

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY****REGION IX****75 Hawthorne Street****San Francisco, CA 94105-3901**

January 23, 2015

Mr. Reg Cullen
County of Sonoma
2300 County Center Drive
Santa Rosa, CA 95403-2829

RE: Notification of Selection for FY15 Funding by the San Francisco Bay Water Quality Improvement Fund (SFBWQIF) (#EPA-R9-WTR3-14-01)

Dear Mr. Cullen:

I am pleased to notify you of my decision to fund the proposal submitted by the County of Sonoma titled "Clean Streams in Southern Sonoma County." The proposal has been selected to receive funding through EPA's San Francisco Bay Water Quality Improvement Fund. The SFBWQIF is a competitive grant program begun in 2008 to support projects that restore wetlands and watersheds, and reduce polluted runoff. Since 2008, the SFBWQIF has invested over \$32 million in 53 projects that are achieving environmental results throughout the nine Bay Area counties.

We received 32 proposals requesting over \$39 million in response to our most recent solicitation (May 2014). Eight of these proposals were recommended for funding and we were to be able to proceed with supporting the top four proposals. As you know, your proposal was among the eight recommended for funding, however, we were not able to support it at that time due to limited funding. With the passage of the Fiscal Year 2015 budget, EPA received additional funds so we are now able to fund these additional four highly ranked proposals. This is consistent with our May 2014 solicitation that indicated EPA has the right to "...make additional awards...if additional funding becomes available after the original selection decisions."

Your project officer, Erica Yelensky (yelensky.eric@epa.gov) will soon be in contact with you to complete the grant application process. Further guidance will be provided that includes funding amounts and detailed submittal instructions. For more information on the current status of SFBWQIF, please see our web site at <http://www.epa.gov/region9/water/watershed/sfbaywqfund/>. We look forward to working with you to support the success of the projects, including helping to document and communicate the environmental results and lessons learned, to enhance support for similar projects throughout the Bay Area.

Sincerely,

A handwritten signature in blue ink, appearing to read "Jane Diamond", is written over the typed name.

Jane Diamond, Director
Water Division

Clean Streams in Southern Sonoma County

A final proposal to the EPA San Francisco Bay Water Quality Improvement Fund, 2014

Abstract: *Clean Streams in Southern Sonoma County* broadens existing public/private partnerships to reduce pollutant loadings at high-priority sites in the Sonoma Creek and Petaluma River watersheds by implementing TMDLs for sediment, pesticides, and pathogens. Results include an inventory of County and City road/stream crossings to enhance prioritization of road projects; substantial erosion and habitat improvement actions on public roads and private streambanks; outreach to key audiences to prevent pollution; and detailed information on pesticide, E. coli, and sediment levels; and outreach to key pollution prevention audiences. Partners are Sonoma County's Permit and Resource Management Department, Transportation and Public Works, and Regional Parks; City of Sonoma; Sonoma Ecology Center; and private landowners. This is the first SFBWQIF investment in the Petaluma River. This project comes at a critical time. The Sonoma Creek sediment TMDL, adopted in 2008, has a 20-year implementation goal. Also, significant activities are planned to recover groundwater levels in both watersheds. Integrating groundwater and surface water management will protect stream flow for habitat and other functions. In 10 years, this project will achieve and estimated 12% of the Sonoma sediment TMDL goal, pathogen and pesticide loads reduced by 25% of allocations, and 27 tons/yr carbon sequestered.

Sonoma Creek is an "anchor watershed"¹ for recovery of San Francisco Bay's steelhead. Petaluma River waters the largest undisturbed ancient tidal marsh in California².

Partnerships

The project builds on existing successful local public/private and inter-governmental partnerships, including partners with authority over water quality and land use decisions. Letters committing match contributions are in Attachment 1.

Sonoma County Permit and Resource Management Department (PRMD): PRMD, the project applicant, is the County Department with primary land use authority, implements the RWQCB's MS4 permits in the south County, ensures that County projects comply with environmental regulations, imposes conditions of approval on development projects, and is the lead for the County storm water program, responsible for attaining compliance with the state storm water permits and hosting audits by US EPA. PRMD provides guidance on the storm water program via education on BMPs, code requirements, or enforcement. Staff regularly interact with other County departments who investigate and resolve storm water complaints, hold standing meetings to coordinate storm water quality improvements, and cooperate on annual storm water reports. Staff also work weekly with staff from local cities, staff with the North Coast and San Francisco RWQCBs, and many members of the public who have storm water complaints or questions.

Sonoma County Transportation and Public Works (TPW): Among other responsibilities, TPW plans, builds, manages, and maintains over 1000 stream crossings of public roads. TPW works with PRMD to assess, prioritize, and permit these projects. TPW's culvert crew was eliminated in 2009 due to budget cuts and was just restored in 2014. TPW is now able to address a substantial backlog of work. Through the Clean Streams project, TPW can expand use of

¹ San Francisco Estuary Watersheds Evaluation: Identifying Promising Locations for Steelhead Restoration in

² California Department of Fish & Wildlife, <http://www.dfg.ca.gov/lands/wa/region3/petalumamarsh.html>

integrated BMPs developed with SEC during the 2010 SFBWQIF grant to meet stormwater, environmental, and maintenance objectives, and develop science-driven priorities for culvert- and outfall-related maintenance and repair.

City of Sonoma: The City is responsible for implementing three TMDLs on its three creeks. For five years, the City has partnered with SEC to develop its Stormwater Workplan, conduct stormwater outreach and education, and prepare stormwater reports. Recently, the City hired a full-time stormwater compliance specialist. The *Clean Streams* project will deepen partnerships with the County on meeting water quality requirements and with SEC to effectively change residents' behavior.

Sonoma Ecology Center (SEC): SEC, a 501(c)(3) nonprofit, has initiated and sustained effective collaborations to improve ecological health in Sonoma Valley and beyond for 23 years. As the main non-regulatory water quality entity in the watershed, SEC has built numerous physical projects, monitored watershed health, conducted targeted research, developed techniques and policies, and educated the community on streams, fisheries, and water resources.

Sonoma County Regional Parks (County Parks): As a major landowner in the project area, County Parks reaches thousands of people annually with interpretive and management signage at public parks, beaches, and campgrounds, with particular success reaching lower-income residents. Among many other areas of leadership, County Parks has taken a leading role in Sonoma County in educating pesticide applicators and dog walkers.

Sonoma County Water Agency (SCWA): SCWA partners with the City of Sonoma, SEC, and others on several multi-benefit water management projects in Sonoma Creek watershed. For this project, SCWA-funded and SCWA-led projects within and adjacent to the City strongly leverage EPA's funding to achieve effective water stewardship outreach and build highly visible stormwater management demonstration sites.

Private landowners: Most streamside land in southern Sonoma County is privately owned small residential parcels. Landowners must voluntarily give permission for implementation projects. Channels are usually incised, with infrastructure close to top of bank, so projects tend to be small and permissions difficult to obtain. SEC has a record of success in this constrained environment, consistently securing 10%-25% cost share in cash or labor from participating landowners.

Please see support letters in Attachment 2 from Sonoma County Supervisors Susan Gorin (Sonoma Creek watershed) and David Rabbit (Petaluma River watershed), San Francisco RWQCB Phase II stormwater contact Fred Hetzel; and letters of intent from landowners.

Budget detail and cost-effectiveness

This project builds a cost-effective approach to water pollution control extending beyond the grant period. EPA funds will allow City and County agencies to intensify their individual and combined capabilities to control flows of sediment, pesticides and pathogens into streams, assisted by SEC as the area's primary environmental management NGO. Partnerships between local governments with demanding water quality mandates and an entrepreneurial, science-driven nonprofit will lead to better-informed implementation of water quality improvements, including improved municipal maintenance and repair practices, as has occurred with the current 2010 SFBWQIF project (EM-00T34101-0 to San Francisco Estuary Partnership).

Total EPA request: \$991,156. Match: \$1,148,400 (54% of total cost). Quarter 1 = Jan-Mar 2015.

