



AGENCY MEETING LONG PINE CREEK WATERSHED PLAN-EA

April 28, 2021



Agenda

- Meeting Information
- Introductions / Sign-in
- Short Presentation
 - Project Background
 - Scope, Purpose
 - Alternatives
 - Programmatic vs. Site Specific
 - Project Locations
 - Environmental Consequences
 - Schedule
- Group Discussion



Introductions







Richard Vaughn, Watershed Planning Coordinator Allen Gehring, State Conservation Engineer



Janel Kaufman, Project Manager Bob Gregalunas, Project Engineer

In-Person Attendees

• Please sign-in

• Zoom Attendees

• Please add name/agency in chat bar



Watershed Flood Prevention & Operations Background

- Authorities provided through Public Law 78-534 of 1944, Public Law 83-566 of 1954, and Public Law 156-67.
- Nationwide, NRCS has assisted <u>public sponsors</u> with construction of more than 11,400 dams in 47 states (nearly 900 in Nebraska) for the primary purposes of flood reduction and grade stabilization.
- Nebraska has had over 60 approved WFPO plans providing over \$80 million in average annual benefits.



Project Boundary



Watershed Streams



Scoping Meetings



	What would you like	this Plan to focus on?		
Water Quality	Agricultural Water Management	Fish & Wildlife Habitat	Erosion & Sedimentation	
Grade & Bank Stabilization	Stream Restoration	Water Quantity	Other	
Human Health & Safety	What resources are you Economic & Social Issues	most concerned about? Prime Farmlands	Recreation	
Fish & Wildlife	Wild & Scenic Rivers	Cultural Resources	Threatened & Endangered Species	
Unique Landscapes & Natural Areas	Streams & Wetlands	Land Use & Management	Transportation & Infrastructure	
	FYRA		Other	

Purpose & Need

The project purpose is watershed protection through onsite treatment of watershed natural resources to provide grade control, bank stabilization, and aquatic ecosystem restoration and rehabilitation within the Project Area.



Project Planning



Programmatic vs. Site Specific

Tiers





Priority 1. Location/reach has been identified as having a specific need, such as infrastructure protection or habitat improvements.

Priority 2. Location/reach has similar characteristics as other identified locations in the watershed (either Tier 1 or Priority 1) and therefore similar needs are assumed.

Priority 3. Specific needs have not been identified at this time, but future conditions will likely cause similar needs and therefore similar solutions as Priority 1 locations.

Programmatic vs. Site Specific

Programmatic Alternatives

Practice	Applicable Reaches/Sites
Habitat improvements	
Oxbow	All
Obstruction Removal	All
Aquatic Organism Passage	All
Headwaters Excavation	Mid to Upper
Gravel Enhancement	In conjunction with other practices
Pool Construction	In conjunction with other practices
Boulder Clusters	All, with special considerations
Habitat improvements with	n stream bank protection
LUNKERS	Upper
Bank Shaping	All
Clearing and Snagging	All, with special considerations
Critical Area Planting	All
Cedar Revetments	Mid to Upper
Root Wads	Mid to Upper
Streambank Protection	All
Restoration techniques wit	h channel alignment benefits
Bendway Weir	Mid to Upper
Engineered Log Jams	Upper, with special considerations
Longitudinal Peaked Stone Toe (LPST)	Mid to Upper
Stream Barb	Upper
J-Hook/Straight Vanes/Boulder Vanes	Mid to Upper
Vortex Structures, Spur Logs, Hardpoint/Wing Deflectors	Mid to Upper

Practice	Applicable Reaches/Sites
Restoration techniques with grade	control
Free Standing Rock Arch Rapids	Mid to Upper, with special considerations
Cross Vane	Mid to Upper
W-Weir	Mid to Upper
Step pool system	Upper
Rock and log riffle	Upper
Grouted Grade Control	All
Beaver Dam Analogues	Upper
Zeedyk Structures	Gullies
Channel Reconstruction, Priority 2 Stream Restoration	Mid to Upper
Grade control	
Stream Crossings	All
Flexamat Crossings	Mid to Upper
Small pond or check dam	Gullies, Mid to Upper
Rock Chutes	Mid to Lower
Rock Ramps	Mid to Lower
Sills	All
'Passive' solutions to grade control	
Irrigation Water Management	All
Off-Stream Water Development	All

Site Specific Locations

Tier 1

• Tier 1 (Site Specific) Locations

- Identified at scoping meetings and calls with landowners
- Tier 1 projects focus on immediate needs to protect upstream reaches/future projects & ability to analyze effects of future projects



Alternatives

Site Specific

Alternatives

- Landowner wishes
- NEPA guidelines
- NRCS standards and/or design guidelines
- Balanced level of protection/risk and costs
- Environmental and cultural impacts
- NWPM The recommended alternative plan must be the least costly socially and environmentally acceptable method of achieving the agreed-upon level of resource protection

