

SOLANO COUNTY WATER AGENCY



STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

FOR

PUTAH CREEK FLOODPLAIN RESTORATION PROJECT: Phase 3

FOR

THE SOLANO COUNTY WATER AGENCY

DATED: July 5, 2017

WDID #: 5S57C372955

RISK LEVEL: 1

ESTIMATED START DATE OF SOIL DISTURBANCE: August 15, 2018

ESTIMATED DATE OF FINAL STABILIZATION: November 15, 2018

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Qualified SWPPP Developer Certification

Legally Responsible Person

Amendment Log

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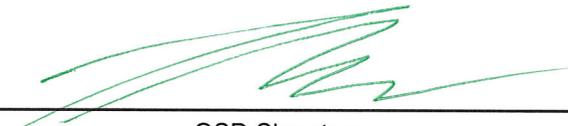
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Qualified SWPPP Developer Certification

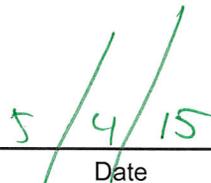
Approval and Certification of the Stormwater Pollution Prevention Plan

Project Name: Winters Putah Creek Nature Park Restoration Channel
Realignment and Restoration, Putah Creek, Solano County,
California

"This Stormwater Pollution Prevention Plan and Attachments were prepared under my direction to meet the requirements of the California Construction General Permit (SWRCB Orders No. 2009-009-DWQ as amended by Order 2010-0014-DWQ and Order 2012-0006-DWQ). I certify that I am a Qualified SWPPP Developer in good standing as of the date signed below".



QSD Signature



Date

Thomas Pate

C63743

QSD Name

QSD Certificate Number

Principal Water Resources Engineer,
SCWA

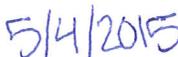
Title/Affiliation

TPate@scwa2.com

Email Address



Reviewed By Signature



Date

Jeffrey Barich

(707) 455-1109

Reviewed By

Telephone Number

Legally Responsible Person

Approval and Certification of the Stormwater Pollution Prevention Plan

Project Name: Winters Putah Creek Nature Park Restoration Channel
Realignment and Restoration, Putah Creek, Solano County,
California

"I certify under penalty of the law that this document and all Attachment were prepared under my direction of supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, to the best of my knowledge and belief, the information submitted is true accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations".

Signed Via Electronic Signature through
SMARTS

Signature of Legally Responsible Person or
Approved Signatory

Date

Name of Legally Responsible Person or Approved
Signatory

Telephone Number

Amendment Log

Project Name: Winters Putah Creek Nature Park Restoration Channel
Realignment and Restoration, Putah Creek, Solano County,
California

Amendment Number	Date	Brief Description of Amendment, include section and page number	Prepared and Approved by
			Name: QSD#:

SECTION 1: SWPPP REQUIREMENTS

1.1. INTRODUCTION

This Stormwater Pollution Prevention Plan (SWPPP) was prepared to comply with California's General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities (CGP/General Permit) Order No. 2009-0009-DWQ as amended in 2010 and 2012 (NPDES No. CAS000002) issued by the State Water Resources Control Board (State Water Board). In accordance with the General Permit, Section XIV, this SWPPP is designed to address the following:

- Pollutants and their sources, including sources of sediment associated with construction, construction site erosion, and other activities associated with construction activity are controlled;
- Where not otherwise required to be under a Regional Water Quality Control Board (Regional Water Board) permit, all non-stormwater discharges are identified and either eliminated, controlled, or treated;
- Site BMPs are effective and result in the reduction or elimination of pollutants in stormwater discharges and authorized non-stormwater discharges from construction activity to the Best Available Technology/Best Control Technology (BAT/BCT) standard.

1.2. PERMIT REGISTRATION DOCUMENTS

Required Permit Registration Documents (PRDs) shall be submitted to the State Water Board via the Stormwater Multi Application and Report Tracking System (SMARTS) by the Legally Responsible Person (LRP), or authorized personnel (i.e., Approved Signatory) under the direction of the LRP. The project-specific PRDs include:

1. Notice of Intent (NOI);
2. Risk Assessment (Construction Site Sediment and Receiving Water Risk Determination);
3. Site Map;
4. Annual Fee;
5. Signed Certification Statement (LRP Certification is provided electronically with SMARTS PRD submittal);
6. SWPPP;
7. Post-construction water balance calculation.

Site Maps can be found in Appendix A. A copy of the submitted PRDs shall also be kept in Appendix C along with the Waste Discharge Identification (WDID) confirmation.

1.3. SWPPP AVAILABILITY AND IMPLEMENTATION

The discharger shall make the SWPPP available at the construction site during working hours (see Section 7.5 of CSMP for working hours) while construction is occurring and shall be made available upon request by a State or Municipal inspector. When the original SWPPP is retained by a crewmember in a construction vehicle and is not currently at the construction site, current copies of the BMPs and map/drawing will be

left with the field crew and the original SWPPP shall be made available via a request by radio/telephone. (CGP Section XIV.C).

The SWPPP shall be implemented concurrently with the start of ground disturbing activities.

1.4. SWPPP AMENDMENTS

The SWPPP should be revised when:

- There is a General Permit violation; or
- There is a reduction or increase in total disturbed acreage (General Permit Section II Part C); or
- BMPs do not meet the objectives of reducing or eliminating pollutants in stormwater discharges.

Additionally, the SWPPP shall be amended when:

- There is a change in construction or operations which may affect the discharge of pollutants to surface waters, groundwater(s), or a municipal separate storm sewer system (MS4); or
- There is a change in the Project duration that changes the Project's risk level; or
- Deemed necessary by the QSD. The QSD has determined that the changes listed in Table 1.1 can be field determined by the QSP. All other changes shall be made by the QSD as formal amendments to the SWPPP.

The following items shall be included in each amendment:

- Who requested the amendment;
- The location of proposed change;
- The reason for change;
- The original BMP proposed, if any; and
- The new BMP proposed.

Amendments shall be logged at the front of the SWPPP and certification kept in Appendix D. The SWPPP text shall be revised replaced, and/or hand annotated as necessary to properly convey the amendment. SWPPP amendments must be made by a QSD. The following changes have been designated by the QSD as "to be field determined" and constitute minor changes that the QSP may implement based on field conditions.

Table 1.1: LIST OF CHANGES TO BE FIELD DETERMINED

Candidate changes for field location or determination by QSP₁	Check changes that can be field located or field determined by QSP
---	---

Increase quantity of an erosion or Sediment Control Measure	X
Relocate/Add stockpiles or stored material	X
Relocate or add toilets	X
Relocate vehicle storage and/or fueling locations	X
Relocate areas for waste storage	X
Relocate water storage and/or water transfer location	X
Changes to access points (entrance/exits)	X
Change type of Erosion or Sediment Control Measure	X
Minor changes to schedule or phases	X
Changes in construction materials	X
1. Any field changes not identified for field location or field determination by QSP must be approved by QSD.	

1.5. RETENTION OF RECORDS

Paper or electronic records of documents required by this SWPPP shall be retained for a minimum of three (3) years from the date generated or date submitted, whichever is later, for the following items:

- Annual reports;
- Chain of custody documentation;
- Field measurement reports;
- Laboratory reports;
- Monitoring reports;
- Photographs;
- QA/QC records;
- Rain gauge reports;
- Sampling reports;
- Site inspection reports;
- Weather reports; and
- All other pertinent records.

These records shall be available at the Site until construction is complete. Records assisting in the determination of compliance with the General Permit shall be made available within a reasonable time, to the Regional Water Board, State Water Board or U.S. Environmental Protection Agency (EPA) upon request. Requests by the Regional Water Board for retention of records for a period longer than three (3) years shall be adhered to.

1.6. REQUIRED NON-COMPLIANCE REPORTING

If a discharge violation occurs the QSP will immediately notify the LRP and the LRP shall file a violation report electronically to the Regional Water Board within 30 days of identification of non-compliance using SMARTS. Corrective measures will be implemented immediately following identification of the discharge or written notice of non-compliance from the Regional Water Board. Discharges and corrective actions must be documented and include the following items:

- The date, time, location, nature of operation, and type of unauthorized discharge;
- The cause or nature of the notice or order;
- The control measures (BMPs) deployed before the discharge event, or prior to receiving notice or order;
- The date of deployment and type of control measures (BMPs) deployed after the discharge event, or after receiving the notice or order, including additional measures installed or planned to reduce or prevent re-occurrence.

Reporting requirements for Numeric Action Levels (NALs) exceedances are discussed in Section 7.7.2.7.

1.7. ANNUAL REPORT

The General Permit requires that permittees prepare, certify, and electronically submit an Annual Report no later than September 1st of each year. The reporting period is from July 1st of the previous year to June 30 of the current year. Reporting requirements are identified in Section XVI of the General Permit. Annual Reports will be filed in SMARTS and in accordance with information required by the online forms.

1.8. CHANGES TO PERMIT COVERAGE

The General Permit allows for the reduction or increase of the total acreage covered under the General Permit when: a portion of the project is complete and/or conditions for termination of coverage have been met; ownership of a portion of the project is purchased by a different entity; or new acreage is added to the project.

Modified PRDs shall be filed electronically within 30 days of a reduction or increase in total disturbed area if a change in permit covered acreage is to be sought. The SWPPP shall be modified appropriately, shall be logged at the front of the SWPPP and certification of SWPPP amendments are to be kept in Appendix D. Updated PRDs submitted electronically via SMARTS can be found in Appendix E.

1.9. NOTICE OF TERMINATION

A Notice of Termination (NOT) must be submitted electronically by the LRP via SMARTS to terminate coverage under the General Permit. The NOT must include a final Site Map and representative photographs of the project site that demonstrate final stabilization has been achieved. The NOT shall be submitted within 90 days of completion of construction. The Regional Water Board will consider a construction site complete when the conditions of the General Permit, Section II.D have been met.

SECTION 2: PROJECT INFORMATION

2.1. PROJECT AND SITE DESCRIPTION

2.1.1. Site Description

The Winters Putah Creek Nature Park Channel Realignment and Restoration Phase 3 Project is directly south of the City of Winters and north of Putah Creek Road in Solano County at the border of Yolo County, California. The Project is located on Putah Creek at 38°31'22.53"N 121°57'47.25"W, one-quarter-mile northeast of Railroad Avenue Bridge. Surrounding land uses include urban development, agricultural fields (mainly orchards and vineyards) and scattered rural residences. The Project is located within Section 22, Township 8 North, Range 1 West, Mt. Diablo Base Meridian. The site is identified on Figure 1 Site Map in Appendix A.

2.1.2. Existing Conditions

Putah Creek runs southwest to northeast at the Project site. Existing conditions consist of a stream channel with emergent wetlands and riparian forest bordering each bank. The Project area includes what was formerly a sewage treatment pond.

2.1.3. Existing Drainage

The Project site is within the Putah Creek stream channel. The elevation of the Project site ranges from approximately 100- to 130-feet above mean sea level (amsl) (USGS Topo Winters Quad, 2012). Surface drainage at the site currently flows from the channel banks into the Putah Creek stream bed. Stormwater is conveyed through surface runoff. Stormwater discharges from the site are considered direct discharges, as defined by the State Water Board, into Putah Creek. Four (4) City of Winters storm drains and one (1) private storm drain, shown on Sheet 2 in Appendix A, discharge directly into the Putah Creek watershed, then into Putah Creek. Existing site topography, drainage patterns, and storm water conveyance systems are shown on Sheet 2 in Appendix A.

The Project discharges to Putah Creek, which is listed for water quality impairment on the current (2010) 303(d) list for sediment.

2.1.4. Geology and Groundwater

According to the Natural Resources Conservation Service (NRCS) Soil Survey, the portion of the site that lies within Solano County consists of "Yolo Loam" and "Water," and the portion of the site within Yolo County consists of "Riverwash" and "Water".

