WOLFDEN

Wolfden Mt. Chase LLC

Petition to Rezone Portion of Township 6, Range 6 Penobscot County, Maine for Development of an Underground Metallic Mineral Deposit

Submitted to:

Maine Land Use Planning Commission

Date: January 26, 2020

Revised June 30, 2020

WOLFDEN

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LIST OF EXHIBITS

APPENDICES

Attachment B	A legal description and delineation of the property boundaries proposed for redistricting, including names, addresses and affiliations of current owners and any other entities having a legal interest in the property.
Attachment C	Names and addresses of property owners located within 1,000 feet of the subject property.
Attachment D	A preliminary plan for general location and timing of the elements of the Pickett Mountain Mine project.
Attachment E	A location map drawn to scale on the most recent version of the USGS topographic map and a LUPC Land Use Guidance Map that indicates the area for which a D-PD Development Subdistrict designation is sought and the estimated boundaries of the ore body proposed to be explored or mined.
Attachment F	A map drawn to scale of at least 1 inch to 100 feet showing existing site conditions, including contours at 10 foot intervals or less, water courses, unique or unusual natural conditions, forest cover, wetlands, known or likely deer wintering areas, lakes, ponds, existing structures, road and transportation routes, property boundaries and names of adjoining property owners, scenic locations and other prominent topographical and natural resource features.
Attachment G	A soils map of low intensity that encompasses those portions of the property proposed for D- PD Development Subdistrict designation, including identification of soils used in the USDA Soil Series.
Attachment H	Surficial and bedrock geology maps at a scale of 1:24,000, or largest scale available, of the property proposed for D-PD Development Subdistrict designation.
Attachment I	A map and or description of the location of public, private and industrial water supplies as well as mapped aquifers located within a three-mile radius of the mining area or exploration site;
Attachment J	A map and description of the location and extent of existing infrastructure to include roadways and transportation routes to be utilized, potential impacts on this existing infrastructure, as well as infrastructure to be constructed or improved.
Attachment K	A map identifying significant natural resources and sensitive natural areas located within a three-mile radius of the mining area or exploration site including protected water bodies, significant wildlife and plant areas,

	fragile mountain areas, historic sites, scenic resources, public lands, registered critical areas, and LUPC subdistricts.
Attachment L	A map and description of existing uses, such as recreational, within a three-mile radius of the mining area or exploration site.
Attachment M	A description of general measures that may be undertaken to assure that mining in the specified location will not have undue adverse impacts on existing uses, resources and measures that a permittee may take to avoid, minimize or mitigate any adverse impacts;
Attachment N	A description of socioeconomic impacts, both positive and negative, of the proposed metallic mineral mining or level C mineral exploration activities upon the immediate area and communities within and adjacent to the LUPC's jurisdiction likely to be affected by the proposed activities, as well as to the county and state.
Attachment O	An evaluation of the sufficiency of existing services and utilities, a description of any general measures necessary to increase those service capacities and an examination of the burdens on communities or government to provide those services.
Attachment P	An explanation of how this proposal is consistent with the standards and purpose of the D-PD Development Subdistrict.
Attachment Q	A description of the anticipated site conditions following closure and the potential for future reclamation and beneficial use of the affected area.
Attachment R	Proposed Land Use Activities and Structure Allowed in the Picket Mountain (D-PD) Planned Development Subdistrict

LIST OF ACRONYMS

Ag	Silver
Au	Gold
AAPT	Average Annual Daily Transportation
AM	Ante Meridiem – (before noon)
ATV	All-Terrain Vehicle
CLUP	Comprehensive Land Use Plan
Cu	Copper
DEP	Maine Department of Environmental Protection
DOT	Department of Transportation
dB	Decibels
EL	Elevation
ft	Feet
IF&W	Inland Fisheries and Wildlife
LMA	Local Market Area
LUPC	Land Use Planning Commission
M	Million
MDIF&W	Maine Department Inland Fisheries and Wildlife
MEDOT	Maine Department of Transportation
MHPC	Maine Historic Preservation Commission
Mi	Miles
MNAP	Maine Natural Areas Program (Department of Conservation)
M-GN	General Management
MRSA	Maine Revised Statues
M^3/d	Cubic meters/day
NWI	National Wetlands Inventory

Pb	Lead
P-DP	Planned Development
PM	Post Meridiem (after noon)
%	Percent
RSU	Regional School Unit
RTE	Rare Threatened or Endangered
SR	State Route
TMF	Tailings Management Facility
T	Tonnes
tpd or t/d	Tonnes per day
UNK	Unknown
Zn	Zinc

References

Gerber and Hebson, 1996 In Geologic Society of Maine, Bulletin 4 Selected Papers on the Hydrology of Maine. Pages 23-52.

Maine Land Use Planning Commission
Department of Agriculture, Conservation and Forestry

Tracking No.	ZP Permit No.	$ Fee Received

Zoning Petition

for Petitions to Rezone to Most Subdistricts

If you propose to rezone any portion of your land area to a Resource Plan Protection (P-RP) Subdistrict, **STOP HERE!** You cannot use this form. Contact the LUPC office that serves your area if you have questions.

1A. PETITIONER INFORMATION

Petitioner Name(s)Wolfden Mt. Chase LLC; a wholly owned subsidiary of Wolfden Resources Corporation	Petitioner Title *(if representative of a corporation, etc.)* Ron Little, President and CEO of Wolfden Resources Corporation; Sole Owner of Wolfden Mt. Chase LLC	
Daytime Phone (613) 862 3699	FAX *(if applicable)*	
Mailing Address 1100 Russell Street Unit 5	Email *(if applicable)* *rlittle@wolfdenresources.com*	
[	State Ontario	Zip Code P7B 5N2

1B. AGENT INFORMATION (If applicable)

Agent Name(s)	Daytime Phone	FAX *(if applicable)*
Business Name		
Mailing Address	Email *(if applicable)*	
Town	State	Zip Code

2. PETITIONER AND/OR AGENT SIGNATURES

Petitioner: All persons, or authorized representatives of corporations, listed on the deed(s), lease(s) or sales contract as owners or lessees of the property must read the following statement and sign below.

☐ If an Agent is listed above, I hereby authorize that individual or business to act as my legal agent in all matters relating to this petition.

☒ If an Agent is not listed above, I have personally examined and am familiar with the information submitted in this petition, including the accompanying exhibits and supplements, and to the best of my knowledge and belief, this petition is complete with all necessary exhibits. The information in this petition is a true and adequate depiction of what currently exists on, and what is proposed at, the property. I understand that I am ultimately responsible for complying with all regulations, conditions and limitations of any petitions and permits issued to me by the Commission.

Please check **one** of the boxes below: *(see "Accessing the Project Site for Site Evaluation and Inspection" just prior to the application form)*

☒ I authorize staff of the Land Use Planning Commission to access the project site as necessary at any reasonable hour for the purpose of evaluating the site to verify the application materials I have submitted, and for the purpose of inspecting for compliance with statutory and regulatory requirements, and the terms and conditions of my permit.

☐ I request that staff of the Land Use Planning Commission make reasonable efforts to contact me in advance to obtain my permission to fully access the project site for purposes of any necessary site evaluation and compliance inspection.

*The person(s) signing below must demonstrate that they have a legal right to apply for this petition, either as the petitioner or Maine DEP a legal agreement or other written contract with the petitioner. (**See Exhibit B**).*

Petitioner Signature _____ **Date** 1/26/20

Agent: *All agents listed above must read the following statement and sign below.*

I understand that I am hereby authorized by the above-listed petitioner to act as their legal agent in all matters relating to this zoning petition. I have personally examined and am familiar with the information submitted in this petition, including the accompanying exhibits and supplements, and to the best of my knowledge and belief, this petition is complete with all necessary exhibits. I understand that if the petition is incomplete or without any required exhibits that it will result in delays in processing the petition. The information in this petition is a true and adequate depiction of what currently exists on, and what is proposed at, the property. I certify
that I will provide any final action by the Commission on this petition and associated conditions to the petitioner. I will ensure that the petitioner understand that they are ultimately responsible for complying with all regulations, conditions and limitations of any petitions and permits issued by the Commission as they regard this property.

*If the petitioner has not signed above, the petition must include legal documentation designating the agent listed above as a representative of the petitioner in matters such as these. (**See Exhibit B**).*

Agent Signature _____ **Date** _____

3. PROPERTY LOCATION. Provide the following details about your property location. Tax plan and lot numbers are listed on your property tax bill. Book and page numbers are listed on your deed. If you lease your property, check your lease to find out whether any unique lease lot numbers have been assigned to the property.

Township, Town or Plantation T6R6 WELS, Maine	County Penobscot

If your property is located in one of the following Prospectively Zoned Plantations or Townships, please contact the LUPC office that serves your area prior to completing this form: Adamstown Twp., Dallas Plt., Lincoln Plt., Magalloway Plt., Rangeley Plt., Richardsontown Twp., Sandy River Plt., Township C, Township D, or Township E.

Tax Information *(check tax bill)* Map:1 Plan: Lot: 2 Map: Plan: Lot: Map: Plan: Lot:	Deed or Lease Information *(check deed or lease)* Book:14672 Page:27 Lease #: Book: Page: Lease #:
Lot size 7,145 Acres *(in acres, or in square feet if less than 1 acre)*	**Lot Coverage** *(in square feet)*
All Current Zoning on Property *(check the appropriate LUPC map)* **M-GN, P-GP, P-WL1,P-WL-2, P-WL3, P-SG, P-SL2**	**Current Zoning at Development Site: M-GN**
Road Frontage. List the name(s) and frontage(s) (in feet) for any public or private roads, or other rights-of-way adjacent to your lot: Road #1 NA Frontage ft. Road #2 Frontage	**Water Frontage.** List the name(s) and frontage(s) (in feet) for any lakes, ponds, rivers, streams, or other waters **on** or **(&) adjacent** to your lot: Waterbody #1 Pickett Mountain Pond Frontage 17,300 ft. Waterbody #2 Pleasant and Mud Lakes Frontage 48,860 ft.

Provide, as **EXHIBIT A**, a location map. See page iv of the instructions for more detail regarding this exhibit.

Provide, as **EXHIBIT B**, your deed, lease or easement. See page iv of the instructions for more detail regarding this exhibit.

4. PROJECT DESCRIPTION. Provide a brief summary of your proposal, including a general description of the project, including proposed development, number of lots (if applicable), roads, and land use activities.

The proposed development includes construction of facilities necessary for ~~initial~~ development, operation and closure of an underground metallic mineral mine. Access to the mine operations area will be by existing gravel roads that will be subject to ongoing maintenance and improvements for safety. The area to be rezoned from a General Management (M-GN) to a Planned Development (D-PD) subdistrict encompasses approximately 528.2 acres. Impervious surfaces ~~throughout the property~~ represent a total of 17.59% of the proposed ~~total~~ footprint and 1.3% of the wholly owned 7145 acre parcel. Building structures represent an area of 2.8 acres, lined facilities and impervious areas represent an area of ~~96.48~~93.71 acres (including ~~91.7~~78.4 acres for a lined tailings facility). An additional 22.8 acres outside of the proposed boundary is required for access road upgrades. The total impacted or cleared area within the proposed boundary for rezoning is ~~136.01~~2052.77 acres. The total impacted area including access road upgrades leading to the property is ~~157.61~~28~~43~~.54 acres.

The project will be completed in four phases:

Phase 1 Permitting

Phase 2 Construction

Phase 3 Operations

Proposed Zoning. List all proposed zoning designations (contact the LUPC office that serves your area if you have questions).

If your proposal includes rezoning lands to or from one of the following subdistricts, be sure to provide as **EXHIBIT G,** the necessary documentation, data, and/or maps that support the proposed change:

Aquifer Protection (P-AR) Subdistrict;
Soil and Geology Protection (P-SG) Subdistrict; or
Fish and Wildlife Protection (P-FW) Subdistrict;
Wetland Protection (P-WL) Subdistrict

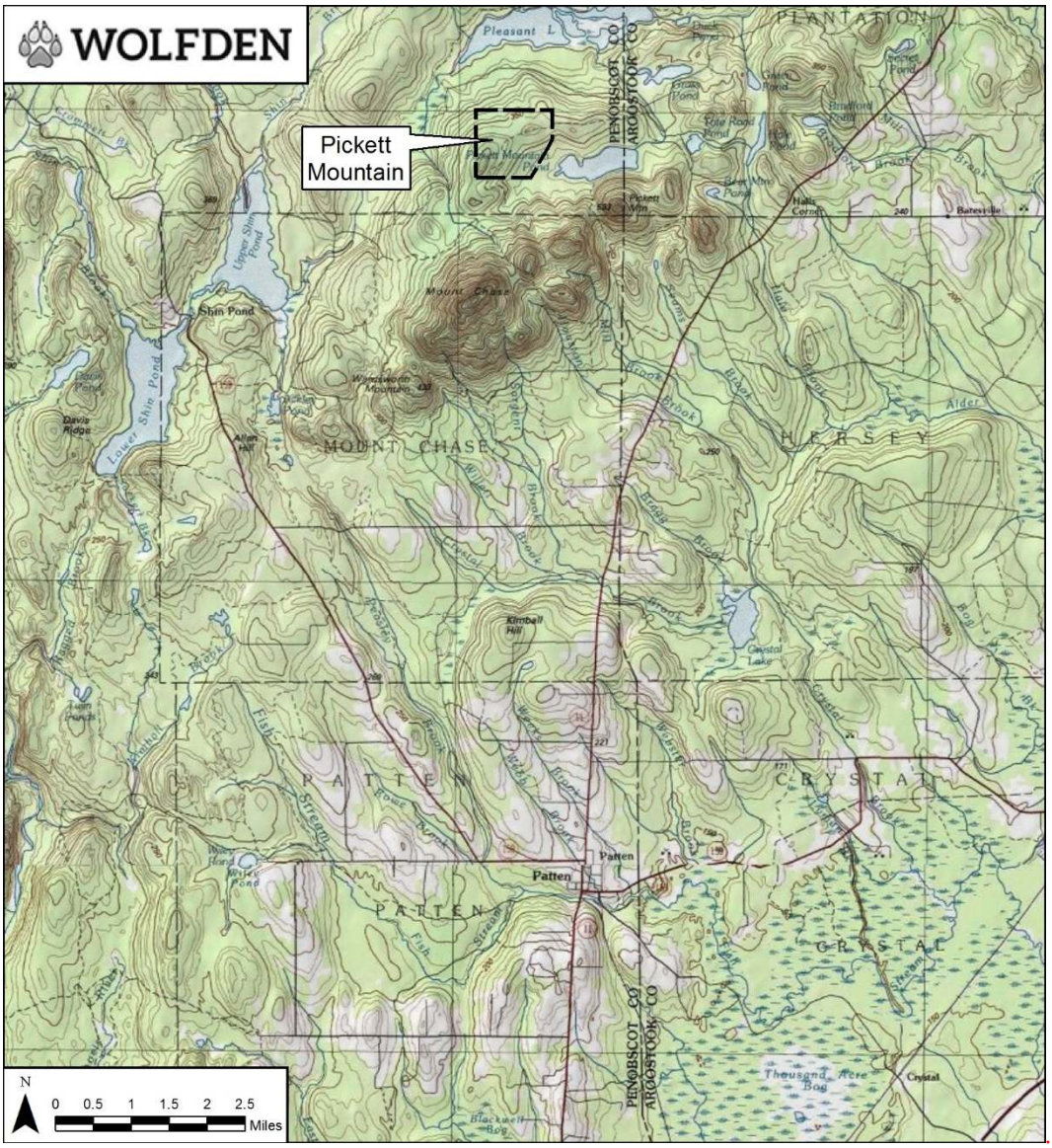
See page v of the instructions for more detail regarding this exhibit.

Proposed Project Name *(if applicable)* ***Pickett Mountain Mine***

Project Description

Wolfden Mt. Chase LLC (Wolfden) is requesting a subdistrict change to a 528.2 acre area of land that is currently within a General Management subdistrict in order to allow for construction, mining, milling, closure and reclamation activities to occur over an estimated duration of 10-15 years. This specific area is required for subdistrict change due to the nature of mining operations. The geological resource has been identified in this location and in order to safely, and responsibly extract the minerals, the project site is fixed. The design takes advantage of topographic relief in a manner that supports future closure of the property with little impact to the original landscape.

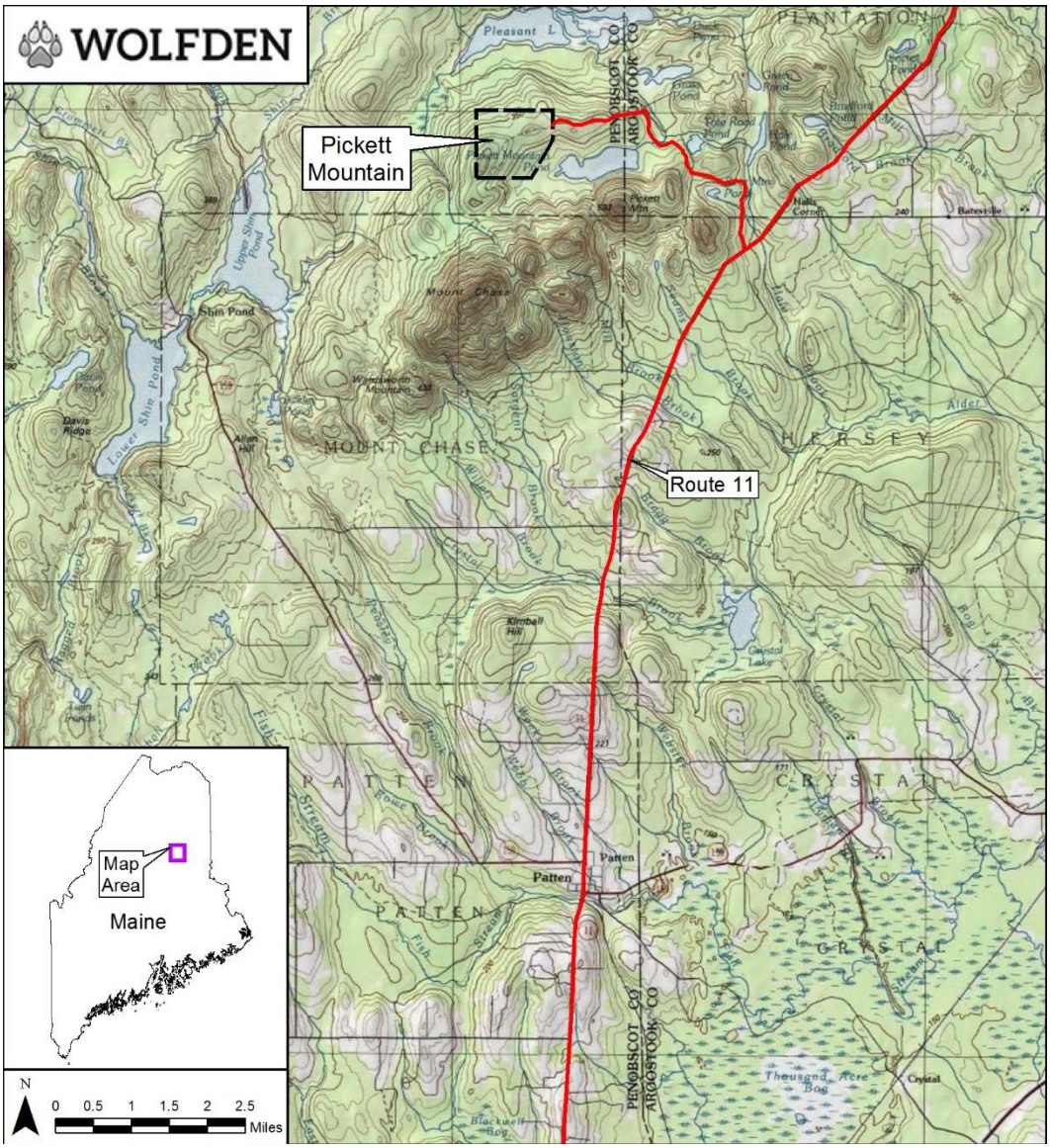
The project has been named Pickett Mountain and is located north of Patten bordering both Penobscot and Aroostook Counties as shown in the following location map.



Location Map of Proposed Project

Access to the project site is via an existing logging road. The road is constructed in a manner that is sufficient to support the concentrate truck fleet, as well as delivery logistics and employee traffic. The road width currently ranges between 12-15 feet . ~~–~~ b~~B~~ased on Maine DOT "Lane Width and Shoulder Width – C1" dated November 10/2010, a minimum road with of a HCP 6 roadway with a speed limit of less than 40 mph is 11 – 12~~ft~~ feet with a

1-3~~ft~~ feet shoulder per lane for a total minimum of 22-24~~ft~~ feet with a 2-6~~ft~~ feet shoulder. In order to support safe travel of additional traffic, a road expansion of ~8-12~~7~~ feet to ~24~~2~~ feet is required over the total road length of 5.1 miles. In addition to the road way expansion, additional clearing of 10' on each side of the road way will take place in areas where visibility is constricted. Finally, 18 feet (inclusive of the 10' visibility clearing) of clearing will be completed along the one side of the access road to accommodate the over head power line. Discussed later in this report.

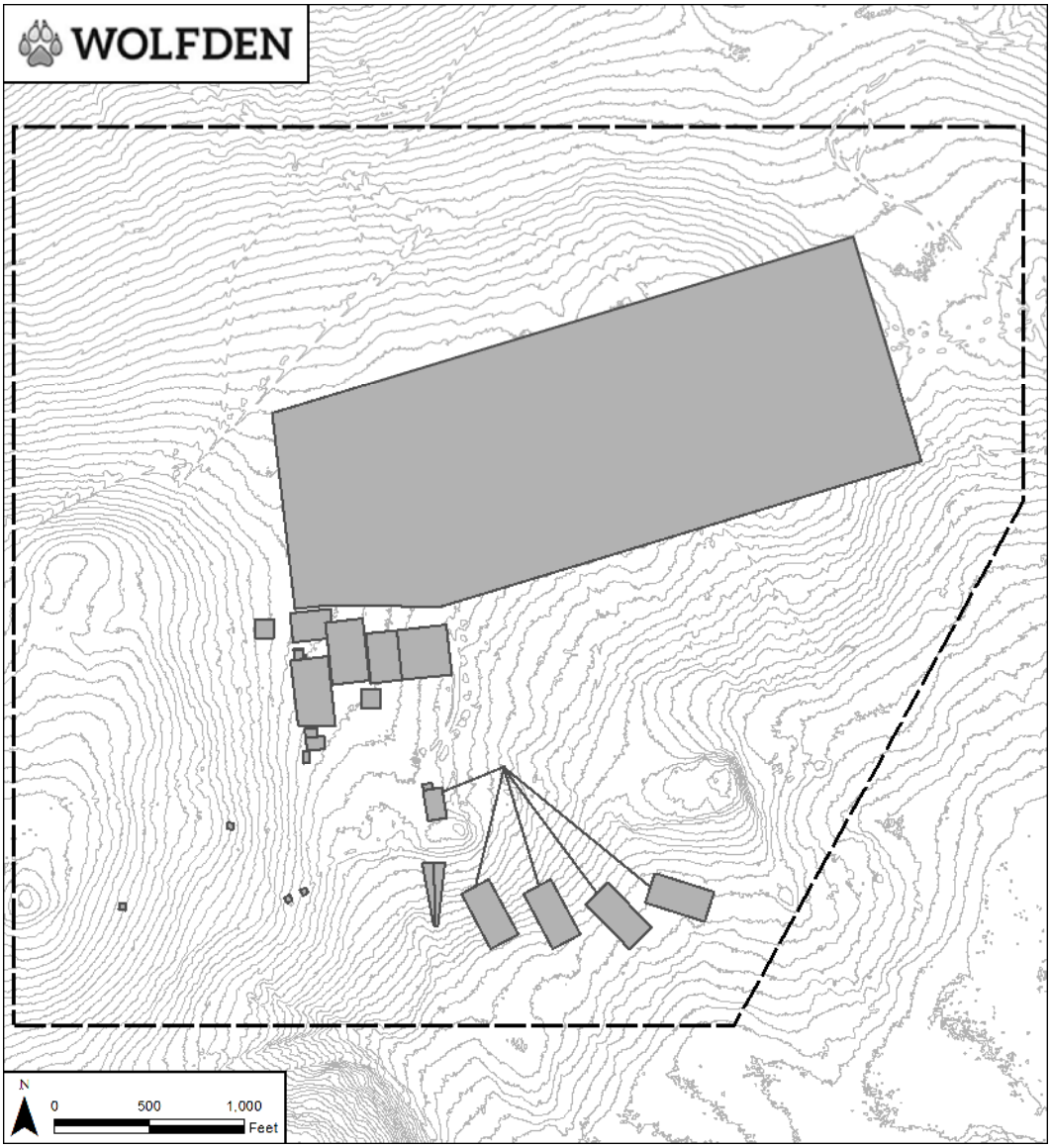


Site Access from Route 11 North of Patten Maine.

Pickett Mountain, is a high-grade base metal deposit primarily composed of Zinc, Lead, Copper, Silver and Gold as economic minerals of interest. The intended process is to excavate valuable in-situ minerals (ore) from underground via drilling and blasting into manageable -sized fragments that can be -loaded into underground trucks and hauled to surface to be stored on a temporary stockpile for milling (crushing and grinding to a fine dust) and concentrating. Milling and concentrating with occur continuously at a nominal rate of 1000 tonnes per day (tpd). The concentrator will use flotation technology to separate the valuable minerals (concentrate) from the non-valuable minerals (tailings). Three concentrates will be produced in sequence; copper, lead then zinc, with each dewatered and stored separately for transportation to a selected smelter outside the State of Maine. Transportation will be facilitated using truck and trailer combinations with optimized capacity for the amount of

concentrate produced. Waste byproduct (Tailings) will be dewatered and thickened into a "tacky sand" consistency and delivered via trucks and dozers to an approved Tailings Management Facility (TMF) where they can be shaped and contoured.~~.~~ Water from the dewatering of the tailings and concentrates will be recirculated in the processing plant. The TMF will be lined in such a way as to ensure that any decant water, precipitation, or other water introductions will be collected and not allowed to come in contact with the water table below. The total footprint of the TMF is expected to be approximately 78.4~~91.7~~ acres built in 5~~three~~ sections sequentially over the life of the operation. Each section shall be ~15~~30.6~~ acres and will be operated and then closed as the section opens in order to manage the ~~reclaimation~~reclamation process on an ongoing basis and minimize risks and exposure. All water collected from the TMF will be and pumped back into the milling circuit described above along with some make up water. The milling process is expected to have a net negative water balance, such that some fresh ground water will be required to keep the entire milling and concentrating process working and none of these waters will be discharged to the environment.

A series of ancillary activities will be required to support the project. These include electrical generation/distribution, maintenance/mechanical support, security, water management and treatment, warehousing and procurement, accounting, human resources management, health and safety management, environmental management and community relations. All ancillary activities will occur on the project site. The conceptual location of each of these activities is shown in the following figure. The building designations, including their functions and approximate sizes and types are identified in Exhibit D-2. The tallest structure on the project site will be the concentrator building at an estimated 60 feet tall.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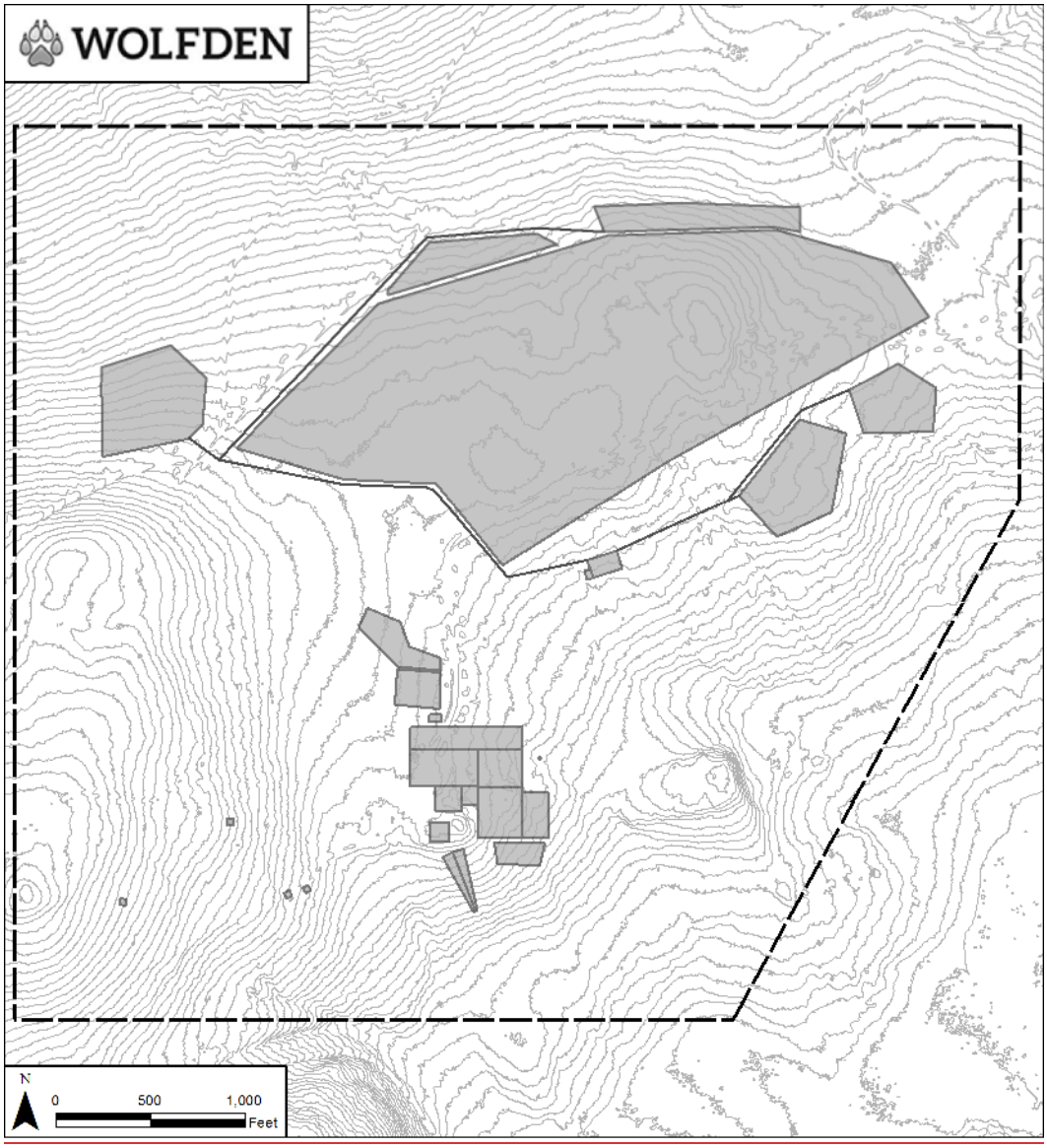


Conceptual Location of Buildings and Facilities

The project will also, separate from this Petition, establish a new power transmission service line to supply additional needed electrical power for the project.

The power transmission route has been discussed with Emera Maine and would run from their substation located on Route 11, located approximately 0.6 miles south of downtown Patten, Maine. The transmission line would run north and northeast along Route 11 for approximately 9.5 miles then follow the same gravel access road proposed for the mine for approximately 5.1 miles. The corridor width for the power transmission route is considered in the forecasted road width and is 18 feet in addition to the shoulder of the proposed expanded roadway. Main transmission powerlines will be managed by Emera to a termination point at the main substation on the property. The main site power infrastructure will be managed by employees and contractors hired by the company. The estimated footprint of the main substation area is 10,000 square feet and it is identified on the following map west of the access road.

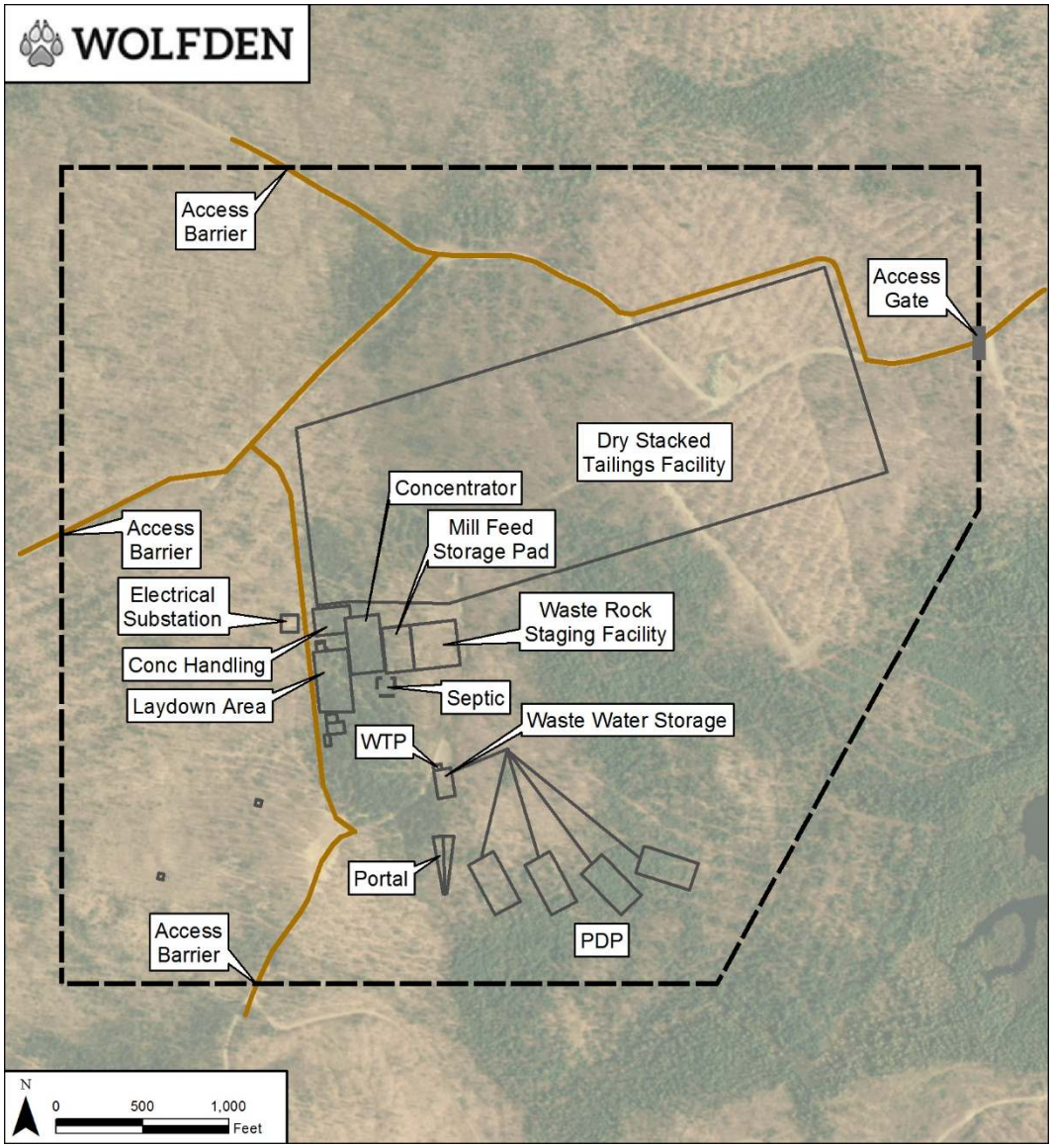
Access to the property will be managed by a series of fixed barricades at each road access to the property as well as a stationed security facility and traffic gate at the east boundary of the re-zoned property as shown in the following image. "Danger" and "No Unauthorized Entry" signs will be posted around the perimeter of the property boundary within visual distance of any point of the boundary. The boundary will not be fenced at any

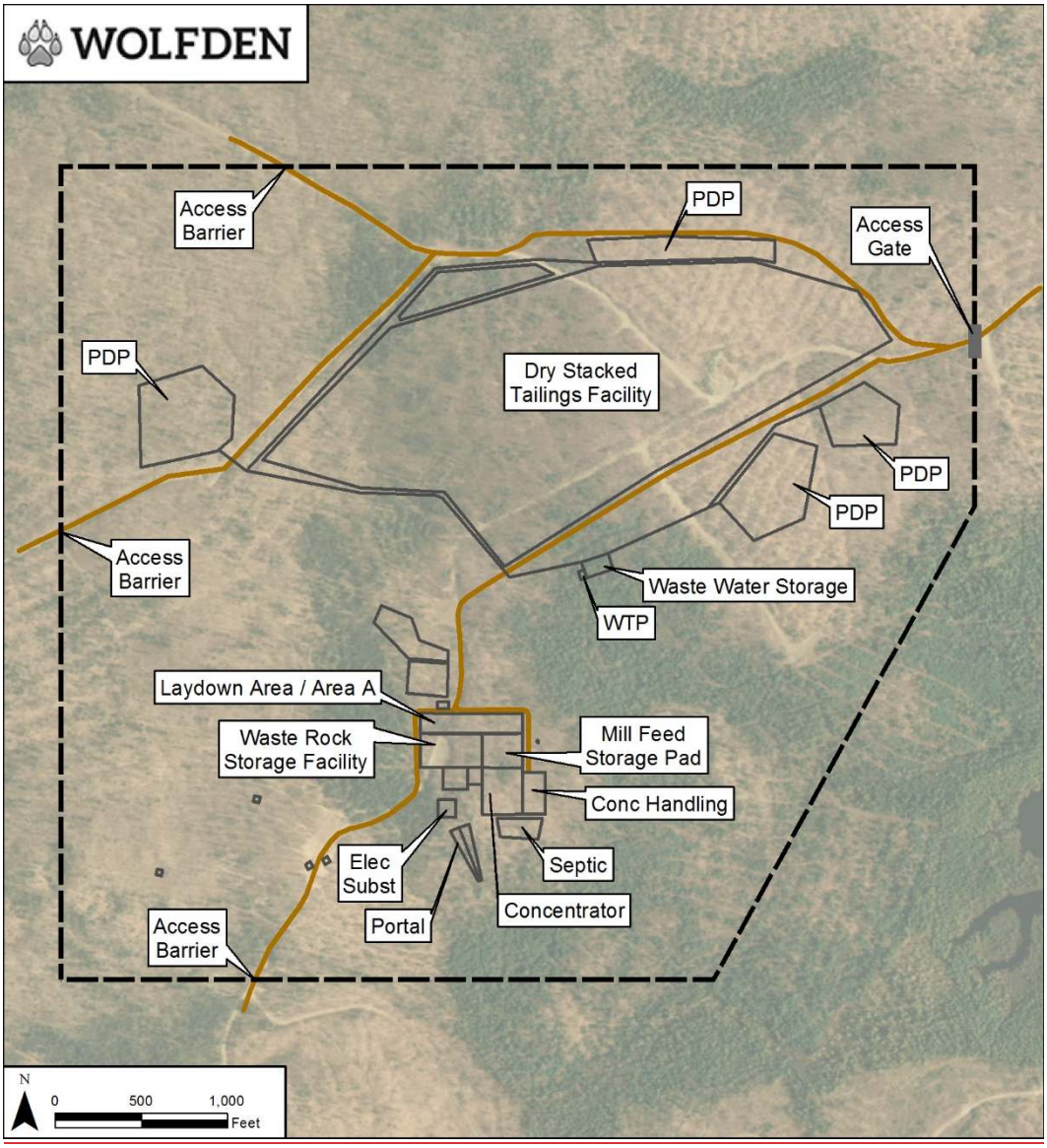
point of the project life. Security will be hired through contract for 24 hour per day/ 7 day per week coverage. Within the property, the explosives are stored in locked facilities with regular logging of activity and management of supply. Once the mine has been developed substantially, the explosives are then stored in an

excavation specifically designed to contain explosives and managed by specifically assigned employees. Explosives will be managed per federal and state regulations.

