

Montana Department of Natural Resources and Conservation
Water Resources Division
Water Rights Bureau

ENVIRONMENTAL ASSESSMENT
For Routine Actions with Limited Environmental Impact

Part I. Proposed Action Description

1. Applicant/Contact name and address: Robert E. Stephens
PO Box 292
Augusta, MT 59410
2. Type of action: The applicant has requested authorization to change the place of use and method of irrigation (Application to Change a Water Right No. 41O 30103564). The perfected change would consist of retiring 195.0 acres of flood irrigation at the historic location and adding 120.1 acres of center pivot sprinkler irrigation at a new location about 8.5 miles up-canal. A new point of diversion has been added to supply water to the sprinkler.
3. Water source name: Deep Creek via Cascade Canal
4. Location affected by project: The historic place of use is located in Sections 19, 20, 29, and 30 of Township 23 North, Range 3 West, Teton County. This historic irrigation was serviced by Cascade Canal, which has a point of diversion located in the Southeast quarter of the Northwest quarter of the Northwest quarter of Section 15, Township 23 North, Range 5 West, Teton County. The addition of 120.1 acres of sprinkler irrigation is located in the North ½ of Section 17 and the Southeast quarter of the Southwest quarter of Section 8, Township 23 North, Range 4 West, Teton County. The proposed pump location is the Northwest quarter of the Northwest quarter of the Northeast quarter of Section 17, Township 23 North, Range 4 West, Teton County. See Figure 1 on the following page for a project location map.
5. Narrative summary of the proposed project, purpose, action to be taken, and benefits: The DNRC shall issue a water use permit if an applicant proves the criteria in 85-2-402 MCA are met.
6. Agencies consulted during preparation of the Environmental Assessment: United States Geological Survey, Montana Natural Heritage Program, Natural Resources Conservation Service (NRCS) Soils Data Website, Department of Environmental Quality, National Wetlands Inventory Website, Natural Resources Information System.

Part II. Environmental Review

1. Environmental Impact Checklist:

PHYSICAL ENVIRONMENT

WATER QUANTITY, QUALITY, AND DISTRIBUTION

Water quantity –Deep Creek is identified as chronically dewatered by the Department of Fish, Wildlife, and Parks from Willow Creek to Deep Creek’s mouth. This section of stream is from which Cascade Canal diverts water. A lower volume of water is expected to be diverted from Deep Creek as a result of the proposed change.

Determination: Diversion estimations suggest that a small savings in diverted volume is expected from the historic case to the proposed case. It is unlikely that the proposed project will have any positive or negative impact on any preexisting dewatered streams.

Water quality –The Cascade Canal operates by drawing water from Deep Creek. Wastewater and irrecoverable losses from the Cascade Canal enter surface waters in the area. Deep Creek is listed as impaired due to alteration in stream-side or littoral vegetative covers, alterations in wetland habitats, low flow alterations, nitrogen, phosphorus, and sedimentation/siltation. The impairments are the result of agriculture, water diversions, hydrostructure flow regulations, loss of riparian habitat, and streambank modifications. The canal has been operating since the late 1800s, so no effects to water quality are expected due to the change.

Determination: Fertilizers and pesticides might cause a slight increase in nitrogen and phosphorus concentrations for surface waters surrounding the area. However, the results will be minimal and further degradation to water quality is not anticipated in conjunction with this proposed project.

Groundwater –The proposed change would move historically flood irrigated land near the end of the Cascade Canal to center pivot irrigation further up-canal (about 8.5 miles from historic location). Because of the acreage retired near the end of the canal, less water will be needed to irrigate the additional flood acreage, resulting in a lower amount of infiltration losses. Return flows are expected to decrease for the proposed change. Infiltration losses and return flows behave as groundwater in the form of shallow subsurface flows, but most of the shallow subsurface flow returns to surface waters in the area.

Determination: Minimal impacts to groundwater quality or supply are anticipated. A majority of the return flows and infiltration losses return to surface waters.

