



DRAFT ENVIRONMENTAL ASSESSMENT
Proposed Class II Solid Waste Management System
Lincoln County Landfill
Libby, Montana

Solid Waste Section
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October 16, 2024

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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

SWMS – Solid Waste Management System

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. PURPOSE AND NEED FOR ACTION

1.1 Summary

In October 2023, Lincoln County submitted a Solid Waste Management System (SWMS) license application to the Montana Department of Environmental Quality (DEQ). The application proposes to expand Lincoln County's existing Solid Waste Management System to include an additional 17.4 acres of adjacent land to be used for Class II and Class IV waste disposal activities. The proposed 17.4-acre expansion site, owned by Lincoln County, is located approximately 4 miles north of Libby, Montana and would be bordered by the existing Class IV landfill area to the north, the existing Class II landfill area to the east, and undeveloped forest lands to the south and west (Site, **Figures 1 and 2**). The Site itself appears to be a cleared area of forest. The Site would be included on the same legal parcel as much of the existing landfill. This parcel is identified in **Figure 2**. Of the 17.4-acre Site, approximately 14.3 acres would be used for Class II or Class IV waste disposal activities. The Site would be operated by Lincoln County. The County would coordinate the management of nearly 42,205 cubic yards (CY) of waste per year while serving 20,525 Lincoln County residents. The Site details include:

- Site would be an extension of the existing Lincoln County Landfill facility and would utilize the existing entrance via Libby Landfill Road off Pipe Creek Road
- Site would serve approximately 20,525 Lincoln County residents.
- Air Space Capacity for Class II Waste – 1,700,700 CY
- Solid Waste Capacity for Class II Waste – 1,360,560 CY or 816,336 tons
- The estimated facility life expectancy is 29 years.
- The life estimate is based on an effective waste to soil ratio of 4:1 and in-place density of 1,200 LB/CY. This equates to a volume per ton ratio of 2.08 CY/Ton.
- Lincoln County would accept both Class II and Class IV waste in the licensed area. Special wastes that would be accepted at the facility include:
 - Waste oil and oil filters (must be drained prior to disposal)
 - Electronic waste (household quantities only)
 - Tires (disposal fee based on amount, size, and whether tire is whole or cut)
 - Mobile Structures/Units
 - Asbestos (friable and non-friable asbestos-containing materials must be bagged; special handling fee)
 - Batteries
 - Propane tanks
 - Antifreeze
 - Contaminated soils (petroleum hydrocarbons, solvents, heavy metals, etc.; require analytical testing and pre-approval before disposal)

1.2 Background

The Lincoln County Landfill is currently filling Class II waste within an approximately 31.2-acre unlined footprint. The landfill is licensed by the Department of Environmental Quality (DEQ) to accept Class II municipal solid waste for disposal and began accepting waste in 1972. The landfill also has 20 acres designated for the disposal of Class III waste and 10 acres for Class IV asbestos waste.

Two closure projects have been completed at the landfill to date. Approximately 4.9 acres of southeastern slope of the landfill was closed in 1994-95. An additional 2.3 acres of the southwestern slope of the landfill was closed in 1995-96. The areas were closed with the approved final cover system designed by Ray Engineering and outlined in *"Libby Landfill Closure Documents"* published in August 1995. These closure projects were certified and approved by Montana DEQ.

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.

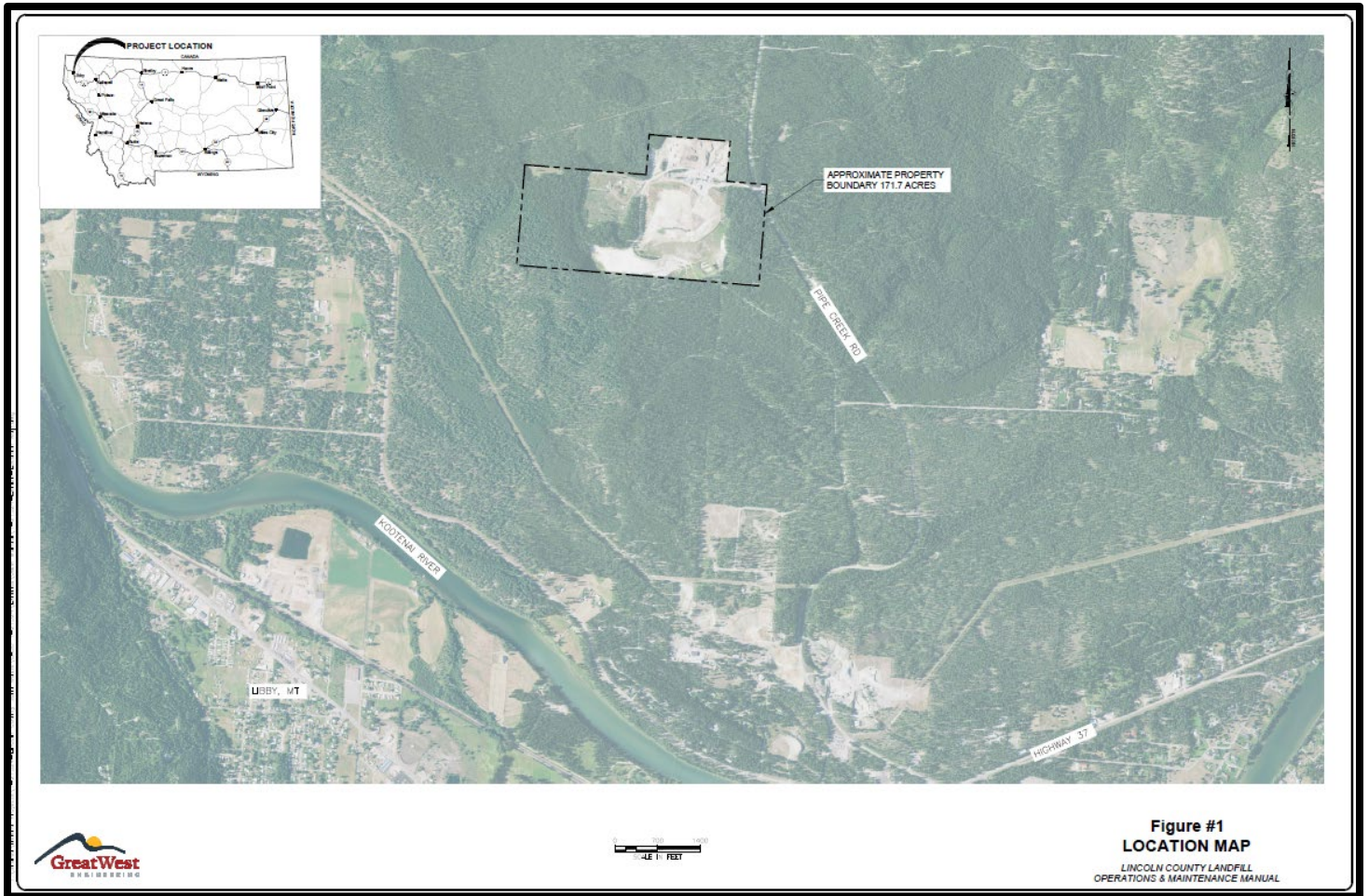
In Montana, the most common wastes are divided into three broad waste groups, including:

Group II wastes, or commonly municipal solid waste (MSW), which may include significant 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.

