APPENDIX C

WATER QUALITY MONITORING REPORT (2014-15 and 2015-16)

Appendix C
San Gabriel River Watershed – Earth-Bottom Channels
Water Quality Monitoring Report
2014-15 and 2015-16 Maintenance Activities

Pursuant to Condition 49 of the Waste Discharge Requirements Order No. R4-2010-0021 (WDR), the Los Angeles County Flood Control District (LACFCD) conducted water quality monitoring during the 2014-15 and 2015-16 maintenance activities within the San Gabriel River Watershed at all soft-bottom channels (SBC) cleared during that season. As set forth in the San Gabriel River Feasibility Studies' Study Workplan approved by the Regional Board, the results of the monitoring events are set forth in the attached tables, which reflect the reaches analyzed; sampling dates; sampling parameters; results from upstream, within the project work area, and downstream monitoring stations; and observations and comments.

In the 2014-15 maintenance clearing, water quality monitoring and sampling were conducted at the following SBC Reaches:

42 - San Jose Creek
44 – San Gabriel River (Lower 1) - Beverly Boulevard to Rubber Dam 2
44 – San Gabriel River (Lower 2) – Rubber Dam 2 to Firestone Boulevard
98 – Walnut Creek

In the 2015-15 maintenance clearing, water quality monitoring and sampling were conducted at the following SBC Reaches:

42 - San Jose Creek
43 – San Gabriel River (Upper)
44 – San Gabriel River (Lower 1) - Beverly Boulevard to Rubber Dam 2
44 – San Gabriel River (Lower 2) – Rubber Dam 2 to Firestone Boulevard
98 – Walnut Creek

General Observations and Comments

In evaluating the results of the monitoring events, the LACFCD has the following general observations and comments:

- Drought condition within the SBC reaches was prevalent in 2014-15. Only two SBC reaches met the RWQCB's Water Quality requirements for sampling and monitoring. Several sampling visits were conducted at SBC Reach 44, however, surface water downstream was not present at the downstream sampling point.

- BMPs used included fiber rolls placed perpendicular to and across the creek downstream from active clearing activities and/or straw waddles anchored with sand bags. Steps were also taken to minimize contact with water flowing within the reaches and to reduce unnecessary sediment disturbance. BMPs were generally effective in addressing the impacts of maintenance activities in the earth-bottom channel reaches. Additionally, upon noticing elevated turbidity levels, monitoring personnel notified Flood Maintenance Division (FMD) field personnel who acted to modify BMPs and rectify the identified exceedances. However, BMPs were not always sufficient to achieve attainment of the water quality limits set forth in the WDR.

- Sampling was conducted once within seven days prior to work (preconstruction sampling), daily during the first week of maintenance activities, weekly following the first week of maintenance activities (if applicable), and once within seven days after project completion (post-construction sampling). For post-clearing water quality sampling, all BMPs downstream were removed prior to sampling.

- Extensive communication between the field crews and the water quality monitoring sampling crews during the maintenance activities was effective at ensuring that all monitoring and sampling were conducted in compliance with the WDR's requirements. If a potential exceedance was measured in the field, the monitor immediately relayed to the field crew who immediately stopped work. If that was the case, BMPs downstream were cleaned or damaged BMPs replaced, additional BMPs were installed, and/or field crews worked with the monitoring/sampling crew for additional guidelines. Work did not continue until a sampling was conducted and results met the water quality sampling criteria.

Specific Reach Observations and Comments (2015-16)

Reach 42 (San Jose Creek): Preconstruction sampling was conducted within seven days prior to the start of maintenance activities. Turbidity levels ranged from 2.69 NTU upstream of the work site to 2.62 NTU, and 3.44 NTU downstream of the work site for the preconstruction upstream, midpoint, and downstream samples. Throughout construction activities, turbidity exceedances did not occur so further implementation of BMPs were not necessary. However, turbidity exceedances did occur at the midpoint and downstream locations for the post-construction sampling. The turbidity levels for the midpoint and downstream samples were 19.2 and 14.5 NTU, respectively. Although there was about a 10 NTU difference to the reach's turbidity reference and threshold, these exceedances were not construction-related. No construction activities were occurring nor were there any BMPs in place so no actions were taken.

