ENVIRONMENTAL ASSESSMENT

November 18, 2024
Revised April 29, 2025
Engineering Bureau
Water Quality Division
Montana Department of Environmental Quality

PROJECT/SITE NAME: Residential Subdivision #2 at the Quarry	
APPLICANT/COMPANY NAME: Big Sky Rock, LLC.	
PROPOSED PERMIT/LICENSE NUMBER: EQ# 24-2567 and 24-2568	
LOCATION: Section 5, T7S, R4E	**COUNTY:** Gallatin
PROPERTY OWNERSHIP: FEDERAL ____ STATE ____ PRIVATE X	

TABLE OF CONTENTS

1. Overview of Proposed Action 3
   - 1.1. Authorizing Action 3
   - 1.2. Description of DEQ Regulatory Oversight 3
   - 1.3. Proposed Action 3
   - 1.4. Purpose, Need, and Benefits 7
   - 1.5. Other Governmental Agencies and Programs with Jurisdiction 10
2. Evaluation of Affected Environment And Impact by Resource 19
   - 2.1. Geology and Soil Quality, Stability and Moisture 19
   - 2.2. Water Quality, Quantity, And Distribution 20
   - 2.3. Air Quality 21
   - 2.4. Vegetation Cover, Quantity, and Quality 22
   - 2.5. Terrestrial, Avian, and Aquatic Life and Habitats 22
   - 2.6. History, Culture, and Archaeological Uniqueness 23
   - 2.7. Demands on Environmental Resources of Land, Water, Air, or Energy 23
   - 2.8. Human Health and Safety 24
   - 2.9. Aesthetics 24
   - 2.10. Socioeconomics 25
   - 2.11. Private Property Impacts 26
   - 2.12. Greenhouse Gas Assessment 26
3. Description of Alternatives 28
4. Consultation 30
5. Public Involvement 31
6. Significance of Potential Impacts and Need for Further Analysis 31
7. Conclusions and Findings 31
8. References 33
9. Comment Summary and Responses to Substantive Comments 35

OVERVIEW OF PROPOSED ACTION

AUTHORIZING ACTION

Under the Montana Environmental Policy Act (MEPA), Montana agencies are required to prepare an environmental review for state actions that may have an impact on the human environment. The Proposed Action is considered to be a state action that may have an impact on the human environment and, therefore, the Department of Environmental Quality (DEQ) must prepare an environmental review. This EA will examine the proposed action and alternatives to the proposed action and disclose potential impacts that may result from the proposed and alternative actions. DEQ will determine the need for additional environmental review based on consideration of the criteria set forth in Administrative Rules of Montana (ARM) 17.4.608.

DESCRIPTION OF DEQ REGULATORY OVERSIGHT

DEQ implements the Sanitation in Subdivisions Act of Montana, overseeing the development of Subdivisions and associated facilities (76-4-101, *et seq.,* MCA). DEQ also implements the Public Water Supply Act of Montana, which oversees the protection, maintenance, quality, and potability of water for public water supplies and domestic uses (75-6-101, *et seq*., MCA). Finally, DEQ implements the Montana Water Quality Act, which governs discharges of pollutants to Montana state waters (75-5-101, *et seq*., MCA).

PROPOSED ACTION

In 2021, Big Sky Rock, LLC, ("the Applicant") received Platting and Planning approval for the Quarry Planned Unit Development (PUD) Site Plan from Gallatin County. The Applicant now proposes to construct the second development within the approved Quarry PUD: The Residential Subdivision #2 at the Quarry, which consists of 45 condominium living units, the public water main extension/connections and 4 public wastewater collection, treatment, and disposal systems. The Applicant has applied to the Department of Environmental Quality (Department) for a Certificate of Subdivision Approval (COSA) for the drinking water and wastewater facilities that would service the development.

The facilities under review by the Department consist of the water, wastewater, and stormwater facilities associated with the residential development. Water services would be provided by connection to the existing Lazy J Utility Association facilities. Each of the proposed four lots would have their own wastewater treatment system provided by a Level II wastewater treatment facility and drainfield. A Level II subsurface facility is a standard septic system with an added treatment for additional nitrogen removal. The proposed treatment units are capable of discharging at or below the groundwater non-significance criteria of 7.5 mg/l nitrogen in 75-5- 301 (5)(d), Montana Code Annotated. The wastewater treatment would be constructed like other public residential septic systems.

Lots 9 and 10 would each have 12 condominium units with a maximum wastewater flow of 3,000 gallons per day (gpd) per lot. Lots 11, and 12 would each have 11 condominium units with a maximum wastewater flow of 2,750 gpd per lot. Stormwater retention and treatment would be provided by a one (1) on-site retention pond, swales, roadside gutters, storm sewers and manholes.

In conformance with the approved Quarry PUD Site Plan, Lot A may be used for open space, residential

and commercial development, and Lot B may be used for a combination of commercial and residential (multi-family, on second and subsequent stories). Under this COSA application, the Applicant proposes to construct drainfields and stormwater retention ponds on both Lot A and Lot B, but no commercial structures or living units. Lot A and open space lot OS-1 are exempt from review under the Sanitation Act pursuant to 76-4-103, Montana Code Annotated, (MCA) as both are greater than 20-acres.

The proposed Residential Subdivision #2 at The Quarry (the Project), PUD is located in Section 5, Township 07S, Range 04E, Tract 2 of COS 2450 in Big Sky Montana within the Quarry Planned Unit Development at Big Sky (PUD). The property lies approximately 2800 feet South of the intersection of Lone Mountain Trail (MT 64) and Highway 191 and approximately 1200 feet west of the Gallatin River. The Applicant has applied to the Department of Environmental Quality (Department) for a Certificate of Subdivision Approval (COSA) for the water, wastewater, and stormwater facilities (the Proposed Action) associated with the development as depicted in Figures 1 & 2.

The property previously contained a DEQ-permitted gravel pit (Opencut Permit #3023) within the area of the Property zoned Commercial-Industrial. The permit required reclamation of the site by 2026, and the reclamation has occurred, and the permit has been closed out.

Table 1. Summary of Proposed Action

Proposed Action	
General Overview	VERY BRIEF SUMMARY OF PROPOSED ACTION – The proposed actions include the construction of approximately 4,325 lineal feet of open trench construction for the water main extension including all the connections to the proposed water main along Hammer Mill Loop Road and one fire hydrant, which equates to approximately 346 machine hours. In addition, the proposed actions include the construction of 4 public wastewater treatment systems that consist of advanced treatment, septic tanks, dose tanks, and subsurface drainfields. This includes 7,000 lineal feet of gravity sewer main and gravity sewer connections and transportation sewer force main open trench construction which equates to approximately 560 machine hours, the installation of 8-septic tanks/surge tanks which equates to 64 machine hours, 4- advanced treatment systems which equates to 96 machine hours, 4 dose tanks which equates to 16 machine hours, and 12 subsurface drainfields which equates to 96 machine hours. The four (4) proposed public wastewater treatment systems are exempt from the discharge permitting requirements because the new MGWPCS rules limit discharger to the threshold of one pound per day of total nitrogen. The four (4) proposed public wastewater treatment systems are proposing to utilize advanced treatment that will result in a nitrogen discharge concentration of 7.5 mg/l or less. With an effluent discharge concentration of 7.5 mg/l or less the facilities may discharge approximately 15, 991 gpd in total and remain under 1 lb./day. ARM 17.30.1022(d)public systems that are reviewed by the department after March 1, 2024, under Title 75, chapter 6, MCA, and ARM

	17.38.101 under a common design plan or serving a common development that in aggregate discharge less than one pound of total nitrogen per day are not subject to the permit requirements in MGWPCS. Each proposed drainfield will be discharging 3,000 gpd or less, for a total of 12,000 gpd or less cumulatively is less than 15,991 gpd and 1 lb./day. A MGWPCS discharge permit is not required. The DEQ has received a MGWPC permit application that proposes to collect sewage from the Quarry and other places along the Gallatin Canyon. The collected sewage will be sent to Big Sky wastewater treatment system for treatment and then the treated sewage will be returned to the Quarry wastewater treatment facilities and other drainfields. The treated effluent is proposed to be treated to Class A-1 standards of 5.0 mg/l nitrogen further decreasing potential impacts to ground or surface water quality.
Duration & Hours of Operation	***Construction: 1,178 hours***
Estimated Disturbance	The estimated disturbance area for road construction, water main extension and connections, 4 wastewater treatment systems, sewer collection system, and drainfield construction will equate to approximately 288,000 square feet or 6.6 acres of disturbance to the land surface.
Construction Equipment	Excavators, Backhoe, Forklift, Motor Grader, Asphalt Pavers, Road Roller, Compactors
Personnel Onsite	***Construction***: 4–12-man crews for water main & for wastewater
Location and Analysis Area	***Location****: 228 Altman Lane, Gallatin Gateway, MT. 59730* ***Analysis Area****:* The area being analyzed as part of this environmental review includes the immediate project area (Figure 1), as well as neighboring lands surrounding the analysis area, as reasonably appropriate for the impacts being considered.
The applicant is required to comply with all applicable local, county, state, and federal requirements pertaining to the following resource areas.	
Air Quality	The applicant proposes to minimize dust and soils tracking outside the proposed development would be covered in the SWPPP and associated BMPs as addressed in the Stormwater Discharges Associated with the current Construction Activity General Permit MTR 108839 for the front entrances to the site. The SWPPP for the Quarry Phase 2 will be obtained closer to time of construction. The proposed SWPPP that will be obtained for phase 2 construction will be similar to the Quarry Phase I and the front entrances to the site SWPPP (DEQ General SWPPP & MTR108839, see appendix A). No adverse impacts to air quality are expected because of the proposed development and construction activities.

Water Quality	The applicant proposes to minimize impacts to water quality. No flood plain, or surface water are present within the proposed action area as demonstrated through the FEMA FIRM Map, and a recognized completed flood study for the Gallatin River. The proposed actions are not located within the Michener Creek Drainage. The data indicates groundwater levels are around 30 to 60 feet below existing ground. The Project is not proposed to be in any wetlands (Montana Wetland and Riparian Framework Layer) and the Storm Water Pollution Prevention Plan (SWPPP) mitigations would minimize any sediment and erosion related impacts to surface water during construction. Further Discussion of the following items provided in this EA within the evaluation of affected environment and impact by resource section for water quality below: • FEMA Firm Map, and recognized flood study for the Gallatin River. • A Wetland and Waterway Delineation Report was completed for the property by Power Engineers, Inc. on September 13, 2018. • The Applicant proposes a wastewater disposal system using SepticNet treatment systems as required in the Gallatin County Platting and Planning PUD approval. The downgradient impacts to groundwater are currently being evaluated with the review of the public wastewater treatment systems under EQ#24-2567 & EQ#24-2568. • The DEQ has received a MGWPC permit application that proposes to collect sewage from the Quarry and other places along the Gallatin Canyon.
Erosion Control and Sediment Transport	The applicant proposes to maintain vegetation across the site which includes forest land (a mix of conifers), rangeland (sagebrush), and grassland. The Applicant intends to preserve steeper slopes and natural vegetation as a critical part of development. Any new landscaping introduced as part of condominium development would include only native plant materials.
Solid Waste	The applicant proposes to take solid waste to the Gallatin County Landfill in Logan Montana.
Cultural Resources	The applicant proposes to continue to develop the privately owned property with residential units. The project is a residential development and is not anticipated to add to the population but to provide much needed additional housing for the existing population within the community, by serving the existing residents and businesses within Gallatin County.

Cumulative Impact Considerations	
Past Actions	Summary of past projects – The Residential Subdivision Quarry phase #1 as reviewed under EQ#20-2192 and EQ#20-2020.

Present Actions	Summary of current projects – The Residential Subdivision Quarry phase #2 as reviewed under EQ#24-2567 & EQ#24-2568.
Related Future Actions	Summary of related future projects – The DEQ has received a MGWPC permit application that proposes to collect sewage from the Quarry and other places along the Gallatin Canyon. The collected sewage will be sent to Big Sky wastewater treatment system for treatment and then the treated sewage will be returned to the Quarry wastewater treatment facilities and other drainfields. The treated effluent is proposed to be treated to Class A-1 standards of 5.0 mg/l nitrogen further decreasing potential impacts to ground or surface water quality.

PURPOSE, NEED, AND BENEFITS

The need for Department approval, prior to construction, is prescribed by the Certificate of Subdivision Approval (COSA) review process under the Sanitation in Subdivisions laws in Title 76, chapter 4 of MCA. The Applicant is seeking a COSA from the Department for Residential Subdivision #2 at the Quarry. This Environmental Assessment (EA) has been prepared as required by the Montana Environmental Policy Act (MEPA) to disclose potential impacts from a state action granting the COSA approval for the Project.

The applicant's purpose and need, as expressed to DEQ in seeking this action, is to obtain approval for the construction of approximately 600 linear feet of water main extension for the purpose of connection of the residential living units to the public water supply, and to receive approval for the construction of the 4 public wastewater collection, and treatment systems for the purpose of providing sewer service to the proposed residential units. The two public facilties approvals will be provided concurrently with the issuance of the Certificate of Subdivision approval (COSA) for the use of the project area for residential living units.

Figure 1. General Location of the Proposed Project

Preliminary Plat of

Residential Subdivision #2 at The Quarry, P.U.D.

