

## FINAL ENVIRONMENTAL ASSESSMENT

### THREWAY MINING COMPANY, INCORPORATED MORGAN FAMILY PIT

The Department of Environmental Quality (DEQ) prepared this final environmental assessment (EA) in accordance with requirements of the Montana Environmental Policy Act (MEPA). An EA functions to identify, disclose, and analyze impacts of an action over which the state must make a decision, in this case permitting a gravel pit. MEPA sets no environmental standards and provides no authority for the DEQ to impose conditions or mitigations beyond those allowed under applicable state laws, such as the Opencut Mining Act, the Clean Air Act, or the Water Quality Act. As a result, this document may disclose impacts that have no legislatively required standards (such as noise), or over which DEQ has no regulatory authority (such as traffic). In such instances, a company may voluntarily agree to modify its proposed activities or accept permit conditions. A permit decision is based on whether or not the proposal meets the requirements of the Opencut Mining Act and other applicable environmental laws.

The state law that regulates gravel-mining operations in Montana is the Opencut Mining Act. This law and its associated rules place operational guidance and limitations on a project during its life, and provide for the reclamation of land subjected to opencut mining. This law requires the operator to post a bond or other financial instrument so that DEQ has the financial capability to reclaim a mined site to its approved, post-mining land use if the operator is unable or unwilling to do so. Beyond the opencut mining permit, the operator must obtain all other regulatory permits and approvals that are required to conduct operations at the site. Depending on the location and the nature of the operations, additional approvals may include a road access permit, county conditional use permit, water right, air quality permit, floodplain permit, surface water or stormwater discharge permit, or other local, county, state, or federal permits and approvals. In May 2008 Gallatin County imposed emergency zoning restrictions which require the proponent to apply for a Conditional Use Permit (CUP).

This document supersedes the draft EA dated August 25, 2008 that DEQ made available for public comment from August 25 through September 25, 2008. DEQ subsequently compiled and evaluated the public comments and assessed additional information received from individuals, agencies and organizations, including the operator, Threway Mining Company (TMC, Inc.). As a result, DEQ believes this final EA is based on the best available information. This document includes DEQ's responses to public comments, additional mitigation measures proposed by TMC, Inc. based on its consideration of public comments, and other potential permit conditions and/or mitigation measures developed by DEQ as a result of the public involvement process.

**Project Name:** Morgan Family LLC Gravel Pit

**Proponent:** Threway Mining Company, Incorporated (TMC, Inc.)

**Location:** SE ¼ of Section 35, Township 2 South and Range 4 East,

**County:** Gallatin

**Type and Purpose of Action:** TMC, Inc. has applied to open a gravel pit located in Gallatin County, about a mile-and-a-half north of Gallatin Gateway. Access would be from US Highway 191 (US 191). The legal description is the SE ¼ of Section 35, Township 2 South, and Range 4 East. Figures 1 and 2 (at the end of this document) depict the general vicinity and a more focused site map, respectively.

**History of the Proposed Action:** The proposed mine site is currently in agriculture with a mix of pasture and alfalfa production on irrigated lands. No previous mining activity has occurred and this is the first time that an opencut mining permit has been pursued for this parcel. A rented mobile home residence and two farm sheds are near the access road. The mobile home would remain. The farm buildings would eventually be razed.

**Description of the Proposed Action:**

TMC proposes to mine the 53-acre parcel in three phases.

**Phase I:** Mining would commence using front-end loaders at the toe of the alluvial terrace bench where the existing access road meets the main permit area. Initial mining would create an area large enough at the toe elevation to position a truck scale and the crusher site. Depending on demand, stockpiles might be located on the upper elevations of the permit area for part or all of the first year of mining. Mining of Phase I would continue for approximately three years from the vicinity of the scale to the southeast toward the Farmers Canal (Figure 2). Excavation would stay just above the groundwater table which is approximately 25 feet below the ground surface. In the first year, an area of approximately four acres would be mined down 15 feet, or about 11 feet above the water table, to provide an area for the washplant. This depth would allow sediment ponds to be dug eight feet deep and remain above seasonal high ground water.

**Phase II:** When mining of Phase I has been completed, Phase II would be mined with front-end loaders from the scale area northeast, once again staying above the ground water. A mobile crusher would be set up at the pit as needed. Its location would change periodically to stay close to active mining areas. The washplant equipment would be moved from the south side of the sediment ponds to the north side. When sufficient space exists for stockpiles in Phase II, reclamation of Phase I would commence from south to north.

**Phase III:** The estimated completion date for Phase II is 2014. Phase III would then be mined in a fashion similar to Phase I and II. Reclamation of the entire area would be completed by the end of 2018. Each of the three phases is estimated to take about three years. Concurrent reclamation would be practiced.

The mine plan proposes to mine horizontally into the terrace and use the undisturbed land and topsoil berms for noise abatement. Mining would remain above the water table. Mining with front-end loaders would commence in the northwestern corner of Phase I and proceed southeastward. This mining pattern would create an area large enough for the scale and crusher spread to be placed at the elevation of the highway, although some stockpiles could be placed on the top of the terrace. Mining would continue toward the canal, possibly using conveyors to haul material back to the crusher. The wash plant and recycling ponds would be placed on a 4-acre pad about 15 feet below original ground level while remaining 10+ feet above the water table. The asphalt plant would be on site temporarily, during road construction projects; it is not a permanent facility of the mine. Other facilities would include a scale house/office, grizzly screen, pug mill, and conveying equipment as necessary. As mining progressed, the crusher could be moved closer to the working face and the wash plant would be moved. Once initial development occurred,

crusher operations could become temporary or seasonal. Only commercially licensed trucks would haul material from the site.

At least 18 inches of topsoil and overburden would be salvaged and stockpiled along the western and northern proposed permit boundaries.

Hours of operation for the crusher would be from 7 a.m. to 7 p.m. Monday through Friday. Operations on Saturday would be from 8 a.m. to 5 p.m., and would be limited to hauling and maintenance. For short-term specific projects of up to 3 months, the hours would be Monday through Friday from 6 a.m. to 10 p.m. The site would be closed on Sundays. Normal operations include mining, crushing, washing, asphalt operations, maintenance, fueling, and other operations. Mining and processing would not be allowed on Saturdays. Equipment maintenance would be scheduled on Saturdays for safety reasons. Hauling or moving existing stockpiles could be done on Saturdays.

Water for operations would come from water rights in the Farmers Canal. After meeting with the Department of Natural Resources and Conservation (DNRC), an application for a temporary change in water would be applied for. Wash water would be recycled.

Topsoil and overburden berms about 12 feet high would be placed along the west, north and east perimeters of the permit area. They would be seeded. This soil is required for reclamation; the berms would be removed during reclamation. Silt fence or other sediment control devices would be used to protect the irrigation ditch along US 191. All disturbances would be kept at least 75 feet away from the Farmers Canal, which forms the southeast boundary of the proposed permit area. The permit area is currently fenced.

**Type and Quantity of Material:** TMC, Inc. proposes to mine horizontally into the bench east of US 191. It would be approximately 25 feet from the top of the bench to the floor of the mine. About 1.5 million cubic yards of material would be removed by the year 2018, when final reclamation to pasture would be completed.

**Surrounding Land Use:** The proposed site would encompass 53 acres, currently used as irrigated pasture land. The western boundary is set back from the US 191 right-of-way. Fence lines delineate the northern and eastern boundaries and separate adjoining land owners. The southeastern boundary is set back 75 feet from Farmers Canal. The southwestern boundary lies adjacent to Salesville Cemetery. A mobile home, currently occupied as a rental, is next to the proposed access road. Two other residences are about 1,000 feet from the proposed permit area, and several other residences are located along US 191, Zachariah Lane, and eastward. Eight Resident Notification forms were mailed to adjacent landowners. There are no reported wetlands, species of special concern, or threatened and endangered (T&E) species documented within the proposed permit boundaries (MNHP 2008). The water table in two monitoring wells was between 22 feet below ground surface (bgs) in the north (well #2) and 28 feet bgs (well #1) along the Farmers Canal.

**Traffic:** TMC, Inc. has provided a traffic study for the Montana Department of Transportation (MDT) access permit (Morrison Maierle 2008). Traffic in and out of the pit area would probably be restricted to a single access point on US 191. Approximately 10,000 annual off-site deliveries of product would be made each year. This is 10,000 empty trips into and 10,000 loaded trips out of the site. Typical commercial traffic includes 20 cubic yard belly or side dump trucks, 12 cubic yard end dump trucks, and 24 cubic yard dump truck/trailer combinations.

**Hazardous Materials and Waste:** Fuel would be stored in mobile tanker trucks that do not require secondary containment. Asphalt truck cleanout would be conducted on an inwardly graded pad filled with sand to absorb fluids. When saturated the sand would be properly disposed of and replaced with clean material.

Some concrete and asphalt material may be temporarily stored on site for recycling and reuse.

**Reclamation:** At final reclamation in the year 2018 the site would be reclaimed with a wheatgrass seed mix to pasture land for grazing livestock. The reclaimed surface would be sloped from the undisturbed surrounding ground into the pasture bowl to a depth of 25 feet. The reclaimed side slopes would be at a gradient of 3:1 or flatter. Backslopes would be scarified or disked if needed and topsoil would be disked prior to seeding. The access road would remain to preserve landowner access after reclamation. The office/facilities area and all internal roads would be reclaimed by removing surfacing material, ripping, scarifying, topsoiling and seeding. Fertilizer would be applied at the time of seeding. No mulch would be used. A reclamation bond amount of \$96,866 has been calculated by the proponent and accepted by DEQ.

**Scoping Comments and Concerns:** No formal scoping has been conducted for this Proposed Action beyond comments received in reply to the resident notification letters. TMC, Inc. mailed the letters on October 15, 2007 to landowners located within 1,000 feet of the proposed permit site. Three of the eight notification letters were returned to DEQ and are summarized in the sections below. Comments regarding potential impacts that will be addressed in this document are noted, and the reader is directed to the appropriate section. Comments related to issues that are beyond the scope of this Proposed Action or are outside of the jurisdiction of DEQ are summarized at the end of the scoping section.

## Section II: Agency Responses to Public Comments on the Draft EA

This section provides a summary of the comments received from 20 individuals, groups, or agencies during the public involvement period of August 25, 2008 through September 24, 2008. This section also presents DEQ's Responses to these public comments. Appendix B provides a compilation of the written public comments and Appendix C provides the written transcript of the public meeting.

### General Comments

Aesthetics - Section 8

Air quality – Section 3

Economics – Section 21

Health and Safety – Section 11

Historic and Archaeological Sites – Section 7

Hours of Operation – Description of the Proposed Action

Noise – Section 8

Traffic – Section 11

Water Quality and Quantity – Section 2

### General Comments

- a. COMMENT: DEQ is urged to use its authority to protect nearby land owners and the surrounding community.  
COMMENTERS: Brekke, Brown, Steinmuller  
RESPONSE: Comment noted.
- b. COMMENT: Some nearby landowners and others expressed their support of the Morgan Pit. They see it as a beneficial and reasonable use of the land, and only request that regulations be followed and the land be appropriately reclaimed. They feel that the property rights of owners who want to develop gravel pits on their property should be respected.  
COMMENTERS: Perry, Sime, Weidenaar  
RESPONSE: Comment noted.
- c. COMMENT: Some nearby landowners expressed their support for the comments submitted by GOMAG (Gallatin Opencut Mining Group). Their view is that the overall impacts of the operating gravel pit have a combined deleterious impact on the neighborhood.  
COMMENTERS: Brekke, Rabatin, Shockley, Steinmuller, Ward  
RESPONSE: Comment noted.
- d. COMMENT: Phases and expansions of permitted projects should be reviewed by the public. Continual pushing out of the date of mine closure and reclamation creates problems for nearby land owners. Plans already established and permit guidelines should be honored before expansions and extensions are granted. Several comments were submitted regarding local planning and zoning processes, and concern that they are adhered to.  
COMMENTERS: Conard, Morse, Lee-Roark, Steinmuller, GOMAG  
RESPONSE: MEPA is a procedural statute that does not dictate a certain result when an EA is produced, nor does it directly regulate permitting and

enforcement. Under MEPA the public is allowed and encouraged to submit substantive comments on amendments, just as they were on original applications. For example, this Morgan Family original application and the Nuss Amendment application are going through the same EA processes.