The Yolo series consists of well-drained silt loams and silty clay loams on alluvial fans. Slopes are from zero (0)- to two (2)-percent. The soils formed in alluvium from sedimentary rocks. Elevation ranges from 20- to 150-feet. Riverwash is a land type consisting of excessively drained, gravelly sand to sandy loam. Riverwash occupies stream channels and is subject to frequent flooding. Vegetation on this land type is scattered and consists mostly of cottonwood, willow, and tamarisk.

2.1.5. Project Description

The Winters Putah Creek Nature Park Channel Realignment and Restoration Project (Phase 3) is the culmination of a multi-phase Project to convert former gravel extraction pits and a closed wastewater treatment plant into a river parkway. Initial phases (Phases 1 and 2) were completed by converting continuous deep pools into a natural channel form; creating public access where it was previously prevented by steep banks and invasive weeds; and creating twelve-foot wide meandering trails on a twenty-foot wide terrace, ten-feet above the low flow water surface elevation on both banks.

In the center of the original restoration project footprint is a closed five-acre former sewage aeration pond site that was used as the restoration project staging area for initial restoration phases (SCWA, 2011; Plan Sheet 2 of 3). The site has been in transition as it was used to stage and borrow fill and stockpile materials. This staging area has remained isolated from the flow channel, but is now proposed to become a portion of the Putah Creek channel.

The existing channel – which curves in an arc sharply to the north, creating the opportunity for higher velocity water to undercut the north bank – is proposed to be filled and planted with native riparian vegetation. Riparian vegetation provides valuable terrestrial and aquatic habitat in riverine ecosystems while stabilizing riverbanks, dissipating floodwaters, trapping fine sediment, and creating hydrologic complexity that creates channel diversity.

2.1.6. Developed Condition

Post-construction surface drainage will be generally the same as pre-construction surface drainage. Table 2.1 summarizes the before- and after-construction runoff coefficient estimates.

Table 2.1: CONSTRUCTION RUNOFF COEFFICIENTS		
Construction site area	8.89	acres
Percent impervious before construction	0	%
Runoff coefficient before construction	0.3	n/a
Percent impervious after construction	0	%
Runoff coefficient after construction	0.3	n/a

Source: Solano County Hydrology Manual, 1999.

All exposed/disturbed areas and access points within jurisdictional areas left barren of vegetation as a result of Project activities shall be restored by seeding with a blend of native erosion control grass seeds. All other areas of disturbed soil which drain toward the stream channel shall be seeded with erosion control grass seeds.

Permittee shall stabilize all exposed/disturbed soils within the Project area to reduce erosion potential, both during and following ground disturbance. Erosion control measures, such as straw wattles, straw hay bales, and broadcasted straw, shall be used wherever silt-laden water has the potential to leave the Project area.

Any questions regarding the Plans should be directed to SCWA. The Plans do not include a construction staging area. The elements and BMPs for the staging area are presented on Figure 3 of Appendix A. Calculations for run-on only address the water shed of the creek and does not include additional run on from the culverts.

2.2. PERMITS AND GOVERNING DOCUMENTS

In addition to the General Permit, the following documents have been taken into account while preparing this SWPPP:

- WDID# 5S57C361753 Putah Creek Floodplain Restoration Project, Phases 1 and 2.

In addition to the General Permit, the following permits are required and are secured for this Project:

- Regional Water Quality Control Board Clean Water Act Section 401 Water Quality Certifications;
- Regional Water Quality;
- CA Department of Fish and Wildlife 1600 Series Streambed Alteration Agreement;
- U.S. Army Corps of Engineers 404 NWP-27 Permit.

2.3. STORMWATER RUN-ON FROM OFFSITE AREA

Run-on to the site is generated by stormwater entering the construction area from higher elevations of the creek valley walls. From the prior analysis of the overall restoration area, which included this site, the stormwater runoff drainage area contributing to offsite run-on is estimated to be approximately seven (7) acres. The anticipated runoff coefficient is 0.3, assuming the land use and slope of the site (SCWA, 1999). The anticipated off-site run-on to the Project site is estimated to be 1.5-ft³/minute. Calculations are included in Appendix B.

2.4. FINDINGS OF THE CONSTRUCTION SITE – SEDIMENT AND RECEIVING WATER RISK DETERMINATION

Part A:

A construction site risk assessment has been performed for the Project and the resultant risk level is Risk Level 2.

The risk level was determined through the use of a site specific analysis. The risk level is based on Project duration, location, proximity to impaired receiving waters, and soil conditions. A copy of the Risk Level determination submitted on SMARTS with the PRDs is included in Appendix C.

Part B:

Table 2.2 and Table 2.3 summarize the sediment and receiving water risk factors and document the sources of information used to derive the factors.

Table 2.2a: SUMMARY OF SEDIMENT RISK		
RUSLE Factor	Value	Method for establishing value
R	58.25	EPA Rainfall Erosivity Factor Calculator
K	0.37	GIS Data (Appendix A)
LS	0.46	GIS Data (Appendix A)
Total Predicted Sediment Loss (tons/acre)		10.01
Overall Sediment Risk: Low Sediment Risk < 15 tons/acre Medium Sediment Risk >= 15 and < 75 tons/acre High Sediment Risk >= 75 tons/acre		<input checked="" type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High

Runoff from the Project site discharges directly into Putah Creek.

Table 2.2b: SUMMARY OF RECEIVING WATER RISK			
Receiving Water Name	303(d) Listed for Sediment Related Pollutant	TMDL for Sediment Related Pollutant₁	Beneficial Uses of COLD, SPAWN, and MIGRATORY₁
Putah Creek	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Overall Receiving Water Risk:			<input checked="" type="checkbox"/> Low <input type="checkbox"/> High
1. If "yes" is selected for any option, the Receiving Water Risk is High.			

Risk Level 1 sites are subject to both the narrative effluent action levels and numeric effluent standards. The narrative effluent action levels require stormwater discharges associated with construction activity to minimize or prevent pollutants in stormwater and authorized non-stormwater through the use of controls, structures and best

management practices. Discharges from Risk Level 1 site are subject to NALs for pH and turbidity shown in Table 2-3. This SWPPP has been prepared to address Risk Level 1 requirements (General Permit Attachment C).

Table 2.3: NUMERIC ACTION LEVELS		
Parameter	Unit	Numeric Action Level Daily Average
pH	pH units	Lower NAL = 6.5 Upper NAL = 8.5
Turbidity	NTU	250

2.5. CONSTRUCTION SCHEDULE

The anticipated construction schedule is as follow:

- Initial earth disturbance will commence on approximated July 1, 2015;
- Construction activities are anticipated to be completed by November 1, 2015;
- Post construction monitoring is to be conducted for six (6) months.

Modification or extension of the schedule (start and end dates) may affect risk determination and permit requirements. The LRP shall contact the QSD if the schedule changes during construction to address potential impact to the SWPPP. The estimated schedule for planned work can be found in Appendix F.

2.6. POTENTIAL CONSTRUCTION ACTIVITY AND POLLUTANT SOURCES

Appendix G includes a list of construction activities and associated materials that are anticipated to be used onsite. These activities and associated materials will, or could, potentially contribute pollutants, other than sediment, to stormwater runoff.

The anticipated activities and associated pollutants were used in Section 3 to select the Best Management Practices for the Project.

For sampling requirements for non-visible pollutants associated with construction activity please refer to Section 7.7.1. For a full and complete list of onsite pollutants, refer to the Material Safety Data Sheets (MSDSs), which are retained onsite at the construction trailer.

2.7. IDENTIFICATION OF NON-STORMWATER DISCHARGES

Non-stormwater discharges consist of discharges which do not originate from precipitation events. The General Permit provides allowances for specified non-stormwater discharges that do not cause erosion or carry other pollutants.

Non-stormwater discharges into storm drainage systems or waterways, which are not authorized under the General Permit and listed in the SWPPP, or authorized under a separate NPDES permit, are prohibited.

Non-stormwater discharges that are authorized from this Project site include the following from non-chlorinated sources:

- Water to control dust;
- Irrigation of vegetative erosion control measures.

These authorized non-stormwater discharges will be managed with the stormwater and non-stormwater BMPs described in Section 3 of this SWPPP.

Activities at this site that may result in unauthorized non-stormwater discharges include:

- Vehicle and equipment cleaning, fueling, and maintenance operations;
- Vehicle and equipment wash water;
- Washout of equipment;
- Runoff from dust-control applications of water;
- Irrigation of vegetation.

Steps will be taken, including the implementation of appropriate BMPs, to ensure that unauthorized discharges are eliminated, controlled, disposed, or treated on-site.

Discharges of construction materials and wastes, such as fuel or paint, resulting from dumping, spills, or direct contact with rainwater or stormwater runoff, are also prohibited.

2.8. REQUIRED SITE MAP INFORMATION

The Project’s Site Map(s) showing the Project location, surface water boundaries, geographic features, construction site perimeter and general topography and other requirements identified in Attachment B of the General Permit is located in Appendix A. Table 2.4 identifies Map or Sheet Nos. where required elements are illustrated.

Table 2.4: REQUIRED MAP INFORMATION	
Included on Map/Plan Sheet No.₁	Required Element
See Site Map	The project’s surrounding area (vicinity)
See Site Map	Site layout
See Site Map	Construction site boundaries
See Site Map	Areas of soil disturbance (temporary or permanent)

See Site Map	Active areas of soil disturbance (cut or fill)
NA ₂	Locations of erosion control BMPs
NA ₂	Locations of sediment control BMPs
NA	ATS location (if applicable)
See Site Map	Locations of sensitive habitats, watercourses, or other features which are not disturbed
NA ₂	Locations of all post construction BMPs
See Site Map (Staging Area)	Waste storage areas
See Site Map	Vehicle storage areas
See Site Map	Material storage areas
See Site Map	Entrance and Exits
NA	Fueling Locations
1. Any field changes not identified for field location or field determination by QSP must be approved by QSD.	

Notes:

1. Indicates maps or drawings that information is included on (e.g. Vicinity Map, Site Map, Drainage Plans, Grading Plans, Progress Maps, etc.).
2. All sites are completely graded. Minimum BMPs are listed in the permit and are required to be installed.

SECTION 3: BEST MANAGEMENT PRACTICES

3.1. SCHEDULE FOR BMP IMPLEMENTATION

Table 3.1 is a list of potential BMPs to be implemented during construction. The contractor shall make final determination of implemented BMPs.

Table 3.1: BMP IMPLEMENTATION SCHEDULE			
	BMP	Implementation	Duration
Erosion Control	EC-1, Scheduling	Prior to Construction	Entirety of Project
	EC-2, Preservation of Existing Vegetation	Start of Construction	Entirety of Project
Tracking Control	TC-1, Stabilized Construction Entrance/Exit	Start of Construction	Entirety of Project
Wind Erosion	WE-1, Wind Erosion Control	Start of Construction	Entirety of Project

3.2. EROSION AND SEDIMENT CONTROL

Erosion and sediment controls are required by the General Permit to provide effective reduction or elimination of sediment-related pollutants in stormwater discharges and authorized non-stormwater discharges from the Site. Applicable BMPs are identified in this section for erosion control, sediment control, tracking control, and wind erosion control.

3.2.1. Erosion Control

Erosion control, also referred to as soil stabilization, consists of source control measures that are designed to prevent soil particles from detaching and becoming transported in stormwater runoff. Erosion Control BMPs protect the soil surface by covering and/or binding soil particles.

