



Stream Bank Stabilization Cost-Share Program

The District is committed to making a concerted effort to reduce streambank erosion and enhance riparian corridors throughout Napa County. Riparian and stream bank enhancement measures include extensive planting of riparian vegetation along exposed streambanks and removing non-native and invasive species along watercourses. In an effort to reduce streambank erosion the District offers a cost share program to assist private property owners with stream bank stabilization. The District offers three cost-share options:

1. 50/50 native riparian planting solution,
2. 50/50 bank stabilization for engineered hardscape solution,
3. 75/25 biotechnical bank stabilization solution,

Cost-Share Program Check List

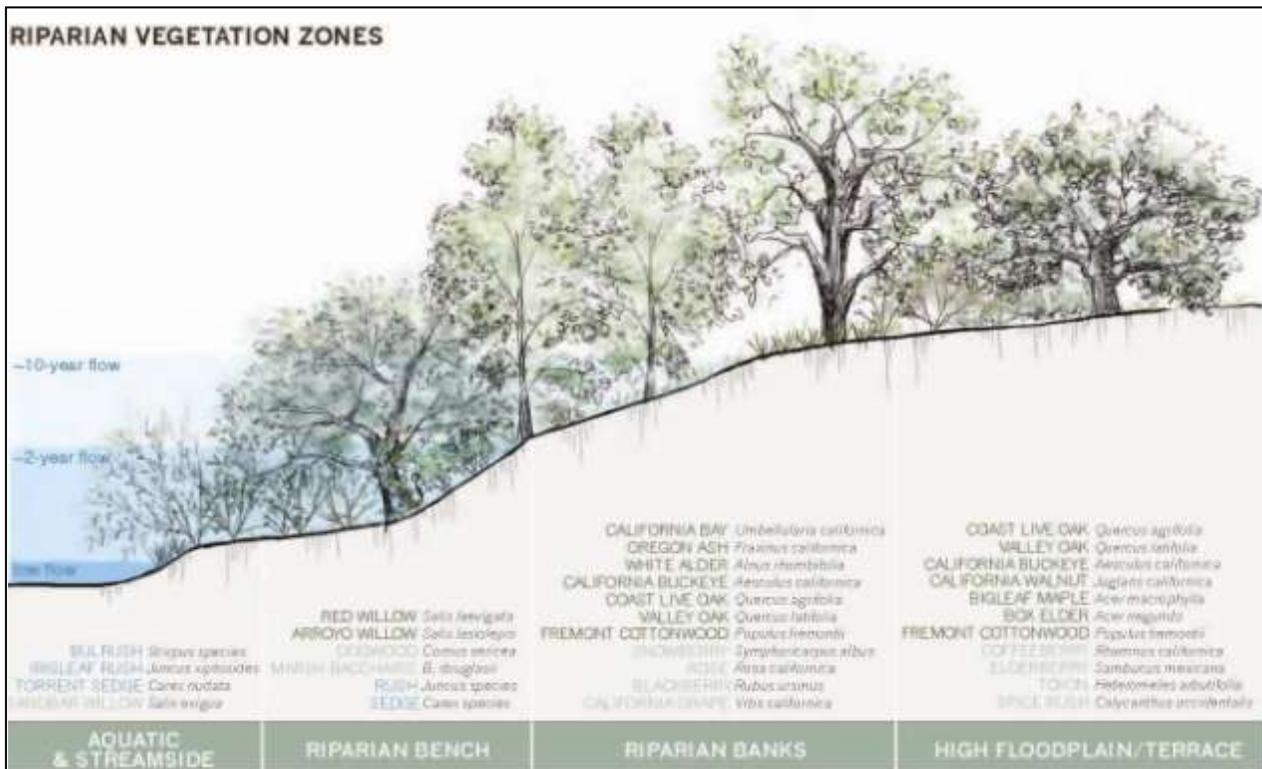
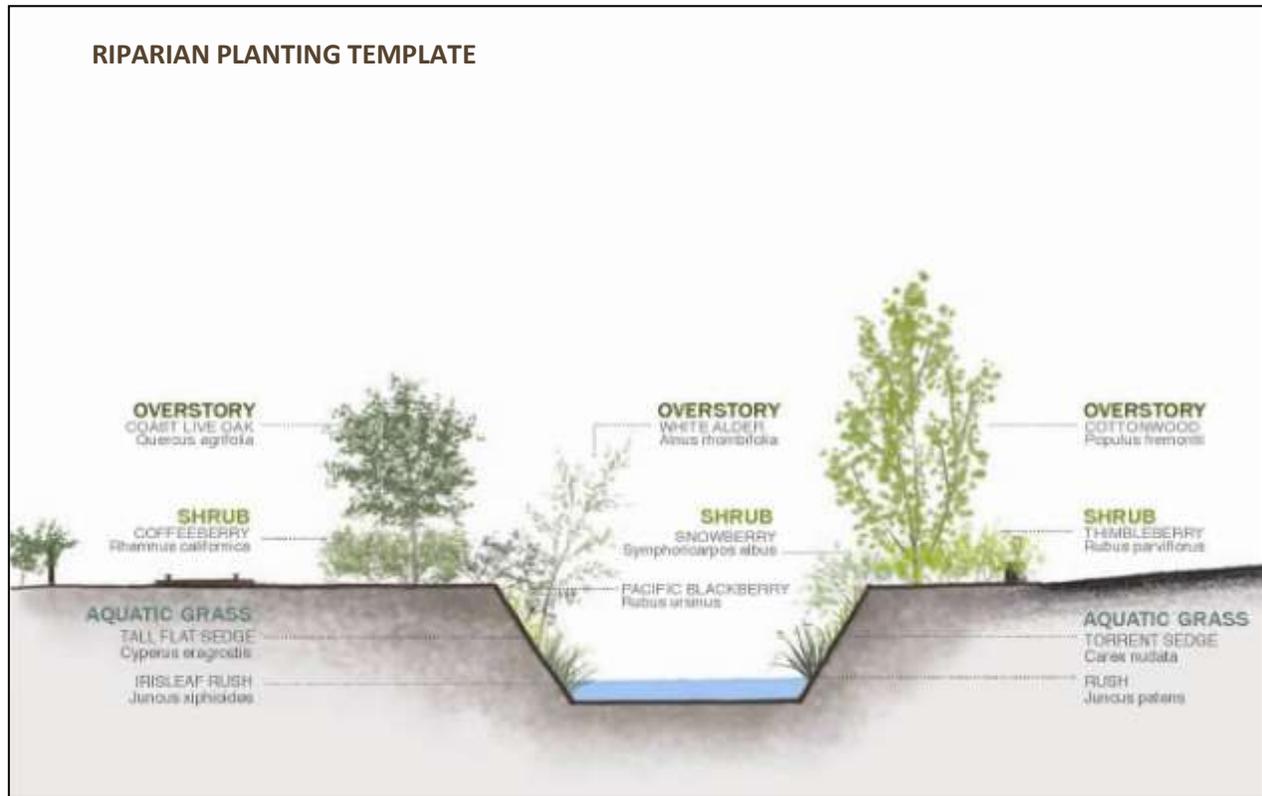
Interested parties shall follow the steps outlined below to ensure that the project is completed according to the Stream Bank Stabilization Cost Share Program procedures. To be eligible for project reimbursement each step must be completed. Further details are provided in Exhibit A of the sample agreement (page 5).