TRACT 2 OF COS 2450
(TOTAL ACREAGE 175.11)
LOCATED IN THE NORTHEAST ¼ OF SECTION 5, T7S, R4E, P.M.M., GALLATIN COUNTY, MONTANA

FOR: BIG SKY ROCK, LLC
P.O. BOX 160730
BIG SKY, MT 59716-0730

PURPOSE: TO CREATE 4 CONDOMINIUM LOTS
2 OPENSPACE LOTS & 2 OUTLOTS

AREA SUMMARY

THE QUARRY PART #2

4 RESIDENTIAL CONDO LOTS	=	7.1 ACRES
RIGHT OF WAY PARCELS	=	0.4 ACRES
OPENSPACE PARCEL - 1	=	27.3 ACRES
OPENSPACE PARCEL - 5	=	2.2 ACRES
OUTLOT 2A	=	104.1 ACRES
OUTLOT 2B	=	34.0 ACRES
TOTAL AREA	=	175.1 ACRES

*PERCENTAGE OF OPEN SPACE = 29.5/37.5 = 78.7%

TOTAL NUMBER OF CONDOMINIUM UNITS
PART 2 = 45 UNITS

GRAPHIC SCALE
(IN FEET)
1 inch = 100 ft.
11"x17": 1"= 200 ft

CERTIFICATE OF DEDICATION

I, the undersigned property owner(s), do hereby certify that I have caused to be surveyed, subdivided and platted into lots, parcels, blocks, roads and alleys, and other divisions and dedications, as shown by this plat hereunto included, the following described tract of land, to wit:

LEGAL DESCRIPTION: A tract of land described as Tract 2 of COS 2450, located in the NE1/4 of Section 5, Township 7 South, Range 4 East, P.M.M. Gallatin County, Montana. Said tract contains 175.11 acres, more or less and subject to all easements of record or apparent on the ground.

The above described tract of land is to be known and designated as Residential Subdivision #2 at The Quarry, Gallatin County, Montana; and the lands included in all roads, avenues, alleys, and parks or public squares shown on said plat are hereby granted and donated to the use of the public forever. The roadways dedicated to the public are accepted for public use, but the County accepts no responsibility for maintaining the same. The owner(s) agree(s) that the County has no obligation to maintain the roads hereby dedicated to public use.

CERTIFICATE OF WAIVER

We, the undersigned property owners of the Residential Subdivision #2 at The Quarry P.U.D., hereby waive the right to protest creation of Rural Improvement Districts. In doing so, we do not waive any right to comment, and or appeal any assessment formula which may be proposed if we believe it to be inequitable. This waiver shall be binding upon the heirs, assigns, and purchasers of all lots within this subdivision for 20 years after the date that the final subdivision plat is filed with the County Clerk and Recorder.

GRANT OF EASEMENTS

The undersigned hereby grants unto each and every person, firm, or corporation, whether public or private, providing or offering to provide telephone, telegraph, electric power, gas, cable, television, water, or sewer service to the public, the right to the joint use of an easement for the construction, maintenance, repair, and removal of their line and other facilities in, over, under, and across each area designated on this plat as "Public Utility Easement or P.U.E." to have and to hold forever.

OPEN SPACE SANITATION REVIEW EXEMPTION

The open space parcels are exempt from Sanitation Act review pursuant to ARM 17.36.605(2)(a) since these openspace parcels are "a parcel that has no facilities for water supply, wastewater disposal, storm drainage, or solid waste disposal. If no facilities will be constructed on the parcel". No facilities other than those previously approved exist or will be constructed on the open space parcels and the division of land will not cause approved facilities to deviate from the conditions of approval, in violation of 76-4-130, MCA.

DATED this _____ day of _____, A.D. 2024

_____
Big Sky Rock, LLC. Owner

STATE OF MONTANA)
: S.S.
COUNTY OF GALLATIN)

This instrument was signed or acknowledged before me on this
_____ day of _____, 2024 by _____

_____
signature
Notary Public for the State of _____
Residing at _____
My Commission Expires _____

CERTIFICATE OF SURVEYOR

I, the undersigned, Thomas M. Hensen, Registered Land Surveyor, do hereby certify that between_____ and _____ this survey was made under my direct supervision, and described the same as shown on the accompanying plat and platted in accordance with the provisions of the Montana Subdivision and Platting Act, Sections 76-3-101 through 76-3-625, and the Gallatin County Subdivision Regulations.

Dated this_____day of_____, 2024

_____
Thomas M. Hensen PLS #10092 LS
Big Sky Land Consulting, Inc.

CERTIFICATE OF COMPLETION OF IMPROVEMENTS

I, Big Sky Rock, LLC, subdivider, and I, Chris Waks, a registered professional engineer licensed to practice in the State of Montana, hereby certify that the public improvements required as a condition of approval of the Residential Subdivision #2 at The Quarry, P.U.D. have been installed in conformance with the approved engineering specifications and plans.

_____ _____
Subdivider Date

_____ _____
Professional Engineer Date
Registration No. 10859 PE

GENERAL NOTES

1. All lot accesses shall be built off of interior roads according to the approved PUD & standards laid out in Gallatin County Transportation Design & Construction Standards.

2. A 10 foot public utility easement is provided along the right of way of the interior roads.

3. The subdivision is within the Gallatin Canyon/Big Sky Zoning District and The Quarry Planned Unit Development (P.U.D.).

4. In conformance with the approved Quarry PUD Site Plan, portions of OutLot 2A & 2B can be used for open space, residential, and commercial with residential – multi-family on second and subsequent stories.

CERTIFICATE OF COUNTY TREASURER

I, MAUREEN HORTON, Treasurer of Gallatin County, Montana, do hereby certify that the accompanying plat has been duly examined and that all real property taxes and special assessments assessed and levied on the lands to be subdivided have been paid.

Assessor code: 00RLF19142

Dated this_____day of_____, 2024

_____
MAUREEN HORTON
County Treasurer
Gallatin County, Montana

CERTIFICATE OF COUNTY COMMISSIONERS

I, Chairman of the Board of County Commissioners, do hereby certify that the accompanying plat has been duly examined and have found the same to conform to the law, approve it, and hereby accept the dedication to public use.

Dated this_____day of_____, 2024

_____
Chairman, Board of Commissioners
Gallatin County, Montana

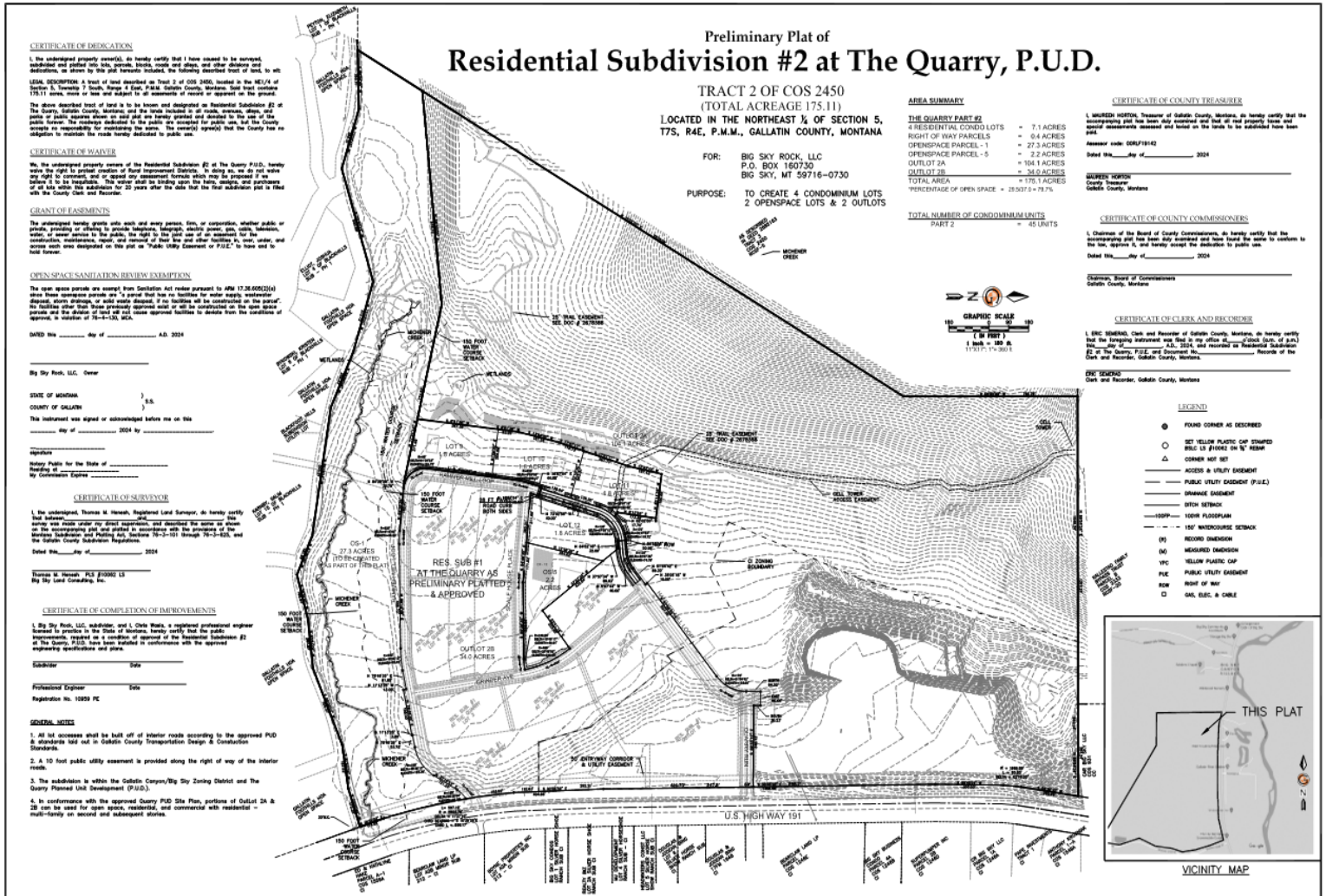
CERTIFICATE OF CLERK AND RECORDER

I, ERIC SEMERAD, Clerk and Recorder of Gallatin County, Montana, do hereby certify that the foregoing instrument was filed in my office at_____o'clock (a.m. of p.m.) this_____day of_____, A.D., 2024, and recorded as Residential Subdivision #2 at The Quarry, P.U.E. and Document No._____, Records of the Clerk and Recorder, Gallatin County, Montana.

_____
ERIC SEMERAD
Clerk and Recorder, Gallatin County, Montana

LEGEND

- FOUND CORNER AS DESCRIBED
- SET YELLOW PLASTIC CAP STAMPED BSLC LS #10092 ON ½" REBAR
- CORNER NOT SET
- ACCESS & UTILITY EASEMENT
- PUBLIC UTILITY EASEMENT (P.U.E.)
- DRAINAGE EASEMENT
- DITCH SETBACK
- 100FP 100YR FLOODPLAIN
- 150' WATERCOURSE SETBACK
- (R) RECORD DIMENSION
- (M) MEASURED DIMENSION
- YPC YELLOW PLASTIC CAP
- PUE PUBLIC UTILITY EASEMENT
- ROW RIGHT OF WAY
- GAS, ELEC. & CABLE



VICINITY MAP

VERIFY SCALE
THESE PRINTS MAY BE REDUCED. USE SCALE ON ORIGINAL DRAWING
1" = 1'
MODIFY SCALE ACCORDINGLY

BASIS OF BEARING
BEARINGS ARE GRID, COLLECTED WITH SURVEY-GRADE RECEIVERS AND REFERENCED TO THE MONTANA COORDINATE SYSTEM, NAD83(1999)
CONVERGENCE ANGLE = -1°19'12"

BIG SKY LAND CONSULTING, INC
5530 BURNT RD, BELGRADE, MT 59714

GENESIS ENGINEERING, INC
Engineering Consulting Design Planning
204 N. 11th Ave. Bozeman, MT 59715
Phone: (406) 581-3319
"The Beginning of a New Standard of Commitment"
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DRAWN BY: CMW
CHK'D. BY: TMH
APPR. BY:
DATE: 6/3/2024
G.A. REVIEW
BY:
DATE:

BIG SKY MT
RESIDENTIAL SUBDIVISION #2 AT THE QUARRY P.U.D.
DRAFT PRELIMINARY PLAT

PROJECT NUMBER 1132.002.040
SHEET NUMBER 1 OF 2
DRAWING NUMBER P-PLAT-P2-1

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OTHER GOVERNMENTAL AGENCIES AND PROGRAMS WITH JURISDICTION

The proposed action would be located on private land. All applicable local, state, and federal rules must be adhered to, which may also include other local, state, federal, or tribal agency jurisdiction. Other governmental agencies which may have overlapped, or additional jurisdiction include but may not be limited to: Gallatin County Health Department, Gallatin County Platting and Planning Board, City of Gallatin Gateway.

EVALUATION OF AFFECTED ENVIRONMENT AND IMPACT BY RESOURCE

The impact analysis will identify and evaluate direct and secondary impacts TO THE PHYSICAL ENVIRONMENT AND HUMAN POPULATION IN THE AREA TO BE AFFECTED BY THE PROPOSED PROJECT. *Direct impacts* occur at the same time and place as the action that causes the impact. *Secondary impacts* are a further impact to the human environment that may be stimulated, induced by, or otherwise result from a direct impact of the action. (ARM 17.4.603(18)) Where impacts would occur, the impacts will be described in this analysis.

Cumulative impacts, as described by ARM 17.4.603 (7), are the collective impacts on the human environment within the borders of Montana of the Proposed Action when considered in conjunction with other past and present actions related to the Proposed Action by location and generic type. Related future actions must also be considered when these actions are under concurrent consideration by any state agency through pre-impact statement studies, separate impact statement evaluation, or permit processing procedures. The projects identified in Table 1 were analyzed as part of the cumulative impacts assessment for each resource.
The duration is quantified as follows:

- **Construction Impacts (short-term):** These are impacts to the environment during the construction period. When analyzing duration, please include a specific range of time.

- **Operation Impacts (long-term)**: These are impacts to the environment during the operational period. When analyzing duration, please include a specific range of time.

The intensity of the impacts is measured using the following:

- **No impact**: There would be no change from current conditions.

- **Negligible**: An adverse or beneficial effect would occur but would be at the lowest levels of detection.

- **Minor**: The effect would be noticeable but would be relatively small and would not affect the function or integrity of the resource.

- **Moderate**: The effect would be easily identifiable and would change the function or integrity of the resource.

- **Major**: The effect would alter the resource.