Cost Share

- NRCS funding:
 - 100% of final design
 - 50% to 60% of construction, depending on practice

Site Specific Locations

Tier 1



• Identified Issues

- Degradation
- Progressing headcut
- Creek crossing
- Sedimentation
- Habitat protection



Flexamat Crossing

- Create stream crossing
- Stop existing headcut
- Protect fish passage
- Prevent further degradation





EXISTING STREAM BED		GRADE GROUND TO	Item	Unit	Quantity	Unit Cost	Cost
	FLEXAMAT OR APPROVED	TIE IN WITH EXISTING STREAM BED	Mobilization	LS	1	\$3,710	\$3,710
	45		Flexamat	SY	229	\$70	\$16,010
/ States and	1. Minimum management	5.8% SLOPE 6'	Geogrid	SF	3894	\$3	\$11,690
EXTEND FLEXAMAT 18" VERTICALLY WITH RIPRAP ON UPSTREAM AND DOWNSTREAM EDGES PROFILE VIEW NOT TO SCALE		State of the second	Filter Fabric	SY	216	\$3	\$650
			#3 Stone	TN	84	\$50	\$4,210
	CLASS "B" RIPRAP	Aggregate	CY	48.1	\$50	\$2,410	
	PROFILE VIEW		Class "B" Riprap	TN	35	\$60	\$2,100
	NOT TO SCALE					Total	\$40,780
					20% (Contingency	\$8,160
					Total with	Contingency	\$48,940

Identified Issues •



QTY

LS

CY

CY

ΤN

SY

AC

UNIT

1

7450

530

120

2510 1.2 **UNIT COST**

\$5,660

\$4

\$4

\$60

\$6

\$2,000

20% Contingency

Total

Sill with Fish Passage

- Grade control
- Aquatic Organism Passage
- Water quality

ITEM

Remove and Stockpile Topsoil

Turf Reinforcement Matting

Class "B" Rock Riprap

Mobilization

Earthen Fill

Seeding

- Habitat creation
- Habitat enhancement

Walter States	AUXILIARY SPILWAY MBANKMENT 2510
COST	TOP OF DAM
\$5,660	EL.2510
\$29,810	B A CONTRACTOR
\$2,120	S La stranger
\$7,210	2520
\$15,060	PERMANENT POOL
\$2,350	EL.2506
\$62,210	
\$12,450	STER STATISTICS A STATISTICS



Identified Issues •

- Gullies
- Degradation •
- •
- Headcuts / slope • moderation
- Habitat enhancement •



Pond

- Gully protection
- Code 378 Guidance
- Drainage Area: 35-acres
- Auxiliary Spillway: 20' Wide
- Auxiliary Spillway set at 10-year, 24-hour storm event
- Top of Dam set at 50-year, 24-hour storm event





Items	Unit	Value	Unit Cost	Cost	
Mobilization	LS	1	\$3,380	\$3,380	
Earthen Fill	CY	992	\$4	\$3,970	
Earthen Excavation	CY	1429	\$4	\$5,720	
Strip and Remove Topsoil	CY	325	\$4	\$1,310	
Seeding	AC	0.40	\$2,000	\$810	
12" HDPE	LF	148	\$118	\$17,390	
24" HDPE Riser	EA	1	\$2,000	\$2,000	
Class B Riprap	TN	42	\$60	\$2,520	
			Total	\$37,100	
		20% Con	tingency	\$7,420	
Total with Contingency					

Sediment Basin

- Gully protection
- Code 638 Guidance
- Drainage Area: 13-acres
- Designed to detain a 25-year, 24hour storm
- 5' Tall Embankment



	10 TEMPORARI MAY TIMO TO ASIST
BY FVC	EXISTING GROUND AFTER 0.5 FT

Items	Unit	Values	Unit Cost	Cost	
Mobilization	LS	1	\$2,000	\$2,000	
Earthen Fill	СҮ	330	\$4	\$1,320	
Strip and Remove Topsoil	CY	50	\$4	\$200	
Seeding	AC	0.06	\$2,000	\$130	
6" PVC	LF	90	\$12	\$1,080	
8" Slotted Riser	EA	1	\$500	\$500	
Class "B" Riprap	ΤN	4.2	\$60	\$260	
Total \$					
		20% C	ontingency	\$1,100	
			Total	\$6,590	

River Restoration Techniques

W-Weir

- Grade Control and
 Direct Flows
- Approx. \$40,000

Cross-Vane

- Grade Control and
 Direct Flows
- Approx. \$34,000

Assumes Class D/E riprap at \$100/ton







Alternatives: APE 7 Downstream

River Restoration Techniques

Bendway Weir

Grade Control and
 Direct Flows

Cross-Vane

Grade Control and
 Direct Flows

SCOUR



Alternatives: APE 7 Downstream

Grade Control Structure & Crossing

- Rock ramp
- Provides grade control, protection from impending headcuts
- 60-foot long
- Provides 10' wide stream crossing







