

# SAWA 2009 River Walk

## Santa Ana River Habitat Evaluation

Transect Name: SAS 1

Date 9/17/09

Target UTM: 469371

3767152/

Observers (writer/other)

T. Barbree

**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 2009 River Walk

## Santa Ana River Habitat Evaluation

**Transect Name:** SAS 2  
**Target UTM:** 469090

**Date** 9/17/2009  
3767234  
T. Barbee

**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	Dry		
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 2009 River Walk**

# Santa Ana River Habitat Evaluation

**Transect Name:** SAS 3  
**Target UTM:** 468831  
**Observers (writer/other)**

**Date** 9/17/2009  
 3767397  
 T. Barbee

**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)			

D M

# Santa Ana River Habitat Evaluation

**Transect Name:** SAS 4  
**Target UTM:** 468600  
**Observers (writer/other)** \_\_\_\_\_

**Date** 9/17/2009  
 3767551 / T. BarBee

**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)			

DM

# Santa Ana River Habitat Evaluation

**Transect Name:** SAS 5  
**Target UTM:** 468401  
**Observers (writer/other)** \_\_\_\_\_

**Date** 9/17/2009  
 3767736  
 T. Barbee

**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	Dry		
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 2009 River Walk

## Santa Ana River Habitat Evaluation

**Transect Name:** SAS 6

**Date:** 9/17/09

**Target UTM:** 468084

3767727

**Observers (writer/other):** T. Barbee

**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	D M		
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 2009 River Walk

## Santa Ana River Habitat Evaluation

Transect Name: SAS 7  
 Target UTM: 467844

Date 9/17/09  
 3767578 / T. Barbee

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 2009 River Walk

## Santa Ana River Habitat Evaluation

**Transect Name:** SAS 8

**Date** 9/17/09  
3767315

**Target UTM:** 467694

**Observers (writer/other)** t. Barbee

**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	D M		
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 2009 River Walk

## Santa Ana River Habitat Evaluation

Transect Name: SAS 9

Date 9/17/09

Target UTM: 467563

3767030

Observers (writer/other) Chris Medak / Brett Mills

General Location Rialto Drain

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)	0467410 3767094		
Channel position	west		
Width of Channel	8.30 meters		
Max Depth & location in channel	270 mm center		
Depth Edge East (~4" from edge)	28 mm		
Depth Edge West (~4" from edge)	15 mm		
Bank East %Veg Overhand	40 %		
Bank West %Veg Overhang	0 % crossing road		
Substrate % mud/silt	0 %		
Substrate % sand	10 %		
Substrate % gravel	10 %		
Substrate % cobble	79 %		
Substrate % boulder	1 %		
Photo East Bank (time & #)	4		
Photo West Bank (time & #)	3		
Photo upstream (time & #)	1		
Photo downstream (time & #)	2		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)	road crossing Gambusia		

# SAWA 2009 River Walk

## Santa Ana River Habitat Evaluation

Transect Name: SAS 10

Date 9/17/09

Target UTM: 467395

3766817

Observers (writer/other)

Chris Medak / Brett Mills

General Location

just upstream of Rix inflow

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)	0467367 3766820		
Channel position	West		
Width of Channel	10.80 m		
Max Depth & location in channel	75 mm		
Depth Edge East (~4" from edge)	60 mm		
Depth Edge West (~4" from edge)	20 mm		
Bank East %Veg Overhand	4%		
Bank West %Veg Overhang	0%		
Substrate % mud/silt	0%		
Substrate % sand	25%		
Substrate % gravel	25%		
Substrate % cobble	50%		
Substrate % boulder	0%		
Photo East Bank (time & #)	# 6		
Photo West Bank (time & #)	# 9		
Photo upstream (time & #)	# 7		
Photo downstream (time & #)	# 8		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)	road crossing		

# 5 deep pool (660 mm) w/ bass w/shoopy art

# 10 - looks upstream confl. Rix + Rix

# SAWA 2009 River Walk

## Santa Ana River Habitat Evaluation

Transect Name: SAS 11      Date 9/17/09  
 Target UTM:      467246      3766581  
 Observers (writer/other) Chris Medak / Brett Mills  
 General Location downstream from Nix

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)	0467239 3766583		
Channel position	west		
Width of Channel	10.8 m		
Max Depth & location in channel	380 center		
Depth Edge East (~4" from edge)	110 mm		
Depth Edge West (~4" from edge)	50 mm		
Bank East %Veg Overhand	20%		
Bank West %Veg Overhang	10%		
Substrate % mud/silt	0%		
Substrate % sand	2%		
Substrate % gravel	38%		
Substrate % cobble	60%		
Substrate % boulder			
Photo East Bank (time & #)	11		
Photo West Bank (time & #)	14		
Photo upstream (time & #)	12		
Photo downstream (time & #)	13		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)	veg willows, cobblebar		

15 - log in river half way to SAS 12

# SAWA 2009 River Walk

## Santa Ana River Habitat Evaluation

Transect Name: SAS 12      Date 9/17/09  
 Target UTM:      467146      3766296  
 Observers (writer/other) Chris Medik / Brett Mills  
 General Location newly off road area

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)	0407144 3766291		
Channel position	west		
Width of Channel	22.8 m		
Max Depth & location in channel	west of center 260 mm		
Depth Edge East (~4" from edge)	20 mm		
Depth Edge West (~4" from edge)	30 mm		
Bank East %Veg Overhand	0%		
Bank West %Veg Overhang	0%		
Substrate % mud/silt	0%		
Substrate % sand	20%		
Substrate % gravel	35%		
Substrate % cobble	45%		
Substrate % boulder	0%		
Photo East Bank (time & #)	19		
Photo West Bank (time & #)	16		
Photo upstream (time & #)	17		
Photo downstream (time & #)	18		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)	road crossing very wide		

crossing area  
 run habitat  
 ripple just d/s  
 20±' off road area

# SAWA 2009 River Walk

## Santa Ana River Habitat Evaluation

Transect Name: SAS 13

Date 9/17/09

Target UTM: 467182

3765997

Observers (writer/other) Chris Medak / Brett 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)	0467172 3766001		
Channel position	center		
Width of Channel	15.4 m		
Max Depth & location in channel	260 mm		
Depth Edge East (~4" from edge)	15 mm		
Depth Edge West (~4" from edge)	25 mm		
Bank East %Veg Overhand	5%		
Bank West %Veg Overhang	0%		
Substrate % mud/silt	2%		
Substrate % sand	10%		
Substrate % gravel	48%		
Substrate % cobble	40%		
Substrate % boulder	0%		
Photo East Bank (time & #)	26		
Photo West Bank (time & #)	23		
Photo upstream (time & #)	24		
Photo downstream (time & #)	25		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)	Road w/ willow crossing veg adjacent Tire in river		

22 - look upstream - sparse vegetation between 12 + 13 SAS

27 - veg crushed by off roading

## SAWA 2009 River Walk Santa Ana River Habitat Evaluation

Transect Name: SAS 14

Date 9/17/09

Target UTM: 466960

3765802

Observers (writer/other) Chris Medak / Brett Mills

General Location Just below braid

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)	0467013 3765755	0467068 3765764	
Channel position	secondary braid east	main channel west	
Width of Channel	2.6	5.9	
Max Depth & location in channel	240 mm	360 <sup>cm</sup> mm	
Depth Edge East (~4" from edge)	70 mm	25 mm	
Depth Edge West (~4" from edge)	35 mm	45 mm	
Bank East %Veg Overhand	80 %	15 %	
Bank West %Veg Overhang	0 %	60 %	
Substrate % mud/silt	5 %	0 %	
Substrate % sand	75 %	0 %	
Substrate % gravel	20 %	20 %	
Substrate % cobble	0 %	80 %	
Substrate % boulder	0 %	0 %	
Photo East Bank (time & #)	29	36	
Photo West Bank (time & #)	32	33	
Photo upstream (time & #)	30	34	
Photo downstream (time & #)	31	35	
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)	veg - willow Cocklebur.	fast water narrow, lots cover, shade	

28 - split into two braids

# SAWA 2009 River Walk

## Santa Ana River Habitat Evaluation

beautiful  
Stretch between  
SAS 15 +  
SAS 16

Transect Name: SAS 15      Date 9/17/09  
 Target UTM:      466734      3765616  
 Observers (writer/other) Chris Medak / Brett 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)	0466862 3765518	0466724 3765617	
Channel position	east		
Width of Channel	670 mm	6.5 m	
Max Depth & location in channel	50 mm	500 mm	
Depth Edge East (~4" from edge)	30 mm	450 mm	
Depth Edge West (~4" from edge)	25 mm	25 mm	
Bank East %Veg Overhand	0%	30%	
Bank West %Veg Overhang	0%	5%	
Substrate % mud/silt	20%	0%	
Substrate % sand	80%	20%	
Substrate % gravel	0%	70%	
Substrate % cobble	0%	10%	
Substrate % boulder	0%	0%	
Photo East Bank (time & #)	40	45	
Photo West Bank (time & #)	37	41	
Photo upstream (time & #)	38	42	
Photo downstream (time & #)	39	43/44	
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)	Secondary channel	main channel	

almost all subsurface      nice gravel

46 - several suckers seen - deeper water ~500 m

# SAWA 2009 River Walk

## Santa Ana River Habitat Evaluation

Transect Name: SAS 16

Date 9/17/09

Target UTM: 466598

3765358

Observers (writer/other) Chris Medek/Brett Mills

General Location No off road access 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)	0466586 3765366		
Channel position	west		
Width of Channel	6.6		
Max Depth & location in channel	350		
Depth Edge East (~4" from edge)	35 mm		
Depth Edge West (~4" from edge)	190 mm		
Bank East %Veg Overhand	50%		
Bank West %Veg Overhang	50%		
Substrate % mud/silt	0%		
Substrate % sand	30%		
Substrate % gravel	30		
Substrate % cobble	40		
Substrate % boulder	0%		
Photo East Bank (time & #)	50		
Photo West Bank (time & #)	47		
Photo upstream (time & #)	48		
Photo downstream (time & #)	49		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)	Straight Channel		

Stable by veg



## SAWA 2009 River Walk Santa Ana River Habitat Evaluation

Transect Name: SAS 17

Date 9/17/09

Target UTM: 466498

3765072

Observers (writer/other) Chris Medak / Brett Mills

General Location Just upStream from Riverside 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)	0466489 3765075		
Channel position	Center-east		
Width of Channel	7.2 m		
Max Depth & location in channel	340 mm		
Depth Edge East (~4" from edge)	45 mm		
Depth Edge West (~4" from edge)	70 mm		
Bank East %Veg Overhand	20%		
Bank West %Veg Overhang	60%		
Substrate % mud/silt	5%		
Substrate % sand	50%		
Substrate % gravel	20%		
Substrate % cobble	25%		
Substrate % boulder	0%		
Photo East Bank (time & #)	S4		
Photo West Bank (time & #)	S1		
Photo upstream (time & #)	S2		
Photo downstream (time & #)	S3		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

