



ENVIRONMENTAL ASSESSMENT

Class II Solid Waste Management System

Deer Lodge Landfill Expansion

Deer Lodge, Montana

Solid Waste Section

PO Box 200901

Helena MT 59620-0901

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Acronyms

ARM – Administrative Rules of Montana
BMP's – Best Management Practices
C&D – Construction and Demolition
CQA/CQC – Construction Quality Assurance/Construction Quality Control
DEQ – Montana Department of Environmental Quality
Draft EA – Draft version of an environmental assessment
EIS – Environmental Impact Statement
EPA – Environmental Protection Agency
FWP – Montana Department of Fish, Wildlife, and Parks
GWIC – Ground Water Information Center
IWMA – Integrated Waste Management Act
MBMG – Montana Bureau of Mines and Geology
MCA – Montana Code Annotated
MEPA – Montana Environmental Policy Act
MSW – Municipal Solid Waste
NRCS – Natural Resource Conservation Service
O&M – Operation and Maintenance
RCRA – Resource Conservation and Recovery Act
SWMA – Montana Solid Waste Management Act
SWP – Montana DEQ Solid Waste Program
SWS – Montana DEQ Solid Waste Section
USDA – United States Department of Agriculture
USEPA – United States Environmental Protection Agency
USFWS – United States Fish and Wildlife Service
USGS – United States Geological Survey

1. PROPOSED ACTION

1.1 Summary

The Deer Lodge Solid Waste District (the District) submitted a Solid Waste Management System (SWMS) license application to the Montana Department of Environmental Quality (DEQ). The application proposes to expand the Deer Lodge Landfill to include an additional 110 acres of adjacent land to be used for Class II waste disposal activities. The 110-acre site (Site) is on the same legal parcel as the existing landfill and owned by Powell County. The Site is located south of Boulder Road and approximately two miles southeast of the City of Deer Lodge (**Figure 1**). The site includes approximately 110 acres of the landfill's legal parcel in the eastern and southern regions of the property, identified with cross-hatching in **Figure 2**. The non-hatched portions of the parcel shown on **Figure 2** represent the existing landfill (~70 acres). Of the total 110-acre site, 25.6 acres are planned for waste disposal activities. The 25.6-acre waste management area falls entirely within the cross-hatched expansion region of the legal parcel identified in **Figure 2**. The Site, which is presently vacant grassland, would be operated by the District. The Deer Lodge Landfill is expected to manage nearly 7,000 tons of waste per year while serving the City of Deer Lodge and a surrounding six-mile radius. The Site would also accept transfers from other rural communities throughout Powell County. Details of the expansion include:

- The site would be an extension of the existing Deer Lodge Landfill facility.
- A new entrance would be established off Boulder Road in the northern region of the existing landfill to service both the existing landfill and the expansion.
- The expansion would primarily serve the City of Deer Lodge and a surrounding 6-mile radius. The landfill would also accept transfers from other rural areas throughout Powell County.
- Total Fill Volume – 2.87 million cubic yards or 1.44 million tons
- Solid Waste Capacity – 1.96 million cubic yards or 981,079 tons
- The estimated facility life expectancy for the Site is 140 years.
- The life estimate is based on an effective waste to soil ratio of 2.5:1 and in-place density of 1,000 LB/CY.
- The landfill expansion would accept Class II waste in the licensed area.

1.2 Background

The Site is currently operated as a Class II landfill. This landfill has been in operation since the early 1970s.

The current license encompasses approximately 40 acres and allows disposal of Group II and Group III waste. In the mid-1990s, the Deer Lodge Disposal District purchased an additional 20 acres south and west of the original footprint. This area was designated for runoff control, stormwater retention pond, Class III waste trenches, and a county junk vehicle yard.

The current landfill is reaching capacity.

Most solid wastes are fundamentally grouped by their physical and chemical characteristics affecting:

- The degree of care required during handling
- The class of landfill required for disposal
- The potential to cause environmental degradation or public health hazards

In Montana, the most common wastes are divided into three broad waste groups, including:

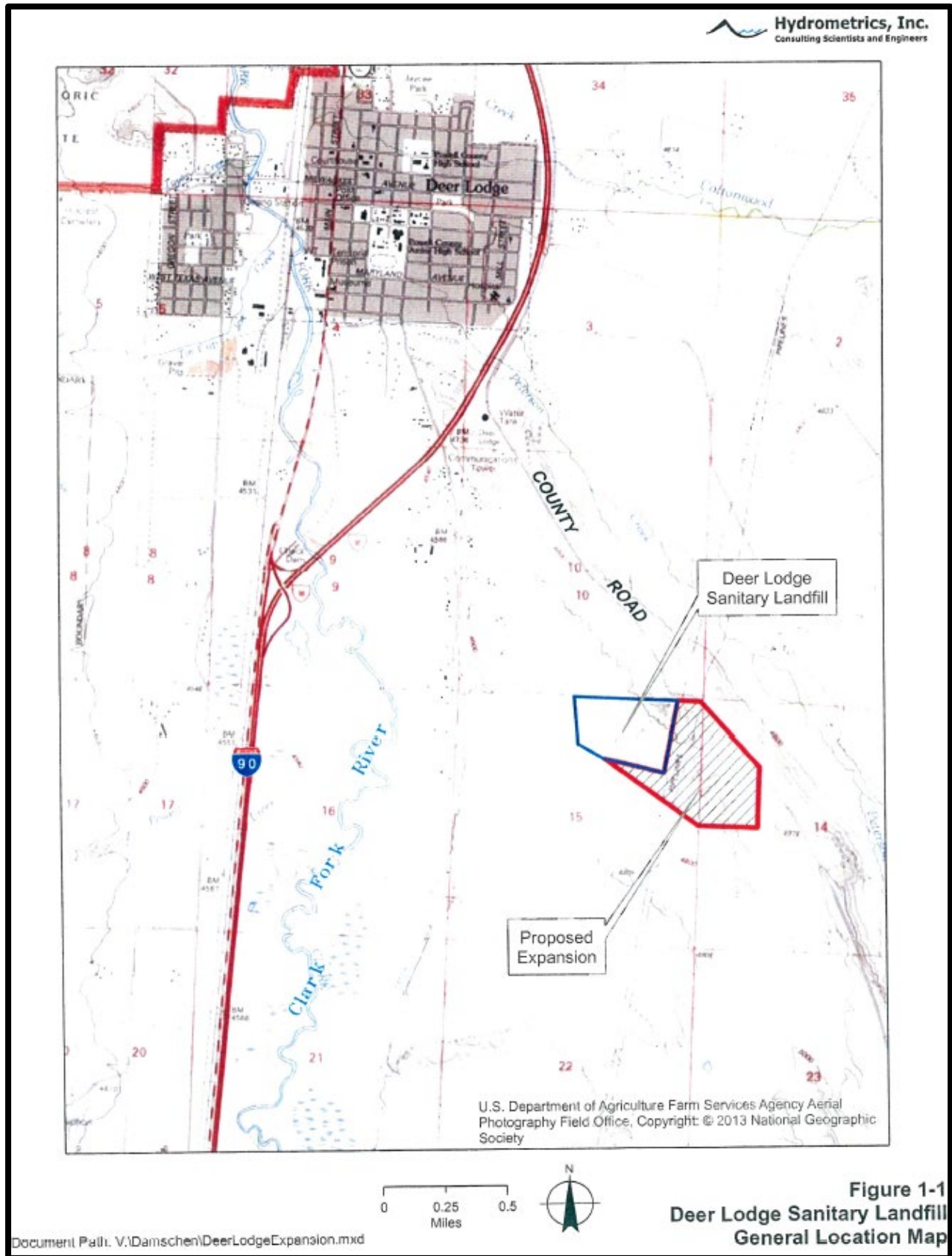
Group II wastes, or commonly municipal solid waste (MSW), which may include decomposable wastes and some mixed solid wastes of appreciably decomposable materials. It may also broadly share the common

materials and characteristics of almost all other waste groups, or select wastes (such as household hazardous, commercial, industrial, asbestos, TENORM, exempted remediation, etc.). But required exceptions include chiefly hazardous, radioactive, TSCA, mining, and a few other wastes as defined by federal EPA, NRC, etc.).

Group III wastes are limited to clean wood wastes and other clean non-water soluble or inert solids largely involving, but not limited to unpainted brick or concrete; untreated, unpainted, and unglued wood materials; and tires.

Group IV wastes may largely include construction and demolition wastes and asphalt, but not typical household wastes.

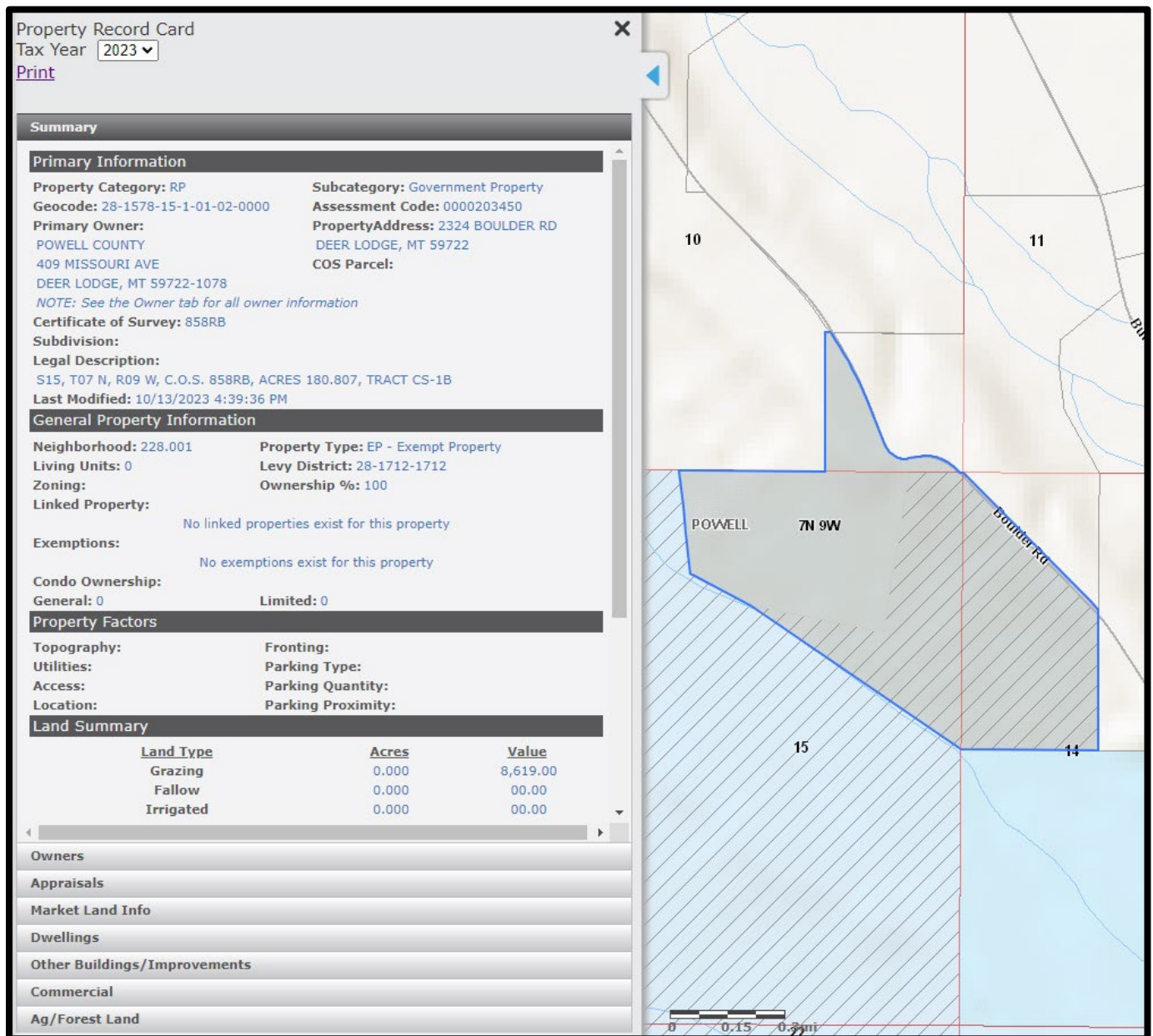
Figure 1: Location of the Site



(Source: Figure 1-1 of the Deer Lodge Landfill License Application; Barry Damschen Consulting, LLC, 2021)

Not to Scale

Figure 2: Montana Cadastral Map
(Site/Property Boundary outlined in blue)



(Source: Montana Cadastral Mapping and Property Ownership Program, 2024)

Figure 3: Aerial Photo of the Site
(Site in **red**)



(Source: Google Earth, 2024)
Not to Scale

1.3 Purpose, Need, and Benefits

The District has applied to DEQ for review and licensure of an expansion to their Class II solid waste management facility. DEQ's purpose and need is to take action on the District's application to expand their pre-existing facility as described in the application. DEQ's decision to approve or deny the Proposed Action depends upon compliance and consistency (i.e., "equivalence") of the SWMS application with:

1. Applicable tenants of the SWMA, Clean Air Act of Montana (CAA), and Montana Water Quality Act (WQA) established by Montana Code Annotated (MCA); and
2. Applicable solid waste management criteria as required in the ARM.

ARM Title 17, chapter 50, establishes the minimum requirements for the licensing of all SWMS proposals. DEQ's final decision to license a SWMS must be validated by the local health officer within 15 days of its issuance.

The District's purpose and need is to expand the landfill as proposed so that its present operations may continue to accommodate for future solid waste management activities in the area, accommodate for population growth, and alleviate the need for transfer of waste to be disposed out of the county.