1. Meet With Flood Control District To Discuss Stream Bank Issues
2. Property Owner Contacts Design Engineer or Landscape Architect
3. Property Owner Takes Project Through Design Phase
4. Property Owner Completes & Submits Permit Application (DFG, San Francisco Bay Regional Water Quality Control Board, Army Corps of Engineers)
5. Property Owner Submits Design & Permits To Flood Control District For Review
6. Agreement Is Drafted By The District & Signed By The Property Owner
7. District Engineer Signs Off On The Project
8. Notice To Proceed Is Issued By The District
9. Property Owner Completes Project According To Design & Permits
10. Property Owner Is Reimbursed For Completed Project For The Agreed Amount Upon Proof Of Payment (Completed according to DFG Permits, Designs, and District Approval)



To schedule a site visit or request additional information on the Stream Bank Stabilization Cost-Share Program call the Flood Control District at (707)259-8624 or visit our website at www.countyofnapa.org/flooddistrict/

Napa County Flood Control & Water Conservation District



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COIR LOG AND EROSION CONTROL FABRIC

DESCRIPTION

This treatment provides simple biotechnical erosion protection and bank stabilization. A coir log placed at the toe of the slope protects from scour. Erosion control fabric protects the bank slope from erosion during the vegetation establishment period.

APPLICABILITY

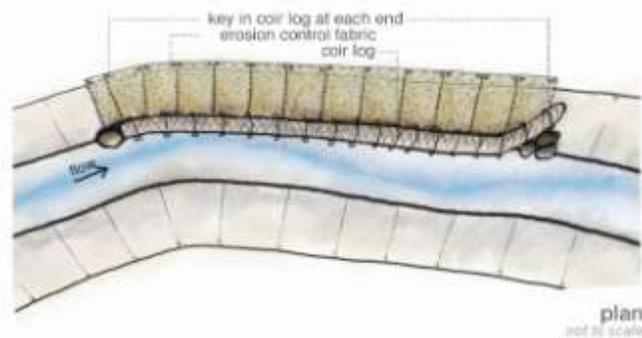
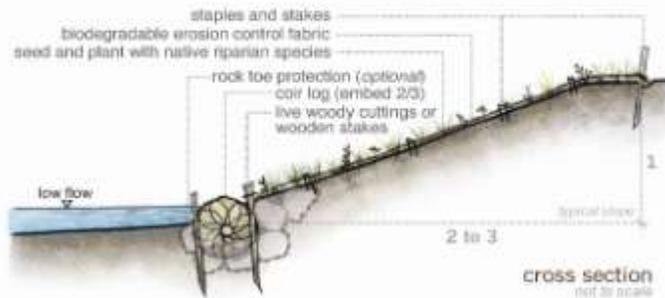
Suitable for low to moderate velocity and shear stress conditions. Recommended for newly graded banks and existing banks with 2h:1v slopes or shallower.

CONSIDERATIONS

May require a wide right-of-way to accommodate broad bank slopes.

VARIATIONS

Replace coir log with willow wattle and/or replace erosion control fabric with live brush mattress to increase vegetation cover. Where feasible, consider including a floodplain bench to increase flood flow capacity, channel complexity and diversity of riparian vegetation. Provide rock toe protection in high energy settings.



WILLOW WALL

DESCRIPTION

The willow pole cuttings are used as a biotechnical structural element to increase bank strength. Once established, willow pole cuttings will provide dense vegetated cover with high habitat value.

APPLICABILITY

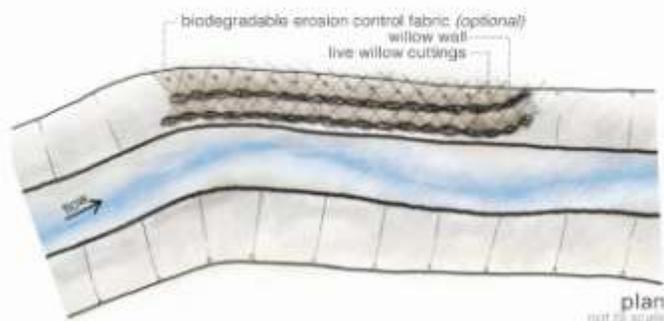
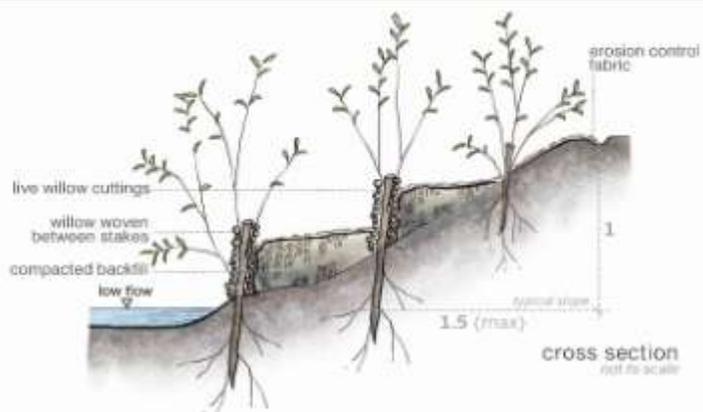
Suitable for moderate velocity and shear stress flow conditions. Suitable for steep slopes. Can be constructed with hand tools and labor, especially useful where access is limited.