This Project will implement the following practices to provide effective temporary and final erosion control during construction:

1. Preserve existing vegetation where required and when feasible;
2. The area of soil disturbing operations shall be controlled such that the Contractor is able to implement erosion control BMPs quickly and effectively;
3. Stabilize non-active areas within 14 days of cessation of construction activities or sooner if stipulated by the General Permit and other requirements;
4. Control erosion in concentrated flow paths by applying erosion control seeding, bales, fiber rolls, or alternate methods;

5. Prior to the completion of construction, apply permanent erosion control to remaining disturbed soil areas in accordance with the Erosion Control Plan (Appendix A).

Sufficient erosion control materials shall be maintained onsite to allow implementation in conformance with this SWPPP.

The following temporary erosion control BMP selection table indicates the BMPs that shall be implemented to control erosion on the construction site. Fact Sheets for temporary erosion control BMPs are provided in Appendix H.

Table 3.2: TEMPORARY EROSION CONTROL BMPS					
CASQA Fact Sheet	BMP Name	Meets a Minimum Requirement₁	BMP Used		It not used, state reason
			YES	NO	
EC-1	Scheduling	✓	X		
EC-2	Preservation of Existing Vegetation	✓	X		
EC-3	Hydraulic Mulch	✓ 2		X	Not anticipated. Contractor to verify.
EC-4	Hydroseed	✓ 2		X	Not anticipated. Contractor to verify.
EC-5	Soil Binders	✓ 2		X	Not anticipated. Contractor to verify.
EC-6	Straw Mulch	✓ 2	X		
EC-7	Geotextiles and Mats	✓ 2		X	Not anticipated. Contractor to verify.
EC-8	Wood Mulching	✓ 2	X		

EC-9	Earth Dike and Drainage Swales	✓ 3		X	Not anticipated. Contractor to verify.
EC-10	Velocity Dissipation Devices	✓	X		
EC-11	Slope Drains			X	Not anticipated. Contractor to verify.
EC-12	Stream Bank Stabilization		X		
EC-14	Compost Blankets	✓ 2		X	Not anticipated. Contractor to verify.
EC-15	Soil Preparation – Roughening			X	Not anticipated. Contractor to verify.
EC-16	Non-Vegetated Stabilization	✓ 2	X		
WE-1	Wind Erosion Control	✓	X		
Alternate BMPs Used:					None.
<ol style="list-style-type: none"> 1. Applicability to a specific Project shall be determined by the QSD. 2. The QSD shall ensure implementation of one of the minimum listed or a combination thereof to achieve and maintain the Risk Level requirements. 3. Run-on from offsite shall be directed away from all disturbed areas, diversion of offsite flows may require design/analysis by a licensed civil engineer and/or additional environmental permitting. 					

Sufficient erosion control materials will be maintained on-site to allow implementation, in conformance with General Permit requirements and as described in this SWPPP. This includes implementation requirements for active areas and inactive areas that require deployment before the onset of rain events. These temporary erosion control BMPs shall be implemented in conformance with the following guidelines and as outlined in the BMP Factsheets provided in Appendix H. If there is a conflict between documents, the Site Map will prevail over narrative in the body of the SWPPP or guidance in the BMP Fact Sheets. Site specific details in the Site Map prevail over standard details

included in the Site Map. The narrative in the body of the SWPPP prevails over guidance in the BMP Fact Sheets.

Scheduling

Construction period is identified in Section 2.5 Construction Schedule. Proper sequencing of construction activities to reduce erosion potential should be incorporated into the schedule, then of every construction project especially during rainy season. The majority of the construction will occur during the dry season. Approximately six (6) months of post-construction monitoring is planned prior to terminating coverage.

Preservation of Existing Vegetation

Contractor shall not disturb existing vegetation outside limits shown on Plans. Existing vegetation to be preserved on the site must be protected from mechanical and other injury while the land is being developed. The purpose of protecting existing vegetation is to ensure the survival of desirable vegetation for shade, beautification, and erosion control. Mature vegetation has extensive root systems that help to hold soil in place, thus reducing erosion. In addition, vegetation helps keep soil from drying rapidly and becoming susceptible to erosion. To effectively save existing vegetation, no disturbances of any kind should be allowed within a defined area around the vegetation. For trees, no construction activity should occur within the drip line of the tree.

No vegetation outside the delineated grading extent, construction roadway and access roads, and staging areas shall be disturbed without prior authorization of the Project Owner.

Straw Mulch

Straw mulch will be applied on all exposed areas as a temporary protection measure on completed work areas until seed has been applied. If necessary, a tackifier will be applied to prevent the straw from blowing away, or shedding from steep slopes. Additionally, straw mulch will be applied to unfinished work areas prior to predicted rain events.

Wood Mulching

Wood mulching will be applied on all disturbed soil areas requiring temporary protection until permanent stabilization is established.

Velocity Dissipation Devices

On completion of final grading, rock and/or concrete rubble shall be placed/replaced underneath the City storm drains at the locations shown on Sheet 2 in Appendix A. Rock-lined channels will also be constructed to direct the storm water directly to the creek.

Stream Bank Stabilization

Where possible, recommendations provided in the BMP Fact Sheet should be implemented. Transplanting of native vegetation shall be conducted on graded areas to reestablish targeted plant communities.

Non-Vegetative Stabilization

On steeper slopes and below storm drain outlets above the construction area, animal-friendly straw mats should be placed under them and to the toe of the slope to prevent rill erosion from occurring. One known location is identified on Sheet 3 in Appendix A; however, other locations may be identified during post construction monitoring.

Wind Erosion Control

Wind erosion or dust control consists of applying water, as necessary, to prevent or alleviate dust nuisance and soil transport generated by construction activities. Covering small stockpiles or disturbed areas is an alternative to applying water. Chemical dust palliatives are not anticipated to be used on this project.

3.2.2. Sediment Controls

Sediment controls are temporary or permanent structural measures that are intended to complement the selected erosion control measures and reduce sediment discharges from active construction areas. Sediment controls are designed to intercept and settle out soil particles that have been detached and transported by the force of water.

The following sediment control BMP selection table indicates the BMPs that shall be implemented to control sediment on the construction site. Fact Sheets for temporary sediment control BMPs are provided in Appendix H.

Table 3.3: TEMPORARY SEDIMENT CONTROL BMPS					
CASQA Fact Sheet	BMP Name	Meets a Minimum Requirement₁	BMP Used		It not used, state reason
			YES	NO	
SE-1	Silt Fence			X	Not anticipated. Contractor to verify.
SE-2	Sediment Basin			X	Not anticipated. Contractor to verify.

SE-3	Sediment Trap			X	Not anticipated. Contractor to verify.
SE-4	Check Dams			X	Not anticipated. Contractor to verify.
SE-5	Fiber Rolls			X	Not anticipated. Contractor to verify.
SE-6	Gravel Bag Berm	✓ 3	X		
SE-7	Street Sweeping	✓		X	Not anticipated. Contractor to verify.
SE-8	Sandbag Barrier			X	Not anticipated. Contractor to verify.
SE-9	Straw Bale Barrier		X		
SE-10	Storm Drain Inlet Protection	✓ 2,3		X	Not anticipated. Contractor to verify.
SE-11	ATS			X	Not anticipated. Contractor to verify.
SE-12	Manufactured Linear sediment Controls			X	Not anticipated. Contractor to verify.

SE-13	Compost Sock and Berm	✓ 3		X	Not anticipated. Contractor to verify.
SE-14	Biofilter Bags	✓ 3		X	Not anticipated. Contractor to verify.
TC-1	Stabilized Construction Entrance and Exit	✓	X		
TC-2	Stabilized Construction Roadway			X	Not anticipated. Contractor to verify.
TC-3	Entrance Outlet Tire Wash			X	Not anticipated. Contractor to verify.
Alternate BMPs Used:					None.
<ol style="list-style-type: none"> 1. Applicability to a specific Project shall be determined by the QSD. 2. The QSD shall ensure implementation of one of the minimum listed or a combination thereof to achieve and maintain the Risk Level requirements. 3. Risk Level 1 shall establish and maintain effective perimeter controls and stabilize all construction entrances and exits to sufficiently control erosion and sediment discharges from the site. 					

Sufficient quantities of temporary sediment control materials shall be maintained on-site throughout the duration of the Project, allowing for implementation of temporary sediment controls in the event of predicted rain and for rapid response due to failures or emergencies. Fact Sheets for temporary sediment control BMPs are provided in Appendix H.

These temporary sediment control BMPs shall be implemented in conformance with the following guidelines and in accordance with the BMP Fact Sheets provided in Appendix H. If there is a conflict between documents, the Site Map will prevail over narrative in the body of the SWPPP or guidance in the BMP Fact Sheets. The narrative in the body of the SWPPP prevails over guidance in the BMP Fact Sheets.

Gravel Bag Berm

Install gravel bag berms to pond flow runoff, while allowing sediment to settle out, and release runoff slowly as sheet flow.

Straw Bale Barrier

Install straw bale barrier between active channel and wet contact with plugs.

Stabilized Construction Entrance and Exit

Install stabilized construction entrance and exit as indicated on Figure 3.

3.3. NON-STORMWATER CONTROLS AND WASTE AND MATERIALS MANAGEMENT

3.3.1. Non-Stormwater Controls

Non-stormwater discharges into storm drainage systems or waterways, which are not authorized under the General Permit, are prohibited. Non-stormwater discharges for which a separate NPDES permit is required by the local Regional Water Board are prohibited unless coverage under the separate NPDES permit has been obtained for the discharge. The selection of non-stormwater BMPs is based on the list of construction activities with a potential for non-stormwater discharges identified in Section 2.7 of this SWPPP.

The following non-stormwater control BMP selection table indicates the BMPs that shall be implemented to control sediment on the construction site. Fact Sheets for temporary non-stormwater control BMPs are provided in Appendix H.

Table 3.4: TEMPORARY NON-STORMWATER BMPS					
CASQA Fact Sheet	BMP Name	Meets a Minimum Requirement₁	BMP Used		It not used, state reason
			YES	NO	
NS-1	Water Conservation Practices	✓	X		
NS-2	Dewatering Operation			X	Groundwater table not anticipated to be encountered.
NS-3	Paving and Grinding Operation			X	Not anticipated.
NS-4	Temporary Stream Crossing	✓	X		

NS-5	Clear Water Diversion			X	Not anticipated.
NS-6	Illicit Connection/Discharge	✓	X		
NS-7	Potable Water/Irrigation			X	Not anticipated.
NS-8	Vehicle and Equipment Cleaning			X	Equipment will be cleaned prior to entering site.
NS-9	Vehicle and Equipment Fueling	✓	X		
NS-10	Vehicle and Equipment Maintenance	✓	X		
NS-11	Pile Driving Operation			X	Not anticipated.
NS-12	Concrete Curing			X	Not anticipated.
NS-13	Concrete Flushing			X	Not anticipated.
NS-14	Material and Equipment Use Over Water			X	Not anticipated.
NS-15	Demolition Removal Adjacent to Water			X	Not anticipated.
NS-16	Temporary Batch Plants			X	Not anticipated.
Alternate BMPs Used:					None.
1. Applicability to a specific Project shall be determined by the QSD.					

Non-stormwater BMPs shall be implemented in conformance with the following guidelines and in accordance with the BMP Fact Sheets provided in Appendix H. If there is a conflict between documents, the Site Map will prevail over narrative in the

body of the SWPPP or guidance in the BMP Fact Sheets. The narrative in the body of the SWPPP prevails over guidance in the BMP Fact Sheets.

Water Conservation Practices

Implement water conservation practices through properly working water equipment, stable truck filling area, repaired water leaks, discouraging equipment and vehicle washing, etc.

Illicit Connection/Discharge

Implement procedures and practices for contractors to follow in the case of an illicit connection or illegally dumped or discharged material.

Vehicle and Equipment Fueling

Any on-site fueling will take place in staging area (Figure 3) with proper spill control equipment.

Vehicle and Equipment Maintenance

Any equipment maintenance will take place in staging area with proper spill control equipment.