The Montana Solid Waste Management Act (SWMA) establishes the minimum requirements for development and licensing of SWMS to protect the environment and the health and welfare of Montana citizens. The SWMA supports long-range planning efforts to ensure that adequate landfill capacity is available in Montana to meet the state's growing population needs. Administrative rules adopted by DEQ pursuant to the SWMA establish requirements for the design, operation, monitoring, correction, financial assurance, closure, and post-closure care of all licensed SWMS based on the type of facility.

1.4 Location Description and Study Area

The 110-acre site shares the same legal parcel as the existing landfill in Township 07 North, Range 09 West, Section 15. It is located approximately two miles southeast of Deer Lodge, Montana in Powell County (**Figure 1**). The Site includes the eastern and southern regions of the landfill's legal parcel as shown with cross-hatching in **Figure 2**. The non-hatched portions of the parcel shown on **Figure 2** represent the existing landfill (~70 acres). The Site is situated directly south of Boulder Road and east of the existing Deer Lodge Landfill.

The Class II Solid Waste facility expansion is on undeveloped grassland, currently owned by Powell County. The property to the west of the Site is the existing county-owned Deer Lodge Landfill, while properties to the south are undeveloped state-owned lands. Privately-owned grasslands used for grazing border the Site to the east and north. The expansion of the Deer Lodge Landfill would include the creation of a new access road in the northern portion of the existing landfill off Boulder Road.

Typically, the study area includes the extent of the Site and adjacent areas within at least one mile of the Site. The study area is defined in *Section 3.1*. The study area for each resource is unique and described in each subsection under *Section 3.3*.

1.5 Authorizing Action

MONTANA ENVIRONMENTAL POLICY ACT (MEPA)

MEPA was created as a procedural mechanism to assist the legislature in determining whether laws are adequate to address impacts to Montana's environment and to inform the public and public officials of potential impacts resulting from decisions made by state agencies. DEQ prepared this EA in accordance with requirements of MEPA to disclose potential threats to human health and the environment associated with the proposed action. All actions associated with creating this MEPA document are public record, and not a

record of decision, and certainly do not provide regulatory authority beyond the authority explicitly provided in existing regulations.

Among the several purposes an EA may serve, it may be used to determine the need to prepare an EIS through an initial evaluation and determination of the significance of impacts associated with the proposed action. ARM 17.4.607(2)(c). An EA may also be used to ensure the fullest appropriate opportunity for public review and comment on proposed actions, including alternative and planned mitigation, where the residual impacts do not warrant the preparation of an EIS. ARM 17.4.607(2)(d). This document may disclose impacts over which DEQ has no regulatory authority.

GENERAL LICENSING

DEQ is responsible for issuing SWMS licenses under authority of the SWMA and associated ARM. The Class II license application must contain engineering design plans and an operations plan addressing the methods that would be used to manage the Group II waste at the Site. It must also include a detailed closure and post-closure care plan. It may also include groundwater and methane monitoring plans. These required documents and the DEQ decision to license the proposed facility must first be approved by the Powell County Health Officer.

DEQ is also responsible for protecting air quality under the Montana Clean Air Act (CAA), and water quality and quantity under the Montana Water Quality Act (WQA). The options that DEQ has for decision-making upon completion of the EA are:

1. Denying the application if the Proposed Action would violate SWMA, CAA, or WQA.
2. Approving the application as submitted.
3. Approving the application with agency mitigatory measures.
4. Determining the need for further environmental review.

Table 1 provides a listing of any state, local, or federal agencies that may have overlapped or additional jurisdiction or environmental review responsibility for the Proposed Action and the permits, licenses, and other authorizations required. All necessary permits and approvals must be attained prior to onsite implementation of the proposed action after licensing by DEQ.

Table 1: Applicable Regulatory Activities

Applicable Regulatory Activities	
Agencies	Responsibilities
DEQ – Waste and Underground Tank Management Bureau	SWMS license
DEQ – Air Quality Bureau	Air quality permitting
DEQ – Water Protection Bureau	Montana Pollutant Discharge Elimination System (MPDES) permit
Powell County Health Officer	SWMS license validation by county health officer
Powell County	County waste container sites, road construction and maintenance, land use, and weed plan approval
(List of agencies involved and their respective or licensing requirements)	

CONTINUAL FACILITY REVIEW AND LICENSE RENEWAL

All licensed SWMS facility operations must conform with applicable laws and rules pertaining to solid waste management. If rules or statutes are adjusted or changed, operations would need to adjust accordingly. When a SWMS is initially approved and licensed, it becomes subject to a series of regular licensing and operational reviews by DEQ, as follows for a transfer station:

SWMS License Renewal Applications Review: Annual

The license renewal form includes waste volumes for the previous year. DEQ uses reported waste volumes to evaluate the number of trailer loads delivered to the Deer Lodge Landfill for disposal and the total volume determines fees and the level of operational activities. A license is renewed if all renewal information is supplied, and the facility can demonstrate an ongoing ability to operate in compliance with applicable rules and statutes.

SWMS Inspections and Site Visits: Annual to Semi-Annual

DEQ staff visit licensed SWMS facilities to verify compliance with applicable rules and statutes. Prior to inspections, staff review the facility's approved operation & maintenance (O&M) plan. During inspections, staff evaluate all landfill waste management systems and operations. Compliance assistance is emphasized, however, failure to follow the approved O&M plan or to meet the requirements of applicable rules and statutes may result in a violation requiring corrective action(s) and further compliance review with DEQ follow-up (e.g., approval of appropriate O&M Plan changes) and a repeat inspection.

O&M Plan Review: At least every five years

Facilities are required to update O&M plans at least every five years. When no updates are needed, facilities may notify DEQ that operations have not changed. Whenever significant operational changes are expected or required, facilities must notify DEQ in advance by submitting an updated plan for review and approval prior to implementation. All changes must comply with all applicable rules and statutes during the period in which the plan is reviewed.

Engineering Plans Review: Approximately every five years

As operations develop, the designs for the waste collection, sorting, or separation, including the management of liquids, may require adjustment and any necessary changes in equipment or layout may be submitted to and approved by DEQ. Any such changes must comply with applicable rules and statutes during the period in which the engineering plan is reviewed.

1.6 Public Participation

Pursuant to ARM 17.4.610(3), DEQ is responsible for providing opportunities for public participation of EAs for review and comment.

The Site serves Powell County and beyond where development and waste production has continued to increase. DEQ determined that public participation is warranted for this action and is conducting a 30-day public comment period for this Draft EA, which began upon publication of this document.

The public comment period ended on March 15, 2025. Notification was sent to adjacent landowners and other interested parties that requested to be notified. A press release announcing the Draft EA's availability was sent to the State Newsroom and posted at: <https://deq.mt.gov/public/solidwaste-public>.

The District's application and associated documents are public record and may be requested via a records request at: [Support Home Page \(govqa.us\)](https://govqa.us).

During the comment period, DEQ received four submissions with comments covering several topics from the Draft EA and Proposed Action. DEQ read, summarized, combined, and considered the substantive elements from the comments. DEQ created this document and made changes to the Final EA in response (see **Section 6**).

2. DESCRIPTION OF ALTERNATIVES

2.1 Introduction

This section describes the Proposed Action and reasonable alternatives to the Proposed Action, including the No Action alternative. MEPA requires state agencies to consider the No Action and reasonable alternatives to a Proposed Action that are available and prudent to consider. The alternate approach or course of action must accomplish the same objectives as the Proposed Action, and must be realistic, technologically available, and must have a logical relationship to the Proposed Action. Section 75-1-220, MCA, states that for a project that is not a state-sponsored project, an alternatives analysis does not include an alternative facility or an alternative to the proposed project itself. Therefore, DEQ only considered alternatives applicable to the proposed facility at the proposed location.

2.2 DEQ Alternative 1 – NO ACTION ALTERNATIVE

Under the No Action alternative, the Proposed Action would not be approved by DEQ. The Site could not be licensed as a Class II SWMS and would not be constructed by the Deer Lodge Special Waste District. Waste would continue to be accepted at the existing Class II, Class III, and Class IV Deer Lodge Landfill as space allows.

2.3 DEQ Alternative 2 – PROPOSED ACTION

The Proposed Action is the licensing of a Class II Solid Waste Management System Facility by DEQ. The Proposed Action would allow for construction and operation of the Facility adjacent to the existing Class II, Class III, and Class IV Deer Lodge Landfill. The proposed facility would allow the disposal of Class II wastes. The facility would be publicly available and would serve the City of Deer Lodge as well as surrounding areas within a six-mile radius. The Site would also accept transfers from other rural areas throughout Powell County.

Currently, all Class II waste goes to the existing Deer Lodge Landfill. The implementation of the Proposed Action in addition to the design update for the existing facility would extend the life of the landfill by an estimated 140 years.

3. AFFECTED ENVIRONMENT AND IMPACT BY RESOURCE

3.1 Affected Environment and Study Area

The Site would occupy 110 acres located on property owned by Powell County approximately two miles southeast of Deer Lodge, Montana off Boulder Road (**Figure 1**). Of the 110 acres owned, 25.6 are planned for Class II waste disposal activities.

Except where noted in specific resource sections, the study area for resource impact analysis includes all lands and resources located within the 110-acre Site footprint and all adjacent lands within one mile in each direction. The study area may vary based on the predicted locations of direct and secondary impacts that could result from the Proposed Action as noted for each impact analysis.

3.2 Categories of Potential Impacts from the Proposed Action

The impact analysis will identify and evaluate direct and secondary impacts, which are as follows:

- **Direct impacts:** Impacts that occur at the same time and place as the action that triggers the effect.
- **Secondary impacts:** Further impacts to the human environment that may be stimulated or induced by or otherwise result from a direct impact of the action.

Where impacts are expected to occur, the impacts analysis estimates the duration and intensity of the impact. The severity of an impact is measured using the following:

- **No impact:** There would be no change from current conditions.
- **Negligible:** An adverse or beneficial effect would occur but would be at the lowest levels of detection.
- **Minor:** The effect would be noticeable but would be relatively small and would not affect the function or integrity of the resource.
- **Moderate:** The effect would be easily identifiable and would change the function or integrity of the resource.
- **Major:** The effect would alter the resource.

Tables 2 and 3 outline the impacts assessed (Note: numbers in the tables do not correspond to the heading numbers in the document).

3.3 Terrestrial, Aquatic Life, and Habitats

The affected environment and study area include all lands and resources located within the proposed study area as defined in Section 3.1 with the exception that the Montana National Heritage Program mapped animal and plant species of concern within the entire Township 07N, Range 09 West.

The proposed 110-acre Deer Lodge Landfill expansion area does not contain any areas that are designated as wetland habitat by the United States Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) or the Montana National Heritage Program (MTNHP, 2024). However, the NWI identifies an unnamed riverine that flows southeast to northwest along the southwest border of the Site before ultimately converging with the Clark Fork River which is situated approximately one mile west of the Site. NWI classifies this feature as “R4SBA” meaning it is an intermittent riverine with a defined streambed which may flood temporally (**Figure 4**). The riverine is not identified as a waterbody by MTNHP.

As shown in design diagrams included in the Deer Lodge License Expansion Application, any water from the riverine would be diverted via a ditch system.

The MTNHP describes the Site, as well as surrounding lands to the east, south, and north, as primarily grassland systems. Other surrounding land covers include human land-use areas described as commercial/industrial land to the west where the present landfill is situated and cultivated cropland and small patches of Montane Sagebrush Steppe scattered throughout the study area. The proposed analysis area is comprised of a hilly grassland terrain. There are few trees and sparse shrubbery. The grasslands contain mainly native fescues and wheatgrasses (MTNHP Report).

In accordance with Montana state law, the Site should be revegetated with native species within one year of the final closure of the landfill. This would return the Site to suitable habitat for wildlife and livestock grazing.

The MTNHP was queried for animal and plant species of concern. The focus area of the query was Township 07, Range 09 West, Sections 10, 11, 14, and 15, which is larger than the study area, but the smallest defined area allowed in the search. Species of concern are summarized in **Table 4** below. The search was provided by the MTNHP on March 12, 2024.

Table 2: Species of Concern

Common Name (<i>Scientific Name</i>)	Family	Global Rank	State Rank	Habitat
Mammals				
Long-legged Myotis (<i>M. volans</i>)	Bats	G4G5	S3	Forested Mountain Regions and River Bottoms
Grizzly Bear (<i>U. arctos</i>)	Bears	G4	S2S3	Meadows, Riparian Zones, Mixed Shrub Fields, Open and Closed Timber, and Alpine Slabrock
Fish				
Bull Trout (<i>S. confluentus</i>)	Trout	G5	S2	Adults – streams and rivers Adolescents – lakes and tributaries
Westslope Cutthroat Trout (<i>O. clarkia lewisi</i>)	Trout	G5T4	S2	Deep, cold-water streams and rivers
Birds				
Long-billed Curlew (<i>N. americanus</i>)	Sandpipers	G5	S3B	Meadows and Mixed-grass Prairie
Bald Eagle (<i>H. leucocephalus</i>)	Hawks/Kites/Eagles	G5	S4	Riparian Zones and Lacustrine Habitats
Lewis's Woodpecker (<i>M. lewis</i>)	Woodpeckers	G4	S2B	Open Forest and Woodland
Pileated Woodpecker (<i>D. pileatus</i>)	Woodpeckers	G5	S3	Coniferous and Deciduous Forests
Cassin's Finch (<i>H. cassinii</i>)	Finches	G5	S3	All Forest Types and Riparian Cottonwoods
Evening Grosbeak (<i>C. vespertinus</i>)	Finches	G5	S3	Mixed Coniferous Forest
Bobolink (<i>D. oryzivorus</i>)	Blackbirds	G5	S3B	Tall Grass and Mixed-grass Prairie
Great Blue Heron (<i>A. herodias</i>)	Bitterns/Egrets/Herons/Night-Herons	G5	S3	Riparian Zones and Open Coniferous Forests
Golden Eagle (<i>A. Chrysaetos</i>)	Hawks/Kites/Eagles	G5	S3	Cliffs and Large Trees near Prairies and Open Woodlands
Reptiles and Amphibians				
None Found				
Insects				
None Found				
Vegetation				
Mealy Primrose (<i>P. incana</i>)	Primrose	G5	S3	Saturated, Calcareous Wetlands
Idaho Sedge (<i>C. idahoa</i>)	Sedges	G3	S3	Ecotonal areas between wet meadow and sagebrush steppe

MTNHP Rank Definition

G1 S1 At high risk because of **extremely limited** and/or **rapidly declining** population numbers, range and/or habitat, making it highly vulnerable to global extinction or extirpation in the state.

