

SAWA 2011 River Walk

Santa Ana River Habitat Evaluation

Transect Name: SAS 9

Date 9/15

Target UTM: 467563

3767030

Observers (writer/other)

General Location East side of RNM lead

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	DRY		
Channel position			
Width of Channel			
Max Depth & location in channel			
Depth Edge East (~4" from edge)			
Depth Edge West (~4" from edge)			
Bank East %Veg Overhand			
Bank West %Veg Overhang			
Substrate % mud/silt			
Substrate % sand			
Substrate % gravel			
Substrate % cobble			
Substrate % boulder			
Photo East Bank (time & #)	9:50 1		
Photo West Bank (time & #)	9:50 2		
Photo upstream (time & #)		3	
Photo downstream (time & #)		4	
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

SAWA 2011 River Walk

Santa Ana River Habitat Evaluation

Transect Name: SAS 10 **Date** _____

Target UTM: 467395 3766817

Observers (writer/other) _____

General Location Middle/West in channel

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	Dry		
Channel position			
Width of Channel			
Max Depth & location in channel			
Depth Edge East (~4" from edge)			
Depth Edge West (~4" from edge)			
Bank East %Veg Overhand			
Bank West %Veg Overhang			
Substrate % mud/silt			
Substrate % sand			
Substrate % gravel			
Substrate % cobble			
Substrate % boulder			
Photo East Bank (time & #)	10:00 5		
Photo West Bank (time & #)	6		
Photo upstream (time & #)	7		
Photo downstream (time & #)	8		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

SAWA 2011 River Walk

Santa Ana River Habitat Evaluation

Transect Name: SAS 11

Date: _____

Target UTM:

467246

3766581

Observers (writer/other)

General Location

West side of riverbed

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)			
Channel position	West		
Width of Channel	11.9		
Max Depth & location in channel	290 mm Center		
Depth Edge East (~4" from edge)	25 mm		
Depth Edge West (~4" from edge)	50 mm		
Bank East %Veg Overhand	0		
Bank West %Veg Overhang	45%		
Substrate % mud/silt	0		
Substrate % sand	0		
Substrate % gravel	0		
Substrate % cobble	100		
Substrate % boulder			
Photo East Bank (time & #)	10:05	9	
Photo West Bank (time & #)		10	
Photo upstream (time & #)		11	
Photo downstream (time & #)		12	
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)	RIX Effluent		

SAWA 2011 River Walk

Santa Ana River Habitat Evaluation

Transect Name: SAS 12

Date: _____

Target UTM:

467146

3766296

Observers (writer/other) _____

General Location

West side of Riverbed

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)			
Channel position	West		
Width of Channel	9.7m		
Max Depth & location in channel	335 East 9.7m side		
Depth Edge East (~4" from edge)	15mm		
Depth Edge West (~4" from edge)	25mm		
Bank East %Veg Overhand	0		
Bank West %Veg Overhang	0		
Substrate % mud/silt	0		
Substrate % sand	5%		
Substrate % gravel	5%		
Substrate % cobble	90%		
Substrate % boulder			
Photo East Bank (time & #)	13 10/20		
Photo West Bank (time & #)	14		
Photo upstream (time & #)	15		
Photo downstream (time & #)	16		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

SAWA 2011 River Walk

Santa Ana River Habitat Evaluation

Transect Name: SAS 13 Date _____
 Target UTM: 467182 3765997

Observers (writer/other) _____

General Location East side of river bed

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	Dry	467018 3766039	
Channel position		West side	
Width of Channel	5m	15m	
Max Depth & location in channel	245mm Middle	245mm Middle	
Depth Edge East (~4" from edge)		15mm	
Depth Edge West (~4" from edge)	52mm		
Bank East %Veg Overhand		0	
Bank West %Veg Overhang		0	
Substrate % mud/silt		0	
Substrate % sand		40%	
Substrate % gravel		20%	
Substrate % cobble	20%	20%	
Substrate % boulder			
Photo East Bank (time & #)	17 10:30	21 10:35	
Photo West Bank (time & #)	18	22	
Photo upstream (time & #)	19	23	
Photo downstream (time & #)	20	24	
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

SAWA 2011 River Walk

Santa Ana River Habitat Evaluation

Transect Name: SAS 14

Date _____

Target UTM:

466960

3765802

Observers (writer/other) _____

General Location West side

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)			
Channel position	West		
Width of Channel	10.6 m		
Max Depth & location in channel	290 mm center		
Depth Edge East (~4" from edge)	25 mm		
Depth Edge West (~4" from edge)	50 mm		
Bank East %Veg Overhand	0%		
Bank West %Veg Overhang	20%		
Substrate % mud/silt			
Substrate % sand	15%		
Substrate % gravel	45%		
Substrate % cobble	40%		
Substrate % boulder			
Photo East Bank (time & #)	25 10:40		
Photo West Bank (time & #)	26		
Photo upstream (time & #)	27		
Photo downstream (time & #)	28		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

SAWA 2011 River Walk

Santa Ana River Habitat Evaluation

Transect Name: SAS 15 **Date** _____
Target UTM: 466734 3765616

Observers (writer/other) _____

General Location West side of Riverbed

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	Dry	466893 3765555	466912 3765540
Channel position	West	Center-East	East
Width of Channel		11 m	11 m
Max Depth & location in channel		125 mm Center 30m	325 Center
Depth Edge East (~4" from edge)		15 mm	30
Depth Edge West (~4" from edge)		30 mm	75 mm
Bank East %Veg Overhand		100	100
Bank West %Veg Overhang		100	100
Substrate % mud/silt			
Substrate % sand		10%	
Substrate % gravel		15%	50%
Substrate % cobble		75%	50%
Substrate % boulder			
Photo East Bank (time & #)	29 10:50	33 10:55	37 11:00
Photo West Bank (time & #)	30	34	38
Photo upstream (time & #)	31	35	39
Photo downstream (time & #)	32	36	40
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)		overhang veg is mass and small bushes	

SAWA 2011 River Walk

Santa Ana River Habitat Evaluation

Transect Name: SAS 16 Date _____
 Target UTM: 466598 3765358

Observers (writer/other) _____

General Location West side

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	Dry	466698	
		3765282	
Channel position		East side	
Width of Channel		8.2 m	
Max Depth & location in channel		310 mm center	
Depth Edge East (~4" from edge)		154 mm	
Depth Edge West (~4" from edge)		10 mm	
Bank East %Veg Overhand		20%	
Bank West %Veg Overhang		20%	
Substrate % mud/silt			
Substrate % sand			
Substrate % gravel			
Substrate % cobble		50%	
Substrate % boulder		50%	
Photo East Bank (time & #)	41	11:20	45 11:25
Photo West Bank (time & #)	42		46
Photo upstream (time & #)	43		47
Photo downstream (time & #)	44		48
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)		Veg. is low bushes	

SAWA 2011 River Walk

Santa Ana River Habitat Evaluation

Transect Name: SAS 17 **Date** _____

Target UTM: 466498 3765072

Observers (writer/other) _____

General Location West _____

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)		466557 3765072	
Channel position	West	East Center	
Width of Channel		6.8 m	
Max Depth & location in channel		210 center	
Depth Edge East (~4" from edge)		10 mm	
Depth Edge West (~4" from edge)		15 mm	
Bank East %Veg Overhand		0	
Bank West %Veg Overhang		10%	
Substrate % mud/silt			
Substrate % sand			
Substrate % gravel		25	
Substrate % cobble		75	
Substrate % boulder			
Photo East Bank (time & #)	53	11:35	49 11:30
Photo West Bank (time & #)	54		50
Photo upstream (time & #)	55		51
Photo downstream (time & #)	56		52
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

SAWA 2011 River Walk

Santa Ana River Habitat Evaluation

Transect Name: SAS 18

Date: 9/15/2011

Target UTM: 466389

3764819

Observers (writer/other): Heather - FWS / Greg & David - RPU

General Location: South of Riverside Ave. - Dry!

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

10:00

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	466356E 3764855N		
Channel position	East		
Width of Channel	6.5m		
Max Depth & location in channel	34cm		
Depth Edge East (~4" from edge)	8cm		
Depth Edge West (~4" from edge)	4" 10cm		
Bank East %Veg Overhand	100%		
Bank West %Veg Overhang	100%		
Substrate % mud/silt	0		
Substrate % sand			
Substrate % gravel	40%		
Substrate % cobble	60%		
Substrate % boulder			
Photo East Bank (time & #)	1		
Photo West Bank (time & #)	2		
Photo upstream (time & #)	3		
Photo downstream (time & #)	4		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)	• Algae on river & saw Chub		

SAWA 2011 River Walk

Santa Ana River Habitat Evaluation

Transect Name: SAS 19

Date: 9/15/2011

Target UTM: 466226

3764556

Observers (writer/other): Heather - FWS / Greg & David - RPU

General Location: old location dry.

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

10:15

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	466185E 3764561N		
Channel position	East		
Width of Channel	12.5 m		
Max Depth & location in channel	27 cm		
Depth Edge East (~4" from edge)	3 cm		
Depth Edge West (~4" from edge)	4 cm		
Bank East %Veg Overhand	Ø		
Bank West %Veg Overhang	100%		
Substrate % mud/silt			
Substrate % sand	40%		
Substrate % gravel	55%		
Substrate % cobble	5%		
Substrate % boulder			
Photo East Bank (time & #)	5		
Photo West Bank (time & #)	6		
Photo upstream (time & #)	7		
Photo downstream (time & #)	8		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)	Algae on river sides		

S = sand
 G = gravel
 C = cobble

W

S gravel & cobble
E

SAWA 2011 River Walk

Santa Ana River Habitat Evaluation

Transect Name: SAS 20

Date 9/15/2011

Target UTM: 466060

3764316

Observers (writer/other) Heather - FWS / Greg & David - RPV

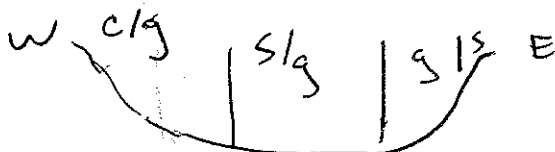
General Location original pt very close if not same as current, upstream of flood control channel

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

10:30

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	466041E 3764314N		
Channel position	East		
Width of Channel	7.7 m		
Max Depth & location in channel	26cm		
Depth Edge East (~4" from edge)	12 cm		
Depth Edge West (~4" from edge)	9 cm		
Bank East %Veg Overhand	100%		
Bank West %Veg Overhang	20%		
Substrate % mud/silt			
Substrate % sand	20%		
Substrate % gravel	70%		
Substrate % cobble	10%		
Substrate % boulder			
Photo East Bank (time & #)	9		
Photo West Bank (time & #)	10		
Photo upstream (time & #)	11		
Photo downstream (time & #)	12		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)	Algae in center of stream		

*sand located in center of stream



SAWA 2011 River Walk

Santa Ana River Habitat Evaluation

Transect Name: SAS 21 **Date** 9/15/2011
Target UTM: 465905 3764060
Observers (writer/other) Heather-FWS / Greg & David-RDU
General Location near levee, old point dry

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

10:42

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	0465890 E 3764073 N		
Channel position			
Width of Channel	8.8m		
Max Depth & location in channel	25 cm		
Depth Edge East (~4" from edge)	7 cm		
Depth Edge West (~4" from edge)	6 cm		
Bank East %Veg Overhand	0		
Bank West %Veg Overhang	0		
Substrate % mud/silt			
Substrate % sand	5%		
Substrate % gravel	80%		
Substrate % cobble	5%		
Substrate % boulder			
Photo East Bank (time & #)	13		
Photo West Bank (time & #)	14		
Photo upstream (time & #)	15		
Photo downstream (time & #)	16		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)	Algae on sides & sand		

SAWA 2011 River Walk

Santa Ana River Habitat Evaluation

Transect Name: SAS 22

Date 9/15/2011

Target UTM: 465727

3763828

Observers (writer/other) Heather-FWS / Greg & David-RPU

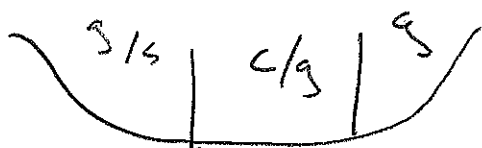
General Location -old point dry

Give or send all data sheets and photos to Richard Zenbal (Phone: 714-378-3213; address: ATTN: Richard Zenbal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

11:14

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	465674 E 3763872 N		
Channel position	East		
Width of Channel	13 m		
Max Depth & location in channel	31 cm		
Depth Edge East (~4" from edge)	2.5 cm		
Depth Edge West (~4" from edge)	5 cm		
Bank East %Veg Overhand	∅		
Bank West %Veg Overhang	100 %		
Substrate % mud/silt			
Substrate % sand	5 %		
Substrate % gravel	85 %		
Substrate % cobble	10 %		
Substrate % boulder			
Photo East Bank (time & #)	17		
Photo West Bank (time & #)	18		
Photo upstream (time & #)	19		
Photo downstream (time & #)	20		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)	Algae in center on cobbles & gravel		

SAS



SAWA 2011 River Walk

Santa Ana River Habitat Evaluation

Transect Name: SAS 23

Date: 9/15/2011

Target UTM: 465529

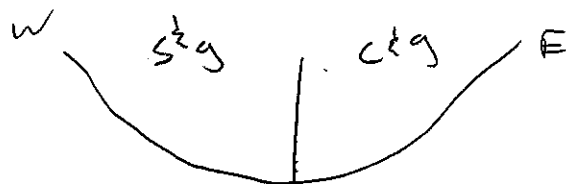
3763604

Observers (writer/other)

General Location: Heather - FWS / Greg & David - RPU

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	465488E 3763609N		
Channel position	East		
Width of Channel	13.7m		
Max Depth & location in channel	18cm		
Depth Edge East (~4" from edge)	2 cm		
Depth Edge West (~4" from edge)	5cm		
Bank East %Veg Overhand	∅		
Bank West %Veg Overhang	90%.		
Substrate % mud/silt			
S Substrate % sand	15%		
G Substrate % gravel	60%		
C Substrate % cobble	25%		
Substrate % boulder			
Photo East Bank (time & #)	21		
Photo West Bank (time & #)	22		
Photo upstream (time & #)	23		
Photo downstream (time & #)	24		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)	little edge on cobble		