The Opencut Mining Act allows amendments to the plan of operations so that adjustments can be made based upon changing environmental, economic and social conditions. Mines and their plans of operation must comply with all local planning and zoning regulations.

- e. COMMENT: DEQ should require certain kinds of limits on hours, noise, and dust control, and not just suggest mitigation.

COMMENTERS: Brown, Lee-Roark

RESPONSE: DEQ can only regulate permitting and enforcement issues authorized by the laws it administers. In this case the Opencut Mining Act and its implementing rules allow reasonable limits or actions to mitigate noise. This is done by placing reasonable limits to hours of operations, building noise barriers (soil berms), placing the crusher in a lower portion of the pit or certain distances from the nearest neighbors, etc.

In Montana there are no statutory or regulatory standards limiting the levels of noise an opencut operation may emit, but the plan of operation does impose limits on hours of operations in order to mitigate the impact of the noise. The Montana Clean Air Act and its implementing regulations impose limits on certain air emissions, including particulates (dust), and regulate individual emitters such as crushers or asphalt plants, through the air quality permitting process. DEQ has the authority to require the operator to employ water or other methods of dust suppression, and has imposed such requirements in this permit.

- f. COMMENT: The property is not the entire SE ¼ corner of the Section, put a part of it.

COMMENTER: Rice

RESPONSE: Comment noted.

- g. COMMENT: Because DEQ and Gallatin County have taken so long to review this project, the reclamation date should be ten years from the commencement of operations (i.e., not ‘the year 2017’). Or it should be made clear to all parties if the dates of the application are lagged to the date of permit approval or if the applicant will be held to the dates in the application.

COMMENTERS: Hellier, Rice

RESPONSE: The application is based upon a business plan that incorporates the stated timeframes and best estimates of future economic conditions. On August 13, 2008, TMC filed a request to extend the date of final reclamation for the Morgan Pit to December 31, 2018. The applicant’s request for this extension is reasonable given that processing this application has exceeded the OMA’s statutory deadlines. The delay has been caused mainly by compliance with MEPA and public involvement, and a change in local zoning regulations. DEQ recognizes the request by TMC to extend the reclamation date to 10 years after signing the permit.

- h. COMMENT: There has not been adequate assessment of cumulative impacts and secondary impacts to air quality, noise, traffic or social mores/economics. The

alternatives considered for DEQ action concerning the Morgan Family Pit permit application should be examined in the setting of the cumulative impact of openpit mining permits on the community, with particular attention to traffic and property values.

COMMENTERS: GOMAG, Steinmuller

RESPONSE: Under MEPA rules DEQ considers cumulative impacts. The other nearby action currently being considered is the permitting of the amendment to the Nuss Pit. DEQ believes this EA sufficiently describes potential cumulative impacts. DEQ has no jurisdiction over property values. Cumulative impacts to economics would include a slight increase in local jobs and a slight increase in the local tax base. Cumulative impacts to traffic on the highway would be negligible. In response to the comment, additional responses on cumulative impacts are found under the 'Air Quality' comments and responses section.

- i. COMMENT: The application does not state exactly that magnesium chloride would be used on the access road, but rather that magnesium chloride or water would be used.  
COMMENTER: Rice  
RESPONSE: We have modified the text in the EA in the appropriate place to say 'magnesium chloride or water'.
- j. COMMENT: The Morgan property was not in the Gallatin Gateway Planning Area until TMC applied for a gravel permit. Then the Planning Group gerrymandered the boundary around the Morgan's property to include it.  
COMMENTERS: Rice  
RESPONSE: Comment noted.
- k. COMMENT: A concrete or asphalt plant is not appropriate at this agricultural/rural residential location.  
COMMENTERS: Conard, GOMAG  
RESPONSE: Comment noted.
- l. COMMENT: In general it should be noted that impacts have an actual duration (10 years) as opposed to using phrases such as 'short-lived'.  
COMMENTERS: GOMAG  
RESPONSE: Comment noted.
- m. COMMENT: The disruption of soils in the proposed project diminishes the areas that will be available for septic drainfields, which must be placed in naturally occurring soils.  
COMMENTER: GOMAG  
RESPONSE: There is no mention in the plan of placing drainfields in this area. Reclamation calls for vegetated pasture.
- n. COMMENT: Please include a summary statement of additional mitigation requirements and monitoring requirements in the Final EA  
COMMENTER: GOMAG  
RESPONSE: All mitigation and monitoring requirements will be included in the plan of operation if or when the permit is issued by DEQ.

- o. COMMENT: The proposed Morgan Pit is directly north of the cemetery, and the cemetery board has been assured that crusher operations will cease when a funeral is taking place. This issue should be noted in the permit.  
COMMENTER: Huttinga  
RESPONSE: Comment noted.

### **Aesthetics**

- a. COMMENT: Please clarify in which areas/what percentage of the mine excavation will be only 15 feet.  
COMMENTER: GOMAG  
RESPONSE: The plan states that about 4 acres in Phase I, which is along the west boundary, would be mined only to a depth of 15 feet for location of the wash plant and sedimentation ponds.

### **Air Quality**

- a. COMMENTS: Characterization of the existing environment concerning air quality should include some discussion of the common wind conditions and implications of local weather patterns for the siting of a major industrial facility such as the Morgan Family Pit. [Ref: Page 9, Para 9]  
COMMENTER: GOMAG  
RESPONSE: In general, prevailing wind in the area is from the southwest, such that any impact from dust or air quality degradations would be more likely to the northeast of the pit. However, note that equipment in gravel pits, such as rock crushers and asphalt plants, are generally permitted with a screening-level air quality model. Such a model is not site specific, but does assume 'worst-case scenarios' in terms of wind direction and speed. Thus, air quality permits for equipment in the Morgan Family Pit will take into account worst-case scenarios for wind influence on dispersion and downwind air quality effects.
- b. COMMENTS: The description of the existing environment should include some indication of the duration and time period that the surrounding fields were subject to "plows, discs, seed drill, swathers, combines, balers, etc." [Ref: Page 10, Para 2, Line 1]  
COMMENTER: GOMAG  
RESPONSE: The purpose of this section is simply to identify how the land was used historically. The specific impact of the historical operations on the particulate levels is inherent to the particulate matter concentrations as documented through the ambient air monitoring stations.
- c. COMMENTS: Text states: "Agricultural activities are exempt from the requirements to control or reduce air emissions created by these activities." [Ref. Page 12, Para 8, Line 2]  
This statement is irrelevant to the description of existing environment and the subject environmental analysis. Please strike.  
COMMENTER: GOMAG  
RESPONSE: This statement is relevant to defining the existing environment as far as permitting and control measures are concerned; and thus, the statement will remain. Agricultural impacts are a major source of particulates in the valley.

- d. COMMENTS: Text states: “The closest active quarries are located 3 miles southeast at Cottontail Road (Nuss/Rock), five miles north near Four Corners (Simpson & Storey) and 8 miles southeast (Huttinga). [Ref. Page 10, Para 2, Line 5]

The concerns about cumulative impacts are relative to the proximity of so many gravel pits operating or proposed in the Gallatin Gateway Community, so it is important that these distances be correct and not exaggerated. Please revise / correct this information via the following table:

Pit	Distance	Comment
Nuss	1.7 miles SW	permitted through 2010
Simpson	2.4 miles N	
Fluke	2.8 mile SSW	permitted through 2010
Baden	2.8 miles S	private
Storey	2.9 miles NW	permitted through 2028
Huttinga	4.5 miles S	permitted through 2020

COMMENTER: GOMAG

RESPONSE: The distances in the Draft EA were estimates based upon road mileages. Thank you for supplying your distances “as the crow flies”.

- e. COMMENTS: Text states: “Criteria pollutants are particulate matter with an aerodynamic diameter of 10 microns or less (PM10)...” [Ref. Page 10, Para 3, Line 3]. Please revise / correct to “(PM10 and PM2.5).” In following sentences, add sources of PM2.5 or generalize the discussion to PM.

COMMENTER: GOMAG

RESPONSE: The text will be revised to reflect that the criteria pollutant particulate matter is regulated as both PM10 and PM2.5.

- f. COMMENTS: Text states: “Primary air quality impacts from the proposed project would relocate mining...” [Ref. Page 10, Para 3, Line 5]. Strike “relocate”.

COMMENTER: GOMAG

RESPONSE: “Relocate” has been stricken, and the sentence reworded.

- g. COMMENTS: In the upstream area that was the source from which the Quaternary alluvium was derived there are geologic formations bearing asbestos and erionite in commercial volumes. Discuss potential air quality impacts of excavating, handling and crushing gravel bearing these fibrous minerals. [Ref. Page 10, following paragraph 3]

COMMENTER: GOMAG

RESPONSE: Erionite is formed from volcanic ash and is located in the eastern part of the state, not in the Gallatin Canyon according to John Podolinsky of the Asbestos Control Program at the DEQ (Phone conversation January, 2009).

A State superfund asbestos cleanup site located about 1100 feet north of the Gateway Inn and 300 feet south of South Cottonwood Creek and 400 feet west of Highway 191 was closed in 1995. The site, called the CMC Gallatin Gateway Asbestos site, was an asbestos stockpile area containing material hauled down from the Karst Mine. In a letter dated November 27, 1995, the Montana Comprehensive Environmental Cleanup and Responsibility Act (CECRA)

program stated in regards to that stockpile cleanup, “no further action is required to ensure that this facility, when used for commercial development, is protective of existing and proposed uses and does not pose a significant risk to public health, safety, or welfare, or the environment at the facility.”

The DEQ website contains information about the Karst Mine and the possible existence of asbestos in soils or spilled surficial materials in the Gallatin Valley. It states that asbestos can be found in the soils where the asbestos was disposed of or used as fill materials. The web site warns, “Residents should be aware of the possibility of asbestos ore in gardens, yards, or parks. Hikers should be aware of the possibility of asbestos on or near trails.” Note that this does not include native gravels.

During the geologic time that the gravel resource has washed downstream, any Karstolite (asbestiform amphibole) would probably have been broken up and washed out of the gravel in its 16-mile journey down the canyon. The EPA tested down-gradient gravel near the W.R.Grace Mine at Libby, MT for residual asbestos and found nothing in those gravels.

- h. COMMENTS: Please add distances from the Morgan Family Pit to these air monitoring stations: Belgrade – 10.5 miles; Bozeman – 8.5 miles; West Yellowstone – 78 miles. [Ref. Page 10, Table 3-1]

COMMENTER: GOMAG

RESPONSE: Comment noted; distances have been added to the EA text.

- i. COMMENTS: Please change the first sentence of the Potential Impacts to: “The air quality in the area would be degraded due to the emissions from the proposed site...”

COMMENTER: GOMAG

RESPONSE: Since there is only a minimal new source of emissions added to those reviewed under the previous EAs, it is not definitive that the air quality will be degraded. However, the DEQ agrees it is reasonable to state “the air quality in the area may be degraded due to emissions from the proposed project...”