All high voltage electrical infrastructure is fenced in or otherwise enclosed to ensure access is restricted to trained employees only.

Signage throughout the site will be posted to notify all people access requirements such as personal protective equipment and training.





Security and Fixed Barrier Locations

The life of the project can be broken down into four phases. Permitting, Construction, Production and, Reclamation/Remediation. Each of these phases will occur sequentially however the latter three phases will also overlap to ensure smooth transitions, including concurrent reclamation, as described below.

Phase 1 – Permitting:

The permitting steps for this project under chapters 10, 12 and 13 of the LUPC's rules and DEP's Chapter 200 rules are as follows:

- Rezoning for appropriate land use.

The land that the Picket Mountain deposit is located on is currently zoned as General Management subdistrict (M-GN). For construction, operating and rehabilitation work to take place, it must be rezoned to a Planned Development subdistrict (P-DP) which allows for development work outside of standard development. The process of rezoning is to:

- Establish a conceptual project plan.
- Submit a rezoning petition outlining the details and potential impacts of the plan.
- Confer with the LUPC and public identifying all opportunities and risks and mitigation plans to address risks.
- Receive the LUPC's approval of the rezoning petition.

Once the land has been rezoned for project development, a mining permit application may be submitted to the DEP. The following steps would be taken as part of submitting a mining permit application for approval:

- Design of the baseline study work for environmental, biological, and archeological status of the property.
- Review and approval of the baseline work with the DEP.
- Complete baseline study work for environmental, biological, and archeological status of the property.
- Submit the baseline study results as well as detailed construction, operation, and reclamation plans for the life of the project including the project outcomes such as economics and anticipated impacts on the environment, population, economy, infrastructure, etc.
- Receive DEP's conditional approval of the mining permit application.

Phase 2 - Construction:

Upon completion and approval of the mining permit application, the project may move forward to construction. Construction of the Pickett Mountain Mine project will include the following activities (not necessarily in this order):

- Removal of trees and grub the land to be used will happen throughout the construction on an as needed basis to ensure no over stripping of land.
- Construction of roadways to various locations at site.
- Construction of mineralized and waste rock pads.
- Installation of temporary explosives magazines (Rental from supplier).
- Installation of ground and surface water monitoring locations.
- Installation of air monitoring systems.
- Construction of the water management ponds and discharge structures.
- Construction of the water treatment facility.
- Construction of temporary shop facility.
- Excavation of the mine portal and installation of temporary mining services (compressed air, power generation, ventilation, process water).
- Commence mining development.
- Excavation of ventilation raise to surface.
- Installation of potable water system.
- Installation of security infrastructure.
- Installation of mine offices and dry facility (Change house).
- Installation of warehouse and laydown area.
- Installation of electrical substation
- Tie in electrical infrastructure to newly installed grid (Completed by others)
- Construction of TMF stage 1.
- Construction of concentrator and supporting facilities.
- Construction of permanent shop facility.

Grubbed material will be managed on-site. Most of the timber and stumps are small, and to the extent timber removed has limited or no economic value, it will be chipped on-site for use as erosion control materials, including stumpage. Stumps too large for chipping will be stored with the organic topsoils in a pen less than one acre and allowed to decompose until used at the end of the project during reclamation.

Waste materials during construction such as excess concrete are sent back to the supplier for proper management.

Construction will typically utilize as much local or state skill sets as possible and the majority of material used during construction will be sourced locally or within the State of Maine. Specialty skillsets, services, and materials will be sourced externally as required and are expected to include such items as the flotation and ball mill equipment and services within the concentrator, as well as initial or contract mining services. As programs advance through construction, skillsets will be built and trained locally to continuously convert external services to in-state services.

Phase 3 – Operation:

As the site is constructed and the concentrator facilities are finalized, development of underground workings will continue to take place. Waste rock excavated from the mine will be deposited and stored on the surface pad and mineralized material will be stored on the mill feed pad. The mineralized ore will be stockpiled on the pad and used during the commissioning of the concentrator. Upon completion of commissioning of the concentrator, regular operations of mining, crushing, concentration and shipping will commence. During this phase of steady-state operations, significant and continuous training to upskill a local workforce is anticipated related to the mining, processing and support services which are currently estimated to last 8-9 years. Programs in training and education will occur to facilitate a working pool of employees to ensure stability of the operation support of the local workforce.

All activities will occur continuously during the operation phase in order to explore, develop, extract, concentrate and sell minerals from the project. As the project nears final completion, activities will stop sequentially.

Exploration will continue during the operation phase of the project with the intent to define additional reserves for mining and processing through the operation. Activities included in exploration are as follows:

- Diamond Drilling
- Exploration Geology, Geophysics, Mapping, Soil Sampling, Trenching
- Drilling, Core Logging
- Geotechnical Drilling and Logging
- Geological Modelling and Reserve Estimation

Development activities will occur to provide access and service drifts (tunnels) from surface to the deposit. If deeper extensions of the ore deposit are discovered during the mining process, a shaft from surface may be necessary to access and haul ore from these deeper areas. Various types of underground workings include:

- A portal (opening at surface) for the commencement of a ramp (decline) will be used from surface to access the underground workings and act as a haulage route for manpower, materials, rock and ventilation.
- Lateral drifts on each working level connect the ramp to the deposit underground.

- Ventilation raises are near vertical tunnels that are used to provide clean air or exhaust to and from all of the drifts and ramps in order to provide workers with a clean air environment.
- Auxiliary raises/drifts are tunnels used to carry services such as compressed air, process water, dewatering, electrical, secondary and escape routes for the mine.
- Underground infrastructure with short termination (dead-end drifts) include, refuge stations, water collection sumps and pumping stations, electrical distribution substations, material storage areas, remucks (Rock storage areas), explosives storages, and washroom facilities.

Activities used for development will include:

- Horizontal development drilling is typically completed using a~~n~~ ~~hydrolic~~hydraulic jumbo drill (carrier mounted drills) and an operator in the larger drifts. Small drifts may be mined by jackleg.
- Vertical or inclined openings may be mined by a jackleg, stoper or wag~~a~~on drill.
- Blasting is performed using hand-held pneumatic loaders or by hand loading emulsions sticks into the drilled holes. Blasting occurs, typically two to three times per day once everyone is confirmed out of the mine.
- Mucking is a term to describe the removal of the rock (ore or waste) from a development heading typically with a scoop tram (Low profile front end loader). The rock is placed into a low profile truck for haulage to surface or remuck location for further handling.
- Haulage is completed using underground low profile haul-trucks that are loaded by the scoop trams. The trucks are used for hauling rock (ore and waste) out of the mine as well as hauling waste rock and cement back into the mine during the backfilling phase.
- Ground support such bolts, screen/mesh and rebar are typically used as required to ensure rock stability of the walls and roof of the underground workings in order to ensure safety for all workers throughout the project life. This is completed according to an engineering procedure and planning and varies based on type of rock, locations, duration of opening, etc. The tasks included in ground support are drilling holes, installing a steel mesh screen over the rock face and securing it in place using various tendons or "rock bolts".
- In addition to ground support, other underground construction may include cement work, timber work, steel work, plumbing, electrical work, in order to provide necessary services and improve safety.

Extraction/production activities will be continuous and repetitive compared to other activities that take place in the mine. Once various production areas in the mine are prepared, production miners will take over and accomplish the following activities in order to provide ~1000 tonnes per day of ore mill feed material to surface:

- Production drilling at Pickett Mountain will comprise near vertical holes on rings within a production area or panel (stope). These rings are drilled in a distributed grid to effectively distribute explosives throughout the panel for optimized fragmentation of the rocks.
- Blasting practices are similar in process to development but on a larger scale and in vertical holes vs horizontal holes. These activities are typical performed by hand including the loading of explosives into the drilled blast holes.
- Mucking is similar to the development activity. However, mucking for production is sometimes done via remote control in order to reduce the risk of injury to the operator.
- Haulage of ore is similar to the haulage of development rock activity.
- Backfilling is complete after a production area has been completed and there is a significant void left behind to be filled. Backfilling can occur using a scoop tram dumping waste material back into the void. This material is typically waste rock that has been hauled to surface during the development phase.

Concentration of ore mill feed takes place on surface via the concentrator facilities and is described in detail in another section of this Petition. The activities that will occur within the concentrator to separate the valuable minerals from the non-valuable minerals will include the following:

- Comminution is the act of crushing and grinding the ore mill feed material to a fine powder. The grain size of the powder is specifically targeted to liberate or expose the valuable minerals within the rock with the least amount of grinding and energy.
- Flotation is a process that involves mixing several reagents with the ground rock in a series of baths then injecting air bubbles. The chemicals cause the valuable minerals to selectively attach to the bubbles. The bubbles then float to the top of the bath and overflow producing concentrate. The materials that are not selectively floated (sank in the bath) are collected, cleaned and sent to the TMF.
- Reagent mix is completed to ensure that various chemicals within the process are prepared and delivered when and where designed.
- Each of the products generated from the flotation process are thickened to a thick paste then dried to a predetermined specification. This is typically performed by a type of pressure filter.
- Tailings (waste byproduct) is the remaining ground rock that did not float into a valuable concentrate. This material is cleaned and thickened so that it can be stored on surface within an engineered facility in order to mitigate any potential impacts to the environment that could be caused by this material. The full management of tailings is discussed in detail in another chapter of this Petition.

The concentrator will generate three separate concentrates of copper, lead and zinc that will be transported and sold to a smelter for further refinement into metals that can be used by industry. Transportation from Pickett Mountain will be via truck and trailer designed to haul concentrates and hauled on the existing highways infrastructure. A description of this process is described in greater detail further below.

Phase 4 – Reclamation/Remediation

The overall design and operational strategy at Pickett Mountain is to limit and maintain a small environmental impact throughout all phases of the project (construction and operation). For example, as the project generates tailings from production, they will be stored in separate cells, such that a completed cell will be closed and reclaimed while the next cell is in use. A series of three tailings cells will be constructed throughout the project life. Closure of the first cell will be completed after it has been filled to design capacity. Cell 2 will be constructed in conjunction with this timeframe to ensure continued operation of the concentrator facility. Cell 3 will be developed prior to cell 2 closure. Closure of each cell will consist of a similar process described later in this report which ~~.This~~ will spread the closure and reclamation over the life of the project, rather than at the end. The o~~O~~ngoing closure can be monitored and adjusted to maximize efficiencies and effectiveness.

Upon completion of the project, final reclamation activities will take place. These activities will be based on a previously engineered and approved reclamation plan required by the mining application. A description of this process is described in greater detail in a subsequent section of this Petition.

The majority of the required reclamation work will be completed by a skilled workforce from the state and include

- Decommissioning, sale and salvage of steel and site buildings.
- Ground surface cleanup and contouring.

- Spreading overburden, soils and final capping material (vegetation and seeding) on the impacted sites and final tailings cell.
- Construction of underground opening blockages (plugs.)
- Removal of pond and storage pad infrastructure.
- Continued operation of water treatment facility and monitoring of water quality.

A high-level schedule of the 4 project phases is shown in the following chart.

Year	Years from Mining Permit Approval														
	-2	-1	0	1	2	3	4	5	6	7	8	9	10	11	12
Permitting Phase															
Conceptual Plan															
Rezoning Petition Submission															
Dialogue with Commission															
Approval of Rezoning															
Mining Application Initiated															
Baseline Study Work Proposal															
Baseline Study Work Approval															
Baseline Study Work Execution															
Mining Application Final Submission															
Mining Permit Approval															
Construction Phase															
Removal of trees and grub the land.															
Construction of roadways and working areas															
Construction of mineralized and waste rock pads.															
Installation of Temporary Power Generation.															
Installation of temporary explosives magazines (Rental from supplier).															
Installation of ground and surface water monitoring locations.															
Installation of air monitoring systems.															
Construction of the water management ponds and discharge structures.															
Construction of the water treatment facility.															
Construction of temporary shop facility.															
Excavation of the mine portal and services															
Begin mining development.															
Excavation of ventilation raise to surface.															
Installation of potable water system.															
Installation of security infrastructure.															
Installation of mine offices and dry facility.															
Installation of warehouse and laydown area.															
Installation of electrical substation															
Tie in electrical infrastructure grid															
Construction of TMF stage 1															
Construction of TMF stage 2															
Construction of TMF stage 3															
Construction of Concentrator and supporting facilities.															
Construction of permanent shop facility.															
Operations Phase															
Mine Development															
Mine Production Ramp Up															
Commercial Production															
Production Ramp Down															
Mine Closure															
Reclamation Phase															
Decomissioning of site buildings															
Site final cleanup and contouring															
Capping and closure of tailings facility															
Spread stored overburden and capping material on impacted sites															
Construction of underground blockages (Plugs)															
Removal of Pond and storage pad infrastructure															
Operation of water treatment facility															
Removal of water treatment facility															
Ground and surface water monitoring program															

High Level Schedule of Mine Permitting, Construction, Operation and Reclamation

5. ACREAGE. Specify the acreage proposed for rezoning under "Acres to be Developed." If your petition to rezone is intended for subsequent subdivision, specify the acreage proposed to be retained by the petitioner under "Retained Acres." Specify the total amount of contiguous land area that is owned or leased by the petitioner within the township, town or plantation of the project area under "Total Contiguous Acres." "Total Contiguous Acres" should equal the sum of "Acres to be Developed" and "Retained Acres."

Acres to be Rezoned / Developed: ~~197.5~~528.2 (by Deed)	Acres to retain current zoning: **6,**616.8~~947.5~~	Total Contiguous Acres: **7,145**

6. SITE CONDITIONS. Describe in detail the present condition of your property and areas to be rezoned, including the nature of any water frontage (rocky, sandy, wooded, cleared, etc.); the general slope and topography of the ground (flat, steep, percent slope, etc.); existing vegetation; the history of vegetation clearing and timber harvesting activities; hydrologic features, including whether portions of the site are subject to flooding or ponding; special natural features, such as rare or unique plants or plant communities; and other natural and cultural conditions.

Water Frontage: The area proposed for rezoning does not have water frontage. The area proposed to be rezoned is approximately 7.39~~2.76~~ % of the total property. The balance of the Wolfden property (outside the area proposed for rezoning) includes Pleasant Lake and the western portions of Mud Lake and Pickett Mountain Pond. The water frontage of Pickett Mountain Pond is approximately 17,300 feet and wooded including adjacent areas outside of the Wolfden property. Combined Pleasant and Mud Lakes have a frontage of approximately 48,860 feet and are wooded including eastern Mud Lake which is outside the Wolfden

Slope and Topography: Topography within the area proposed for rezoning is gently sloping where development is proposed. Minimum slopes of 0.02 ~~ft~~ feet/~~ft~~ feet to maximum slopes of 0.04 ~~ft~~ feet/~~ft~~ feet (2%-4%). Area proposed is along a broad and relatively flat upland ridge. The remainder of the Wolfden property has a wide range of topographic conditions from flat lying forested and wetland areas around the previously mentioned lakes and streams, to a series of moderate mountain peaks, including Pickett Mountain to the south (el. 1,753 ~~ft~~ feet), a prominent ridge line in middle of the property (maximum el. 1,330 ~~ft~~ feet), to a series of unnamed ridges north of Pleasant Lake ranging from 1,146 ~~ft~~ feet to 1,100 ~~ft~~ feet. The steepest hill slopes are around Pickett Mountain which rises approximately 710 feet above Picket Mountain Pond at an average slope of 0.3 ~~ft~~ feet/~~ft~~ feet.

Existing Vegetation: The area proposed for rezoning is primarily upland forested habitat, co-dominated by deciduous trees (i.e., beech, birch, and red maple trees) and coniferous trees (i.e., spruce, fir, cedar and hemlock). The area has been logged in the past and is currently in vegetative re-growth, while part of the area may be harvested during the development of the operation. It is presumed the forest habitat of the balance of the Wolfden property is dominated by similar deciduous and coniferous tree species.

Hydrologic Features: The area proposed for rezoning contains at ~~least two intermittent~~ streams associated with forested wetlands and vernal pools that have ~~yet to be fully~~been mapped and characterized. The Wolfden property includes lakes, ponds, and streams, including Pleasant Lake, Pickett Mountain Pond, Mud Pond, and West Branch of the Mattawamkeag River. Depth to groundwater is shallow, where observed and intermittent stream features are present as discussed further below. Groundwater hydrology has not been formally characterized. A moderate yield sand and gravel aquifer has been mapped on the northern side of Pleasant Lake.

Wetlands: During site reconnaissance within the area proposed for rezoning, wetlands, potential vernal pools, and intermittent streams were observed. A detailed wetland and vernal pool survey was conducted during the growing season and amphibian breeding season ~~is planned for the~~in Spring of 2020. A report of the findings is presented in Exhibit D. The final design permitted by DEP will ~~attempt~~ be able to ~~avoid or minimize to the extent practical~~ impacts to these resources and but would mitigate unavoidable impacts should they be necessary. Within the balance of the Wolfden property, NWI mapped forested wetland and scrub-shrub wetlands are present surrounding drainages and streams associated with the lakes and ponds. Wetlands of special significance are also associated with areas between Pleasant Lake and Mud Lake and surrounding Mud Lake.

Special Natural Areas: Special natural areas have not been observed during site reconnaissance and the Maine Natural Area Program (MNAP) has prepared an environmental site review and identified no rare botanical features in the project area based on available data. Wolfden will work with the MNAP to document RTE and exemplary botanical features ~~in the lakeside graminoid/shrub fen between Pleasant and Mud Lakes~~as part of the baseline study under MEDEP Chapter 200 rules.

Natural and Cultural Conditions: A Phase 0 archeological survey ~~will~~ was~~be~~ conducted in the Spring of 2020. The scope of the survey has been developed in consultation with the MHPC to identify the potential presence of historic or prehistoric cultural features. ~~A Phase 1 survey will follow if necessary~~Results are presented in Exhibit M.

7. CURRENT USE OF PROPERTY.

How has your property been used over the past ten years?

☐ Residential ☐ Residential with home occupation ☐ Commercial or industrial

■ Undeveloped / Forestry ☐ Public or institutional ☐ Other: _____

8. EXISTING STRUCTURES AND DEVELOPMENT. Please list any structures or development on your property, such as roads, residences, accessory structures, driveways, trails and/or other uses.

Type of use or structure (dwelling, garage, driveway, commercial, recreation, etc.)	Year built	Exterior dimensions (in feet) (LxWxH)	Type of foundation (full basement, slab, post, etc.)	Distance (in feet) of structure from nearest:					
				Road	Property line	Lake or pond	River or stream	Wetland	Ocean
Gravel Logging Roads	UNK	Various							
No other existing structures									

9. PETITIONS TO REZONE TO A MANAGEMENT OR PROTECTION SUBDISTRICT.

If your petition proposes to rezone to a Management or Protection Subdistrict please complete item 9; If NOT, continue to item 10.

Describe how the proposed new subdistrict designation is more appropriate for the protection and management of existing uses and resources within the affected area.

Not Applicable

10. FLOOD AREA ZONING.

📌 See page ii of the instructions for additional information for, and explanation of, each question.

a. Is any portion of the area proposed for rezoning located within: i) a mapped P-FP (Flood Prone Area Protection) Subdistrict, ii) a mapped FEMA (Federal Emergency Management Agency) flood zone, or iii) an unmapped area prone to flooding? ☐ **YES** ■ **NO**

If you are unsure whether your property is in a mapped P-FP Subdistrict contact the LUPC office that serves your area or review the official zoning map. If you are unsure whether your property is in a mapped FEMA flood zone, first check whether your property is in one of the townships listed on page ii of the instructions and, if so, contact the LUPC office that serves your area.

If you answer NO to 10.a, above, *go to Section 11*.

If you answer YES to 10.a, above, please continue to items 10.b through d. Note that more than one of the following may apply.

📌 Note, if this petition proposes to leave unchanged the P-FP or mapped FEMA flood zone, yet proposes to add or change other zoning designations, be aware that in the P-FP Subdistrict:
- some uses may require specific limitations or design requirements; or
- subsequent permitting procedures may require that you hire a licensed land surveyor, engineer or architect who is authorized to certify elevation information.

📌 See page ii of the instructions for illustrations of items c through e.

b. Does this petition propose to remove any part of a mapped P-FP Subdistrict? ☐ **YES** ■ **NO**

c. Does this petition propose to affect any areas in a mapped FEMA flood zone? ☐ **YES** ■ **NO**

d. Does this petition propose to add a mapped P-FP Subdistrict? ☐ **YES** ■ **NO**

If you answer YES to 10 b, c, or d above, be sure to provide the necessary information as EXHIBIT E. See page v of the instructions for more detail regarding EXHIBIT E.

📌 Unless advised otherwise by the LUPC staff, **if your petition only proposes to rezone land areas to a Management or Protection Subdistrict you may STOP HERE, but**, be sure to review and include the exhibits and supplements required by previous items and by the checklist included before the instructions. However, **if your petition proposes to rezone land areas to a Development Subdistrict, please continue and complete the rest of this zoning petition form**.

11. PUBLIC AND COMMUNITY SERVICES.

Service / feature	Name of provider / facility	Distance (in miles) from site:
Ambulance	Island Falls Ambulance Service	23
Education	RSU 89, (Stacyville, ME)	30 / 18.5
Fire	Island Falls Volunteer Fire Department	23
Police	Penobscot County Sherriff Dept. (Bangor) / Aroostook County Sheriff	90 / 45
Solid waste disposal (during construction: construction debris, stumps, brush, asphalt and pavement products)	Casella Waste Management (Houlton ME)	44
Solid waste disposal (after construction, *if different*)	Same	
Public water supply *(if applicable)*	NA	
Public wastewater *(if applicable)*	NA	
Public road	State Highway Route 11	4.5
Service center	Houlton, ME	39
Electric utilities	Emera Maine (New power transmission line from Patten)	14.6
Phone/Internet utilities	~~Cable- Spectrum~~Viasat Highspeed – Clearconnect (~~Satelite~~Satellite)	NA ~~5.1~~

Provide as **EXHIBIT L**, either: i) a letter from each service provider confirming the facility's availability and capacity to provide the necessary services to the proposed development; OR ii) only in cases where the rezoning is for legally existing development, provide notice of the rezoning proposal to each service provider and provide, as EXHIBIT L, proof of such notice. All zoning petitions intended for residential development must submit such exhibits for education services, regardless whether the dwelling units are anticipated to be seasonal or year-round dwellings. See page vi of the instructions for more detail regarding this exhibit.

Public services, such as those identified above, are commonly provided by a municipality, or in the case of much of the unorganized territories, these services are provided or contracted for, by the county. In some cases, service centers may provide some of these public services. Service centers are identified by the Department of Agriculture, Conservation and Forestry's Municipal Planning Assistance Program. A partial listing of those near the Commission's jurisdiction includes: Ashland, Augusta, Bethel, Bingham, Brewer, Bridgeton, Calais, Caribou, Dexter, Dover-Foxcroft, Eastport, Ellsworth, Farmington, Fort Kent, Greenville, Guilford, Houlton, Jackman, Limestone, Lincoln, Machias, Madawaska, Mars Hill, Mexico, Milbridge, Millinocket, Newport, Norway, Orono, Pittsfield, Presque Isle, Rangeley, Rumford, Van Buren. For a more complete listing, check with the Municipal Planning Assistance Program at www.maine.gov/dacf/municipalplanning/index.shtml.

12. ACCESS TO SITE.

a. Starting with the closest public road, then each successive road, provide the following information about each existing road that will be used to access the area proposed for rezoning.

Road name	Public or private? *(if private, complete the rest of this row)*	Owner name	Length and travel width of road	Right-of-way width	Type of wearing surface
See Appendix A Attachment J	Private	Wolden Mt. Chase LLC	5.1 mi /15 ft	NA	Gravel

If access to your site is limited as part of your deed, lease, easement or other covenants, be sure to include a copy of such restrictions or provisions as part of **EXHIBIT B**. See page iv of the instructions for more detail regarding this exhibit.

b. Water Only Access- Not Applicable

13. SURROUNDING USES.

A. Within one mile of the site, the area is forested and is currently in use for wood harvesting. In general, the area beyond one mile is surrounded by commercial forests. The site has been logged within the last 7 to 10 years and is in vegetative regrowth. Pickett Mountain Pond is within one mile of the site and Pleasant Lake (and nearby Mud Lake) are slightly beyond a mile. Maine Department of Inland Fisheries and Game surveys (1958 and 1953 respectively) indicate both are shallow mud bottom ponds with warm temperatures at all depths in summer months. The ponds did not have conditions supportive of cold-water fish species at the time of these surveys, but inlet and outlet streams (West Branch of the Mattawamkeag River, Pickett Mountain Stream and Spring Brook) provided spawning and nursing areas for trout. The use of these ponds and streams for recreational use is not restricted. There are a small number of seasonal residences around Pleasant Lake. Two residences are located within 675 feet of the southern shore, and four residences are located along the northern shore within 1,600 feet of the outlet to Mud Lake. ~~These residences are from 1 mile to 1.6 miles from the closest border of the area proposed for rezoning.~~ These are depicted in **Appendix A-Attachment B.**

B. Beyond the six seasonal residences / house lots depicted in Attachment B, there are no other residential or commercial enterprises or other established land uses proximal to the site. The Wolfden property is occasionally used for motorized recreation (ATVs and snow mobiles) and these uses foreseeably may continue outside the area of the future operations and any main access roads (although Wolfden reserves the right to assert its property interests against trespassers and assumes no liability for trespass on its property). Roads accessing private parcels within the Wolfden tract are established right of ways to these properties and their use will also continue.

14. ANTICIPATED IMPACTS.

This Petition contains information on how the proposed Pickett Mountain Mine project meets the criteria for approval to change the current General Management (M-GN) subdistrict to a D-PD Development subdistrict for Metallic Mineral Mining. This includes positive impacts within and adjacent to the LUPCs jurisdiction, positive impacts associated with transportation routes, and potential reclamation and beneficial reuse of the land after mining. These discussions are provided in **Appendix A Sections B(2)(a),(b) and (c)**.

Possible negative impacts of the rezoning are discussed in **Appendix A Sections B(2)(a),(b) and (c)**, and **Appendix A Sections B(3)(a),(b), (c) and (d)**.

These discussions are not repeated here to avoid unnecessary duplication in this Petition.

15. CONSISTENCY WITH COMPREHENSIVE PLAN.

Consistency with the LUPC's Comprehensive Land Use Plan

The Comprehensive Land Use Plan (CLUP) provides for sound planning practices in the public interest to encourage and manage multiple uses of land and resources within the LUPC's jurisdiction. The following subsections describe how the proposed rezoning fits within the CLUP, and how the planned Pickett Mountain Mine project would meet the CLUP's goals and policies.

BROAD GOALS

The Pickett Mountain deposit is a unique mineral resource that is ideally situated to allow mineral extraction in an environmentally responsible manner through underground mining while ensuring the following:

- Enhancing the living and working conditions of the people of Maine including property owners and residents by creating an economic benefit in terms of capital investment, training, jobs and enhanced tax base within host and adjacent communities and counties.
- The proposed rezoning will meet the goal of separating incompatible uses. The area that is proposed for rezoning is currently a general management subdistrict (M-GN) that has been used for timber, and outside the proposed activity the logging operations can continue. The proposed rezoning will not impact any great ponds.
- The proposed project is designed to have a small foot print (approximately ~~197.5~~528.2~~122.7~~ acres) with a comprehensive water management plan that will ensure protection of adjacent natural resources including groundwater and surface water quality, forest resources, wildlife and other natural resource values such as plant and animal habitat. The current information available indicates no known occurrences of endangered, threatened or special concern species within the project area. The IF&W also has not mapped any significant wildlife habitats within the project area. Based on current information from the MNAP, rare and exemplary botanical features are not present or not expected to be present in the area proposed for rezoning. The MNAP did identify a priority area for a botanical survey on the Wolfden property located between Pleasant and Mud Lakes. This area is a graminoid/shrub fen and ~~a survey is planned to determine the whether or not rare plants or natural community types are present~~is unlikely to be affected by the project. Additional studies of terrestrial flora and fauna and aquatic fauna inside and outside the area to be rezoned will be conducted as part of the baseline monitoring program under the MEDEP Chapter 200 rules
- The proposed project will allow continued use of forest resources related to logging for wood and fiber production on Wolfden's property.

DEVELOPMENT GOALS AND POLICIES

Location of Development

The Pickett Mountain Mine project location is dictated by the unique geologic conditions that resulted in the formation of a mineral deposit of economic value. As such there are no alternatives to the project location and the project is exempt from the policy of adjacency. The location and physical relationship of the mineralized zones to surrounding topography and water bodies allows the deposit to be developed by underground mining methods which when combined with carefully managed mine water collection and treatment systems will allow mine development, operation and closure without impacting water quality of these adjacent resources. The manner in which the project will be designed shall be subject to avoidance and mitigation, to the extent possible, of protected natural resources including but not limited to wetlands, vernal pools, rare and endangered species including plants and wildlife. Therefore, aside from adjacency, the project as proposed, meets the LUPC's development goals and polices with respect to project location.

The project is also unique in having a finite duration currently anticipated to be from 10 - 15 years. Therefore, unavoidable impacts to resources such as wetlands are ephemeral or short lived, and resource values and functions can and will be restored upon project completion. The reclamation of the proposed site will sequentially remove all buildings and structures including the water treatment systems when they are no longer required or needed. Once the access to underground workings are permanently sealed and the site is regraded and revegetated it will attain the natural character and values that existed prior to mining. An above ground sub-aerial TMF will remain at closure. The TMF will be designed with a liner in accordance with DEP Chapter 200 requirements. This area will contain tailings that have been stabilized and compacted and which could present some risk to the environment if not managed properly. These risks will however be managed by collection and treatment of water that comes in contact with these materials during operations and capping at closure. ~~The higher sulfide bearing tailings will be stabilized and used as a structural backfill in the underground mine working and will not present any risk.~~ The above ground TMF will be constructed and graded to follow the original upland land surface at an elevation approximately ~~ten~~22226 feet higher over approximately ~~92~~42 78.4 acres. This approach will preserve the current appearance of the ridgeline post reclamation. This area will also be revegetated and designed to allow regrowth of natural ground cover as discussed in later sections of this Petition.

Thus while meeting many of the goals related to location of development, the project is also consistent with and meets CLUP polices including:

Policy 1 Development that is directed to a suitable area and retains the principal values including a working forest, and integrity of natural resources.

Policy 2 The project location is near existing towns (the nearest community being Hersey (4.5 miles) and Patton (9.5 miles) with proximity and connectivity by public roads to other organized town and economic centers, with adequate available public infrastructure and services.

Policy 7 Project allows for (a) planned development dependent on a particular natural feature which is the presence of a metallic mineral resource.

Economic Development

One of the CLUP's goals is to encourage economic development that is connected to local economies, is efficient in its use of existing services and ~~infrastructure, and~~infrastructure and is compatible with existing natural resources and surrounding land uses.

The project will provide direct and substantial economic benefit to the local communities (see **Appendix A-Attachment N**). This benefit is in the form of job skills training, primary wages to local employees, wages that are spent in the local economy, an increase in property tax revenue, and indirect wages at secondary jobs that help support the mining operations (mechanical equipment repair, vehicle maintenance, road maintenance, solid waste management, and other specialized services).

The site is in vegetative regrowth from past logging efforts that are estimated to have occurred from 7 to 10 years ago. Wolfden actively leases its timber rights to a local logging company, preserving productive use of its working forests. The proposed development will be largely self-sufficient and not impose an undue burden on local community services or resources (see **Appendix A-Attachment O**). The project will require importation of approximately 6 megawatts of electrical supply which is larger than is currently available locally. This will require construction of approximately 14.6 miles of new transmission line along Route 11 and the existing private gravel access road.

The project occupies a largely upland area removed from adjacent lakes and ponds and would not impact water quality of such water bodies or affect related fish and wildlife resources during the active period of the project. Plants and natural communities that are located outside of the proposed area of land disturbance would not be impacted. If rare and exemplary botanical features are identified on-site in subsequent surveys impacts will be avoided to the extent possible, and such plant communities would be relocated or protected pending concurrence with the MNAP. The planned grading of the TMF will limit ridgeline impacts which will help mitigate scenic impacts. The presence of cultural resources, including historic logging camps and related structures are not known to be present on the site. A Phase 0 archeological survey will be conducted in the spring of 2020 to assess the presence of cultural

features. The Phase 0 survey will also evaluate the potential for prehistoric archeological resources. A known prehistoric archeological site is in close proximity to the east end of Pickett Pond. Since the extent of the site is limited in size, other mountain areas and other geologic resources would not be impacted.

The site is not in a remote area of the jurisdiction, being located approximately five miles from state highway SR-11 and is accessed by well developed, existing gravel roads on private property. The planned development of the site will occur along a portion of a ridgeline and at project completion the final profile of the ridgeline would be elevated approximately ~~1~~220~~0~~ feet from existing ground surface and parallel to the original profile. This slight alteration should not diminish overall character of the area and regrowth of vegetation common to the area is expected as part of the reclamation.