SAWA 2011 River Walk

Santa Ana River Habitat Evaluation

Transect Name: SAS 24

Date 9/15/2011

Target UTM: 465313

3763402

Observers (writer/other) Heather - FWS / Greg & David - RPU

General Location old point up on East bank

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

11:22

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	465283E 3763439N		
Channel position	East		
Width of Channel	7.7 m		
Max Depth & location in channel	32 cm		
Depth Edge East (~4" from edge)	3.5 cm		
Depth Edge West (~4" from edge)	2 cm		
Bank East %Veg Overhand	Ø		
Bank West %Veg Overhang	Ø		
Substrate % mud/silt			
Substrate % sand			
Substrate % gravel	55%		
Substrate % cobble	45%		
Substrate % boulder			
Photo East Bank (time & #)	25		
Photo West Bank (time & #)	26		
Photo upstream (time & #)	27		
Photo downstream (time & #)	28		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			



SAWA 2011 River Walk

Santa Ana River Habitat Evaluation

Transect Name: SAS 25

Date 9/15/2011

Target UTM: 465119

3763178

Observers (writer/other) Heather - FWS / Greg & David - RPU

General Location

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

11:35

OBSERVATIONS	west channel	East	CHANNEL #3
	CHANNEL #1	CHANNEL #2	
Actual GPS coordinates in UTM (@ East bank)	465039E 3763306W	465043E 3763306	
Channel position	center bank		
Width of Channel	6.9 m	8.1 m	
Max Depth & location in channel	17 cm	16 cm	
Depth Edge East (~4" from edge)	4 cm	15 cm	
Depth Edge West (~4" from edge)	3 cm	7 cm	
Bank East %Veg Overhand	d	100%	
Bank West %Veg Overhang	30%	0%	
Substrate % mud/silt			
Substrate % sand	100%	99%	
Substrate % gravel		1%	
Substrate % cobble			
Substrate % boulder			
Photo East Bank (time & #)	29	33	
Photo West Bank (time & #)	30	34	
Photo upstream (time & #)	31	35	
Photo downstream (time & #)	32	36	
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

SAWA 2011 River Walk

Santa Ana River Habitat Evaluation

Transect Name: SAS 26 **Date:** 9/15/11
Target UTM: 464891 3763008
Observers (writer/other): Heather - FWS / Greg & David - RPU
General Location: old paint dry

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	464872 E 3763038 W		
Channel position	East		
Width of Channel	14.3 m		
Max Depth & location in channel	19 cm		
Depth Edge East (~4" from edge)	8 cm		
Depth Edge West (~4" from edge)	10 cm		
Bank East %Veg Overhand	1%		
Bank West %Veg Overhang	0%		
Substrate % mud/silt			
Substrate % sand	99%		
Substrate % gravel	1%		
Substrate % cobble			
Substrate % boulder			
Photo East Bank (time & #)	37		
Photo West Bank (time & #)	38		
Photo upstream (time & #)	39		
Photo downstream (time & #)	40		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

SAWA 2011 River Walk

Santa Ana River Habitat Evaluation

Transect Name: SAS 27 **Date** 9/15/11
Target UTM: 464709 3762787

Observers (writer/other) Randy Sheppard, Egon Swanson, Blake Yamamoto
General Location SAE n16 SE-60 Furry Branch

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	Dry. New Coord: S 046 46 46 376 2786		
Channel position	W. SIDE OF RIVER PLAIN		
Width of Channel	21.2 m		
Max Depth & location in channel	22 cm		
Depth Edge East (~4" from edge)	3 cm		
Depth Edge West (~4" from edge)	6 cm		
Bank East %Veg Overhand	80%		
Bank West %Veg Overhang	Ø		
Substrate % mud/silt			
Substrate % sand	98		
Substrate % gravel	2		
Substrate % cobble			
Substrate % boulder			
Photo East Bank (time & #)	945 1		
Photo West Bank (time & #)	945 2		
Photo upstream (time & #)	945 3		
Photo downstream (time & #)	945 4		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)	50' long x 3' wide Section of Cobble Coord:		

0464554
3762629

SAWA 2011 River Walk

Santa Ana River Habitat Evaluation

Transect Name: SAS 28

Date 9-18-2011

Target UTM: 464577

3762520

Observers (writer/other) Randy E. Jason, S. Blake Y.

General Location D.S. 5460

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	Dry NW Loc. 0664546 3762528		
Channel position	toward west		
Width of Channel	26.5 m		
Max Depth & location in channel	15 cm		
Depth Edge East (~4" from edge)	4 cm		
Depth Edge West (~4" from edge)	2 cm		
Bank East %Veg Overhand	100		
Bank West %Veg Overhang	100		
Substrate % mud/silt			
Substrate % sand	94%		
Substrate % gravel	5%		
Substrate % cobble	1%		
Substrate % boulder			
Photo East Bank (time & #)	2 1000		
Photo West Bank (time & #)	3 1000		
Photo upstream (time & #)	4 1000		
Photo downstream (time & #)	5 1000		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

SAWA 2011 River Walk Santa Ana River Habitat Evaluation

Transect Name: SAS 29

Date 9-15-2011

Target UTM: 464516

3762234

Observers (writer/other) Randy S. ~~Wason~~ S. Blake Y.

General Location D.S. SH 61

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	Same		
Channel position	toward east		
Width of Channel	33 m		
Max Depth & location in channel	18 cm		
Depth Edge East (~4" from edge)	4 cm		
Depth Edge West (~4" from edge)	4 cm		
Bank East %Veg Overhand	100%		
Bank West %Veg Overhang	100%		
Substrate % mud/silt			
Substrate % sand	96%		
Substrate % gravel			
Substrate % cobble	4%		
Substrate % boulder			
Photo East Bank (time & #)	9 1020		
Photo West Bank (time & #)	10 1020		
Photo upstream (time & #)	11 1020		
Photo downstream (time & #)	12 1020		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)	split just d.s. of point		

SAWA 2011 River Walk Santa Ana River Habitat Evaluation

Transect Name: SAS 30

Date 9-15-2011

Target UTM: 464384

3761974

Observers (writer/other) Randy S. Mason S., Blake Y.

General Location between Sibley & Mission

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	same		
Channel position	east levee top		
Width of Channel	19.6 m		
Max Depth & location in channel	15 cm		
Depth Edge East (~4" from edge)	13 cm		
Depth Edge West (~4" from edge)	4 cm		
Bank East %Veg Overhand	100%		
Bank West %Veg Overhang	95%		
Substrate % mud/silt			
Substrate % sand	100%		
Substrate % gravel			
Substrate % cobble			
Substrate % boulder			
Photo East Bank (time & #)	13 1030		
Photo West Bank (time & #)	14 1030		
Photo upstream (time & #)	15 1030		
Photo downstream (time & #)	16 1030		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

SAWA 2011 River Walk

Santa Ana River Habitat Evaluation

Transect Name: SAS 31

Date 9-15-2011

Target UTM: 464221

3761719

Observers (writer/other) Randy S., Jason S., Blake Y.

General Location between 5460 & Mission

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	0460218 3761723		
Channel position	east lower TOR		
Width of Channel	15.8 m		
Max Depth & location in channel	18 cm		
Depth Edge East (~4" from edge)	4 cm		
Depth Edge West (~4" from edge)	3 cm		
Bank East %Veg Overhang	100%		
Bank West %Veg Overhang	100%		
Substrate % mud/silt			
Substrate % sand	100%		
Substrate % gravel			
Substrate % cobble			
Substrate % boulder			
Photo East Bank (time & #)	17 1045		
Photo West Bank (time & #)	18 1045		
Photo upstream (time & #)	19 1045		
Photo downstream (time & #)	20 1045		
Photo other (describe)			
Photo other (describe)	21 ↓		
Notes (e.g. Islands, Obstructions)	gravel/cobble bed		

28m x 3m
0464178
3761703

SAWA 2011 River Walk Santa Ana River Habitat Evaluation

Transect Name: SAS 32

Date 9-15-2011

Target UTM: 464043

3761475

Observers (writer/other) Randy S. Jason S. Blakey.

General Location U.S. of Mission Blvd.

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	0464016 3761500		
Channel position	toward east bank		
Width of Channel	15 m		
Max Depth & location in channel	19 cm		
Depth Edge East (~4" from edge)	3 cm		
Depth Edge West (~4" from edge)	7 cm		
Bank East %Veg Overhand	100%		
Bank West %Veg Overhang	100%		
Substrate % mud/silt			
Substrate % sand	100%		
Substrate % gravel			
Substrate % cobble			
Substrate % boulder			
Photo East Bank (time & #)	22		
Photo West Bank (time & #)	23		
Photo upstream (time & #)	24		
Photo downstream (time & #)	25		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)	small island in center		

SAWA 2011 River Walk Santa Ana River Habitat Evaluation

Transect Name: SAS 33

Date 9-15-2011

Target UTM: 463862

3761243 - dry

Observers (writer/other) Randy S. Zambal S. Blukoff

General Location W.S. of Mission Blvd

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	046 3782 3761335		
Channel position	toward west side		
Width of Channel	17.8 m		
Max Depth & location in channel	18 cm center		
Depth Edge East (~4" from edge)	3 cm		
Depth Edge West (~4" from edge)	6 cm		
Bank East %Veg Overhang	100%		
Bank West %Veg Overhang	70%		
Substrate % mud/silt			
Substrate % sand			
Substrate % gravel			
Substrate % cobble			
Substrate % boulder			
Photo East Bank (time & #)	26 1110		
Photo West Bank (time & #)	27 1110		
Photo upstream (time & #)	28 1110		
Photo downstream (time & #)	29 1110		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

SAWA 2011 River Walk

Santa Ana River Habitat Evaluation

Transect Name: SAS 34

Date 9-15-2011

Target UTM: 463583

3761123 dry

Observers (writer/other) Randy S. Mason S. Blake Y.

General Location D.S of Mission Blvd.

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	0463514 3761150		
Channel position	west down to down		
Width of Channel	32.4		
Max Depth & location in channel	29 cm w. bank		
Depth Edge East (~4" from edge)	3 cm		
Depth Edge West (~4" from edge)	12 cm		
Bank East %Veg Overhand	100%		
Bank West %Veg Overhang	100%		
Substrate % mud/silt			
Substrate % sand	100%		
Substrate % gravel			
Substrate % cobble			
Substrate % boulder			
Photo East Bank (time & #)	30 1130		
Photo West Bank (time & #)	31 1130		
Photo upstream (time & #)	32 1130		
Photo downstream (time & #)	33 1130		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)	is land toward east side		

SAWA 2011 River Walk Santa Ana River Habitat Evaluation

Transect Name: SAS 35 **Date** 9/15/11
Target UTM: 463416 3760895 dry
Observers (writer/other) Dean, Michael, Tom
General Location Rubidoux Bridge

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	46335.6 3760935.1		
Channel position	far West side		
Width of Channel	41.5		
Max Depth & location in channel	9 cm West side of channel		
Depth Edge East (~4" from edge)	6 cm		
Depth Edge West (~4" from edge)	4 cm		
Bank East %Veg Overhand	100%		
Bank West %Veg Overhang	100%		
Substrate % mud/silt			
Substrate % sand	95		
Substrate % gravel			
Substrate % cobble	5		
Substrate % boulder			
Photo East Bank (time & #)	2		
Photo West Bank (time & #)	4		
Photo upstream (time & #)	1		
Photo downstream (time & #)	3		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

SAWA 2011 River Walk Santa Ana River Habitat Evaluation

Transect Name: SAS 36

Date 9/15/11

Target UTM: 463304

3760620 dry

Observers (writer/other) Dean, Michael, Tom

General Location behind peak of Mt. Rubidoux

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	463155.7 3760648.9		
Channel position	west side		
Width of Channel	51.2 m		
Max Depth & location in channel	7.5 cm middle		
Depth Edge East (~4" from edge)	3 cm		
Depth Edge West (~4" from edge)	3.5 cm		
Bank East %Veg Overhand	100%		
Bank West %Veg Overhang	100%		
Substrate % mud/silt			
Substrate % sand	100		
Substrate % gravel			
Substrate % cobble			
Substrate % boulder			
Photo East Bank (time & #)	7		
Photo West Bank (time & #)	6		
Photo upstream (time & #)	5		
Photo downstream (time & #)	8		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

SAWA 2011 River Walk Santa Ana River Habitat Evaluation

Transect Name: SAS 37

Date 9/15/11

Target UTM: 463037

3760488 dry

Observers (writer/other) Dean, Michael, Tom

General Location

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	463001.0 3760486.5		
Channel position	West side		
Width of Channel	24.8 m		
Max Depth & location in channel	8cm		
Depth Edge East (~4" from edge)	4cm		
Depth Edge West (~4" from edge)	3cm		
Bank East %Veg Overhand	100 %		
Bank West %Veg Overhang	100 %		
Substrate % mud/silt			
Substrate % sand	98		
Substrate % gravel			
Substrate % cobble	2		
Substrate % boulder			
Photo East Bank (time & #)	10		
Photo West Bank (time & #)	12		
Photo upstream (time & #)	9		
Photo downstream (time & #)	11		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

SAWA 2011 River Walk

Santa Ana River Habitat Evaluation

Transect Name: SAS 38 **Date** 9/15/11
Target UTM: 462863 3760225 dry
Observers (writer/other) Dean, Michael, Tom

General Location

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	462806.3 3760246.5		
Channel position	West side		
Width of Channel	31.8 m		
Max Depth & location in channel	7 cm		
Depth Edge East (~4" from edge)	3 cm		
Depth Edge West (~4" from edge)	4 cm		
Bank East %Veg Overhand	100%		
Bank West %Veg Overhang	100%		
Substrate % mud/silt			
Substrate % sand	99		
Substrate % gravel	1		
Substrate % cobble			
Substrate % boulder			
Photo East Bank (time & #)	14		
Photo West Bank (time & #)	16		
Photo upstream (time & #)	13		
Photo downstream (time & #)	15		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

SAWA 2011 River Walk Santa Ana River Habitat Evaluation

Transect Name: SAS ~~37~~ 37 **Date** 9/15/11
Target UTM: 462488 3759753 dry
Observers (writer/other) Dean, Michael, Tom
General Location end of Rio Rap

