

**MONTANA LIMESTONE RESOURCES OPERATING PERMIT APPLICATION  
MLR RESPONSES TO DEQ 29 MARCH 2018 REVIEW COMMENTS**

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**Comment 1:**

Response to comment #1: The referenced measuring point for the pond staff gage was not found. Please provide where in Appendix A-2 this pond elevation is located.

**RESPONSE:**

The pond staff gage measuring point elevation is included in the "Manual Groundwater Level Monitoring Data" table in Sub-Appendix D of Permit Application Appendix A-2.

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**Comment 2:**

Response to Comment #1: The response from MLR states that the correct measuring point elevation for the pond staff gage (3903.29 feet) has been updated. However, the pond is not listed as a monitoring point in the revised table (sub-Appendix D, in Appendix A-2). Other monitoring points included in the previous application have also been inexplicably removed from the updated table (e.g. Homestead Well 1, Homestead Well 2, and Ranch House Well). Please provide revised tables that include every monitoring location and the associated groundwater level data for the entire length of field study.

**RESPONSE:**

The additional sites were removed from the table due to the limited water level data associated with them; they're not considered to be primary baseline water level monitoring sites. Nonetheless, they have been added back into the "Manual Groundwater Level Monitoring Data" table in Sub-Appendix D of Permit Application Appendix A-2. Note that the correct measuring point elevation for the staff gage is 3909.29, not 3903.29 as stated in the comment.

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**Comment 3:**

Response to comment #5: Visual impact mitigation: MLR proposes to mitigate visual impacts of the final pit as seen from Interstate 90 by planting a Douglas fir and Rocky Mountain juniper visual screen on the pit benches below the level of the pit (figure 4-9.1). The timing for this portion of the reclamation plan is no later than 2 years after completion of mining, or abandonment of operations.

If trees are planted at the initiation of mining, at a location where the anticipated future east pit rim would exist at that time after 20 years of mining, rather than at the end of mining, the visual screen would be much more effective in mitigating the post reclamation visual contrasts. Planting the visual screen at the initiation of mining would ensure that the screen would be present and effective before the pit becomes visible. An additional benefit of planting the visual screen at the initiation of mining is that if the initial plantings fail there would be time to adjust the methods and approaches used to establish the visual screen, thus ensuring its success as a mitigative measure. Initiating silviculture early in mine life would also ensure tested and tried reclamation procedures necessary to establish trees would exist when the benches became available for reclamation. 82-4-336(9)(iii), MCA.

**RESPONSE:**

Figure 4.9-1 (under Planting Schedule) is revised to include tree planting on the east rim of the pit at the initiation of mining.

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**Comment 4:**

Response to comment #11: What is the anticipated date for the traffic study submittal?

RESPONSE:

The traffic study will be conducted in conjunction with the MEPA analysis and in coordination with DEQ, most likely occurring in 2018 or 2019.

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**Comment 5:**

Response to comment #15: Please add the MLR Sage Grouse response to Section 2.3. If the last sighting was in 1988, please reference this.

**RESPONSE:**

Section 2.3 has been revised as requested.

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**Comment 6:**

Response to comment #18: Third paragraph, last sentence states the emergency overflow spillways for the sediment basins will terminate in riprap lined stilling basins for energy dissipation. The figures in Appendix B-2 do not provide detail on these structures. Please provide information on these stilling basins, i.e.: type of material to be used, layout of energy dissipation structures, size of the stilling basins and so forth. Please provide information on the referenced North American Green VMAXC350 Turf Reinforcement Mats planned for lining the emergency spillways. 82-4-335(4)(1), MCA

**RESPONSE:**

The requested information has been added to the embankment design drawings in Appendix B-2. Note that the revised designs include riprapping the spillway channels to reduce the required stilling basin size and aid constructability. As a result, the Turf Reinforcement Mats are no longer necessary.

