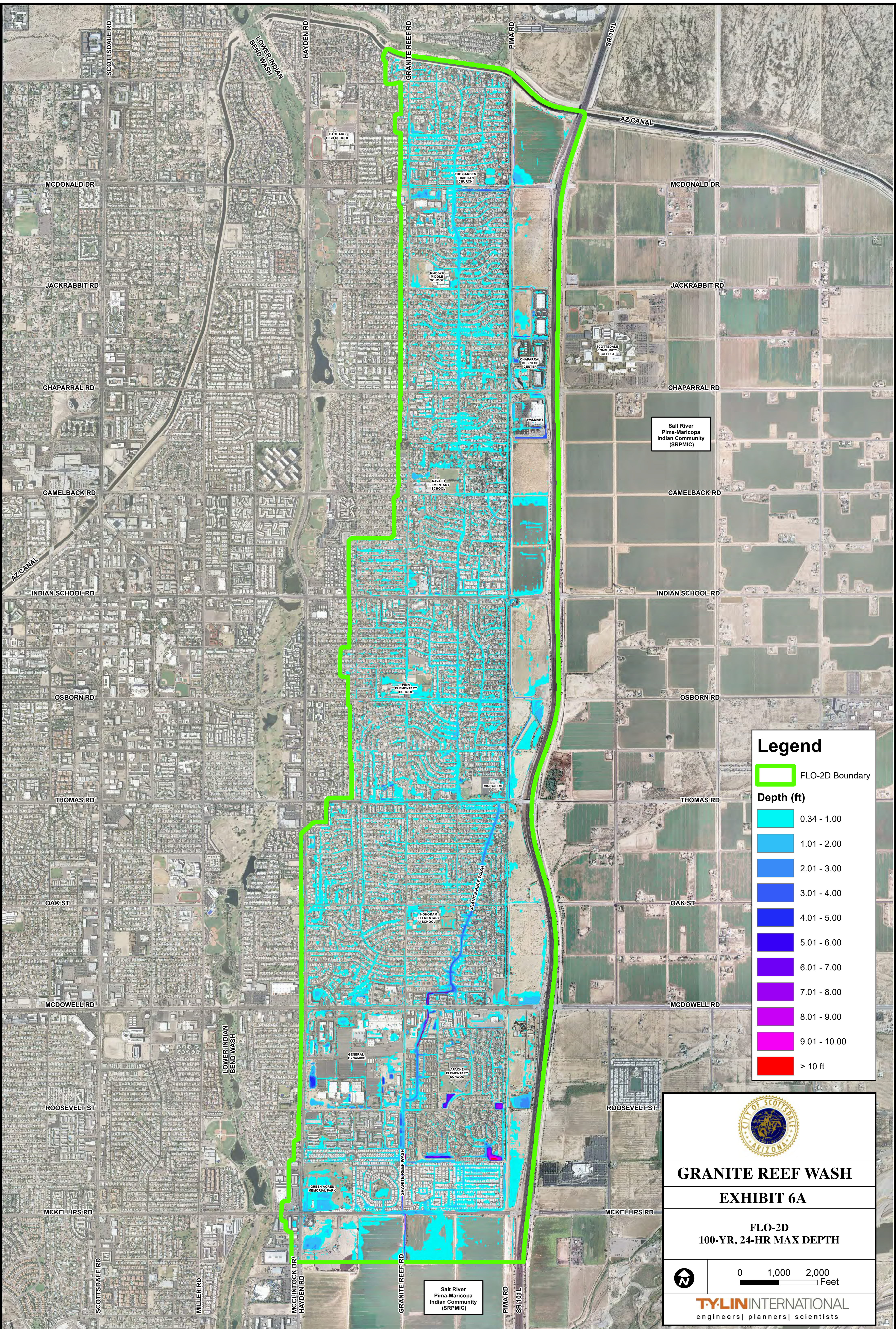


GRANITE REEF WASH HYDROLOGY UPDATE


HYDROLOGIC STUDY

APPENDIX E.2 – Results Exhibits

















Legend

 FLO-2D Boundary

Depth (ft)


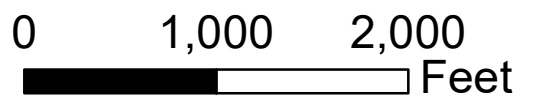
-  0.34 - 1.00
-  1.01 - 2.00
-  2.01 - 3.00
-  3.01 - 4.00
-  4.01 - 5.00
-  5.01 - 6.00
-  6.01 - 7.00
-  7.01 - 8.00
-  8.01 - 9.00
-  9.01 - 10.00
-  > 10 ft



GRANITE REEF WASH

EXHIBIT 6A

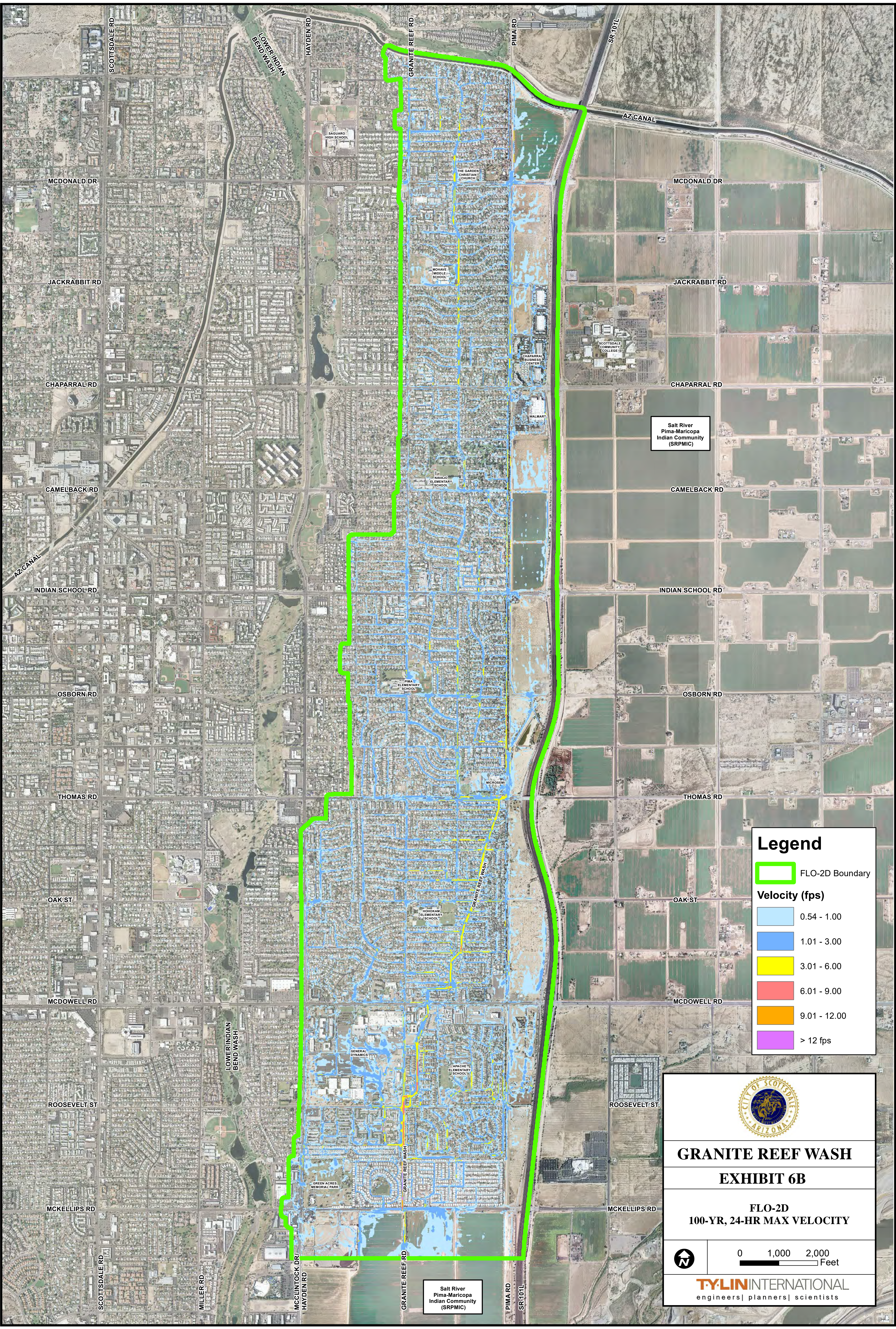
FLO-2D
100-YR, 24-HR MAX DEPTH

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Salt River
Pima-Maricopa
Indian Community
(SRPMIC)

Salt River
Pima-Maricopa
Indian Community
(SRPMIC)





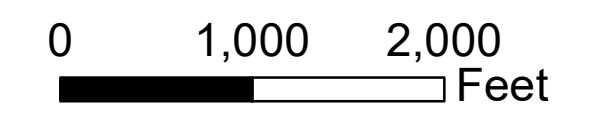
Legend

FLO-2D Boundary

Velocity (fps)

- 0.54 - 1.00
- 1.01 - 3.00
- 3.01 - 6.00
- 6.01 - 9.00
- 9.01 - 12.00
- > 12 fps