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	462604.0 3760010.8		
Channel position	west side		
Width of Channel	37.15		
Max Depth & location in channel	5 cm middle of channel		
Depth Edge East (~4" from edge)	4 cm		
Depth Edge West (~4" from edge)	3 cm		
Bank East %Veg Overhand	100%		
Bank West %Veg Overhang	95%		
Substrate % mud/silt			
Substrate % sand	98		
Substrate % gravel	2		
Substrate % cobble			
Substrate % boulder			
Photo East Bank (time & #)	18		
Photo West Bank (time & #)	20		
Photo upstream (time & #)	17		
Photo downstream (time & #)	19		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

SAWA 2011 River Walk Santa Ana River Habitat Evaluation

Transect Name: SAS ~~39~~ 40 **Date** 9/15/11
Target UTM: 462673 3759993 *middle of channel*
Observers (writer/other) Dean, Michael, Tom

General Location _____

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	462500.5 3759938.7	462452.6 3759767.2	
Channel position	<i>middle</i>	<i>west</i>	
Width of Channel	<i>40.15 m</i>	<i>8 m</i>	
Max Depth & location in channel	<i>7 cm west of channel</i>	<i>2 cm middle of channel</i>	
Depth Edge East (~4" from edge)	<i>1 cm</i>	<i>2 cm</i>	
Depth Edge West (~4" from edge)	<i>1.5 cm</i>	<i>.5 cm</i>	
Bank East %Veg Overhand	<i>95</i>	100 <i>95%</i>	
Bank West %Veg Overhang	<i>100</i>	<i>100%</i>	
Substrate % mud/silt			
Substrate % sand	<i>98</i>	<i>87</i>	
Substrate % gravel	<i>2</i>	<i>10</i>	
Substrate % cobble		<i>3</i>	
Substrate % boulder			
Photo East Bank (time & #)	<i>22</i>	<i>26</i>	
Photo West Bank (time & #)	<i>24</i>	<i>28</i>	
Photo upstream (time & #)	<i>21</i>	<i>25</i>	
Photo downstream (time & #)	<i>23</i>	<i>27</i>	
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

SAWA 2011 River Walk Santa Ana River Habitat Evaluation

Transect Name: SAS 41

Date 9/15/11

Target UTM: 462256

3759548

Observers (writer/other) Dean, Michael, Tom

General Location

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	462202.3 3759530.3	462184.7 3759550.6	
Channel position	East side	middle	
Width of Channel	25.75 m	8.9 m	
Max Depth & location in channel	9 cm west side	6 cm middle	
Depth Edge East (~4" from edge)	2 cm	2.5 cm	
Depth Edge West (~4" from edge)	3 cm	2 cm	
Bank East %Veg Overhand	100	100	
Bank West %Veg Overhang	100	100	
Substrate % mud/silt			
Substrate % sand	45	100	
Substrate % gravel	10		
Substrate % cobble	5		
Substrate % boulder			
Photo East Bank (time & #)	30	34	
Photo West Bank (time & #)	32	36	
Photo upstream (time & #)	29	33	
Photo downstream (time & #)	31	35	
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

SAWA 2011 River Walk Santa Ana River Habitat Evaluation

Transect Name: SAS 42 **Date** 9/15/11
Target UTM: 461985 3759412 *dry/marsh*
Observers (writer/other) *Dean, Michael, Tom*
General Location _____

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	461789.2 3759428.8		
Channel position	<i>middle</i>		
Width of Channel	<i>26.5</i>		
Max Depth & location in channel	<i>8 cm west side</i>		
Depth Edge East (~4" from edge)	<i>2 cm</i>		
Depth Edge West (~4" from edge)	<i>4 cm</i>		
Bank East %Veg Overhand	<i>100</i>		
Bank West %Veg Overhang	<i>100</i>		
Substrate % mud/silt	<i>5</i>		
Substrate % sand	<i>90</i>		
Substrate % gravel	<i>5</i>		
Substrate % cobble			
Substrate % boulder			
Photo East Bank (time & #)	<i>38</i>		
Photo West Bank (time & #)	<i>40</i>		
Photo upstream (time & #)	<i>37</i>		
Photo downstream (time & #)	<i>39</i>		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

SAWA 2011 River Walk

Santa Ana River Habitat Evaluation

Transect Name: SAS 43 **Date:** 9/15/11
Target UTM: 461691 3759312 *dry/marsh*
Observers (writer/other): Dean, Michael, Tom
General Location _____

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	461453.2 3759344.3		
Channel position	middle		
Width of Channel	33.15 m		
Max Depth & location in channel	8 in west side		
Depth Edge East (~4" from edge)	2 in		
Depth Edge West (~4" from edge)	3 in		
Bank East %Veg Overhand	10%		
Bank West %Veg Overhang	100%		
Substrate % mud/silt			
Substrate % sand	60		
Substrate % gravel	30		
Substrate % cobble	10		
Substrate % boulder			
Photo East Bank (time & #)	42		
Photo West Bank (time & #)	44		
Photo upstream (time & #)	41		
Photo downstream (time & #)	43		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

SAWA 2011 River Walk

Santa Ana River Habitat Evaluation

Transect Name: SAS 44 **Date:** 9/15/2011
Target UTM: 461400 3759292
Observers (writer/other): Anna Ewing, Joanna Gibson, Kim Freeburn-Marquez, Kerwin Russell
General Location: End of Tequesquite Landfill

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	461394 3759332		
Channel position	Middle		
Width of Channel	35m		
Max Depth & location in channel	0.22 m @ 18.2 m from west bank		
Depth Edge East (~4" from edge)	0.03 m		
Depth Edge West (~4" from edge)	0.06 m		
Bank East %Veg Overhand	100% algae No shade veg		
Bank West %Veg Overhang	100% algae NO shade veg		
Substrate % mud/silt	2		
Substrate % sand	95		
Substrate % gravel	1		
Substrate % cobble	1		
Substrate % boulder	0		
Photo East Bank (time & #)	65 10:05		
Photo West Bank (time & #)	64 10:05		
Photo upstream (time & #)	62 10:05		
Photo downstream (time & #)	63 10:05		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

Former east bank area now a dry sandy bench w/ immature vegetation (cottonwoods, bulrush).

SAWA 2011 River Walk Santa Ana River Habitat Evaluation

Transect Name: SAS 45

Date: 9/15/2011

Target UTM: 461118

3759327

Observers (writer/other)

Anna Emery, Joanna Gibson, Kim Freeburn - Marquez
Kermin Russell

General Location

between Tequesquite Landfill and Anza Nunnys Park

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	461121 3759232		
Channel position	East		
Width of Channel	26m		
Max Depth & location in channel	0.16m @ 0.5m from West bank		
Depth Edge East (~4" from edge)	0.07m		
Depth Edge West (~4" from edge)	0.075m		
Bank East %Veg Overhand	100% red willow, smartweed, watercress		
Bank West %Veg Overhang	100% smartweed		
Substrate % mud/silt	2		
Substrate % sand	97		
Substrate % gravel	1		
Substrate % cobble	0		
Substrate % boulder	0		
Photo East Bank (time & #)	69 10:25		
Photo West Bank (time & #)	68 10:25		
Photo upstream (time & #)	66 10:25		
Photo downstream (time & #)	67 10:25		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

former east bank now a dry sandy bench w/ immature vegetation (willows)

SAWA 2011 River Walk

Santa Ana River Habitat Evaluation

Transect Name: SAS 46 **Date:** 9/15/2011
Target UTM: 460944 3759091
Observers (writer/other): Anna Ewing, Joanna Gibson, Kim Freeburn-Maquez
General Location: Between Tequesquite landfill and Kerwin Russell
 Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)
↓
Anza Narrows Park

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	460947 3759123		
Channel position	middle		
Width of Channel	20m		
Max Depth & location in channel	0.28m @ 1m from west bank		
Depth Edge East (~4" from edge)	0.045m		
Depth Edge West (~4" from edge)	0.04m		
Bank East %Veg Overhand	100% cover aquatic veg (veronica)		
Bank West %Veg Overhang	100% cover bullrush		
Substrate % mud/silt	3		
Substrate % sand	90		
Substrate % gravel	1		
Substrate % cobble	0		
Substrate % boulder	0		
Photo East Bank (time & #)	73 10:40		
Photo West Bank (time & #)	72 10:40		
Photo upstream (time & #)	70 10:40		
Photo downstream (time & #)	71 10:40		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

Former east bank area now a dry sandy area with scattered cover

SAWA 2011 River Walk

Santa Ana River Habitat Evaluation

Transect Name: SAS 47 Date 9/15/2011

Target UTM: 460746 3758882

Observers (writer/other) Anna Erving, Joanna Gibson, Kim Freeburn-Marquez

General Location Between Tequesquite Landfill and Kevin Russell

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

Anza Nannys Park

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	460756 3758807		
Channel position	East		
Width of Channel	2.1m		
Max Depth & location in channel	0.22m @ 10m from west bank		
Depth Edge East (~4" from edge)	0.03m		
Depth Edge West (~4" from edge)	0.07m		
Bank East %Veg Overhand	100% smartweed, veronica, cattails		
Bank West %Veg Overhang	100% smartweed		
Substrate % mud/silt	2		
Substrate % sand	96		
Substrate % gravel	2		
Substrate % cobble	0		
Substrate % boulder	0		
Photo East Bank (time & #)	77 11:00		
Photo West Bank (time & #)	76 11:00		
Photo upstream (time & #)	74 11:00		
Photo downstream (time & #)	75 11:00		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

Former east bank in middle of present wetted channel

SAWA 2011 River Walk

Santa Ana River Habitat Evaluation

Transect Name: SAS 48 Date 9/15/2011

Target UTM: 460464 3758878

Observers (writer/other) Anna Ehms, Joanna Gibson, Kim Freeburn-Marguez, Kemin Russell

General Location Between Teguasquite Landfill and

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

↓
Anza Narrows Park

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	460463 3758702	460466 3758799	
Channel position	middle	middle	
Width of Channel	11m	7m	
Max Depth & location in channel	0.21m @ 4m from west bank	0.17m @ 6m from west bank	
Depth Edge East (~4" from edge)	0.05m	0.04m	
Depth Edge West (~4" from edge)	0.085m	0.03m	
Bank East %Veg Overhand	100% smartweed	0%	
Bank West %Veg Overhang	100% cattails	100% algae	
Substrate % mud/silt	1	<1	
Substrate % sand	99	99	
Substrate % gravel	0	<1	
Substrate % cobble	0	0	
Substrate % boulder	0	0	
Photo East Bank (time & #)	85 11:30	81 11:20	
Photo West Bank (time & #)	84 11:30	80 11:20	
Photo upstream (time & #)	82 11:30	78 11:20	
Photo downstream (time & #)	83 11:30	79 11:20	
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

Former east bank area dry and vegetated

SAWA 2011 River Walk

Santa Ana River Habitat Evaluation

Transect Name: SAS 49 **Date:** 9/15/2011
Target UTM: 460204 3758743
Observers (writer/other): Anna Ewing, Joanna Gibson, Kim Freeburn-Morquez, Kerwin Russell
General Location: Between Tequesquite landfill and Santa Ana Park
Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	460204 3758709		
Channel position	middle		
Width of Channel	22m		
Max Depth & location in channel	0.225 @ 15m from west bank		
Depth Edge East (~4" from edge)	0.027m		
Depth Edge West (~4" from edge)	0.03m		
Bank East %Veg Overhang	100% smartweed and fallen cottonwood tree		
Bank West %Veg Overhang	0%		
Substrate % mud/silt	2		
Substrate % sand	98		
Substrate % gravel	0		
Substrate % cobble	0		
Substrate % boulder	0		
Photo East Bank (time & #)	89		
Photo West Bank (time & #)	88		
Photo upstream (time & #)	86		
Photo downstream (time & #)	87		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

former eastbank area now a sandy dry bench w/ scattered immature veg

SAWA 2011 River Walk

Santa Ana River Habitat Evaluation

Transect Name: SAS 50

Date

9/15/2011

Target UTM:

459949

3758619

Observers (writer/other)

Anna Ehling, Joanna Gibson, Kim Freeburn-Marquez,
Kermin Russell

General Location

At Anza Narrows Park

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	459949 37586084	459949 37586097	
Channel position	east	east	
Width of Channel	10m	14m	
Max Depth & location in channel	0.15m @ 6m from west bank	0.20m @ 11.5m from west bank	
Depth Edge East (~4" from edge)	0.05m	0.10m	
Depth Edge West (~4" from edge)	0.025m	0.06m	
Bank East %Veg Overhand	100% smartweed	100% smartweed & rocklebur	
Bank West %Veg Overhang	100% smartweed	100% smartweed & reynoldsia	
Substrate % mud/silt	8	2	
Substrate % sand	77	97	
Substrate % gravel	15	1	
Substrate % cobble	0	0	
Substrate % boulder	0	0	
Photo East Bank (time & #)	93	97	
Photo West Bank (time & #)	92	90	
Photo upstream (time & #)	90	94	
Photo downstream (time & #)	91	95	
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

Former east bank sandy dry and vegetated

SAWA 2011 River Walk

Santa Ana River Habitat Evaluation

Transect Name: SAS 51 **Date:** 9/15/2011
Target UTM: 459694 3758774
Observers (writer/other): Anna Ewins, Joanna Gibson, Kim Freeburn-Marquez
General Location: At old bridge downstream of Anza Kerwin Russell
Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)
Kavanaugh Park

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	459719 3758784		
Channel position	middle		
Width of Channel	19m		
Max Depth & location in channel	0.32m @ 1m from west bank		
Depth Edge East (~4" from edge)	0.08m		
Depth Edge West (~4" from edge)	0.05		
Bank East %Veg Overhang	100% watercress Veronica @ west end		
Bank West %Veg Overhang	100% Veronica		
Substrate % mud/silt	2		
Substrate % sand	98		
Substrate % gravel	0		
Substrate % cobble	0		
Substrate % boulder	0		
Photo East Bank (time & #)	101		
Photo West Bank (time & #)	100		
Photo upstream (time & #)	98		
Photo downstream (time & #)	99		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