ITEM	UNIT	QTY	UNIT COST	COST
Mobilization	1	LS	\$7,260	\$7,260
Class "C" Riprap	TON	880	\$60	\$52,800
Earthen Excavation	CY	1600	\$4	\$6,400
Grout	CY	44	\$300	\$13,340
Sheet Pile	SF	optional	\$32	\$0
	\$79,800			
	\$15,960			
	\$95,760			

Identified Issues •

- Change in slope due to Old Hwy 7 culvert blowout (steep slopes)
- Degradation ٠
- Extreme widening at • downstream end
- Trees in channel near ٠ downstream end



Rock Ramps

- Designed to capture 16 vertical feet of incoming headcut (8 ft each)
- Total Approx. Cost = \$385,000







Identified Issues •



Sills

- Each reclaims up to 6ft of grade
- Total Approx. Cost = \$946,500
 - Modify in final design based on SD4 design







• Identified Issues

- Bridge wash out (now fixed)
- Headcut 'waterfall'
- Extreme channel
 migration
- Future loss of land / buildings



Streambank Protection

• Protects 1,000-feet of bank

ITEM	UNIT	QTY	UNIT COST	COST
Mobilization	1	LS	\$30	\$30
Earthen Fill	CY	2.9	\$4	\$12
Riprap	TON	3.9	\$60	\$234
	\$276			
	\$60			
	\$336			
	1,000			
	\$336,000			





Grade Stabilization

• Protects up to a 6' drop

ITEM	UNIT	QTY	UNIT COST	СОЅТ
Mobilization	1	LS	\$26,000	\$26,000.00
Class "C" Riprap	TON	3871	\$60	\$232,280
Earthen Excavation	CY	6905	\$4	\$27,630
Total \$285,910				
20% Contingency \$57,190				
Total with Contingency \$343,100				





Buried Flank Protection

Protects downstream
 bridge

ITEM	UNIT	QTY	UNIT COST	COST
Mobilization	1	LS	\$2,350	\$2,350
Class "C" Riprap	TN	373	\$60	\$22,400
Earthen Excavation	CY	267	\$4	\$1,070
	\$25,820			
	\$5,170			
	\$30,990			





Tier 2 Locations



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Tier 2 Locations



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Priority 1	Tier 2 Project Description
B1	Stream crossing
B2	Habitat improvements, bank stabililization
B3	Restoration techniques with grade control
B4	Habitat improvements
B5	Bank stabilization
L1	Bank stabilization
S1	Habitat improvements
S2	Bank stabilization
W1	Protect existing structure, habitat improvements
W2	Grade control, bank stabilization, habitat improvements
W3	Protect existing structure
W4	Bank stabilization
W5	Grade control (gully)
W6	Grade control

Priority 2	Tier 2 Project Description
R1	Restoration techniques, habitat improvements
R2	Restoration techniques with grade control, habitat improvements
R3	Restoration techniques with grade control, habitat improvements
R4	Watershed BMPs to reduce erosion, restoration techniques with grade control, habitat improvements
R5	Habitat improvements, grade control, bank stabilization
R6	Grade control
R7	Habitat improvements, grade control, bank stabilization

Ainsworth Irrigation District

Irrigation water management

Existing Conditions & Resources

- Sediment & Erosion
- Prime & Unique Farmland
- Water Quality
- Water Quantity
- Regional Water Management Plans
- Wetlands & Streams
- Wild & Scenic Rivers
- Threatened, Endangered, & Sensitive Species
- Natural Areas
- Riparian Areas
- Fish & Wildlife Habitat
- Biologically Unique Landscapes
- Migratory Birds & Eagles
- Archeological & Historical Resources
- Environmental Justice
- Public Health & Safety
- Recreation

Existing Conditions & Resources

Examples of Resources Considered

• Wetlands & Streams

- Wetland delineations within APEs
- Stream assessments within APEs
 - NeSCAP, SVAP2, parameters for restoration techniques

Threatened & Endangered Species

- Species with potential habitat within APEs
 - American burying beetle
 - Whooping crane
 - Western prairie fringed orchid
 - Finescale dace, Northern redbelly dace, Blacknose shiner
- Species with potential habitat for other programmatic alternatives
 - Piping plover / Least tern
 - Small white lady's slipper

Archeological & Historical Resources

Surveys conducted within APEs

Schedule





Discussion & Questions



Additional Questions or Comments?

Please contact: Chandler Schmidt, MNNRD Watershed Coordinator

Email: cshmidt@mnnrd.org

Phone: 402-376-3241

Mail: Middle Niobrara NRD

303 East Hwy 20

Valentine, NE 69201

Please provide comments by May 12, 2021