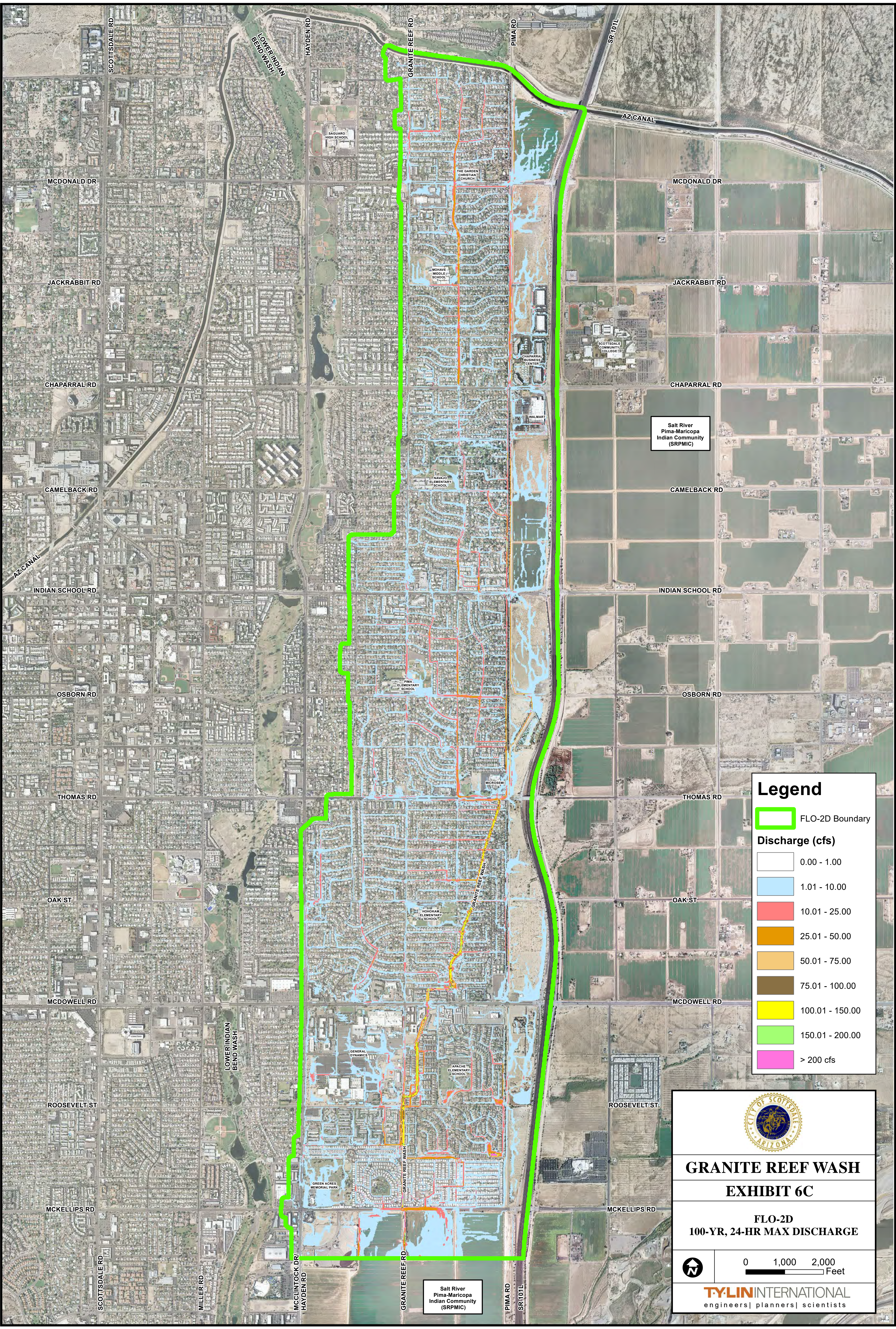

GRANITE REEF WASH
EXHIBIT 6B
 FLO-2D
 100-YR, 24-HR MAX VELOCITY

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Salt River Pima-Maricopa Indian Community (SRPMIC)

Salt River Pima-Maricopa Indian Community (SRPMIC)




Legend

FLO-2D Boundary

Discharge (cfs)


	0.00 - 1.00
	1.01 - 10.00
	10.01 - 25.00
	25.01 - 50.00
	50.01 - 75.00
	75.01 - 100.00
	100.01 - 150.00
	150.01 - 200.00
	> 200 cfs



GRANITE REEF WASH

EXHIBIT 6C

FLO-2D
100-YR, 24-HR MAX DISCHARGE



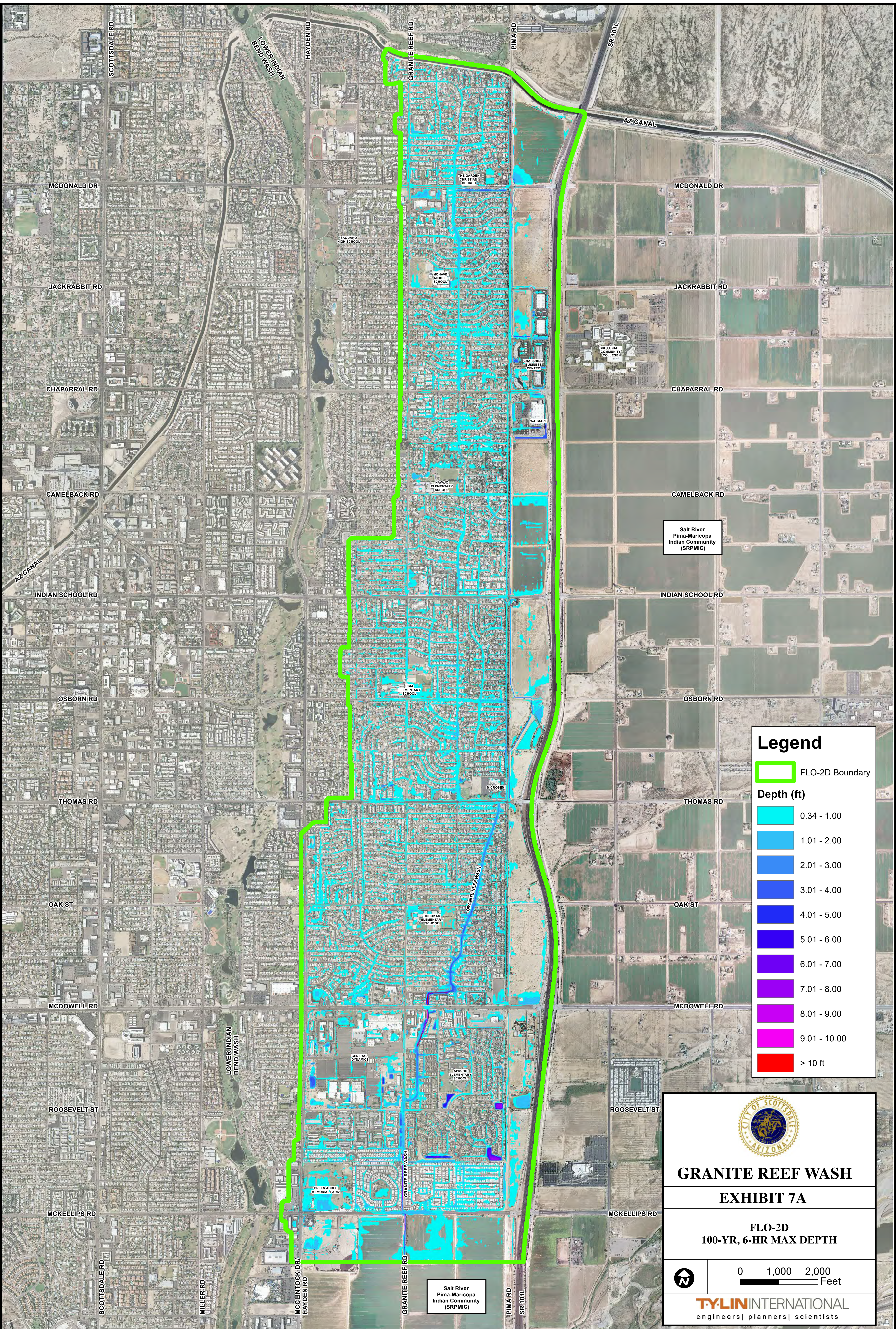
0 1,000 2,000

Feet

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Salt River Pima-Maricopa Indian Community (SRPMIC)

Salt River Pima-Maricopa Indian Community (SRPMIC)



Salt River
Pima-Maricopa
Indian Community
(SRPMIC)

Legend

-  FLO-2D Boundary
- Depth (ft)**
-  0.34 - 1.00
-  1.01 - 2.00
-  2.01 - 3.00
-  3.01 - 4.00
-  4.01 - 5.00
-  5.01 - 6.00
-  6.01 - 7.00
-  7.01 - 8.00
-  8.01 - 9.00
-  9.01 - 10.00
-  > 10 ft