Farmer east bank dry and vegetated

SAWA 2011 River Walk

Santa Ana River Habitat Evaluation

Transect Name: SAS 52

Date SEPT 15 2011

Target UTM: 459384

3758743 → DRY

Observers (writer/other) GRANFORS/MILLS/GUNW4/SLOAN

General Location EAST BANK

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	S 459360 3758779	S 0459350 3758813	
Channel position	CENTER BANK		
Width of Channel	30 m	14m	
Max Depth & location in channel	16 cm	22 cm	
Depth Edge East (~4" from edge)	8 cm	4 cm	
Depth Edge West (~4" from edge)	14 cm	3 cm	
Bank East %Veg Overhand	10%	100%	
Bank West %Veg Overhang	90%	100%	
Substrate % mud/silt			
Substrate % sand	95%	98%	
Substrate % gravel	5%	2%	
Substrate % cobble			
Substrate % boulder			
Photo East Bank (time & #)			
Photo West Bank (time & #)			
Photo upstream (time & #)			
Photo downstream (time & #)			
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

SAWA 2011 River Walk

Santa Ana River Habitat Evaluation

Transect Name: SAS 53

Date Sept 15 2011

Target UTM: 459071

3758704

Observers (writer/other) _____

General Location _____

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	5459071 3758704		
Channel position			
Width of Channel	47.9m		
Max Depth & location in channel	21cm Center		
Depth Edge East (~4" from edge)	6cm		
Depth Edge West (~4" from edge)	8cm		
Bank East %Veg Overhand	5%		
Bank West %Veg Overhang	50%		
Substrate % mud/silt			
Substrate % sand	98%		
Substrate % gravel	2%		
Substrate % cobble			
Substrate % boulder			
Photo East Bank (time & #)			
Photo West Bank (time & #)			
Photo upstream (time & #)			
Photo downstream (time & #)			
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

SAWA 2011 River Walk

Santa Ana River Habitat Evaluation

Transect Name: SAS 54 **Date** 9/15/11
Target UTM: 458761 3758693
Observers (writer/other) Ewing, G. Santos, Mills, Sloan
General Location _____

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	458797 3758680		
Channel position	East bank		
Width of Channel	36.7 m		
Max Depth & location in channel	21 Mid. East		
Depth Edge East (~4" from edge)	10 cm		
Depth Edge West (~4" from edge)	3 cm		
Bank East %Veg Overhand	15%		
Bank West %Veg Overhang	100%		
Substrate % mud/silt			
Substrate % sand	100%		
Substrate % gravel			
Substrate % cobble			
Substrate % boulder			
Photo East Bank (time & #)			
Photo West Bank (time & #)			
Photo upstream (time & #)			
Photo downstream (time & #)			
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

SAWA 2011 River Walk

Santa Ana River Habitat Evaluation

Transect Name: SAS 55 **Date** 9/15/11
Target UTM: 458459 3758731
Observers (writer/other) Mills, Granfors, Ewing, Sloan
General Location _____

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	S 0458458 3758742		
Channel position	West		
Width of Channel	39 m		
Max Depth & location in channel	21 cm		
Depth Edge East (~4" from edge)	9 cm		
Depth Edge West (~4" from edge)	5 cm		
Bank East %Veg Overhand	100%		
Bank West %Veg Overhang	100%		
Substrate % mud/silt			
Substrate % sand	100%		
Substrate % gravel			
Substrate % cobble			
Substrate % boulder			
Photo East Bank (time & #)			
Photo West Bank (time & #)			
Photo upstream (time & #)			
Photo downstream (time & #)			
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)	Original position dry		

SAWA 2011 River Walk Santa Ana River Habitat Evaluation

Transect Name: SAS 56 **Date** 9/15/11
Target UTM: 458181 3758627
Observers (writer/other) Sloan, Mills, Grantors, Ewing
General Location _____

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	458180 3758678		
Channel position	West		
Width of Channel	34.9 m		
Max Depth & location in channel	26 cm		
Depth Edge East (~4" from edge)	11 cm		
Depth Edge West (~4" from edge)	46 cm		
Bank East %Veg Overhang	100%		
Bank West %Veg Overhang	50%		
Substrate % mud/silt			
Substrate % sand	100%		
Substrate % gravel			
Substrate % cobble			
Substrate % boulder			
Photo East Bank (time & #)			
Photo West Bank (time & #)			
Photo upstream (time & #)			
Photo downstream (time & #)			
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

original position dry

SAWA 2011 River Walk Santa Ana River Habitat Evaluation

Transect Name: SAS 57 **Date** 9/18/11

Target UTM: 457941 3758468

Observers (writer/other) Sloan, Mills, Granfors, Ewing

General Location _____

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	457941 3758468		
Channel position	East		
Width of Channel	52 m		
Max Depth & location in channel	15 cm west		
Depth Edge East (~4" from edge)	7 cm		
Depth Edge West (~4" from edge)	8 cm		
Bank East %Veg Overhand	80%		
Bank West %Veg Overhang	100%		
Substrate % mud/silt			
Substrate % sand	100%		
Substrate % gravel			
Substrate % cobble			
Substrate % boulder			
Photo East Bank (time & #)			
Photo West Bank (time & #)			
Photo upstream (time & #)			
Photo downstream (time & #)			
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

SAWA 2011 River Walk

Santa Ana River Habitat Evaluation

Transect Name: SAS 58 Date 9/18/11
Target UTM: 457662 **3758360**
Observers (writer/other) Sloan, Granfors, Ewing, Mills
General Location _____

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	475663 3758369		
Channel position	East		
Width of Channel	33.4 m		
Max Depth & location in channel	26 cm center		
Depth Edge East (~4" from edge)	14 cm		
Depth Edge West (~4" from edge)	6 cm		
Bank East %Veg Overhand	100%		
Bank West %Veg Overhang	0%		
Substrate % mud/silt			
Substrate % sand	100%		
Substrate % gravel			
Substrate % cobble			
Substrate % boulder			
Photo East Bank (time & #)			
Photo West Bank (time & #)			
Photo upstream (time & #)			
Photo downstream (time & #)			
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

SAWA 2011 River Walk

Santa Ana River Habitat Evaluation

Transect Name: SAS 59

Date 9/15/11

Target UTM: 457387

3758263

Observers (writer/other) Mills, Sloan, Grantol, Ewing

General Location _____

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	457395 3758292		
Channel position	East		
Width of Channel	43.2m		
Max Depth & location in channel	40cm west		
Depth Edge East (~4" from edge)	2cm		
Depth Edge West (~4" from edge)	33cm		
Bank East %Veg Overhand	25%		
Bank West %Veg Overhang	100%		
Substrate % mud/silt			
Substrate % sand	100%		
Substrate % gravel			
Substrate % cobble			
Substrate % boulder			
Photo East Bank (time & #)			
Photo West Bank (time & #)			
Photo upstream (time & #)			
Photo downstream (time & #)			
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

Old coordinate dry

SAWA 2011 River Walk Santa Ana River Habitat Evaluation

Transect Name: SAS 60

Date 9/15/11

Target UTM: 457085

3758325

Observers (writer/other) Sloan, Mills, Granfors, Ewing

General Location _____

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	457085 , 457083 375213		
Channel position	Mid. East		
Width of Channel	34m		
Max Depth & location in channel	29 cm		
Depth Edge East (~4" from edge)	11 cm		
Depth Edge West (~4" from edge)	11 cm		
Bank East %Veg Overhand	75%		
Bank West %Veg Overhang	50%		
Substrate % mud/silt			
Substrate % sand	95%		
Substrate % gravel			
Substrate % cobble	5%		
Substrate % boulder			
Photo East Bank (time & #)			
Photo West Bank (time & #)			
Photo upstream (time & #)			
Photo downstream (time & #)			
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

old point high & dry

SAWA 2011 River Walk

Santa Ana River Habitat Evaluation

Transect Name: SAS 61

Date: 9/15/11

Target UTM: 456795

3758279

(Dry)

Observers (writer/other): Joseph Sherrock, Betty Dionne, Maricela Parameo

General Location: Van Buren Bridge

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	456894 3758106		
Channel position	East	West	
Width of Channel	24.8m		
Max Depth & location in channel	(66cm) ~ 3m from E Bank		
Depth Edge East (~4" from edge)	10.25m		
Depth Edge West (~4" from edge)	15cm		
Bank East %Veg Overhand	5		
Bank West %Veg Overhang	0		
Substrate % mud/silt			
Substrate % sand	85		
Substrate % gravel	15		
Substrate % cobble			
Substrate % boulder			
Photo East Bank (time & #)	0331		
Photo West Bank (time & #)	0330		
Photo upstream (time & #)	0332		
Photo downstream (time & #)	0333		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)	Construction disrupted river ~ 200m to South (Van Buren Bridge)		

SAWA 2011 River Walk

Santa Ana River Habitat Evaluation

Transect Name: SAS 62

Date: 9-15-11

Target UTM: 456509

3758182 (Dry)

Observers (writer/other): Joseph Shevock, Betsy Dinning, Maricela Paramo

General Location

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	0456502 3758126		
Channel position			
Width of Channel	28.21m		
Max Depth & location in channel	55cm 1m from E bank		
Depth Edge East (~4" from edge)	7.6cm		
Depth Edge West (~4" from edge)	3.5cm		
Bank East %Veg Overhand	100% 80%		
Bank West %Veg Overhang	80% 100%		
Substrate % mud/silt	0		
Substrate % sand	99%		
Substrate % gravel	1%		
Substrate % cobble	0		
Substrate % boulder	0		
Photo East Bank (time & #)	10:45 0335		
Photo West Bank (time & #)	" 0334		
Photo upstream (time & #)	" 0336		
Photo downstream (time & #)	" 0337		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)	Channel moved 60m South due to construction on Jan Biken Bridge		

Jan Biken Bridge

SAWA 2011 River Walk

Santa Ana River Habitat Evaluation

Transect Name: SAS 63

Date 9/15/11

Target UTM: 456222

3758120

Observers (writer/other) Joseph Sherrick, Retsy Dianne, Maricela Brama

General Location

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)		456981 3758270	
Channel position	East	West	
Width of Channel	33.35 M	22.78 M	
Max Depth & location in channel	22.4cm deep/ 3.5 M from E bank	29cm deep/ 10cm from E bank	
Depth Edge East (~4" from edge)	7cm	29cm	
Depth Edge West (~4" from edge)	8.1 cm	12.3 cm	
Bank East %Veg Overhand	25%	90%	
Bank West %Veg Overhang	100%	100%	
Substrate % mud/silt			
Substrate % sand	100%	100%	
Substrate % gravel			
Substrate % cobble			
Substrate % boulder			
Photo East Bank (time & #)	0338 11:05am	0342 11:12am	
Photo West Bank (time & #)	0339 11:05am	0344 11:12am	
Photo upstream (time & #)	0340 11:05am	0345 11:12am	
Photo downstream (time & #)	0341 11:05am	0346 11:12am	
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

SAWA 2011 River Walk

Santa Ana River Habitat Evaluation

Transect Name: SAS 64

Date 9/15/11

Target UTM: 455986

3758279

Observers (writer/other) Joseph Sherrcock, Retsy Dimme, Maricela Arano

General Location

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	0455956 3758242	0455981 3758270	
Channel position	East	West	
Width of Channel	19m	39.45	
Max Depth & location in channel	21.2cm/ 6m from Ebank	3.2m from W bank 35.5cm	
Depth Edge East (~4" from edge)	3cm	2.8cm	
Depth Edge West (~4" from edge)	4.7cm	5.6cm	
Bank East %Veg Overhand	50%	100%	
Bank West %Veg Overhang	50%	100%	
Substrate % mud/silt			
Substrate % sand	100%	100%	
Substrate % gravel			
Substrate % cobble			
Substrate % boulder			
Photo East Bank (time & #)	11:27 0348	11:34 0351	
Photo West Bank (time & #)	11:27 0347	" 0352	
Photo upstream (time & #)	11:27 0349	" 0353	
Photo downstream (time & #)	11:27 0350	" 0354	
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

SAWA 2011 River Walk

Santa Ana River Habitat Evaluation

Transect Name: SAS 65

Date 9-15-11

Target UTM: 455777

3758499

Observers (writer/other) Betty Dionne, Joseph Skerrock, Maricela Parano

General Location

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	Same		
Channel position			
Width of Channel	81.1		
Max Depth & location in channel	36m on far W Bank		
Depth Edge East (~4" from edge)	8cm		
Depth Edge West (~4" from edge)	10cm		
Bank East %Veg Overhand	100%		
Bank West %Veg Overhang	100%		
Substrate % mud/silt			
Substrate % sand	100%		
Substrate % gravel			
Substrate % cobble			
Substrate % boulder			
Photo East Bank (time & #)	11:52 0355		
Photo West Bank (time & #)	" 0356		
Photo upstream (time & #)	" 0357		
Photo downstream (time & #)	" 0358		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

SAWA 2011 River Walk

Santa Ana River Habitat Evaluation

Transect Name: SAS 66

Date 9-15-11

Target UTM: 455506

3758530 Dry

Observers (writer/other) Joseph Sheroock, Betsy Dione, Maricela Paramo

General Location

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	0455528 375638		
Channel position			
Width of Channel	60.3 m		
Max Depth & location in channel	47cm/ 1m from W bank		
Depth Edge East (~4" from edge)	5cm		
Depth Edge West (~4" from edge)	14.5cm		
Bank East %Veg Overhand	100%		
Bank West %Veg Overhang	100%		
Substrate % mud/silt			
Substrate % sand	100%		
Substrate % gravel			
Substrate % cobble			
Substrate % boulder			
Photo East Bank (time & #)	0359		
Photo West Bank (time & #)	0360		
Photo upstream (time & #)	0361		
Photo downstream (time & #)	0362		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

SAWA 2011 River Walk

Santa Ana River Habitat Evaluation

Transect Name: SAS 67

Date 9/15/11

Target UTM: 455266

3758368 Dry

Observers (writer/other) Joseph Sherrock, Betsy Dilpae, Marikela Pasano

General Location

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	0455217 3758593		
Channel position	West		
Width of Channel	55.1 m		
Max Depth & location in channel	33.3 cm / 30 m from W bank		
Depth Edge East (~4" from edge)	4 cm		
Depth Edge West (~4" from edge)	4.5 cm		
Bank East %Veg Overhand	5%		
Bank West %Veg Overhang	20%		
Substrate % mud/silt			
Substrate % sand	100%		
Substrate % gravel			
Substrate % cobble			
Substrate % boulder			
Photo East Bank (time & #)	0363 12:34 pm		
Photo West Bank (time & #)	0364 12:34 pm		
Photo upstream (time & #)	0365 12:34 pm		
Photo downstream (time & #)	0366 12:34 pm		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