In addition to these goals the project also meets many elements of the CLUP's policies including the following items:

Policy 1 Encourage other resource-based industries and enterprises which further the jurisdiction's tradition of multiple use without diminishing its principal values.

Policy 4 Allow new technologies (sub-aerial tailings) which will provide the LUPC the opportunity to evaluate the technology and its effectiveness.

Site Review

A goal of the CLUP is to assure that development fits harmoniously into the existing communities, neighborhoods and the natural environment.

The nature of the proposed project, its location and the proposed reclamation, as discussed in following sections, would ensure a harmonious relationship to the natural environment and local communities.

In addition the project will meet established noise and lighting requirements of the CLUP as specified under section10.25.F

Noise. The maximum permissible continuous sound pressure level allowable in a D-PD district is determined by the LUPC. Specified maximum sound levels range from 70 dB(A) in daytime (7 am,~~AM~~ to 7 pm~~PM~~) to 65dB(A) at night (7 pm~~PM~~ to 7 am~~AM~~) for certain subdistricts (commercial-industrial for example) to 55dB(A) and 45dB(A) for all unspecified subdistricts. Construction activities conducted between 7 am~~AM~~ and 7 pm~~PM~~ are exempt from 10.25F. Other exempt activities include but are not limited to safety and warning signals, traffic on roadways, etc.

During the mine construction phase, noise will be created from construction equipment operating above ground, including drilling and minor blasting. Once the underground

development has progressed, blasting will be occurring below ground and will no longer be a source of noise above ground.

During mine operations, the noise source with the largest pressure levels will be the fans used to ventilate the underground workings. Rock crushing is also a source of noise but less so than the ventilation fans. Once crushed, the final milling of the mineralized rock is conducted within a building and is not a large source of noise. The 2 ventilation fans will typically produce 110 decibels (dB) and can be dampened up to 20% to operate at approximately 88 dB. Adding in additional noise sources, a combined noise source estimate is as follows:

∑ dB = 10*Log10 (10^ (L1/10) + 10 ^(L2/10)+10^ (Ln/10))

where L1, L2 ….Ln are the separate source sound levels in dB

		L1 Fan	L2 Fan	L3 Truck	L4 Truck	L5 Loader
Dampening	20%	110	110			
Source dB	L	88	88	88	88	85

∑ dB = 94.533

		L1 Fan	L2 Fan	L3 Truck	L4 Truck	L5 Loader
Dampening	0%	110	110			
Source dB	L	110	110	88	88	85

∑ dB = 113.044

Reduction in pressure levels with increasing distance from a source is described by an inverse square law. The most conservative assumption would a free field where sound is traveling over an unobstructed plane with no barriers between the source and receptor. Barriers that would exist at the site include buildings and tree lines. Sound is also dampened (absorbed) by the ground and vegetation.

Assuming a free field condition (unobstructed path) reduction in sound would be described as:

$dL = Lp2 - Lp1$

$= 10 \log (R2 / R1)^2$

$= 20 \log (R2 / R1)$

where

dL = difference in sound pressure level (dB)

Lp1 = sound pressure level at location 1 (dB)

Lp2 = sound pressure level at location 2 (dB)

R1 = distance from source to location 1 (ft, m)

R2 = distance from source to location 2 (ft, m)

A "free field" is defined as a flat surface without obstructions.

Assume L1 is 1 foot from the source at measured decibels

The nearest property boundary from the preliminary location of the ventilation fans is approximately 3,000 feet to the south, near Fire Road C. The nearest residence is approximately 8,850 feet to the northeast, on the south side of Pleasant Lake. Applying this equation yields the following reduction with distance from the source.

							Nearest Property Boundary			**Nearest Residence**
Source dB (Undampened Fan)	113	113	113	113	113	113	113.04	113	113	113.04
L1 (ft)	1	1	1	1	1	1	1	1	1	1
L2 (ft)	1	10	100	500	1000	2000	**3000**	4000	5000	**8550**
dl=	0.0	20.0	40.0	54.0	60.0	66.0	69.5	72.0	74.0	78.6
Receptor dB	113.0	93.0	73.0	59.1	53.0	47.0	43.5	41.0	39.1	34.4
With 20% Dampening	20%									
Combined Source (dB)	94.5									
Receptor dB	94.5	74.5	54.5	40.6	34.5	28.5	**25.0**	22.5	20.6	**15.9**

							Nearest Property Boundary			**Nearest Residence**
Source dB	110	110	110	110	110	110	110	110	110	110
L1 (ft)	1	1	1	1	1	1	1	1	1	1
L2 (ft)	1	10	100	500	1000	2000	**3000**	4000	5000	**8550**
dl=	0.0	20.0	40.0	54.0	60.0	66.0	69.5	72.0	74.0	78.6
Receptor dB	110.0	90.0	70.0	56.0	50.0	44.0	40.5	38.0	36.0	31.4
With 20% Dampening	20%									
Receptor dB	88.0	68.0	48.0	34.0	28.0	22.0	**18.5**	16.0	14.0	**9.4**

As noise sources can be sometimes unpredictable, confirmatory work for noise in the surrounding area are scheduled to be completed in the summer of 2020.~~for the next stage of study and permitting.~~ This study will be performed through several avenues and will justify the table above. This study will include a review of similar projects sites related to noise generation and carry as well as a desktop model of noise generation and projection using dampening impacts from trees and hills, etc. The proposed noise prediction model will be developed using the Candna/A software published by DataKustik GmbH or equivalent software configured to implement ISO 9613-2 environmental noise propagation algorithms.

Calculated Sound Pressure Levels from Source (unobstructed path)

1. Ventilation Fans - With~~out~~ dampening the underground ventilation fans, the expected sound levels at the property boundary and nearest residence are below sound levels for "all unspecified subdistricts". Wolfden intends to use enclosures and other means to dampen the source noise levels. Given the presence of other dampening factors (buildings, vegetation and tree lines), a conservative estimate of noise levels at the property line and the nearest seasonal residence (1.1 miles) indicates that expected noise levels will be very low at approximately 25~~31.4~~ dB. It will be considerably lower at 3 miles, perhaps even ~~undiscernable~~undiscernible unless there is a wind from that direction. A value of 1~~6~~0 dB~~. is commonly cited as the noise level of normal breathing~~.
2. Blasting **-** Involves the drilling holes into rock then charging or loading the holes with a designed amount of explosives that are numbered with a firing sequence. When detonated, the firing sequence controls which holes "fire" or detonate in order to distribute the energy throughout the rock in a balanced controlled manner. The overall blasting process during the construction and development phase at Pickett Mountain is as follows:
    - Excavation of overburden and loose rocks from the footprint of the portal.
    - Drill a blasting pattern (Typically 3 feet~~'~~ x 3 feet ~~'~~square pattern) with 4.5 inch~~"~~ drill holes for desired blast. Typically larger excavations such as portal can take two~~2~~ to ~~—~~three~~3~~ blasts to complete in a very controlled manner.
    - Clean all of the holes and measure for accuracy.
    - Load explosives and detonators into the holes at design levels and quantities.
    - Clear property with sign outs and guards.
    - Sound appropriate warnings and alarms
    - Detonate the blast.
    - Check over the blast to ensure proper detonation and fracturing
    - Excavate fractured rock to waste rock storage pad.

It is worth noting that open-air blasting to commence the access (portal) for the underground workings is only expected to last two or three weeks. Once underground, (after two to three more weeks) sound from the underground blasting will no longer be heard at the property boundary.

Lighting. Within the plant operations area, all above ground exterior lights greater than 60 watts or incandescent lights greater than 160 watts will be housed in downward facing full cut-off fixtures as specified in CLUP Standards under 10.25F. Other sources of light will include vehicle headlights and building interior lighting.

In addition, the project would meet other CLUP policies including the following items:

Policy 1(a) A buffer would be established around the proposed area of rezoning and would be far removed from other land use activities. At closure of the project the ridgeline where the TMF is located would be elevated approximately 22~~10~~ feet above its current topographic profile. Once reclaimed and vegetated this will be a minimal change to the natural appearance of the landforms at the site.

Policy 1(b) The project will provide for parking at the mine operations site and the transportation routes, described in **Appendix J** would not adversely affect traffic circulation.

Policy 1(c) The only signage visible to the public associated with the project would be for transportation safety at the location where vehicles egress and exit from SR-11 to private roads.

Policy 2 The project final design will be permitted through the DEP and efforts will be made to minimize impacts to the principal values of the jurisdiction including avoidance and mitigation of impacts to protected natural resources.

Infrastructure

The project meets the CLUP's goal of ensuring that infrastructure improvements are well planned and do not have an adverse impact on the jurisdiction's principal values. These improvements will include upgrading existing gravel access roads located on private lands and the intersection of the private road with State Highway 11 for public safety purposes. The project will also, separate from this Petition, establish a new power transmission service line to supply additional needed electrical power for the project.

The power transmission route has been discussed with Emera Maine and would run from their substation located on Route 11, located approximately 0.6 miles south of downtown Patten, Maine. The transmission line would run north and northeast along Route 11 for approximately

9.5 miles then follow the same gravel access road proposed for the mine for approximately 5.1 miles. The access road upgrades to be considered in the design for the permit application submittal will be developed concurrently with the transmission line design.

The project also meets other CLUP policies including the following items:

Policy 1 To consider the capacity of existing infrastructure and services to accommodate proposed development. It is Wolfden's objective that primary workforce be employed locally from residents. This will require training for that work force since many unique skills are required of miners working underground. The mine will employee approximately 60 workers, composed of 30 workers per shift with two shifts per day. With a local workforce, the imposition on existing infrastructure and services (housing, schools, roads, medical facilities, fire, police, solid waste, and municipal) is minimized since this population is already using these services. An analysis of the capacity of these services in the local communities is provided in **Appendix A- Attachment O**.

Policy 2 The project will not require construction or establishment of any new public roads that would degrade the natural character of remote areas.

Policy 3 The new utility lines, principally electric power transmission, will be located or co-located within or adjacent to existing utility or public road rights of way to the extent practicable. Where new utilities cannot be established along existing utility corridors, they will be designed to minimize visual and physical impacts that would degrade natural values of the area. The areas contemplated would not be considered remote and would be near or adjacent to existing private roads.

Policy 5 Although not highly visible, infrastructure at the Site (buildings, water collection and treatment ponds, soil stockpile areas or pens) would be decommissioned, dismantled and removed at the end of the project as part site reclamation. The land surface once occupied by these buildings would be regraded and returned as close to original grades as possible.

Development Rate, Density and Type

The project will be constructed in accordance with plans approved by the DEP with input from LUPC. Since the project will be constructed in one phase the density and type of structures will be known and with input from the LUPC, will be consistent with the jurisdiction's principal values and policies concerning development.

Affordable Housing

The project does not involve construction of housing but as described in **Appendix A – Attachment O** the local employment anticipated by the project will provide employee wages sufficient for those employees to afford available housing in the local market.

Land Conservation

The project will support the long-term conservation of select areas of working forests in the project area as well as protecting high-value natural resources such as surface water bodies, streams, wetlands, vernal pools, flora and fauna. The manner in which these natural resources shall be protected is discussed in **Section B (3)(d)**. Wolfden will continue to work with local logging companies to manage and allow harvesting of forest resources on its property.

The project would meet the CLUP's land conservation policy:

Policy 1 Wolfden has developed cooperative working relationships with local landowners and local timber companies, to ensure continued use of its working forest resources and help maintain public access on private roads to access lakes within its property.

Natural and Cultural Resources and Policies

Air and Climate Resources

The project will not adversely affect air quality since dust will be controlled and processes that utilize chemicals that would be considered air pollutants are not used. On-site emission sources will be limited to motorized heavy machinery and vehicles for above ground and underground mining related activities.

Rock crushing operations are a potential source of dust, but adequate provisions will be provided for dust management and control. Dust suppression is an important operational safety concern below ground in the mine. Blasted rock is mucked out wet to eliminate dust underground. Rock placed into the crusher is therefore wet and that moisture greatly reduces dust during crushing operations. If dust becomes an issue, dust collection equipment can and would be installed above the crusher and removed via a bag house filter.

Cultural, Architectural and Historical Resources

The Maine Historic Preservation Commission (MHPC) has been consulted and due to the presence of archaeological site 147.001 -(MHPC Archeological Survey report 2719- E.C. Jordan 1984) at the headwaters of Pickett Mountain Pond a Phase 0 Archeological survey will be conducted in Spring 2020 as discussed in **Exhibit M.** The scope for the Phase 0 survey has been developed in consultation with the MHPC and is presented the Exhibit M. By working

cooperatively with MHPC, the project will meet the CLUP's goal of protecting archaeological and historical resources of cultural significance.

These activities will meet the following CLUP policies:

Policy 1 Identify and protect unique, rare and representative cultural resources to preserve their educational, scientific and social values.

Policy 2. Collaborate with other agencies in efforts aimed at the protection of cultural resources.

Policy 3. Complete an archaeological survey as part of this development proposal.

Energy

The project will further the CLUP's energy goals through designs that favor and incorporate energy efficiency and utilization of technologies such as heat pumps to assist heating and cooling at above ground facilities, when possible. The project will require a new transmission line to provide the needed energy requirements. The project will of course require emergency back-up power in the form of generators, but these would be used only when needed. Any new energy generation will be used exclusively for the project.

Forest Resources

As discussed in **Section B (3)(d)** and **Appendix A-Attachment Q** the project footprint will require only ~~57~~106 acres of actual development. Only the area occupied by the dry stack tailings facility~~TMF~~ (approximately 78.4~~42~~ acres) will be excluded as a future forest resource for lumber and fiber production. Upon final reclamation, all other areas (approximately 7~~15~~ acres excluding roads) will be returned to current conditions. The balance of Wolfden's property will be accessible for timber harvest, thus meeting the CLUP's goal to conserve, protect and enhance the forest.

The specific policies items that are supported by the proposed project include:

Policy 1 Encourage active forest management.

Policy 2 Support uses that are compatible with continued timber and wood fiber production, as well as biodiversity.

Policy 3 Protect areas identified as environmentally sensitive.

Policy 5 Support efforts by landowners to manage vehicular access to private roads when necessary to reduce land use conflicts.

Policy 9. Encourage the use of Maine's best management practices for forestry on its land.

Geologic Resources

The LUPC has established goals of conserving soil and geologic resources by controlling erosion and protecting areas of significance. The CLUP's goal with respect to mineral resources is to allow environmentally responsible exploration and mining of metallic and non-metallic mineral resources where there are not overriding, conflicting public values which require protection.

The Pickett Mountain Site is under extensive exploration for mineral resources and there are no identified important natural geological formations, or geologic hazards such as seismically active faults, high elevations or steep slopes subject to instability or erosion. Based on visual inspection the area proposed for the project features nearly level to gentle slopes with high percentage of vegetative cover and organic matter, and moderate to deeply rooted vegetation in glacially derived soils with a shallow water table. Fragile soils, most subject to erosion, are not known to be present.

As discussed in **Attachment J**, site access is by existing gravel roads that are currently used for logging operations and which are in good condition. Any modification or improvement of these roads will be completed in accordance with a sedimentation and erosion control plan that will be developed during the mine design and permitting phase under DEP rules. Based on current information, soil types are suitable for proposed development (construction of buildings, having a stable foundation for the TMF, though more retailed detailed ~~high intensity~~ studies including soil mapping and geotechnical investigations will be required prior to preliminary and subsequently final design of buildings and the ~~sub-aerial~~ TMF. Soil and groundwater studies will be conducted under the baseline characterization for the MEDEP Chapter 200 permit applications. These studies will quantify the infiltration capacity of soils and groundwater hydraulic conditions including gradients and saturated hydraulic conductivities and physical properties of site soils. Such studies will be needed to site, design, and size the PDPs as well as a site septic system. Such studies will also assist in determining engineering approaches that may be warranted to design improvements to the performance of such recharge/ infiltration systems. The current proposed PDP locations are away from wetlands where the hydrology conditions would be unfavorable. These larger upland locations for the PDPs are likely situated over thicker unsaturated zones with greater depth to the water table which would be better suited for these purposes.

Any modification of roads or the one existing stream crossing (outlet from Pickett Mountain Pond) would be completed in conformance with Land Use Standards enumerated in Chapter 10.27,D.

The proposed metallic mineral mining would occur only within the area rezoned for planned development and would not adversely impact competing uses and public values. The proposed facility would minimize water, air, land, noise and visual pollution through operations

described in **Section B (3)(d)** and **Appendix A-Attachment Q,** These operations will not affect public safety and health, and will avoid undue adverse impacts on fisheries, wildlife, botanical, natural, historic, archaeological, socioeconomic and other values. The proposed mining operation provides distinct economic and social benefits and would not pose undue burden on existing services as described in **Attachments M, N and O.**

The project will be subject to a long-term post closure monitoring and maintenance program subject to the requirements of DEP Chapter 200 rules and including reclamation of the mine site to restore natural values and protect public health and safety and allow beneficial reuse of the majority of the property.

Specifically, the project would support the following policy items pertaining mineral resources:

Policy 6 Exploration for mineral resources with minimal disturbance to natural and cultural resources.

Policy 9. Permit a major metallic mining development in an area zoned for planned development, which broadly considers impacts and benefits, competing uses and public values.

Policy 10. Regulate the mining operation to minimize water, air, land, noise and visual pollution, to ensure public safety and health, and to avoid undue adverse impacts on fisheries, wildlife, botanical, natural, historic, archaeological, socioeconomic and other values.

Policy 11. Complete effective monitoring and reclamation of the mining site to protect public health and safety and to promote beneficial reuse where feasible.

Plant and Animal Habitat Resources

The proposed mining activity is not within areas known to contain unique, threatened or endangered plant or wildlife resources and will be able to meet the CLUP goals and policies to preserve and protect aesthetic, ecological, cultural and economic values of plant and wildlife resources. The area proposed for development is primarily upland forested habitat, co-dominated by deciduous trees (i.e., beech, birch, and red maple trees) and coniferous trees (i.e., spruce, fir, cedar and hemlock). The area has been logged in the past and is currently in vegetative re-growth. The proposed mining activities are within an area that is actively logged and would have a lesser short- and long-term effect on habitats than current logging practices. Since the area is relatively small compared to the surrounding woodland habitat it should not have a negative effect on connectivity of habitats in the area. Wolfden has received preliminary correspondence from the Maine Department of Inland Fisheries and Wildlife concerning potential habitats supporting Rare, Threatened or Endangered (RTE) species. Based on work completed to date habitat supporting rare, threatened, or endangered species are not known

to be present in the area. Also, unique habitats such as deer wintering areas, great blue heron nesting sites or habitat for bats, were not observed. Wolfden ~~plans on~~has conducted ~~conducting~~ delineation of wetlands and vernal pools in spring 2020. Addition studies of terrestrial fauna will be conducted under the baseline characterization work under the MEDEP Chapter 200 regulations and will at that time conduct a final assessment for potential RTE species.

Wolfden has also met with staff of the MNAP. There is one area, a fen, between Pleasant and Mud Lakes that MNAP has identified as a priority site for a botanical survey. - This area is far removed from the proposed site and would not be adversely affected by proposed activities and is outside the area proposed to be re-zoned. The M~~A~~NAP environmental review for the project is presented in Exhibit N. Based on current information RTE plants are unlikely to be present in the upland areas proposed for rezoning. Wolfden plans on conducting additional evaluations of terrestrial flora ~~in spring 2020~~ in consultation with the MNAP under the MEDEP Chapter 200 baseline characterization program and if plant resources requiring protection are identified, Wolfden will make appropriate accommodations to avoid impacts where possible.

Specifically, the policy items that would be met by the project include:

Policy 1. Coordinating with and supporting agencies in the identification and protection of a variety of high-value wildlife habitats, including but not limited to: habitat for rare, threatened or endangered species; rare or exemplary natural community and ecosystem types; native salmonid fish species; riparian areas; deer wintering areas; seabird nesting islands; waterfowl and wading bird habitats; and significant vernal pools.

Policy 2. Conduct land use activities that are protective of sensitive habitats, including but not limited to habitats for fish spawning, nursery, feeding and other life requirements for fish species.

Policy 3. Develop the site in a manner that retains connectivity of habitats and minimize road mortality of wildlife by promoting road building practices that facilitate wildlife movement and by directing development to appropriate areas.

Policy 5. Protect wildlife habitat in a fashion that is balanced and reasonably considers the management needs and economic constraints of project owner (landowner).

Policy 7. Encouraging sustainable land use (forestry management) over much of the Wolfden parcel which will contribute to maintaining a large tract of undeveloped land, with ecological significance that is important locally to healthy plant and animal populations.

Recreational Resources

See Section 19 of this Petition for a discussion of recreational resources.

The specific recreational resource policies of the CLUP that would be met or supported by the proposed project include:

Policy 6. Cooperative efforts that assure continued public access across any rights of way on Wolfden's property (excepting reasonable restrictions on certain roads that lead to the mine site, if needed for public safety).

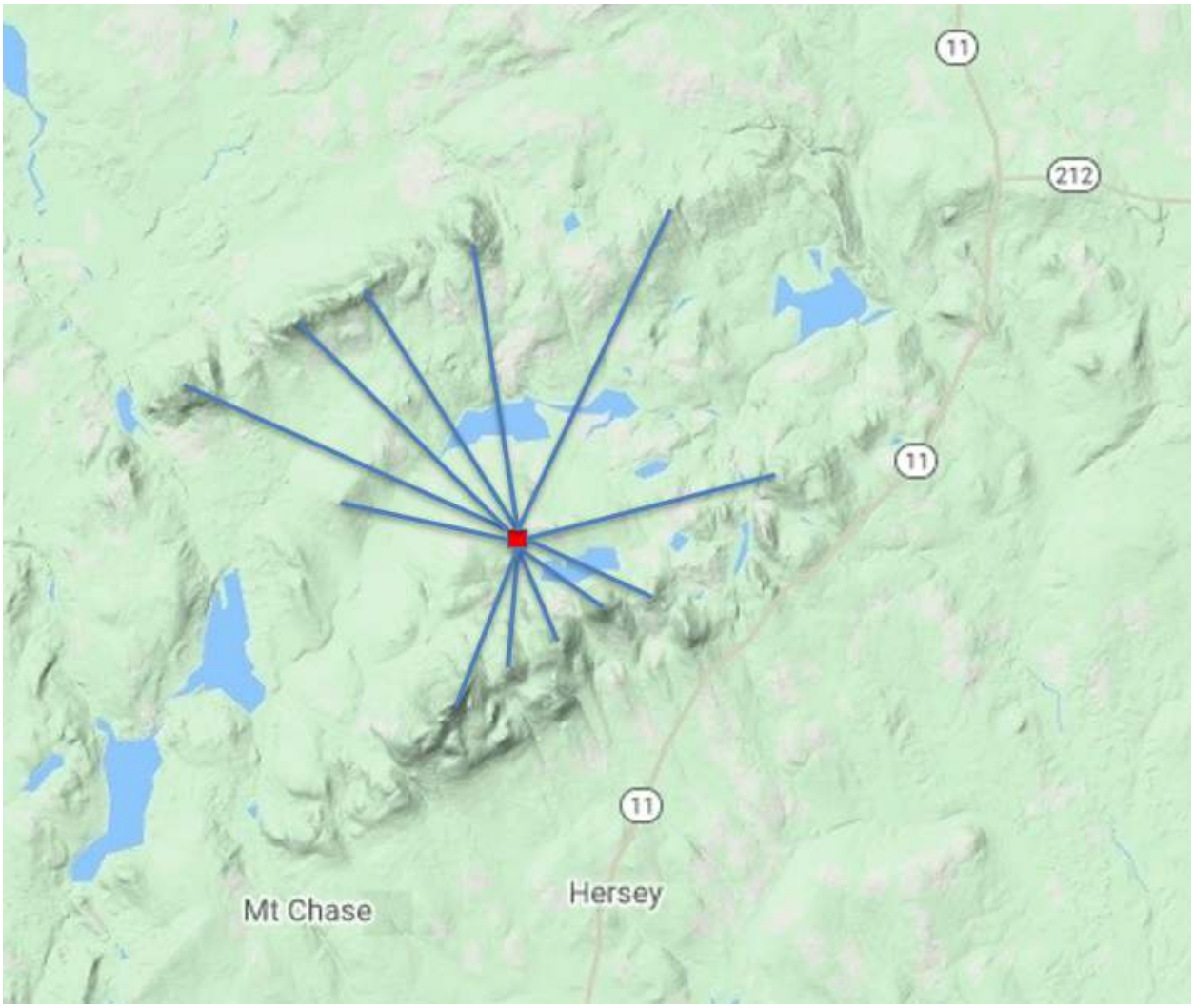
Policy 7. Efforts on the part of Wolfden that ensure continued public access to public waters .

Policy 8. Responsible use of Wolfden's property.

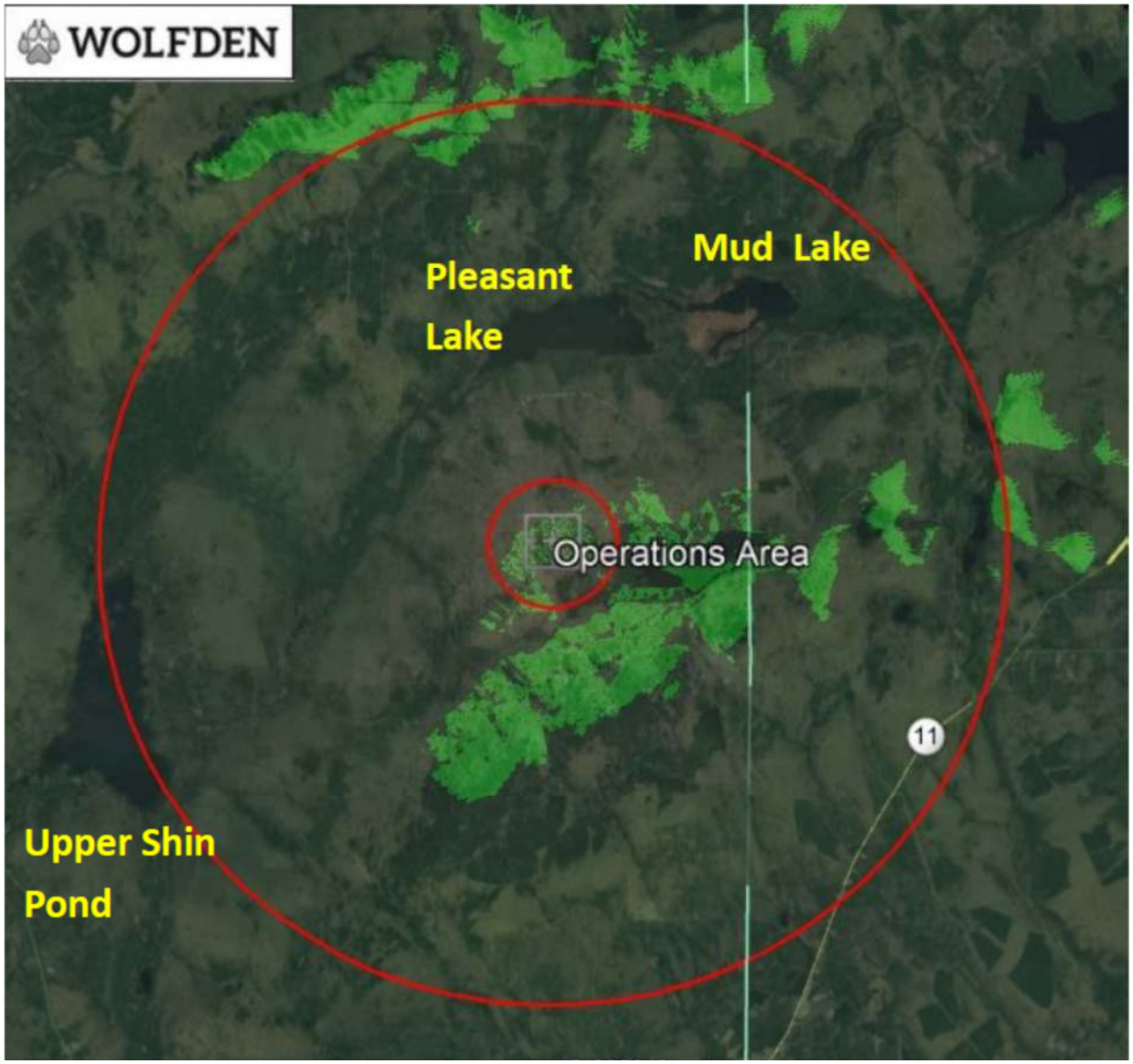
Scenic Resources

The topography surrounding the site provides the area proposed for rezoning a high degree of visual screening from public roads (Route 11 and Route 159) and the established high use recreation areas located to the west of the site. The area proposed for rezoning has a prominent ridgetop immediately west of the areas where proposed buildings would be constructed screening those buildings from view from that direction. A ring of higher elevation peaks is present south of Picket Mountain Pond and north and west of Pleasant Lake. While an unobstructed line of site exists from Pickett Mountain Pond, Pleasant Lake, Mud Lake and Grass Pond, the visibility of the site would likely be obscured by tree lines that would be left in place around the developed areas. The most visible portion of the site would be the northern and northeastern corners of the dry stacked tailings area.

The landforms surrounding the site are complex rolling hills and moderate elevation mountain peaks with mixed forests, that would be more tolerant to visual impacts from the site. Based on the topography, landforms and forested nature of the area, the proposed site is a reasonably harmonious fit with the surrounding environment and generally meets the CLUP's goal of protecting the high-value scenic resources of the surrounding area.



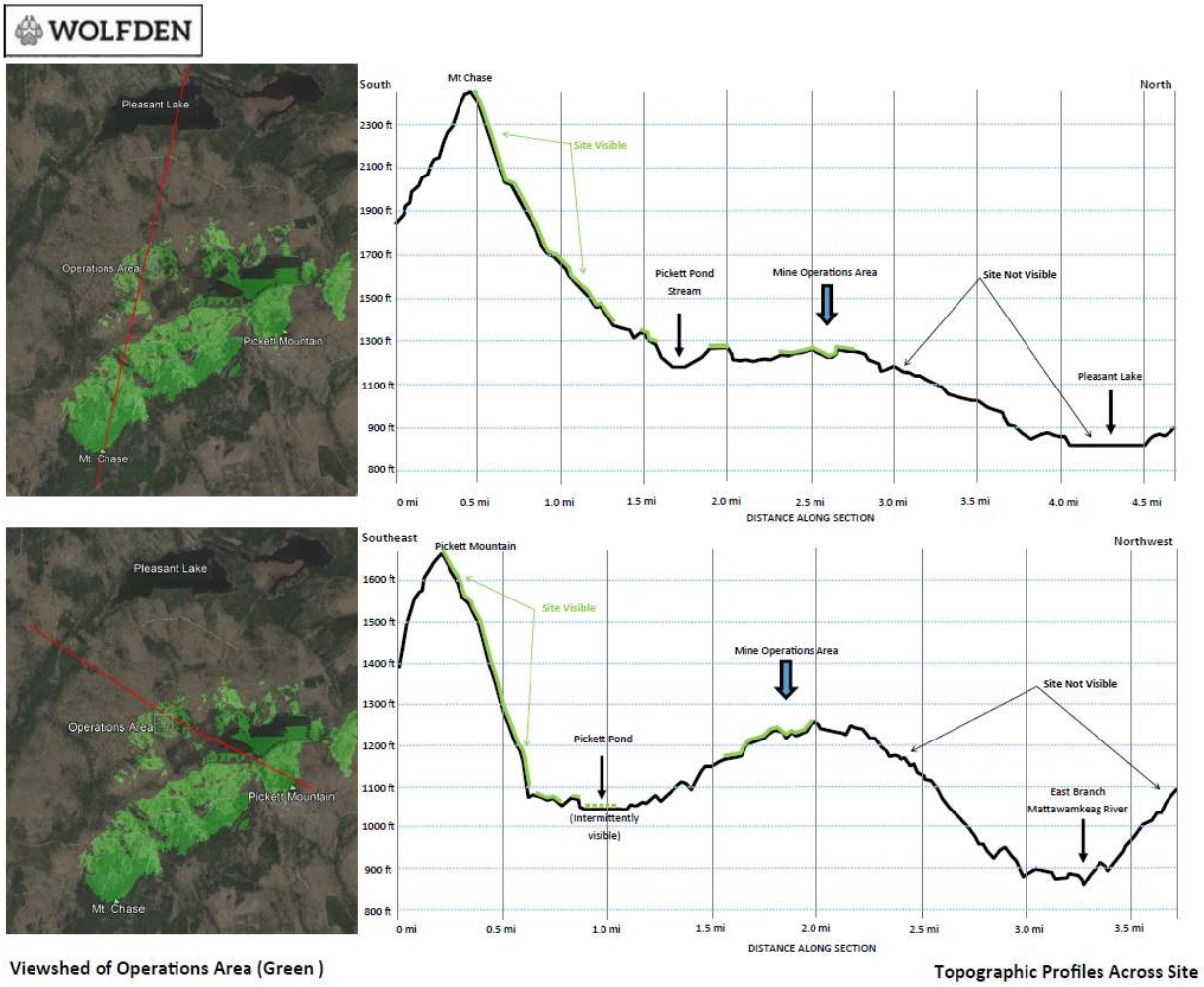
Peaks Surrounding Pickett Mountain Project Site



Three Mile Radius Analysis

The inner circle of the image above represents a 0.5 mile radius which encompasses the proposed site boundary. The outer circle is a 3.5 mile radius to show a net 3 mile radius from the boundary of the property. Th analysis was conducted ~~The view height~~ using a Google Earth Viewshed model (g~~G~~round surface digital elevation model), which uses ground surface elevations to construct line of sight analysis. The view height is 10 meters above ground level to simulate a building 10 meters above ~~(~~average tree height. ~~) therefore~~ T~~t~~he highlighted areas (and those highlighted on surrounding peaks ~~map~~) are potential areas with a line of site to the property. The 10 meters or 33 feet~~t~~ above the tree line was selected assuming the trees in the area are ~27 feet ~~t~~ tall for a total building height of 60 feet~~t~~. ~~–~~It should be noted, that to obtain a line of site to the property from the surrounding areas, one has to be above the tree line to have an unobstructed view. The property will not be visible from anywhere along Route 11 nor

from any State park or State managed trail. There are no official trails within the proposed area, however, within a 3.0 mile radius of the site boundary, there are several ATV, snowmobile and hiking trails as shown in attachment L. Hiking trails are along the south face of the mountain belt and a snowmobile/ATV trail travels along the north face of the mountain belt. Based on the sections below, trails that are travelled along the north face of Mount Chase are likely to have visual line of site to the property if standing on a cleared area. The tallest building on the property is estimated at 60 feet tall and would rise above the tree line approximately 10 meters and therefore would be the most visible point. Additional site specific studies (such as the LUPC weather balloon test protocol for communications towers) could be conducted to obtain a better understanding of actual visibility.



Viewshed of Operations Area (Green)

Topographic Profiles Across Site

Viewshed Sections

Water Resources

Appendix A Section B(3)(d) provides a discussion of Potential Impacts to Existing Uses and Natural Resources and provides an overview of mine water management, involving the collection and treatment of precipitation that contacts mined rock materials and tailings. The project description in Section 4 of this Petition describes the operations and reclamation phases of the project. Collectively these environmentally responsible mine-management practices would prevent degradation or impacts to groundwater and surface water and protect water quality in adjacent aquatic habitats including wetlands, vernal pools, streams, lakes and ponds. These actions would meet the CLUP's goal of protecting the quality and quantity of surface waters and groundwater.

The project will have no direct impact on shorelands since the project location is removed from such features.

The specific CLUP policies that will be advanced through the planned development and regulatory framework include the following:

Policy 1 Regulate uses of land and water in order to prevent degradation of the jurisdiction's excellent water quality and undue harm to aquatic habitat.

Policy 2 Protect the recreational and aesthetic values associated with water resources.

Policy 4 Conserve and protect lakes, ponds, rivers, streams and their shorelands, which provide significant public recreational opportunities.

Policy 8 Control land uses on identified aquifers and their recharge areas in order to prevent adverse effects on water quality or quantity

Policy 10 Protect ground water quality throughout the jurisdiction through proper controls on potentially polluting activities.

Policy 12 Conserve the quality and quantity of public and certain private water supplies by managing land use in source protection areas.

