APPENDIX C

Chollas Creek Metals TMDL Implementation Compliance Monitoring Plan

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Prepared For:
State Water Resources Control Board

In Coordination With:
City of Lemon Grove
City of La Mesa
City of San Diego
County of San Diego
Port of San Diego
California Dept. of Transportation
United States Navy

May 8, 2009

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California Dept. of Transportation
United States Navy

Prepared By:

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2433 Impala Drive
Carlsbad, California 92010

May 8, 2009

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1.0 INTRODUCTION

This Chollas Creek Dissolved Metals Total Maximum Daily Load (TMDL) Implementation Monitoring Plan (Monitoring Plan) describes monitoring that will be used to assess Chollas Creek water quality for the purpose of developing Best Management Practices (BMPs) and determining compliance with TMDL criteria. This Monitoring Plan was specifically prepared in response to Resolution No. R9-2007-0043 in which the San Diego Regional Water Quality Control Board (Regional Board) incorporated the dissolved metals TMDLs into the *Water Quality Control Plan for the San Diego Region* (Basin Plan). The Office of Administrative Law reviewed and approved the metals TMDL on October 22, 2008. The scope of this Monitoring Plan is to perform long-term water quality monitoring within the Chollas Creek Watershed. Results from this monitoring will be useful in the identification, reduction, and elimination of sources of dissolved copper, lead, zinc, Diazinon and indicator bacteria. The purpose of this Monitoring Plan is to evaluate whether Chollas Creek receiving waters are meeting the water quality targets.

1.1.1 Compliance Schedule

The compliance schedule and interim goals for achieving the dissolved metals wasteload reductions within the Chollas Creek Watershed are outlined below (Table 1-1). Resolution No. R9-2007-0043 states "Full implementation of the TMDLs for dissolved copper, lead, and zinc shall be completed within 20 years from the effective date of the Basin Plan amendment." The compliance schedule for implementing the wasteload reductions required under these TMDLs is structured in a phased manner, with an 80 percent reduction in allowable exceedances required within 10 years, and a 100 percent reduction of allowable exceedances required within 20 years. It should be noted that the 20-year compliance schedule is contingent upon Dischargers[1] implementing integrated controls to achieve required copper, lead, zinc, indicator bacteria, Diazinon, and trash reductions.

Table 1-1: Required Waste Load Allocation for the Chollas Creek Dissolved Metals TMDL

Allowable Exceedance of the Wasteload Allocations for Metals (allowable percentage above)			
Compliance Year	**Copper**	**Lead**	**Zinc**
1	100%	100%	100%
10	20%	20%	20%
20	0%	0%	0%

This schedule requires regulated Dischargers to implement BMPs to reduce loads of copper, lead, zinc such that all necessary metals load reductions are met within 20 years and other priority water quality problems such as Diazinon, indicator bacteria, and trash are addressed through integrated projects. During the initial 10 years, Dischargers are expected to develop an implementation plan to identify sources and develop BMPs to eliminate sources.

[1] The Chollas Creek dischargers are Caltrans, the cities of San Diego, Lemon Grove, and La Mesa, San Diego County, the San Diego Unified Port District, and the U.S. Navy.

1.2 TMDL Implementation Plan

The Chollas Creek Dissolved Metals TMDL Implementation Plan (Implementation Plan) represents the Discharger's implementation strategy for conducting watershed activities within Chollas Creek Watershed. The Implementation Plan uses an iterative and adaptive strategy for identifying, planning, implementing, and assessing BMPs over the 20 year compliance schedule. A key component of the Implementation Plan is the Watershed Activity Prioritization. The Chollas Creek Watershed, and its sub-watersheds, were assessed in terms of specific contaminants in order to focus implementation efforts in areas with the greatest water quality concerns or priority water quality problems. Based on this analysis, the Chollas Creek Watershed was separated into five distinct priority sectors (Figure 1-1).

The proposed monitoring plan will use these priority sectors to assess water quality and identify sources of Constituents of Concern (COCs) throughout different regions of the Chollas Creek Watershed. Sector 1, which includes the mouth of Chollas Creek, is designated as the highest priority within the watershed and includes the historic monitoring stations SD8(1) and DPR2. Stations SD8(1) and DPR2 are located at the base of the north and south forks of Chollas Creek, respectively and will act as compliance points for both the Diazinon and the Dissolved Metals TMDLs. In addition to the compliance monitoring described in this monitoring plan, special studies may be conducted outside of this program by each jurisdiction to assess BMPs or to identify sources of pollutants.

1.3 Land Use

The Chollas Creek Watershed is divided into two main drainage areas separated by the northern and southern forks of Chollas Creek. Approximately 8,794 acres drain to station SD8(1), located at the base of the north fork. Approximately 7,575 acres drain to station DPR2 at the base of the south fork. Land use within the Chollas Creek Watershed is comprised of residential (48%), roadways and utilities (27%), freeways (5%), commercial (5%), and industrial use (2%) (Figure 1-2). The majority of the remaining land use within the watershed (18%) is characterized as open space (SANDAG, 2007).