SAWA 2011 River Walk

Santa Ana River Habitat Evaluation

Transect Name: SAS 68

Date 9/15/11

Target UTM: 454996

3758472 Dry

Observers (writer/other) Joseph Sherrock, Betsy Dionne, Maricela Paramo

General Location

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	0455033 3758420		
Channel position	East		
Width of Channel	43.1 M		
Max Depth & location in channel	39cm / 2.5 m from W bank		
Depth Edge East (~4" from edge)	8 cm		
Depth Edge West (~4" from edge)	5 cm		
Bank East %Veg Overhand	0%		
Bank West %Veg Overhang	10%		
Substrate % mud/silt			
Substrate % sand	100%		
Substrate % gravel			
Substrate % cobble			
Substrate % boulder			
Photo East Bank (time & #)	0367 12:54 pm		
Photo West Bank (time & #)	0368 12:54 pm		
Photo upstream (time & #)	0369 12:54 pm		
Photo downstream (time & #)	0370 12:54 pm		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

SAWA 2011 River Walk

Santa Ana River Habitat Evaluation

Transect Name: SAS 69

Date 9/15/11

Target UTM: 454872

3758712

Observers (writer/other) Joseph Sherrock, Betsy Dwyer, Maricela Parana

General Location

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	0454858 3758720		
Channel position			
Width of Channel	60.9 m		
Max Depth & location in channel	23.5 (4m from W Bank)		
Depth Edge East (~4" from edge)	12cm		
Depth Edge West (~4" from edge)	6.8cm		
Bank East %Veg Overhand	100		
Bank West %Veg Overhang	100		
Substrate % mud/silt			
Substrate % sand	100		
Substrate % gravel			
Substrate % cobble			
Substrate % boulder			
Photo East Bank (time & #)	0371	} Time 1302	
Photo West Bank (time & #)	0372		
Photo upstream (time & #)	0373		
Photo downstream (time & #)	0373		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)	original point in the river ~ 20m from E Bank		

SAWA 2011 River Walk

Santa Ana River Habitat Evaluation

Transect Name: SAS 70

Date 9/13/11

Target UTM: 454821

3758944

Observers (writer/other) Joseph Sherrill, Betsy Dwyne, Maricela Paramo

General Location

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)			
Channel position			
Width of Channel	41m		
Max Depth & location in channel	37cm (3m from W Bank)		
Depth Edge East (~4" from edge)	4cm		
Depth Edge West (~4" from edge)	9cm		
Bank East %Veg Overhand	80		
Bank West %Veg Overhang	100		
Substrate % mud/silt			
Substrate % sand	100		
Substrate % gravel			
Substrate % cobble			
Substrate % boulder			
Photo East Bank (time & #)	0375	} Time 1325	
Photo West Bank (time & #)	0376		
Photo upstream (time & #)	0378		
Photo downstream (time & #)	0379		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

SAWA 2011 River Walk

Santa Ana River Habitat Evaluation

Transect Name: SAS 71

Date 9/15/11

Target UTM: 454531

3758987

Observers (writer/other) Lynn Miller, Masa Abe, Justin Nakano, Rory Paster

General Location Santa Ana River, SAS 71; Downey to Berlin St.

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	0454524, 3758983	—	—
Channel position	West	—	—
Width of Channel	56.0 m		
Max Depth & location in channel	18.0 m location 25.5 cm depth		
Depth Edge East (~4" from edge)	14.0 cm		
Depth Edge West (~4" from edge)	23.0 cm		
Bank East %Veg Overhand	0.5%		
Bank West %Veg Overhang	1.0%		
Substrate % mud/silt	—		
Substrate % sand	100%		
Substrate % gravel	—		
Substrate % cobble	—		
Substrate % boulder	—		
Photo East Bank (time & #)	10:04, 100-234		
Photo West Bank (time & #)	10:04, 100-235		
Photo upstream (time & #)	10:04, 100-236		
Photo downstream (time & #)	10:04, 100-237		
Photo other (describe)	—		
Photo other (describe)	—		
Notes (e.g. Islands, Obstructions)	—		

SAWA 2011 River Walk Santa Ana River Habitat Evaluation

Transect Name: SAS 72

Date 9/15/11

Target UTM: 454233

3759010

Observers (writer/other) Lynn Miller, Masa Abe, Justin Nakano, Rory Paster

General Location Santa Ana River, SAS 72, Downey to Bain St

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	0454240, 3759028	0454257 3759100	—
Channel position	West	West	
Width of Channel	19.4 m	2.3 m	
Max Depth & location in channel	9.7 m loc. 33.0 cm depth	1.9 m loc. 4.5 cm	
Depth Edge East (~4" from edge)	21.0 cm	3.0 cm	
Depth Edge West (~4" from edge)	11.0 cm	4.0 cm	
Bank East %Veg Overhang	1.0%	0.5%	
Bank West %Veg Overhang	2.0%	0.5%	
Substrate % mud/silt	—	3.0%	
Substrate % sand	99%	95.0%	
Substrate % gravel	1.0%	2.0%	
Substrate % cobble	1.0%	—	
Substrate % boulder	—	—	
Photo East Bank (time & #)	10:23 ¹⁰⁰⁻ , 238	10:30, 100-243	
Photo West Bank (time & #)	10:23 ¹⁰⁰⁻ , 239	10:30, 100-244	
Photo upstream (time & #)	10:23, 100-240	10:30, 100-245	
Photo downstream (time & #)	10:23, 100-241	10:30, 100-246	
Photo other (describe)	—	—	
Photo other (describe)	—	—	
Notes (e.g. Islands, Obstructions)	—	—	

SAWA 2011 River Walk Santa Ana River Habitat Evaluation

Transect Name: SAS 73

Date 9/15/2011

Target UTM: 453978

3759083

Observers (writer/other) Lynn Miller, Masa Abe, Justin Nakano, Roy Paster

General Location Santa Ana R. SAS 73, Downey to Basin St.

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	0453982 3759090	←	—
Channel position	West		
Width of Channel	41.7 m		
Max Depth & location in channel	24.5 m 27.0 cm		
Depth Edge East (~4" from edge)	17.5 cm		
Depth Edge West (~4" from edge)	21.0 cm		
Bank East %Veg Overhang	0.5%		
Bank West %Veg Overhang	3.0%		
Substrate % mud/silt	1.5%		
Substrate % sand	98.0%		
Substrate % gravel	0.5%		
Substrate % cobble	—		
Substrate % boulder	—		
Photo East Bank (time & #)	10:46, 100-247		
Photo West Bank (time & #)	10:46, 100-248		
Photo upstream (time & #)	10:46, 100-249		
Photo downstream (time & #)	10:46, 100-250		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

SAWA 2011 River Walk Santa Ana River Habitat Evaluation

Transect Name: SAS 74

Date 9/15/11

Target UTM: 453722

3758913

Observers (writer/other) Lynn Miller, Masa Abe, Justin Nakano, Rory Paster

General Location Santa Ana River SAS 74, Downey to Bem St.

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	045 3687, 375 9145	—	—
Channel position	West		
Width of Channel	45.0 m		
Max Depth & location in channel	24.0 m depth 28.7 m loc.		
Depth Edge East (~4" from edge)	9.3 cm		
Depth Edge West (~4" from edge)	12.0 cm		
Bank East %Veg Overhand	1.0%		
Bank West %Veg Overhang	3.0%		
Substrate % mud/silt	2.0%		
Substrate % sand	72.0%		
Substrate % gravel	20.0%		
Substrate % cobble	0.5%		
Substrate % boulder	0.5%		
Photo East Bank (time & #)	11:11, 100-252		
Photo West Bank (time & #)	11:11, 100-253		
Photo upstream (time & #)	11:11, 100-254		
Photo downstream (time & #)	11:11, 100-255		
Photo other (describe)	10:54, 100-251 GPS location-original		
Photo other (describe)			
Notes (e.g. Islands, Obstructions)	—		

SAWA 2011 River Walk

Santa Ana River Habitat Evaluation

Transect Name: SAS 75

Date 9/15/11

Target UTM: 453440

3758844

Observers (writer/other) Lynn Miller, Masag Abe, Justin Nakano, Rory Paster

General Location Santa Ana River, SAS 75, Downey to Bain St.

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	0453610 3759153	—	—
Channel position	West		
Width of Channel	52.8 m		
Max Depth & location in channel	43.6 m location 32.0 cm depth		
Depth Edge East (~4" from edge)	4.0 cm		
Depth Edge West (~4" from edge)	15.0 cm		
Bank East %Veg Overhand	0.5%		
Bank West %Veg Overhang	3.0%		
Substrate % mud/silt	1.0%		
Substrate % sand	94.5%		
Substrate % gravel	2.0%		
Substrate % cobble	2.0%		
Substrate % boulder	0.5%		
Photo East Bank (time & #)	No PHOTOS		
Photo West Bank (time & #)	↓ 2		
Photo upstream (time & #)	↓ 3		
Photo downstream (time & #)	↓ 20		
Photo other (describe)	—		
Photo other (describe)	GPS location - original 11:20, 100-256		
Notes (e.g. Islands, Obstructions)	—		

SAWA 2011 River Walk

Santa Ana River Habitat Evaluation

Transect Name: SAS 76

Date 9/15/11

Target UTM: 453424

3759107

Observers (writer/other) Lynn Miller, Moisa Abe, Justin Makano, Rory Paster

General Location Santa Ana River, SAS 76, Downey to Bam St.

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	0453445 3759187	—	—
Channel position	West		
Width of Channel	53.0m		
Max Depth & location in channel	4.2m location 260cm depth		
Depth Edge East (~4" from edge)	5.0cm		
Depth Edge West (~4" from edge)	3.0cm		
Bank East %Veg Overhand	1.0%		
Bank West %Veg Overhang	1.0%		
Substrate % mud/silt	1.0%		
Substrate % sand	94.5%		
Substrate % gravel	1.0%		
Substrate % cobble	2.0%		
Substrate % boulder	0.5%		
Photo East Bank (time & #)	11:40, 100-258		
Photo West Bank (time & #)	11:40, 100-259		
Photo upstream (time & #)	11:40, 100-260		
Photo downstream (time & #)	11:40, 100-261		
Photo other (describe)	—		
Photo other (describe)	GPS location original 11:36 100-257		
Notes (e.g. Islands, Obstructions)	—		

SAWA 2011 River Walk

Santa Ana River Habitat Evaluation

Transect Name: SAS 77

Date 9/15/11

Target UTM: 453335

3759316

Observers (writer/other) Lynn Miller, Masa Abe, Justin Nakano, Rory Paster

General Location Santa Ana River Downey to Buena ST

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	045 3293 375 9162	—	—
Channel position	West		
Width of Channel	77.8 m		
Max Depth & location in channel	24.0 cm depth 5.3-8 m location		
Depth Edge East (~4" from edge)	5.0 cm		
Depth Edge West (~4" from edge)	7.0 cm		
Bank East %Veg Overhang	0.5%		
Bank West %Veg Overhang	1.0%		
Substrate % mud/silt	3.0%		
Substrate % sand	90.0%		
Substrate % gravel	5.0%		
Substrate % cobble	1.0%		
Substrate % boulder	—		
Photo East Bank (time & #)	11:53, 100-263		
Photo West Bank (time & #)	11:53, 100-264		
Photo upstream (time & #)	11:53, 100-265		
Photo downstream (time & #)	11:53, 100-266		
Photo other (describe)	GPS location - original 100-262		
Photo other (describe)	—		
Notes (e.g. Islands, Obstructions)	—		

SAWA 2011 River Walk

Santa Ana River Habitat Evaluation

Transect Name: SAS 78

Date 9/15/11

Target UTM: 453057

3759250

Observers (writer/other)

R. Whetsel / SAWPA / Dave Woelfel SA RWQCB

General Location

At site

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	0453041 3759201		
Channel position	13 M From W Bank		
Width of Channel	63 M		
Max Depth & location in channel	27 CM - 25 M F EAST BANK		
Depth Edge East (~4" from edge)	7 CM		
Depth Edge West (~4" from edge)	4 CM		
Bank East %Veg Overhand	50%	- chest high	
Bank West %Veg Overhang	100%	- chest high	
Substrate % mud/silt	0		
Substrate % sand	90-95		
Substrate % gravel	5-10		
Substrate % cobble	0		
Substrate % boulder	0		
Photo East Bank (time & #)	2 FROM E BANK TO WEST		
Photo West Bank (time & #)	5 FROM MID ST		
Photo upstream (time & #)	3 FROM MID ST		
Photo downstream (time & #)	4 FROM W BANK TO EAST		
Photo other (describe)	1 - See BACK		
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

SAWA 2011 River Walk

Santa Ana River Habitat Evaluation

Transect Name: SAS 79 **Date:** 9/15/11
Target UTM: 452825 3759076
Observers (writer/other): R Whetsel, SAWPA / Dave Woelfel SARWQCB
General Location: ~~At point~~ At point / then mid stream

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	0452780 3759217		
Channel position	165M	EAST of channel	
Width of Channel	84 M		
Max Depth & location in channel	31cm - 20 M	FROM E BANK	
Depth Edge East (~4" from edge)	5 cm		
Depth Edge West (~4" from edge)	4 cm		
Bank East %Veg Overhand	40% -	chest high	
Bank West %Veg Overhang	100 % -	chest high	
Substrate % mud/silt	0		
Substrate % sand	95	ORIGINAL	
Substrate % gravel	5%		
Substrate % cobble			
Substrate % boulder			
Photo East Bank (time & #)	3 FROM E BANK 8 Looky west	1 (6) Looky west SAND BAR	
Photo West Bank (time & #)	6 (11)	2 (7) Looky EAST of channel	
Photo upstream (time & #)	4 (9)		
Photo downstream (time & #)	5 (10)		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

SAWA 2011 River Walk

Santa Ana River Habitat Evaluation

Transect Name: SAS 80 **Date:** 9/15/11
Target UTM: 452612 3759122
Observers (writer/other): R Whetsel SA WPA / DAVE Waffel SA R WCB