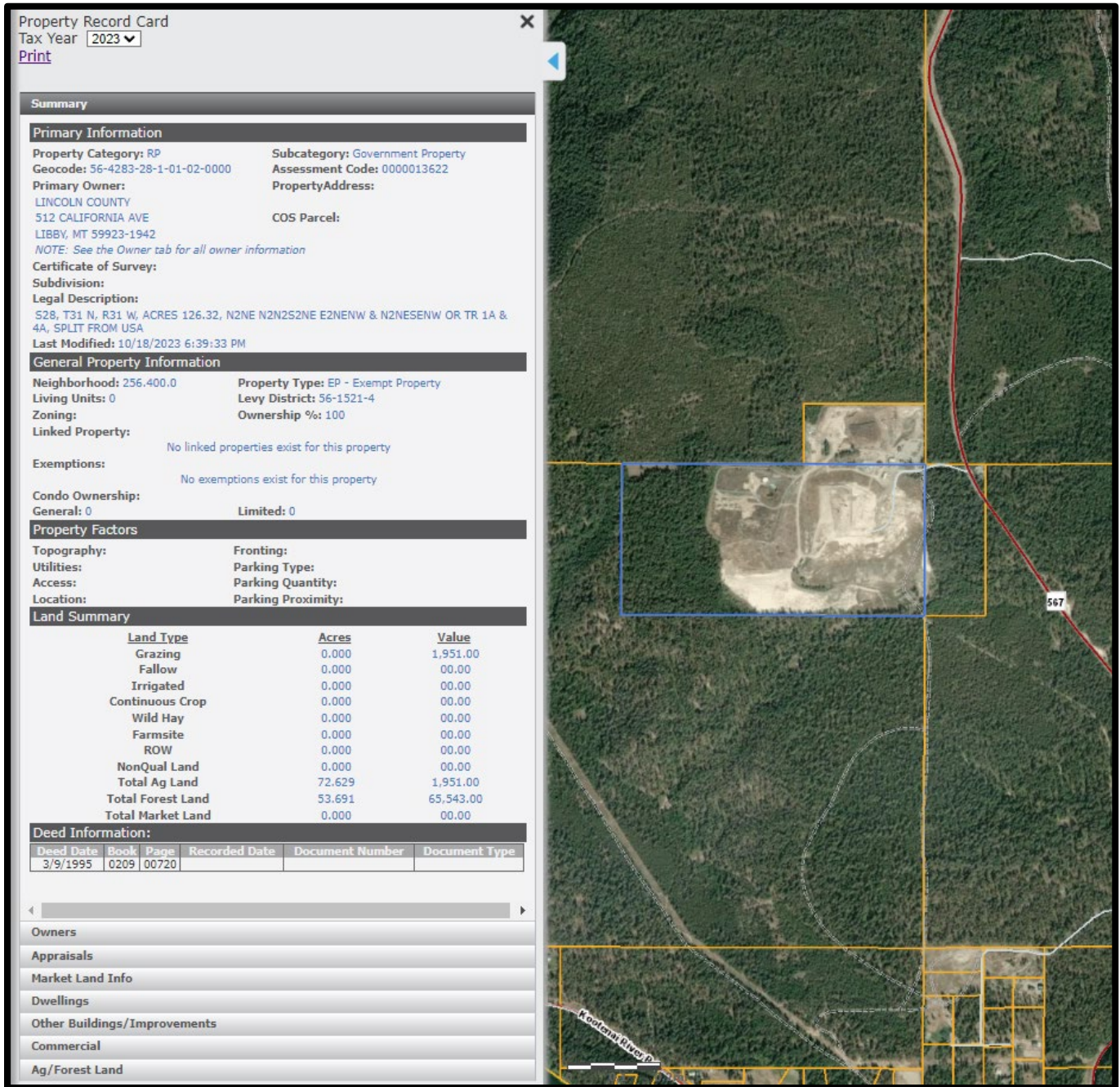
Group IV wastes may largely include construction and demolition wastes and asphalt, but not typical household wastes.

Figure 1: Location of Existing Landfill and the Site



(Source: Figure 1 of the Lincoln County Landfill License Expansion Application; Great West Engineering 2023)
Not to Scale

Figure 2: Montana Cadastral Map
(Site's Legal Property Boundary 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

Lincoln County has applied to DEQ for review and licensure of an expansion to their Class II and Class IV solid waste management facility. DEQ's purpose and need is to act on Lincoln County'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.

Lincoln County's purpose and need is to license the facility as proposed so that its present operations may continue once the present facility reaches final capacity for the Class II area in 2027. The Proposed Action would allow Lincoln County to operate the facility for an additional 29 years, thus continuing to serve the disposal needs of Lincoln County residents and businesses.

The Montana Solid Waste Management Act (SWMA) establishes the minimum requirements for development and licensing of a 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 17.4-acre Site would share a legal parcel with a portion of the existing Lincoln County Landfill in Section 28 of Township 31 N, Range 31 W and would be located approximately 4 miles north of Libby, Montana (**Figure 1**). The Site would be situated primarily in the southcentral portion of the legal parcel seen in **Figure 2**. The proposed expansion site would be bordered by the existing landfill, owned by Lincoln County, to the north and east and by undeveloped U.S. Forest Service land to the south and west (**Figure 3**). Access to and from the Site would utilize the existing landfill entrance via Libby Landfill Road off Pipe Creek 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 Draft 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)©. 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 Lincoln 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 Management Bureau	SWMS license
DEQ – Air Quality Bureau	Air quality permitting
DEQ – Water Protection Bureau	Montana Pollutant Discharge Elimination System (MPDES) permit
Lincoln County Health Officer	SWMS license validation by county health officer
Lincoln 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 Class II Solid Waste System:

SWMS License Renewal Applications Review: Annual

The license renewal form includes waste volumes or tonnage for the previous year and FA cost estimate updates. DEQ uses reported waste volumes to estimate remaining facility life as needed. A license is renewed if all renewal information is supplied, annual fees are paid, and the facility demonstrates 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 Lincoln County where waste production will continue far past the facility final lifespan ending in 2027. 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 ends 30 days after initial publication of this document on November 15, 2024. Notification was sent to adjacent landowners and other interested parties that requested to be notified. A public notice announcing the Draft EA's availability was published State Newsroom and posted at: <https://deq.mt.gov/public/publiccomment> . The application information is posted along with this EA.

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 and Class IV SWMS and would not be constructed by Lincoln County. Waste would continue to be accepted at the existing Class II and Class IV Lincoln County Landfill as space allows; however, that facility is projected to reach its final capacity by 2027. Lincoln County would need to identify another alternative to continue serving its communities.

2.3 DEQ Alternative 2 – PROPOSED ACTION

The Proposed Action is the licensing of a Class II and Class IV 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 and Class IV Lincoln County Landfill. The proposed facility would allow for the continued disposal of Class II and Class IV wastes. The facility would be publicly available and would serve nearly 21,000 people throughout Lincoln County. Lincoln County is pursuing the Proposed Action to continue serving the future needs of its communities beyond the closure of the current landfill site in 2027.

3. AFFECTED ENVIRONMENT AND IMPACT BY RESOURCE

3.1 Affected Environment and Study Area

The Site would occupy 17.4 acres located on property owned by Lincoln County approximately 4 miles north of Libby, Montana (**Figure 1**). Of the 17.4 acres proposed for expansion, 14.3 would be used for Class II and Class IV 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 17.4-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.
- **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).

Table 2: Impacts to the Physical Environment

Physical Environment	Major	Moderate	Minor	None	Unknown	Attached
1. Terrestrial and Aquatic Life and Habitats			✓			✓
2. Water Quality, Quantity, and Distribution			✓			✓
3. Geology and Soil Quality, Stability, and Moisture			✓			✓
4. Vegetation Cover, Quantity, and Quality			✓			✓
5. Aesthetics			✓			✓
6. Air Quality			✓			✓
7. Unique, Endangered, Fragile, or Limited Environmental Resources				✓		
8. Historical and Archaeological Sites				✓		✓
9. Demands on Environmental Resources on Land, Water, Air, or Energy				✓		

Table 3: Impacts to the Human Environment

Human Environment	Major	Moderate	Minor	None	Unknown	Attached
1. Social Structures & Mores				✓		
2. Cultural Uniqueness & Diversity				✓		✓
3. Density & Distribution of Population & Housing				✓		
4. Human Health & Safety			✓			✓
5. Quantity & Distribution of Employment			✓			✓
6. Local & State Tax Base Revenues			✓			✓
7. Demand for Government Services			✓			✓
8. Industrial, Commercial, & Agricultural Activities & Production			✓			✓
9. Access to & Quality of Recreational & Wilderness Activities				✓		
10. Locally Adopted Environmental Plans & Goals				✓		

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.

The proposed 17.4-acre Lincoln County 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). The MTNHP identifies a small pond feature shown just north of the Site as well as a pond and riverine east of the site, all on the existing landfill property. These features are discussed in further detail in Section 3.4.1, but ultimately, they do not have any impact on terrestrial or aquatic habitat at the Site.

The MTNHP describes much of the study area, including the expansion site, as forest and woodland systems. Other surrounding land covers in the area include grassland systems; human land-use areas described as developed, open space, roads, and low intensity residential spaces; wetland and riparian systems; and harvested forest lands. Descriptions of the two most prominent land cover types in the study area are below:

Rocky Mountain Dry-Mesic Montane Mixed Conifer Forest: This ecological system, composed of highly variable montane conifer forests, is found throughout Montana. It is associated with a submesic climate regime with annual precipitation ranging from 250 to 1,000 millimeters (10-39 inches), with most precipitation occurring during winter, and April through June. Winter snowpacks typically melt off in early spring at lower elevations. Elevations range from valley bottoms to 1,676 meters (5,500 feet) in northwestern Montana and up to 2,286 meters (7,500 feet) on warm aspects in southern Montana. In northwestern and west-central Montana, this ecosystem forms a forest belt on warm, dry to slightly moist sites. It generally occurs on gravelly soils with good aeration and drainage and a neutral to slightly acidic pH. In the western part of the state, it is seen mostly on well drained mountain slopes and valleys from lower treeline to up to 1,676 meters (5,500 feet). Immediately east of the Continental Divide, in north-central Montana, it occurs at montane elevations. Douglas-fir (*Pseudotsuga menziesii*) is the dominant conifer both as a seral and climax species. West of the Continental Divide, occurrences can be dominated by any combination of Douglas-fir and long-lived, seral western larch (*Larix occidentalis*), grand fir (*Abies grandis*), ponderosa pine (*Pinus ponderosa*) and lodgepole pine (*Pinus contorta*). Aspen (*Populus tremuloides*) and western white pine (*Pinus monticola*) have a minor status, with western white pine only in extreme western Montana. East of the Continental Divide, larch is absent and lodgepole pine is the co-dominant. Engelmann spruce (*Picea engelmannii*), white spruce, (*Picea glauca*) or their hybrid, become increasingly common towards the eastern edge of the Douglas-fir forest belt.