G2 S2 At risk because of **very limited** and/or **potentially declining** population numbers, range and/or habitat, making it vulnerable to global extinction or extirpation in the state.

G3 S3 Potentially at risk because of **limited** and/or **declining** numbers, range and/or habitat, even though it may be abundant in some areas.

G4 S4 Apparently secure, though it may be quite rare in parts of its range, and/or suspected to be declining.

G5 S5 Common, widespread, and abundant (although it may be rare in parts of its range). Not vulnerable in most of its range.

GX SX Presumed Extinct or Extirpated - Species is believed to be extinct throughout its range or extirpated in Montana. Not located despite intensive searches of historical sites and other appropriate habitat, and small likelihood that it will ever be rediscovered.

GH SH Historical, known only from records usually 40 or more years old; may be rediscovered.

GNR SNR Not Ranked as of yet.

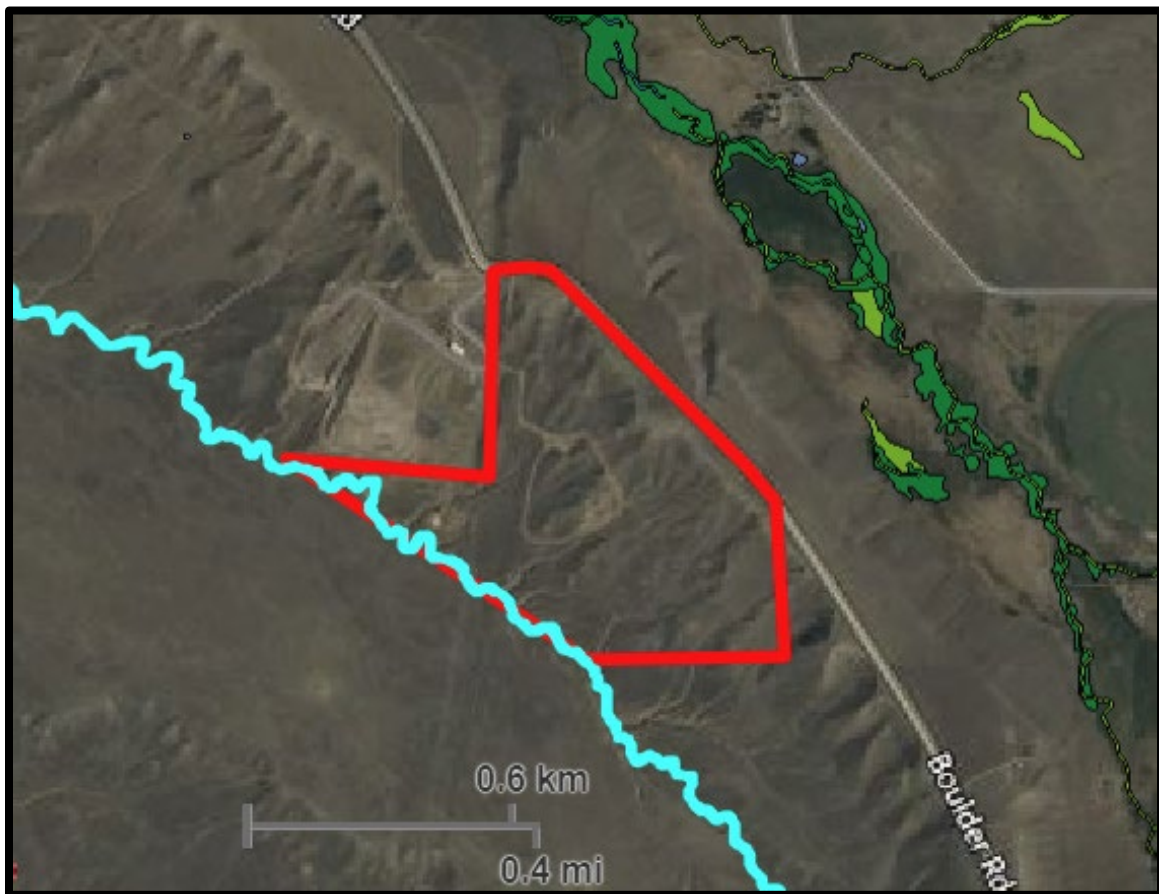
Four of these identified species, the grizzly bear, bull trout, westslope cutthroat trout, and Lewis's woodpecker, rank as an S2 species of concern meaning they are at risk because of a very limited and/or potentially declining population, range, and/or habitat, making them vulnerable to global extinction or extirpation in the state. The Site consists of predominantly undeveloped grasslands which are not suitable habitat for any of these S2 species of concern. It is not anticipated that waste management activities at the Site would negatively impact these species of concern.

In addition to the identified species of concern, MTNHP also lists the area as an important animal habitat for non-cave bat roosts. This is determined by the documented presence of adults and/or juveniles of any bat species at non-cave roost sites such as rock outcrops, trees, mines, bridges, and buildings. Since the Site is predominantly undeveloped grasslands, it does not provide optimal habitat for bat roosts. No further mitigation is needed to protect this important animal habitat from activities associated with the Proposed Action.

Transient wildlife populations, including whitetail deer, mule deer, many bird species, and more occupy the habitat within and surrounding the Site boundary. Transient, by definition, means "lasting only for a short time", or "impermanent". Such species exhibit transient behavior, relocating regularly and rarely remaining in one area for long periods of time. The development of the Site may require relocation of local and transient animals, but much of the surrounding areas offer similar habitats, which may result in short term and minor impacts to such transient wildlife. Additionally, none of the species of concern listed in the area have been found in this habitat upon previous inspection of the Site. If such animals are found, the proper state agencies should be contacted immediately.

Under the No Action alternative, the Site would not be licensed as a Class II Solid Waste Facility, and there would be no impacts to terrestrial and aquatic life and habitats.

Under the Proposed Action alternative, some minor direct impacts to terrestrial habitats are anticipated. There would not be any impact to aquatic life habitat since there are not any designated wetlands on the Site, and the nearby temporal riverine does not support aquatic life because for most of the year, it is dry.

Figure 4: Wetlands Map*(Site boundary in red)**(Source: <https://nepassisttool.epa.gov/nepassist/nepamap.aspx>)****Not to Scale***

3.4 Water Quality, Quantity, and Distribution

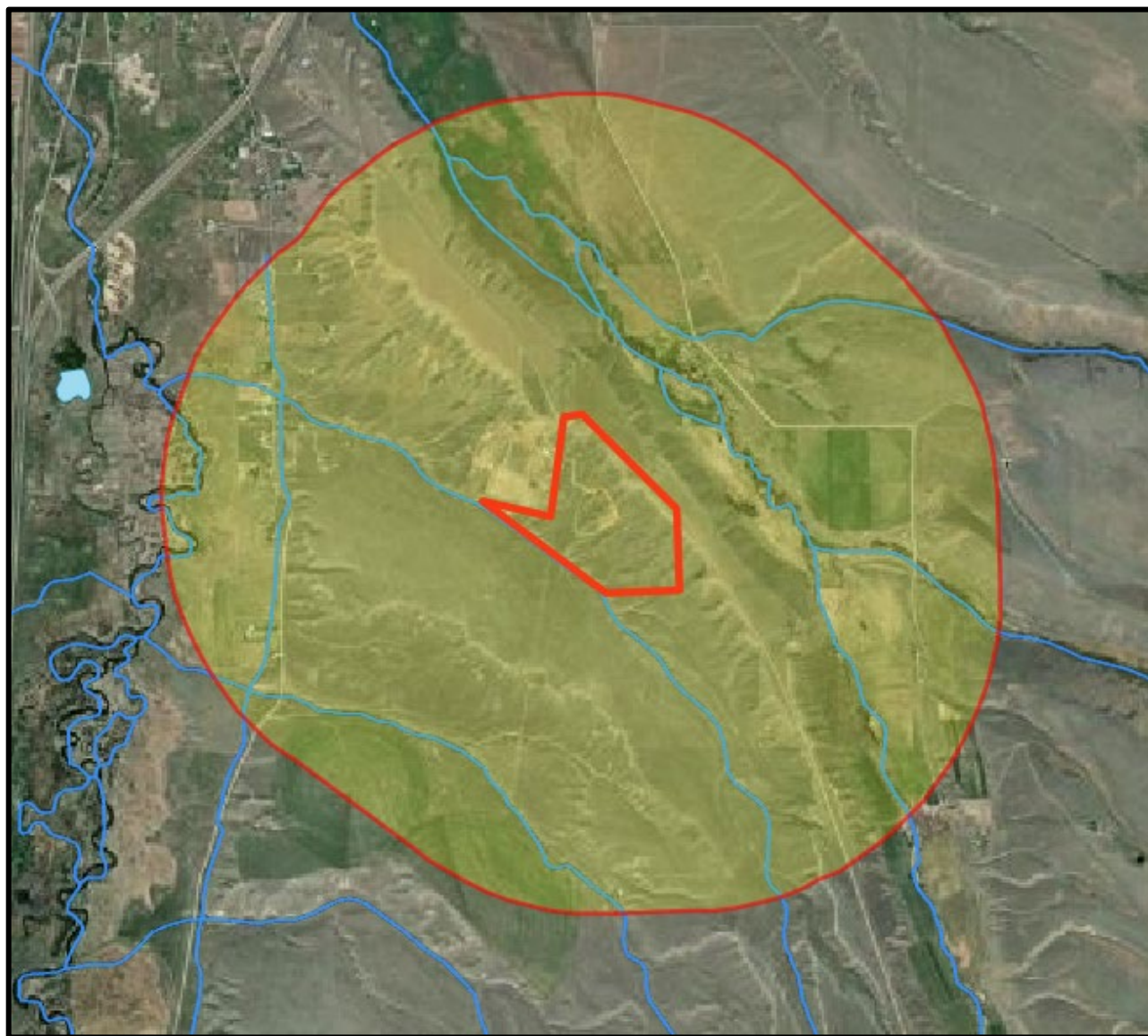
The affected environment and study area include all lands and resources located within the 110-acre Site footprint and all adjacent lands within one mile in each direction.

3.4.1 Surface Water

The study area lies within the boundaries of the Upper Clark Fork Watershed (HUC 17010201). This watershed is centered around the Upper Clark Fork and spans portions of Powell, Granite, Missoula, Deer Lodge, and Silver Bow Counties. It drains an area of approximately 2,320 square miles in western Montana.

Figure 5 shows all primary surface water and wetland features within a one-mile radius of the property boundary. The stream flowing southeast to northwest across the Site is an intermittent riverine with a typical streambed that may flood temporally.

The Clark Fork River, located approximately one mile west of the Site, is the closest perennial waterbody to the Site. This waterbody generally flows to the north/northwest in this region and is classified as a lower perennial river with an unconsolidated bottom that is permanently flooded. The Clark Fork River is considered critical habitat for bull trout.

Figure 5: Surface Water Map

(Source: <https://nepassisttool.epa.gov/nepassist/nepamap.aspx>)

Not to Scale

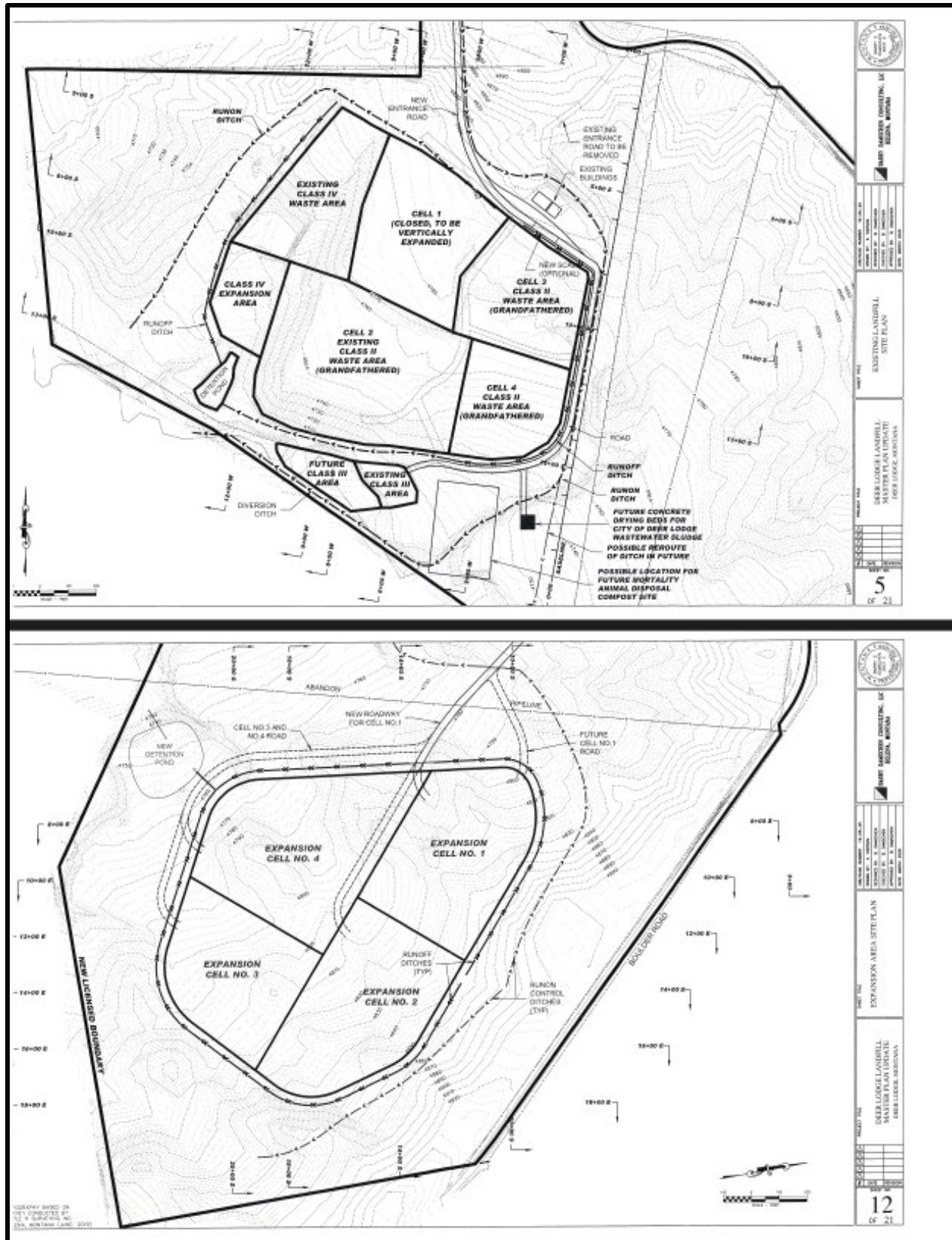
The Site is not in an area mapped by the Federal Emergency Management Agency (FEMA) National Flood Insurance Program; however, given the nearest perennial waterbody is the Clark Fork River, over one mile west of the Site, there is likely minimal to no flood potential hazard for the Site. However, should a concern of flooding arise, on-site drainage and stormwater controls would be used to mitigate any potential water quality pollution from the landfill to this waterbody.