Observed Sucker with white rings on head  
Riverside between 16 + 17  
Bridge  
55-56

# SAWA 2009 River Walk

## Santa Ana River Habitat Evaluation

Transect Name: SAS 18

Date 9/17/09

Target UTM: 466389

3764819

Observers (writer/other) Melody Lima / Alyson DeLeon

General Location SAR (between Market + Riverside Ave)

(Group 2)

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)	N- 34.02348 W- 117.36440		
Channel position	Middle		
Width of Channel	7.3 m		
Max Depth & location in channel	W-bank - 365 cm		
Depth Edge East (~4" from edge)	35 cm		
Depth Edge West (~4" from edge)	75 cm		
Bank East %Veg Overhang	100%		
Bank West %Veg Overhang	30%		
Substrate % mud/silt	—		
Substrate % sand	45%		
Substrate % gravel	45%		
Substrate % cobble	8%		
Substrate % boulder	2%		
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)			

\*

2/18/10 - good habitat at 10 M. Access (sand, gravel & cobble to see) N 34.02435, W 117.36412  
 Photo 1 - E bank  
 2 - W bank  
 3 - up  
 4 - d/s

# SAWA 2009 River Walk

## Santa Ana River Habitat Evaluation

Transect Name: SAS 19                      Date 9/17/09

Target UTM:            466226            3764556

Observers (writer/other) Melodie Almar / Alison [unclear] (Grp 2)

General Location SAR (HUN) Market + Riverside

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) BW

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	N- 34,02114 W- 17,36815		
Channel position	<u>Water</u>		
Width of Channel	<u>9.2 m</u>		
Max Depth & location in channel	<u>395 cm</u>		
Depth Edge East (~4" from edge)	<u>25 cm</u>		
Depth Edge West (~4" from edge)	<u>10 cm</u>		
Bank East %Veg Overhand	<u>100%</u>		
Bank West %Veg Overhang	<u>100%</u>		
Substrate % mud/silt	<u>—</u>		
Substrate % sand	<u>35%</u>		
Substrate % gravel	<u>60%</u>		
Substrate % cobble	<u>4%</u>		
Substrate % boulder	<u>&lt; 1%</u>		
Photo East Bank (time & #)	<u>#9</u>		
Photo West Bank (time & #)	<u>#10</u>		
Photo upstream (time & #)	<u>#11</u>		
Photo downstream (time & #)	<u>#12</u>		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

## SAWA 2009 River Walk Santa Ana River Habitat Evaluation

Transect Name: SAS 20

Date 9/17/09

Target UTM: 466060

3764316

Observers (writer/other) Melody Aymar | Allyson Beckman (Grp. 2)

General Location SAR (btwn Market + Riverside)

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 - 0414245 3764316		
Channel position	E		
Width of Channel	8.3 m		
Max Depth & location in channel	3.80 cm		
Depth Edge East (~4" from edge)	25 cm		
Depth Edge West (~4" from edge)	25 cm		
Bank East %Veg Overhand	100%		
Bank West %Veg Overhang	5%		
Substrate % mud/silt	—		
Substrate % sand	65		
Substrate % gravel	34		
Substrate % cobble	<1%		
Substrate % boulder	0		
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)			

# SAWA 2009 River Walk

## Santa Ana River Habitat Evaluation

Transect Name: SAS 21

Date 9/17/09

Target UTM: 465905

3764060

Observers (writer/other) Melody Aymar / Allyson Beckman (GIP 2)

General Location SAR (btwn Market + Riverside)

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- 5465869 3964060		
Channel position	Middle		
Width of Channel	9.4		
Max Depth & location in channel	Middle - 375 cm		
Depth Edge East (~4" from edge)	35 cm		
Depth Edge West (~4" from edge)	20 cm		
Bank East %Veg Overhand	100%		
Bank West %Veg Overhang	50%		
Substrate % mud/silt	5		
Substrate % sand	20		
Substrate % gravel	58		
Substrate % cobble	20		
Substrate % boulder	2%		
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)			

# SAWA 2009 River Walk

## Santa Ana River Habitat Evaluation

Transect Name: SAS 22

Date 9/17/09

Target UTM: 465727

3763828

Observers (writer/other) Melody Aymar + Allison Beckman (Corp 2)

General Location SAR (btwn Market + Riverside)

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)	115-0465730 3763830		
Channel position	E → Mid		
Width of Channel	7.9 m		
Max Depth & location in channel	3.5 cm West		
Depth Edge East (~4" from edge)	30 cm		
Depth Edge West (~4" from edge)	50 cm		
Bank East %Veg Overhand	100%		
Bank West %Veg Overhang	25%		
Substrate % mud/silt	—		
Substrate % sand	55%		
Substrate % gravel	45%		
Substrate % cobble	10%		
Substrate % boulder	5		
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)			

# SAWA 2009 River Walk

## Santa Ana River Habitat Evaluation

**Transect Name:** SAS 23      **Date** 9/17/09  
**Target UTM:**      465529      3763604  
**Observers (writer/other)** Melody Aymar / Allyson Beckman (Grp 2)  
**General Location** SAR (btwn Market + Riverside)

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)	115-0465515 3763609		
Channel position	middle		
Width of Channel	12.3 m		
Max Depth & location in channel	Middle - 330		
Depth Edge East (~4" from edge)	40 cm		
Depth Edge West (~4" from edge)	70 cm		
Bank East %Veg Overhand	0%		
Bank West %Veg Overhang	100%		
Substrate % mud/silt	-		
Substrate % sand	70%		
Substrate % gravel	30%		
Substrate % cobble	-		
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)	Island		

# SAWA 2009 River Walk

## Santa Ana River Habitat Evaluation

Transect Name: SAS 24

Date 9/17/09

Target UTM: 465313

3763402

Observers (writer/other) Melody Aymar / Allyson Beckman

(GCP 2)

General Location SAR (Market + Riverside 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)	115- 0465293 3763449		
Channel position	Middle		
Width of Channel	7.1 m		
Max Depth & location in channel	Mid- 310 cm		
Depth Edge East (~4" from edge)	11 cm		
Depth Edge West (~4" from edge)	60 cm		
Bank East %Veg Overhand	15%		
Bank West %Veg Overhang	100%		
Substrate % mud/silt	—		
Substrate % sand	20%		
Substrate % gravel	60%		
Substrate % cobble	19%		
Substrate % boulder	1%		
Photo East Bank (time & #)	#29		
Photo West Bank (time & #)	#30		
Photo upstream (time & #)	#31		
Photo downstream (time & #)	#32		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			



ATTN:

Bonnie  
Nash

951-273-9586

### SAWA 2009 River Walk Santa Ana River Habitat Evaluation

Transect Name: SAS 25

Date 9/17/09

Target UTM: 465119 3763178

Observers (writer/other) Melody Aimer / Alyson Beckman (app 2)

General Location SAR (between Market + Riverside)

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 - 0465050 3763314		
Channel position	Middle		
Width of Channel	8.4 m		
Max Depth & location in channel	410 cm		
Depth Edge East (~4" from edge)	30 cm		
Depth Edge West (~4" from edge)	20 cm		
Bank East %Veg Overhand	100%		
Bank West %Veg Overhang	90%		
Substrate % mud/silt	-		
Substrate % sand	80		
Substrate % gravel	19		
Substrate % cobble	<1		
Substrate % boulder	-		
Photo East Bank (time & #)	#33		
Photo West Bank (time & #)	* 34		
Photo upstream (time & #)	* 35		
Photo downstream (time & #)	* 36 (12:25)		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)	Homeless camp upstream		

↓  
3-4" fish  
12+  
Probable 50?

# SAWA 2009 River Walk

## Santa Ana River Habitat Evaluation

Transect Name: SAS 26

Date 9/17/09

Target UTM: 464891

3763008

Observers (writer/other) Melody Hinnan / Allison Beckman

Group 2

General Location SAR (between Market + Riverside)

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)	115-0464891 3763008		
Channel position	West		
Width of Channel	12.5		
Max Depth & location in channel	mid - 440 cm		
Depth Edge East (~4" from edge)	25		
Depth Edge West (~4" from edge)	5 cm		
Bank East %Veg Overhand	100%		
Bank West %Veg Overhang	35%		
Substrate % mud/silt	—		
Substrate % sand	65%		
Substrate % gravel	15%		
Substrate % cobble	75%		
Substrate % boulder	5%		
Photo East Bank (time & #)	# 37		
Photo West Bank (time & #)	# 38		
Photo upstream (time & #)	# 39		
Photo downstream (time & #)	# 40 12:05		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

Pics ~~4530~~  
2560

## SAWA 2009 River Walk Santa Ana River Habitat Evaluation

Transect Name: SAS 27                      Date 9/17/09

Target UTM:                      464709                      3762787

Observers (writer/other) Misty Gray / Bob Packard

General Location Santa Ana 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)	464684 3762781		
Channel position	main		
Width of Channel	5.6m		
Max Depth & location in channel	East bank 170cm		
Depth Edge East (~4" from edge)	6cm		
Depth Edge West (~4" from edge)	14cm		
Bank East %Veg Overhand	100%		
Bank West %Veg Overhang	100%		
Substrate % mud/silt	0		
Substrate % sand	10%		
Substrate % gravel	0		
Substrate % cobble	90%		
Substrate % boulder	0		
Photo East Bank (time & #)	3 DSCN 3721		
Photo West Bank (time & #)	4 DSCN 3722		
Photo upstream (time & #)	X DSCN 3719		
Photo downstream (time & #)	2 DSCN 3720		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)	None		

## SAWA 2009 River Walk Santa Ana River Habitat Evaluation

Transect Name: SAS 28

Date 9/17/09

Target UTM: 464577

3762520

Observers (writer/other) Misty Gray, Bob Packard

General Location Santa Ana 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)	464558 3762528		
Channel position	Main		
Width of Channel	15.1 cm		
Max Depth & location in channel	East bank 18 cm		
Depth Edge East (~4" from edge)	6 cm		
Depth Edge West (~4" from edge)	7 cm		
Bank East %Veg Overhand	100%		
Bank West %Veg Overhang	100%		
Substrate % mud/silt	5%		
Substrate % sand	45%		
Substrate % gravel	50%		
Substrate % cobble	0		
Substrate % boulder	0		
Photo East Bank (time & #)	7 DSCN 25 <sup>1</sup>		
Photo West Bank (time & #)	8 DSCN 26		
Photo upstream (time & #)	5 DSCN 23		
Photo downstream (time & #)	6 DSCN 24		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)	sand bar in middle		

# SAWA 2009 River Walk

## Santa Ana River Habitat Evaluation

Transect Name: SAS 29                      Date 9/17/09

Target UTM:                      464516                      3762234

Observers (writer/other) Misty Gray, Bob Packard

General Location Santa Ana 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)	464513 3762233		
Channel position	main		
Width of Channel	13.6		
Max Depth & location in channel	West bank 24cm		
Depth Edge East (~4" from edge)	4.5cm		
Depth Edge West (~4" from edge)	9cm		
Bank East %Veg Overhand	100%		
Bank West %Veg Overhang	100%		
Substrate % mud/silt	50%		
Substrate % sand	40%		
Substrate % gravel	10%		
Substrate % cobble	0		
Substrate % boulder	0		
Photo East Bank (time & #)	X DSCN 29		
Photo West Bank (time & #)	X DSCN 30		
Photo upstream (time & #)	X DSCN 27		
Photo downstream (time & #)	X DSCN 28		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)	~65% of stream is in veg.		