	Quarter	Lead Entity	Federal Portion	Match	Outputs, Outcomes, Deliverables
Task 1. Repair primary sediment sources in Sonoma Creek watershed. Request: \$501,200. Match: \$906,800.					
TPW-SEC partnership developed during 2010 SFBWQIF project	Before grant				Streamlined county permitting and CDFW 1602 agreement for outfall dissipators with standard design
1.1 Establish coordinated road management practices to limit sediment delivery to streams from public roads					
1.1.1 Prioritize road-related sediment sources based on targeted field assessments and TMDL Sediment Source Analysis sediment yields	1 - 3	TPW	\$2,000		Assessment protocol; assessments of 350 road/stream and road/ditch crossings in Sonoma Creek watershed including the City of Sonoma; prioritization results; results of assessment integrated into TPW and City roadwork prioritization schemes
		SEC	\$190,000		
		PRMD		\$7,800	
		City		\$8,000	
1.1.2 Repair and replace high-priority culverts and ditches, install both standard and innovative BMPs	3 - 16	TPW		\$800,000	40 or more replaced or repaired road/stream or road/ditch crossings on County and City roads, 15+ dissipators installed at road outfalls, 9+ road sites with supplemental erosion control and revegetation (900 ft), monitoring per existing QAPP, publicity
		SEC	\$243,200		
		City		\$80,000	
1.2 Reduce sediment supply from priority stream channel sources.	2 - 16	SEC	\$66,000		Fencing, erosion control, and revegetation of eroding streambanks at 2+ private properties in key salmonid reaches; 2 site plans; 300 linear feet of streambank revegetated and protected from grazing; monitoring per existing QAPP, publicity
		PRMD		\$7,000	
		Land-owners		\$4,000	
Project sediment-related outcomes.	Project completion				6,400 tons sediment/year prevented from reaching stream. The Sonoma Creek sediment TMDL BPA calls for 80% reduction of the human-caused sediment load of 64,000 tons/yr. This project achieves 11% of this target. 19 tons/year of carbon sequestered

Ongoing implementation by TPW, City, and SEC at sediment delivery sites prioritized by this project; maturation of treated sites	10 years after grant				Sediment reductions from planted streambanks increasing ~10%/yr, reaching 12% of the 2028 sediment TMDL goal in 10 years; improved municipal maintenance and repair practices; positioned to obtain CDFW and other funding and permitting for additional implementation; 75% survival of plantings on 300 linear feet of priority salmonid stream with closing canopy; 27 tons/year carbon sequestered
<p>Cost-effectiveness: 1.1.1 builds on the TPW/SEC partnership, established during the 2010 SFBWQIF grant, which has already identified shared implementation priorities. Proposed assessment and prioritization of road-related sediment sources build on the 2006 initial survey completed for the Sediment Source Analysis, and SEC's extensive GIS library. TPW's previous culvert evaluation for Sonoma Valley, from 1984, provided only three categories of culvert condition, and did not address culvert capacity. Costs are based on review of similar modern assessments, averaging \$400/site, plus planning. 1.1.2 coordinates road repair and culvert replacement with sediment reduction BMP installations, reducing costs of planning, permitting and implementation. Under the 2010 SFBWQIF grant, SEC designed an innovative storm drain outfall detention basin/energy dissipator, TPW calculated drainage areas and sizing for the basins, and TPW and SEC coordinated to install and maintain a vegetated swale/filtration strip in a roadside ditch that leads to a creek outfall. PRMD streamlined the permitting process. CDFW's 1602 agreement to use the outfall basin/dissipator will be replicated and adapted for this project. See Attachment 3 for diagram. Integrating objectives of stormwater management, sediment reduction, and habitat restoration decreases long-term costs and increases the probability of funding for future additional implementation. Costs are based on years of past implementation experience by TPW and SEC.</p> <p>1.2 expands on existing partnerships between SEC and private landowners to address shared priorities including erosion and property loss. SEC's watershed-wide agreement with CDFW for invasive weed control and native plant restoration will apply to proposed sites. This work is based on a 2013 319(h)-funded prioritization of sediment reduction actions, based on sediment loads, geology, land use, and spawning sites. Sonoma Valley's streamside land is almost entirely privately owned by small rural residential landowners who must voluntarily give permission for access and implementation projects. Parcels tend to have incised channels and infrastructure close to top of bank, so projects tend to be small and permissions difficult to obtain. SEC consistent secures 10%-25% cost share in cash or labor from participating landowners, which increases the likelihood of the landowner maintaining project improvements in the long term. Costs are for landowner communications, fencing, erosion control, revegetation with SEC's locally native stock, and maintenance. See Attachment 2 for letters of intent from landowners and Attachment 4 for site plans.</p>					

	Quarter	Lead Entity	Federal Portion	Match	Outputs, Outcomes, Deliverables
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Task 2. Engage the community to reduce pathogen and pesticide levels in Sonoma Creek, Petaluma River, tidal marshes, and San Francisco Bay. Request: \$100,019. Match: \$135,000.					
City and County pesticide, dog waste, and septic programs; SEC outreach	Before grant				PRMD: Septic inspections. City: Full-time stormwater coordinator hired, tracking and response program established for pesticides and pathogens. SEC: 20 years of public creek cleanups and workdays.
2.1 General outreach, focusing on peer-to-peer neighborhood-based water quality teams	2 - 16	SEC	\$84,000		Records of publicity, samples of materials used, 500 households reached with water quality and water conservation program, 625 water protection actions taken by households, including 11 million gallons water conserved/year; planted and signed LID infrastructure installed at Sonoma Garden Park, with 3,500+ annual visitors
		SCWA		\$70,000	
2.2 Specialized outreach to dog walkers to reduce pathogen pollution	1 - 16	City		\$19,000	City: field assessments of priority pet-waste sites; tracking system for catch basin cleaning; target neighborhood outreach enlisting residents; enhanced web communications to help the public identify sanitary sewer overflows; enhanced complaint routing schedule. County Parks: installed signage and dog waste bag dispensers .
		County Parks		\$5,000	
2.3 Specialized outreach to pesticide applicators and pesticide retailers	1 - 16	City		\$21,000	City: nontoxic pest response program, applicators training, data on flyer attrition at the only major pesticide retailer. County Parks and City: 20 pesticide applicator workshops.
		County Parks		\$20,000	
2.4 Clean up persistent illicit dumpsites	2 - 16	SEC	\$16,019		8 cleanups on steelhead streams, publicity
Continuing implementation	After grant				Pesticide applicator seminars, City stormwater coordinator position, local funding for peer-to-peer program; most household actions to reduce pollutant loading sustained; coordinating water quality outreach with increasing groundwater project outreach. At 10 years post-project, pesticide and pathogen loads reduced by 25% of allocation.

Cost-effectiveness: Activities in this task build on the City's and County's participation in RWQCB Phase II NPDES working groups and the Bay Area Stormwater Management Agencies Association (BASMAA) Phase II Sub-Committee, SEC's familiarity with hotspot locations and neighborhood groups through many years of public creek events, and SEC's long-running school-based education program, which is an effective method for sending messages to adults. Outreach and engagement will build on existing programs such as the Urban Pesticide Committee, BASMAA, and Sonoma County's and SCWA's existing education programs.