Rocky Mountain Mesic Montane Mixed Conifer Forest: These forests are generally dominated by western hemlock (*Tsuga heterophylla*), western red cedar (*Thuja plicata*), and grand fir (*Abies grandis*). They are found in areas influenced by incursions of mild, wet, Pacific maritime air masses west of the Continental Divide in Montana. Occurrences are found on all slopes and aspects but grow best on sites with high soil moisture, such as toeslopes and bottomlands. At the periphery of its distribution, this system is confined to moist canyons and cooler, moister aspects. Generally, these are moist, nonflooded or upland forest sites that are not saturated yearlong. In northwestern Montana, western hemlock and western red cedar forests occur on bottomland and northerly exposures between 609-1,585 meters (2,000-5,200 feet) on sites with an average annual precipitation of 635 millimeters (25 inches). These forests are common in extreme northwestern Montana, and extend eastward to the Continental Divide in the Lake McDonald drainage of Glacier National Park. Isolated stands of western hemlock occur in the Swan Valley but are found most commonly in the Libby and Thompson Falls vicinities, west to the Idaho border. Western red cedar occurs extensively in the Mission Mountain ranges south to Missoula, and on lower flanks of the Swan Range north of Lion Creek. It is confined to the riparian zone of major streams on the east face of the Bitterroot Mountain Range. Grand fir, being less moisture dependent, occurs in more southerly and easterly sites than western red cedar and western hemlock. This system is similar to Rocky Mountain Dry-Mesic Mixed Montane Conifer Forest, which can be described as a seral phase of this system on appropriate sites west of the Continental Divide.

As indicated in the Closure Post Closure Plan attached to the County's expansion application (Great West, 2023), the site would be used as open space upon closure and final cover of all waste areas. While land use

of the Site post-closure would be similar to surrounding areas, land cover may differ as the Site may never fully recover to a forest ecosystem after final closure and capping.

The MTNHP was queried for animal and plant species of concern. The focus area of the query includes a one-mile radius around the Site. Species of concern are summarized in **Table 4** below. The search was provided by the MTNHP on April 23, 2024.

Table 4: Species of Concern

Common Name (<i>Scientific Name</i>)	Family	Global Rank	State Rank	Habitat
Mammals				
Fisher (<i>P. pennanti</i>)	Weasels	G5	S3	Dense coniferous or mixed forests
Townsend's Big-eared Bat (<i>C. townsendii</i>)	Bats	G4	S3	Caves, Mines, and Rock Outcrops
Little Brown Myotis (<i>M. lucifugus</i>)	Bats	G3G4	S3	Caves, Mines, Snags, and Man-made Structures
Hoary Bat (<i>L. cinereus</i>)	Bats	G3G4	S3B	Coniferous and Hardwood Forests
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
Torrent Sculpin (<i>C. rhotheus</i>)	Sculpins	G5	S3	Riffles of cold, clear streams and rocky lakeshores
Westslope Cutthroat Trout (<i>O. clarkii lewisi</i>)	Trout	G5T4	S2	Deep, cold-water streams and rivers
Columbia River Redband Trout (<i>O. mykiss gairdneri</i>)	Trout	G5T4	S1	Cool, clean, relatively low-gradient streams
Birds				
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
Evening Grosbeak (<i>C. vespertinus</i>)	Finches	G5	S3	Mixed Coniferous Forest
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
Great Gray Owl (<i>H. cassinii</i>)	Owls	G5	S3	Dense coniferous and hardwood forests, especially those near water bodies
Clark's Nutcracker (<i>N. columbiana</i>)	Jays/Crows/Magpies	G5	S3	Conifer forests with whitebark, ponderosa, and/or limber pines
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				
Coeur d' Alene Salamander (<i>P. idahoensis</i>)	Lungless Salamanders	G4	S2	Springs/seeps, waterfall spray zones, and damp streambanks
Insects				
Hooked Snowfly (<i>I. crinita</i>)	Small Winter Stoneflies	G5	S2	Creeks and rivers
Sheathed Slug (<i>Z. idahoensis</i>)	Arionid Slugs	G3G4	S2S3	Mesic mixed conifer forests near riparian areas and seeps
Vegetation				
Geyer's Biscuitroot (<i>L. geyeri</i>)	Parsley/Carrot	G4	S2	Vernally moist soil in open or partially shaded habitats in the montane zone

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.

One species, the Columbia River redband trout, ranks as an S1 species of concern meaning it is at risk because of an extremely limited and/or rapidly declining population, range and/or habitat making it highly vulnerable to extirpation in the state. Another eight species, the grizzly bear, bull trout, westslope cutthroat trout, Lewis's woodpecker, Coeur d' Alene salamander, hooked snowfly, sheathed slug, and Geyer's biscuitroot, rank as S2 species of concern, meaning they are at risk because of a very limited and/or potentially declining population numbers, range and/or habitat, making them vulnerable to extirpation in the state.

The proposed Site appears to be an area of cleared forest without any water bodies making it not suitable habitat for the S1 species of concern and many of the S2 species of concern. If the Site were to be reclaimed to its natural forested state, which would take several decades given the current site conditions, the Site could be considered desirable habitat for some S2 species of concern such as the grizzly bear, Lewis's woodpecker, or Geyer's biscuitroot; however, due to the small size of the property, present-day Site conditions, and the abundance of surrounding forestlands, it is unlikely that waste management activities at the Site will 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 currently cleared forest, it does not presently provide any animal habitat. If the natural habitat were to be restored at the Site, it could provide habitat for bats and other species. However, this would take several decades to accomplish. Given the current conditions of the Site, its small acreage, and its location adjacent to similar terrain and habitat, no further mitigation would be 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. 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 potential impacts to terrestrial and aquatic life and habitats.

Under the Proposed Action alternative, there will be minor impacts to terrestrial habitats on the Site. There will not be any impact to aquatic life habitat since there are not any designated wetlands on the Site.

Figure 4: Wetlands Map
 (Approximate 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 17.4-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 Kootenai Watershed (HUC 17010101). This watershed features the upper Kootenai River at its center and drains an area of approximately 2,660 square miles in northwestern Montana and northeastern Idaho.

Figure 5 shows the primary surface water features within a one-mile radius of the property boundary. There are no waterbodies on the Site itself, but there is a small pond feature shown just north of the Site as well as a pond and riverine east of the site, all on the existing landfill property. The license expansion application (Great West, 2023) states the pond to the north accumulates seasonally and does not discharge offsite, but rather it is either absorbed or evaporates. The pond and riverine system to the east of the Site is described as being part of the existing landfill’s stormwater drainage system. The license application (Great West, 2023) states the pond is designed to hold stormwater discharged by a 25-year, 24-hour storm event. Water from the pond exits the property through the southern-flowing riverine system which is classified as an intermittent body of water with a defined streambed that floods seasonally. Outflow from the riverine may

occur during a 50-year or 100-year flood event; however, according to the license application (Great West, 2023), the facility is allowed to discharge to state waters under its general industrial discharge permit issued by the DEQ Water Quality Bureau.

Pipe Creek, located approximately ¾ mile northwest of the Site, is the closest perennial waterbody to the Site. This waterbody generally flows to the southwest and is classified as an upper perennial river with an unconsolidated bottom that is intermittently exposed. Pipe Creek confluences with the Kootenai River just west of Libby, Montana. The Kootenai River flows to the north/northwest in the area and is located approximately one mile south/southwest of the Site. Both Pipe Creek and the Kootenai River are considered critical habitat for bull trout.