CONSIDERATIONS

Generally not suitable for protecting infrastructure. Mature willows will increase roughness and may require maintenance and thinning. Site should be appropriate for increased roughness.

VARIATIONS

Can be combined with brush mattress or soil lifts.



Napa County Flood Control & Water Conservation District

ENCAPSULATED SOIL LIFTS

DESCRIPTION

This treatment uses soil and sediment wrapped in erosion control fabric to reconstruct stream banks. Live willow cuttings are planted in interstitial spaces. Provides high habitat and aesthetic value once vegetation is established.

APPLICABILITY

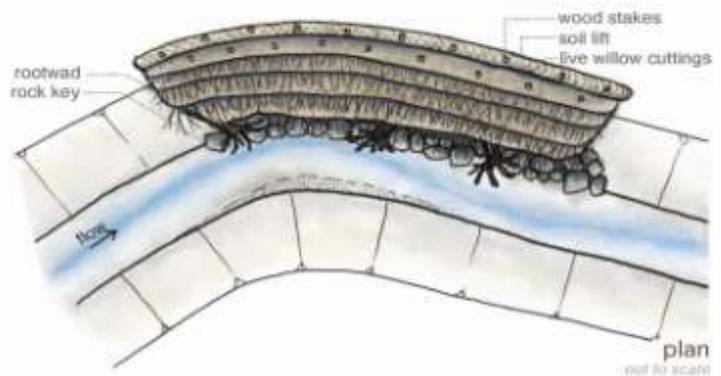
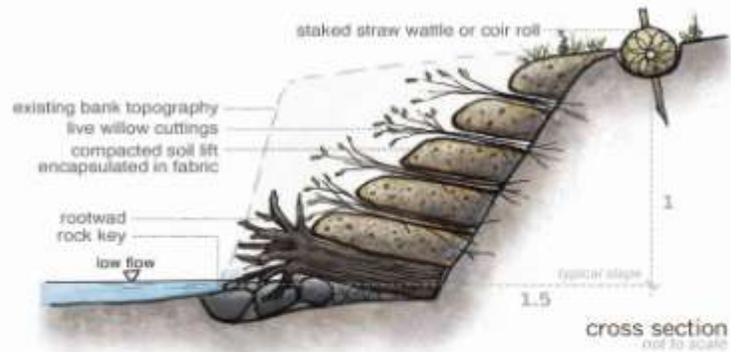
Suitable for steep slopes with moderate to high velocity and shear stress flow conditions. Appropriate for confined areas or constricted right-of-ways.

CONSIDERATIONS

Costly to construct and requires good access. Reuse native bank soil when feasible. Incorporate root wads or large woody debris when feasible to increase habitat complexity.

VARIATIONS

Provide rock toe protection in high energy settings.



CRIB WALL

DESCRIPTION

This treatment involves construction of an engineered log crib structure filled with native soil and/or stream substrate. Suitable for restoring or establishing native riparian vegetation on extremely steep slopes. Provides high habitat value on confined, steep banks.

APPLICABILITY

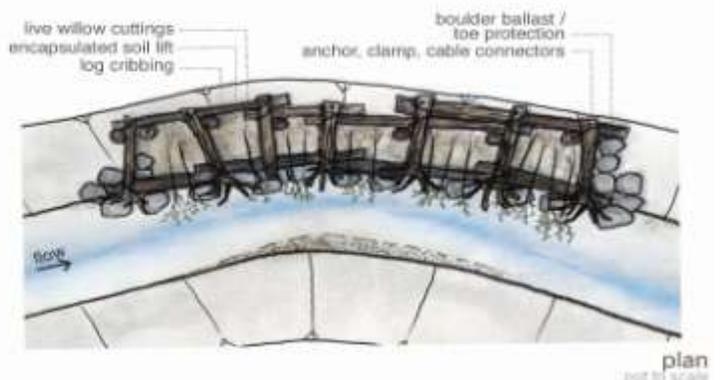
Suitable for high velocity and high shear stress flow conditions for stream reaches with steep, overhanging banks. May be appropriate where right-of-way is highly constrained or where valuable infrastructure is threatened by erosion.

