

# North Platte Basin Implementation Plan



# The NPBIP in a Nutshell:



**Members of the North Platte Basin Roundtable understood that the basic purpose of the Basin Implementation Plan was to identify projects and methods to meet basin-specific goals and to meet municipal, industrial, agricultural, environmental, and recreational needs.**

**The Basin Implementation Plan was to also inform and provide grassroots input to Colorado's Water Plan.**



# Consumptive Use Project List (14 of 27)

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No.	Project	No.	Project
1	MacFarlane Reservoir	8	Irrigation Season Protocol
2	Evapotranspiration Project	9	Irrigated Acreage Assessment Protocol
3	Walden Reservoir	10	Proposed Willow Creek Reservoir
4	Basinwide Augmentation Plan	11	Dam Ditch Headgate Improvement
5	Hanson and Wattenberg Ditch Acreage	12	Canal Maintenance and Improvements
6	Proposed Streamgage Installation	13	Instream Diversion Structure Identification
7	Storage Protocol	14	Verner SWA, North Platte River Restoration

# E&R Project List (*Example 10 of 49 Total*)

No.	Project or Segment	Project or Method	Primary Focus	Benefits	Contact
1	Bear Draw	Relocate trail out of wetland	Wetlands	Fishery, wetlands, amphibians	USFS
2	BLM Water quality/quantity: Various reaches in North Platte Basin	Monitor water quality/quantity	Water quality/quantity	Fishery, wildlife, livestock, water quality	BLM
3	Boettcher Lake Rehabilitation	Rehabilitate/replace irrigation infrastructure	Improve/increase irrigated meadows	Waterfowl habitat	DU, Private Owner
4	Boreal Toad Studies - Twisty Park/County Wide	Boreal Toad Studies	Species of concern	Amphibians	CPW
5	Brown Creek Fence	Improve water quality and riparian habitat from improved grazing management through fencing	Water quality, riparian habitat	Fishery, wetlands, amphibians	USFS
6	Brownlee SWA- North Platte River	Brownlee SWA river channel/riparian corridor habitat/water quality improvements	Improve fishery habitat, water quality, erosion control	Fishery, riparian plant community	CPW
7	Camp Creek	Remove fill & culverts from wetland	Wetlands, water quality, aquatic passage, stream function	Fishery, wetlands, amphibians	USFS
8	Camp Creek	Replace double culverts	Stream function, aquatic passage	Fishery	USFS
9	Camp Creek Fence	Improve water quality and riparian habitat from improved grazing management through fencing	Water quality, riparian habitat	Fishery, wetlands, amphibians	USFS
10	Chandler Ranch (ANWR)	Rehabilitate/replace infrastructure to resume irrigation practice	Restore irrigated meadows	Waterfowl, amphibians	ANWR

# North Platte Basin Goals

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1. Maintain and maximize the consumptive use of water permitted in the Equitable Apportionment Decree and the baseline depletion allowance of the Three State Agreement.
2. Increase economic development and diversification through strategic water use and development.
3. Continue to restore, maintain, and modernize critical water infrastructure to preserve current uses and increase efficiencies.
4. Maintain healthy rivers and wetlands through the strategic implementation of projects that meet prioritized nonconsumptive needs.
5. Describe and quantify the nonconsumptive benefits of agricultural use.
6. Promote water rights protection and management through improved streamflow gaging data.
7. Enhance forest health and management efforts for wildfire protection and beetle kill impacts.
8. Support equitable statewide application of municipal water conservation.

# Project Effectiveness per Goals

Project	Basin Goal							
	1	2	3	4	5	6	7	8
MacFarlane Reservoir	x		x	x	x			
Evapotranspiration Project	x							
Walden Reservoir	x	x	x					
Basinwide Augmentation Plan	x	x						
Hanson and Wattenberg Ditch Acreage	x		x					
Proposed Streamgauge Installation	x					x		
Storage Protocol	x							
Irrigation Season Protocol	x							
Irrigated Acreage Assessment Protocol	x							
Proposed Willow Creek Reservoir	x		x					
Dam Ditch Headgate Improvement	x		x	x				
Canal Maintenance and Improvements	x		x	x	x			
Instream Diversion Structure Identification	x		x	x	x			
Verner State Wildlife Area – North Platte River Restoration		x		x				