	Quarter	Lead Entity	Federal Portion	Match	Outputs, Outcomes, Deliverables
Task 3. Track progress toward TMDL and other watershed health targets. Request: \$254,937. Match: \$87,000.					
Ambient watershed health monitoring	Before grant				10 year monitoring program in Sonoma Creek by SEC, see Sonoma Valley Knowledge Base.
3.1 Monitor and post data on all or most of the following parameters relevant to Sonoma Creek sediment TMDL: turbidity, streamflow, gravel permeability	2 - 16	SEC	\$40,000		Approved QAPPs, data available online via SEC's Knowledge Base and state databases such as CEDEN
		SCWA		\$70,000	
3.2 Monitor and post data on urban pesticide toxicity in Cities of Petaluma and Sonoma	3, 5, 7, 9, 11, 13	City		\$5,000	3 years, 2 visits yearly to 4 sites each city. Approved QAPP, data available online via SEC's Knowledge Base and state databases such as CEDEN
		SEC	\$13,212		
		lab	\$13,080		
3.3 Monitor and post data on nitrates and fecal coliforms on streambanks downslope from septic leach fields in Sonoma and Petaluma watersheds	4, 5, 8, 9, 12, 13, 16	PRMD	\$20,000	\$10,000	2 visits yearly to up to 20 sites over 4 years approved QAPP, data available online via SEC's Knowledge Base and state databases such as CEDEN
		SEC	\$61,000		
		lab	\$16,000		
3.4 Monitor and post data on <i>E. coli</i> levels in Sonoma Creek and tributaries	3, 5, 7, 9, 11, 13	PRMD		\$10,000	10 visits yearly to each of 8 sites over 3 years, approved QAPP, data available online via SEC's Knowledge Base and state databases such as CEDEN
		SEC	\$55,945		
		City		\$6,000	
		lab	\$23,000		
3.5 Communicate progress toward targets with easily publicly accessible graphs and	12 - 16	SEC	\$10,000		Graphs comparing current findings with TMDL and other targets, available via

maps		PRMD		\$5,000	SEC's Knowledge Base, PRMD's website, and others as appropriate. Records of publicity.
3.6 Coordinate with RWQCB and project partners on allocations and strategies for compliance with TMDL requirements	1, 5, 9,13	PRMD		\$5,000	2+ meetings. Record of meetings and agreements.
		City		\$6,000	
		SEC	\$2,700		
Continuing implementation	After grant				Ongoing monitoring by County and City, continual additions to Sonoma Valley Knowledge Base.
<p>Cost-effectiveness: All monitoring (QA and QC procedures) will follow SWRCB's Quality Assurance Management Plan for SWAMP and be SWAMP-comparable. Activities in this task leverage SEC's TMDL studies contributing to the San Francisco Bay Basin Plan Amendment, including EPA-funded Limiting Factors Analysis for Steelhead and Sediment Source Analysis; SEC's sediment and stream monitoring program, operating since 2000, critical to prioritizing implementation mandated in the BPA; SEC's participation in TMDL roundtables and advisory committees with community stakeholders since 2000; SEC's partnership providing site information and access for RWQCB staff conducting pathogens sampling and analysis; EPA-funded QAPPs and monitoring plan for water quality; SEC's ongoing peak flow and water quality monitoring; and the City and County's participation in RWQCB Phase II NPDES working groups and the Bay Area Stormwater Management Agencies Association (BASMAA) Phase II Sub-Committee. Monitoring costs are based on estimates from local laboratories, customizing existing QAPPs from other watersheds, or updating SEC's existing approved QAPPs. 3.5 builds on existing reporting tools including Napa County's TMDL tracking system.</p>					

	Quarter	Lead Entity	Federal Portion	Match	Outputs, Deliverables
Task 4. Project management. Request: \$135,000. Match: \$19,600.					
4.1 Manage and administer project, coordinate partners and subcontracts	1 - 16	PRMD	\$120,000	\$10,000	Agreements with subrecipients, competitive procurements of lab services, financial and administrative documentation, quarterly invoices and progress reports in approved formats, draft and final project reports
		TPW		\$9,600	
		SEC	\$9,600		
Cost-effectiveness: To reduce costs, project partners will divide management responsibilities to take advantage of differing areas of expertise. Reg Cullen at PRMD will be project manager, assisted by Tasha Houweling at TPW and Caitlin Cornwall at SEC. See Expenditure Plan below for more details.					

This project protects water quality and slows runoff, thereby buffering human and natural communities against climate change impacts by increasing groundwater recharge, reducing flooding, and extending late-summer streamflow. Slowing down runoff also reduces the emissions associated with importing water, by replenishing local groundwater supplies. PRMD and SEC actively participate in Sonoma County's climate mitigation and adaptation planning.

Project Team Capability

Collectively the project partners have experience and expertise to successfully manage the proposed project. As examples, all contract requirements for the projects described below were met, including timely reporting, billing, and delivery of final products on time and within budget.

Sonoma County Permit and Resource Management Department

PRMD has a full service accounting capability and professional and administrative staff experienced in managing federal grants and agreements with other funding sources.

PRMD has managed many restoration and water quality grants. We successfully completed fish passage improvements at Tyrone Gulch at Tyrone Road (2004), Porter Creek at Sweetwater Springs (2005), Grape Creek Box Culvert and Weir (2011), and Purrington Creek (2013). Budgets ranged from \$35,000 to \$160,000. We are now working on Wallace Creek, with a budget of \$126,000. The County received Fisheries Restoration Grants from CDFW for sediment reduction at Willow Creek Road (2006), Old Cazadero Road (2006), and Dutch Bill Creek (2013), totaling \$85,552. PRMD currently manages a county-wide \$1 million Climate Action Plan grant from the State's Strategic Growth Council, and a \$150,000 grant from the Ocean Protection Council to address coastal sea level rise and adaptation in our Local Coastal Program.

Reg Cullen will manage the *Clean Streams* project, supervise completion of deliverables by partners and subcontractors, and submit invoicing, reporting, and other documentation to EPA. Reg is a registered professional civil engineer with a BS in environmental resources engineering and a MS in stream hydraulics. Reg has worked for over 10 years at PRMD. He is the coordinator for the County's NPDES stormwater program. Reg secured and managed a \$250,000 retrofit project that installed stormwater BMPs in a parking lot at PRMD. He coordinated the North Coast RWQCB, CalTrans, Sonoma County Transportation Authority, PRMD, TPW, County Parks, and local contractors to remove impervious pavement and install bioretention and vegetated swale BMPs. This project improves water quality before runoff reaches Paulin Creek, and educates hundreds of daily visitors to PRMD.

Sandi Potter will coordinate project efforts to ensure TMDL implementation and compliance with stormwater permits. She will evaluate land use applications, such as LID, for opportunities to incorporate into County policies. Sandi is the Environmental Review and Comprehensive Planning Manager at PRMD. She is a certified engineering geologist with a BS in Environmental Studies and MS in Geology. Sandi has over 25 years of experience, at the San Francisco Bay RWQCB, Bay Area consulting firms, and the County of Sonoma, with expertise in land use planning, water resource management, habitat restoration, developing TMDLs, implementing water quality attainment strategies, and managing grants.

Richard Stabler will help TPW identify stream crossings that contribute sediment input and degrade aquatic habitat, prioritize and design solutions, and address environmental compliance. Mr Stabler has a BA In Biology and MS in Plant Ecology. He has 17 years experience, most of it at Sonoma County, preparing CEQA and NEPA analyses and conducting wetland delineations,

rare plant surveys, and wildlife surveys. He has worked on all phases of wetland and riparian restoration projects, endangered species planning, fish passage and sediment reduction projects. As Senior Environmental Specialist, Rich coordinates with TPW to prioritize, plan, permit, and implement road and bridge maintenance projects.

Sonoma County Transportation and Public Works

Dave Damuller will be responsible for selecting assessment protocols for stream crossings, integrating data about sediment delivery potential into TPW's roadwork prioritization scheme, and implementing repairs and replacements to County infrastructure. Dave has been a registered Civil Engineer since 1991 and holds a MS in Civil Engineering. He has worked for TPW since 1996, as Senior Engineer since 2007. Dave plans and supervises the work of the County bridge and culvert maintenance crews, designing, building, and maintaining bridges, walls, slide repairs, and storm drain improvements.

Dave managed the \$345,829 Purrington Fish Passage project to improve fish passage through a box culvert by constructing a fish ladder below the culvert. CDFW Grant P103420 contributed \$86,019. Sonoma County Transit Authority contributed \$50,000 and Sonoma County matched with \$209,810. TPW provided labor, equipment, and materials. Dave also managed the \$72,498 Dutch Bill Creek Sediment Reduction project to replace five undersized and failing culverts. CDFW grant P1030429 provided \$28,633, and Sonoma County matched with \$43,865. TPW provided construction administration, labor and equipment.