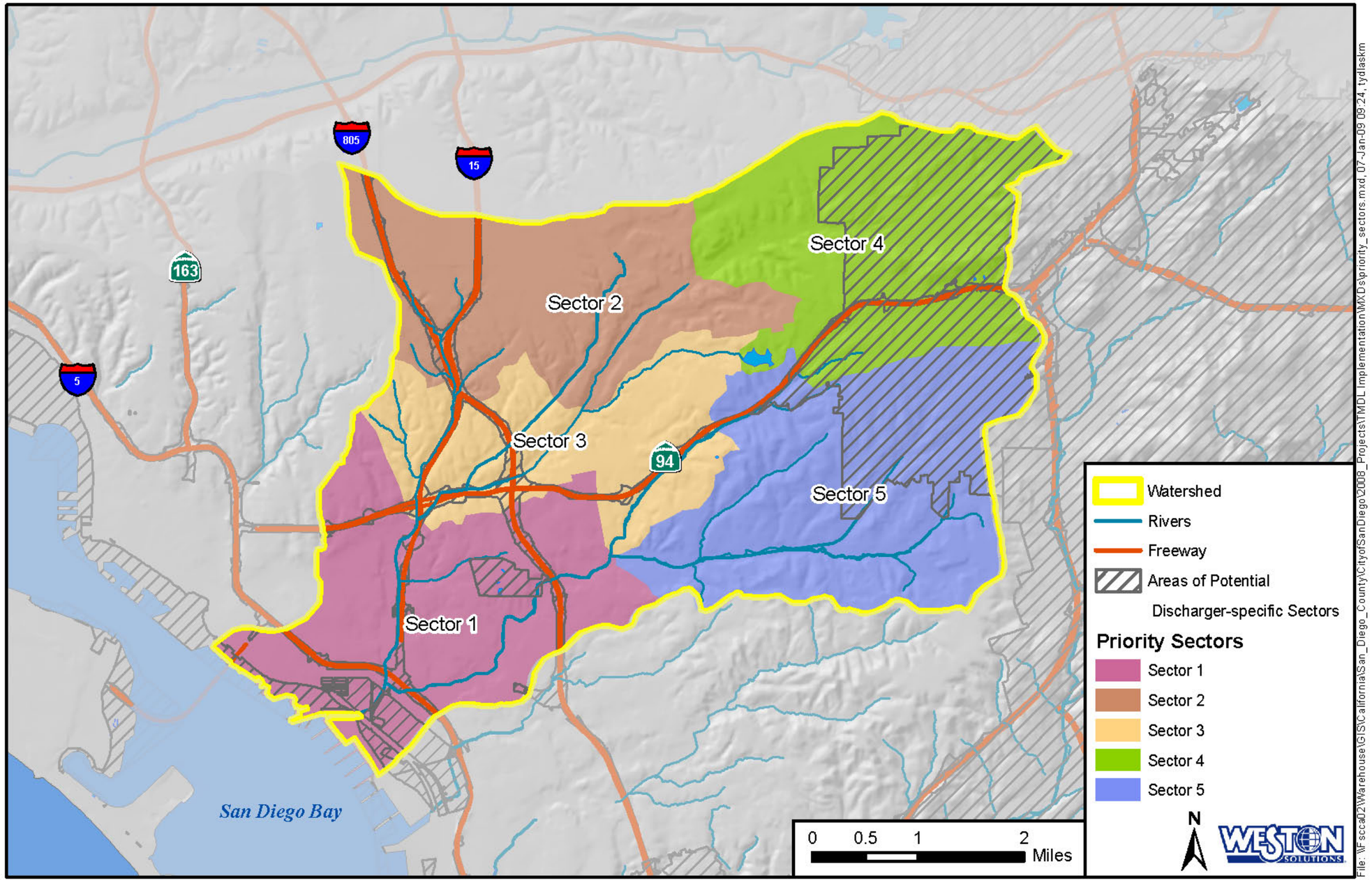

Figure 1-1. Priority Sectors within the Chollas Creek Watershed

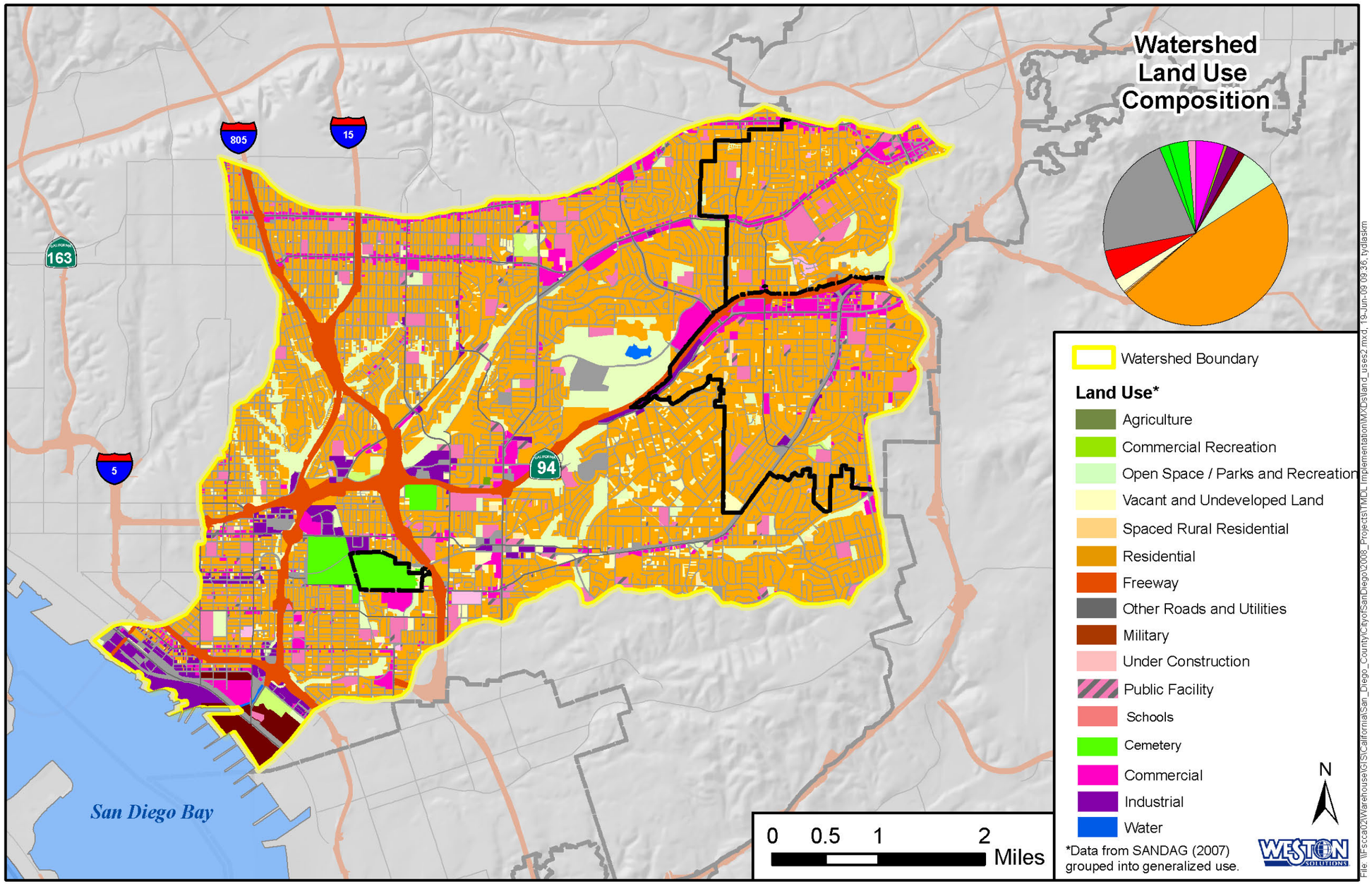

Figure 1-2. Land Use within the Chollas Creek Watershed

2.0 MONITORING PURPOSE

The purpose for conducting water quality monitoring within this watershed is to demonstrate compliance with Regional Board Resolution No. R9-2007-043. This resolution adopted an amendment to the Water Quality Control Plan for the San Diego Basin (Basin Plan) to incorporate TMDLs for dissolved copper, lead, and zinc in the Chollas Creek Watershed. This monitoring plan covers the monitoring requirements for dissolved metals, Diazinon, and toxicity to *Ceriodaphnia dubia* in compliance with Order No. R9-2004-0277. Additionally, PAHs, PCBs, and Chlordane will be analyzed in accordance with Order No. R9-2007-0001, Fact Sheet, Page 104, Section 2.A.1.h.

The Chollas Creek Watershed is currently listed by the Basin Plan as having the following beneficial uses: REC-2 (supports Non-Contact Water Recreation), WARM (supports Warm Freshwater Habitat) and WILD (supports Wildlife Habitat), and the potential to support the REC-1 beneficial use (Contact Water Recreation). The 2006 Clean Water Act (CWA) Section 303(d) list identifies dissolved copper, lead, and zinc as pollutants within the Chollas Creek Watershed as well as indicator bacteria. Both dissolved metals and pesticides have been linked to toxicity in freshwater invertebrates in the Chollas Creek Watershed.