**GRANITE REEF WASH
EXHIBIT 7A**

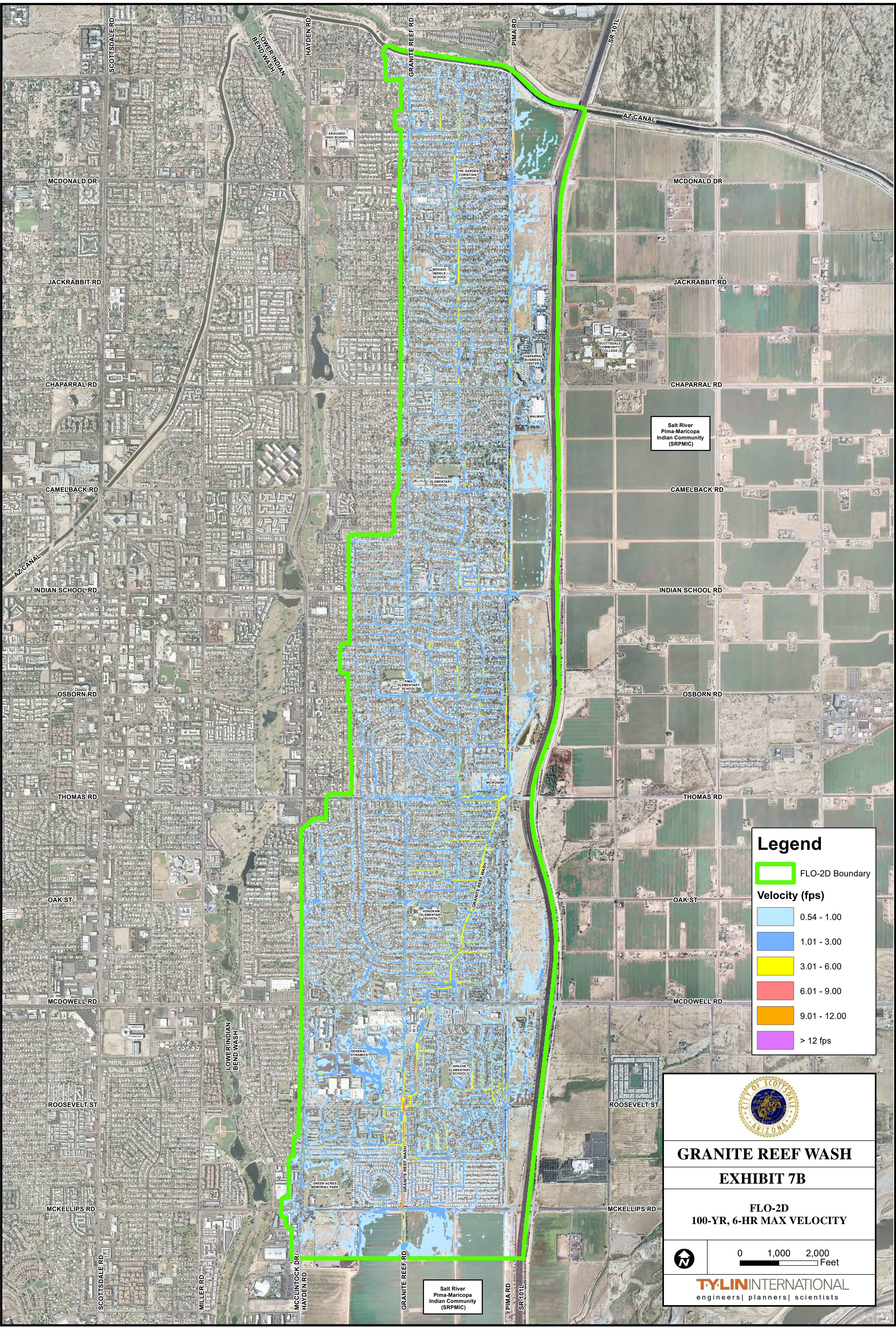
**FLO-2D
100-YR, 6-HR MAX DEPTH**




0 1,000 2,000
Feet

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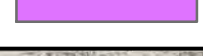
Salt River
Pima-Maricopa
Indian Community
(SRPMIC)




Legend

 FLO-2D Boundary

Velocity (fps)

-  0.54 - 1.00
-  1.01 - 3.00
-  3.01 - 6.00
-  6.01 - 9.00
-  9.01 - 12.00
-  > 12 fps



GRANITE REEF WASH

EXHIBIT 7B

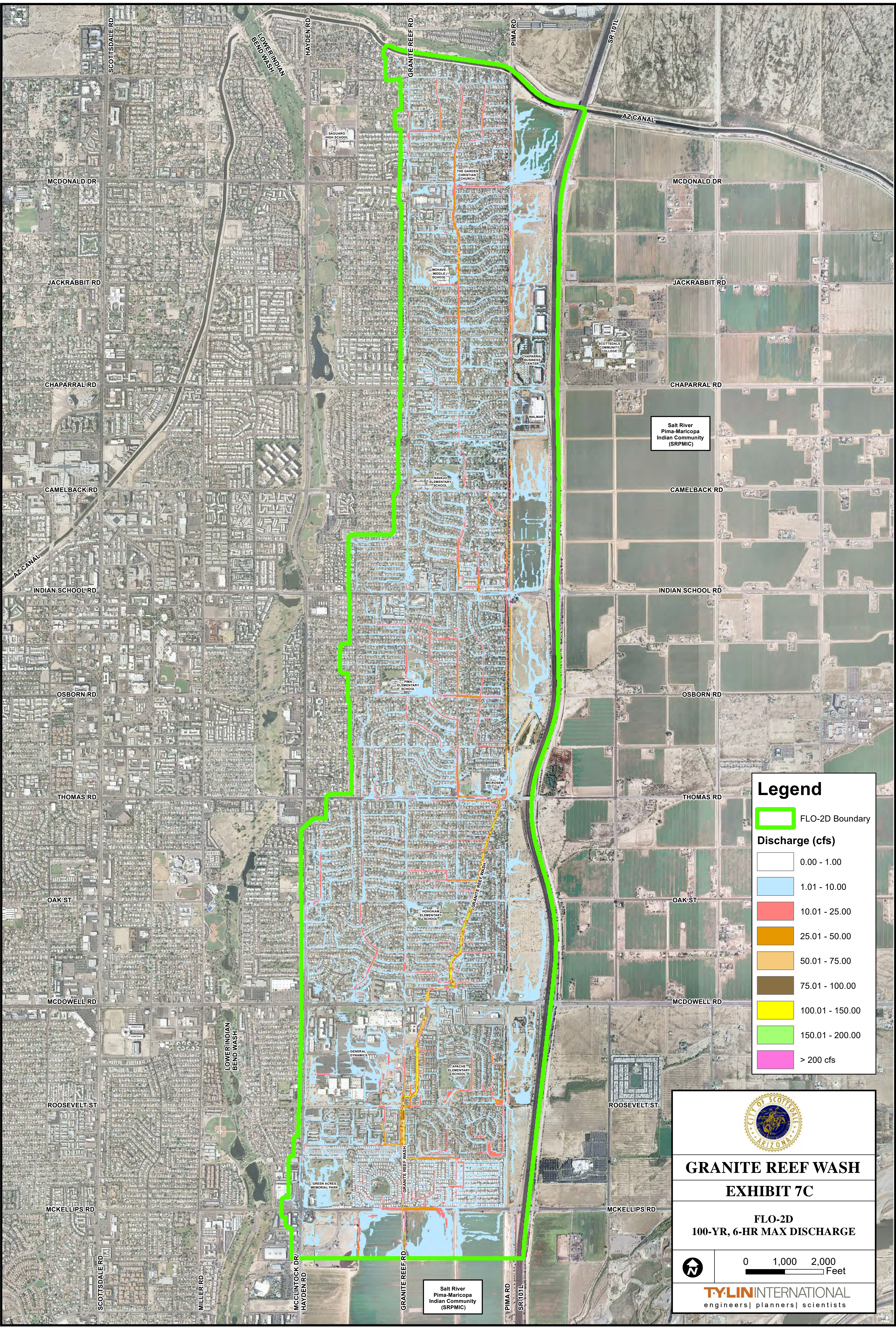
FLO-2D
100-YR, 6-HR MAX VELOCITY

0 1,000 2,000 Feet


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Salt River Pima-Maricopa Indian Community (SRPMIC)


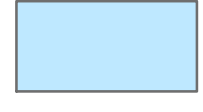






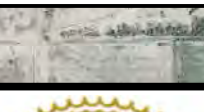
Salt River Pima-Maricopa Indian Community (SRPMIC)





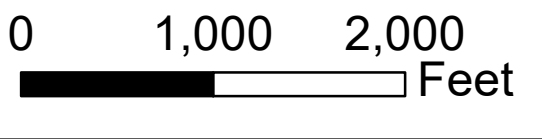
Legend

 FLO-2D Boundary

Discharge (cfs)

	0.00 - 1.00
	1.01 - 10.00
	10.01 - 25.00
	25.01 - 50.00
	50.01 - 75.00
	75.01 - 100.00
	100.01 - 150.00
	150.01 - 200.00
	> 200 cfs

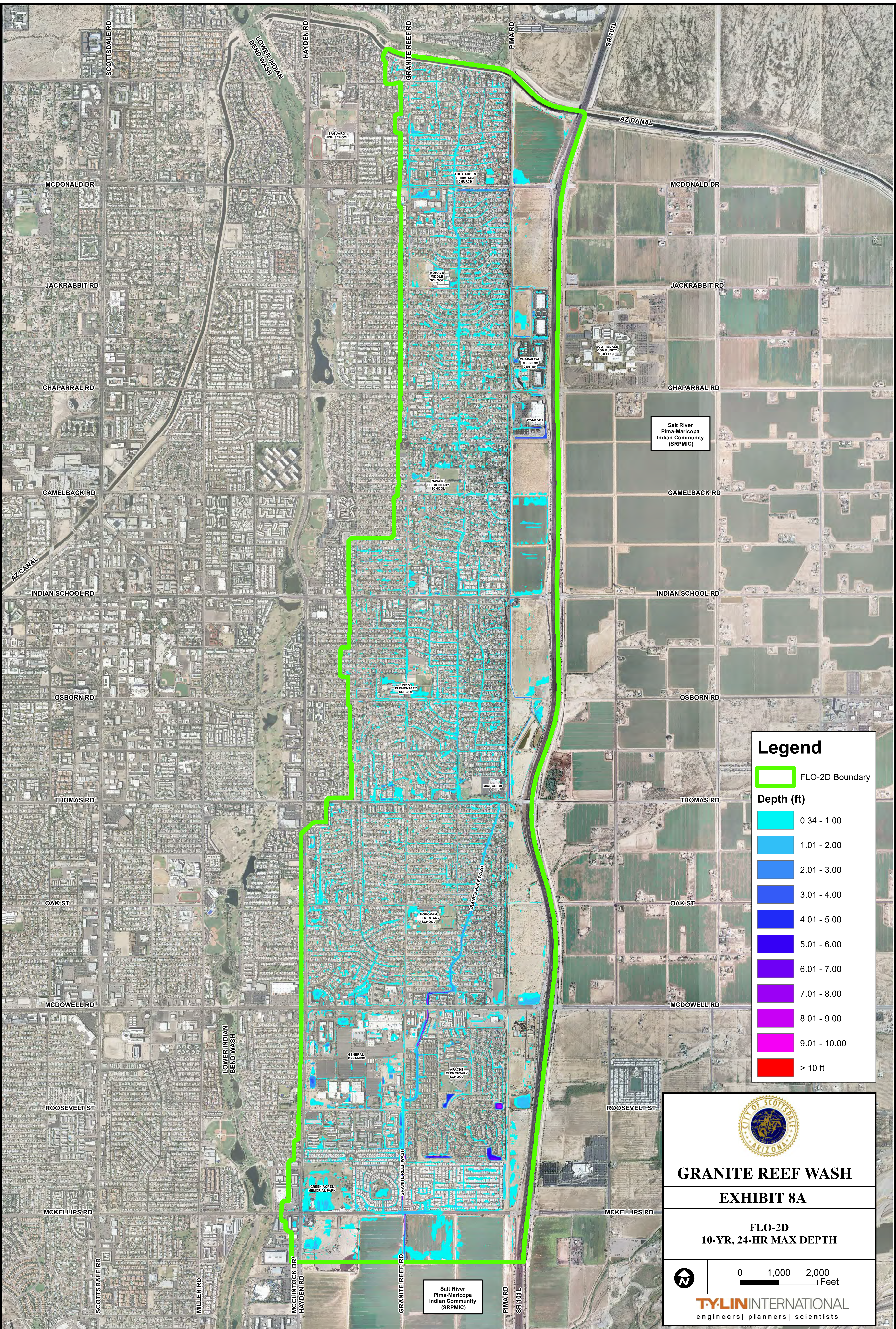

GRANITE REEF WASH
EXHIBIT 7C
FLO-2D
100-YR, 6-HR MAX DISCHARGE


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Salt River
Pima-Maricopa
Indian Community
(SRPMIC)