## SAWA 2009 River Walk Santa Ana River Habitat Evaluation

Transect Name: SAS 30                      Date 9/17/09

Target UTM:            464384                      3761974

Observers (writer/other) Misty Gray, Bob Packard

General Location Santa Ana 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)	464361 3761991	464378 3761977	
Channel position	<del>W</del> West	East	
Width of Channel	7.1m	4.3m	
Max Depth & location in channel	West bank 34cm	middle 19cm	
Depth Edge East (~4" from edge)	6.5cm	11cm	
Depth Edge West (~4" from edge)	10cm	12cm	
Bank East %Veg Overhand	100%	100%	
Bank West %Veg Overhang	90%	100%	
Substrate % mud/silt	10%	60%	
Substrate % sand	75%	20%	
Substrate % gravel	10%	20%	
Substrate % cobble	5%	0	
Substrate % boulder	0	0	
Photo East Bank (time & #)	<del>15</del> DSCW 33	<del>18</del> DSCW 36	
Photo West Bank (time & #)	<del>16</del> DSCW 34	<del>20</del> DSCW 38	
Photo upstream (time & #)	<del>17</del> DSCW 31	<del>12</del> DSCW 35	
Photo downstream (time & #)	<del>14</del> DSCW 32	<del>19</del> DSCW 37	
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

# SAWA 2009 River Walk

## Santa Ana River Habitat Evaluation

Transect Name: SAS 31                      Date 9/17/09

Target UTM:            464221            3761719

Observers (writer/other) Misty Gray, Bob Packard

General Location Santa Ana 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)	464212 3761723		
Channel position	East		
Width of Channel	9.9m		
Max Depth & location in channel	East 38cm		
Depth Edge East (~4" from edge)	16.5cm		
Depth Edge West (~4" from edge)	10cm		
Bank East %Veg Overhand	100%		
Bank West %Veg Overhang	100%		
Substrate % mud/silt	10%		
Substrate % sand	80%		
Substrate % gravel	10%		
Substrate % cobble	0		
Substrate % boulder	0		
Photo East Bank (time & #)	<del>33</del> DSCW 41		
Photo West Bank (time & #)	<del>34</del> DSCW 42		
Photo upstream (time & #)	<del>31</del> DSCW 39		
Photo downstream (time & #)	<del>32</del> DSCW 40		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

## SAWA 2009 River Walk Santa Ana River Habitat Evaluation

Transect Name: SAS 32                      Date 9/17/09

Target UTM:            464043                      3761475

Observers (writer/other) Misty Gray, Bob Packard

General Location Santa Ana 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)	464015 3761507		
Channel position	main		
Width of Channel	8.2 m		
Max Depth & location in channel	West 34 cm		
Depth Edge East (~4" from edge)	7.5 cm		
Depth Edge West (~4" from edge)	12 cm		
Bank East %Veg Overhand	100%		
Bank West %Veg Overhang	100%		
Substrate % mud/silt	20%		
Substrate % sand	70%		
Substrate % gravel	10%		
Substrate % cobble	0		
Substrate % boulder	0		
Photo East Bank (time & #)	27 DSCN 45		
Photo West Bank (time & #)	28 DSCN 46		
Photo upstream (time & #)	25 DSCN 43		
Photo downstream (time & #)	26 DSCN 44		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			



# SAWA 2009 River Walk

## Santa Ana River Habitat Evaluation

**Transect Name:** SAS 33                      **Date** 7/17/09  
**Target UTM:**                      463862                      3761243  
**Observers (writer/other)** Misty Gray / Bob Eckard  
**General Location** Santa Ana 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)	463788 3761355		
Channel position	main		
Width of Channel	8.9m		
Max Depth & location in channel	East bank 27cm		
Depth Edge East (~4" from edge)	10cm		
Depth Edge West (~4" from edge)	10.5cm		
Bank East %Veg Overhand	100%		
Bank West %Veg Overhang	100%		
Substrate % mud/silt	20%		
Substrate % sand	75%		
Substrate % gravel	5%		
Substrate % cobble	0		
Substrate % boulder	0		
Photo East Bank (time & #)	31 DSCN 49		
Photo West Bank (time & #)	32 DSCN 50		
Photo upstream (time & #)	29 DSCN 47		
Photo downstream (time & #)	30 DSCN 48		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)	last year there were 2 braids at this point - only west braid this year		

# SAWA 2009 River Walk

## Santa Ana River Habitat Evaluation

Transect Name: SAS 34                      Date 9/17/09

Target UTM:                      463583                      3761123

Observers (writer/other) Misty Gray, Bob Packard

**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)	463524 3761179		
Channel position	main		
Width of Channel	10.4m		
Max Depth & location in channel	East bank 23.5cm		
Depth Edge East (~4" from edge)	5.5cm	*	
Depth Edge West (~4" from edge)	8cm		
Bank East %Veg Overhand	100%		
Bank West %Veg Overhang	100%		
Substrate % mud/silt	20%		
Substrate % sand	75%		
Substrate % gravel	4%		
Substrate % cobble	1%		
Substrate % boulder	0		
Photo East Bank (time & #)	<del>35</del> DSCW 53		
Photo West Bank (time & #)	<del>34</del> DSCW 54		
Photo upstream (time & #)	<del>33</del> DSCW 51		
Photo downstream (time & #)	<del>34</del> DSCW 52		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)	Small gravel patches on west bank		

\* Did not do small tributary that is to the East of main river. it was coming from Fairmount Park, not a braid of the main river.

# SAWA 2009 River Walk

## Santa Ana River Habitat Evaluation

**Transect Name:** SAS 35

**Date:** 7/27/09

**Target UTM:** 463416

3760895

**Observers (writer/other):** R. Max Bristow / Crystal Bell

**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)	463416 / 3760895		
Channel position	West		
Width of Channel	30 m		
Max Depth & location in channel	60 cm West side		
Depth Edge East (~4" from edge)	75 cm		
Depth Edge West (~4" from edge)	60 cm		
Bank East %Veg Overhand	15%		
Bank West %Veg Overhang	5%		
Substrate % mud/silt			
Substrate % sand	100%		
Substrate % gravel			
Substrate % cobble			
Substrate % boulder			
Photo East Bank (time & #)	9:52 →		
Photo West Bank (time & #)	9:56 →		
Photo upstream (time & #)	9:55 →		
Photo downstream (time & #)	9:54 →		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)	Vegetation stands South of transect		

# SAWA 2009 River Walk

## Santa Ana River Habitat Evaluation

**Transect Name:** SAS 36

**Date:** 4/17/09

**Target UTM:** 463304

3760620

**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)	463227 / 3760895		
Channel position	W04*		
Width of Channel	10.6 m		
Max Depth & location in channel	2.00m R05.2m		
Depth Edge East (~4" from edge)	1.00m		
Depth Edge West (~4" from edge)	1.10m		
Bank East %Veg Overhand	15%		
Bank West %Veg Overhang	10%		
Substrate % mud/silt			
Substrate % sand	100%		
Substrate % gravel			
Substrate % cobble			
Substrate % boulder			
Photo East Bank (time & #)			
Photo West Bank (time & #)	10:17/		
Photo upstream (time & #)	10:18		
Photo downstream (time & #)	10:16		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)	Maclean Island South of transect		

# SAWA 2009 River Walk

## Santa Ana River Habitat Evaluation

**Transect Name:** SAS 37

**Date:** 9/11/09

**Target UTM:** 463037

3760488

**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)	463000 / 3760488		
Channel position	Center		
Width of Channel	7.2m		
Max Depth & location in channel	170cm Center		
Depth Edge East (~4" from edge)	70cm		
Depth Edge West (~4" from edge)	70cm		
Bank East %Veg Overhand	15%		
Bank West %Veg Overhang	5%		
Substrate % mud/silt			
Substrate % sand	100%		
Substrate % gravel			
Substrate % cobble			
Substrate % boulder			
Photo East Bank (time & #)	10:05 9		
Photo West Bank (time & #)	10:07 10		
Photo upstream (time & #)	10:08 11		
Photo downstream (time & #)	10:10 12		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)	upstream will have 10' of water		

# SAWA 2009 River Walk

## Santa Ana River Habitat Evaluation

**Transect Name:** SAS 38                      **Date** \_\_\_\_\_

**Target UTM:**                      462863                      3760225

**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)	462863 3760225		
Channel position	Channel #1		
Width of Channel	200m		
Max Depth & location in channel	7.10m @ center		
Depth Edge East (~4" from edge)	2.0m		
Depth Edge West (~4" from edge)	1.30m		
Bank East %Veg Overhand	5%		
Bank West %Veg Overhang	10%		
Substrate % mud/silt			
Substrate % sand	80%		
Substrate % gravel			
Substrate % cobble	5%		
Substrate % boulder			
Photo East Bank (time & #)	10:51 13		
Photo West Bank (time & #)	10:51 14		
Photo upstream (time & #)	10:51 15		
Photo downstream (time & #)	10:51 16		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)	Vegetation on bank		

# SAWA 2009 River Walk

## Santa Ana River Habitat Evaluation

**Transect Name:** SAS 39

**Date:** 9/17/09

**Target UTM:** 462673

3759993

**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)	463646 / 3759916		
Channel position	36.1		
Width of Channel	36.1		
Max Depth & location in channel	230 East center		
Depth Edge East (~4" from edge)	110cm		
Depth Edge West (~4" from edge)	80cm		
Bank East %Veg Overhand	10%		
Bank West %Veg Overhang	10%		
Substrate % mud/silt			
Substrate % sand	91%		
Substrate % gravel	8%		
Substrate % cobble	1%		
Substrate % boulder			
Photo East Bank (time & #)	11:06 37		
Photo West Bank (time & #)	11:06 38		
Photo upstream (time & #)	11:06 39		
Photo downstream (time & #)	11:06 30		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)	12m wide island in center of channel		

# SAWA 2009 River Walk

## Santa Ana River Habitat Evaluation

Transect Name: SAS 40

Date 3/11/10

Target UTM: 462488

3759753

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)	462488 3759753		
Channel position	center		
Width of Channel	30m		
Max Depth & location in channel	200cm west side		
Depth Edge East (~4" from edge)	70cm		
Depth Edge West (~4" from edge)	50cm		
Bank East %Veg Overhang	30%		
Bank West %Veg Overhang	2%		
Substrate % mud/silt	20%		
Substrate % sand	70%		
Substrate % gravel	2%		
Substrate % cobble	8%		
Substrate % boulder			
Photo East Bank (time & #)	11:22 (21)		
Photo West Bank (time & #)	11:22 (22)		
Photo upstream (time & #)	11:22 (23)		
Photo downstream (time & #)	11:22 (24)		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			



