

DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION



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FINAL ENVIRONMENTAL ASSESSMENT

Project Name:	Town of Denton – Wastewater Treatment System Upgrades
Proposed Implementation Date:	June 2024
Proponent:	Town of Denton
Location:	Denton
County:	Fergus County

I. TYPE AND PURPOSE OF ACTION

The town of Denton, Montana (Town) provides centralized water and sewer services to approximately 250 local businesses and residents. The Town's wastewater collection and treatment system (system) was originally constructed in 1953 and upgraded in 2000. The current collection system is primarily made up of clay tile and pipe. Pieces of clay tile have been pulled from the system during periodic cleaning indicating degradation of the tile/pipes and confirming a source of infiltration and inflow problems with the system. The treatment system consists of a three-cell facultative lagoon system. Features include two primary and one secondary treatment cells; associated piping, manholes, and valves for operation; and a 2-inch Parshall flume for measuring flow prior to discharging treated effluent to Wolf Creek, which eventually flows into the Missouri River. The current system does not have any flow monitoring equipment to track flow within the system and lacks disinfection capabilities. Maps depicting the project location and features are attached.

The Town has consistently experienced issues with meeting percent removal requirements for biochemical oxygen demand (BOD5), total suspended solids (TSS), and Escherichia coli (E. coli) limits as required by the Town's MPDES discharge permit. In 2021, the Town noticed multiple significant tears in the secondary treatment cell liner. The lagoon embankment was also observed to be compromised at several locations. Synthetic liner key-in locations were also observed to be damaged. This creates the potential for failure of the embankment and release of untreated effluent to the environment thus endangering human health within the community and Wolf Creek water quality.

The Montana Department of Environmental Quality (DEQ) has issued multiple violations to the Town for discharge permit exceedances. In addition, DEQ has also issued an Administrative Order on Consent requiring the Town to address the issues with the system. The Town, with assistance from their contracted engineer, has completed several inspections and tests to identify improvements necessary to bring the system into compliance with *Circular DEQ 2 – Design Standards for Public Sewage Systems* and MPDES discharge permit requirements. A Preliminary Engineering Report (PER) that outlines potential alternatives and identifies the preferred alternatives for upgrading the system and bringing it into compliance was finalized in January 2022.

The overall purpose of the Town of Denton – Wastewater Treatment System Upgrade project is to bring the system into compliance with DEQ standards and discharge permit requirements and improve the quality of treated effluent being discharged to Wolf Creek. Project objectives include the following:

- Repair the embankment.
- Replace aging sewer mains.
- Replace treatment cell liners – Sludge removal and disposal associated with this objective is the focus of this Environmental Assessment (EA).
- Install a disinfection system.
- Install flow monitoring equipment.

As part of the agency review, permitting, and grant funding requirements process, DEQ and the Department of Natural Resources and Conservation (DNRC) are conducting environmental reviews associated with different aspects of the overall project.

This EA focuses on the portion of the project funded through a DNRC American Rescue Plan Act (ARPA) grant and includes an environmental analysis of work associated with lagoon cell sludge removal and disposal (project) which supports another aspect of the overall project, repair of the embankment and replacement of the cell liners, that will be completed as a separate project.

Construction plans and specifications for the sludge removal and disposal were finalized in March 2024 followed by solicitation of bids in spring 2024. Sludge is planned to be removed from the synthetically-lined lagoon cells followed by land application of the sludge on the adjacent farm field. These construction activities are planned to be completed in summer 2024.

II. PROJECT DEVELOPMENT

1. PUBLIC INVOLVEMENT, AGENCIES, GROUPS OR INDIVIDUALS CONTACTED:

Provide a brief chronology of the scoping and ongoing involvement for this project. List number of individuals contacted, number of responses received, and newspapers in which notices were placed and for how long. Briefly summarize issues received from the public.

A public meeting was held on December 13, 2021, to present the results of the PER and associated environmental assessment and allow the public to comment. The need for the project was accepted, and no substantive comments to the PER or environmental assessment were received from the public. The public meeting was advertised in the Lewistown News-Argus. After consideration of discussion topics at the public meeting, the PER was finalized in January 2022.

Routine Town Council Meetings have occurred where Core Engineering Solutions, PLLC, the Town's contracted engineer, has provided project progress updates with the most recent meeting occurring on March 19, 2024.

2. OTHER GOVERNMENTAL AGENCIES WITH JURISDICTION, LIST OF PERMITS NEEDED:

Examples: cost-share agreement with U.S. Forest Service, 124 Permit, 3A Authorization, Air Quality Major Open Burning Permit.

Regarding the overall Town of Denton – Wastewater Treatment System Upgrade project, the following agencies have over-lapping or additional jurisdiction or environmental review responsibility and have been contacted to provide an opportunity for comment on any potential concerns associated with all aspects the project:

- U.S. Fish and Wildlife Service (USFWS)
- Montana State Historic Preservation Office (SHPO)
- U.S. Army Corp of Engineer (USACOE)
- Montana Department of Fish, Wildlife, and Parks (FWP)
- Montana Department of Natural Resources and Conservation
- Montana Department of Environmental Quality

The Town of Denton – Wastewater Treatment System Upgrade project, including this project, occurs within the 100-year floodplain (Zone AE and AO). No earthwork will be necessary for sludge removal and land application activities. Since the floodplain will not be disturbed, neither a storm water pollution prevention plan (SWPPP) nor a floodplain permit should be necessary.

Private property bordering the treatment system to the east has been leased allowing use of the area as a construction staging area. A Memorandum of Understanding (MOU) with a private property owner has also been established and outlines the responsibilities of the Town and the landowner as it relates to the area where removed sludge will be land applied.

3. ALTERNATIVE DEVELOPMENT:

Describe alternatives considered and, if applicable, provide brief description of how the alternatives were developed. List alternatives that were considered but eliminated from further analysis and why. Include the No Action alternative.

The following summarizes alternatives that were considered for sludge removal and disposal.

Considered in the 20222 PER:

- No Action (Considered in the 2022 PER) – Eliminated, does not address the problem.

Considered in the *Town of Denton, Wastewater System Upgrades, Sludge Removal and Disposal Bit Set*, dated March 2024:

- Alternate 1 – Sludge removal from the existing three-cell facultative lagoon facility, dewatering via geotextile dewatering bags, and disposal via land application to an adjacent farm field. This alternate requires construction of a dewatering pad, disturbance to the floodplain, and associated floodplain permit(s) and SWPPP.
- Alternate 2 - Sludge removal from the existing three-cell facultative lagoon facility followed by direct application of liquid sludge to an adjacent farm field. This alternate does not require construction of a sludge dewatering pad or earthwork, does not disturb the floodplain, and does not require floodplain permits or a SWPPP.

Prospective contractors bid on one or both alternate bid schedules. The successful Contractor bid the Alternate 2 option. Alternate 2 provides a more straightforward and logistically simpler approach to the project.

III. IMPACTS ON THE PHYSICAL ENVIRONMENT

- *RESOURCES* potentially impacted are listed on the form, followed by common issues that would be considered.
- Explain *POTENTIAL IMPACTS AND MITIGATIONS* following each resource heading.
- Enter "NONE" If no impacts are identified or the resource is not present.

4. GEOLOGY AND SOIL QUALITY, STABILITY AND MOISTURE:

Consider the presence of fragile, compactable or unstable soils. Identify unusual geologic features. Specify any special reclamation considerations. Identify direct, indirect, and cumulative effects to soils.

Soils

The Natural Resource Conservation Service (NRCS) Web Soil Survey mapping application identifies the following soil types as being present within the project area (total: 171 acres).

Soil Types within the Project Area

Soil Type	Acres	Percent of Area (%)	Percent Slope (%)	Predominant Soil Profile (inches)	Farmland Classification
Fairfield (45%)- Danvers (40%) clay loams	58.4	34.2	2-4	0-6: clay loam 6-19 silty clay loam 19-43: silty clay loam 43-60 very gravelly sandy loam	Prime Farmland
Fairfield (50%)- Judell (40%) clay loams	5.6	33.3	2-8	0-6: clay loam 6-19 silty clay loam 19-43: silty clay loam 43-60 very gravelly sandy loam	Statewide Importance
Gerber clay loam	37.5	22.0	0-2	0-5: clay loam 5-20: silty clay 20-60: silty clay	Prime Farmland
Linwell silty clay loam	0.6	0.4	0-2	0-6: silty clay loam 6-28: silty clay loam 28-66: silty clay loam	Prime Farmland
Linwell silty clay loam	3.4	2.0	2-8	0-6: silty clay loam 6-28: silty clay loam 28-66: silty clay loam	Statewide Importance
Marcott silty clay loam	42.1	24.7	0-2	0-8: silty clay loam 8-25: silty clay 25-42: silty clay 42-66: extremely gravelly sandy clay loam	Not Prime Farmland
Wyola silty clay loam	17.3	10.1	0-2	0-6: silty clay loam 6-13: silty clay 13-66: silty clay loam	Prime Farmland
Typic Haplaquolls,	1.8	1.1	0-2	Not Specified	Not Prime

Soil Type	Acres	Percent of Area (%)	Percent Slope (%)	Predominant Soil Profile (inches)	Farmland Classification
moderately sloping					Farmland
Water	3.9	2.3	----	----	----

Fragile, Compactable, or Unstable Soils

No fragile, compactable, or unstable soils have been identified. The project area is primarily developed land used as the lagoon treatment facility and agricultural farmland.

Special Reclamation Considerations

No special reclamation considerations have been identified. Sludge will be land applied using standard agriculture methods and procedures.

Unusual Geologic Features

No unusual geologic features have been identified.

Proposed Alternative – No direct, indirect, or cumulative adverse impacts. No earthwork is required to remove the sludge from the lagoon cells. Sludge will be land applied using standard agricultural equipment and methods. Ground disturbance from sludge application will be the same as any disturbance required for other agricultural cultivation procedures not related to the project (ex: tilling, sowing seed, harvesting, etc.). Based on GoogleEarth aerial imagery, existing roadways and access routes exist that can be used to access the land application area.

No Action Alternative – Potential direct, indirect, and cumulative adverse impact to soil quality as it relates to the Town of Denton – Wastewater Treatment System Upgrade project. Sludge will remain in the cells with compromised liners and embankments presenting a continued threat of untreated effluent being released to the surrounding soils.

5. WATER QUALITY, QUANTITY AND DISTRIBUTION:

Identify important surface or groundwater resources. Consider the potential for violation of ambient water quality standards, drinking water maximum contaminant levels, or degradation of water quality. Identify direct, indirect, and cumulative effects to water resources.

Surface Water

The Town’s drinking water supply source includes three springs located approximately three miles southwest of Denton along Coyote Creek. Treated effluent discharges to Wolf Creek located just north of the lagoon treatment system. Wolf Creek is classified as a C-3 water according to Administrative Rules of Montana (ARM) 17.30.612. Waters classified C-3 are to be maintained suitable for bathing, swimming, and recreation, and growth and propagation of non-salmonid fishes and associated aquatic life, waterfowl, and furbearers.

Groundwater

The Town’s drinking water supply source includes one well located approximately 3 miles southwest of Denton along Coyote Creek. Information in the January 2022 PER states that “groundwater near the lagoon treatment system ranges from approximately 2 to 5 feet below ground surface (ft bgs) during the winter and spring and deeper than 2 ft bgs during the summer and fall”. The NRCS Web Soil Survey mapping application identifies groundwater within the project area as generally being greater than 6 ft bgs but as shallow as 2 to 3 ft bgs closer to Wolf Creek. The Montana Bureau of Mine and Geology Ground Water Information Center (GWIC) web mapping

application identifies other wells within the larger project area that are used for domestic, irrigation, stock water, monitoring, and industrial purposes.

Proposed Alternative –

Surface Water: No direct, indirect, or cumulative adverse impacts to surface water resources are expected. Sludge is planned to be pumped directly from the existing lagoon cells, uniformly land applied to an existing farm field, and tilled into the soil within 2 days of application. The project plans and specifications state that a temporary pipe crossing will be installed across Wolf Creek without any disturbances within the floodway or floodplain. Prior to commencement of the project, the contractor is required to submit to the engineer for approval a plan detailing the sludge dredging/pumping methods, land application methods, and certification that the methods and procedures comply with Local, State, and Federal regulations including 40 CFR Part 503 which pertains to sewage sludge applied to the land. This plan must be approved by the project engineer prior to starting work. All equipment, including piping and pumping equipment, is required to be of good quality, competent materials, and free of leaks and leaking joints. It is expected that all equipment will be inspected by the engineer prior to use. Sludge is required to be land applied immediately following removal and to not be applied less than 11 yards (10 meters) from Wolf Creek, thus preventing the chance of any sludge inadvertently being released into the creek.

Groundwater: No direct, indirect, or cumulative adverse impacts to groundwater resources are expected. The Town's water supply wells are located approximately 3 miles away. Sludge is planned to be uniformly land applied over a 120.52-acre existing farm field area and tilled into the soil within two days of application. The landowner will supply a certification of the type of cover crop to be planted and the anticipated planting date. The sludge is expected to be absorbed into the soil and serve the same purpose as a traditional fertilizer as far as supplying nutrients to the soil to support crop production. Groundwater is estimated to be greater than 6 feet below ground surface. Application of liquid sludge must comply with Local, State, and Federal regulations including 40 CFR Part 503 which pertains to sewage sludge applied to the land.

No Action Alternative –

Surface Water: Potential direct, indirect, and cumulative adverse impact to surface water quality as it relates to the Town of Denton – Wastewater Treatment System Upgrade project. Sludge will remain in the cells with compromised liners and embankment presenting a continued threat of release of untreated effluent to Wolf Creek and adversely impacting water quality.

Groundwater: No direct, indirect, or cumulative adverse impacts to groundwater resources are expected. No water supply wells are known to be located proximal to the project area.

6. AIR QUALITY:

What pollutants or particulate would be produced (i.e. particulate matter from road use or harvesting, slash pile burning, prescribed burning, etc.)? Identify the Airshed and Impact Zone (if any) according to the Montana/Idaho Airshed Group. Identify direct, indirect, and cumulative effects to air quality.

The project is not located within any air quality non-attainment/maintenance areas (Discover DEQ Throughout Montana web mapping application and EPA NEPAassist web mapping application).

Proposed Alternative – Potential temporary, short-term, localized, direct adverse impact to air quality (i.e., dust) may occur during land application of sludge depending on soil conditions at the

time of application. Any air quality impacts are expected to occur within the immediate vicinity of the land application equipment and farm field. The nearest human occupied structures are approximately 0.5 miles away from the farm field and are not expected to be adversely impacted by any dust generated during land application. Any dust generated is expected to be like that generated during other routine agricultural cultivation procedures (i.e., seeding, tilling, harvesting, etc.). Per the project plans and specifications, the contractor is required to “prevent pollution of the atmosphere from particulate and gaseous matter”.

No Action Alternative – No direct, indirect, or cumulative adverse impact to air quality since there are no air quality issues with the current system.

7. VEGETATION COVER, QUANTITY AND QUALITY:

What changes would the action cause to vegetative communities? Consider rare plants or cover types that would be affected. Identify direct, indirect, and cumulative effects to vegetation.

The Montana Natural Heritage Program identifies land cover (>2%) within a 1-mile buffer of the project area as the following (total of 5,764.6 acres):

- Cultivated Crops, 60% (3,461 acres)
- Great Plains Mixed grass Prairie, 12% (679 acres)
- Introduced Upland Vegetation – Annual and Biennial Forbland, 10% (549 acres)
- Pasture/Hay, 8% (478 acres)
- Great Plains Sand Prairie, 3% (150 acres)
- Other Roads, 2% (116 acres)
- Great Plains Riparian, 2% (96 acres)

Most of the farmland acreage in Fergus County is pastureland. Crops grown in the county include winter wheat, spring wheat, barley, dry peas, alfalfa, and grass hay (USDA Natural Resources Conservation Service).

Per the Montana Natural Heritage Program, vascular plant species that have either been confirmed as occurring or observed or may potentially be present within a 1-mile radius of the project area are summarized in the following table.

Vascular Plants within a 1-Mile Radius of the Project Area

Species Group	Common Name	Scientific Name	Occurrence Description	MT Status	USFWS Status	USFS Status	BLM Status
Vascular Plants	Crawe's Sedge	<i>Carex crawei</i>	Potentially Present	SOC	----	----	----
Vascular Plants	Long-sheath Waterweek	<i>Elodea bifoliolate</i>	Potentially Present	SOC	----	----	----

BLM = Bureau of Land Management
 MT = Montana
 SOC = species of concern
 USFS = Unites States Forest Service
 USFWS = United States Fish and Wildlife Service
 ---- = not applicable

Proposed Alternative – No direct, indirect, or cumulative adverse impacts to vegetation cover,

quantity, and quality are expected. No rare plants or cover types have been identified within the project area. No vegetation exists in the lagoon cells where the sludge will be being pumped from, and all activities within this area will occur in previously disturbed areas. Sludge is to be land applied to an existing farm field that is already used for cultivated crop production. The project plans and specifications state that a temporary pipe crossing will be installed across Wolf Creek without any disturbances within the floodway or floodplain, so no disturbance to any vegetation along Wolf Creek is expected. Based on GoogleEarth aerial imagery, existing roadways and access routes exist that can be used to access the land application area thus eliminating the need to disturb vegetation to construct temporary access roads.

No Action Alternative – Potential direct, indirect, and cumulative adverse impact to vegetation cover, quantity, and quality as it relates to the Town of Denton – Wastewater Treatment System Upgrade project. Sludge will remain in the cells with compromised liners and embankments presenting a continued threat of untreated effluent being released to the surrounding vegetation.

8. TERRESTRIAL, AVIAN AND AQUATIC LIFE AND HABITATS:

Consider substantial habitat values and use of the area by wildlife, birds or fish. Identify direct, indirect, and cumulative effects to fish and wildlife.

The project is not located within any critical habitat areas (U.S. Environmental Protection Agency NEPAAssist web mapping application). Per Montana Fish, Wildlife and Parks and the U.S. Fish and Wildlife Service, the project is not located within a wildlife habitat protection area or critical habitat for threatened and endangered (T&E) species (FWP Wildlife Habitat Protection Area and USFWS Critical Habitat for Threatened and Endangered Species web mapping applications).

According to the Montana Sage Grouse Habitat Conservation Map web mapping application, the lagoon treatment facility is located within an exempt community boundary. The land application area is not located within critical sage grouse habitat or a USFS priority habitat management area. The project is located within the Great Plains Management Zone.

The larger project area primarily provides habitat for a variety of different birds and mammals. Amphibian, invertebrate, and reptile habitat may also be present. The Montana Natural Heritage Program does not identify any important animal habitat (IAH) within a 1-mile radius of the project area.

Per the Montana Natural Heritage Program, terrestrial, avian, and aquatic life species and habitats that have either been confirmed as occurring or observed or may potentially be present within a 1-mile radius of the project area, are summarized in the following table.

