

# Carson Valley Conservation District

Est. 1937

## District Priorities

- Channel Clearing, Snagging and Maintenance
- River Restoration
- Bioengineering
- Education Outreach
- NDOT Stormwater, Erosion Mitigation from rightaway
- Floodplain Rehabilitation
- Noxious Weed Treatment
- Assisting Agriculture
- Assisting NRCS with programs



## Channel Clearing, Snagging and Maintenance HWY 88 Bridge

- Removed 8,136 Cubic Yards of flood debris
- Manually cut, burned and removed 2 large woody debris piles



# Before Construction





# After Construction





# Chanel Clearing and Snagging Lutheran Bridge

- Removed 8,448 Cubic Yards of flood debris
- Manually cut, burned and removed 18 large woody debris piles





# Before Construction





# After Construction







## Channel Clearing, Snagging & Maintenance Cradelbaugh Slough

- Removed 2,250 Cubic Yards of sediment
- Manually cut and chipped 8 tons of dead willows and trees
- Reseeded 1 acre of disturbed ground
- Installed filtration waddles near mouth of River



# Before Construction







**After Construction**



# Education Outreach

- Work with River Wranglers on annual Carson River workdays
- Assist NRCS with Ag in the classroom
- Present to Douglas County Commissioners
- Present to Douglas County Planning Commission
- Work with Douglas High School FFA
- Establishing a paid student intern position DHS







# Carson River Workdays

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## River Restoration & Bioengineering

- Avg bank height 18 feet
- Banks are vertical and continuing to erode
- Project length 600 feet





## Cradelbaugh River Bank Project

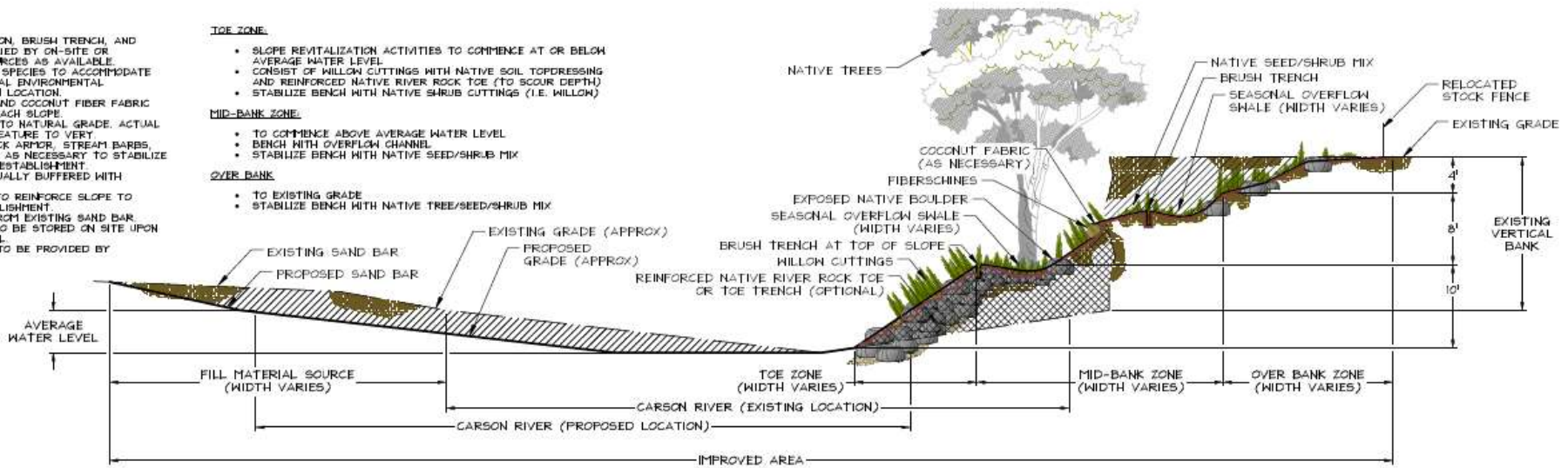
- Landowner lost additional 25 feet of bank last year
- Still waiting on Corp. permit
- Project length extended 50 feet
- Landowner fence hanging over Carson River