# SAWA 2009 River Walk

## Santa Ana River Habitat Evaluation

**Transect Name:** SAS 41

**Date:** 8/17/09

**Target UTM:** 462256

3759548

**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)	462256 3759548	3759548	
Channel position			
Width of Channel	18m		
Max Depth & location in channel			
Depth Edge East (~4" from edge)	1/10cm		
Depth Edge West (~4" from edge)			
Bank East %Veg Overhand	10%		
Bank West %Veg Overhang	5%		
Substrate % mud/silt			
Substrate % sand	95%		
Substrate % gravel	4%		
Substrate % cobble			
Substrate % boulder			
Photo East Bank (time & #)	1:05 (25)		
Photo West Bank (time & #)	1:05 (26)		
Photo upstream (time & #)	1:05 (27)		
Photo downstream (time & #)	1:05 (28)		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

# SAWA 2009 River Walk

## Santa Ana River Habitat Evaluation

Transect Name: SAS 42

Date 9/17/09

Target UTM: 461985

3759412

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)	461978 375945		
Channel position			
Width of Channel	7.0 m		
Max Depth & location in channel	160 cm center		
Depth Edge East (~4" from edge)	100 cm		
Depth Edge West (~4" from edge)	90 cm		
Bank East %Veg Overhand	10%		
Bank West %Veg Overhang	10%		
Substrate % mud/silt			
Substrate % sand	94%		
Substrate % gravel	4%		
Substrate % cobble	2%		
Substrate % boulder			
Photo East Bank (time & #)	12:00 30		
Photo West Bank (time & #)	12:00 35		
Photo upstream (time & #)	16:00 31		
Photo downstream (time & #)	18:00 32		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)	Small islands of cobbles in channel		

# SAWA 2009 River Walk

## Santa Ana River Habitat Evaluation

Transect Name: SAS 43                      Date \_\_\_\_\_  
 Target UTM:                      461691                      3759312  
 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)	461676 / 3759372		
Channel position	West		
Width of Channel			
Max Depth & location in channel	120cm East side		
Depth Edge East (~4" from edge)	120cm		
Depth Edge West (~4" from edge)	90cm		
Bank East %Veg Overhand	5/0		
Bank West %Veg Overhang	5%		
Substrate % mud/silt			
Substrate % sand	100%		
Substrate % gravel			
Substrate % cobble			
Substrate % boulder			
Photo East Bank (time & #)	12:15 (33)		
Photo West Bank (time & #)	12:15 (34)		
Photo upstream (time & #)	12:15 (35)		
Photo downstream (time & #)	12:15 (36)		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)	Vegetation island south of transect		

# SAWA 2009 River Walk

## Santa Ana River Habitat Evaluation

**Transect Name:** SAS 44

**Date:** 9/17/2009

Dave  
Rachel  
Yoko

**Target UTM:** 461400

3759292

**Observers (writer/other):** David, Rachel, Yoko

**General Location:** *east*

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)	0461399 3759292		
Channel position	<i>with east</i>		
Width of Channel	15.2m		
Max Depth & location in channel	24cm (1/3 from East)		
Depth Edge East (~4" from edge)	3cm		
Depth Edge West (~4" from edge)	1cm		
Bank East %Veg Overhand	2/15.2m = 13%		
Bank West %Veg Overhang	2/15.2m = 13%		
Substrate % mud/silt			
Substrate % sand	100%		
Substrate % gravel			
Substrate % cobble			
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)			

*SAWA 2009  
river landscape  
glaring and  
red-wing  
blackbirds*

# SAWA 2009 River Walk

## Santa Ana River Habitat Evaluation

**Transect Name:** SAS 45

**Date:** 9/17/09

**Target UTM:** 461118

3759327

**Observers (writer/other):** Dave, Yoko, Richard

**General Location:** 200m south of downtown

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)	3759383 461118		
Channel position	center		
Width of Channel	25.7m		
Max Depth & location in channel	20cm - center		
Depth Edge East (~4" from edge)	30cm		
Depth Edge West (~4" from edge)	6 cm		
Bank East %Veg Overhang	3' / 25.7m = 12%		
Bank West %Veg Overhang	9' / 25.7m = 12%		
Substrate % mud/silt			
Substrate % sand	90%		
Substrate % gravel	10%		
Substrate % cobble			
Substrate % boulder			
Photo East Bank (time & #)	6		
Photo West Bank (time & #)	7		
Photo upstream (time & #)	8		
Photo downstream (time & #)	9		
Photo other (describe)	5 (Yoko measuring channel width)		
Photo other (describe)	10 ("jungle-like" vegetation to way # 46)		
Notes (e.g. Islands, Obstructions)			

- East bank  
- lots of wild  
- some animals  
- beautiful  
- birds / vegetation  
- clear water

# SAWA 2009 River Walk

## Santa Ana River Habitat Evaluation

**Transect Name:** SAS 46

**Date** 9/17/09

**Target UTM:** 460944

3759091

**Observers (writer/other)** Dave, Yoko, Rachael

**General Location** near Rubidoux Nature Center

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)	119 460874 3759091		
Channel position	more west		
Width of Channel	21.3m		
Max Depth & location in channel	32cm - west bank		
Depth Edge East (~4" from edge)	5cm		
Depth Edge West (~4" from edge)	5cm		
Bank East %Veg Overhang	9/21.3m	=42%	
Bank West %Veg Overhang	3/21.3	=14%	
Substrate % mud/silt			
Substrate % sand	90%		
Substrate % gravel	10%		
Substrate % cobble			
Substrate % boulder			
Photo East Bank (time & #)	12		
Photo West Bank (time & #)	13		
Photo upstream (time & #)	14		
Photo downstream (time & #)	15		
Photo other (describe)	1 - Dave measuring depth		
Photo other (describe)	10/17 Rachael writing about photo		
Notes (e.g. Islands, Obstructions)	1 fish - about 5cm - ducks flying overhead		

- mostly native vegetation with some old slash jacket found in stream  
- about 8 more fish (~5cm) → possibly chub or sucker (staying on bottom on stream)

# SAWA 2009 River Walk

## Santa Ana River Habitat Evaluation

Transect Name: SAS 47

Date 9/12/09

Target UTM: 460746

3758882

Observers (writer/other) Dave Yoko, Barbara

General Location 300 m downstream

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)	115460787 3758882		
Channel position	center		
Width of Channel	18.1m		
Max Depth & location in channel	25cm @ west bank		
Depth Edge East (~4" from edge)	19cm		
Depth Edge West (~4" from edge)	10cm		
Bank East %Veg Overhand	1m / 18.1m 35%		
Bank West %Veg Overhang	3.4m / 18.1m 18%		
Substrate % mud/silt			
Substrate % sand	95%		
Substrate % gravel	5%		
Substrate % cobble			
Substrate % boulder			
Photo East Bank (time & #)	18		
Photo West Bank (time & #)	19		
Photo upstream (time & #)	20		
Photo downstream (time & #)	21		
Photo other (describe)	22 (Yoko catching chub)		
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

*1.5m from edge side of channel  
 in stream bed  
 coarse (white) sand  
 some silt  
 some vegetation  
 some typical mud at bottom*

# SAWA 2009 River Walk

## Santa Ana River Habitat Evaluation

**Transect Name:** SAS 48

**Date:** 9/22/09

**Target UTM:** 460464

**3758878**

**Observers (writer/other):** [unclear] [unclear]

**General Location:** [unclear]

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 460464		
Channel position	201-207		
Width of Channel	15.4m		
Max Depth & location in channel	38cm @ east side		
Depth Edge East (~4" from edge)	2.5cm		
Depth Edge West (~4" from edge)	7cm		
Bank East %Veg Overhand	2m / 15.4m	13%	
Bank West %Veg Overhang	2m / 15.4m	2%	
Substrate % mud/silt			
Substrate % sand	100%		
Substrate % gravel			
Substrate % cobble			
Substrate % boulder			
Photo East Bank (time & #)	23		
Photo West Bank (time & #)	25		
Photo upstream (time & #)	24		
Photo downstream (time & #)	26		
Photo other (describe)	27 (encouraging area)		
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

*[Faint handwritten notes and stamps at the bottom of the page, including a date stamp: 9/22/09]*



# SAWA 2009 River Walk

## Santa Ana River Habitat Evaluation

Transect Name: SAS 49

Date 9/17/09

Target UTM: 460204

3758743

Observers (writer/other) Richard Zembal, [unclear]

General Location 1700 Alpha Way, Fountain Valley, CA

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)	460182 375874		
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 Overhang			
Bank West %Veg Overhang			
Substrate % mud/silt			
Substrate % sand	100%		
Substrate % gravel			
Substrate % cobble			
Substrate % boulder			
Photo East Bank (time & #)	28		
Photo West Bank (time & #)	29		
Photo upstream (time & #)	30		
Photo downstream (time & #)	31		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

*10/1/09  
 similar to previous sites  
 some [unclear]  
 [unclear] [unclear]  
 [unclear] [unclear]*

# SAWA 2009 River Walk

## Santa Ana River Habitat Evaluation

Transect Name: SAS 50

Date 9/12/09

Target UTM: 459949

3758619

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)	459949 3758619		
Channel position			
Width of Channel	12 m		
Max Depth & location in channel	30 cm @ center		
Depth Edge East (~4" from edge)	30 cm		
Depth Edge West (~4" from edge)	2 cm		
Bank East %Veg Overhang	0m / 12m 0%		
Bank West %Veg Overhang	0.8m / 12m 5%		
Substrate % mud/silt			
Substrate % sand	25%		
Substrate % gravel	15%		
Substrate % cobble			
Substrate % boulder			
Photo East Bank (time & #)	32		
Photo West Bank (time & #)	33		
Photo upstream (time & #)	34		
Photo downstream (time & #)	35		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

- live in  
 circle  
 09/22/09  
 11:11 AM  
 9/22/09

# SAWA 2009 River Walk

## Santa Ana River Habitat Evaluation

**Transect Name:** SAS 51      **Date:** 11/10/09

**Target UTM:** 459694      3758774

**Observers (writer/other):** Richard Zembal, [unclear]

**General Location:** [unclear] Santa Ana 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)	119 459694		
Channel position			
Width of Channel	7.5 m		
Max Depth & location in channel	2.7 m		
Depth Edge East (~4" from edge)	13 cm		
Depth Edge West (~4" from edge)	9 cm		
Bank East %Veg Overhand	2.5 m / 100% veg	11%	
Bank West %Veg Overhang	2 m / 100% veg	9%	
Substrate % mud/silt			
Substrate % sand	100%		
Substrate % gravel	5%		
Substrate % cobble			
Substrate % boulder			
Photo East Bank (time & #)	40		
Photo West Bank (time & #)	30		
Photo upstream (time & #)	10		
Photo downstream (time & #)	20		
Photo other (describe)	40 downstream bridge		
Photo other (describe)			
Notes (e.g. Islands, Obstructions)	11# islands		