Terrestrial, Avian, and Aquatic Life Species within a 1-Mile Radius of the Project Area

Species Group	Common Name	Scientific Name	Occurrence Description	MT Status	USFWS Status	USFS Status	BLM Status
Birds	Long-billed Curlew	<i>Numenius americanus</i>	Confirmed As Occurring	SOC	----	----	SENSITIVE
Birds	Thick-billed Longspur	<i>Rhynchophanes mccownii</i>	Confirmed As Occurring	SOC	----	----	SENSITIVE

Species Group	Common Name	Scientific Name	Occurrence Description	MT Status	USFWS Status	USFS Status	BLM Status
Birds	American White Pelican	<i>Pelecanus erythrorhynchos</i>	Observed	SOC	----	----	----
Birds	Great Blue Heron	<i>Ardea herodias</i>	Observed	SOC	----	----	----
Birds	Franklin's Gull	<i>Leucophaeus pipixcan</i>	Observed	SOC	----	----	SENSITIVE
Birds	Short-eared Owl	<i>Asio flammeus</i>	Potentially Present	PSOC	----	----	----
Birds	Eastern Screech-Owl	<i>Megascops asio</i>	Potentially Present	PSOC	----	----	----
Birds	Barrow's Goldeneye	<i>Bucephala islandica</i>	Potentially Present	PSOC	----	----	----
Birds	Sharp-tailed Grouse	<i>Tympanuchus phasianellus</i>	Potentially Present	SOC	----	----	----
Birds	Bobolink	<i>Dolichonyx oryzivorus</i>	Potentially Present	SOC	----	----	----
Birds	White-faced Ibis	<i>Plegadis chihi</i>	Potentially Present	SOC	----	----	SENSITIVE
Birds	Ferruginous Hawk	<i>Buteo regalis</i>	Potentially Present	SOC	----	----	SENSITIVE
Birds	Loggerhead Shrike	<i>Lanius ludovicianus</i>	Potentially Present	SOC	----	----	SENSITIVE
Birds	Mountain Plover	<i>Charadrius montanus</i>	Potentially Present	SOC	----	----	SENSITIVE
Birds	Greater Sage-Grouse	<i>Centrocercus urophasianus</i>	Potentially Present	SOC	----	SENSITIVE; SCC	SENSITIVE
Birds	Sage Thrasher	<i>Oreoscoptes montanus</i>	Potentially Present	SOC	----	----	SENSITIVE
Birds	Black-billed Cuckoo	<i>Coccyzus erythrophthalmus</i>	Potentially Present	SOC	----	----	SENSITIVE
Birds	Sprague's Pipit	<i>Anthus spragueii</i>	Potentially Present	SOC	----	----	SENSITIVE
Birds	Black Tern	<i>Chlidonias niger</i>	Potentially Present	SOC	----	----	SENSITIVE
Birds	Burrowing Owl	<i>Athene cunicularia</i>	Potentially Present	SOC	----	----	SENSITIVE
Birds	Brewer's Sparrow	<i>Spizella breweri</i>	Potentially Present	SOC	----	----	SENSITIVE
Birds	Baird's Sparrow	<i>Centronyx bairdii</i>	Potentially Present	SOC	----	----	SENSITIVE
Birds	Golden Eagle	<i>Aquila chrysaetos</i>	Potentially Present	SOC	----	----	SENSITIVE

Species Group	Common Name	Scientific Name	Occurrence Description	MT Status	USFWS Status	USFS Status	BLM Status
Birds	Black-necked Stilt	<i>Himantopus mexicanus</i>	Potentially Present	SOC	----	----	----
Birds	Veery	<i>Catharus fuscescens</i>	Potentially Present	SOC	----	----	SENSITIVE
Birds	Bald Eagle	<i>Haliaeetus leucocephalus</i>	Potentially Present	SSS	----	SENSITIVE	SENSITIVE
Mammals	North American Porcupine	<i>Erethizon dorsatum</i>	Potentially Present	PSOC	----	----	----
Mammals	Hayden's Shrew	<i>Sorex haydeni</i>	Potentially Present	PSOC	----	----	----
Mammals	Silver-haired Bat	<i>Lasiurus noctivagans</i>	Potentially Present	PSOC	----	----	----
Mammals	Dwarf Shrew	<i>Sorex nanus</i>	Potentially Present	SOC	----	----	----
Mammals	Hoary Bat	<i>Lasiurus cinereus</i>	Potentially Present	SOC	----	----	SENSITIVE
Mammals	Merriam's Shrew	<i>Sorex merriami</i>	Potentially Present	SOC	----	----	----
Mammals	Little Brown Myotis	<i>Myotis lucifugus</i>	Potentially Present	SOC	----	SENSITIVE	----
Mammals	Long-eared Myotis	<i>Myotis evotis</i>	Potentially Present	SOC	----	----	----
Mammals	Eastern Red Bat	<i>Lasiurus borealis</i>	Potentially Present	SOC	----	----	SENSITIVE
Amphibians	Northern Leopard Frog	<i>Lithobates pipiens</i>	Potentially Present	SOC	----	SENSITIVE	SENSITIVE
Invertebrates	Suckley Cuckoo Bumble Bee	<i>Bombus suckleyi</i>	Potentially Present	SOC	----	----	----
Reptiles	Plains Hog-nosed Snake	<i>Heterodon nasicus</i>	Potentially Present	SOC	----	----	SENSITIVE
IAH	----	----	----	----	----	----	----

Notes:

BLM = Bureau of Land Management

MT = Montana

PSOC = potential species of concern

SCC = species of conservation concern

SOC = species of concern

SSS = special status species

USFS = United States Forest Service

USFWS = United States Fish and Wildlife Service

---- = not applicable

Proposed Alternative – No direct, indirect, or cumulative adverse effect to terrestrial, avian, or aquatic life and habitats are expected. No threatened or endangered species or substantial habitat values have been identified. The project is planned to be completed within the existing footprint of the lagoon treatment facility which is not preferable habitat compared to the surrounding area. Sludge is planned to be land applied to an existing farm field using standard agricultural cultivation equipment and procedures. Land application activities are not expected to have any differing impacts to wildlife than other routine agricultural cultivation procedures (traditional fertilizer application, tilling, harvesting, etc.) necessary to support crop production on the farm field.

The project plans and specifications state that a temporary pipe crossing will be installed across Wolf Creek without any disturbances within the floodway or floodplain, and that the acceptable work area from the centerline of the pipe is 25 feet; no disturbance to any aquatic life or habitat along Wolf Creek is expected. Based on GoogleEarth aerial imagery, existing roadways and access routes exist that can be used to access the land application area thus not disturbing any potential off-route habitats.

No Action Alternative – Potential direct, indirect, and cumulative adverse impact to terrestrial, avian, or aquatic life and habitats as it relates to the Town of Denton – Wastewater Treatment System Upgrade project. Sludge will remain in the cells with compromised liners and embankments presenting a continued threat of untreated effluent being released to the surrounding area and Wolf Creek. Release of untreated effluent to Wolf Creek is expected to have adverse impacts on aquatic life species and habitat.

9. UNIQUE, ENDANGERED, FRAGILE OR LIMITED ENVIRONMENTAL RESOURCES:

Consider any federally listed threatened or endangered species or habitat identified in the project area. Determine effects to wetlands. Consider Sensitive Species or Species of special concern. Identify direct, indirect, and cumulative effects to these species and their habitat.

Threatened and Endangered Species (T&E)

The Montana Natural Heritage Program does not identify any T&E species within a 1-mile radius of the project area.

Sensitive Species

The following table summarizes Montana special status species (SSS), Montana species of concern (SOC), USFS/BLM sensitive species, and any species of conservation concern (SCC) that the Montana Natural Heritage Society identifies as either being confirmed as occurring or observed or potentially present within a 1-mile radius of the project area.

Special Status Species, Species of Concern, Sensitive Species, and Species of Conservation Concern within a 1-Mile Radius of the Project Area

Species Group	Common Name	Scientific Name	Occurrence Description	MT Status	USFWS Status	USFS Status	BLM Status
Vascular Plants	Crawe's Sedge	<i>Carex crawei</i>	Potentially Present	SOC	----	----	----
Vascular Plants	Long-sheath Waterweek	<i>Elodea bifoliolate</i>	Potentially Present	SOC	----	----	----
Birds	Long-billed Curlew	<i>Numenius americanus</i>	Confirmed As Occurring	SOC	----	----	SENSITIVE

Species Group	Common Name	Scientific Name	Occurrence Description	MT Status	USFWS Status	USFS Status	BLM Status
Birds	Thick-billed Longspur	<i>Rhynchophanes mccownii</i>	Confirmed As Occurring	SOC	----	----	SENSITIVE
Birds	American White Pelican	<i>Pelecanus erythrorhynchos</i>	Observed	SOC	----	----	----
Birds	Great Blue Heron	<i>Ardea herodias</i>	Observed	SOC	----	----	----
Birds	Franklin's Gull	<i>Leucophaeus pipixcan</i>	Observed	SOC	----	----	SENSITIVE
Birds	Sharp-tailed Grouse	<i>Tympanuchus phasianellus</i>	Potentially Present	SOC	----	----	----
Birds	Bobolink	<i>Dolichonyx oryzivorus</i>	Potentially Present	SOC	----	----	----
Birds	White-faced Ibis	<i>Plegadis chihi</i>	Potentially Present	SOC	----	----	SENSITIVE
Birds	Ferruginous Hawk	<i>Buteo regalis</i>	Potentially Present	SOC	----	----	SENSITIVE
Birds	Loggerhead Shrike	<i>Lanius ludovicianus</i>	Potentially Present	SOC	----	----	SENSITIVE
Birds	Mountain Plover	<i>Charadrius montanus</i>	Potentially Present	SOC	----	----	SENSITIVE
Birds	Greater Sage-Grouse	<i>Centrocercus urophasianus</i>	Potentially Present	SOC	----	SENSITIVE; SCC	SENSITIVE
Birds	Sage Thrasher	<i>Oreoscoptes montanus</i>	Potentially Present	SOC	----	----	SENSITIVE
Birds	Black-billed Cuckoo	<i>Coccyzus erythrophthalmus</i>	Potentially Present	SOC	----	----	SENSITIVE
Birds	Sprague's Pipit	<i>Anthus spragueii</i>	Potentially Present	SOC	----	----	SENSITIVE
Birds	Black Tern	<i>Chlidonias niger</i>	Potentially Present	SOC	----	----	SENSITIVE
Birds	Burrowing Owl	<i>Athene cunicularia</i>	Potentially Present	SOC	----	----	SENSITIVE
Birds	Brewer's Sparrow	<i>Spizella breweri</i>	Potentially Present	SOC	----	----	SENSITIVE
Birds	Baird's Sparrow	<i>Centronyx bairdii</i>	Potentially Present	SOC	----	----	SENSITIVE
Birds	Golden Eagle	<i>Aquila chrysaetos</i>	Potentially Present	SOC	----	----	SENSITIVE
Birds	Black-necked Stilt	<i>Himantopus mexicanus</i>	Potentially Present	SOC	----	----	----
Birds	Veery	<i>Catharus fuscescens</i>	Potentially Present	SOC	----	----	SENSITIVE
Birds	Bald Eagle	<i>Haliaeetus leucocephalus</i>	Potentially Present	SSS	----	SENSITIVE	SENSITIVE

Species Group	Common Name	Scientific Name	Occurrence Description	MT Status	USFWS Status	USFS Status	BLM Status
Mammals	Dwarf Shrew	<i>Sorex nanus</i>	Potentially Present	SOC	----	----	----
Mammals	Hoary Bat	<i>Lasiurus cinereus</i>	Potentially Present	SOC	----	----	SENSITIVE
Mammals	Merriam's Shrew	<i>Sorex merriami</i>	Potentially Present	SOC	----	----	----
Mammals	Little Brown Myotis	<i>Myotis lucifugus</i>	Potentially Present	SOC	----	SENSITIVE	----
Mammals	Long-eared Myotis	<i>Myotis evotis</i>	Potentially Present	SOC	----	----	----
Mammals	Eastern Red Bat	<i>Lasiurus borealis</i>	Potentially Present	SOC	----	----	SENSITIVE
Amphibians	Northern Leopard Frog	<i>Lithobates pipiens</i>	Potentially Present	SOC	----	SENSITIVE	SENSITIVE
Invertebrates	Suckley Cuckoo Bumble Bee	<i>Bombus suckleyi</i>	Potentially Present	SOC	----	----	----
Reptiles	Plains Hog-nosed Snake	<i>Heterodon nasicus</i>	Potentially Present	SOC	----	----	SENSITIVE

Notes:

BLM = Bureau of Land Management

MT = Montana

PSOC = potential species of concern

SCC = species of conservation concern

SOC = species of concern

SSS = special status species

USFS = United States Forest Service

USFWS = United States Fish and Wildlife Service

---- = not applicable

Critical Habitat

The project is not located within any critical habitat areas (U.S. Environmental Protection Agency NEPAAssist web mapping application). Per Montana Fish, Wildlife and Parks and the U.S. Fish and Wildlife Service, the project is not located within a wildlife habitat protection area or critical habitat for T&E species (FWP Wildlife Habitat Protection Area and USFWS Critical Habitat for Threatened and Endangered Species web mapping applications).

According to the Montana Sage Grouse Habitat Conservation Map web mapping application, the lagoon treatment facility is located within an exempt community boundary. The land application area is not located within critical sage grouse habitat or a USFS priority habitat management area. The project is located within the Great Plains Management Zone. The Montana Natural Heritage Program does not identify any important animal habitat (IAH) within a 1-mile radius of the project area. No substantial habitat values have been identified.

Wetlands and Riparian Zones

The National Wetlands Inventory web mapping application shows freshwater emergent wetland present near the northwest and northeast corners of the construction staging area. *Sheet C1.0, Staging and Sludge Land Application Area of the Town of Denton Wastewater System Upgrades Sludge Removal and Disposal Bid Set*, dated March 2024, depicts the construction staging area

boundary. The northwest and northeast staging area corner boundaries as shown on Sheet C1.0 overlap freshwater emergent wetland areas as depicted by the National Wetlands Inventory web mapping application.

Proposed Alternative –

USFWS Federally Listed Threatened or Endangered Species and Critical Habitat: No direct, indirect, or cumulative adverse impacts to T&E species since none have been identified in the project area.

Other Habitat Resources: No direct, indirect, or cumulative adverse impacts to any unique, endangered, fragile, or limited habitat resources since none have been identified within the project area.

Wetland Resources: Potential direct adverse impact to wetland resources since the northern staging area boundary, as shown on *Sheet C1.0, Staging and Sludge Land Application Area of the Town of Denton Wastewater System Upgrades Sludge Removal and Disposal Bid Set*, dated March 2024, overlaps freshwater emergent wetland areas as depicted by the National Wetlands Inventory web mapping application. **To prevent any adverse impacts from the staging area to wetland areas, it is recommended that the northern boundary of the staging area be offset to the south and boundary marked in the field by the project engineer prior to contractor mobilization to project area.**

No Action Alternative – Potential direct, indirect, and cumulative adverse impact to wetlands as it relates to Town of Denton – Wastewater Treatment System Upgrade project. Sludge will remain in the cells with compromised liners and embankments presenting a continued threat of untreated effluent being released to the surrounding area, Wolf Creek, and wetland areas. Release of untreated effluent to Wolf Creek and wetland areas is expected to have adverse impacts on wetland areas.

10. HISTORICAL AND ARCHAEOLOGICAL SITES:

Identify and determine direct, indirect, and cumulative effects to historical, archaeological or paleontological resources.

A cultural resource file search was conducted by Montana Historical Society personnel in 2022 as part of the PER project planning process. The Montana State Historic Preservation Office (SHPO) stated that a cultural inventory was unnecessary at this time.

No National Register of Historic Places within the project area have been identified (U.S. Environmental Protection Agency NEPAAssist web mapping application).

Proposed Alternative – No direct, indirect, or cumulative adverse impacts to historical and archaeological sites since none have been identified within the project area. It is not expected that any historical, archaeological or paleontological resources will be identified during construction since construction is taking place within the current lagoon treatment facility footprint and sludge is being applied to an existing farm field used for crop production.

No Action Alternative – No direct, indirect, or cumulative adverse impacts to historical and archaeological sites since none have been identified within the project area.

11. AESTHETICS:

Determine if the project is located on a prominent topographic feature, or may be visible from populated or scenic areas. What level of noise, light or visual change would be produced? Identify direct, indirect, and cumulative effects to aesthetics.

No prominent topographic features have been identified. The project area consists of a lagoon wastewater treatment facility and existing farm field used for crop production. Neither are prominent topographic features. These two areas are separated by Wolf Creek which is not a wild and scenic river.

Proposed Alternative – Potential direct, temporary, localized adverse impact to aesthetics due to noise and odors. The project may be visible by people living and working in Denton and the surrounding area. People may see construction equipment used to pump the sludge out of the lagoon cells and associated piping and equipment necessary to land apply the sludge.

Noise associated with pumping the sludge out of the lagoon cells is expected to be localized around the lagoon treatment facility and not adversely impact the surrounding the area. Noise associated with land application of the sludge is expected to be like noise generated during other routine agricultural cultivation procedures (seeding, tilling, harvesting, etc.).

There is potential for odors during sludge removal due to the nature of a lagoon treatment system; however, odors are expected to be short term and cease once the sludge is removed.

No long-term adverse impacts are expected. Any temporary adverse noise or odor impacts will cease upon completion of the project. The project is expected to take 45 calendar days. The project plans and specifications state that regular contractor working hours are defined as 8:00 AM to 5:00 PM, so work will not be occurring during traditional non-working hours. No adverse impacts due to light are expected given the specified hours of operation.

No Action Alternative – No direct, indirect, or cumulative adverse impacts impact to aesthetics since post-project conditions will be the same as pre-project conditions.

12. DEMANDS ON ENVIRONMENTAL RESOURCES OF LAND, WATER, AIR OR ENERGY:

Determine the amount of limited resources the project would require. Identify other activities nearby that the project would affect. Identify direct, indirect, and cumulative effects to environmental resources.

The project is expected to be performed by local contractors and project personnel living and working within Denton, Fergus County, and the surrounding area. Equipment and materials necessary to pump sludge from the cells and land apply it are expected to be locally or readily available and not be in limited supply. Fuel consumption associated with equipment necessary to complete the project is expected.

No other activities nearby that the project would adversely affect have been identified.

Proposed Alternative – No direct, indirect, or cumulative adverse impacts to land, water, air, or energy resources are expected. No additional land resources are needed to complete the project. Sludge will be removed from the existing lagoon cells. A Memorandum of Understanding has been executed allowing the application of sludge to private property. A lease has been executed allowing use of private property as a construction staging area. Any water, air, or energy resources necessary to operate equipment necessary to complete the project are not expected to be adversely impacted given the short duration of the project (45 calendar days).

No Action Alternative – Potential direct, indirect, and cumulative adverse impact to water as it relates to the Town of Denton – Wastewater Treatment System Upgrade project. Sludge will remain in the cells with compromised liners and embankments presenting a continued threat of untreated effluent being released to Wolf Creek. Wolf Creek is classified as a C-3 water which are to be maintained suitable for bathing, swimming, and recreation, and growth and propagation of non-salmonid fishes and associated aquatic life, waterfowl, and furbearers. A release of untreated effluent is expected to have an adverse effect on Wolf Creek and its use as a resource for C-3 water purposes.

13. OTHER ENVIRONMENTAL DOCUMENTS PERTINENT TO THE AREA:

List other studies, plans or projects on this tract. Determine cumulative impacts likely to occur as a result of current private, state or federal actions in the analysis area, and from future proposed state actions in the analysis area that are under MEPA review (scoped) or permitting review by any state agency.

Other aspects of the Town of Denton – Wastewater Treatment System Upgrades project will be completed within the existing footprint of the lagoon treatment system. The cell liners are planned to be replaced, embankment repaired, and disinfection and flow monitoring equipment installed. Other aspects of the Town of Denton – Wastewater Treatment System Upgrades project will be completed within the town of Denton. Other agency environmental review and DEQ approval documents related to these other aspects of the larger project will be produced. Permit(s) (ex: SWPPP) associated with these other aspects of the project are planned to be obtained along with DEQ approval of the plans and specifications.

According to the Montana Natural Heritage Program, there have been a few structured surveys within a 1-mile radius of the project area that include the following:

- RMBO Generalized Random-tesselation Stratification (2012)
- Eastern Heath Snail Survey (2012)
- Noxious Weed Road-based Visual Surveys (2003)

Proposed Alternative – No direct, indirect, or cumulative adverse impacts on other environmental documents pertinent to the area. The project is a subset of the larger project and supports the overall Town of Denton – Wastewater Treatment System Upgrades project which is being implemented to bring the system into compliance with DEQ and MPDES discharge permit requirements.