- j. COMMENTS: Text states: “Permits and permit conditions have been established for this site to promote compliance with all applicable air quality rules and standards, and to ensure that properties beyond the plant boundaries (e.g. houses, rivers) would be protected.” [Ref. Page 11, Para 3, Line 2]

This is not a complete presentation of the potential impacts. There is no documentation, monitoring or evidence that air quality rules and standards are being met at the property boundaries. The only available data is that air quality conditions are being met at the three monitoring sites in Gallatin County that are listed in Table 2 of the Draft EA (10.9 to 76 miles from the site).

It is technically incorrect to use the word “ensure” without any data, monitoring, or modeling. Even then, this statement would only be correct for existing uses. The permits and permit conditions are not at all protective of any potential change in land use that adjacent property owners may consider (i.e., construction of a new home).

It would be useful public communication to include a discussion that discloses that compliance with air quality rules and standards does not “ensure health protection.” Obviously, “no dust” is healthier than “some dust,” and standards have been set by the government to limit adverse health impacts on the national scale to those that are

considered by the rule-makers to be “tolerable.” These standards are not always protective of sensitive receptors.

COMMENTER: GOMAG

RESPONSE: The potential air quality impacts are quantitatively defined in the air permit applications which include emissions inventories and air dispersion modeling. The air permit was developed based on a licensed engineer’s review of the application and specific operating conditions were imposed in the air permit to document compliance. Compliance files document periodic inspections, complaints, and operating conditions. Existing compliance strategies and air quality standards have been developed to protect public health. Nonetheless, it is possible that the facility would not maintain all conditions of the air permit and as such not ensure public health. The sentence will be modified to state: “Permits and permit conditions are established for this site to promote compliance with all applicable air quality rules and standards, and to **protect** properties beyond the plant boundaries (e.g. houses, rivers).”

- k. COMMENTS: Text states: “Truck emissions and road dust would continue to be generated but the quarry may reduce travel distances for future regional projects.” [Ref. Page 11, Para 4, Line 1]

Please revise sentence to clarify that local emissions would continue to impact the site and adjacent properties, and that the potential reduction in emissions due to reduced truck haul would be disseminated throughout the service area. It is important to clearly identify the trade-off that is being considered between high local costs and dilute regional benefit.

COMMENTER: GOMAG

RESPONSE: The request for clarification is reasonable and the statement will be amended as follows “Truck emissions and road dust would continue to be generated **at the current rate**, but the quarry may reduce travel distances for future regional projects, **thereby reducing regional air quality emissions.**”

- l. COMMENTS: Text states: “Operational conditions have also been established within the associated air permits to ensure that the source complies with existing air quality rules and regulations.” [Ref. Page 11, Para 7, Line 1]

Please clarify / state / differentiate between sources that require air permits and operational conditions, and those that do not require air permits and are therefore subject only to mitigation or operational conditions that may be included in the Opencut Mining Permit (i.e., what sources are covered by an Air Emissions Permit to comply with air quality rules and regulations).

COMMENTER: GOMAG

RESPONSE: Defining Montana Air Resources Management Bureau’s regulations is beyond the scope of this EA. Rules defining which sources must be permitted are available in Subchapter 7 of Title 17 of Chapter 8 of the Administrative Rules of Montana.

- m. COMMENTS: Text states: “Fugitive dust is normally managed with water spray and regulated at mine sites by gauging opacity – measuring visibility through the dust plume.” [Ref. Page 11, Para 8, Line 1]

Opacity measures are only appropriate and applicable (via regulation) for point sources of air pollution. Monitoring is the only viable measurement for non-point air pollution such

as the combined fugitive dust emissions from an 87-acre industrial site that is predominantly unvegetated.

COMMENTER: GOMAG

RESPONSE: The USEPA has defined procedures for measuring opacity from point sources including crushing plant equipment in 40 CFR 60, Appendix A, Method 9 and from fugitive sources in 40 CFR 60, Appendix A, Method 22. Opacity is used for compliance determination according to federal regulations (40 CFR 60, Subpart OOO) and state permits.

- n. COMMENTS: Text states: "Its use as a road and highway de-icer in winter in place of sanding has also reduced air-borne particulate matter." [Ref. Page 11, Para 8, Line 4]

This sentence is irrelevant to the subject environmental analysis, please strike.

COMMENTER: GOMAG

RESPONSE: The use of magnesium chloride as a de-icer at the facility is an emission control measure and impacts air quality since the alternative, sanding, would leave sand on the pit floor and contribute to airborne particulate matter during high winds. The sentence will stay but be worded to the present tense.

- o. COMMENTS: Please include additional potential mitigation [Ref. Page 11, Para 8, Line 5], including:

- Reduced stockpile height
- Higher berms in both upwind and downwind directions
- Windbreak trees including mature conifers planted on the berms and maintained by irrigation
- Reducing the amount of area that is unvegetated at any one time
- Monitoring dust and/or weather conditions so that additional mitigation may be employed when conditions exceed health and/or nuisance standards, both during and after operating hours

COMMENTERS: GOMAG, Lee-Roark

RESPONSE: Comment noted.

- p. COMMENTS: Text states: "Plant topsoil stockpiles that would remain longer than one year would be vegetated to reduce both water and wind erosion." [Ref. Page 11, Para 8, Bullet 3]

Delete the word "Plant" at the beginning of the sentence and capitalize "topsoil".

COMMENTER: GOMAG

RESPONSE: The change will be made.

- q. COMMENTS: Text states "...but plant operations are limited such that emissions levels would not cause harm to human health." [Ref. Page 12, Para 2, Line 1]

This falls into that problematic level of emissions that do not exceed standards that have been developed to reduce health impacts to respiratory systems in the general population to a permissible or tolerable level by the decision/rule-makers. Strong odors trigger asthma attacks, exacerbate allergies, and cause headaches and nausea -- which are certainly all adverse impacts (or harm) to human health. Concentrations of pollutants that do not exceed the national air quality standards have been demonstrated to have adverse health impacts on sensitive receptors.

It is more technically correct to state: “plant operations are limited such that emissions levels would not exceed national health standards.” Or alternatively, to include a clear discussion explaining the issue to the involved and impacted public. Obviously, “no dust” is healthier than “some dust,” and it should be explained to the public that standards have been set by the government to limit adverse health impacts on the national scale to those that are considered by the rule-makers to be “tolerable.” These standards may not be protective of sensitive receptors such as children, elderly, people with cardio-pulmonary obstructive diseases, or other respiratory diseases.

COMMENTER: GOMAG

RESPONSE: The standards were developed historically in a publicly reviewed process to protect the majority of the public. Nonetheless, it is recognized that scientific studies since these standards were developed demonstrate that sensitive individuals may still be impacted by the allowable exposure levels. The text will be modified to state: “... but plant operations are limited such that emissions levels would not exceed limits established by ARMB to minimize adverse health impacts.”

- r. COMMENTS: The three Gallatin County air quality monitoring stations do not represent the air quality of nearby home owners, especially since the 24-hour PM<sub>2.5</sub> ambient concentration is close to the regulatory limit and there is potential that a single day of operation for this site could result in a violation of the federal standard. An air quality station should be located adjacent to the site.

COMMENTERS: GOMAG, Lee-Roark

RESPONSE: National Ambient Air Quality Standards (NAAQS) have been established for pollutants considered harmful to public health and the environment. These standards have been established to protect public health, including the health of "sensitive" populations such as asthmatics, children, and the elderly (40 CFR 50). Six primary pollutants have NAAQS limits – Carbon Monoxide, Lead, Nitrogen Dioxide, Ozone, Particulate Matter, and Sulfur Dioxide. The Air Resources Management Bureau of the Montana Department of Environmental Quality (ARB) locates air monitoring stations throughout the state based on USEPA specifications for location, type of equipment and sampling frequency. The objective is to characterize *community* impacts from regional sources of air pollution.

Fence line limits are defined by ARMB in order to ensure compliance with the ambient standards. The most common tools used to determine whether a facility would comply with fence line limits is air dispersion modeling as established by the USEPA in Subpart W of 40 CFR 51. The modeling considers the specific sources of emissions at the facility, the distance from equipment to property boundaries, regional meteorological conditions such as wind speed and direction, and adjacent receptors (e.g. neighbors). Modeling must be conducted as part of the air quality permit application and is reviewed by ARMB staff. An air quality permit may not be issued by ARMB unless the modeling demonstrates compliance with the fence-line limits, thereby protecting public health. One of the advantages of modeling is that it can identify impacts from a large variety of meteorological conditions (e.g. wind speed and direction) at every point along the fence line. One disadvantage is that it does not provide real time results, but USEPA has demonstrated to the satisfaction of the scientific community that air dispersion modeling correlates well with real-time monitoring.

- s. COMMENTS: Cumulative and secondary environmental impacts analysis must include air quality data and meteorological data, in order to adequately address the full impact of their action in permitting any additional sources in the Gallatin Gateway Planning Area.  
COMMENTER: GOMAG  
RESPONSE: Any air quality permit application to install new or modify existing equipment must incorporate an inventory of potential emissions into an air dispersion model to characterize the impact of the proposed equipment, and the air dispersion model would incorporate air quality data and meteorological data. The equipment to be used in the Morgan Pit (rock crushers, asphalt plant, etc.) will be permitted separately from the pit, using such a model. Emissions due to additional land clearing would be addressed by the additional dust mitigation plans which include extending the soil berm and reclaiming disturbed areas.
- t. COMMENTS: During fire season, it is likely that ambient PM2.5 levels are high enough that any additional emissions from the mine site would exceed air quality standards.  
COMMENTER: GOMAG  
RESPONSE: The air permit and associated compliance documents required in the air permit are established to ensure compliance with the criteria pollutant limits such as that for particulate matter.
- u. COMMENTS: Dust control must be required at all times even if the plant is not in operation. How does TMC plan to apply water when temperatures are below freezing?  
COMMENTER: Brown  
RESPONSE: Correct. Water can still be used in freezing weather. Winter is a prime time for the use of tackifiers.
- v. COMMENT: The application must state how TMC plans to control dust when Farmers Canal is not flowing.  
COMMENTER: Brown  
RESPONSE: TMC will use water from an on-site production well for dust suppression when the ditch is not running.

## **Economics**

- a. COMMENT: The Rygg study commissioned by DEQ is outdated and flawed and should not be used in EAs. There are other approaches which should be used. The Gallatin Association of Realtors should be approached for data regarding listing prices and sales.  
COMMENTERS: Bach, Brown, Conard, Fiddaman, GOMAG, Lee-Roark, Steimmuller  
RESPONSE: Under the Opencut Mining Act DEQ has no authority or jurisdiction over property value issues. The Legislature has specifically limited DEQ's authority to issues relating to perpetuating taxable value through reclamation. Under Montana law, an administrative agency, such as DEQ, has only those powers granted to it by the Legislature through enactment of statutes. The Legislature has given DEQ two means of mitigating the effects of gravel operations on adjacent property. First, DEQ has authority to protect air quality; to minimize noise and visual impacts to the degree practicable through use of berms, vegetation screens, and limits on hours of operation; and to otherwise prevent significant physical harm to adjacent land. Second, in order to protect and perpetuate the taxable value of property, land on which operations are completed must be graded and revegetated or reclaimed to a locally approved land use.

The Rygg report is not outdated. It is factual data. The Diane Hite 2006 report upon which several of the other studies were based, used 10 year old data from the mid-1990's. Many things, often temporary, affect property sale prices. Because of legislative direction, it is beyond the scope of this EA to conduct an original study of property values using information from the Gallatin Association of Realtors. We have however, included information from other studies in the Final EA.