SAS 51A

(before 52)

gravel <sup>(width)</sup> 100ft x <sup>(depth)</sup> 15ft  
bar 6 centimeters deep 40% 60% sand  
GRAVEL

GPS: SASSIA: 115 0459474 3758796

Photos ① down (bridge) 235  
② south = east 236  
③ up 237  
④ north = west 238

OVER →

## SAWA 2009 River Walk Santa Ana River Habitat Evaluation

Transect Name: SAS 52      Date 9/17/09  
 Target UTM:      459384      3758743  
 Observers (writer/other) Terry Reeser Bill Counts  
 General Location Santa Ana 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)	459381 3758744		
Channel position	NS	NS	
Width of Channel	10.8m	17.8	
Max Depth & location in channel	14cm	30cm	
Depth Edge East (~4" from edge)	11cm	16cm	
Depth Edge West (~4" from edge)	2cm	10cm	
Bank East %Veg Overhand	100%	100%	
Bank West %Veg Overhang	100%	100%	
Substrate % mud/silt			
Substrate % sand	100%	100%	
Substrate % gravel			
Substrate % cobble			
Substrate % boulder			
② Photo East Bank (time & #) 240		244	
④ Photo West Bank (time & #) 242		246	
10:42 ① Photo upstream (time & #) 239		243	
③ Photo downstream (time & #) 241		245	
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)	10 m veg island in between channels		

OVER →

## SAWA 2009 River Walk Santa Ana River Habitat Evaluation

Transect Name: SAS 53      Date 9/17/09  
 Target UTM:      459071      3758704  
 Observers (writer/other) Terry Reeser Jill Cummings  
 General Location Santa Ana 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)	959071 3758701		
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	100%		
Substrate % gravel			
Substrate % cobble			
Substrate % boulder			
② Photo East Bank (time & #)	252		
④ Photo West Bank (time & #)	254		
① Photo upstream (time & #)	251		
③ Photo downstream (time & #)	253		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

# SAWA 2009 River Walk

## Santa Ana River Habitat Evaluation

**Transect Name:** SAS 55 (54) **Date** 9/17/09

**Target UTM:** 458459 3758731

**Observers (writer/other)** Ferry Rogers, Jill Cummings

**General Location** Santa Ana 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)	458459 3758693		
Channel position	NS	NS	
Width of Channel	20.75 m	6.4 m	
Max Depth & location in channel	43 cm	.5 cm	
Depth Edge East (~4" from edge)	7 cm	.3 cm	
Depth Edge West (~4" from edge)	.6 cm	.3 cm	
Bank East %Veg Overhand	100%	100%	
Bank West %Veg Overhang	100%	100%	
Substrate % mud/silt			
Substrate % sand	100%	95%	
Substrate % gravel		5%	
Substrate % cobble			
Substrate % boulder			
① Photo East Bank (time & #)	256	② 260	
④ Photo West Bank (time & #)	258	④ 262	
① Photo upstream (time & #)	255	① 259	
③ Photo downstream (time & #) <u>pipe bridge</u>	257	③ 261	
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

# SAWA 2009 River Walk

## Santa Ana River Habitat Evaluation

Transect Name: SAS 5455 Date 9/17/09  
 Target UTM: 458761 3758693

Observers (writer/other) Terry Deesar Jill Cummings

General Location Santa Ana RWR

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)	458445 3758747		
Channel position			
Width of Channel	43m		
Max Depth & location in channel	27cm		
Depth Edge East (~4" from edge)	.9cm		
Depth Edge West (~4" from edge)	.9cm		
Bank East %Veg Overhand	100%		
Bank West %Veg Overhang	100%		
Substrate % mud/silt			
Substrate % sand	98%		
Substrate % gravel	2%		
Substrate % cobble			
Substrate % boulder			
Photo East Bank (time & #)	264		
Photo West Bank (time & #)	266		
Photo upstream (time & #)	263		
Photo downstream (time & #)	265		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			



# SAWA 2009 River Walk

## Santa Ana River Habitat Evaluation

**Transect Name:** SAS 56      **Date:** 9/17/09  
**Target UTM:**      458181      3758627  
**Observers (writer/other):** TRZ JC

**General Location:** Santa Ana 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)			
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	100%		
Substrate % gravel			
Substrate % cobble			
Substrate % boulder			
Photo East Bank (time & #)	268		
Photo West Bank (time & #)	270		
Photo upstream (time & #)	267		
Photo downstream (time & #)	269		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

*small*  
 \* patches of per silt gravel b/w 55 + 56 20m x 20m  
 20% gravel ? in these patches  
 80% sand

# SAWA 2009 River Walk

## Santa Ana River Habitat Evaluation

Transect Name: SAS(57)      Date 9/17/09  
 Target UTM:      457941      3758468

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)	0457940 3758468		
Channel position	NS		
Width of Channel	18.5m		
Max Depth & location in channel	.25cm		
Depth Edge East (~4" from edge)	.9cm		
Depth Edge West (~4" from edge)	15cm		
Bank East %Veg Overhand	100%		
Bank West %Veg Overhang	100%		
Substrate % mud/silt			
Substrate % sand	100%		
Substrate % gravel			
Substrate % cobble			
Substrate % boulder			
② Photo East Bank (time & #)	272		
④ Photo West Bank (time & #)	274		
① Photo upstream (time & #)	271		
③ Photo downstream (time & #)	273		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

# SAWA 2009 River Walk

## Santa Ana River Habitat Evaluation

Transect Name: SAS 58

Date 9/17/09

Target UTM: 457662

3758360

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)	0457653 3758379		
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			
① Photo East Bank (time & #)	274		
④ Photo West Bank (time & #)	278		
① Photo upstream (time & #)	275		
② Photo downstream (time & #)	277		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

# SAWA 2009 River Walk

## Santa Ana River Habitat Evaluation

**Transect Name:** SAS 59

**Date** 9/17/09

**Target UTM:** 457387

3758263

**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)	115 0457388 3758259		
Channel position	NS		
Width of Channel	26m		
Max Depth & location in channel	23cm		
Depth Edge East (~4" from edge)	9cm		
Depth Edge West (~4" from edge)	10cm		
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 & #)	280 ✓		
Photo West Bank (time & #)	282 ✓		
Photo upstream (time & #)	279 ✓		
Photo downstream (time & #)	281 ✓		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

# SAWA 2009 River Walk

## Santa Ana River Habitat Evaluation

**Transect Name:** SAS 60                      **Date** \_\_\_\_\_  
**Target UTM:**            457085                      3758325  
**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)	0457086 3758331		
Channel position	NS		
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	100%		
Substrate % gravel			
Substrate % cobble			
Substrate % boulder			
Photo East Bank (time & #)	284 ✓		
Photo West Bank (time & #)	284 ✓		
Photo upstream (time & #)	283 ✓		
Photo downstream (time & #)	285 ✓		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

## SAWA 2009 River Walk Santa Ana River Habitat Evaluation

Transect Name: SAS 61

Date 9/17/09

Target UTM: 456795

3758279

Observers (writer/other) T. Barbee + B. Nash

General Location Van Buren to Downey 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 (@ <sup>South</sup> East bank)	1150456792 3758279		
Channel position	South		
Width of Channel	30.3		
Max Depth & location in channel	22 cm		
Depth Edge East (~4" from edge) <sup>South</sup>	35		
Depth Edge West (~4" from edge) <sup>North</sup>	30		
Bank East % Veg Overhang <sup>South</sup>	100	1	
Bank West % Veg Overhang <sup>North</sup>	100		
Substrate % mud/silt	1		
Substrate % sand	99		
Substrate % gravel			
Substrate % cobble			
Substrate % boulder			
Photo East Bank (time & #) <sup>South</sup>	1 9:40		
Photo West Bank (time & #) <sup>North</sup>	2nd		
Photo upstream (time & #)	3rd		
Photo downstream (time & #)	4th		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

## SAWA 2009 River Walk Santa Ana River Habitat Evaluation

Transect Name: SAS 62  
Target UTM: 456509  
Observers (writer/other)

Date 9/17/09  
3758182  
T. Barber B. Nash

**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)	1150456510 3758182		
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 & #) South	5 9:58am		
Photo West Bank (time & #) North	6		
Photo upstream (time & #)	7		
Photo downstream (time & #)	8		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