3.3.2. Materials Management and Waste Management

Materials management control practices consist of implementing procedural and structural BMPs for handling, storing, and using construction materials to prevent the release of those materials into stormwater discharges. The amount and type of construction materials to be utilized at the Site will depend upon the type of construction and the length of the construction period. The materials may be used continuously, such as fuel for vehicles and equipment, or the materials may be used for a discrete period, such as soil binders for temporary stabilization.

Waste management consists of implementing procedural and structural BMPs for handling, storing, and ensuring proper disposal of wastes to prevent the release of those wastes into stormwater discharges.

Materials and waste management pollution control BMPs shall be implemented to minimize stormwater contact with construction materials, wastes and service areas; and to prevent materials and wastes from being discharged off-site. The primary mechanisms for stormwater contact that shall be addressed include:

- Direct contact with precipitation;
- Contact with stormwater run-on and runoff;
- Wind dispersion of loose materials;
- Direct discharge to the storm drain system through spills or dumping;

- Extended contact with some materials and wastes, such as asphalt cold mix and treated wood products, which can leach pollutants into stormwater.

A list of construction activities is provided in Section 2.6. The following Materials and Waste Management BMP selection table indicates the BMPs that shall be implemented to handle materials and control construction site wastes associated with these construction activities. Fact Sheets for Materials and Waste Management BMPs are provided in Appendix H.

Table 3.5: TEMPORARY MATERIALS MANAGEMENT BMPS					
CASQA Fact Sheet	BMP Name	Meets a Minimum Requirement₁	BMP Used		It not used, state reason
			YES	NO	
WM-01	Material Delivery and Storage	✓	X		
WM-02	Material Use	✓	X		
WM-03	Stockpile Management			X	
WM-04	Spill Prevention and Control	✓	X		Not anticipated. Contractor to verify.
WM-05	Solid Waste Management	✓	X		
WM-06	Hazardous Waste Management	✓	X		
WM-07	Contaminated Soil Management			X	Not anticipated. Contractor to verify.
WM-08	Concrete Waste Management			X	Not anticipated. Contractor to verify.
WM-09	Sanitary-Septic Waste Management	✓	X		

WM-10	Liquid Waste Management			X	Not anticipated. Contractor to verify.
Alternate BMPs Used:					
1. Applicability to a specific Project shall be determined by the QSD.					

Material management BMPs shall be implemented in conformance with the following guidelines and in accordance with the BMP Fact Sheets provided in Appendix H. If there is a conflict between documents, the Site Map will prevail over narrative in the body of the SWPPP or guidance in the BMP Fact Sheets. The narrative in the body of the SWPPP prevails over guidance in the BMP Fact Sheets.

Material Delivery and Storage

Materials shall be located in the staging area until they are ready for installation on-site. Materials shall be stored in accordance with manufacturer’s recommendations.

Material Use

Petroleum products such as gasoline, oil, and grease will be used on site. Most materials that will be used are composed of native materials such as boulders, rip-rap, and plants. Vehicle refueling and maintenance will be handled in the staging area.

Spill Prevention and Control

Any materials with spill potential shall be stored in accordance with manufacturer’s requirements. Liquid containers shall be stored indoors or on pallets and never left on the ground when not being used. Liquids should be covered prior to rain events. Liquids should also be stored in a common area with spill prevention kits to contain and clean up spills.

Solid Waste Management

It is not anticipated that there will be much solid waste associated with this Project. If necessary, trash containers will be provided for employee use. The trash containers will have covers to prevent material exposure to rainfall. All solid waste shall be handled in accordance with applicable regulations.

Hazardous Waste Management

Any hazardous materials will be stored and disposed of properly. Hazardous waste containers will be stored indoors or on pallets and never left on the ground when not

being used. Liquids should be covered prior to rain events. Liquids should also be stored in a common area with spill prevention kits to contain and clean spills.

Sanitary Septic Waste Management

Sanitary septic waste facilities will be located in the staging area (Figure 3). These facilities will be properly maintained and the wastes disposed of regularly. Facilities will be secured to prevent overturning.

3.4. POST CONSTRUCTION STORMWATER MANAGEMENT MEASURES

Post-construction BMPs are permanent measures installed during construction, designed to reduce or eliminate pollutant discharges from the site after construction is completed.

This site is located in an area subject to a Phase I or Phase II Municipal Separate Storm Sewer System (MS4) permit approved Stormwater Management Plan.

- Yes
 No

The following source control post-construction BMPs to comply with General Permit Section XIII.B and local requirements have been identified for the site:

- Spill Prevention, Control, Cleanup;
- Outdoor Equipment Maintenance, Cleaning, Repair;
- Waste Handling/Disposal;
- Housekeeping Practices;
- Drainage Ditch maintenance.

Re-vegetation will be required during the post-construction phase and will require the application of grass seed within the proposed construction area.

The application of grass seed within the proposed construction area will be required as part of the re-vegetation plan during the post-construction phase. Creeping wild rye and Meadow Barley will be planted via drill seeding at a rate of 20-pounds per acre and broadcast seeding at a rate of 30-pounds per acre.

A plan for the post-construction funding and maintenance of these BMPs has been developed to address at minimum five (5) years following construction. The post-construction BMPs that are described above shall be funded and maintained by the LRP. If required, post-construction funding and maintenance will be submitted with the NOT.

This site is required to maintain a post-construction water balance for the project in accordance with the permit. The post-construction water balance calculation is included in Appendix B.

SECTION 4: BMP INSPECTION, MAINTENANCE, AND RAIN EVENT ACTION PLANS

4.1. BMP INSPECTION AND MAINTENANCE

The General Permit requires routine weekly inspections of BMPs, along with inspections before, during, and after qualifying rain events. A BMP inspection checklist must be filled out for inspections and maintained on-site with the SWPPP. The inspection checklist includes the necessary information covered in Section 7.6. A blank inspection checklist can be found in Appendix I. Completed checklists shall be kept in CSMP Attachment 2 “Monitoring Records”.

BMPs shall be maintained regularly to ensure proper and effective functionality. If necessary, corrective actions shall be implemented within 72 hours of identified deficiencies and associated amendments to the SWPPP shall be prepared by the QSD.

Specific details for maintenance, inspection, and repair of Construction Site BMPs can be found in the BMP Fact Sheets in Appendix H.

SECTION 5: TRAINING

Appendix L identifies the QSPs for the Project. To promote stormwater management awareness specific for this Project, periodic training of job-site personnel shall be included as part of routine Project meetings (e.g. daily/weekly tailgate safety meetings), or task-specific trainings as needed.

The QSP shall be responsible for providing this information at the meetings, and subsequently completing the training logs shown in Appendix K, which identifies the site-specific stormwater topics covered as well as the names of site personnel who attended the meeting. Tasks may be delegated to trained employees by the QSP, provided adequate supervision and oversight is provided. Training shall correspond to the specific task delegated including: SWPPP implementation; BMP inspection and maintenance; and record keeping.

Documentation of training activities (formal and informal) is retained in SWPPP Appendix K.

SECTION 6: RESPONSIBLE PARTIES AND OPERATORS

6.1. RESPONSIBLE PARTIES

Approved Signatories who are responsible for SWPPP implementation and have authority to sign permit-related documents are listed below. Written authorizations from the LRP for these individuals are provided in Appendix L. The Approved Signatories assigned to this project are:

Name	Title	Phone Number
Rich Marovich	Putah Creek Streamkeeper	(707) 455-1107
Solano County Water Agency		(707) 451-6090

QSPs identified for the Project are identified in Appendix L. The QSP shall have primary responsibility and significant authority for the implementation, maintenance, and inspection/monitoring of SWPPP requirements. The QSP will be available at all times throughout the duration of the Project. Duties of the QSP include, but are not limited to:

- Implementing all elements of the General Permit and SWPPP, including but not limited to:
 - Inspecting all BMPs are implemented and properly maintained;
 - Performing non-stormwater and stormwater visual observations and inspections;
 - Performing non-stormwater and storm discharge sampling and analysis, as required;
 - Performing routine inspections and observations.
- The QSP may delegate these inspections and activities to an appropriately-trained employee, but shall ensure adequacy and adequate deployment;
- Identify and recommend methods to eliminate unauthorized discharges;
- The QSPs shall be assigned authority by the LRP to mobilize crews in order to make immediate repairs to the control measures;
- Coordinate with the Contractor(s) to assure all of the necessary corrections/repairs are made immediately and that the Project complies with the SWPPP, the General Permit, and approved Plans at all times;
- Notifying the LRP or Authorized Signatory immediately of off-site discharges or other noncompliance events.

6.2. CONTRACTOR LIST

Name: Rick Poore
Title: Superintendent
Company: StreamWise

Address: 600 South Mount Shasta Blvd, Mt Shasta, CA

Phone Number: (530) 941-6334

SECTION 7: CONSTRUCTION SITE MONITORING PROGRAM

7.1. PURPOSE

This Construction Site Monitoring Program was developed to address the following objectives:

1. To demonstrate that the site is in compliance with the Discharge Prohibitions of the Construction General Permit;
2. To determine whether non-visible pollutants are present at the construction site and are causing or contributing to exceedances of water quality objectives;
3. To determine whether immediate corrective actions, additional Best Management Practices (BMP) implementation, or SWPPP revisions are necessary to reduce pollutants in stormwater discharges and authorized non-stormwater discharges;
4. To determine whether BMPs included in the SWPPP are effective in preventing or reducing pollutants in stormwater discharges and authorized non-stormwater discharges;
5. To determine whether the REAPs included in the SWPPP are effective in documenting and preparing for stormwater discharges at the project site.

7.2. APPLICABILITY OF PERMIT REQUIREMENTS

This Project has been determined to be a Risk Level 1 project. The General Permit identifies the following types of monitoring as being applicable for a Risk Level 1 Project:

- Visual inspections of Best Management Practices (BMPs);
- Visual monitoring of the site related to qualifying storm events;
- Visual monitoring of the site for non-stormwater discharges;
- Sampling and analysis of construction site runoff for pH and turbidity;
- Sampling and analysis of construction site runoff for non-visible pollutants when applicable; and
- Sampling and analysis of non-stormwater discharges when applicable.

7.3. WEATHER AND RAIN EVENT TRACKING

Visual monitoring, inspections, and sampling requirements of the General Permit are triggered by a qualifying rain event. The General Permit defines a qualifying rain event as any event that produces ½-inch of precipitation. A minimum of 48 hours of dry weather will be used to distinguish between separate qualifying storm events.

7.3.1. Weather Tracking

The QSP should daily consult the National Oceanographic and Atmospheric Administration (NOAA) for the weather forecasts. These forecasts can be obtained at: <http://www.srh.noaa.gov/>. Weather reports should be printed and maintained with the SWPPP in CSMP Attachment 1 “Weather Reports”.

7.3.2. Rain Gauges

The QSP may install rain gauge(s) on the Project site or use data from a local weather station. Locate the gauge in an open area away from obstructions such as trees or overhangs. Mount the gauge on a post at a height of 3- to 5-feet with the gauge extending several inches beyond the post. Make sure that the top of the gauge is level. Make sure the post is not in an area where rainwater can indirectly splash from sheds, equipment, trailers, etc.

The rain gauge(s) shall be read daily during normal site scheduled hours. The rain gauge should be read at approximately the same time every day, and the date and time of each reading recorded. Log rain gauge readings in CSMP Attachment 1 "Weather Records". Follow the rain gauge instructions to obtain accurate measurements.

Once the rain gauge reading has been recorded, accumulated rain shall be emptied and the gauge reset.

If a local station is used, the location of the station shall not be more than 10 miles from the site.

7.4. MONITORING LOCATIONS

The floodplains are equally sloped on both sides of the creek. Site drainage is generally uniform throughout the length of the Project, with no distinct drainage locations apparent for focused monitoring. Therefore, the entire length of the Project will be inspected during each site monitoring visit.