- b. COMMENT: There has not been adequate assessment of cumulative impacts to property values.  
COMMENTER: GOMAG  
RESPONSE: It is not within the scope of MEPA to assess cumulative impacts to property values because as stated above, DEQ has no jurisdiction over property values.
- c. COMMENT: DEQ should be familiar with and cite other studies concerning the impact of environmental disamenities on property values.  
COMMENTERS: GOMAG, Morse  
RESPONSE: As stated above, property values are outside the purview of DEQ's authority. However, we reviewed a number of the studies cited in the comment letters (Bhattarai et al. 2005; Boyle and Kiel 2001; Erickcek 2006a, 2006b; Hite 2006a, 2006b). Based on this review, we modified Section 21 of the Final EA.

### **Health and Safety (Human and Animal)**

- a. COMMENT: Neighbors on adjacent property have young boys and feel that the gravel pit and its equipment will create an 'attractive nuisance'. Fencing should be installed around the gravel pit property to prevent any accidents.  
COMMENTER: Spring  
RESPONSE: Comment Noted.
- b. COMMENT: Horses grazing near the proposed gravel pit are inhaling and ingesting dust that will settle on the grasses. What are the long-term effects of this exposure?  
COMMENTER: Brown  
RESPONSE: Ingestion of sand can be a problem for horses, but ingestion of most other particle sizes of soil (including smaller particles that make up dust) does not usually create chronic health problems. Grazing on dust-covered forage can occasionally cause temporary issues such as upper respiratory congestion, and rarely lead to secondary infections. Air quality standards protective of human health that are considered in permitting the mine should be protective of equine health.
- c. COMMENT: Installing a web cam at the pit would monitor the pit operations, show neighbors a good faith effort to comply with regulations, and probably improve employee safety at the pit.  
COMMENTER: Lee-Roark  
RESPONSE: Comment noted.

### **Historic and Archaeological Sites**

- a. COMMENT: Please explain if the walk-over inspection was completed by a qualified historical / cultural resource inventory specialist such as the historian or archeologist for the Montana Department of Transportation.

COMMENTER: GOMAG

RESPONSE: The inspection was conducted by a qualified DEQ staff member who holds a degree in geography with an emphasis in historical geography, a minor in anthropology, and additional college-level courses in field archeology with additional state and federal training, and work experience in field archeological surveys.

### Hours of Operation

- a. COMMENT: The hours of operation are too long, and are stressful for nearby neighbors who are disturbed by noise trying to work at home, sleep, or enjoy their yards outside in the summer.

COMMENTERS: GOMAG, Brown

RESPONSE: Noise impacts will be mitigated by a number of features; see Noise Section. DEQ may reasonably limit hours of operation to reduce impacts in residential areas. If issued by DEQ, the permit will provide limits on hours of operation.

### Noise

- a. COMMENT: Noise modeling did not include all of the potential concurrent sources for the Morgan Family Pit.

COMMENTERS: GOMAG

RESPONSE: The crusher will dominate the predicted noise levels, even if other sources, such as additional diesel-powered equipment, conveyors, pumps, asphalt plant, etc., are included in the noise modeling. The EA calculations included two pieces of diesel-powered equipment and the crusher which is sufficient for noise level predictions. According to the table of potential noise sources below with all noise sources normalized to 50 feet from the source, the crusher is the dominant noise source, and has the most significant effect on the calculated noise levels of the pit.

In the table below, the combined noise level of all of the sources except the crusher would be equal to 91 dBA using logarithmic addition, and when combined with the crusher, the total of all the potential noise sources would be 98 dBA. The 1 dBA difference between the combined total noise level of all the potential sources in the table (98 dBA) and the crusher noise level (97 dBA) is typically not noticeable, and indicates that the crusher is the dominant noise source associated with the pit.

Source	Noise level at 50 ft
Crusher	97 dBA
Truck	88 dBA
Loader	85 dBA
Asphalt plant	85 dBA
Pump	76 dBA
Conveyor motor	73 dBA
Conveyor rollers and belt	51 dBA

- b. COMMENT: Noise modeling for potential impacts is based upon generic assumptions that may not be appropriate for this site.  
 COMMENTER: GOMAG  
 RESPONSE: The types and number of noise sources used for noise modeling was based on observed and typical operating conditions for similar gravel pits.
- c. COMMENT: There has not been adequate assessment of cumulative impacts and secondary to air quality, noise, traffic or social mores/economics.  
 COMMENTER: GOMAG  
 RESPONSE: DEQ respectfully disagrees with this comment, and believing the cumulative impacts analysis is sufficient.
- d. COMMENT: Discuss projected Saturday operations noise in comparison to that noise present if no operations were allowed on Saturdays.  
 COMMENTER: GOMAG  
 RESPONSE: No operations on Saturday would be similar to the calculated  $L_{dn}$  values shown in Table 1 of the EA ( $L_{dn}$  42 dBA at M1;  $L_{dn}$  48 dBA at M2), which are based on measurements of the existing baseline conditions. Since no crushing would occur on Saturdays, two diesel-powered pieces of equipment operating simultaneously would produce approximately  $L_{dn}$  54 dBA at ¼ mile,  $L_{dn}$  48 dBA at ½ mile and  $L_{dn}$  42 dBA at 1 mile if a direct line of sight exists between the equipment and listener, and approximately  $L_{dn}$  48 dBA at ¼ mile,  $L_{dn}$  42 dBA at ½ mile and  $L_{dn}$  36 dBA at 1 mile if the line of sight was blocked.
- e. COMMENT: Please include noise analysis for the 3-month long extended hours (Monday through Friday from 6 a.m. to 10 p.m.) in the noise discussion.  
 COMMENTERS: GOMAG, Brown  
 RESPONSE: If the hours of operation are 6 a.m. to 10 p.m., the estimated  $L_{dn}$  values are shown in the table below.

Project Assumptions/ Source(s)	Equipment Primary Noise	Condition	Noise Level at Receiver		
			0.25 miles (1,320 feet)	0.5 miles (2,640 feet)	1 mile (5,280 feet)
<ul style="list-style-type: none"> <li>Crusher operating continuously between 6 a.m. and 10 p.m.</li> <li>Two loaders that reach <math>L_{max}</math> 40% of time between 6 a.m. and 10 p.m. (EPA 1971)</li> </ul>		Direct line of sight between sources and listener	$L_{dn}$ 63 dBA	$L_{dn}$ 57 dBA	$L_{dn}$ 50 dBA
		Line of sight between sources and listener blocked	$L_{dn}$ 57 dBA	$L_{dn}$ 51 dBA	$L_{dn}$ 44 dBA

- f. COMMENT: Please include evaluation of the cumulative noise of all of the potential concurrent sources.  
 COMMENTER: GOMAG  
 RESPONSE: See Response A in Noise Section.
- g. COMMENT: Noise analyses need to be made for mining activities at distances pertinent to each phase of operation.  
 COMMENTER: GOMAG  
 RESPONSE: Predicted noise levels in the EA are given at ¼ mile; ½ mile and 1 mile from the crusher, since the crusher will dominate the noise levels of the pit

(See response “a.”). Therefore, the noise levels for each phase can be estimated using the tables presented.

- h. COMMENT: Please include discussion of noise for home 857 feet southwest of project boundary and on the west side of Highway 191.  
COMMENTER: GOMAG  
RESPONSE: The noise levels and potential impacts at a house 857 feet southwest houses would be similar to the area around Location M2 discussed in the EA since the distance between the houses and the equipment, and the distance between the houses and Highway 191 would be similar.
- i. COMMENT: Please add to possible mitigation measures: Locate the crushing operation inside buildings or enclosures, and increase the height of the berms to eliminate line-of-sight to residences.  
COMMENTER: GOMAG  
RESPONSE: Comment noted.
- j. COMMENT: The estimated 6 dBA reduction in noise level because of an earthen berm seems too low. Also, the crushing operation will be almost 20-25 feet deep by the time mining occurs near the southeastern boundary, effectively creating a 25-foot high berm between the noise and the neighbors.  
COMMENTER: Rice  
RESPONSE: 6 dBA is the commonly accepted value for the reduction of barriers and berms if they just block the line of sight between the noise source and listener. The actual reduction provided by a barrier or berm will depend on the elevation of the source, the elevation of the listener, the horizontal distance between the source and receiver, and the height of the barrier or berm between the source and receiver. A detailed noise analysis could have predicted the noise reductions at each receptor location associated with various berm heights and pit depths versus various crusher locations, but the 6 dBA estimate was used to match the level of effort that was able to be completed for this EA. It is reasonable to state that crushing at a depth of 25 feet effectively creates a 25-foot high berm between noise and the neighbors.
- k. COMMENT: Recommendations for the use of berms and adjustable and ambient sensitive back-up alarms or strobe light alarms must be required, not just suggested.  
COMMENTER: Brown  
RESPONSE: Comment noted.

### **Traffic**

- a. COMMENT: It should be in the record that a request has been made for an underpass on Highway 191 to the pit to create a safe intersection.  
COMMENTER: Morse  
RESPONSE: Comment noted.
- b. COMMENT: An underpass on Highway 191 to the pit to is economically not feasible.  
COMMENTER: Sime  
RESPONSE: Comment noted.

- c. COMMENT: Paving the access road for at least 200 feet into the site would mitigate the impacts of dust from track-out onto 191.  
COMMENTER: GOMAG  
RESPONSE: Comment noted.
- d. COMMENT: “Minimal impact to the area transportation system: is not a clear description of the impact of trucks....The text concerning the MDTs interpretation of the Traffic Impact Study and its subsequent requirement for acceleration, deceleration and turning lanes does not include sufficient explanation of the requirement.  
COMMENTER: GOMAG  
RESPONSE: This issue is beyond the scope of DEQ’s authority. The MDT is the proper authority to assess the adequacy of the traffic study by Morrison Maierle (2008).
- e. COMMENT: A number of trucks will be added to the highway. They increase traffic, and do not always travel at safe speeds.  
COMMENTER: Volkorsz, GOMAG  
RESPONSE: DEQ does not have the authority to regulate traffic or speed limits. Trucks have a legal right to use the roads. MDT sets speed limits on the highways and speed limits are enforced by sheriff’s deputies and the Montana Highway Patrol.

### **Water Quality and Quantity**

- a. COMMENT: Page 2, Paragraph 4, Line 6: *Text states: “Excavation would stay just above the groundwater table...”* Suggested text change to “Excavation would stay at least three feet above high ground water.”  
COMMENTER: GOMAG  
RESPONSE: DEQ will establish the depth mining can occur in the gravel operations permit that will allow compliance with state law.
- b. COMMENT: Page 2; Paragraph 4, Line 9: *Text states: “This depth would allow sediment ponds to be dug eight feet deep and remain above seasonal high groundwater.”* Suggest same 3-foot additional buffer as safety measure be incorporated here, remaining 6 feet above seasonal high ground water.  
COMMENTER: GOMAG  
RESPONSE: DEQ will identify and permit the allowable depth for sediment ponds.
- c. COMMENT: Page 3, Paragraph 2, Line 1: *Text states: “At least 18 inches of topsoil and overburden would be salvaged...”* Reclamation topsoil layer should, as a minimum, be equal to the original topsoil depth.  
COMMENTER: GOMAG  
RESPONSE: The gravel operation reclamation plan will meet DEQ requirements. Topsoil at this site is only 12 inches deep. DEQ is actually requiring an additional 6 inches of material to be salvaged.
- d. COMMENT: Page 3, Paragraph 4, Line 2: *Text states: “Wash water would be recycled.”* In environmental analysis sections, include a discussion of potential leaching and any potential salinity problems that may arise from intensive recycling of ground water through the wash plant and sediment pond vicinity.  
COMMENTER: GOMAG

RESPONSE: This plan does not include “intensive” recycling of wash water as shown by the amount of make-up water required. Potential impacts from wash water recycling can be inferred before gravel pit construction begins. The gravel operations permit will include monitoring requirements that will alert DEQ and the owner/operator to any water quality issues.