No Action Alternative – No direct, indirect, or cumulative adverse impact to other environmental documents pertinent to the area.

IV. IMPACTS ON THE HUMAN POPULATION

- *RESOURCES* potentially impacted are listed on the form, followed by common issues that would be considered.
- Explain *POTENTIAL IMPACTS AND MITIGATIONS* following each resource heading.
- Enter “NONE” If no impacts are identified or the resource is not present.

14. HUMAN HEALTH AND SAFETY:

Identify any health and safety risks posed by the project.

The Discover DEQ Throughout Montana web mapping application identifies several active petroleum release sites within the town of Denton. These are not expected to pose any risk to the project. Concerns regarding the release of undertreated effluent to Wolf Creek and resulting potential human health impacts have been documented. From the January 2022 PER:

“According to DMRs submitted to MDEQ by the Town, treated effluent *E. coli* concentrations have exceeded 10,000 per 100 ml. The DMRs also indicate that the collection system has excessive I&I due to the system not meeting required percent removal standards. Inadequate treatment and or disinfection is indicated. Because *E. coli* can remain dormant for extended periods of time in the stream environment, viable organisms can be transported far downstream Wolf Creek to the Missouri River system, potentially exceeding United States Department of Health limits of 1 colony forming unit (CFU)/100 ml for untreated drinking water and 125 CFU/100 ml for recreational user exposure. According to research on the life cycle and viability of *E.coli* (Flint 1987), these organisms can survive for long time periods in river water at temperatures from 4 to 25 degrees Celsius. In water filtered to remove carbon sources, organism viability was up to 260 days. These long survival times suggest that *E coli* are capable of entering a dormant state (known by researchers as VBNC (viable but not culturable) when introduced into an alien environment such as the Missouri River. More recent studies (Raloff 2012) show that when stressed, *E. coli* can temporarily suppress its life signs including reproduction. Because health officials routinely use culturing to determine the viability and subsequently the presence of these organisms, *E. coli* is able to elude detection when dormant. Researchers have concluded that recent and virulent disease outbreaks are the result of health officials incorrectly concluding that water supplies were “safe” when in fact the organisms were in the VBNC state. Upon entering the intestinal tracts of humans, these so called temporarily dormant organisms are able to rapidly reproduce and cause rapid disease outbreaks. Without a disinfection system, the effluent from Denton’s lagoon system is a potential public health risk for recreational stream users and downstream potable water systems.”

Proposed Alternative – Potential direct, indirect, short- to long-term adverse impact to safety due to safety risks associated with the operation of equipment necessary to complete the project. Any potential health and safety risks are expected to be limited to project personnel. Per the project plans and specifications, the contractor is required to designate a qualified and experienced safety representative at the project site whose whole duties and responsibilities are to prevent accidents and maintain and supervise safety precautions and programs. Removal of the sludge from the lagoon cells will support other aspects of the Town of Denton – Wastewater Treatment System Upgrade project which will have a beneficial impact to public health and safety. Sludge removal will facilitate replacement of liners and the embankment thus preventing a release of undertreated effluent, and associated *E.coli* and other contamination, to Wolf Creek and eventually the Missouri River.

No Action Alternative – Potential direct, indirect, and cumulative adverse impact to human health

and safety as it relates to the Town of Denton – Wastewater Treatment System Upgrade project. Sludge will remain in the lagoon cells with compromised liners and embankments presenting a continued threat of undertreated effluent and associated contaminants being released to Wolf Creek and eventually the Missouri River thus adversely impacting water quality and human health from use of the water.

15. INDUSTRIAL, COMMERCIAL AND AGRICULTURE ACTIVITIES AND PRODUCTION:

Identify how the project would add to or alter these activities.

Most of the farmland acreage in Fergus County is pastureland. Crops grown in Fergus County include winter wheat, spring wheat, barley, dry peas, alfalfa, and grass hay (USDA Natural Resources Conservation Service). Over 78% of land in Fergus County is classified as farmland. Cattle (70%) and grain (17%) comprised nearly 87% of the total crop and livestock sales in 2017. Top crops produced in 2017 include hay/haylage, winter wheat, spring wheat, barley, lentils, peas dry edible, chickpeas, durum wheat, canola, and safflower (Montana State University, Economic Impact of Agriculture, Fergus County, January 2021).

The three-cell facultative lagoon system is the sole source for treatment of wastewater from the town of Denton.

Proposed Alternative – No direct or cumulative adverse impact to industrial, commercial, and agricultural activities and production. The project may have potentially direct and indirect beneficial impacts to crop growth on the farm field where sludge is applied and support agricultural production in Fergus County. Land applied sludge is expected to be absorbed into the soil and serve the same purpose as a traditional fertilizer as far as supplying nutrients to the soil to support crop production. The project will also bring the sole source of wastewater treatment into compliance with DEQ and MPDES discharge permit requirements thus supporting the treatment of existing and future business' wastewater.

No Action Alternative – Potential direct adverse impact to industrial, commercial, and agricultural activities and production. Continued non-compliance with DEQ and discharge permit regulations, and the resulting cost of fines being passed to taxpayers, may be a deterrent for new business development within the area.

16. QUANTITY AND DISTRIBUTION OF EMPLOYMENT:

Estimate the number of jobs the project would create, move or eliminate. Identify direct, indirect, and cumulative effects to the employment market.

The population of Fergus County in 2020 was 11,446 (United States Census Bureau). The population of the Denton in 2020 was 205 (United States Census Bureau). Construction of the project is expected to be performed by existing local contractors and project personnel living and working within Denton, Fergus County, and the surrounding area.

Proposed Alternative – No direct, indirect, or cumulative adverse impact. Potentially short-term, direct, and indirect beneficial impacts to the local employment market and suppliers by creating a job opportunity for local contractors and material suppliers. It is not expected that the project would create, move, or eliminate jobs but could sustain current positions.

No Action Alternative – No adverse impact to quantity or distribution of employment.

17. LOCAL AND STATE TAX BASE AND TAX REVENUES:

Estimate tax revenue the project would create or eliminate. Identify direct, indirect, and cumulative effects to taxes and revenue.

The project is located in Fergus County where over 78% of the land is classified as farmland. The county itself comprises 2,777,171 acres. In 2019, the market value of all property in Fergus County was approximately \$1.6 billion. The taxable value of all property was approximately \$39 million. Agricultural property comprised 13% of Fergus County's taxable value (Montana State University Extension, Economic Impact of Agriculture, Fergus County, January 2021).

For tax year 2018, the total number of taxpayers in Fergus County was 7,558 with a total of just over \$10 million paid in income taxes. For tax year 2019, just under \$11 million was paid in property taxes (Montana Taxes by County In 2018, Montana Department of Revenue, February 2020).

The following information summarizes the 2024 taxable value of parcels on which the project is located (Montana Department of Revenue):

- Lagoon wastewater treatment facility: Exempt Property, 13.018 acres, Taxable Value: \$0
- Construction Staging Area: Vacant Land – Urban, 4.526 acres, Taxable Value: \$23
- Land Application Farm Field: Vacant Land – Rural, 471.12 acres total, 120.52 acres used for land application, Taxable Value (entire parcel): \$1,798

Proposed Alternative – No direct, indirect, or cumulative adverse impact to local and state tax base and tax revenues. The parcel on which the lagoon cells are located is tax exempt. The farm field on which sludge will be land applied is already an existing farm field used for crop production. The project is not expected to result in any changes to the tax base or tax revenues that result from crop production on the farm field property.

No Action Alternative – Potential direct, indirect, and cumulative adverse impact to local and state tax base and tax revenues. The system will continue to be non-compliant with DEQ regulations which may result in fines. It may be necessary to use taxpayer dollars to pay fines which may result in less tax dollars available for other uses.

18. DEMAND FOR GOVERNMENT SERVICES:

Estimate increases in traffic and changes to traffic patterns. What changes would be needed to fire protection, police, schools, etc.? Identify direct, indirect, and cumulative effects of this and other projects on government services.

The Denton Volunteer Fire Company and an elementary, junior high, and high school are in Denton. The community of Denton is serviced by the Fergus County Sheriff's Office.

Proposed Alternative – No direct, indirect, or cumulative adverse impact to demand for government services is expected. The project is being completed within the footprint of the existing lagoon treatment facility and an existing farm field. There is the potential for minimal traffic control to complete the project; however, no disruption to traffic or traffic patterns is expected given the limited scope and short duration of the project (45 calendar days). No direct, indirect, or cumulative adverse impacts or changes to fire protection, police, or schools are expected given the limited scope of work associated with the project.

No Action Alternative – No direct, indirect, or cumulative adverse impact to demand for government services since the existing system will remain as is.

19. LOCALLY ADOPTED ENVIRONMENTAL PLANS AND GOALS:

List State, County, City, USFS, BLM, Tribal, and other zoning or management plans, and identify how they would affect this project.

The Federal Emergency Management Agency (FEMA) has determined that the Town of Denton – Wastewater Treatment System Upgrade project, including this project, is located within the 100-year flood plain. The Denton wastewater treatment system currently discharges to Wolf Creek under discharge permit MPDES#MT0022462.

Circular DEQ-2 – Design Standards for Public Sewage Systems is applicable to the project. *40 CFR 503, Standards For The Use Or Disposal Of Sewage Sludge* requirements are applicable to the land application of sludge materials.

There are no other known zoning or management plans for the project area (Environmental Protection Agency NEPAassist and Montana DEQ Discover DEQ Throughout Montanan web mapping applications).

Proposed Alternative – No direct, indirect, or cumulative adverse impact to locally adopted environmental plans and goals. No disturbance within the floodplain is necessary to complete the project. This project supports the larger Town of Denton – Wastewater Treatment System Upgrade project which is being designed to correct deficiencies in the existing system and bring it into compliance with DEQ Circular DEQ-2 and MPDES discharge permit requirements. Correcting deficiencies will have beneficial impacts to the community, human health, and the environment by ensuring effluent is properly treated prior to discharge to Wolf Creek.

No Action Alternative – Direct, indirect, and cumulative adverse impact to locally adopted environmental plans and goals. The wastewater collection and treatment system will remain out of compliance with DEQ and MPDES discharge permit requirements. Human health and the environment will continue to be at risk of undertreated effluent being release the environment.

20. ACCESS TO AND QUALITY OF RECREATIONAL AND WILDERNESS ACTIVITIES:

Identify any wilderness or recreational areas nearby or access routes through this tract. Determine the effects of the project on recreational potential within the tract. Identify direct, indirect, and cumulative effects to recreational and wilderness activities.

No wilderness or recreational areas or access routes within the project area have been identified.

Proposed Alternative – No direct, indirect, or cumulative adverse impact to access to and quality of recreational and wilderness activities since none have been identified within the project area. The project is occurring within the existing lagoon treatment facility footprint and on an existing farm field used for crop production. These areas are not used for recreational purposes.

No Action Alternative – No direct, indirect, or cumulative adverse impact to access to and quality of recreational and wilderness activities since none have been identified within the project area.

21. DENSITY AND DISTRIBUTION OF POPULATION AND HOUSING:

Estimate population changes and additional housing the project would require. Identify direct, indirect, and cumulative effects to population and housing.

The population of Fergus County in 2020 was 11,446 with 6,013 housing units (United States Census Bureau). The population of the Denton in 2020 was 205 with 148 housing units (United States Census Bureau).

Proposed Alternative – No direct, indirect, or cumulative adverse impact to density and distribution of population and housing. Construction of the project is expected to be performed by existing local contractors and project personnel living and working within Denton, Fergus County, and the surrounding area; no additional housing or changes to current housing are expected. The project supports the overall Town of Denton – Wastewater Treatment System Upgrade project which is planned to have sufficient capacity for long term community growth.

No Action Alternative – Potential direct, indirect, and cumulative adverse impacts to density and distribution of population and housing. The system will continue to be out of compliance with DEQ and MPDES discharge permit requirements which may result in fines. There is potential for the population of Denton to decline based on residents not wanting their tax dollars to pay for fines. The inadequate system also limits the future development of additional housing.

22. SOCIAL STRUCTURES AND MORES:

Identify potential disruption of native or traditional lifestyles or communities.

Fergus County supports agriculturally based communities with over 78% of land classified as farmland (Montana State University, Economic Impact of Agriculture, Fergus County, January 2021). No federally recognized Tribal land is within the project area. The larger project area was traditionally inhabited or used by the Crow and Cheyenne tribes (Native Land Digital web mapping application).

Proposed Alternative – No direct, indirect, or cumulative adverse impact to social structures and/or traditional lifestyles or communities is expected. The project supports addressing deficiencies in

the community's wastewater treatment system. Current communities and lifestyles are expected to remain as is and not change because of the project.

No Action Alternative – No direct, indirect, or cumulative adverse impact to social structures and/or traditional lifestyles or communities. The current communities and lifestyles are expected to remain as is.

23. CULTURAL UNIQUENESS AND DIVERSITY:

How would the action affect any unique quality of the area?

No cultural uniqueness and diversity have been identified.

Proposed Alternative – No direct, indirect, or cumulative adverse impact to any cultural uniqueness, diversity, or unique quality of the project area or nearby communities is expected. The project is being completed within the footprint of the existing lagoon treatment facility and on an existing farm field used for crop production. Neither of these are unique qualities to the area, and the surrounding area is agriculturally based. Post-project conditions will resemble pre-project conditions. No changes to cultural uniqueness and diversity are expected because of the project.

No Action Alternative – No direct, indirect, or cumulative adverse impact to any cultural uniqueness, diversity, or unique quality.

24. OTHER APPROPRIATE SOCIAL AND ECONOMIC CIRCUMSTANCES:

Include appropriate economic analysis. Identify potential future uses for the analysis area other than existing management. Identify direct, indirect, and cumulative economic and social effects likely to occur as a result of the proposed action.

The future use of the project area will not change from its current use. The lagoon cells will continue to be used as treatment cells. The farm field where sludge is to be land applied will continue to be used as a farm field.

Projected Sewer Rate Increase

The sludge removal/land application project supports the larger facultative lagoon repairs and upgrade project which is a portion of the overall Town of Denton – Wastewater Treatment System Upgrades project. The January 2022 PER outlines the analysis used to estimate the sewer rate increase necessary to fund the overall Town of Denton – Wastewater Treatment System Upgrades project. The current sewer rate is \$27.00 per service. Implementation of the overall project is projected to increase the average sewer rate by \$31.00 per month per user. Therefore, the total sewer-only user rate is projected to be \$58.00 per month per service.

Facultative Lagoon Repairs and Upgrades Cost Analysis

From the January 2022 PER...

Alternative T-1: Facultative Lagoon Repairs and Upgrades

“Capital Cost Estimates

A preliminary opinion of probable cost for Alternative T-1 has been prepared for guidance in project evaluation and comparisons. Construction cost estimates are in 2023 dollars and include

labor, materials, equipment, overhead, bonds, insurance, and profit. Estimates were based on actual costs for other similar facilities, equipment quotations from suppliers, published cost curves, and experience of the engineer. Each alternative was assigned a 10 percent contingency and a 25 percent engineering, legal, and administrative cost. Actual engineering costs may be higher or lower depending on the scope of services performed. The detailed OPC for this alternative can be found in *Appendix I* of this report.

Present Worth Cost Estimates

A present worth analysis that includes the capital, annual, and facility replacement costs was also prepared for Alternative T-1. This computation, commonly referred to as a life cycle analysis, equalizes the O&M costs of the alternatives and then adds them to the capital cost. The result is the total present worth cost. The present worth of the operating costs was computed for twenty years using factors developed on the real discount rate published by the United States Office of Management and Budget (OMB). The facility salvage value was determined by classifying the design life of various assets as appropriate. The salvage value at the twenty-year point was then discounted to present value using a present worth factor based on the current OMB discount rate. **Table 4B.4** presents the capital, annual, and present worth cost for the implementation of Alternative T-1.”

Table 4B.4 Present Worth Costs T-1	
Capital	\$1,936,800.00
Annual	\$10,500.00
PW Salvage	\$210,385.44
PW O&M	\$160,650.00
Present Worth Cost	\$1,887,064.56

Proposed Alternative – No direct, indirect, or cumulative adverse impact to other appropriate social and economic circumstances are expected. Sewer rate increases may not make Denton residents happy, but based on the public meeting, the need for the project was understood by the public. Although sewer rates will increase, all users of the system will be equally affected by the rate increase, so no adverse social impacts are expected. Sewer rate increases are necessary to provide funding for the project.

Long-term public and environmental benefits will offset the sewer rate increases by avoiding development of moratoriums and fines due to inadequate wastewater treatment facilities.

No Action Alternative – Potential direct adverse impact to social and economic circumstances. The current system will continue to be out of compliance with DEQ and MPDES discharge permit requirements. This may result in the use of taxpayer dollars or increased sewer rates to pay fines which have the potential to cause social tension within the community with an increase in cost not resulting in better system service.

25. DRINKING WATER AND/OR CLEAN WATER

Identify potential impacts to water and/or sewer infrastructure (e.g., community water supply, stormwater, sewage system, solid waste management) and identify direct, indirect, and cumulative effects likely to occur as a result of the proposed action.

The town of Denton provides centralized water and sewer services to approximately 250 local businesses and residents. The Town's drinking water supply source includes three springs located approximately 3 miles southwest of Denton along Coyote Creek. The Town's wastewater system was originally constructed in 1953 and upgraded in 2000. The current collection system is primarily made up of clay tile and pipe. The treatment system consists of a three-cell facultative lagoons system with synthetically-lined cells.

Proposed Alternative – No direct, indirect, or cumulative adverse impact to water and/or sewer infrastructure. This project will have direct, indirect, and cumulative beneficial impacts since it supports a much larger project that upgrades the Town's wastewater collection and treatment system to bring it into compliance with DEQ and MPDES discharge requirements. After upgrades are complete, the system will be able to adequately treat wastewater prior to discharge to Wolf Creek and will have sufficient capacity for long term community growth.

No Action Alternative – Continued direct, indirect, and cumulative adverse impacts to the wastewater supply system and corresponding adverse impacts to human health and the environment. The system will remain inadequate to adequately treat wastewater prior to discharge to Wolf Creek. The release of *E. coli* and other undertreated effluent contaminants to the environment and corresponding human health concerns will continue.

26. ENVIRONMENTAL JUSTICE

Will the proposed project result in disproportionately high or adverse human health or environmental effects on minority or low-income populations per the Environmental Justice Executive Order 12898? Identify potential impacts to and identify direct, indirect, and cumulative effects likely to occur as a result of the proposed action.

In 2021, the median household income in Fergus County was \$60,466 which is a 21.2% increase from 2017 to 2022. In 2022, people in poverty were 12.3% of the population, which is a 0.4% decrease from 2017 to 2022 (Montana Department of Commerce).

Per the January 2022 PER, the current sewer rate is \$27.00 per service. Implementation of the overall project is projected to increase the average sewer rate by \$31.00 per month per user. Therefore, the total projected wastewater-only user rate is projected to be \$58.00 per month per service.

Proposed Alternative – No direct, indirect, or cumulative adverse impact is expected as the project will not result in disproportionately high or adverse human health or environmental effects on minority or low-income populations. The project and rate increases are expected to affect users of the system proportionally. No disproportionate effects among any portion of the community are expected.

No Action Alternative – No direct, indirect, or cumulative adverse impact to environmental justice.

EA Prepared By:	Name: Samantha Treu	Date: 8/14/2024
	Title: MEPA/NEPA Coordinator	Email: samantha.treu@mt.gov

V. FINDING

27. ALTERNATIVE SELECTED:

The following alternative was selected.

- Alternate 2 - Sludge removal from the existing three-cell facultative lagoon facility followed by direct application of liquid sludge to an adjacent farm field. This alternate does not require construction of a sludge dewatering pad or earthwork, does not disturb the floodplain, and does not require floodplain permits or a SWPPP.