Historical water quality monitoring data has shown that the pesticide Diazinon exceeded water quality standards in most of the region's watersheds, including Chollas Creek, until recent years. While Diazinon was previously identified as the primary agent associated with pesticide pollution in the San Diego region, Diazinon was phased out of manufacturing and has not been available for retail sale since December 2004. As a result, Diazinon concentrations have decreased and are infrequently measured above the TMDL chronic waste load allocation over the past three years of monitoring as site SD8(1). Additionally, toxicity to *Ceriodaphnia dubia* has also markedly decreased and was strongly correlated to the Diazinon concentrations above the TMDL acute waste load allocation.

3.0 WATER QUALITY OBJECTIVE CRITERIA

Diazinon TMDL

In 1996, the Chollas Creek Watershed was placed on the 303(d) list for metals and toxicity. The Southern California Coastal Water Research project (SCCWRP) used the Toxicity Identification Evaluation procedure (TIE) to characterize storm water quality in the Chollas Creek Watershed. According to the TIE study, organophosphate pesticides and trace metals present in storm water runoff caused the toxicity to *Ceriodaphnia dubia.* The Regional Board used this data to develop a TMDL for Diazinon, which was adopted on August 14, 2002 (Resolution No. R9-2002-0123). Non-agricultural (commercial) use of Diazinon was phased out and fully banned in December 2005. To ensure compliance with the TMDL and quantitatively assess changes in pesticide use, the Regional Board required the water quality to be monitored for organophosphate pesticides at two locations in the Chollas Creek Watershed (Order No. R9-2004-0277). The two compliance locations are SD8(1) and DPR2. Waste load allocations (WLA) for acute and chronic Diazinon exposure durations are provided in Table 3-1.