Stormwater is water that originates during precipitation events and snow or ice melt. Stormwater can soak into the ground, be held on the surface to evaporate, or run off towards downstream surface water bodies. Surface water flow may occur at the Site when water generated by rain, snowfall, or melting of accumulated snow, flows freely over the land surface into nearby drainages. Surface water flow may occur when the soil is saturated and its holding capacity is exceeded, when precipitation falls more quickly than the soil can absorb it, or more typically, when a combination of these conditions exists.

To manage on-site water, the Site would incorporate perimeter ditches and berms to divert any run-on from entering waste areas. These perimeter ditches would provide effective run-on and run-off control for the active area. All run-off collected from the landfill area would be directed to stormwater detention ponds. The detention ponds detain greater than the total volume of water from the 25-year, 24-hour storm event and have a spillway and drain line with a valve. The location of the detention ponds and run-on and run-off ditches are shown in **Figure 6**.

Landfill staff would be responsible for monitoring liquid levels in the detention ponds as well as for the regular maintenance of all on-site drainage structures and ditches. Monitoring is to occur quarterly and after big precipitation events (greater than 0.5 inches). All run-on and run-off ditches are also checked monthly or after heavy runoff events and repaired as quickly as possible if damage occurs. Temporary best management practices, including silt fences, straw wattles, and/or hay bales may be used as necessary to control erosion and silt laden run-off from occurring. Regular maintenance includes erosion control measures for the ditches, as necessary. The landfill would operate and maintain the detention ponds and ditches in accordance with the Surface Water Pollution Prevention Plan (SWPPP) and General Industrial Discharge Permit, which must be obtained prior to beginning operations.

Figure 6: Drainage Map



(Source: from Appendix A of the Deer Lodge Landfill Lateral Expansion and Operation and Maintenance Plan Update, 2021)

Not to Scale

3.4.2 Ground Water

According to the District's Application, monitoring well data from the existing landfill suggests groundwater is approximately 50 to 100 feet below ground surface (bgs). It is expected that groundwater beneath the expansion area would be slightly deeper given it is located up-gradient from the existing landfill. As part of the expansion licensing application process, a hydrogeologic report was prepared by Hydrometrics to characterize stratigraphic sequences at the Site as well as underlying groundwater.

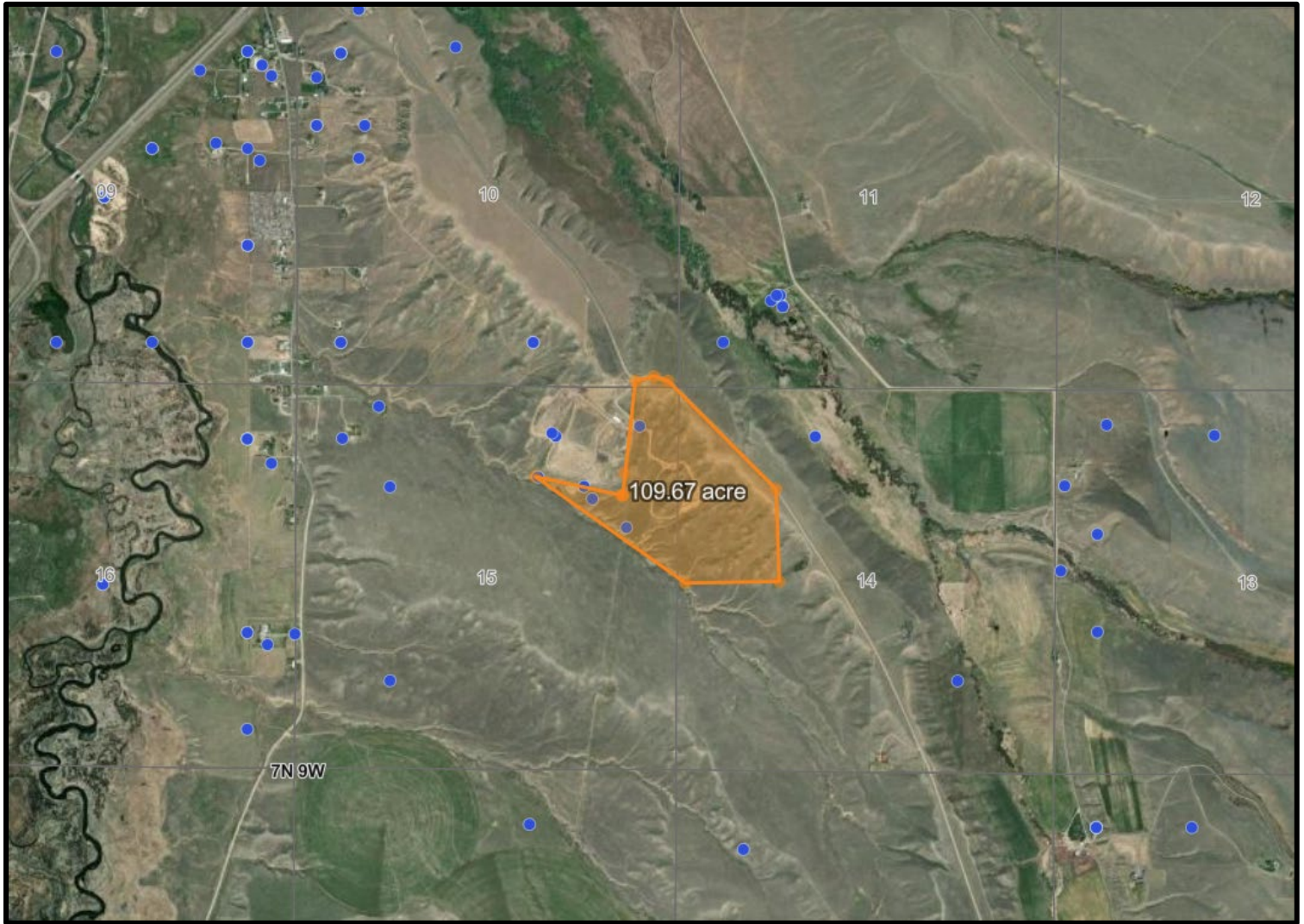
Of the 110 acres at the Site, up to 25.6 acres (combined area for Expansion Cells 1, 2, 3, and 4; **Figure 6**) are currently designed via preliminary engineering design for use as waste disposal cells. These cells would include a double liner system of geosynthetic clay membrane (GCL) overlain with a 60-mil High-Density Polyethylene (HDPE) as well as a leachate collection system to best protect groundwater beneath the Site.

Leachate is any water that runs through garbage. This would be managed in accordance with the landfill's Maintenance and Operation Plan. Over top liners would be a geonet drainage fabric that would transport any leachate along a cell's bottom to a system of 6-inch piping and manholes. The base of each lined cell would be designated with a minimum slope of 2% to allow drainage to occur. Each manhole would have a minimum of 2 feet of storage and would be monitored regularly. Should leachate volumes become too much for the manhole system to store, leachate would have to be tested, pumped, and transported to the nearby Deer Lodge Wastewater Treatment Facility for disposal or recirculated over the existing cell using a pumping system. There would not be a lined leachate pond associated with the landfill expansion.

A search of the Montana Groundwater Information Center (GWIC) database for Township 07N, Range 09W, Section 15 found 11 wells with data. As shown in Table 5, total well averages in this section show an average well depth of 108 feet, an average static water level (SWL) of 65 feet bgs, and an average yield of 27 gallons per minute. If only monitoring wells are considered, the average well depth is 105 feet and the average SWL is 80 feet bgs. There are several monitoring wells associated with the existing landfill on or near the Site. **Figure 7** shows the locations of both public and private water supply wells as well as monitoring wells within approximately one mile of the Site.

Table 3: GWIC Well Data

GWIC ID	Site Name	Type	Total Depth	Static Water Level	Yield	Date	Use
254234	DEER LODGE LANDFILL * DLLF-4	WELL	82	68.5	--	10/26/1993	MONITORING
254231	DEER LODGE LANDFILL * DLLF-2	WELL	130	97.3	--	10/20/1993	MONITORING
254274	DEER LODGE LANDFILL * DLLF-1	WELL	160	--	--	4/29/1993	MONITORING
254233	DEER LODGE LANDFILL * DLFF-3	WELL	96	82.03	--	10/20/1993	MONITORING
254236	DEER LODGE LANDFILL * DLFF-6	WELL	89	71	--	10/3/1995	MONITORING
310175	DEER LODGE LANDFILL C/O POWELL COUNTY	WELL	100	--	--	10/13/2020	MONITORING
254235	DEER LODGE LANDFILL * DLFF-5	WELL	80	--	--	4/28/1994	MONITORING
55896	BENSON, CLIFF	WELL	106	50	20	7/23/1974	DOMESTIC
179050	BECK KEN JR.	WELL	130	54	54	7/10/1999	DOMESTIC
183531	BECK WALLACE A.	WELL	170	74	15	6/20/2000	DOMESTIC
55897	YOUNG M DUANE AND NANCY L.	WELL	40	26	20	9/24/1961	DOMESTIC
Averages			108	65	27		
Depth in feet, Static Water Level in feet below ground surface, Yield in gallons per minute							

Figure 7: Groundwater Well Map

(Source: Montana Bureau of Mines and Geology, 2024)

Not to Scale

Under the No Action alternative, there would be no additional impacts to surface water or groundwater beyond current activities on the Site.

The Proposed Action would involve earthwork disturbances and landfilling activities which have a minor potential to impact surface water and/or the uppermost groundwater at the Site. The District's landfill design plans include run-on and run-off ditches that would route on-site water to detention ponds, as necessary. Water levels in the ponds and ditches would be routinely monitored by landfill staff, and measurements would be recorded monthly as well as after a big precipitation event. A SWPPP and Stormwater Discharge Permit would be required after the expansion is licensed.

Additionally, the proposed liner system for the expanded landfill operation would be designed and installed to protect groundwater to the maximum extent required by state and federal regulations. The cells in the proposed area would be constructed with a double liner system consisting of a GCL layer and an HDPE layer.

A leachate collection system would be integrated at the Site to effectively manage stormwater that may interact with the waste materials. This system would consist of a geonet drainage overlain the top of the liner system to transport any leachate along a cell's bottom to a system of perforated 6-in piping and

manholes. The base of each lined cell is designed with a minimum slope of 2% to allow drainage to occur. Each manhole would have 2 feet of storage between the incoming lines and the bottom of the manhole. Landfill staff would monitor the liquid levels in each manhole after a big precipitation event. Should the level rise 1 foot above the incoming lines, the liquid would be tested and then (if acceptable) pumped out and transported to the Deer Lodge wastewater treatment facility for disposal. The Site would not include a lined leachate pond.