Wetland Resources

See Appendix A Section B(3)(d) of this Petition for a discussion of wetland resources.

The specific wetlands resource policies of the CLUP that would be met or supported by the proposed project include:

Policy1 Support the nationwide goal of no net loss of wetland functions and values by avoidance or minimization of impacts.

Policy 2 Provide compensation to offset loss or degradation of wetland functions, while recognizing that such losses may not be avoidable in every instance.

Policy 3 Plan development to avoid alteration of wetland areas. If avoidance is not feasible, ensure that development minimizes alteration. If loss of wetland functions is unavoidable, require actions to restore, reduce or gradually eliminate lost or degraded wetland functions. If necessary, require compensation for lost or degraded wetland functions through protection of wetlands of equal or greater value.

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16. SHORELAND DEVELOPMENT.

The proposed development is not adjacent to the shoreland of a lake. Lakes within a one-mile radius include Pickett Mountain Pond and within a 3-mile radius include Pleasant Lake and Mud Lake and several smaller ponds including Bear Mountain Pond, Tote Road Pond, Grass Pond, Duck Pond and Huntley Pond.

Pickett Mountain Pond, Pleasant Lake, Mud Lake Tote Road Pond and Grass Pond have been surveyed and were in general found to be shallow and muddy with uniform temperatures at all depths in summer months lacking desirable conditions for cold water species such as brook trout or salmon. The inlet and outlet streams however do provide habitat as spawning and nursery areas for trout.

As discussed in Appendix A Section B(3)(d) water management and treatment will preclude water quality impacts to these lakes and ponds and associated streams. The proposed mining activities will in no way impact recreational use of these lakes or use of the surrounding area.

17. SUBDIVISION OR DEVELOPMENT ZONING PROPOSAL.

~~If your proposed rezoning is for a subsequent subdivision or development proposal, you must provide information in response to the following items concerning whether the land for which rezoning is petitioned is likely to be suitable for the proposed use. Should your zoning petition be approved, the Commission will require more detailed information in your subsequent permit application.~~

~~a. Harmonious Fit: Describe what measures will be taken to fit the proposal into the existing surroundings. Include any special considerations given to siting, design, size, coloring, landscaping or other factors which will lessen the impact of the proposal on the surroundings.~~

~~b. Scenic Impacts: Describe what measures will be taken to minimize impacts of the proposed new or expanded land use on the scenic quality of the area. Consideration should be given particularly to visibility from roads used by the public and visibility form water bodies.~~

~~c. Wildlife Habitat: Describe what measures will be made to minimize impacts of the proposed new or expanded land use on wildlife habitat including birds and water fowl? Consideration should be given particularly to riparian zones along waterbodies.~~

d. Sufficient Land Area: Describe how, or provide sufficient evidence that, the area proposed for rezoning is of sufficient size and configuration to accommodate: (1) the proposed use / development, including but not limited to subdivision lots that could meet design standards, structures, parking, wastewater disposal, water supply, stormwater management, etc.; (2) likely phosphorus control and stormwater management areas and infrastructure; and (3) a modest amount of extra land area to provide appropriate flexibility during subsequent development review and construction processes. While subdivision plats are informative at this stage, they are not required; if provided staff will only consider them to be conceptually representative.

Note that this information does not need to be extensive; rather, this information is intended to best ensure that the petition results in a sufficient yet appropriate amount of land area is rezoned, while minimizing the burden on the applicant and increasing applicant awareness of future permitting requirements early in the process. For example: *a proposal to rezone 25 acres for a small retail store would likely be found to include excessive acreage; while a proposal to rezone 25 acres intended for a 20 lot subdivision would likely be found to be reasonably sized.*

e. High Yield Sand and Gravel or Bedrock Aquifer: If the proposed rezoning is on or near a mapped and zoned high yield sand and gravel or bedrock aquifer, explain how the rezoning and land use will result in no undue adverse impact on the aquifer.

The Wolfden Pickett Mountain proposal includes the needed above ground facilities to conduct underground mining of metallic minerals containing economic quantities of Zn, Cu, Pb Au and Ag. Preliminary planning of the facilities results in a compact clustering of above ground buildings and structures for office, warehousing, mineral processing and beneficiation (mill feed storage pad, crushing, milling, and flotation), capture of contact waters (precipitation and mine waters), water treatment and re-infiltration (PDP) galleries, and long term above ground management of tailings in conformance with Maine DEP regulations (dry stacked tailings facility). Underground facilities are accessed through a mine portal and are ventilated by above ground ventilation fans and shaft openings. The property location and project description, including phases of permitting, construction, operation and reclamation were presented in Sections 3 and 4. A description of anticipated site conditions, reclamation and beneficial use of the affected area are further described in Appendix A, Attachment Q. Appendix A section B(3)(d) discusses impacts on existing uses and natural resources and approaches used to avoid and minimize adverse impacts and address impacts if they were to occur. Section 18 and Exhibit N present project environmental reviews by the Maine Natural Areas Program for rare and exemplary botanical features and the Maine Department of Inland Fisheries and Wildlife for important fisheries, wildlife and critical habitat resources in the vicinity of the proposed project. Plant and animal habitat resources, recreational resources, and scenic resources are also discussed in Section 15.

The findings of these evaluations regarding harmonious fit, scenic impacts and wildlife habitat are discussed below.

a. Harmonious Fit: The project location is predicated by the location of the mineral deposit. The siting of surface facilities (buildings, treatment plant, and dry stacked tailings) avoid to the extent possible currently known areas of upland wetland, great ponds, streams and limit visibility from surrounding areas. The area requested for rezoning incorporates a 400-foot buffer from proposed facilities. The area is currently forested in regrowth from timber harvesting that occurred from 8 to 10 years ago. When developed a tree line will remain that will obscure the site facilities at ground level from most surrounding directions and

areas. The area proposed for rezoning has a prominent ridgetop immediately west of the areas where proposed buildings would be constructed screening those buildings from view from that direction. A ring of higher elevation peaks is present south of Picket Mountain Pond and north and west of Pleasant Lake. While an unobstructed line of site exists from Pickett Mountain Pond, Pleasant Lake, Mud Lake and Grass Pond, the visibility of the site itself would likely be obscured by tree lines that would be left in place around the developed areas. The most visible portion of the site would be the northern and northeastern corners of the dry stacked tailings area. There may be windows of visibility to this portion of the site along SR 11 north of the intersection with Route 212, but at large distances; approximately 8 miles distant. Visibility of ground elevation features such as buildings during operations and the tailings facility post-reclamation would be obscured by the tree line left in place.

The landforms surrounding the site are complex rolling hills and moderate elevation mountain peaks with mixed forests, that would be more tolerant to visual impacts from the site. The tailings management area will be graded to follow the ridgeline profile and upon restoration will be vegetated. Based on the topography, landforms and forested nature of the area, the proposed site is a reasonably harmonious fit with the surrounding environment and generally meets the CLUP's goal of protecting the high-value scenic resources of the surrounding area.

An analysis of impacts to existing transportation routes, traffic circulation, and improvements is presented in Appendix A, Attachment J. The project as proposed will not require development of new roads and will improve existing gravel roads to improve traffic safety. All roads off existing public roads are located on private land and currently used for logging operations and access to seasonal residences located on the southern and northern shore of Pleasant Lake. The project will provide for parking of employees on-site. The project will fit harmoniously into existing traffic patterns.

Signage for the project will be limited to traffic warning signs at the intersection of the private access road and SR 11 and will therefore not cause a visual impact and will aid in preventing a hazardous traffic condition.

All on-site above ground exterior lighting within the plant operations area greater than 60 watts or incandescent lights greater than 160 watts will be housed in downward facing full cut-off fixtures as specified in CLUP Standards under 10.25F. Other sources of light will include vehicle headlights and building interior lighting. Therefore, the project is making appropriate efforts to minimize light pollution and fit the project lighting needs harmoniously with the surrounding environment.

The project is located entirely on Wolfden owned land, is not adjacent to and will not affect existing communities or neighborhoods. Several seasonal residential properties are present along the shoreline of Pleasant Lake, but their view of the project will be obscured by the tree line left in place. Pleasant Lake lies entirely within the Wolfden owned parcel.

b. Scenic Impacts: The project has provisions to minimize scenic impacts both during operating and post closure periods (after reclamation). The project would not be visible from primary recreational and scenic resources including the Katahdin Woods and Waters National Monument or nearby Upper and Lower Shin Ponds as described in Section 19.

During operations, the tree line surrounding the site will remain and obscure the site except for areas immediately south including Pickett Mountain and adjacent peaks. The site will also be visible from Pickett Pond. During operations the tailings facility will be graded and sequentially covered and closed in phases so that the profile will be maintained consistent with, though slightly higher than the existing ridgeline.

During reclamation all buildings will be removed, and underground mine openings permanently closed. The water treatment plant will be decommissioned and removed last once it has been determined that it is no longer needed based on environmental monitoring. Therefore, at project closure no above ground structures will remain except the dry stacked tailings facility which will have been capped and revegetated.

The site topography will be regraded and revegetated to mimic the original landforms, including the tailings facility whose profile will be below the surrounding tree line.

c. Wildlife Habitat: The project does not impinge on shorelines of any lakes or ponds within the Wolfden owned parcel. Therefore, impacts to riparian zones around water bodies, associated birds and waterfowl are not anticipated. The IF&W provided a correspondence on November 25, 2019 which indicated there were no known occurrences of endangered, threatened of special concern species within the project area (Exhibit N). The IF&W also has not mapped any significant wildlife habitats within the project area. The IF&W did identify Great Blue Heron colonies as species of concern and noted the special protection afforded to eight species of bats and concern for habitat protection. The preliminary screening survey conducted to date did not identify habitat that would support Great Blue Heron colonies or bats, the latter due principally to very limited and small exposures of bedrock outcrop and lack of any talus slopes. When the detailed mapping of wetlands, intermittent streams and vernal pools is conducted in the spring it will include a final species assessment encompassing a survey of the area proposed for development individual species and or suitable habitat for the species identified. Impacts to rare, threatened or endangered wildlife are not known or expected and if identified will be avoided and minimized.

d. Sufficient Land Area: The project proposed area for rezoning, based on revisions necessary to address LUPC comments dated March 6, 2020, includes a total 528.2 acres. The project will manage all tailings in the above ground dry stacked tailings facility. In order to accommodate tailings placement, compaction and closure in a manner that minimizes vertical height of the placed tailings and allows the final closed facility to mimic the existing ridgeline, the tailings facility will occupy approximately 91.7 acres. The wastewater treatment plant and infiltration galleries (Potential Disposal Points or PDPs) are in the south eastern portion of the site. The four PDPs occupy a footprint in excess of 5 acres. Collectively the mine facilities (Mill feed storage pad, waste rock staging area, Concentrator, offices etc) occupy a footprint of approximately 7.3 acres. The area between these facilities contains upland wetland resources and will not be developed. Underground ventilation facilities are in the southwestern portion of the site. When a 400- foot buffer was developed around the locations of these collective facilities, that buffer occupies approximately 347 acres. To simplify the shape of this resulting area needed for rezoning a polygon was drawn around the corners and extremities of the buffer zone; and this has resulted in the final proposed area for rezoning of 528.2 acres. This difference (approximately 181 acres) provides appropriate flexibility during subsequent development, design and permitting review, to adjust the proposed facility, including avoidance, to the extent possible, of natural resource impacts such as wetlands and vernal pools once mapped. The additional area would also allow adequate space to locate and develop a renewable energy asset (solar farm) if future evaluations indicate such a facility is viable, and other project needs including parking and domestic wastewater facilities.

The project wastewater management plan includes a sophisticated water treatment plant for industrial waters (mine waters and contact water) as described in Appendix A section B(3)(d). Grey water and black water will be managed through a contracted disposal service for below ground and an on-site septic for above ground facilities.

e. High Yield Sand and Gravel or Bedrock Aquifer: The proposed facility is not located near a high yield sand and gravel aquifer nor a high yield bedrock aquifer. Please see Appendix A Attachment I. All contact waters will be collected and treated prior to discharge ensuring that recharging waters will not impact overburden and bedrock groundwater resources as discussed in Appendix A Section B(3)(d). During mine development and mine operation bedrock groundwater movement is toward the mine workings since they will exist in a dewatered state. Sulfides present in bedrock below the water table are in a reducing state and will not be

oxidized. This aspect of hydrologic control further protects bedrock groundwater resources. Existing groundwater quality in bedrock will be characterized as part of the background study for MEDEP permitting and will be the basis to evaluate and remediate any impacts should they occur.

18. NATURAL AND HISTORICAL FEATURES.

- Provide as **EXHIBIT M**, either a Phase 1 archaeological survey or a letter from the Maine Historic Preservation Commission that a Phase 1 archaeological survey is not necessary. See page vi of the instructions for more detail regarding this exhibit.
- Provide as **EXHIBIT N**, letters from the Maine Natural Areas Program AND Maine Inland Fisheries and Wildlife confirming the presence or absence of rare or special plant communities or significant wildlife habitat in the area of the rezoning. See page vi of the Instructions for additional detail regarding this exhibit.

Please see Exhibits M and N for requested information.

A. A phase 0 Archeological study has been completed throughout the proposed footprint by Gemma-Jayne Hudgell, Ph.D. of Northeast Archaeology Resourch Center, Inc. This is discussed further in Appendix A.

~~A. A scope of work for a Phase 0 archeological investigation has been developed in consultation with the MHPC. The Phase 0 investigation will be conducted in the Spring of 2020 by a Level II prequalified Prehistoric Archeologist. If the Phase 0 work identifies archeological resources that require further evaluation, then a Phase 1 survey will follow. The scope of a Phase 1 survey would be established based on the results of the Phase 0 Report and in consultation with the MHPC.~~

~~The scope of work for the Phase 0 investigation is as follows:~~

~~Historic and prehistoric archaeological sites would be assessed, both within the mine project area and also at selected locations along the access roads that may be subject to improvement as needed. The assessment will be based primarily on a pedestrian ("walkover") survey, supplemented as indicated by subsurface testing with 0.5 m square test pits. Note: a Phase 0 archaeological survey is designed to assess the overall probability of presence of archaeological sites, not to complete a survey of sufficient intensity to indicate site absence or to find all sites present.~~

~~Based on information from the MHPC, there is a low probability of historic archaeological sites being present, mostly being lumbering camps. The walkover survey may be supplemented with a metal detector if there is surface indication of prospective sites. As is standard with Phase 0 investigations, preliminary documentary research would be necessary in the event of finding a site.~~

~~There is a moderate probability of finding prehistoric archaeological sites within the proposed survey area, based on:~~

~~1. the project location within the area of possible Ordovician or Silurian chert toolstone outcrops, and~~
~~2. the discovery of site 147.001 during initial survey for the Chase Mountain mine tailing pond project in 1984, on the edge of the Pickett Mountain Pond valley.~~

~~Site 147.001 is located outside the area of the proposed Pickett Mountain Mine project. However, the area of the Pickett Mountain Mine project will be assessed for possible toolstone outcrops and associated workshop/toolstone reduction sites. Rock outcrop of any kind in the site area is limited. The Phase 0 investigation will include:~~

- ~~consultation with a qualified geologist,~~

- ~~walkover survey to locate bedrock outcrops and assess their suitability as toolstone and record same, and~~
- ~~excavation of up to 50 test pits, in transects with 5 or 10 m intervals, within the areas assessed to be "most likely" to contain prehistoric quarry reduction debris and/or habitation sites.~~

~~Following completion of this work, a draft report will be prepared and provided to the MHPC for review. Any comments or questions will be addressed in the final Phase 0 Report.~~

~~Relevant correspondence with the MHPC is provided in Exhibit M.~~

B. The MNAP has provided an environmental review for rare and exemplary botanical features in proximity to the Pickett Mountain Project. Based on current information and reconnaissance, rare and exemplary botanical features have not been observed or are not known or expected to exist in the area proposed for rezoning. During the Spring of 2020, surveys will be made by a qualified biologist to ensure that no undocumented rare or exemplary botanical features are present that would be inadvertently harmed.

The MIL&W has also provided an environmental review with similar findings, that significant wildlife habit is not known or expected at the project site.

Relevant correspondence is provided in Exhibit N.

19. RECREATIONAL RESOURCES.

The area in the immediate vicinity of the proposed rezoning has limited high value recreational resources (cold water fisheries, scenic views, primitive and remote locations) and is privately owned. Public recreation use of the area is primarily motorized, accessing existing gravel logging roads including ATVs and snow mobiles. Wolfden would affirmatively impose restrictions on certain roads that lead to the mine site, if needed for public safety. The roads providing access to the site are already well developed and used extensively by logging operations. Recreational resources within 3 miles of the area proposed for rezoning are depicted and further described in Appendix A Attachment L.

Nearby designated recreational resources, including Lane Brook Pond, Green Mountain Pond as well as fish and wildlife protection subdistricts along portions of the headwaters to Upper Shin Pond, would not be affected directly by the project or indirectly through increased traffic. The tributaries to Upper Shin Pond are valued as stream spawning and nursery areas for brook trout and the thoroughfare to Lower Shin Pond for salmon. These areas are not within the watershed drainage of the proposed site. Upper and Lower Shin Pond are accessed by Route 159 which is not connected to any existing private or public roads used to access the site. The proposed site would not increase traffic to these areas. These recreational resources are used by anglers in spring and summer months and by hikers and motorized recreational vehicles year-round. These recreational resources would also not be affected by the project; and the project, based on current information, would not be visible from those areas.

One of the parcels of the Katahdin Woods and Waters National Monument is located approximately 6.3 miles to the southwest just south of Lower Shin Pond and extends over to the Seboeis River approximately 9 miles from the site. This area is accessed by several unimproved roads off Route 159 that include scenic overlooks, picnic areas and an unimproved boat launch on the river. The proposed site would not increase use of these recreational resources. Neither would the site be visible from scenic viewpoints within the Monument.

The East Branch of the Penobscot River is located fifteen miles southwest of the site and is the eastern boundary of the largest parcel of the Katahdin Woods and Waters National Monument. Within the monument there are numerous recreational opportunities including hiking, fishing, camping, boating and biking; hunting and snowmobiling are permitted east of the East Branch of the Penobscot River. Mountain elevations in the Monument range from approximately 1,900 to 1,400 feet. The upland ridgeline where development is proposed at the site is approximately 1,200 feet in elevation and is surrounded by higher elevations to the northwest (Green Mountain - 1,600 feet and Lane Brook Hills-1,500 feet) and to the south (Picket Mountain-1,700 feet), and to the southwest (Mount Chase -2,400 feet). Due to the surrounding elevations the site would not be readily visible from Upper or Lower Shin Pond, and vantage points from within the Katahdin Woods and Waters National Monument. The site would be within the line of sight from the summit of Sugarloaf Mountain, but at an extreme distance of 7.3 miles.

Sugarloaf Mountain is located approximate 2 miles northwest of Lower Shin Pond and is not the same as the ski area located in Carrabassett Valley. The proposed mine site would not have visual or other adverse impacts on the scenic values of these recreational resources.

Development of the site would not increase traffic to these areas since they are accessed by roads not connected to the site.

20. PROSPECTIVELY ZONED AREAS.

Not Applicable

.

21. PLANNED DEVELOPMENT OR PLANNED RECREATION FACILITY DEVELOPMENT SUBDISTRICTS.

The proposed development will require permitting under Chapter 200 by the DEP. Rezoning approval is required by LUPC. This Petition addresses the additional requirements of the LUPC's Chapter 12 rules. The applicant has prepared this Petition in consultation with the LUPC and other relevant agencies. Please see **Appendix A – Attachment A** for a narrative description of the nature and basis for the requested subdistrict change.

22. ADDITIONAL INFORMATION.

Appendix A of this Petition contains additional information intended to provide a more detailed understanding of the proposed mining activities and their responsiveness to the requirements of the LUPC's Chapter 12 rules.

23. REQUIRED FEES, EXHIBITS AND SUPPLEMENTS.

Submit all necessary fees, exhibits and supplemental information with this petition, as described in the instructions.

CHECKLIST OF REQUIRED FEES, EXHIBITS, AND SUPPLEMENTS

Please check off the following for the fee, exhibits, and supplements. To determine which exhibits are required for your petition, use the highlighted notes (1) contained in certain items and the instructions in Required Fees, Exhibits and Supplements. Please check if the exhibit is required and if it has been provided, and note that the supplements may also require additional exhibits. Please check with the LUPC staff if you have any questions.

Required* YES	Required* NO	Provided YES	Provided NO	Exhibit	*Required
√	☐	☒	☐	Pre-application meeting	Required unless otherwise indicated by the LUPC staff.
√	☐	☒	☐	Application Fee	Required unless a waiver is granted by the LUPC Director in very specific and limited circumstances.
√	☐	☒	☐	Exhibit A – Location Map and Digital Location Data	Location map required; digital location data is ideal.
√	☐	☒	☐	Exhibit B – Deed, Lease or Easement	Required unless already on file with the Commission and no changes have been made from what is on file.
√	☐	☒	☐	Exhibit C – Site Photographs	Required unless already on file with the Commission and photos are representative of current conditions.
√	☐	☒	☐	Exhibit D-1 – Existing Site Plan	Required. Show all existing and proposed structures and features, and existing and proposed subdistrict boundaries.
√	☐	☒	☐	Exhibit D-2 – Preliminary Site Plan or Subdivision Plan	Required if the proposed rezoning is intended to accommodate a subsequent subdivision; Optional if subsequent subdivision is not intended and if all proposed changes cannot be clearly shown on Exhibit D-1.
☐	☒	☐	☐	Exhibit E – Flood Area Zoning	Required for any rezoning of a FEMA Flood Plain or a P-FP Subdistrict, if your answer to any part of item 10 b, c, or d is YES.
√	☐	☒	☐	Exhibit F – Notice of Filing	Required.
☐	☒	☐	☐	Exhibit G – Protection Subdistricts	Required for rezoning to or from a P-AR, P-FW, P-SG, or P-WL.

The following exhibits may only be required for petitions that propose a development subdistrict:

☒	☐	☒	☐	Exhibit H – Financial Capacity	Required.
☒	☐	☒	☐	Exhibit I – Corporate Good Standing	Required if applicant is a corporation.
☒	☐	☒	☐	Exhibit J – Soil Suitability and Mapping	Required.
☒	☐	☒	☐	Exhibit K – Wastewater Disposal	Required.
☒	☐	☒	☐	Exhibit L – Impacts on Public Services	Required.
☒	☐	☒	☐	Exhibit M – Archaeological Resources	Required.
☒	☐	☒	☐	Exhibit N – Rare or Special Plant Communities and Wildlife Habitat	Required.

NOTICE OF FILING OF ZONING PETITION
WITH THE MAINE LAND USE PLANNING COMMISSION

At the time a zoning petition is filed with the Maine Land Use Planning Commission, the petitioner must send by certified mail a completed copy of this notice to: all persons owning or leasing property abutting or within 1,000 feet of the property to be rezoned (as shown on the records of the Maine Revenue Service or plantation or town tax assessors); plantation assessors or town select board; and county commissioners. Note: if the number of persons owning or leasing land within 1,000 feet of the affected land is more than 50, notice may instead be by publication in a newspaper(s) of general circulation in the area affected by the petition as determined by the LUPC staff.

This is to notify you that Wolfden Mt Chase LLC
(name and address of petitioner)
has filed a zoning petition with the Maine Land Use Planning Commission, pursuant to provisions of 12 M.R.S.A. Section 685-A(8-A),

to rezone 197.5 acres of land located in T6R6 WELS Penobscot County, Maine
(name of town, township or plantation, and county)

from its present General Management Subdistrict (M-GN) designation
(name(s) of the existing zoning subdistricts)

to a Planned Development (D-PD) Subdistrict;
Pickett Mountain Mine Project
(name(s) of the proposed zoning subdistricts)

for purposes of: initial development, operation and closure of an underground metallic mineral mine.

The petition will be filed for public inspection at the Maine Land Use Planning Commission offices below

on 1/27/2020.
(specify the date that this petition will be filed with the LUPC).

AUGUSTA OFFICE		EAST MILLINOCKET OFFICE	
18 Elkins Lane - Harlow Bldg. 22 State House Station Augusta, ME 04333-0022	Tel. (207) 287-2631 TTY (888) 577-6690 FAX (207) 287-7439	191 Main Street East Millinocket, ME 04430	Tel. (207) 485-8354 Tel. (207) 399-2176 FAX (207) 746-2243

In accordance with the Commission's Chapter 12 rule, **a public hearing must be held** for this zoning petition. Details on the public hearing, including how to participate in the hearing, request intervenor status, receive future notifications, and the date the record closes, will be posted in a separate Notice of Public Hearing as soon as that information is available.

Public comments are welcome up until the close of the record after the hearing. The LUPC encourages interested persons to submit written comments on this petition electronically to the e-mail address Wolfdenrezoning.LUPC@maine.gov. Written comments submitted in hard copy should be sent to the Maine Land Use Planning Commission's Augusta Office address, attention: Stacie Beyer, and **must be received by the Commission in a timely manner**.

For additional information, contact Stacie Beyer at the Augusta Office, or through the project e-mail address listed above.

Exhibit A

Location Map and Digital Location Data

Exhibit B

Deed

Exhibit C

Site Photographs

Exhibit D-1

Existing Site Plan

Exhibit D-2

Preliminary Site Plan

The following plan provides a conceptual layout of the facilities and buildings associated with the project. The building designation, structure type and size are summarized below. In addition to buildings and other structures, it is anticipated that a 0.5 acre parking area will be required for employees with an additional 2.5 acres dedicated to parking for trucks and other equipment. Therefore, the total area to be cleared is 137.5~~56.8~~ acres ~~(approximately 57 acres)~~. The water collection and treatment systems will not collect precipitation around buried structures or office buildings but will collect run-off around other buildings, the tailings storage area, storage pads etc.

Name	SQ FT	Structure Type	Acreage	Notes
1	1,077	Building	0.02	Temporary Explosives Magazine
2	1,077	Building	0.02	Temporary Explosives Magazine
3	1,077	Vent Raise	0.02	Ventilation Exhaust Raise
4	1,077	Vent Raise	0.02	Ventilation Exhaust Raise
5	97	Buried Structure	0.00	Concrete Water Diffuser
Parking Facility	21,780	Impervious area	0.50	
Equipment Parking	108,900	Impervious area	2.50	
Site Road Infrastructure	157,252	Impervious area	3.61	
Conc Handling	29,874	Building	0.69	
Concentrator	64,619	Building	1.48	
Dry Stacked Tailings Facility	3,415,104	Lined Pad	78.40	
Fuel	2,126	Building	0.05	
Electrical Substation	10,000	Building	0.23	Electrical Substation
Laydown Area	70,000	Impervious area	1.61	
Laydown Area A	4,000	Impervious area	0.09	
Mill Feed Storage Pad	43,080	Lined Pad	0.99	
Office	2,423	Building	0.06	
Office A	485	Building	0.01	
Office B	97	Building	0.00	
PDP 1	148,104	Buried Structure	3.40	Septic Type System
PDP 2	104,544	Buried Structure	2.40	Septic Type System
PDP 3	200,376	Buried Structure	4.60	Septic Type System
PDP 4	100,188	Buried Structure	2.30	Septic Type System
Solid Waste Septic System	10,000	Buried Structure	0.23	Solid Waste Septic Bed and tank
Portal East	11,821	Excavation	0.27	
Shop	6,462	Building	0.15	
Warehouse	8,000	Building	0.07	
Waste Rock Storage Facility	69,143	Impervious area	1.59	
Waste Water Storage	16,155	Impervious area	0.37	
WTP	1,615	Building	0.04	
Total Buildings Area	**127,855**	**SQ FT**	**2.83**	**Acres**
Total Lined Pads Area	**3,458,184**	**SQ FT**	**79.39**	**Acres**
Total Impervious Area	**447,229**	**SQ FT**	**10.27**	**Acres**
Total Impacted Area	**4,610,551**	**SQ FT**	**105.73**	**Acres**
Total Cleared Area	**5,993,717**	**SQ FT**	**137.45**	**Acres**

Building Designation	SQ FT	Structure Type	Acreage	Notes
1	1,077	Building	0.02	Temporary Explosives Magazine
2	1,077	Building	0.02	Temporary Explosives Magazine
3	1,077	Vent Raise	0.02	Ventilation Exhaust Raise
4	1,077	Vent Raise	0.02	Ventilation Exhaust Raise
5	97	Buried Structure	0.00	Concrete Water Diffuser
Conc Handling	29,874	Building	0.69	
Concentrator	64,619	Building	1.48	
Dry Stacked Tailings Facility	1,832,434	Storage Pad	42.07	
Fuel	2,126	Tank	0.05	
Laydown Area	27,983	Storage Pad	0.64	
Laydown Area A	1,077	Storage Pad	0.02	
Mill Feed Storage Pad	43,080	Storage Pad	0.99	
Office	2,423	Building	0.06	
Office A	485	Building	0.01	
Office B	97	Building	0.00	
PDP 1	53,849	Buried Structure	1.24	Septic Type System
PDP 2	53,849	Buried Structure	1.24	Septic Type System
PDP 3	53,849	Buried Structure	1.24	Septic Type System
PDP 4	53,849	Buried Structure	1.24	Septic Type System
Portal	23,642	Excavation	0.54	
Shop	6,462	Building	0.15	
Warehouse	3,231	Building	0.07	
Waste Rock Storage Facility	69,143	Storage Pad	1.59	
Waste Water Storage	16,155	Pond Structure	0.37	
WTP	1,615	Building	0.04	
Total	**2,344,247**	**SQ FT**	**53.82**	**Acres**
	110,960	**Buildings Only**	**2.55**	**Buildings Only**

Exhibit E

Flood Area Zoning
Not Applicable

Exhibit F
Notice of Filing

TO BE PROVIDED UNDER SEPARATE COVER

Exhibit G

Protection Subdistricts
Not Applicable

Exhibit H

Financial Capacity

Financial Capacity

Funding for the Pickett Mountain Mine project to date has been a combination of small equity raises and timber sales from the property. Wolfden's market capitalization ~~share price~~ will be an important factor for its ability to fully finance the construction of the project. Wolfden, like other base metal focused mining companies ~~continues to~~ trades at a discount due to lower investor interest in the base metal commodity sector. In addition, Wolfden is the first company in years to attempt to build a metallic mine in Maine and as a result, investors may be more cautious to invest in the project until the principle regulatory requirements (such as rezoning, baseline studies, feasibility studies, and a mining permit) have been successfully completed~~to many of its peers because investors have their doubts about Maine's willingness to issue mining permits~~. We anticipate that this trend will continue for the project until milestones like the rezoning have been achieved and the project is proceeding well through its baseline studies.

Typically, ~~junior mining companies and early stage~~ mining projects are funded through a combination of project debt and equity whether the company is large or small. For small mining companies, the equity portion of the project financing is usually ~~Small cash~~ raised~~through~~ through several share issuances as the project completes the principle milestones as those listed above, such as the 1) Full Feasibilty Study with a positive outcome; 2) Mine permitting approvals; 3) Approval of a project debt facility with a lead financial arranger; and 4) Positive results from any ongoing exploration that indicate the potential for additional resources.

Currently, Wolfden is actively exploring while in parallel pursuing a rezoning petition. Success on both of these fronts will significantly de-risk the project and thereby improve investor comfort in the project and in the future of metallic mining in Maine. Wolfden's two largest shareholders (Kinross and Altius) are larger mining companies with the financial capacity to finance the construction of the project. Similar to small investors, these larger investors could be interested in a partnership to develop the project or even a take over of Wolfden so that they can develop the project themselves. There are other larger mining companies that continue to follow Wolfden's efforts and success in Maine who may also be interested in either approach as the project receives approvals on the milestones listed above.

~~these avenues are designed to support growth of a property (I.e. claims staking and maintenance, resource exploration, diamond drilling, etc..) while managing risks. Major mining companies have the ability to fund larger exercise internally, however decisions on funding typically comply with similar investment strategies. Wolfden anticipates that its share value will be considerably higher at such a point when it attempts to secure a full project financing. As a junior mining company, Wolfden's The financing alternatives would include: (1) partnerships with larger producing companies which can put up much of the capital; and (2) takeover by a larger producing company once Wolfden's permitting efforts have "de-risked" the project.~~ The project financing will be based on a financial model (as included in the Costs and Revenues

section and an attachement) that will evolve further with more detailed drilling, baseline studies and feasibility work. The current financial model shows the project to be positive. Wolfden estimates that additional resources can be further defined at depth and within close proximity to the deposit that can further improve the financial returns and life of the project. The Company plans to continue with exploration and delineation drilling in parallel with all study work over the next two to three years. ~~financing plan for a project such as Pickett Mountain must be flexible based on the status of the company at the time of project financing. A large capital raise is required for development of the project as well as working capital to bring the project into operation and commercial production. As the site continues to produce concentrates, the borrowed funds are then paid down through sales revenues. Wolfden has produced a full economic model to show the cashflow (Costs and Revenues) produced from the proposed project which is described in this document and is filed as an attachment.~~ In addition, Wolfden has commissioned a third party engineering firm to produce a Preliminary Economic Assessment (PEA) which is typically completed before a Prefeasibility Study and Full Feasibility Study. The PEA, with a financial accuracy of 30%, will be filed as~~an~~ an independently approved form of a ~~-~~public disclosure document required by those financial regulatory markets to which Wolfden reports. The PEA will include amongst other things, much of the similar technical information included in this rezoning petition, in addition to a more detailed (estimated) mine plan, schedule and estimated costs and revenues that support the positive practicality of building an operation at Pickett Mountain and in continuing with further exploration, technical studies and ultimately mine permitting.~~document supporting the financial practicability of the project.~~

Wolfden is committed to demonstrating to the mining community, its investors and all relevant stakeholders that Maine is "open for business" when it comes to employing proven safe and modern mining techniques. Rezoning, Mine Permitting and implementation of the project also would demonstrate that the LUPC and DEP rules governing metallic mineral mines are not preclusive of mining in the State of Maine.

~~In the meantime,~~ Wolfden benefit~~s~~s from ~~its~~ established strategic relationships with larger companies such as ~~,~~ Kinross and Altius, which ~~are company shareholders and~~ have the experience and capability to build a modern base metal mine in Maine. Wolfden's management also has a track record of success in building modern mines, including the financing of the largest producing ~~a~~ mine in Burkina Faso, West Africa ~~that is the largest producing mine~~ (Essakane Mine) ~~in~~ that even more than ~~country~~ ten years later is~~and~~ still the single largest contributor to the~~at~~ GDP of the country~~y's GDP~~. Wolfden urges that the Commission not focus on its balance sheet of today and a project financing to build the project will not be pursued by any mining company, large or small, until the completion of a full feasibility study and a successful mine permitting process.

Exhibit I

Corporate Good Standing

Exhibit J
Soil Suitability and Mapping

Attachment G provides available low intensity soil maps. The soils present are derived from glacial till deposited over bedrock. On-site mapping of soils has not been conducted but based on available information soils are generally suitable for the proposed project for construction of facilities and the TMF. Geotechnical investigations are scheduled in the summer of 2020~~will be required~~ for determination of geotechnical characteristics of soils for design of building foundations, the TMF, and completing stability analyses required by DEP's Chapter 200 rules. Hydrogeologic characterization will also be required to design monitoring systems, determine an appropriate location for a domestic wastewater septic field, and to design and size the infiltration galleries for re-injection of treated water back to groundwater. These studies will be detailed in nature and implemented as part of the baseline and background studies to support detailed design of the above ground mine facilities.

Exhibit K

Wastewater Disposal

The location for a wastewater disposal system using a septic field will be determined based on field investigations ~~in the Spring of 2020~~conducted for the baseline characterization pursuant to MEDEP Chapter 200 regulations.. The disposal system will be designed during the DEP permitting phase of the project.

Exhibit L
Impacts on Public Services

See discussions provided in Appendix A – Attachment O**.**

Exhibit M

Archaeological Resources

Exhibit N

Rare or Special Plant Communities and Wildlife Habitat

Appendix A

Chapter 12 Requirements

Mining and Level C Mineral Exploration Activities

B. Criteria for Approval of a Petition to Change a Subdistrict to a D-PD Development Subdistrict for Metallic Mineral Mining and Level C Mineral Exploration Activities.

This Section of the Petition is responsive specifically to Chapter 12 § 4.B.(3) of the LUPC rules.