Table 3-1. Acute and Chronic Diazinon Waste Load Allocations.

Exposure Duration	Numeric Targets	Margin of Safety	Waste Load and Load Allocations
Acute	0.08 µg/L	0.008 µg/L	0.072 µg/L
Chronic	0.05 µg/L	0.005 µg/L	0.045 µg/L

Metals TMDL

Order No. R9-2004-0277 also required the metals concentrations of creek water to be monitored. Total and dissolved copper and zinc concentrations have often been detected above the water quality objectives based on the California Toxics Rule. Lead concentrations have also been detected above the California Toxics Rule consistently, but less frequently than copper or zinc. In 2007, the Regional Board adopted a TMDL for dissolved copper, lead, and zinc in the Chollas Creek Watershed (Resolution No. R9-2007-0043). The WLA defined in the TMDL requires the water quality in the Chollas Creek Watershed to be, at most 90 percent of the California Toxics Rule Criteria Continuous Concentration (CCC) and Criteria Maximum Concentration (CMC) (Table 3-2). The remaining 10 percent was explicitly set aside as a margin of safety. The CCC and CMC were selected as the WLAs because they do not vary spatially and they would achieve the narrative water quality objectives for toxicity (for copper, lead, and zinc in the water column). Further analysis and additional justification for these targets are provided in the *Total Maximum Daily Loads for Dissolved Copper, Lead and Zinc in Chollas Creek, Tributary to San Diego Bay.*

Table 3-2. Waste Load Allocations for Dissolved Metals in the Chollas Creek Watershed.

Metal	Target for Acute Conditions: Criteria Maximum Concentration	Target for Chronic Conditions: Criteria Continuous Concentration
Copper	(0.9) * (0.96) * {e^ [0.9422 * ln (hardness) - 1.700]}	(0.9) * (0.96) * {e^[0.8545 * ln (hardness) - 1.702]}
Lead	(0.9) * [1.46203 – 0.145712 * ln (hardness)] * {e^ [1.273 * ln (hardness) - 1.460]}	(0.9) * [1.46203 – 0.145712 * ln (hardness)] * {e^[{1.273 * ln (hardness)} - 4.705]}
Zinc	(0.9)* (0.978) * {e^ [0.8473 * ln (hardness) + 0.884]}	(0.9) * (0.986) * {e^[0.8473 * ln (hardness) + 0.884]}

Hardness is expressed as milligrams per liter.
Calculated concentrations should have two significant figures [40 CFR 131.38(b)(2)].
The natural log and exponential functions are represented as "ln" and "e," respectively.

4.0 MONITORING APPROACH AND SAMPLING METHODS

The approach and sampling methods to be used for conducting this TMDL compliance monitoring program is presented in this section. The approach focuses on monitoring at compliance stations.

4.1 Compliance Monitoring Station Approach and Site Description

Station SD8(1) is located at the end of Durant Street near 33rd St. in the north fork of Chollas Creek (Table 4-1, Figure 4-1 and Figure 4-3). Interstate 15 parallels the creek directly to the east and Imperial Avenue crosses the creek approximately 750 ft upstream of the sampling site. At this location, Chollas Creek is an improved channel consisting of concrete side berms and a concrete bottom.

Station DPR2 is located at 38th Street and Alpha St. in the south fork of Chollas Creeks (Table 4-1, Figure 4-2, and Figure 4-3). National Avenue, a major east-west arterial is located approximately 0.25 mi to the north and Interstate 5 is located approximately 0.25 mi to the south. This station is approximately 0.75 mi upstream from the confluence of the main stem and southern stems of Chollas Creek. It is above the tidally influence area from San Diego Bay. At this location, Chollas Creek is an improved channel consisting of concrete side berms and earthen bottom.

Figure 4-1. Compliance Sampling Site, SD8(1)

Figure 4-2. Compliance Sampling Site, DPR2

Table 4-1. Chollas Creek Site Descriptions, Site IDs, Targeted Land Uses, and Locations

Site Description/ Sector Location	Site ID	Targeted Land Use	Latitude	Longitude
Compliance Sites	DPR2	NA	32.69227	117.11232
	SD8(1)	NA	32.70493	117.12132