General Location

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	0452628 3759097		0452549 3759190
Channel position	33 M W of EBANK		
Width of Channel	113 M		14 M
Max Depth & location in channel	26 - 20 M	From W/BANK	17 CM center
Depth Edge East (~4" from edge)	10 CM		7 CM
Depth Edge West (~4" from edge)	8 CM		7 CM
Bank East %Veg Overhand	100% WAIST High		100 chest High
Bank West %Veg Overhang	100% WAIST High		100 Head High
Substrate % mud/silt	0		0
Substrate % sand	95%		95%
Substrate % gravel	5%		5%
Substrate % cobble	0		0
Substrate % boulder	0		0
Photo East Bank (time & #)	1 (12) Look west		
Photo West Bank (time & #)	4 (15)		
Photo upstream (time & #)	2 (13)		
Photo downstream (time & #)	3 (14)		
Photo other (describe)			we believe 2nd channel
Photo other (describe)			is discharge from SAV sevine channel
Notes (e.g. Islands, Obstructions)			

E Bank
At mouth

we believe 2nd channel
is discharge from
SAV sevine channel

SAWA 2011 River Walk

Santa Ana River Habitat Evaluation

Transect Name: SAS 81 **Date:** 9/15/11
Target UTM: 452445 3759316
Observers (writer/other): R Whetsel SAUPA / Dave Woffel SARWOCB
General Location: _____

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)		Completely Dry	
Channel position		Far from channel	
Width of Channel	completely off channel		
Max Depth & location in channel			
Depth Edge East (~4" from edge)			
Depth Edge West (~4" from edge)			
Bank East %Veg Overhand			
Bank West %Veg Overhang			
Substrate % mud/silt			
Substrate % sand			
Substrate % gravel			
Substrate % cobble			
Substrate % boulder			
Photo East Bank (time & #)	Looky WEST		
Photo West Bank (time & #)			
Photo upstream (time & #)			
Photo downstream (time & #)			
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

SAWA 2011 River Walk

Santa Ana River Habitat Evaluation

Transect Name: SAS 82 **Date** _____
Target UTM: 452232 3759327

Observers (writer/other) _____

General Location _____

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)			
Channel position			
Width of Channel			
Max Depth & location in channel			
Depth Edge East (~4" from edge)			
Depth Edge West (~4" from edge)			
Bank East %Veg Overhand			
Bank West %Veg Overhang			
Substrate % mud/silt			
Substrate % sand			
Substrate % gravel			
Substrate % cobble			
Substrate % boulder			
Photo East Bank (time & #)			
Photo West Bank (time & #)			
Photo upstream (time & #)			
Photo downstream (time & #)			
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

SAWA 2011 River Walk

Santa Ana River Habitat Evaluation

Transect Name: SAS 83

Date 9-15-11

Target UTM: 452260

3759045

Observers (writer/other) Lisa Honey Jeff Beehler Giovanini, A. Melody A.

General Location SAS 83 Dr.

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	1190452184, 3758681		
Channel position	Center		
Width of Channel	63.5m		
Max Depth & location in channel	31.4 cm		
Depth Edge East (~4" from edge)	7.5 cm		
Depth Edge West (~4" from edge)	6 cm		
Bank East %Veg Overhand	75%		
Bank West %Veg Overhang	0		
Substrate % mud/silt			
Substrate % sand	100		
Substrate % gravel			
Substrate % cobble			
Substrate % boulder			
Photo East Bank (time & #)	✓ # 7442		
Photo West Bank (time & #)	✓ 7443		
Photo upstream (time & #)	✓ 7444		
Photo downstream (time & #)	✓ 7445		
Photo other (describe)	7441 PigWalbro		
Photo other (describe)	Pig W. 7440		
Notes (e.g. Islands, Obstructions)			

SAWA 2011 River Walk

Santa Ana River Habitat Evaluation

Transect Name: SAS 84

Date: 9-15-11

Target UTM: 452294

3758751

Observers (writer/other)

Jeff, Lisa, Giovanni, Melody

General Location

SAS 84 Dru


Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	11S 0452264, 3758670		
Channel position	Center		
Width of Channel	74m		
Max Depth & location in channel	42 cm		
Depth Edge East (~4" from edge)	3 cm		
Depth Edge West (~4" from edge)	4.7 cm		
Bank East %Veg Overhand	0		
Bank West %Veg Overhang	100		
Substrate % mud/silt	—		
Substrate % sand	100		
Substrate % gravel	—		
Substrate % cobble	—		
Substrate % boulder	—		
Photo East Bank (time & #)	7447		
Photo West Bank (time & #)	7448		
Photo upstream (time & #)	7449		
Photo downstream (time & #)	7450		
Photo other (describe)	—		
Photo other (describe)	—		
Notes (e.g. Islands, Obstructions)	Trace Gravel on West Bank		

SAWA 2011 River Walk Santa Ana River Habitat Evaluation

Transect Name: SAS 85 Date 9-15-11
 Target UTM: 452198 3758499
 Observers (writer/other) Lisa, Jeff, Giovanni, Melody
 General Location SAS 85 Dry

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3	
Actual GPS coordinates in UTM (@ East bank)	1150452264, 3758676			
Channel position	Same as SAS84			
Width of Channel				
Max Depth & location in channel				
Depth Edge East (~4" from edge)				
Depth Edge West (~4" from edge)				
Bank East %Veg Overhand				
Bank West %Veg Overhang				
Substrate % mud/silt				
Substrate % sand				
Substrate % gravel				
Substrate % cobble				
Substrate % boulder				
Photo East Bank (time & #)				
Photo West Bank (time & #)				
Photo upstream (time & #)				
Photo downstream (time & #)				
Photo other (describe)				
Photo other (describe)				
Notes (e.g. Islands, Obstructions)		Same as SAS84 Oxbow gone		

SAWA 2011 River Walk

Santa Ana River Habitat Evaluation

Transect Name: SAS 86

Date 9-15-11

Target UTM: 451907

3758507

Observers (writer/other) Jeff Lisa Melody Giovanni

General Location SAS 86 Day

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	1150451816, 3758627	1150451864, 3758658	
Channel position	West	West	
Width of Channel	20 m	23.2 m	
Max Depth & location in channel	9 cm	46 cm	
Depth Edge East (~4" from edge)	2.5 cm	28 cm	
Depth Edge West (~4" from edge)	6 cm	6.5 cm	
Bank East %Veg Overhand	50%	100%	
Bank West %Veg Overhang	75%	40%	
Substrate % mud/silt	—	—	
Substrate % sand	100	100	
Substrate % gravel	—	—	
Substrate % cobble	—	—	
Substrate % boulder	—	—	
Photo East Bank (time & #)	7452 7452	7456	
Photo West Bank (time & #)	7453	7457	
Photo upstream (time & #)	7454	7458	
Photo downstream (time & #)	7455	7459	
Photo other (describe)	/	/	
Photo other (describe)	/	/	
Notes (e.g. Islands, Obstructions)	Vegetated island	Gabuzia	

SAWA 2011 River Walk

Santa Ana River Habitat Evaluation

Transect Name: SAS 87 **Date** 9-15-11
Target UTM: 451621 3758542
Observers (writer/other) Jeff, Lisa, Melody, Giovanni
General Location SAS 87 West

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	1150451655 3758517		
Channel position	1150451655 West		
Width of Channel	95.7m		
Max Depth & location in channel	12cm		
Depth Edge East (~4" from edge)	11cm		
Depth Edge West (~4" from edge)	6cm		
Bank East %Veg Overhand	100%		
Bank West %Veg Overhang	100%		
Substrate % mud/silt	—		
Substrate % sand	100%		
Substrate % gravel	—		
Substrate % cobble	—		
Substrate % boulder	—		
Photo East Bank (time & #)	7462		
Photo West Bank (time & #)	7463		
Photo upstream (time & #)	7464		
Photo downstream (time & #)	7465		
Photo other (describe)	—		
Photo other (describe)	—		
Notes (e.g. Islands, Obstructions)	Two small sand bars in channel		

SAWA 2011 River Walk

Santa Ana River Habitat Evaluation

Transect Name: SAS 88 **Date** 9-15-11
Target UTM: **451459** **3758290**
Observers (writer/other) Jeff, Lisa, Melody, Giovanni
General Location SAS 88 Wet in channel

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	11S 451461 3 3758285		
Channel position	<u>center</u>		
Width of Channel	<u>10.69.5m</u>		
Max Depth & location in channel	<u>29.5 cm</u>		
Depth Edge East (~4" from edge)	# <u>12.5 cm</u>		
Depth Edge West (~4" from edge)	12.5 <u>12 cm</u>		
Bank East %Veg Overhand	<u>100%</u> <u>Arundo</u>		
Bank West %Veg Overhang	<u>100%</u> <u>Arundo</u>		
Substrate % mud/silt	<u>—</u>		
Substrate % sand	<u>100%</u>		
Substrate % gravel	<u>—</u>		
Substrate % cobble	<u>—</u>		
Substrate % boulder	<u>—</u>		
Photo East Bank (time & #)	<u>7468</u>		
Photo West Bank (time & #)	<u>7469</u>		
Photo upstream (time & #)	<u>7470</u>		
Photo downstream (time & #)	<u>7471</u>		
Photo other (describe)	<u>/</u>		
Photo other (describe)	<u>/</u>		
Notes (e.g. Islands, Obstructions)			

SAWA 2011 River Walk

Santa Ana River Habitat Evaluation

Transect Name: SAS 89 **Date** 9-15-11
Target UTM: 451288 3758035
Observers (writer/other) Jeff, Lisa, Melody, Giovanni
General Location SAS 89 wet in channel

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	115 451317, 3758016		
Channel position	trout Middle		
Width of Channel	81m		
Max Depth & location in channel	32 cm		
Depth Edge East (~4" from edge)	5 cm		
Depth Edge West (~4" from edge)	10 cm		
Bank East %Veg Overhand	100% Arundo		
Bank West %Veg Overhang	100% Arundo		
Substrate % mud/silt	—		
Substrate % sand	100%		
Substrate % gravel	—		
Substrate % cobble	—		
Substrate % boulder	—		
Photo East Bank (time & #)	7473		
Photo West Bank (time & #)	7474		
Photo upstream (time & #)	7475		
Photo downstream (time & #)	7476		
Photo other (describe)	—		
Photo other (describe)	—		
Notes (e.g. Islands, Obstructions)	Sand bar Banks high		

SAWA 2011 River Walk

Santa Ana River Habitat Evaluation

Transect Name: SAS 90 **Date** 9-15-11
Target UTM: 451172 3757775
Observers (writer/other) USA, Jeff, Giovanni, melody
General Location SAS 90 wet in channel

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	115 0451191, 3757763		
Channel position	middle west		
Width of Channel	180.1m		
Max Depth & location in channel	2		
Depth Edge East (~4" from edge)	3 cm		
Depth Edge West (~4" from edge)	7 cm		
Bank East %Veg Overhand	100% <i>Arundo</i>		
Bank West %Veg Overhang	100%		
Substrate % mud/silt	—		
Substrate % sand	100%		
Substrate % gravel	—		
Substrate % cobble	—		
Substrate % boulder	—		
Photo East Bank (time & #)	7477		
Photo West Bank (time & #)	7478		
Photo upstream (time & #)	7479		
Photo downstream (time & #)	7480		
Photo other (describe)	Phone Pde 80		
Photo other (describe)			
Notes (e.g. Islands, Obstructions)	<i>Gabuzia on East Bank</i>		

SAWA 2011 River Walk

Santa Ana River Habitat Evaluation

Transect Name: SAS 91 **Date** 9-15-11
Target UTM: 451064 3757493
Observers (writer/other) Jeff, Lisa, Melody, Giovanni
General Location SSA91 Dry

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	115 415057, 3757503		
Channel position	WEST EAST		
Width of Channel	55.8m		
Max Depth & location in channel	56 cm		
Depth Edge East (~4" from edge)	2.5 cm		
Depth Edge West (~4" from edge)	3 cm		
Bank East %Veg Overhand	100%		
Bank West %Veg Overhang	100%		
Substrate % mud/silt	—		
Substrate % sand	100%		
Substrate % gravel	—		
Substrate % cobble	—		
Substrate % boulder	—		
Photo East Bank (time & #)	7482		
Photo West Bank (time & #)	7483		
Photo upstream (time & #)	7484		
Photo downstream (time & #)	7485		
Photo other (describe)	/		
Photo other (describe)	/		
Notes (e.g. Islands, Obstructions)			

SAWA 2011 River Walk

Santa Ana River Habitat Evaluation

Transect Name: SAS 92 **Date** 9-15-11
Target UTM: 450843, 3757334
Observers (writer/other) Jeff Melody Giovanni Lisa
General Location SAS 92 wet in channel

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	11S 450847 3757320		
Channel position	East		
Width of Channel	49 m		
Max Depth & location in channel	34 cm		
Depth Edge East (~4" from edge)	1/2 cm		
Depth Edge West (~4" from edge)	7 cm		
Bank East %Veg Overhand	40%		
Bank West %Veg Overhang	100%		
Substrate % mud/silt	—		
Substrate % sand	100%		
Substrate % gravel	—		
Substrate % cobble	—		
Substrate % boulder	—		
Photo East Bank (time & #)	7486		
Photo West Bank (time & #)	7487		
Photo upstream (time & #)	7488		
Photo downstream (time & #)	7489		
Photo other (describe)	—		
Photo other (describe)	—		
Notes (e.g. Islands, Obstructions)			

SAWA 2011 River Walk

Santa Ana River Habitat Evaluation

Transect Name: SAS 93 **Date** 9/15/11

Target UTM: 450545 3757257

Observers (writer/other) CS/SB/BW/TS

General Location 6.9 m to river

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	1150450543 3757269		
Channel position	one main channel/SSW		
Width of Channel	47.2 m		
Max Depth & location in channel	63 cm / south side ~ 5m from edge		
Depth Edge East (~4" from edge)	29 cm		
Depth Edge West (~4" from edge)	14.5 cm		
Bank East %Veg Overhand	100		
Bank West %Veg Overhang	100		
Substrate % mud/silt	5		
Substrate % sand	95		
Substrate % gravel			
Substrate % cobble			
Substrate % boulder			
Photo East Bank (time & #)	2144		
Photo West Bank (time & #)	2142		
Photo upstream (time & #)	2145		
Photo downstream (time & #)	2143		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

veronica
cattails
willow weed } edge

SAWA 2011 River Walk Santa Ana River Habitat Evaluation

walking from 93 to 94 - noticed
Substrate gravel, 16.3m long along
south channel edge. Exposed ground
w/ algae.