GEOLOGY AND SOIL QUALITY, STABILITY AND MOISTURE

This section includes the following resource areas, as required in ARM 17.4.609: Geology; Soil Quality, Stability, and Moisture

The soil type within the proposed projects analysis area is Philipsburg-Libeg complex which is loam, gravelly clay loam, loamy alluvium and gravelly sandy clay loam. (NRCS, Nov 2022)

Direct Impacts

Potential impacts to geology and soil during the construction phase include erosion and soil displacement. The applicant engaged Rawhide Engineering, Inc. (Rawhide) to conduct the preliminary geotechnical investigation for the property and conducted onsite investigations in August of 2018. Rawhide evaluated the subsurface conditions of the property for the proposed residential and commercial development contained within the PUD Site Plan. Rawhide performed 11 exploratory test

pits based on proposed development locations and reviewed additional information from test pits that were previously done on the property. Samples were taken from bulk samples from the test pits, and moisture content and soil classification tests were performed. These samples show that impacts to soil and geology would be short-term and minor during construction. As the proposed facilities would largely remain underground once operational, impacts to soil and geology would be negligible.

Secondary Impacts

Once constructed, drainfields may contribute to soil acidification and salinization. In areas with weak soils, excessive wastewater drainage may lead to subsidence. However, the soil reports generated by Rawhide Engineering display stable geology within the proposed analysis area. Therefore, secondary impacts to geology and soils are expected to be negligible.

Cumulative Impacts

After the initial construction, there may be minor cumulative impacts. Cumulative impacts of septic tanks and drainfields could include soil degradation from long-term exposure of wastewater, and habitat loss from contaminated soils can harm wildlife and reduce biodiversity. Factors that affect cumulative impacts include the density of septic systems in a given area, and soil type and how quickly it mitigates effluent to groundwater. With regular facility maintenance and ground water monitoring, such impacts would be largely mitigated.

WATER QUALITY, QUANTITY, AND DISTRIBUTION

Are any surface or groundwater resources present in the analysis area? Is there potential for violation of ambient water quality standards, drinking water maximum contaminant levels or degradation of water quality?

Area data indicates groundwater levels are around 30 to 60 feet below existing ground. The Proposed Action is located within an area that has a FEMA FIRM Map, and a recognized completed flood study for the Gallatin River. In addition, no part of the Proposed Action would be located within the Michener Creek Drainage. Therefore, a flood hazard evaluation is not warranted.

Direct Impacts

The Project is not proposed to be located in any wetlands (Montana Wetland and Riparian Framework Layer) and the Storm Water Pollution Prevention Plan (SWPPP) mitigations would minimize any sediment and erosion related impacts to surface water during construction.

A Wetland and Waterway Delineation Report was completed for the property by Power Engineers, Inc. on September 13, 2018, in accordance with the US Army Corps of Engineers (USACE) Wetlands Delineation Manual. The focus of the study was the approximate 126-acre development area for the property. A routine wetland survey was also completed for this same area. A total of two wetlands (1.32 acres) and one stream (0.39 acre, 2,978 linear feet) were identified and delineated within the development area. To buffer the impacts from the Project, the wetland and the riparian area of Michener Creek are contained within the 29.7 acre dedicated open space (O-S 1) and all infrastructure and improvements for the Project are located outside of the 150-foot setback as required by Section 6(A)(5)(a) of the USACE Regulations.

Secondary Impacts

The Applicant proposes a wastewater disposal system using SepticNet treatment systems as required in the Gallatin County Platting and Planning PUD approval. As a requirement of the Platting and Planning PUD approval, the Applicant will monitor the effluent at the end of pipe of each individual septic system for flow rate, Biochemical Oxygen Demand (BOD), Total Suspended Solids (TSS), Nitrate and Nitrite as N, Total Kjehdahl Nitrogen (TKN) as N, total Phosphorus, and Ammonia (as N) fecal coliform, specific conductance and temperature as part of the subdivision process, Applicant would submit a complete design submittal to MDEQ for review and approval.

Cumulative Impacts

Cumulative impacts to the site include minor increase in runoff from any impervious building or roadway,

which is mitigated by discharge to native vegetation or storm water management facilities (retention ponds, swales, and drainage ditches). Cumulative effects regarding nondegradation to groundwater and surface water are addressed in the Nondegradation Cumulative Impacts section below.

AIR QUALITY

Will pollutants or particulate be produced? Is the project influenced by air quality regulations or zones (Class I airshed)?

The Clean Air Act requires EPA to set National Ambient Air Quality Standards for pollutants. Primary standards protect the health of "sensitive" populations such as asthmatics, children, and the elderly. Secondary standards protect against decreased visibility and damage to animals, crops, vegetation, and buildings. This project is required to abide by the federal standards. This project may result in minimal fugitive dust. The operator would be expected to maintain compliance with Montana's Air Quality Act (Title 75, chapter 2, MCA) regarding the need to take reasonable precautions to control airborne particulate matter. DEQ would characterize the nearest Class I airshed to a Proposed Action upon receipt of an application.

Characterize the nearest Class I airshed(s)

Direct Impacts

During the project, construction and drilling activities such as stripping topsoil, leveling the site, and drilling operations may lead to short-term adverse impacts. These activities involve the use of diesel-powered equipment, which can result in the production and dispersion of dust particulates. This includes implementing BMPs to limit the impact of particulate matter. BMPs that may be used for mitigation involve minimizing the area of disturbance, applying water on access roads if necessary, and restricting unnecessary travel on access roads. Additionally, the applicant must remain in compliance with the Montana the Clean Air Act (Title 75, chapter 2, MCA) regarding the need to take reasonable precautions to control airborne particulate matter.

The installation of sewer mains, water mains and their associated connections may result in short-term adverse impacts. These activities involve the use of diesel-powered equipment, which can result in the production and dispersion of dust particulates.

Approximately 8 acres of temporary surface disturbance would occur during construction of the Project. The Montana Department of Environmental Quality requires construction sites with greater than 1 acre of disturbance to obtain a Storm Water Pollution Prevention Plan (SWPPP) permit, utilizing Best Management Practices (BMP) as defined in the general permit for stormwater discharges associated with construction activity permit number MTR100000. The Montana Department of Environmental Quality requires BMPs to be operated and maintained until the site has been 70% restored/revegetated to pre-construction conditions. The SWPPP and BMPs protect against erosion by slowing and minimizing surface flow during construction activities and by retaining sediment. The BMPs are described within the general permit MTR100000, (Appendix A for general permit template). The final SWPPP for the Quarry Phase II will be received closer to the time of construction, however, the SWPPP should be similar to the Quarry Phase I (SWPPP). The Quarry Phase I (SWPPP) has been included for reference MTR108839.During construction, the SWPPP and associated best management practices would minimize dust and soils tracking outside the proposed development area.

Secondary Impacts

Adverse secondary impacts to air quality are expected to be short-term and minor, as the impacts would only occur during the construction phase of the Proposed Action and the BMPs previously explained would be in effect.

Cumulative Impacts

No cumulative impacts to air quality are expected due to the completion of the Proposed Action.

VEGETATION COVER, QUANTITY, AND QUALITY

Will any vegetative communities be significantly impacted? Are any rare plants or cover types of present?

Vegetation across the site includes forest land (a mix of conifers), rangeland (sagebrush), and grassland.

Direct Impacts

If the Proposed Action were to occur, the vegetation would be impacted during the construction of the Proposed Action. The disturbance could be up to approximately 6.6 acres during construction and potentially less during operation. Direct impacts to rare vegetation or cover types are not likely to occur as such species have not been identified in the proposed disturbance area. Negative direct impacts to rare vegetation or cover types and the general vegetative community are not expected given the short-term disturbance and the use of reclamation once construction is completed.

Secondary Impacts

The Applicant intends to preserve steeper slopes and natural vegetation as a critical part of development. The Applicant states that new landscaping introduced as part of condominium development would include only native plant materials. Secondary impacts to vegetation are expected to be negligible.

Cumulative Impacts

The cumulative impacts like weed growth or permanent harm to vegetation due to the Proposed Action are expected to be minor and negligible.

TERRESTRIAL, AVIAN, AND AQUATIC LIFE AND HABITATS

This section includes the following resource areas, as required in ARM 17.4.609: Terrestrial and Aquatic Life and Habitats; Unique, Endangered, Fragile, or Limited Environmental Resources

Is there substantial use of the area by important wildlife, birds, or fish? Characterize wildlife in the area. *Are any federally listed threatened or endangered species or identified habitat present? Any wetlands? Species of special concern? Impacts related to the Montana Sage Grouse Executive Order?*

A Wildlife Study was completed by Power Engineers, Inc. and listed the wildlife species that may occupy the project area as, "generalist species that are habituated to human disturbance … chipmunks ... northern racoon, striped skunk and red fox." The Wildlife Study also identified certain migratory birds that may frequent developed areas such as northern chickadee, yellow warbler, and western meadowlark. Ungulate species that may occupy the project area include elk, bighorn sheep, moose and mule deer.

A review of the United States Fish and Wildlife Service Information for Planning Consultation report for the project area which included a one-mile buffer, identified Canada lynx, grizzly bear, and the North American wolverine as having potential to occur on and in the general vicinity of the property. The Wildlife Study found that the project area does not include critical habitat for the Canada lynx and that documented occurrences of species within the project area were not identified through the Montana Natural Heritage Program data search.

DEQ has verified that the Project is not within core, general, or connectivity sage grouse habitat.

Direct Impacts

The existing wildlife habitat has diminished value due to the existing use of the property as a gravel pit. By keeping developed lots closer to U.S. Hwy 191 and within existing developed areas, maintaining 105.44 acres of open space (protecting Michener Creek, its riparian corridor, and the ponded impoundment), and implementing additional avoidance and minimization measures, impacts to wildlife from the Proposed Action are anticipated to be minimal. Additional avoidance and minimization measures, as discussed by the

Montana Fish and Wildlife Parks, includes maintaining a generous buffer zone to the west as open space, with a winter closure to protect the elk winter range. Due to the proximity of the big horn sheep habitat, the development should prohibit the ownership of domestic sheep and goat within the development, including the 4H-Club. In addition, fences within the development should be limited, allowing passage of wildlife throughout the development, see letter in (Appendix C). A Wetland and Waterway Delineation Report was completed for the property by Power Engineers, Inc. on September 13, 2018, in accordance with the USACE Wetlands Delineation Manual. The focus of the study was the approximate 126-acre development area for the Property (Project Area). A routine wetland survey was completed for the Project Area. A total of two wetlands (1.32 acres) and one stream (0.39 acre, 2,978 linear feet) were identified and delineated within the Project Area. To buffer the impacts from the Project, the wetland and the riparian area of Michener Creek are contained within the

29.7 acre dedicated open space (O-S 1) and all infrastructure and improvements for the Project are located outside of the 150-foot setback as required by Section 6(A)(5)(a) of the USACE Regulations.

Secondary Impacts

Short-term and negligible impacts to terrestrial, avian, and aquatic life and habitats stimulated or induced by the direct impacts analyzed above would be expected. The construction phase would be a short-term disturbance and the disturbance area would be largely reclaimed at the surface with native vegetation. The Applicant also worked closely with the Montana Fish, Wildlife & Parks during the PUD process and adopted covenants to address the protection of wildlife.

Cumulative Impacts

The Proposed Action is in an area that has already undergone disturbance and development. No cumulative impacts to terrestrial, avian, and aquatic life and habitats stimulated or induced by the direct impacts analyzed above would be expected.

HISTORY, CULTURE, AND ARCHAEOLOGICAL UNIQUENESS

This section includes the following resource areas, as required in ARM 17.4.609: Historical and Archaeological Sites; Cultural Uniqueness and Diversity

The Applicant engaged Metcalf Archaeological Consultants, Inc. to complete the cultural resources inventory for the entirety of the property. The inventory resulted in documentation of three cultural resources, including a historic prospect pit, a historic earthen ditch, and a historic log cabin. However, none are recommended for eligibility for listing on the National Register of Historic Places, and no further archaeological work is recommended for the Project as defined at the time of the survey (and the defined project scope has not changed since the time of the survey).

Direct Impacts

The Proposed Action should not widely impact the cultural uniqueness of the proposed project disturbance area.

Secondary Impacts

No secondary impacts on historical and archaeological sites are expected from the Proposed Action.

Cumulative Impacts

No cumulative impacts on historical and archaeological sites are expected.

DEMANDS ON ENVIRONMENTAL RESOURCES OF LAND, WATER, AIR, OR ENERGY

Will the project use resources that are limited in the area? Are there other activities nearby that will affect the project? Are there other activities nearby that will affect the project?

No local or nearby activities should impact the Proposed Action. There may be some demand for energy.

Direct Impacts

The proposed subdivision will be connecting to a public water supply utility Lazy J Utility Association Public Water Supply MT0004432. Lazy J Utility Association has stated that sufficient capacity is available to provide water supply to this proposed residential facility. Any impacts to the aquifer were reviewed and approved under the groundwater source development review for Lazy J Utility Association Public Water Supply and by the DNRC for water right permits, (appendix B for Public Water Supply capacity letter). The Proposed Action may demand some energy for any pumping required for the drinking water and wastewater facilities.

Secondary Impacts

All utilities would be located underground. None of these resources are limited in the area, no other nearby activities would affect the Proposed Action, and no new or upgraded energy source would be needed.

Cumulative Impacts

No anticipated cumulative impacts on resources of Land, Water, Air, or Energy are expected. Cumulative effects regarding nondegradation to groundwater and surface water are addressed in the Nondegradation Cumulative Impacts section below.

HUMAN HEALTH AND SAFETY

Will this project add to health and safety risks in the area?

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

Direct Impacts

Water for the Proposed Action is supplied from the Lazy J Utility Association. Per the Platting and Planning PUD approval, the Applicant must monitor the effluent at the end of pipe of each public septic system line for flow rate, BOD, TSS, Nitrate and Nitrate as N, TKN as N, total Phosphorus, Ammonia (as N), Fecal coliform, specific conductance and temperature. In addition to the effluent monitoring requirements of the Platting and Planning PUD approval, the Department's COSA would require annual sampling in accordance with ARM 17.30.718(8)(b) for the life of the system for the following parameters: nitrate; nitrite, ammonia, TKN, BOD, TSS, fecal coliform, specific conductance and temperature.

Temporary fencing and barricades are used to protect the public from entering the construction area, and the use of trench boxes if excavating deeply prevents injury to workers. No direct risks to human health and safety are expected from the Proposed Action.