Figure 5: Surface Water Map

(Approximate Site boundary in red and 1-mile radius in yellow)



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

Not to Scale

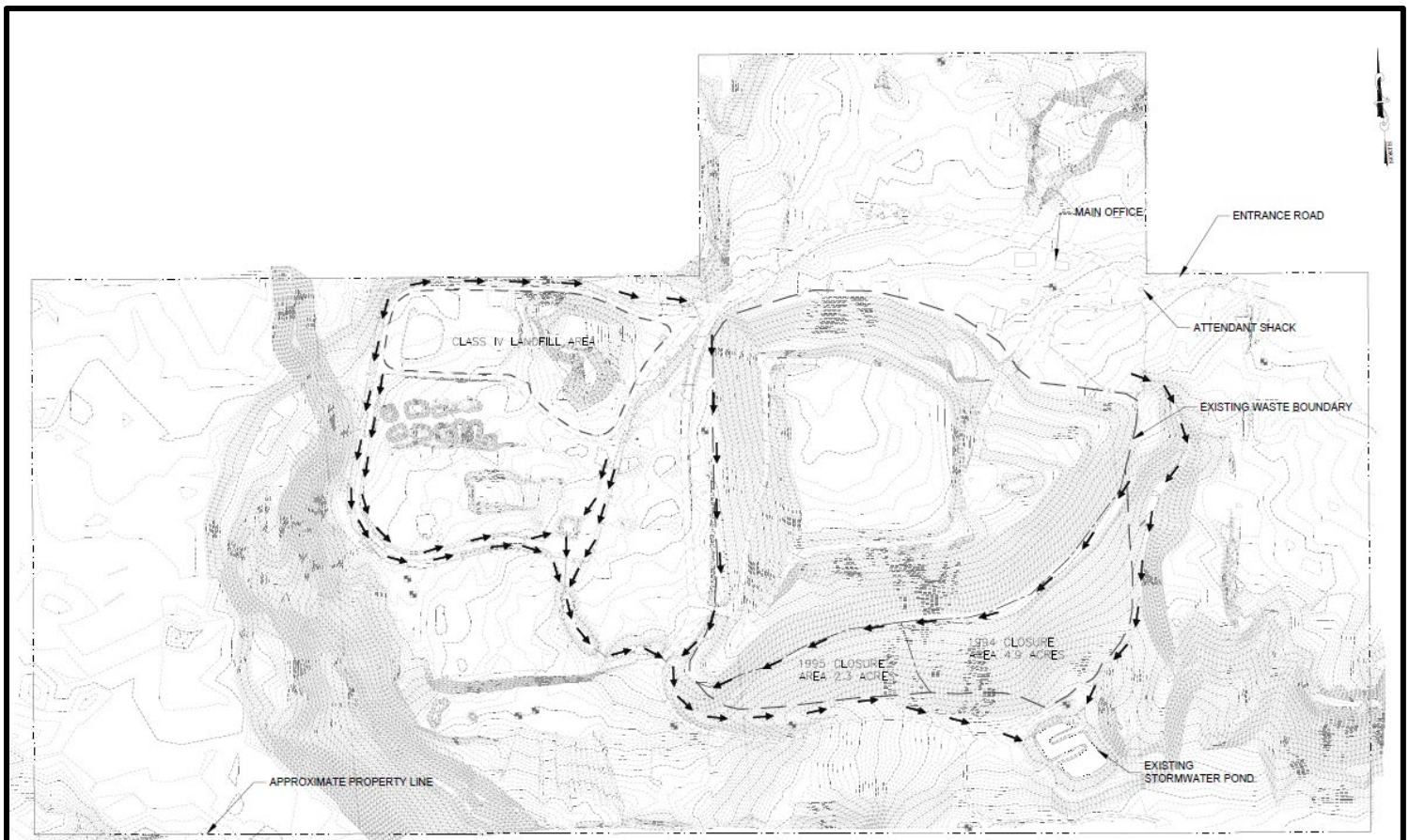
The Federal Emergency Management Agency (FEMA) National Flood Insurance Program identifies the Site as an area of minimal flood hazard. Given the nearest perennial waterbody is Pipe Creek, over ¾ miles northwest of the Site, there is minimal to no flood potential hazard for the Site. However, should 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 any waterbodies.

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 proposed 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.

As stated in the Expansion License Application, the Site would incorporate perimeter ditches and berms to divert any run-on from entering any waste area. 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. The location of the detention ponds and run-on and run-off ditches are shown on **Figure 6**. Landfill staff would be responsible for the maintenance of all on-site drainage structures and ditches. Maintenance would include 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 would be obtained prior to beginning operations in the expanded area (Great West, 2023).

Figure 6: Drainage Map



(Source: from Figure 3 of the Lincoln County Landfill Expansion Operation and Maintenance Plan, 2023)

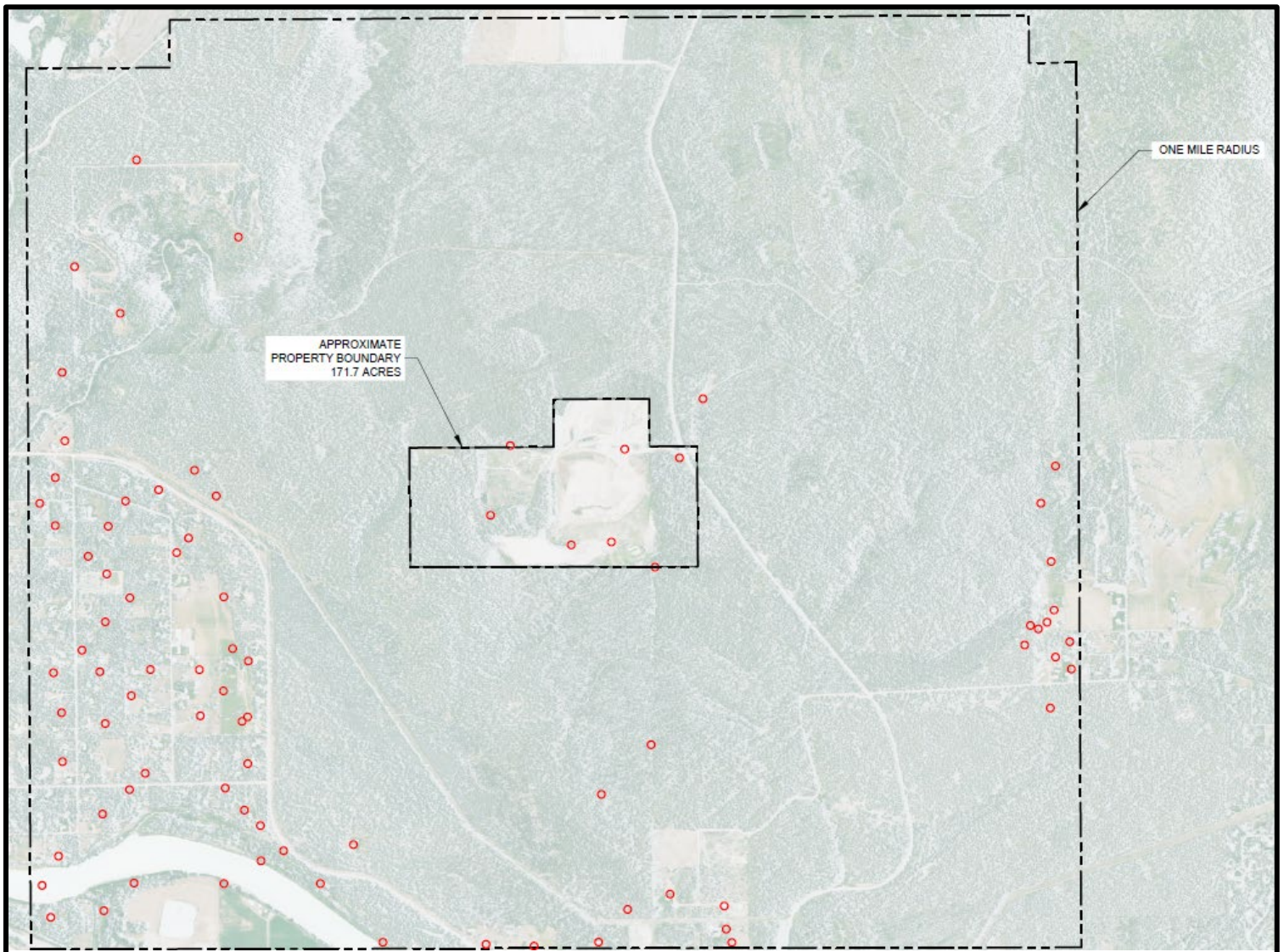
Not to Scale

3.4.2 Ground Water

According to the Lincoln County Expansion Application, previous hydrogeologic studies identified two separate groundwater units beneath the Site. The uppermost or shallowest groundwater unit is an unconfined or partially confined perched groundwater unit that is developed within the glaciofluvial sediments, occurring at depths of approximately 150 to 200 feet bgs. A lower and hydraulically separate unit from the uppermost perched groundwater is present at the Site at depths of approximately 300 feet bgs. Logs from on-site investigations demonstrate there is approximately 90 feet of silty clay beneath the upper perched groundwater unit, which effectively separates the upper perched unit from the lower, deeper, confined aquifer unit.

As stated in the Lincoln County Landfill Expansion Application, there are 78 public and private water supply wells within a one-mile radius of the Site (**Figure 7**).

Figure 7: Groundwater Well Map



(Source: from Attachment 5 of the Lincoln County Landfill Expansion Application, Great West, 2023)

Not to Scale

A search of the Montana Groundwater Information Center (GWIC) database for Township 31N, Range 31W, Section 28 found nine wells with data. As shown in Table 5, total well averages in this section show an average well depth of 233 feet, an average static water level (SWL) of 248 feet below ground surface (bgs), and an average yield of 7 gallons per minute. If only monitoring wells are considered, the average well depth is 258 feet and the average SWL is 249 feet bgs.