# NOTE:

- CUTTINGS FOR REVEGETATION, BRUSH TRENCH, AND FIBERSCHINES TO BE SUPPLIED BY ON-SITE OR ADJACENT VEGETATION SOURCES AS AVAILABLE.
- SEED MIX TO BE NATIVE SPECIES TO ACCOMMODATE GRAZING AND THE INDIVIDUAL ENVIRONMENTAL CONDITIONS OF EACH BENCH LOCATION.
- NATIVE WILLOW CUTTINGS AND COCONUT FIBER FABRIC FIBERSCHINES AT TOP OF EACH SLOPE.
- OVERALL SLOPE TO BE 3:1 TO NATURAL GRADE. ACTUAL SLOPE OF EACH SPECIFIC FEATURE TO VARY.
- REINFORCE SLOPE WITH ROCK ARMOR, STREAM BARBS, OR GEO-TECH FABRIC ONLY AS NECESSARY TO STABILIZE SLOPE FOR REVEGETATION ESTABLISHMENT.
- REINFORCEMENT TO BE VISUALLY BUFFERED WITH VEGETATION.
- NATIVE ROCK REVETMENT TO REINFORCE SLOPE TO ASSIST VEGETATION ESTABLISHMENT.
- HARVEST FILL MATERIAL FROM EXISTING SAND BAR.
- PROPOSED FILL STORAGE TO BE STORED ON SITE UPON DOUGLAS COUNTY APPROVAL.
- PROPOSED FILL MATERIAL TO BE PROVIDED BY ADJACENT SOURCE.

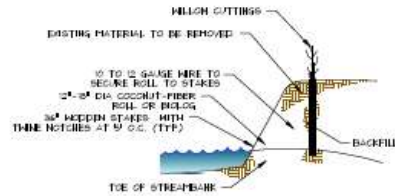
## LEGEND

- CUT
- FILL
- EXISTING GRADE
- PROPOSED GRADE



## TYPICAL SLOPE REVITALIZATION CROSSSECTION

NOT TO SCALE

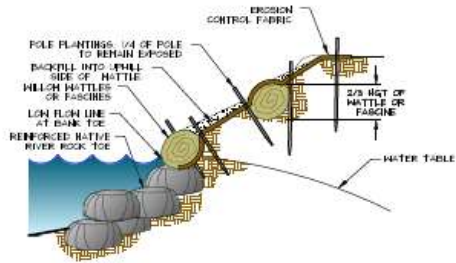


## NOTES:

- WILLOW CUTTINGS TO BE HARVEST FROM LOCAL SOURCE AS AVAILABLE.
- CLEANLY DETACH WILLOW CUTTING MATERIAL FROM EXISTING GROUND AT THE PLANT BASE. REMOVE SIDE AND TERMINAL BRANCHES. ASSURE NO BANK DAMAGE OCCURS TO REMAINING WILLOW BASE. PRESERVE AND PROTECT BASE IN PLACE.
- PROTECT HARVEST SITE FROM PERMANENT DISTURBANCE. UPON COMPLETION OF HARVEST ACTIVITY, RESTORE SITE TO NATIVE CONDITIONS.
- SOAK WILLOW CUTTINGS FOR 6-7 DAYS, BEFORE ROOTS BEGIN TO EMERGE FROM CUTTINGS.