# SAWA 2009 River Walk

## Santa Ana River Habitat Evaluation

Transect Name: SAS 63

Date 9/17/09

Target UTM: 456222

3758120

Observers (writer/other) T. Barbee B. Nash

**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)

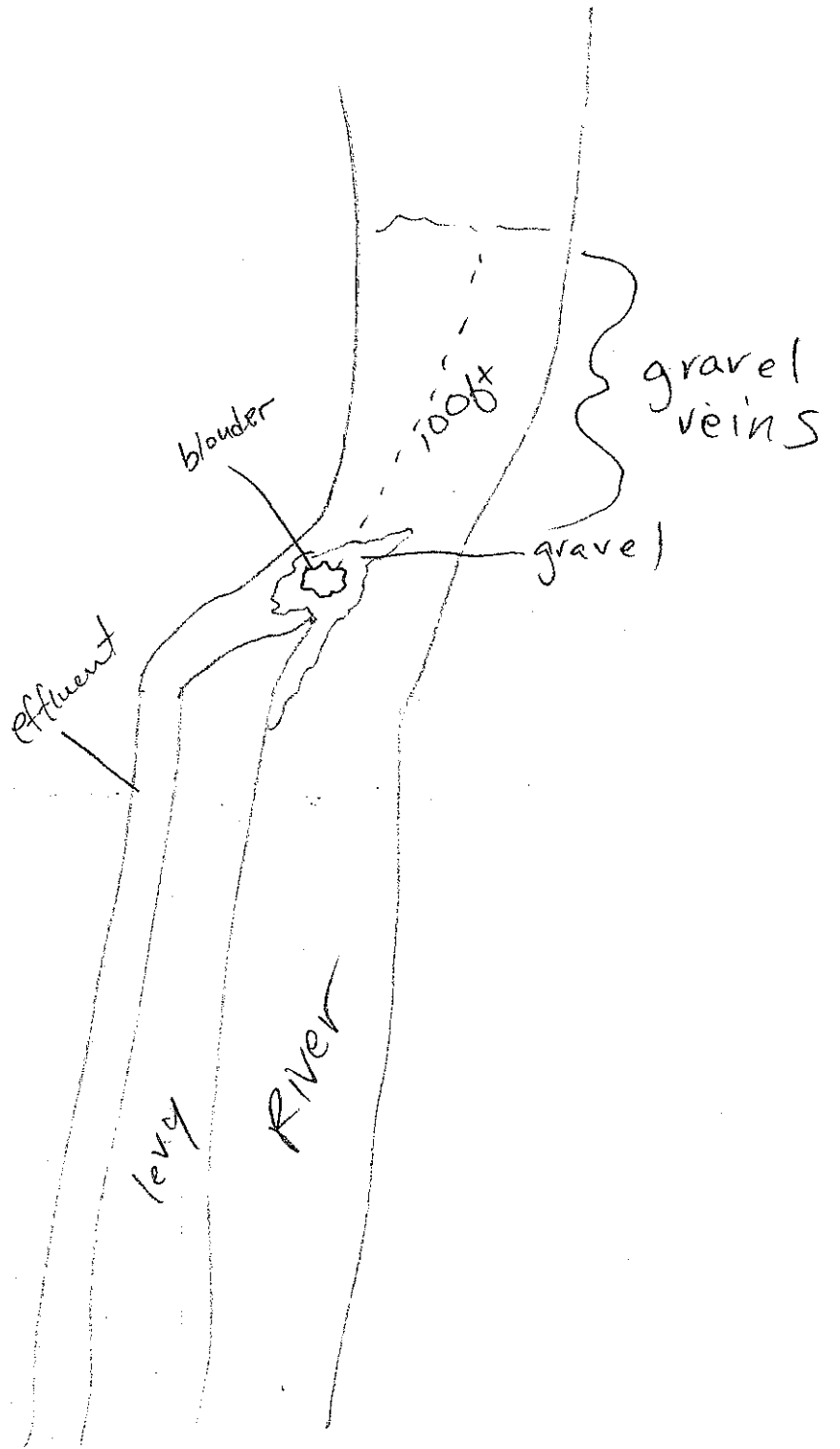
OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	1150456227 3758115	1150456230 3758129	
Channel position	South	W "	
Width of Channel	7.2	19.5	
Max Depth & location in channel	72	30	
Depth Edge East (~4" from edge)	30	10	
Depth Edge West (~4" from edge)	12	5	
Bank East %Veg Overhand	100	0	
Bank West %Veg Overhand	0	100	
Substrate % mud/silt	5		
Substrate % sand	95	100	
Substrate % gravel			
Substrate % cobble			
Substrate % boulder			
Photo East Bank (time & #)	9	13	
Photo West Bank (time & #)	10	14	
Photo upstream (time & #)	11	15	
Photo downstream (time & #)	12	16	
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)	Sand berm water treatment		

Plant bermed  
so H<sub>2</sub>O enters  
Hidden Valley  
Bm

Where effluent joins  
River @ 456056, 3758202  
Big blonder surrounded by  
gravel ditch # 17.18



# SAS 63 cont



# SAWA 2009 River Walk

## Santa Ana River Habitat Evaluation

Transect Name: SAS 64

Date 9/17/09

Target UTM: 455986

3758279

Observers (writer/other) T. Barbee B. Nash

**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)

0455839 Picture 23  
 3758467  
 weird feedings  
 Station w/  
 Corn

OBSERVATIONS	CHANNEL #1	CHANNEL #2	CHANNEL #3
Actual GPS coordinates in UTM (@ East bank)	455986 3758279		
Channel position	South		
Width of Channel	34.4		
Max Depth & location in channel	32 (North)		
Depth Edge East (~4" from edge) <sup>South</sup>	40		
Depth Edge West (~4" from edge) <sup>North</sup>	8		
Bank East %Veg Overhand	100		
Bank West %Veg Overhang	100		
Substrate % mud/silt	10		
Substrate % sand	80		
Substrate % gravel	10		
Substrate % cobble			
Substrate % boulder			
Photo East Bank (time & #)	19		
Photo West Bank (time & #)	20		
Photo upstream (time & #)	21		
Photo downstream (time & #)	22		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

81 M downstream  
 by 7M wide Gravel  
 bar from GPS Location

## SAWA 2009 River Walk Santa Ana River Habitat Evaluation

Transect Name: SAS 65

Date 9/17

Target UTM: 455777

3758499

Observers (writer/other) B. Nash T. Barbee

**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)	455777 3758520		
Channel position			
Width of Channel	30.0		
Max Depth & location in channel	31cm/north		
Depth Edge East (~4" from edge)	5cm		
Depth Edge West (~4" from edge)	13cm		
Bank East %Veg Overhand	100		
Bank West %Veg Overhang	100		
Substrate % mud/silt	5		
Substrate % sand	75		
Substrate % gravel	15		
Substrate % cobble	5		
Substrate % boulder			
Photo East Bank (time & #)	24 1170		
Photo West Bank (time & #)	25		
Photo upstream (time & #)	26		
Photo downstream (time & #)	27		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

50 downstream from GPS pt.  
grave + cobble x 20ft width

## SAWA 2009 River Walk Santa Ana River Habitat Evaluation

Transect Name: SAS 66

Date 9/17

Target UTM: 455506

3758530

Observers (writer/other) BNash TBardee

**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	100		
Substrate % gravel			
Substrate % cobble			
Substrate % boulder			
Photo East Bank (time & #)	28		
Photo West Bank (time & #)	29		
Photo upstream (time & #)	30		
Photo downstream (time & #)	31		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

# SAWA 2009 River Walk

## Santa Ana River Habitat Evaluation

**Transect Name:** SAS 67      **Date** 9/17  
**Target UTM:**      455266      3758368  
**Observers (writer/other)** B. Nash T. Barbee  
**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) <i>South</i>	455272 3758367		
Channel position	<i>Center</i>		
Width of Channel	<i>41.9</i>		
Max Depth & location in channel	<i>42 cm / South</i>		
Depth Edge East (~4" from edge) <i>South</i>	<i>14 cm</i>		
Depth Edge West (~4" from edge) <i>North</i>	<i>27</i>		
Bank East %Veg Overhand	<i>100</i>		
Bank West %Veg Overhang	<i>100</i>		
Substrate % mud/silt	<i>105</i>		
Substrate % sand	<i>25</i>		
Substrate % gravel	<i>10</i>		
Substrate % cobble			
Substrate % boulder			
Photo East Bank (time & #) <i>South</i>	<i>32</i>		
Photo West Bank (time & #) <i>North</i>	<i>33</i>		
Photo upstream (time & #)	<i>34</i>		
Photo downstream (time & #)	<i>35</i>		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

## SAWA 2009 River Walk Santa Ana River Habitat Evaluation

**Transect Name:** SAS 68      **Date:** 9/17  
**Target UTM:** 454996      3758472  
**Observers (writer/other):** B. Nash T. Barbee  
**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)	0454996 3758476		
Channel position	Center		
Width of Channel	37.8 m		
Max Depth & location in channel	62 / N		
Depth Edge East (~4" from edge)	10 cm		
Depth Edge West (~4" from edge)	5 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 & #)	36		
Photo West Bank (time & #)	37		
Photo upstream (time & #)	38		
Photo downstream (time & #)	39		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

Gravel just below pt.  
 Intermittant through width  
 50 feet length

# SAWA 2009 River Walk

## Santa Ana River Habitat Evaluation

Transect Name: SAS 69  
 Target UTM: 454872

Date 9/17/09  
 3758712

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)	454870 3758710		
Channel position			
Width of Channel	38.8		
Max Depth & location in channel	40 / North		
Depth Edge East (~4" from edge)	5		
Depth Edge West (~4" from edge)	10		
Bank East %Veg Overhand	100		
Bank West %Veg Overhang	100		
Substrate % mud/silt	5		
Substrate % sand	94		
Substrate % gravel	.		
Substrate % cobble	1		
Substrate % boulder			
Photo East Bank (time & #)	40		
Photo West Bank (time & #)	41		
Photo upstream (time & #)	42		
Photo downstream (time & #)	43		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

## SAWA 2009 River Walk Santa Ana River Habitat Evaluation

Transect Name: SAS 70

Date 9/17/09

Target UTM: 454821

3758944

Observers (writer/other) B. Nash Barbree

**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)	454823 3758949		
Channel position			
Width of Channel	27.4		
Max Depth & location in channel	48 / South		
Depth Edge East (~4" from edge)	40		
Depth Edge West (~4" from edge)	17		
Bank East %Veg Overhand	100		
Bank West %Veg Overhang	50		
Substrate % mud/silt			
Substrate % sand	100		
Substrate % gravel			
Substrate % cobble			
Substrate % boulder			
Photo East Bank (time & #)	44		
Photo West Bank (time & #)	45		
Photo upstream (time & #)	46		
Photo downstream (time & #)	47		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			



# SAWA 2009 River Walk Santa Ana River Habitat Evaluation

Transect Name: SAS 71

Date 9/10/09

Target UTM: 454531

3758987

Observers (writer/other) Richard Zembal / Kara Palmer

**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)	115000 3758987		
Channel position	500m		
Width of Channel	26.2m		
Max Depth & location in channel	40cm @ 100m		
Depth Edge East (~4" from edge)	40cm		
Depth Edge West (~4" from edge)	10cm		
Bank East %Veg Overhand	0%		
Bank West %Veg Overhang	100%		
Substrate % mud/silt	0		
Substrate % sand	100%		
Substrate % gravel	0		
Substrate % cobble	0		
Substrate % boulder	0		
Photo East Bank (time & #)	1 (1:15)		
Photo West Bank (time & #)	2 (1:30)		
Photo upstream (time & #)	3 (1:45)		
Photo downstream (time & #)	4 (2:00)		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

## SAWA 2009 River Walk Santa Ana River Habitat Evaluation

**Transect Name:** SAS 72

**Date:** 4/17/09

**Target UTM:** 454233

3759010

**Observers (writer/other):** [unclear] [unclear] [unclear] [unclear]

**General Location:** [unclear]

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)	454233 3759010		
Channel position			
Width of Channel	28.6 m		
Max Depth & location in channel	38 cm		
Depth Edge East (~4" from edge)	28.8 cm		
Depth Edge West (~4" from edge)	10 cm		
Bank East %Veg Overhand	2 m		
Bank West %Veg Overhang	3 m		
Substrate % mud/silt	0		
Substrate % sand	94%		
Substrate % gravel	0		
Substrate % cobble	0		
Substrate % boulder	6%		
Photo East Bank (time & #)	5 (10:00)		
Photo West Bank (time & #)	6 (10:00)		
Photo upstream (time & #)	7 (10:00)		
Photo downstream (time & #)	8 (10:00)		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

## SAWA 2009 River Walk Santa Ana River Habitat Evaluation

**Transect Name:** SAS 73                      **Date:** \_\_\_\_\_

**Target UTM:**                      453978                      3759083

**Observers (writer/other):** Richard Zembal, Richard Zembal, Peter

**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)	116 0453978 3759083		
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	100%		
Substrate % gravel	0		
Substrate % cobble	0		
Substrate % boulder	0		
Photo East Bank (time & #)	9 (10:15)		
Photo West Bank (time & #)	10 (10:20)		
Photo upstream (time & #)	11 (10:25)		
Photo downstream (time & #)	12 (10:30)		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

## SAWA 2009 River Walk Santa Ana River Habitat Evaluation

**Transect Name:** SAS 74      **Date:** 9/17/09  
**Target UTM:** 453722      3758913  
**Observers (writer/other):** Richard Zembal / Anna Baxter  
**General Location:** at ...