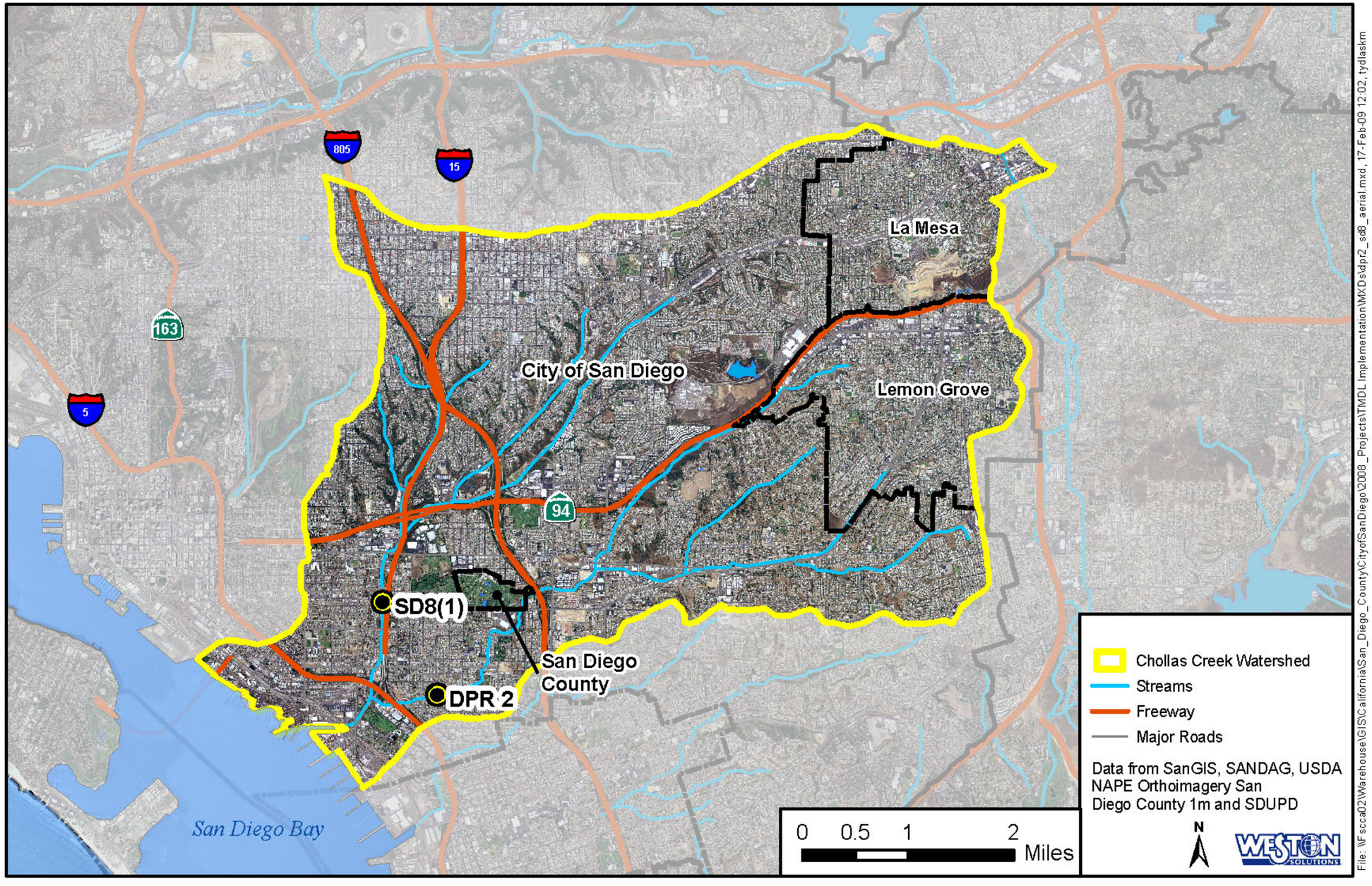

Figure 4-3. Compliance Monitoring Station Locations for Year 1-2 of the Dissolved Metals TMDL Compliance Schedule

4.2 Frequency of Sampling

Three storm events will be sampled at each compliance station during each monitoring season in compliance with Regional Board Order R9-2004-0277. Storm events will be considered viable for monitoring activities if they achieve greater than 0.10 inches of rainfall and are preceded by 72 hours or more of dry weather. All monitoring events will occur between October 1 and April 30 of each monitoring season. The first and second storm occurring after October 1 during a given monitoring season (first and second flush event), which meets the aforementioned rainfall criteria will be monitored. Similarly, the first storm occurring after February 1, which meets sampling criteria during a given monitoring season will also be monitored as the third storm event.

4.3 Methods and Analyses for Storm Water Quality Monitoring

Compliance Site Monitoring

Storm water runoff will be collected using flow-weighted composite techniques over the duration of each storm event at the compliance points SD8(1) and DPR2 (Figure 4-3). Sample collection at these locations will occur at the storm's onset and continue until the flow within Chollas Creek returns to within approximately 10 percent of the base flow condition, or after eight hours of sampling. Sampling will be terminated under these conditions as long as the hydrograph is continuing to decline prior to termination. Representative samples will be taken during the rise, peak and fall of the hydrograph.

Automated flow and sampling equipment will remain installed at the two compliance sites (SD8(1) and DPR2) to collect flow-weighted composite samples during storm events. Samples will be analyzed for the constituents listed in Table 4-2. The monitoring stations will log continuously for the entire storm season defined as October 1 through April 30 of each year. American Sigma flow meters with pressure transducers or bubblers will be used to measure velocity and stage height. The flow sensors will be installed on the channel bottom in the center of the channel. In the event that a flow sensor is rendered inoperable during a storm event, meter tapes will be used to measure the stage height of the main channel in order to determine velocity of the flow.