Whenever changes in the construction site might affect the appropriateness of sampling locations, the sampling locations shall be revised accordingly. All such revisions shall be implemented as soon as feasible and the SWPPP amended. Temporary changes that result in a one-time additional sampling location do not require a SWPPP amendment.

7.5. SAFETY AND MONITORING EXEMPTIONS

Safety practices for sample collection will be in accordance with the contractor's Health and Safety Plan for the Project. This Project is not required to collect samples or conduct visual observations (inspections) under the following conditions:

- During dangerous weather conditions such as flooding and electrical storms;
- Outside of scheduled site business hours.

Scheduled site business hours are: Monday through Friday, 8 am to 4 pm.

If monitoring (visual monitoring or sample collection) of the site is unsafe because of the dangerous conditions noted above then the QSP shall document the conditions for why an exception to performing the monitoring was necessary. The exemption documentation shall be filed in CSMP Attachment 2 "Monitoring Records".

7.6. VISUAL MONITORING

Visual monitoring includes observations and inspections. Inspections of BMPs are required to identify and record BMPs that need maintenance to operate effectively, that have failed, or that could fail to operate as intended. Visual observations of the site are required to observe storm water drainage areas to identify any spills, leaks, or uncontrolled pollutant sources.

Table 7.1 identifies the required frequency of visual observations and inspections. Inspections and observations will be conducted at the locations identified in Figure 3.

Table 7.1: SUMMARY OF VISUAL MONITORING AND INSPECTIONS	
Type of Inspection	Frequency
<i>Routine Inspections</i>	
BMP Inspections	Weekly ₁
Visual BMP Inspections	Daily (no documentation required)
Non-Stormwater Discharge Observations	Quarterly
<i>Rain Event Triggered Inspections</i>	
Site Inspections Prior to a Qualifying Event	Within 48 hours of a qualifying event ₂
BMP Inspections During an Extended Storm Event	Every 24-hour period of a rain event ₃
Site Inspections Following a Qualifying Event	Within 48 hours of a qualifying event ₂
<ol style="list-style-type: none"> 1. Most BMPs must be inspected weekly; those identified below must be inspected more frequently. 2. Inspections are required during scheduled site operating hours. 3. Inspections are required during scheduled site operating hours regardless of the amount of precipitation on any given day. 	

7.6.1. Routine Observations and Inspections

Routine site inspections and visual monitoring are necessary to ensure that the Project is in compliance with the requirements of the Construction General Permit.

7.6.1.1. Routine BMP Inspections

Inspections of BMPs are conducted to identify and record:

- BMPs that are properly installed;
- BMPs that need maintenance to operate effectively;
- BMPs that have failed;
- BMPs that could fail to operate as intended.

7.6.1.2. Non-Stormwater Discharge Observations

Each drainage area will be inspected for the presence, or indications, of prior unauthorized and authorized non-stormwater discharges. Inspections will record:

- Presence or evidence of any non-stormwater discharge (authorized or unauthorized);
- Pollutant characteristics (floating and suspended material, sheen, discoloration, turbidity, odor, etc.); and
- Source of discharge.

7.6.2. Rain-Event Triggered Observations and Inspections

Visual observations of the site and inspections of BMPs are required prior to a qualifying rain event; following a qualifying rain event, and every 24-hour period during a qualifying rain event. Pre-rain inspections will be conducted after consulting NOAA and determining that a precipitation event with a 50% or greater probability of precipitation has been predicted.

7.6.2.1. Visual Observations Prior to a Forecasted Qualifying Rain Event

Within 48-hours prior to a qualifying event a stormwater visual monitoring site inspection will include observations of the following locations:

- Stormwater drainage areas to identify any spills, leaks, or uncontrolled pollutant sources;
- BMPs to identify if they have been properly implemented;
- Any stormwater storage and containment areas to detect leaks and ensure maintenance of adequate freeboard.

Consistent with guidance from the State Water Resources Control Board, pre-rain BMP inspections and visual monitoring will be triggered by a NOAA forecast that indicates a probability of precipitation of 50% or more in the Project area.

7.6.2.2. BMP Inspections During an Extended Storm Event

During an extended rain event BMP inspections will be conducted to identify and record:

- BMPs that are properly installed;
- BMPs that need maintenance to operate effectively;
- BMPs that have failed; or
- BMPs that could fail to operate as intended.

If the construction site is not accessible during the rain event, the visual inspections shall be performed at all relevant outfalls, discharge points, downstream locations. The inspections should record any projected maintenance activities.

7.6.2.3. Visual Observations Following a Qualifying Rain Event

Within 48 hours following a qualifying rain event (½-inch of rain) a stormwater visual monitoring site inspection is required to observe:

- Stormwater drainage areas to identify any spills, leaks, or uncontrolled pollutant sources;
- BMPs to identify if they have been properly designed, implemented, and effective;
- Need for additional BMPs;
- Any stormwater storage and containment areas to detect leaks and ensure maintenance of adequate freeboard; and
- Discharge of stored or contained rain water.

7.6.3. Visual Monitoring Procedures

Visual monitoring shall be conducted by the QSP or staff trained by, and under the supervision of, the QSP.

The name(s) and contact number(s) of the site visual monitoring personnel, and their training qualifications, are provided in Appendix K.

Stormwater observations shall be documented on the Visual Inspection Field Log Sheet (see CSMP Attachment 3 “Example Forms”). BMP inspections shall be documented on the site-specific BMP inspection checklist. Any photographs used to document observations will be referenced on stormwater site inspection report and maintained in CSMP Attachment 2 “Monitoring Records”.

The QSP shall within two (2) days of the inspection submit copies of the completed inspection report to the LRP. The completed reports will be kept in CSMP Attachment 2 “Monitoring Records”.

7.6.4. Visual Monitoring Follow-Up Reporting

Correction of deficiencies identified by the observations or inspections, including required repairs or maintenance of BMPs, shall be initiated and completed as soon as possible.

If identified deficiencies require design changes, including additional BMPs, the implementation of changes will be initiated within 72 hours of identification and be completed as soon as possible. When design changes to BMPs are required, the SWPPP shall be amended to reflect the changes.

Deficiencies identified in site inspection reports and correction of deficiencies will be tracked on the Inspection Field Log Sheet or BMP Inspection Report and shall be submitted to the QSP and shall be kept in CSMP Attachment 2 “Monitoring Records”.

The QSP shall within two (2) days of the inspection submit copies of the completed Inspection Field Log Sheet or BMP Inspection Report with the corrective actions to LRP.

Results of visual monitoring must be summarized and reported in the Annual Report.

7.6.5. Visual Monitoring Locations

The inspections and observations identified in Sections 7.6.1 and 7.6.2 will be conducted at the locations identified in this section.

The floodplains are equally sloped on both sides of the creek. Site drainage is generally uniform throughout the length of the Project, with no distinct drainage locations apparent for focused monitoring. Therefore, the entire length of the Project will be inspected during each site monitoring visit.

7.7. WATER QUALITY SAMPLING AND ANALYSIS

7.7.1. Sampling and Analysis Plan for Non-Visible Pollutants in Stormwater Runoff Discharges

This Sampling and Analysis Plan for Non-Visible Pollutants describes the sampling and analysis strategy and schedule for monitoring non-visible pollutants in stormwater runoff discharges from the Project site.

Sampling for non-visible pollutants will be conducted when (1) a breach, leakage, malfunction, or spill is observed; and (2) the leak or spill has not been cleaned up prior to the rain event; and (3) there is the potential for discharge of non-visible pollutants to surface waters or drainage system.

No potential sources of non-visible pollutants to stormwater discharges from the Project have been identified. A SWPPP Amendment shall be prepared if specific sources are identified during the Project.

No existing site features are potential sources of non-visible pollutants to storm water discharges from the Project. A SWPPP Amendment shall be prepared if specific sources are identified during the Project.

No soil amendments that have the potential to change the chemical properties, engineering properties, or erosion resistance of the soil will be used on the Project site.

No potential sources of non-visible pollutants to storm water discharges from the Project have been identified. A SWPPP Amendment shall be prepared if specific sources are identified during the Project.

No existing site features are potential sources of non-visible pollutants to storm water discharges from the Project. A SWPPP Amendment shall be prepared if specific sources are identified during the Project.

No soil amendments that have the potential to change the chemical properties, engineering properties, or erosion resistance of the soil will be used on the Project site.

The following existing site features, as identified in Section 2.6, are potential sources of non-visible pollutants to stormwater discharges from the Project:

- NONE.

The following soil amendments have the potential to change the chemical properties, engineering properties, or erosion resistance of the soil and will be used on the Project site. Locations of soil amendment application are shown on the Site Maps in Appendix A.

- NONE.

The Project has the potential to receive stormwater run-on from the following locations with the potential to contribute non-visible pollutants to stormwater discharges from the Project. Locations of such run-on to the Project site are shown on the Site Maps in Appendix A.

- North off-site property; and
- South off-site property.

7.7.1.1. Sampling Schedule

Samples for the potential non-visible pollutant(s) and a sufficiently large unaffected background sample shall be collected during the first (2) two hours of discharge from rain events that result in a sufficient discharge for sample collection. Samples shall be collected during the site's scheduled hours and shall be collected regardless of the time of year and phase of the construction.

Collection of discharge samples for non-visible pollutant monitoring will be triggered when any of the following conditions are observed during site inspections conducted prior to or during a rain event:

- Materials or wastes containing potential non-visible pollutants are not stored under watertight conditions. Watertight conditions are defined as (1) storage in a watertight container, (2) storage under a watertight roof or within a building, or (3) protected by temporary cover and containment that prevents stormwater contact and runoff from the storage area;
- Materials or wastes containing potential non-visible pollutants are stored under watertight conditions, but (1) a breach, malfunction, leakage, or spill is observed, (2) the leak or spill is not cleaned up prior to the rain event, and (3) there is the

potential for discharge of non-visible pollutants to surface waters or a storm drain system;

- A construction activity, including but not limited to those in Section 2.6, with the potential to contribute non-visible pollutants (1) was occurring during or within 24 hours prior to the rain event, (2) BMPs were observed to be breached, malfunctioning, or improperly implemented, and (3) there is the potential for discharge of non-visible pollutants to surface waters or a storm drain system;
- Soil amendments that have the potential to change the chemical properties, engineering properties, or erosion resistance of the soil have been applied, and there is the potential for discharge of non-visible pollutants to surface waters or a storm drain system;
- Stormwater runoff from an area contaminated by historical usage of the site has been observed to combine with stormwater runoff from the site, and there is the potential for discharge of non-visible pollutants to surface waters or a storm drain system.

7.7.1.2. Sampling Locations

Sampling locations are based on proximity to planned non-visible pollutant storage, occurrence, or use; accessibility for sampling, and personnel safety. Planned non-visible pollutant sampling locations (staging areas) are shown on Figure 2 and include the locations identified in Table 7.2 and 7.3.

One (1) sampling location on the Project site and the contractor’s yard has been identified for the collection of samples of runoff from planned material and waste storage areas and areas where non-visible pollutant producing construction activities are planned.

If a stormwater visual monitoring site inspection conducted prior to or during a storm event identifies the presence of a material storage, waste storage, or operations area with spills or the potential for the discharge of non-visible pollutants to surface waters or a storm drain system that is at a location not listed above and has not been identified on the Site Maps, sampling locations will be selected by the QSP using the same rationale as that used to identify planned locations. Non-visible pollutant sampling locations shall be identified by the QSP on the pre-rain event inspection form and/or Rain Event Action Plan prior to a forecasted qualifying rain event.