During preconstruction sampling, the TSS levels ranged from 11 mg/L at the upstream location to 12 mg/L at the midpoint and downstream locations. Thus, the ambient baseline TSS level was determined to be 12 mg/L. Two TSS exceedances occurred during the three day construction period. The TSS levels at each location of the reach significantly exceeded with values of 200, 190, and 130 mg/L respectively. A potential cause for these exceedances was that the night prior, it had rained a significant amount so there was an abundant of water flowing through the reach causing a strong current and murky consistency. Overall, these exceedances were an anomaly due to the weather event and did not seem to be a direct result of the construction occurring. In fact, construction ceased and the BMPs were removed after sampling that day because the current flow was too strong and the weather was forecasted to rain more. The other exceedance occurred on the second day of construction where TSS levels tested to be 13 mg/L. This was a minimal exceedance and was not significant. Lastly, the final TSS exceedance occurred in post-construction sampling of the midpoint and downstream locations. The TSS levels measured 23 and 20 mg/L. Because it was post-construction, these exceedances were not a result of construction-related activities. All of these TSS exceedances were recorded upon receipt of the analytical results from the lab and reported to FMD staff in the sampling results memo prepared for this reach.

Reach 43 (San Gabriel River – Upper): Preconstruction sampling was conducted within seven days prior to the start of maintenance activities. Turbidity levels ranged from 8.63 NTU at the upstream to 1.52 NTU at the downstream during preconstruction. Downstream turbidity levels remained less than upstream turbidity levels throughout all sampling events at this reach. The downstream TSS value of <10 mg/L taken during the pre-construction sampling event was used as the baseline threshold value for TSS threshold exceedances. All downstream TSS levels were <10 mg/L throughout all sampling events at this reach as well. No turbidity or TSS exceedances occurred during any of the sampling events while construction activities took place.

Reach 44 (San Gabriel River – Rubber Dams): Pre-construction downstream turbidity (28.9 NTU) exceeded the upstream turbidity threshold (16.6 NTU) prior to any vegetation clearing activities taking place. The exceedance cannot be attributed to any work occurring in the channel, so these turbidity values were used as baseline values to compare future sampling turbidity results. Throughout construction activities, turbidity exceedances did not occur so further implementation of BMPs were not necessary.

The downstream TSS value of 43 mg/L taken during the pre-construction sampling event was used as the baseline value for TSS threshold exceedances. Two TSS exceedances occurred during the construction period at this reach. A downstream TSS value of 60 mg/L was measured on September 22, 2015 and 63 mg/L on September 23,

2015. Both of these samples were taken from the downstream sampling location of the reach, which was located directly out from an outfall of runoff from a potential storm drain in the street. It is very likely that these sample measurements were influenced by the characteristics of the water from the outfall drain leading into the reach, thus contributing to the higher downstream TSS values. It should also be noted that due to the size and lack of water in this reach, there was little to zero flow between sampling locations. Water samples were taken from individual pools of water at the upstream, midpoint, and downstream, and these pools did not connect to form one continuous flow of water within the reach. All construction activities that occurred in the reach were not in contact with any water flow, and thus any exceedances that occurred are not related to construction work.

Reach 98 (Inlet Walnut Creek):

Reach 98 was a small and shallow reach. Vegetation included overarching trees near the upstream sampling location and long grasses along the banks near the midpoint sampling location. In fact, because of the vegetation present, there were some organic materials in the water throughout the upstream and midpoint locations. The rest of the reach was a concrete lined, concrete channel. Prior to construction, the baseline turbidity levels were measured at 4.41 NTU, 2.1 NTU, and 5.14 NTU for the upstream, midpoint, and downstream locations, respectively. The baseline TSS measurements were fairly high at 18 mg/L, 51 mg/L, and 89 mg/L since the water flowing through the concrete channel was very shallow.so the sample collected was nutrient-concentrated. Construction activities only lasted one day in which careful vegetation removal practices and BMPs at the downstream location were implemented. The turbidity and TSS measurements at the upstream location were notable at 15.4 NTU and 31 mg/L. But because the reach was short, the proximity of the vegetation removal may have affected both of those levels. In the end, there were no turbidity or TSS exceedances recorded during and post construction.