# MacFarlane Reservoir Dam Rehabilitation Project Effectiveness per Goals

Project	Basin Goal							
	1	2	3	4	5	6	7	8
MacFarlane Reservoir	x		x	x	x			

- Goal 1. Maintain and maximize the consumptive use of water permitted in the Equitable Apportionment Decree and the baseline depletion allowance of the Three State Agreement.
- Goal 3. Continue to restore, maintain, and modernize critical water infrastructure to preserve current uses and increase efficiencies.
- Goal 4. Maintain healthy rivers and wetlands through the strategic implementation of projects that meet prioritized nonconsumptive needs.
- Goal 5. Describe and quantify the nonconsumptive benefits of agricultural use.



# COLORADO WATER CONSERVATION BOARD



## WATER SUPPLY RESERVE ACCOUNT APPLICATION FORM

Today's Date: June 2<sup>nd</sup>, 2015

MacFarlane Dam Rehabilitation

### Name of Water Activity/Project

Ducks Unlimited, Inc. in partnership with Evans Land Company, the United States Fish and Wildlife Service, and the Bureau of Land Management

### Name of Applicant

North Platte Basin

Amount from Statewide Account:

\$100,000

Amount from Basin Account(s):

\$500,000

Total WSRA Funds Requested:

\$600,000

Approving Basin Roundtable(s)  
*(If multiple basins specify amounts in parentheses.)*

FEIN: 13-5643799

### Application Content

Application Instructions	page 2
Part I – Description of the Applicant	page 3
Part II – Description of the Water Activity	page 5
Part III – Threshold and Evaluation Criteria	page 7
Part IV – Required Supporting Material	
Water Rights, Availability, and Sustainability	page 10
Related Studies	page 10
Signature Page	page 12