## FIBERSCHINES WITH WILLOW CUTTINGS DETAIL

NOT TO SCALE



## WATTLES, FABRIC, AND POLE PLANTINGS

NOT TO SCALE

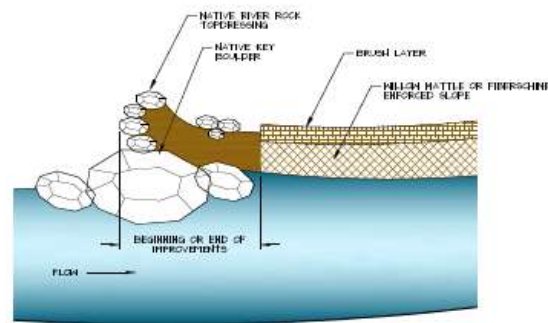


## NOTES:

- WILLOW CUTTINGS TO BE HARVEST FROM LOCAL SOURCE AS AVAILABLE.
- CLEANLY DETACH WILLOW CUTTING MATERIAL FROM EXISTING GROUND AT THE PLANT BASE. REMOVE SIDE AND TERMINAL BRANCHES. ASSURE NO BANK DAMAGE OCCURS TO REMAINING WILLOW BASE. PRESERVE AND PROTECT BASE IN PLACE.
- SECURE WILLOW BUNDLE WITH 2 POLY THINE PIECES PER BUNDLE.
- PROTECT HARVEST SITE FROM PERMANENT DISTURBANCE. UPON COMPLETION OF HARVEST ACTIVITY, RESTORE SITE TO NATIVE CONDITIONS.
- SOAK WILLOW CUTTINGS FOR 6-7 DAYS, BEFORE ROOTS BEGIN TO EMERGE FROM CUTTINGS.
- ALTERNATE DIRECTION OF WILLOW BUNDLE TO PRODUCE AN EVEN WIDTH AT THE OVERLAP LOCATION.

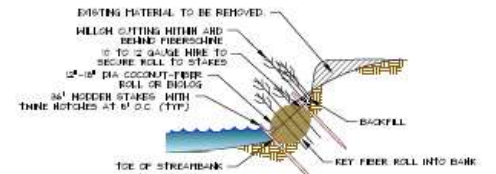
## WILLOW WATTLES DETAIL

NOT TO SCALE



## ENDPOINT PROTECTION

NOT TO SCALE



## NOTES:

- EXTEND FIBERSCHINE 6 FEET BEYOND END OF TREATMENT AREA.
- WILLOW CUTTINGS TO BE HARVEST FROM LOCAL SOURCE AS AVAILABLE.
- CLEANLY DETACH WILLOW CUTTING MATERIAL FROM EXISTING GROUND AT THE PLANT BASE. REMOVE SIDE AND TERMINAL BRANCHES. ASSURE NO BANK DAMAGE OCCURS TO REMAINING WILLOW BASE. PRESERVE AND PROTECT BASE IN PLACE.
- PROTECT HARVEST SITE FROM PERMANENT DISTURBANCE. UPON COMPLETION OF HARVEST ACTIVITY, RESTORE SITE TO NATIVE CONDITIONS.
- SOAK WILLOW CUTTINGS FOR 6-7 DAYS, BEFORE ROOTS BEGIN TO EMERGE FROM CUTTINGS.

## FIBERSCHINES WITH WILLOW CUTTINGS DETAIL

NOT TO SCALE







# Bioengineering

- Willow poles
- Willow bundles
- Willow mattress
- Willow fascines
- Juniper tree revetments
- COIR fabric
- Reseeding









## Noxious Weeds & Floodplain Rehabilitation

- Reseed all treated areas
- Reseed all disturbed areas
- Incorporate pollinators where feasible
- Continue to treat noxious weeds