Salt River
Pima-Maricopa
Indian Community
(SRPMIC)



Legend

 FLO-2D Boundary

Depth (ft)


-  0.34 - 1.00
-  1.01 - 2.00
-  2.01 - 3.00
-  3.01 - 4.00
-  4.01 - 5.00
-  5.01 - 6.00
-  6.01 - 7.00
-  7.01 - 8.00
-  8.01 - 9.00
-  9.01 - 10.00
-  > 10 ft



GRANITE REEF WASH

EXHIBIT 8A

FLO-2D
10-YR, 24-HR MAX DEPTH



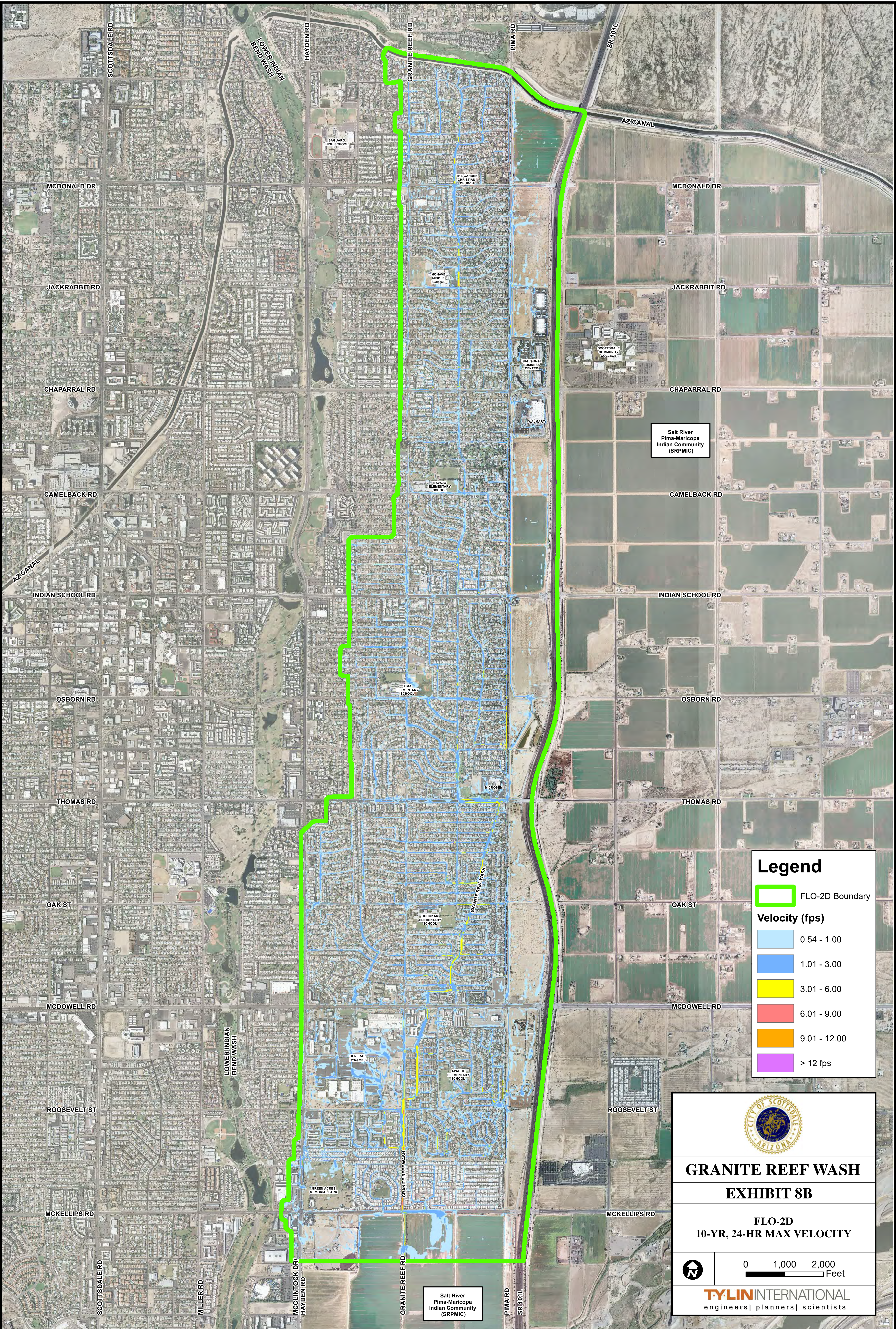
0 1,000 2,000

Feet

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Salt River
Pima-Maricopa
Indian Community
(SRPMIC)

Salt River
Pima-Maricopa
Indian Community
(SRPMIC)



Legend

FLO-2D Boundary

Velocity (fps)

- 0.54 - 1.00
- 1.01 - 3.00
- 3.01 - 6.00
- 6.01 - 9.00
- 9.01 - 12.00
- > 12 fps

GRANITE REEF WASH

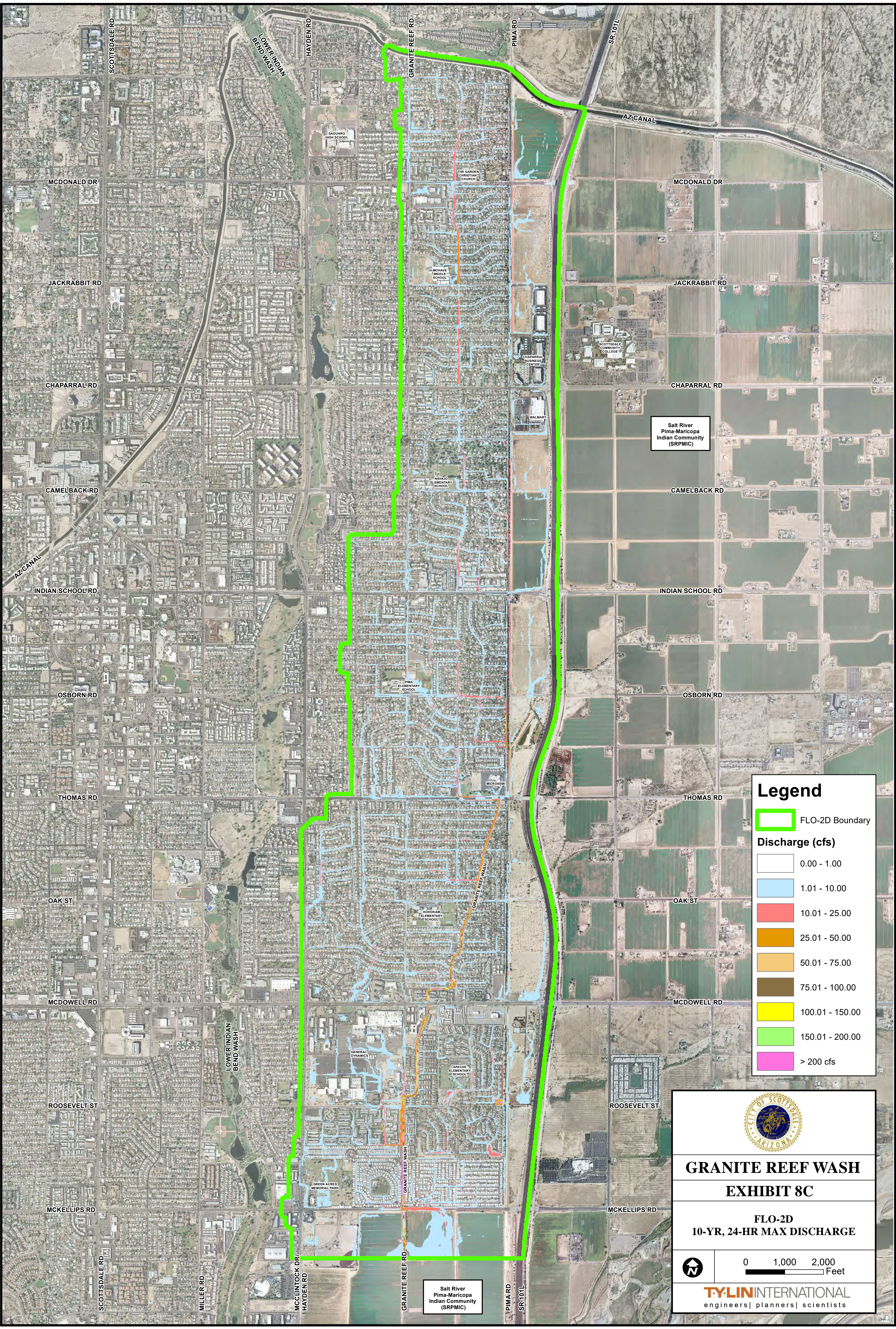
EXHIBIT 8B

FLO-2D
10-YR, 24-HR MAX VELOCITY


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Salt River
Pima-Maricopa
Indian Community
(SRPMIC)










Salt River
Pima-Maricopa
Indian Community
(SRPMIC)