Diversion Works –The center pivot will be supplied by a 75 horsepower pump diverted water from the Cascade Canal. Water will be conveyed from the canal to the pivot through about 590.0 feet of 10” diameter pipeline. The center pivot is constructed of 12 spans totaling 1,834.0 feet.

UNIQUE, ENDANGERED, FRAGILE, OR LIMITED ENVIRONMENTAL RESOURCES

Endangered and threatened species –The Montana Natural Heritage Program lists 18 species of birds, one species of reptile, one species of fish, and one species of plant on a species of concern list. The tables below contain specific information about the species of concern.

BIRDS (AVES)										18 SPECIES	
FILTERED BY THE FOLLOWING CRITERIA: TOWNSHIP = 23 N RANGE = 4 W (BASED ON MAPPED SPECIES OCCURRENCES)											
SCIENTIFIC NAME COMMON NAME TAXA SORT	FAMILY (SCIENTIFIC) FAMILY (COMMON)	GLOBAL RANK	STATE RANK	USFWS	USFS	BLM	FWP SWAP	% OF GLOBAL BREEDING RANGE IN MT	% OF MT THAT IS BREEDING RANGE	HABITAT	
Aechmophorus clarkii Clark's Grebe	Podicipedidae Grebes	G5	S3B				SGCN3	1%	2%	Lakes, ponds, reservoirs	
Species Occurrences verified in these Counties: Broadwater, Lake, Lewis and Clark, Phillips, Powell, Sheridan, Teton, Yellowstone											
Ammodramus bairdii Baird's Sparrow	Emberizidae Sparrows	G4	S3B			SENSITIVE	SGCN3	27%	67%	Grasslands	
Species Occurrences verified in these Counties: Blaine, Carter, Cascade, Chouteau, Custer, Daniels, Dawson, Fallon, Fergus, Glacier Hill, Judith Basin, Lewis and Clark, Liberty, McCone, Meagher, Musselshell, Petroleum, Phillips, Powder River, Prairie, Richland, Roosevelt, Rosebud, Sheridan, Stillwater, Sweet Grass, Teton, Toole, Treasure, Valley, Wheatland, Wibaux, Yellowstone State Rank Reason: Montana populations were declining until recently and the species is declining in most or the surrounding states and provinces.											
Anthus spragueii Sprague's Pipit	Motacillidae Pipits	G4	S3B	C		SENSITIVE	SGCN3	18%	67%	Grasslands	
Species Occurrences verified in these Counties: Blaine, Carter, Cascade, Chouteau, Custer, Daniels, Dawson, Fallon, Fergus, Gallatin, Garfield, Glacier, Golden Valley, Hill, Judith Basin, Lewis and Clark, Liberty, Madison, McCone, Meagher, Musselshell, Park, Petroleum, Phillips, Pondera, Prairie, Ravalli, Richland, Roosevelt, Rosebud, Sanders, Sheridan, Silver Bow, Stillwater, Sweet Grass, Teton, Toole, Treasure, Valley, Wheatland, Yellowstone State Rank Reason: Although population trends in Montana appear to be relatively stable in recent years, populations have been in decline over the long run and the species faces threats from covertype conversion, overgrazing, exotic plant invasions, altered fire regimes, and mowing prior to fledging of young.											
Aquila chrysaetos Golden Eagle	Accipitridae Hawks / Kites / Eagles	G5	S3	BGEPA; MBTA; BCC		SENSITIVE	SGCN3	3%	100%	Grasslands	
Species Occurrences verified in these Counties: Beaverhead, Big Horn, Blaine, Broadwater, Carbon, Carter, Cascade, Chouteau, Custer, Dawson, Deer Lodge, Fallon, Fergus, Flathead, Gallatin, Garfield, Glacier, Golden Valley, Granite, Hill, Jefferson, Judith Basin, Lake, Lewis and Clark, Liberty, Lincoln, Madison, McCone, Meagher, Mineral, Missoula, Musselshell, Park, Petroleum, Phillips, Pondera, Powder River, Powell, Prairie, Ravalli, Richland, Roosevelt, Rosebud, Sanders, Sheridan, Silver Bow, Stillwater, Sweet Grass, Teton, Toole, Treasure, Valley, Wheatland, Yellowstone											
Ardea herodias Great Blue Heron	Ardeidae Bitterns / Egrets / Herons / Night-Herons	G5	S3				SGCN3	3%	100%	Riparian forest	
Species Occurrences verified in these Counties: Beaverhead, Big Horn, Blaine, Broadwater, Carbon, Carter, Cascade, Chouteau, Custer, Dawson, Deer Lodge, Fallon, Fergus, Flathead, Gallatin, Garfield, Glacier, Golden Valley, Granite, Hill, Jefferson, Judith Basin, Lake, Lewis and Clark, Liberty, Lincoln, Madison, McCone, Meagher, Mineral, Missoula, Musselshell, Park, Petroleum, Phillips, Pondera, Powder River, Powell, Prairie, Ravalli, Richland, Roosevelt, Rosebud, Sanders, Sheridan, Silver Bow, Stillwater, Sweet Grass, Teton, Toole, Treasure, Valley, Wheatland, Yellowstone State Rank Reason: Small breeding population size, evidence of recent declines, and declining regeneration of riparian cottonwood forests due to altered hydrology and grazing.											
Athene cunicularia Burrowing Owl	Strigidae Owls	G4	S3B			SENSITIVE	SENSITIVE	SGCN3	2%	82%	Grasslands