Water Quality Results
2014-2015

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San Gabriel River Watershed - Soft-Bottom Channels
Feasibility Studies Technical Assessments and Recommendations
WATER QUALITY SAMPLING TESTING AND MONITORING RESULTS (2014-15)

Reach No. and Name	DATE	Sampling Parameters	Sample Location			COMMENT
			Upstream of Project (u/s)	Within Project	Downstream of Project (d/s)	
Reach 98 Walnut Creek Inlet	9/12/2014	TIME	928	945	1011	**Baseline/Pre-Work**
		SAMPLE NO.	WCRK-1	WCRK-2	WCRK-3	Baseline (pre-clearing); no BMPs placed downstream
		TEMP (°C)	23.59	23.27	24.78	
		pH	7.94	7.93	8.48	
		Turbidity (NTUs)	2.50	2.36	1.67	
		Dissolved O2 (mg/L)	3.04	4.38	6.18	
		Total Suspended Solids (mg/L)	ND	ND	ND	
Reach 98 Walnut Creek Inlet	9/18/2014	TIME	1143	1155	1216	**During Work/Last Day of Work**
		SAMPLE NO.	WCRK-1	WCRK-2	WCRK-3	First and last day of field operations BM{Ps consists of a set of three straw waddles placed within the open-box concrete channel downstream of the internal sampling point. d/s NTU is within the limits of the Baseline downstream NTU.
		TEMP (°C)	25.35	26.55	26.32	
		pH	8.05	8.12	8.94	
		Turbidity (NTUs)	1.94	14.30	1.92	
		Dissolved O2 (mg/L)	8.56	3.82	8.55	
		Total Suspended Solids (mg/L)	ND	ND	ND	
Reach 98 Walnut Creek Inlet	9/233/2014	TIME	1437	1449	1510	**Post Work**
		SAMPLE NO.	WCRK-1	WCRK-2	WCRK-3	Post-work monitoring; all BMPs removed; u/s and internal turbidity readings were below the respective baseline turbidity levesl; d/s turbidity was within the acceptable 20% limit of the basieline turbidity level.
		TEMP (°C)	27.07	26.94	31.66	
		pH	8.31	8.52	8.97	
		Turbidity (NTUs)	1.55	1.85	1.92	
		Dissolved O2 (mg/L)	5.13	10.21	6.51	
		Total Suspended Solids (mg/L)	ND	6	ND	
Reach 42 San Jose Creek	10/30/2014	TIME	1124	1134	1147	**Baseline Work**
		SAMPLE NO.	WSJCRK/R42-1	WJCRK/R42-2	SJCRK/R42-3	Pre-work baseline monitoring and sampling; no BMPs placed downstream; note high natural turbidity readings due to a significant numbers of birds in the water at the u/s and internal sampling points.
		TEMP (°C)	22.30	24.02	21.25	
		pH	8.59	8.85	8.33	
		Turbidity (NTUs)	19.10	26.60	7.29	
		Dissolved O2 (mg/L)	8.47	6.64	2.36	
		Total Suspended Solids (mg/L)	53.0	83.0	ND	
Reach 42 San Jose Creek	11/4/2014	TIME	1311	1323	1340	**During Work**
		SAMPLE NO.	SJCRK/R42-1	SJCRK/R42-2	SJCRK/R42-3	BMPs consist of 2 straw waddles anchored with sand bags with one placed on the north side and one on the south side of SJC at the d/w end of the SBC; all turbidity readings were below the respective baseline turbidity levels.
		TEMP (°C)	23.45	23.87	18.78	
		pH	9.06	9.11	8.52	
		Turbidity (NTUs)	5.64	6.63	3.10	
		Dissolved O2 (mg/L)	7.48	6.82	9.36	
		Total Suspended Solids (mg/L)	13	10	ND	
Reach 42 San Jose Creek	11/5/2014	TIME	1026	1037	1050	**During Work**
		SAMPLE NO.	SJCRK/R42-1	SJCRK/R42-2	SJCRK/R42-3	Second & last day of field operations; BMPs remained the same; all turbidity levels were below the baseline trubidity levels.
		TEMP (°C)	21.36	21.26	17.71	
		pH	9.14	9.09	8.72	
		Turbidity (NTUs)	2.27	3.38	3.23	
		Dissolved O2 (mg/L)	8.74	7.14	5.64	
		Total Suspended Solids (mg/L)	ND	7	ND	