CONSIDERATIONS

Costly to construct and requires heavy equipment access. Requires boulder ballasts and anchoring. Risk of downstream impacts if crib wall is dislodged in high flows. Reuse native bank soil when feasible.

VARIATIONS

Transition to encapsulated soil lifts above ordinary high water.



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Native Riparian Planting List

Trees			
<i>Scientific Name</i>	Common Name	Planting Area/Zone	Habitat and Suitability
<i>Acer macrophyllum</i>	Big leaf maple	Mid to Upper Bank	Preferred species, relatively upright growth, wide spreading well adapt to toe and mid bank.
<i>Acer negundo</i>	Box Elder	Mid to Upper Bank	Spreading well adapt to heavy soils
<i>Alnus rhombifolia</i>	White alder	Toe to Mid Bank	Preferred species, relatively upright growth, wide spreading well adapt to toe and mid bank.
<i>Aesculus californica</i>	California buckeye	Upper Bank	Preferred species, relatively upright growth, wide spreading well adapt to toe and mid bank.
<i>Fraxinus latifolia</i>	Oregon Ash	Toe to Mid Bank	Preferred species, relatively upright growth, wide spreading well adapt to toe and mid bank.
<i>Juglans californica</i>	N.California Black Walnut	Mid to Upper Bank	Adds diversity
<i>Populus fremontii</i>	Fremont cottonwood	Toe to Mid Bank	Upright growth, wide spreading, well adapted to mid and upper bank plantings
<i>Quercus agrifolia</i>	Coast live oak	Upper Bank	Relatively upright growth, wide spreading, well adapted to mid and upper bank plantings
<i>Quercus lobata</i>	Valley oak	Upper Bank	Relatively upright growth, wide spreading, well adapted to mid and upper bank plantings
<i>Salix laevigata</i>	Red willow	Toe to Mid Bank	Preferred species, relatively upright growth, wide spreading, well adapted to mid and upper bank plantings
<i>Salix lasiolepis</i>	Arroyo willow	Toe to Mid Bank	Fast growth, spreading,
<i>Umbellularia californica</i>	California bay laurel	Upper Bank	Relatively upright growth, wide spreading, well adapted to mid and upper bank plantings
Shrubs			
<i>Baccharis douglasii</i>	Marsh bacharis	Toe to Mid Bank	Suitable, may need to control stem density over time
<i>Bacharis salicifolia</i>	Mulefat	Toe to Mid Bank	Suitable, may need to control stem density over time
<i>Calycanthus occidentalis</i>	Western spicebush	Toe to Mid Bank	Suitable, may need to control stem density over time
<i>Cornus sericea</i>	Stream dogwood	Toe to Mid Bank	Suitable, may need to control stem density over time

Napa County Flood Control & Water Conservation District

<i>Corylus cornuta californica</i>	California Hazelnut	Mid to Upper Bank	Suitable, adds diversity and forage
<i>Holodiscus bicolor</i>	Toyon	Upper Bank	Suitable, adds diversity and forage
<i>Rhamnus californica</i>	Coffeeberry	Upper Bank	Suitable, adds diversity and forage
<i>Rosa californica</i>	California wild rose	Toe to Upper Bank	Suitable, may need to control stem density over time
<i>Symphoricarpos albus laevigatus</i>	Snowberry	Mid to Upper Bank	Suitable, adds diversity and forage
<i>Sambucus mexicana</i>	Blue elderberry	Upper Bank	Suitable, adds diversity and forage, may need to control stem density over time
<i>Rubus Ursinus</i>	California blackberry	Toe to Mid Bank	Possible Himalayan blackberry competitor
Grasses/Sedges			
<i>Carex barbarae</i>	Santa Barbara sedge	Toe to Upper Bank	Rhizomatous, excellent soil binder
<i>Carex nudata</i>	Torrent Sedge	Toe to In-Channel	Use in higher gradient gravel and cobble substrate
<i>Eleocharis macrostachya</i>	Pale spikerush	Toe to In-Channel	Rhizomatous
<i>Elymus glaucus</i>	Blue wild rye	Mid to Upper Bank	Clumping heavy seeder
<i>Festuca californica</i>	California fescue	Mid to Upper Bank	Rhizomatous, excellent soil binder
<i>Juncus effusus</i>	<i>Pacific Rush</i>	Toe to In-channel	Clumping heavy seeder
<i>Juncus patens</i>	Common Rush	Toe to In-Channel	Clumping heavy seeder
<i>Hordeum brachyantherum</i>	Meadow barley	Toe to Mid Bank	Tufted, heavy seeder
<i>Leymus triticoides</i>	Creeping wild rye	Toe to Upper Bank	Rhizomatous, excellent soil binder
<i>Leersia oryzoides</i>	Rice cut grass	In-Channel	Possible cattail competitor