28. SIGNIFICANCE OF POTENTIAL IMPACTS:

Air Quality

Potential temporary and short-term direct adverse impact to air quality (i.e., dust) may occur during land application of sludge depending on soil conditions at the time of application. Any air quality impacts are expected to occur within the immediate vicinity of the land application equipment and farm field. The nearest human occupied structures are approximately 0.5 miles away from the farm field and are not expected to be adversely impacted by any dust generated during land application. Any dust generated is expected to be like that generated during other routine agricultural cultivation procedures (i.e., seeding, tilling, harvesting, etc.). Per the project plans and specifications, the contractor is required to “prevent pollution of the atmosphere from particulate and gaseous matter”.

Unique, Endangered, Fragile or Limited Environmental Resources – Wetland Resources

Potential direct adverse impact to wetland resources since the northern staging area boundary, as shown on *Sheet C1.0, Staging and Sludge Land Application Area of the Town of Denton Wastewater System Upgrades Sludge Removal and Disposal Bid Set*, dated March 2024, overlaps freshwater emergent wetland areas as depicted by the National Wetlands Inventory web mapping application. **To prevent any adverse impacts from the staging area to wetland areas, it is recommended that the northern boundary of the staging area be offset to the south and boundary marked in the field by the project engineer prior to contractor mobilization to project area.**

Aesthetics

Potential direct and temporary adverse impact to aesthetics due to noise and odors. The project may be visible by people living and working in Denton and the surrounding area. People may see construction equipment used to pump the sludge out of the lagoon cells and associated piping and equipment necessary to land apply the sludge.

Noise associated with pumping the sludge out of the lagoon cells is expected to be localized around the lagoon treatment facility and not adversely impact the surrounding the area. Noise associated with land application of the sludge is expected to be like noise generated during other routine agricultural cultivation procedures (seeding, tilling, harvesting, etc.).

There is potential for odors during sludge removal due to the nature of a lagoon treatment system;

however, odors are expected to be short term and cease once the sludge is removed. No long-term adverse impacts are expected. Any temporary adverse noise or odor impacts will cease upon completion of the project. The project is expected to take 45 calendar days. The project plans and specifications state that regular contractor working hours are defined as 8:00 AM to 5:00 PM, so work will not be occurring during traditional non-working hours. No adverse impacts due to light are expected given the specified hours of operation.

Human Health and Safety

Potential direct adverse impact to safety due to safety risks associated with the operation of equipment necessary to complete the project. Any potential health and safety risks are expected to be limited to project personnel. Per the project plans and specifications, the contractor is required to designate a qualified and experienced safety representative at the project site whose whole duties and responsibilities are to prevent accidents and maintain and supervise safety precautions and programs.

29. NEED FOR FURTHER ENVIRONMENTAL ANALYSIS:

This is the final environmental assessment. DNRC concludes that no significant adverse impacts will occur as a result of the proposed project work, and therefore no additional environmental review is required. This environmental assessment was posted for a 30-day public notice, and the environmental review of this project is complete.

EIS

More Detailed EA

No Further Analysis

EA Approved By:	Name:
	Title:
Signature:	Date:

Project Location

TOWN OF DENTON WASTEWATER SYSTEM UPGRADES SLUDGE REMOVAL AND DISPOSAL DENTON, MONTANA



VICINITY MAP
SCALE: NTS

SHEET LIST	
C0.0	TITLE SHEET
C0.1	FLOW SCHEMATIC
C1.0	STAGING AND SLUDGE LAND APPLICATION AREA
C1.1	SLUDGE DEWATERING PAD GENERAL LOCATION
C2.0	SLUDGE DEWATERING PAD DETAILS



DESIGNED BY: GMR, TSS	DRAWN BY: GMR, TSS	DATE: 10/18/2024	PROJECT NO. DENTON WW																					
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>REVISION</th> <th>DATE</th> <th>BY</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </tbody> </table>				REVISION	DATE	BY																		
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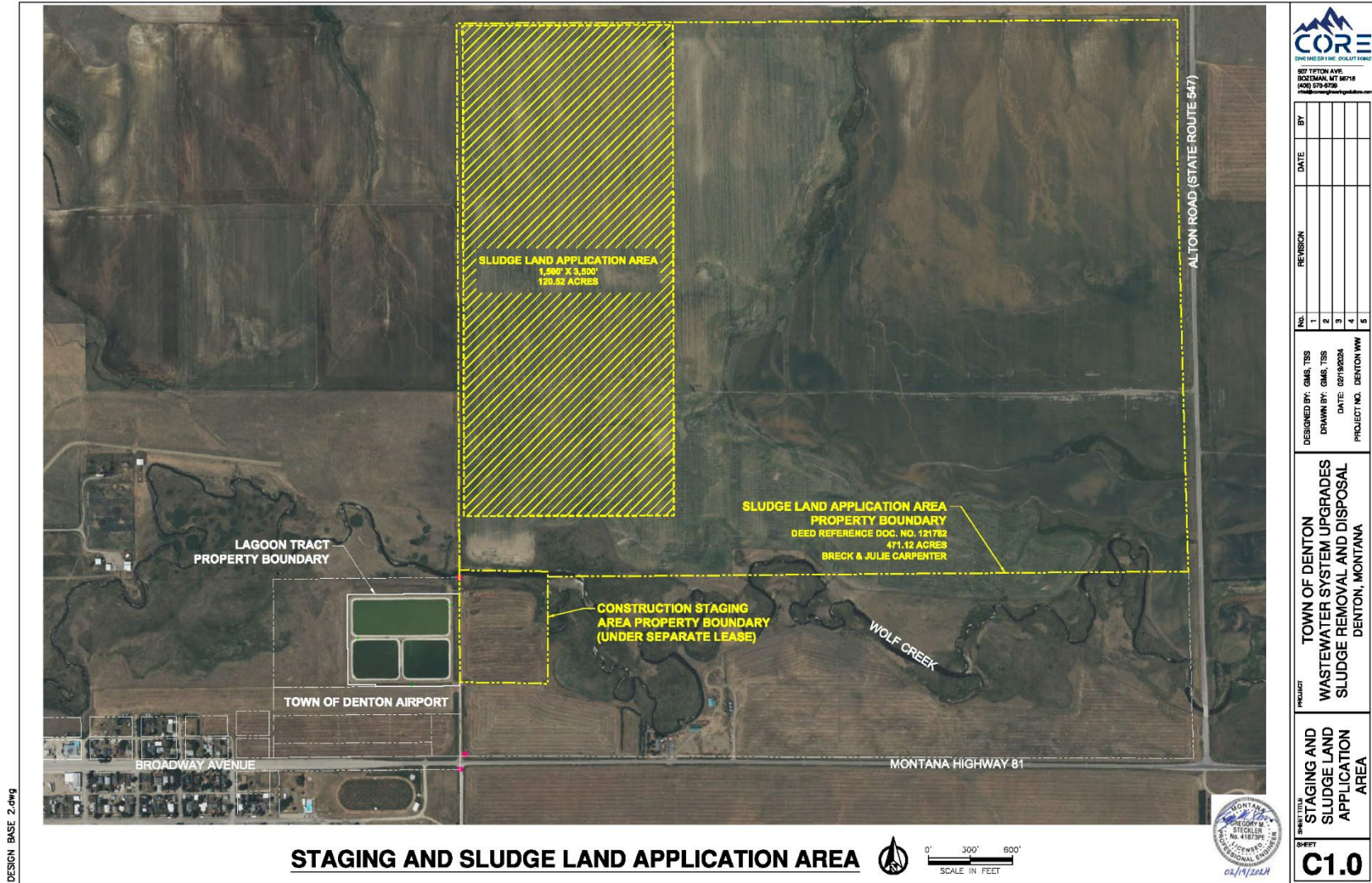
**TOWN OF DENTON
WASTEWATER SYSTEM UPGRADES
SLUDGE REMOVAL AND DISPOSAL
DENTON, MONTANA**

SHEET TITLE
TITLE SHEET
SHEET
C0.0



DESIGN BASE 2.0WG

Project Work Areas



DESIGN BASE 2.dwg

STAGING AND SLUDGE LAND APPLICATION AREA



0' 300' 600'
SCALE IN FEET



827 TRITON AVE.
BOZEMAN, MT 59718
406.578.8780
www.coresolutions.com

NO.	REVISION	DATE	BY
1			
2			
3			
4			
5			

DESIGNED BY: GMS, TSS
DRAWN BY: GMS, TSS
DATE: 02/19/20
PROJECT NO.: DENTON WW

PROJECT: TOWN OF DENTON
WASTEWATER SYSTEM UPGRADES
SLUDGE REMOVAL AND DISPOSAL
DENTON, MONTANA

SHEET TITLE: STAGING AND
SLUDGE LAND
APPLICATION
AREA

SHEET: **C1.0**



MONTANA STATE LIBRARY

NATURAL HERITAGE PROGRAM mtnhp.org

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Latitude	Longitude
47.30103	-109.89427
47.34490	-109.95796

Summarized by:
018N014E015
(Buffered PLSS Section)



Suggested Citation

Montana Natural Heritage Program. Environmental Summary Report.
for Latitude 47.30103 to 47.34490 and Longitude -109.89427 to -109.95796. Retrieved on 5/8/2024.

The Montana Natural Heritage Program is part of the Montana State Library's Natural Resource Information System. Since 1985, it has served as a neutral and non-regulatory provider of easily accessible information on Montana's species and biological communities to inform all stakeholders in environmental review, permitting, and planning processes. The program is part of the NatureServe network that is composed of over 60 member programs across North America that work to provide current and comprehensive distribution and status information on species and biological communities.



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- [Introduction to Native Species](#)
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- [Introduction to Wetland and Riparian](#)
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Introduction to Environmental Summary Report

Environmental Summary Reports from the Montana Natural Heritage Program (MTNHP) provide information on species and biological communities to inform all stakeholders in environmental review, permitting, and planning processes. For information on environmental permits in Montana, please see permitting overviews by the [Montana Department of Environmental Quality](#), the [Montana Department of Natural Resources and Conservation](#), the [Index of Environmental Permits for Montana](#) and our [Suggested Contacts for Natural Resource Management Agencies](#). The report for your area of interest consists of introductory and related materials in this PDF and an Excel workbook with worksheets summarizing information managed in the MTNHP databases for: (1) species occurrences; (2) other observed species without species occurrences; (3) other species potentially present based on their range, presence of associated habitats, or predictive distribution model output if available; (4) structured surveys that follow a protocol capable of detecting one or more species; (5) land cover mapped as ecological systems; (6) wetland and riparian mapping; (7) land management categories; and (8) biological reports associated with plant and animal observations. If your area of interest corresponds to a statewide polygon layer (e.g., watersheds, counties, or public land survey sections) information summaries in your report will exactly match those boundaries. However, if your report is for a custom area, users should be aware that summaries do not correspond to the exact boundaries of the polygon they have specified, but instead are a summary across a layer of hexagons intersected by the polygon they specified as shown on the report cover. Summarizing by these hexagons which are one square mile in area and approximately one kilometer in length on each side allows for consistent and rapid delivery of summaries based on a uniform grid that has been used for planning efforts across North America.

In presenting this information, MTNHP is working towards assisting the user with rapidly assessing the known or potential species and biological communities, land management categories, and biological reports associated with the report area. Users are reminded that this information is likely incomplete and may be inaccurate as surveys to document species are lacking in many areas of the state, species' range polygons often include regions of unsuitable habitat, methods of predicting the presence of species or communities are constantly improving, and information is constantly being added and updated in our databases. **Field verification by professional biologists of the absence or presence of species and biological communities in a report area will always be an important obligation of users of our data. Users are encouraged to only use this environmental summary report as a starting point for more in depth analyses and are encouraged to contact state, federal, and tribal resource management agencies for additional data or management guidelines relevant to your efforts. Please see the Appendix for introductory materials to each section of the report, additional information resources, and a list of relevant agency contacts.**

Legend			
Model Icons	Habitat Icons	Range Icons	Num Obs
Suitable (native range)	Common	Native / Year-round	Count of obs with 'good precision' (<=1000m)
Optimal Suitability	Occasional	Summer	+ indicates additional 'poor precision' obs (1001m-10,000m)
Moderate Suitability		Winter	
Low Suitability		Migratory	
Suitable (introduced range)		Non-native	
		Historical	



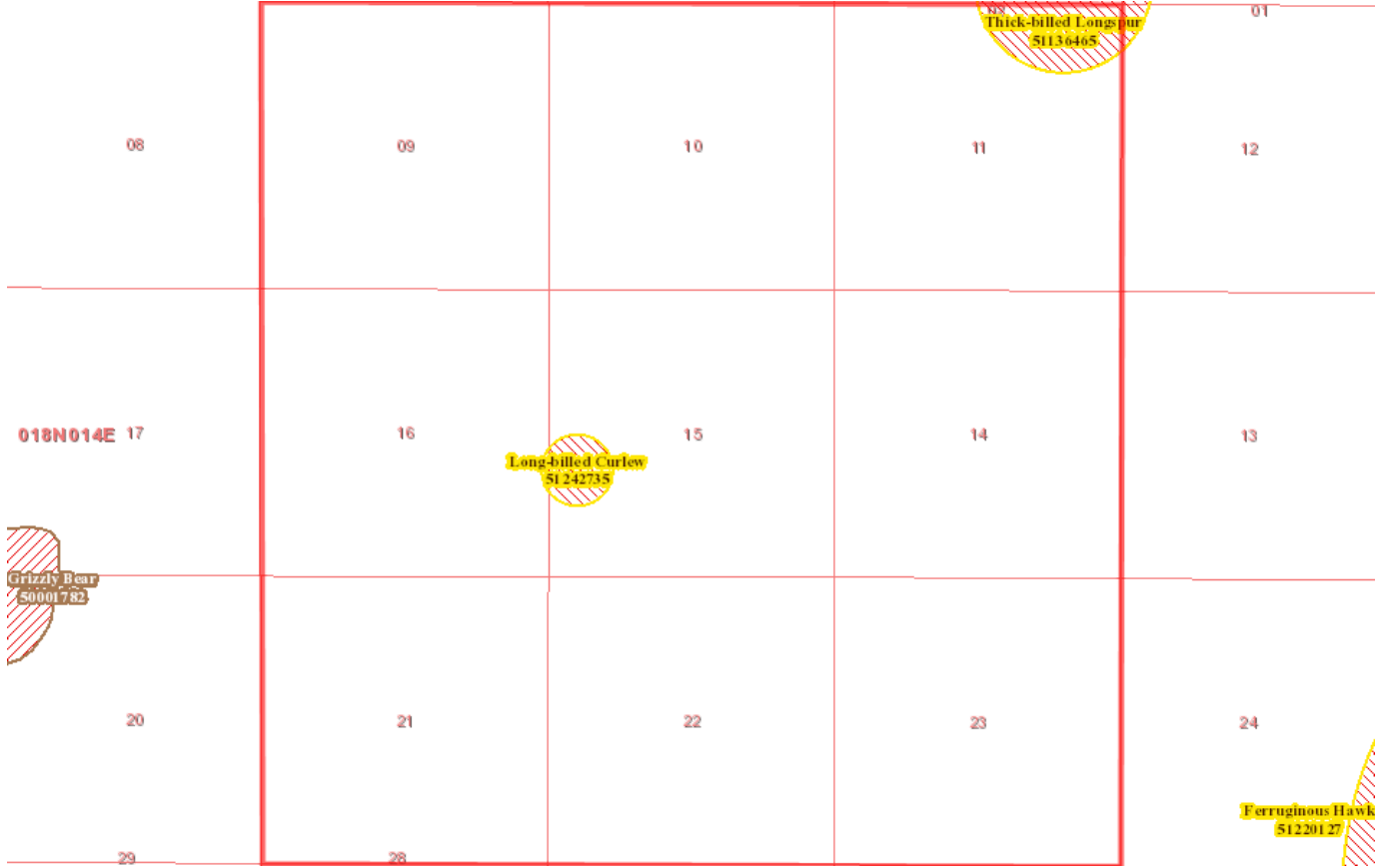
Latitude 47.30103
Longitude -109.89427
Latitude 47.34490
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Native Species

Summarized by: **018N014E015** (*Buffered PLSS Section*)

Filtered by:

Native Species reports are filtered for Species with MT Status = Species of Concern, Special Status, Important Animal Habitat, Potential SOC



Species Occurrences

	USFWS Sec7	# SO	# Obs	Predicted Model	Range
B - Long-billed Curlew (<i>Numenius americanus</i>) SOC		1	2		
View in Field Guide View Predicted Models View Range Maps Species of Concern - Native Species Global: G4 State: S3B USFWS: MBTA; BCC11 BLM: SENSITIVE FWP SWAP: SGCN3 PIF: 2 Delineation Criteria Confirmed breeding area based on the presence of a nest, chicks, or territorial adults during the breeding season. Point observation location is buffered by a minimum distance of 200 meters in order to approximate the breeding territory size reported for the species in Idaho and otherwise is buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters. (Last Updated: Apr 03, 2024) Predicted Models: 22% Moderate (inductive), 78% Low (inductive)					
B - Thick-billed Longspur (<i>Rhynchophanes mccownii</i>) SOC		1	1		
View in Field Guide View Predicted Models View Range Maps Species of Concern - Native Species Global: G4 State: S3B USFWS: MBTA; BCC10; BCC11; BCC17 BLM: SENSITIVE FWP SWAP: SGCN3 PIF: 2 Delineation Criteria Confirmed breeding area based on the presence of a nest, chicks, or territorial adults during the breeding season. Point observation location is buffered by a minimum distance of 100 meters in order to encompass the maximum breeding territory size reported for the species and otherwise is buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters. (Last Updated: Jun 29, 2023) Predicted Models: 14% Low (inductive)					

Legend			
Model Icons	Habitat Icons	Range Icons	Num Obs
Suitable (native range)	Common	Native / Year-round	Count of obs with 'good precision' (<=1000m)
Optimal Suitability	Occasional	Summer	+ indicates additional 'poor precision' obs (1001m-10,000m)
Moderate Suitability		Winter	
Low Suitability		Migratory	
Suitable (introduced range)		Non-native	
		Historical	



Latitude 47.30103
Longitude -109.89427
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Native Species

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Other Observed Species

	USFWS Sec7	# Obs	Predicted Model	Range
B - American White Pelican (<i>Pelecanus erythrorhynchos</i>) SOC		1		
View in Field Guide View Predicted Models View Range Maps Species of Concern - Native Species Global: G4 State: S3B USFWS: MBTA FWP SWAP: SGCN3 PIF: 3 Predicted Models: 8% Moderate (inductive), 92% Low (inductive)				
B - Great Blue Heron (<i>Ardea herodias</i>) SOC		1		
View in Field Guide View Predicted Models View Range Maps Species of Concern - Native Species Global: G5 State: S3 USFWS: MBTA FWP SWAP: SGCN3 Predicted Models: 49% Low (inductive)				
B - Franklin's Gull (<i>Leucophaeus pipixcan</i>) SOC		1		
View in Field Guide View Predicted Models View Range Maps Species of Concern - Native Species Global: G5 State: S3B USFWS: MBTA; BCC10; BCC11; BCC17 BLM: SENSITIVE FWP SWAP: SGCN3 PIF: 2 Predicted Models: 49% Low (inductive)				

Legend

Model Icons	Habitat Icons	Range Icons	Num Obs
Suitable (native range)	Common	Native / Year-round	Count of obs with 'good precision' (<=1000m)
Optimal Suitability	Occasional	Summer	+ indicates additional 'poor precision' obs (1001m-10,000m)
Moderate Suitability		Winter	
Low Suitability		Migratory	
Suitable (introduced range)		Non-native	
		Historical	



Latitude 47.30103
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Native Species

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Filtered by:

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Other Potential Species

	USFWS Sec7	Predicted Model	Range
B - Short-eared Owl (<i>Asio flammeus</i>) PSOC			
View in Field Guide View Predicted Models View Range Maps Potential Species of Concern - Native Species Global: G5 State: S4 USFWS: MBTA; BCC11; BCC17 PIF: 3 Predicted Models: 8% Optimal (inductive), 92% Moderate (inductive)			
B - Eastern Screech-Owl (<i>Megascops asio</i>) PSOC			
View in Field Guide View Predicted Models View Range Maps Potential Species of Concern - Native Species Global: G5 State: S3S4 USFWS: MBTA PIF: 3 Predicted Models: 8% Optimal (inductive), 53% Moderate (inductive), 39% Low (inductive)			
M - Dwarf Shrew (<i>Sorex nanus</i>) SOC			
View in Field Guide View Predicted Models View Range Maps Species of Concern - Native Species Global: G4 State: S2S3 FWP SWAP: SGCN2-3 Predicted Models: 80% Moderate (inductive), 20% Low (inductive)			
B - Sharp-tailed Grouse (<i>Tympanuchus phasianellus</i>) SOC			
View in Field Guide View Predicted Models View Range Maps Species of Concern - Native Species Global: G5 State: SX,S4 FWP SWAP: SGCN1 PIF: 2 Predicted Models: 78% Moderate (inductive), 22% Low (inductive)			
B - Bobolink (<i>Dolichonyx oryzivorus</i>) SOC			
View in Field Guide View Predicted Models View Range Maps Species of Concern - Native Species Global: G5 State: S3B USFWS: MBTA; BCC10; BCC11; BCC17 FWP SWAP: SGCN3 PIF: 3 Predicted Models: 58% Moderate (inductive), 42% Low (inductive)			
R - Plains Hog-nosed Snake (<i>Heterodon nasicus</i>) SOC			
View in Field Guide View Predicted Models View Range Maps Species of Concern - Native Species Global: G5 State: S2 BLM: SENSITIVE FWP SWAP: SGCN2, SGIN Predicted Models: 30% Moderate (inductive), 70% Low (inductive)			
B - White-faced Ibis (<i>Plegadis chihi</i>) SOC			
View in Field Guide View Predicted Models View Range Maps Species of Concern - Native Species Global: G5 State: S3B USFWS: MBTA BLM: SENSITIVE FWP SWAP: SGCN3 PIF: 2 Predicted Models: 30% Moderate (inductive), 69% Low (inductive)			
M - North American Porcupine (<i>Erethizon dorsatum</i>) PSOC			
View in Field Guide View Predicted Models View Range Maps Potential Species of Concern - Native Species Global: G5 State: S3S4 FWP SWAP: SGIN Predicted Models: 19% Moderate (inductive), 81% Low (inductive)			
M - Hoary Bat (<i>Lasiurus cinereus</i>) SOC			
View in Field Guide View Predicted Models View Range Maps Species of Concern - Native Species Global: G3G4 State: S3B BLM: SENSITIVE FWP SWAP: SGCN3 Predicted Models: 8% Moderate (inductive), 92% Low (inductive)			
B - Ferruginous Hawk (<i>Buteo regalis</i>) SOC			
View in Field Guide View Predicted Models View Range Maps Species of Concern - Native Species Global: G4 State: S3B USFWS: MBTA; BCC17 BLM: SENSITIVE FWP SWAP: SGCN3 PIF: 2 Predicted Models: 8% Moderate (inductive), 92% Low (inductive)			
I - Bombus suckleyi (<i>Suckley Cuckoo Bumble Bee</i>) SOC			
View in Field Guide View Predicted Models View Range Maps Species of Concern - Native Species Global: G2G3 State: S1 Predicted Models: 8% Moderate (inductive), 82% Low (inductive)			
B - Loggerhead Shrike (<i>Lanius ludovicianus</i>) SOC			
View in Field Guide View Predicted Models View Range Maps Species of Concern - Native Species Global: G4 State: S3B USFWS: MBTA BLM: SENSITIVE FWP SWAP: SGCN3 PIF: 2 Predicted Models: 8% Moderate (inductive), 49% Low (inductive)			

<p>B - Baird's Sparrow (<i>Centronyx bairdii</i>) SOC</p>
<p> View in Field Guide View Predicted Models View Range Maps Species of Concern - Native Species Global: G4 State: S3B USFWS: MBTA; BCC11; BCC17 BLM: SENSITIVE FWP SWAP: SGCN3 PIF: 1 Predicted Models: 50% Low (inductive) </p>
<p>M - Eastern Red Bat (<i>Lasiurus borealis</i>) SOC</p>
<p> View in Field Guide View Predicted Models View Range Maps Species of Concern - Native Species Global: G3G4 State: S3B BLM: SENSITIVE Predicted Models: 44% Low (inductive) </p>
<p>B - Golden Eagle (<i>Aquila chrysaetos</i>) SOC</p>
<p> View in Field Guide View Predicted Models View Range Maps Species of Concern - Native Species Global: G5 State: S3 USFWS: BGEPA; MBTA BLM: SENSITIVE FWP SWAP: SGCN3 Predicted Models: 37% Low (inductive) </p>
<p>B - Black-necked Stilt (<i>Himantopus mexicanus</i>) SOC</p>
<p> View in Field Guide View Predicted Models View Range Maps Species of Concern - Native Species Global: G5 State: S3B USFWS: MBTA FWP SWAP: SGCN3 PIF: 3 Predicted Models: 36% Low (inductive) </p>
<p>B - Barrow's Goldeneye (<i>Bucephala islandica</i>) PSOC</p>
<p> View in Field Guide View Predicted Models View Range Maps Potential Species of Concern - Native Species Global: G5 State: S4 USFWS: MBTA FWP SWAP: SGIN PIF: 2 Predicted Models: 31% Low (inductive) </p>
<p>A - Northern Leopard Frog (<i>Lithobates pipiens</i>) SOC</p>
<p> View in Field Guide View Predicted Models View Range Maps Species of Concern - Native Species Global: G5 State: S1,S4 USFS: Sensitive - Suspected in Forests (KOOT, LOLO) BLM: SENSITIVE FWP SWAP: SGCN1 Predicted Models: 29% Low (inductive) </p>
<p>B - Veery (<i>Catharus fuscescens</i>) SOC</p>
<p> View in Field Guide View Predicted Models View Range Maps Species of Concern - Native Species Global: G5 State: S3B USFWS: MBTA BLM: SENSITIVE FWP SWAP: SGCN3 PIF: 2 Predicted Models: 29% Low (inductive) </p>

Structured Surveys

Summarized by: **018N014E015** (*Buffered PLSS Section*)

The Montana Natural Heritage Program (MTNHP) records information on the locations where more than 80 different types of well-defined repeatable survey protocols capable of detecting an animal species or suite of animal species have been conducted by state, federal, tribal, university, or private consulting biologists. Examples of structured survey protocols tracked by MTNHP include: visual encounter and dip net surveys for pond breeding amphibians, point counts for birds, call playback surveys for selected bird species, visual surveys of migrating raptors, kick net stream reach surveys for macroinvertebrates, visual encounter cover object surveys for terrestrial mollusks, bat acoustic or mist net surveys, pitfall and/or snap trap surveys for small terrestrial mammals, track or camera trap surveys for large mammals, and trap surveys for turtles. Whenever possible, photographs of survey locations are stored in MTNHP databases.

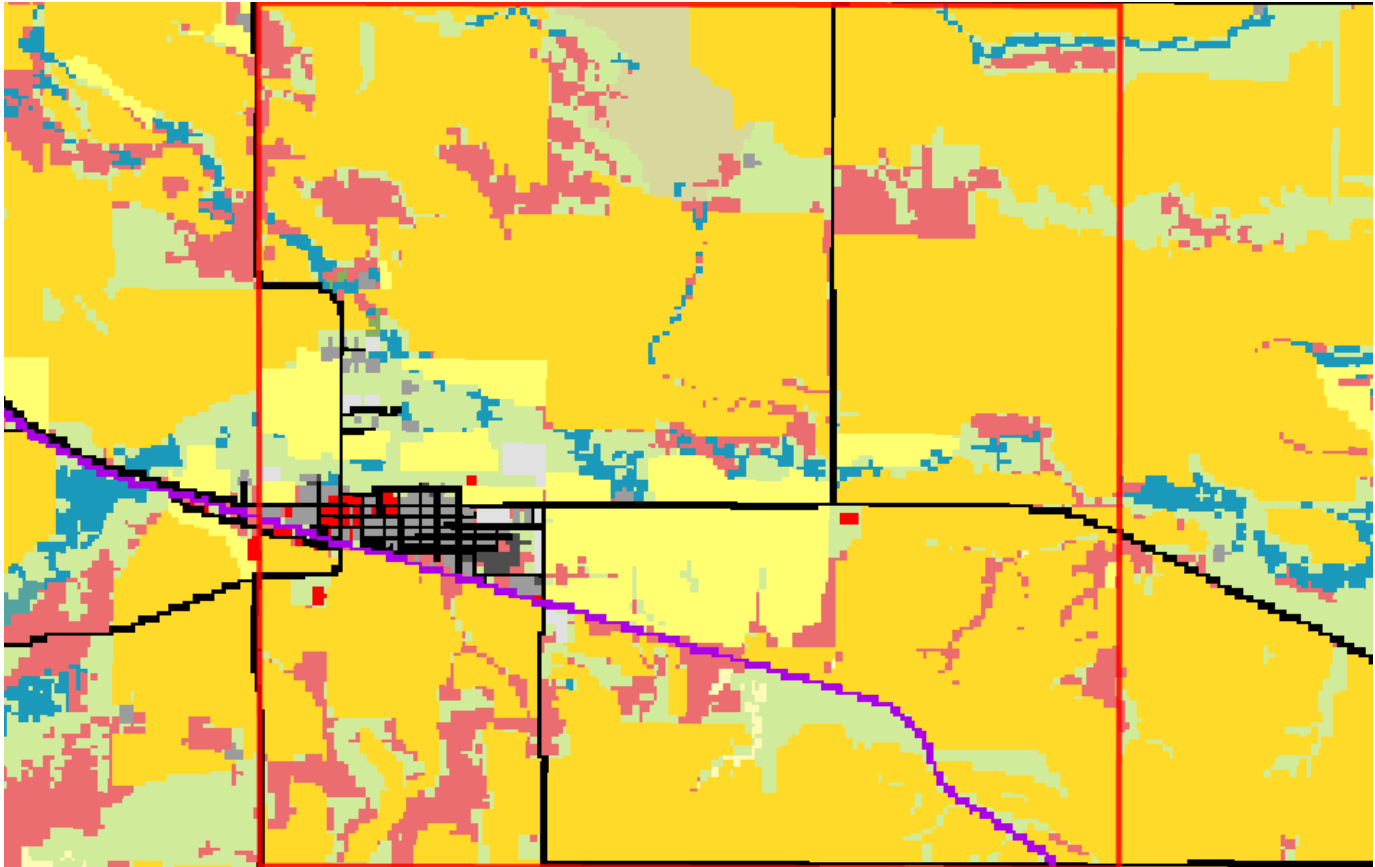
MTNHP does not typically manage information on structured surveys for plants; surveys for invasive species may be a future exception.

Within the report area you have requested, structured surveys are summarized by the number of each type of structured survey protocol that has been conducted, the number of species detections/observations resulting from these surveys, and the most recent year a survey has been conducted.

B-Grid-based Point Count (<i>RMBO Generalized Random-tesselation Stratification</i>)	Survey Count: 6	Obs Count: 17	Recent Survey: 2012
E-Eastern Heath Snail (<i>Eastern Heath Snail Survey</i>)	Survey Count: 1	Obs Count:	Recent Survey: 2012
E-Noxious Weed, Road-based (<i>Noxious Weed Road-based Visual Surveys</i>)	Survey Count: 6	Obs Count: 12	Recent Survey: 2003

Land Cover

Summarized by: **018N014E015** (*Buffered PLSS Section*)



Human Land Use Agriculture

Cultivated Crops

60% (3,461 Acres)

These areas used for the production of crops, such as corn, soybeans, small grains, sunflowers, vegetables, and cotton, typically on an annual cycle. Agricultural plant cover is variable depending on season and type of farming. Other areas include more stable land cover of orchards and vineyards.



Grassland Systems Lowland/Prairie Grassland

Great Plains Mixedgrass Prairie

12% (679 Acres)

The system covers much of the eastern two-thirds of Montana, occurring continuously for hundreds of square kilometers, interrupted only by wetland/riparian areas or sand prairies. Soils are primarily fine and medium-textured. The growing season averages 115 days, ranging from 100 days on the Canadian border to 130 days on the Wyoming border. Climate is typical of mid-continental regions with long severe winters and hot summers. Grasses typically comprise the greatest canopy cover, and western wheatgrass (*Pascopyrum smithii*) is usually dominant. Other species include thickspike wheatgrass (*Elymus lanceolatus*), green needlegrass (*Nassella viridula*), blue grama (*Bouteloua gracilis*), and needle and thread (*Hesperostipa comata*). Near the Canadian border in north-central Montana, this system grades into rough fescue (*Festuca campestris*) and Idaho fescue (*Festuca idahoensis*) grasslands. Remnants of shortbristle needle and thread (*Hesperostipa curtiseta*) dominated vegetation are found in northernmost Montana and North Dakota, and are associated with productive sites, now mostly converted to farmland. Forb diversity is typically high. In areas of southeastern and central Montana where sagebrush steppe borders the mixed grass prairie, common plant associations include Wyoming big sagebrush-western wheatgrass (*Artemisia tridentata* ssp. *wyomingensis*/*Pascopyrum smithii*). Fire and grazing are the primary drivers of this system. Drought can also impact it, in general favoring the shortgrass component at the expense of the mid-height grasses. With intensive grazing, cool season exotics such as Kentucky bluegrass (*Poa pratensis*), smooth brome (*Bromus inermis*), and Japanese brome (*Bromus japonicus*) increase in dominance; both of these rhizomatous species have been shown to markedly decrease species diversity. Previously cultivated acres that have been re-vegetated with non-native plants have been transformed into associations such as Kentucky bluegrass (*Poa pratensis*)/western wheatgrass (*Pascopyrum smithii*) or into pure crested wheatgrass (*Agropyron cristatum*) stands.



Recently Disturbed or Modified Introduced Vegetation

Introduced Upland Vegetation - Annual and Biennial Forbland

10% (549 Acres)

Land cover is significantly altered/disturbed by introduced annual and biennial forbs. Natural vegetation types are no longer recognizable. Typical species that dominate these areas are knapweed, oxeye daisy, Canada thistle, leafy spurge, pepperweed, and yellow sweetclover.



Human Land Use

Agriculture

Pasture/Hay

8% (478 Acres)

These agriculture lands typically have perennial herbaceous cover (e.g. regularly-shaped plantings) used for livestock grazing or the production of hay. There are obvious signs of management such as irrigation and haying that distinguish it from natural grasslands. Identified CRP lands are included in this land cover type.



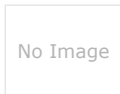
Grassland Systems

Lowland/Prairie Grassland

Great Plains Sand Prairie

3% (150 Acres)

The sand prairies constitute a very unique system within the western Great Plains. The unifying and controlling feature for this system is that coarse-textured soils predominate and the dominant grasses are well-adapted to this condition. In the northwestern portion of the system's range, stand size corresponds to the area of exposed caprock sandstone, and small patches predominate, but larger patches are found embedded in the encompassing Great Plains Mixed Grass Prairie, and usually occupy higher positions in local landscapes where former caprock formations have eroded into more subdued and planar topography. In most of eastern Montana, substrates supporting this system have weathered in place from sandstone caprock. Soils can be relatively thin or deep due to varying amounts of downslope movement of weathered sands. Needle and thread (*Hesperostipa comata*) is the dominant grass species. Other frequent species include little bluestem (*Schizachyrium scoparium*), often occurring with threadleaf sedge (*Carex filifolia*) and dominating both sandy sites and actively eroding sites. Prairie sandreed (*Calamovilfa longifolia*), sand bluestem (*Andropogon hallii*) and big bluestem (*Andropogon gerardii*) are sporadically distributed and found generally on the coarsest-textured sands. Other graminoids include bluebunch wheatgrass (*Pseudoroegneria spicata*), sun sedge (*Carex inops ssp. heliophila*), and purple threeawn (*Aristida purpurea*). Characteristic forbs differ by occurrence, but species of scurf pea (*Psoralidium* species) and Indian breadroot (*Pediomelum*) species are common. Communities of silver sage (*Artemisia cana ssp. cana*) or skunkbush sumac (*Rhus trilobata*) can occur within this system. Wind erosion, fire and grazing constitute the other major dynamic processes that can influence this system.



Human Land Use

Developed

Other Roads

2% (116 Acres)

County, city and or rural roads generally open to motor vehicles.



Wetland and Riparian Systems

Floodplain and Riparian









Great Plains Riparian

2% (96 Acres)

This system is associated with perennial to intermittent or ephemeral streams throughout the northwestern Great Plains. In Montana, it occurs along smaller tributaries of the Yellowstone and Missouri rivers, as well as tributaries to the large floodplain rivers that feed them (e.g. the Milk, Marias, Musselshell, Powder, Clark's Fork Yellowstone, Tongue, etc). In areas adjacent to the mountain ranges of central and southeastern Montana, and near the Rocky Mountain Front, it grades into Rocky Mountain Lower Montane-Foothill Riparian Woodland and Shrubland systems. This system is found on alluvial soils in highly variable landscape settings, from confined, deep cut ravines to wide, braided streambeds. Channel migration occurs in less-confined areas, but within a more narrow range than would occur in broad, alluvial floodplains. Typically, the rivers are wadeable by mid-summer.

The primary inputs of water to these systems include groundwater discharge, overland flow, and subsurface interflow from the adjacent upland. Flooding is the key ecosystem process, creating suitable sites for seed dispersal and seedling establishment, and controlling vegetation succession. Communities within this system range from riparian forests and shrublands to tallgrass wet meadows and gravel/sand flats. Dominant species are similar to those found in the Great Plains Floodplain System. In the western part of the system's range in Montana, the dominant overstory species is black cottonwood (*Populus balsamifera ssp. trichocarpa*) with narrowleaf cottonwood (*Populus angustifolia*) and Plains cottonwood (*Populus deltoides*) occurring as co-dominants in the riparian/floodplain interface near the mountains. Further east, narrowleaf cottonwood and Plains cottonwood become dominant. In wetter systems, the understory is typically willow (*Salix spp.*) and redosier dogwood (*Cornus stolonifera*) with graminoids such as western wheatgrass (*Pascopyrum smithii*) and forbs like American licorice (*Glycyrrhiza lepidota*). In areas where the channel is incised, the understory may be dominated by big sagebrush (*Artemisia tridentata*) or silver sagebrush (*Artemisia cana*). Like floodplain systems, riparian systems are often subjected to overgrazing and/or agriculture and can be heavily degraded, with salt cedar (*Tamarix ramosissima*) and Russian olive (*Eleagnus angustifolia*) replacing native woody vegetation and regrowth. Groundwater depletion and lack of fire have resulted in additional species changes.