- e. COMMENT: Page 6, Paragraph 2, Line 3: *Text states: “The Quaternary alluvium consists of cobbles and gravel intermixed with sand, clay and silt.”* The gravel resource has been derived from erosion and fluvial transport of sediment from higher in the Gallatin River drainage basin. There is at least one bedrock formation (Upper Cambrian Pre-Belt gneiss, schist and related rocks, [MBMG via NRIS interface]) in the watershed approximately 16 miles upstream of the Nuss Pit that had commercial quantities of asbestos ore. The gravel being crushed at the Nuss Pit should be analyzed for asbestos and erionite content (Steve Way, US EPA, pers. comm., 2008). (Erionite is another fibrous mineral that has been documented to cause respiratory diseases.)

COMMENTER: GOMAG

RESPONSE: See the response to ‘g.’ under Air Quality.

Steve Way of the Denver EPA office was contacted by phone on January 21, 2009, by a DEQ geologist to confirm the above comment. Way stated that his discussion with the GOMAG caller had been very broad ranging and not specific. He stated that it would be highly unlikely that the Karst Mine, 16 miles up the canyon from the Nuss site, would deliver asbestos to the gravels. He did not say that it should be analyzed for asbestos. He stated that he was working on a North Dakota erionite project.

Erionite is a fibrous zeolite mineral that forms as a secondary alteration product in some volcanic ash deposits. It is found in the Miocene Arikaree Formation which, in Montana, is only found in Carter County. He did not know if it was found in the Karst Mine. The time difference from the Upper Cambrian ( about 500 million years ago) at the Karst site to the Miocene (starting 23 million years ago) is about 480 million years.

The DEQ has information on the web about the Karst Mine and asbestos in the Bozeman area. It states that asbestos can be found in the soils where the asbestos was disposed of or used as fill materials. One such site was the CMC Asbestos Gallatin Gateway site about 1,000 feet north of the Gateway Inn. It was cleaned up as a superfund site in 1995. The web site warns, “Residents should be aware of the possibility of asbestos ore in gardens, yards, or parks. Hikers should be aware of the possibility of asbestos on or near trails.”

That web site is: (<http://deq.mt.gov/StateSuperfund/Karstolite.asp#1>)

There is no evidence that the Morgan site was ever used for or had contact with asbestos materials.

- f. COMMENT: Page 6, Paragraph 3, Line 1 *Text states: “At least 18 inches of topsoil and overburden would be salvaged...”* See previous comment.

COMMENTER: GOMAG

RESPONSE: Comment noted. The gravel operation reclamation plan will meet DEQ requirements.

- g. COMMENT: Page 6, Paragraph 3, Line 1: *Text states: "...and stockpiled along the western and northern proposed permit boundaries."*

Discuss environmental analysis of potential impacts related to excavation and stockpiling to topsoil structure, mineralogy / chemistry and microfauna. Mitigation of potential adverse impacts of excavation and stockpiling topsoil are commonly required on mine sites and should be required here.

COMMENTER: GOMAG

RESPONSE: Stockpiling soil can lead to some reduction in its quality but after 30+ years of reclamation experience in gravel mining, DEQ has not found any decreases restrictive to good reclamation. If satisfactory reclamation was not initially achieved, amendments to the soil such as fertilizer or manure would be added until final reclamation was achieved.

- h. COMMENT: Page 6, Paragraph 5, Irreversible and Irretrievable Commitments of Resources. Environmental analysis does not address the impact of the government action (permitting) concerning irreversible and irretrievable conversion of prime farmlands. USDA NRCS ranks Amsterdam silt loam, 0 to 4 percent slopes and the Amsterdam-Quagle silt loams, 0 to 4 percent slopes as *All areas are prime farmland*. The Lamoose silt loam, 0 to 2 percent slopes is *Farmland of local importance*. The Turner loam, 0 to 4 percent slopes and Meadowcreek loam, 0 to 4 percent slopes are both ranked as *Prime farmland if irrigated*.

COMMENTER: GOMAG

RESPONSE: This is a land use issue appropriate for local zoning regulation.

- i. Comment: Page 6, Paragraph 6, Line 6: *Text states: "The proposed change in the land use from agriculture to a gravel pit is temporary."*

Suggested alternative text: "The proposed change in the land use from agriculture to a gravel pit will be for ten years."

COMMENTER: GOMAG

RESPONSE: The text will be revised as follows: "*The proposed change in the land use from agriculture to a gravel pit is temporary and will be for a period of ten years.*"

- j. COMMENT: Several comments regarding the depth to groundwater and depth of mining were received. Limited long-term site-specific data are available for the property and the high ground water level has not been well-defined. Additional water level monitoring is requested as is a three foot buffer zone separation between anticipated high ground water and the base of excavation. Comment was made generally that mining should not impact groundwater.

COMMENTERS: Lee-Roark; GOMAG, Steinmuller

RESPONSE: water level measurements are being taken monthly. DEQ will establish the depth mining can occur in the gravel operations permit. The proposed operation plan indicates that mining will not intercept groundwater.

#### *Water Quality, Quantity, and Distribution*

- a. COMMENT: Page 7, Paragraph 1, Line 4: *Text states: "The source of water for the wash plant and dust control would come from Farmers Canal."*

Explain proposed contingency dust control outside of the irrigation season or for extreme drought conditions in which the available water rights are turned off to satisfy more senior water rights or retain flows in the Gallatin River for the aquatic ecosystem.

COMMENTER: GOMAG

RESPONSE: The Morgan family owns shares of water in the Farmers Canal. A portion of those shares will be used by TMC for gravel operations. Farmers Canal Company has decreed senior water rights on the Gallatin River that date to 1890. TMC will use water from an on-site production well for dust suppression when the ditch is not running.

- b. COMMENT: Page 7, Paragraph 2, Line 1: *Text states: "There are no reported wetlands in the project area."*

If a jurisdictional determination was made by the US Army Corps of Engineers Montana Office for the drainage ditches and irrigation ditches throughout the proposed project area and a wetlands delineation including investigation of hydric soils and wetland vegetation communities was completed, please make this available for review. The USDA NRCS soil survey shows that portions of the site are characterized by Lamoose silt loam, 0 to 2 percent slopes, and the Meadowcreek loam, 0 to 4 percent slopes (narrow strip adjacent to US Highway 191), which are both hydric soil units. If a jurisdictional determination and wetland delineation were not done, please provide some technical documentation supporting the decision to not perform that environmental analysis for public review.

COMMENTER: GOMAG

RESPONSE: A 75-foot undisturbed buffer zone is delineated along the Farmers Canal. DEQ and TMC are not aware of a wetlands delineation completed by the US Army Corps of Engineers for the Farmers Canal in the proposed project area. The presence of hydric soils alone does not constitute a wetland. Along with hydric soils, vegetation and hydrology need to be used in classifying wetlands. The Farmers Canal is a seasonal irrigation canal that would not support year round wetlands on the bench where the proposed gravel operation is planned. Depth to groundwater has been recorded as approximately 25 feet below ground surface.

- c. COMMENT: Page 7, Graph: Depth to Groundwater at Morgan Family LLC Gravel Pit Monitoring Wells: From this data it is not clear that seasonal high ground water is in September. Ground water should be monitored through the spring in case high ground water is dominated by natural snowmelt and spring rains, rather than leakage from the Farmers Canal. (This is also stated in the Draft EA text on Page 7, Paragraph 3, Lines 5 through the end of the paragraph.)

COMMENTER: GOMAG

RESPONSE: The gravel operations permit will require water level measurements from site monitoring wells on a monthly basis throughout the year.

- d. COMMENT: Page 8, Paragraph 1, Line 1: *Text states: "The site is designed to retain all precipitation and have no runoff leave the site..."*

Suggested text: "Operations and grading at the site would be designed to retain precipitation and have no runoff leave the site..."

COMMENTER: GOMAG

RESPONSE: The text will be revised to state that ...."Operations and grading at the site would be designed to retain precipitation and prevent runoff from leaving the site..."

- e. COMMENT: Page 8, Paragraph 1, Line 2:  
*Text states: "The wash plant sediment ponds would be installed in series with adequate capacity to result in clear water in the last pond."*

Please include discussion of potential impacts to ground water from sediment pond infiltration or leachates from the operations.

COMMENTER: GOMAG

RESPONSE: A wash plant removes the fine materials from the gravels. The plan does not include use of any chemicals in the wash cycle. Monitoring requirements will be included in the permit and the results would alert DEQ and the owner/operator to any water quality issues.

- f. COMMENT: Page 8, Paragraph 3, Line 4:  
*Text states: "No permanent fuel storage would occur on site."*  
See previous comment concerning mitigation for potential fuel spills and over-fill.  
COMMENTER: GOMAG  
RESPONSE: Monitoring requirements will be included in the gravel operations permit. On-site storage of petroleum products greater than 1,320 gallons would require an SPCC plan.

- g. COMMENT: Page 8, Paragraph 4, Line 10: *Text states: "Gravel would be stockpiled and washed when water is seasonally available from the ditch."*  
See previous comment concerning water source for dust control when water from Farmers Canal is not available.  
COMMENTER: GOMAG  
RESPONSE: Comment noted.

- i. COMMENT: Page 8, Paragraph 5, Line 8: *Text states: "It is estimated that this proposed wash plant would operate about 6 months per year."*  
  
Include the normal operating period of the Farmers Canal in this discussion.  
COMMENTER: GOMAG  
RESPONSE: The period of diversion for the Farmers Canal is April 1 through October 31.

- j. COMMENT: Page 9, Paragraph 4, Possible Mitigation: *Text states: "A 35-gpm production well would be required to provide water for general mining operations when the Farmers Ditch was not flowing ..."*  
  
Please discuss if this well would be sufficient for dust control when Farmers Ditch is not flowing. It would be useful to include a requirement for water quality monitoring as well as water level monitoring in this or the two previously mentioned monitoring wells in the permit conditions.  
COMMENTER: GOMAG  
RESPONSE: Water from the 35-gpm production well that allows use of 10 acrefeet of water would be adequate to fill the water truck and use for dust control. Monitoring requirements will be included in the gravel operations permit.

## IMPACTS ON THE PHYSICAL ENVIRONMENT

### RESOURCES, POTENTIAL IMPACTS AND MITIGATION MEASURES

#### 1. GEOLOGY AND SOIL QUALITY, STABILITY AND MOISTURE:

**Applicant's Proposed Action:** The proposed operation would be located on an alluvial terrace bench approximately 4,840 feet above mean sea level (msl) and approximately 0.5 miles east of the Gallatin River. The property slopes to the west and has approximately 40 foot of elevation change from east to west across the project area. Mining would begin at the toe of the terrace slope. All mining and associated activities would stay just above the groundwater table which is estimated at 25 feet below the ground surface. The topsoil and some overburden would be stripped and stockpiled on site and used for final reclamation.

**Existing Environment:** Quaternary alluvium, predominantly stream-laid deposits, underlies the soil and overburden in the proposed project area. The unit is identified as Qa on the geology map of the Gallatin Valley (Hackett 1960). The Quaternary alluvium consists of cobbles and gravel intermixed with sand, clay, and silt. The upper 20 feet is generally composed of clean and moderately well sorted cobbles and gravel. In general, five soil types have been identified within the project area that overlies the Quaternary alluvium. These include the following: 1) Amsterdam silt loam, typically silt loam to very fine silty-loam; 2) Lamoose silt loam, typically a silt loam with very gravelly loamy sand at depth; 3) Anceney-Trimad-Meagher complex, typically a cobbly gravelly sandy loam with loam dominating the upper portion of the profile; 4) Amsterdam-Quagle silt loams, typically a silty loam with very fine sand at depth; and 5) Turner loam, typically a clay loam at intermittent depths and very gravelly loamy sand at depth. These loam soil types would work well for salvage and redistribution for reclamation.