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)	453722 3758913		
Channel position			
Width of Channel	24.15 m		
Max Depth & location in channel	50 cm		
Depth Edge East (~4" from edge)	50 cm		
Depth Edge West (~4" from edge)	24 cm		
Bank East %Veg Overhand	5%		
Bank West %Veg Overhang	4%		
Substrate % mud/silt	1%		
Substrate % sand	99%		
Substrate % gravel	0%		
Substrate % cobble	0%		
Substrate % boulder	0%		
Photo East Bank (time & #)	15 (10:41)		
Photo West Bank (time & #)	14 (10:36)		
Photo upstream (time & #)	17 (10:45)		
Photo downstream (time & #)	16 (10:37)		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

# SAWA 2009 River Walk

## Santa Ana River Habitat Evaluation

**Transect Name:** SAS 75                      **Date** 9/17/09  
**Target UTM:**                      453440                      3758844  
**Observers (writer/other)** Tommy Nabelek, Eric Wynn  
**General Location** Santa Ana 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)	13 453440 3758844	14 453440 3758844	
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	100%	100%	
Substrate % gravel			
Substrate % cobble			
Substrate % boulder			
Photo East Bank (time & #)	17	21	
Photo West Bank (time & #)	18	22	
Photo upstream (time & #)	19	23	
Photo downstream (time & #)	20	24	
Photo other (describe)		25	
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

## SAWA 2009 River Walk Santa Ana River Habitat Evaluation

Transect Name: SAS 76                      Date 1/17/09  
 Target UTM:                      453424                      3759107  
 Observers (writer/other) T. Zumbal

**General Location** \_\_\_\_\_

Give or send all data sheets and photos to Richard Zumbal (Phone: 714-378-3213; address: ATTN: Richard Zumbal, 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 4959936 3759102		
Channel position	East bank		
Width of Channel	46.5 m		
Max Depth & location in channel	24 cm		
Depth Edge East (~4" from edge)	18 cm		
Depth Edge West (~4" from edge)	21 cm		
Bank East %Veg Overhand	6 m		
Bank West %Veg Overhang	15 m		
Substrate % mud/silt	0		
Substrate % sand	100%		
Substrate % gravel	0		
Substrate % cobble	0		
Substrate % boulder	0		
Photo East Bank (time & #)	26 (11/15)		
Photo West Bank (time & #)	27 (11/15)		
Photo upstream (time & #)	28 (11/15)		
Photo downstream (time & #)	29 (11/15)		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

## SAWA 2009 River Walk Santa Ana River Habitat Evaluation

**Transect Name: SAS 77**

**Date** 9/17/09

**Target UTM:** 453335

3759316

**Observers (writer/other)** Richard Zembal / Paul

**General Location** 8000 E. 1st St., Fountain Valley, CA 92708

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)	453335 3759316		
Channel position	5000 ft		
Width of Channel	22.7 m		
Max Depth & location in channel	4.1 m		
Depth Edge East (~4" from edge)	2.1 m		
Depth Edge West (~4" from edge)	4.1 m		
Bank East %Veg Overhand	30%		
Bank West %Veg Overhang	10%		
Substrate % mud/silt			
Substrate % sand	100%		
Substrate % gravel			
Substrate % cobble			
Substrate % boulder			
Photo East Bank (time & #)	9:00 (10/20)		
Photo West Bank (time & #)	9:00 (10/20)		
Photo upstream (time & #)	9:00 (10/20)		
Photo downstream (time & #)	9:00 (10/20)		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

# SAWA 2009 River Walk

## Santa Ana River Habitat Evaluation

Transect Name: SAS 78

Date 9/17/09

Target UTM: 453057

3759250

Observers (writer/other) Nicole Housel / Kevin Street

General Location Downstream of Blainy South of Limonite

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)	0453056 3759250		
Channel position	N/A		
Width of Channel	70 m		
Max Depth & location in channel	54 cm 3m from E bank		
Depth Edge East (~4" from edge)	120 cm		
Depth Edge West (~4" from edge)	65 cm		
Bank East %Veg Overhand	100%		
Bank West %Veg Overhang	100%		
Substrate % mud/silt	3%		
Substrate % sand	97%		
Substrate % gravel	0		
Substrate % cobble	0		
Substrate % boulder	0		
Photo East Bank (time & #)	#4 9:36am		
Photo West Bank (time & #)	#3 9:36am		
Photo upstream (time & #)	#1 9:36am		
Photo downstream (time & #)	#2 9:36am		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			



# SAWA 2009 River Walk

## Santa Ana River Habitat Evaluation

Transect Name: SAS 79

Date 9/17/09

Target UTM: 452825

3759076

Observers (writer/other) Nicole Kausel / Kevin Street

**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)	0452857 3759130		
Channel position	<u>W/A</u>		
Width of Channel	<u>—</u>		
Max Depth & location in channel	<u>—</u>		
Depth Edge East (~4" from edge)	<u>—</u>		
Depth Edge West (~4" from edge)	<u>—</u>		
Bank East %Veg Overhand	100%		
Bank West %Veg Overhang	100%		
Substrate % mud/silt	<del>2%</del>		
Substrate % sand	<del>97%</del>		
Substrate % gravel	<del>0</del>		
Substrate % cobble	<del>0</del>		
Substrate % boulder	<del>0</del>		
Photo East Bank (time & #)	#8 9:52am		
Photo West Bank (time & #)	#7 9:52am		
Photo upstream (time & #)	#5 9:52am		
Photo downstream (time & #)	#6 9:52am		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

# SAWA 2009 River Walk

## Santa Ana River Habitat Evaluation

Transect Name: SAS 80

Date 9/17/09

Target UTM: 452612

3759122

Observers (writer/other) Nicole Hessel / Kevin Street

**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)	0452484 3759122		
Channel position	N/A		
Width of Channel	60m		
Max Depth & location in channel	28 cm 2.5m from W Bank		
Depth Edge East (~4" from edge)	5cm		
Depth Edge West (~4" from edge)	28 cm		
Bank East %Veg Overhand	75%		
Bank West %Veg Overhang	100%		
Substrate % mud/silt	0		
Substrate % sand	100%		
Substrate % gravel	0		
Substrate % cobble	0		
Substrate % boulder	0		
Photo East Bank (time & #)	#11 10:20am		
Photo West Bank (time & #)	#12 10:20am		
Photo upstream (time & #)	#9 10:20am		
Photo downstream (time & #)	#10 10:20am		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)	mosquitoes (?)		

**SAWA 2009 River Walk  
Santa Ana River Habitat Evaluation**

Transect Name: SAS 81

Date 9/17/2009

Target UTM: 452445

3759316

Observers (writer/other) Nicole Housel/Kevin Street

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)	0452445 3759338		
Channel position	<u>NA</u>		
Width of Channel	—		
Max Depth & location in channel	—		
Depth Edge East (~4" from edge)	—		
Depth Edge West (~4" from edge)	—		
Bank East %Veg Overhand	100%		
Bank West %Veg Overhang	100%		
Substrate % mud/silt	0		
Substrate % sand	99%		
Substrate % gravel	0		
Substrate % cobble	1% ~ 25 sq ft		
Substrate % boulder	0		
Photo East Bank (time & #)	#16 10:31am		
Photo West Bank (time & #)	#15 10:31am		
Photo upstream (time & #)	#13 10:31am		
Photo downstream (time & #)	#14 10:31 am		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)	small island ~ 20 sq ft		

0452445  
3759340

cobble patch  
13m long, 1-2m wide

~10m downstream, 2nd cobble patch ~ 0.5-1m wide, 3-4m long/wide

over →

10-15 m downstream

SAS 81 cont

cobble along W bank, 0.5-2m wide

w/ over hanging veg

## SAWA 2009 River Walk Santa Ana River Habitat Evaluation

Transect Name: SAS 82

Date 9/17/2009

Target UTM: 452232

3759327

Observers (writer/other) Nicole Housel/Kevin Street

**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)	0452287 3759407		
Channel position	NA		
Width of Channel	37.5 m		
Max Depth & location in channel	47 cm ~ 10m from W bank		
Depth Edge East (~4" from edge)	13 cm		
Depth Edge West (~4" from edge)	13 cm		
Bank East %Veg Overhand	100%		
Bank West %Veg Overhang	60%		
Substrate % mud/silt	8%		
Substrate % sand	92%		
Substrate % gravel	0		
Substrate % cobble	0		
Substrate % boulder	0		
Photo East Bank (time & #)	#19 10:50am		
Photo West Bank (time & #)	#20		
Photo upstream (time & #)	#17		
Photo downstream (time & #)	#18		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)	big crayfish		

Veg island ~ 5m from W bank  
Willow debris ~ middle

# SAWA 2009 River Walk

## Santa Ana River Habitat Evaluation

Transect Name: SAS 83

Date 9/17/09

Target UTM: 452260

3759045

Observers (writer/other) Carovanni A., Eric P.

**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)	11 S 0452240 3759050		
Channel position	Center		
Width of Channel	33.03		
Max Depth & location in channel	29 cm		
Depth Edge East (~4" from edge)	34 cm		
Depth Edge West (~4" from edge)	17 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 & #)	54 @ 11:02		
Photo West Bank (time & #)	55 @ 11:02		
Photo upstream (time & #)	56 @ 11:02		
Photo downstream (time & #)	57 @ 11:03		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

# SAWA 2009 River Walk

## Santa Ana River Habitat Evaluation

**Transect Name:** SAS 84

**Date:** 9/17/09

**Target UTM:** 452294

3758751

**Observers (writer/other):** Giovanni A., Eric P.

**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)	115 045 226 2 375 875 6		
Channel position	East		
Width of Channel			
Max Depth & location in channel			
Depth Edge East (~4" from edge)			
Depth Edge West (~4" from edge)			
Bank East %Veg Overhang			
Bank West %Veg Overhang			
Substrate % mud/silt			
Substrate % sand	100%		
Substrate % gravel			
Substrate % cobble			
Substrate % boulder			
Photo East Bank (time & #)	58 11:17		
Photo West Bank (time & #)	59 11:18		
Photo upstream (time & #)	60 11:18		
Photo downstream (time & #)	61 11:18		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

# SAWA 2009 River Walk

## Santa Ana River Habitat Evaluation

Transect Name: SAS 85

Date 9/17/09

Target UTM: 452198

3758499

Observers (writer/other) Giovanni A., Eric P.