Table 5: GWIC Well Data

GWIC ID	Site Name	Type	Total Depth	Static Water Level	Yield	Date	Use
254479	LINCOLN COUNTY - LANDFILL *MW-1	WELL	380	351	--	1/11/1991	MONITORING
326375	LINCOLN COUNTY HEALTH DEPARTMENT *MW-09	WELL	260	251	--	12/3/2022	MONITORING
254458	LINCOLN COUNTY *CDM-MW-7	WELL	260	217	--	7/30/2002	MONITORING
254461	LINCOLN COUNTY LANDFILL *CDM-MW-8	WELL	240	225	--	7/24/2002	MONITORING
326376	LINCOLN COUNTY HEALTH DEPARTMENT *MW-10	WELL	255	246	--	12/12/2022	MONITORING
254371	LINCOLN COUNTY LANDFILL *MW-2	WELL	192	--	--	1/22/1991	MONITORING
141728	LINCOLN COUNTY LANDFILL *MW-3	WELL	216	202	0.3	6/29/1993	MONITORING
326373	LINCOLN COUNTY HEALTH DEPARTMENT *GWM-2	WELL	20	--	--	--	OTHER
214619	HODEL TIM	WELL	273	243	14	8/20/2004	DOMESTIC
Averages			233	248	7		
*Wells removed from average calculations							
Depth in feet, Static Water Level in feet below ground surface, Yield in gallons per minute							

The License Expansion Application explains that the Site would be designed to protect the groundwater to the maximum extent required by state and federal regulations. The cells in the expansion area would be constructed with a DEQ-approved alternative composite liner system consisting of compacted subgrade overlain by a 60-mil HDPE liner. The liner systems are designed to sustain minimal damage in the event of a significant seismic event. The expansion area would also have a leachate collection system.

Per the Application, the bottom of each lined landfill cell would have a minimum slope of 2% and a maximum slope of 4H:1V. Leachate from the lined landfill would drain by gravity into a lined leachate pond. The leachate collection system would consist of gravel-covered drainage piping. The landfill would have a drainage layer which would convey leachate to collection laterals spaced on regular intervals through the landfill area. The collection laterals would be constructed of 8-inch HDPE, slotted underdrain pipe. The laterals would be situated in recessed trenches that would help minimized head on the liner. Cleanouts would be provided at the termination of the leachate collection laterals around the perimeter of the site to facilitate cleanout of plugged lines. The collection laterals would ultimately convey water to the leachate collection and evaporation ponds. The system would be protected by a 15-inch-thick layer of gravel material. The details of the liner and leachate design documents would be submitted to DEQ for approval prior to implementation (Great West, 2023).

Stormwater, runoff, and leachate would all be managed in accordance with the Lincoln County Landfill Operations & Maintenance Plan which is attached to the expansion application.

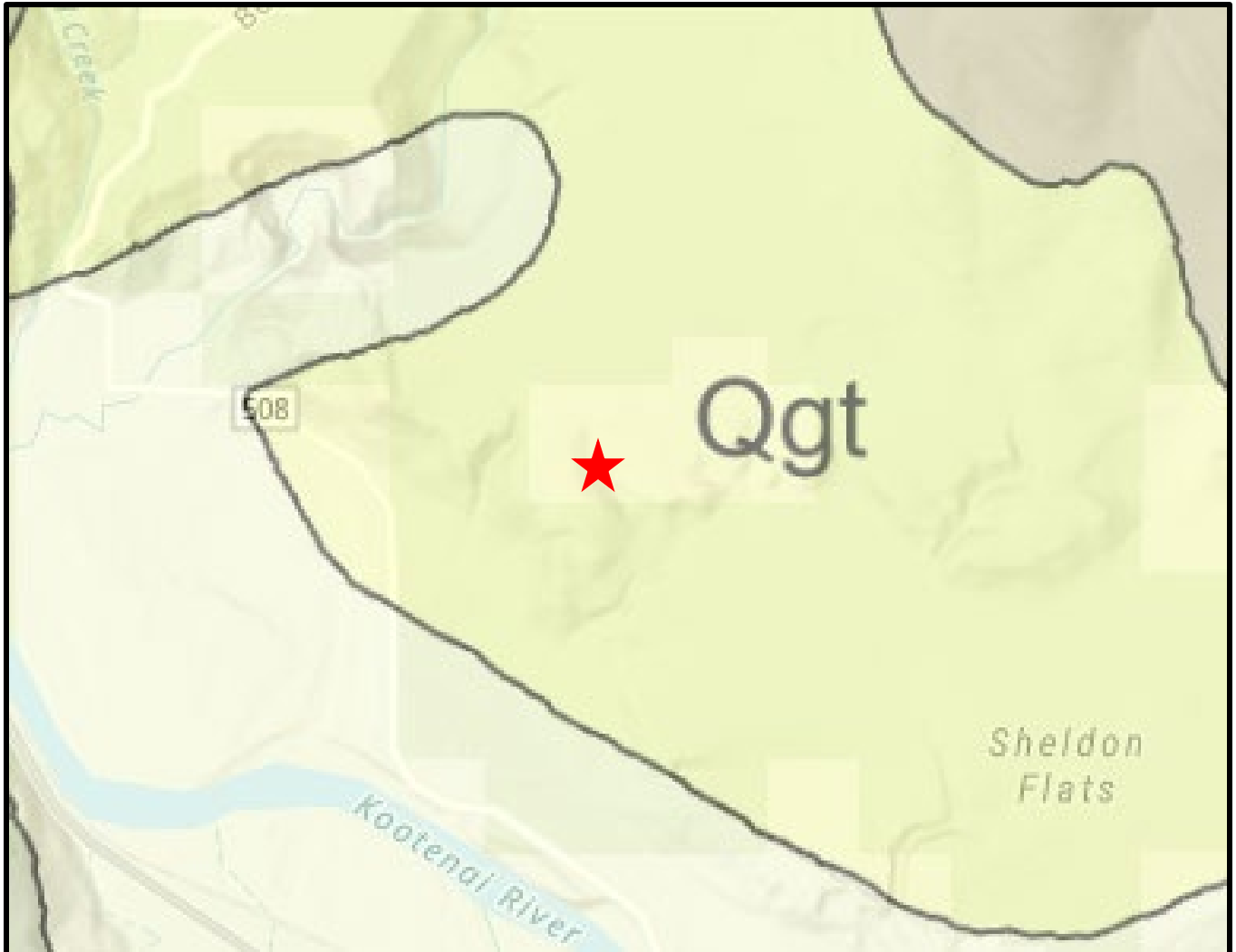
Under the No Action alternative, there would be no additional impacts to surface water or groundwater beyond current activities on the Site.

Implementing the Proposed Action would involve significant earthwork disturbances and landfilling activities which would have a moderate to significant potential impact on surface water and/or the uppermost groundwater at the Site. However, considering the proposed mitigation measures, impacts to surface water from the Proposed Action are anticipated to be minor. No impacts to groundwater are expected because of the Proposed Action.

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 sitting in a large area of glacial deposit (Qgt). This quaternary geologic unit consists of dominantly till, outwash, and local glacial lake deposits and is found throughout western and south-central Montana.

Figure 8: Geology Map



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

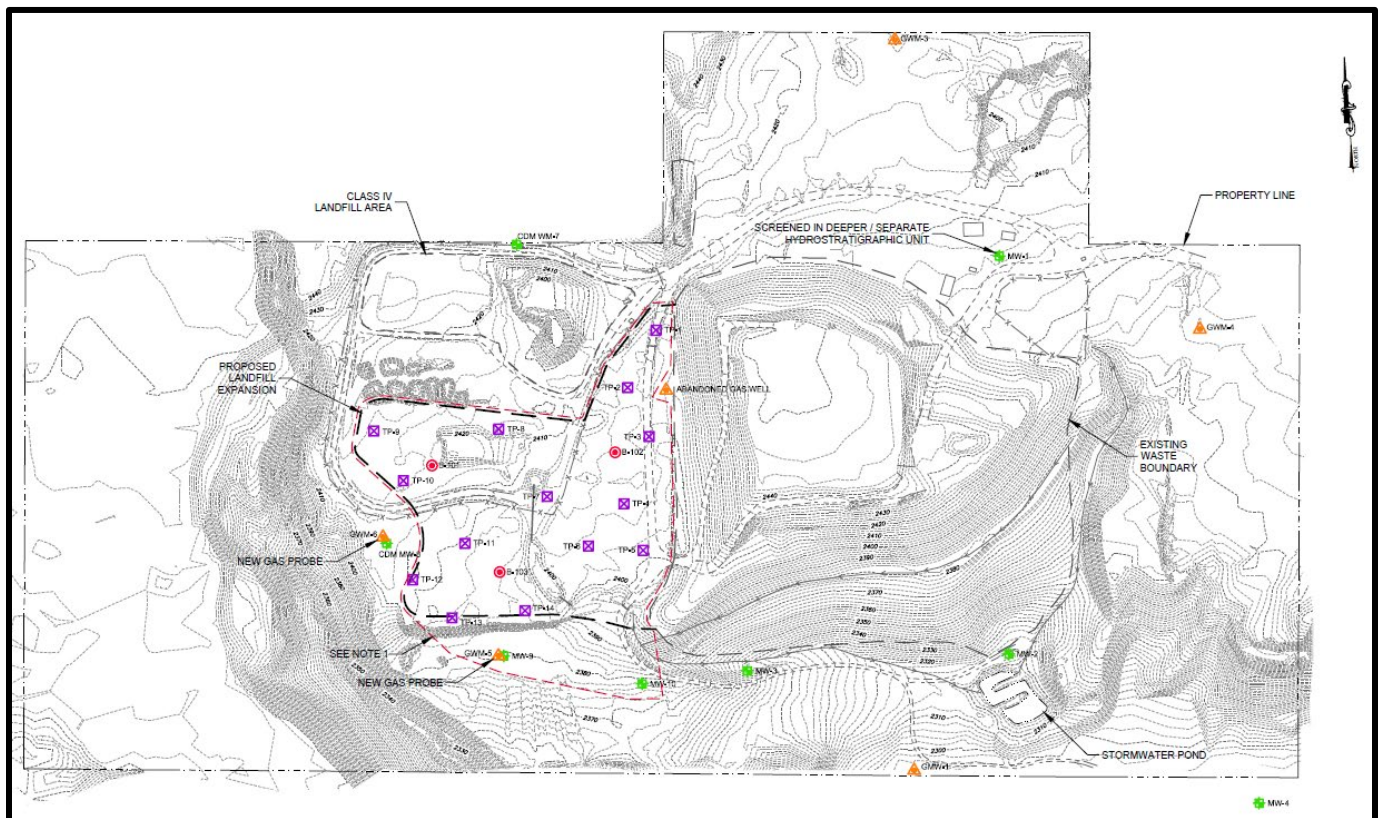
As summarized in the License Expansion Application, the generalized geology of the area is characterized by thick sequences of glacial deposits including till, lakebed, and glaciofluvial material overlying deformed consolidated Precambrian rocks of the Belt Supergroup. Through geologic time, downcutting of the Kootenai River created a series of terraces, and the landfill is located on the second highest terrace above the present-day stage of the Kootenai River. The Site is underlain by laterally continuous thick sequences of silty clay lakebed deposits. Younger sediments deposited atop the terraces are generally laterally discontinuous, forming small lenses of sand, silty sand, and silty or clayey gravels.