Transect Name: SAS 94 **Date** 9/15/11
Target UTM: **450251** **3757199**
Observers (writer/other) JB/CS/BW/TS
General Location _____

04503405
3757238

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	0450250 3757218 <i>South side of flowing w/sw river</i>		
Channel position			
Width of Channel	57.4m		
Max Depth & location in channel	42 cm		
Depth Edge East (~4" from edge)	7cm		
Depth Edge West (~4" from edge)	24.5cm		
Bank East %Veg Overhand	100		
Bank West %Veg Overhang	100		
Substrate % mud/silt	3		
Substrate % sand	97		
Substrate % gravel			
Substrate % cobble			
Substrate % boulder			
Photo East Bank (time & #)	240		
Photo West Bank (time & #)	238		
Photo upstream (time & #)	241		
Photo downstream (time & #)	239		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)	<i>few exposed wet sand bars ~ <5% Q wide</i>		

* Center island (~14m L x 5m wide) composed of willow weed
see photo

SAWA 2011 River Walk

Santa Ana River Habitat Evaluation

Transect Name: SAS 95 **Date** 9/18/11

Target UTM: 450027 3757005

Observers (writer/other) JB/CS/BW/TS

General Location Pedley to Del Norte

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	0450028 3757113		
Channel position	Center		
Width of Channel	73.6		
Max Depth & location in channel	31		
Depth Edge East (~4" from edge)	5		
Depth Edge West (~4" from edge)	32		
Bank East %Veg Overhand	50		
Bank West %Veg Overhang	100		
Substrate % mud/silt	1		
Substrate % sand	98		
Substrate % gravel			
Substrate % cobble	1		
Substrate % boulder			
Photo East Bank (time & #)	2136		
Photo West Bank (time & #)	2134		
Photo upstream (time & #)	2137		
Photo downstream (time & #)	2135		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

Water is very clear

* gravel bar on north side of river (290cm wide x 2.7m)
 See photo 2133
 depth 31

SAWA 2011 River Walk

Santa Ana River Habitat Evaluation

Transect Name: SAS 96

Date: 9/15/11

Target UTM: 449887

3756731

→ Dry, no river.

Observers (writer/other): Cam Swift, J Baskin, B. Wood + J. Sims

General Location

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

Between 95 + 96 - Silver - ~ 5 to 6" in diameter - exposed
 - 20 to 30 meters of exposed cobble/boulder, east side of river edge
 - gopher snake - subadult crossed river in front of us (east to west)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	0449778 3756731		
Channel position	Channel flowing almost due east - going into East levee.		
Width of Channel	42.8 m		
Max Depth & location in channel	53 cm		
Depth Edge East (~4" from edge)	1.5 cm alginate		
Depth Edge West (~4" from edge)	8.5 cm		
Bank East %Veg Overhand	0		
Bank West %Veg Overhang	100		
Substrate % mud/silt	10		
Substrate % sand	90		
Substrate % gravel			
Substrate % cobble			
Substrate % boulder			
Photo East Bank (time & #)	2131		
Photo West Bank (time & #)	2129		
Photo upstream (time & #)	2132		
Photo downstream (time & #)	2130		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

Directly East of flowing water is a marsh (mostly standing H₂O) (new, cattail/marsh)
 6.3m x 3.5m (non H₂O) Sandbar

SAWA 2011 River Walk

Santa Ana River Habitat Evaluation

Transect Name: SAS 97

Date: 9/15/11

Target UTM: 449609

3756618

Observers (writer/other): Swift / Baskin / Sims / Wood

General Location

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	6449611 3756612		
Channel position	South East Edge of Floodplain		
Width of Channel	35m		
Max Depth & location in channel	35 cm		
Depth Edge East (~4" from edge)	9cm		
Depth Edge West (~4" from edge)	5cm 4m of vegetation + silt ~4m from west shore		
Bank East %Veg Overhand	50		
Bank West %Veg Overhang	100		
Substrate % mud/silt	12		
Substrate % sand	88		
Substrate % gravel			
Substrate % cobble			
Substrate % boulder			
Photo East Bank (time & #)	2127		
Photo West Bank (time & #)	2125		
Photo upstream (time & #)	2128		
Photo downstream (time & #)	2126		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

SAWA 2011 River Walk

Santa Ana River Habitat Evaluation

Transect Name: SAS 98 **Date** 9/15/11
Target UTM: 449330 3756522
Observers (writer/other) _____
General Location _____

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	0449330 3756550	0449332 3756573	0449324 3756591
Channel position	East side	middle cha.	West
Width of Channel	10.6	3.2m	4.1
Max Depth & location in channel	54	9.0cm	8
Depth Edge East (~4" from edge)	47.5	3.0cm	2
Depth Edge West (~4" from edge)	2	6cm	7.5
Bank East %Veg Overhand	100	100	60
Bank West %Veg Overhang	100	70	100
Substrate % mud/silt	10	10	20
Substrate % sand	90	90	80
Substrate % gravel			
Substrate % cobble			
Substrate % boulder			
Photo East Bank (time & #)	2115	2123	2117
Photo West Bank (time & #)		2121	2115
Photo upstream (time & #)	2116	2124	2118
Photo downstream (time & #)	2114	2122	2116
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

* Gravel bar, east side of 29.8 m long - w x 2 to 3 m wide - 100% vegetation on edge
 ↑ 0449415
 3756592
 * another gravel bar ~10m long. ↑ 100m ds of along side island of willow overland

East bank - vertical bench

SAWA 2011 River Walk

Santa Ana River Habitat Evaluation

Transect Name: SAS 99

Date 9/15/11

Target UTM: 449061

3756424

Observers (writer/other) _____

General Location NE of 1-15

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	0449062 3756424		
Channel position	East side		
Width of Channel	34.2		
Max Depth & location in channel	27		
Depth Edge East (~4" from edge)	5		
Depth Edge West (~4" from edge)	16		
Bank East %Veg Overhand	100		
Bank West %Veg Overhang	100		
Substrate % mud/silt	15		
Substrate % sand	85		
Substrate % gravel			
Substrate % cobble			
Substrate % boulder			
Photo East Bank (time & #)	2111		
Photo West Bank (time & #)	2109		
Photo upstream (time & #)	2112		
Photo downstream (time & #)	2110		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

*Walling from 98 to 99 - middle bank, heavily vegetated w/ gravel bar going down center (~5m wide (3.2m long))

SAWA 2011 River Walk

Santa Ana River Habitat Evaluation

Transect Name: SAS 100

Date 9/15/11

Target UTM: **448771**

3756402

Observers (writer/other) Swift/Baker/Wood/Sims

General Location @ 1-15

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	0448773 3756385	- Bad reception	- If GPS/UTM is wrong 20 ft between Bank Edges
Channel position	Center - running	North of west	
Width of Channel	38.7		
Max Depth & location in channel	43.5		
Depth Edge East (~4" from edge)	4		
Depth Edge West (~4" from edge)	2		
Bank East %Veg Overhand	100		
Bank West %Veg Overhang	100		
Substrate % mud/silt	10		
Substrate % sand	90		
Substrate % gravel			
Substrate % cobble			
Substrate % boulder			
Photo East Bank (time & #)	2107		
Photo West Bank (time & #)	2105		
Photo upstream (time & #)	2108		
Photo downstream (time & #)	2106		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

SAWA 2011 River Walk

Santa Ana River Habitat Evaluation

Transect Name: SAS 101

Date 9/15/11

Target UTM: 448518

3756352

Observers (writer/other) K. Drannen, J. Drorak, J. Stayer

General Location east of Hammer Bridge

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

NAD 83

Dry @ GPS coordinates

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	0448507 3756367	—	—
Channel position	west side		
Width of Channel	33.2 m		
Max Depth & location in channel	west, 44cm		
Depth Edge East (~4" from edge)	4.5cm		
Depth Edge West (~4" from edge)	23cm		
Bank East %Veg Overhand	98%		
Bank West %Veg Overhang	50%		
Substrate % mud/silt			
Substrate % sand	100		
Substrate % gravel			
Substrate % cobble			
Substrate % boulder			
Photo East Bank (time & #)	JAD 591		
Photo West Bank (time & #)	JAD 593		
Photo upstream (time & #)	JAD 590		
Photo downstream (time & #)	JAD 592		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

SAWA 2011 River Walk

Santa Ana River Habitat Evaluation

Transect Name: SAS 102

Date 9/15/2011

Target UTM: 448282

3756280

Observers (writer/other) K. Drannen, J. Drorak, J. Stayer

General Location

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

GPS point in middle of a drying braid

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	448319 3756322		
Channel position	West		
Width of Channel	38.8m		
Max Depth & location in channel	East 22cm		
Depth Edge East (~4" from edge)	2cm		
Depth Edge West (~4" from edge)	7cm		
Bank East %Veg Overhand	100%		
Bank West %Veg Overhang	100%		
Substrate % mud/silt			
Substrate % sand	100%		
Substrate % gravel			
Substrate % cobble			
Substrate % boulder			
Photo East Bank (time & #)	JAD 595		
Photo West Bank (time & #)	JAD 597		
Photo upstream (time & #)	JAD 594		
Photo downstream (time & #)	JAD 596		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

SAWA 2011 River Walk Santa Ana River Habitat Evaluation

Transect Name: SAS 103 **Date** 9/15/11
Target UTM: 448000 3756382
Observers (writer/other) K. Drennen, J. Dvorak, J. Stayer
General Location _____

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

GPS point in center of channel

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	447996 3756355		
Channel position	west		
Width of Channel	50.9 m		
Max Depth & location in channel	24cm center		
Depth Edge East (~4" from edge)	7cm		
Depth Edge West (~4" from edge)	7.5 cm		
Bank East %Veg Overhand	80%		
Bank West %Veg Overhang	100%		
Substrate % mud/silt			
Substrate % sand	>99%		
Substrate % gravel	<1%		
Substrate % cobble			
Substrate % boulder			
Photo East Bank (time & #)	JAD 599		
Photo West Bank (time & #)	JAD 601		
Photo upstream (time & #)	JAD 598		
Photo downstream (time & #)	JAD 600		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

*gravel channel along east bank about 1m @ widest pt
dry braid to east of flood plain*

SAWA 2011 River Walk Santa Ana River Habitat Evaluation

Transect Name: SAS 104 Date 9/15/2011
 Target UTM: 447705 3756413

Observers (writer/other) K. Drenner, J. Provak, J. Stager

General Location Just before bend

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

GPS point in center of channel

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	447711 3756397		
Channel position	west-center		
Width of Channel	50.8 cm		
Max Depth & location in channel	40 _{cm} east		
Depth Edge East (~4" from edge)	3 cm		
Depth Edge West (~4" from edge)	2.5 cm		
Bank East %Veg Overhand	100		
Bank West %Veg Overhang	100		
Substrate % mud/silt			
Substrate % sand	100		
Substrate % gravel			
Substrate % cobble			
Substrate % boulder			
Photo East Bank (time & #)	JAD 603		
Photo West Bank (time & #)	JAD 605		
Photo upstream (time & #)	JAD 602		
Photo downstream (time & #)	JAD 604		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)	small sand bar west side		

SAWA 2011 River Walk

Santa Ana River Habitat Evaluation

WTK1
447623
3756238

Transect Name: SAS 105

Date 9/15/2011

Target UTM: 447605

3756165

Observers (writer/other) K. Dronnen, J. Dvorak, J. Stager

General Location

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

GPS pt. in center of channel

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	447637 3756156		
Channel position	Center		
Width of Channel	53.6 m		
Max Depth & location in channel	50cm west		
Depth Edge East (~4" from edge)	15 cm		
Depth Edge West (~4" from edge)	19 cm		
Bank East %Veg Overhand	100		
Bank West %Veg Overhang	100		
Substrate % mud/silt			
Substrate % sand	> 99%		
Substrate % gravel			
Substrate % cobble	< 1%		
Substrate % boulder			
Photo East Bank (time & #)	JAD 607		
Photo West Bank (time & #)	JAD 609		
Photo upstream (time & #)	JAD 606		
Photo downstream (time & #)	JAD 608		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)	3 vegetated islands down stream near by		

SAWA 2011 River Walk Santa Ana River Habitat Evaluation

Transect Name: SAS 106

Date 9/15/2011

Target UTM: 447467

3755896

Observers (writer/other) K. Drennen, J. Drorak, J. Stayer

General Location

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

GPS pt is in vegetation near west bank (in water)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	447518 3755866		
Channel position	center		
Width of Channel	62 m		
Max Depth & location in channel	24 cm west		
Depth Edge East (~4" from edge)	5 cm		
Depth Edge West (~4" from edge)	9 cm		
Bank East %Veg Overhand	100		
Bank West %Veg Overhang	100		
Substrate % mud/silt			
Substrate % sand	100		
Substrate % gravel			
Substrate % cobble			
Substrate % boulder			
Photo East Bank (time & #)	JAD 611		
Photo West Bank (time & #)	JAD 613		
Photo upstream (time & #)	JAD 610		
Photo downstream (time & #)	JAD 612		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)	Vegetated Islands nearby		

SAWA 2011 River Walk Santa Ana River Habitat Evaluation

Transect Name: SAS 107 **Date** 9/15/2011
Target UTM: 447211 3755796
Observers (writer/other) K. Drennon, J. Dvorak, J. Stayer
General Location _____

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

GPS pt is west of channel on sandy flood plain

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	447268 3755664		
Channel position	East		
Width of Channel	51 m		
Max Depth & location in channel	41cm east		
Depth Edge East (~4" from edge)	7cm		
Depth Edge West (~4" from edge)	6cm		
Bank East %Veg Overhand	100%		
Bank West %Veg Overhang	10%		
Substrate % mud/silt			
Substrate % sand	>99%		
Substrate % gravel			
Substrate % cobble	<1%		
Substrate % boulder			
Photo East Bank (time & #)	JAD 615		
Photo West Bank (time & #)	JAD 617		
Photo upstream (time & #)	JAD 614		
Photo downstream (time & #)	JAD 616		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

SAWA 2011 River Walk

Santa Ana River Habitat Evaluation

Transect Name: SAS 108

Date: 9/15/2011

Target UTM: 447017

3755973

Observers (writer/other): K. Drennen, J. Dorak, J. Stager

General Location

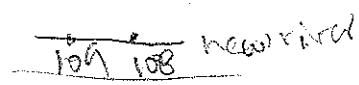
Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

GPS pt is in dry, sandy flood plain to far west of channel

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	446921 3755793		
Channel position	East		
Width of Channel	39.7 m		
Max Depth & location in channel	45cm East		
Depth Edge East (~4" from edge)	4cm		
Depth Edge West (~4" from edge)	6cm		
Bank East %Veg Overhand	100		
Bank West %Veg Overhang	100		
Substrate % mud/silt			
Substrate % sand	100		
Substrate % gravel			
Substrate % cobble			
Substrate % boulder			
Photo East Bank (time & #)	JAD 619		
Photo West Bank (time & #)	JAD 621		
Photo upstream (time & #)	JAD 618		
Photo downstream (time & #)	JAD 620		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)	River shifted from North of flood plain to South. Walked River to closest		



we could get to 108 and took data there.