**Potential Impacts:** At least 18 inches of topsoil and overburden would be salvaged and stockpiled along the western and northern proposed permit boundaries. The topsoil and overburden could be subjected to erosion. However, these stockpiles would be seeded to control both water and wind erosion. Mining operations would occur in phases. Soil berms would be constructed along the west, north, and east perimeters of the permit area as sight and sound barriers.

*Reclamation:* Reclamation would occur concurrently with mining. After mining, the land would be reclaimed with a wheatgrass seed mix to pasture land for grazing livestock. The reclaimed side slopes would be regraded to a 3:1 or flatter slope. The average annual precipitation in the area is 13.5 inches and the growing season is over 100 days per year. Because of the quality of the soil and the amount of available precipitation, this site should reclaim easily.

**Irreversible and Irrecoverable Commitments of Resources:** Some topsoil may be lost during ground disturbance. About 1.5 million cubic yards of material would be mined. Gravel resources would be removed and the commitment cannot be reversed without refilling the excavation with imported material.

**Cumulative Impacts:** The gravel resource in Gallatin County is not particularly limited in the area. There are numerous sand and gravel operations in the Gallatin Valley, and several are located or proposed for location within a few miles of this proposed project area. The proposed operation would add to the cumulative and permanent removal of sand and gravel in the valley. Demand for these products is increasing as a result of new subdivisions, new homes, and associated roads, as well as new commercial and industrial structures. The proposed change in the land use from agriculture to a gravel pit is temporary.

## IMPACTS ON THE PHYSICAL ENVIRONMENT

### RESOURCES, POTENTIAL IMPACTS AND MITIGATION MEASURES

#### 2. WATER QUALITY, QUANTITY AND DISTRIBUTION:

**Applicant's Proposed Action:** The applicant plans to open a new gravel pit and proposes to mine horizontally into the alluvial terrace. The undisturbed land and topsoil berms would be used for noise abatement. No dewatering of the mine is planned. Mining would remain above the water table, and the excavation would extend no closer than 75 feet to the Farmers Canal. The source of water for the wash plant and dust control would come from Farmers Canal. The landowners have sufficient water rights, and these rights would be converted from agriculture to industrial beneficial use during the life of the permit, and then changed back to agricultural beneficial use. The applicant would request a temporary change of use under MCA 85-2-407 to allow water, previously used for irrigation, to be used for the gravel plant wash plant and dust control. After a specified term, not to exceed ten years, the water right would automatically revert back to irrigation use.

**Existing Environment:** There are no reported wetlands in the project area. Two monitoring wells are located on the property. Groundwater was measured in the north well at 23 feet below ground surface (bgs) and 28 feet bgs in a well near the Farmers Canal. The Farmers Canal diverts water from the Gallatin River approximately 1.5 miles south of the proposed project area and extends in a northeasterly direction approximately 11 miles, terminating just west and north of Bozeman.

#### Groundwater Levels

Water levels were monitored and reported by the applicant in two monitoring wells from September 11, 2007 through December 1, 2008. Water level measurements collected are provided in Table A-1 in the Appendix. A graph showing the relationship of water level elevations over time is provided below. During the short period of monitoring, highest water levels were recorded at the beginning of measurements in September 2007 and in July 2008. Summertime rise in water table results from natural snowmelt, precipitation, infiltration, and runoff, and is supplemented by flood irrigation that starts in May and June and continues until September or October. Additional groundwater monitoring is important to evaluate seasonal groundwater fluctuations.

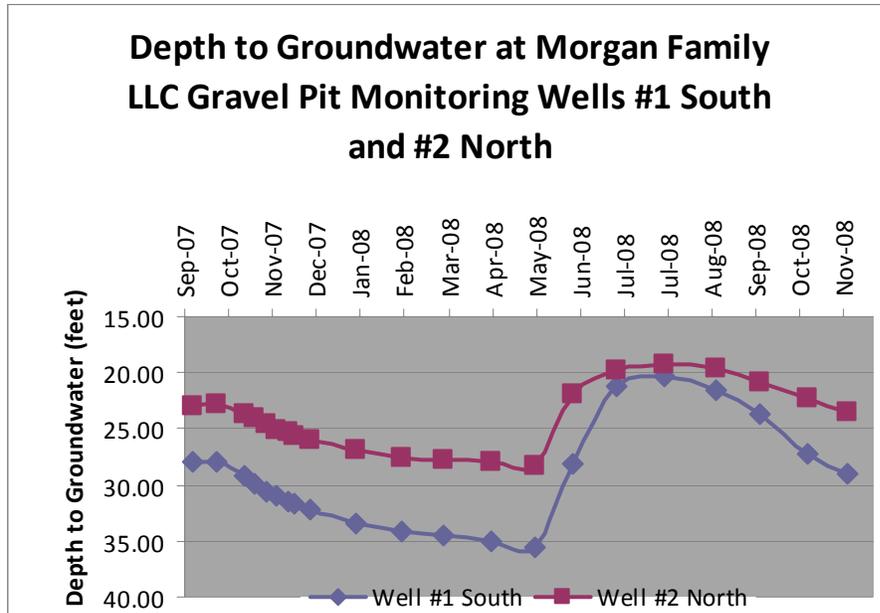
The site is designed to retain all precipitation and have no runoff leave the site, thus surface water features would not be impacted by this operation. The wash plant sediment ponds would be installed in series with adequate capacity to result in clear water in the last pond. Water from the last pond would be routed or pumped back to the wash plant for reuse.

The estimated maximum depth of mining is 25 feet bgs. The seasonal high water table in the main permit area is estimated to be 19 to 20 feet bgs based on water level data collected from Wells #1 and #2. The seasonal low water table in the main permit area is estimated at 28 to 35 feet bgs. Information about local wells obtained from the Groundwater Information Center (GWIC) operated by the Montana Bureau of Mines and Geology, in Butte, Montana, indicates that the nearest domestic (groundwater) water wells are located approximately 200 feet from the project boundary, one located along the northeast boundary, and one located just south of the eastern boundary. Other domestic wells are shown in the area. Water levels in the neighboring wells are below the bottom of the alluvial terrace bench and should not be impacted by the mining operation.

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#### Depth to Groundwater at Morgan Family LLC Gravel Pit Monitoring Wells



Note: Graph updated from Draft EA with information through November 2008.

The site is designed to retain all precipitation and have no runoff leave the site, thus surface water features would not be impacted by this operation. The wash plant sediment ponds would be installed in series with adequate capacity to result in clear water in the last pond. Water from the last pond would be routed or pumped back to the wash plant for reuse.

The estimated maximum depth of mining is 25 feet bgs. The seasonal high water table in the main permit area is estimated at 25 feet bgs; the seasonal low water table in the main permit area is estimated at 40 feet bgs. Information about local wells obtained from the Groundwater Information Center (GWIC) operated by the Montana Bureau of Mines and Geology, in Butte, Montana, indicates that the nearest domestic (groundwater) water wells are located approximately 200 feet from the project boundary, one located along the northeast boundary, and one located just south of the eastern boundary. Other domestic wells are shown in the area. Water levels in the neighboring wells are below the bottom of the alluvial terrace bench and should not be impacted by the mining operation.

**Potential Impacts:** The Farmers Canal is adjacent to the mine operation. However, the operation plan calls for mining no closer than 75 feet from the Farmers Canal in order to protect the integrity of the canal system and prevent impact to surface water. Mining would be located above the water table and would not have the potential to impact drinking water supplies. No permanent fuel storage would occur on site.

According to the proposed plan of operation, water used for pit operations would be supplied using surface water from the Farmers Canal. The Farmers Canal diverts water from the east bank of the West Gallatin River at a point in the northwest ¼ of Section 11, Township 3 South, Range 4 East, and extends in a northeasterly direction approximately 11 miles to a location just north of Bozeman. No more water would be used than is currently available under existing property owner water rights. Based on a meeting between Kenai Engineering, Inc. and DNRC representative Jan Mack on October 16,

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2007, a temporary change in appropriation right under MCA 85-2-407, would be requested. Existing surface water rights would be temporarily changed from irrigation to industrial beneficial use during the pit operation period and used for the gravel washplant and dust control. Mining operations would not have any effect on groundwater users. Gravel would be stockpiled and washed when water is seasonally available from the ditch. TMC, Inc. would work with DNRC and the ditch company to permit water use for gravel pit operations.

The major water consumer would be the proposed wash plant. A wash plant uses water to remove fine material less than sand grain size from gravel. The cleaned materials are screened by size and carried by conveyor belts to stockpiles of different products including washed sand for mortar, clean rock for concrete, patio rock bedding, sized rocks for drain fields, and other products. The wash water flows by gravity through the plant and drains to a series of settling ponds, carrying the fine silts and clays with it. Ultimately the fine dirt settles in the ponds and the clear water is recycled through the wash plant. Because a wash plant utilizes flowing water, it cannot be operated when temperatures are below freezing.

It is estimated that this proposed wash plant would operate about 6 months per year.

No specific plant size has been proposed by TMC, Inc. For the purpose of analysis, a 500 gallon per minute (gpm) plant is assumed. After moving through the washing process and the settling ponds, water from the last pond would be recycled back to the wash plant to start the loop over again. About 335 gpm of the initial 500 gpm would recycle. Approximately 165 gpm would be consumed by remaining in the products (67,000 gallons per day), evaporating (8,000 gallons per day) or infiltrating into the ground (4,000 gallons per day). The 165 gpm would be made up from fresh water from the canal.

A wash plant would be scheduled to operate and stockpile material during the spring, summer and fall, about 6 months a year. Since it is proposed that the water comes from a temporary change of use from rights in the Farmers Canal, the wash plant would be scheduled to operate when the canal is flowing. The wash plant's annual consumption is calculated below (DEQ 2003).

$165 \text{ gpm} \times 60 \text{ min/hr.} \times 8 \text{ hr/day} \times 5 \text{ days/week} \times 26 \text{ weeks} = 10,296,000 \text{ gallons of makeup water per year, or approximately 30 acre feet.}$

If Farmers Canal water could not be used for some reason, a 35 gpm well could be drilled to supply up to 10 acre feet per year. The same-sized wash plant discussed above could only be operated for about 6 weeks per year.

#### **Mitigation:**

- A 35-gpm production well would be required to provide water for general mining operations when the Farmers Ditch was not flowing, and until the temporary water rights transfer was completed.

There are no identified water quality impacts that have the potential to adversely impact human health and safety. Mining operations would be active above the water table and would not impact groundwater. Surface water also would not be impacted. No permanent fuel storage would be on site. No discharge of water would occur.

**Irreversible and Irrecoverable Commitments of Resources:** No irreversible or irretrievable commitment of the water resources would occur as a result of this proposed gravel mining operation. Existing surface water rights would be used and no new surface water rights would be obtained. Changes in the use of water from irrigation to industrial beneficial use may temporarily alter the ratio of

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evaporation and evapotranspiration at the property, but should not result in a net increase in water loss.

**Cumulative Impacts:** Surface water and groundwater resources would not be impacted during mining; therefore, no cumulative impacts on these resources were identified as a result of the Proposed Action.

### 3. AIR QUALITY:

**Applicant's Proposed Action:** TMC Inc. intends to establish a 53 acre mine in Gallatin County, and install or contract portable rock crushing, gravel washing, and/or asphalt plants at the project location during a 9-year period. In addition, stockpiles of aggregate, crushed stone, and concrete and asphalt material for recycle would be stored at the site throughout the project.

**Existing Environment:** The air quality in Gallatin County is in attainment with federal ambient air quality standards, which were set at levels that will protect public health and welfare, (<http://www.deq.state.mt.us/AirQuality/Planning/AirNonattainment.asp>). Furthermore, the only Class 1 designated protection area in this county is Yellowstone National Park, at the SE corner of the county, approximately 50 miles south of Gallatin Gateway.