San Gabriel River Watershed - Soft-Bottom Channels
Feasibility Studies Technical Assessments and Recommendations
WATER QUALITY SAMPLING TESTING AND MONITORING RESULTS (2014-15)

Reach No. and Name	DATE	Sampling Parameters	Sample Location			COMMENT
			Upstream of Project (u/s)	Within Project	Downstream of Project (d/s)	
Reach 42 San Jose Creek	11/7/2014	TIME	806	817	830	**Post-Work**
		SAMPLE NO.	SJCRK/R42-1	SJCRK/R42-2	SJCRK/R42-3	Post-work monitoring and sampling; all BMPs removed downstream; all turbidity levels were below the baseline turbidity levels.
		TEMP (°C)	17.37	16.83	17.17	
		pH	8.61	8.74	8.57	
		Turbidity (NTUs)	3.30	3.85	3.40	
		Dissolved O2 (mg/L)	7.49	6.87	4.23	
		Total Suspended Solids (mg/L)	ND	ND	ND	
Reach 44 San Gabriel River/L1-Beverly Blvd to Rubber Dam 2	9/11/14 to 10/23	TIME	See Comment			**Baseline/Post-Work**
		SAMPLE NO.				Site visits over the entire Reach were conducted on 9/11, 9/16, 9/23, 9/30, 10/8, 10/16, and 10/23/14. Surface water at each visit was not present at the potential d/s sampling point, immediately south of RD2. In some cases, surface water was present in the vicinity near RD2, due to sporadic discharges from the SG Coastal Basin Spreading Grounds. No WQ monitoring/sampling were performed as the conditions did not meet the RWQCB WQ parameters.
		TEMP (°C)				
		pH				
		Turbidity (NTUs)				
		Dissolved O2 (mg/L)				
		Total Suspended Solids (mg/L)				
Reach 44 San Gabriel River/L2-Rubber Dam2 to Firestone Blvd.	9/11/14 to 10/23	TIME	See Comment			**Baseline/Post-Work**
		SAMPLE NO.				Site visits over the entire Reach were conducted on 9/11, 9/16, 9/23, 9/30, 10/8, 10/16, and 10/23/14. Surface water at each visit was not present at the potential d/s sampling point, immediately south of RD2. In some cases, surface water was present in the vicinity near RD2, due to sporadic discharges from the SG Coastal Basin Spreading Grounds. No WQ monitoring/sampling were performed as the conditions did not meet the RWQCB WQ parameters.
		TEMP (°C)				
		pH				
		Turbidity (NTUs)				
		Dissolved O2 (mg/L)				
		Total Suspended Solids (mg/L)				

Water Quality Results
2015-2016

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Reach 42 - San Jose Creek

NOTE: A turbidity exceedance has occurred if: natural turbidity is between 0 and 50 NTU and DS value is greater than 20% of the upstream value OR if natural turbidity is greater than 50 NTU and DS value is greater than 10% of the upstream value. A TSS exceedance has occurred if the value is greater than DS preconstruction baseline.

Date	10/13/2015			Comments
Type of Sample Event	Pre-Construction			
	Water Quality Sampling Data			
Sample Location	Upstream (US)	Within (W)	Downstream (DS)	
Time	9:39 AM	9:49 AM	10:06 AM	
Sample Number	SJ-1	SJ-2	SJ-3	
Sample Depth	4 in	6 in	12 in	
Temperature (C)	25.33	25.54	25.67	
pH	8.78	8.63	8.69	
Turbidity (NTUs)	2.69	2.63	3.44	
Turbidity Exceedance?	Reference			The reach is concrete with silt collected at the floor. At the downstream location, the reach diverts into two streams before ending up in the Army Core boundary of the reach.
Dissolved O (mg/L)	12.6	9	9.67	
TSS (mg/L)	11	12	12	
TSS Exceedance?	Reference, DS TSS of 12 mg/L will be used as ambient baseline reference.			