Secondary Impacts

In accordance with the Platting and Planning PUD approval, the Applicant must connect to the Gallatin Canyon Water & Sewer District once it is constructed. Connecting to the municipal facility limits pedestrian involvement with the Proposed Action. Impacts to human health and safety are expected to be negligible.

Cumulative Impacts

No cumulative impacts to human health and safety would be expected.

AESTHETICS

Will this project add or detract from existing views and aesthetics? Will there be any impacts to noise or lighting? Describe any aesthetics that may be altered due to the proposed actions.

Direct Impacts

The Project is proposed to be located on a prominent bluff above US 191. During construction, the visual impacts would be minimal and occur only during one construction season. During operation, the Project would not be visible as the majority of the Proposed Action is underground except for the stormwater ponds.

The stormwater ponds could have visual impacts, but impacts should be minimal to viewers. The Project visual impacts were determined using the Hillside and Ridgeline development regulations of the Gallatin Canyon/Big Sky Zoning Regulation. Local approval of the Quarry PUD required certain conditions be met to minimize any such impacts.

The Quarry PUD application addressed compliance with the Hillside and Ridgeline development regulations through Design Standards, Covenants and Landscape requirements. Compliance with the zoning and PUD documents would be assured by the Land Use Permit process.

Secondary Impacts

Some minor piping, such as a vent pipe, or an access hatch to an underground storage tank may be visible at the ground surface. Secondary impacts are expected to be long-term and negligible. The Quarry PUD application addressed compliance with the Hillside and Ridgeline development regulations through Design Standards, Covenants and Landscape requirements. Compliance with the zoning and PUD documents would be assured by the Land Use Permit process. Adherence to such compliance would result in limited secondary impacts to the aesthetics.

Cumulative Impacts

No cumulative impacts to area aesthetics would be expected from the Proposed Action.

SOCIOECONOMICS

This section includes the following resource areas, as required in ARM 17.4.609: Social Structures and Mores; Access to and Quality of Recreational and Wilderness Activities; Local and State Tax Base and Tax Revenues; Agricultural or Industrial Production; Quantity and Distribution of Employment; Distribution and Density of Population and Housing; Demands for Government Services; Industrial and Commercial Activity; Locally Adopted Environmental Plans and Goals; Other Appropriate Social and Economic Circumstances

The property does not contain active agricultural land. By developing a subdivision within non-agricultural land, the Project does not alter agricultural use on other lands within the Gallatin Canyon. Development of an existing industrial/commercial site potentially preserves other lands that are being used for agriculture. The Proposed Project is water mains, septic tanks, associated pipelines, drainfields, and stormwater ponds. These features do not create long term traffic or impact other governmental services. The Applicant engaged Metcalf Archaeology to conduct a cultural resource inventory report for the property and determined that there are no important historic sites or structures on the property.

Direct Impacts

The Proposed Action would be located on an existing industrial/commercial site whose conditional use permit expired in 2022. The Project would not significantly impact or alter activities on these already commercial areas. Permanent job creation or elimination is not expected, and new jobs created would likely be short term during construction. During operations, the Proposed Action could create one part-time job for monitoring and maintenance by a certified operator for the wastewater treatment system. Some increase in tax revenue could be expected. The Proposed Action is basic infrastructure and would be subject to taxes. The Proposed Action would provide a method for the safe disposal of effluent or stormwater. There would be no addition to population or housing for effluent disposal or stormwater handling.

Secondary Impacts

Secondary impacts are expected to be minor and long-term. Working facilities associated with a well may increase property values, possibly just the subject property or potentially surrounding properties, and in some cases may generate revenue from property taxes. Secondary impacts are expected to be minor and long-term.

Cumulative Impacts

No cumulative impacts to socioeconomics are anticipated.

PRIVATE PROPERTY IMPACTS

Are we regulating the use of private property under a regulatory statute adopted pursuant to the police power of the state? (Property management, grants of financial assistance, and the exercise of the power of eminent domain are not within this category). If not, no further analysis is required. Does the proposed regulatory action restrict the use of the regulated person's private property? If not, no further analysis is required. Does the agency have Legal discretion to impose or not impose the proposed restriction or discretion as to how the restriction will be imposed? If not, no further analysis is required. If so, the agency must determine if there are alternatives that would reduce, minimize or eliminate the restriction on the use of private property, and analyze such alternative.

The Proposed Action could take place on public land or private land owned by the applicant. DEQ's approval of drinking water and wastewater facilities construction would affect the applicant's real property. DEQ has determined, however, that the Proposed Action conditions are reasonably necessary to ensure compliance with applicable requirements under the Sanitation in Subdivisions Act and the Public Water Supplies, Distribution and Treatment laws. Therefore, DEQ's approval of the proposed facilities would not have private property-taking or damaging implications.

Montana's Private Property Assessment Act, Section 2-10-101, et seq., MCA establishes an orderly and consistent process that better enables state agencies to evaluate if a Proposed Actions has taking or damaging implications under the existing "Takings Clauses" of the United States and Montana Constitutions, as those clauses are interpreted and applied by the United States and Montana Supreme Courts.
Section 2-10-104, MCA required Montana's Attorney General to develop guidelines, including a checklist, to assist state agencies in identifying and evaluating proposed agency actions that may result in the taking or damaging of private property. In turn, Section 2-10-105(1) and (2), MCA set out a process for each State Agency to evaluate whether a State action may result in an unconstitutional taking of private property.

GREENHOUSE GAS ASSESSMENT

The analysis area for this resource is limited to the activities regulated by the issuance of public facilties approvals which is construction and operation of public water supply distribution system, and public wastewater treatment system. All construction equipment is for the construction of water main and water connections for the purpose of supplying drinking water, the construction equipment would be used for digging trenches, laying pipe, and all compaction necessary for the pipe installation. Also, the construction equipment would be for the construction of 4 public wastewater collection, and treatment systems including collection sewer mains, septic tanks, advanced treatment systems, dose tanks, force main and subsurface drainfields. Issuance of this permit would authorize use of various equipment and vehicles to construction the water main distribution system and wastewater collection and treatment systems necessary for the proposed residential units. This would involve the use of an excavator, backhoe, forklift, motor grader, asphalt pavers, road roller, compactors with approximately 1,178 hours of construction time. The amount of 164 Tons of CO_2 fuel utilized at this site. The amount of fuel utilized may be impacted by a number of factors including seasonal weather impediments and equipment malfunctions.

For the purpose of this analysis, DEQ has defined greenhouse gas emissions as the following gas species: carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and many species of fluorinated compounds. The range of fluorinated compounds includes numerous chemicals which are used in many household and industrial products. Other pollutants can have some properties that also are similar to those mentioned above, but the EPA has clearly identified the species above as the primary GHGs. Water vapor is also technically a greenhouse gas, but its properties are controlled by the temperature and pressure within the atmosphere, and it is not considered an anthropogenic species.

The combustion of diesel fuel at the site would release GHGs primarily being carbon dioxide (CO_2), nitrous oxide (N_2O) and much smaller concentrations of uncombusted fuel components including methane (CH_4) and other volatile organic compounds (VOCs).

DEQ has calculated GHG emissions using the EPA Simplified GHG Calculator version May 2023, for the purpose of totaling GHG emissions. This tool totals carbon dioxide (CO_2), nitrous oxide (N_2O), and methane (CH_4) and reports the total as CO_2 equivalent (CO_2e) in metric tons CO_2e. The calculations in this tool are widely accepted to represent reliable calculation approaches for developing a GHG inventory. DEQ has determined EPA's Scope 1 GHG impacts as defined in the Inventory Guidance for Greenhouse Gas Emissions are appropriate under MEPA for this Proposed Action. Scope 1 emissions are defined as direct GHG emissions that occur from sources that are controlled or owned by the organization (EPA Center for Corporate Climate Leadership). DEQ's review of Scope 1 emissions is consistent with the agency not evaluating downstream effects of other types of impacts.

This review does not include an assessment of GHG impacts in quantitative economic terms, otherwise known as evaluating the social cost of carbon. DEQ instead calculates potential GHG emissions and provides a narrative description of GHG impacts. This approach is consistent with Montana Supreme Court caselaw and the agency's discussion of other impacts in this EA. *See Belk v. Mont. DEQ*, 2022 MT 38, ¶ 29.

Operation of different types fueled vehicles throughout the life of the proposed project would produce exhaust fumes containing GHGs.

Secondary Impacts

GHG emissions contribute to changes in atmospheric radiative forcing, resulting in climate change impacts. GHGs act to contain solar energy loss by trapping longer wave radiation emitted from the Earth's surface and act as a positive radiative forcing component (BLM 2021).

Per EPA's website "Climate Change Indicators", the lifetime of carbon dioxide cannot be represented with a single value because the gas is not destroyed over time. The gas instead moves between air, ocean, and land mediums with atmospheric carbon dioxide remaining in the atmosphere for thousands of years, due in part to the very slow process by which carbon is transferred to ocean sediments. Methane remains in the atmosphere for approximately 12 years. Nitrous oxide has the potential to remain in the atmosphere for about 109 years (EPA, Climate Change Indictors). The impacts of climate change throughout the southwest region of Montana include changes in flooding and drought, rising temperatures, and the spread of invasive species (BLM 2021).

Cumulative Impacts

Montana recently used the EPA State Inventory Tool (SIT) to develop a greenhouse gas inventory in conjunction with preparation of a possible grant application for the Community Planning Reduction Grant (CPRG) program. This tool was developed by EPA to help states develop their own greenhouse gas inventories, and this relies upon data already collected by the federal government through various agencies. The inventory specifically deals with carbon dioxide, methane, and nitrous oxide and reports the total as CO_2e. The SIT consists of eleven Excel based modules with pre-populated data that can be used with default settings or in some cases, allows states to input their own data when the state believes their own data provides a higher level of quality and accuracy. Once each of the eleven modules is filled out, the data from each module is exported into a final "synthesis" module which summarizes all of the data into a single file. Within the synthesis file, several worksheets display the output data in a number of formats such as GHG emissions by sector and GHG emissions by type of greenhouse gas.

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

DEQ has determined that the use of the default data provides a reasonable representation of the GHG inventory for all of the state sectors, and an estimated total annual GHG inventory by year. At present, Montana accounts for 47.77 million metric tons of CO_2e based on the EPA SIT for the year 2021. This project may contribute up to 164 metric tons per year of CO2e. The estimated emission of 164 metric tons of CO2e from this project would contribute approximately 0.000000000034% off Montana's annual CO2e emissions.

GHG emissions that would be emitted as a result of the proposed activities would add to GHG emissions from other sources. The No Action Alternative would contribute less than the Proposed Action Alternative of GHG emissions. The current land use of the area is undeveloped.

NONDEGRADATION CUMULATIVE EFFECTS:

The entire Quarry project has previously obtained zoning, planning, and platting approvals for its Planned Unit Development from Gallatin County. As required by the Gallatin County PUD approval, which includes the future phases, the Applicant proposes using SepticNet technology to treat wastewater to the Montana groundwater nonsignificance criteria of 7.5 mg/L.

Any wastewater systems are more than [1/4 or 1/2] mile from surface water are not required to perform the adjacent to surface water trigger analysis under MCA 75-5-301 (5) e. In addition, ARM 17.30.715(4)e exempts the department from evaluating cumulative and synergistic impacts if the nonsignificance criteria are met. Review of each proposed primary drainfields and proposed replacement drainfield areas soil classification, distance to surface water, and limiting layers was completed to determine if degradation to the nearest surface water needed to be analyzed with a surface water Trigger Analysis. Trigger Analysis to the nearest surface water was not required.

Drainfield#	Soil Classification	Application Rate	Distance to Surface Water	Trigger Analysis
DF-9	Sandy Clay Loam	0.4	1320	Not Required
	Sandy Clay Loam	0.4	1320	Not Required
	Sandy Clay Loam	0.4	1320	Not Required
DF-10	Clay Loam	0.3	1320	Not Required
	Clay Loam	0.3	1320	Not Required
	Sandy Loam/Sandy Clay Loam	0.6/0.4	1320	Not Required
DF-11	Sandy Clay Loam	0.4	1320	Not Required
	Sandy Loam	0.6	2640	Not Required
	Sandy Loam	0.6	2640	Not Required
	Sandy Clay Loam	0.4	1320	Not Required
DF-12	Sandy Clay Loam	0.4	1320	Not Required
	Sandy Clay Loam	0.4	1320	Not Required
	Clay Loam	0.3	1320	Not Required

Replacement Drainfields #	Soil Classification	Application Rate	Distance to Surface Water	Trigger Analysis
RA-9.1	Sany Clay Loam or Sandy Loam	0.4/0.6	1320	Not Required
RA-9-2	Sany Clay Loam or Sandy Loam	0.4/0.6	1320	Not Required
RA-10	Sandy Clay Loam	0.4	1320	Not Required
	Sandy Clay Loam	0.4	1320	Not Required
	Sandy Clay Loam/Sandy Clay	0.4/0.2	1320	Not Required
	Clay Loam/Sandy Clay Loam	0.3/0.4	1320	Not Required
	Clay Loam/Sandy Clay Loam	0.3/0.4	1320	Not Required
RA-11.1	Sandy Loam/Sandy Clay Loam	0.6/0.4	1320	Not Required
	Sandy Clay Loam/Sandy Clay Loam	0.4	1320	Not Required
RA-11.2	Sandy Loam	0.6	2640	Not Required
	Sandy Loam	0.6	2640	Not Required
RA-11.3	Silt Loam/Sandy Clay Loam/Sandy Loam/Silt Loam/Sandy Clay	0.4/0.4/0.6/0.4/0.2	1320	Not Required
RA-11.4	Silt Loam/Gravelly Silty Clay Loam	0.4/0.3	1320	Not Required
RA-11.5	Gravelling Silt/Gravelly Clay Loam	0.15/0.3	1320	Not Required
RA-12	Sandy Loam/Sandy Clay Loam	0.6/0.4	1320	Not Required
	Clay Loam/Sandy Loam	0.3/0.6	1320	Not Required
	Clay Loam/Sandy Clay Loam	0.3/0.4	1320	Not Required

The trigger analysis was not required for the proposed primary or replacement drainfield areas. The review of phosphorous impacts to surface water showed that based on the soil types and depth to groundwater, the wastewater discharges met the nondegradation requirement (ARM 17.30.715(1)(e)) that the soils have at least 50 years of adsorptive capacity between the discharge location and nearest receiving high-quality surface water.