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**Comment 7:**

Response to comment #21: Cross sections for the Reclaimed Pit are produced in Figures 4.3-1 through 4.3-8. These cross sections are taken off Exhibit 4-1. Figure 4.3-1, Figure 4.3-2, Figure 4.3-3, and Figure 4.3-8 show Final Reclaimed Topography on the cross section. However, Figure 4.3-4, Figure 4.3-5, Figure 4.3-6, and Figure 4.3-7 do not show Final Reclaimed Topography on the cross section. Please provide Final Reclaimed Topography on the cross sections where it is missing. ARM 17.24.1115(1)(b)

**RESPONSE:**

Cross sections 4.3-4, 5, 6, and 7 have been revised as requested; the legend has been revised to clarify "Final Reclaimed Topography".

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**Comment 8:**

Response to comment #23: DEQ acknowledges that limited amounts of water may be present in the pit from closed perched zones. Please commit to grading the final pit bottom so that any water, be it from perched zones or meteoric water from precipitation events, is free draining out of the pit so no standing water is present. 82-4-336(5), MCA

RESPONSE:

The only internally draining area will be a portion of the south pit where backfilling is not proposed. Approximately 4.8 acres of the south pit will be graded for external drainage with 17.9 acres internally draining (attached Figure 1). As described in Section 4.9 of the MLR permit application, all benches, ramps and the 4100 pit floor, about 75% of the internally drained area, will be covered with soil and revegetated leaving only the steep highwalls as exposed bedrock. Prolonged ponding, to the extent that it will serve as a host or breeding ground for mosquitos or other disease-bearing or noxious insect life, is not expected in this area either due to the high net ET conditions described below.

As noted in Section 4.9 of the MLR permit application, “accumulation of stagnant water, to the extent that it will serve as a host or breeding ground for mosquitos or other disease-bearing or noxious insect life, will be avoided”. This will be achieved through the proposed pit reclamation as presented in the application (since pits by nature are not free draining), and facilitated by the site meteorological conditions.

As noted in Section 4 of the permit application, the majority of the pit will be backfilled concurrently with mining. Backfilled portions of the pit (comprising over 75% of the total pit area) will be graded for external drainage if necessary to avoid short-term ponding. Attached Figure 1 shows multiple locations where the backfilled pit surface is higher than the surrounding ground and will drain externally.

In addition to the ability to drain externally, accumulation of stagnant water on the reclaimed surface will be minimal due to the high net evapotranspiration (ET) conditions at the site, especially during the mosquito breeding season. Attached Table 1 includes monthly precipitation data from the MLR site and ET data from the Deer Lodge Agrimet station, similar in physical and meteorological conditions to the MLR site. The Agrimet station includes 13 years of reference ET data (ET<sub>r</sub>, based on alfalfa water consumption), and one growing season of ET data (ET<sub>p</sub>) based on pasture grass water consumption (similar to the proposed reclaimed cover). Based on the available corresponding ET<sub>r</sub> and ET<sub>p</sub> data, ET<sub>p</sub> is approximately 70% of ET<sub>r</sub>. Applying this correction factor to the monthly ET<sub>r</sub>, estimated monthly ET<sub>p</sub> values for the full year are presented in attached Table 1. As shown in the table, monthly ET<sub>p</sub> exceeds precipitation in every month, with net ET<sub>p</sub> ranging from 0.5 inches in December to 5.5 inches in July and exceeding two inches every month from March through October. According to Rolston et al, 7 to 14 days are typically required for development of eggs to adult mosquitoes ([MT201204AG.pdf](#)). The high net ET<sub>p</sub> conditions, especially during the summer months, will prevent mosquito breeding on all reclaimed surfaces and/or there would not be a long enough timeframe for mosquitoes to complete their life cycle.

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**Comment 9:**

Response to comment #24: The request is for a post closure plan for the access road. The response indicated that typical road cross-sections may be found in Section 3.5.1. Section 3.5.1 only references road designs during operation. Please provide a road closure plan with drawings. 82-4-335(4)(i), MCA and ARM 17.24.115(1)(m)

**RESPONSE:**

The property owner (Washington Limestone, LLC) and project proponent (Washington Limestone Resources, LLC) have stated in sections 3.5.1 and 4.3.5 as well as in previous responses that the road will not be removed or narrowed after closure, and that the landowner will consider its options based on its objectives for the property at that time, including leaving the road as constructed.