Species Occurrences verified in these Counties: Beaverhead, Big Horn, Blaine, Broadwater, Carbon, Carter, Cascade, Chouteau, Custer, Dawson, Fallon, Fergus, Gallatin, Garfield, Glacier, Golden Valley, Granite, Hill, Jefferson, Lewis and Clark, Liberty, Madison, McCone, Musselshell, Petroleum, Phillips, Pondera, Powder River, Prairie, Roosevelt, Rosebud, Sheridan, Stillwater, Teton, Toole, Treasure, Valley, Wheatland, Yellowstone State Rank Reason: Species has a negative short-term population trend.											
Botaurus lentiginosus American Bittern	Ardeidae Bitterns / Egrets / Herons / Night-Herons	G4	S3B				SGCN3	4%	100%	Wetlands	
Species Occurrences verified in these Counties: Blaine, Carter, Cascade, Chouteau, Custer, Daniels, Dawson, Golden Valley, Lake, Missoula, Phillips, Powell, Ravalli, Roosevelt, Sanders, Sheridan, Teton, Valley, Yellowstone											
Calcarius ornatus Chestnut-collared Longspur	Calcariidae Longspurs and Snow Buntings	G5	S2B			SENSITIVE	SGCN2	32%	67%	Grasslands	
Species Occurrences verified in these Counties: Big Horn, Blaine, Carbon, Carter, Cascade, Chouteau, Custer, Daniels, Dawson, Fallon, Fergus, Garfield, Glacier, Golden Valley, Hill, Judith Basin, Lewis and Clark, Liberty, McCone, Musselshell, Petroleum, Phillips, Powder River, Prairie, Richland, Roosevelt, Rosebud, Sheridan, Stillwater, Sweet Grass, Teton, Toole, Valley, Wheatland, Wibaux, Yellowstone State Rank Reason: Species has a negative short-term population trend and faces threats from loss of native prairie grassland habitats and altered frequency, intensity, and spatial distribution of grazing and fire regimes. It is dependent on.											
Chlidonias niger Black Tern	Laridae Gulls / Terns	G4	S3B			SENSITIVE	SGCN3	7%	100%	Wetlands	
Species Occurrences verified in these Counties: Blaine, Carter, Cascade, Chouteau, Daniels, Flathead, Glacier, Golden Valley, Lake, Madison, Missoula, Phillips, Pondera, Powell, Roosevelt, Sanders, Sheridan, Teton, Yellowstone State Rank Reason: Species has a small breeding population size and negative short-term population trends.											
Himantopus mexicanus Black-necked Stilt	Recurvirostridae Avocets	G5	S3B				SGCN3	1%	8%	Wetlands	
Species Occurrences verified in these Counties: Cascade, Chouteau, Gallatin, Golden Valley, Lake, Lewis and Clark, Phillips, Ravalli, Stillwater, Teton, Yellowstone											
Hydroprogne caspia Casplian Tern	Laridae Gulls / Terns	G5	S2B				SGCN2	0%	4%	Large rivers, lakes	
Species Occurrences verified in these Counties: Broadwater, Garfield, Lake, McCone, Phillips, Pondera, Powell, Sheridan, Teton, Toole, Valley											
Leucophaeus pipixcan Franklin's Gull	Laridae Gulls / Terns	G4G5	S3B			SENSITIVE	SGCN3	7%	48%	Wetlands	
Species Occurrences verified in these Counties: Beaverhead, Cascade, Chouteau, Phillips, Roosevelt, Sheridan, Teton											
Numenius americanus Long-billed Curlew	Scolopacidae Sandpipers	G5	S3B			SENSITIVE	SGCN3	19%	100%	Grasslands	
Species Occurrences verified in these Counties: Beaverhead, Big Horn, Blaine, Broadwater, Carbon, Carter, Cascade, Chouteau, Custer, Daniels, Dawson, Deer Lodge, Fallon, Fergus, Flathead, Gallatin, Glacier, Golden Valley, Granite, Hill, Jefferson, Judith Basin, Lake, Lewis and Clark, Liberty, Madison, McCone, Meagher, Missoula, Musselshell, Petroleum, Phillips, Pondera, Powder River, Powell, Prairie, Ravalli, Richland, Roosevelt, Rosebud, Sanders, Sheridan, Stillwater, Sweet Grass, Teton, Toole, Treasure, Valley, Wheatland, Wibaux, Yellowstone											
Nycticorax nycticorax Black-crowned Night-Heron	Ardeidae Bitterns / Egrets / Herons / Night-Herons	G5	S3B			SENSITIVE	SGCN3	1%	45%	Wetlands	
Species Occurrences verified in these Counties: Beaverhead, Cascade, Chouteau, Deer Lodge, Phillips, Ravalli, Roosevelt, Sheridan, Teton											
Plegadis chihi White-faced Ibis	Threskiornithidae Ibises	G5	S3B			SENSITIVE	SGCN3	4%	45%	Wetlands	
Species Occurrences verified in these Counties: Beaverhead, Carter, Cascade, Chouteau, Phillips, Roosevelt, Sheridan, Teton											
Podiceps auritus Horned Grebe	Podicipedidae Grebes	G5	S3B				SGCN3	2%	77%	Wetlands	
Species Occurrences verified in these Counties: Cascade, Chouteau, Flathead, Lake, Lewis and Clark, Phillips, Powell, Sheridan, Teton											
Sterna forsteri Forster's Tern	Laridae Gulls / Terns	G5	S3B				SGCN3	1%	59%	Wetlands	
Species Occurrences verified in these Counties: Beaverhead, Blaine, Cascade, Chouteau, Hill, Lake, Lewis and Clark, Petroleum, Phillips, Powell, Roosevelt, Sheridan, Teton											
Sterna hirundo Common Tern	Laridae Gulls / Terns	G5	S3B				SGCN3	5%	50%	Large rivers, lakes	
Species Occurrences verified in these Counties: Blaine, Broadwater, Cascade, Chouteau, Daniels, Flathead, Hill, Lake, McCone, Petroleum, Phillips, Roosevelt, Sheridan, Teton, Valley											