However, regardless of the statutory limitations, the wastewater contributions from all phases were considered at the PUD public hearing before Gallatin County. That information showed a net computed nitrate change in the Gallatin River—when considering the trigger analysis by assuming all the treated effluent from the entire PUD entered the Gallatin River—was nonsignificant. Accordingly, the Department does not anticipate significant cumulative nitrate impacts from future phases of the subdivision.

The Department notes, however, that there are no applications for future phases pending before the Department, and no future phases can occur without review and approval by the Department for the facilities for water, wastewater, and stormwater. To obtain such approvals in the future, the Applicant will have to comply with all applicable statutory and regulatory requirements.

With regard to consideration of the cumulative impacts in groundwater for purposes of the Department's nonsignificance determination under the Water Quality Act, discharges from a septic system using Level 2 treatment with a nitrate concentration of 7.5 mg/L at the end of a mixing zone are nonsignificant under MCA 75-5-301(5)(d).The SepticNet treatment system proposed for the subdivision has been approved by the Department as a Level 2 treatment system that discharges a nitrate concentration at or below 7.5 mg/L. With the discharge concentration of the proposed wastewater systems at or below the significance limit, an evaluation of the cumulative impacts of the SepticNet systems to nitrate

concentrations in groundwater could not mathematically exceed the concentration identified as significant degradation. That water is hydrologically connected does not necessarily mean that a discharge will cause degradation, as pollutants will diffuse, dilute, and attenuate as they travel through groundwater.

The DEQ has received a MGWPC permit application that proposes to collect sewage from the Quarry and other places along the Gallatin Canyon. The collected sewage will be sent to Big Sky wastewater treatment system for treatment and then the treated sewage will be returned to the Quarry wastewater treatment facilities and other drainfields. The treated effluent is proposed to be treated to Class A-1 standards of 5.0 mg/l nitrogen further decreasing potential impacts to ground or surface water quality.

DESCRIPTION OF ALTERNATIVES

No Action Alternative: In addition to the proposed action, DEQ must also considered a "no action" alternative. The "no action" alternative would deny the approval of the proposed water main distribution system and 4 public wastewater collection and treatment systems. The applicant would lack the authority to conduct the proposed activity. Any potential impacts that would result from the proposed action would not occur. The no action alternative forms the baseline from which the impacts of the proposed action can be measured.

If the applicant demonstrates compliance with all applicable rules and regulations required for approval, the “no action” alternative would not be appropriate.

Other Reasonable Alternative(s): The preferred action is to approve the COSA as submitted by the Applicant. This action is preferred because the COSA approval provides a regulatory mechanism for protecting water quality by analyzing the project against the nonsignificance criteria in 75-5-301, MCA.

This action is consistent with ongoing efforts by the Department, Gallatin County, and local watershed groups to reduce nonpoint source nitrogen loads in the Big Sky area. These strategies are summarized in the Big Sky Nutrient Assessment (WGM, 2020). This document identifies four recommended mitigation actions to support surface water quality in the Gallatin River:

Mitigation 1: Promote centralized treatment in the Canyon Area, reducing current load and the impact of future developments in the Canyon.
Mitigation 2: Advocate for on-site system maintenance
Mitigation 3: Advocate for Level II treatment in new construction.
Mitigation 4: Fund effluent testing and system support for permitted systems to promote good maintenance, especially for community scale systems.

The Department’s action to provide this authorization is consistent with these recommended mitigations. Additionally, while there is no total maximum daily load (TMDL) document for the Gallatin River south of Gallatin Gateway, the Department’s action is consistent with its recommendations for nonpoint source reductions in other watersheds that have nutrient-impaired streams (e.g., the lower Gallatin River watershed and the Lake Helena watershed).

CONSULTATION

DEQ engaged in internal and external efforts to identify substantive issues and/or concerns related to the proposed project. Internal scoping consisted of internal review of the environmental assessment document by DEQ staff and information sourced by the Applicant. All reference material sourced from the Applicant is documented below in References.

PUBLIC INVOLVEMENT

Based on the size of the project and the potential impacts identified in the draft EA, DEQ determined that a public comment period of 30 days was appropriate. DEQ received a request to extend the comment period for 15 days, which DEQ agreed to. DEQ received one comment that the agency should hold a public hearing. Given the straightforward nature of the proposed action and the thoroughness of written comments received, DEQ determined that the extended comment period was appropriate for soliciting public comments on the draft EA.

SIGNIFICANCE OF POTENTIAL IMPACTS AND NEED FOR FURTHER ANALYSIS

When determining whether the preparation of an environmental impact statement is needed, DEQ is required to consider the seven significance criteria set forth in ARM 17.4.608, which are as follows:

- The severity, duration, geographic extent, and frequency of the occurrence of the impact;
- The probability that the impact will occur if the proposed action occurs; or conversely, reasonable assurance in keeping with the potential severity of an impact that the impact will not occur;
- Growth-inducing or growth-inhibiting aspects of the impact, including the relationship or contribution of the impact to cumulative impacts – identify the parameters of the proposed action;
- The quantity and quality of each environmental resource or value that would be affected, including the uniqueness and fragility of those resources and values;
- The importance to the state and to society of each environmental resource or value that would be affected;
- Any precedent that would be set as a result of an impact of the proposed action that would commit the department to future actions with significant impacts or a decision in principle about such future actions; and
- Potential conflict with local, state, or federal laws, requirements, or formal plans.

CONCLUSIONS AND FINDINGS

The Project consists of water, sewer, and stormwater facilities on approximately 37.01 acres within a 168.1-acre plat. Two lots within the plat, totaling 138.1 acres, are exempt from review under the Sanitation in Subdivision Act (76-4, MCA), as each is greater than 20-acres (Lot 2A is 104.1-acres and Lot OS-1 is 27.3 acres). The full 175.11-acre subdivision was previously approved through Gallatin County's PUD process. Runoff from the site would be regulated by the conditions of the COSA and would be managed accordingly.

The Department has determined that the groundwater discharge from the proposed wastewater treatment system would result in nonsignificant changes in water quality, in accordance with 75-5-301 (5)(d), Montana Code Annotated. The Department has therefore determined that there are no significant adverse impacts to the physical or human environment associated with the Project.

Impacts were assessed with the assumption that the facility will comply with the terms and conditions of the approval. Violations of the approval could lead to significant adverse impacts to state waters.
Violations of the approval would not be an effect of the agency action since the authorization itself forbids such activities. If violations of the approval do occur, the Department will take appropriate action under State Laws.

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COMMENT SUMMARY AND RESPONSES TO SUBSTANTIVE COMMENTS

Comment 1: DEQ received several comments that opposed the Quarry project and urged the agency to not approve the application. These commenters stated, for example, that they were tired of allowing builders to just put up housing developments; that the area had grown at breakneck speed and that any continuation of it was untenable; that the river should be managed for those who work and live in Gallatin County, rather than rich developers and multimillionaires who plan on gentrifying the area; that such development rendered Montana a dumpy, plastered-over amusement park in the playground of the rich and privileged; that Lone Mountain Land/Cross Harbor Capital has taken over Big Sky and are all about profits and leverage; that Big Sky is struggling to manage growth in a responsible manner; that DEQ functions as the lapdog of developers; that taxes pay for DEQ and that the agency should not cater to developers; and that explicit growth boundaries should be set.

Response 1: DEQ has no land use planning or zoning authority. The Montana legislature has provided this authority to county governments, which implement the Platting Act (Title 76, Chapter 3, MCA) and the Montana Land Use Planning Act (Title 76, Chapter 25). DEQ cannot withhold approval to an application that complies with relevant requirements. ARM 17.36.110.

DEQ's Water Quality Planning Bureau is currently in the midst of a multi-year monitoring project on this segment of the Gallatin River to further refine probable causes of the algal growth. This project will result in the development of TMDLs, but this portion of the project has not begun, and no TMDLs exist for this segment of the Gallatin River. Once the monitoring phase of this project is complete, DEQ will reassess this segment of the river and update the impairment listings

Comment 2: DEQ received several comments that DEQ should deny the Quarry application until the proposed centralized system for the Gallatin Canyon was completed.

Response 2: An approval by DEQ does not supersede requirements imposed by local planning authorities. In this case, Gallatin County has required, as a condition of its local approval, that the Quarry subdivision connect to the centralized Gallatin Canyon project once the project is complete. Moreover, DEQ is aware that the Gallatin Canyon Sewer District intends to use the Quarry drainfields as one of their outfalls. Rather than having the potential to undermine the centralized sewer system, the Quarry development is a planned component of that system. Until the system is completed, however, the proposed SepticNet systems are permissible under state law, and DEQ cannot withhold approval to an application that complies with relevant requirements. ARM 17.36.110.

Comment 3: DEQ received comments that the agency should have required a groundwater discharge permit for the project. These comments stated that the permit exclusion in ARM 17.30.1022(1)(d) is unscientific and arbitrary, that DEQ segmented the analysis to avoid requiring a discharge permit, and that the failure to require a permit was likely to cause or contribute to degradation, will cause significant adverse impacts, and would evade the review and scrutiny required when obtaining a discharge permit.

Response 3: Under ARM 17.30.1022(1)(d), systems reviewed and approved after March 1, 2024 (such as the systems under review here) are subject to discharging permitting requirements if they discharge more than one pound of total nitrogen per day. The scientific basis for the rule revision is set forth in the rulemaking record in MAR 17-433.

When determining the 1 lb. permit exemption found in ARM 17.30.1022, DEQ looks at the total proposed flow and the nitrogen concentration. Taken together, this equates to the total nitrogen load. The total proposed flow for this project – 3,000 gpd + 2,750 gpd + 2,750 gpd + 2,750 gpd = 11,250 gpd at a concentration of 7.5 mg/l using advanced treatment (Septic Net) equals .705 lbs. of nitrogen per day, which less than 1 lb./day permit exemption. All four drainfields, considered together, were less than the permit threshold.

While DEQ determined that the proposed systems were not required to obtain a discharge permit under ARM 17.30.1022, DEQ does not believe that a discharge permit would be more protective than the review conducted here. As a Gallatin County requirement of the platting and planning approval, the applicant will monitor the effluent at the end of pipe of each individual septic system for flow rate, biochemical oxygen demand (BOD), total suspended solids (TSS), nitrate and nitrite as N, total Kjehdahl nitrogen (TKN) as N, total phosphorus, ammonia (as N), fecal coliform, specific conductance and temperature. DEQ notes that in this case the only difference under a permit scenario would be explicit surface water trigger analysis and periodic groundwater monitoring in addition to the effluent sampling that Gallatin County required. A surface water trigger analysis has already been done for all phases of the Quarry and included in the Phase 1 nondegradation review. Furthermore, a water quality based effluent limit assigned to a hypothetical Quarry Phase 2 MGWPCS permit would likely be higher than the anticipated SepticNet effluent concentration due to the large volume of high-quality groundwater available for mixing.

Comment 4: DEQ received comments regarding geology, groundwater flow, and hydrologic connectivity. These comments stated that the geology underneath the Quarry Phase 2 suggests that local groundwater is shallow (4’-10’); that sediments beneath the Quarry are highly permeable alluvium with a strong potential to quickly transport groundwater; that WGM’s ArcNLET model overestimates the groundwater and nitrogen travel time; that the Phase 2 project located just 1,200 feet from the Gallatin River, and any groundwater receiving new wastewater discharges would flow from the subdivision to the Gallatin River in approximately 23 days; and that the unconsolidated deposits in the area have groundwater that is unconfined and hydrologically connected to the river.

Response 4: Groundwater in the shallow alluvial aquifer, on the valley floor near the Gallatin River, is found at depths of 4-10 feet. WGM (2023) summarizes some test pits, and the only test pits that showed any groundwater were five test pits immediately west of Highway 191. The nearest Quarry Phase 2 drainfield to those west test pits is approximately 400 feet uphill. The other test pits nearer to the drainfields are reported to be dry in the WGM report. The commenter is referred to Burkholder (p. 18), which summarizes publicly available information on depths to groundwater as follows: "The groundwater is relatively shallow, about

40-42 feet below grade under the proposed mixing zone (Hackett et al. 1960). The last ~200 feet of distance to the river would consist of generally shallow and unconfined alluvial aquifers (Baldwin 1997, Gallatin Local Water Quality District [GLWQD] 2016, Waren et al. 2021, WGM Group 2023). The minimal depth to groundwater in the valley floodplain is about 5-10 feet (GLWQD 2016, WGM Group 2023), characteristic in the valley immediately adjacent to the river." The commenter does not provide or cite any data that show groundwater beneath the Quarry Phase 2 site is shallower than 40 feet.

Furthermore, alluvium is not present below the Quarry site. The most recent geologic mapping by Vuke (2013) maps the site as Qgo, or glacial outwash. This is deposited on top of colluvial material (unconsolidated sediments transported by downslope gravitational movement). As noted by Burkholder (p. 18), the alluvium is limited to the valley floor, within 200 feet of the river.

With regard to the commenter's statement that WGM's ArcNLET model overestimates the groundwater and nitrogen travel time, DEQ notes that it did not rely on WGM's ArcNLET model for this EA or the Quarry Phase 2 nonsignificance determination. However, DEQ disagrees with this analysis of WGM's ArcNLET model. The commenter states that due to hydraulic conductivity underestimation and hypothesized preferential flow paths, the travel time can be reduced to as short as few days. No evidence for those claims is provided. The claim that hydraulic conductivities are underestimated in ArcNLET is unsupported for the non-alluvium aquifers. The "underestimated" hydraulic conductivities are admittedly lower than the high hydraulic conductivities measured in the alluvium next to the Gallatin River, which is not applicable to the proposed Quarry Phase 2 site. The high hydraulic conductivities from Rose (2022) are from two wells adjacent to the Gallatin River drilled in the alluvial aquifer, which is likely the area of highest hydraulic conductivity in the valley. Therefore, this broad statement of "rapid transport rates" only applies immediately adjacent to the river.