Legend

 FLO-2D Boundary

Discharge (cfs)

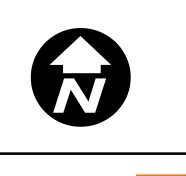
	0.00 - 1.00
	1.01 - 10.00
	10.01 - 25.00
	25.01 - 50.00
	50.01 - 75.00
	75.01 - 100.00
	100.01 - 150.00
	150.01 - 200.00
	> 200 cfs



GRANITE REEF WASH

EXHIBIT 8C

FLO-2D
10-YR, 24-HR MAX DISCHARGE

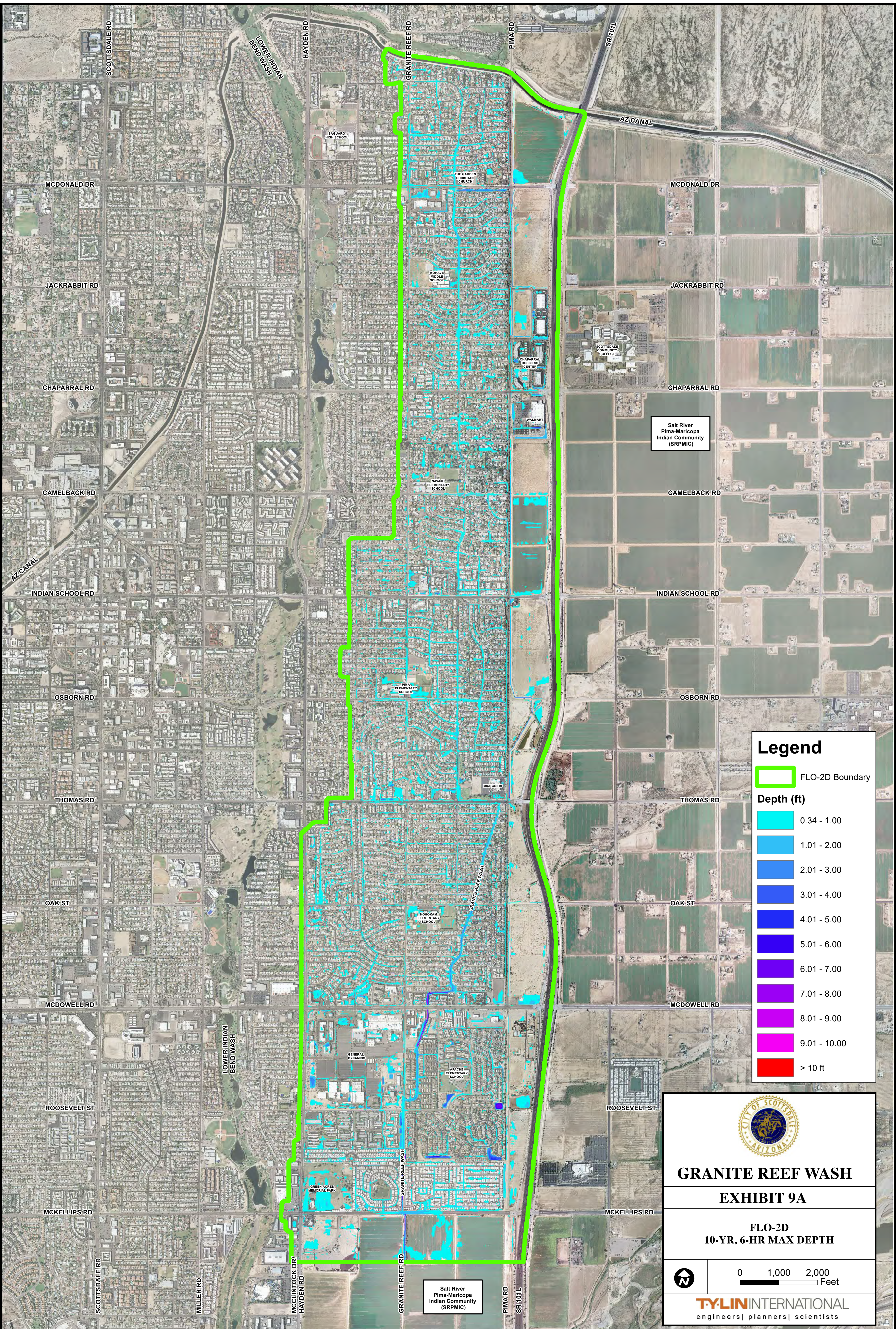


0 1,000 2,000
Feet


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Salt River
Pima-Maricopa
Indian Community
(SRPMIC)












Salt River
Pima-Maricopa
Indian Community
(SRPMIC)




Legend

 FLO-2D Boundary

Depth (ft)

-  0.34 - 1.00
-  1.01 - 2.00
-  2.01 - 3.00
-  3.01 - 4.00
-  4.01 - 5.00
-  5.01 - 6.00
-  6.01 - 7.00
-  7.01 - 8.00
-  8.01 - 9.00
-  9.01 - 10.00
-  > 10 ft




GRANITE REEF WASH

EXHIBIT 9A

FLO-2D
10-YR, 6-HR MAX DEPTH

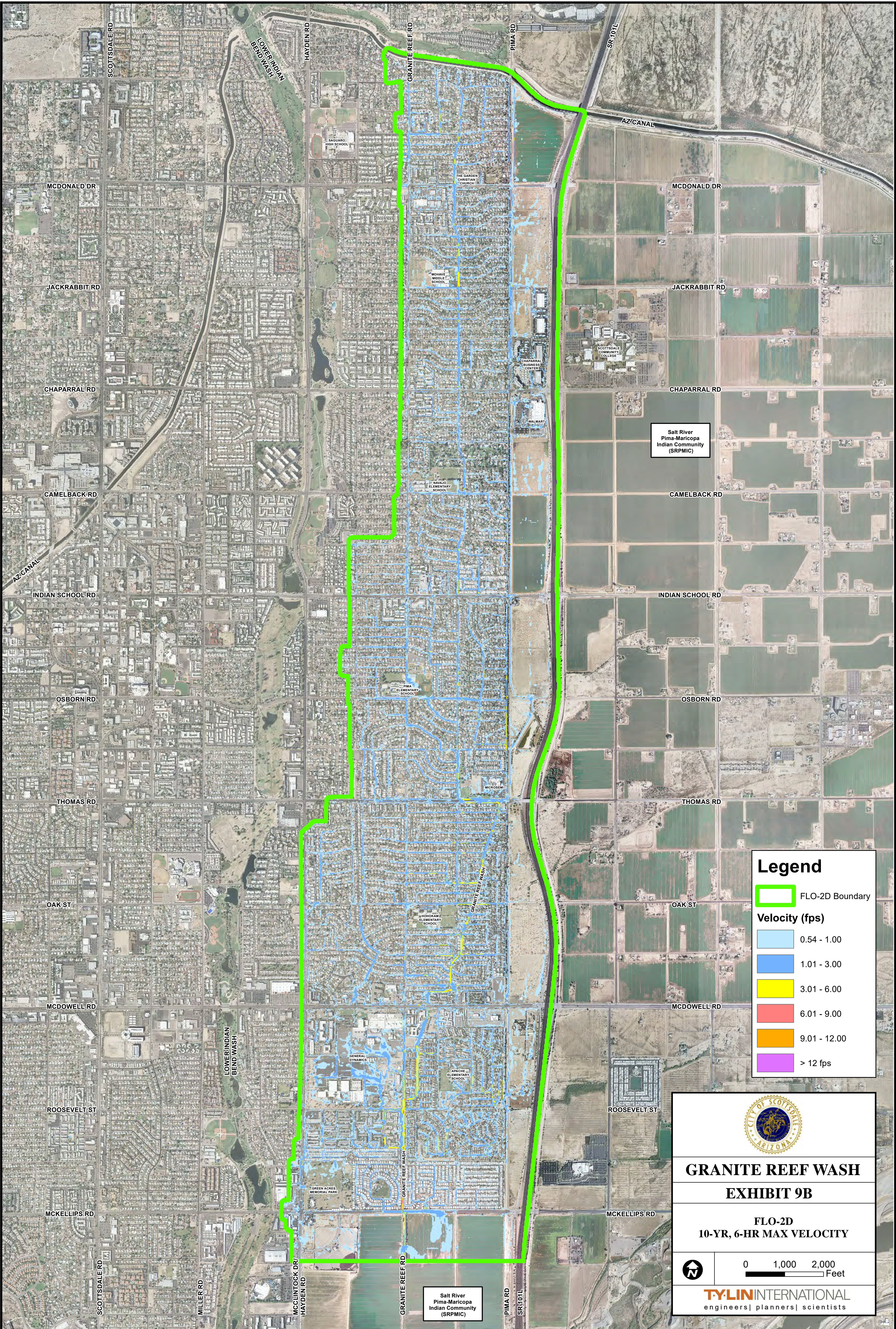
0 1,000 2,000 Feet



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Salt River Pima-Maricopa Indian Community (SRPMIC)

Salt River Pima-Maricopa Indian Community (SRPMIC)



Legend

- FLO-2D Boundary
- Velocity (fps)**
- 0.54 - 1.00
- 1.01 - 3.00
- 3.01 - 6.00
- 6.01 - 9.00
- 9.01 - 12.00
- > 12 fps