Tasha Houweling will lead production of draft invoices for PRMD's approval, and assist PRMD with procuring competitive subcontracts and other documentation. Tasha holds a BS in Business Administration. As an Administrative Services Officer with six years experience, she has overseen budget preparation and assisted multiple departments with financial documents for their grant programs.

City of Sonoma

The City of Sonoma is the largest population center in Sonoma Creek watershed, with over 10,000 residents. The City has expanded its stormwater program over the past 11 years. Stormwater program activities include implementing three TMDL's to protect water quality in the City's three creeks. The City collaborated with Sonoma County through the BASMAA Phase II Sub-Committee and with SEC on such grant-funded projects as stormwater detention ponds and LID demonstration in parks.

Chris Pegg, the City's full-time Stormwater Compliance Specialist, will implement the City matching activities. Chris holds a BA in Urban Studies and Planning and is a Certified Stormwater Inspector. He has overseen NPDES permits for the City for two years, designed and conducted GIS surveys of City storm drains, completed the City's matching activities for the San Francisco Estuary Partnership's Trash Capture Demonstration Project, written and managed the City's Integrated Pesticide Management Policy, and worked with north bay governments on design guidance for developers to comply with Phase II NPDES permits.

Sonoma Ecology Center

As the main non-regulatory water quality entity in Sonoma Creek watershed, SEC has built numerous physical projects, monitored watershed health for 10 years, conducted targeted research, developed techniques and policies, and educated the community on streams and fisheries. SEC has obtained approval for multiple QAPPs, and administered over \$16 million in

competitive public funds, including projects with up to 10 partners and contractors.

Caitlin Cornwall will be PRMD's primary point of contact. She will directly supervise the stream crossings assessment and prioritization with TPW, and all monitoring tasks. She will draft project progress reports for PRMD's approval. Caitlin is SEC's Research Program Manager. She holds a BA in Biology and MS in Botany. Caitlin has funded and managed large multi-partner research and implementation projects at SEC since 1998. She is a founder a co-coordinator of North Bay Climate Adaptation Initiative, supervises SEC's 15-year-old Monitoring Program, and represents SEC to the Sonoma Valley Groundwater Management Program.

Caitlin managed the \$866,173 project *Community-Based Watershed Management: Sonoma Creek Watershed*, funded by the San Francisco RWQCB from 2007 to 2010. SEC provided technical assistance to a network of streamside landowners; co-led regional forums such as the North Bay Watershed Network which inspired the Bay Area Watershed Network; coordinated local agencies to develop multi-benefit projects and approaches; collected and presented monitoring data; and led creation of a water scorecard for the watershed.

Mark Newhouser will manage SEC's implementation subtasks, improving habitat and reducing sediment delivery from public roads and private streamside parcels. Mark manages SEC's Restoration Program. He has over 20 years experience in project management, planning, design, and construction. He is an environmental educator and field school instructor, specializing in native plant propagation and invasive weed species ecology and control. Mark is a Licensed Contractor and a Licensed Pesticide Applicator. He has managed several multi-year projects totaling over several million dollars.

Alex Young will manage spatial data for the project and produce analyses and maps to support project outcomes. Alex has a BA and MA in geography. He has managed SEC's spatial data, analysis, and mapping since 2005, including analysis underlying the Sediment Source Analysis, sediment reduction site prioritization studies, and NMFS' Central Coast recovery plans.

Expenditure Plan

Reg Cullen at PRMD will manage this project, assisted by Tasha Houweling at TPW and Caitlin Cornwall at SEC. Project partners will divide management responsibilities to take advantage of differing areas of expertise. PRMD will institute management controls to assure that appropriate accounting mechanisms are in place, attend EPA's project management training with another member of the project team, and assure that submittals to EPA meet requirements. PRMD will coordinate with partners via regular meetings, often by phone to reduce costs, to assure adherence to the timeline and make adjustments as necessary. TPW will produce draft invoices for PRMD's review and submittal, and assist with competitive procurement of laboratory services and other administrative documentation. SEC will draft progress reports meeting EPA standards, for PRMD's approval and submittal.



Integrated Waste
Northern Sonoma County Air Pollution Control District
Road & Bridge Operations
Sonoma County Airport
Sonoma County Transit

Susan R. Klassen, Director

Deputy Director, Road Operations: Tom O'Kane
Deputy Director, Transportation Operations: Jason Nutt

July 15, 2014

Luisa Valiela
US EPA Region 9 (WTR-3)
75 Hawthorne
San Francisco, CA 94105

Dear Ms. Valiela:

The County of Sonoma Department Transportation and Public Works is partnering with the County's Permit and Resource Management Department, Sonoma Ecology Center, and the City of Sonoma on the proposal *Clean Streams in Southern Sonoma County*.

The Department's main objective with this project is to reduce road-related erosion that delivers sediment to Sonoma Creek, Petaluma River, and San Francisco Bay. Our culvert crew was eliminated in 2009 due to budget cuts and was just restored in the spring of 2014. We are now in a position to address a substantial backlog of work. We look forward to working with the project partners to integrate sediment delivery potential as a factor in our process of prioritizing culvert repair projects. Improvements made to stormwater drainage infrastructure will decrease erosion and sediment production from faulty or failed culverts. This partnership helps the County meet water quality compliance requirements while making needed environmental and infrastructure improvements.

The Department will provide the following match contributions:

- \$200,000 per year, for a total of at least \$800,000, consisting of storm drain maintenance and culvert repairs and retrofits, prioritized using the proposed scheme that integrates sediment delivery potential with our existing criteria such as public safety and traffic flow. County staff will also continue to assist SEC with drainage area calculations and storm drain dissipator sizing, to ensure compatibility with County drainage infrastructure.
- \$9,600 or more in administrative support to PRMD, developing draft invoices for the project and assisting with other required documentation. This role makes the project team more efficient, because our Department is experienced in administering large complex grants.

Sincerely,



Susan R. Klassen, P.E.
Director

File

SRK:cel

City of Sonoma

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Sonoma Sister Cities:

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Chambolle-Musigny, France
Greve in Chianti, Italy
Kaniv, Ukraine
Patzcuaro, Mexico

July 8, 2014

Luisa Valiela
SF Bay Water Quality Improvement Fund
EPA Region 9 (WTR-3)
San Francisco CA 94105

Dear Ms. Valiela,

The City of Sonoma is partnering with Sonoma County and the Sonoma Ecology Center on the proposed project "Clean Streams in Sonoma County".

The City of Sonoma welcomes the opportunity to join forces with these government and non-government organizations to achieve mutually beneficial water-quality outcomes. In particular, the City is eager to comply with stormwater runoff requirements through innovative partnerships that augment the City's resources and produce meaningful watershed-wide impacts.

The Sonoma Ecology Center has played a pivotal role in improving water quality in Sonoma Valley for over 15 years. Their connections with private landowners and their excellent relationships with regulatory entities at local and regional levels will be critical to this project's success.

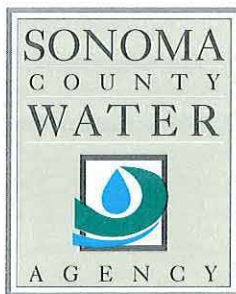
Sonoma County and the City of Sonoma also share common obligations to protect the watershed from polluted runoff originating in their respective jurisdictions. The City of Sonoma will fulfill some of these obligations by providing \$145,000 of in-kind match services to support this project over a span of 4 years. These activities include tracking pet waste hotspots and deploying neighborhood-scale pet-waste cleanup education in hot-spot areas to reduce E.Coli in runoff, coordinating with the Regional Water Board to design monitoring studies for E.Coli and pesticides, implementing program effectiveness assessment and improvement, enhancing the City's online public outreach to better inform City residents about behaviors that adversely affect water-quality, and other activities which support the attainment of sediment, pathogens, and pesticide TMDL's for Sonoma Creek. The City's leaders have already increased staff-time allocated to accomplishing these objectives by creating a new Stormwater Compliance Specialist position. The Stormwater Compliance Specialist will also serve as the primary liaison to the other agencies participating in this project.