Additional Limited Land Cover

- 1% (70 Acres)  **Major Roads**
- 1% (52 Acres)  **Low Intensity Residential**
- 1% (48 Acres)  **Railroad**
- 1% (29 Acres)  **Developed, Open Space**
- <1% (12 Acres)  **Commercial / Industrial**
- <1% (11 Acres)  **Big Sagebrush Steppe**
- <1% (10 Acres)  **High Intensity Residential**
- <1% (3 Acres)  **Great Plains Wooded Draw and Ravine**

Wetland and Riparian

Summarized by: **018N014E015** (Buffered PLSS Section)



Wetland and Riparian Mapping

P - Palustrine

UB - Unconsolidated Bottom		P - Palustrine, UB - Unconsolidated Bottom Wetlands where mud, silt or similar fine particles cover at least 25% of the bottom, and where vegetation cover is less than 30%.
F - Semipermanently Flooded	<1 Acres	
h - Diked/Impounded	<1 Acres PUBFh	
AB - Aquatic Bed		P - Palustrine, AB - Aquatic Bed Wetlands with vegetation growing on or below the water surface for most of the growing season.
F - Semipermanently Flooded	8 Acres	
(no modifier)	4 Acres PABF	
h - Diked/Impounded	4 Acres PABFh	
US - Unconsolidated Shore		P - Palustrine, US - Unconsolidated Shore Wetlands with less than 75% areal cover of stones, boulders, or bedrock. AND with less than 30% vegetative cover AND the wetland is irregularly exposed due to seasonal or irregular flooding and subsequent drying.
C - Seasonally Flooded	<1 Acres	
h - Diked/Impounded	<1 Acres PUSCh	
EM - Emergent		P - Palustrine, EM - Emergent Wetlands with erect, rooted herbaceous vegetation present during most of the growing season.
A - Temporarily Flooded	27 Acres	
(no modifier)	24 Acres PEMA	
h - Diked/Impounded	3 Acres PEMAh	
C - Seasonally Flooded	3 Acres	
(no modifier)	3 Acres PEMC	
h - Diked/Impounded	<1 Acres PEMCh	



Land Management

Summarized by: **018N014E015** (Buffered PLSS Section)



Land Management Summary

	Ownership	Tribal	Easements	Other Boundaries (possible overlap)
Public Lands	44 Acres (1%)			
Local	44 Acres (1%)			
Local Government	44 Acres (1%)			
Local Government Owned	44 Acres (1%)			
Private Lands or Unknown Ownership	5,721 Acres (99%)			



Biological Reports

Summarized by: **018N014E015** (*Buffered PLSS Section*)

Within the report area you have requested, citations for all reports and publications associated with plant or animal observations in Montana Natural Heritage Program (MTNHP) databases are listed and, where possible, links to the documents are included.

The MTNHP plans to include reports associated with terrestrial and aquatic communities in the future as allowed for by staff resources. If you know of reports or publications associated with species or biological communities within the report area that are not shown in this report, please let us know: mtnhp@mt.gov

No Biological Reports were found in the selected area

Legend

Model Icons	Habitat Icons	Range Icons	Num Obs
Suitable (native range)	Common	Non-native	Count of obs with 'good precision' (<=1000m)
Optimal Suitability	Occasional		+ indicates additional 'poor precision' obs (1001m-10,000m)
Moderate Suitability			
Low Suitability			
Suitable (introduced range)			



Latitude 47.30103
Longitude -109.89427
47.34490 -109.95796

Invasive and Pest Species

Summarized by: **018N014E015** (*Buffered PLSS Section*)

Aquatic Invasive Species

V - <i>Nymphaea odorata</i> (<i>American Water-lily</i>) AIS	# Obs	Predicted Model	Range
<p>View in Field Guide View Predicted Models View Range Maps</p> <p>Aquatic Invasive Species - Non-native Species Global: G5 State: SNA</p> <p>Predicted Models: 52% Suitable (introduced range) (deductive)</p>			

Noxious Weeds: Priority 1A

V - <i>Centaurea solstitialis</i> (<i>Yellow Starthistle</i>) N1A	# Obs	Predicted Model	Range
<p>View in Field Guide View Predicted Models View Range Maps</p> <p>Noxious Weed: Priority 1A - Non-native Species Global: GNR State: SNA</p> <p>Predicted Models: 30% Moderate (inductive), 33% Low (inductive)</p>			

V - <i>Isatis tinctoria</i> (<i>Dyer's Woad</i>) N1A	# Obs	Predicted Model	Range
<p>View in Field Guide View Predicted Models View Range Maps</p> <p>Noxious Weed: Priority 1A - Non-native Species Global: GNR State: SNA</p> <p>Predicted Models: 19% Moderate (inductive), 81% Low (inductive)</p>			

V - <i>Phragmites australis ssp. australis</i> (<i>European Common Reed</i>) N1A	# Obs	Predicted Model	Range
<p>View in Field Guide View Predicted Models View Range Maps</p> <p>Noxious Weed: Priority 1A - Non-native Species Global: G5T5 State: SNA</p> <p>Predicted Models: 41% Low (inductive)</p>			

V - <i>Taeniatherum caput-medusae</i> (<i>Medusahead</i>) N1A	# Obs	Predicted Model	Range
<p>View in Field Guide View Predicted Models View Range Maps</p> <p>Noxious Weed: Priority 1A - Non-native Species Global: G4G5 State: SNA</p> <p>Predicted Models: 21% Low (inductive)</p>			

Noxious Weeds: Priority 1B

V - <i>Lythrum salicaria</i> (<i>Purple Loosestrife</i>) N1B	# Obs	Predicted Model	Range
<p>View in Field Guide View Predicted Models View Range Maps</p> <p>Noxious Weed: Priority 1B - Non-native Species Global: G5 State: SNA</p> <p>Predicted Models: 8% Optimal (inductive), 22% Moderate (inductive), 69% Low (inductive)</p>			

Noxious Weeds: Priority 2A

V - <i>Ventenata dubia</i> (<i>Ventenata</i>) N2A	# Obs	Predicted Model	Range
<p>View in Field Guide View Predicted Models View Range Maps</p> <p>Noxious Weed: Priority 2A - Non-native Species Global: GNR State: SNA</p> <p>Predicted Models: 8% Optimal (inductive), 78% Moderate (inductive), 14% Low (inductive)</p>			

V - <i>Lepidium latifolium</i> (<i>Perennial Pepperweed</i>) N2A	# Obs	Predicted Model	Range
<p>View in Field Guide View Predicted Models View Range Maps</p> <p>Noxious Weed: Priority 2A - Non-native Species Global: GNR State: SNA</p> <p>Predicted Models: 30% Moderate (inductive), 70% Low (inductive)</p>			

V - <i>Rhamnus cathartica</i> (<i>Common Buckthorn</i>) N2A	# Obs	Predicted Model	Range
<p>View in Field Guide View Predicted Models View Range Maps</p> <p>Noxious Weed: Priority 2A - Non-native Species Global: GNR State: SNA</p> <p>Predicted Models: 19% Moderate (inductive), 14% Low (inductive)</p>			

V - <i>Ranunculus acris</i> (<i>Tall Buttercup</i>) N2A	# Obs	Predicted Model	Range
<p>View in Field Guide View Predicted Models View Range Maps</p> <p>Noxious Weed: Priority 2A - Non-native Species Global: G5 State: SNA</p> <p>Predicted Models: 30% Low (inductive)</p>			



Noxious Weeds: Priority 2B

V - <i>Lepidium draba</i> (<i>Whiteweed</i>) N2B	# Obs	Predicted Model	Range
<p>View in Field Guide View Predicted Models View Range Maps</p> <p>Noxious Weed: Priority 2B - Non-native Species Global: GNR State: SNA</p> <p>Predicted Models: 33% Optimal (inductive), 67% Moderate (inductive)</p>			



V - <i>Convolvulus arvensis</i> (<i>Field Bindweed</i>) N2B	# Obs	Predicted Model	Range
<p>View in Field Guide View Predicted Models View Range Maps</p> <p>Noxious Weed: Priority 2B - Non-native Species Global: GNR State: SNA</p> <p>Predicted Models: 8% Optimal (inductive), 90% Moderate (inductive), 2% Low (inductive)</p>			

V - <i>Acroptilon repens</i> (<i>Russian Knapweed</i>) N2B	# Obs	Predicted Model	Range
<p>View in Field Guide View Predicted Models View Range Maps</p> <p>Noxious Weed: Priority 2B - Non-native Species Global: GNR State: SNA</p> <p>Predicted Models: 99% Moderate (inductive), 1% Low (inductive)</p>			



V - Centaurea stoebe (*Spotted Knapweed*) **N2B** 4  

[View in Field Guide](#) [View Predicted Models](#) [View Range Maps](#)
Noxious Weed: Priority 2B - Non-native Species Global: **GNR** State: **SNA**
Predicted Models:  86% Moderate (inductive),  14% Low (inductive)



V - Euphorbia virgata (*Leafy Spurge*) **N2B**  

[View in Field Guide](#) [View Predicted Models](#) [View Range Maps](#)
Noxious Weed: Priority 2B - Non-native Species Global: **GNR** State: **SNA**
Predicted Models:  66% Moderate (inductive),  34% Low (inductive)



V - Cirsium arvense (*Canada Thistle*) **N2B** 4  


[View in Field Guide](#) [View Predicted Models](#) [View Range Maps](#)
Noxious Weed: Priority 2B - Non-native Species Global: **G5** State: **SNA**
Predicted Models:  44% Moderate (inductive),  56% Low (inductive)



V - Linaria dalmatica (*Dalmatian Toadflax*) **N2B**  


[View in Field Guide](#) [View Predicted Models](#) [View Range Maps](#)
Noxious Weed: Priority 2B - Non-native Species Global: **G5** State: **SNA**
Predicted Models:  38% Moderate (inductive),  62% Low (inductive)

V - Cynoglossum officinale (*Common Hound's-tongue*) **N2B**  



[View in Field Guide](#) [View Predicted Models](#) [View Range Maps](#)
Noxious Weed: Priority 2B - Non-native Species Global: **GNR** State: **SNA**
Predicted Models:  8% Moderate (inductive),  61% Low (inductive)


V - Centaurea diffusa (*Diffuse Knapweed*) **N2B**  

[View in Field Guide](#) [View Predicted Models](#) [View Range Maps](#)
Noxious Weed: Priority 2B - Non-native Species Global: **GNR** State: **SNA**
Predicted Models:  8% Moderate (inductive),  22% Low (inductive)



V - Tamarix ramosissima (*Salt Cedar*) **N2B**  


[View in Field Guide](#) [View Predicted Models](#) [View Range Maps](#)
Noxious Weed: Priority 2B - Non-native Species Global: **GNR** State: **SNA**
Predicted Models:  98% Low (inductive)



V - Tanacetum vulgare (*Common Tansy*) **N2B**  


[View in Field Guide](#) [View Predicted Models](#) [View Range Maps](#)
Noxious Weed: Priority 2B - Non-native Species Global: **GNR** State: **SNA**
Predicted Models:  30% Low (inductive)

Regulated Weeds: Priority 3



V - Elaeagnus angustifolia (*Russian Olive*) **R3**  

[View in Field Guide](#) [View Predicted Models](#) [View Range Maps](#)
Regulated Weed: Priority 3 - Non-native Species Global: **GNR** State: **SNA**
Predicted Models:  98% Low (inductive)



V - Bromus tectorum (*Cheatgrass*) **R3**  


[View in Field Guide](#) [View Predicted Models](#) [View Range Maps](#)
Regulated Weed: Priority 3 - Non-native Species Global: **GNR** State: **SNA**
Predicted Models:  37% Low (inductive)

Biocontrol Species

I - Mecinus janthinus (*Yellow Toadflax Stem-boring Weevil*) **BIOCNTL**  

[View in Field Guide](#) [View Predicted Models](#) [View Range Maps](#)
Biocontrol Species - Non-native Species Global: **GNR** State: **SNA**
Predicted Models:  38% Moderate (inductive),  62% Low (inductive)

I - Mecinus janthiniformis (*Dalmatian Toadflax Stem-boring Weevil*) **BIOCNTL**  


[View in Field Guide](#) [View Predicted Models](#) [View Range Maps](#)
Biocontrol Species - Non-native Species Global: **GNR** State: **SNA**
Predicted Models:  100% Low (inductive)

Suggested Contacts for Natural Resource Management Agencies

As required by Montana statute (MCA 90-15), the Montana Natural Heritage Program works with state, federal, tribal, nongovernmental organizations, and private partners to ensure that the latest animal and plant distribution and status information is incorporated into our databases so that it can be used to inform a variety of permitting and planning processes and management decisions. We encourage you to contact state, federal, and tribal resource management agencies in the area where your project is located and review the permitting overviews by the [Montana Department of Environmental Quality](#), the [Montana Department of Natural Resources and Conservation](#) and the [Index of Environmental Permits for Montana](#) for guidelines relevant to your efforts. In particular, we encourage you to contact the Montana Department of Fish, Wildlife, and Parks for the latest data and management information regarding hunted and high-profile management species and to use the U.S. Fish and Wildlife Service’s [Information Planning and Consultation \(IPAC\) website regarding](#) U.S. Endangered Species Act listed Threatened, Endangered, or Candidate species.

For your convenience, we have compiled a list of relevant agency contacts and links below:

Montana Fish, Wildlife, and Parks

Fish Species	Zachary Shattuck zshattuck@mt.gov (406) 444-1231 or Eric Roberts eroberts@mt.gov (406) 444-5334
American Bison Black-footed Ferret Black-tailed Prairie Dog Bald Eagle Golden Eagle Common Loon Least Tern Piping Plover Whooping Crane	Kristina Smucker KSmucker@mt.gov (406) 444-5209
Grizzly Bear Greater Sage Grouse Trumpeter Swan Big Game Upland Game Birds Furbearers	Brian Wakeling brian.wakeling@mt.gov (406) 444-3940
Managed Terrestrial Game Data	Adam Messer – MFWP GIS Coordinator amesser@mt.gov (406) 444-0095
Fisheries Data and Nongame Animal Data	Adam Messer – MFWP GIS Coordinator amesser@mt.gov (406) 444-0095
Wildlife and Fisheries Scientific Collector’s Permits	https://fwp.mt.gov/buyandapply/commercialwildlifeandscientificpermits/scientific Kristina Smucker for Wildlife ksmucker@mt.gov (406) 444-5209 Dave Schmetterling for Fisheries dschmetterling@mt.gov (406) 542-5514
Fish and Wildlife Recommendations for Subdivision Development	Stevie Burton stevie.burton@mt.gov (406) 594-7354 See https://fwp.mt.gov/conservation/living-with-wildlife/subdivision-recommendations
Regional Contacts 	Region 1 (Kalispell) (406) 752-5501 fwprg12@mt.gov Region 2 (Missoula) (406) 542-5500 fwprg22@mt.gov Region 3 (Bozeman) (406) 577-7900 fwprg3@mt.gov Region 4 (Great Falls) (406) 454-5840 fwprg42@mt.gov Region 5 (Billings) (406) 247-2940 fwprg52@mt.gov Region 6 (Glasgow) (406) 228-3700 fwprg62@mt.gov Region 7 (Miles City) (406) 234-0900 fwprg72@mt.gov

Montana Department of Agriculture

General Contact Information: <https://agr.mt.gov/About/Office-Locations/Office-Locations-and-Field-Offices>

Noxious Weeds: <https://agr.mt.gov/Noxious-Weeds>

Montana Department of Environmental Quality

Permitting and Operator Assistance for all Environmental Permits: <https://deq.mt.gov/Permitting>

Montana Department of Natural Resources and Conservation

Overview of, and contacts for, licenses and permits for state lands, water, and forested lands:

<https://dnrc.mt.gov/Permits-Services>

Stream Permitting (310 permits) and an overview of various water and stream related permits (e.g., Stream Protection Act 124, Federal Clean Water Act 404, Federal Rivers and Harbors Act Section 10, Short-term Water Quality Standard for Turbidity 318 Authorization, etc.).

<https://dnrc.mt.gov/Licenses-and-Permits/Stream-Permitting>

Wildfire Resources: <https://dnrc.mt.gov/Forestry/Wildfire>

Bureau of Land Management

Montana Field Office Contacts:	
	
Billings	(406) 896-5013
Butte	(406) 533-7600
Dillon	(406) 683-8000
Glasgow	(406) 228-3750
Havre	(406) 262-2820
Lewistown	(406) 538-1900
Malta	(406) 654-5100
Miles City	(406) 233-2800
Missoula	(406) 329-3914

United States Army Corps of Engineers

Montana Regulatory Office for federal permits related to construction in water and wetlands

<https://www.nwo.usace.army.mil/Missions/Regulatory-Program/Montana/> (406) 441-1375

United States Environmental Protection Agency

Environmental information, notices, permitting, and contacts <https://www.epa.gov/mt>

Gateway to state resource locators <https://www.envcap.org/srl/index.php>

United States Fish and Wildlife Service

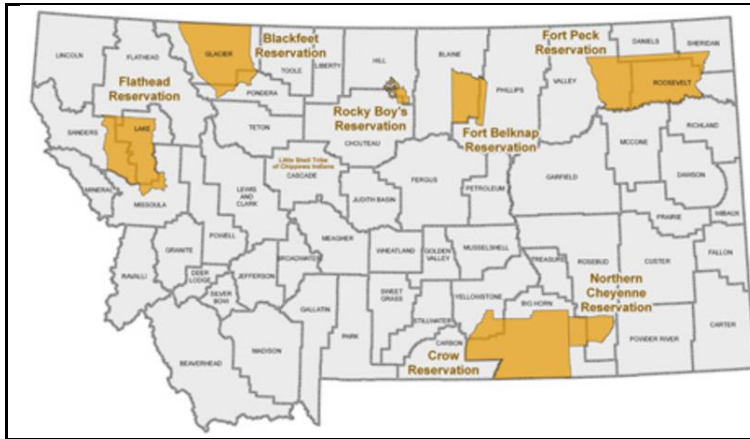
Information Planning and Conservation (IPAC) website: <https://ipac.ecosphere.fws.gov>

Montana Ecological Services Field Office: <https://www.fws.gov/office/montana-ecological-services> (406) 449-5225

United States Forest Service

Regional Office – Missoula, Montana Contacts			
Wildlife Program Leader	Tammy Fletcher	tammy.fletcher2@usda.gov	(406) 329-3086
Wildlife Ecologist	Cara Staab	cara.staab@usda.gov	(406) 329-3677
Aquatic Ecologist	Justin Jimenez	justin.jimenez@usda.gov	(435) 370-6830
TES Program	Lydia Allen	lydia.allen@usda.gov	(406) 329-3558
Interagency Grizzly Bear Coordinator	Scott Jackson	scott.jackson@usda.gov	(406) 329-3664
Regional Botanist	Amanda Hendrix	amanda.hendrix@usda.gov	(651) 447-3016
Regional Vegetation Ecologist	Mary Manning	marry.manning@usda.gov	(406) 329-3304
Invasive Species Program Manager	Michelle Cox	michelle.cox2@usda.gov	(406) 329-3669

Tribal Nations



[Assiniboine & Gros Ventre Tribes – Fort Belknap Reservation](#)

[Assiniboine & Sioux Tribes – Fort Peck Reservation](#)

[Blackfeet Tribe - Blackfeet Reservation](#)

[Chippewa Creek Tribe - Rocky Boy's Reservation](#)

[Crow Tribe – Crow Reservation](#)

[Little Shell Chippewa Tribe](#)

[Northern Cheyenne Tribe – Northern Cheyenne Reservation](#)

[Salish & Kootenai Tribes - Flathead Reservation](#)

Natural Heritage Programs and Conservation Data Centers in Surrounding States and Provinces

[Alberta Conservation Information Management System](#)

[British Columbia Conservation Data Centre](#)

[Idaho Natural Heritage Program](#)

[North Dakota Natural Heritage Program](#)

[Saskatchewan Conservation Data Centre](#)

[South Dakota Natural Heritage Program](#)

[Wyoming Natural Diversity Database](#)

Invasive Species Management Contacts and Information

Aquatic Invasive Species

[Montana Fish, Wildlife, and Parks Aquatic Invasive Species staff](#)

[Montana Department of Natural Resources and Conservation's Aquatic Invasive Species Grant Program](#)

[Montana Invasive Species Council \(MISC\)](#)

[Western Montana Conservation Commission](#)

Noxious Weeds

[Montana Weed Control Association Contacts Webpage](#)

[Montana Biological Weed Control Coordination Project](#)