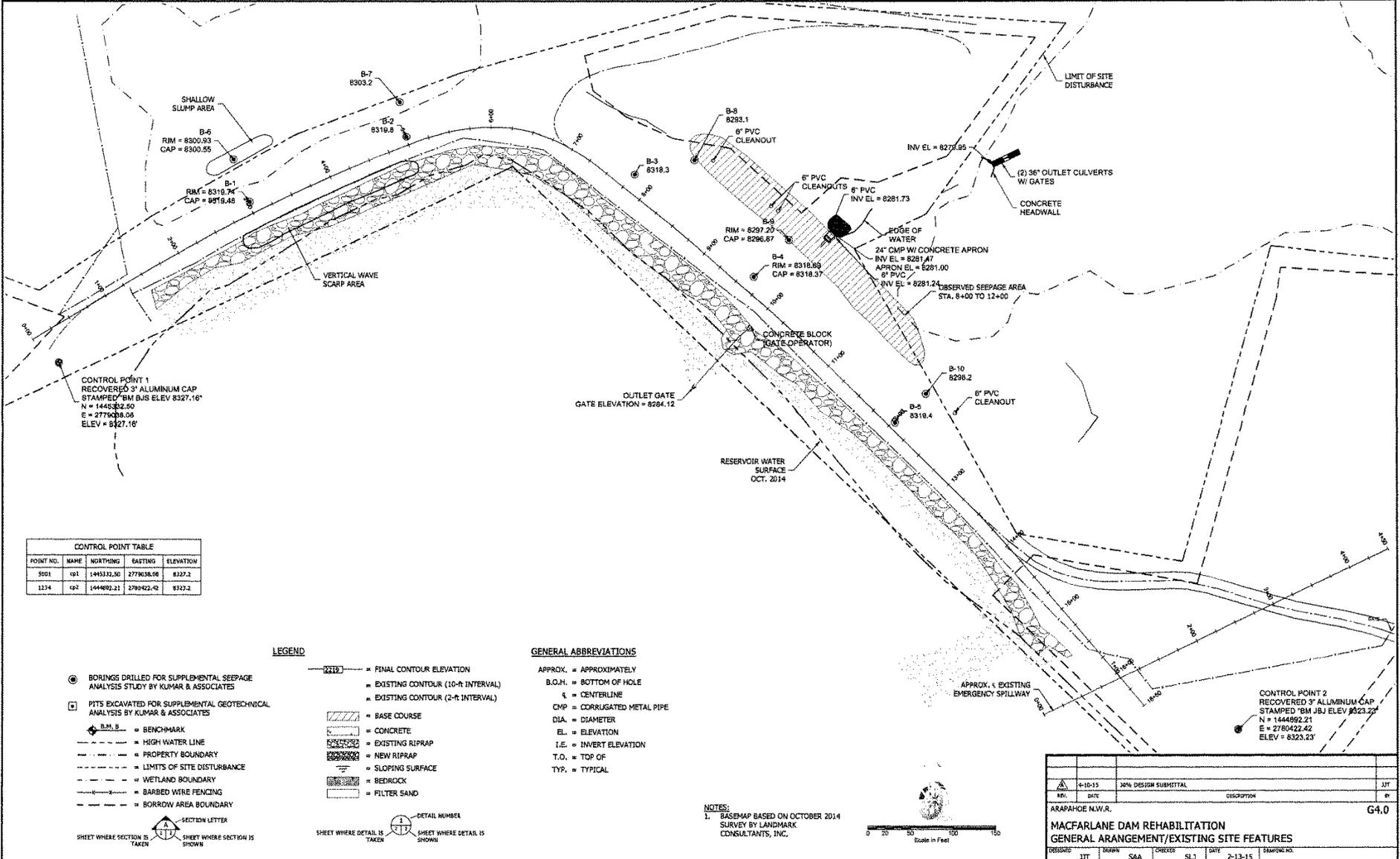
### Required Exhibits

- A. Statement of Work, Budget, and Schedule
- B. Project Map
- C. As Needed (i.e. letters of support, photos, maps, etc.)

### Appendices – Reference Material

- 1. Program Information
- 2. Insurance Requirements
- 3. WSRA Standard Contract Information (Required for Projects Over \$100,000)
- 4. W-9 Form (Required for All Projects Prior to Contracting)

Figure 1. Planned Modifications in the MacFarlane Dam Rehabilitation Project. W.W. Wheeler & Associates, Inc., Feb. 13, 2015



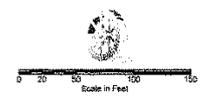
**CONTROL POINT TABLE**

POINT NO.	NAME	NORTHING	EASTING	ELEVATION
5501	CP1	1443332.50	2778036.08	8327.2
1234	CP2	1444892.21	2789422.42	8323.2

- LEGEND**
- BORINGS DRILLED FOR SUPPLEMENTAL SEEPAGE ANALYSIS STUDY BY KUMAR & ASSOCIATES
  - PITS EXCAVATED FOR SUPPLEMENTAL GEOTECHNICAL ANALYSIS BY KUMAR & ASSOCIATES
  - ⊕ B.M. # = BENCHMARK
  - HIGH WATER LINE
  - - - PROPERTY BOUNDARY
  - - - LIMITS OF SITE DISTURBANCE
  - - - WETLAND BOUNDARY
  - - - BARBED WIRE FENCING
  - - - BORROW AREA BOUNDARY
  - FINAL CONTOUR ELEVATION
  - - - EXISTING CONTOUR (10-F INTERVAL)
  - - - EXISTING CONTOUR (2-F INTERVAL)
  - ▨ BASE COURSE
  - ▨ CONCRETE
  - ▨ EXISTING RIPRAP
  - ▨ NEW RIPRAP
  - ▨ SLOPING SURFACE
  - ▨ BEDROCK
  - ▨ FILTER SAND

- GENERAL ABBREVIATIONS**
- APPROX. = APPROXIMATELY
  - B.O.H. = BOTTOM OF HOLE
  - ± = CENTERLINE
  - CMP = CORRUGATED METAL PIPE
  - DIA. = DIAMETER
  - EL. = ELEVATION
  - I.E. = INVERT ELEVATION
  - T.O. = TOP OF
  - TYP. = TYPICAL