REPTILES (REPTILIA)										1 SPECIES
FILTERED BY THE FOLLOWING CRITERIA: TOWNSHIP = 23 N RANGE = 4 W (BASED ON MAPPED SPECIES OCCURRENCES)										
SCIENTIFIC NAME COMMON NAME TAXA SORT	FAMILY (SCIENTIFIC) FAMILY (COMMON)	GLOBAL RANK	STATE RANK	USFWS	USFS	BLM	FWP SWAP	% OF GLOBAL BREEDING RANGE IN MT	% OF MT THAT IS BREEDING RANGE	HABITAT
Phrynosoma hernandesi Greater Short-horned Lizard	Phrynosomatidae Sagebrush / Spiny Lizards	G5	S3		SENSITIVE	SENSITIVE	SGCN3, SGIN	19%	66%	Sandy / gravelly soils
Species Occurrences verified in these Counties: Big Horn, Blaine, Broadwater, Carbon, Carter, Cascade, Chouteau, Custer, Dawson, Fergus, Gallatin, Garfield, Glacier, Golden Valley, Hill, Lewis and Clark, Liberty, McCone, Musselshell, Petroleum, Phillips, Pondera, Powder River, Prairie, Richland, Roosevelt, Rosebud, Stillwater, Sweet Grass, Teton, Toole, Treasure, Valley, Wheatland, Wibaux, Yellowstone										