With regard to hydraulic conductivity, the hydraulic conductivities from Rose (2022) are from two wells adjacent the Gallatin River that are in the alluvial aquifer which is likely the area of highest hydraulic conductivity in the valley. Therefore, this vague analysis of "rapid transport rates" only applies immediately adjacent to the river. The drainfield closest to the Gallatin River is more than 2,200 feet upgradient of the river in the direction of groundwater flow. The other drainfields are 2,900-3,200 feet upgradient of the Gallatin River. As discussed previously the geology at the drainfields is different than the alluvial next to the Gallatin and travel rates are very likely slower than in the alluvium. The drainfields are not in locations with shallow ground water. The groundwater data collected on and near the site shows the depth to groundwater below the drainfields is a minimum of 30 feet. The hydrogeologic conditions in the vicinity of the tracer tests and the vicinity of the Quarry Phase 2 are not that similar. The tracer test was in the alluvial bottom; Quarry is situated on the colluvial apron, on deposits mapped as glacial outwash. The data provided from the tracer study, the West Fork data, tells us very little about the migration rates of wastewater from the Quarry until the wastewater travels at least 2,000 feet and is in the alluvial aquifer near the Gallatin River. The Burkholder report estimates the alluvium only extends about 200 feet from the Gallatin River. The discharges of 7.5 mg/l from

the drainfield locations for the Quarry II will receive additional treatment within the soils prior to reaching the Gallatin River. The travel time needs to include the vertical and horizontal times for the entire 2,200-foot distance to the Gallatin River. While DEQ agrees that the shallow alluvial aquifer that frames and underlies the Gallatin River is hydrologically connected to the river, the alluvial aquifer is not the receiving water, nor do the descriptions of the shallow alluvial aquifer match the geologic unit underlying the proposed Quarry Phase 2 drainfields. As Burkholder notes, the shallow alluvial aquifer is limited to within 200 feet of the Gallatin River. The Quarry drainfields are located over 1,000 feet distant from the alluvial aquifer (2,200 feet in the direction of groundwater flow) and discharge to soils and sediments that are hydrogeologically distinct from the shallow alluvial aquifer.

Finally, DEQ does not agree with the commenter's characterization of groundwater travel time from the Quarry site to the Gallatin River. DEQ is aware that, in 2019, the developer's engineer provided calculations to Gallatin County suggesting that groundwater time of travel to the Gallatin River could be as fast as three weeks. The calculations were based on conservative assumptions that produced a conservative estimate of a faster travel time. The 2019 estimate used a hydraulic conductivity value of 515 feet per day. This is considerably higher than the hydraulic conductivities that the MBMG recently calculated from testing two wells in the shallow alluvial aquifer (discussed in the Coshow Environmental Inc., report). The values MBMG calculated from those wells are 359 and 385 feet per day. DEQ notes that MBMG obtained these results from the coarse sand and gravel alluvial aquifer next to the river. This is not representative of the tighter glacial outwash and colluvial material underlying the proposed Quarry Phase 2 drainfields. Hydraulic conductivity of this material will be much lower than 359 feet per day and will result in a longer travel time estimate. The 2019 estimate used a travel distance of 1,320 feet (1/4 mile), but the proposed drainfields locations have been adjusted since 2019. The distance to the river from the nearest drainfield is now no less than 2,200 feet, or 66% farther. The other drainfields are 2,900-3,200 feet from the Gallatin River in the direction of groundwater flow. Finally, the calculation used a constant hydraulic gradient of 0.022 ft/ft for the whole distance, but the gradient almost certainly flattens out considerably as it nears to the Gallatin River. Therefore, a travel time of three weeks is unrealistically low.

Comment 5: Level 2 septic leachate, which would characterize the septic leachate from the proposed Quarry project, initially contains up to 24 mg/L total nitrogen. The septic systems would be allowed to discharge up to 132,500 gallons of effluent per day, or 501,567 liters per day; 501,567 liters per day x 24 mg/L = 3,180,000 mg (7.0 pounds) total nitrogen per day. Subjecting the Quarry Phase 2 to MGWPCS permitting requirements and limiting the discharge to one-pound total nitrogen means that up to 453,600,000 µg/day in 501,567 liters/day, with a concentration of 0.9 mg/L or 900 µg/L, would be allowed to enter the middle Gallatin River. While that would be an improvement over 7.5 mg/L, it would still be 22 times higher than the concentration of 40 µg nitrate required to drive down the nuisance Cladophora blooms. It would also be nearly an order of magnitude (9 times) higher than what MDEQ suggests as elevated nitrate concentrations (> 100 µg nitrate). There clearly was no scientific basis for this exemption, and no consideration about the severity of impacts that would occur to sensitive receiving surface waters.

Response 5: The commenter's calculation of a concentration of 0.9 mg/L is based on two errors. First, the commenter assumed that if the Quarry Phase 2 was required to have an MGWPCS permit the aggregate discharge would contain one pound of nitrogen per day. Second, the commenter misstates the Quarry Phase 2 discharge volume and concentration. The commenter mistakenly ascribes the design flow per lot to every unit on the lot. This causes the commenter to overstate the Quarry Phase 2 wastewater flow by an order of magnitude. The total proposed maximum wastewater flow is 11,500 gallons per day, not 132,500 per day. The commenter's calculation is inaccurate. The commenter states that a discharge of 132,500 gallons per day with a nitrogen concentration of 24 mg/L equates to 3,180,000 mg/day (7.01 pounds). This is incorrect; it would equal 12,037,608 mg/day (26.54 pounds). Furthermore, the commenter's calculations are based on 24 mg/L total nitrogen, while the proposed systems would only discharge at 7.5 mg/L total nitrogen. That would equate to 326,428 milligrams or 0.72 pounds per day, not the 7.0 pounds calculated by the commenter. Third, the proposed systems would not discharge to the Gallatin River, but to groundwater beneath the drainfields. The commenter also wrongly concludes that a discharge nitrate concentrations of 7.5 mg/L or 0.9 mg/L would be expressed in the Gallatin River, 2,200-3,200 feet distant. See Responses 4 and 10 for further discussion of this point. This is an impossible scenario, however DEQ considers it in the context of potential surface water impacts as a theoretical upper limit. In 2019, the Quarry developer's consultant did perform a surface water trigger value analysis for the full Quarry development (all four phases). That calculation used a design flow of 62,500 gallons per day, a discharge concentration of 7.5 mg/L, and a critical low flow (14Q5) of 156 cubic feet per second in the Gallatin River. Assuming no nitrogen attenuation, the calculation resulted in an instream nitrogen increase of 0.0046095 mg/L. This is less than half the trigger value (0.01 mg/L) in DEQ-7.

Finally, DEQ disagrees with the claim that an instream concentration of 0.04 mg/L total nitrogen is required to see reduction in Cladophora growth. This claim cites an over 20-year-old EPA guidance document that provided a recommended starting point of 0.04 mg/L total nitrogen for states and tribes in the Western US to consider as the basis for a numeric criterion. As recommended in this document (US EPA, 2000), DEQ used extensive local data to develop a numeric criterion more appropriate for Montana conditions: 0.3 mg/L total nitrogen. DEQ and others have observed reductions in Cladophora growth in other systems that have not reached 0.04 mg/L total nitrogen value cited by the commenter, such as the Clark Fork River.

Comment 6: The EA fails to consider the impact of the discharges on existing groundwater nitrate concentrations.

Response 6: DEQ disagrees. DEQ considered the potential impacts to groundwater of the Quarry Phase 2 discharges on pages 29 and 30 of the EA. The Water Quality Act nondegradation review considered the relevant factors under 75-5-301(5)(d) and (e) and ARM 17.30.715(1)(e) and (4)(e), but the Montana Environmental Policy Act review was broader and considered additional information available to DEQ. This includes the Gallatin County PUD

application and hearing, as well as nondegradation surface water trigger analysis completed for all four planned phases of the Quarry in 2019. The result of all this analysis was that the Quarry Phase 2 would cause nonsignificant changes in groundwater quality, as described in the EA.

Comment 7: The EA fails to consider the fate and transport of nutrients in the subsurface.

Response 7: DEQ disagrees. The MEPA analysis summarized in the EA relied upon the nonsignificance determination performed for Water Quality Act purposes (see Response to Comment 6). However, also in DEQ's possession was a surface water trigger value analysis for the full Quarry development (all four phases) performed in 2019. That calculation used a design flow of 62,500 gallons per day, a discharge concentration of 7.5 mg/L, and a critical low flow (14Q5) of 156 cubic feet per second in the Gallatin River. Assuming no nitrogen attenuation, the calculation results in an instream nitrogen increase of 0.0046095 mg/L, which is less than half the trigger value (0.01 mg/L) in DEQ-7.

Comment 8: The reported background concentration of 0.37mg/L TN in GW is suspect and reference conditions are probably lower.

Response 8: The commenter implies the low groundwater nitrate concentration of 0.37 mg/L is not completely natural and is the result of the minimal amount of development in the area of the sampled wells. The commenter suggests that natural background groundwater nitrate concentration would be close to 0.1 mg/L. This is not true in most areas of Montana, and particularly in this watershed with natural geologic sources of nitrogen in the widespread Cretaceous age marine sediments, as supported by the WGM (2020b) report that estimates about 92% of nitrogen in the watershed is from natural sources.

Comment 9: The Quarry Ph2 site lies 1,200 feet west of the Gallatin River. A trigger analysis should have been required.

Response 9: While the Quarry Phase 2 is located roughly 1,200 feet west of the Gallatin River, the relevant measurement is the horizontal distance between the drainfield discharge and the river in the direction of ground water flow, which is over 2,200 feet. However, in 2019, the Quarry developer's consultant did perform a surface water trigger value analysis for the full Quarry development (all four phases). That calculation used a design flow of 62,500 gallons per day, a discharge concentration of 7.5 mg/L, and a critical low flow (14Q5) of 156 cubic feet per second in the Gallatin River. Assuming no nitrogen attenuation, the calculation results in an instream nitrogen increase of 0.0046095 mg/L, which is less than half the trigger value (0.01 mg/L) in DEQ-7.

Comment 10: DEQ received comments that permeable soils and a shallow aquifer hydrologically connected to the river would allow up to 7.5 mg/L TN and .1 mg/L TP from the Quarry Ph2 to quickly reach the Gallatin River, that there is a reasonable expectation that much of the nitrogen in the Quarry effluent will be transported to the Gallatin River, and that

denitrification is expected to be negligible in the shallow alluvial aquifer adjacent to the Gallatin River..

Response 10: These comments are based on several misunderstandings. First, the Quarry Phase 2 drainfields would not discharge into the Gallatin River, but groundwater that is 2,200-3,200 feet upgradient from the Gallatin River. Groundwater beneath the site is at a depth of approximately 40 feet and the shallow alluvial aquifer is limited to within 200 feet of the river. Please see Response to Comment 4. Second, the commenter gives no evidence to support the extraordinary claim that the discharge concentration of 7.5 mg/L would be expressed unchanged in the Gallatin River. To the contrary, it is impossible for nitrogen to pass through that volume of groundwater without dilution. The commenter also provides no description of why 7.5 mg/L total nitrogen would be significant in the receiving groundwater, contrary to 75-5-301 (3)(d), MCA. Third, as the commenter notes on page 18 of their report (Burkholder, 2025), the alluvial aquifer is limited to within 200 feet of the Gallatin River, and the tighter glacial outwash and colluvial materials comprising the receiving aquifer are more conducive to denitrification. DEQ anticipates there will be attenuation of a portion of the nitrogen due to denitrification in the unsaturated soils beneath the drainfields and in the aquifer. DEQ has not quantified how much denitification may reasonably be anticipated in the 40 feet of unsaturated soils below the drainfield, or in the 2,200 feet of groundwater between the drainfields and the Gallatin River. However, in 2019, the Quarry developer's consultant did perform a surface water trigger value analysis for the full Quarry development (all four phases). That calculation used a design flow of 62,500 gallons per day, a discharge concentration of 7.5 mg/L, and a critical low flow (14Q5) of 156 cubic feet per second in the Gallatin River. Assuming no nitrogen attenuation, the calculation results in an instream nitrogen increase of 0.0046095 mg/L, which is less than half the trigger value (0.01 mg/L) in DEQ-7.

Comment 11: The LARNLoad model indicates that most of the study site has Higher or Highest risk of nitrogen from an onsite system being transported to the Gallatin River. LARNLoad is both in use in parts of Florida and in further refinement and expansion for use throughout Florida. However, LARNLoad is being applied for the first time here in low-gradient montane valley bottoms in Montana, where hydraulic conductivities, hydraulic gradients, and distances to waterbodies are similar to those found in much of Florida.

Response 11: DEQ does not believe the LARNLoad model is useful in this instance. This model doesn't provide information on how much of any one pollutant will impact surface water. It provides a subjective and relative rating. It has no utility for specific regulatory purposes of approving or denying an activity, nor does the commenter provide any recommendation on how it might. The commenter notes instead that the model was developed as a decision support tool to help prioritize septic-to-sewer conversions, which is landscape-scale planning rather than the site-specific analysis at issue here. DEQ disputes the validity of this first application of a model developed and calibrated in Florida, specifically the commenter's claim that a low-gradient montane valley has similar hydraulic conductivities, hydraulic gradients, and distances to groundwater as much of Florida. Of particular note is that the canyon area along the middle Gallatin River is not a low-gradient montane valley. The

middle Gallatin River is a plane bed system marked by rapids. The Quarry Phase 2 drainfields are proposed at a location 400 feet in elevation above the Gallatin River, which is more topographic relief than is present in Florida.

Comment 12: DEQ received comments that groundwater seepage to the Gallatin River is pulsed, rather than constant and stated that Cladophora is especially well-adapted to respond to sporadic pulses of nutrients. The commenter also stated that DEQ's groundwater analysis creates a "second mixing zone" along the west bank of the Gallatin River. Cladophora along the west bank of the Gallatin River would be highly stimulated by pulsed nitrogen inputs of up to 7.5 mg/L from the septic effluent leachate.

Response 12: "Seepage" is a mischaracterization of the nature of groundwater and surface water interchange in the Gallatin River system. The boundary between groundwater and surface water is found in the hyporheic zone, where both waters comingle in porous bed materials underlying the river. Some of the uppermost groundwater in the hyporheic zone will pass into the Gallatin River, but other groundwater below that will flow under the river.