The factors listed in Chapter 12 § 4.B.(2) are addressed in corresponding Attachments to this Petition.

B(3)(a) Potential Short- and Long-Term Socioeconomic Impacts

Description of Cost Modelling:

In order to estimate the economic impact that could result from a project such as Pickett Mountain, Wolfden first constructed an overall cost estimate and economic forecast of the entire project (Cashflow Model). This model was constructed using a series of first principles calculations, to develop the underlying basis for cost and revenue streams as well as comparative studies in order to estimate unit costs for each aspect of the project. Costs are broken down into several silos. These silos include:

- Capital Infrastructure/Construction
- Mining Costs
- Milling Costs
- Environmental Costs
- General & Administration Costs
- Energy Costs
- Maintenance Costs

Capital Infrastructure/Construction are a series of estimated project costs scheduled into the model. This is inclusive of building costs, earthworks, civil works, any infrastructure required as well as upfront permitting expenses, exploration projects, and design engineering prior to starting construction of the project.

Mining costs are built mainly from first principles then compared to other project costs to evaluate accuracy. These costs include the cost of development, production, vertical development and diamond drilling work. In addition, these costs cover engineering support and mine management.

Milling costs include all reagents, manpower, tailings management, assay lab and related activities, and crushing costs (Contracted or with owned equipment).

Environmental costs include equipment, related to environmental activities, lab consumables, manpower, the water treatment facility, any spill clean-up costs, environmental consulting fees, ongoing permitting fees and any licensing fees related to environmental projects.

General and Administrative (G&A) costs include Administration manpower, training, education and professional development costs, software licenses, insurances, general office supplies, communications costs, general site maintenance (Snow removal, road work, etc..) and freight costs.

Energy costs include diesel consumptions, gasoline used on site, propane and electrical power consumption.

Maintenance costs include maintenance on mobile equipment used in the mine, mill and on surface and fixed building maintenance for all infrastructure onsite, as well as components within them. Maintenance is sometimes contracted based on specialty requirements.

After each of the cost silos were constructed, the costs were then compiled to each of their specific project phases (Permitting, construction, operations and reclamation) and distributed by the following when applicable:

- Employment
- Consumables
- Services
- Energy

By organizing costs in this fashion, Wolfden can anticipate the distribution of costs, by project phase and schedule, that would be spent within the local communities, the impacted counties, the state and the country. The result are summarized in the following tables. A copy of the economic model is submitted with this petition.

Cost Tables Here

In total, the anticipated investment within each of these impact jurisdictions (community, county, state and country) over each of the four project phases (permitting, construction, operations and reclamation), is as follows:

- Total estimated investment into the local communities over Life of Project (LoP) duration is $164.5 million ~~M USD~~.
- Total estimated investment into the impacted counties over the LoP is $230.6 million ~~M USD~~.
- Total estimated investment into the state of Maine over the LoP is $413.4 ~~M~~ million~~USD~~.
- Total estimated investment into the United States of America over the LoP is $477.8 million ~~M USD~~.

Not included in the economic benefits calculated above, is the potential continued future income from trained employees who elect to travel abroad for work post operation of Pickett Mountain. In the mining industry, traveling employment (Fly In, Fly Out) or camp style jobs have become standard. Travel and work schedules range and vary significantly depending on the project, however, these types of jobs are structured to support skilled and trained workers who enjoy working in the mining industry but do not want to relocate away from their home: in this case, Maine. Mining companies commonly support employees through this type of creative and flexible employment model due to the nature of mining in distant and remote areas where mineral deposits are located far from population centers.

Assuming 50% of the total ~60 employees trained and hired at Pickett Mountain remain within the industry for the remainder of their careers (~14 years), this could potentially result in additional income of $44.4 million~~M USD~~. This does not consider future generations that take an interested in this industry. This type of operation can be seen all over the world and some North American examples are as follows:

Mine	Company	Location	Schedule	Shift Duration	Total Employees
Meliadine Mine	Agnico Eagle	Nunavut, Canada	2 weeks in 2 weeks out	12 hours on and 12 hours off	~800
Schefferville	Tata Steel Minerals	Labrador, Canada	2 weeks in 2 weeks out	12 hours on and 12 hours off	~250
Mussel White	Newmont	Thunderbay, Canada	2 weeks in 2 weeks out	12 hours on and 12 hours off	~600
Red Dog	Teck Resources Limited	Alaska, USA	4 weeks in 2 weeks out	12 hours on and 12 hours off	~460

Employment:

Exploration/Permitting Phase

The levels of employment, aggregate wages and other direct expenses during the exploration and permitting phase is typically small compared to the overall project and are filled via contract/short term hires. The scope of professional services during this phase is designed to communicate with public and state stakeholders, produce communications and application submittals as well as address any comments or questions that arise throughout the permitting

process. Within this phase of the project, it is typical that a series of test work is completed which include:

- Environmental baseline characterization work
- Engineering studies (health and safety, environmental management, geotechnical metallurgical, mining, financial)
- Infrastructure evaluations
- Workforce evaluations
- Detailed sequencing and scheduling

Concurrent with permitting activities, it is customary to continue conducting exploration activities to improve the knowledge of the current deposit as well as to expand known or inferred mineral resources.

Environmental baseline characterization work will be performed through the support of consultants sourced within Maine since the skillsets required for this work exist within the state. The work will be a combination of field work, desk top studies, data analysis and reporting. Typical unburdened wages for these employees are between 40-45$/hr ~~USD~~ as an average of experience and skillsets. Exploration positions such as geologists, drillers and drill helpers that take place at the site are typically done with similar employee rates (40-45$/hr ~~USD~~) as an average across skillsets and experience. These employees oversee drilling core and other geological samples as well as logging and mapping the rocks as well as identifying resources which are then converted to potential mining areas. Employment during this phase is typically specialized and imported from larger cities. Employees supporting the property during this phase would typically stay in rented homes, apartments or hotels. Since this phase is has minimal employment, the surrounding infrastructure would not be impacted by addition to the population.

As the project becomes permitted and transitions into construction phase, Wolfden would target a transition to permanent hires for some of these technical positions. Skillsets that are based in Maine (environmental, civil & infrastructure, construction planning) would be sourced locally. Specialty skillsets such as mining and specific metallurgy will likely be outsourced to support project success. Within this phase of the project, communications with local post-secondary schools to guide interest in establishing a program to target specialty skillsets in order to replace non-local workforce with local workforce in subsequent phases of the project. These types of programs will consist of both field and classroom learning and will target the next generation demographics. These types of programs have been very successful in other jurisdictions with high level of employment post-graduation, not only in the target project but projects abroad as this industry has a high rate of travelling workers and professionals. This type of program has worked well in various mining camps including neighboring New Brunswick, Canada which initially focused on First Nations employees. A synopsis of the short education campaign performed in New Brunswick is as follows:

- Ran three First Nation mining courses through the New Brunswick Community College (NBCC) in Miramichi and Bathurst NB
- 26 People were trained for underground miners course
- 12 people were trained for mill operators course
- 14 People are still employed underground at the Caribou Mine in New Brunswick
- 2 Mill operators are still employed at the concentrator and are proceeding through the ranks
- Several trained miners have transitioned to working at different mines via relocation or fly in fly out
- Courses were difficult to fill as they were restricted to First Nation members. Majority of the First Nation communities are greater than an hour drive from the mine site.

Based on the conceptual project economics, the anticipated spend / investment on manpower for exploration and permitting phase of the project is ~$1.4 million~~M USD~~.

Construction Phase

The construction phase of the project is anticipated to last one year in duration. During the construction phase, significant civil projects are required to take place as described above. As designs will likely be completed within the permitting phase of the project, most of the workforce during this period will be engineering, procurement and construction management (EPCM), project management, and labor workforce. Typically, labor includes heavy equipment operators, concrete and civil works, logging, steel and timber construction work, millwrighting, surveying, logistics coordination etc. The amount of workforce expected during this phase is extremely variable and will be sourced significantly through contractors as majority of the skillsets required are short term. Throughout the construction phase, the manpower working onsite can range anywhere between 10 to 50 people working at any given time depending on the construction projects currently on going and at what stage they are. Majority of the workforce for this phase of the project will be contracted due to short duration, and majority of the contractors hired can potentially be sourced locally depending on skillsets available as the tasks involved are not specialized for a significant portion of the construction phase. Specialty work that is required during the mining initiation as well as construction of the concentrator will likely be sourced externally.

Based on the conceptual project economics, the anticipated spend / investment on manpower for the construction phase of the project is ~$49.9 million~~M USD~~. Employment during this phase is typically specialized and imported from larger cities. Employees supporting the property during this phase would typically stay in rented homes, apartments or hotels. Since this phase has the most significant employment, additional residence would be required to stay in near-by larger towns. It is reasonable in this type of industry to commute for over an hour to

a place of work. Therefore, the infrastructure from a larger radius would be able to support additional requirement.

Operating Phase

The operating phase of the project is anticipated to last for roughly 10 years which has potential to extend longer provided positive results from diamond drilling exploration throughout the mine life.

With steady state operations, comes significant opportunity to train and employee significant local workforce. As described above, it is Wolfden's strategy to establish a training program through a local college in order to facilitate organized education of the next generation of miners and mill operators within the region. While being able to offer on the job training opportunities that lead to full time employment pending posting availability and employee performance. This is extremely valuable to Wolfden, as it provides the availability of a labour "pool". Having this source of local employees helps ensure steady operation of the mine and mill complex. Shifts in both the concentrator and in the mine will be 12 hours long with two shifts per day to cover the 24/7 operation. Schedules will typically be 1 week of work on and 1 week of work off. This allows employees significant rest opportunity as well as maintains similar annual cumulative hours to a standard 40-hour work week. It is very typical that employees working this schedule are able to commute over an hour away from the project site. Therefore, the requirement to move to a closure community is not necessarily required.

The roles within the Operating phase of the project include but are not limited to the following:

Mine

- Equipment operators (scoops and trucks)
- Jumbo drillers
- Long hole drillers
- Blasters
- Nippers (materials and supply delivery and retrieval)
- Grader operators
- Ground support miners

Concentrator

- Crusher operators
- Grinding operators
- Flotation operators
- Reagent mix operators
- Dewatering operators
- Tailings operators
- Concentrator loadout

Ancillary

- Health and Safety
- Mechanics
- Electricians
- General Construction/Maintenance
- Civil works
- Road grading and snow removal
- Purchasing and procurement
- Accounting
- Human resources
- Security
- Supervision/Management
- Water treatment facility operators

Technical

- Mine Engineering
- Geology
- Ventilation
- Geotechnical
- Survey
- Environmental Engineering
- Planning
- IT

Based on the conceptual project economics, the anticipated spend / investment on manpower for the construction phase of the project is ~$99.5M USD.

Reclamation Phase

The majority of the reclamation work would occur during the operation phase, as well as early in the reclamation phase. It is Wolfden's priority to ensure that the project is significantly de-risked at all stages of the operation. The tailings management facility (TMF) will be constructed using a staged approach.

A detailed description of the reclamation phase is discussed later in this Petition. With regard to workforce, the skillsets required for this phase of the project life will once again be short term and somewhat specialized. For that reason, it is anticipated that much of this decommissioning work will be contracted to Maine based specialists. In addition, operators to finalize closure of the TMF will be kept on as well as water treatment facility operators to continue treating and discharging water. The environmental team will be the last to remain on the site, ensuring that all discharge guidelines are being met as well as evaluate the site contact water to ensure that it is returning back to background per design.

Based on the conceptual project economics, the anticipated spend / investment on manpower for the construction phase of the project is ~$12.4 million~~M USD~~.

Consumables:

~~Materials,~~Materials supplies and consumables at each stage of the project vary significantly by type and volume. Majority of the consumables will be purchased within the construction and operation phase of the project and locally sources when applicable, however, a significant portion (~50%) of this spend will be sourced external to Maine due to the nature of the supply. The estimated spend / investment on materials, supplies and consumables is as follows by project phase:

Construction - $99.9 ~~M USD~~million

Operation - $95.3 million~~M USD~~

Reclamation - $5.0 million~~M USD~~

Services

Services required by the project phases are support provided by contractors and consultants etc. These are typically used for short term or specialized projects throughout the life of the project. These costs are also inclusive of payments to the government agencies of Maine in order to facilitate review and management of any permits required for this project. It is not anticipated that majority of these skillsets will be sourced locally. However, within Maine and other states, significant support for these services are anticipated to be found.

The estimated spend / investment on services by project phase is as follows:

Permitting/Exploration – $1.1 million~~M USD~~

Construction - $8.3 million~~M USD~~

Operation - $66.4 million~~M USD~~

Reclamation - $4.9 million~~M USD~~

Energy

Energy costs related to Pickett Mountain are mainly supplied from within Maine. Energy includes costs such as electricity, diesel fuel, propane and gasoline to run through each phase of the project life. The estimated spend / investment on energy by project phase is as follows:

Permitting/Exploration – $0.0 million~~M USD~~

Construction - $8.3 million~~M USD~~

Operation - $82.6 million~~M USD~~

Reclamation - $2.5 million~~M USD~~

B(3)(b) Potential Impacts on Services

Attachment O contains an evaluation of the potential impacts on services (including fire and police protection, education and solid waste disposal) and utilities. The evaluation identifies the proximity or availability of those services and utilities, and potential burdens for communities or State, county or local governments to provide those services if burdened. Attachment O is titled *Evaluation of Sufficiency of Existing Services and Utilities, and General Measures to Increase Service Capacities (if required) including Burdens on Communities or Government to Provide Those Services*. The evaluation describes the demographics of the labor market (principally the Houlton Labor Market Area), the housing market, education infrastructure and public safety services and discusses the expected geographic relationship between these services and where Wolfden anticipates the needed 60 person work force might come from locally (i.e., which towns and communities) as these new jobs are created for mine construction, operation and closure.

This evaluation suggests the proposed mine and job creation will have a positive local effect of housing, and the job market in general but is unlikely to pose an undue burden on other services provided at the community and state levels. The largest burden is likely to be the introduction of some new students into the regional school system, but whether this represents a burden or not depends on the capacity of the individual public school to support additional students, if their parents move into a school district in response to employment at the mine. Attachment O contains a letter from the Stacyville school district (Regional School Unit 89) indicating that expected enrollment of additional students within that RSU would not be a burden.

B(3)(c) Potential Impacts on Existing Infrastructure

The two primary infrastructure systems that could be affected by the project include power and roads. The project will not require public water or public waste water disposal.

Attachment J provides a map and description of existing transportation infrastructure routes, and an analysis of potential impacts and improvements. Access to the site is through well developed and well-maintained private gravel roads, currently used for logging. These private roads connect to a series of State highway routes and eventually the interstate system. These

routes will be used for travel of employees to work and for transportation of mineral concentrates to market for smelting in Canada. The additional traffic volume and capacity of this road system does not burden the infrastructure.

A new power transmission line will be installed by Emera Maine from their substation located south of Patten Maine on Route 11. The new power line will follow Route 11 for 9.5 miles then the existing gravel access road for another 5.1 miles. Wolfden will contract with Emera directly for this service.

B(3)(d) Potential Impacts to Existing Uses and Natural Resources

Introduction

The following subsections present an assessment of potential for impacts to natural resources including forest resources; historic sites; wildlife and plant habitats; scenic resources; water resources; and recreation resources.

A significant component of this discussion is dedicated to surface waters (ponds and streams) and groundwater since these are the resources most vulnerable during the development, operation and closure of the Pickett Mountain mineral deposit. This evaluation discusses the nature of the water resources including the relationships between topography, location of groundwater divides, areas of groundwater recharge and groundwater discharge. An initial estimate of an overall hydrologic water balance for the site is also provided.

The mine development, operation and closure strategy is predicated on protecting these water related resources. Therefore, a discussion of this overarching strategy is presented after discussion of the resources and addresses how these resources will be protected.

This information is followed by a general discussion of the Pickett Mountain mine development, operation and closure strategy and the management of mine-related waters. Those approaches, as well as the physical setting of the mineral deposit provide the means for mitigation of potential impacts to water resources.

Surface Water Resources and Groundwater

The following sections describe the physical setting, surface water, groundwater hydrogeology and groundwater resources.

Physical Setting and Surface Water Resources

The Pickett Mountain Deposit is situated beneath a portion of an approximate 2.7 mile long ridge with moderate elevations ranging from 1,360 to 1,140 feet (west to east). The ridge is bordered to the south by Pickett Mountain Pond, to the east by Tote Road Pond and Grass Pond, and to the north by Pleasant Lake and Mud Lake. Pickett Mountain Pond flows through an unnamed stream to Grass Pond and hence north to Mud Lake and the West Branch of the Mattawamkeag River. Pleasant Pond flows easterly to Mud Lake. Tote Road Pond outlets to a stream that flows easterly to Hale Pond and hence northerly through Green Pond to an unnamed stream that also joins the West Branch of the Mattawamkeag River.

The various lakes and ponds have the approximate following acreages:

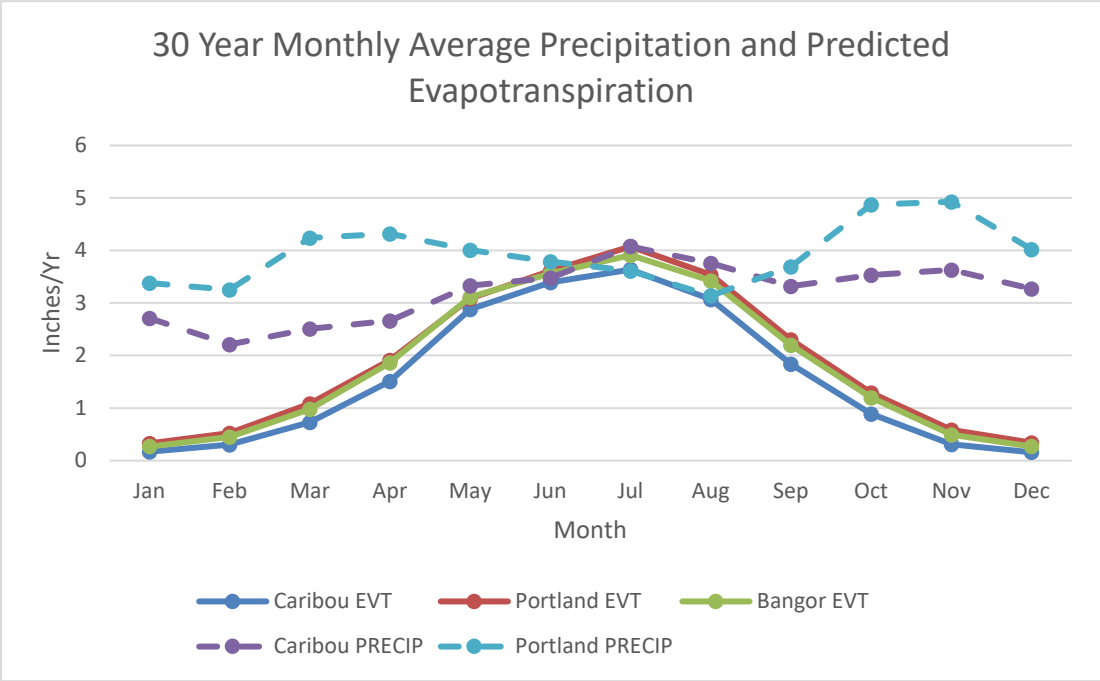
Pickett Pond	173 acres
Grass Pond	42 acres
Pleasant Lake	310 acres
Mud Lake	188 acres
Tote Road Pond	28 acres.

The ridge occupying the Pickett Mountain Deposit is bordered by higher elevations to the south including Mount Chase, Long Mountain and Pickett Mountain and to the north by Hay Brook Mountain, Roberts Mountain and Green Mountain. Another intervening ridge of similar elevation is present north of the West Branch of the Mattawamkeag River, where it enters the west side of Pleasant Lake. Surface water drainage and shallow groundwater discharge from the southern slope of this intervening ridge and Green Mountain contribute groundwater and surface water flows along the north side of both Pleasant and Mud Lakes. Prior field observations including surface water temperature measurements indicate the presence of groundwater seeps that flow into Pickett Mountain Pond and the stream flowing from it. Long and Pickett Mountain to the south, also contribute to groundwater and surface water inflows to Pickett Mountain Pond.

Groundwater Hydrogeology

Based on subsurface drilling conducted during mineral exploration activities, the site is characterized by relatively thin glacial deposits which mantle bedrock with moderate to steep slopes. Within margins of intervening valleys stratified glacial deposits are potentially present. Groundwater and surface water divides are expected to be controlled by topography and groundwater flow direction should mimic topography. **Attachment I** provides a depiction of the anticipated groundwater and surface water divides, and indicates anticipated groundwater flow directions. Based on studies of similar geologic and geographic settings (Gerber and Hebson, 1996) and historically averaged precipitation data (http://www.nrcc.cornell.edu/wxstation/pet/pet.html), the site is anticipated to receive

approximately 45 inches of total annual precipitation (see figure below). Recharge to groundwater (Net precipitation minus evapotranspiration) will result in overburden groundwater and shallow bedrock groundwater recharge and groundwater flow toward surface water bodies including lakes, ponds and streams.



Average Precipitation and Evapotranspiration Rates Across Maine

The majority of shallow groundwater recharge is in spring and fall when temperatures are above freezing and evapotranspiration rates are lowest, and precipitation highest as depicted in Exhibit 1. The majority of recharge will be too shallow (possibly perched) and deeper overburden groundwater with a smaller amount of recharge to bedrock groundwater, typically in the range of 2-10% (Gerber and Hebson, 1996). The amount of recharge typically increases toward the top of the topographic highs due to increased vertical gradients, with lower recharge rates down slope toward groundwater discharge areas. This shallow groundwater will form the base flow of groundwater recharge to surface water.

The hydraulic conductivity of silty glacial tills is typically low (< 1~~ft~~ feet/day). Therefore, the movement of overburden groundwater at the site is expected to be slow (< 0.2 ~~ft~~ feet/day) given anticipated hydraulic gradients, which should approximate the slope of the hill slope from the site to Pickett Mountain Pond (0.05 ~~ft~~ feet/~~ft~~ feet). The slow groundwater migration rates and large distances to surface water bodies from the site (3,500 feet to Pickett Pond and 6,500 feet to Pleasant Lake afford a high degree of protection to surface water resources.

Significant Sand and Gravel Deposits

A surficial deposit with good to moderate potential yields is mapped along the northern side of portions of Pleasant and Mud Lakes (**Attachment I**). Based on topography and subsurface drainage basin boundaries indicated on the Significant Sand and Gravel Aquifers Map of the Green Mountain Quadrangle (MGS Open File No. 01-75 2001) surface water divides are generally coincident with groundwater divides. This significant sand and gravel deposit therefore does not receive recharge or run-off from site (i.e., the north facing portion of the ridge that contains the Pickett Mountain Deposit) and would not be affected by the proposed project.

Hydrologic Water Budget - Overburden and Bedrock Groundwater Resources ~~**(Peter Thompson to update section)**~~

A divide in surface water and groundwater ~~divide~~ occurs along the ridge separating surface water and groundwater flow to Picket Mountain Pond and Pleasant Lake (Attachment I). The drainage sub-basin occupied by this portion of the ridge occupies approximately 3,330 acres (830 acres south of the divide and 2500 acres north of the divide). On average it is expected that 42% of precipitation is lost to evapotranspiration and run-off, with the remaining water budget resulting in recharge to overburden and bedrock groundwater (Gerber and Hebson, 1996). Approximately 5% of precipitation is assumed be to bedrock. This results in the following estimated water balance for the sub-basin provided in the following table. Most of the overburden groundwater would be expected to discharge locally within the local drainage basin (>95%), with the exclusion of recharge to bedrock. Some shallow bedrock groundwater would also be expected to discharge locally to streams in upland mountain areas and deeper sections of ponds, where present.

Estimated Hydrologic Budget

Area	Size (acres)	Net Precipitation (acre/feet/yr)	Evapotranspiration (acre/feet/yr)	Overburden Recharge (acre/feet/yr)	Bedrock Recharge (acre/feet/yr)	Overburden Recharge gallons/year	Bedrock Recharge gallons/year
Total Sub-Basin	3330	11933	5012	6575	346	2,142,548,037	112,765,686
North of Divide	2500	8958	3763	4936	260	1,608,519,547	84,658,924
South of Divide	830	2974	1249	1639	86	534,028,490	28,106,763
Developed Mine Area	49	176	0	-88	-8	(28,608,878)	(2,574,799)
Percent Excluded During Mine Operation	1%	0%	0%	1%	2%	1%	2%

Total Annual Precipitatio	45	
Interception	2	
Net Annual Precipitation	43	inches
Bedrock Net Recharge	5	%
EVT Rate & Run-off	0.42	%

Developed Mine Area = area where precipitation/ runoff is collected.

Area	Size (acres)	Net Precipitation (acre/feet/yr)	Evapotranspiration (acre/feet/yr)	Overburden Recharge (acre/feet/yr)	Bedrock Recharge (acre/feet/yr)	Overburden Recharge gallons/year	Bedrock Recharge gallons/year
Total Sub-Basin	3330	12488	5245	6881	362	2,242,201,434	118,010,602
North of Divide	2500	9375	3938	5166	272	1,683,334,410	88,596,548
South of Divide	830	3113	1307	1715	90	558,867,024	29,414,054
Developed Mine Area	20	75	0	-37	-3	(11,975,809)	(1,099,819)
Percent Excluded During Mine Operation	0.6%	0%	0%	1%	1%	1%	1%

Total Annual Precipitation	45		
Interception	2		4%
Net Annual Precipitation	43	inches	
Bedrock Net Recharge	5	%	5%
EVT Rate & Run-off	0.42	%	42%

Developed Mine Area = area where precipitation/ runoff is collected for treatment.
Assumes 15 Acres of the Total Tailngs Area open at at given time

The total area of land disturbance for mine development (excluding roads) is approximately 1065 acres and includes the ~~foot print~~footprint of buildings, mine portal, a surface water management facility and a dry TMF (approximately ~~92~~ 78 acres). Precipitation over much of this area (approximately ~~49~~ 9287 acres) will be managed to control run-off of non-contact waters, and water that potentially contact waste materials including ~~(~~waste rock and exposed tailings in the TMF~~)~~ (approximately 20 acres at any given time). Collected waters will be treated as discussed later in this section.

The area of mine development during operations is intentionally limited in size. When the water budget within this area is compared to the drainage basin, it becomes clear that impacts to recharge of groundwater (overburden and bedrock) and run-off of surface water to surface water bodies is negligible, and as a percentage (~~1-2%~~<1%) is within the range of annual variations in precipitation. Even if average annual precipitation varied by as much as 10% (+/- 5 inches), the percent reduction in recharge remains essentially the same. The immediate reduction in recharge is replaced by re-infiltration of clear treated effluent from the water management system (which is reflected in the table above).

Forest Resources

Wolfden currently owns 7,148 acres located in the southeastern corner of Township 6, Range 6 (T6R6). The property is entirely undeveloped and forested, except for six privately owned camps (seasonal residences) and logging/woods roads. The property has generated~~s~~ approximately $300,000~~k~~ in revenue annually from timber revenue. The Company entered into a timber harvest agreement in January 2020 to sell $5 million of its timber over the next five years to a local timber company. Much of these proceeds will be used to advance the project. The timber industry is the primary industry in the area and is the driver of the local economy. The area proposed for rezoning is approximately 528.2~~197.5~~ acres which includes approximately 10~~65~~ acres of land that would be constructed upon or disturbed by construction.~~.~~ The mine is planned to operate for 10 years after which the impacted area would be restored. The mine operations area would be restored as forest and would eventually again be logged/harvested. The dry stacked tailings pile would be capped and restored/revegetated. The cap concepts will be developed during the final design. The cap is required to achieve the same permeability as the liner system. Several concepts will be evaluated from a dry cap that promotes run-off in a course armored infiltration layer that would discourage large tree growth and protect the underlying low permeability barrier from root damage and wind throw, to a wet cap that mimics local hydrology and is able to sustain a wetland like condition where large tree growth is naturally discouraged. Other alternatives include long term management of vegetative growth on the cap, similar to a conventional landfill cap. There would be no restrictions on current and future timber operations on the remaining 6616.8~~6,947.5~~ acres of the property while the mine is in operation and being restored. The development associated with the proposed mine would affect less than 1.3~~3~~% of the property currently in forest production. Therefore, impacts to the forest resources and timber industry would be negligible.

Wetland Resources

The U.S. Fish and Wildlife Service has mapped wetlands in T6R6 as a part of the National Wetland Inventory (NWI). The NWI mapped wetlands have been promulgated into LUPC Land Use Guidance Maps. There are NWI mapped wetlands on the property. The mapped wetlands are primarily palustrine forested and palustrine scrub/shrub wetlands, associated with Pleasant Lake and Pickett Mountain Pond. In addition, the West Branch of the Mattawamkeag River flows across the south part of the property. There are no NWI mapped wetlands in the area of the proposed mine development, however due to the scale of NWI mapping, it can't be concluded that there are no wetlands on the site.

A reconnaissance of the area proposed for development was conducted in October~~,~~ 2019. The purpose of this reconnaissance was to preliminarily identify wetland resources including wetlands and potential vernal pools, and the possible presence of small or intermittent streams. During the reconnaissance wetlands, potential vernal pools, and intermittent streams were observed. The results of the reconnaissance suggest that a detailed wetland and vernal pool survey of the proposed development area during the growing season ~~is~~ was warranted.

In spring of 2020 a detailed delineation and reconnaissance level evaluation of wetlands and vernal pools was conducted. The report on these wetland and stream features is appended to Exhibit D-1, existing site plan and conditions Exhibit D-2 presents the proposed site plan and shows how the proposed development can occur with no impacts to vernal pools, wetlands and streams and observing a 75 foot buffer on all such natural resources. ~~In addition, in order to verify the significance of the potential vernal pools, the survey would need to be conducted during the spring amphibian breeding season; for northern Maine, that period typically falls between May 5th and June 5th. Wetlands, streams and potential vernal pools located within the area proposed for development will be avoided to the extent practicable. Wolfden plans to conduct the survey, in consultation with the IF&W, during the Spring of 2020. Any impacts to these areas would be mitigated to the extent practical during the design and permitting phase of the project. With the exception of the planned TMF, current depicted locations of proposed facilities have been placed outside of the area anticipated to contain wetlands. An approximate 4.25 acre area is present within the area of the planned TMF that may contain some wetlands, however this area is heavily rutted from prior logging (skidder ruts) and the surface expression of groundwater here is likely due largely to these former ground disturbances rather than natural wetland hydrology. The areas of potential wetlands in addition to potential intermittent streams are depicted in Attachment F1.~~

It is Wolfden's aim to conserve and protect the wetlands and their ecological functions by avoiding impacts to the extent practical, minimizing impacts where they cannot be avoided, and compensating impacts that are not avoidable. The current development plan achieves these goals with no impact.

At the completion of the mining project, the site will be reclaimed removing all buildings and structures except the TMF. The final grading plan for this final phase of the project can be designed in a manner to enhance and create forested wetlands and associated vernal pool habitats in areas with appropriate hydrology within the footprint of the mine operational area.

Based on our current understanding of wetlands present at the site, the project will meet the goal of protecting the ecological functions of wetland resources, including vernal pools.

Correspondence with the Maine Department of Inland Fisheries and Wildlife is presented in Exhibit N.

Other Water Resources (surface water, streams, shallow groundwater)

The property includes lakes, ponds, and streams, including Pleasant Lake, Pickett Mountain Pond, Mud Pond, west branch of the Mattawamkeag River. The area proposed for development however does not include any mapped streams or surface water bodies based on the USGS topographic map (i.e., Green Mountain, Maine). Although there are no USGS mapped streams within the area proposed for development, the area may include intermittent streams, too small to be picked up at the scale of the USGS maps. As noted in the Wetlands section, intermittent streams and shallow groundwater were observed during the October~~,~~ 2019 ~~reconnaissance of the property and therefore a detailed delineation of intermittent streams is warranted and would be required as a part of the rezoning process~~and have been delineated. Impacts to water resources would be avoided to the extent practicable and any impacts would be mitigated through restoration activities. In general impacts to water resources would be negligible based on the proposed treatment and discharge of water generated during mine operations, as discussed in the preceding sections. The water generated by mine operations will be treated and released back into the environment following all rules and best management practices and achieving requirements specific by the MEDEP Chapter 200 regulations.

Wildlife Resources and Habitats

The property contains a mix of terrestrial and aquatic habitats, including forested uplands, forested and scrub shrub wetlands, rivers, streams, ponds and lakes. The majority of the property is forested composed of a mix of deciduous and evergreen trees. Wildlife common to the Northwoods include deer, moose, bobcats, fishers, as well as a number of small mammal species. Avian species including passerine birds, accipiters and buteos, and piscivorous birds such as kingfishers and herons are also common, as are water-fowl including ducks, geese, and loons. The area proposed for development is primarily upland forested habitat, co-dominated by deciduous trees (i.e., beech, birch, and red maple trees) and coniferous trees (i.e., spruce, fir, cedar and hemlock). The area has been logged in the past and is currently in re-growth. Evidence of past logging operations in the form of skidder trails and logging roads are common throughout the area proposed for rezoning and development. The forest understory is relatively open and lacks dense growth commonly found in recently cut forest. Wildlife are accustomed to logging activities in the Northwoods and based on the current mine plan the mine operation would have less impacts to wildlife than common logging operations.

Correspondence ~~has been~~was sent to the Inland Fish and Wildlife Service (November 6, 2019) to obtain a list of Rare, Threatened, or Endangered species that could potentially be found in

the area. The IF&W provided a preliminary response to this request on November 25, 2019 which indicated there were no known occurrences of endangered, threatened of special concern species within the project area (Exhibit N). The IF&W also has not mapped any significant wildlife habitats within the project area. The IF&W did identify Great Blue Heron colonies as species of concern and noted the special protection afforded to eight species of bats and concern for habitat protection. The preliminary screening survey conducted to date did not identify habitat that would support Great Blue Heron colonies or bats, the latter due principally to very limited and small exposures of bedrock outcrop and lack of ~~any~~ talus slopes. ~~When the detailed mapping of wetlands, intermittent streams and vernal pools is conducted in the spring it will include a final species assessment~~A detailed assessment of terrestrial fauna will be completed under baseline studies required by MEDEP Chapter 200 regulations. encompassing a survey of the area proposed for development individual species and or suitable habitat for the species identified. Impacts to rare, threatened or endangered wildlife are not known or expected and if identified will be avoided and minimized.

Plant Habitats

The area proposed for development includes upland forested habitat and as noted has been logged in the past. The forest habitat includes a relatively open understory dominated by saplings of the dominant tree species. Shrubs are also present in the forested. The herbaceous growth in the forest habitat includes moss, ferns, grasses, and sedges.

Correspondence with the MNAP was submitted to request a list of known or suspect rare, threatened or endangered plants occurring in the area. Exhibit N contains the MNAP response which indicates that there are no rare botanical features documented specifically within the project area. Impacts to rare, threatened or endangered plants are therefore unlikely but if such botanical features are identified they will be avoided and minimized. Unavoidable impacts will be mitigated through moving/transplanting rare, threatened or endangered species when impacts are unavoidable. A detailed assessment of terrestrial flora will be completed under baseline studies required by MEDEP Chapter 200 regulations. Based on discussions on MNAP correspondence lakeside graminoid/shrub fen is located between Pleasant and Mud Lakes. These would not be affected by proposed activities and are outside the area to be re-zoned. ~~The MNAP did indicate this as a priority area on the Wolfden property for a botanical survey.~~

Historical Sites

The Maine State Historic Preservation Office has been consulted to identify any known or suspected historical sites on the property. A stone tool archeological habitation site is known near the headwater of Pickett Pond. ~~A Phase 0 archeological survey will be conducted within the area proposed for rezoning and development to verify that there are no historical resources present. The scope of the survey has been developed in consultation with Maine State Historic Preservation Office and discussed previously in Exhibit M. The survey will be conducted by a State certified archeologist following an approved work plan. If historical sites are identified within the proposed development the area will be investigated, cataloged and mapped. Any pre-historic or other artifacts discovered will be recovered in consultation with Maine State Historic Preservation Office.~~ The Phase 0 Assessment included background research and a field inspection. Background research considered various 19th and 20th century maps of the area, contemporary topographic and bedrock/ surficial geological maps, and review of MHPC site files associated with previously identified site 147.001. These resources confirmed the potential presence of toolstone geological resources within the project area, possibly including chert and fine-grained volcanics. The field inspection was conducted by NE ARC Assistant Director Dr. Gemma Hudgell

Background research and field inspection indicates that the project area contains three areas of outcropping "cherty rhyolite", which is a knappable lithic material of a type known to have been used by Native Americans to make stone tools. The artifacts from the nearby previously identified Native American site, 147.001, may be of this material, or a very similar type. The project also possesses archaeological sensitivity for Native American archaeological habitation sites based on the presence of a fairly level till bench terrace located above Pickett Mountain Pond in the southeastern portion of the project, and given the identification of site 147.001 within 250 m of the southern boundary of the project on a similar landform near the head of the same pond. The project area is not considered sensitive for the presence of historic period archaeological resources and a Phase 1 survey could be recommended if Wolfden continues to the next phase of background study testwork and permitting for the DEP. A memo is included with this petition and a formal detailed report is available.