FISH (ACTINOPTERYGII)										1 SPECIES
FILTERED BY THE FOLLOWING CRITERIA: TOWNSHIP = 23 N RANGE = 4 W (BASED ON MAPPED SPECIES OCCURRENCES)										
SCIENTIFIC NAME COMMON NAME TAXA SORT	FAMILY (SCIENTIFIC) FAMILY (COMMON)	GLOBAL RANK	STATE RANK	USFWS	USFS	BLM	FWP SWAP	% OF GLOBAL BREEDING RANGE IN MT	% OF MT THAT IS BREEDING RANGE	HABITAT
Sander canadensis Sauger	Percidae Perches	G5	S2			SENSITIVE	SGCN2	1%	15%	Large prairie rivers
Species Occurrences verified in these Counties: Big Horn, Blaine, Carbon, Carter, Cascade, Chouteau, Custer, Dawson, Fallon, Fergus, Garfield, Hill, Liberty, McCone, Musselshell, Petroleum, Phillips, Powder River, Prairie, Richland, Roosevelt, Rosebud, Stillwater, Teton, Treasure, Valley, Wibaux, Yellowstone										

FLOWERING PLANTS - DICOTS (MAGNOLIOPSIDA)										1 SPECIES
FILTERED BY THE FOLLOWING CRITERIA: TOWNSHIP = 23 N RANGE = 4 W (BASED ON MAPPED SPECIES OCCURRENCES)										
SCIENTIFIC NAME COMMON NAME TAXA SORT	OTHER NAMES	FAMILY (SCIENTIFIC) FAMILY (COMMON)	GLOBAL RANK	STATE RANK	USFWS	USFS	BLM	MNPS THREAT CATEGORY	HABITAT	
Downingia laeta Great Basin Downingia		Campanulaceae Bellflower Family	G5	S2S3				3	Wetland/Riparian (Shallow water ponds, lakes)	
Species Occurrences verified in these Counties: Beaverhead, Lewis and Clark, Meagher, Teton State Rank Reason: Rare in Montana, where it is currently known from a few scattered sites in the western half of the state, most of these sites were documented several decades ago and are in need of follow-up surveys. Current population levels and trends are unknown.										

Determination: The proposed project is located in a sparsely populated area primarily composed of cropland and grassland. Only one species is a candidate to be listed as a threatened or endangered species according to the U.S. Fish and Wildlife Service Endangered Species Act. It is unlikely that transferring 120.1 acres of grassland to irrigated cropland will impact migratory patterns, breeding, or pose a habitat threat to species of concern.

Wetlands –According to the U.S. Fish and Wildlife Service National Wetlands Inventory, both the historic place of use and the proposed place of use are outside of a wetland boundary.

Determination: Because no wetlands are contained within the boundary of the proposed project, no impacts are anticipated.

Ponds –No ponds or reservoirs are associated with the project.

Determination: Assessment is not applicable because no ponds or reservoirs are associated with the project.