This project aligns with the City's objectives in several ways and we urge you to select this project for funding.

Sincerely,

A handwritten signature in blue ink, appearing to read "Tom Rouse", is written over a horizontal line.

Tom Rouse
Mayor



CF/0-0-20 POTENTIAL GRANT FUNDING SOURCES (ID 146)

July 15, 2014

Ms. Luisa Valiela
San Francisco Bay Lead
US EPA Region 9 (WTR-3)
75 Hawthorne
San Francisco, CA 94105

RE: Support for EPA Proposal "Clean Streams in Southern Sonoma County"

Dear Ms. Valiela:

The Sonoma County Water Agency (Water Agency) is pleased to support the proposal before you, *Clean Streams in Southern Sonoma County* with matching Water Agency funds. The project partners are integral and vital collaborators on countywide water supply resiliency initiatives which include stormwater and groundwater management programs, water conservation and stream maintenance programs. The Water Agency provides the following sources of matching funds for work performed under agreement with Sonoma Ecology Center:

For proposed activities related to monitoring watershed health in Sonoma Valley,

- \$40,000 per year for monitoring stream flow and electrical conductivity at approximately 60 sites on Sonoma Creek and its tributary streams

For proposed activities related to the City of Sonoma's TMDL-related water quality compliance program:

- \$70,000 for a Low-Impact Development demonstration project featuring stormwater management techniques with interpretive signage at Sonoma Garden Park, a City park and educational center.

We are committed to developing strategies for improved and effective sediment management and water quality enhancement through collaboration with our County of Sonoma colleagues—Departments of Permit & Resource Management and Transportation & Public Works; the City of Sonoma, and Sonoma Ecology Center. We urge EPA to fund this project.

Sincerely,


for Grant Davis
General Manager

RW T:\Clerical-Reception\Pinks\Week 7-14-14\SCWA supltr_EPA_7-14-14_mt.docx



SONOMA
COUNTY
REGIONAL
PARKS

CARYL HART, Ph.D.
DIRECTOR

2300

County Center Drive

Suite 120A

Santa Rosa

CA 95403

Tel: 707 565-2041

Fax: 707 579-8247

www.sonomacountyparks.org

July 14, 2014

Luisa Valiela
US EPA Region 9 (WTR-3)
75 Hawthorne
San Francisco, CA 94105

Dear Ms. Valiela,

Sonoma County Regional Parks (County Parks) supports the work being proposed for funding in the project called *Clean Streams in Southern Sonoma County*. The tasks in the proposal related to reducing pollution from pesticides and pet waste will strengthen existing programs we operate, to the extent that we are committing matching funds to reinforce this proposal.

County Parks will provide at least \$5,000 in match from our ongoing program to install signage and pet waste stations at County parks in southern Sonoma County. Our program leverages the proposed pathogen-related outreach and monitoring by the City, County, and Sonoma Ecology Center.

County Parks will also provide at least \$20,000 in match from our ongoing series of day-long seminars for pesticide applicators, to match the proposed pesticide monitoring and existing pesticide outreach by the City of Sonoma. Our classes reach landscape contractors, golf course operators, vineyard managers, and park operators with current information about integrated pest management and proper handling of chemical control products. Educational credits for the class are approved by a growing list of associations.

We look forward to broadening the partnership between County, City, and nonprofit entities to improve water quality in Sonoma County and share the benefits of healthy waterways with the public that visits County parks. We urge you to fund this project in Sonoma County.

Sincerely,

Bert Whitaker
Park Manager

COUNTY OF SONOMA
BOARD OF SUPERVISORS

575 ADMINISTRATION DRIVE, RM. 100A
SANTA ROSA, CALIFORNIA 95403

(707) 565-2241
FAX (707) 565-3778



SUSAN GORIN
FIRST DISTRICT SUPERVISOR
susan.gorin@sonoma-county.org

June 27, 2014

Luisa Valiela
US EPA Region 9 (WTR-3)
75 Hawthorne
San Francisco, CA 94105

Dear Ms. Valiela,

As the Supervisor representing Sonoma Valley I urge you to fund the project Clean Streams in Southern Sonoma County. That partnership between Sonoma County Transportation and Public Works, County Permit and Resource Management Department, and the Sonoma Ecology Center (SEC) holds promise for significantly reducing sediment pollution in the Sonoma Creek watershed by providing funds for replacing culverts that would cause sediment discharge into Sonoma Creek and by providing outreach to residents of Sonoma Valley.

I'm particularly supportive of the opportunity to extend the effectiveness of the County's mandated water quality activities by making those activities meaningful to Sonoma Valley residents through SEC's connections with the local community. Another benefit of the project will be closer collaboration between the County of Sonoma, the City of Sonoma, SEC, and the Regional Water Quality Control Board. Working together in this way I believe that water quality implementation projects will be more integrated, efficient, and durable. These partnerships also gives me confidence that information from the County and City water quality monitoring will be used to prioritize future implementation projects.

Respectfully,

Susan Gorin
Supervisor, Sonoma County's First District

COUNTY OF SONOMA
BOARD OF SUPERVISORS

575 ADMINISTRATION DRIVE, RM. 100A
SANTA ROSA, CALIFORNIA 95403

(707) 565-2241
FAX (707) 565-3778



DAVID RABBITT
SECOND DISTRICT SUPERVISOR
David.Rabbitt@sonoma-county.org

July 8, 2014

Luisa Valiela
US EPA Region 9 (WTR-3)
75 Hawthorne
San Francisco, CA 94105

Dear Ms. Valiela,

I am writing to express my strong support for the Clean Streams in Southern Sonoma County project which is a partnership between the County of Sonoma departments of Transportation and Public Works and the Permit and Resource Management and the community based Sonoma Ecology Center and their application for grant funding through the US EPA.

As the Supervisor representing the Petaluma River valley, this project is important to the Second District for a number of compelling reasons. If funded it would allow: significant reduction of pesticide pollution in the Petaluma River watershed by providing funds for training County employees in integrated pest management techniques to reduce and eliminate the use of pesticides, enforcement of water quality requirements, collaboration with the Agricultural Commissioner's Office on pesticide use violations, and outreach on less toxic methods of pest control to residents of the Petaluma River valley.

Selecting this project to obtain federal grant funds to protect the highly sensitive and valuable Petaluma Marsh ecosystem would be the first time any US EPA grant money has been funded for work in the Petaluma River valley.

An additional benefit of the Clean Streams in Southern Sonoma County project would be closer collaboration between the County of Sonoma, the Sonoma Ecology Center, and the Regional Water Quality Control Board. Working together, water quality implementation projects will be more integrated, efficient, and sustainable as well as providing information from the County water quality monitoring, which could be used to prioritize future implementation projects.

I believe the effectiveness of the County's mandated water quality activities will be greatly enhanced by working with the Sonoma Ecology Center, whose connections with the local community will make these strategies meaningful to Petaluma Valley residents. I encourage you to fund the application for the Clean Streams in Southern Sonoma County project. Please do not hesitate to contact my office should you require further information.

Sincerely,

A handwritten signature in black ink, consisting of a series of loops and a final horizontal stroke, likely representing the name David Rabbitt.

David Rabbitt
Supervisor Second District
County of Sonoma

San Francisco Bay Regional Water Quality Control Board

July 10, 2014

Luisa Valiela
US EPA Region 9 (WTR-3)
75 Hawthorne
San Francisco, CA 94105

Dear Ms. Valiela,

The San Francisco Bay Regional Water Quality Control Board (Regional Water Board) urges you to fund the project *Clean Streams in Southern Sonoma County*. The partnership between Sonoma County Transportation and Public Works, Permit and Resource Management Department, and Sonoma Ecology Center (SEC) holds promise for significantly reducing the pollution caused by the everyday operations in the County, and by Sonoma Valley residents. I'm particularly supportive of the opportunity to further the County's efforts to implement Total Maximum Daily Loads in Sonoma Creek and address water quality concerns in the Petaluma River watershed. Culvert repair and replacement and other stream enhancement efforts will support the County's implementation of the municipal storm water permit and make meaningful improvements in water quality and aquatic habitat.