Scenic Resources

The project has been designed to limit impacts to scenic resources. The "below ground" mine operation limits the footprint of mine requiring a relatively small area for mine operations ~~(~~approximately 7~~16~~ acres~~)~~ ~~, and~~ dry stack tailings pile ~~(~~approximately ~~42~~ 78 acres~~),~~ and total clearing ~~thus impacting~~ approximately 137~~58~~ acres~~)~~. In addition, the dry stacked tailings will match base line contours, to not protrude from the surrounding topography. The overall elevation increase in the footprint of the tailings facility is expected to be ~~approximately~~ be

maximum of 2210 feet higher than the original ground surface. Once the mine operations end the impacted area will be restored and will be allowed to reestablish as forest.

Recreational Resources

The area proposed for development does not include any snowmobile trails, hiking trails, or camping areas nor does it include any aquatic resources suitable for fishing. The area proposed for rezoning makes up only 1.32.8% of the total property. It is unlikely that the proposed mine would impact recreation resources. Once the mine is closed there would be no impacts to recreational resources.

Mine Development, Operation and Closure Strategy

The following section provides a general overview of how mine and process waters will be managed. The strategy for mine development, processing of mineralized rock, and management of tailings is discussed. Each of these processes have a water management component. Additional Information is provided in **Appendix M**

Overview - Management of Mine Waters, Process Waters and Septic Waters

Proper planning, management and treatment of site impacted waters can avert impacts to natural water resources including groundwater, run-off, and surface water. Elements of water management designed to alleviate the potential for adverse impacts are described in the following subsections.

Development of the Pickett Mountain mineral deposit will require collection of groundwater seepage for subsurface dewatering during underground mining operations and collection of surface water run-off from within the footprint of the developed property. These waters will be used in the beneficiation of the economically valuable minerals which includes milling and flotation to separate valuable from non-valuable minerals and create a concentrate that will be shipped off-site for further refinement (smelting) as well as tailings that will be stored on a lined tailings facility located onsite. Waters impacted by these processes will be treated and re-used to the maximum extent possible. It will be the intention of the concentrator/tailings design to have a net negative water balance that will require makeup water.

Water from the mine (seepage and process water) will be collected and treated to within water discharge guidelines and rules that include at or better than background quality. A portion of the treated water will be reused at mining process water and concentrator process water make up. Sewage from the mine will be contained to Portable Toilets (Porta Potties). These will be on contract basis and managed through replacement of filled facilities with clean facilities by the supplier. Sewage from all surface structures will drain to a septic system located on the site

down gradient of the building infrastructure and potable water supply. Any excess treated water will be returned to the environment as recharge via system of underground diffusers, similar to a septic system leach field. Water from the tailings facility will be managed separately. As a result of the water management strategy and the water balance required to sustainably operate the mine, impacts to water resources are expected to be negligible.

The estimated water balance from the milling/tailings facility is as follows resulting in a process water make up requirement of 68.4 cubic meters per day or 12.3 USGPM.

Overall Water Balance				
Water Product	Solids		Water t/d or m^3/d	Comments
	%	t/d		
Plant Feed (flotation feed)	30	1000	2333.3	Need per day
Cu Conc.	80	15.5	3.87	Lost in concentrate
Pb Conc.	80	10.6	2.65	Lost in concentrate
Zn Conc.	80	49.5	12.4	Lost in concentrate
Tailing	80	807.4	49.5	Lost in concentrate
Process Water Recycle	-	-	2264.88	Amount recovered
Need Process water	-	-	68.42	

Mine Development Strategy

The strategy for mine development is to conduct underground mining using a long hole stoping method with a decline, to allow underground haulage trucks to carry mineralize rock (mill feed) to a surface staging pad, where waste rock will be segregated from Mineralize Rock. Waste rock would be staged until it can be returned underground for backfill. Waste rock that is placed underground as backfill is not treated or neutralized, rather is simply placed as broken rock. Typically, waste rock outside of the Pickett Mountain deposit is non acid generating and in fact carries significant neutralizing potential. In addition, after waste rock is deposited undergound, it is in a low oxygen environment and therefore will not react with ground water if portions of the rock do contain acid generating potential. Seepage of bedrock water as well as injection of mine process water into the underground workings, necessitates a program of mine dewatering. Although engineering/hydrologic studies have not been conducted to quantify flow rates required to keep the working areas of the mine in a dewatered state, it is currently estimated based on similar site experience and the likelihood of low transmissivity bedrock at depth, that these "seepage" flows are likely to be on the order of 30 gallons per minute (gpm) long term.

Initial dewatering is usually conducted through use of bedrock extraction wells (dewatering wells) to reduce the bedrock potentiometric surface prior to and during development of the decline. This water will be used for storage and recycled for underground diamond drilling for blastholes. As underground workings are advanced, and seepage into these openings will occur, and that seepage will be pumped out eventually replacing the dewatering wells and establishing a network of water conveyance pipes within the developing mine infrastructure During mine operation, seepage waters will continue to be collected underground through a series of temporary sumps and pumps and treated at the water management facility prior to being re-used for underground process water with excess discharged to the environment. Waters used underground for drilling and wetting down rock surfaces to eliminate dust when mucking rock outwill be pumped through a connected network of pipes that can be modified and extended as the underground workings are developed.

When sulfide mineralized rock is mined and processed, the surface area of exposed sulfides increases along with the potential for acid generation. Exposure of these sulfide minerals to oxygen and water results in weathering and oxidation producing acidity (hydrogen ions), dissolved sulfate, dissolved metals and soluble acid-sulfate minerals. Undisturbed sulfide mineral deposits have limited exposed surfaces, and therefore pose little threat to groundwater under natural, oxygen-limited conditions. Since this weathering process requires presence of both oxygen and water, as well as time, effective strategies to prevent acid generation are incorporated into the design and operation of the mine. In the short term, these strategies rely on limiting exposure of these materials to water in the presence of oxygen as well as water collection and treatment. In the long term, strategies rely on isolating materials from water (infiltration), intrusion of atmospheric oxygen.

The waste rock will be mined separately and segregated from the mill feed, temporarily staged and then returned underground as backfill on an on-going basis. This manages and mitigates potential leaching and environmental release of metals from this waste rock material.

Mineralized Rock Milling and Flotation Strategy

Mineralized Rock (mill feed) will be crushed on-site and finely ground to a powder utilizing a comminution (Grinding) circuit. The finely ground rock is the feed stock for the flotation circuits, where the valuable sulfide minerals (Zn, Cu, Pb, and associated precious metals Au and Ag) are sequentially segregated from gangue minerals of no economic value and into a series of Copper, Lead and Zinc concentrates. This flotation process is done with a series of chemicals and reagents that are used to treat the minerals to optimize recoveries. Chemicals that are used within the process typically remain in the process water and are broken down over time. However, since majority of the water is reclaimed into the process, this material is reused. Any potential waste chemicals or spills, are collected and pumped to the tailings facility. These are then broken down over time or gathered through precipitation and ultimately gathered back into the process. Any stored chemicals that are expired or unusable for other reasons are repackaged and shipped back to the supplier or to a qualified management facility for appropriate disposal during operations and mine closure. The non-valuable or gangue minerals which will constitute approximately 80% of the mill feed result in the production of tailings requiring management. A conceptual flow diagram of the milling process is shown below.

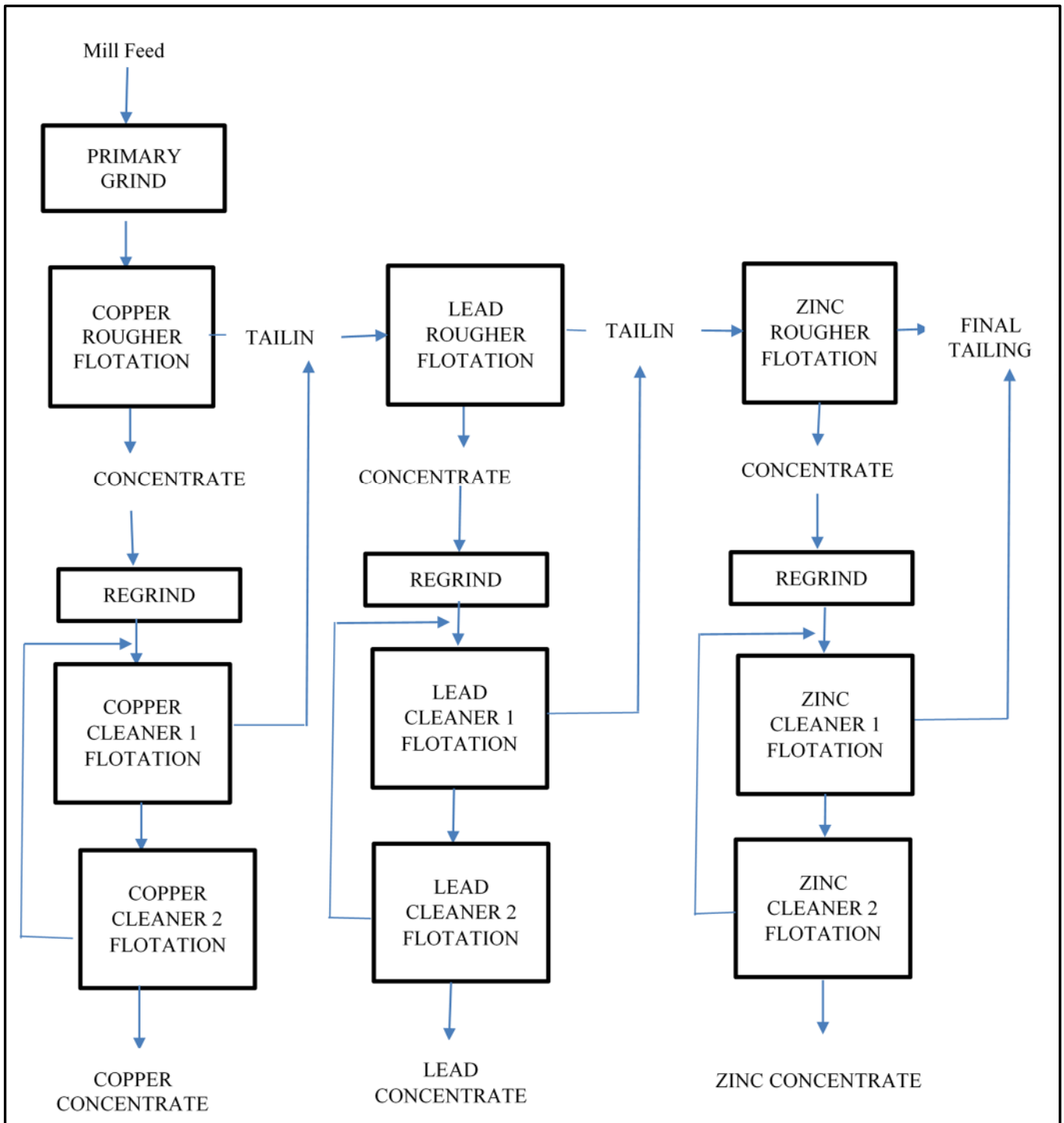


FIGURE: CONCEPTUAL PROCESS FLOWSHEET

Tailings Treatment and Management Strategy

Tailings, also contain iron sulfides as well as other metallic sulfide minerals and are managed accordingly to mitigate acid generation and leaching. When tailings are first produced, they are oversaturated with respect to water content and are pumped in a slurry.

All tailings will be deposited on a dry stack tailings management facility (TMF). The cleaned and filtered tailings will be dewatered and transported by truck or conveyor belt to the TMF where they are spread, stacked and compacted by a dozer. All water generated by the dewatering process is recycled and pumped back to the concentrator for reuse in the process circuit. The dewatered tailings have a low moisture content and is expected that no supernatant pond will form as they are compacted in the TMF. Rainfall on the TMF is expected and run-off collection is required. All water will be collected from the TMF in a lined collection pond at the south edge of the TMF. Water from the lined TMF collection pond will be pumped back to the concentrator for reuse in the processing circuit. The dewatered tailings will exit the concentrator plant via conveyor onto a storage pad with 24 hours of capacity. The tailings will be loaded and hauled via 35 or 40 tonne articulated trucks to the TMF. With an expected 800 tonnes per day of tailings, this will result in 1.5 or 1.0 trucks per hour depending on the size of the truck. Once or twice per shift, the truck operator will spend up to one hour with a dozer and roller compactor to grade and compact the tailings. The expected cycle time to the farthest area of the TMF is under 7 hours while the closest will be 4 hours. This allows more than sufficient time for haulage, grading and compacting in a 10-hour work shift.

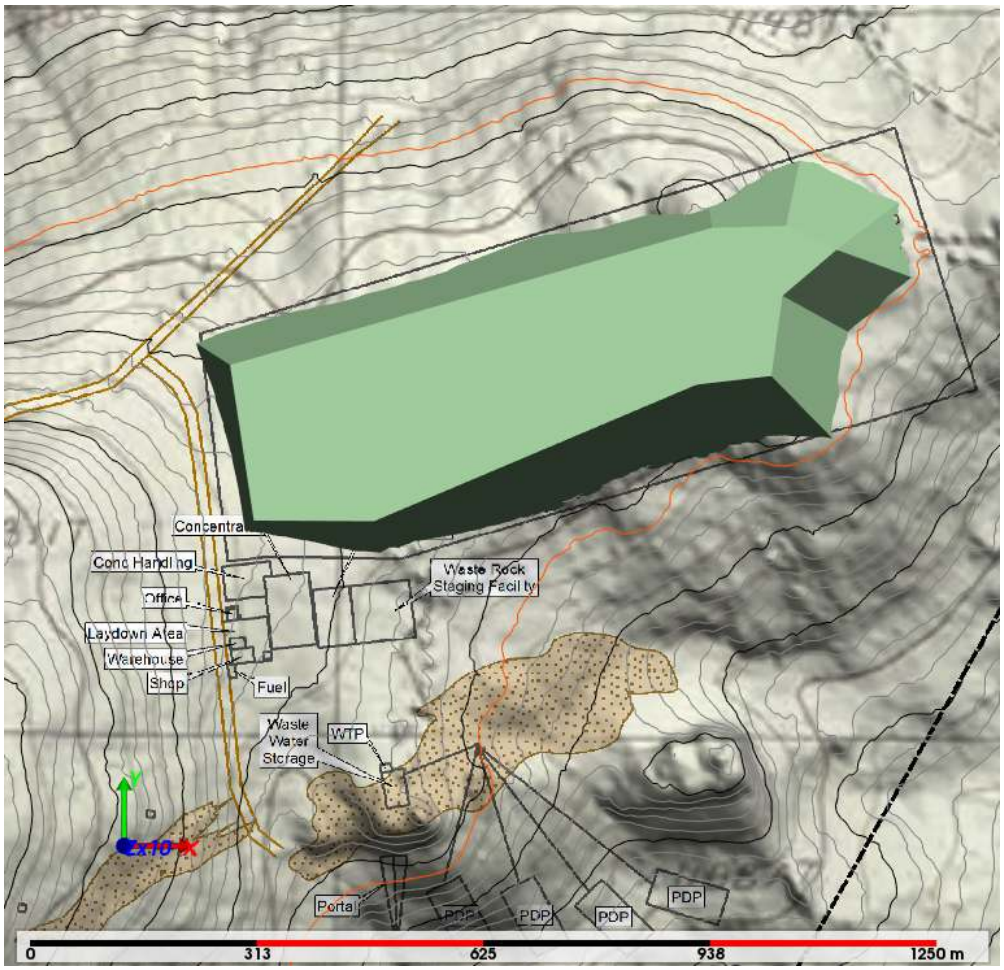
Sub-aerial (dry stacked) tailings are the only above ground tailings management method allowed under the DEP Chapter 200 rules for Group A and Group B mine waste. The sub-aerial TMF will be designed in accordance with requirements (including a composite liner and leachate collection) of Chapter 200 Subchapter 5 Section 21 Mine Waste Unit Design Standards. Leachate ponds that collect water that encounters tailings are also governed by these standards. TMF ground slopes of 20% to 30% may be used for dry stack tailings. The maximum height of the TMF cells when completed at Pickett Mt. are not expected to exceed 220 feet and may average less than 15 feet.

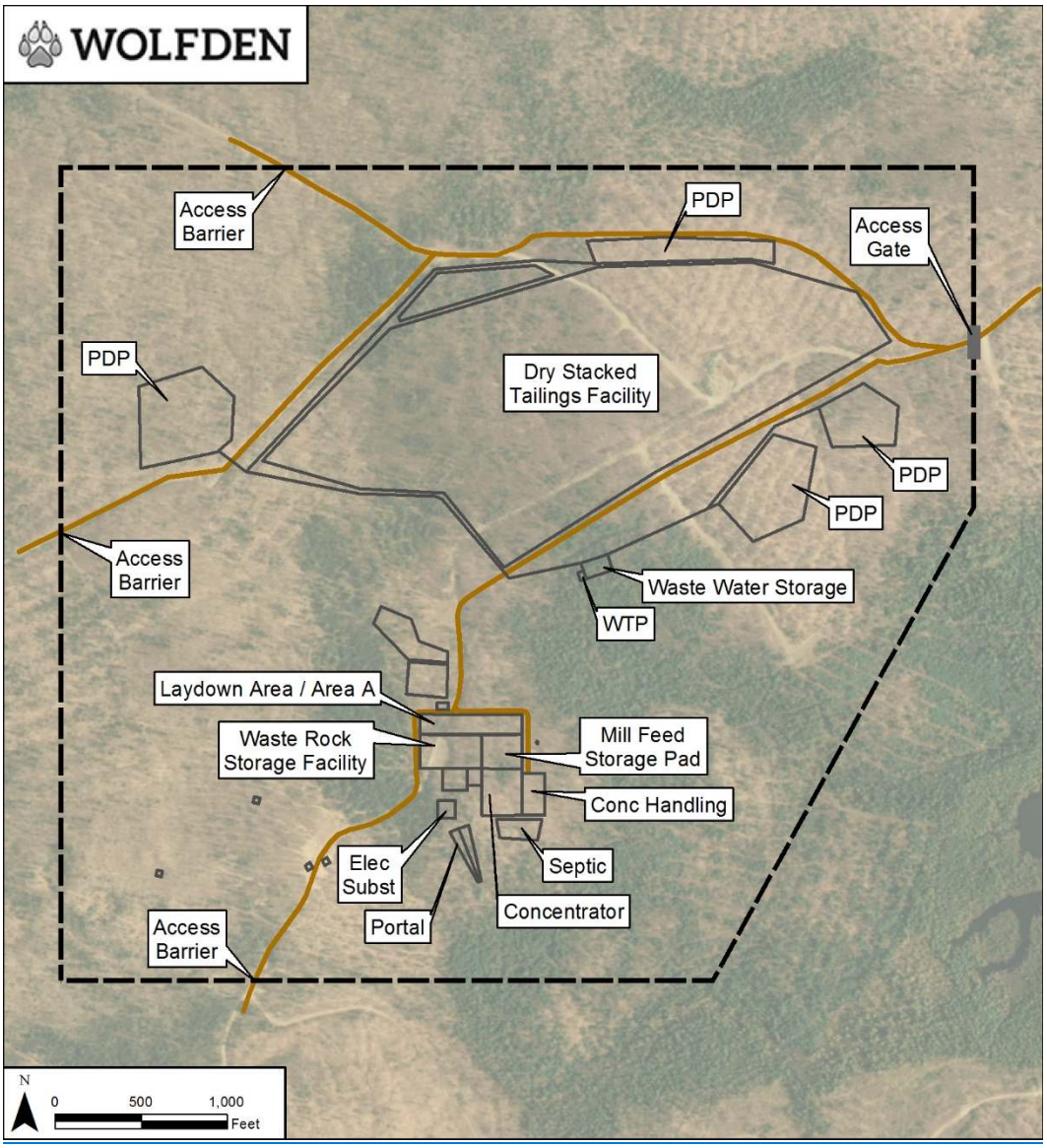
Once compacted, these tailings will not be subject to infiltration of water and intrusion of atmospheric oxygen which will mitigate the oxidation of sulfide minerals. Management of dry stacked tailings placed within a lined containment facility, that is progressively closed during mine operation will control leaching of metals and provide long-term protection to water resources (groundwater and surface water). The TMF would be designed with run-on controls to prevent contact with surface water run-off. During the operating period of the dry stacked tailings facility, contact water (precipitation) is actively managed.

An example of similar tailings deposition is Cerro Lindo (Peru) show in the following collection of images. Although the climate in Peru is drier than in Maine, the concept is the same. Sub-aerial tailings are currently used in other cold regions including Alaska, Minnesota and Canada.

In most cases in cold weather climates, the tailings are progressively covered to optimize water treatment and reduce the remaining area requiring closure during final reclamation. The DEP regulations require a cover system of permeability equal to the liner system which has specific maximum permeability requirements.

Cerro Lindo Moist Cake Disposal (1:2 Slope)


Concentra
Conc Handling
Office
Laydown Area
Warehouse
Shop
Fuel
Waste Water Storage
WTP
Waste Rock Staging Facility
Portal
PDP
PDP
PDP
PDP
0
313
625
938
1250 m



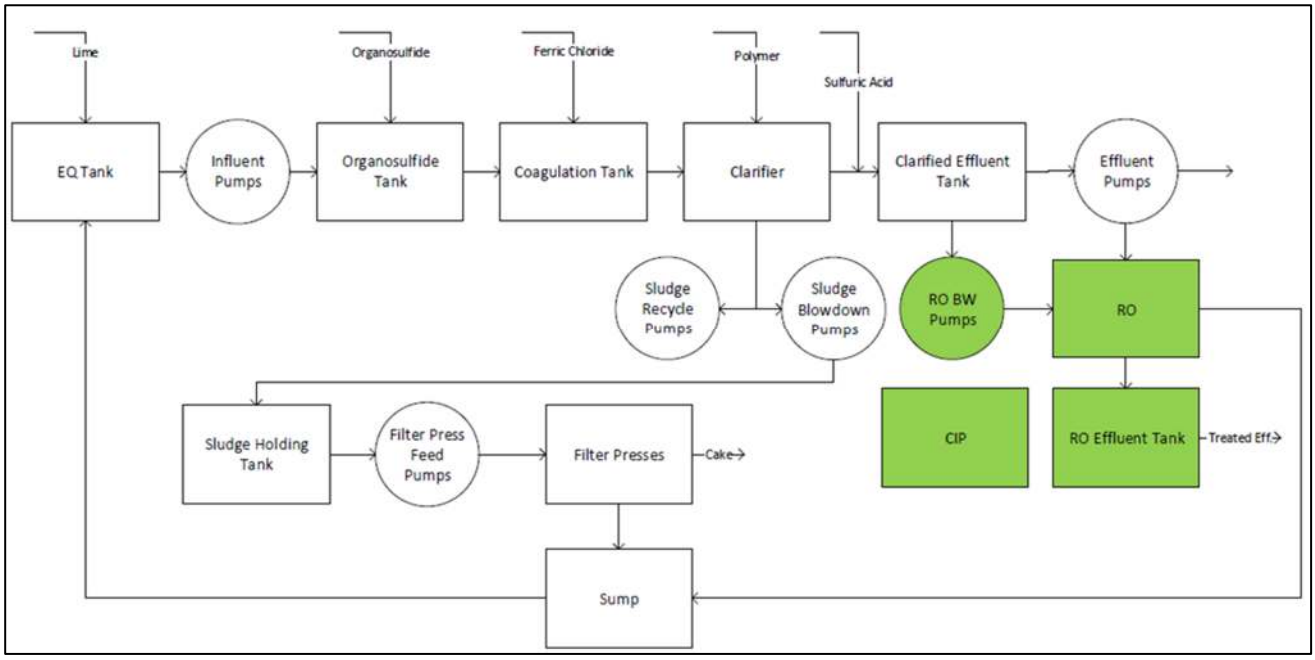
Conceptual Tailings Facility at Pickett Mountain

The figure above illustrates a dry stack tailings facility. The tailings stack features an outer side slope of 20% raised to a maximum height of about 22 feet~~ft~~ (7 metres). The volume of tailings in this model is approximately (1,400,000 m3), equivalent to about 2.6 Mtonnes when fully consolidated or compacted to 88 wt% solids.

Mine Water Management and Treatment

All process and seepage water into the mine as well as precipitation landing outside of the tailings facility footprint are collected via run off ditching and routed to the south eastern (down gradient) corner of the project site into a lined raw water pond in order to contain all water collected on the project site. Seepage water from tailings as well as precipitation water

onto the tailings facility are collected separately and pumped into the mill as recycled water. A series of berms will be designed to re-route precipitation water outside of project footprint in order to reduce contact with site and minimize potential impact. Once the water is collected in the raw water pond, it is pumped to the water treatment facility. The technological state of mine water treatment is very advanced as a form of waste water treatment with processes designed to adjust pH, remove sulfates and metals producing a high quality effluent and a high density solids waste stream (sludge) the latter of which is thickened by a conventional filter press to produce a sulfate filter cake. The solid filter cake will be placed underground in the mine. Excess water from the filter press is returned to the influent equalization tank for treatment. The conceptual treatment train is show in the following figure. The treated effluent may then be recharged to groundwater with no chemical impacts via underground infiltration structures. A Clean In Place (CIP) system is designed within the plant which is used for cleaning the interior of pipes and vessels as well as reverse osmosis and micro/nano filtration systems without having to remove them and clean them manually. This system is not a water treatment function but rather a maintenance function to the rest of the plant. Recharge of treated water to groundwater is also protective of surface water that eventually receives groundwater.



Mine Water Treatment Process Flow Diagram

Notes:

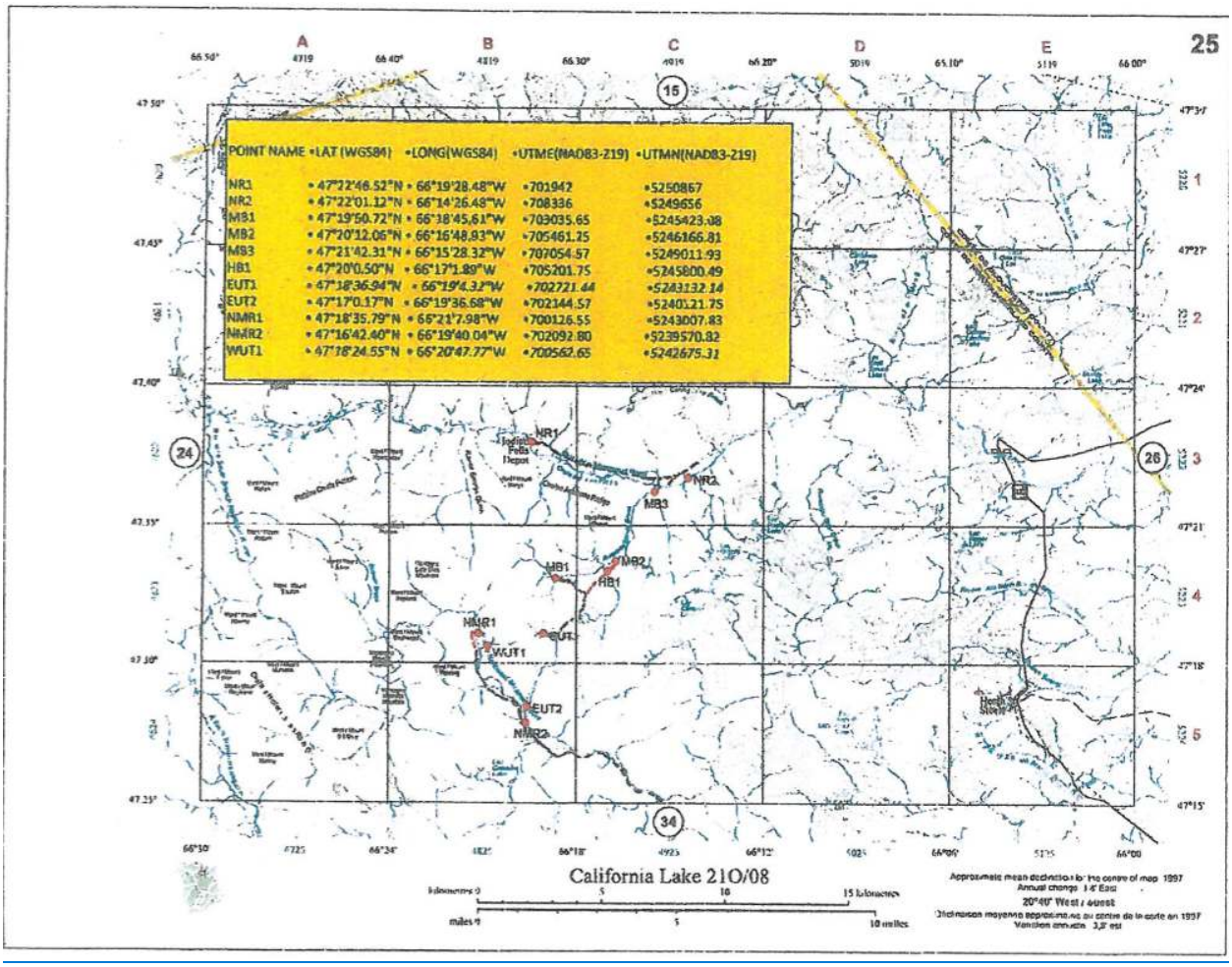
EQ= Equalization (Tank); RO= Reverse Osmosis, BW= Backwash, CIP=Clean in Place (Tank)

The treatment plant will be operated in accordance with an operations and maintenance plan that will specify storage and management of chemical reagents and actions to be taken to

prevent spills and accidental releases and to address spill clean-up and reporting should an accidental spill occur.

The groundwater quality will be monitored quarterly during the life of the mine and for a period of time post-closure that is specified in the mining permit issued by the DEP. Monitoring will occur at locations where mining activities have a reasonable potential for impact to groundwater and surface water. In general, these parameters will be based on baseline background water quality data and consideration of parameters related to mining operations (metals, pH, specific conductance and inorganic parameters such as sulfate). Surface water and sediment quality will also be monitored under an approved program during mine operations and for a post-closure period specified in the mining permit. The Department may require additional sampling of aquatic biological resources and monitoring of specific parameters at certain structures including water storage ponds, leachate collection systems and underdrains.

The following tables summarize of ground water variances for a full list of elements and characteristics in ground water surrounding the Halfmile Mine owned by Trevali Mining Corporation located West of Miramichi, NB. Sampling for Halfmile was completed by the environmental team; t~~. T~~ypically a senior level environmental engineer or environmental engineering student. Samples were collected by lab standards then packed and sent to a ~~the~~ laboratory for analysis by~~.~~ -RPC Science and Engineering (Research and Productivity Council), ~~)-~~ ~~Science and Engineering who is~~ a certified laboratory based in Fredericton, New Brunswick ~~were used to analysis the samples.~~ - It can be noted that certain non-~~e~~ targeted and non-~~e~~ harmful minerals that may be~~are~~ higher than background levels can be rectified with the~~. This is the driving factor behind the~~ addition of a reverse osmosis system down-stream of the chemical treatment facility proposed for Pickett Mountain. The mechanical type of filtration is able to draw these final minerals from the water and ensure the final treated quality is equal to ~~back to~~ or better than the background- (baseline approved) quality level. Confirmation of this by the a water treatment plant provider is attached to this petition.



Halfmile Mine Water Sampling Locations Map

Halfmile Mine Analysis of Metals in Water		Ground Water Well											
Sample Identification		327776-1	327776-2	327776-3	327776-4	125083-1	125083-3	125083-4	125083-2	Variance	Variance	Variance	Variance
Well Identification		MB-1	MB-3	HB-1	MB-2	MB1	MB3	HB1	MB2	MB1	MB3	HB1	MB2
Date Sampled:		28-Aug-19	28-Aug-19	28-Aug-19	28-Aug-19	7-Sep-11	7-Sep-11	7-Sep-11	7-Sep-11	NA	NA	NA	NA
Analytes	**Units**												
Aluminum	µg/L	3	17	24	27	8	43	56	44	-5	-26	-32	-17
Antimony	µg/L	0	0	0	0	0	0	0	0	0	0	0	0
Arsenic	µg/L	0	0	0	0	0	0	0	0	0	0	0	0
Barium	µg/L	2	3	3	3	2	2	3	2	0	1	0	1
Beryllium	µg/L	0	0	0	0	0	0	0	0	0	0	0	0
Bismuth	µg/L	0	0	0	0	0	0	0	0	0	0	0	0
Boron	µg/L	2	0	0	1	1	1	2	1	1	-1	-2	0
Cadmium	µg/L	0.02	0	0	0	0	0	0	0	0.02	0	0	0
Calcium	µg/L	6250	8620	8230	8490	4910	6900	6770	6780	1340	1720	1460	1710
Chromium	µg/L	0	0	0	0	0	0	0	0	0	0	0	0
Cobalt	µg/L	0	0	0	0	0	0	0	0	0	0	0	0
Copper	µg/L	0	0	0	0	0	0	0	0	0	0	0	0
Iron	µg/L	0	20	30	30	0	60	90	60	0	-40	-60	-30
Lead	µg/L	0	0	0	0	0	0.1	0.1	0	0	-0.1	-0.1	0
Lithium	µg/L	0.1	0	0	0	0	0	0	0	0.1	0	0	0
Magnesium	µg/L	840	900	1040	900	630	790	910	780	210	110	130	120
Manganese	µg/L	0	4	10	9	0	5	9	6	0	-1	1	3
Mercury	µg/L	0	0	0	0	0	0	0	0	0	0	0	0
Molybdenum	µg/L	0	0.2	0.1	0.1	0.1	0	0	0.1	-0.1	0.2	0.1	0
Nickel	µg/L	0	0	0	0	0	0	0	0	0	0	0	0
Potassium	µg/L	430	380	430	380	370	320	350	320	60	60	80	60
Rubidium	µg/L	0.2	0.5	0.4	0.5	0.2	0.3	0.3	0.3	0	0.2	0.1	0.2
Selenium	µg/L	0	0	0	0	0	0	0	0	0	0	0	0
Silver	µg/L	0	0	0	0	0	0	0	0	0	0	0	0
Sodium	µg/L	2190	1610	1750	1680	1730	1400	1380	1400	460	210	370	280
Strontium	µg/L	22	25	24	25	15	18	18	18	7	7	6	7
Tellurium	µg/L	0	0	0	0	0	0	0	0	0	0	0	0
Thallium	µg/L	0	0	0	0	0	0	0	0	0	0	0	0
Tin	µg/L	0	0	0	0	0	0	0	0	0	0	0	0
Uranium	µg/L	0	0	0	0	0	0	0	0	0	0	0	0
Vanadium	µg/L	0	0	0	0	0	0	0	0	0	0	0	0
Zinc	µg/L	3	1	2	1	0	2	0	2	3	-1	2	-1

Halfmile Mine Groundwater Metals Variance September 2011 – August 2019

Halfmile Mine Water Chemistry Analysis		Ground Water Well											
Sample Identification		327776-1	327776-2	327776-3	327776-4	125083-1	125083-3	125083-4	125083-2	na	na	na	na
Well Identification		MB-1	MB-3	HB-1	MB-2	MB1	MB3	HB1	MB2	MB-1	MB-3	HB-1	MB-2
Date Sampled:		28-Aug-19	28-Aug-19	28-Aug-19	28-Aug-19	7-Sep-11	7-Sep-11	7-Sep-11	7-Sep-11	NA	NA	NA	NA
Analytes	**Units**												
Ammonia (as N)	mg/L	0	0	0	0	0	0	0	0	0	0	0	0
pH	units	7.5	7.5	7.5	7.5	7	7.1	7.1	7.1	0.5	0.4	0.4	0.4
Acidity (as $CaCO_3$)	mg/L	0	0	0	0	0	0	0	0	0	0	0	0
Sulfate	mg/L	4	0	0	0	0	0	0	0	4	0	0	0
Solids - Total Suspended	mg/L	0	0	0	0	0	0	0	0	0	0	0	0
Conductivity	µS/cm	54	62	60	60					54	62	60	60
Hardness (as $CaCO_3$)	mg/L	19.1	25.2	24.8	24.9	14.9	20.5	20.6	20.2	4.2	4.7	4.2	4.7

Halfmile Mine Groundwater Chemistry Variance September 2011 – August 2019

The mine water balance will be carefully managed to take advantage of recycling of mine waste contact waters including precipitation run-off and seepage water. These anticipated water streams volumes are evaluated to determine the design capacity of the water treatment system. These water sources will be used in the beneficiation of the mineralize rock (milling and flotation) are compared to those design flows to determine the extent of water recycling and excess treated water requiring recharge back to groundwater.