Historic use of the agricultural land by plows, discs, seed drills, swathers, combines, balers, etc. have always contributed to the dusty conditions in the area during summer months. Agricultural activities are exempt from the requirements to control or reduce air emissions created by these activities. Six quarries are currently active within 20 miles of Morgan Pit and four more have been sited 17 to 25 miles away. The closest active quarries are located three miles southeast at Cottontail Road (Nuss/Rock), five miles north near Four Corners (Simpson & Storey) and eight miles southeast (Huttinga).

The Clean Air Act requires EPA to set National Ambient Air Quality Standards for six common air pollutants. These commonly found air pollutants (also known as "criteria pollutants") are found all over the United States. Criteria pollutants are particulate matter with an aerodynamic diameter of 10 microns or less (PM<sub>10</sub> and PM<sub>2.5</sub>), carbon monoxide (CO), oxides of nitrogen (NO<sub>x</sub>), sulfur dioxide (SO<sub>2</sub>), ozone (O<sub>3</sub>), and lead (Pb). Primary air quality impacts from the proposed project are from mining (PM<sub>10</sub> and PM<sub>2.5</sub>), crushing (PM<sub>10</sub> and PM<sub>2.5</sub>), screening (PM<sub>10</sub> and PM<sub>2.5</sub>), material transfer (PM<sub>10</sub> and PM<sub>2.5</sub>), unloading (PM<sub>10</sub> and PM<sub>2.5</sub>), fueling (VOC), vehicles (CO, NO<sub>x</sub>, PM<sub>10</sub> and PM<sub>2.5</sub>), windblown dust from roads and storage piles (PM<sub>10</sub> and PM<sub>2.5</sub>), and asphalt drum mixing (CO, NO<sub>x</sub>, SO<sub>x</sub>, VOC plus hazardous air pollutants). Particulate matter (PM) is the primary pollutant from mining and rock crushing activities. PM is a complex mixture of extremely small solid particles and drops of liquid in the air. Common sources of PM are diesel exhaust and smoke (generally less than 2.5 microns in diameter), dust (generally less than 10 microns), and mining and crushing (approximately 50 percent less than 10 microns with the balance of particles greater than 10 microns).

DEQ maintains three air monitoring stations for particulate matter in Gallatin County – Bozeman City Building (8.5 miles from Morgan Family Pit), Belgrade ConAgra (10.5 miles from Morgan Family Pit), and West Yellowstone (78 miles from Morgan Family Pit). According to a 2007 presentation of air monitoring data ([http://www.deq.state.mt.us/AirQuality/WhatsNew/BJ\\_Gallatin\\_General\\_Talk.pdf](http://www.deq.state.mt.us/AirQuality/WhatsNew/BJ_Gallatin_General_Talk.pdf)), airborne particulate matter less than 10 microns (PM<sub>10</sub>) has consistently been less than 60 percent of the annual and daily federal regulatory standards since 1996. The Environmental Protection Agency (EPA) established PM<sub>2.5</sub> standards (particulate matter less than 2.5 microns) in 1997 and revised them in 2006. According to the available data, airborne PM<sub>2.5</sub> concentrations (the particulate matter most likely to be

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inhaled) have been approximately 75 percent or less of the annual standard and 86 percent or less of the daily standard that allows evaluation at the 98<sup>th</sup> percentile values as summarized below [Ref: [http://www.deq.state.mt.us/AirQuality/WhatsNew/PM25\\_NAAQS\\_MT\\_Review\\_Mar\\_2008.pdf](http://www.deq.state.mt.us/AirQuality/WhatsNew/PM25_NAAQS_MT_Review_Mar_2008.pdf)]

**Table 3-1.** Air quality monitoring stations results for PM<sub>2.5</sub> for Gallatin County 2005-2008.

Monitoring Site	% 24-Hour Limit	% Annual Limit
Belgrade	86	65 <sup>(1)</sup>
Bozeman	63 <sup>(2)</sup>	43 <sup>(2)</sup>
West Yellowstone	34	28

- (1) *Failed 75% data recovery requirements for calendar year 2005 at Belgrade monitoring site, so annual average is not valid for EPA determination.*
- (2) *Bozeman monitoring site started operation in 2005 so there is not enough data for a valid 3-year average.*

Volatile organic compounds (VOC) are the primary emissions from asphalt operations (many of which are regulated as Hazardous Air Pollutants (HAPS). VOCs combine with oxides of nitrogen to produce ozone, which is a criteria pollutant and many HAPS have specific health affects. There is currently no EPA approved monitoring site for ozone in Gallatin County.

**Potential Impacts:** Air quality in Gallatin County may be degraded to some extent due to the emissions from the proposed site, but the activities and ambient air impact would be limited by DEQ's Air Resources Management Bureau (ARMB). DEQ has an EPA-approved air quality program defined in the Clean Air Act of Montana (MCA 75-2-101 et seq.) that meets federal standards. Permits and permit conditions may apply to equipment that is operated at this site. Sources that have potential air emissions above the permitting threshold are required to obtain permits. Permits are issued to sources that comply with the applicable air quality rules and standards. These rules and standards are designed to be protective of human health and the environment.

Typical sources operating in this pit (crushing plants and asphalt plants) are required to have an air quality permit to operate. Permits and permit conditions are established to promote compliance with all applicable air quality rules and standards, and to protect properties beyond the plant boundaries (e.g. houses, rivers). These rules and standards are designed to be protective of human health and the environment and crushing plants and asphalt manufacturing plants operating in the pit must have an air quality permit to operate.

**Emissions** The ARMB evaluates plant emissions, based on accepted emission inventory factors obtained from Federal and State guidance documents, and establishes appropriate limitations to ensure compliance with the National Ambient Air Quality Standards (NAAQS) and Montana Ambient Air Quality Standards for these types of operations. The NAAQS are set at levels that are protective of human health and the environment.

Truck emissions and road dust would be generated at the current rate but the quarry may reduce travel distances for regional projects, thereby reducing regional air quality emissions. Primary sources of emissions would be from mining, gravel crushing, asphalt production, and stockpiles. No emissions are expected from the gravel wash plant.

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**Emissions Control** Best Available Control Technology (BACT) must be utilized on equipment operations. BACT for crushing/screening operations typically includes the use of water and water spray bars. BACT for asphalt drum mix and batch mix asphalt plants typically includes the use of baghouses, wet scrubbers, and/or condensers.

Operational conditions are established within a permit based on allowable emission limits and the required control equipment to ensure that the sources comply with existing air quality rules and regulations. ARMB would be responsible for assuring compliance with the conditions of the air permit.

Fugitive dust is normally managed with water spray and regulated at mine sites by gauging opacity - measuring visibility through the dust plume. The application also states that magnesium chloride or water would be used on the access road. Magnesium chloride has been approved for, and is widely used for dust control on graveled roads, parking lots, etc. Its use as a road and highway de-icer in winter in place of sanding reduces air-borne particulate matter. Additional mitigation could include:

- Apply Magnesium chloride in the stockpile area.
- Use tackifiers on the topsoil stockpiles prior to vegetation establishment.
- Topsoil stockpiles that would remain longer than one year would be vegetated to reduce both water and wind erosion.
- Tackifiers could also be used on product stockpiles. (DEQ 2004).

**Odors** Some of these associated emissions produce odors that may not be considered pleasant and many of the HAPS are known to cause cancer, but plant operations are limited such that emissions levels would not exceed limits established by ARMB to minimize adverse health impacts. Asphalt plants are operated seasonally, normally between April and October, when temperatures are above freezing and the ground is not frozen. The steam (water) part of the plume from the asphalt plants is not regulated because it dissipates rapidly due to the seasonally warm temperatures.

**Regulatory Oversight** ARMB operates an air quality program that includes permitting, compliance, and enforcement staff. The air quality program staff members are available to answer any specific questions of interested parties including questions in regard to operations of a facility in a particular area, inspections and testing that may be required for the facility, and the compliance history of a facility.

The ARMB responds to complaints about excessive dust and smoke and enforces compliance with the requirements to the permits that it issues. Any failure on the company's part to comply with required permits issued by DEQ could result in enforcement actions and possible penalties under one or more statutes.

**Irreversible and Irretrievable Commitments of Resources:** None are anticipated as air quality is not permanently impaired as a result of this project.

**Cumulative Impacts:** Particulate emissions are the primary air pollutant of concern due to its affect on respirator health in high risk individuals. Existing sources of particulate matter include upwind fugitive and process emissions from 10 regional quarries, industrial sources, commercial development, unpaved roads, an undefined number of wood stoves, smoke from forest fires, and vehicle emissions.

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#### 4. VEGETATION COVER, QUANTITY AND QUALITY:

**Applicant's Proposed Action:** Vegetation would be removed and topsoil would be stockpiled as lands are moved into active mining. When lands are reclaimed, the stockpiled topsoil would be replaced and graded to a slope of 3:1 or flatter. Reclaimed lands would be planted with a wheatgrass mix and used for pasture.

**Existing Environment:** The area of the proposed operation is primarily pasture land consisting of cultivated alfalfa (*Medicago sativa*) and a mix of non-native and native grass species. Two noxious weeds, Canada thistle (*Cirsium arvense*) and spotted knapweed (*Centaurea biebersteinii*), are known to occur in and around the project area, but have been controlled successfully with herbicide. The site is covered by an approved weed control plan and would be periodically sprayed for control of noxious weeds.

An approved wheatgrass seed mix would be reseeded on the areas not reclaimed to cropland. No rare plants, cover types, or species of special concern were discovered during a literature search conducted by the Montana National Heritage Program (MNHP 2008). Nor were rare plants, cover types, or species of special concern identified during a ground search.

**Potential Impacts:** The potential for weed seeds to be transported into the area and grow on disturbed lands is of concern. However, the proponent has filed, and gained approval for, a weed control plan and the plan of operations includes measures to prevent the spread of noxious weeds.

**Irreversible and Irrecoverable Commitments of Resources:** Some topsoil may be lost during ground disturbance and berm construction. However, the proponent has committed to a reclamation plan that would return the lands to its previous use as pasture after the gravel resource has been depleted. Therefore, no lasting impacts or losses to the existing vegetation community are anticipated.

**Cumulative Impacts:** The lands surrounding the proposed gravel pit are primarily a mix of cultivated and pasture lands interspersed with housing on larger (>1 acre) lots. The vegetative community within a five mile radius of the project is a mix of native and non-native plants, but does not include rare or sensitive plants or plant communities (MNHP 2008). Given that the lands would be mined and reclaimed concurrently, the surface disturbance and changes to the vegetation do not represent a long-term change to the overall vegetative community of the area surrounding Gallatin Gateway, and no measurable cumulative impacts to the vegetative community are likely to occur as a result of the Proposed Action.

#### 5. TERRESTRIAL, AVIAN AND AQUATIC LIFE AND HABITATS:

**Applicant's Proposed Action:** The Proposed Action would convert existing pasture land into active surface mining. Reclaimed lands would be planted with a wheatgrass mix and used for pasture; therefore, the change in land use is temporary.

**Existing Environment:**

*Terrestrial and Avian Wildlife:* The current use of the site is pastureland. Wildlife species compatible with that type of land use include white-tailed and mule deer, red fox, coyote, striped skunk, Richardson's

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ground squirrel, mice, voles, raptors, and songbirds.

*Aquatic Resources:* No waters of the U.S or natural waterways exist on the site. The Farmers Canal has flowing water during the irrigation season, but is a maintained ditch and does not represent quality aquatic habitat for much of the year. Similar conditions apply to Elk Grove Slough, which flows north along US 191 and passes just outside of the project's northwest boundary.