Table 7.2: NON-VISIBLE POLLUTANT SAMPLE LOCATIONS – CONTRACTOR’S YARD

Sample Location Number	Sample Location Description	Sample Location Latitude and Longitude (Decimal Degrees)
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NVP-1	TBD, dependent on vehicle location at time of potential non-visible pollutant release.	TBD
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One (1) sampling location has been identified for the collection of an uncontaminated sample of runoff as a background sample for comparison with the samples being analyzed for non-visible pollutants. This location was selected such that the sample will not have come in contact with the operations, activities, or areas identified in Section 7.7.1 or with disturbed soils areas.

Table 7.3: NON-VISIBLE POLLUTANT SAMPLE LOCATIONS – BACKGROUND (UNAFFECTED SAMPLE)

Sample Location Number	Sample Location Description	Sample Location Latitude and Longitude (Decimal Degrees)
BG-1	TBD, dependent on location of NVP-1.	TBD

7.7.1.3. Monitoring Preparation

Non-visible pollutant samples will be collected by:

- Contractor Yes No
- Consultant Yes No
- Laboratory Yes No

Samples on the Project site will be collected by the following contractor sampling personnel:

Name / Telephone Number: Kurt Balasek / (916) 853-9293 ext. 113
Alternate(s) / Telephone Number(s): (916) 275-3024
Company Name: BSK Associates
Street Address: 3140 Gold Camp Dr., Suite 160

City, State, Zip Code: Rancho Cordova, CA, 95670

Telephone Number: (916) 853-9293

Point of Contact: Kurt Balasek, PG

Name(s) of Sampler(s): Kurt Balasek, Kevin Grove

The QSP or his/her designee will contact BSK Associates 24 hours prior to a predicted rain event or for an unpredicted event, as soon as a rain event begins if one of the triggering conditions is identified during an inspection to ensure that adequate sample collection personnel and supplies for monitoring non-visible pollutants are available and will be mobilized to collect samples on the Project site in accordance with the sampling schedule.

An adequate stock of monitoring supplies and equipment for monitoring non-visible pollutants will be available on the Project site prior to a sampling event. Monitoring supplies and equipment will be stored in a cool temperature environment that will not come into contact with rain or direct sunlight. Sampling personnel will be available to collect samples in accordance with the sampling schedule. Supplies maintained at the Project site will include, but are not limited to, clean powder-free nitrile gloves, sample collection equipment, coolers, appropriate number and volume of sample bottles, identification labels, re-sealable storage bags, paper towels, personal rain gear, ice, and Effluent Sampling Field Log Sheets and Chain of Custody (CoC) forms, which are provided in CSMP Attachment 3 “Example Forms”.

7.7.1.4. Analytical Constituents

Table 7.4 lists the specific sources and types of potential non-visible pollutants on the Project site and the water quality indicator constituent(s) for that pollutant.

Table 7.4: POTENTIAL NON-VISIBLE POLLUTANTS AND WATER QUALITY INDICATOR CONSTITUENTS		
Pollutant Source	Pollutant	Water Quality Indicator Constituent
Sanitary Waste (leakage)	Sewer line breaks and Portable Toilets (using clear fluid – blue fluid is visible if discharged)	BOD, Total/Fecal coliform
Solid Waste		Trash/BOD

Vehicle and Equipment Use	Batteries/Oil/Diesel	Sulfuric acid; Pd, pH; PAH, VOC
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7.7.1.5. Sample Collection

Samples of discharge shall be collected in the locations determined by observed breaches, malfunctions, leakages, spills, operational areas, soil amendment application areas, and historical site usage areas that triggered the sampling event.

Grab samples shall be collected and preserved in accordance with the methods identified in the Table, "Sample Collection, Preservation and Analysis for Monitoring Non-Visible Pollutants" provided in Section 7.7.1.6. Only the QSP, or personnel trained in water quality sampling under the direction of the QSP, shall collect samples.

Sample collection and handling requirements are described in Section 7.7.7.

7.7.1.6. Sample Analysis

Sample shall be analyzed using the analytical methods identified in Table 7.5.

Sample will be analyzed by:

Laboratory Name: BSK Laboratories

ELAP Certification Number:

Street Address: 1414 Stanislaus St.

City, State, Zip Code: Fresno, CA, 93706

Telephone Number: (559) 497-2888

Point of Contact: John Montieth

Samples will be delivered to the laboratory by:

Driven by Contractor Yes No

Picked up by Laboratory Courier Yes No

Shipped Yes No

Table 7.5: SAMPLE COLLECTION, PRESERVATION AND ANALYSIS FOR MONITORING NON-STORMWATER DISCHARGES

Constituent	Analytical Method	Minimum Sample Volume	Sample Containers	Sample Preservation	Reporting Limit	Maximum Holding Time
Sulfate	EPA 300.0	250 mL	Plastic	4 ⁰ ± 2 ⁰ C	2 mg/L	28 days

7.7.1.7. Data evaluation and Reporting

The QSP shall complete an evaluation of the water quality sample analytical results.

Runoff/down-gradient results shall be compared with the associated up-gradient/unaffected results and any associated run-on results. Should the runoff/down-gradient sample show an increased level of the tested analyte relative to the unaffected background sample, which cannot be explained by run-on results, the BMPs, site conditions, and surrounding influences shall be assessed to determine the probable cause for the increase.

As determined by the site and data evaluation, appropriate BMPs shall be repaired or modified to mitigate discharges of non-visible pollutant concentrations. Any revisions to the BMPs shall be recorded as an amendment to the SWPPP.

The General Permit prohibits the storm water discharges that contain hazardous substances equal to or in excess of reportable quantities established in 40 C.F.R. §§ 117.3 and 302.4. The results of any non-stormwater discharge results that indicate the presence of a hazardous substance in excess of established reportable quantities shall be immediately reported to the Regional Water Board and other agencies as required by 40 C.F.R. §§ 117.3 and 302.4.

Results of non-visible pollutant monitoring shall be reported in the Annual Report.

7.7.2. Sampling and Analysis Plan for pH and Turbidity in Stormwater Runoff Discharges

Sampling and analysis of runoff for pH and turbidity is required for this Project. This Sampling and Analysis Plan describes the strategy for monitoring turbidity and pH levels of stormwater runoff discharges from the Project site and run-on that may contribute to an exceedance of a Numeric Action Level (NAL).

Samples for turbidity will be collected from all drainage areas with disturbed soil areas and samples for pH will be collected from all drainage areas with a high risk of pH altering discharge.

7.7.2.1. Sampling Schedule

Stormwater runoff samples shall be collected for turbidity from each day of a qualifying rain event that results in a discharge from the Project site. At a minimum, turbidity samples will be collected from each site discharge location draining a disturbed area. A minimum of three (3) samples will be collected per day of discharge during a qualifying event. Samples should be representative of the total discharge from the Project each day of discharge during the qualifying event. Typically, representative samples will be spaced in time throughout the daily discharge event.

Stormwater runoff samples shall be collected for pH from each day of qualifying rain events that result in a discharge from the Project site. At a minimum, pH samples will be collected from each site discharge location during Project phases and drainage areas with a high risk of pH discharge. Samples should be representative of the total discharge from the location each day of discharge during the qualifying event. Typically, representative samples will be spaced in time throughout the daily discharge event.

Stored or collected water from a qualifying storm event when discharged shall be tested for turbidity and pH (when applicable). Stored or collected water from a qualifying event may be sampled at the point it is released from the storage or containment area or at the site discharge location.

Run-on samples shall be collected whenever the QSP identifies that run-on has the potential to contribute to an exceedance of a NAL.

7.7.2.2. Sampling Locations

Sampling locations are based on the site runoff discharge locations and locations where run-on enters the site; accessibility for sampling; and personnel safety.

The Central Valley Regional Water Quality Control Board has issued this Project a 401 Certification (WDID 5A48CR00105A1) for the placement of fill in the water as part of the channel redesign and restoration. That permit has technical conditions to ensure that water quality is not impaired. Those conditions include water quality measurements and associated field observations. The SWPPP sampling locations were selected to ensure the consistency of the Project with the SWPPP requirements.

As the creek is part of this Project, two (2) sampling locations have been identified in Table 7.6 for the collection of runoff samples.

Table 7.6: TURBIDITY AND PH RUNOFF SAMPLE LOCATIONS		
Sample Location Number	Sample Location	Estimate of Site Drainage (%)
SW-1	South side of creek at the upstream end of the Project.	0

SW-2	South side of creek at the downstream end of the Project.	100
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7.7.2.3. Monitoring Preparation

Turbidity and pH sample will be collected and analyzed by:

- Contractor Yes No
- Consultant Yes No
- Laboratory Yes No

Samples on the Project site will be collected by the following contractor sampling personnel:

Name / Telephone Number: Kurt Balasek / (916) 853-9293 ext. 113

Alternate(s) / Telephone Number(s): (916) 275-3024

The QSP or his/her designee will contact BSK Associates 24 hours prior to a predicted rain event or for an unpredicted event, as soon as a rain event begins to ensure that adequate sample collection personnel, supplies for monitoring pH and turbidity are available and will be mobilized to collect samples on the Project site in accordance with the sampling schedule.

An adequate stock of monitoring supplies and equipment for monitoring pH and turbidity will be available on the Project site prior to a sampling event. Monitoring supplies and equipment will be stored in a cool-temperature environment that will not come into contact with rain or direct sunlight. Sampling personnel will be available to collect samples in accordance with the sampling schedule. Supplies maintained at the Project site will include, but are not limited to, field meters, extra batteries, clean powder-free nitrile gloves, sample collection equipment, appropriate sample containers, paper towels, personal rain gear, and Effluent Sampling Field Log Sheets and CoC forms provided in CSMP Attachment 3 "Example Forms".

7.7.2.4. Field Parameters

Samples shall be analyzed for the constituents indicated in Table 7.7.

Table 7.7: SAMPLE COLLECTION AND ANALYSIS FOR MONITORING TURBIDITY AND PH

Parameter	Test Method	Minimum Sample Volume ₁	Sample Collection Container Type	Detection Limit (minimum)
Turbidity	Field meter/probe with calibrated portable instrument	500 mL	Polypropylene or Glass (Do not collect in meter sample cells)	1 NTU
pH	Field meter/probe with calibrated instrument or calibrated pH test kit	100 mL	Polypropylene	0.2 pH units

Notes:

1. Minimum sample volume recommended. Specific volume requirements will vary by instrument; check instrument manufacturer instructions.

L – Liter

mL – Milliliter

NTU – Nephelometric Turbidity Unit

7.7.2.5. Sample Collection

A minimum of three (3) samples of discharge shall be collected at the designated runoff sampling locations shown on Figure 3, per storm event. Run-on samples shall be collected within close proximity of the point of run-on to the Project.

Only personnel trained in water quality sampling and field measurements working under the direction of the QSP shall collect samples.

Sample collection and handling requirements are described in Section 7.7.7.

7.7.2.6. Field Measurements

Samples collected for field analysis, collection, analysis and equipment calibration shall be in accordance with the field instrument manufacturer’s specifications.

Immediately following collection, samples for field analysis shall be tested in accordance with the field instrument manufacturer’s instructions and results recorded on the Effluent Sampling Field Log Sheet.

The field instrument(s) listed in Table 7.8 will be used to analyze the following constituents:

Table 7.8: FIELD INSTRUMENTS	
Field Instrument (Manufacturer and Model)	Constituent
Hanna HI991300	pH
La Motte 2020we	Turbidity

The manufacturers’ instructions are included in CSMP Attachment 4 “Field Meter Instructions”. Field sampling staff shall review the instructions prior to each sampling event and follow the instructions in completing measurement of the samples.

- The instrument(s) shall be maintained in accordance with manufacturer’s instructions;
- The instrument(s) shall be calibrated before each sampling and analysis event;
- Maintenance and calibration records shall be maintained with the SWPPP.