As noted within the Lincoln County Application, the area is complex and includes Proterozoic folds and Cretaceous thrust faults and associated folds. The Libby thrust belt was formed where one of the old

anticlines had its limbs steepened and thrust eastward towards the flank of the Purcell anticlinorium. Geologically younger intrusions into the Belt strata are Proterozoic sills, Cretaceous felsic plutons, and a pyroxenite-syenite complex found southeast of the study area. Given that all of western Montana lies within a seismic impact zone, it should be noted the landfill has a slightly higher level of seismic hazard than the proposed maximum criteria. However, based on review of the MBMG Seismic Database, there are no major earthquakes recorded historically near the study area. The nearest major earthquake was recorded in Helena, over 280 miles away from the Site. The nearest recent earthquakes were recorded in June and August 2020 approximately two miles of the Site. These events were minor registering magnitudes of only 1.61 and 0.99, respectively, on the Richter scale. The application states that from review of historic earthquakes in the area, the seismic potential of the site is considered very low (Great West, 2023).

Great West completed extensive field investigations in the area near the existing landfill and the proposed expansion area. Test pit, borehole, and monitoring well locations in the area are shown in **Figure 9**. The Hydrogeologic and Soils Report (Great West, 2023), included as Attachment 7 in Lincoln County's application, reviewed, and summarized all investigations in the area through 2023. As noted in the report, site-specific recharge or discharge studies have not been conducted for the study area previously, Great West inferred that recharge likely occurs from surface runoff or tributary streams which intercept or connect with the uppermost groundwater unit higher in the watershed rather than from direct infiltration of precipitation. The information gathered from the Hydrogeologic and Soils Report (Great West, 2023) would be used to inform management and monitoring practices at the expanded landfill site.

Figure 9: Test Pit, Boring, and Monitoring Well Locations



(Source: from Figure 4 of the Lincoln County Hydrogeologic and Soils Report, Great West, 2023)

Not to Scale

3.5.1 Geology

The analysis methods for geology included review of geologic history of the Libby area, 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 10 (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 10** and described within **Table 6**, the Site consists of Andic Dystric Eutrochrepts and Dystrichrepts. These soils are moderately well drained with a high available water supply that is not frequent to flooding or ponding. Depth to water for these soil types is estimated at more than 80 inches. These soils are not prime farmland.

Under the No Action alternative, there would be no additional impacts to the existing soils on the property. The Site would continue to be cleared forestland and no further disturbances would occur beyond present-day site activities.

Under the Proposed Action, soil would be disturbed during construction and disposal activities. The current land use would change from a cleared forest area to a construction/landfill site. Although the Site could be used as open space after closure, it is unlikely this Site will ever be fully restored as forestland given the capped waste that will remain on-site indefinitely. This change in use would result in a minor impact to surface and subsurface soils during the life of the expanded Class II Solid Waste Facility.

Figure 10: Soils Map

Top: Approximate Site Boundary (green); Bottom: Approximate Study Area (red)



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

Not to Scale



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

Not to Scale

Table 6: On-Site Soils Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
102	Andic Dystric Eutrochrepts, lacustrine terraces	11.9	66.1%
108	Andic Dystric Eutrochrepts, lacustrine terraces-Andic Dystric Eutrochrepts, glacial outwash terraces, complex	6.1	33.9%
Totals for Area of Interest		18.0	100.0%

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

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 11** below.

Land cover in the study area is described by the following types and quantities. Descriptions of the predominant vegetative covers are as follows.

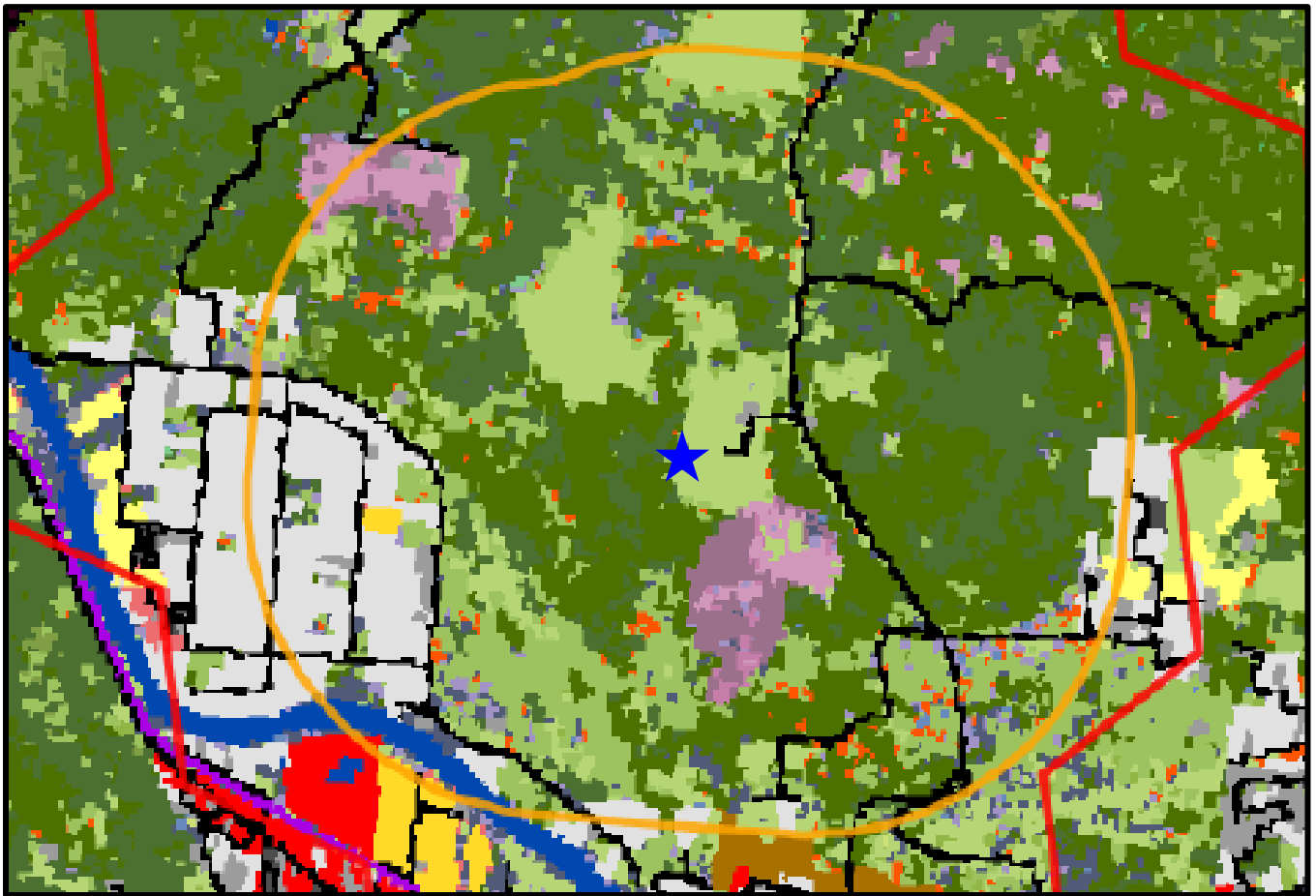
72% Forest and Woodland Systems
50% Conifer-dominated forest and woodland (xeric-mesic)
33% (423 Acres) Rocky Mountain Dry-Mesic Montane Mixed Conifer Forest
17% (211 Acres) Rocky Mountain Ponderosa Pine Woodland and Savanna
<1% (0 Acres) Rocky Mountain Subalpine Dry-Mesic Spruce-Fir Forest and Woodland
22% Conifer-dominated forest and woodland (mesic-wet)
22% (287 Acres) Rocky Mountain Mesic Montane Mixed Conifer Forest
<1% (0 Acres) Rocky Mountain Subalpine Mesic Spruce-Fir Forest and Woodland
<1% Mixed deciduous/coniferous forest and woodland
<1% (0 Acres) Aspen and Mixed Conifer Forest
12% Grassland Systems
12% Montane Grassland
12% (156 Acres) Rocky Mountain Lower Montane, Foothill, and Valley Grassland
<1% (0 Acres) Rocky Mountain Subalpine-Montane Mesic Meadow
10% Recently Disturbed or Modified
9% Harvested Forest
5% (63 Acres) Harvested forest-tree regeneration
3% (35 Acres) Harvested forest-grass regeneration
1% (11 Acres) Harvested forest-shrub regeneration
2% Insect-Killed Forest
2% (21 Acres) Insect-Killed Forest
3% Human Land Use
3% Developed
3% (33 Acres) Other Roads
<1% (3 Acres) Low Intensity Residential
<1% (1 Acres) Developed, Open Space
2% Wetland and Riparian Systems
1% Floodplain and Riparian
1% (19 Acres) Northern Rocky Mountain Lower Montane Riparian Woodland and Shrubland
1% Wet meadow
1% (9 Acres) Alpine-Montane Wet Meadow
<1% Herbaceous Marsh
<1% (3 Acres) Emergent Marsh
<1% Shrubland, Steppe and Savanna Systems
<1% Deciduous Shrubland
<1% (4 Acres) Rocky Mountain Montane-Foothill Deciduous Shrubland