The text on page 4.11 in Section 4.3.5 has been revised to clarify this intention.

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**Comment 10:**

Response to comment #26: The response notes that an updated sampling and analysis plan will be submitted to MDEQ. The sampling and analysis plan will be needed for review.

**RESPONSE:**

An updated 2018 Sampling and Analysis Plan was submitted to DEQ on May 25, 2018. 2018 monitoring includes semi-annual surface water and groundwater sampling at the previously established baseline monitoring sites, and quarterly water level monitoring.

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**Comment 11:**

Response to comment #27: A review of A-6, Plate 1 does not contain the facility overlay. Please provide the overlay.

**RESPONSE:**

We have reviewed the hard copy, the final electronic version, and the redline electronic version; all three versions provided to DEQ contain the footprint of the facility overlay on Plate 1 of Appendix A-6. However, facilities within the footprint have been labeled for clarity and are being submitted on Plate 1.

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**Comment 12:**

Response to comment #31: Referencing Appendix A-2, the figures do not contain page numbers, yet are included in the overall page numbering scheme. Please either 1) number the figure and other non-numbered pages, or, 2) re-number the pages to reflect a more coherent numbering scheme without including the figures and tables pages.

RESPONSE:

Page numbers have been added to the figures and tables.

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**Comment 13:**

Response to comment #33: As the data in Appendix A-6, Table 2-2 was only sampled through November 2015 please continue the sampling for more accurate and up to date information. 82-4-335(5)(k), MCA

**RESPONSE:**

Semi-annual (spring and fall) surface water and groundwater sampling is planned for 2018. See response to Comment 10.

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**Comment 14:**

Response to comment #34: Referencing Appendix A-2, Figure 3-3, please include cross-sections along the major and minor axis of the pit showing depth of piezometers along those cross-sectional lines and the static water level in relation to the proposed pit. 82-4-335(5)(k), MCA and ARM 17.24.115(1)(b)

**RESPONSE:**

First, note that it appears that the actual comment being responded to here is Comment #36, not #34.

The requested cross sections have been added as new Figure 3-4 in the Baseline Hydrology Report, Appendix A-2 to the permit application. The cross sections show all available lithologic and hydrologic information from relevant geotechnical borings, diamond drillholes, monitoring wells and piezometers. Cross section A-A' is an east-west trending section extending from the perched groundwater system on the west through the proposed quarry on the east. Based on information from the numerous borings and wells/piezometers along this transect, the area between the perched groundwater system and quarry is comprised of stiff clay (Tertiary sediments), mudstone/breccia (Tertiary sediments and/or Cretaceous bedrock), and dolomite/limestone, all unsaturated. This information supports the conceptual model of the perched groundwater system not extending eastward to the proposed quarry.

Cross section B-B' is a northwest-southeast trending section oriented along the major axis of the proposed quarry. This section includes a number of diamond drillholes within the proposed quarry boundaries, including ML-37 completed as a piezometer (MLR PZ-37). No groundwater was encountered in any of the diamond drillholes or the piezometer.

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**Comment 15:**

Response to comment #35: Please see response to comment #34.

RESPONSE:

See response to Comment 14.

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**Comment 16:**

Response to comment #38: The text notes that two additional surface water and three groundwater monitoring events were conducted in 2015. Please consider continuation of the surface and groundwater monitoring and data submittal.82-4-335(5)(k), MCA

**RESPONSE:**

Semi-annual groundwater and surface water monitoring is planned for 2018. See response to Comments 10 and 13.