Date	10/19/2015			Comments
Type of Sample Event	During Construction			
	Water Quality Sampling Data			
Sample Location	Upstream (US)	Within (W)	Downstream (DS)	
Time	8:35 AM	9:09 AM	9:49 AM	
Sample Number	SJ-1	SJ-2	SJ-3	
Sample Depth	1 ft	1 ft	1 ft	
Temperature (F)	65.66	66.43	67.77	
pH	6.72	6.62	7.12	The flow was a strong current and murky all throughout the reach. The night before it had rained so there was a lot of water flowing into the reach. Also, birds were feeding near the upstream location which could have affected the turbidity. Construction was occurring downstream and BMPs were placed.
Turbidity (NTUs)	173	168	107	
Turbidity Exceedance?	No			
Dissolved O (mg/L)	9.04	7.43	8.13	
TSS (mg/L)	200	190	130	
TSS Exceedance?	Yes, DS TSS greater than ambient baseline TSS. However, exceedance is likely due to high US TSS that is not project-related.			

Date	10/20/2015			Comments
Type of Sample Event	During Construction			
	Water Quality Sampling Data			
Sample Location	Upstream (US)	Within (W)	Downstream (DS)	
Time	8:38 AM	8:51 AM	9:04 AM	
Sample Number	SJ-1	SJ-2	SJ-3	
Sample Depth	8 in	8 in	8 in	
Temperature (F)	61.66	62.31	63.19	
pH	7.35	6.68	7.89	
Turbidity (NTUs)	6.34	3.62	4.57	
Turbidity Exceedance?	No			
Dissolved O (mg/L)	10.78	8.08	7.73	
TSS (mg/L)	13	13	13	
TSS Exceedance?	Yes, DS TSS greater than ambient baseline TSS by 1 mg/L			

Date	10/21/2015			Comments
Type of Sample Event	During Construction			
	Water Quality Sampling Data			
Sample Location	Upstream (US)	Within (W)	Downstream (DS)	
Time	8:33 AM	8:51 AM	9:04 AM	
Sample Number	SJ-1	SJ-2	SJ-3	
Sample Depth	8 in	8 in	8 in	
Temperature (F)	63.43	62.66	62.6	
pH	7.3	7.78	7.82	
Turbidity (NTUs)	2.24	2.62	3.09	
Turbidity Exceedance?	Yes, however, natural turbidity levels DS are higher than US as shown by preconstruction results.			
Dissolved O (mg/L)	9.38	8.88	8.01	
TSS (mg/L)	<10	11	10	
TSS Exceedance?	No			

Date	10/26/2015			Comments
Type of Sample Event	Post Construction			
	Water Quality Sampling Data			
Sample Location	Upstream (US)	Within (W)	Downstream (DS)	
Time	10:29 AM	10:38 AM	10:48 AM	
Sample Number	SJ-1	SJ-2	SJ-3	
Sample Depth	6 in	6 in	10 in	
Temperature (F)	66.37	65.59	66.43	
pH	8.24	8.2	8.47	
Turbidity (NTUs)	8.11	19.2	14.5	
Turbidity Exceedance?	Yes, but not due to project-related activities.			At the upstream and midpoint locations, there were a lot of birds feeding which could have caused the increase in turbidity. There was no construction occurring nor was there any BMPs in place.
Dissolved O (mg/L)	12.5	11.38	10.94	
TSS (mg/L)	<10	23	20	
TSS Exceedance?	Yes, but not due to project-related activities.			

Reach No. 43 - San Gabriel River (Upper)

NOTE: A turbidity exceedance has occurred if: natural turbidity is between 0 and 50 NTU and DS value is greater than 20% of the US value OR if natural turbidity is greater than 10 NTU and DS value is greater than 10% of the US value. A TSS exceedance has occurred if the DS value is greater than DS preconstruction baseline.

Date	11/3/2015			Comments
Type of Sample Event	Pre-Construction/ Baseline			Water at the upstream was collected at the base of the dam as it flowed into the river bed. The midpoint was collected in mostly stagnant water. The water flow in this Reach does not reach the end of where construction will be completed – at Beverly Blvd where there are only standing pools of water. Thus, water at the downstream point was collected a couple hundred meters before Beverly Blvd where water flow ends. No construction BMPs in place yet.
Water Quality Sampling Data				
Sample Location	Upstream (US)	Within (W)	Downstream (DS)	
Time	8:50 AM	9:10 AM	9:35 AM	
Sample Number	43-1-1103	43-2-1103	43-3-1103	
Sample Depth	6"	6"	6"	
Temperature (F)	70.41	67.79	69.69	
pH	8.72	7.47	7.67	
Turbidity (NTUs)	8.63	1.19	1.52	
Turbidity Exceedance?	Reference			
Dissolved O (mg/L)	6.35	4.52	5.32	
TSS (mg/L)	13	<10	<10	
TSS Exceedance?	Reference - DS TSS of <10 mg/L will be used as baseline			