SAWA 2011 River Walk Santa Ana River Habitat Evaluation

Transect Name: SAS 109

Date 9/15/2011

Target UTM: 446785

3755890

Observers (writer/other) K. Drennon, J. Dronak, J. Stager

General Location

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

GPS pt 58 m onto North (west) bank

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	446761 3755827		
Channel position	East		
Width of Channel	25 m		
Max Depth & location in channel	36 cm center		
Depth Edge East (~4" from edge)	24.5 cm		
Depth Edge West (~4" from edge)	2.5 cm		
Bank East %Veg Overhang	10%		
Bank West %Veg Overhang	12%		
Substrate % mud/silt			
Substrate % sand	100		
Substrate % gravel			
Substrate % cobble			
Substrate % boulder			
Photo East Bank (time & #)	JAD 623		
Photo West Bank (time & #)	JAD 625		
Photo upstream (time & #)	JAD 622		
Photo downstream (time & #)	JAD 624		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

SAWA 2011 River Walk

Santa Ana River Habitat Evaluation

Transect Name: SAS 110

Date 9/15/2011

Target UTM: 446517

3755779

Observers (writer/other) K. Drennen, J. Prorak, J. Stager

General Location

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

GPS pt at West (North) Bank

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	446510 3755758		
Channel position	East?		
Width of Channel	26.1 m		
Max Depth & location in channel	East 41 cm		
Depth Edge East (~4" from edge)	35.5 cm		
Depth Edge West (~4" from edge)	4.5 cm		
Bank East %Veg Overhand	100		
Bank West %Veg Overhang	100		
Substrate % mud/silt			
Substrate % sand	100		
Substrate % gravel			
Substrate % cobble			
Substrate % boulder			
Photo East Bank (time & #)	JAD 627		
Photo West Bank (time & #)	JAD 629		
Photo upstream (time & #)	JAD 626		
Photo downstream (time & #)	JAD 628		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

SAWA 2011 River Walk

Santa Ana River Habitat Evaluation

Transect Name: SAS 111

Date 9/15/2011

Target UTM: 446224

3755842

Observers (writer/other) K. Drunken, J. Dvorak, J. Stayer

General Location near housing tract

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	446222 3755842		
Channel position	?		
Width of Channel	23.9m		
Max Depth & location in channel	40cm East		
Depth Edge East (~4" from edge)	3cm		
Depth Edge West (~4" from edge)	4.5cm		
Bank East %Veg Overhang	80		
Bank West %Veg Overhang	35		
Substrate % mud/silt			
Substrate % sand	100		
Substrate % gravel			
Substrate % cobble			
Substrate % boulder			
Photo East Bank (time & #)	JAD 631		
Photo West Bank (time & #)	JAD 633		
Photo upstream (time & #)	JAD 630		
Photo downstream (time & #)	JAD 632		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

JAD
 446224/3755842

SAWA 2011 River Walk

Santa Ana River Habitat Evaluation

Transect Name: SAS 112

Date 9-15-11

Target UTM: 445960

3755741

Observers (writer/other) BSTB; TLG DCC

General Location Just above R. VA Bridge

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	445969 3755734		
Channel position	West		
Width of Channel	29.9m		
Max Depth & location in channel	30cm/center		
Depth Edge East (~4" from edge)	4cm		
Depth Edge West (~4" from edge)	4cm		
Bank East %Veg Overhand	100%		
Bank West %Veg Overhang	100%		
Substrate % mud/silt	5		
Substrate % sand	95		
Substrate % gravel	/		
Substrate % cobble	/		
Substrate % boulder	/		
Photo East Bank (time & #)	3		
Photo West Bank (time & #)	4		
Photo upstream (time & #)	1		
Photo downstream (time & #)	2		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)	/		

SAWA 2011 River Walk

Santa Ana River Habitat Evaluation

Transect Name: SAS 113 Date 9-15-11

Target UTM: 445980 3755457

Observers (writer/other) BJ, TB, TG, QC

General Location Just above River Rd bridge

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	445980 3755463		
Channel position	West		
Width of Channel	23.5 m		
Max Depth & location in channel	50.5 / west cm		
Depth Edge East (~4" from edge)	14.5 cm		
Depth Edge West (~4" from edge)	2.6 cm		
Bank East %Veg Overhand	70 %		
Bank West %Veg Overhang	98 %		
Substrate % mud/silt	2		
Substrate % sand	98		
Substrate % gravel	/		
Substrate % cobble			
Substrate % boulder			
Photo East Bank (time & #)		7	
Photo West Bank (time & #)	8		
Photo upstream (time & #)	5		
Photo downstream (time & #)	6		
Photo other (describe)	/		
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

SAWA 2011 River Walk Santa Ana River Habitat Evaluation

Transect Name: SAS 114 **Date** 9-15-11

Target UTM: 445954 3755165

Observers (writer/other) BJ, TB, TG, DC

General Location Just above River Rd bridge

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	445967 3755165		
Channel position	west		
Width of Channel	25.9 m		
Max Depth & location in channel	47 / center cm		
Depth Edge East (~4" from edge)	2.5 cm		
Depth Edge West (~4" from edge)	31 cm		
Bank East %Veg Overhand	80 %		
Bank West %Veg Overhang	50 %		
Substrate % mud/silt	5		
Substrate % sand	95		
Substrate % gravel			
Substrate % cobble			
Substrate % boulder			
Photo East Bank (time & #)	11		
Photo West Bank (time & #)	12		
Photo upstream (time & #)	9		
Photo downstream (time & #)	10		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

SAWA 2011 River Walk Santa Ana River Habitat Evaluation

Transect Name: SAS 115 Date 9-15-11

Target UTM: 445765 3754938

Observers (writer/other) BS, TB, TG, PC

General Location Just above River Rd bridge

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	445785 3754917		
Channel position	West		
Width of Channel	35.4m		
Max Depth & location in channel	23cm/center		
Depth Edge East (~4" from edge)	11cm		
Depth Edge West (~4" from edge)	16cm		
Bank East %Veg Overhand	75%		
Bank West %Veg Overhang	97%		
Substrate % mud/silt	—		
Substrate % sand	100		
Substrate % gravel	/		
Substrate % cobble	/		
Substrate % boulder	/		
Photo East Bank (time & #)	15		
Photo West Bank (time & #)	16		
Photo upstream (time & #)	13		
Photo downstream (time & #)	14		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)	/		

SAWA 2011 River Walk Santa Ana River Habitat Evaluation

Transect Name: SAS 116

Date 9-15-11

Target UTM: 445493

3754951

Observers (writer/other) BJ, TB, TG, QC

General Location

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	445478 3754947		
Channel position	WEST		
Width of Channel	34.6m		
Max Depth & location in channel	40cm/east		
Depth Edge East (~4" from edge)	11cm		
Depth Edge West (~4" from edge)	10.5cm		
Bank East %Veg Overhand	100%		
Bank West %Veg Overhang	100%		
Substrate % mud/silt	1		
Substrate % sand	99		
Substrate % gravel			
Substrate % cobble			
Substrate % boulder			
Photo East Bank (time & #)	19		
Photo West Bank (time & #)	20		
Photo upstream (time & #)	17		
Photo downstream (time & #)	18		
Photo other (describe)	21-oxygen tank		
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

SAWA 2011 River Walk

Santa Ana River Habitat Evaluation

Transect Name: SAS 117 Date 9-15-11

Target UTM: 445311 3754840

Observers (writer/other) BJ, TB, TG, PL

General Location Just above River Rd bridge

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	445294 3754837		
Channel position	West		
Width of Channel	39.2 m		
Max Depth & location in channel	52cm West		
Depth Edge East (~4" from edge)	7 cm		
Depth Edge West (~4" from edge)	5 cm		
Bank East %Veg Overhand	30%		
Bank West %Veg Overhang	100%		
Substrate % mud/silt	5		
Substrate % sand	95		
Substrate % gravel			
Substrate % cobble	/		
Substrate % boulder			
Photo East Bank (time & #)	24		
Photo West Bank (time & #)	25		
Photo upstream (time & #)	22		
Photo downstream (time & #)	23		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

SAWA 2011 River Walk Santa Ana River Habitat Evaluation

744
742
5367

Transect Name: SAS 118

Date 9-15-11

Target UTM: 445267

3754544

Observers (writer/other) BS, TB, TG, DC

General Location Just above River Rd bridge

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	445287 3754539		
Channel position	west		
Width of Channel	47.6m		
Max Depth & location in channel	31cm / center		
Depth Edge East (~4" from edge)	6cm		
Depth Edge West (~4" from edge)	5.5cm		
Bank East %Veg Overhand	80%		
Bank West %Veg Overhang	78%		
Substrate % mud/silt	5		
Substrate % sand	95		
Substrate % gravel			
Substrate % cobble	/		
Substrate % boulder			
Photo East Bank (time & #)	28		
Photo West Bank (time & #)	29		
Photo upstream (time & #)	26		
Photo downstream (time & #)	27		
Photo other (describe)	30 = palms		
Photo other (describe)	31 = palms		
Notes (e.g. Islands, Obstructions)	/		

SAWA 2011 River Walk Santa Ana River Habitat Evaluation

Transect Name: SAS 119

Date 9-15-11

Target UTM: 445050

3754488

— dry

Observers (writer/other) BJ, TB, TG, AC

General Location Just above River Rd bridge

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	445098 3754297		
Channel position	east		
Width of Channel	37.9m		
Max Depth & location in channel	33cm/center		
Depth Edge East (~4" from edge)	25.5cm		
Depth Edge West (~4" from edge)	2cm		
Bank East %Veg Overhand	85%		
Bank West %Veg Overhang	100%		
Substrate % mud/silt	1		
Substrate % sand	99		
Substrate % gravel			
Substrate % cobble			
Substrate % boulder			
Photo East Bank (time & #)	34		
Photo West Bank (time & #)	35		
Photo upstream (time & #)	32		
Photo downstream (time & #)	33		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

SAWA 2011 River Walk

Santa Ana River Habitat Evaluation

Transect Name: SAS 120

Date 9-15-11

Target UTM: 444904

3754313

Observers (writer/other) B, B, T, Q

General Location Just above river & bridge

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	444910 3754313		
Channel position	West		
Width of Channel	36.2m		
Max Depth & location in channel	35cm West		
Depth Edge East (~4" from edge)	4cm		
Depth Edge West (~4" from edge)	4cm		
Bank East %Veg Overhand	0%		
Bank West %Veg Overhang	100%		
Substrate % mud/silt	9		
Substrate % sand	89		
Substrate % gravel	/		
Substrate % cobble	/		
Substrate % boulder	/		
Photo East Bank (time & #)	38		
Photo West Bank (time & #)	39		
Photo upstream (time & #)	36		
Photo downstream (time & #)	37		
Photo other (describe)	/		
Photo other (describe)	/		
Notes (e.g. Islands, Obstructions)	/		

SAWA 2011 River Walk

Santa Ana River Habitat Evaluation

Transect Name: SAS 121 **Date** 9-15-11

Target UTM: 444798 3754034

Observers (writer/other) BS, TB, TK, DC

General Location Just upstream from river rd bridge

Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	444877 3754025		
Channel position	center		
Width of Channel	41.4 m		
Max Depth & location in channel	18 cm / center		
Depth Edge East (~4" from edge)	5 cm		
Depth Edge West (~4" from edge)	2 cm		
Bank East %Veg Overhand	0 %		
Bank West %Veg Overhang	0 %		
Substrate % mud/silt	.5		
Substrate % sand	98.5		
Substrate % gravel	1		
Substrate % cobble	/		
Substrate % boulder	/		
Photo East Bank (time & #)	42		
Photo West Bank (time & #)	43		
Photo upstream (time & #)	40		
Photo downstream (time & #)	46		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)	/		

3m avg wide x 20m long (downstream)

SAWA 2011 River Walk

Santa Ana River Habitat Evaluation

Transect Name: SAS 122 **Date** 9-15-11
Target UTM: 444723 3753747 - dry
Observers (writer/other) BS, TB, TL, OC
General Location 1/2 mi upstream of River Rd. bridge
 Give or send all data sheets and photos to Richard Zembal (Phone: 714-378-3213; address: ATTN: Richard Zembal, Orange County Water District, 18700 Ward St., Fountain Valley, CA 92708)

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	444758 3753700	444727 3753746	
Channel position	east	east	
Width of Channel	25.9m	12.9m	
Max Depth & location in channel	49cm/west	27/east	
Depth Edge East (~4" from edge)	10 cm	12 cm	
Depth Edge West (~4" from edge)	2.5 cm	1.5 cm	
Bank East %Veg Overhand	0 %	0%	
Bank West %Veg Overhang	33%	3%	
Substrate % mud/silt	25	20	
Substrate % sand	75	79	
Substrate % gravel	/	1	
Substrate % cobble	/	/	
Substrate % boulder	/	/	
Photo East Bank (time & #)	46	50	
Photo West Bank (time & #)	47	51	
Photo upstream (time & #)	44	48	
Photo downstream (time & #)	45	49	
Photo other (describe)			
Photo other (describe)	/	/	
Notes (e.g. Islands, Obstructions)	/	/	