Using the data collected by the flow meters, sample intervals will be set to collect approximately 40-liters of water throughout the storm event. The sample intake point will be located adjacent to the flow meter, on the channel bottom in the center of the channel. American Sigma automated samplers will be used to collect 1-liter sample grabs at a flow dependent rate. The 1-liter grabs will be composited into 20-liter borosilicate glass sample bottles.

The automated sampler collects grab samples via a peristaltic pumping mechanism. Water samples are pumped through a Teflon intake device and Teflon tubing into a 20-liter borosilicate glass sample bottle. Bottles will be kept on ice during the storm event. Field crews will maintain and replace the sampling bottles as they are filled to capacity. If multiple bottles are collected, the bottles will be composited and subsampled for delivery to the appropriate laboratory for chemical analyses.

Grab samples will be collected at SD8(1) and DPR2 for general field parameters (pH, temperature, specific conductivity). Extended sampling poles or clean buckets may be used to collect the grab samples from the horizontal and vertical center of the Chollas Creek channel.

Table 4-2. Wet Weather Water Quality Analytical Parameters for Sites DPR2 and SD8(1).

Analytical Parameter	Analytical Method	Sample Volume	Container Type	Collection Method	Preservation (chemical, temperature, light protected)	Maximum Holding Time: Preparation/ Analysis
pH	Meter	1L	Plastic	Grab	None	Measured in field
Temperature	Meter	1L	Plastic	Grab	None	Measured in field
Conductivity	Meter	1L	Plastic	Grab	None	Measured in field
Total Hardness	SM 2340-B	100 mL	Plastic	Composite Sample	HNO_3	6 Months
Organophosphorus Pesticides	EPA 625	2L	Amber Glass	Composite Sample	Store Cool at <4ºC	Extraction-7 Days Analysis-40 Days
Organochlorine Pesticides						Extraction-7 Days Analysis-40 Days
PAHs	EPA 625	2L	Amber Glass	Composite Sample	Store Cool at <4ºC	Extraction-7 Days Analysis-40 Days
PCB congeners	EPA 625	2L	Amber Glass	Composite Sample	Store Cool at <4ºC	Extraction-7 Days Analysis-40 Days
Total & Dissolved Copper	EPA 200.8	1L	Plastic	Composite Sample	Store Cool at <4ºC	24 hours/6 Months Filter and preserved on receipt at laboratory for dissolved metals. Preserved on receipt for total metals.
Total & Dissolved Lead						
Total & Dissolved Zinc						
Acute Toxicity to *Ceriodaphnia dubia*	EPA/600/4-90/027F	10L	Glass	Composite Sample	Store Cool at <4ºC	36 Hours
Chronic Toxicity to *Ceriodaphnia dubia*	EPA/600/4-91/002					

A field data log will be completed at each site (Attachment 1). The field data log will include empirical observations of the site and water quality characteristics. Observations will include parameters such as meteorological conditions at time of sampling; odor, color, and general turbidity of the runoff. Changes in the condition of vegetation as well as any observed erosion along the channel's side slopes will also noted on field data logs. Photographs will be taken during each site visit as warranted.

4.4 QA/QC Procedures

Quality assurance and quality control (QA/QC) for sampling processes will include proper collection of the samples in order to minimize the possibility of contamination. All samples will be collected in laboratory supplied, laboratory-certified, contaminant free sample bottles. Field staff will wear powder-free nitrile gloves (or similar) at all times during sample collection. All sampling personnel will be trained according to field sampling SOPs. Additionally, the field staff will be made aware of the significance of the project's detection limits and the requirement to avoid contamination of samples at all times. A temperature blank will be used to ensure sample holding temperatures were maintained from sample collection through delivery to the laboratory, and equipment rinse blanks will ensure cross contamination from equipment to the water sample has not occurred. Duplicate samples will also be analyzed to assess variability in sampling and to remain compliant with Surface Water Ambient Monitoring Program protocols. Each batch of samples that is submitted to the laboratories for analyses will be accompanied by an equipment rinse blank, field blank, and a duplicate sample, as specified under Surface Water Ambient Monitoring Program (SWAMP).

Samples will be analyzed by a laboratory certified by the California Environmental Laboratory Accreditation Program (ELAP) for the analyses of inorganics, toxic chemical elements, and organics in wastewater.

Field measurements for pH, conductivity, and temperature will be made using an Oakton CON10 pH/temperature/conductivity water quality probe or similar probe according to the manufacturer's specifications. Calibration of the instruments will be conducted prior to each sampling event.

4.4.1 Equipment Decontamination and Cleaning

QA/QC for sampling processes begins with proper collection of the samples in order to minimize the possibility of contamination. All water samples collected at compliance sites will be collected in laboratory-certified, contaminant-free borosilicate glass bottles. All borosilicate glass bottles are thoroughly washed and rinsed with acid before reuse according to EPA procedures. All water samples collected at source assessment sites will be collected in laboratory-certified, contaminant-free HDPE or amber glass bottles. Appropriate sample containers and field measurement and sampling gear are transported to the sample site according to the appropriate SOP. Temperature, pH, and conductivity, as well as other field data, will be measured and recorded using the appropriate equipment. Samples will be put on ice and appropriately shipped to the processing laboratory.