GRANITE REEF WASH
EXHIBIT 9B

FLO-2D
10-YR, 6-HR MAX VELOCITY



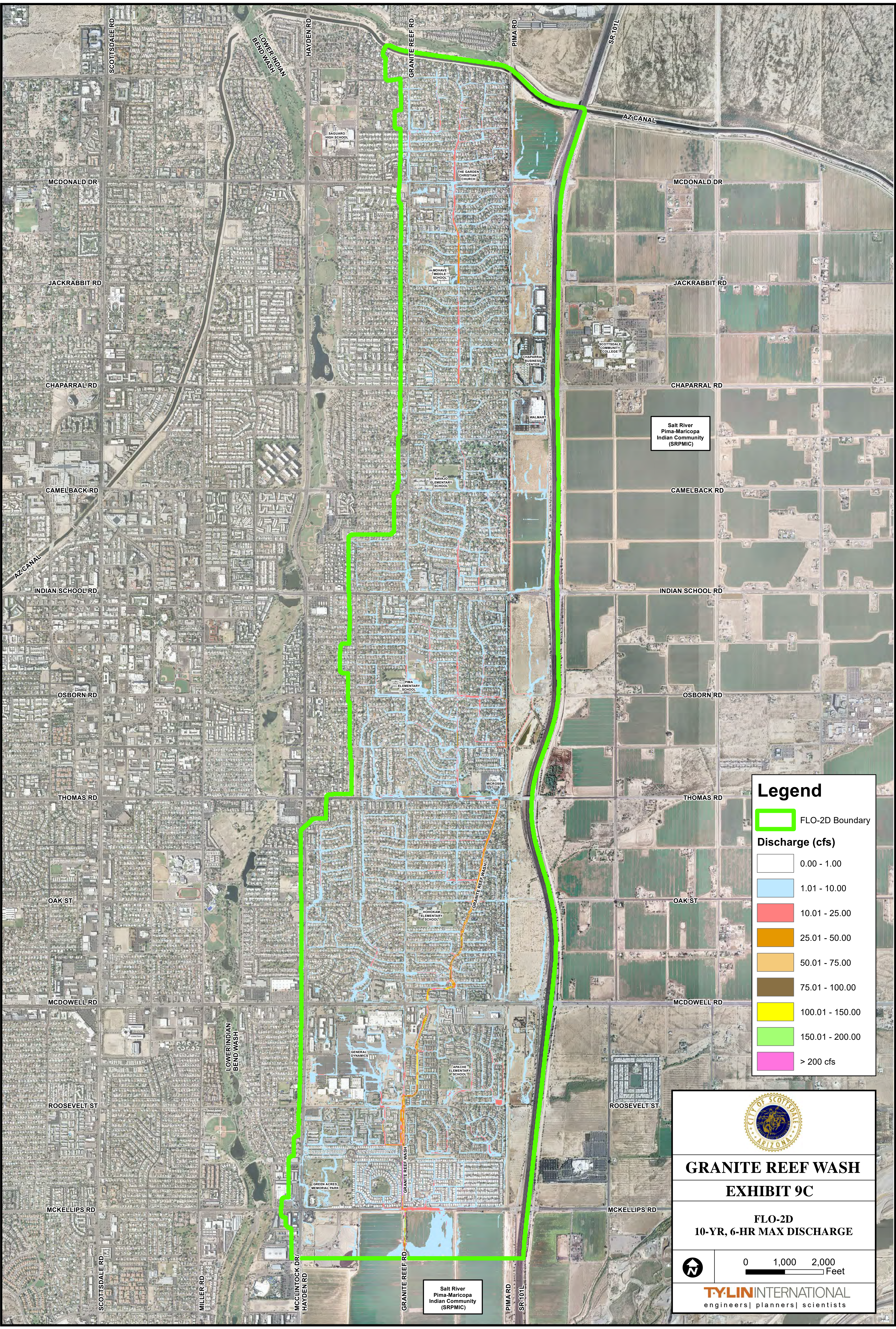
0 1,000 2,000

Feet


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Salt River Pima-Maricopa Indian Community (SRPMIC)










Salt River Pima-Maricopa Indian Community (SRPMIC)




Legend

 FLO-2D Boundary

Discharge (cfs)

	0.00 - 1.00
	1.01 - 10.00
	10.01 - 25.00
	25.01 - 50.00
	50.01 - 75.00
	75.01 - 100.00
	100.01 - 150.00
	150.01 - 200.00
	> 200 cfs



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ARIZONA

GRANITE REEF WASH

EXHIBIT 9C

FLO-2D
10-YR, 6-HR MAX DISCHARGE



0 1,000 2,000

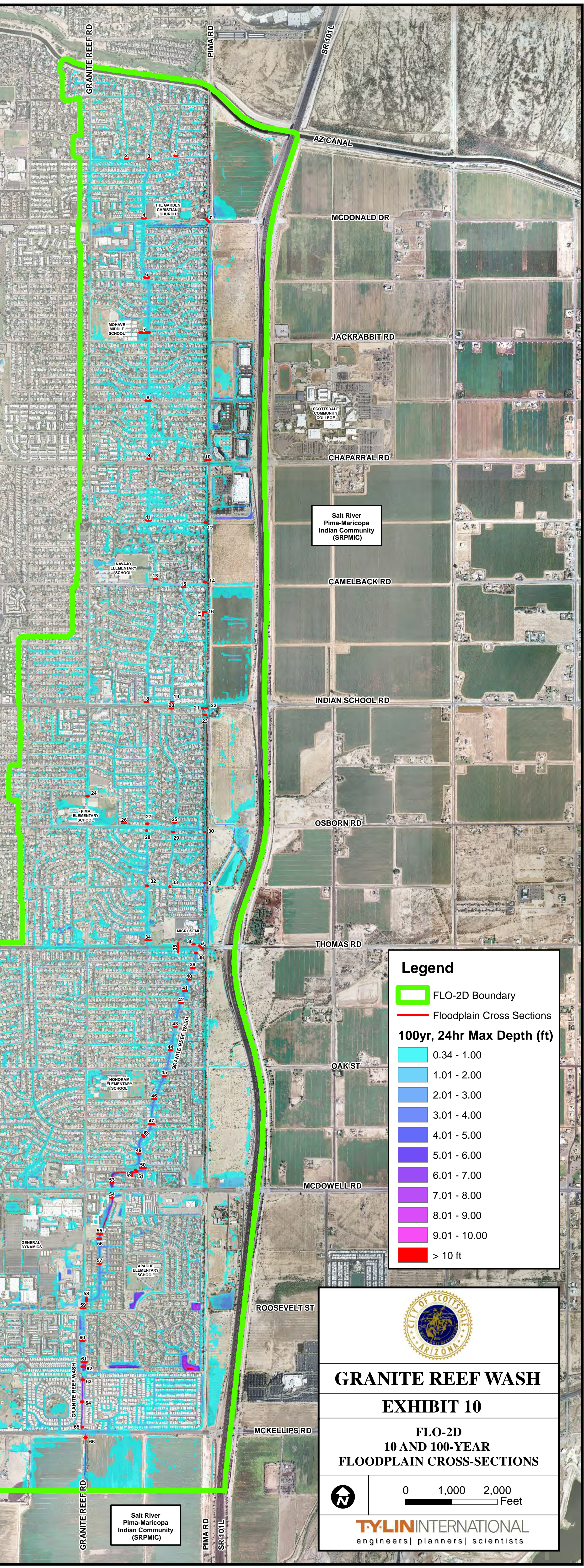
— Feet

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Salt River
Pima-Maricopa
Indian Community
(SRPMIC)

Salt River
Pima-Maricopa
Indian Community
(SRPMIC)

X-SEC #	Corresponding SWMM Conduit	Floodplain 10yr-24hr (cfs)	SWMM 10yr-24hr (cfs)	Floodplain 10yr-6hr (cfs)	SWMM 10yr-6hr (cfs)	Floodplain 100yr-24hr (cfs)	SWMM 100yr-24hr (cfs)	Floodplain 100yr-6hr (cfs)	SWMM 100yr-6hr (cfs)
1		16		16		41		43	
2		23		25		47		50	
3		25		29		49		56	
4		43		46		86		93	
5	C1EMDDPRL	1	13	4	19	54	21	50	18
6		59		61		141		125	
7		89		90		171		174	
8		49		49		95		96	
9		65		64		115		115	
10	C2ECHRPR	3	25	2	24	53	26	46	26
11		22		21		44		43	
12	C40SEISRPR	3	11	4	12	22	13	21	14
13		21		19		37		35	
14	C23SEISRPR	3	28	4	30	31	33	32	32
15		16		16		48		53	
16	C20SEISRPR	3	29	3	31	17	34	19	34
17		18		18		44		45	
18		25		25		35		37	
19		40		39		99		108	
20		0		0		11		13	
21		1		1		21		25	
22		0		0		4		6	
23	C43CP287STPRL	3	1	3	1	27	3	30	2
24		28		30		53		57	
25		17		17		35		38	
26		13		13		32		34	
27		41		39		77		79	
28		14		14		28		29	
29		39		37		82		83	
30	C2387STPRL	23	29	21	28	69	29	70	29
31	C1287STPRL	58	34	48	36	159	32	158	35
32		38		35		63		62	
33		11		10		22		21	
34		58		52		127		120	
35	C487STTRL	62	7	54	7	133	7	122	8
36	C1C187STTRL	12	2	14	4	31	4	26	4
37	C187STPRL	18	90	10	84	110	102	100	108
38	C2187ST	69	92	57	88	279	85	251	100
39	C1987ST	81	80	76	78	332	78	298	78
40	C1887ST	87	77	83	76	336	75	302	75
41	C1787ST	95	75	91	74	323	73	295	73
42	C1687ST	109	73	106	72	348	72	313	71
43	C1487ST	117	75	114	75	358	75	320	75
44	C1287ST	160	69	159	69	393	69	364	69
45	C1087ST	184	68	182	68	427	67	417	68
46	C887ST	188	66	184	66	434	66	421	67
47	C687ST	195	66	189	66	449	63	433	63
48	C487ST	210	63	204	63	442	63	432	63
49	C387ST	215	63	208	65	471	63	450	63
50	C287ST	235	67	227	73	425	67	414	70
51	C187ST	235	76	227	82	444	71	435	81
52		283		276		547		526	
53		283		274		554		536	
54		333		317		648		624	
55		333		314		644		618	
56	C3GRR84PLL	245	88	227	87	545	92	519	91
57	C1GRR84PLL	246	82	227	86	511	82	487	85
58	C4GRR	234	92	216	95	416	92	400	97
59	C4GRR	247	92	228	95	442	92	422	97
60	C2GRR	256	107	229	107	577	107	542	107
61	C1GRR	255	128	225	128	560	128	526	128
62		341		336		499		546	
63		361		336		566		544	
64		362		335		566		544	
65		361		333		566		544	
66		246		240		286		282	