The commenter states that nutrient inputs to the middle Gallatin River attributable to the Quarry Phase 2 will be pulsed but provides no evidence of its occurrence. Given the intended year-round use of the proposed wastewater treatment systems, the 2,200-3,200 foot distance to the river and the corresponding travel time and dilution, this is unlikely. The assertion of a "second mixing zone" along the western bank of the Gallatin River is not supported by any hydrogeologic information. On page 20 of their report (Burkholder, 2025), the commenter points out phosphorus detections in groundwater on the opposite side of the South Fork West Fork Gallatin from their likely source. This demonstrates that flowing surface water does not intercept the entire aquifer. This is consistent with commonly understood hydrogeologic principles. Some groundwater may enter the river, more likely as hyporheic water through the streambed. Other groundwater may flow under or parallel to the river in the aquifer.

Comment 13: Secondary impacts of the Quarry Ph2 would include chronic, pulsed nutrient increases to the Gallatin River from unregulated development such as landscape fertilizer runout and pest wastes, release of soil nutrients from timber clearing, increased stormwater runoff, and general soil disturbance from the subdivision.

Response 13: The nonpoint sources of nutrients described by the commenter are outside the scope of the draft EA because they would not arise from the action under review—that is, DEQ's review of water, wastewater, and stormwater facilities under the Sanitation in Subdivisions Act. With regard to stormwater impacts, please see Response 37 and 38.

Comment 14: Eutrophication of the Gallatin River is primarily caused by anthropogenic nutrient sources.

Response 14: DEQ's work to characterize sources and identify causes is ongoing. WGM (2020b) found that 92% of the nitrogen in the Gallatin River is naturally occurring, which is not

surprising in an area with broad expanses of Cretaceous marine sediments. Algal blooms have been observed upstream (south) of the Big Sky canyon area, in regions with few anthropogenic sources. While septic systems are one of the leading anthropogenic sources of nitrogen to the Gallatin watershed, compared to the natural nitrogen load to the watershed, septic systems are only 2.3 percent of the total N load in the Gallatin watershed – (see table 1 of WGM report).

Comment 15: DEQ received comments that the Quarry Phase 2 will cause or contribute to additional algal growth and water quality degradation of the Gallatin River. These comments stated that the Gallatin River is nitrogen-limited, meaning that any additional nitrogen inputs could trigger further algal blooms. These comments stated that the middle Gallatin is at a tipping point, as shown by massive seasonal blooms, and that the assimilative capacity of the middle Gallatin is already exhausted. These comments stated DEQ's numeric TN and TP criteria are not low enough to protect from algal blooms and that decreasing the massive seasonal blooms will require major reductions of the present nitrogen and phosphorus supplies.

Response 15: This segment of the Gallatin River is listed as impaired for excess algal growth. The Water Quality Planning Bureau is currently in the midst of a multi-year monitoring project on this segment of the Gallatin River to further refine probable sources of the algal growth. The Water Quality Planning Bureau project will result in the development of TMDLs, but this portion of the study has not begun, and no TMDLs exist for this segment of the Gallatin River. Once the monitoring phase of the Water Quality Planning Bureau project is complete, DEQ will reassess this segment of the river and update the impairment listings.

Large Cladophora blooms have been noted in the middle Gallatin River, particularly in the years 2018 to 2022. However, they were not observed in 2023 and 2024. Nitrogen and phosphorus concentrations in the Gallatin River do not exceed the applicable numeric criteria, therefore there is assimilative capacity for these pollutants. DEQ is currently investigating the water quality and pollutant sources within the middle Gallatin watershed to better understand the causes and influences of excessive algal growth.

The tipping-point claim is unsupported for Montana rivers and streams. In contrast to the irreversible change described here, DEQ has witnessed very rapid response and improvement in algae levels etc. as wastewater treatment was improved (see case study of the Clark Fork River below Missoula; Suplee et al. 2012). Note that the Clark Fork River numeric nutrient criteria are 300 µg/L total nitrogen and 20 µg/L total phosphorus (ARM 17.30.631). Additionally, DEQ documented a return to pre-dosing algae conditions the year following cessation of dosing in Box Elder Creek (Suplee et al., 2019).

The commenter also misunderstands what it means for a river to be nitrogen limited. It means that the ceiling on productivity (such as algal growth) is set by nitrogen, due to it being in shorter supply than other nutrients. It does not mean that any increase in nitrogen will cause an increase in algal growth, especially when the increased concentration remains below the water quality standard. That is the entire purpose of water quality standards. In any event, DEQ's ongoing research suggests that the Gallatin River may be co-limited by both nitrogen and

phosphorus. DEQ is currently engaged in a multi-year study to investigate all potential causes of algal growth in the Gallatin River, including nutrients, temperature, sunlight, and streamflow.

DEQ also disagrees with the commenter that any additional nitrogen inputs will trigger further algal blooms. The most relevant analysis of undesirable algal blooms caused by nitrogen is the scientific review that DEQ used in establishing the Gallatin River's nitrogen water quality standard in 2014. These standards were derived at a level to prevent undesirable aquatic life, as discussed in the rulemaking record for MAR 17-356. Water quality in the Gallatin River currently meets and has not exceeded those nutrient standards. The river therefore has assimilative capacity between the observed nutrient concentrations and the numeric nutrient standards. Algal growth is stimulated by causes other than nutrients, including temperature and sunlight. To this end, DEQ is engaged in a multi-year study to investigate other causes of algal growth to investigate why large blooms were observed in 2018-2022 when nutrient standards were not exceeded.

Comment 16: The numeric TN and TP criteria assigned by MDEQ to the middle Gallatin (0.3 mg TN/L, 0.03 mg TP/L, July 1 through September 30) are too high to protect this sensitive oligotrophic system from further impairment due to nutrient pollution. DEQ's numeric nutrient criteria for Montana streams and wadeable rivers were based upon 90th or 95th percentile—in other words, nearly the maximum—of data for wadeable streams and rivers assessed as minimally impacted by nutrient pollution (Suplee et al. 2008, Suplee and Watson 2013; also see review in Burkholder 2024). That approach failed to consider that oligotrophic rivers like the middle Gallatin and tributaries are extremely sensitive to even small amounts of nutrient pollution, more so since major nuisance Cladophora blooms are occurring seasonally.

Response 16: This is an inaccurate characterization of DEQ's method for setting the criteria. The percentile corresponding to the regional reference condition was highly variable, as the criteria were mainly based on dose-response studies for each ecoregion. As DEQ developed numeric criteria, more stressor-response studies became available, and these can better inform the criteria derivation process. As a result, DEQ relied less on specific reference-distribution percentiles and much more on regional as well as non-regional stressor-response studies (Suplee and Watson, 2013). As noted elsewhere, large algal blooms have not been observed in the middle Gallatin River since 2022.

Comment 17: DEQ should have established nitrate criteria in addition to TN and TP criteria.

Response 17: This comment is outside the scope of this EA. Nevertheless, DEQ continues to hold that total nitrogen is a better parameter than nitrate to measure to assess eutrophication in Montana rivers and streams and would continue to refer to the three Dodds publications referenced in Suplee and Watson, 2013 (pp. 1-4). Dr. Burkholder (Burkholder, 2025) referenced a paper (Stanley and Maxted, 2008), that describes work carried out in Wisconsin, part of the Midwest Corn Belt, which is notorious for being saturated in soluble nitrogen. Montana is different. Note also that Dr. Burkholder did not mention the next sentence in Suplee and Watson (2013) which followed our recommendation to use total

nitrogen as a criterion: “However, the Department strongly encourages the collection of nitrate + nitrite when collecting TN and TP data. The soluble data can often point to specific types of nutrient sources, for example. The Department’s Water Quality Monitoring Section will continue to include nitrate + nitrite alongside TN and TP for routine monitoring for nutrients and may use some general guidelines from the scientific literature for determining when measured concentrations are clearly too high.” DEQ also released a technical memo, dated November 2013, indicating nitrate concentrations which could suggest nitrate problems if measured in summer in Montana rivers and streams. In summary, DEQ routinely collects the type of nutrient information we need to make the best assessment of eutrophication it can.

Comment 18: DEQ’s monitoring and sampling is inadequate to accurately characterize nutrient and algal conditions in the Gallatin River. DEQ needs major improvements for sampling environmental conditions in the Gallatin River.

Response 18: Data collection on the Middle segment of the Gallatin River meets quality assurance and monitoring guidelines that meet Federal Clean Water Act and Montana’s Water Quality Act intents. DEQ is supplying significant scientific research resources for this assessment unit. Since the 2023 impairment listing of the middle segment of the Gallatin River, from Yellowstone National Park Border to the confluence with Spanish Creek, which was approved by EPA, DEQ has devoted significant resources towards water quality and biological monitoring of the middle Gallatin River to identify sources of nutrients and drivers of algae growth. This includes seasonal (March-December, DEQ would sample all year but cannot due to ice coverage) and diurnal monitoring of water column nutrients (total phosphorus, soluble reactive phosphorus, total nitrogen, total ammonia, and nitrate-nitrite) on the mainstem of the Gallatin River and its tributaries. Additionally, extensive algae sampling from July-September (including drone imaging to quantify the extent of algae distribution), algal identification, limiting nutrient studies, collection of water samples during storm events for bioavailable sediment-bound phosphorus analysis as well as analysis of other nutrients, and the deployment of continuous sensors for the monitoring of temperature, dissolved oxygen, pH, specific conductivity, and turbidity is underway. DEQ will use this data to create a WQ model to better understand loads and algae growth dynamics.

Comment 19: Phosphorus breakthrough analysis should have considered Cladophora growth.

Response 19: DEQ conducted the phosphorus breakthrough analysis according to ARM 17.30.715(1)(e). This regulation does not allow for any phosphorus to reach surface water within 50 years, and the proposed Quarry Phase 2 drainfields meet this requirement.

Comment 20: The EA should have considered whether the Gallatin River is N-limited or P-limited.

Response 20: This is outside the scope of the present action. DEQ has water quality standards for both nitrogen and for phosphorus, and its nondegradation reviews address both.

Nonetheless, the multi-year water quality investigation DEQ is currently conducting suggests that the river is co-limited for both nitrogen and phosphorus. Please see Response 17.

Comment 21: Cladophora is the central focus of impairment in the Middle Gallatin River.

Response 21: Despite the claim that Cladophora is the dominant algae in the middle Gallatin River, investigating that question is one key aspect of the DEQ - Gallatin River Task Force project. In fact, Cladophora is not the dominant attached algae in the middle Gallatin River. Didymo is more common.

Comment 22: The EA should have considered the multiple factors influencing algal growth in the Gallatin River.

Response 22: DEQ agrees that multiple factors influence algal growth in the Gallatin River and is in the middle of a multi-year investigation to better understand their interplay and roles. The Quarry Phase 2 EA considered the potential factors that may be influenced by the Quarry Phase 2 project: nitrogen and phosphorus.

Comment 23: Typical engineering equations used to calculate the assimilative capacity of the middle Gallatin for nutrients based on the DEQ criteria consistently and entirely ignore the recent reality of major seasonal nuisance Cladophora blooms. That approach will fail to protect the designated use for sensitive aquatic life because Cladophora biology does not follow unrealistic instantaneous dilution rules.

Response 23: DEQ did not calculate instantaneous dilution of the Quarry Phase 2 effluent in the Gallatin River because the approval did not rely on them. However, as noted in Response 15, the developer's engineer did provide this type of calculation to Gallatin County in 2019. The result was a predicted increase of 0.0046095 mg/L if all the nitrogen discharged by all four planned Quarry phases entered the river with no attenuation. The commenter argues that the negligible increase in in-stream nitrogen is in fact significant because of the overall nitrogen load, regardless of dilution. This conflicts with the commenter's statement on page 4 of their report (Burkholder, 2025) that "Algae cue in on concentrations, not loads", which DEQ concurs with. Finally, while large blooms were observed seasonally from 2018 through 2022, none were observed in 2023 or 2024.

Comment 24: The EA did not consider nitrogen toxicity to trout of a concentration of 7.5 mg/L TN, or how Cladophora would react to a concentration of 7.5 mg/L TN. Juvenile trout are poisoned by nitrate concentrations above 0.2 mg/L.

Response 24: This comment is out of scope. First, the receiving water for the proposed Quarry Phase 2 discharges would be the groundwater beneath the drainfields, not the Gallatin River. The commenter provides no evidence of any reason to suggest that the discharge concentration of 7.5 mg/L would be expressed in the Gallatin River after the treated effluent has infiltrated 40 feet of unsaturated soil and subjected to dilution and dispersion while

traveling over 2,200 feet in the aquifer. Second, DEQ considered nitrate toxicity to sensitive aquatic life when it (a) established nutrient criteria for state waters, including the Gallatin River, and (b) when it evaluated the project against the nondegradation provisions of the state's water quality standards. Total nitrogen concentrations in the middle Gallatin River average 0.06 mg/L, well below the 0.2 mg/L value the commenter cites as concerning for juvenile trout. As discussed above, 2019, the Quarry developer's consultant performed a surface water trigger value analysis for the full Quarry development (all four phases). Assuming no nitrogen attenuation, the calculation resulted in an instream nitrogen increase of 0.0046095 mg/L. Even considering a hypothetical addition of the entire Quarry discharge without attenuation, nitrate concentrations in the Gallatin River would not approach the 0.2 mg/L concentration cited by the commenter as threatening to juvenile trout.

Comment 25: A nearby stream (Rock Creek, Carbon County) was degraded by addition of nearly 2,000 septic tanks, each considered individually.

Response 25: Rock Creek's impairment status is not relevant to this project. The impairment has not been fully investigated with source assessments, and the stream is located in a different ecoregion with different geology in the headwaters and in the lowlands, and different population and land use patterns.

Comment 26: The Quarry Ph2 is the functional equivalent of a point-source discharge to surface water and requires an MPDES permit.