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**Comment 17:**

Response to initial DEQ comment 44 (2/2/2015), p. 4-20, Section 4.7, Post Operational Solid Waste Disposal: Solid waste that is not deemed recyclable would be buried on-site in compliance with solid waste disposal and reclamation requirements. Please identify the location for the solid waste landfill on Exhibit 1-1. Please identify the source and groups of solid waste proposed for disposal in the on-site landfill, include proposals for hydrological monitoring, vector control, daily cover, and potentially applicable requirements of the Montana Solid Waste Management Act 75-10-2 et seq MCA and Solid Waste Management Rules ARM 17.50.501 et seq. Please commit to not disposing of solid waste from outside the permit area.

**RESPONSE:**

There will be no on-site landfill during operations.

To clarify, Section 3.7 addresses Operational Solid Waste Disposal, which relies on, at a minimum, weekly collection of waste and off-site disposal in a licensed solid waste facility, as reiterated below:

“General waste will be collected daily in plastic bags and placed in a dumpster. Once a week, a contract service will pick up this waste and dispose of it in a licensed municipal solid waste facility.

Maintenance shop waste consisting of rags, paper, metal, cardboard, and wood boxes (in which spare parts are received) will be disposed of in a specific dumpster identified for this purpose. Once a week (or more often if required), a contract service will pick up this waste and dispose of it in various types of facilities: a metal recycling facility, a wood waste disposal facility, and/or a licensed municipal solid waste facility.

Waste lubricating oil, hydraulic fluid, antifreeze, and other similar waste will be placed in tanks labeled for their specific fluid. Once a week (or more often if required), a contract service specializing in handling and recycling, or other licensed means of disposal of these types of waste, will pick up these fluids and transport them to their sorting and recycling facility.”

Hence, hydrologic monitoring, vector control, daily cover, etc. would not be necessary.

Section 7.3 addresses Post-Operation Solid Waste Disposal. In coordination with closure, facilities will be dismantled, salvaged, and removed or recycled. Any inert demolition debris (concrete, plastic, steel, wood) that requires burial will be placed into the pit at the conceptual pit site location shown on Exhibit 1-1 and covered with waste rock. The text in Section 4.7 has been revised to reference the conceptual pit site location on Exhibit 1-1 and commit to not disposing solid waste from outside the permit area.