**NOTES:**  
 1. BASEMAP BASED ON OCTOBER 2014 SURVEY BY LANDMARK CONSULTANTS, INC.



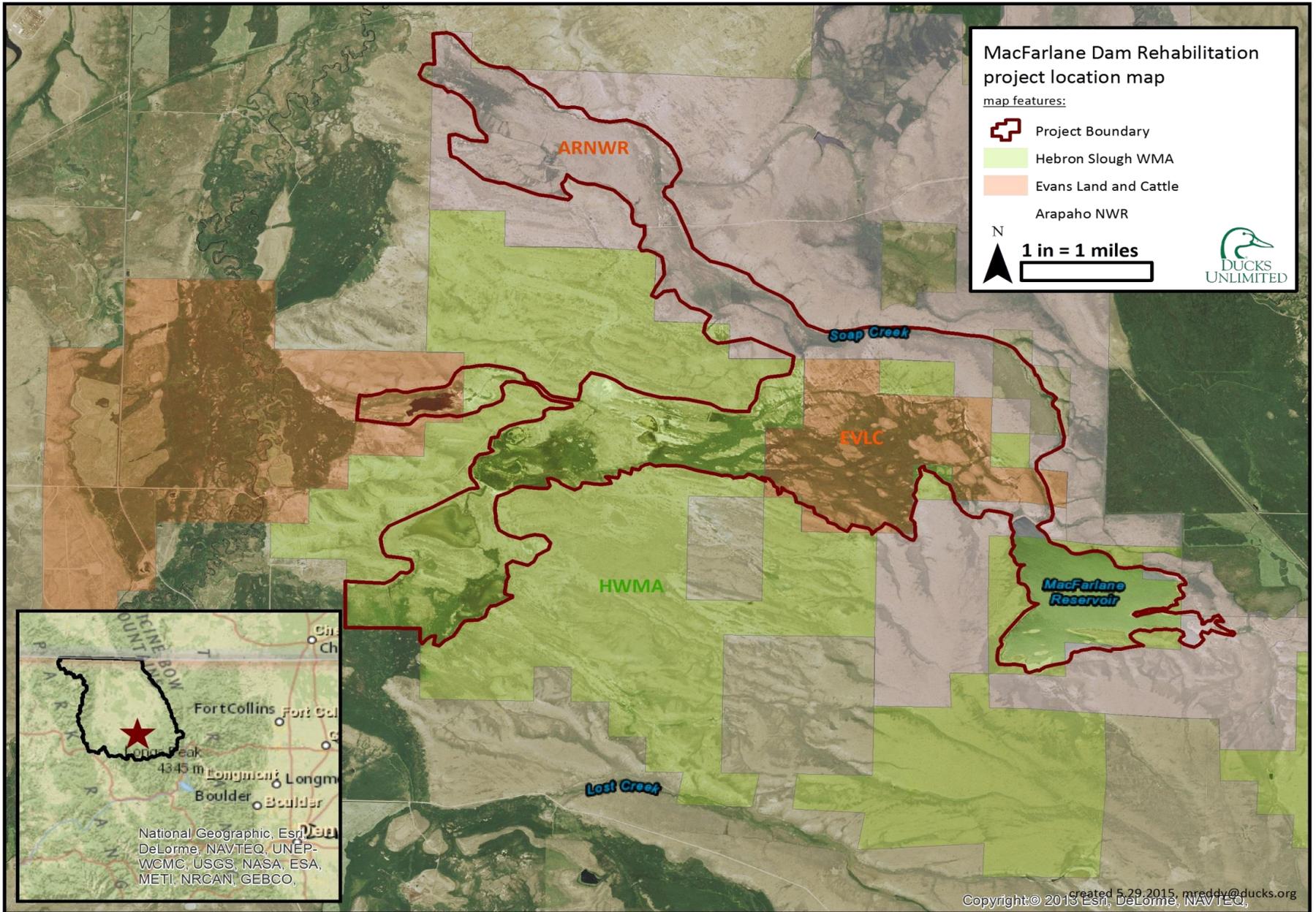
REV.	DATE	DESCRIPTION	BY
1	4-10-15	30% DESIGN SUBMITTAL	JIT
ARAPACHE N.W.R.			G4.0
<b>MACFARLANE DAM REHABILITATION</b>			
<b>GENERAL ARRANGEMENT/EXISTING SITE FEATURES</b>			
DESIGNED	JIT	DRAWN	SA
CHECKED	SLJ	DATE	2-13-15
DRAWING NO.		DATE	