If sampling poles are used for collecting water samples they must be decontaminated between sampling locations. The chemistry analysis of the samples will be performed under the guidelines of the QA/QC programs of each laboratory.

4.4.2 Corrective Action for Field Measurements

The field sampling staff will have the primary responsibility for responding to failures in the sampling or measurement systems. Deviations from defined protocols and the project Quality Assurance Project Plan are documented in the comment section of field notes. If any equipment fails, field personnel will report the problem in the comment section of their field notes and will not record data values for the variables in question. Actions will be taken to replace or repair broken equipment prior to the next field use. No data that are known to be collected with any faulty equipment will be entered into the project database. It is the combined responsibility of all members of the sampling crew to determine if the performance requirements of the specific sampling method have been met, and to collect an additional sample if required. Any deviations from field protocols will be reported to the Project Manager immediately.

4.5 Chain-of-Custody Procedures

Chain-of-custody procedures will be used for all samples throughout the collection, transport, and analytical process. Samples will be considered to be in custody if they are (1) in the custodian's possession or view, (2) retained in a secured place (under lock) with restricted access, or (3) placed in a container and secured with an official seal such that the sample could not be reached without breaking the seal. The principal documents used to identify samples and to document possession will be chain of custody records, field logbooks, and field tracking forms.

The chain of custody procedures will be initiated during sample collection. A chain-of-custody record will be provided with each sample or group of samples (Attachment 2). Each person who had custody of the samples will sign the form and ensure that the samples were not left unattended unless properly secured. Documentation of sample handling and custody will include the following:

- Sample identifier
- Sample collection date and time
- Any special notations on sample characteristics or analysis
- Initials of the person collecting the sample
- Date the sample was sent to the analytical laboratory
- Shipping company and waybill information.

Completed chain-of-custody forms will be placed into a plastic envelope and kept inside the cooler containing the samples. Upon delivery to the analytical laboratory, the chain-of-custody form will be signed by the person receiving the samples. Chain-of-custody records will be included in the final reports prepared by the analytical laboratories and will be considered an integral part of the report.

4.6 Health and Safety

Wet weather sampling events have the potential for dangerous situations to arise. Field personnel need to be aware of safety hazards and take appropriate precautions. A health and safety tailgate meeting will be held prior to the occurrence of any on-site activity. During this meeting, site specific hazards will be discussed and addressed appropriately. There are several health and safety issues that pertain to the proposed storm water sampling and equipment installation within the Chollas Creek Watershed.

4.6.1 Inclement Weather

Extremes of heat, cold, and humidity, as well as rain, snow, and ice, can adversely affect monitoring instrument response and reliability, respiratory protection performance, and chemical protective clothing materials. Rain and wet conditions also increase slipping and tripping hazards, braking distances of vehicles, and the potential for slippage or handling difficulties of field equipment. Rain fills holes and obscures trip and fall hazards. Tools and personnel can slip on wet surfaces. Rain and wet conditions may decrease visibility, increasing potential for driving accidents, and limit the effectiveness of certain direct-reading instruments (e.g., photoionization detectors [PIDs]).

Winter storms will bring in colder than normal temperatures to the area. Field crews should be prepared to work long hours in wet and cold conditions. Field personnel should wear extra layers of clothing under rain gear since there may be a variety of temperature changes.

4.6.2 Traffic Hazards and Traffic Control

There is potential for field crews to be driving in the rain and at night so extra precaution should be taken while driving. All traffic rules and regulations, and all traffic control signs and devices should be obeyed. Field personnel should allow for extra time when planning travel routes. Vehicle traffic is a major concern in storm water monitoring. Traffic presents hazards in two ways: 1) when site workers are working close to roadways, the potential exists to be hit by oncoming traffic, and 2) driving to, from, and on the site poses a potential accident hazard. Whenever possible, field personnel should park as far off the road as possible to avoid interfering with traffic flow and should follow these guidelines while working in traffic:

- Turn on the vehicle's flashing yellow warning light and hazard lights.
- Put out safety cones to mark off the work area and wear a reflective safety vest.
- Place yellow barricade around open manhole to clearly mark the area.
- Avoid steep slopes and stream banks.
- Always use a flashlight in the dark.
- Always wear bright rain gear during storms to be more visible.

4.6.3 Fatigue

During the course of the monitoring event long working hours may occur. If field personnel are too tired to safely continue working, a replacement will be provided or sampling will be terminated.

5.0 DATA ANALYSIS AND REPORTING

This section to be developed further based on stakeholder input.

Data Analysis
Data collection and methods of analyses will be compliant with established SWAMP protocols. Sample results will be compared to water quality objectives specified in the Dissolved Metals TMDL.

Reporting
This section to be developed further based on stakeholder input.

6.0 REFERENCES

SDRWQCB (California Regional Water Quality Control Board, San Diego Region). 1994. *Water Quality Control Plan for San Diego Region*.

ATTACHMENT 1

Field Observation Form

WATER QUALITY FIELD DATA LOG
PROJECT NAME

PROJECT/SURVEY NAME	DATE		PROJECT MANAGER
STATION NAME	NAV DATUM	LATITUDE	LONGITUDE
SAMPLE IDENTIFICATION	TIME STARTED (AT SITE)	TIME FINISHED (AT SITE)	GRAB SAMPLE TIME
FIELD TEAM	RECORDER		DEPTH OF SURFACE WATER

METEOROLOGICAL CHARACTERISTICS	PERCENT CANOPY COVER?