Salt River Pima-Maricopa Indian Community (SRPMIC)

Salt River Pima-Maricopa Indian Community (SRPMIC)

Legend

- FLO-2D Boundary
- Floodplain Cross Sections

100yr, 24hr Max Depth (ft)

- 0.34 - 1.00
- 1.01 - 2.00
- 2.01 - 3.00
- 3.01 - 4.00
- 4.01 - 5.00
- 5.01 - 6.00
- 6.01 - 7.00
- 7.01 - 8.00
- 8.01 - 9.00
- 9.01 - 10.00
- > 10 ft

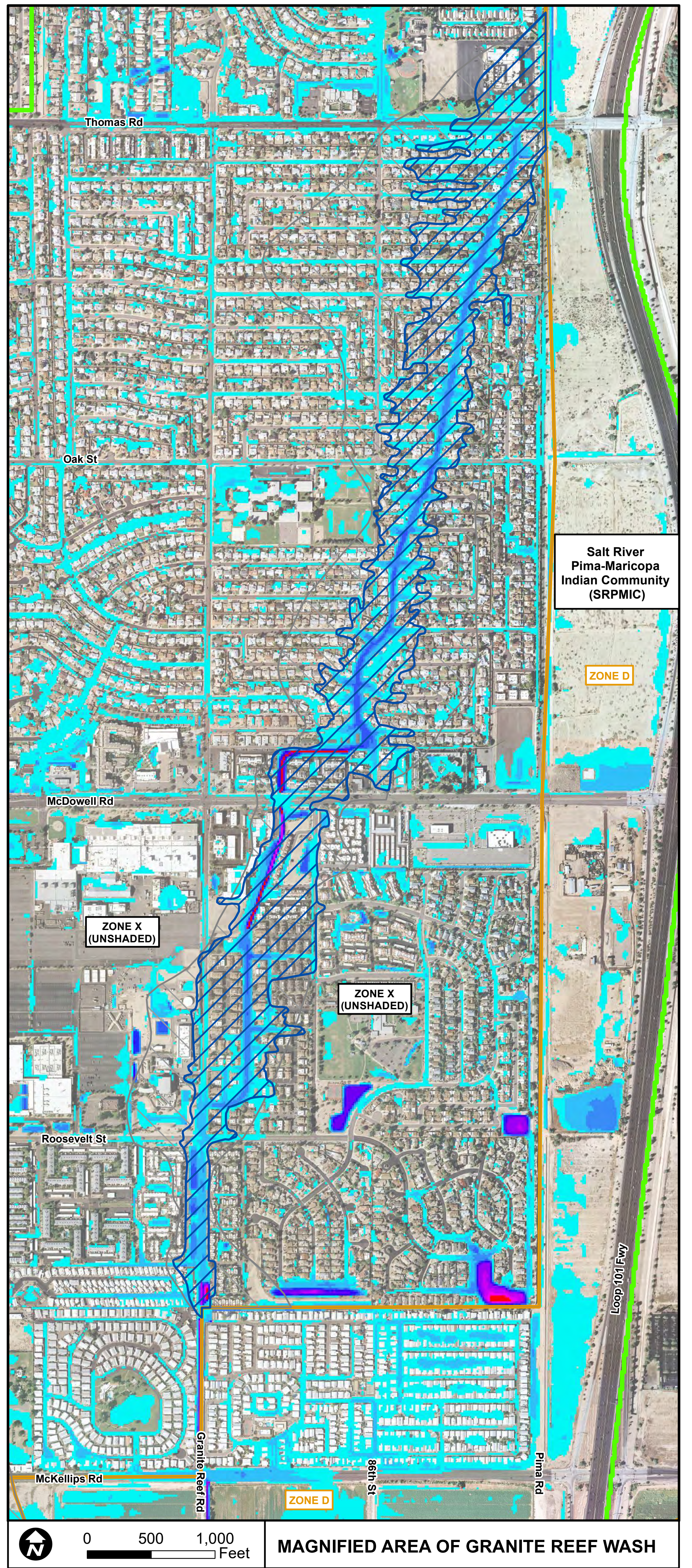
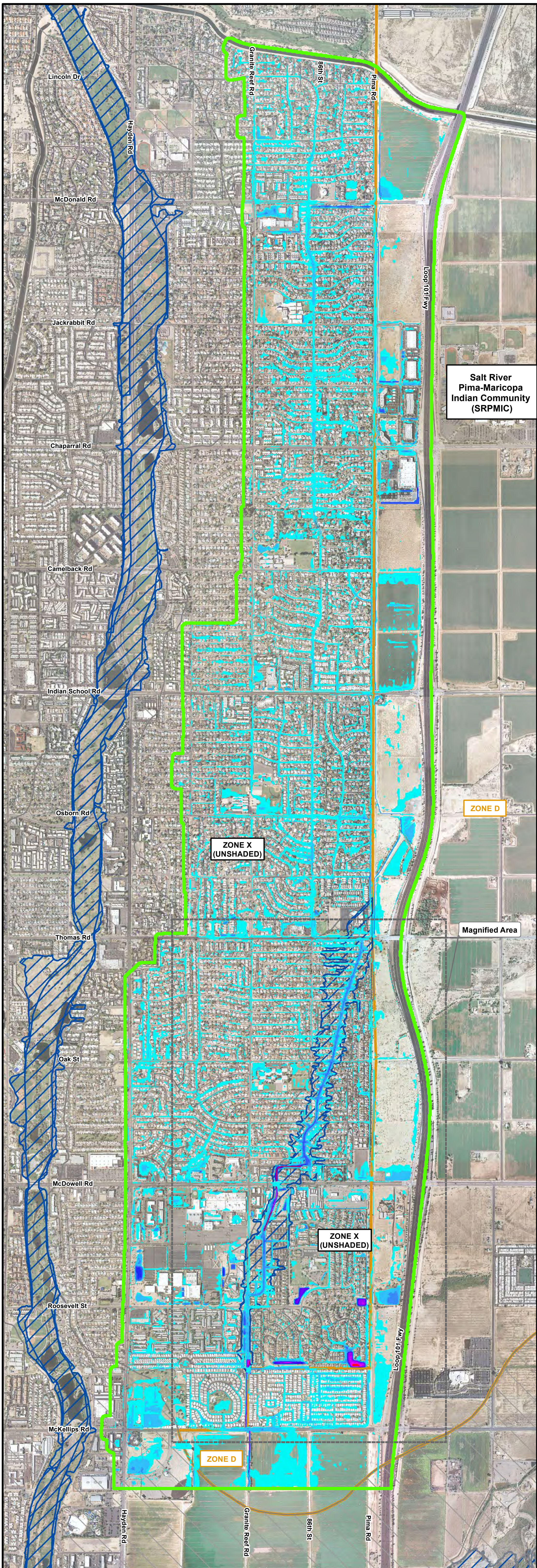
GRANITE REEF WASH

EXHIBIT 10

FLO-2D
10 AND 100-YEAR
FLOODPLAIN CROSS-SECTIONS

0 1,000 2,000 Feet

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LEGEND

FLO-2D Boundary

100-Year Depth (ft)

- 0.34 - 1.00
- 1.01 - 2.00
- 2.01 - 3.00
- 3.01 - 4.00
- 4.01 - 5.00
- 5.01 - 6.00
- 6.01 - 7.00
- 7.01 - 8.00
- 8.01 - 9.00
- 9.01 - 10.00
- > 10 ft

Effective FEMA Floodplains

- Zone X (Shaded)
- Zone AE
- Zone D
- Zone X (Unshaded)


FEMA Floodplain Definitions:

Zone X (Unshaded) - Minimal risk areas outside the 1 percent (100-year) and 0.2 percent (500-year) annual-chance floodplains.

Zone X (Shaded) - Moderate risk areas within the 0.2-percent (500-year) to 1-percent (100-year) annual-chance flooding. Average depths are less than 1-foot.

Zone AE - Areas subject to inundation by the 1-percent (100-year) annual-chance flood event determined by detailed methods.

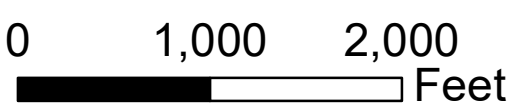
Zone D - Unstudied areas where flood hazards are undetermined But flooding is possible.