Another benefit of the project will be closer collaboration between Sonoma County, the City of Sonoma, SEC, and the Regional Water Board. Working together in this way, Regional Water Board staff believes that water quality implementation projects will be more integrated, efficient, and successful. The partnership also gives us confidence that information from the County's and City's required water quality monitoring will be used to prioritize future implementation projects.

Sincerely,



Fred Hetzel
Environmental Scientist



SONOMA ECOLOGY CENTER

Protecting the beauty and biodiversity of Sonoma Valley

Sonoma Ecology Center
Restoration Program
PO Box 1486
Eldridge, CA 95431

Dear Program Manager,

The purpose of this letter is to express my support for your creek restoration program. I have initially participated in your program by having the creek bank along my property assessed for restoration potential.

By participating, I understand that the project goal is to implement a habitat enhancement and sediment reduction project along my streamside property. The Sonoma Ecology Center could do one or all of the following to accomplish the project's goals: remove non-native invasive vegetation; create biotechnical bank stabilization features; install stormwater management features; perform erosion control; and/or plant native riparian vegetation along the creek bank on my property. I understand that the project would only occur 1) if grant funding is received; 2) if cost share terms can be agreed upon; and 3) pending final design and maintenance agreement between the Sonoma Ecology Center and myself.

I hereby express my intent to participate in this project and to provide permission to access and implement a project under the qualifications stated above on the properties referenced below and owned by _____.

Signed and dated _____

Name: Steven Rose

Home Phone: (707) 833-_____

Cell Phone: _____

Email: _____

Parcel # 051-040-056

Parcel # 051-040-030

Physical Address: _____ Adobe Canyon Road, Kenwood, Ca, 95452

Mailing Address: P.O. Box _____, Kenwood 95452



SONOMA ECOLOGY CENTER

Protecting the beauty and biodiversity of Sonoma Valley

The purpose of this letter is to express my support for your creek restoration program.

By participating, I understand that the goal is to implement a habitat enhancement and sediment reduction project on my streamside property. The Sonoma Ecology Center may do one or all of the following to accomplish the project's goals: remove non-native invasive vegetation; create biotechnical bank stabilization features; install stormwater management features; perform erosion control; and/or plant native riparian vegetation along the creek bank on my property. I understand that the project would only occur 1) if grant funding is received; 2) if cost share terms can be agreed upon; 3) if terms of access are agreed to; and 4) if a final design and maintenance plan is agreed upon between the Sonoma Ecology Center and myself.

I hereby express my intent to participate in this project and to provide permission for Sonoma Ecology Center to access and implement a project under the conditions stated above on the properties referenced below.

Signed and dated, 7-14-14

Landowner Name: [REDACTED]

Home Phone: (707) 833-[REDACTED]

Day/Cell Phone: 707-[REDACTED]

Email: [REDACTED]

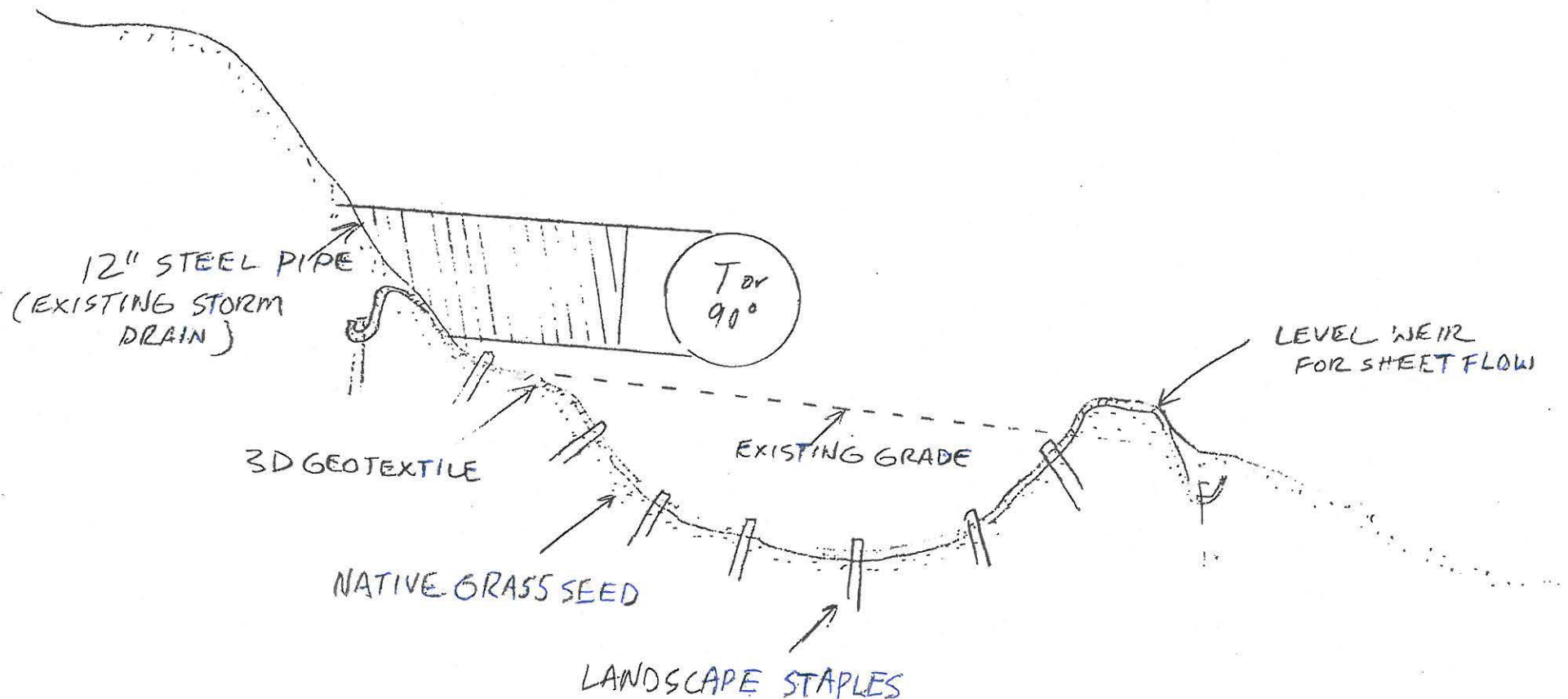
Parcel # [REDACTED]