QA/QC SAMPLES: ☐ FIELD DUPLICATE ☐ LAB SPLIT ☐ MS/MSD ☐ EQUIPMENT BLANK ☐ FIELD BLANK

WATER QUALITY APPEARANCE

ODOR	☐ HYDROGEN SULFIDE	☐ MUSTY	☐ SEWAGE	☐ AMMONIA	☐ GASOLINE	☐ OTHER
	☐ SOAP	☐ CHLORINE	☐ NONE	☐ EARTHY	☐ PESTICIDE/ HERBICIDE	
COLOR	☐ YELLOW	☐ GREEN	☐ BLUE	☐ BROWN	☐ BLACK	☐ OTHER
	☐ GRAY	☐ WHITE	☐ COLORLESS			
FLOATING MATERIALS	☐ TRASH OR DEBRIS	☐ OILY SHEEN	☐ ORGANIC MATERIAL	☐ SCUM	☐ SUDS	☐ OTHER
	☐ OBJECTS (DESCRIBE)	☐ FECAL MATTER	☐ BIOFILM			
OIL AND GREASE	☐ NONE	☐ DEPOSIT	☐ EMULSION	☐ SHEEN	☐ HEAVY FLOATING CONCENTRATION	
TURBIDITY	☐ HEAVY CLOUDINESS, OPAQUE		☐ CLOUDY	☐ SOME CLOUDINESS	☐ NONE	

POTENTIAL FECAL SOURCES OBSERVED NEAR SITE

☐ ANIMALS (Wildlife, pets) write # of each in observations	☐ RESTAURANT WASHING write restaurant name in comments	☐ ILLEGAL DUMPING	☐ ENCAMPMENTS	
☐ IRRIGATION RUNOFF	☐ SEWER LEAK	☐ ANIMAL CARE FACILITY	☐ OTHER	

DESCRIBE ALL SOURCES

FIELD MEASUREMENTS	METER NUMBER	pH		TEMP (degree C)	CONDUCTIVITY (uS/cm)

FLOW ESTIMATION **Flow** Yes / No / Ponded **Evidence of overland flow near sampling location?** Yes / No

Marsh-McBirney used for flow measurements? Yes / No

Flowing Creek (Marsh-McBirney or leaf method)

1. Width (ft or in) _____
2. Depth (ft or in) _____
3. Velocity (ft or in / sec) _____

Flow _____

Filling a Bottle

1. Volume (mL or L) _____
2. Time to fill (sec) _____

Flow _____

Flowing Pipe

1. Pipe Diameter (ft or in) _____
2. Depth (ft or in) _____
3. Velocity (ft or in / sec) _____

Flow _____

VISUAL OBSERVATIONS/SAMPLING ACTIVITIES (DESCRIBE ALL ACTIONS TAKEN AT EACH SITE AND PROVIDE ADDITIONAL COMMENTS AS NECESSARY)

PHOTOS TAKEN: ☐ YES ☐ NO

PHOTO NUMBERS AND NOTES: _____

ATTACHMENT 2

Chain of Custody Form

WESTON SOLUTIONS
☐ 2433 Impala Drive • Carlsbad, CA 92010 • (760) 795-6900, FAX 931-1580
☐ 1440 Broadway, Ste. 910 • Oakland, CA 94612 • (510) 808-0302, FAX 891-9710

CHAIN OF CUSTODY
1760

DATE_____ PAGE_____ OF_____

PROJECT NAME / SURVEY / PROJECT NUMBER

PROJECT MANAGER / CONTACT

COMPANY / CLIENT

ADDRESS

PHONE / FAX / EMAIL

SITE ID (Location)	SAMPLE ID	DATE	TIME	MATRIX	CONTAINER TYPE / VOLUME	TOTAL NUMBER OF CONTAINER	ANALYSIS/TEST REQUESTED								PRESERVED HOW	FOR WESTON USE ONLY: SAMPLE TEMP. (°C) UPON RECEIPT	FOR WESTON USE ONLY: WESTON LAB ID

Sample Matrix Codes: FW= fresh water GW=ground water SLT=salt water SW=storm water WW=waste water SED=sediment A=air BIO=biologic SS=soil T=tissue O=other (specify) _____

Container Code: G=glass P=plastic B=bags ☐ O=other _____

Shipped By: ☐ Courier ☐ UPS ☐ FedEx ☐ USPS ☐ Client drop off ☐ Other _____

Turnaround Time: ☐ 2-day ☐ 5-day ☐ 7-day ☐ 10-day ☐ 14-day ☐ Standard ☐ Other _____

Reporting Requirements: ☐ PDF ☐ EDD ☐ Hard Copy ☐ Email ☐ Other _____

SAMPLED BY: PRINT SIGNATURE

COMMENTS / SPECIAL INSTRUCTIONS

RELINQUISHED BY				RECEIVED BY			
Print Name	Signature	Firm	Date/Time	Print Name	Signature	Firm	Date/Time
1.							
2.							
3.							
4.							
5.							
6.							

WHITE – return to originator • YELLOW – lab • PINK – retained by originator