Response 26: DEQ disagrees that the proposed Quarry Phase 2 discharges are the functional equivalent of a direct discharge to surface water. The US Supreme Court ruled in County of Maui v. Hawaii Wildlife Fund, 140 S. Ct. 1462 (2020) (Maui), that a ground water discharge is subject to surface water permitting if it is the 'functional equivalent of a direct discharge.' A fundamental holding in that case is that the Federal Clean Water Act must not be interpreted in a manner that undermines the Act's basic regulatory objectives or a state's authority to regulate groundwater. Id. at 1477. The court goes on to provide several criteria that may be relevant to evaluating functional equivalence: (1) transit time, (2) distance traveled, (3) the nature of the material through which the pollutant travels, (4) the extent to which the pollutant is diluted or chemically changed as it travels, (5) the amount of pollutant entering the navigable waters relative to the amount of the pollutant that leaves the point source, (6) the manner by or area in which the pollutant enters the navigable waters, and (7) the degree to which the pollution (at that point) has maintained its specific identity. The Court further stated that time and distance will be the most important factors in most cases. Id. at 1477. For relevant discussions, please see Responses 4, 5, and 10.

It is important to note that the Quarry discharge is subject to effluent monitoring conditions. These requirements and the requirement to utilize treatment meeting the groundwater nondegradation criterion at the point of discharge protect the receiving aquifer and downgradient surface water. In Maui the U.S. Supreme Court concluded an NPDES permit is required "if the addition of the pollutants through groundwater is the functional equivalent of a direct discharge from the point source into navigable waters." Id. At 1468. This case is

distinguishable because the discharge to groundwater is controlled by the conditions described above. This is not a case where uncontrolled pollutants are not being conveyed to surface water through ground water. DEQ's analyses show that the proposed project will have no significant impacts on the downgradient surface waters. DEQ has determined that the proposed discharge will comply with the nonsignificance criteria and preserve the existing quality of state ground water and downgradient surface waters.

Comment 27: The Gallatin River ORW EIS forecast that because subdivision review assesses each application independently rather than cumulative, water quality in the Gallatin River could decline without protection from septic systems or other development.

Response 27: DEQ has consistently advocated for increased adoption of centralized wastewater treatment, and greater levels of treatment to reduce concentrations of nitrogen and phosphorus in effluent. These are common recommendations in total maximum daily load documents (for examples, refer to the Lower Gallatin Planning Area TMDLs & Framework Water Quality Improvement Plan (DEQ, 2013)) or watershed restoration plans. The Quarry development incorporates both recommendations, by providing centralized wastewater collection and treatment for multiple residential units and proposing wastewater treatment that exceeds Level 2 criteria and is equivalent to municipal surface water treatment.

Comment 28: The identified secondary impacts of soil acidification, salinization, and subsidence were dismissed without evidence.

Response 28: DEQ does not concur with this comment. The EA notes that the risk of potential secondary impacts to soils such as subsidence, acidification, and subsidence was determined to be negligible based on reports submitted by Rawhide Engineering to support the application.

Comment 29: The draft EA omits basic and legally required scientific analysis of the cumulative impacts or degradation potential of new wastewater pollution discharges on the already impaired Gallatin River.

Response 29: The draft EA demonstrates that the DEQ reviewed the proposed drainfields for cumulative impacts as required by MCA 75-5-301(5)(e) and ARM 17.30.715(4)(e). Please see the Nondegradation Cumulative Impacts section on pages 28-30 of the EA. Any wastewater systems that are more than 1/4 to 1/2 mile from surface water are not required to perform the Adjacent to Surface Water analysis under MCA 75-5-301(5)(e). In addition, ARM 17.30.715(4)(e) exempts the Department from evaluating cumulative and synergistic impacts if the nonsignificance criteria are met. Review of each proposed primary and replacement area drainfield location, soil classification, distance to surface water and limiting layers was completed to determine if degradation to the nearest surface water needed to be analyzed for surface water trigger analysis. This analysis was not required. With regard to consideration of the cumulative impacts in groundwater for purposes of the Department's nonsignificance determination under the Water Quality Act, discharges from a septic system using Level 2 treatment with a nitrate concentration at the end of the mixing zone of 7.5 mg/l at the end of

the are nonsignificant under MCA 75-5-301(5)(d). The SepticNet treatment system proposed for the subdivision has been approved by the Department as a Level 2 treatment system that discharges a nitrate concentration at or below 7.5 mg/l. With the discharge concentration of the proposed wastewater systems at or below the significance limit, an evaluation of the cumulative impacts of the SepticNet systems to nitrate concentrations in groundwater could not be mathematically exceed the concentration identified as significant degradation. That water is hydrologically connected does not necessarily mean that a discharge will cause degradation, as pollutants will diffuse, dilute and attenuate as they travel through groundwater and soils.

Comment 30: DEQ possesses the authority to deny the COSA due to potentially significant impacts and potential to cause or contribute to degradation.

Response 30: Please see Response 1.

Comment 31: The EA fails to assess how cumulative groundwater withdrawals will interact with existing water rights and the hydrological balance of the aquifer system. Studies by the U.S. Geological Survey (USGS) emphasize that sustained groundwater withdrawals in semi-arid regions, such as Montana, can lead to significant aquifer depletion and reductions in streamflow. These changes adversely affect riparian habitats, senior water rights, and municipal water supplies (Winter et al., 1998). Montana's prior appropriation doctrine and MEPA require consideration of such impacts to ensure water resources are used sustainably and equitably.

Response 31: Potential impacts to off-site private property rights are outside the scope of this EA. *Belk v. Montana Department of Environmental Quality*, 2022 MT 38. That said, the water supply will be provided by connection to the Lazy J Water & Sewer District, which has water rights to supply this proposed development, and the proposed quantity used by this development was anticipated when the District approved the connections to the drinking water system. The legal right to use water is administered by the Department of Natural Resources. DEQ does not enforce or grant water rights, and DEQ's approval under the Sanitation in Subdivisions Act is merely a determination that the proposed use complies with relevant subdivision requirements and that the property is not subject to sanitary restrictions. Because of that, a DEQ approval cannot supersede or replace other existing restrictions or rights, including senior water rights.

Comment 32: An additional concern is that the project will be located on the west side of the Gallatin River. Most of the properties on that side of the river draw water from the same aquifer. That includes all the new development on Michener Lane and property down to Rams Horn View addition and well as our HOA Riverview Ranch. To my knowledge no studies have been done regarding this aquifer and the impact of this project may have on the water supply and could have a serious impact on our water supply. This project should not be considered without an answer to that question.

Response 32: Please see Response 5 and 26.

Comment 33: DEQ should request a pre-publication copy of the MGMB Upper Gallatin River Ground Water Investigation Program study and re-evaluate the EA.

Response 33: See Responses to 5 and 26 regarding groundwater flows and algal blooms. DEQ had sufficient information to determine the possible effects of the discharge to groundwater to determine it was not significant under State regulations without obtaining the MBMG Investigation Program study. The legislature has imposed a 55-day statutory review timeline on DEQ. DEQ cannot withhold approval to an application that complies with relevant requirements. DEQ is unable to delay approval to wait for a report from MBMG.

Comment 34: DEQ received comments that the EA lacks a scientific basis for determining that the Quarry Phase 2 would have no significant impact on the Gallatin River, that DEQ exempted the Phase 2 from any nondegradation review by applying 75-5-301(5)(e), MCA, and ARM 17.30.715(4)(e), and that DEQ is without discretion to presume that the proposed subdivision would not degrade surface water.

Response 34: DEQ's nondegradation analysis is discussed on pages 28 through 30 of the EA. The legal and scientific bases for ARM 17.30.715(4)(e) are set forth in the rulemaking record for MAR 17-439. In applying these criteria, DEQ does not arrive at a nonsignificance determination via presumption. Instead, the criteria established in the rule were developed scientifically and were subject to public participation. To the extent that the commenter relies upon the report provided by Dr. JoAnne Burkholder to inform its claim of significance, DEQ notes that the report commits serious errors in hydrogeology and nitrogen loading, as discussed in Responses 5.

Comment 35: The DEQ needs to have a strict algorithm for limits on septic systems and other pollution near rivers that takes into account a finite, seasonal river flow. Indeed, new septic release permits need to stop until vigilant monitoring shows that the impairment that already exists in the Gallatin River is being reversed and an optimum health of the river is being recovered year-round.

Response 36: Please see Responses 5 and 26 for a discussion of the scientific basis for DEQ's review of septic systems relative to surface water.

Comment 36: The EA fails to address the potential air quality impacts of construction-related particulate matter (PM2.5 and PM10) emissions, which pose health risks to local communities and contribute to broader environmental degradation. Particulate matter emissions are a significant concern during construction activities such as grading, excavation, and vehicle use. Studies by the EPA (2007) demonstrate that PM2.5 and PM10 are harmful to respiratory health and contribute to climate change. Dust suppression techniques, including water sprays, vegetative buffers, and wind barriers, have been shown to reduce particulate emissions by up to 70%. The EA does not provide baseline air quality data, which is critical for assessing potential impacts and ensuring compliance with the National Ambient Air Quality Standards (NAAQS). It also fails to outline mitigation measures, monitoring plans, or enforceable standards for controlling emissions during construction.

Response 36: The Air Quality section of the EA (Page 13) addresses particulate matter during construction of the facilities under review by DEQ. The analysis includes assessment of potential impacts and provides BMPs to limit the impact of particulate matter. DEQ does not have the authority to require air monitoring plans or to set enforceable standards for controlling emissions during construction.

Comment 37: The EA neglects to evaluate the cumulative impacts of sedimentation caused by construction activities such as grading, clearing, and excavation. Sediment runoff is a primary contributor to water quality degradation, smothering aquatic habitats, and reducing the resilience of riparian ecosystems. Repeated or large-scale sediment inputs can result in permanent ecological damage. Legal Implications: Failing to address sedimentation conflicts with MCA §75-5-301, which mandates the protection of water quality for beneficial uses. The increasing frequency and intensity of storm events due to climate change further underscore the need for robust hydrological modeling to predict future impacts. Traditional stormwater designs often fail under extreme precipitation scenarios, leading to significant pollutant discharges and erosion.

Response 37: The facilities subject to review under this action are water, wastewater and long-term storm water facilities. The long-term stormwater management facilities to manage stormwater runoff contributions from proposed impervious areas including but not limited to roads, rooftops, and parking lots for the phase II subdivision required a retention pond with the minimum storage volume of 11,874 cubic feet of storage. Approximately 8 acres of temporary surface disturbance would occur during construction of the Project. The Montana Department of Environmental Quality requires construction sites with greater than 1 acre of disturbance to obtain a Storm Water Pollution Prevention Plan (SWPPP) permit, utilizing Best Management Practices (BMPs) to limit pollution, including sedimentation during construction. This permit requires BMPs to be operated and maintained until the site has been 70% restored/revegetated to pre-construction conditions. The BMPs protect against erosion by slowing and minimizing surface flow during construction activities and by retaining sediment.

Comment 38: The EA inadequately examines the cumulative effects of impervious surfaces created by the project, such as roads, rooftops, and parking lots. These surfaces contribute to increased stormwater runoff, erosion, and nonpoint source pollution. Impervious surfaces dramatically increase pollutant loads, including nutrients and hydrocarbons, during storm events. These effects are amplified in watersheds already impaired by nutrient and sediment pollution. Ignoring these impacts violates the Montana Water Quality Act (MCA§75-5-301) and MEPA's requirement to evaluate potential environmental degradation. The permit does not account for site-specific factors such as slope gradient, soil type, and vegetation density, which are critical to buffer efficacy. Without these considerations, buffers risk being under-designed, reducing their ability to mitigate pollutant loads effectively. Long-term maintenance, such as erosion repair and invasive species control, is necessary to preserve buffer functionality, yet the permit does not address these requirements.

Response 38: Please see Response 37 for the volume of stormwater storage required for this project. DEQ's stormwater review includes looking at adjacent properties, including the Phase 1 subdivision impervious area for cumulative effects of stormwater runoff. Retention is required to discharge at the 2-year pre-development rate, as required under Circular DEQ-8. Review under DEQ-8 requires analysis of slope, soil type, and vegetative density. Circular DEQ-8 also requires an Operation and Maintenance Plan for stormwater facilities.

Comment 39: The EA fails to protect instream flows and ecological functions critical to the Gallatin River and its connected ecosystems. The EA's failure to address streamflow reductions caused by groundwater withdrawals directly threatens aquatic ecosystems. Reducing streamflow leads to thermal pollution, habitat loss, and biodiversity declines. By ignoring cumulative nutrient and sediment inputs, the EA fails to safeguard the ecological health of the Gallatin River, a critical public trust resource. Amend the EA to include enforceable measures that protect instream flows, riparian ecosystems, and water quality.

Response 39: DEQ does not anticipate streamflow reductions from the facilities under review. The water supply proposed for the subdivision is connection to the Lazy J system, which has water rights for the proposed Phase 2. Please see Response 31. With regard to cumulative nutrient impacts, please see Responses 5 and 26. With regard to sediment inputs, please see DEQ's stormwater review in Responses 37 and 38.

Comment 40: The EA fails to explore reasonable and prudent alternatives. A smaller-scale project could significantly reduce impervious surfaces, mitigate sedimentation, and minimize stormwater runoff. Compact development has been shown to lower environmental impacts while maintaining economic viability. Incorporating green infrastructure practices—such as green roofs, permeable pavements, and vegetated swales—could effectively manage stormwater and reduce pollutant loads. Studies demonstrate that LID techniques can reduce stormwater runoff volume by 50-90%, significantly improving downstream water quality. The EA does not sufficiently evaluate less ecologically sensitive locations, despite the project's proximity to the Gallatin River and its designation as impaired under Section 303(d) of the Clean Water Act. Failing to consider alternatives that reduce harm to sensitive resources undermines MEPA's mandate to prioritize environmentally sound decision-making. The EA must analyze these and other alternatives, assessing their environmental, social, and economic impacts in a comprehensive manner to comply with MEPA.

Response 40: Please see the No Action and Other Reasonable Alternatives in the Draft EA. DEQ does not have the authority to require that the applicant reduce the project size, nor to move the project to a different location. § 75-1-220(1), MCA. For a discussion of DEQ's stormwater review, please see Responses 37 and 38.