Date	11/6/2015			Comments
Type of Sample Event	During Construction			
Water Quality Sampling Data				
Sample Location	Upstream (US)	Within (W)	Downstream (DS)	
Time	9:11	9:27	9:41	
Sample Number	R43-116-1	R43-116-2	R43-116-3	
Sample Depth	1'	1'	2'	
Temperature (F)	65.82	60.46	59.07	
pH	7.76	5.36	7	
Turbidity (NTUs)	3.39	1.62	2.18	
Turbidity Exceedance?	No			
Dissolved O (mg/L)	10.84	7.11	6.65	Water flow was steadier than the pre-construction testing and the downstream location was moved to past Beverly Blvd.
TSS (mg/L)	<10	16	<10	
TSS Exceedance?	No			

Date	11/9/2015			Comments
Type of Sample Event	During Construction			
Water Quality Sampling Data				
Sample Location	Upstream (US)	Within (W)	Downstream (DS)	
Time	9:53	10:08	10:21	
Sample Number	43-1-1109	43-2-1109	43-3-1109	
Sample Depth	6"	12"	12"	
Temperature (F)	63.13	63.2	62.72	
pH	7.3	7.56	7.64	
Turbidity (NTUs)	5.5	1.29	2.69	Sample taken during a light rain event. Water was mostly clear. Downstream sample taken at the same location as downstream point during baseline sampling, due to flow of water.
Turbidity Exceedance?	No			
Dissolved O (mg/L)	7.6	5.5	5.62	
TSS (mg/L)	<10	<10	<10	
TSS Exceedance?	No			

Date	11/10/2015			Comments
Type of Sample Event	During Construction			
Water Quality Sampling Data				
Sample Location	Upstream (US)	Within (W)	Downstream (DS)	
Time	8:32	8:52	9:11	
Sample Number	43-1-1110	43-2-1110	43-3-1110	
Sample Depth	6"	6"	6"	
Temperature (F)	59.45	57.93	58.76	
pH	7.41	6.85	6.92	
Turbidity (NTUs)	5.4	0.9	1.58	
Turbidity Exceedance?	No			
Dissolved O (mg/L)	10.82	7.35	7.05	Clear weather, 57 degrees. Water was mostly clear. Downstream sample taken before Beverly Blvd again. No changes.
TSS (mg/L)	<10	<10	<10	
TSS Exceedance?	No			

Date	11/12/2015			Comments
Type of Sample Event	During Construction			
Water Quality Sampling Data				
Sample Location	Upstream (US)	Within (W)	Downstream (DS)	
Time	10:00	10:14	10:30	
Sample Number	43-1-1112	43-2-1112	43-3-1112	
Sample Depth	6"	6"	6"	
Temperature (F)	63.33	61.92	63.22	
pH	7.27	7.56	7.5	
Turbidity (NTUs)	8.12	3.97	2.87	
Turbidity Exceedance?	No			

Dissolved O (mg/L)	10.12	8.74	7.1	
TSS (mg/L)	14	<10	<10	Sunny. Clear water throughout. No turbidity exceedances.
TSS Exceedance?	No			
Date	**11/19/2015**			**Comments**
Type of Sample Event	**During Construction**			
Water Quality Sampling Data				Matt visited Reach and discovered no water present at each sampling location. Construction activities were still being conducted during this time. The Whittier Narrows dam that supplies the water to the reach was not releasing any water into the channel at the time of sampling. No water quality samples were analyzed or collected. No post construction sampling was conducted due to lack of water. Last day of construction was reported on 12/29/2015.
Sample Location	**Upstream (US)**	**Within (W)**	**Downstream (DS)**	
Time				
Sample Number				
Sample Depth				
Temperature (F)				
pH				
Turbidity (NTUs)				
Turbidity Exceedance?				
Dissolved O (mg/L)				
TSS (mg/L)				
TSS Exceedance?				

Reach No. 44 - San Gabriel River (Rubber Dams)

NOTE: A turbidity exceedance has occurred if: natural turbidity is between 0 and 50 NTU and DS value is greater than 20% of the US value OR if natural turbidity is greater than 10 NTU and DS value is greater than 10% of the US value. A TSS exceedance has occurred if the DS value is greater than DS preconstruction baseline.