The QSP may authorize alternate equipment provided that the equipment meets the Construction General Permit’s requirements and the manufacturers’ instructions for calibration and use are added to CSMP Attachment 4 “Field Meter Instructions.”

7.7.2.7. Data Evaluation and Reporting

Immediately upon completing the measurements for the sampling event, provide the Effluent Sampling Field Log Sheets to the QSP for evaluation.

Numeric Action Levels

This Project is subject to NALs for pH and turbidity (Table 7.9). Compliance with the NAL for pH and turbidity is based on a daily average. Upon receiving the field log sheets, the QSP shall immediately calculate the arithmetic average of the turbidity samples, and the logarithmic average of the pH samples to determine if the NALs, shown in the table below, have been exceeded. Daily average pH values must be calculated through the logarithmic method. In order to calculate an average, you must: (1) convert the pH measurements from logarithms to real numbers; (2) take the average of the real numbers; and (3) convert the average of the real numbers back to a logarithm.

Table 7.9: NUMERIC ACTION LEVELS

Parameter	Unit	Daily Average
pH	pH units	Lower NAL = 6.5 Upper NAL = 8.5
Turbidity	NTU	250 NTU

The QSP shall within two (2) days of the sample collection submit copies of the completed Effluent Sampling Field Log Sheets to the LRP.

In the event that the pH or turbidity NAL is exceeded, the QSP shall immediately notify LRP and investigate the cause of the exceedance and identify corrective actions.

Exceedances of NALs shall be electronically reported to the State Water Board by the LRP through the SMARTS system within 10 days of the conclusion of the storm event. If requested by the Regional Board, a NAL Exceedance report will be submitted. The NAL Exceedance Report must contain the following information:

- Analytical method(s), method reporting unit(s), and MDL(s) of each parameter;
- Date, place, time of sampling, visual observation, and/or measurements, including precipitation; and
- Description of the current BMPs associated with the sample that exceeded the NAL and the proposed corrective actions taken.

7.7.3. Sampling and Analysis Plan for pH, Turbidity, and SSC in Receiving Water

Risk Level 1 Projects are not subject to Receiving Water Monitoring.

7.7.4. Sampling and Analysis Plan for Non-Stormwater Discharges

This Sampling and Analysis Plan for non-stormwater discharges describes the sampling and analysis strategy and schedule for monitoring pollutants in authorized and unauthorized non-stormwater discharges from the Project site in accordance with the requirements of the Construction General Permit.

Sampling of non-stormwater discharges will be conducted when an authorized or unauthorized non-stormwater discharge is observed discharging from the Project site. In the event that non-stormwater discharges run-on to the Project site from offsite locations, and this run-on has the potential to contribute to a violation of a NAL, the run-on will also be sampled.

No authorized non-stormwater discharges have the potential to be discharged from the Project site.

The following construction activities identified in Section 2.7 have the potential to result in an unplanned (unauthorized) non-storm water discharge if BMPs fail. Sources of potential discharge include:

- Sanitary or septic wastes.

In addition to the above authorized stormwater discharges, some construction activities have the potential to result in an unplanned (unauthorized) non-stormwater discharge if BMPs fail. These activities include:

- Water trucks for dust control;
- Chemical leaks from vehicles and equipment.

7.7.4.1. Sampling Schedule

Samples of authorized or unauthorized non-stormwater discharges shall be collected when they are observed.

7.7.4.2. Sampling Locations

Samples shall be collected from the discharge point of the construction site where the non-stormwater discharge is running off the Project site. One (1) sampling location on the Project site and the contractor's yard has been identified where non-stormwater discharges may runoff from the Project site (Table 7.2).

7.7.4.3. Monitoring Preparation

Non-stormwater discharge samples will be collected by:

Contractor	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Consultant	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Laboratory	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No

Samples on the Project site will be collected by the following contractor sampling personnel:

Name / Telephone Number: Kurt Balasek / (916) 853-9293 ext. 113

Alternate(s) / Telephone Number(s): (916) 275-3024

An adequate stock of monitoring supplies and equipment for monitoring non-stormwater discharges will be available by the consultant. Monitoring supplies and equipment will be stored in a cool-temperature environment that will not come into contact with rain or direct sunlight. Personnel trained in sampling will be available to collect samples in

accordance with the sampling schedule. Supplies maintained at the Project site will include, but are not limited to, clean powder-free nitrile gloves, sample collection equipment, field meters, coolers, appropriate number and volume of sample bottles, identification labels, re-sealable storage bags, paper towels, personal rain gear, ice, and Effluent Sampling Field Log Sheets and CoC forms provided in CSMP Attachment 3 “Example Forms”.

7.7.4.4. Analytical Constituents

All non-stormwater discharges that flow through an area where they are exposed to pH-altering materials shall be monitored for pH. Non-stormwater discharge run-on shall be monitored, at minimum, for pH and turbidity.

The QSP shall identify additional pollutants to be monitored for each non-stormwater discharge incident based on the source of the non-stormwater discharge. If the source of an unauthorized non-stormwater discharge is not known, monitoring for pH, turbidity, MBAS, TOC, and residual chlorine or chloramines is recommended to help identify the source of the discharge.

Table 7.10 lists the specific sources and types of potential non-visible pollutants on the Project site and the water quality indicator constituent(s) for that pollutant.

Table 7.10: POTENTIAL NON-STORMWATER DISCHARGE POLLUTANTS AND WATER QUALITY INDICATOR CONSTITUENTS		
Pollutant Source	Pollutant	Water Quality Indicator Constituent
Disturbed Areas	Sediment	Turbidity
Portable Toilets	pH	pH

7.7.4.5. Sample Collection

Samples shall be collected at the discharge locations where the non-stormwater discharge is leaving the Project site. Potential discharge locations are shown on the Site Maps in Appendix A and identified in Section 7.7.4.2.

Grab samples shall be collected and preserved in accordance with the methods identified in Table 7.23. Only personnel trained in water quality sampling under the direction of the QSP shall collect samples.

Sample collection and handling requirements are described in Section 7.7.7.

7.7.4.6. Sample Analysis

Samples shall be analyzed using the analytical methods identified in Table 7.11.

7.7.4.7. Data Evaluation and Reporting

The QSP shall complete an evaluation of the water quality sample analytical results.

Turbidity and pH results shall be evaluated for compliance with NALs as identified in Section 7.7.2.7.

Runoff results shall also be evaluated for the constituents suspected in the non-stormwater discharge. Should the runoff sample indicate the discharge of a pollutant which cannot be explained by run-on results, the BMPs, site conditions, and surrounding influences shall be assessed to determine the probable cause for the increase.

As determined by the site and data evaluation, appropriate BMPs shall be repaired or modified to mitigate discharges of non-visible pollutant concentrations. Any revisions to the BMPs shall be recorded as an amendment to the SWPPP.

Non-storm water discharge results shall be submitted with the Annual Report.

The General Permit prohibits the non-storm water discharges that contain hazardous substances equal to or in excess of reportable quantities established in 40 C.F.R. §§ 117.3 and 302.4. The results of any non-stormwater discharge results that indicate the presence of a hazardous substance in excess of established reportable quantities shall be immediately reported to the Regional Water Board.

Table 7.11: SAMPLE COLLECTION, PRESERVATION AND ANALYSIS FOR MONITORING POLLUTANTS IN NON-STORMWATER DISCHARGES

Constituent	Analytical Method	Minimum Sample Volume	Sample Bottle	Sample Preservation	Reporting Limit	Maximum Holding Time
Sulfate	EPA 300.0	250 mL	Plastic	4 ⁰ ± 2 ⁰ C	2 mg/L	28 days
Coliform, Total and Fecal	SM9221 D/E	100 mL	Bacti	4 ⁰ ± 2 ⁰ C	2 MPN	8 hours

7.7.5. Sampling and Analysis Plan for Other Pollutants Required by the Regional Water Board

The Regional Water Board has not specified monitoring for additional pollutants.

7.7.6. Training of Sampling Personnel

Sampling personnel shall be trained to collect, maintain, and ship samples in accordance with the Surface Water Ambient Monitoring program (SWAMP) 2008 Quality Assurance Program Plan (QAPrP). Training records of designated contractor sampling personnel are provided in Appendix K.

7.7.7. Sample Collection and Handling

7.7.7.1. Sample Collection

Samples shall be collected at the designated sampling locations shown on Figure 3 and listed in the preceding sections. Samples shall be collected, maintained and shipped in accordance with the SWAMP 2008 Quality Assurance Program Plan (QAPrP).

Grab samples shall be collected and preserved in accordance with the methods identified in preceding sections.

To maintain sample integrity and prevent cross-contamination, sample collection personnel shall follow the protocols below.

- Collect samples (for laboratory analysis) only in analytical laboratory-provided sample containers;
- Wear clean, powder-free nitrile gloves when collecting samples;
- Change gloves whenever something not known to be clean has been touched;
- Change gloves between sites;
- Decontaminate all equipment (e.g. bucket, tubing) prior to sample collection using a trisodium phosphate water wash, distilled water rinse, and final rinse with distilled water. Dispose of wash and rinse water appropriately, i.e., do not discharge to storm drain or receiving water. Do not decontaminate laboratory-provided sample containers;
- Do not smoke during sampling events;
- Never sample near a running vehicle;
- Do not park vehicles in the immediate sample collection area (even non-running vehicles);
- Do not eat or drink during sample collection; and
- Do not breathe, sneeze, or cough in the direction of an open sample container.

The most important aspect of grab-sampling is to collect a sample that represents the entire runoff stream. Typically, samples are collected by dipping the collection container in the runoff flow paths and streams as noted below.

- i. For small streams and flow paths, simply dip the bottle facing upstream until full.
- ii. For larger stream that can be safely accessed, collect a sample in the middle of the flow stream by directly dipping the mouth of the bottle. Once again making sure that the opening of the bottle is facing upstream as to avoid any contamination by the sampler.
- iii. For larger streams that cannot be safely waded, pole-samplers may be needed to safely access the representative flow.
- iv. Avoid collecting samples from ponded, sluggish or stagnant water.

- v. Avoid collecting samples directly downstream from a bridge, as the samples may be affected by the bridge structure or runoff from the road surface.

Note, that depending upon the specific analytical test, some containers may contain preservatives. These containers should **never** be dipped into the stream, but filled indirectly from the collection container.

7.7.7.2. Sample Handling

Turbidity and pH measurements must be conducted immediately. Do not store turbidity or pH samples for later measurement.

Samples for laboratory analysis must be handled as follows. Immediately following sample collection:

- Cap sample containers;
- Complete sample container labels;
- Sealed containers in a re-sealable storage bag;
- Place sample containers into an ice-chilled cooler;
- Document sample information on the Effluent Sampling Field Log Sheet; and
- Complete the CoC form.

All samples for laboratory analysis must be maintained between 0-6 degrees Celsius during delivery to the laboratory. Samples must be kept on ice, or refrigerated, from sample collection through delivery to the laboratory. Place samples to be shipped inside coolers with ice. Make sure the sample bottles are well-packaged to prevent breakage and secure cooler lid with packaging tape.

Ship samples that will be laboratory analyzed to the analytical laboratory right away. Hold times are measured from the time the sample is collected to the time the sample is analyzed. The General Permit requires that samples be received by the analytical laboratory within 48 hours of the physical sampling (unless required sooner by the analytical laboratory).

Laboratory Name: BSK Laboratories
Street Address: 1414 Stanislaus St.
City, State, Zip Code: Fresno, CA, 93706
Telephone Number: (559) 497-2888
Point of Contact: John Montierth

7.7.7.3. Sample Documentation Procedures

All original data documented on sample bottle identification labels, Effluent Sampling Field Log Sheet, and CoCs shall be recorded using waterproof ink. These shall be considered accountable documents. If an error is made on an accountable document, the individual shall make corrections by lining through the error and entering the correct information. The erroneous information shall not be obliterated. All corrections shall be initialed and dated.