# MacFarlane Dam Rehabilitation project location map

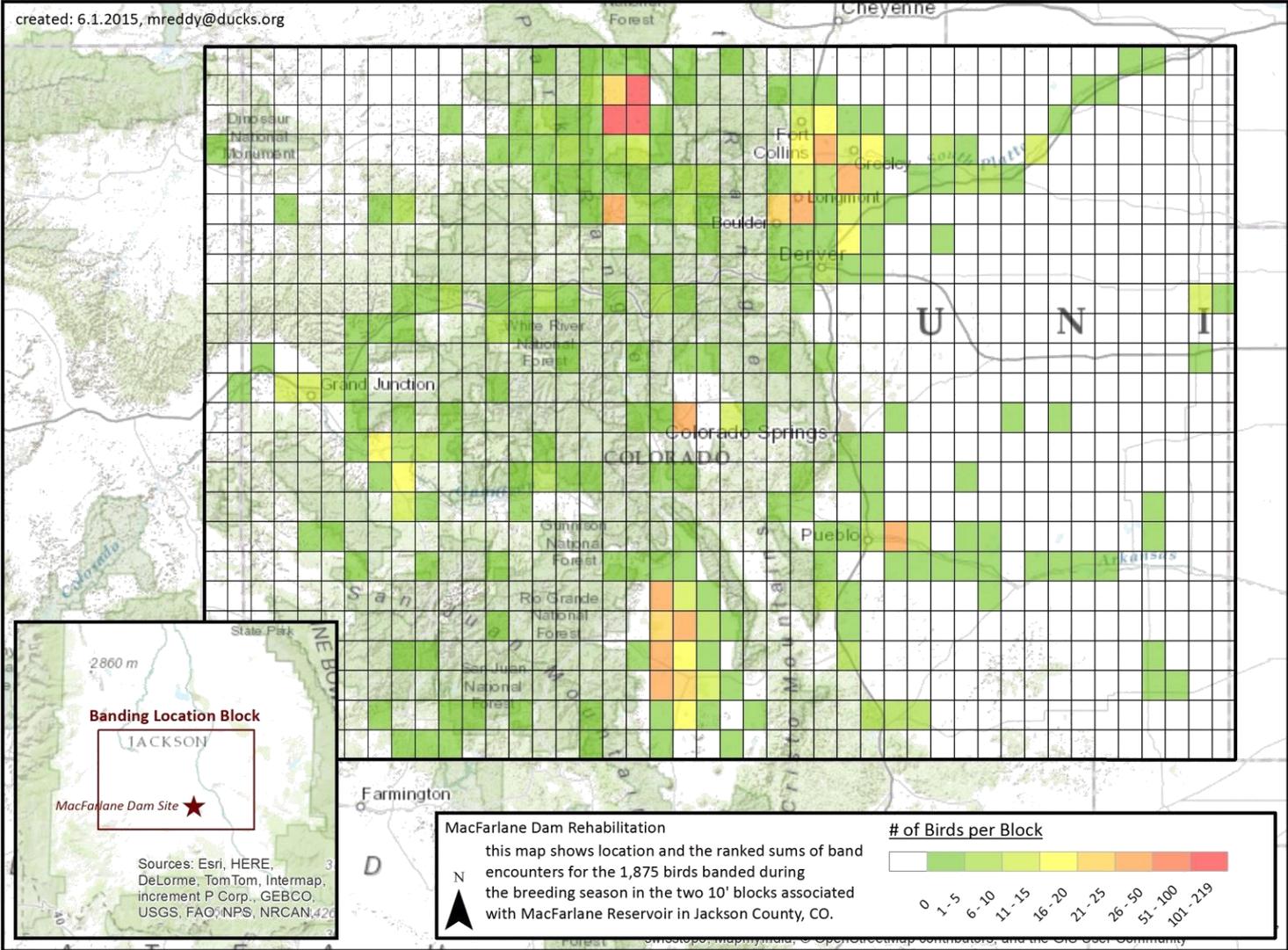
map features:

-  Project Boundary
-  Hebron Slough WMA
-  Evans Land and Cattle
-  Arapaho NWR

N  
1 in = 1 miles  

Map below shows how important this is beyond just local distribution of birds. This map presents the destination of almost 2,000 birds bred on and near MacFarlane Reservoir in North Park. It shows that nearly every important waterfowling area in Colorado, including the South Platte River, the Lower Arkansas Basin, the San Luis Valley and the Grand Valley, enjoys birds that ultimately came from the area irrigated by water from MacFarlane Reservoir.



## Evapotranspiration Project Effectiveness per Goals

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Project	Basin Goal							
	1	2	3	4	5	6	7	8
Evapotranspiration Project	x							

- Goal 1. Maintain and maximize the consumptive use of water permitted in the Equitable Apportionment Decree and the baseline depletion allowance of the Three State Agreement.



COLORADO WATER CONSERVATION BOARD

WATER SUPPLY RESERVE ACCOUNT APPLICATION FORM



Today's Date: 3 July 2014

Re-establishment of lysimeters in North Park to determine high altitude, hay meadow crop coefficients.

Name of Water Activity/Project

Colorado Climate Center

Name of Applicant

North Platte

Amount from Statewide Account: 96,047

Amount from Basin Account(s): 96,047

Total WSRA Funds Requested: 192,094

Approving Basin Roundtable(s) (If multiple basins specify amounts in parentheses.)

FEIN:

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Required Exhibits

- A. Statement of Work, Budget, and Schedule
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Appendices - Reference Material

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# Overview

Project to re-establish lysimeter measurements in the high altitude, hay meadow environment of North Park.

Data from prior historical lysimeter operations in the basin have been questionable due to site exposure, infrequent watering and a possible leak in one of the compensating lysimeters.

This project will utilize the three existing weather stations previously funded by WSRA grant funds approved by the North Platte Roundtable. Data from these weather stations will be used to calculate reference evapotranspiration (ET). Two lysimeters will be installed side by side for redundancy in case of failure. The system is near completely automated once fully installed. The conditions on the lysimeters will be treated to mimic operations in the hay meadows (same irrigation and cutting) in order to get at actual crop consumptive use in order to calculate crop coefficients.

The lysimeters are scheduled to be installed September 20-21, 2015.

# EXISTING WEATHER STATIONS – EVAPOTRANSPIRATION PROJECT



## Basinwide Augmentation Plan Effectiveness per Goals

Project	Basin Goal							
	1	2	3	4	5	6	7	8
Basinwide Augmentation Plan	x	x						

- Goal 1. Maintain and maximize the consumptive use of water permitted in the Equitable Apportionment Decree and the baseline depletion allowance of the Three State Agreement.
- Goal 2. Increase economic development and diversification through strategic water use and development.



COLORADO WATER CONSERVATION BOARD



WATER SUPPLY RESERVE ACCOUNT APPLICATION FORM

Today's Date: May 29, 2015

Jackson County Basinwide Augmentation Plan

Name of Water Activity/Project

Jackson County Water Conservancy District

Name of Applicant

North Platte

Amount from Statewide Account:

N/A

Amount from Basin Account(s):

\$161,000

Total WSRA Funds Requested:

\$161,000

Approving Basin Roundtable(s)

(If multiple basins specify amounts in parentheses.)

FEIN: 84-0934121

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Required Exhibits

- A. Statement of Work, Budget, and Schedule
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## ***Overview***

The scope of services set forth in the application details the necessary tasks to assist Jackson County Water Conservancy District (JCWCD) with the development of a basin-wide augmentation plan. Work tasks include:

Quantify augmentation needs;

Identify potential augmentation supplies;

Address potential concerns of water users in the basin;

Develop an accounting framework for Jackson County Water Conservancy District (JCWCD) and reporting to the Division of Water Resources;

Prepare various analyses and materials to assist with the application, finalization, and operation of an augmentation plan acceptable to the JCWCD Board.