[Montana Department of Agriculture - Noxious Weeds](#)

[Montana Weed Control Association](#)

[Montana Fish, Wildlife, and Parks - Noxious Weeds](#)

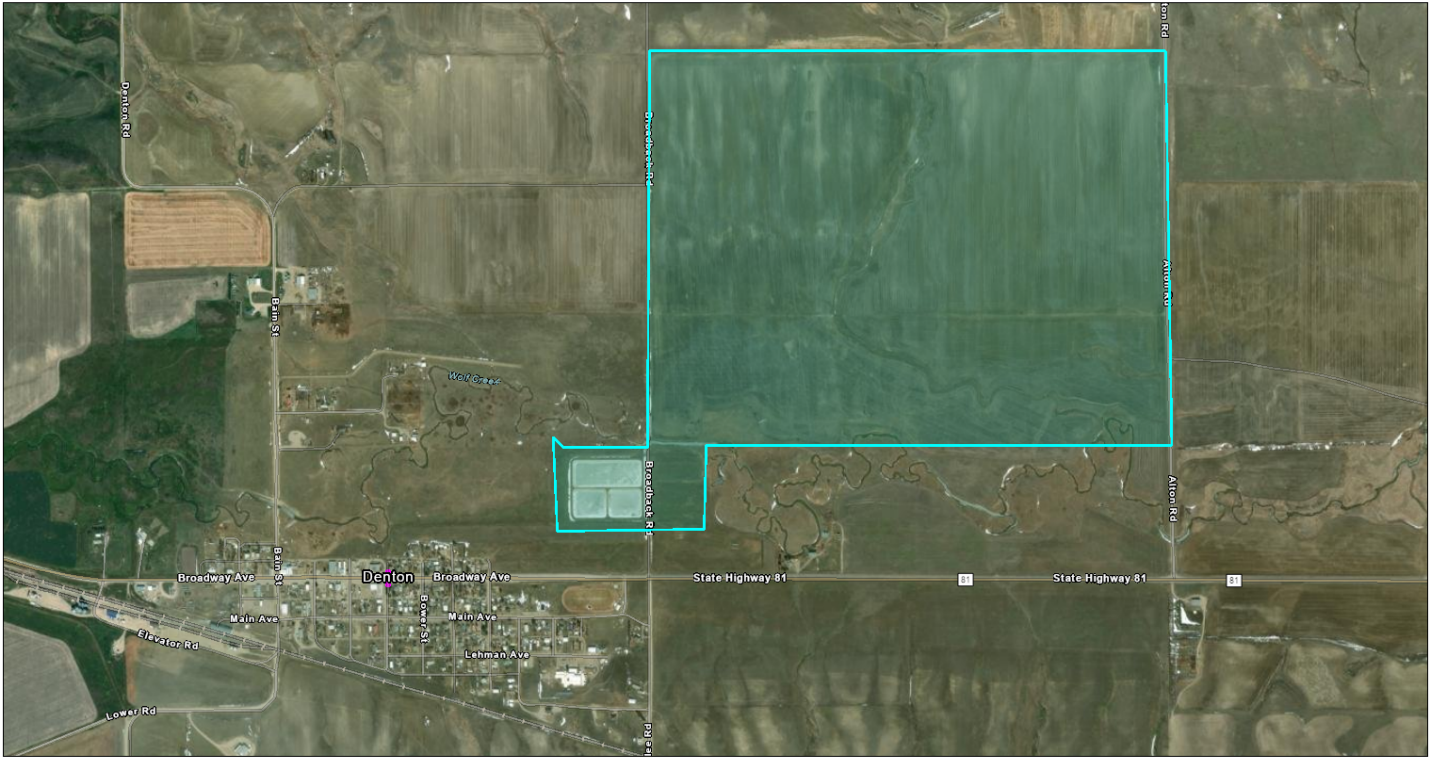
[Montana State University Integrated Pest Management Extension](#)

[Integrated Noxious Weed Management after Wildfires](#)

[Fire Management and Invasive Plants](#)

NEPAssist Report

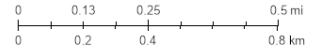
A3 Landscape



May 7, 2024

- Project 1
- + Search Result (point)

1:16,219



Esri, Community Maps Contributors, Montana State Library, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, US Census Bureau, USDA, USFWS, Maxar

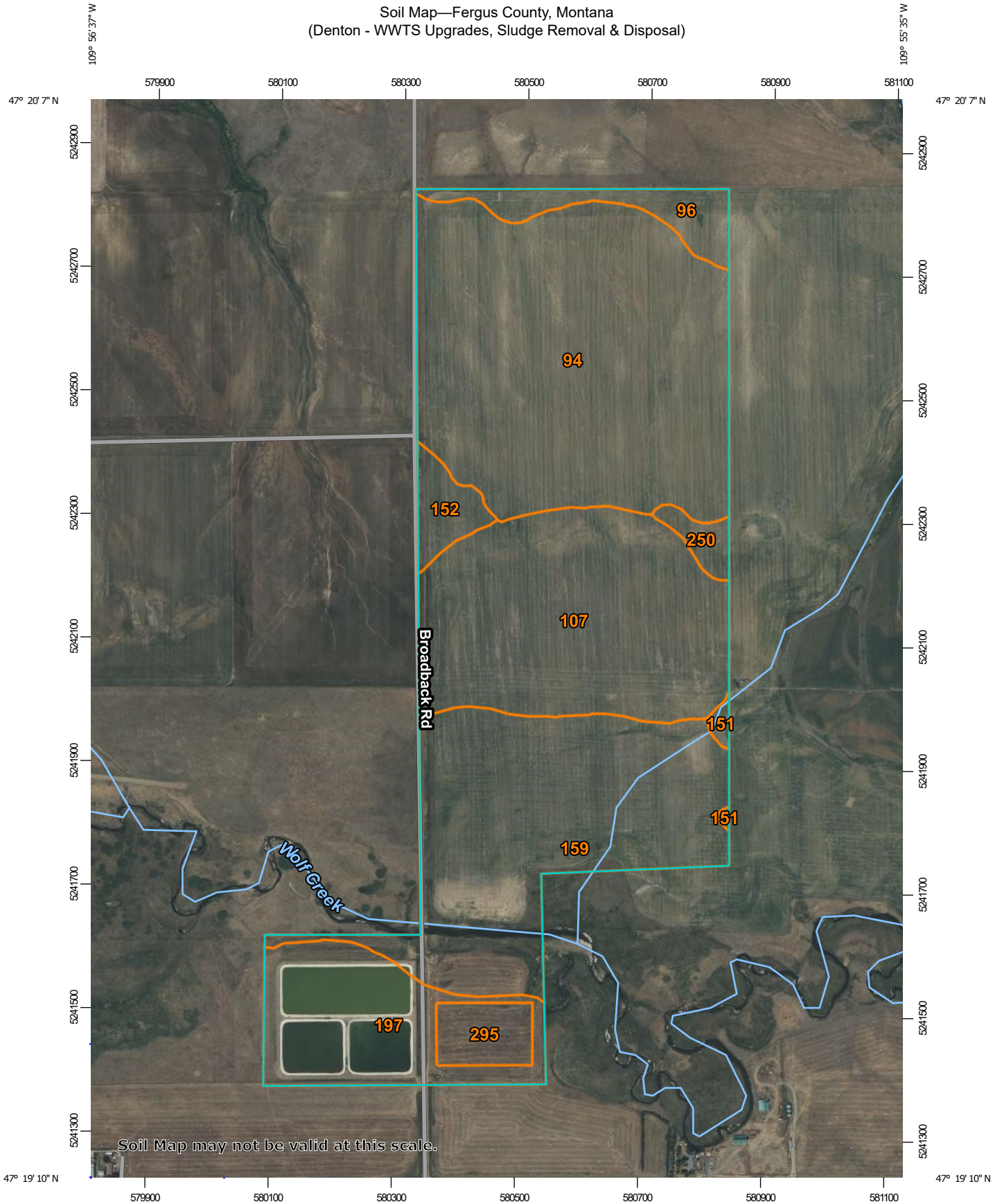
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Project Area	0.80 sq mi
Within an Ozone 1-hr (1979 standard) Non-Attainment/Maintenance Area?	no
Within an Ozone 8-hr (1997 standard) Non-Attainment/Maintenance Area?	no
Within an Ozone 8-hr (2008 standard) Non-Attainment/Maintenance Area?	no
Within an Ozone 8-hr (2015 standard) Non-Attainment/Maintenance Area?	no
Within a Lead (2008 standard) Non-Attainment/Maintenance Area?	no
Within a SO2 1-hr (2010 standard) Non-Attainment/Maintenance Area?	no
Within a PM2.5 24hr (2006 standard) Non-Attainment/Maintenance Area?	no
Within a PM2.5 Annual (1997 standard) Non-Attainment/Maintenance Area?	no
Within a PM2.5 Annual (2012 standard) Non-Attainment/Maintenance Area?	no
Within a PM10 (1987 standard) Non-Attainment/Maintenance Area?	no
Within a CO Annual (1971 standard) Non-Attainment/Maintenance Area?	no
Within a NO2 Annual (1971 standard) Non-Attainment/Maintenance Area?	no
Within a Federal Land?	no
Within an impaired stream?	no
Within an impaired waterbody?	no
Within a waterbody?	no
Within a stream?	yes
Within an NWI wetland?	Available Online
Within a Brownfields site?	no

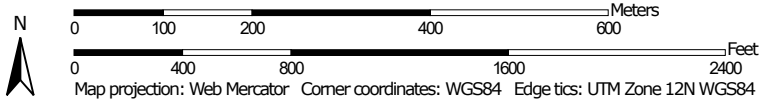
Within a Superfund site?	no
Within a Toxic Release Inventory (TRI) site?	no
Within a water discharger (NPDES)?	yes
Within a hazardous waste (RCRA) facility?	no
Within an air emission facility?	no
Within a school?	no
Within an airport?	no
Within a hospital?	no
Within a designated sole source aquifer?	no
Within a historic property on the National Register of Historic Places?	no
Within a Land Cession Boundary?	yes
Within a tribal area (lower 48 states)?	no
Within the service area of a mitigation or conservation bank?	yes
Within the service area of an In-Lieu-Fee Program?	yes
Within a Public Property Boundary of the Formerly Used Defense Sites?	no
Within a Munitions Response Site?	no
Within an Essential Fish Habitat (EFH)?	no
Within a Habitat Area of Particular Concern (HAPC)?	no
Within an EFH Area Protected from Fishing (EFHA)?	no
Within a Bureau of Land Management Area of Critical Environmental Concern?	no
Within an ESA-designated Critical Habitat Area per U.S. Fish & Wildlife Service?	no
Within an ESA-designated Critical Habitat river, stream or water feature per U.S. Fish & Wildlife Service?	no

Created on: 5/7/2024 6:41:53 PM

Soil Map—Fergus County, Montana
(Denton - WWTS Upgrades, Sludge Removal & Disposal)




Map Scale: 1:8,490 if printed on A portrait (8.5" x 11") sheet.





MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features



Blowout



Borrow Pit



Clay Spot



Closed Depression



Gravel Pit



Gravelly Spot



Landfill



Lava Flow



Marsh or swamp



Mine or Quarry



Miscellaneous Water



Perennial Water



Rock Outcrop



Saline Spot



Sandy Spot



Severely Eroded Spot



Sinkhole



Slide or Slip



Sodic Spot



Spoil Area



Stony Spot



Very Stony Spot



Wet Spot



Other



Special Line Features

Water Features



Streams and Canals

Transportation



Rails



Interstate Highways



US Routes



Major Roads



Local Roads

Background



Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service

Web Soil Survey URL:

Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Fergus County, Montana

Survey Area Data: Version 24, Aug 25, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 13, 2021—Sep 30, 2021

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

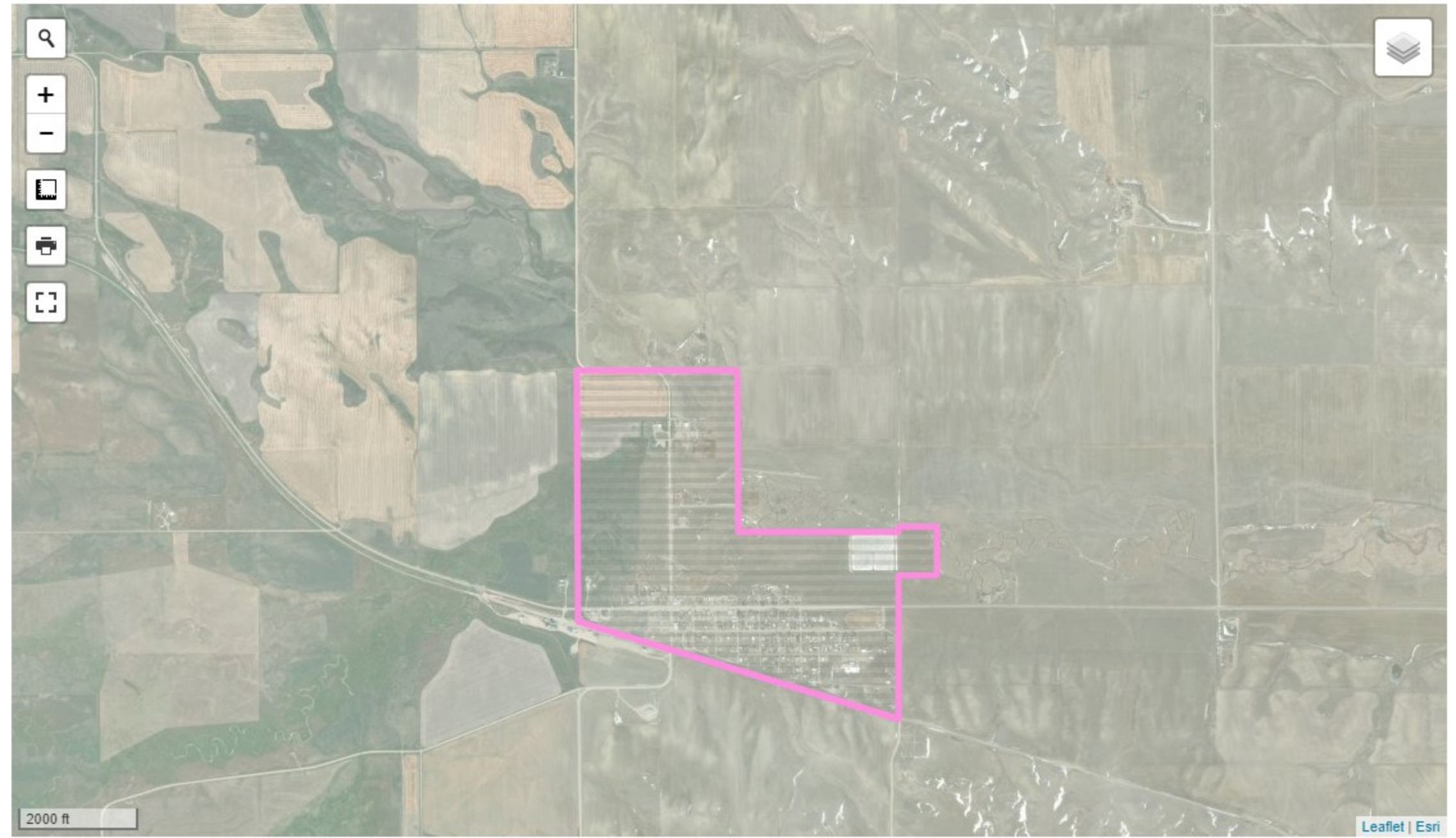
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
94	Fairfield-Danvers clay loams, 2 to 4 percent slopes	58.4	34.2%
96	Fairfield-Judell clay loams, 2 to 8 percent slopes	5.6	3.3%
107	Gerber clay loam, 0 to 2 percent slopes	37.5	22.0%
151	Linwell silty clay loam, 0 to 2 percent slopes	0.6	0.4%
152	Linwell silty clay loam, 2 to 8 percent slopes	3.4	2.0%
159	Marcott silty clay loam	42.1	24.7%
197	Wyola silty clay loam, 0 to 2 percent slopes	17.3	10.1%
250	Typic Haplaquolls, moderately sloping	1.8	1.1%
295	Water	3.9	2.3%
Totals for Area of Interest		170.7	100.0%

Denton – WWTS Upgrades, Sludge Removal and Disposal EA

Soil Type	Acres	Percent of Area (%)	Percent Slope (%)	*Soil Profile (inches)	Farmland Classification	Depth to Water Table (inches)
Fairfield (45%)- Danvers (40%) clay loams	58.4	34.2	2-4	0-6: clay loam 6-19 silty clay loam 19-43: silty clay loam 43-60 very gravelly sandy loam	Prime Farmland	>80 (6.67 ft)
Fairfield (50%)- Judell (40%) clay loams	5.6	33.3	2-8	0-6: clay loam 6-19 silty clay loam 19-43: silty clay loam 43-60 very gravelly sandy loam	Statewide Importance	>80
Gerber clay loam	37.5	22.0	0-2	0-5: clay loam 5-20: silty clay 20-60: silty clay	Prime Farmland	>80
Linwell silty clay loam	0.6	0.4	0-2	0-6: silty clay loam 6-28: silty clay loam 28-66: silty clay loam	Prime Farmland	>80
Linwell silty clay loam	3.4	2.0	2-8	0-6: silty clay loam 6-28: silty clay loam 28-66: silty clay loam	Statewide Importance	>80
Marcott silty clay loam	42.1	24.7	0-2	0-8: silty clay loam 8-25: silty clay 25-42: silty clay 42-66: extremely gravelly sandy clay loam	Not Prime Farmland	24-36 (2-3 ft) closest to Wolf Creek
Wyola silty clay loam	17.3	10.1	0-2	0-6: silty clay loam 6-13: silty clay 13-66: silty clay loam	Prime Farmland	>80
Typic Haplaquolls, moderately sloping	1.8	1.1	0-2	Not Specified	Not Prime Farmland	>80
Water	3.9	2.3	----	----	----	

consultation.

If your project is close to designated sage grouse habitat or BLM Priority area, or if you are unsure your project is within designated sage grouse habitat or BLM Priority area, please submit your project for review as permitting agencies will be checking to see if your project is located within these designated sage grouse habitats. If your permitting agency requires evidence that your project is outside of designated sage grouse habitat, we recommend that you [log in](#) and start a project application and take a screenshot of your project's location.





HUNT

FISH

STATE PARKS

ACTIVITIES

CONSERVATION

EDUCATION

ABOUT FWP

BUY & APPLY

NEWS

MYFWP

FWP MENU

RESTRICTIONS AND CLOSURES

WILDLIFE MANAGEMENT AREAS

HATCHERIES

WILDLIFE HABITAT PROTECTION AREA SEARCH

Select a Wildlife Habitat Protection Area on the map to view information. Or search for a Wildlife Habitat Protection Area from the dropdown below.