Much of the Site was historically forest and woodland systems that have been cleared. Similarly, the surrounding area is predominantly forest and woodland systems. The MTNHP descriptions of Vegetative Covers for the predominant natural land can be found in *Section 3.3* of this Draft EA.

Under the No Action alternative, the Site would not be approved by DEQ. The Site would continue to be cleared forestland and no further disturbances would occur beyond present-day site activities.

Under the Proposed Action, vegetation would be moderately impacted during construction and operation of the landfill facility. Lincoln County is proposing to cover all waste cells post-closure so the Site can be reused as open space. This would create a moderate long-term impact in vegetative cover at the Site.

Figure 11: Vegetative Cover Map
 Project Site (*blue*); Study Area (*orange*)



(Source: Montana Natural Heritage Program, Environmental Summary Report, 2024)

3.7 Aesthetics

Under the No Action alternative, there would be no additional impacts to aesthetics on the property. The Site would continue to be cleared forestland and no odors would be produced from refuse. The Site is not visible from Pipe Creek Road. 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 do 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 will have objectionable odors. The daily, intermediate, and final covers will 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.

Implementing the Proposed Action would not have any additional impacts on the existing environment, but upon continuing waste disposal activities, a minor impact from odors would remain. The Site is very secluded with no immediately adjacent residences. Additionally, the existing landfill already collects Class II solid waste, so there would be virtually no change in the type or quantity of waste collected daily at the Lincoln County Landfill property. The amount of odors produced daily would remain unchanged.

3.7.2 Vectors

Vectors, which can create health hazards and nuisances, include flies, mosquitoes, rodents, and birds. Vectors would be best controlled by proper spreading, compaction, and covering of incoming wastes.

Implementation of the Proposed Action would not impact the existing environment since Class II waste is already accepted at the existing landfill site. There would not be an anticipated increase in the number of vectors present at the landfill. Facility staff would mitigate vectors regularly by implementing best management practices throughout the facility. The Proposed Action would result in the continued minor impact of vectors on site.

3.7.3 Traffic

According to the Lincoln County Landfill Application, traffic would continue to access the landfill facility via Libby Landfill Road off Pipe Creek Road. Any new roads constructed as part of the landfill expansion will be gravel. Existing public traffic patterns, bridges, and/or culverts would not be impacted.

It is anticipated that there would be temporary, minor impacts to traffic from the Proposed Action. Traffic to/from the landfill would likely increase during construction activities; however, long-term additional traffic is not anticipated. The effects of temporary increases on traffic are expected to be negligible.

3.7.4 Noise

As provided within the Lincoln County Landfill Application, noise control at the Site is needed for comfort and safety of on-site personnel and to avoid nuisance to the surrounding community (Great West, 2023). Fortunately, the Lincoln County Landfill does not have any immediately adjacent neighbors and is relatively secluded.

Noise limitations imposed by the Department of Labor and Industries must be observed to protect employees from hearing damage. The Lincoln County Landfill Operation & Maintenance Plan provided the following procedures which would be implemented at the site to minimize noise:

- Maintain proper mufflers on vehicles and operating equipment
- Periodically monitor equipment decibel levels of each machine
- Provide ear protection devices for operators
- Provide annual hearing tests and training per the Hearing Conservation Program
- Maintain perimeter buffer zones
- Limit operating hours.

Given there would be no change in daily activities at the landfill and that the operational portion of the landfill would be further from the road, no impact is anticipated because of the Proposed Action.

3.7.5 Visuals

Given there would be no change in daily activities at the landfill and that the operational portion of the landfill would be further from the road, no impact is anticipated because of the Proposed Action.

Litter is currently controlled on site with permanent fencing and portable screens. The working face is protected by woodchip piles on high wind days, and oriented to prevent blowing litter under normal conditions. Under the proposed action, litter will have no further impact on the visuals of the site.

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. These impacts are described below.

Airborne Dust:

Air quality 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. Air quality impacts due to general operations are not anticipated to be significant. 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.

As outlined in the license expansion application (Great West, 2023), dust would be expected to occur at the operational face, daily cover excavation area, and along access roads during the operational lifespan of the landfill facility. The amount of dust generated would depend on weather conditions, types of waste loads, and traffic rates. Most dust would likely originate from movement of equipment and vehicles over access and haul roads. Occasionally, loads of dusty waste may be delivered to the Site. The contents of these loads should be identified to ensure they are not hazardous.

To mitigate dust at the working face of the landfill, the following measures would be employed:

- Careful moving of dusty waste and soil
- Prompt covering of light, powdery wastes with other wastes.
- Orienting working face into wind, if feasible
- Minimizing earthwork activities during windy periods
- Installation and maintenance of sealed cab with filters in air system of the compactor, dozers, excavators, haul trucks, and loaders
- Utilize woody/straw/mulch materials as temporary cover when available.

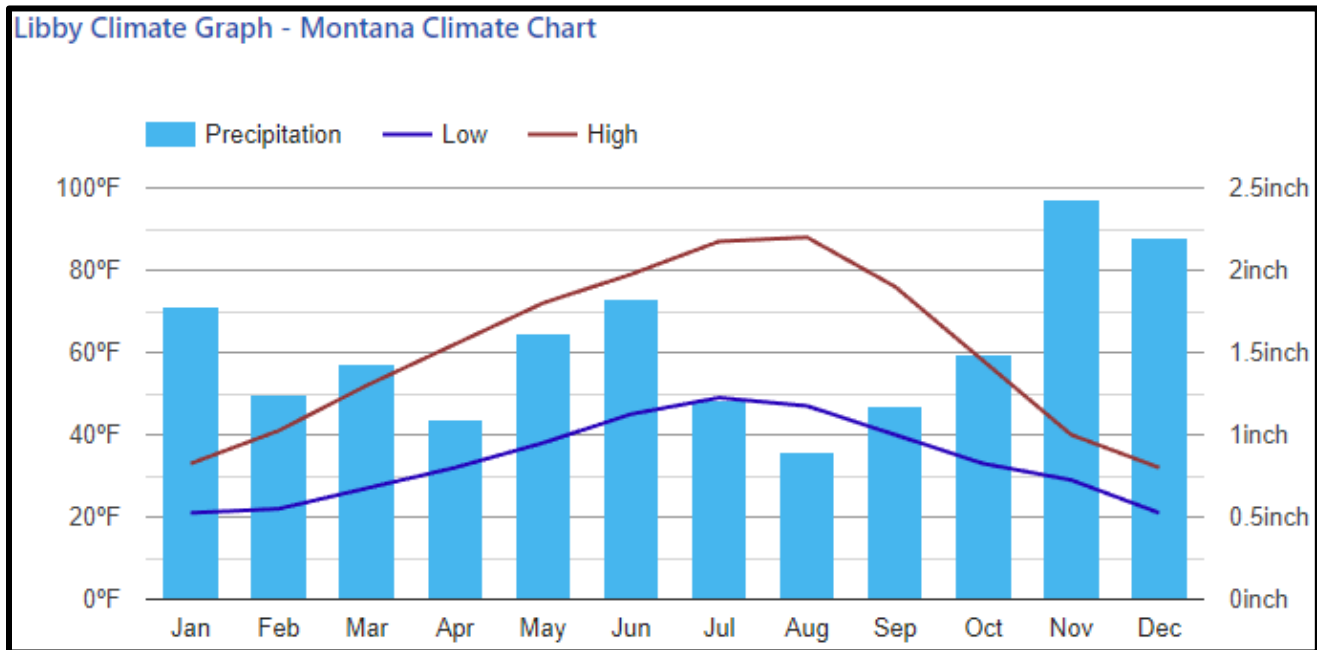
To mitigate dust alongside roads, the following measures would be implemented:

- Gravel surfacing of new roads
- Water spraying
- Grading fine soils from roads during wet periods
- Control vehicle speeds.
- Cleaning of dirt from asphalt road leading to the front entrance after wet periods
- Road oil applied on non-paved road surfaces.