A preliminary mine water balance has been developed. This preliminary estimate assumes all infiltration /run-off within the footprint of the developed facility will be collected and treated in addition to approximately 30 gpm of seepage water. The annual average precipitation over the facility footprint is equivalent to an average flow of 175 gpm. This results in an average flow of approximately 205 gpm for use by the treatment facility.

The concentrator water balance indicates, after recycle, approximately 68.4 tonnes~~metric tons~~ of make water (or approximately 13 gpm) such that the daily water balance of available water is greater than the water required. Therefore, net recharge of treated effluent back to ground, will be close to the natural recharge that is excluded within the developed facility footprint. Operation of the envisioned facility will therefore not require additional sources of water supply (groundwater or surface water) and the operation of the facility is sustainable with respect to water needs, water use and management.

C. Submittal Contents.

The following Attachments (A through Q) are provided to assist the LUPC's verification that the proposed rezoning would meet the criteria discussed in subsection B, above, and the balance of this Petition:

Attachment A A narrative description of the nature and basis for the subdistrict change being requested;

Attachment B A legal description and delineation of the property boundaries proposed for redistricting, including names, addresses and affiliations of current owners and any other entities having a legal interest in the property;

Attachment C Names and addresses of property owners located within 1,000 feet of the subject property;

Attachment D A preliminary plan for general location and timing of project elements;

Attachment E A location map drawn to scale on the most recent version of the USGS topographic map and a LUPC Land Use Guidance Map that indicates the area for which a D-PD Development Subdistrict designation is sought and the estimated boundaries of the ore body proposed to be explored or mined;

Attachment F A map drawn to scale of at least 1 inch to 100 feet showing existing site conditions, including contours at 10 foot intervals or less, water courses, unique or unusual natural conditions, forest cover, wetlands, known or likely deer wintering areas, lakes, ponds, existing structures, road and transportation routes, property boundaries and names of adjoining property owners, scenic locations and other prominent topographical and natural resource features;

Attachment G A soils map of low intensity that encompasses those portions of the property proposed for D- PD Development Subdistrict designation, including identification of soils used in the USDA Soil Series;

Attachment H Surficial and bedrock geology maps at a scale of 1:24,000, or largest scale available, of the property proposed for D-PD Development Subdistrict designation;

Attachment I A map and or description of the location of public, private and industrial water supplies as well as mapped aquifers located within a three-mile radius of the mining area or exploration site;

Attachment J A map and description of the location and extent of existing infrastructure to include roadways and transportation routes to be utilized, potential impacts on this existing infrastructure, as well as infrastructure to be constructed or improved;

Attachment K A map identifying significant natural resources and sensitive natural areas located within a three-mile radius of the mining area or exploration site including protected water

bodies, significant wildlife and plant areas, fragile mountain areas, historic sites, scenic resources, public lands, registered critical areas, and LUPC subdistricts;

Attachment L A map and description of existing uses, such as recreational uses, within a three-mile radius of the mining area or exploration site;

Attachment M A description of general measures that may be undertaken to assure that mining in the specified location will not have undue adverse impacts on existing uses and resources and measures that a permittee may take to avoid, minimize or mitigate any adverse impacts;

Attachment N A description of socioeconomic impacts, both positive and negative, of the proposed metallic mineral mining or level C mineral exploration activities upon the immediate area and communities within and adjacent to the LUPC's jurisdiction likely to be affected by the proposed activities, as well as to the county and state;

Attachment O An evaluation of the sufficiency of existing services and utilities, a description of any general measures necessary to increase those service capacities and an examination of the burdens on communities or government to provide those services;

Attachment P An explanation of how this proposal is consistent with the standards and purpose of the D-PD Development Subdistrict; and

Attachment Q A description of the anticipated site conditions following closure and the potential for future reclamation and beneficial use of the affected area.

Attachment A

Narrative Description of the Nature and Basis for the Requested Subdistrict Change

Consistency with D-PD Development Subdistrict Standards

This narrative addresses the nature and basis for the requested subdistrict change and describes how the project will be consistent with the D-PD development standards applicable to the project. This narrative summarizes why the project is realistic, the applicant's technical capacity to complete the project, the anticipated project schedule, the relationship of the proposed D-PD subdistrict to other existing subdistricts and uses, and how the project will avoid and minimize impacts to water quality and other natural resources.

The area proposed for the project is currently zoned as a general management subdistrict. The proposed project is a major planned development that must be conducted within a D-PD Development subdistrict as required by the LUPC for metallic mineral mine projects consistent with standards for said subdistricts and within the intent and provisions of 12 M.R.S.A. -Chapter 206A. Under Chapter 685-B, Development Review and Approval, a permit is not required for metallic minerals mining projects that are reviewed under the Maine Metallic Mineral Mining Act. This project will require review and permitting by the DEP under its Chapter 200 rules for Metallic Mineral Exploration, Advanced Exploration and Mining since all metallic mineral mining activity within a D-PD district is permitted through the DEP. The LUPC must certify to the DEP that the proposed development is an allowed use and that the proposed development meets applicable land use standards established by the LUPC and not otherwise considered as part of the DEP's review.

The mineralized rock at the Pickett Mountain Deposit contains high grade concentrations of zinc, and lesser copper, lead, gold and silver at tonnages indicating the project is economically feasible~~realistic~~, and can be financed and completed. Financial capacity and project financing are discussed in **Exhibit H**. Wolfden, through its own engineering staff, its current specialized consultants in metallurgy and tailings management, supported by the mining engineering capabilities of Wood, has the technical capacity and expertise to design, construct and operate the project through final reclamation.

The project schedule is dependent on the LUPC's approval of this Petition. Wolfden anticipates this process could take up to a year. Wolfden will conduct any additional required natural resource studies in the Spring and Summer of 2020 (wetland, flora, wildlife habitat, and archeological resources). Wolfden also will work with the DEP to establish a baseline environmental characterization program that will require two years of data collection to complete. Once completed, the mine permit application will be submitted for DEP review. It is anticipated that review and public comment could take up to one year. This could conceivably

allow the construction phase of the project to commence in 2023-2024. The duration of mining would be 10 years from that point.

Based on correspondence with the MDIF&W and MNAP and current information from preliminary site surveys, potential impacts to protected wildlife, habitat and flora within and adjacent to areas proposed for development should be limited to areas containing forested wetland and associated intermittent streams within upland areas. Wolfden is committed to working with the regulatory agencies to avoid impacts to the extent possible, to minimize impacts and compensate where unavoidable. In this manner, the functions and values of upland wetlands and streams within the local Pickett Pond / Pleasant Lake watershed that are important to wildlife habitat and surface water quality can be maintained during the active life of the project. Upon reclamation, impacts that were initially unavoidable will be mitigated.

The project location is approximately 6 radial miles from Patten, the closest town. The project location is entirely dependent on the presence and location of a potentially economic mineral deposit. The project location is exempt by definition from adjacency. The proposed rezoning includes 528.2~~197.5~~ contiguous acres which meets the minimum requirements under Chapter 10 (10.21,H (D-PD)) of 50 acres for metallic mineral extraction projects. Of this, approximately 106~~57~~ acres will result in surface disturbance to construct necessary mining facilities. Wolfden has evaluated project mining requirements to minimize the footprint of the proposed project and to place above ground facilities adjacent to each other to construct a compact and efficient operations area. The remaining area to be rezoned encompasses the subsurface areas of mineralized rock and subsurface treated water infiltration galleries, and buffers around surface facilities. The rezoning will occur entirely within a General Management subdistrict and is not adjacent to and will not impact Protection subdistricts in affect at this time. Within a three-mile radius of the site, the protection subdistricts present include forested and scrub-shrub wetlands adjacent to great ponds (Pickett Pond, Pleasant Lake and Mud Lake) and associated stream drainages, and wetlands of special significance between Mud Lake and Pleasant Lake. Fish and wildlife subdistricts are located to the northwest. A recreation subdistrict is designated surrounding Green Mountain Pond and Lane Brook Pond, located greater than 3 miles from the site. The location map showing the existing conditions, proposed structures and existing and proposed subdistrict boundaries is provided in **Exhibit D-1.**

As discussed in **Section B (3)(d)** and **Appendix A-Attachment Q** the project operations will include comprehensive engineered facilities to collect and treat waters that come in contact with rock and earthen materials that are mined in the subsurface and brought to the land surface for beneficiation or long term management. These water collection, treatment and treated water recharge facilities will substantially protect groundwater and surface water quality during and after active mining. The plan for mine reclamation outlined in **Attachment Q** describes how the affected areas will be restored and returned to pre-existing or comparable conditions including forested habitat at the end of the project.

As described in this Petition, the project is located at distances greater than 400 feet from any property line, is reasonably self-sufficient and self-contained, provides for its own water and domestic sewage services, maintenance of roads, solid waste disposal and to the extent possible, fire protection and security.

This Petition contains discussion of other required criteria under Chapter 12 of the LUPC's rules for Mining and Level C Mineral Exploration Activities (**Appendix A Appendices and Narratives**). Based on these considerations, the proposed rezoning is consistent with the D-PD subdistrict standards.

Attachment B

Legal Description and Delineation of the Property Boundaries Proposed for Redistricting

Legal Description (please see attached Property Map)

A CERTAIN PIECE OR PARCEL OF LAND LOCATED WITHIN TOWNSHIP 6, RANGE 6 WELS (T6, R6 WELS), COUNTY OF PENOBSCOT, STATE OF MAINE AND BEING MORE PARTICULARLY BOUNDED AND DESCRIBED AS FOLLOWS:
BEGINNING AT A POINT LOCATED IN THE MAINE STATE PLANE COORDINATE SYSTEM – NAD 83 (EAST ZONE – 1801), AS MEASURED IN UNITED STATES SURVEY FEET AT NORTH: 898544.15, East: 994010.57;

THENCE RUNNING THROUGH THE LAND OF THE GRANTOR ON A COURSE OF NORTH NINETY DEGREES ZERO MINUTES ZERO SECONDS WEST (N 90° 00' 00" W) A DISTANCE OF THREE THOUSAND SEVEN HUNDRED NINETY-TWO AND THIRTY-THREE HUNDREDTHS (3792.33) FEET TO A POINT LOCATED AT NORTH 898544.15, EAST 990218.25;

THENCE RUNNING THROUGH THE LAND OF THE GRANTOR ON A COURSE OF NORTH ZERO DEGREES ZERO MINUTES ZERO SECONDS EAST (N 0° 00' 00" E) A DISTANCE OF FOUR THOUSAND SEVEN HUNDRED TWENTY-SIX AND THIRTY-FOUR HUNDREDTHS (4726.34) FEET TO A POINT LOCATED AT NORTH 903270.50, EAST 990218.25;

THENCE RUNNING THROUGH THE LAND OF THE GRANTOR ON A COURSE OF NORTH NINETY DEGREES ZERO MINUTES ZERO SECONDS EAST (N 90° 00' 00" E) A DISTANCE OF FIVE THOUSAND THREE HUNDRED ELEVEN AND FIFTY-ONE HUNDREDTHS (5311.51) FEET TO A POINT LOCATED AT NORTH 903270.50, EAST 995529.75;

THENCE RUNNING THROUGH THE LAND OF THE GRANTOR ON A COURSE OF SOUTH ZERO DEGREES ZERO MINUTES ZERO SECONDS EAST (S 0° 00' 00" E) A DISTANCE OF ONE THOUSAND NINE HUNDRED SIXTY-NINE AND THIRTY-ONE HUNDREDTHS (1969.31) FEET TO A POINT LOCATED AT NORTH 901301.19, EAST 995529.75;

THENCE RUNNING THROUGH THE LAND OF THE GRANTOR ON A COURSE OF SOUTH TWENTY-EIGHT DEGREES FIFTY-ONE MINUTES TWENTY SECONDS WEST (S 28° 51' 20" W) A DISTANCE OF THREE THOUSAND ONE HUNDRED FORTY-SEVEN AND EIGHTY-EIGHT HUNDREDTHS (3147.88) FEET TO THE AFOREMENTIONED POINT OF BEGINNING.

SAID PARCEL CONTAINS FIVE HUNDRED TWENTY-EIGHT AND TWENTY-THREE HUNDREDTHS (528.23) ACRES MORE OR LESS

THE ABOVE DESCRIBED PARCEL IS A PORTION OF LAND OWNED BY THE GRANTOR AS DESCRIBED IN BOOK 14672, PAGE 27 OF THE PENOBSCOT REGISTRY OF DEEDS LOCATED IN BANGOR, MAINE.~~A CERTAIN PIECE OR PARCEL OF LAND LOCATED WITHIN TOWNSHIP 6, RANGE 6 WELS (T6, R6 WELS), AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:~~

~~BEGINNING AT A POINT LOCATED IN THE MAINE STATE PLANE COORDINATE SYSTEM – NAD 83 (EAST ZONE – 1801), AS MEASURED IN UNITED STATES SURVEY FEET AT North: 899153.00', East: 994260.00',~~

~~SAID POINT ALSO LYING ON A COURSE OF NORTH SIXTY-THREE DEGREES FORTY-SIX MINUTES FORTY-FOUR SECONDS WEST (N 63°46'44" W) AND SIX THOUSAND EIGHT HUNDRED AND FIFTY (6850) FEET FROM THE GENERALLY SOUTH EAST CORNER OF SAID T6, R6 WELS;~~

~~THENCE RUNNING THROUGH THE LAND OF THE GRANTOR THE FOLLOWING SIXTEEN (16) COURSES~~

~~THENCE, S 55° 23' 31" W, 1038.81 FEET TO A POINT LOCATED AT NORTH 898563.00', EAST 993405.00';~~

~~THENCE, N 85° 36' 27" W, 1436.22 FEET TO A POINT LOCATED AT NORTH 898673.00', EAST 991973.00'~~

~~THENCE, S 77° 25' 45" W, 739.73 FEET TO A POINT LOCATED AT NORTH 898512.00', EAST 991251.00'~~

~~THENCE, N 56° 01' 20" W, 883.93 FEET TO A POINT LOCATED AT NORTH 899006.00', EAST 990518.00'~~

~~THENCE N 48° 29' 55" E, 1367.26 FEET TO A POINT LOCATED AT NORTH 899912.00', EAST 991542.00'~~

~~THENCE, N 6° 10' 05" W, 1396.08 FEET TO A POINT LOCATED AT NORTH 901300.00', EAST 991392.00'~~

~~THENCE, N 42° 18' 47" W, 392.17 FEET TO A POINT LOCATED AT NORTH 901590.00', EAST 991128.00'~~

~~THENCE, N 32° 42' 31", 259.08 FEET TO A POINT LOCATED AT NORTH 901808.00', EAST 991268.00'~~

~~THENCE, N 75° 04' 07" E, 2375.20 FEET TO A POINT LOCATED AT NORTH 902420.00' EAST 993563.00'~~

~~THENCE, S 26° 25' 24" E, 361.80 FEET TO A POINT LOCATED AT NORTH 902096.00', EAST 993724.00'~~

~~THENCE, S 20° 36' 38" W, 491.46 FEET TO A POINT LOCATED AT NORTH 901636.00' EAST 993551.00'~~

~~THENCE, S 61° 50' 47" W, 790.53 FEET TO A POINT LOCATED AT NORTH 901263.00' EAST 992854.00'~~

~~THENCE, S 15° 11' 09" E, 217.60 FEET TO A POINT LOCATED AT NORTH 901053.00' EAST 992911.00'~~

~~THENCE, S 53° 54' 54" E, 803.08 FEET TO A POINT LOCATED AT NORTH 900580.00' EAST 993560.00'~~

~~THENCE, S 37° 14' 54" E, 817.82 FEET TO A POINT LOCATED AT NORTH 899929.00' EAST 994055.00'~~

~~THENCE, S 14° 47' 53" E, 802.62 FEET TO THE POINT OF BEGINNING.~~

~~BEARINGS ARE BASED ON NAD 83.~~

~~SAID PARCEL CONTAINS 197.489 ACRES MORE OR LESS.~~

~~THE ABOVE DESCRIBED PARCEL IS A PORTION OF LAND OWNED BY THE GRANTOR AS DESCRIBED IN BOOK 14672, PAGE 27 OF THE PENOBSCOT REGISTRY OF DEEDS LOCATED IN BANGOR, MAINE~~

Attachment C

Names and Addresses of Property Owners Located Within 1,000 feet of the Wolfden Property

No properties are located within 1,000 of the area proposed for rezoning.

Please see Attachment B for property locations

ABUTTING LAND OWNER ADDRESSES:

RYAN R. ALLEN
8 KNOTTA WAY
NAPLES, MAINE 04055

AROOSTOOK TIMBERLANDS, LLC.
P.O. BOX 5777
SAINT JOHN, NEW BRUNSWICK
E2L 4M3, CANADA

CASSIDY TIMBERLANDS, LLC
C/O BENJAMIN D. CARLISLE
P.O. BOX 637
BANGOR, MAINE 04402 0637

RAYMOND & JEANETTE GALLAGHER
P.O. BOX 478
PATTEN, MAINE 04765

GARDNER LAND COMPANY, INC
NICKOLAS IRELAND
P.O. BOX 189
LINCOLN, MAINE 04457

HERBERT C. HAYNES, INC.
C/O GINGER MAXWELL
P.O. BOX 96

WINN, MAINE 04495
LAKEVILLE SHORES, INC.
C/O GINGER MAXWELL
P.O. BOX 96

WINN, MAINE 04495
BERT S. LORD
(POSSIBLY)
131 WILEY ROAD
LITTLETON, MAINE 04730-6508

DAVID PORTER
131E NEWPORT ROAD
STETSON, MAINE 04488

RAYE & KATHY PORTER
131 EAST NEWPORT ROAD
STETSON, MAINE 04488

KYLE & JON WESCOTT
191 LOCATION ROAD
BELGRADE, MAINE 04917

Attachment D
Preliminary Plan for General Location and Timing of Project Elements

Please see Preliminary Site Plan Exhibit D-2 for general location of buildings and facilities and the Schedule under Section 4 Project Description for timing of project elements. The phases of the project development are discussed in the Project Description.

Attachment E

Location Maps Indicating the Area of Proposed D-PD Development Subdistrict Designation Showing Estimated Boundaries of the Ore Body

Attachment F

Existing Site Conditions Map (1 inch to 100 feet)

Please see Exhibit A-1 for adjoining property owner information. Information also contained in Exhibit D-1.

Attachment G

Low Intensity Soils Map of the Property Proposed for D- PD Development Subdistrict Designation

Attachment H

Surficial and Bedrock Geology Maps of the Property Proposed for D-PD Development Subdistrict Designation

Attachment H-1 Surficial Geologic Map
Attachment H-2 Bedrock Geologic Map

Attachment I

Map and Description of Water Supplies and Mapped Sand and Gravel Aquifers Located within a Three Mile Radius of the Proposed Mine Area

Water Supplies and Mapped Aquifer Description

A medium yield sand and gravel aquifer has been mapped along the north shore of Pleasant Lake. Indicated yields are >/= 10 gallons per minute. The yield of the residential well on the south side of Pleasant Lake is reported as >/= 8 gallons per minute. It is presumed that all five residential lots have private water supplies, though this has not been confirmed by a well survey. -There are no other known private or public water supplies within a three-mile radius of the site. The attached figure depicts these features in addition to inferred surface water divides and groundwater flow direction in the vicinity of the site.

Attachment J
Map and Description of Existing Transportation Infrastructure Routes, Impacts and Improvements

Description of Proposed Transportation Infrastructure Routes, Impacts and Improvements

The following transportation evaluation describes the proposed route to be used by trucks carrying mineral concentrate from the proposed Pickett Mountain site to the US – Canadian border, the level of additional traffic, potential impacts and potential improvements to promote safety. The proposed route is dependent on the final locations where mineral concentrate will be shipped for further processing (smelting) in Canada. The processing locations have not been finalized and therefore the proposed route could be subject to change.

Transportation Need

The proposed mining activity has an anticipated mill feed rate of 1,000 tonnes/day with anticipated metal recoveries, total concentrate yields will be approximately 160tonnes/day of concentrate for shipment (352,740 lbs). Typical tractor trailer tare weights (empty weight including driver and fuel) vary and range from 26,000 to 37,000 lbs. Using an average of 32,000 lbs tare weight allows 48,000 lbs for cargo; requiring approximately 7 shipments/day.

Roads within the area will also be used for employee travel to and from the mine and discussed later in this section.

Route Description

The proposed truck route consists of gravel roads on private property from the Pickett Mountain site to public roads that include three rural state highways, and one US Interstate Highway (See **Figure Attachment J** for locations and sections). From the site, trucks will travel on private gravel roads to Maine (ME) State Route 11 (ME SR-11), hence northeast to the intersection of ME SR-212. Trucks will travel southeast along ME SR-212 to Oakfield, (where it turns into Smyrna – Oakfield Road) and enter Interstate 95 (I-95) traveling east to Houlton and the Canadian-US border and proceed to the Canadian National Highway in Woodstock New Brunswick. These roads are more specifically described below:

- 5.1 miles of gravel roads (consisting of an unnamed road, Pleasant Lane Road, and Bear Mountain Road). Elevations from the Pickett Mountain site to Maine (ME) state route (SR)-11 drop from approximately 1200 to 850 feet mean sea level (MSL) from west to east.
    - Existing gravel roads are currently in good condition, and well maintained for logging operations conducted on and around the property. An agreement is in place with land owning neighbors to allow right of way using this set of gravel roads outside of the Wolfden property boundary. Confirmation of the right of way ~~this~~ is in the form of a letter within this report. Confirmation of right to

upgrade and maintain is established in the original agreement between both companies registered on April 2, 2020 in book 6000 on page 29.

- The gravel roads are single lane varying in width from 10 to 15 feet with drainage ditches where elevated. One bridge crossing is present.
- The permanent bridge crossing at Pickett Pond outlet, consists of concrete abutments with two layers of wood decking and steel beams for support. The bridge deck is approximately 15 feet wide with a 20 feeoot span. The bridge appears to be in good structural condition.
- Intersection of the gravel road with ME SR-11 has a good turning radius. The gravel road width at the shoulder of SR-11 is approximately 55 feet.
- There is no available traffic data for the gravel roads mostly used for logging traffic in addition to access to a seasonal camp on the south side of Pleasant Pond.
- The gravel roads are also used for recreational purposes by the public including all-terrain vehicles (ATVs) and snowmobiles.

- 19 miles of 2-lane rural state highway from the intersection of Bear Mountain Road with ME SR-11 to the intersection of Smyrna – Oakfield Road with I-95 (including 7.3 miles along ME SR-11 and 10.3 miles along ME SR-212, and 1.4 miles along the Smyrna – Oakfield Road). ME SR-11 and ME SR-212 are characterized by rolling hills ranging in elevation from approximately 550 to 1150 feet MSL. Posted speed limits are 50 MPH on ME SR-11 and 45 MPH on ME SR-212, and 35 MPH on the Smyrna-Oakfield Road. Each road has an approximate 11 feeoot wide travel lane with 3-foot shoulder in both directions.
  - Roads are in good to fair condition and include bridge crossings over West Branch of Mattawamkeag River on ME SR-11 and over East Hastings Brook on MR SR-212.
  - Average Annual Daily Traffic (AADT) presented on Maine Department of Transportation (Maine DOT) website ranged from 470-1270 along ME SR-11 and ME SR-212 in 2015. Ten crashes were reported from 2017-2019 at intersection of Clark Road and SR-212 in town of Merrill according to Maine DOT Crash Portal. The Level of Service is A (light & free flowing) on all state roads within the route.
  - Intersections along state routes have good turning radiuses.

- 9.1 miles of US Interstate Highway (I-95) from SR-212 to US-Canada border, with a posted speed of 75 MPH, 10-foot right shoulder both directions.
  - Road is in good condition.

- AADT data from Maine DOT website ranged from 1480-2470 in 2015, 78 crashes along I-95 section from 2017-2019 according to Maine DOT Crash Portal with most assumed as animal collisions, with a Level of Service of C (stable).
- On-ramps to be used along proposed route have good turning radiuses.

Traffic Increases

- Proposed traffic to the Pickett Mountain site includes a peak 30 workers per shift with two shifts per day offset by one hour. This results in a maximum of 60 peak hour trip/ hour during shift changes on ME SR-11. It is expected that the majority of workers employed at the mine will be from local work force, many of whom may currently use portions of this route for current employment.
- Maine DOT requires a traffic permit to be obtained if traffic to be added to a route is greater than or equal to 100/hour. Proposed traffic increase will not require a traffic permit.
- The daily traffic to and from the site (assuming 30 workers and two shifts/day plus 7 shipments of concentrate) results in 134 additional trips/day on ME SR-11 (an average of 5.6 vehicles/hour. The road has an hourly capacity of 1800 vehicles and its use is currently well under that capacity.
- Shipping of concentrate via trucks will only occur during daytime hours.

Impacts

The proposed route for hauling concentrate consists of state and federal highways. The weight limit will be restricted by the Federal Interstate which allows a maximum of 80,000 pounds (lbs) for both five and six axel tractor trailer configurations. State roads allow up to 88,000 lbs for 5 axel configurations for certain commodities including unconsolidated rock material. Planned weight load will be 80,000 lbs. The private gravel roads are constructed for logging trucks with the similar weight constraints.

As identified previously, on average seven truck shipments of concentrate will occur daily. This small level of increased traffic will not burden or impact proposed traffic route.

As discussed in previous sections, the additional volume of traffic will not require a traffic permit nor represent a burden or impact on the existing traffic capacity of the proposed route.

Anticipated Improvements

Unimproved Gravel Roads

Improvements on existing gravel roads will be conducted to improve ~~year round~~year-round use, safe passage of vehicles on a single lane road and public safety.

- Maintenance of spring thaw impacts along the gravel roads will be undertaken by Wolfden. Wolfden will evaluate the scope of maintenance and improvements during the design analysis for the mine under the mining application (mine design and permitting phase).
- During the mine design analysis widening of the gravel roads will be evaluated for safe passage of logging trucks, concentrate trucks, and workers. A maximum width between 22 and 25 feet to the road shoulder should be sufficient for safe passage of large vehicles and recreational traffic (ATVs and snowmobiles in winter).
- During that analysis, consideration will also be given to providing a separate lane for safe passage of recreational vehicular traffic (ATVs and snowmobiles).
- Maintenance of bridge decking at Pickett Pond outlet crossing, may include improvement or replacement of the wood decking as dictated by normal wear and tear of truck traffic. During the mine design analysis, widening of the bridge will also be evaluated for safety considerations. If widening of the bridge is proposed during mine design and permitting phase the replacement will be a similar structure with concrete abutment and footings allowing the natural streambed to be maintained. A replacement structure would be designed to accommodate a 25-year frequency storm event with arches located landward 1.2 times the channel width at normal high water. Work in the stream would be minimized allowing the streams natural structure and integrity to remain intact.
- A cooperative road maintenance agreement, in general, will be established between Wolfden and commercial loggers whom access their own private property as well the Wolfden property.

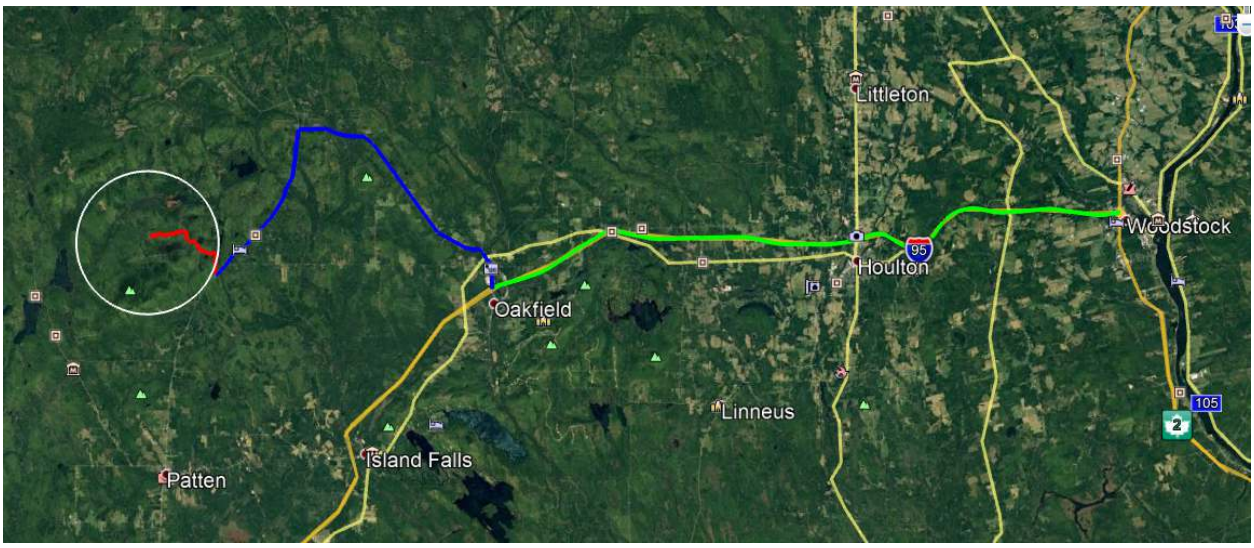
Rural State Highways

Potential Improvements to state highways will be for traffic safety. Wolfden will hire an MEDOT approved transportation engineer familiar with the area to consider, evaluate and design improvements, as needed, during the mine design and permitting phase. These improvements may include:

- Signage and lighting at intersection of Bear Mountain Road and ME SR-11 indicating truck entering and leaving Bear Mountain Road (i.e. "Trucks Entering").
- Addition of deceleration and acceleration lanes at the intersection of Bear Mountain Road and ME SR-11 for trucks to avoid obstruction of traffic during acceleration and deceleration periods.
- Widening right shoulder at intersection of ME SR-11 and ME SR-212 in Moro Plantation to facilitate right turning truck traffic.

Summary

The proposed traffic route (Appendix J and below) and additional traffic levels do not constitute an impact on the existing road infrastructure. Wolfden will work with stakeholders (LUPC, the public, commercial loggers, and MEDOT) to accommodate modifications to ensure public safety and recreational access along the proposed private and state highway routes.



Proposed Truck Route from Pickett Mountain Site with unimproved gravel roads in red, 2-lane rural state highways in blue, and US Interstate Highway in Green. An approximate three-mile radius is drawn around the site (white)

Attachment K
Map Identifying Significant Natural Resources and Sensitive Natural Areas Located Within a Three-mile Radius of the Mining Area

Note the attached map reflects only currently published data from National Wetland Inventory maps, LUPC management subdistricts and protection subdistricts. A Phase 0 Archeological survey will be conducted in Spring 2020 as well as wetland delineations and vernal pool assessments. The P-SG designation for Soils and Geology may reflect fragile mountain areas or rock outcrop and talus slopes which could provide habitat for bats. Other features if field confirmed in spring 2020 would be added to this map.

Attachment L
Map and Description of Existing Uses Within a Three-mile Radius of the Proposed Mining Area

As discussed in prior sections, the area surrounding the Pickett Mountain Project site is wooded and the primary use is forest industry related. Six residential properties with seasonal dwellings are present on the southern and northern shore of Pleasant Lake which are used for recreation there along with other great ponds. The area is also used for motorized recreation, including ATVs and snowmobiles. The attached map provides a 3-mile radius around the site indicating the location of these features which are further described below.

Lakes and Ponds

A three-mile radius from the perimeter of the area proposed for rezoning encompasses extends to the eastern shoreline of Upper Shin Pond and encompasses Pleasant Lake, Mud Lake, Huntley Duck Pond, Picket Mountain Pond, Grass Pond, Bear Mountain Pond. Tote Pond located between Grass Pond and Bear Mountain Pond drains eastward to Hale Pond, which then drains south. Green Pond, located to the north of Hale Pond, drains north to the West Branch of the Mattawamkeag River entering south of Duck Pond.

Based on the USGS Green Mountain Quadrangle 7.5-minute series topographic map (1986 Provisional Edition) Hale Pond, Bear Mountain Pond, the un-named pond, Grass Pond and Pleasant Lake are accessible by private un-improved roads (gravel logging roads). These ponds are typically located within 500 feet of an unimproved road. Mud Lake, Huntley Pond, Duck Pond, Green Pond and Picket Mountain Pond are typically located within 500 to 1,000 feet of a trail. The site would be visible from Pickett Mountain Pond and the eastern side of the unnamed pond. It would not be visible from the other ponds.

The level of use of these ponds lack quantitative information. Due their shallow nature and limited public access, it is expected the levels of use are low. A more detailed review through investigation with the public is currently underway to confirm the level of use of lakes and ponds within the 3 mile radius of the proposed boundary. Pickett Pond is very shallow with an average depth of approximately 2 to 3 feet. Pleasant Lake will have a higher level of use due the presence of six seasonal camps near or along its southern and northern shoreline and an average depth between 6 to 10 feet. Direct visual impacts will be realized from Pickett Mtn Pond however minimally. Nearby Pleasant lake will have no visual impact from the project. Noise from the project will impact both nearby bodies of water. Noise is discussed in section 15 in this report.

The eastern shore of Upper Shin pond is within the three-mile radius as depicted in Attachment L. The site is not visible to either Upper or lower Shin Pond or Ship Pond Village. The eastern shore of Upper Shin Pond contains approximately 20 private residences. Upper and Lower Shin

Pond and surrounding area used actively year-round for recreation by fishing, hunting; hiking, ATV, snowmobile enthusiasts. Shin Pond Village and Mount Chase Lodge have year-round lodging and the former seasonal tent and RV campsites. Hunting on the parcel proposed for rezoning has not been observed by Wolfden.

Campsites

The closest identified campsites are in Shin Pond Village, approximately five miles from the Site. No impacts from the project are anticipated at these sites.

Trails

As discussed previously, the area around the site with three miles contains a network of un-improved gravel roads, used primarily for logging in addition to access to seasonal residences along Pleasant Pond. In addition, also exists a network or isolated and interconnected trails that connect to these gravel roads. The only published hiking trail is located approximately 5 miles away to the summit of the Mount Chase approaching from the South. The site is not visible from the summit of Mount Chase.

Combined use ATV/snowmobile trails have been developed in the areas surrounding the site including portions of the ITS snowmobile trail system and groomed trails maintained by local clubs. The closest ATV/snowmobile trail follows gravel road south of the Site (sometimes referred to as Fire Road C), and traverses north of Mount Chase to south of Picket Mountain. The site would be visible from portions of this trail (also identified as local snowmobile trail 62). The site would not be visible from ATV/snowmobile trails located to the east, to the west of to the north. In summary, the site would be visible only to reactional trails located immediately south at distances from 0.9 to 1.2 miles. What would be visible is the top of the concentrator building where is stood above the tree line. The concentrator can be designed to blend in with the surrounding environment to reduce visibility from points such as this. Noise from the site will not impact these areas as discussed in Section 15 of this petition. The estimated level of use for the ATV trails is 500 trail riders per month and 700 trail riders per month for snowmobiles. Consultation with the nearby Katahdin Lodge was completed to provide guidance on usage and locations of trails.

Public Boat Launches

These are no public boat launches on ponds or lakes located within 3 miles of the site. There is a public boat launch on the north eastern shore of Lower Shin Pond, but it is not located within 3 miles of the site. The site is not visible from either Lower or Upper Shin Pond. A more detailed review through investigation with the public is currently underway to confirm the number and level of use related to boat launches in the ponds within the 3 mile radius of the proposed boundary.