## ***Work Tasks and Budget***

<b>Task No.</b>	<b>Task Name</b>	<b>Budget</b>
<b>1</b>	Identify Augmentation Needs	\$ 7,000
<b>2</b>	Identify and Quantify Augmentation Supplies	\$ 35,000
<b>3</b>	Identify and Address Potential Water User Concerns	\$ 35,000
<b>4</b>	Present Augmentation Plan Recommendations	\$ 5,000
<b>5</b>	Develop Process to Determine Augmentation Depletions	\$ 5,000
<b>6</b>	Augmentation Plan Accounting	\$ 5,000
<b>7</b>	Contractual Obligations to Enter and Exit the Plan	\$ 9,000
<b>8</b>	Prepare Engineering Report	\$ 10,000
<b>9</b>	Ongoing Support for Plan Development and Finalization	\$ 35,000
<b>10</b>	JCWCD Administration, Oversight, and Coordination	\$ 15,000
	Project Total	\$ 161,000

# Canal Maintenance and Improvement Effectiveness per Goals

Project	Basin Goal							
	1	2	3	4	5	6	7	8
Canal Maintenance and Improvement	x		x	x	x			

- Goal 1. Maintain and maximize the consumptive use of water permitted in the Equitable Apportionment Decree and the baseline depletion allowance of the Three State Agreement.
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# NORTH PLATTE RIVER BASIN

## Water control Check Structures, Headgates & Diversions



# NORTH PLATTE RIVER BASIN

## New Pioneer Ditch Diversion

\$116,000 Basin Account Funds Allocated



Before



After



# NORTH PLATTE RIVER BASIN

## Walden Reservoir Check Structure

\$36,000 Basin Account Funds Allocated

Before



After



# NORTH PLATTE RIVER BASIN

## Squibob Headgate Structure

\$ 26,990 Basin Account Funds and \$2,999 Landowner Funds

Before



After



# NORTH PLATTE RIVER BASIN

## Staples Headgate Structure

\$ 31,256 Basin Account Funds and \$3,473 Landowner Funds

Before



After



# NORTH PLATTE RIVER BASIN

## Bostwick Headgate Structure

\$ 29,352 Basin Account Funds and \$3,261 Landowner Funds

Before



After



# NORTH PLATTE RIVER BASIN

## Richmond Diversion Structure

\$ 15,461 Basin Account Funds and \$1,718 Landowner Funds

Before



After



# NORTH PLATTE RIVER BASIN

## Seneca Ditch Headgate Structure

\$57,540 Basin Account Funds Allocated

Before



After





COLORADO WATER CONSERVATION BOARD



WATER SUPPLY RESERVE ACCOUNT APPLICATION FORM

Today's Date: 3/24/2015

Mallon Extension Ditch Bypass Structure

Name of Water Activity/Project

Colorado Division of Parks and Wildlife

Name of Applicant

North Platte

Amount from Statewide Account:

\$0

Amount from Basin Account(s):

\$35,900

Total WSRA Funds Requested:

\$35,900

Approving Basin Roundtable(s)

(If multiple basins specify amounts in parentheses.)

FEIN:

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## Overview

Construction of a bypass structure and measuring device located on the Wolfer-Mallon Extension Ditch, which delivers water to the South and East Delaney Lakes within the Delaney Butte Lakes State Wildlife Area (SWA). The Delaney Butte Lakes are among the premier flat water fishing destinations in Colorado.

Water is also stored and released from the Delaney Lakes for the irrigation on the Double R Ranch.

Historically, prior to cutting hay on lands adjacent to the Wolfer Ditch, the ditch must be shut off in order to sufficiently dry out the those fields below the ditch. However, water may still be available to other users for direct flow irrigation or for diversion into the Delaney Lakes. In order to utilize available water, and accommodate the need to dry adjacent fields, water can be routed into Butte Creek, bypassing approximately 3 miles of the Wolfer Ditch. Delivering water to the Delaney Lakes via Butte Creek allows CPW to maximize its ability to fill the lakes (during the short window of opportunity between the end of the irrigation season and the onset of freezing conditions) without causing any disruption to agricultural operations on adjacent private lands.





# Questions?

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