## Future Projects Phase 1

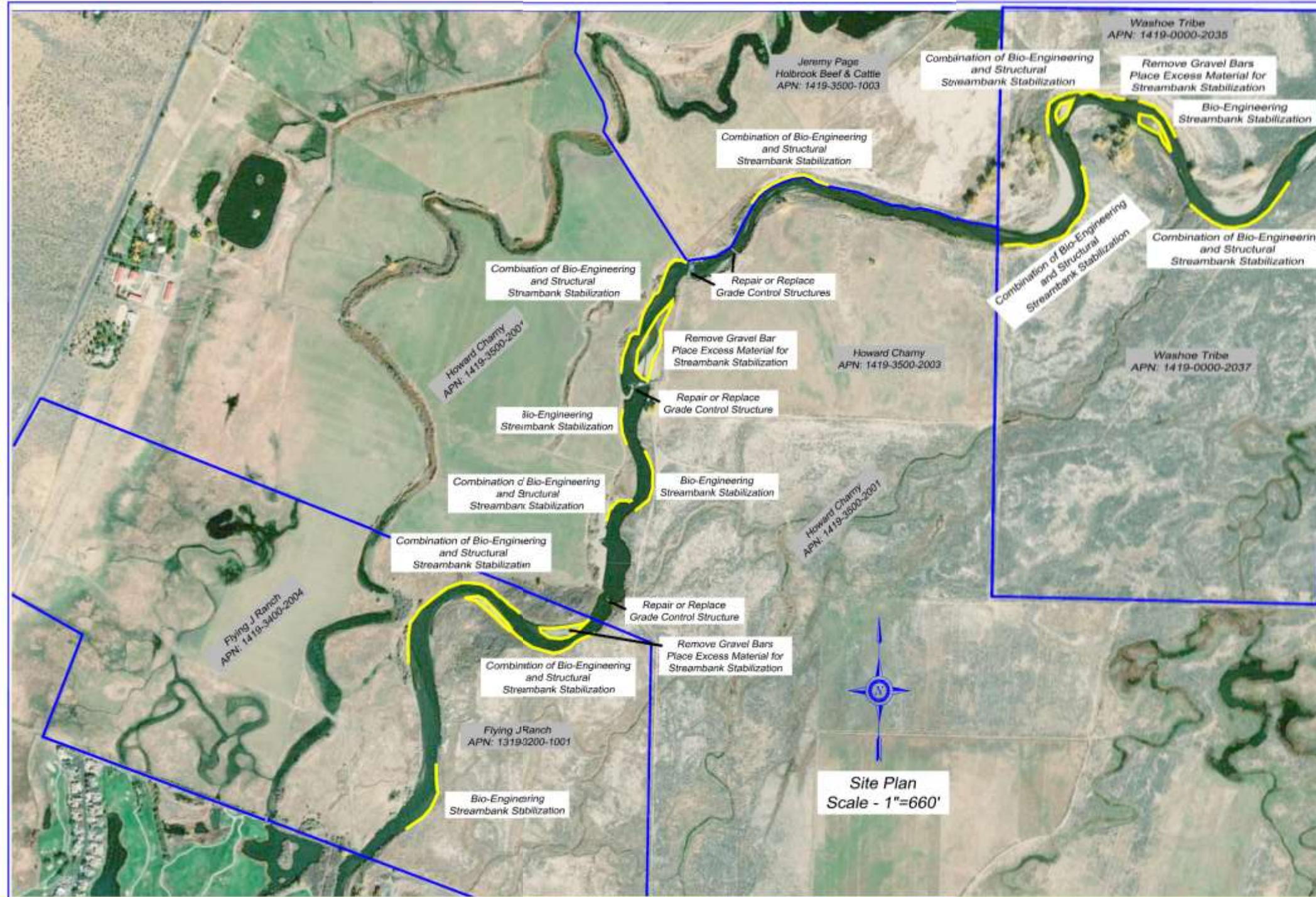
- $\frac{3}{4}$  of a mile river highly unstable and eroding
- Impacts to local producers ability to get irrigation water



# Phase 1 River Restoration

- Area is  $\frac{3}{4}$  of a mile long
- Avg bank height 9 feet
- No desirable vegetation on the banks
- Noxious weeds present
- Impacts from historic channel straightening





Date	1/2019
Designed	David J. Doughty
Drawn	David J. Doughty
Checked	
Approved	

GENOA STREAMBANK STABILIZATION PROJECTS

Site Plan

Douglas County, NV

Minden Field Office

USDA NRCS  
Natural Resources Conservation Service

File Name  
Genoa Bank 2018.dwg

Drawing No.  
NV-DOUGLAS-2019-288

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# Operational Issues

- Limited or inconsistent funding
- Very slow turnaround on requests for permits
- Additional regulatory permit requirements
- Bids exceeding engineering estimates
- Funding opportunities occur at different times during the year



# Projects Partners

- Carson Water Subconservancy District
- Douglas County
- Nevada Division of Water Resources
- Carson Truckee Water Conservancy District
- Nevada Department of Wildlife
- United States Fish and Wildlife Service
- Nevada Division of Environmental Protection
- CVCD Landowners





Questions??????