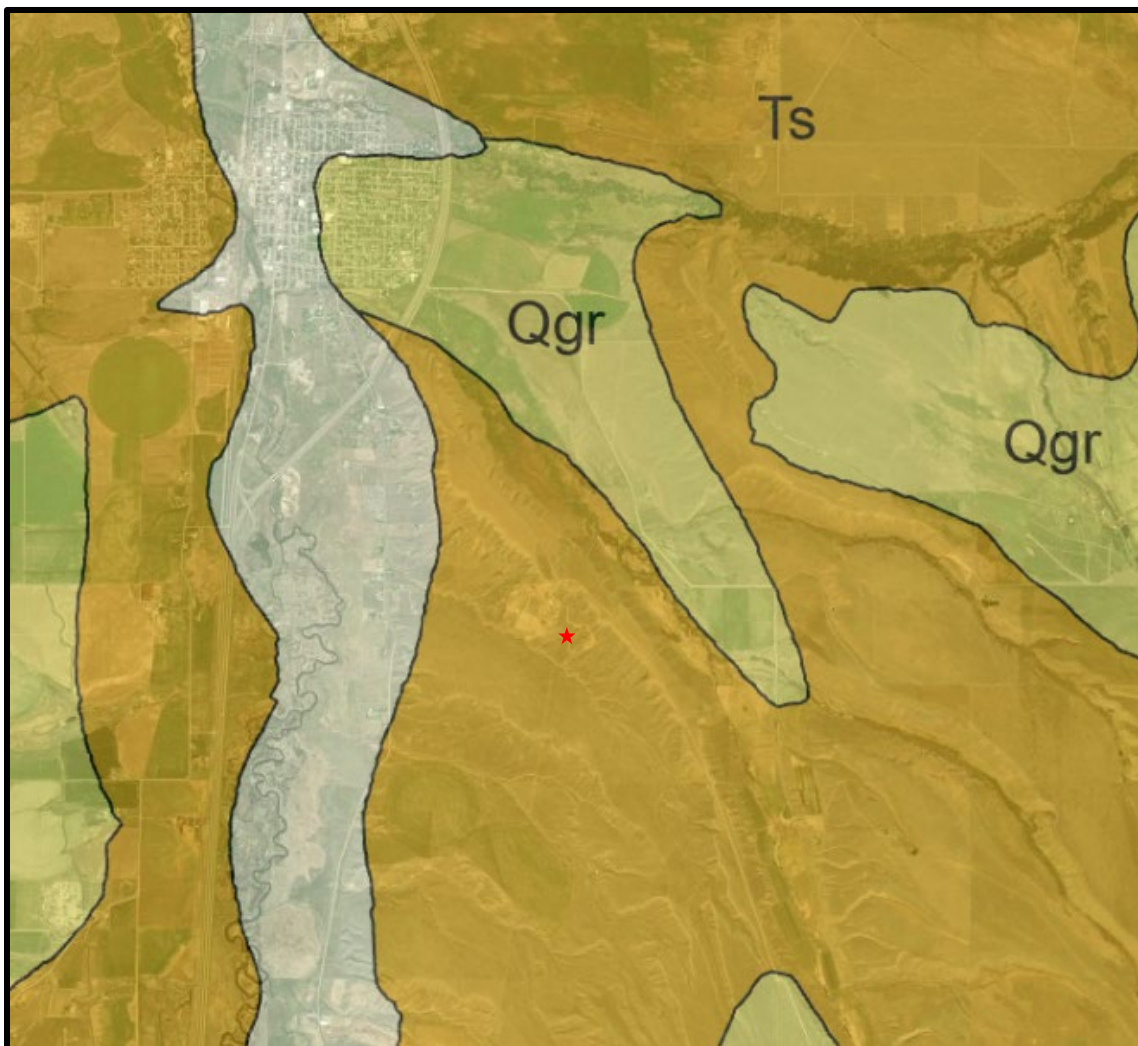
Details of the liner and leachate collection systems are depicted in the Deer Lodge Landfill's Maintenance and Operation Plan, which is attached to the SWMS application.

While the appropriate measures are proposed to take place, no impacts to the current surface water and groundwater system are anticipated due to development of the proposed facility.

3.5 Geology and Soil Quality, Stability, and Moisture

The affected environment and study area include all lands and resources located within one mile of the Site. As shown in **Figure 8** (below), The Montana Bureau of Mines and Geology (MBMG) virtual Montana Geologic Maps viewer shows the Site and surrounding region as a large area of sediment or sedimentary rock (Ts). This tertiary geologic unit can consist of sandstones and conglomerates, claystones, coalbeds, and/or shales and accounts for much of the fill throughout the Deer Lodge valley.

Figure 8: Geology Map



(Site in **red**, Source: Montana Bureau of Mines and Geology, 2024)

The Deer Lodge Valley is a complex, terraced region drained in a northerly direction by the Clark Fork River. Prominent mountain ranges bounding either side of the valley include the Anaconda and Flint Creek Ranges to the west and the Continental Divide to the east. The broad, low base of the valley around the Clark Fork gradually gives way to low and eventually high terraces towards the surrounding mountain ranges.

The highlands in the valley vary greatly with ages spanning from Precambrian to early/middle Tertiary. Lower to middle cretaceous sedimentary and volcanic rocks are typical along the eastern and southern regions of the valley with intrusions of granite. The valley is primarily filled with unconsolidated to semi-consolidated Tertiary sedimentary deposits from the surrounding mountains volcanic ejecta. The aquifer beneath the valley has an irregular water table that is highly varied depending on local topography. The aquifer is subjective to water moving through the upper Tertiary layer and displays differences depending on local permeability and seasonal stressors (Konizeski et al., 1968).

The expansion application notes that only the southern $\frac{2}{3}$ of the Site would be used for waste cells as the northern $\frac{1}{3}$ has steep slopes with more rocky soils. Landfilling in this portion of the Site would not be efficient or cost-effective. The southern portion is much flatter with slopes of only 6%-9%. The application explains there are no expansive soils or limestone or karst features at the Site, nor are there any underground mines or areas of extensive oil, gas, or water withdrawals. The application further states there is no evidence of landslides or mass movement in or near the Site and that foundation soils are sufficiently strong to support the base of the proposed landfill units.

Additionally, it should be noted that there must be a 500-foot-wide, waste-free corridor located between the existing landfill waste cells and the expansion waste cells. Currently, there is a 16-inch diameter, high-pressure, natural gas pipeline that runs underground just east of the existing facility. No waste management activities or activities that would impact soils, such as excavation, would occur in the corridor above the pipeline.

As noted within the District's Expansion application, extensive field investigations in the area near the existing landfill and the proposed expansion area have been completed and summarized in a hydrogeologic report by Hydrometrics to characterize stratigraphic sequences at the Site, determine the stability and permeability of on-site soils, and describe underlying groundwater.

3.5.1 Geology

The analysis methods for geology included review of geologic history of the Upper Clark Fork watershed, map information from publications of the Montana Bureau of Mines and Geology and the U.S. Geological Survey, and review of online soil maps and reports from the U.S. Department of Agriculture's Natural Resource Conservation Service.

Under the No Action alternative, there would be no additional impacts to the site geology beyond current activities on the property. No impacts to geology are anticipated because of the Proposed Action.

3.5.2 Soils

Figure 9 (below) shows a soils map of the Site and approximate study area obtained from the United States Department of Agriculture (USDA) National Resources Conservation Service (NRCS) web soil survey.

As shown in **Figure 9** and described within **Table 6**, much of the Site, including the 25.6-acre waste management area, consists of Roy-Shawmut-Danvers complex and Varney clay loams. Both soils are well-drained soils that are not frequent to flooding or ponding. Roy-Shawmut-Danvers complex has a primarily low available water supply while Varney clay loams have a moderate water supply. The Roy-Shawmut-Danvers complex is not considered prime farmland, but Varney clay loams are considered farmland of local and/or statewide importance.

According to the District's Application, the on-site Varney clay loams are exceptionally well-suited for landfilling due to the ease of excavation and their capacity for providing cover over waste both during the facility's active life as well as during capping for facility closure. The Roy-Shawmut-Danvers complex is similar, but it may contain larger cobbles that would need to be separated out as they are less suitable for daily soil cover over the waste.

Under the No Action alternative, there would be no additional impacts to the existing soils on the property. The Site would continue to be vacant grassland and no disturbance would occur.

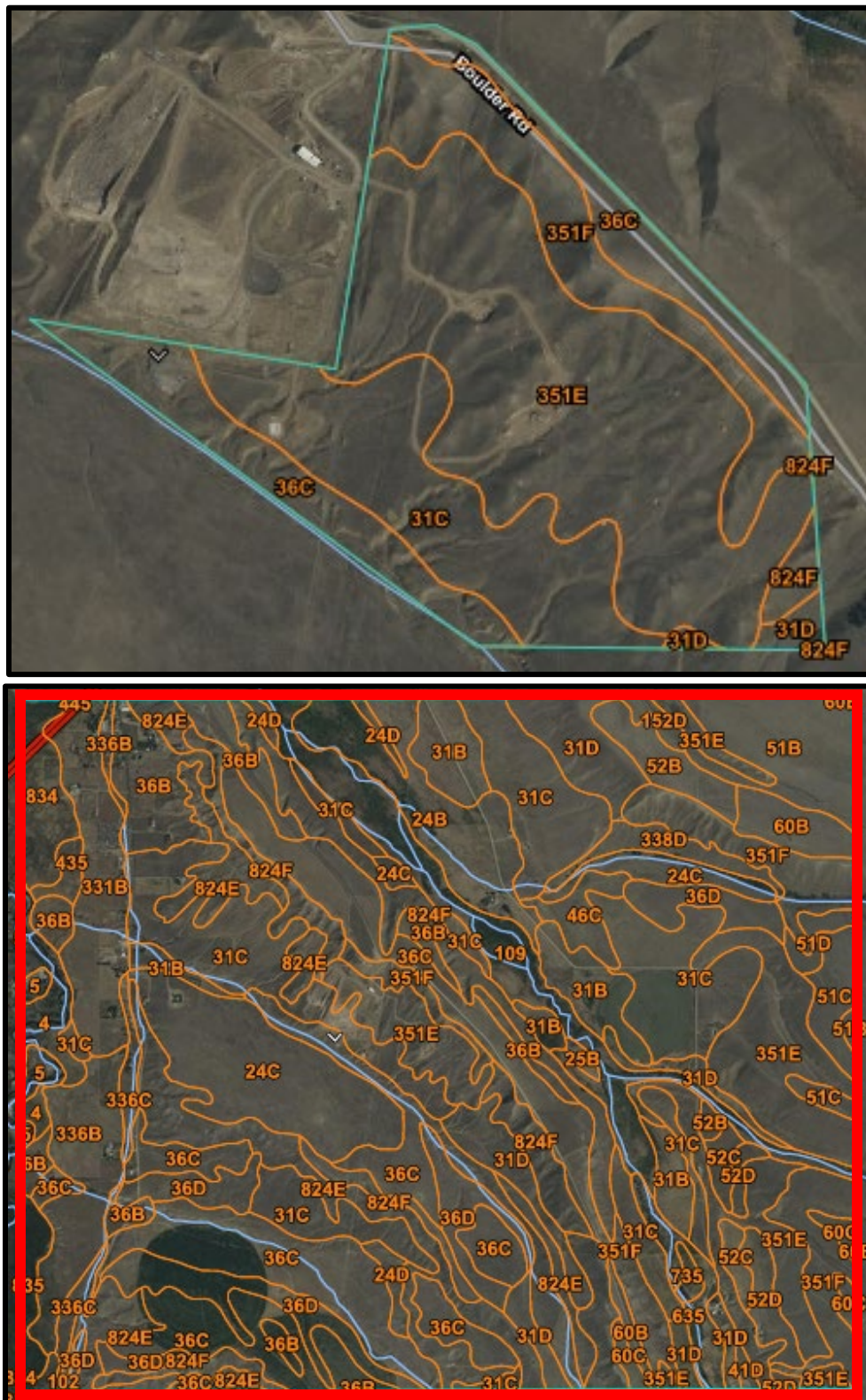
Under the Proposed Action, soil would be disturbed during construction and disposal activities. The current land use would change from generally unused grassland to a construction/landfill site. Although the Site could be used for grazing again after closure, it is unlikely this Site would ever be used as farmland given the capped waste that would remain on-site indefinitely. This change in use would result in a minor impact to surface and subsurface soils during the life of the Class II Solid Waste Facility.

Table 4: On-Site Soils Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
31C	Varney clay loam, 4 to 8 percent slopes	23.1	20.5%
31D	Varney clay loam, 8 to 15 percent slopes	1.6	1.4%
36C	Varney-Conn loams, 4 to 8 percent slopes	18.9	16.8%
351E	Roy-Shawmut-Danvers complex, 15 to 35 percent slopes	52.0	46.1%
351F	Roy-Shawmut-Danvers complex, 35 to 60 percent slopes	15.6	13.8%
824F	Conn-Sixbeacon cobbly loams, 35 to 60 percent slopes	1.6	1.4%
Totals for Area of Interest		112.9	100.0%

(Source: U.S. Department of Agriculture, Natural Resource Conservation Service)

Top: Site (**green**), Bottom: Approximate Study Area (**red**)



Not to Scale

3.6 Vegetation Cover, Quantity, and Quality

The affected environment and study area include all lands and resources located within one mile of the project Site. The site and study are shown in **Figure 10** below.