GEOLOGY/SOIL QUALITY, STABILITY, AND MOISTURE –At the historic place of use, soils are composed of Trudau loam, Marcott silty clay loam, Kremlin clay loam, Marvan clay, Marvan silty clay, Ethridge clay loam, and Marcott silty clay loam. The proposed place of use overlies Rothiemay-Delpoint gravelly clay loam, Kremlin clay loam, Kremlin loam, and Yamacall-Delpoint loam. The Cascade Canal crosses 18 different soil types with an average seepage rate of 0.97 ft³/ft²/day. At the proposed place of use, the soils are nonsaline-slightly saline.

At the place of use, soils are composed of Scobey-Kevin clay loam and Hillon-Yawdim complex as described by the Natural Resource Conservation Service. The Scobey-Kevin clay loam is listed as very slightly saline to moderately saline. The Hillon-Yawdim complex is listed as nonsaline to very slightly saline. Added irrigation might cause a slight increase in saline seep.

Determination: Saline levels in the soils at the proposed place of use have a low level of salinity. Degradation of soil quality is expected to be minimal.

VEGETATION COVER, QUANTITY, AND QUALITY/NOXIOUS WEEDS –No impacts are expected because aerial imagery indicates that the system has already been constructed.

Determination: It is the responsibility of the landowner to ensure noxious weeds do not become out of control.

AIR QUALITY –The pump selected is electric driven.

Determination: No deterioration of air quality or adverse effects on vegetation due to an increase in air pollutants is expected.

HISTORICAL AND ARHEOLOGICAL SITES –N/A: The proposed project does lie within State or Federal land boundaries.

Determination: No assessment of unique archeological or historic sites have been performed.

DEMANDS ON ENVIRONMENTAL RESOURCES OF LAND, WATER, AND ENERGY –No additional impacts on other environmental resources were identified.

HUMAN ENVIRONMENT

LOCALLY ADOPTED ENVIRONMENTAL PLANS AND GOALS –Currently, no environmental plans or goals have been identified in the area.

ACCESS TO AND QUALITY OF RECREATIONAL AND WILDERNESS ACTIVITIES
–No wildlife areas or recreational land are situated adjacent to the proposed project area. Recreational and wilderness activities will not be affected by the project.

HUMAN HEALTH –Human health will not be affected by the project.

PRIVATE PROPERTY –No adverse effect on private property rights is anticipated from this development.

Yes ___ No x

OTHER HUMAN ENVIRONMENTAL ISSUES –

Impacts on:

- (a) Cultural uniqueness and diversity? No significant impact.
- (b) Local and state tax base and tax revenues? No significant impact.
- (c) Existing land uses? No significant impact. Proposed project is consistent with other land uses in the region.
- (d) Quantity and distribution of employment? No significant impact.
- (e) Distribution and density of population and housing? No significant impact.
- (f) Demands for government services? No significant impact.
- (g) Industrial and commercial activity? No significant impact.
- (h) Utilities? No significant impact.
- (i) Transportation? No significant impact.
- (j) Safety? No significant impact.
- (k) Other appropriate social and economic circumstances? No significant impact.

2. *Secondary and cumulative impacts on the physical environment and human population:*

Secondary impacts: No secondary impacts have been identified.

Cumulative impacts: No cumulative impacts have been identified.

3. *Describe any mitigation/stipulation measures:* None.

4. *Description and analysis of reasonable alternatives to the proposed action, including the no action alternative, if an alternative is reasonably available and prudent to consider:*

No action alternative: The applicant would not be able to develop the project as proposed.

Alternative one: Approve the application if the applicant proves the statutory criterion has been met.

Part III. Conclusion

1. *Preferred alternative:* Alternative one.

2. *Comments and Responses:* None to date.

3. *Finding:*

Yes ___ *No* *x* *Based on the significance criteria evaluated in this Environmental Assessment, is an EIS required?*

An Environmental Assessment is the appropriate level of assessment for the proposed action because no significant impacts have been identified.

Name: Mike Mahowald
Title: Water Resource Specialist
Date: December 31, 2015