Physical Address: [REDACTED] Adobe Canyon Road, Kenwood, Ca, 95452

Mailing Address: Same

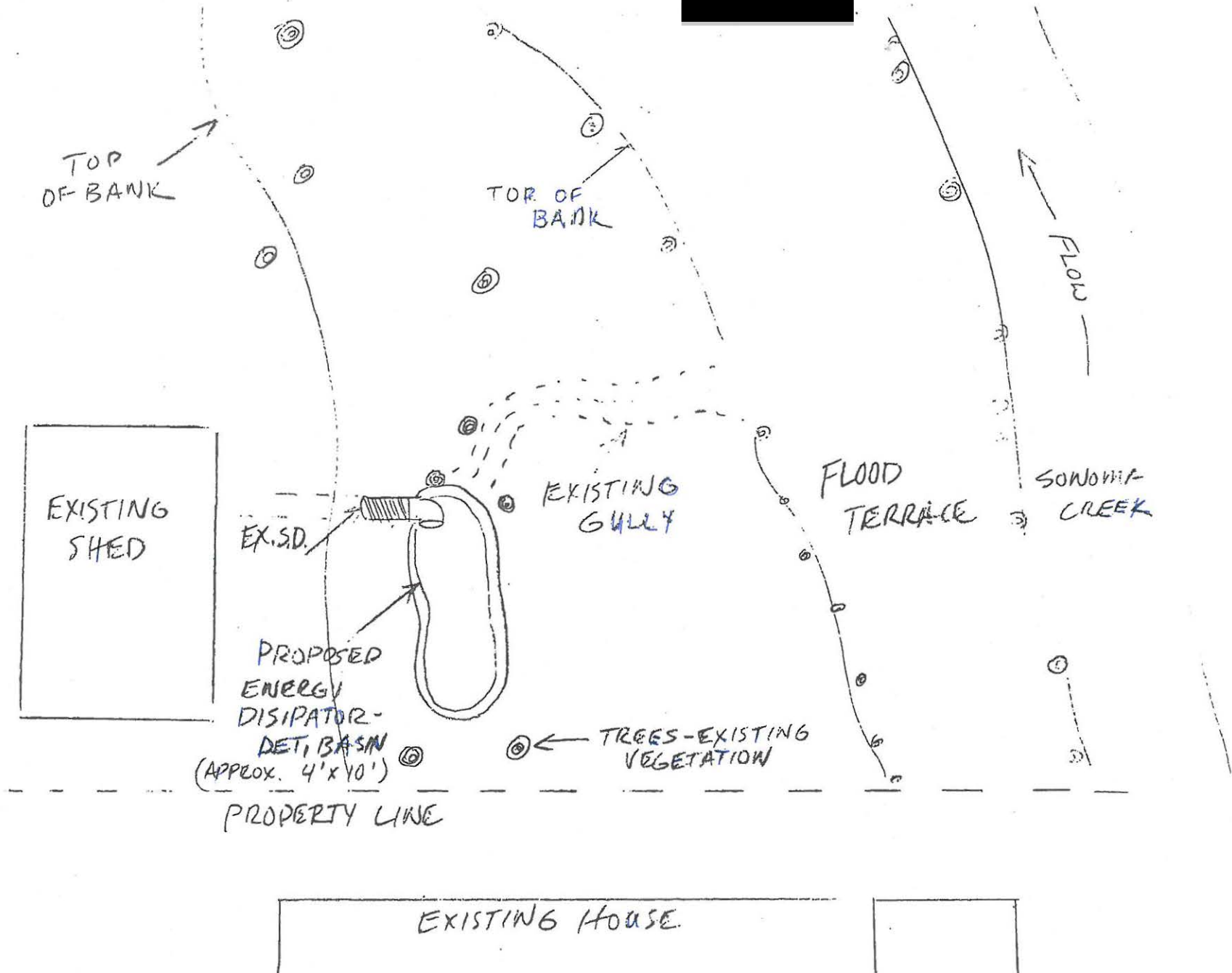
SONOMA ECOLOGY CENTER - TMDL IMPLEMENTATION PROJECT
PROPOSED STORM DRAIN ENERGY DISSIPATOR - DETENTION BASIN

- CROSS SECTION
NTS



SONOMA ECOLOGY CENTER - TMDL IMPLEMENTATION
PROJECT PROPOSED STORM DRAIN ENERGY DISSIPATOR
DETENTION BASIN FOR [REDACTED]

- PLAN VIEW
N.T.S





SONOMA ECOLOGY CENTER

Protecting the beauty and biodiversity of Sonoma Valley

Sediment Reduction and Habitat Enhancement Plan for [REDACTED] Properties

July 2, 2014

[REDACTED] ([REDACTED] Adobe Canyon Rd, Kenwood)

SITE DESCRIPTION

Property is located at [REDACTED] Adobe Canyon Rd. The property is primarily used for agricultural production, including vineyard and vegetable production. The property is organically managed and herbicide application must be conducted at minimum 25' from production areas. Sonoma Creek makes up the western boundary of the property. The creek frontage is approximately 240' in length with varying widths from approximately 5' to 40'.

The upstream section running approximately 180' in length is exposed with minimal tree canopy and sparse understory vegetation. The substrate is mixed cobble, gravel, and loose soils. European annual grasses dominate this section of the creek, with *Baccharis salicifolia* (native mulefat) interspersed on the bank edge. A few, large Agaves, planted by the landowner to reduce erosion, are established along the top of bank.

Erosion is actively occurring on the outside bend of a meander in the creek, just upstream of the residence. According to the landowner, this portion of the creek must be maintained on a regular basis to prevent the creek from eroding into the developed areas of the property. The landowner is currently working with a local contractor to grade the gravel in the creek bed to protect the property. Work is tentatively scheduled for this year, but may be postponed to integrate native plant revegetation into the grading plan.

The downstream section of the property exhibits a primarily intact riparian system dominated in certain areas by *Rubus armeniacus* (Himalayan blackberry) and *Vinca major* (periwinkle) along the bank edge and in the active channel. The upper bank is comprised of young redwood trees forming a closed canopy in the area adjacent to the residence.

RECOMMENDATIONS

Upstream Section – SEC recommends comprehensive weed control and native plant revegetation in the exposed section of the creek upstream of the primary residence. Agave and other weeds should be removed to allow replanting with native species. The objective is to establish a multi-tiered canopy of understory shrubs and trees that upon maturity shades the creek bed.

Eroded meander - During the proposed creek bed grading work we recommend that willow wattles and stakes be installed to reduce erosional forces on the outside bank. Additional plant material will increase roughness in the stream, thereby reducing water velocity. Upon establishment, the additional vegetation will add more habitat value and resist erosion.

Downstream Section - Activities in this area would include invasive plant removal and native plant revegetation to establish a mixed species understory and add young trees and shrubs to increase biodiversity and resiliency for future climate adaptation.

(Adobe Canyon Rd, Kenwood)

SITE DESCRIPTION

Property is located at 429 Adobe Canyon Rd. Like the downstream property, this land is also primarily used for agricultural production and managed organically. Sonoma Creek is the western boundary of the property and the length of creek frontage on is approximately 800' in length. A short rock wall/fence sits at the top of bank, reducing the width of riparian area. Greatest width is found behind the Casa Verde residence.

RECOMMENDATIONS

The riparian area is primarily intact on this property with a large patch of *Rubus armeniacus* found behind the residence. Otherwise only a handful of *Rubus armeniacus*, *Vinca major*, and mint is found interspersed in a primarily native habitat. SEC recommends that these weeds be treated as soon as possible to prevent further spread and dispersal of material.

Native plants found on and in vicinity of both properties include:

Acer macrophyllum
Alnus rhombifolia
Artemesia douglasiana
Baccharis pilularis
Baccharis salicifolia
Calycanthus occidentalis
Carex nudata
Clematis linguistifolia
Elymus glaucus
Fraxinus latifolia
Physocarpus capitatus
Quercus sp.
Rosa californica
Rubus ursinus
Salix sp.
Scrophularia californica
Symphoricarpus albus
Umbellularia californica

These plant species will make up the planting palette for native plant revegetation efforts. Additional native bunch grass including *Hordeum brachyantherum*, *Elymus glaucus*, *Festuca californica*, and *Festuca rubra* will be included in the planting palette to add complexity within the riparian corridor.

IMPLEMENTATION METHODS

Weed Eradication Methods

Invasive species eradication will be supervised and/or implemented by a restoration specialist. A combination of control methodologies will be used, including manual control (hand pulling and cutting), and herbicide treatments. Choice of control methods depends on site-specific conditions and appropriate methods for individual species. Site specific conditions include substrate, proximity to water or to existing desirable vegetation, time of year, topography, stage of growth, and the size of the infestation. Herbicide treatments will be done in accordance with California Department of Fish and Wildlife regulations and be completed by a Department of Pesticide Regulation licensed applicator. Weed eradication methods recommended by the California Invasive Plant Council and/or a certified Pest Control Advisor will be

followed for each invasive species to maximize effectiveness. When chemical control is the best choice for removal, we will use the cut-stump or foliar spray method for the English ivy, periwinkle, smilgrass, and Himalayan blackberry. Only herbicide approved for use within aquatic habitats will be used near the creek. Weeds will be hand pulled or brush cut around the native plantings.

Native Plant Installation

Container Plant Acquisition

Plants needed for re-vegetation are propagated at the Sonoma Ecology Center Native Plant Nursery. Propagule sources will be collected from the project site or within the Sonoma Creek watershed. Plants will be grown in restoration containers including, super cells (small), D-pots (med.), and tree or gallon pots (large). Depending on availability and site conditions, substitutions will be made only from other species that are known from Sonoma Creek watershed, and only after consulting with the project manager. If willow staking is necessary, material for willow revetments and staking will be acquired at the time of the installation from a large source of willow near the project area or within the watershed.