Attachment M
General Measures Undertaken to Assure Mining Will Not Have Undue Adverse Impacts on Existing Uses and Resources Including Measures to Avoid, Minimize or Mitigate Any Adverse Impacts

Please see Section 3 Project Description and Appendix A Section B(3)(d) Impacts on Existing Uses and Natural Resources. These sections discuss the environmentally responsible approaches used in modern mining to avoid and minimize any adverse impacts. During operation and post closure, an environmental monitoring plan for groundwater, surface water and sediment, with reporting requirement to the DEP will be in place. If such monitoring identifies an adverse impact, mitigation plans would be developed and implemented in consultation with the DEP. At this point in time, such impacts are not anticipated or expected.

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Attachment N
Description of Socioeconomic Impacts of Proposed Mining Upon Immediate Area, Adjacent Communities County and State

Please see Appendix A -Section B(3)(b) Potential Short and Long Term Socioeconomic Impacts.

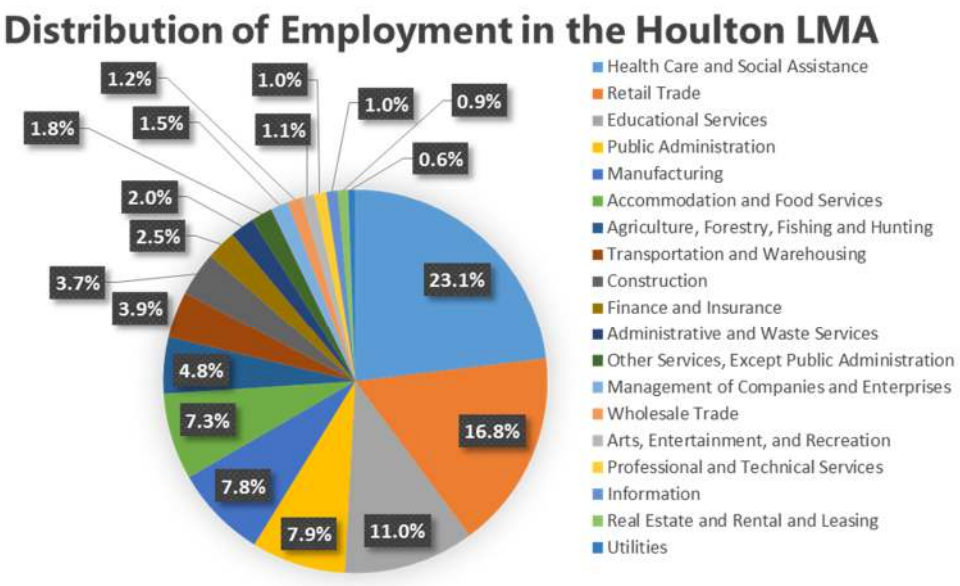
Attachment O
Evaluation of Sufficiency of Existing Services and Utilities, and General Measures to Increase Service Capacities (if required) including Burdens on Communities or Government to Provide Those Services

Description of Local Economy and Existing Local Services

The following sections describe the geographic distribution of employment within an approximate 30-mile distance from the proposed mine site. It is expected that a majority of employees for the mine will come from this population. Local services that will be used by this employed workforce within this geographic region are then described to assess burdens on communities and local government to provide needed services.

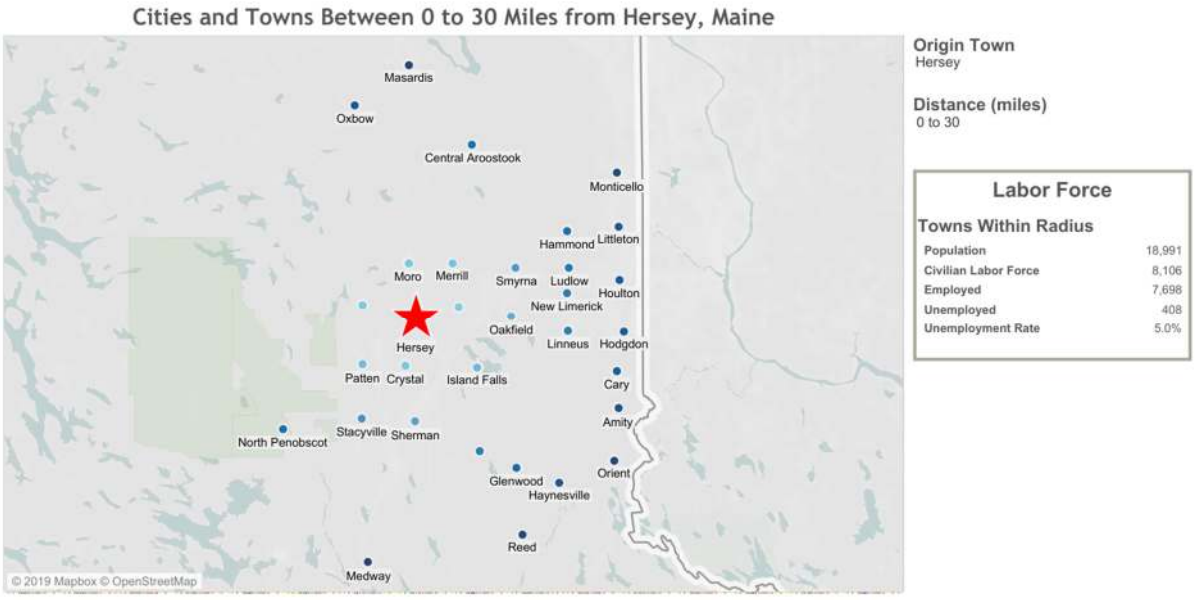
Local Economy and Workforce

The regional economy has been dominated historically by timber harvesting and wood products industries including manufacturing in addition to tourism related service and retail businesses. Houlton, approximately 30 miles from the site, is the closest municipal service center and is also a designated Labor Market Area (LMA). The average employed population within the Houlton LMA in 2018 was listed as 6,016 by the Maine Department of Labor. The majority of employment was within service producing industry sectors (83.6%) with the remainder goods producing (16.4%). Currently, employment in this local economy is dominated by health care, retail trade, education and public administration as depicted below from the same data source. The employment categories are ordered from highest to lowest, by percentage of total employment, and are consistent with the percentages provided on the pie chart.



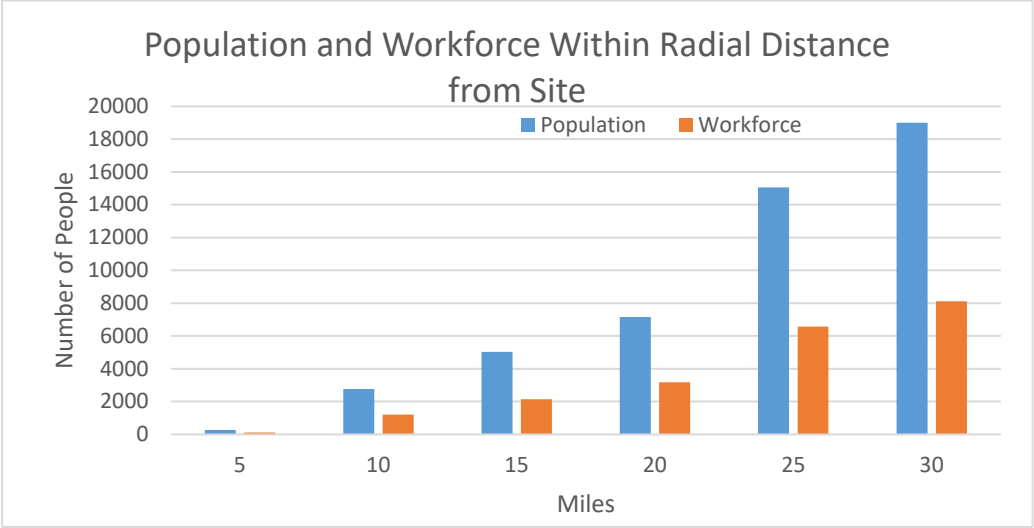
The employed population in the Houlton LMA has varied by only 1 to 2 percent over the last four years (2014-2018) and there has been little change in employment sectors; however average wages have risen approximately 10% over that same period according to Maine Department of Labor statistics.

Hersey Maine is the closest town to the site and is within the Houlton LMA. Within a 30 mile radius of Hersey, the employed labor force is comparable to, though slightly larger than, the Houlton LMA (8,106 versus 6,016)



Labor Force: 2018 annual average, Maine Department of Labor, Center for Workforce Research and Information. Population: 2018 United States Census Bureau.

The principal towns in proximity to the site (within a twenty-mile radius) are located to the south and east and include Stacyville, Sherman, Patten, Island Falls and Oakfield. Other communities include Hersey, Crystal, Moro, Merrill, Smyrna and Dyer Brook. Beyond twenty miles to Houlton, the population and available work force increases more than two fold as shown graphically below.



Operation of the mine, once constructed, will require full time employment of 60 individuals. The majority of these will be skilled labor positions requiring training. A training program will be established by Wolfden in advance of commencing mine operations so that a majority of these positions can be filled from within the local labor market.

It is the aim and objective of Wolfden to provide the maximum employment benefit locally. Based on demographics of the current population, it is reasonable to expect that approximately 40% of the workforce (24) could come from communities with 20 miles of the site and the remaining 60% of the workforce (36) from within 20-30 miles of the site and other more distant communities. This would equate to approximately 0.7% of the total employed work force within 30 miles from the site. Unemployment in the area averages approximately 5% (400 workers).

Communities in Proximity to the Site	
Within 20 Miles	Within 20-30 Miles
Crystal	Central Aroostook
Dyer Brook	Glenwood
Island Falls	Hammond
Moro, Merrill	Haynesville
Mount Chase	Hodgdon
Oakfield	Houlton
Patten	Linneas
Sherman	Littleton
Smyrna	Ludlow
South Aroostook	Masardis
Staceyville	Medway
	Monticello
	New Limerick
	North Penobscott
	Orient
	Oxbow
	Reed

The primary municipal services required by mine operations include solid waste disposal and potentially emergency response including fire and ambulance services. The primary municipal and community services that would be accessed by employees include education, housing, medical and healthcare services, and municipal solid waste disposal. Since it is anticipated that a majority of the employees will come from within the with the Houlton LMA there should be little net demand increase on services from towns or communities since the future employees are already using these services. It is assumed that 10% to 15% of the initial employees (6-9) will be imported into the work force area to provide a local management team with advanced skills and experience in mine operations. Once the local work force that is hired gains experience, it is likely some of these imported employee positions would be replaced by those local resident employees.

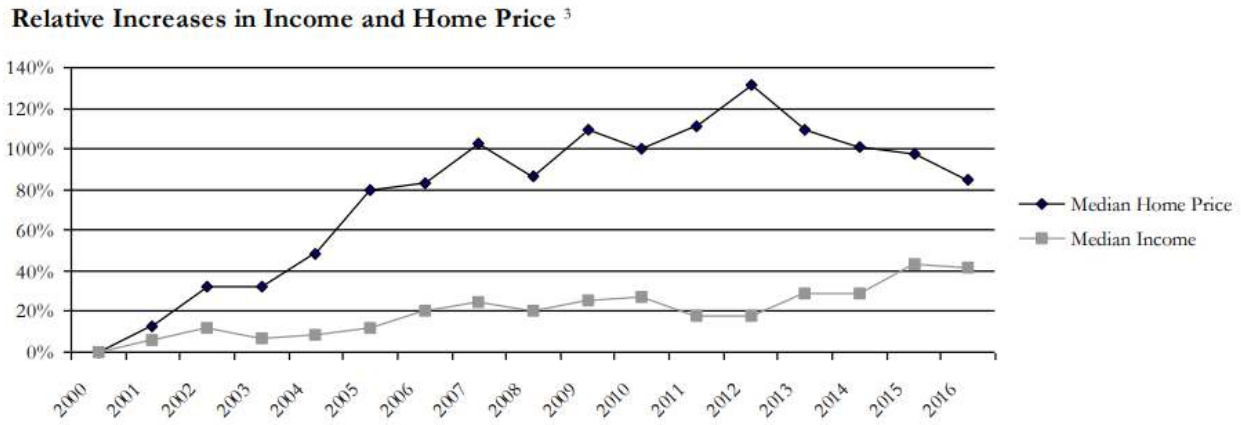
Description of Local Services

The following local services are described below: Housing, Education, Public Safety (Fire, Emergency Response, and Police), Healthcare and Municipal solid waste management.

Housing

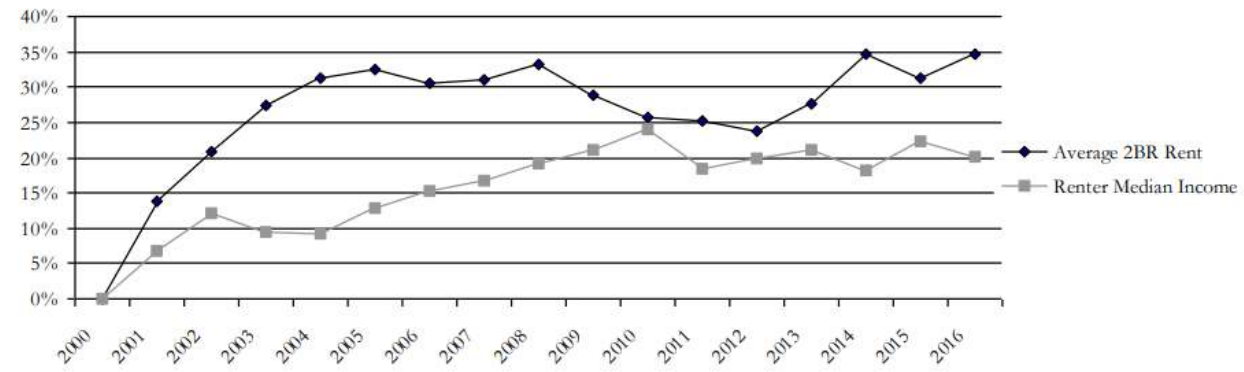
Data on housing affordability in the Houlton LMA is available through Mainehousing.org. https://www.mainehousing.org/docs/default-source/policy-research/housing-facts/2016/houltonlma2016.pdf?sfvrsn=5.

This data covers recent years from 2012 to 2016. During that time frame the median housing price has fallen, while median income has risen, thus increasing the number of households with the median income needed to afford the median home price. The average number of households unable to afford the medium home price in Maine is approximately 52%. This number drops to 25% in the Houlton LMA and down to 18% and 14% in Patten and Island Falls respectively. The trends in housing prices and income in the Houlton LMA are depicted in the following graph (source: Mainehousing.org cited above).



The housing data for rental properties (2 bedroom rental units-2BR) from the same source indicates opposite trends in the local rental market. In Maine the average hourly 2016 wage needed to afford the average 2BR rental was $16.77/hour and $10.28 in the Houlton LMA. Given the average 2018 wage in the Houlton LMA was 16.85/hour, there is a shortage in affordable rental housing (44% unable to afford the average 2BR rent). Trends in in rent and renter income are depicted graphically below using 2000 as the baseline year for computing relative changes (source: Mainehousing.org cited above).

Relative Increases in Renter Income and Average 2BR Rent[3]



Burden on Housing Market

The proposed project will provide good wages above the Houlton LMA average wage and the prospect of steady employment for individuals who pursue this career. The effect on housing should be positive in that it will allow residents employed by Wolfden the prospect of affordable home ownership or the ability to successfully enter the rental housing market. There would be no burden on communities or municipalities with respect to housing. As the housing market has declined in recent years, the introduction of 60 new jobs in the local economy should have a positive effect on the local housing market where additional property transactions result.

Education Services

Within the labor market area as described previously, the public educational needs of families is served through four regional school districts including RSU 29, RSU 50, RSU 70 and RSU 89 as shown below. The current total student body from elementary school through high school is approximately 2,563 based on information from the Maine Department of Education. RSU 89 was recently formed from communities previously within RSU 50.

Regional Public Schools Serving Local Towns and Communities

School Year	SAU Name	School Name	Number of Students
2019	RSU 29/MSAD 29	Houlton Elementary School	423
2019	RSU 29/MSAD 29	Houlton High School	364
2019	RSU 29/MSAD 29	Houlton Junior High School	298
2019	RSU 29/MSAD 29	Houlton Southside School	319
2019	RSU 50	So Aroostook School	358
2019	RSU 70/MSAD 70	Hodgdon Middle/High School	191
2019	RSU 70/MSAD 70	Mill Pond School	284
2019	RSU 89	Katahdin Elementary School	145
2019	RSU 89	Katahdin Middle/High School	181
Total			2,563

RSU No.	Communities Served
RSU 29	Houlton, Hammond, Littleton, and Monticello
RSU 50	Crystal, Dyer Brook, Hersey, Island Falls, Merrill, Oakfield, and Smyrna
RSU 70	Amity, Cary Plantation, Haynesville, Hodgdon, Ludlow and New Limerick
RSU 89	Mount Chase, Patten, Sherman and Stacyville

Burden on Education Services

As discussed previously it is anticipated the majority of the mine work force will be employed from Maine residents within the Houlton LMA. Initially, some of the work force may be imported into the area. These imported workers would contribute to the local economy through spending and taxes. Therefore, there may be a small increase in student enrollment in some school districts. This increase however should be small and would not represent a disproportionate burden. Otherwise it is expected that current or future educational needs of existing residents who become employed by Wolfden are already being met or anticipated and would not represent a burden on services. RSU 89, located closest to the site in Stacyville confirmed that the expected level of additional educational services is not a burden (see attached concurrence letter).

Public Safety Services

Services related to public safety include fire, 9-1-1 emergency response / ambulance and police services. Some of these services are provided by local towns while others are provided at the County Level.

The project site, when including private access roads, falls within both Penobscot and Aroostook counties. Each county has its own Regional Communication Center which acts as a dispatch Public Safety Answering Point (PSAP) operating on a 24 hour basis to answer and relay 9-1-1 calls, or directly dispatch emergency services. The Penobscot RCC, located in Bangor, supports residents in both Penobscot and Aroostook counties. The Aroostook RCC is located in Houlton and responds to all 9-1-1 calls originating in the county. The facility is housed collectively with Maine State Police Troop F, Maine Warden Service, Maine Forest Service and the Maine Fire Marshalls office. The Aroostook RCC handles dispatches for all state public safety agencies including the Aroostook County Sheriff's Department, the County office of Emergency Management and local fire departments including Oakfield.

Locally, several of the towns closest to the site have volunteer fire departments including Patton, Island Falls, Sherman and Oakfield. Island Falls also has an enhanced 9-1-1 Ambulance service. Island Falls has indicated its ambulance and fire response capabilities is sufficient to conceptually support Wolfden's plan and potential need for services (see attached concurrence letter)

Police services, primarily law enforcement, are provided through the Aroostook County Sheriff's Department in Houlton and the Penobscot County Sheriff's Department in Bangor. Law enforcement is also supported by the Maine State Police Troop F which is responsible for police coverage for all of Aroostook County and the northern parts of Penobscot, Piscataquis and Somerset Counties.

Burden on Public Safety Services

The proposed mine will be developed incorporating fire protection standards for building design and related structures. The mine will be operated under a very strict and well-defined safety program and in conformance with OSHA General Industry standards which also include requirements for medical, first aid and fire protection. Wolfden will provide for any fire response underground as this requires specialized training and equipment. With exception of volunteer fire, public safety services are implemented and funded at the county level. Wolfden's mining operations will provide a tax base that will contribute to the state and county services.

It is not expected that mine operations will place a significant burden on public safety services.

It is noted that in recognition of the decline in number of volunteer fire fighters in Maine, in 2017 the Maine Legislature passed a pension system for volunteers based on time of service (Maine Length of Service Award Program). The state of Maine does have a Volunteer Fire Assistance (VFA) Program for rural fire departments to provide federal financial and technical support in the form of matching fund grants that meet specific established criteria. Wolfden is

sensitive to the volunteer nature of fire-fighting services within the communities near the proposed project.

Healthcare and Medical Service

The Houlton Regional Hospital is a major regional hospital that provides a full range of medical services. Other medical services are also available from private physicians practicing in the area.

The Katahdin Valley Health Center has two facilities in Patten. One covers primary and dental care and includes a pharmacy. The second center is primary engaged in occupational physical therapy and chiropractic care.

Burden on Healthcare and Medical Services

There are abundant sources for medical services in the area. Health care and social services is the largest employment sector in the Houlton LMA. The proposed mine will not burden healthcare and medical services in the area.

Municipal Solid Waste Disposal

Solid waste management in the area is serviced by Casella Waste Management, including the Pine Tree Waste transfer station in Houlton and the Northern Katahdin Valley Waste Disposal District in Dyer Brook. This district serves the communities of Amity, Crystal, Dyer Brook, Hammond, Hersey, Island Falls, Merrill, Moro Plantation, Mount Chase, Patton and New Limerick. The facilities offer commercial and municipal waste disposal transfer. There would be no burden on these services as they are paid for services.

Power and Utilities

Power and other utilities are addressed elsewhere in this Petition. The project will have to import power and will provide its own source of water, for drinking purposes. Sanitary disposal

of gray and black water will be managed through a septic field. There are no burdens to towns or municipalities for these services.

Concurrence Letters

Attachment P
Explanation of How This Proposal is Consistent with the Standards and Purpose of the D-PD Development Subdistrict

Consistency with D-PD Development Subdistrict Standards

The proposed project will be conducted within a D-PD Development subdistrict consistent with standards for said subdistrict and within the intent and provisions of 12 M.R.S.A. Chapter 206A. Under Chapter 685-B, Development Review and Approval, a permit is not required for mining of metallic minerals that is reviewed under the Maine Metallic Mineral Mining Act. This project will require review and permitting under the DEP Chapter 200 Metallic Mineral Exploration, Advanced Exploration and Mining since all metallic mineral mining activity within a D-PD district is permitted through the DEP. The LUPC must certify to the DEP that the proposed development is an allowed use and that the proposed development meets applicable land use standards established by the LUPC, not otherwise considered by the DEP review.

The mineralized rock at the Pickett Mountain Deposit contains high grade zinc, and lesser copper, lead, gold and silver at tonnages indicating the project is economically feasible, and can be financed and completed. Financial capacity and project financing are discussed in Exhibit H. Wolfden, through its own engineering staff, its current specialized consultants in metallurgy and tailings management, supported by the mining engineering capabilities of Wood, has the technical capacity and expertise to design, construct and operate the project through final reclamation.

The project schedule is dependent on the issuance the LUPC's approval of this Petition. Wolfden anticipates this process could take up to a year from the date of the Petition. Wolfden will conduct any additional required natural resource studies in spring and summer of 2020 (wetland, flora, wildlife habitat, and archeological resources). Wolfden also intends to work with the Maine DEP to establish a baseline environmental characterization program that will require two years of data collection to complete. Once completed the mine permit application will be submitted for DEP review. It is anticipated that review and public comment could take up to one year. This could potentially allow the construction phase of the project to commence in 2023-2024. The duration of mining would be 10 years from that point.

Based on preliminary correspondence with the MDIF&W and DEC Natural Areas Division and current information from preliminary site surveys, potential impacts to protected wildlife, habitat and flora within and adjacent to areas proposed for development should be limited to areas containing forested wetland and associated intermittent streams within upland areas. Correspondence with these agencies is discussed in Section 18 and presented in Attachment N. Wolfden is committed to working with the agencies to avoid impacts to the extent possible, to minimize impacts and compensate where unavoidable. In this manner, the functions and values of upland wetlands and streams within the local Pickett Pond / Pleasant Lake watershed

that are important to wildlife habitat and surface water quality can be maintained during the active life of the project. Upon reclamation, impacts that were initially unavoidable can be restored / replaced in-kind where originally located.

The project location is approximately 6 radial miles from Patten, the closest town. The project location is entirely dependent on the presence and location of a potentially economic mineral deposit. The project location is exempt by definition from adjacency. The proposed rezoning includes 528.2~~197.5~~ contiguous acres which meets the minimum requirements under Chapter 10 (10.21,H (D-PD)) of 50 acres for metallic mineral extraction projects. Of this, approximately 107~~57~~ acres will result in surface disturbance to construct necessary mining facilities. Other areas within the contiguous 528.2~~197.5~~ acre area potentially contain wetlands and will be avoided to the extent practical. Wolfden has evaluated project mining requirements to minimize the footprint of the proposed project and to place above ground facilities adjacent to each other to construct a compact and efficient operations area. The remaining area to be rezoned encompasses the subsurface areas of mineralized rock and subsurface treated water infiltration galleries, and buffers around surface facilities. The rezoning will occur entirely within a General Management subdistrict and is not adjacent to and will not impact Protection subdistricts in affect at this time. Within a three-mile radius of the site, the protection subdistricts present include forested and scrub-shrub wetlands adjacent to great ponds (Pickett Pond, Pleasant Lake and Mud Lake) and associated stream drainages, and wetlands of special significance between Mud Lake and Pleasant Lake. Fish and wildlife subdistricts are located to the northwest. A recreation subdistrict is designated surrounding Green Mountain Pond and Lane Brook Pond, located greater than 3 miles from the site. The location maps showing the existing conditions, proposed structures and existing and proposed subdistrict boundaries are provided in Exhibit D-1 and D-2.

Collectively, Exhibit D-2 and the project description under Section 4 constitute the preliminary development plan for the project. The Final development plan will be reflected in designs provided in the Maine DEP Chapter 200 permit application. The proposed land use activities and structures that would be allowed in the Pickett Mountain (D-PD) planned development subdistrict follow at the end of this section.

As discussed in Section B (3)(d) and Appendix A-Attachment Q, the project operations will include comprehensive engineered facilities to collect and treat waters that come in contact with rock and earthen materials that are mined in the subsurface and brought to the land surface for beneficiation or long-term management. These water collection, treatment and treated water recharge facilities will substantially protect groundwater and surface water quality during and after active mining. The plan for mine reclamation outlined in Attachment Q describes how the affected areas will be restored and returned to pre-existing or comparable conditions including forested habitat at the end of the project.

As described in this Petition, the project is located at distances greater than 400 feet from any property line, is reasonably self-sufficient and self-contained, provides for its own water and

domestic sewage services, maintenance of roads, solid waste disposal and to the extent possible, fire protection and security.

This Petition contains discussion of all the criteria under Chapter 12 of the LUPC's rules for Mining and Level C Mineral Exploration Activities (Appendix A).

Attachment Q
Description of the Anticipated Site Conditions Following Closure and the Potential for Future Reclamation and Beneficial Use of the Affected Area.

As described in earlier sections of this Petition, the mine (Dry Tailings Facility, Mill Feed Staging Area, Interim Waste Rock Storage Facility, Surface Water Management Facility) will be constructed in a manner to capture contaminated water run off for collection, treatment and management.

At Pickett Mountain, there will be 3 classes of structures. Class 1 is a permanently fixed structure that will remain post-closure of the property. Specifically, this will be the dry TMF. Class 2 is a non-permanent structure that is deemed acceptable to decommission and remove only after the site has been deemed ready for rezoning back to a General Management (M-GN) Subdistrict. Specifically, this will be the water management and water treatment facilities including all drainage and water collection structures. Class 3 is a non-permanent structure that is decommissioned and removed as soon as production operations cease. Specifically, this includes all buildings on-site that are not related to water collection and treatment, mill feed and waste rock storage pads, and none essential roadways.

Upon completion of mining and processing of material from the Pickett Mountain mineral deposit, all class 3 structures will immediately be decommissioned and sold, or, to the extent practical, demolished and deconstructed to allow inert materials to be placed in remaining open underground workings (raises and drifts as discussed in Section 4 Project Description). The land surface will then be contoured and smoothed to reasonably match the original landscaping. This closure work will be conducted under an approved erosion and sedimentation control plan. Material from the overburden storage areas (original soils stripped prior to mine construction) will be placed on top of the regraded surface as final soil cover to support natural growth of vegetation. Openings to surface from underground that are non-essential will be plugged and capped with engineered concrete or steel plugs to ensure future access cannot happen either purposefully or not. All precipitation that contacts these locations will continue to be collected and monitored for water quality and treated before being discharged. After removal of all class 3 structures, it is anticipated that water quality of run-off being collected and treated will already begin to improve.

Class 1 structures will remain in place into perpetuity. Concurrently with the placement of tailings on the TMF, the TMF will be reclaimed through progressive capping and revegetating. Therefore, the final reclamation will be to cover the TMF with an engineered clay or silt cap constructed from local borrow sources. After it is capped and contoured to support precipitation drainage, the TMF will be covered with a final soil layer using the remaining material from the overburden storage areas. This will support regrowth of natural vegetation and long term, permanent erosion control. Precipitation that falls on the TMF will drain off

around the perimeter of the facility. The restoration design will include appropriately sized and constructed drainage features to handle storm events, consistent with DEP's stormwater management requirements. With all the class 1 and class 3 structures being closed or removed, the remaining site features will not adversely impact the water quality of run-off that is being collected and treated prior to discharge. After roughly 1 year post-complete closure, it is anticipated that the drainage water from site will be back to historical quality and no longer require treatment. After this has been confirmed, Wolfden will decommission, remove and sell the water management facility. The water management facility will be excavated and inert material (demolition debris) placed underground and the area recontoured. A final engineered plug will be placed in the portal area to completely and permanently block access to any underground workings.

Once final reclamation work is completed, continued post-closure monitoring of surface water and groundwater will take place for a duration that is specified in the DEP mining permit. Within the first year, samples will be taken frequently, following the sampling requirements established for operating the property. Within the second year, sampling intervals will decrease as confidence in the quality of closure increases. This will continue for 5 years until the sampling frequency is minimized to one time per year. The frequency of monitoring will be established statistically based on water quality trends and data.

The property will then be rezoned. Land use restrictions and deed covenants will be instituted over land occupied by the tailings facility to ensure that no industrial or commercial activity occurs over that portion of the site post closure.

Beneficial re-use of the property will include timber harvesting as it occurs presently outside the tailings facility footprint. Also, the portal will be closed in a manner that will allow entry underground to bats, providing valuable habitat. Recreational uses will be allowed on the property including hunting, hiking, atving, etc. Restriction would be placed on the tailings facility in order to protect that area from damage by off road vehicles. In order to ensure protection of the tailings facility area, a series of permanent signs will be posted around the perimeter restricing access to authorized personel only. In addition, if any future transfer of land ownership were to take place, the deed would within the tailings area would restrict the use of heavy equipment or any small vehicles and recreational vehicles to ensure that damage to the tailings cover is mitigated.

Attachment R
Proposed Land Use Activities and Structure Allowed in the Picket Mountain (D-PD) Planned Development Subdistrict

This Petition contains preliminary locations and dimensions of new buildings and structures required for the project. During detailed engineering analysis and planning in support of the mine permit application to the DEP, these preliminary locations and dimensions may change. Changes may reflect improvements in the efficiency of the project, environmental management of the site, and comments by the DEP.

The following land use activities and structures are anticipated for the Pickett Mountain (D-PD) Planned Development Subdistrict, including:

A. Uses and activities allowed without a permit;

B. Uses allowed without a permit subject to standards

C. Uses and activities allowed with a permit or by special exemption.

A. Land use activities and structures allowed in the Pickett Mountain (D-PD) Planned Development Subdistrict without a permit

1. Motorized vehicular traffic on roads and trails.
2. Snowmobile traffic on-and off roads.
3. Electrical Services Construction, installation, servicing, maintenance, including electrical Service drops. and High/Medium/Low Voltage service
4. Mineral exploration activities, including geophysical investigations.
5. Surveying and other natural resource analysis.
6. Signs listed as exempt in Section 10.27,J,1of the LUPC's Land Use Districts and Standards.
7. Temporary lighting equipment.
8. Emergency operations conducted for the public health, safety or general welfare, such as emergency medical response, law enforcement, resource protection and other rescue operations.
9. The general management, operations and maintenance of roads, structures, above ground and subsurface utilities
10. Shipping and receipt of materials
11. On-site and Off-site management of solid waste generated on-site.

12. Forest management activities
13. The operation of vehicles, vehicular equipment on existing roads, service roadways and associated areas.
14. The repair, and maintenance of vehicles, vehicular equipment, and other equipment in on-site maintenance buildings and areas and emergency repairs in on-site maintenance building and other facilities including roads, service roadway, and associated areas.
15. Hunting and trapping of wild animals, provided such hunting and trapping is conducted at least 500 feet away from existing development including structures.
16. Decommissioning of all installed infrastructure
17. Environmental work
18. Security Services

B. Land use activities and structures allowed in the Pickett Mountain (D-PD) Planned Development Subdistrict without a permit subject to standards

1. Expansion of a building approved as part of the mining permit issued by DEP, so long as it does not add or change uses to the building.
2. Construction, operation and maintenance of all subsurface facilities and assets related to mineral extraction, backfilling and closure of such facilities, including but not limited to additional surface facilities not envisioned at this time but could be needed in the future to support subsurface operations including ventilation shafts, raises, surface shafts and attendant headworks to facilitate deeper ore removal.
3. Importation of electrical power via a new utility line constructed by others
4. Road maintenance activities, including grading, replacement of gravel travel surface, widening, maintaining shoulders, drainage and trimming vegetation.
5. Increase in the amount of cleared area within the subdistrict.
6. Minor modifications of the location or design of buildings and other structures approved pursuant to a permit, which are made necessary or preferable to unforeseen conditions. Minor changes to be allowed under this section may include:
    a. Relocation of exterior lighting within 50 feet of the location(s) shown on the approved plans;
    b. Relocation or realignment of roadways or alignment(s) shown on the approved plans, provided that required erosion control systems are adjusted accordingly;
    d. Relocation of culvert(s) within 50 feet of the location(s) shown on the approved plans;

e. Relocation of water treatment and management facilities, including subsurface piping, including those for domestic wastewater

c.. Fuel storage tanks for operation of heating and backup power generation;

7. Constructed ponds: Creation, alteration or maintenance of constructed ponds of less than 4,300 square feet in size which are not fed or drained by flowing waters, provided they are constructed and maintained in conformance with the vegetative buffer strip requirements of Section 10.27,C,2,a.

8. Filling and grading.

9. Clearing and grubbing and maintenance of topsoil pens for later use in site restoration/ reclamation.

10. Mineral exploration activities: Level A and B mineral exploration activities, excluding associated access ways.

11. Road projects: Level A road projects.

12. Maintenance of employee parking areas within the mine operations area

13. Service drops.

14. Signs.

15. Exterior lighting

16. Storing and utilizing explosives assigned for underground.

C. Land uses and activities allowed in the Pickett Mountain (D-PD) Planned Development Subdistrict requiring a permit.

1. Mineral (natural) resource extraction, crushing and processing including all related metallic mineral mining activities and Tier one advanced exploration and all related support activities required for the safe and environmentally secure execution of the mining, crushing and processing activities.

2. Construction, operation and maintenance of buildings, pads, office facilities and attendant structures for the sorting, milling, processing of the mineral resource and shipping off-site of mineral concentrates

3. Construction, operation and maintenance of water treatment facilities and attendant structures for the collection, conveyance of waters, and re-infiltration of treated waters.

4. Construction, operation and maintenance of lined facilities for eventual and permanent management of dry stacked tailings.

5. Constructed ponds: Creation, alteration or maintenance of constructed ponds 4,300 square feet or greater in size which are not fed or drained by flowing waters, or of such ponds less

than 4,300 square feet in size which are not in conformance with the vegetative buffer strip requirements of Section 10.27,C,2,a.

6. Draining or altering the water table or water level for other than mineral extraction.
7. Filling and grading, which is not in conformance with the standards of Section 10.27,F.
8. Road projects: Level B and C road projects, except for water crossings as provided for in Section 10.21,A,3,b.
9. Signs which are not in conformance with the standards of Section 10.27,J.
10. Utility facilities, above ground and underground electric utility lines excluding service drops, and wire and pipe line extensions which do not meet the definition of service drops;
11. Water impoundments and ponds for water storage, treatment or detention.
12. All potential electrical work including High/Medium/Low Voltage service installation, operation and maintenance, including installation of cables, and associated infrastructure
13. Other structures, uses, or services which the LUPC determines are consistent with the purposes of this subdistrict and of the Comprehensive Land Use Plan and are not detrimental to the resources and uses they protect, and are of similar type, scale and intensity as other uses under this permit.

Wolfden will continue developing the list of rules, ~~definitions~~definitions, and standards with the LUPC and DEP staff.