Napa County Flood Control & Water Conservation District

**NAPA COUNTY FLOOD CONTROL AND WATER
CONSERVATION DISTRICT AGREEMENT NO. NCFCDWCD _____**

(STREAMBANK COST SHARING AGREEMENT)

Project Name: OWNER NAME – CREEK NAME Bank Repair

Owner: OWNER FULL NAME

APN: _____

Site Address: _____

THIS AGREEMENT (“Cost-Sharing Agreement”) is made and entered into as of this ___ day of ____, ____, by and between the NAPA COUNTY FLOOD CONTROL & WATER CONSERVATION DISTRICT (“DISTRICT”) and the persons and/or entities (“OWNER”) listed above as the owner(s) of Napa County Assessor’s Parcel No. _____ (“the Property”);

RECITALS

This Cost-Sharing Agreement is made in recognition by DISTRICT and OWNER of the following facts:

1. OWNER owns the Property and has the authority to enter into this Agreement and to be bound by the terms hereof.
2. DISTRICT, by action of its Board of Directors at a regular meeting on June 8, 2010, approved modifications to the District Engineer’s policy guidelines (“Policies and Guidelines”) that were originally adopted on April 1, 1997 for a program providing property owners reimbursement of a portion of the costs of designing, permitting, repairing and restoring damaged river and stream banks under the circumstances, terms and conditions set forth in Exhibit “A”, attached hereto and incorporated by reference herein.
3. DISTRICT has budgeted funds for such eligible cost sharing assistance and the District Engineer is authorized to determine eligibility and enter into an agreement with OWNER, pursuant to the policies mentioned above.
4. River and stream bank damage suffered on the Property as a consequence of floods can be repaired or remedied through a project (“Project”) of reconstruction and stabilization meeting the eligibility requirements of the Policies and Guidelines, the project description, plans and specifications (“Plans and Specifications”) of which, prepared by a licensed engineer or qualified landscape profession retained by OWNER, are set forth in Exhibit “B”, attached hereto and incorporated by reference herein.

Napa County Flood Control & Water Conservation District

5. Having obtained at least two bids from a duly licensed contractor for completion of the Project in accordance with the Plans and Specifications and an estimate of Project costs based thereon, OWNER has requested, as shown on Exhibit "C", attached hereto and incorporated by reference herein, and DISTRICT is willing to enter into this Cost-Sharing Agreement for the funding by DISTRICT, depending on the type of project, up to 75% of the costs of the Project, in accordance with the Policies and Guidelines on a reimbursement basis, with all initial outlays being made by OWNER.

TERMS

NOW, THEREFORE, DISTRICT and OWNER agree as follows

1. OWNER shall be solely responsible for all payments due or owing to any person or entity for services performed or materials provided in connection with completion of the Project. No reimbursement of OWNER by DISTRICT for any of the costs of the Project shall be made by DISTRICT until all work is complete and documentation of the actual costs and payment therefore has been provided to DISTRICT as set forth in (3), below.

2. OWNER hereby grants DISTRICT, its representatives, and the representatives of any agency issuing permits for or otherwise having jurisdiction over the Project a right of entry onto the Property as well as a right of entry onto and right of passage over any other land owned or within the legal possession of OWNER where deemed necessary by DISTRICT or such agency to obtain access to the sites of the Project on the Property. In addition to granting such right of entry, OWNER shall cooperate with all such agencies and representatives in the accomplishment of the Project.

3. Upon receipt by DISTRICT's Engineer of a notice of completion and a written claim completed on a form satisfactory to the DISTRICT Engineer and DISTRICT Auditor, and depending on the nature of the project, an amount equal to 50 or 75% of the actual, documented construction costs, but not to exceed \$30,000 in total, shall be reimbursed by DISTRICT to OWNER.