Container Plant Installation

Plant locations will initially be identified with colored flags placed by an ecologist. Plant holes will be dug or drilled with an auger where necessary to allow deep root penetration for maximum stability. Holes will be twice the width and equal to the depth of the root ball of the plant. Holes will be filled, tamping down the soil to remove air pockets and watered immediately. Fertilizer will be added to the soil at the time of planting in areas above the normal high water line. Additional fertilizer is not recommended since it may promote weed growth in the planting areas. Planting will be done directly into native soil on the lower, mid and upper bank.

Trees and shrubs installed in areas above the flood plain will be protected with plastic cages held in place with bamboo stakes where herbivore predation may be a problem. Some trees will exceed browsing height in 1 year, while others, such as upland species may take 5 or more years and will require protection of the central growing tip for the duration. Weed fabric or mulch will be installed around woody specimens planted on the upper bank to suppress weeds.

Irrigation and Irrigation Maintenance

SEC will install irrigation to provide adequate water for plant survival. Plants will be irrigated from approximately May through September using drip irrigation, hand watering techniques, or sprinkler system. If a drip system is feasible, each plant should receive one 1GPH emitter and receive 3 gallons of water per week in the first year. In the second year depending on climate, the plants should receive 1-2 gallons of water per week. Plants should receive 1 gallon or less per week in the third year of establishment. Irrigation system should be checked monthly through the summer to ensure that all lines and emitters are functioning properly and rodents have not chewing through the material in search of water.

General Maintenance

The project will be monitored and maintained for 3 years following initial planting. Monthly maintenance will include removing weeds within a minimum of a 2-foot diameter around planted trees and shrubs and replacing dead plants (Chapter XI, Flosi et al. 1998).

Monitoring, Plant Mortality and Replacement

Re-vegetated areas will be monitored for plant mortality in August and dead plants will be replaced that fall and winter.

Photo-monitoring stations will be set up prior to re-vegetation following the California Department of Fish and Wildlife's photo monitoring protocol (Collins 2003). Photo point locations will be chosen to capture the majority of the area and GPS point captured at each location. A compass bearing will also be recorded in the direction of each photograph to facilitate reoccupation. Each picture will be taken with a label identifying the project, site, date, benchmark number, and compass bearing. Photo monitoring will take place on a seasonal basis for the project period and beyond, as funding allows.

Permitting

All permits necessary for work are in place and ready to go through the duration of the project. SEC's Streambed Alteration permit from Department of Fish and Game is R3-2002-0580.



SONOMA ECOLOGY CENTER

Protecting the beauty and biodiversity of Sonoma Valley

PLACEHOLDER: SITE VISIT AND SITE PLAN SCHEDULED FOR AUGUST UPON LANDOWNER'S RETURN TO THE AREA

July 13, 2014

Sediment Reduction and Habitat Enhancement Plan for [REDACTED] Property

SITE DESCRIPTION

Property is located at [REDACTED] Adobe Canyon Rd. The property is primarily used for xxxxxxxx. Sonoma Creek makes up the western boundary of the property. The creek frontage is approximately xxxx in length with varying widths from approximately xxx to xxx.

The upstream section running approximately xxx in length is exposed xxxxxxxxxx. The substrate is xxxxxxxxxx. European annual grasses dominate this section of the creek, with *Baccharis salicifolia* (native mulefat) interspersed on the bank edge.

Erosion is actively occurring xxxxxx.

Upstream downstream context

RECOMMENDATIONS

xxxxxx

xxxxxx

xxxxx

Native plants found on and in vicinity of the property include:

Acer macrophyllum
Alnus rhombifolia
Artemesia douglasiana
Baccharis pilularis
Baccharis salicifolia
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Carex nudata
Clematis linguistifolia
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Physocarpus capitatus
Quercus sp.
Rosa californica
Rubus ursinus
Salix sp.

Scrophularia californica
Symphoricarpus albus
Umbellularia californica

These plant species will make up the planting palette for native plant revegetation efforts. Additional native bunch grass including *Hordeum brachyantherum*, *Elymus glaucus*, *Festuca californica*, and *Festuca rubra* will be included in the planting palette to add complexity within the riparian corridor.

IMPLEMENTATION METHODS

Weed Eradication Methods

Invasive species eradication will be supervised and/or implemented by a restoration specialist. A combination of control methodologies will be used, including manual control (hand pulling and cutting), and herbicide treatments. Choice of control methods depends on site-specific conditions and appropriate methods for individual species. Site specific conditions include substrate, proximity to water or to existing desirable vegetation, time of year, topography, stage of growth, and the size of the infestation. Herbicide treatments will be done in accordance with California Department of Fish and Wildlife regulations and be completed by a Department of Pesticide Regulation licensed applicator. Weed eradication methods recommended by the California Invasive Plant Council and/or a certified Pest Control Advisor will be followed for each invasive species to maximize effectiveness. When chemical control is the best choice for removal, we will use the cut-stump or foliar spray method for the English ivy, periwinkle, smilgrass, and Himalayan blackberry. Only herbicide approved for use within aquatic habitats will be used near the creek. Weeds will be hand pulled or brush cut around the native plantings.

Native Plant Installation

Container Plant Acquisition

Plants needed for re-vegetation are propagated at the Sonoma Ecology Center Native Plant Nursery. Propagule sources will be collected from the project site or within the Sonoma Creek watershed. Plants will be grown in restoration containers including, super cells (small), D-pots (med.), and tree or gallon pots (large). Depending on availability and site conditions, substitutions will be made only from other species that are known from Sonoma Creek watershed, and only after consulting with the project manager. If willow staking is necessary, material for willow revetments and staking will be acquired at the time of the installation from a large source of willow near the project area or within the watershed.

Container Plant Installation

Plant locations will initially be identified with colored flags placed by an ecologist. Plant holes will be dug or drilled with an auger where necessary to allow deep root penetration for maximum stability. Holes will be twice the width and equal to the depth of the root ball of the plant. Holes will be filled, tamping down the soil to remove air pockets and watered immediately. Fertilizer will be added to the soil at the time of planting in areas above the normal high water line. Additional fertilizer is not recommended since it may promote weed growth in the planting areas. Planting will be done directly into native soil on the lower, mid and upper bank.

Trees and shrubs installed in areas above the flood plain will be protected with plastic cages held in place with bamboo stakes where herbivore predation may be a problem. Some trees will exceed browsing height in 1 year, while others, such as upland species may take 5 or more years and will require protection of the central growing tip for the duration. Weed fabric or mulch will be installed around woody specimens planted on the upper bank to suppress weeds.

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General Maintenance

The project will be monitored and maintained for 3 years following initial planting. Monthly maintenance will include removing weeds within a minimum of a 2-foot diameter around planted trees and shrubs and replacing dead plants (Chapter XI, Flosi et al. 1998).

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Permitting

All permits necessary for work are in place and ready to go through the duration of the project. SEC's Streambed Alteration permit from Department of Fish and Game is R3-2002-0580.

Clean Streams in Sonoma County

An Initial Proposal from the County of Sonoma, City of Sonoma, and Sonoma Ecology Center to EPA's San Francisco Bay Water Quality Improvement Fund, 2014. Project timeline 2015 - 2019

Primary 10-year Outcomes

- 12 % achievement of annual sediment reduction target
- 25% achievement of annual pathogen and pesticide load reduction target

500 households, businesses, and pesticide applicators reached to reduce pesticide and pathogen loads in 2 watersheds

Repair high-priority sediment sources on 2 private parcels

Repair/replacement/enhancement of 40+ high-priority eroding culverts

Tracking progress toward targets for sediment, pathogens, and pesticides

Benefitted Species

Steelhead trout, Chinook salmon (populations in project area not listed), California freshwater shrimp, salt marsh harvest mouse, California clapper rail



Protected Lands



Private Protected Land

Publicly Owned Land



Watershed Boundary

County Boundary

Data Sources: ESRI, SCAPOSD, SCGIS, SEC. April 2014.