Visit a Wildlife Habitat Protection Area

Select a Wildlife Habitat Protection Area

Find by Activities

Select an Activity



Untitled map

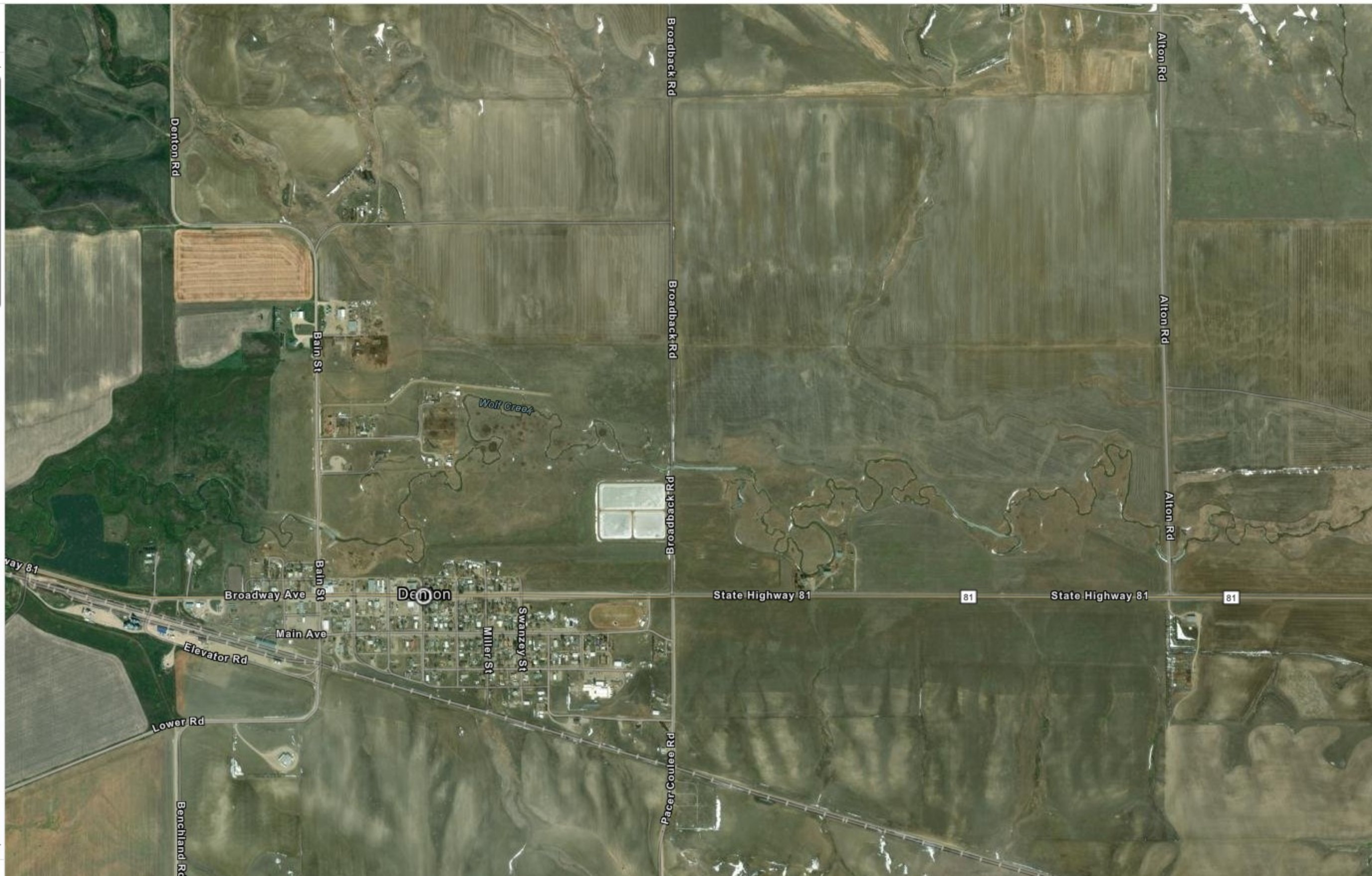
Open in Map Viewer Classic



Basemap [Close]

Current basemap
Imagery Hybrid [Chevron]

- Imagery
- Imagery Hybrid**
- Streets
- Topographic
- Navigation
- Streets (Night)
- Terrain with Labels
- Light Gray Canvas
- Dark Gray Canvas



BASEMAPS >

- STREETS
- SATELLITE
- HYBRID
- TOPO
- TERRAIN
- GRAY
- OPEN STREET MAP
- NATGEO
- USGS TOPO
- NAT'L MAP

MAP LAYERS >

- Wetlands
- Riparian
- Riparian Mapping Areas
- Data Source



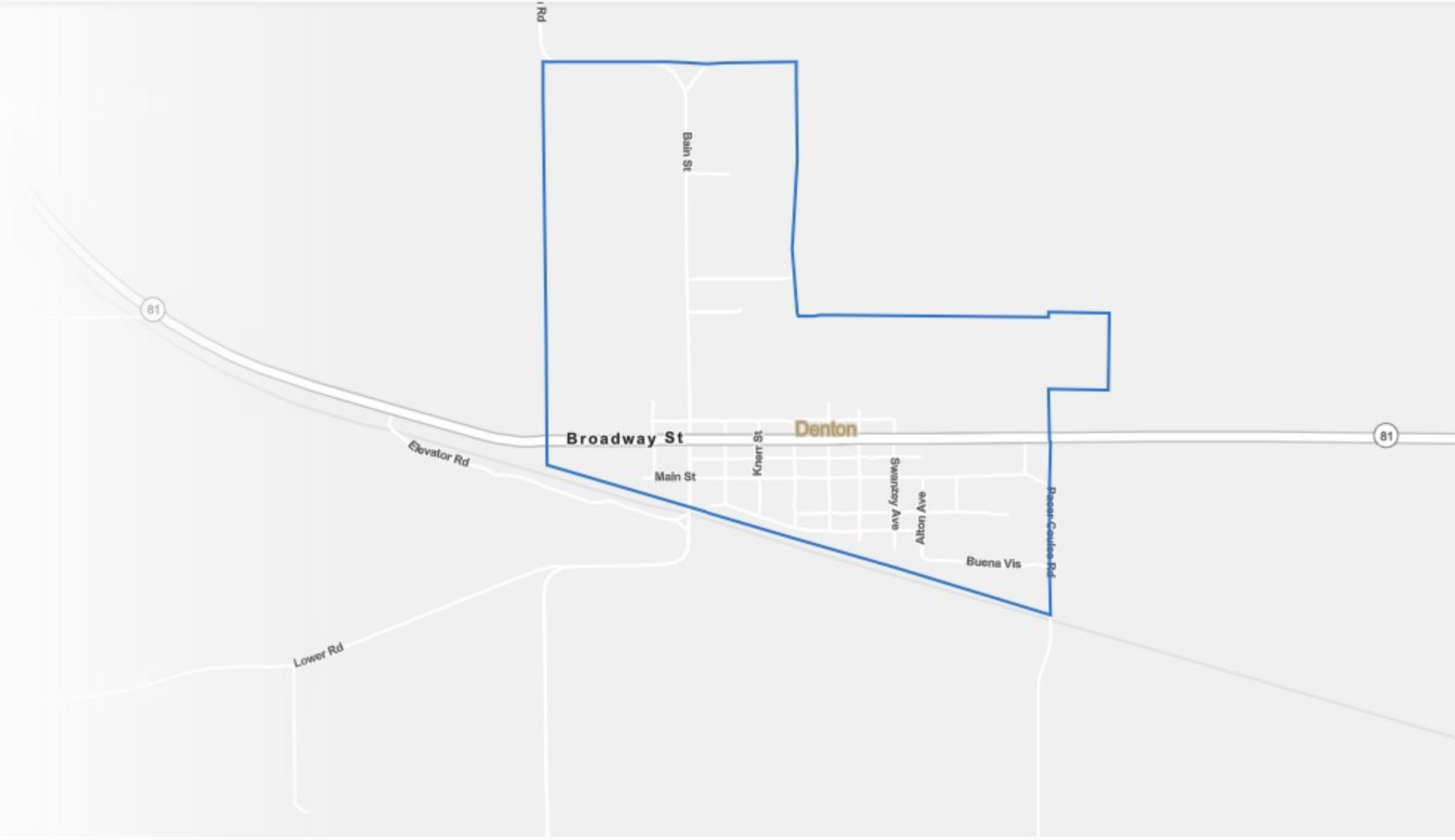
1:9,028
47,328 | -109,941

Place

Denton town, Montana

Denton town, Montana is a city, town, place equivalent, and township located in Montana.

[Share Profile](#)



// [United States](#) / [Montana](#) / Denton town, Montana

Display Sources



Populations and People

Total Population
205
P1 | 2020 Decennial Census



Employment

Employment Rate
64.7%
DP03 | 2022 American Community Survey 5-Year Estimates



Families and Living Arrangements

Total Households
112
DP02 | 2022 American Community Survey 5-Year Estimates



Income and Poverty

Median Household Income
\$66,250
S1901 | 2022 American Community Survey 5-Year Estimates



Housing

Total Housing Units
148
H1 | 2020 Decennial Census



Race and Ethnicity

Hispanic or Latino (of any race)
1
P9 | 2020 Decennial Census



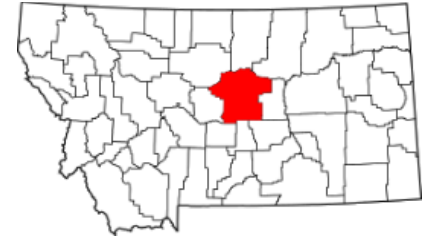
Education

Bachelor's Degree or Higher
22.9%
S1501 | 2022 American Community Survey 5-Year Estimates



Health

Without Health Care Coverage
8.3%
S2701 | 2022 American Community Survey 5-Year Estimates



Fergus County

January 2021

Fergus County is a rural county located almost directly in the center of the state. Over 78% of land in Fergus County is classified as farm land.

Overview (2017 Data)

Population	11,113
County Size (acres)	2,777,171
Land in Farms (%)	78.8
Number of Farms	845
Median Farm Size (acres)	806
Average Farm Size (acres)	2,589

Source: [Census of Agriculture](#): Table 1: County Summary Highlights: 2017

Farm Revenue

Farm revenue (which includes the market value of products sold, government payments, and farm-related income) were nearly \$155 million while production expenses were \$131 million. Government payments were 7.9% of farm revenues.

Market Value of Products Sold	\$133,624,000
Government Payments	\$12,281,000
Farm-Related Income	\$8,925,000
Total Farm Production Expenses	\$131,283,000
Net Cash Farm Income	\$23,546,000

Source: [Census of Agriculture](#): Tables 2, 3, 4, 5 and 6: 2017

Taxation

The market value of all property in Fergus County was approximately \$1.6 billion million in 2019. The taxable value assigned by the Montana Department

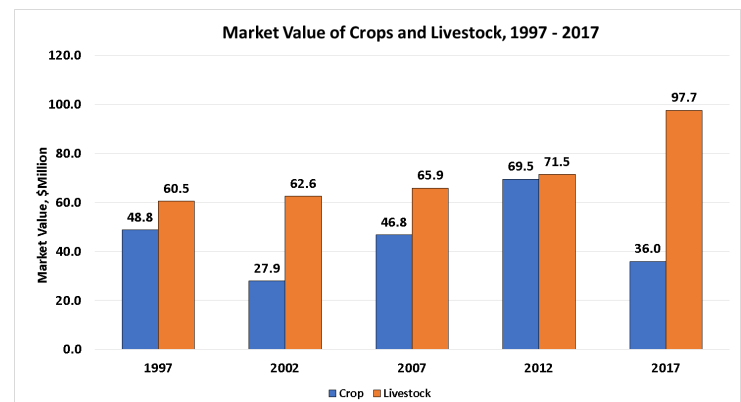
of Revenue was \$39 million. Agricultural Property (as defined by Montana Department of Revenue as Class 3 property) comprised 13% of the county's taxable value.

Property Tax Summary	2019	2014
Market Value of All Property	\$1,619,461,314	\$1,910,899,964
Taxable Value of All Property	\$39,401,516	\$25,758,907
Taxable Value of Agricultural Property	\$5,142,811	\$5,423,345
Ag Taxable Value as % of All Property	13.05%	21.05%

Source: Montana Dept. of Rev. Montana Taxes by County in [2018](#) and Montana Taxes by County in [2014](#)

Market Value of Crops and Livestock

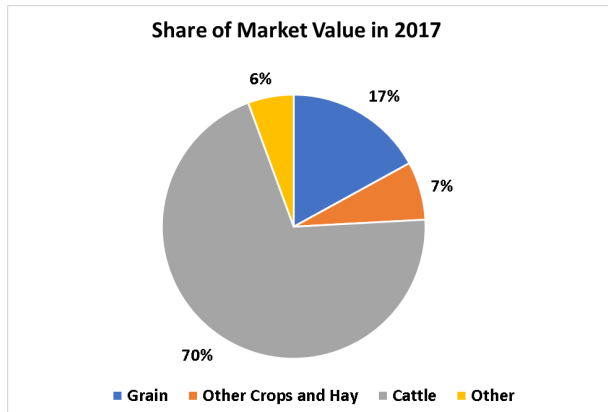
After adjusting for inflation, the market value of crops decreased by 26%, while the market value of livestock increased by 61%, from 1997 to 2017.



Sources: [Census of Agriculture](#): Table 1: County Summary Highlights: 2017 and [St. Louis Fed Producer Price Index](#)

Crops and Livestock

Cattle (70%) and grain (17%) comprised nearly 87% of total crop and livestock sales in 2017.



Source: [Census of Agriculture](#): Table 2: County Summary Highlights: 2017

Farm Size by Acres

The percentage of smaller farms, less than 500 acres, decreased from 47% to 43%, while the percentage of larger farms, 500 acres or more, increased from 53% to 57% from 2012 to 2017.

Farm Size by Acres	2017		2012	
	Number of Farms	%	Number of Farms	%
1 to 9	41	5	54	7
10 to 49	116	14	105	13
50 to 179	134	16	116	15
180 to 499	74	9	89	11
500 to 999	72	9	75	9
1,000 or more	408	48	351	44
TOTAL	845	100	790	100

Source: [Census of Agriculture](#): Table 1: County Summary Highlights: 2017

Farm Size by Sales

The proportion of total sales from the smallest farms with less than \$100,000 in sales decreased from 61% to 59%, while the proportion of total sales from the largest farms with sales of \$100,000 or more increased from 39% to 41% from 2012 to 2017.

Farm Size by Sales	2017		2012	
	Number of Farms	%	Number of Farms	%
Less than 2,500	196	23	193	24
2,500 to 4,999	40	5	48	6
5,000 to 9,999	65	8	41	5
10,000 to 24,999	66	8	59	7
25,000 to 49,999	59	7	61	8
50,000 to 99,999	72	9	77	10
100,000 or more	347	41	311	39
TOTAL	845	100	790	100

Source: [Census of Agriculture](#): Table 1: County Summary Highlights: 2017

Tillage and Land Use

The percentage of farms using cover crops increased, while the percentage of farms using no till, reduce tillage, or intensive tillage decreased from 2012 to 2017.

Tillage	2017		2012	
	Number of Farms	%	Number of Farms	%
No tillage	187	22	170	22
Reduced tillage	81	10	84	11
Intensive tillage	74	9	134	17
Cover crops	53	6	32	4
TOTAL FARMS	845		790	

Source: [Census of Agriculture](#): Table 41 Land Use Practices

Producer Profile

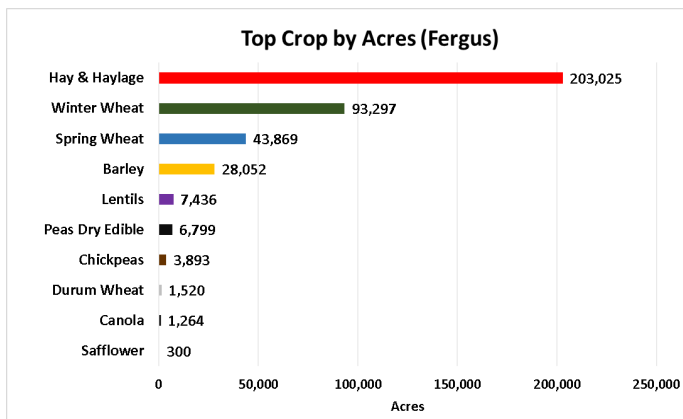
The county producer population was somewhat younger than the Montana producer population. Thirty-nine percent of county producers were under 55 years of age, while 32% were over 65 years of age. Thirty-four percent of the Montana producer population were under 55, while 36% were over 65 years of age. Sixty-three percent of producers in the county were males, while 60% of Montana producers were males. Farming was the primary occupation for 56% of county producers, while farming was the primary occupation for 50% of Montana producers.

Characteristics	County		State	
	Number of Producers	%	Number of Producers	%
Age				
18 – 25	16	1	570	1
25 to 34	162	11	3,285	7
35 to 44	177	12	5,179	11
45 to 54	231	15	7,309	15
55 to 64	429	28	13,838	29
65 to 74	320	21	11,469	24
75 and older	164	11	5,587	12
Sex				
Male	959	63	28,563	60
Female	562	37	18,673	40
Primary Occupation				
Yes	857	56	23,847	50
No	664	44	24,314	50
TOTAL PRODUCERS	1,521	100	48,161	100

Source: [Census of Agriculture](#): Table 45 Selected Operation and Producer Characteristics

Top Crops by Acres

The top crops were hay and haylage, winter and spring wheat, barley, lentils, peas dry edible, chickpeas, durum wheat, canola and safflower.



Source: [Census of Agriculture](#): Table 1: County Summary Highlights: 2017

Top Livestock

The top livestock were cattle, sheep, poultry (chickens layers and broilers) and hogs.

Livestock	Number of Head
Cattle	119,336
Sheep	2,990
Chickens-Layers	1,592
Chickens-Broilers	693
Hogs	195

Source: [Census of Agriculture](#): Tables 11 (Cattle), 13 (Sheep) and 19 (Poultry)

Employment Impact

Agricultural production employed 1,488 workers, or 26% of the county's labor force. According to IMPLAN, economic impact model, 1,062 of the workers were directly employed in production agriculture. An additional 326 workers were employed in businesses supporting agricultural production, such as feed and fertilizer dealers, and another 100 workers were employed in other related businesses, such as grocery and drugs stores. For every 10 jobs on farms and ranches, 4 additional jobs are generated in the county.

Impact Type	Labor Force	Impact Multipliers
County Labor Force	5,759	
Direct Impact	1,062	
Indirect Impact	326	0.31
Induced Impact	100	0.09
Total Impact	1,488	0.40
Agriculture's Share (%)	26	

Source: [Bureau of Labor Statistics](#), www.bls.gov/#cntyaa and IMPLAN Estimates

Value Added Impacts

Farms and ranches generated \$73.7 million of value-added, or 17% of the county's total gross domestic product of \$432 million in 2017. According to IMPLAN, \$46.7 million was directly contributed by farmers and ranchers. An additional \$21 million was generated by businesses supporting agricultural production and \$6 million was generated by other related businesses. Each dollar of value-added in agriculture by a farmer or rancher contributes an additional \$0.58 of value-added in other sectors of the county's economy.

Impact Type	Value-Added (\$1 million)	Impact Multipliers
County GDP*	432.00	
Direct Impact**	46.7	
Indirect Impact**	21.0	0.45
Induced Impact**	6.0	0.13
Total Impact**	73.7	0.58
Agriculture's Share (%)	17	

Sources: * [St. Louis Federal Reserve Bank](#), ** IMPLAN Estimates

References

- 2017 Census of Agriculture, National Agricultural Statistics Service, Montana, State and County Data, Volume 1, Geographic Area Series, part 26 https://www.nass.usda.gov/Publications/AgCensus/2017/Full_Report/Volume_1,_Chapter_1_State_Level/Montana/mtv1.pdf
- Dept. of Revenue "Montana Taxes by County in 2014" <https://mtrevenue.gov/wp-content/uploads/2018/01/2014-Taxes-by-County.pdf>

- Dept. of Revenue "Montana Taxes by County in 2018" <https://mtrevenue.gov/wp-content/uploads/2020/02/2018-Taxes-by-County.pdf>
- St. Louis Federal Reserve Bank (2017). Current dollar gross domestic product by county for Montana, retrieved from <https://fred.stlouisfed.org/release/tables?rid=397&eid=1062609&od=2017-01-01#>
- St. Louis Federal Reserve Bank (2020). Producer price index for all commodities, St. Louis Federal Reserve Bank, retrieved from <https://fred.stlouisfed.org/series/PPIACO>
- Bureau of Labor Statistics (2017), Montana labor force, retrieved from <https://bls.gov/lau/#cntyaa>

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For more information: www.montana.edu/agimpact

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