4. OWNER shall retain and make available to DISTRICT for copying and inspection upon request all records pertaining to the design, construction, completion, maintenance and costs of the Project for at least five years following completion of the Project as signified in the notice of completion.

5. Except for the designation of an individual to act as a liaison pursuant to this Cost-Sharing Agreement, to the extent that DISTRICT makes any commitments, assumes any responsibility, or is required to perform any act under the terms of this Cost-Sharing Agreement or the underlying public law, such commitments, responsibilities and performances shall become the responsibility of OWNER.

6. OWNER agrees that the Project shall be conducted and completed in accordance with the Plans and Specifications. To the extent that any changes in such work or the Plans and Specifications become necessary in the opinion of either OWNER or DISTRICT, OWNER agrees to be bound by, and to pay OWNER's share of the cost of any such changes and to be solely responsible for retaining any licensed engineers, contractors or other professionals necessary to design and/or implement.

7. OWNER specifically acknowledges that any delays or stoppages effecting the commencement or completion of the Project shall not result in any further responsibility of DISTRICT and,

Napa County Flood Control & Water Conservation District

to the extent DISTRICT has or claims to have, an obligation to third parties under this Cost-Sharing Agreement, such obligation shall become the obligation of OWNER.

8. OWNER hereby agrees to indemnify, save and hold DISTRICT harmless from any claims, losses, judgment or expense, including reasonable attorneys' fees, arising from the work undertaken to complete the Project, the design of the Project, or the subsequent use or maintenance of the Project.

9. OWNER and DISTRICT mutually acknowledge that, while the partial public reimbursement of OWNER for costs incurred in completion of the Project serves in part a public purpose through facilitating and expediting remediation of a possible threat to public as well as private resources in the event of future flooding events, nevertheless it is the intention of the parties that OWNER shall have sole responsibility for ownership, design, contracting, oversight, control, and completion of the Project; that nothing in this Cost-Sharing Agreement shall convey to DISTRICT any easement or property rights to the Property or Project; that nothing in this Cost-Sharing Agreement shall imply or be interpreted so as to result in the Project being deemed a "public project", "public contract", or DISTRICT project for any purposes, including but not limited to laws pertaining to competitive bidding or payment of prevailing wages on public projects, permit exemptions, tax exemptions, or public liability; and that nothing in this Cost-Sharing Agreement shall impose on DISTRICT any responsibility for future use or maintenance of the Project.

IN WITNESS WHEREOF, this Agreement was executed by DISTRICT and OWNER as
of the date first above written.

FIRST NAME LAST NAME and FIRST NAME LAST NAME

By: _____

"OWNER"

NAPA COUNTY FLOOD CONTROL AND
WATER CONSERVATION DISTRICT

<p>APPROVED AS TO FORM</p> <p>Office of District Counsel</p> <p>By: _____</p> <p>Date: _____</p>

By: _____

Phillip M. Miller , P.E., District Engineer

"DISTRICT"

EXHIBIT A

Napa County Flood Control and Water Conservation District Stream Bank Stabilization Program

Do you own property with or along a creek? Is the creek eroding or undermining your property? The Flood Control District has a program that can help you permanently stabilize stream banks affecting your property. Contact Shaun Horne at the Flood Control District at (707) 259-8624 for more information or to apply.

ELIGIBILITY POLICIES

1. Property must be ***privately owned***.
2. The Owner must ***not be eligible for financial assistance from any other known grant funds*** for bank repairs or the removal of invasive non-native plants and the restoration of native plants. District staff will assist the owner in making this determination, and if necessary, put the owner in contact with the appropriate agency.
3. A professional engineer must design structural repairs. Qualified landscape professionals in consultation with the local office of the United States Department of Agriculture / Natural Resources Conservation Service (USDA/NRCS) may design non-structural or bio-engineered repairs. Such designs must utilize stream assessment protocols established by the NRCS/NCRCD, and meet "Stream Corridor Improvement" practice standards. In either case ***the installation is to be performed by a licensed contractor***.
4. The ***Owner must agree to maintain the resulting improvements and*** keep them up to standards acceptable to the District and all agencies issuing permits for the repair and restoration project. The owner must also agree to allow the District access for inspection purposes on an annual basis for up to five (5) years.
5. The ***stream bank must show evidence of serious erosion, or*** in the opinion of District or NRCS staff, have the very ***real potential of serious erosion*** occurring during high flows if left unprotected, or have the presence of significant amounts of invasive non-native plants. Protective measures shall be those that are deemed to be permanent in nature.