Date	9/18/2015			Comments
Type of Sample Event	Pre-Construction			The US location had a lot of debris in the muirky water and had a very slow/low flow. There was no water at the DS location but BMPs were already in place (fiber rolls).
Water Quality Sampling Data				
Sample Location	Upstream (US)	Within (W)	Downstream (DS)	
Time	9:18 AM	9:48 AM	10:07 AM	
Sample Number	44-1-918	44-2-918	44-3-918	
Sample Depth	4 in	4 in	4 in	
Temperature (F)	73.83 F	72.68 F	70.29 F	
pH	6.99	6.87	7.54	
Turbidity (NTUs)	16.6	8.23	28.9	
Turbidity Exceedance?	Reference			
Dissolved O (mg/L)	1.97	4.43	1.3	
TSS (mg/L)	41	57	43	
TSS Exceedance?	Reference - DS TSS of 43 mg/L will be used as the baseline			

Date	9/21/2015			Comments
Type of Sample Event	During Construction			
Water Quality Sampling Data				
Sample Location	Upstream (US)	Within (W)	Downstream (DS)	
Time	11:06	11:36	11:43	
Sample Number	44-1-921	44-2-921	44-3-921	
Sample Depth	4 in	4 in	4 in	
Temperature (F)	84.1 F	74 F	73.7 F	
pH	7.58	6.74	7.54	
Turbidity (NTUs)	26.5	22.2	11.5	
Turbidity Exceedance?	No			
Dissolved O (mg/L)	5.1	3.35	4.34	Lots of bugs in the upstream pool of water. No flow between sample locations.
TSS (mg/L)	52	19	38	
TSS Exceedance?	No			

Date	9/22/2015			Comments
Type of Sample Event	During Construction			
Water Quality Sampling Data				
Sample Location	Upstream (US)	Within (W)	Downstream (DS)	
Time	11:34	12:24	12:34	
Sample Number	44-1-922	44-2-922	4-3-922	
Sample Depth	4"	4"	4"	
Temperature (F)	81.05 F	71.06 F	70.0 F	
pH	7.02	6.48	6.91	Lots of bugs in the upstream pool of water. No flow between sample locations. MP sample location had a lot of trash and debris. Collected sample from small stream leading to pool of water.
Turbidity (NTUs)	72.4	5.24	7.91	
Turbidity Exceedance?	No			
Dissolved O (mg/L)	1.15	0.7	0.6	
TSS (mg/L)	30	18	60	
TSS Exceedance?	Yes, DS TSS greater than baseline TSS.			

Date	9/23/2015			Comments
Type of Sample Event	During Construction			
Water Quality Sampling Data				
Sample Location	Upstream (US)	Within (W)	Downstream (DS)	
Time	10:38	11:03	11:10	
Sample Number	44-1-923	44-2-923	44-3-923	
Sample Depth	2"	2"	3"	
Temperature (F)	87.2 F	85.74 F	73.5 F	
pH	9.85	10.12	9.08	
Turbidity (NTUs)	51.8	5.4	7.39	Very little water remains in the pool of water at the upstream. Little flow of water from stormdrain runoff was where sample was collected. Downstream location very murky water.
Turbidity Exceedance?	No			
Dissolved O (mg/L)	7.4	9.01	3.2	
TSS (mg/L)	18	15	63	
TSS Exceedance?	Yes, DS TSS greater than baseline TSS.			

Date	9/24/2015			Comments
Type of Sample Event	During Construction			
Water Quality Sampling Data				
Sample Location	Upstream (US)	Within (W)	Downstream (DS)	
Time	11:05	11:28	11:38	
Sample Number	44-1-924	44-2-924	44-3-924	
Sample Depth	4"	2"	2"	
Temperature (F)	82.27 F	86.45 F	70.48 F	
pH	7.06	10.08	8.53	
Turbidity (NTUs)	52.9	6.34	10.2	Very little water remains in the pool of water at the upstream. Little flow of water from stormdrain runoff was where
Turbidity Exceedance?	No			
Dissolved O (mg/L)	1.8	9.01	1.51	