Land cover in the study area is described by the following types and quantities:

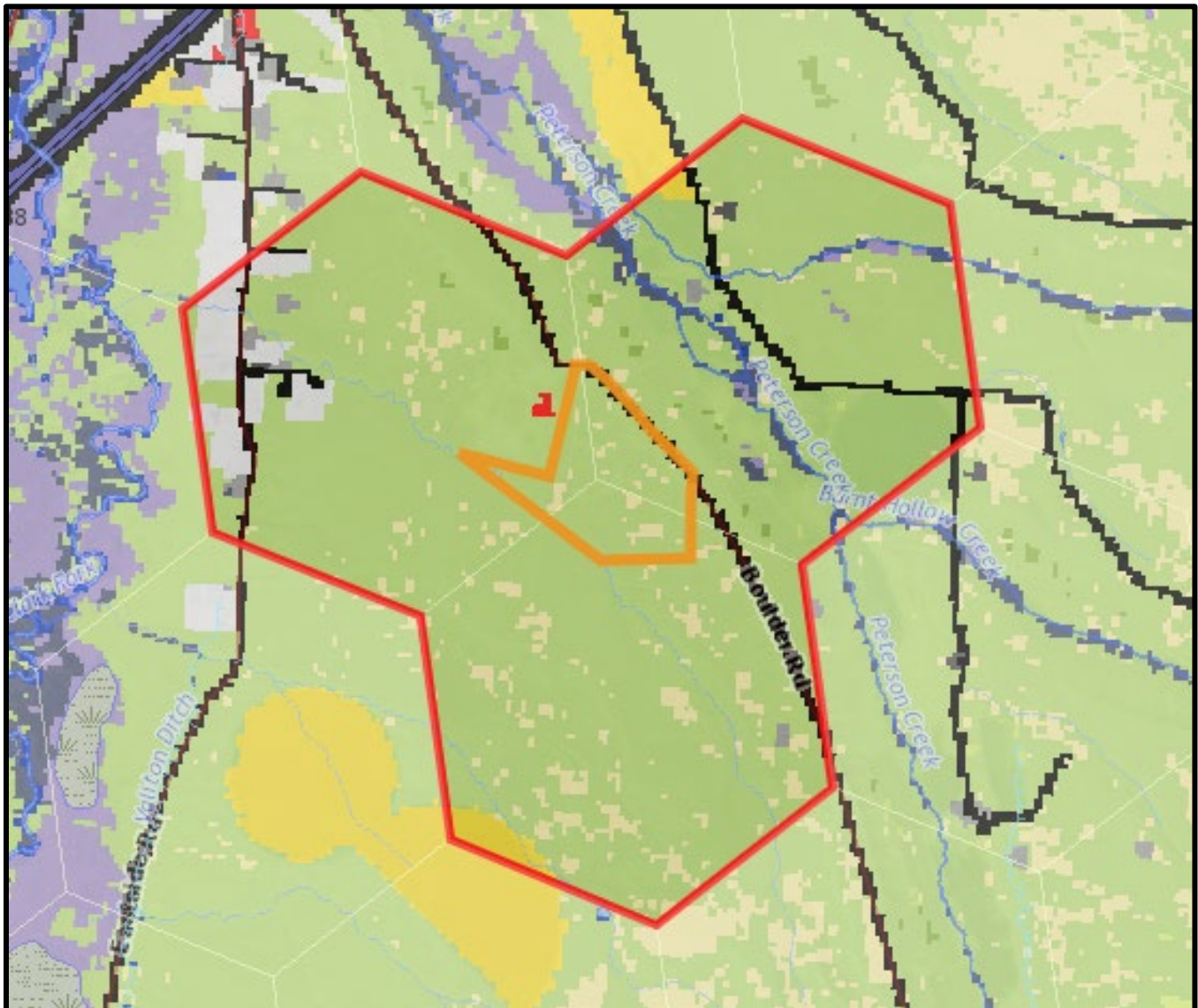
84% Grassland Systems
84% Montane Grassland
84% (1,611 Acres) Rocky Mountain Lower Montane, Foothill, and Valley Grassland
<1% (1 Acres) Rocky Mountain Subalpine-Montane Mesic Meadow
8% Human Land Use
7% Developed
3% (65 Acres) Other Roads
3% (56 Acres) Developed, Open Space
<1% (9 Acres) Low Intensity Residential
<1% (2 Acres) High Intensity Residential
<1% (2 Acres) Commercial / Industrial
1% Agriculture
1% (22 Acres) Cultivated Crops
6% Shrubland, Steppe and Savanna Systems
6% Sagebrush Steppe
6% (110 Acres) Montane Sagebrush Steppe
<1% Deciduous Shrubland
<1% (6 Acres) Rocky Mountain Montane-Foothill Deciduous Shrubland
2% Wetland and Riparian Systems
1% Floodplain and Riparian
1% (28 Acres) Northern Rocky Mountain Lower Montane Riparian Woodland and Shrubland
<1% Wet meadow
<1% (6 Acres) Alpine-Montane Wet Meadow
<1% Open Water
<1% (0 Acres) Open Water

Most of the study area is primarily grassland systems. Other land cover and uses include shrubland, steppe, and savanna systems as well as lands used by humans for roads, developed open space, commercial/industrial facilities, or residences. The MTNHP describes this as grassland with short summers and cold winters. This would include small meadows to open parks surrounded by conifer trees. Soils are deep and fine with coarse fragments.

Under the No Action alternative, the Site would not be approved by DEQ. There would be no additional impacts to the vegetation on the property, and the Site would continue to be vacant grassland with no disturbance.

Under the Proposed Action, vegetation would be moderately impacted during construction and operation of the landfill facility. The District must adhere to the landfill's DEQ-approved Closure/Post-Closure Plan which should include re-establishing native grasses and vegetation to match existing conditions per Montana state law. This closure process would result in a minor long-term impact.

Figure 10: Vegetative Cover Map
Project Site (orange)



(Source: Montana National Heritage Program, Land Cover Map Viewer)

3.7 Aesthetics

Under the No Action alternative, there would be no additional impacts to the existing aesthetics of the property. The Site would continue to be vacant grassland with no visual or olfactory changes. The following aesthetic categories are discussed below in accordance with their impact due to the Proposed Action.

3.7.1 Odors

Class II solid wastes produce gases, primarily hydrogen sulfide and ammonia, from the bacterial breakdown of waste material, resulting in odors. The amount of gas produced depends on the type of waste present, the age of the waste, oxygen content, the amount of moisture, and temperature, and the amount of time and conditions under which the waste stockpiled or disposed. Gas formation increases as the temperature and moisture content increase.

Furthermore, landfill odors occur from various stages of decomposition of refuse. This may start prior to the delivery of the waste and continue for some time after placement. Delivered wastes, particularly in hot

weather, often would have objectionable odors. The daily, intermediate, and final covers would provide the most effective odor control.

Additional odors could occur from the industrial activity on the site such as construction contractors, machinery, and associated equipment and materials. Heavy equipment would be necessary to run the facility and would likely produce small amounts of exhaust odor.

Since the existing landfill is already operating as a Class II facility, it is reasonable to expect that community members are already familiar with odors being emitted from the landfill to the surrounding area. However, the landfill expansion is anticipated to accept a higher waste volume per year (7,000 tons/year vs. 5,000 tons/year). Therefore, implementation of the Proposed Action would have a minor impact on the environment by potentially emitting a more concentrated odor.

3.7.2 Vectors

A vector is any insect or other arthropod, rodent, or other animal of public health significance capable of harboring or transmitting the causative agents of human disease, or capable of causing human discomfort and injury. Vectors that might be attracted to a landfill operation include flies, mosquitoes, rodents, and birds. Vectors are best controlled by proper spreading, compaction, and covering of incoming wastes.

Since the existing landfill is already operating as a Class II facility, implementation of the Proposed Action is expected to have minor impacts to the environment. Vectors likely already exist at the present-day landfill; however, the landfill expansion is anticipated to accept a higher waste volume per year (7,000 tons/year vs. 5,000 tons/year). Therefore, the numbers of vectors at the Site could increase alongside the increased waste volume. Facility staff would need to continue to mitigate vectors regularly by implementing best management practices throughout the facility.

3.7.3 Traffic

According to the District's Landfill Application, a new access road would be created off Boulder Road, just north of the current landfill entrance, to allow access to the existing landfill as well as the expansion. Given the new entrance would be close and similar to the existing entrance, it is not anticipated that public traffic patterns, bridges, and/or culverts would be impacted. However, there may be temporary, minor impacts to traffic from the Proposed Action due to an increase of heavy machinery coming to/from the Site during construction phases. The effects of temporary increases on traffic are expected to be negligible.

3.7.4 Noise

Noise impacts must be considered at the Site for the comfort and safety of on-site personnel and to avoid nuisance to the surrounding community. The Site is in a rural area of Deer Lodge with no adjacent residences or businesses. Additionally, the existing landfill operates adjacent to the proposed expansion site and already generates daily noise associated with landfill operation. It is reasonable to expect that the noise impacts from the proposed expansion, once construction is completed, would be similar to the current noise levels from the existing landfill. Increased noise may be noticed by passersby while driving on Boulder Road during the construction phase of the Site, but this impact is expected to be minor and temporary.

Noise limitations imposed by the Department of Labor and Industries must be observed to protect employees from hearing damage. The District's Operation and Maintenance Plan includes a safety section which states workers must utilize proper personal protection equipment, including noise protection, at all times.

3.8 Air Quality

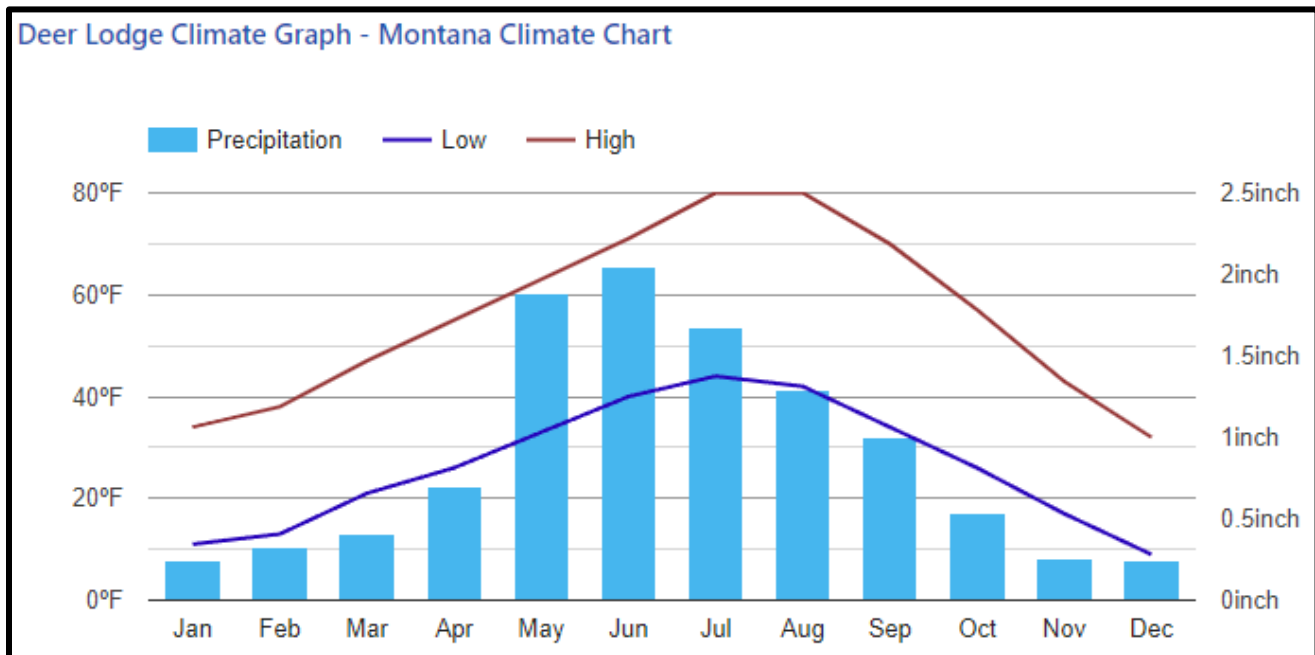
Air quality may be impacted due to the following types of activities and/or sources: (1) increased levels of airborne dust particulates potentially generated from landfill construction, earthwork, maintenance, and traffic to/from the landfill during ongoing waste disposal activities; (2) landfill gas emissions. Air quality impacts and mitigation related to these activities and/or sources are described below.

z Dust:

Air quality direct impacts due to airborne dust and particulate matter may occur as related to earthwork/moving activities during landfill construction/excavation and related traffic to/from the landfill via increased traffic related to construction activities. Construction activities would occur for approximately four to six months. Air quality impacts due to general operations are expected to be minor and would last for approximately 140 years. During construction activities and periods of dry conditions, industry-established best management practices such as dust suppression (i.e., watering the haul roads) would effectively reduce air quality impacts related to construction and routine waste hauling. Considering the construction of the proposed landfill would be temporary and short-term, the overall effects to air quality are anticipated to be minor.

According to U.S. Climate Data, Deer Lodge, Montana averages 10.62 inches of precipitation a year, under the United States average of 38.1 inches. **Figure 11** (below) shows the average rainfall and high/low temperatures per month for Deer Lodge, Montana. Typical seasons show a rainy late spring with June having on average, 2.05 cumulative inches of precipitation. The warmest months of the year are July and August which both experience an average of 84-degree Fahrenheit highs with 1.67 and 1.29 inches of precipitation, respectively. December and January are typically the coldest, driest months in Deer Lodge with average temperatures of 34- and 32-degrees Fahrenheit, respectively, and only 0.25 inches of precipitation.

Figure 11: Climate Graph



(Source: <https://www.usclimatedata.com/climate/deer-lodge/montana/united-states/usmt0089>)

The warm dry summers are likely to be the time when fugitive dust is highest. Windy conditions during dry periods can generate the most fugitive dust if dust suppression methods are not applied. Water or chemical dust suppressants can be used to control fugitive road dust if necessary. Water or a chemical dust suppressant should be applied at a rate that would not cause runoff or erosion. Applications of water and chemical dust suppressants could reduce fugitive dust emissions by up to 50 to 80 percent if correctly applied.

DEQ administrative rules require all facilities to comply with applicable air quality requirements. These include restrictions on particulate matter emissions to not exceed an opacity of 20 percent or more averaged over 6 consecutive minutes, whether from fugitive dust sources or from combustion sources, per ARM 17.8.304 and ARM 17.8.308. In addition, ARM 17.8.308 also requires that facilities take reasonable precautions to control emissions of airborne particulate matter from the production, handling, and storage of any material and to apply reasonable precautions to any street, road, or parking lot. As described above, the District can control fugitive dust at the facility by watering roads as an effective method for reducing fugitive dust emissions.

Landfill Gas Emissions:

Landfill gas is generally an equal mixture of methane and carbon dioxide by volume with trace amounts of many other compounds. It is created through the microbial decomposition of degradable carbon compounds (such as municipal solid waste) under anaerobic conditions and has the potential to cause or contribute to several health, environmental, and aesthetic problems if not captured and treated before escaping the atmosphere. These include odors, potential explosion hazards, ground-level ozone formation, and global warming. Landfill gas generation at municipal solid waste facilities is a well-documented phenomenon. As such, there are design considerations and federal and state regulatory requirements to mitigate potential health-based impacts from landfill gases. The best available control technology for handling landfill gas is to install a landfill gas collection system and route the landfill gases to a centralized flare for thermal destruction with 98 percent (or better) destruction efficiency. The design, handling, and mitigation of landfill gases at the Site must comply with ARM 17.50.1106.