Duplicate samples shall be identified consistent with the numbering system for other samples to prevent the laboratory from identifying duplicate samples. Duplicate samples shall be identified in the Effluent Sampling Field Log Sheet.

Sample documentation procedures include the following:

Sample Bottle Identification Labels: Sampling personnel shall attach an identification label to each sample bottle. Sample identification shall uniquely identify each sample location.

Field Log Sheets: Sampling personnel shall complete the Effluent Sampling Field Log Sheet and Receiving Water Sampling Field Log Sheet for each sampling event, as appropriate.

Chain of Custody: Sampling personnel shall complete the CoC for each sampling event for which samples are collected for laboratory analysis. The sampler will sign the CoC when the sample(s) is turned over to the testing laboratory or courier.

7.8. ACTIVE TREATMENT MONITORING

An Active Treatment System (ATS) will be deployed on the site?

Yes

No

This Project does not require a Project-Specific Sampling and Analysis Plan for an ATS because deployment of an ATS is not planned.

7.9. BIOASSESSMENT MONITORING

This Project is not subject to bioassessment monitoring because it is not a Risk Level 3 Project.

7.10. WATERSHED MONITORING OPTION

This Project is not participating in a watershed monitoring option.

7.11. QUALITY ASSURANCE AND QUALITY CONTROL

An effective Quality Assurance and Quality Control (QA/QC) plan shall be implemented as part of the CSMP to ensure that analytical data can be used with confidence.

QA/QC procedures to be initiated include the following:

- Field logs;
- Clean sampling techniques;
- CoCs;
- QA/QC Samples; and
- Data verification.

Each of these procedures is discussed in more detail in the following sections.

7.11.1. Field Logs

The purpose of field logs is to record sampling information and field observations during monitoring that may explain any uncharacteristic analytical results. Sampling information to be included in the field log includes the date and time of water quality sample collection, sampling personnel, sample container identification numbers, and types of samples that were collected. Field observations should be noted in the field log for any abnormalities at the sampling location (color, odor, BMPs, etc.). Field measurements for pH and turbidity should also be recorded in the field log. A Visual Inspection Field Log and an Effluent Sampling Field Log Sheet are included in CSMP Attachment 3 “Example Forms”.

7.11.2. Clean Sampling Techniques

Clean sampling techniques involve the use of certified clean containers for sample collection and clean powder-free nitrile gloves during sample collection and handling. As discussed in Section 7.7.7, adoption of a clean sampling approach will minimize the chance of field contamination and questionable data results.

7.11.3. Chain of Custody

The sample CoC is an important documentation step that tracks samples from collection through analysis to ensure the validity of the sample. Sample CoC procedures include the following:

- Proper labeling of samples;
- Use of CoC forms for all samples; and
- Prompt sample delivery to the analytical laboratory.

Analytical laboratories usually provide CoC forms to be filled out for sample containers. An example CoC is included in CSMP Attachment 3 “Example Forms”.

7.11.4. QA/QC Samples

QA/QC samples provide an indication of the accuracy and precision of the sample collection; sample handling; field measurements; and analytical laboratory methods. The following types of QA/QC will be conducted for this Project:

- Field Duplicates at a frequency of [5 percent or 1 duplicate minimum per sampling event] (Required for all sampling plans with field measurements or laboratory analysis)

- Equipment Blanks at a frequency of [Insert frequency required by method] (Only needed if equipment used to collect samples could add the pollutants to sample)
- Field Blanks at a frequency of [Insert frequency required by method] (Only required if sampling method calls for field blanks)
- Travel Blanks at a frequency of [Insert frequency required by method] (Required for sampling plans that include VOC laboratory analysis)

7.11.4.1. Field Duplicates

Field duplicates provide verification of laboratory or field analysis and sample collection. Duplicate samples shall be collected, handled, and analyzed using the same protocols as primary samples. The sample location where field duplicates are collected shall be randomly selected from the discharge locations. Duplicate samples shall be collected immediately after the primary sample has been collected. Duplicate samples must be collected in the same manner and as close in time as possible to the original sample. Duplicate samples shall not influence any evaluations or conclusion.

7.11.4.2. Travel Blanks

Travel blanks assess the potential for cross-contamination of volatile constituents between sample containers during shipment from the field to the laboratory. Deionized water blanks are taken along for the trip and held unopened in the same cooler with the VOC samples.

7.11.5. Data Verification

After results are received from the analytical laboratory, the QSP shall verify the data to ensure that it is complete, accurate, and the appropriate QA/QC requirements were met. Data must be verified as soon as the data reports are received. Data verification shall include:

- Check the CoC and laboratory reports. Make sure all requested analyses were performed and all samples are accounted for in the reports;
- Check laboratory reports to make sure hold times were met and that the reporting levels meet or are lower than the reporting levels agreed to in the contract;
- Check data for outlier values and follow up with the laboratory. Occasionally typographical errors, unit reporting errors, or incomplete results are reported and should be easily detected. These errors need to be identified, clarified, and corrected quickly by the laboratory. The QSP should especially note data that is an order of magnitude or more different than similar locations, or is inconsistent with previous data from the same location;
- Check laboratory QA/QC results. EPA establishes QA/QC checks and acceptable criteria for laboratory analyses. These data are typically reported along with the sample results. The QSP shall evaluate the reported QA/QC data to check for contamination (method, field, and equipment blanks), precision (laboratory matrix spike duplicates), and accuracy (matrix spikes and laboratory control samples). When QA/QC checks are outside acceptable ranges, the

laboratory must flag the data, and usually provides an explanation of the potential impact to the sample results;

- Check the data set for outlier values and, accordingly, confirm results and reanalyze samples where appropriate. Sample reanalysis should only be undertaken when it appears that some part of the QA/QC resulted in a value out of the accepted range. Sample results may not be discounted unless the analytical laboratory identifies the required QA/QC criteria were not met and confirms this in writing.

Field data including inspections and observations must be verified as soon as the field logs are received, typically at the end of the sampling event. Field data verification shall include:

- Check field logs to make sure all required measurements were completed and appropriately documented;
- Check reported values that appear out of the typical range or inconsistent; follow-up immediately to identify potential reporting or equipment problems, if appropriate, recalibrate equipment after sampling;
- Verify equipment calibrations;
- Review observations noted on the field logs; and
- Review notations of any errors and actions taken to correct the equipment or recording errors.

7.12. RECORDS RETENTION

All records of stormwater monitoring information and copies of reports (including Annual Reports) must be retained for a period of at least three (3) years from date of submittal, or longer if required by the Regional Water Board.

Results of visual monitoring, field measurements, and laboratory analyses must be kept in the SWPPP along with CoCs, and other documentation related to the monitoring.

Records are to be kept onsite while construction is ongoing. Records to be retained include:

- The date, place, and time of inspections, sampling, visual observations, and/or measurements, including precipitation;
- The individual(s) who performed the inspections, sampling, visual observation, and/or field measurements;
- The date and approximate time of field measurements and laboratory analyses;
- The individual(s) who performed the laboratory analyses;
- A summary of all analytical results, the method detection limits and reporting limits, and the analytical techniques or methods used;
- Rain gauge readings from site inspections;
- QA/QC records and results;
- Calibration records;
- Visual observation and sample collection exemption records;

- The records of any corrective actions and follow-up activities that resulted from analytical results, visual observations, inspections, or NAL Exceedance Reports.

SECTION 8: REFERENCES

California Stormwater Quality Association (CASQA) 2009, Stormwater BMP Handbook Portal: Construction, November 2009, www.casqa.org.

City of Soledad, General Plan Final Environmental Impact Report, 2005.

Solano County Water Agency, 1999: Solano County Hydrology Manual, 1999.

State Water Resources Control Board (2009). Order 2009-0009-DWQ, NPDES General Permit No. CAS000002: National Pollutant Discharges Elimination System (NPDES) California General Permit for Storm Water Discharge Associated with Construction and Land Disturbing Activities. Available on-line at: http://www.waterboards.ca.gov/water_issues/programs/stormwater/construction.shtml.

CSMP Attachment 1: Weather Reports

CSMP Attachment 2: Monitoring Records

CSMP Attachment 3: Example Forms

Risk Level 1, 2, 3 Visual Inspection Field Log Sheet

Date and Time of Inspection:				Report Date:		
Inspection Type:	<input type="checkbox"/> Weekly	<input type="checkbox"/> Before predicted rain	<input type="checkbox"/> During rain event	<input type="checkbox"/> Following qualifying rain event	<input type="checkbox"/> Contained stormwater release	<input type="checkbox"/> Quarterly non-stormwater
Site Information						
Construction Site Name:						
Construction stage and completed activities:					Approximate area of exposed site:	
Weather and Observations						
Date rain Predicted to Occur:				Predicted % chance of rain:		
Estimate storm beginning (date and time): _____	Estimate storm duration (hours): _____	Estimate time since last storm (days or hours): _____		Rain gauge reading (inches): _____		
Observations: If "yes" identify location						
Odors	<input type="checkbox"/> No	<input type="checkbox"/> Yes				
Floating Material	<input type="checkbox"/> No	<input type="checkbox"/> Yes				
Suspended Material	<input type="checkbox"/> No	<input type="checkbox"/> Yes				
Sheen	<input type="checkbox"/> No	<input type="checkbox"/> Yes				
Discolorations	<input type="checkbox"/> No	<input type="checkbox"/> Yes				
Turbidity	<input type="checkbox"/> No	<input type="checkbox"/> Yes				
Site Inspections						
Outfalls of BMPs Evaluated				Deficiencies Noted		
(add additional sheets or attached detailed BMP Inspection Checklists)						
Photos Taken:	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Photo Reference IDs:			
Corrective Actions Identified (note if SWPPP/REAP change is needed)						
Inspector Information						
Inspector Name:				Inspector Title:		
Signature:				Date:		

Risk Level 1 Effluent Smpling Field Log Sheets

Construction Site Name:	Date:	Time Start:
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Sampler:

Sampling Event Type:	<input type="checkbox"/> Stormwater	<input type="checkbox"/> Non-stormwater	<input type="checkbox"/> Non-visible pollutant
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Field Meter Calibration

pH Meter ID No./Desc.:	Turbidity Meter ID No./Desc.:
Calibration Date/Time:	Calibration Date/Time:

Field pH and Turbidity Measurements

Discharge Location Description	pH	Turbidity	Time

Grab Samples Collected

Discharge Location Description	Sample Type	Time

Additional Sampling Notes:

Time End:

NAL Exceedance Evaluation Summary Report – Page ___ of ___

Project Name:	
Project WDID:	
Project Location:	
Date of Exceedance:	
Type of Exceedance:	NAL Daily average <input type="checkbox"/> pH <input type="checkbox"/> Turbidity <input type="checkbox"/> Other (specify): _____
Measurement or Analytical Method:	<input type="checkbox"/> Field meter (Sensitivity: _____) <input type="checkbox"/> Lab method (specify) _____ (Reporting Limit: _____) (MDL: _____)
Calculated Daily Average:	<input type="checkbox"/> pH _____ pH units <input type="checkbox"/> Turbidity _____ NTU
Rain Gauge Measurement:	_____ inches
Compliance Storm Event:	_____ inches (5-year, 24-hour event)
Visual Observations on Day of Exceedance:	

<p>Description of BMPs in Place at Time of Event:</p>	
<p>Initial Assessment of Cause:</p>	
<p>Corrective Actions Taken (deployed after exceedance):</p>	
<p>Additional Corrective Actions Proposed:</p>	
<p>Report Completed By:</p>	<p>_____</p> <p>(Print Name, Title)</p>
<p>Signature:</p>	<p>_____</p>

CSMP Attachment 4: Field Meter Instructions

CSMP Attachment 5: Supplemental Information