TSS (mg/L)	78	17	18	sample was collected. Downstream
TSS Exceedance?	No			location very murky water.
Date	**9/25/2015**			**Comments**
Type of Sample Event	**During Construction**			
Water Quality Sampling Data				Samples were collected from small pools
Sample Location	**Upstream (US)**	**Within (W)**	**Downstream (DS)**	of water from each sampling location. It
Time	10:22	10:42	10:52	was determined that the lack of
Sample Number	44-1-925	44-2-925	44-3-925	consistent water flow between the
Sample Depth	<1"	2"	2"	sampling locations did not provide
Temperature (F)	85.28 F	80.72 F	70.48 F	representative samples of the water
pH	8.32	9.4	7.42	quality during construction activities.
Turbidity (NTUs)	2.71	3.74	2.52	Thus, sampling was halted and did not
Turbidity Exceedance?	No			resume unless water flow was reported.
Dissolved O (mg/L)	6.3	12.8	1.08	No further sampling was conducted due
TSS (mg/L)	20	12	18	to lack of flow. Last day of construction
TSS Exceedance?	No			was reported on 10/28/2015.

Reach No. 98 - Inlet Walnut Creek

NOTE: A turbidity exceedance has occurred if: natural turbidity is between 0 and 50 NTU and DS value is greater than 20% of the upstream value OR if natural turbidity is greater than 50 NTU and DS value is greater than 10% of the upstream value. A TSS exceedance has occurred if the DS value is greater than DS preconstruction baseline.

Date	9/14/2015			Comments
Type of Sample Event	Pre-Construction			
Water Quality Sampling Data				
Sample Location	Upstream (US)	Within (W)	Downstream (DS)	
Time	10:30 AM	10:02 AM	10:44 AM	2 DS samples taken (DS 1 taken at beginning of BMP placements, D2 at end location of BMPs). Large amount of water in creek upstream and plenty of vegetation/long grasses on banks. Once hit concrete bottom, slow to little flow. Cause of high DS TSS may be because flow was shallow so all the organic debris from upstream was concentrated.
Sample Number	98-1 (US)	98-2 (MP)	98-3 (DS2)	
Sample Depth	1.5 ft	10 in.	1 in.	
Temperature (C)	68.4 F	69.4 F	75.3 F	
pH	7.59	7.43	8.12	
Turbidity (NTUs)	4.41	2.1	5.14	
Turbidity Exceedance?	Reference			
Dissolved O (mg/L)	5.44	9.15	9.1	
TSS (mg/L)	18	51	89	
TSS Exceedance?	Reference - DS TSS of 89 mg/L will be used as ambient baseline			

Date	9/21/2015			Comments
Type of Sample Event	During Construction			
Water Quality Sampling Data				
Sample Location	Upstream (US)	Within (W)	Downstream (DS)	
Time	10:50 AM	11:10 AM	11:25 AM	
Sample Number	26-1	26-2	26-3	
Sample Depth	6 in	4 in	3 in	
Temperature (C)	21.31	22.8	25.95	
pH	7.12	7.09	7.78	
Turbidity (NTUs)	15.4	4.26	3.01	
Turbidity Exceedance?	No			
Dissolved O (mg/L)	9.58	5.97	9.42	Cut down trees, cleared weeds/grasses at US/MP; tadpoles at MP; BMPs already in place at DS location.
TSS (mg/L)	31	17	25	
TSS Exceedance?	No, the DS TSS is less than the baseline DS TSS.			

Date	9/23/2015			Comments
Type of Sample Event	Post Construction			
Water Quality Sampling Data				
Sample Location	Upstream (US)	Within (W)	Downstream (DS)	
Time	10:42 AM	10:53 AM	11:02 AM	
Sample Number	26-1	26-2	26-3	
Sample Depth	12 in	8 in	1 in.	
Temperature (C)	20.8	21.48	24.69	Tadpoles at midpoint location. No flow occurring at upstream and midpoint. Downstream, there was very little flow and little water. Vegetation is all cut down around midpoint. All BMPs have been removed.
pH	7.18	7.28	7.85	
Turbidity (NTUs)	18.5	9.62	3.59	
Turbidity Exceedance?	No			
Dissolved O (mg/L)	3.3	3.64	9.78	
TSS (mg/L)	57	17	10	
TSS Exceedance?	No, the DS TSS is less than the baseline DS TSS.			