**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)	115 0452193 3758500		
Channel position	East		
Width of Channel	32.3 m		
Max Depth & location in channel	34.5 cm center		
Depth Edge East (~4" from edge)	6 cm		
Depth Edge West (~4" from edge)	24.5 cm		
Bank East %Veg Overhand	80%		
Bank West %Veg Overhang	100%		
Substrate % mud/silt			
Substrate % sand	97%		
Substrate % gravel	3%		
Substrate % cobble			
Substrate % boulder			
Photo East Bank (time & #)	62 11:35		
Photo West Bank (time & #)	63 11:35		
Photo upstream (time & #)	64 11:35		
Photo downstream (time & #)	65 11:35		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			



# SAWA 2009 River Walk

## Santa Ana River Habitat Evaluation

Transect Name: SAS 86      Date 9/17/09

Target UTM:      451907      3758507

Observers (writer/other) Giovanni A., Eric P.

**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)	115 0451872 3758489		
Channel position	Center		
Width of Channel	22.8 m		
Max Depth & location in channel	36 cm, West Edge (Right side)		
Depth Edge East (~4" from edge)	8 cm		
Depth Edge West (~4" from edge)	7.5 cm		
Bank East %Veg Overhand	100%		
Bank West %Veg Overhang	100%		
Substrate % mud/silt			
Substrate % sand	90%		
Substrate % gravel	4%		
Substrate % cobble	6%		
Substrate % boulder			
Photo East Bank (time & #)	66 11:58		
Photo West Bank (time & #)	67 11:58		
Photo upstream (time & #)	68 11:58		
Photo downstream (time & #)	69 11:58		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)	6 small islands		

# SAWA 2009 River Walk

## Santa Ana River Habitat Evaluation

Transect Name: SAS 87

Date 9/17/09

Target UTM: 451621

3758542

Observers (writer/other) Giovanni A., Eric P.

**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)	115 0451614 3758557		
Channel position	West		
Width of Channel	21.6 m		
Max Depth & location in channel	37cm near West end		
Depth Edge East (~4" from edge)	31cm		
Depth Edge West (~4" from edge)	3cm		
Bank East %Veg Overhand	100%		
Bank West %Veg Overhang	80%		
Substrate % mud/silt			
Substrate % sand	100%		
Substrate % gravel			
Substrate % cobble			
Substrate % boulder			
Photo East Bank (time & #)	70 12:25		
Photo West Bank (time & #)	71 12:25		
Photo upstream (time & #)	72 12:25		
Photo downstream (time & #)	73 12:26		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

# SAWA 2009 River Walk

## Santa Ana River Habitat Evaluation

**Transect Name:** SAS 88

**Date** 9/17/09

**Target UTM:** 451459

3758290

**Observers (writer/other)** Giovanni A., Eric P.

**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)	11S 0451446 3758297		
Channel position	West		
Width of Channel			
Max Depth & location in channel			
Depth Edge East (~4" from edge)			
Depth Edge West (~4" from edge)			
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 & #)	74 12:36		
Photo West Bank (time & #)	75 12:37		
Photo upstream (time & #)	76 12:37		
Photo downstream (time & #)	77 12:37		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

# SAWA 2009 River Walk

## Santa Ana River Habitat Evaluation

**Transect Name:** SAS 89      **Date** 9/17/09  
**Target UTM:**      451288      3758035  
**Observers (writer/other)** Giovanni A., Eric P.

**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)	115 0451274 3758039		
Channel position	West		
Width of Channel	32.7 m		
Max Depth & location in channel	36 cm west edge		
Depth Edge East (~4" from edge)	16 cm		
Depth Edge West (~4" from edge)	7.5 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 & #)	78 1253		
Photo West Bank (time & #)	79 1254		
Photo upstream (time & #)	80 1254		
Photo downstream (time & #)	81 1254		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

# SAWA 2009 River Walk

## Santa Ana River Habitat Evaluation

**Transect Name:** SAS 90

**Date** 9/17/09

**Target UTM:** 451172

375775

**Observers (writer/other)** Giovanni A., Eric P.

**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)	11S 0451131 3757750	11S 0451152 3757755	
Channel position	Center		
Width of Channel	18.2 m	9.2 m	
Max Depth & location in channel	32 cm center	16 cm East <sup>edge</sup>	
Depth Edge East (~4" from edge)	11 cm	14 cm	
Depth Edge West (~4" from edge)	12 cm	12 cm	
Bank East %Veg Overhand	100%	100%	
Bank West %Veg Overhang	100%	100%	
Substrate % mud/silt			
Substrate % sand	84%	98%	
Substrate % gravel	11%		
Substrate % cobble	4%	2%	
Substrate % boulder	1%		
Photo East Bank (time & #)	82 13:10	86 13:16	
Photo West Bank (time & #)	83 13:10	87 13:16	
Photo upstream (time & #)	84 13:10	88 13:16	
Photo downstream (time & #)	85 13:10	89 13:16	
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

# SAWA 2009 River Walk

## Santa Ana River Habitat Evaluation

**Transect Name:** SAS 91

**Date** 9/17/09

**Target UTM:** 451064

3757493

**Observers (writer/other)** Giovanni A., Eric P.

**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)	115 0461037 3757508		
Channel position	East		
Width of Channel	39.5 m		
Max Depth & location in channel	35 cm East edge		
Depth Edge East (~4" from edge)	18.5 cm		
Depth Edge West (~4" from edge)	20 cm		
Bank East %Veg Overhand	100%		
Bank West %Veg Overhang	100%		
Substrate % mud/silt			
Substrate % sand	85%		
Substrate % gravel	12%		
Substrate % cobble	3%		
Substrate % boulder			
Photo East Bank (time & #)	90 13:29		
Photo West Bank (time & #)	91 13:30		
Photo upstream (time & #)	92 13:30		
Photo downstream (time & #)	93 13:30		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

# SAWA 2009 River Walk

## Santa Ana River Habitat Evaluation

**Transect Name:** SAS 92      **Date** 9/17/09  
**Target UTM:**      450843      3757334  
**Observers (writer/other)** Giovanni A., Eric R.  
**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)	115 0450826 3757323		
Channel position	East		
Width of Channel	35.2 m		
Max Depth & location in channel	48cm <sup>near</sup> East edge		
Depth Edge East (~4" from edge)	7 cm		
Depth Edge West (~4" from edge)	2 cm		
Bank East %Veg Overhand	80%		
Bank West %Veg Overhang	100%		
Substrate % mud/silt			
Substrate % sand	100%		
Substrate % gravel			
Substrate % cobble			
Substrate % boulder	5%		
Photo East Bank (time & #)	94 13:43		
Photo West Bank (time & #)	95 13:43		
Photo upstream (time & #)	96 13:44		
Photo downstream (time & #)	97 13:44		
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			

# SAWA 2009 River Walk

## Santa Ana River Habitat Evaluation

Transect Name: SAS 93      Date 9-17-09  
 Target UTM:      450545      3757257  
 Observers (writer/other) Richard Zembal  
 General Location Redwood Falls

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)	3757257 040349		
Channel position	NE → SW		
Width of Channel	42m		
Max Depth & location in channel	50cm		
Depth Edge East (~4" from edge)	10 cm		
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 & #)			
Photo West Bank (time & #)			
Photo upstream (time & #)			
Photo downstream (time & #)			
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, Obstructions)			



# SAWA 2009 River Walk

## Santa Ana River Habitat Evaluation

**Transect Name:** SAS 94      **Date** 9-17-09  
**Target UTM:**      450251      3757199  
**Observers (writer/other)** B & Z  
**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	47m		
Max Depth & location in channel	60cm		
Depth Edge East (~4" from edge)	12cm		
Depth Edge West (~4" from edge)	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 & #)			
Photo West Bank (time & #)			
Photo upstream (time & #)			
Photo downstream (time & #)			
Photo other (describe)			
Photo other (describe)			
Notes (e.g. Islands, obstructions)			

# SAWA 2009 River Walk Santa Ana River Habitat Evaluation

Transect Name: SAS 95                      Date \_\_\_\_\_

Target UTM:                      450027                      3757005

Observers (writer/other) ZTB

General Location 49956 375005

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)	49956 375005		
Channel position	N-S		
Width of Channel	39m		
Max Depth & location in channel	75cm		
Depth Edge East (~4" from edge)	20cm		
Depth Edge West (~4" from edge)	35cm		
Bank East %Veg Overhand	100% <sup>sb</sup>		
Bank West %Veg Overhang	100% <sup>sb</sup>		
Substrate % mud/silt			
Substrate % sand	100% <sup>sb</sup>		
Substrate % gravel			
Substrate % cobble			
Substrate % boulder			
Photo East Bank (time & #)			
Photo West Bank (time & #)			
Photo upstream (time & #)			
Photo downstream (time & #)			
Other			
nds,			

# SAWA 2009 River Walk Santa Ana River Habitat Evaluation

Transect Name: SAS 96      Date \_\_\_\_\_

Target UTM:      449887      3756731

Observers (writer/other) 449836 3756697

General Location Nova Bluff

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)	449836 3756697		
Channel position	N-S		
Width of Channel	42m		
Max Depth & location in channel	1.2m		
Depth Edge East (~4" from edge)	1.2m		
Depth Edge West (~4" from edge)	30cm		
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			
ands,			

# SAWA 2009 River Walk

## Santa Ana River Habitat Evaluation

Transect Name: SAS 97

Date 9-17-09

Target UTM: 449609

3756618

Observers (writer/other) Z+B

General Location Norco Bluff

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)	3756615 0449496		
Channel position	NE-SW		
Width of Channel	34m		
Max Depth & location in channel	50 cm		
Depth Edge East (~4" from edge)	22 cm		
Depth Edge West (~4" from edge)	30 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)			

# SAWA 2009 River Walk

## Santa Ana River Habitat Evaluation

Transect Name: SAS 98

Date 9-17-09

Target UTM: 449330

3756522

Observers (writer/other) 2 + B

General Location Worce Pluff

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)	3756522 0449282		
Channel position	N-S		
Width of Channel	36m		
Max Depth & location in channel	75 cm		
Depth Edge East (~4" from edge)	22 cm		
Depth Edge West (~4" from edge)	40 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)	100m x 2m Gravel bar on west bank Just upstream		

# SAWA 2009 River Walk

## Santa Ana River Habitat Evaluation

Transect Name: SAS 99      Date 9-17-09  
 Target UTM:      449061      3756424  
 Observers (writer/other) ZJB  
 General Location Down

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)	3756427 0448924		
Channel position	N7		
Width of Channel	30m		
Max Depth & location in channel	35cm		
Depth Edge East (~4" from edge)	12cm		
Depth Edge West (~4" from edge)	18cm		
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)	15m x 1m gravel to edge of east bank just upstream		

99

# SAWA 2009 River Walk Santa Ana River Habitat Evaluation

**Transect Name:** SAS 100      **Date:** 9/20/09  
**Target UTM:** 448771      3756402  
**Observers (writer/other):** Z+B  
**General Location:** K-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)	448740 3756400		
Channel position	NE-SW		
Width of Channel	25 m		
Max Depth & location in channel	65 cm		
Depth Edge East (4' from edge)	35 cm		
Depth Edge West (4' from edge)	25 cm		
Bank East %Veg Overhang	0		
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)			