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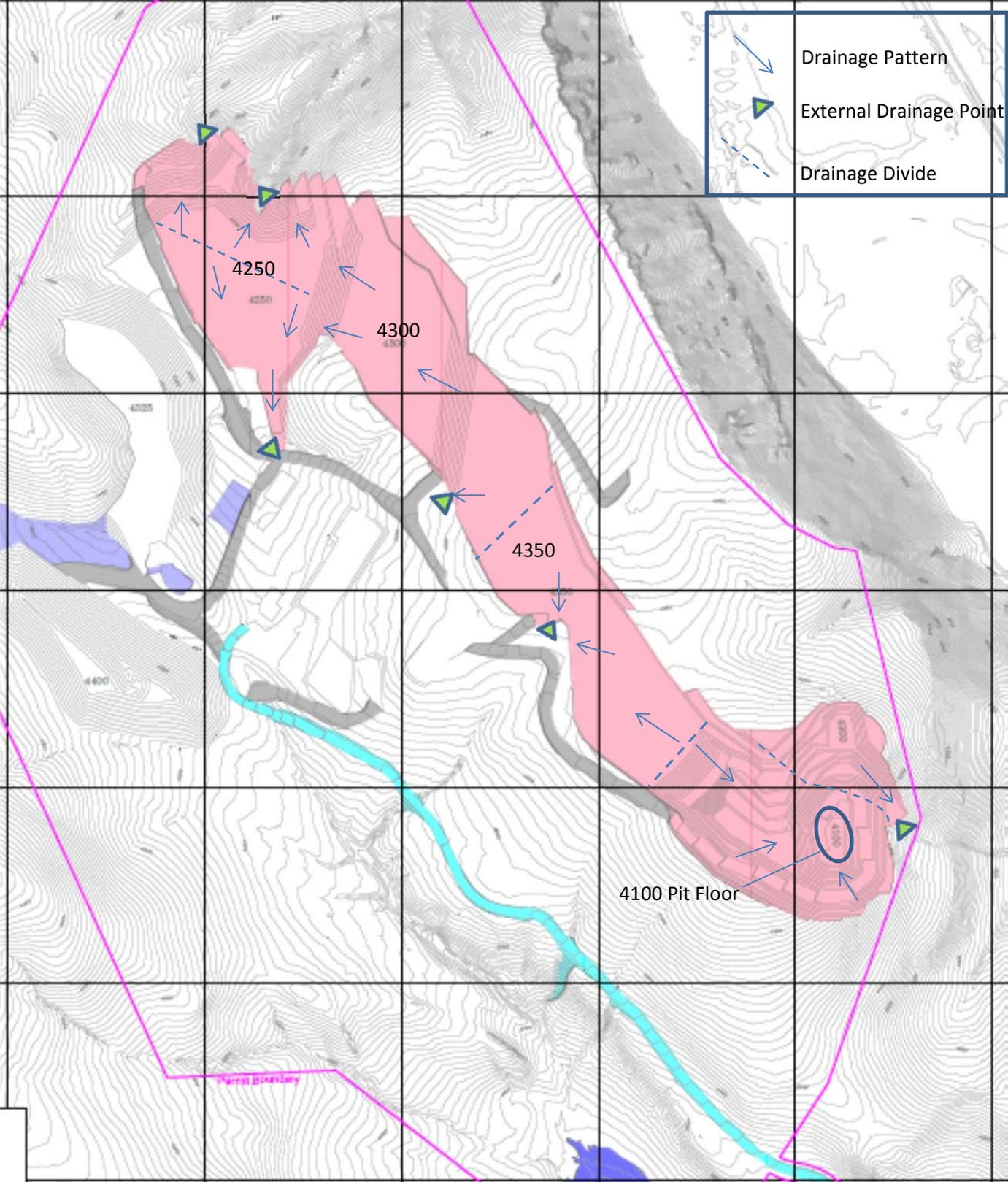
**Comment 18:**

Appendix A-2, Figure 3-3: The approximate proposed pit limit appears to either be on the proposed permit boundary, or extend beyond it on the eastern side. Please provide a proposed permit boundary that has a buffer area between the disturbance and permit boundaries. 82-4-335(5)(e), MCA

**RESPONSE:**

The proposed pit boundary was inadvertently shifted east of its actual location in the figure; Figure 3-3 has been revised to show the correct pit boundary location within the proposed permit boundary.

**ATTACHMENTS TO RESPONSE  
TO COMMENT 8**



**TABLE 1. MLR AREA MONTHLY PRECIPITATION AND EVAPOTRANSPIRATION RATES**

Month	Monthly Precip - inches <sup>1</sup>	ETr <sup>2</sup> inches	2017 Pasture ETp <sup>3</sup> inches	Annual ETp <sup>4</sup> inches	Net ETp inches
Jan	0.79	0.73	NA	0.51	0.6
Feb	0.61	1.13	NA	0.79	1.3
March	0.75	2.62	NA	1.83	2.4
April	0.98	3.98	NA	2.79	2.8
May	1.96	5.76	3.66	4.03	2.1
June	1.66	6.65	5.21	4.66	2.8
July	1.15	9.07	6.95	6.35	5.5
August	1.29	7.5	5.74	5.25	4.1
Sept	1.06	4.76	2.54	3.33	3.1
Oct	0.77	2.58	NA	1.81	2.3
Nov	0.79	1.19	NA	0.83	1.1
Dec	0.8	0.57	NA	0.40	0.5
<b>TOTAL</b>	<b>12.61</b>	<b>46.54</b>	<b>---</b>	<b>31.85</b>	<b>28.73</b>

1- MLR site monthly precipitation from permit application.

2 - Reference (alfalfa) ET rate from Deer Lodge Agrimet station for period of record (1998-2010)

3 - ET for pasture grass from Deer Lodge Agrimet Station for 2017.

4 - Monthly pasture grass ET for full year based on Etp/Etr correction factor (0.70).