Under the No Action alternative, there would be no additional impacts to the existing air quality beyond current activities on the Site.

Minor impacts to air quality are anticipated because of the Proposed Action.

3.9 Greenhouse Gas Assessment

Issuance of this permit would authorize use of various equipment and vehicles to assist in proper disposal of approximately 6,600 tons of municipal solid waste per year. This would require the use of multiple pickup trucks, dump trucks, bobcats, front end loaders, compactors, bulldozers, and excavators. Annually, the estimated fuel consumption between gasoline and diesel fuel is 8,312 gallons.

The assessment area for this resource is limited to the activities regulated by the issuance of the Class II Solid Waste Management License which is construction and operation of a Class II Solid Waste Management System, or the Proposed Action. The amount of diesel fuel utilized at this site may be impacted by a number of factors including seasonal weather impediments and equipment malfunctions. To account for these factors, DEQ has calculated the range of emissions using a factor of +/- 10% of the applicant's estimate.

For the purpose of this assessment, DEQ has defined greenhouse gas emissions as the following gas species: carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), and many species of fluorinated compounds. The range of fluorinated compounds includes numerous chemicals which are used in many household and industrial products. Other pollutants can have some properties that also are similar to those mentioned above, but the EPA has clearly identified the species above as the primary GHGs. Water vapor is also technically a greenhouse gas, but its properties are controlled by the temperature and pressure within the atmosphere, and it is not considered an anthropogenic species.

The combustion of diesel fuel at the site would release GHGs primarily being carbon dioxide (CO₂), nitrous oxide (N₂O) and much smaller concentrations of uncombusted fuel components including methane (CH₄) and other volatile organic compounds (VOCs).

DEQ has calculated GHG emissions using the EPA Simplified GHG Calculator version September 2024, for the purpose of totaling GHG emissions. This tool totals carbon dioxide (CO₂), nitrous oxide (N₂O), and methane (CH₄) and reports the total as CO₂ equivalent (CO₂e) in metric tons CO₂e. The calculations in this tool are widely accepted to represent reliable calculation approaches for developing a GHG inventory.

The direct impact of operation of diesel/gasoline-fueled vehicles throughout the life of the proposed project would produce exhaust fumes containing GHGs.

As noted above, the applicant and DEQ estimates that approximately 8,312 gallons of fuel would be utilized annually. To account for variability due to the factors described above, DEQ has calculated the range of emissions using a factor of +/- 10% of the applicant's estimate. Using the EPA's simplified GHG Emissions Calculator for mobile sources, 87 kilograms of CO₂e would be produced annually.

Secondary impacts of GHG emissions would be the contribution to changes in atmospheric radiative forcing, resulting in climate change impacts. GHGs act to contain solar energy loss by trapping longer wave radiation emitted from the Earth's surface and act as a positive radiative forcing component (BLM 2021). The impacts of climate change throughout Deer Lodge may include increased temperatures by five to ten degrees Fahrenheit by 2100, drier summers, reduced soil moisture, and increased chance of wildfires (USGS 2021).

Montana recently used the EPA State Inventory Tool (SIT) to develop a greenhouse gas inventory in conjunction with preparation of a possible grant application for the Climate Pollution Reduction Grant (CPRG) program. This tool was developed by EPA to help states develop their own greenhouse gas inventories, and this relies upon data already collected by the federal government through various agencies. The inventory specifically deals with carbon dioxide, methane, and nitrous oxide and reports the total as

CO₂e. The SIT consists of eleven Excel based modules with pre-populated data that can be used as default settings or in some cases, allows states to input their own data when the state believes their own data provides a higher level of quality and accuracy. Once each of the eleven modules is filled out, the data from each module is exported into a final “synthesis” module which summarizes all of the data into a single file. Within the synthesis file, several worksheets display the output data in a number of formats such as emissions by sector and emissions by type of greenhouse gas.

DEQ has determined the use of the default data provides a reasonable representation of the greenhouse gas inventory for the various sectors of the state, and an estimated annual greenhouse gas inventory by year. The SIT data is currently only updated through the year 2021, as it takes several years to validate and make new data available within revised modules.

Future GHG emissions from operations such as this Site would be represented within the module Carbon Dioxide Emissions from Fossil Fuel Combustion, and emissions from the Transportation Sector within the Commercial and Industrial sectors. At present, the Municipal Solid Waste Sector accounts for 0.58 MMTCO₂e annually. The Proposed Action is estimated to produce 0.0027 MMTCO₂e over the life of the landfill. On an annual basis, this would account for 0.4% of emissions in the Municipal Solid Waste Sector and would account for .00006% of Montana’s total emissions.

The adjacent area to the proposed project is an existing landfill. Land outside of that is primarily used for agriculture, grazing and open pasture. Due to the Site’s maximum active footprint of 25.6 acres, limited emissions from the Site, and type of vegetation in the area, DEQ does not expect the loss of vegetation to impact GHG emissions.

GHG emissions that would be emitted as a result of the proposed activities would add to GHG emissions from other sources. The current agricultural utilization or No Action Alternative of the site also produces GHGs through agricultural activities.

3.10 Cultural Uniqueness and Diversity

Under the No Action alternative, there would be no additional impacts to the existing cultural resources and archaeological sites on the property. The Site would continue to be vacant grassland and no impacts would be made.

The Deer Lodge Landfill Expansion Application includes a summary letter of a file search conducted by the Montana Historical Society in October 2016. The letter explains that the State Historic Preservation Office (SHPO) typically considers any structure over 50 years old to have historic potential. Since the Site is undeveloped with no structures, this standard does not apply, no anticipated impacts on cultural uniqueness or diversity. The search did not reveal any previously recorded cultural properties on the Site; however, the letter recommends a cultural resource inventory be completed due to the lack of previous inventory at the Site and the ground disturbance required to implement the Proposed Action.

3.11 Human Health & Safety

Under the No Action alternative, the Site would not be approved by DEQ and there would be no impact to human health and safety.

Under the Proposed Action, mitigation for impacted environmental resources would alleviate any potential impact to human health and safety.

The applicant would be required to adhere to all applicable state and federal safety laws. The Occupational Safety and Health Administration (OSHA) has developed rules and guidelines to reduce the risks associated with this type of labor. Few, if any, members of the public would be in immediate proximity to the project during construction or operations.

There is anticipated to be a minor impact to on-site workers during the construction phases and throughout the life of the Class II facility. Working in close proximity to vehicles, haul trucks, and heavy machinery would always present a level of danger to site workers. The District has proposed a Safety Program within their Operation and Maintenance Program that lists several procedures which are to be observed by both staff and landfill users at all times.

Additionally, health and safety risks should be considered for local residents and the general public. The expansion of the landfill would bring heavy machinery and haul trucks to the area. Appropriate fencing and signage should be implemented to make the public aware of the operations occurring both within the landfill itself and near Boulder Road. Minor impacts to human health and safety are anticipated because of the Proposed Action.

3.12 Quantity & Distribution of Employment

Under the No Action alternative, the Site would not be approved by DEQ. The existing Deer Lodge Landfill would continue to operate normally with the same number of employees until it reaches maximum occupancy, expected in 2025 under the original design plan or approximately 2041 under the updated design plan (Damschen, 2021). Upon the landfill reaching its licensed capacity, the current landfill would need to cease taking refuse and start its closure process. Upon completion of closure, the current employees would need to look for other work, thus a negative impact under the No Action alternative.

Under the Proposed Action, the landfill would be expanded and would maintain current jobs for up to 140 additional years. Additionally, there would be a short-term influx in local employment during the construction phases of the expansion. The job security of current facility staff and addition of temporary construction workers would be a minor beneficial impact to the quantity of employment in the region.

3.13 Local & State Tax Base Revenues/Property Values

In the past 30 years, various research has been done on the effects of landfills on property values. These studies have yielded inconsistent results. Typically, hedonic regression models have been used to try to isolate the effects of landfills on property values holding all other variables constant. Surveys have also been used in studies. Some studies show statistically adverse effects of landfills on property values. Generally, larger effects on property values are seen from larger landfills, less modern landfills, landfills that accept hazardous waste or pose health risks, areas with negative perceptions of landfills, landfills that are more visible, and higher end properties. However, even these effects are not robust across all studies and not all these effects were studied in every study. A study by Bouvier, RA., et al. entitled, "The Effect of Landfills on Rural Residential Property Values: Some Empirical Evidence," does not provide grounds for broad generalization about the effect of rural landfills on property values (2000, The Journal of Regional Analysis & Policy). It finds that in five of the landfills studied (in rural to semi-rural areas), no statistically sound evidence of an effect from landfills was found. In the remaining case, evidence of an effect was found, indicating that houses near this landfill suffered an average loss of about six percent in value. This case was a landfill that was unlined and uncapped and is on EPA's "potential health risk" list. Bouvier suggests that each landfill be studied on a case-by-case basis. A study by C.P. Cartee, entitled "A Review of Sanitary Landfill Impacts on Property Values," found that while it generally is believed that landfills negatively impact property values, in some cases, the development of a sanitary landfill may enhance a property's value (1989, Real Estate Appraiser and Analyst). It finds that the introduction of new roads, utilities, and drainage may stimulate development and lead to increases in land values.

No impacts to local and state tax base revenues are anticipated because of the No Action alternative.

Under the Proposed Action, the short-term influx in local employment during construction phases of the project and the added benefit of job security for current facility employees would result in a minor beneficial impact to the local tax base assuming local laborers were utilized in construction. Based on the lack of conclusive data, the effect of the Proposed Action on property values is unknown. However, it is reasonable to assume there would be a minor, long-term beneficial impact on the overall tax base and property values within the communities served by the landfill given the Proposed Action would provide local property owners with access to waste disposal services for the next 140 years.

3.14 Demand for Government Services

Under the No Action alternative, there would be no additional impacts to the demand for government services in conjunction with oversight of the property. The District would continue to operate the adjacent, existing landfill normally, in conjunction with DEQ, and the Site would continue to be vacant grassland.

Under the Proposed Action, the Site would be approved as a Class II Solid Waste Facility. Operation of this facility would still require DEQ regulation, oversight, and compliance. The Powell County sanitarian would conduct periodic inspections as needed, which is the current protocol for the existing landfill. Existing District staff would oversee operations and maintenance of the expanded Site. No additional DEQ staff would be acquired because of the Proposed Action.

No impacts to the demand for government services are expected because of the Proposed Action.

3.15 Industrial, Commercial, and Agricultural Activities

Under the No Action alternative, there would be no additional impacts to industrial, commercial, and/or agricultural activities on the property. The Site would continue to be vacant grassland.

Under the Proposed Action, the Site would no longer have potential to be used for agricultural or recreational activities for at least the life of the facility. However, the impacted 110-acres are small in comparison to the large swaths of nearby agricultural and recreational lands.

Construction of the proposed landfill expansion project would result in a minor increase to industrial activity due to the need for construction contractors and associated equipment and materials. Because of this, minor impacts to industrial, commercial, and agricultural operations are anticipated.

3.16 Cumulative Impacts

Cumulative impacts are the collective impacts of the Proposed Action on the human environment within the borders of Montana when considered in conjunction with other past, present, and future actions related to the Proposed Action by location or generic type. Cumulative impact analyses help to determine whether an action would result in significant impacts when added to other activities.

At this time, there are no negative cumulative impacts associated with the licensing of the Class II facility under the Proposed Action. No nearby past, present, or future actions are anticipated to pair with the Proposed Action and exacerbate impacts. Because the currently operating landfill would close, the active disposal area would not increase. The current landfill would be revegetated to resemble the surrounding area as would the expansion area once it reaches capacity. Each cell, as the landfill continues, would be closed as new cells open.

4. CONCLUSIONS AND FINDINGS

4.1 A listing and appropriate evaluation of mitigation, stipulations, and other controls enforceable by the agency or another government agency

The Proposed Action would meet the minimum requirements of the SWMA and associated administrative rules regulating solid waste disposal. Adherence to the solid waste, water quality, and air quality regulations and the DEQ-approved facility O&M plan would mitigate the potential for harmful releases and impacts to human health and the environment by the Proposed Action.

4.2 Findings

To determine whether preparation of an environmental impact statement is necessary, DEQ is required to determine the significance of the impacts associated with the proposed action. The criteria that DEQ is required to consider in making this determination are set forth in ARM 17.4.608 as follows:

1. The severity, duration, geographic extent, and frequency of the occurrence of the impact.
2. The probability that the impact will occur if the proposed action occurs; or conversely, reasonable assurance in keeping with the potential severity of an impact that the impact will not occur.
3. Growth-inducing or growth-inhibiting aspects of the impact, including the relationship or contribution of the impact to cumulative impacts.
4. The importance to the state and to society of each environmental resource or value that would be affected.
5. Any precedent that would be set because of an impact of the proposed action that would commit the department to future actions with significant impacts or a decision in principle about such future actions; and
6. Potential conflict with local, state, or federal laws, requirements, or formal plans.

The Site would encompass 110-acres, 25.6 acres of which are planned for disposal of Group II, III, and IV wastes.

The analysis area for vegetation is primarily grassland systems. Other land cover and uses include shrubland, steppe, and savanna systems as well as lands used by humans for roads, developed open space, commercial/industrial facilities, or residences. The Site is not located within Sage Grouse core habitat, general habitat, or connectivity area. The Proposed Action will not adversely affect any threatened or endangered species.

The Proposed Action is not expected to impact surface water resources. To manage on-site water, the Site would incorporate perimeter ditches and berms to divert any run-on from entering waste areas.