IMPLEMENTATION POLICIES

1. ***Owner must apply to the District for assistance prior to making permanent repairs or improvements. District will not reimburse Owner for work done prior to the District's granting of written authorization to proceed.***
2. Upon receipt of a written request to participate in the District's program, District staff will perform a field check with Owner to check the severity of the stream bank erosion, potential for erosion or the significant presence of invasive non-native plants.
3. District staff will then make a determination of Owner eligibility.
4. Owner will be required to enter into an agreement with the District identifying the obligations of both parties. The District Engineer is authorized to execute said agreements on behalf of the District.

5. **Owner shall be responsible for contracting with a professional engineer or qualified landscape professional for the preparation of plans, specifications, cost estimates and construction inspection.**
6. Plans will be reviewed and approved by District staff and shall conform to the Standards that the District uses for similar projects under District jurisdiction and ownership.
7. **Owner shall be responsible for hiring a licensed contractor** to construct the repairs and improvements in accordance with the approved plans and specifications.
8. **Owner shall obtain all legally required permits and /or licenses from federal, state and local regulatory agencies and agrees to complete all permit required monitoring and reporting. Non-compliance with permit conditions may result in District's refusal to reimburse Owner's costs, depending on the nature of the non-compliance and at the sole discretion of the District Engineer.**
9. District shall reimburse Owner upon:
 - a. Receipt of a statement from the Engineer or qualified landscape professional that the work was performed in substantial conformance to the regulatory agency permits, and approved plans and specifications, including all required mitigation planting etc.
 - b. Receipt of evidence that the contractor has been fully paid, indicating the amount that was paid for the eligible work. This should be in the form of a signed letter or final zero balance invoice sent to the District by the contractor or copies of canceled checks and
 - c. A final inspection of the completed project by Flood District staff.
10. **District funds shall be used to reimburse Owner for 50% of the cost of construction and other related expenses such as permit fees, design costs and construction inspection, up to a maximum amount of \$30,000. Designs that utilize bioengineering techniques, as defined below, will be reimbursed 75% of the aforementioned costs.**
11. **Bioengineering construction methods are those that incorporate structural repairs with native vegetation and are designed to protect and enhance the riparian environment. Bioengineered methods are designed to work with the natural geomorphic conditions in a stream versus to control erosion by simply armoring the stream bank. Generally, a setback of active land use at the top of the stream bank is also encouraged whenever possible. Approval of the Project for the higher reimbursement percentage (75% versus 50%) will be based on the sole discretion of the District Engineer.**
Projects involving only non-native invasive vegetation removal and replanting with native plants (no regarding of streambank or armoring) will be reimbursed at 50%.
12. Completed projects shall be maintained by owner to standards acceptable to the District.
13. District shall be granted access rights to inspect the facility at any time during and after construction.
14. Project approvals shall be granted on a 'first come, first served' basis determined by the date that the Owner signs the Project Agreement. Project approval will be revoked if construction has not been completed within one (1) year of the date the Owner signs the Project Agreement. District Engineer has the authority to grant an extension of time if Owner can demonstrate that he/she has proceeded with due diligence and that factors beyond his/her control have delayed the project.

Stream Bank Stabilization Cost Share Program

15. The District Engineer is authorized to execute agreements committing no more than the total amount of money budgeted in any given fiscal year. He can also establish a waiting list of Project Agreements that have been signed by Owners in order to continue the 'first come, first served' policy. Owners who wish to proceed in advance of the District's commitment of funds will be eligible for reimbursement only if funding eventually becomes available; said funding extends to their place on the waiting list; and if they have followed all program criteria. District staff is authorized to assist Owners on the waiting list as they would Owners with funded projects, to review and approve plans and do project inspection. The reason for this is to give incentive to Owners to make repairs before the next rainy season, rather than wait for the next year's budget appropriation. The waiting list will also assist the Board in measuring the demand for this program.