According to U.S. Climate Data, Libby, Montana averages 18.4 inches of rainfall per year and 46 inches of snowfall per year. **Figure 12** (below) shows the average rainfall and high/low temperatures per month for Libby, Montana. Typical seasons show a rainy, late spring as well as weather-intensive winters featuring significant rainfall and snowfall in the region. Spring precipitation peaks in June which averages 1.83 cumulative inches of rainfall. In the winters, November has the highest amount of average rainfall each year

with 2.43 cumulative inches while December has the highest amount of average snowfall each year with 19 cumulative inches. The warmest and driest month of the year is August, experiencing 88-degree Fahrenheit temperatures with an average of 0.89 inches of precipitation.

Figure 12: Climate Graph



(Source: www.usclimatedata.com/climate/libby/montana/united-states/usmt0202)

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 can 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, Lincoln County 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 typical 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 should comply with ARM 17.50.1106. Assuming the design capacity of the entire landfill facility does not exceed established standards, federal and state air emission rules do not require landfill gas testing and collection.

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 14,000 tons of municipal solid waste per year. This would require the use of multiple pickup trucks, dump trucks, water trucks, bobcats, front end loaders, compactors, bulldozers, excavators, and an air curtain burner. Annually, the estimated fuel consumption between gasoline and diesel fuel is 40,846 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 PSR'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 May 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, Lincoln County and DEQ estimates that approximately 40,846 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 PSR's estimate. Using the EPA's simplified GHG Emissions Calculator for mobile sources, 420 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 Libby 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. Lincoln County’s landfill expansion is estimated to produce 0.23548 MMTCO₂e over the life of the landfill. On an annual basis, this would account for 1% of emissions in the Municipal Solid Waste Sector and would account for .0001% 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 50 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 cleared forestland and no further disturbances would occur beyond present-day site activities.

The Lincoln County Landfill Expansion Application (Great West, 2023) includes a list from the State Historic Preservation Office (SHPO) of all previously completed cultural resource surveys and inventories completed in Township 31N, Range 31W, Section 28. The list contains 14 entries dating back as far as 1976. None of the surveys completed reference the Lincoln County Landfill, and study boundaries and associated results are not included in the application. At this time, there are no cultural resources or archaeological sites that would be impacted by the proposed project; however, if any should be encountered during the construction of the landfill expansion, Lincoln County would be expected to report the finding and follow appropriate state and federal requirements.

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.

Since construction of the proposed facility would need to occur, there would be an anticipated minor impact to on-site workers during the construction phases and throughout the life of the expanded Class II facility. Working near vehicles, haul trucks, and heavy machinery will always present a level of danger to site workers. Lincoln County has proposed a Safety Program within their Operation and Maintenance Program that would be implemented and followed at all times. In accordance with their safety program, the following information was provided:

The implementation of a safety program is necessary for protecting life and property from injury and damage. Thorough knowledge of this plan by the landfill employees will be required to facilitate immediate action if any situation should arise. All employees should read and be familiar with [the] Lincoln County Landfill Safety Manual.

Safety at the site is the responsibility of all personnel active at the site. The manager and safety coordinator shall be in charge of implementing the landfill safety program. Records will need to be kept verifying training, accidents, and situations that may lead to unsafe working conditions.

Additionally, health and safety risks should be considered for nearby residents and passersby. The expansion of the landfill would bring heavy machinery and haul trucks closer to residents. Appropriate fencing and signage should be implemented to make the public aware of the operations occurring near Pipe Creek Road. Current litter control strategies (e.g., permanent fence, portable screen, wind breaks, etc.) should continue during construction and operation of this expansion. 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 Lincoln County Landfill would continue to operate normally with the same number of employees until it reaches maximum occupancy, expected in 2027. Upon the landfill reaching its licensed capacity, the current landfill would need to cease taking Class II 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 jobs for up to 29 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 significant 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 significant 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 significant 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 29 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. Lincoln County would continue to operate the adjacent, existing landfill normally, in conjunction with DEQ, and the Site would continue to be cleared forestland with no further disturbances beyond present-day activities.

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 Lincoln County sanitarian would conduct periodic inspections as needed. Existing Lincoln County Landfill staff would oversee operations and maintenance. No additional DEQ staff or other government resources 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 agricultural activities on the property. The Site would continue to be cleared forestland and no further disturbances would occur beyond present-day site activities.

Under the Proposed Action, construction on the Site would be completed to expand the Class II and Class IV landfill area. Currently, the Site is owned by the County and is not publicly accessible for recreation. It is simply undeveloped, unused, county-owned property adjacent to the existing landfill.

Construction of the proposed landfill expansion project would result in a minor increase in industrial activity due to the need for construction contractors and associated equipment and materials. No impacts to commercial or 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.

3.17 Unavoidable Impacts

Under the No Action alternative, there would be no unavoidable impacts to the proposed Site or surrounding study area. The Site would continue to be cleared forestland and no further disturbances would occur beyond present-day site activities.

Residual impacts from the Proposed Action would include the loss of developed soil and vegetation from approximately 14.3 acres of the 17.4-acre site for waste management use. However, topsoil would be placed as part of the cap construction during final closure of the facility. The topsoil would be reseeded with native vegetation. Some sediment control structures would remain, and the capped units would appear as man-made features across the landscape. Post-closure land use would be restricted to open space. No structures that require the placement of footings or foundations are allowed over closed landfill units. DEQ must approve any disturbance of the closed landfill final cover for construction of any structure. Plant communities dominated by native plants would be replaced by reclaimed plant communities on the property. Noxious weeds should be treated to ensure revegetation by native grasses occurs. The disturbed areas would be reclaimed, reseeded, revegetated, and a program implemented to inventory and treat noxious weeds should be implemented.

Additional unavoidable impacts would be the visual development of the proposed site and all necessary machinery and buildings. Local citizens, workers, and passersby will see the operation of an expanded Class II facility. The visual aspect of the Site would change, but closure procedures at the end of the facility's life would allow the Site to be used as open space. This ultimate use would be a net-gain in visual appearance and functionality compared to the present-day cleared forest system at the Site. While it may not fully reclaim the Site to the forest ecosystem that once existed on the property, the open space would still maintain an undeveloped, rural aesthetic which would blend with the surrounding undeveloped, forested, recreational-use areas. It is stated within the Lincoln County application that following waste disposal activities, the Site would be covered in accordance with their Closure Plan. While this is the appropriate closure procedure, a capped landfill would exist on this property indefinitely. Development, reuse, and overall public perception of the property would be significantly impacted.

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

DEQ has made a preliminary decision that 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 approximately 17.4 acres, 14.3 of which would be used to dispose of Class II and Class IV solid wastes, generally including putrescible municipal solid waste, bulky waste, wood waste, non-water-soluble solids (e.g., brick, dirt, rock, rebar-free concrete, brush, lumber, and vehicle tires), general construction and demolition (C&D) waste and asphalt. Class IV asbestos waste would also be disposed of on 3.2 of the 14.3 acres.

The analysis area for vegetation is the Rocky Mountain Dry-Mesic Montane Mixed Conifer Forest and Rocky Mountain Mesic Montane Mixed Conifer Forest, including the Site. These forests are common in northwestern Montana and are not unique or limited. The Site is surrounded by an extensive amount of similar land. The Site is not located within Sage Grouse core habitat, general habitat, or connectivity area. DEQ does not expect the Proposed Action would adversely affect any threatened or endangered species.

The Proposed Action is not expected to impact surface water resources. Stormwater from the Site is collected in stormwater retention pond designed to handle a 25-year, 24-hour storm event. Stormwater drains from the pond to an intermittent riverine system to the south of the Site. Perimeter ditches and berms prevent run-on from entering the Site. A small pond feature on the property to the north of the Site accumulates water seasonally where it is absorbed or evaporates.

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

With proper mitigation strategies in place, earthwork and landfilling during implementation of the Proposed Action is expected to have minor impacts on ground and surface water resources.

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

Great West Engineering
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

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