The Proposed Action is not expected impact ground water. The Site will have a composite liner and leachate collection system to protect underlying groundwater units.

DEQ has not identified any growth-inducing or growth-inhibiting aspects of the Facility. DEQ's approval of the Facility does not set any precedent and would not commit the DEQ to any future action with significant impacts, nor is it a decision in principle about any future actions that DEQ may act on. Finally, operation of the Facility does not conflict with any local, state, or federal laws, requirements, or formal plans.

Based on consideration of all the criteria set forth in ARM 17.4.608, DEQ has determined that the Proposed Action will not significantly affect the human environment. Therefore, an environmental assessment is the appropriate level of environmental review and preparation of an environmental impact statement is not required.

4.3 Other groups or agencies contacted or contributing to this EA

Barry Damschen Consulting, LLC
Montana Bureau of Mines and Geology
Montana Department of Environmental Quality
Montana Natural Heritage Program
State of Montana Historic Preservation Office
U.S. Department of Agriculture - Natural Resource Conservation Service
U.S. Environmental Protection Agency
U.S. Fish and Wildlife Service

4.4 Authors**EA prepared by:**

Montana DEQ, Solid Waste Section
Granite Peak Environmental, LLC

Date: April 18, 2025

5. REFERENCES

- Barry Damschen Consulting, LLC, 2021.** Deer Lodge Landfill Lateral Expansion and Operation and Maintenance Plan Update. Prepared for Deer Lodge Solid Waste District. October.
- Konizeski, R. L. et al., 1968.** Geology and Ground-Water Resources of the Deer Lodge Valley Montana. Prepared in cooperation with the Montana Bureau of Mines and Geology, Butte, Montana. Prepared for the Department of Interior.
- Montana National Heritage Program (MTNHP), 2024.** Online Map Viewer. Accessed March at <https://mtnhp.org/>.
- 2024.** Environmental Summary Report. Summarized by 24PRVT0247. March 12.
- 2024.** Montana Field Guide. Accessed March at <https://fieldguide.mt.gov/default.aspx>
- Montana Bureau of Mines and Geology (MBMG), 2024.** Ground Water Information Center, Montana Technological University. Accessed March at <http://mbmggwic.mtech.edu/>
- U.S. Department of Agriculture (USDA), 2024.** Natural Resources Conservation Service, Web Soil Survey. Accessed March at <https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx>
- U.S. Environmental Protection Agency (EPA), 2024.** Online NEPAassist Mapping Tool. Accessed March at <https://nepassistentool.epa.gov/nepassistent/nepamap.aspx>
- U.S. Fish and Wildlife Service (USFWS), 2024.** National Wetlands Inventory, Wetlands Mapper. Accessed March at <https://fwsprimary.wim.usgs.gov/wetlands/apps/wetlands-mapper/>

6. RESPONSE TO COMMENTS

The comment period on the original Draft EA started February 12, 2025. The public comment period ended on March 15, 2025.

During the comment period, DEQ received four submissions with comments covering several topics from the Draft EA and Proposed Action. DEQ read, summarized, combined, and considered the substantive elements from the comments. DEQ created this document and made changes to the Final EA in response. The comments below are organized by and addressed within each **theme**. The themes are bolded and in alphabetical order. Commenter comments are shown in ***bolded italics***.

GROUNDWATER MONITORING AND SURFACE WATER

Will there be monitoring of the groundwater and of methane? Will nearby residential wells be monitored? Where are these plans?

See **Sections 3.4.2 Ground Water** and **3.8 Air Quality**. The landfill currently follows and is required to adhere to ARM 17.50 subchapter 13 for all groundwater monitoring requirements and ARM 17.50.1106 for methane monitoring. This includes semi-annual monitoring of groundwater wells within the facility, and quarterly methane monitoring. These reports are submitted to the DEQ for review to ensure. Plans for monitoring of the expanded area were included with the application in their Operations and Maintenance (O&M) Plan.

Once the landfill is closed, how long will testing be done for the groundwater? Will there be money set aside for closure? How is this paid for?

Groundwater monitoring is required post-closure for at least 30 years. DEQ's solid waste rules at ARM 17.50.540 require the licensee to establish financial assurance for closure and post-closure requirements to ensure the facility funds facility closure, which includes monitoring and covering the landfill with a cap of native soil and vegetation.

If there is a heavy rainstorm event, what is preventing toxic runoff from entering neighboring property and contaminating the water and land?

Thank you for your comment. Please see **Section 3.4.1** of the EA. The landfill would be constructed to withstand a 25-year 24-hour stormwater event in accordance with the requirements in ARM 17.50.1109 and 1110. Stormwater ditches and ponds are built to withstand such an event. A Stormwater Pollution Prevention Plan is required along with a Stormwater Discharge permit to ensure plans are in place to prevent stormwater or leachate from migrating to neighboring lands or state waters.

An intermittent riverine which may flood temporarily was identified along the southwest border of the site. This riverine ultimately empties into the Clark Fork River. FWP appreciates DEQ's inclusion of a ditch system designed to divert water from the riverine to mitigate this potential flood risk, reducing the likelihood of contaminated runoff affecting the Clark Fork River.

Thank you for the comment. See the previous comment. After approval of the expansion application, there will be the need for a SWPPP and Stormwater Discharge permit. Run-on and runoff controls such as ditches, berms, and detention ponds would be implemented to mitigate the risk of potential flooding and contamination to nearby rivers, streams, and surface waters. This would include efforts to protect the intermittent stream, and the possibility of a ditch system if deemed necessary.

LOCATION

I live within the 1-mile radius of our current landfill. With this expansion, you are getting closer and closer to our property. I am against this. I feel if we are going to expand it needs to expand North, where you are not getting closer and closer to homes within the 1-mile radius.

Thank you for your comment. Please see **Figure 1** which shows current property boundary line for the landfill. The county owns land within Section 28 and does not own land north of the current site. The landfill is proposed for expansion in the county's current ownership of land within Section 28. Property bordering all sides of this site is owned by the United States Forest Service.

Section 75-1-220, MCA, further states that for projects that are not state sponsored, like the Proposed Action, an alternatives analysis does not include an alternative facility or an alternative to the proposed project itself. Therefore, DEQ only considered alternatives applicable to the proposed facility at the proposed location.

OPERATIONS

Why is Missoula's waste, a city 90 miles from the Landfill, being accepted at this facility? This will only hasten the filling of the newly expanded landfill, and Deer Lodge is then subsidizing the cost of trash disposal for Missoula residents.

Thank you for your comment. DEQ's regulatory authority to license and regulate solid waste management activities is prescribed by the SWMA and does not extend to planning by counties or solid waste management districts. The District calculated the expected life of the landfill expansion with already increasing volumes of waste coming from the Missoula area. Tonnage fees received at Deer Lodge Landfill is paid by the transporter of the waste. This generates revenue for the county that would not otherwise be present.

What is a "special waste"?

Thank you for your comment. Special wastes are defined by the Administrative Rules of Montana 17.50.1115, and are as follows:

- (a) asbestos-contaminated material, 40 CFR Part 61, subpart M, as adopted by reference in ARM 17.74.351;
- (b) infectious wastes, Title 75, chapter 10, part 10, MCA; and
- (c) any other special waste, in the manner determined by the department to be necessary to protect human health or the environment.

The landfill would dispose of any special waste entering the landfill in accordance with ARM 17.50.509 or contact State or Federal authorities for disposal guidance so long as the waste is approved for disposal in their O&M plan.

Waste groups accepted by the landfill such as household hazardous, commercial, industrial, asbestos, TENORM are toxic to the environment. Even with a cell liner, there will still be contamination to neighboring property. How will the landfill be able to protect nearby lands from contamination?

According to the proposed O&M plan, the facility would not accept any radioactive wastes, asbestos, PCBs, or any regulated hazardous wastes defined by Subpart D of CFR Part 261. Training would be required of staff to screen loads that could contain such wastes. If these wastes are found, the load would not be accepted and would be rejected from the facility.

Leachate from the landfill is to be pumped out and sent to a wastewater treatment facility. From what I know, there aren't any wastewater treatment facilities that can treat this kind of wastewater. How will this be remedied?

DEQ's regulatory authority to license and regulate solid waste management activities is prescribed by the SWMA and does not extend to the engineering and acceptance criteria regarding the City of Deer Lodge Wastewater Treatment Plant (WWTP). The proposed plan is to send leachate to the City of Deer Lodge WWTP. Many landfills utilize WWTPs to treat their leachate, as they can handle large quantities of wastewater and treat the contaminants found in it. Leachate would be tested prior to being sent to the WWTP. If it is determined the Deer Lodge WWTP cannot treat the leachate, it would be recirculated onto the waste over lined areas of the landfill.

Where will water be gathered for water trucks to limit dust and toxins in the air?

Water is collected from the City of Deer Lodge.

While a liner is an improvement for the landfill, what happens if this liner degrades or leaks? What is the longevity for a liner such as this?

Studies show varying life expectancies for liners at landfills. This is dependent on the quality of material testing, inspection, temperature, and stress. As noted in **Section 3.4.2**, the proposed expansion would include a double liner system of geosynthetic clay membrane (GCL) overlain with a 60-mil High-Density Polyethylene (HDPE) as well as a leachate collection system to best protect groundwater beneath the Site. In general, landfills utilizing a dual liner system of geomembrane clay liner (GCL) and high-density polyethylene (HDPE) material could last for 500 years. Liner installation is required to be overseen by a Certified Quality Assurance Inspector and then verified by an CQA Officer. Once the lifespan of the waste cell is complete, a soil and vegetation cap would be placed over the cell to limit drainage and infiltration into the underlying waste. Post-closure monitoring is required to determine if further remediation is necessary from any leaks or degradation from the liner in accordance with ARM 17.50.13.

Source: <https://www.sciencedirect.com/science/article/abs/pii/S0956053X23001757?via%3Dihub>

PROPERTY VALUES

Odors, dust, litter, and other contaminants will decrease the want for habitation, and property values from the nearby lands. What is the consensus of the landfill's expansion decreasing neighboring property values?

See **Sections 3.13 Local & State Tax Base Revenues/Property Values** in the EA. The short-term influx in local employment during construction phases of the project and the added benefit of job security for current facility employees would result in a minor beneficial impact to the local tax base assuming local laborers were utilized in construction. Based on the lack of conclusive data, the effect of the Proposed Action on property values is difficult to quantify. However, the existing landfill located adjacent to the expansion area has been accepting similar amounts of waste for many years; any additional adverse effects from the proposed expansion are difficult to quantify but are expected to be less than they would be for a new landfill. Further, this is a municipal solid waste landfill and not a hazardous waste landfill, lowering any potential effects. It is reasonable to assume there would be a minor, long-term beneficial impact on the overall tax base and property values within the communities served by the landfill given the Proposed Action would provide local property owners with access to waste disposal services for the next 140 years.

OTHER

Page 8 second paragraph on application: Why is Missoula used to evaluate the number of trailer loads? Is this another typo? What happens if the facility cannot demonstrate an ongoing ability to operate in compliance with applicable rules? No license?

Thank you for the comment. This is a typo; trailer loads would be accounted for by the Deer Lodge Landfill. This has been edited in the Final EA.

Under **Section 1.5** (SWMS Inspections and Site Visits: Annual to Semi-Annual) of the EA, DEQ's Solid Waste Program visits facilities like the Deer Lodge Landfill at least annually (more often if needed). DEQ assesses compliance onsite and via correspondence submitted to DEQ throughout the year. If a facility has been found to operate outside of the applicable rules, DEQ's SWP will work with the facility to return to compliance. If continued non-compliance occurs, they will be referred to DEQ enforcement. Through this process, there will be collaboration between the DEQ and the facility to operate within State and Federal Requirements, and their O&M plan.

Mineral County is mentioned a few times, why is this?

Thank you for your comment. This is a typo. Powell County is the subject county, and this has been edited in the Final EA.

WILDLIFE

Chronic Wasting Disease (CWD) is a fatal disease first detected in the Deer Lodge Valley in mule deer in 2023. Class II landfills, including Deer Lodge, provide an important service in managing CWD by providing a convenient and contained disposal site where wildlife carcasses can be safely discarded. Transient deer populations are known to be around the landfill, and in the area where the expansion will be. How will the landfill protect those animals from encountering carcasses containing CWD?

Thank you for your comment. The proposed O&M plan states "animals are then buried with soil when they are deposited." This would prevent direct exposure of any animals that might enter the site. Further, transient animals such as deer, elk, and moose are less likely to enter active landfill areas due to human presence and noise from operations (e.g., construction equipment, compactors, trucks, etc.).

Currently, the facility has permanent fencing and portable screens to limit animals from entering the site. The facility is also required to complete proper spreading, compaction, and covering of incoming wastes daily. Composting may also be considered but would require an application and update to the Operations and Maintenance Plan submitted to the DEQ.

Bear populations in the area are attracted to food waste. When bears learn of where food rewards can happen, it is known that negative contact between bears and humans occurs. It is recommended the facility install an electric perimeter fence to deter bears from entering the landfill.

Thank you for your comment. See the previous response. DEQ is collaborating with FWP and solid waste facilities to discuss operational changes that could assist in reaching a mutual goal of CWD protection.

The analysis of the affected terrestrial environment indicates that "the development of the Site may require relocation of local and transient animals, but much of the surrounding areas offer similar habitats." FWP seeks clarification that the intent of this statement is that development may result in the displacement of the aforementioned animals, by way of less desirable conditions or exclusionary fencing.

Upon review, DEQ agrees with the clarifying comment and has updated the Final EA to state: "Due to the proposed actions to be committed by the expanded facility, transient animals such as white-tailed deer, mule deer, and bird populations may be displaced due to fencing or less desirable conditions. However, transient wildlife could be seen within the facility's boundaries."