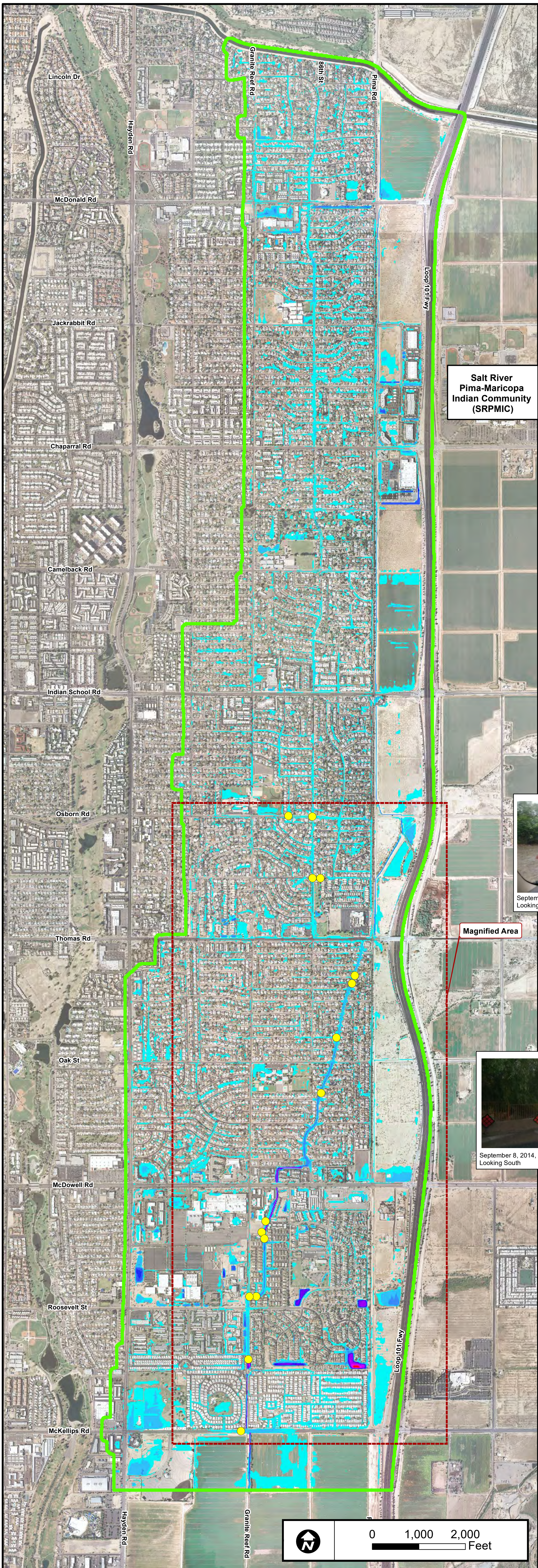
GRANITE REEF WASH

EXHIBIT 11

FLO-2D 100- YEAR FLOODPLAIN VS. EFFECTIVE FEMA FLOODPLAIN DELINEATION

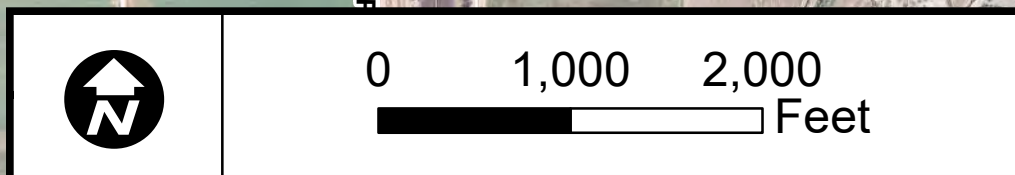


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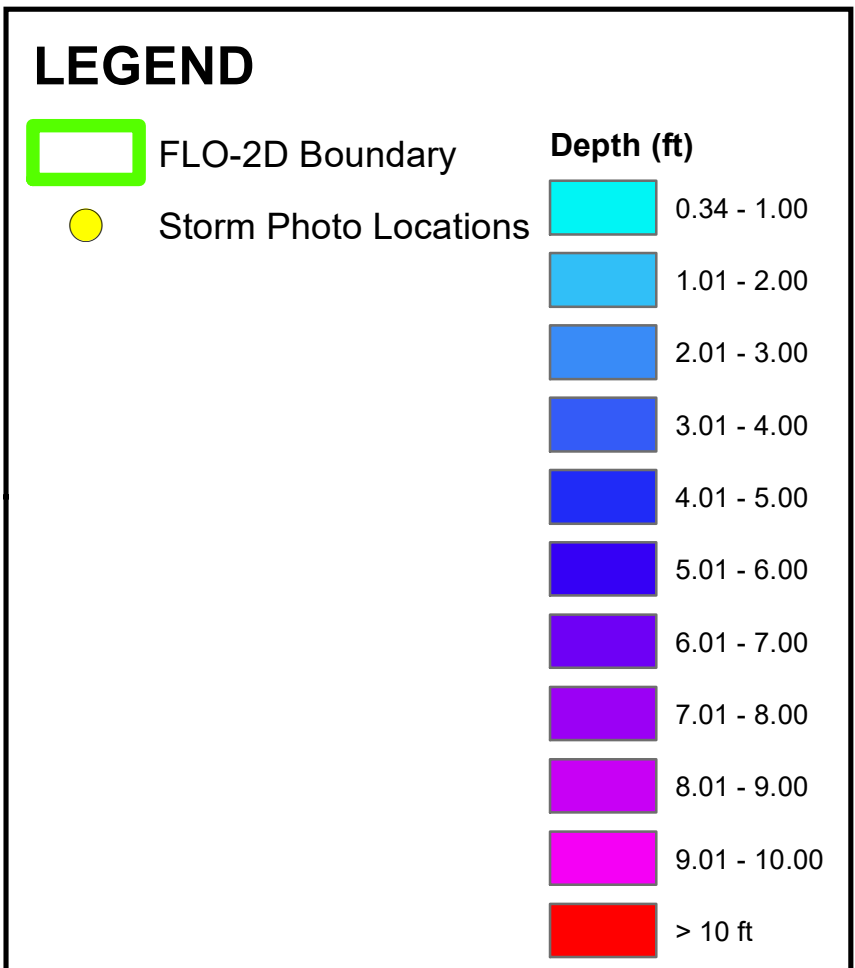
Salt River
Pima-Maricopa
Indian Community
(SRPMIC)


Magnified Area



Salt River
Pima-Maricopa
Indian Community
(SRPMIC)

MAGNIFIED AREA OF GRANITE REEF WASH



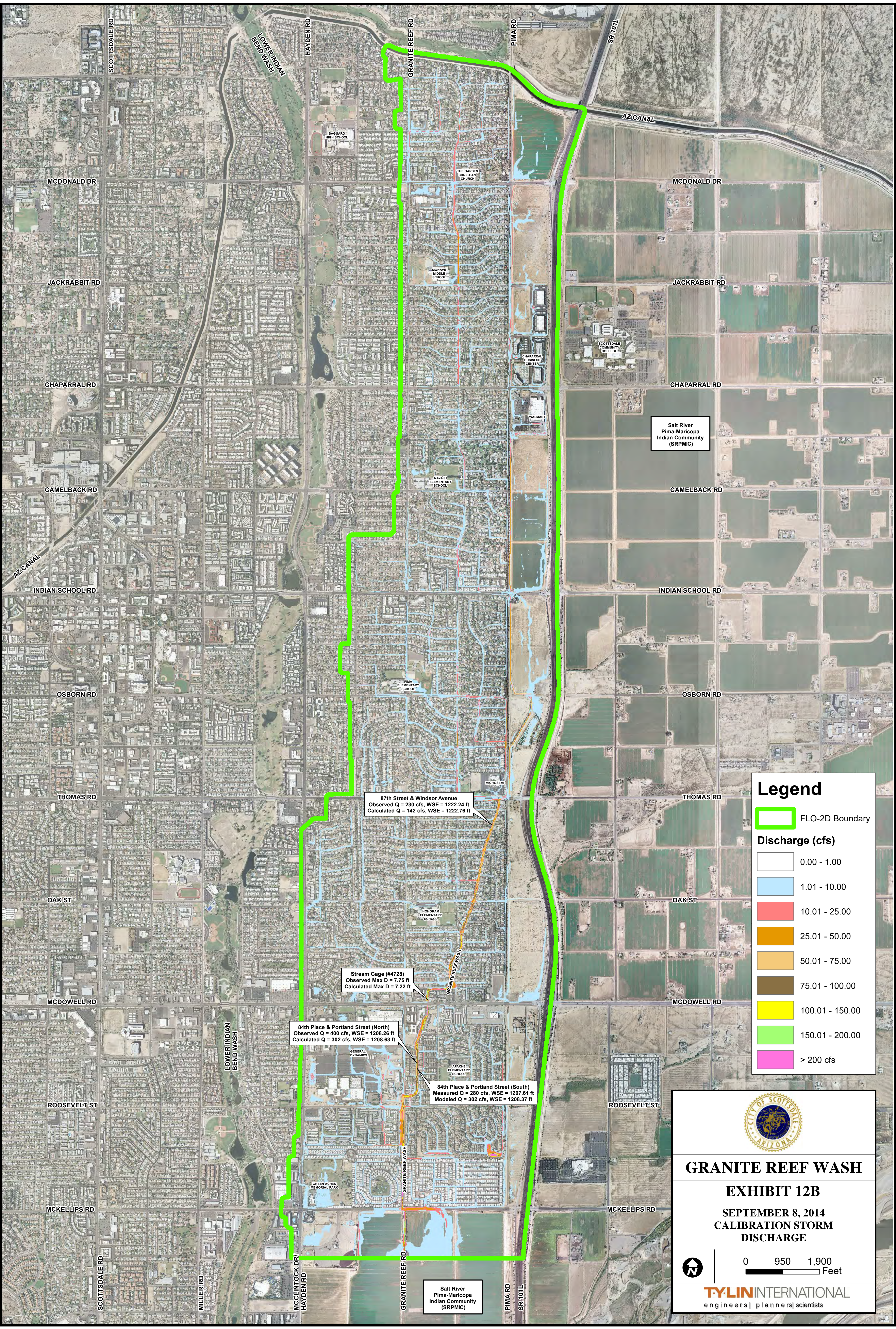


GRANITE REEF WASH

EXHIBIT 12A

**SEPTEMBER 8, 2014
CALIBRATION STORM
DEPTH**

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Legend

FLO-2D Boundary

Discharge (cfs)


	0.00 - 1.00
	1.01 - 10.00
	10.01 - 25.00
	25.01 - 50.00
	50.01 - 75.00
	75.01 - 100.00
	100.01 - 150.00
	150.01 - 200.00
	> 200 cfs

87th Street & Windsor Avenue
 Observed Q = 230 cfs, WSE = 1222.24 ft
 Calculated Q = 142 cfs, WSE = 1222.76 ft

Stream Gage (#4728)
 Observed Max D = 7.75 ft
 Calculated Max D = 7.22 ft

84th Place & Portland Street (North)
 Observed Q = 400 cfs, WSE = 1208.26 ft
 Calculated Q = 302 cfs, WSE = 1208.63 ft

84th Place & Portland Street (South)
 Measured Q = 280 cfs, WSE = 1207.61 ft
 Modeled Q = 302 cfs, WSE = 1208.37 ft




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ARIZONA

GRANITE REEF WASH

EXHIBIT 12B

SEPTEMBER 8, 2014
 CALIBRATION STORM
 DISCHARGE



0 950 1,900

Feet

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Salt River
 Pima-Maricopa
 Indian Community
 (SRPMIC)