**Potential Impacts:**

*Terrestrial and Avian Wildlife:* The Proposed Action should not appreciably affect wildlife species. The project would be developed in three phases, with each phase being reclaimed as the next phase is being developed. The surrounding area provides similar wildlife habitat opportunities, so the temporary loss of pasture habitat is not significant. The project would not affect the riparian vegetation associated with the Farmers Canal or Elk Grove Slough.

*Aquatic Resources:* The Proposed Action should not affect the flows of the Farmers Canal as the project limits are 75 feet or more removed from the canal. The proponent's plan of operations includes sediment control measures to reduce the potential for fine sediments to enter the canal. It is highly unlikely that this Proposed Action would have more than a minimal impact to aquatic resources in the short or long term.

**Irreversible and Irretrievable Commitments of Resources:** No irreversible or irretrievable impacts to fish or wildlife resources are anticipated as a result of the Proposed Action.

**Cumulative Impacts:** The Proposed Action would not contribute to cumulative impacts to wildlife or aquatic resources in the Gallatin Gateway area.

### 6. UNIQUE, ENDANGERED, FRAGILE OR LIMITED ENVIRONMENTAL RESOURCES:

**Applicant's Proposed Action:** The Proposed Action would convert existing pasture land into active surface mining. Reclaimed lands would be planted with a wheatgrass mix and used for pasture; therefore, the change in land use is temporary.

**Existing Environment:** The lands are primarily used as pasture and are surrounded by open fields, actively-grazed lands and dispersed home sites. No threatened or endangered species, species of special concern, or identified habitats were found on or near the site (MNHP 2008). No wetlands are present. Occasionally bald eagles have been seen at the site, but no nests are located within five miles of the proposed permit area (MNHP 2008).

**Potential Impacts:** No unique, endangered, fragile or limited environmental resources were identified in the review of the existing environment. Therefore, there is no potential for resources of these kinds to be impacted by the Proposed Action.

**Irreversible and Irretrievable Commitments of Resources:** The Proposed Action would not result in any irreversible or irretrievable commitments of unique, endangered, or fragile environmental resources.

**Cumulative Impacts:** The Proposed Action would not contribute to cumulative impacts to unique, endangered, or fragile environmental resources in and around the project area.

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#### 7. HISTORICAL AND ARCHAEOLOGICAL SITES:

**Applicant's Proposed Action:** The Proposed Action would convert existing pasture land into active surface mining. Surface layers would be disturbed and relocated, and underlying layers would be removed.

**Existing Environment:** Because this is private land and is not using federal or state funds, neither the National Historic Preservation Act nor the State Antiquities Act legally apply to this project.

The Opencut Program sends a copy of all applications to the Montana State Historic Preservation Office (SHPO). The SHPO conducts a Class I file search to see if any cultural resources have been conducted in the area of the application and if any archeological resources were located. Based upon the file search the SHPO recommends if further investigations should or should not occur. In this case, the SHPO determined that as of October 24, 2007, because of a lack of previous inventories and the planned disturbance, a cultural resource inventory should be conducted to see if any sites existed and if they would be impacted by the project.

Subsequently, DEQ conducted a site inspection which includes a walk-over of the site. The upper bench has been plowed and farmed for many years. It has been planted with pasture grasses, irrigated and hayed. Two 1970's era farm sheds and related farm equipment are situated within the project area (C. Morgan, pers. comm. To Jo Stephen 2008).

**Potential Impacts:** A cursory inspection of the project area did not reveal any prehistoric artifacts. The site is well vegetated and little of the surface soils could be seen. Because the field has been plowed, the soils have been turned upside down and site integrity is thoroughly disturbed, so the possibility of intact archeological materials is small. It is highly unlikely that any surface cultural materials would be found while conducting the normal 30-foot spacing transect. While walking along the access trail and Farmer's Canal, no artifacts were seen. Under the National Historic Preservation Act, even if that act did apply to private land, historic buildings must be at least 50 years old or have evidence that some historic actions took place there. The buildings are not old enough to be considered for registry and there is no indication that any significant historical act occurred at this location.

Limited information available from the existing record indicates that the historic site defined as the Gallatin Valley Railroad grade (24GA0811) may be located along the right-of-way (R/W) of Highway 191. Any sites located in the highway R/W have been identified and mitigated by the MDT.

The historic Salesville Cemetery is located immediately adjacent to the south edge of the project area and would be avoided during all project operations.

If cultural resources were found to exist within the project area, they would undoubtedly be subjected to adverse impacts through the gravel pit excavation and mining operation. If, during the course of project operations, cultural resources are discovered, the SHPO would be notified and mining operations would be shifted to another area for a reasonable length of time to allow for assessment of the new discoveries.

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No paleontological resources have been found at this site. Some paleontological objects have been found during mining operations in other parts of the county. These were reported and appropriate mitigation was implemented.

**Irreversible and Irrecoverable Commitments of Resources:** If cultural resources were not recognized, disturbance to sites would result in irreversible and irretrievable loss of such resources.

**Cumulative Impacts:** Cumulative impacts to cultural resources would not occur.

### 8. AESTHETICS:

**Applicant's Proposed Action:**

*Noise:* Over time, excavation would lower the ground level in the mine by 15 feet or to about 11 feet above the water table. A mobile crusher (approximately 17 feet in height) would be set up and moved around the site as needed. On-site hauling would mostly be accomplished using loaders and conveyors. Twelve-foot high topsoil berms would be constructed along the west, north and east sides of the permit area, but no berms are being proposed along the Farmers Canal on the southeastern side of the permit boundary.

Normal operating hours would be 7 a.m. to 7 p.m. Monday through Friday, 8 a.m. to 5 p.m. on Saturday for maintenance and hauling, and 6 a.m. to 10 p.m. Monday through Friday for short-term specific projects. Normal operations would include mining, crushing, washing, asphalt operations, maintenance, and fueling. The primary noise sources would be the mobile crusher, the asphalt plant, and diesel heavy equipment (e.g., front-end loaders and haul trucks).

*Visual Resources:* The proposed gravel pit site is adjacent to US 191 and would be visible from the highway. The proponent proposes to build topsoil and overburden berms approximately 12 feet high along the west, north, and east perimeters of the permit area. These berms would be seeded and would shield the site from view once established.

**Existing Environment:**

*Noise:* The existing areas around the site are farmland and pasture with scattered residences to the south along Zachariah Lane, to the east along Grey Wolf Trail, and on hilltops east of Grey Wolf Trail. The closest residences are approximately 1,000 feet east of the northeast corner of the site boundary, and approximately 750 feet southeast of the southern site boundary. US 191 is located west of the site (Figure 3). The grade generally slopes uphill to the east from US 191 and south from the project site.

Noise is generally defined as unwanted sound, and can be intermittent or continuous, steady or impulsive, stationary or transient. Noise levels heard by humans and animals are dependent on several variables, including distance and ground cover between the source and receiver, and atmospheric conditions. Perception of noise is affected by intensity, frequency, pitch and duration. Noise can influence people by interfering with normal activities or diminishing the quality of the environment.

Noise levels are quantified using units of decibels (dB). Decibels are logarithmic values, and cannot be combined using normal algebraic addition. Humans typically have reduced hearing sensitivity at low frequencies compared with their response at high frequencies, and the "A-weighting" of noise levels, or

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A-weighted decibels (dBA), closely correlates to the frequency response of normal human hearing.

For environmental noise studies, noise levels are typically described using A-weighted equivalent noise levels,  $L_{eq}$ , during a certain time period. The  $L_{eq}$  uses a single number to describe the constantly fluctuating instantaneous ambient noise levels at a receptor location during a period of time, and accounts for all of the noises and quiet periods that occur during that time period. The  $L_{eq}$  is similar to the average noise level during a given time period. The  $L_{max}$  noise metric describes the highest instantaneous noise level during a period of time.

The  $L_{90}$  metric indicates the single noise level that is exceeded during 90% of a measurement period, although the actual instantaneous noise levels fluctuate continuously. The  $L_{90}$  noise level is typically considered the ambient noise level, and is often near the low end of the instantaneous noise levels during a measurement period. It typically does not include the influence of discrete noises of short duration, such as car doors closing, bird chirps, dog barks, car horns, etc. If a continuously operating piece of equipment is audible at a measurement location, typically it is the noise created by the equipment that determines the  $L_{90}$  of a measurement period even though other noise sources may be briefly audible and occasionally louder than the equipment during the same measurement period.

The day-night average noise level,  $L_{dn}$ , is a single number descriptor that represents the constantly varying sound level during a continuous 24-hour period. The  $L_{dn}$  can be determined using 24 consecutive one-hour  $L_{eq}$  noise levels, or calculated using measured  $L_{eq}$  noise levels during shorter time periods. The  $L_{dn}$  includes a 10 decibel penalty that is added to noises that occur during the nighttime hours between 10:00 p.m. and 7:00 a.m., to account for people's higher sensitivity to noise at night when the background noise level is typically low. The  $L_{dn}$  does not provide specific information about the number of noise events or the noise level at any particular time, but rather it represents the total sound environment during a 24-hour period.

#### ***Noise Level Measurements:***

To determine the general pre-operation conditions, the existing ambient noise levels were measured in March 2008 at two representative residential locations around the proposed site (**Figure 3**). One set of measurements was made during the daytime and another was made during the nighttime hours. Each measurement period at each location was approximately 5 to 10 minutes in duration, and the equivalent noise level,  $L_{eq}$ , and the 90<sup>th</sup> percentile exceeded level,  $L_{90}$ , for each measurement period were recorded to help quantify the general ambient noise conditions. The measured  $L_{eq}$  data were used to calculate the existing day-night average noise level,  $L_{dn}$  (FTA 1995).

The dominant noise source during the measurements was traffic on US 191. Other noise sources in the area include birds, water flowing in Farmers Canal, and residential sources. The noise level measurements are summarized in **Table 1**. The measured  $L_{90}$  and calculated  $L_{dn}$  levels are typical for light population density areas (Harris 1998).

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**Table 1: Summary of Existing Ambient Noise Levels**

Measurement Location	Date and Time (hours)	Measured $L_{eq}$	Measured $L_{90}$	Calculated $L_{dn}$
M1	3/11/08 0948 to 0953	42	39	42
	3/10/08 2309 to 2319	36	27	
M2	3/11/08 0959 to 1004	47	43	48
	3/10/08 2330 to 2340	40	34	

*Visual Resources:* The appearance of the proposed project area is consistent with the surrounding lands. This site is a gently sloping pasture with a few older farm buildings and a mobile home.

**Potential Impacts:**

*Noise:* No state or county noise regulations exist to govern environmental noise levels or noise generated by the Proposed Action, however, federal noise guidelines apply. As a result of the Noise Control Act of 1972, the EPA developed acceptable noise levels under various conditions that would protect public health and welfare with an adequate margin of safety. The EPA identified outdoor  $L_{dn}$  noise levels less than or equal to 55 dBA as sufficient to protect public health and welfare in residential areas, and other places where quiet is a basis for use (EPA 1979). Although the EPA guideline is not an enforceable regulation, it is a commonly accepted target noise level for environmental noise studies.

In addition to the EPA's  $L_{dn}$  55 dBA limit, an increase in ambient noise levels can also be used to gauge community response to a new noise. If a project-related noise does not significantly increase the community's existing  $L_{dn}$ , then little or no community reaction is expected. If a project causes an increase in the  $L_{dn}$  of 5 to 10 dBA, sporadic to widespread complaints should be anticipated. An increase of more than 10 dBA may result in strong negative community reaction (FTA 1995).

In gravel pits, the typical dominant noise source that determines the  $L_{dn}$  is the crusher, and typically, there are two loaders operating with the crusher. To assess potential noise impacts, noise levels were predicted at various distances from the activities, since the crusher would be moved around the pit. Noise level calculations included the estimated effects of distance, ground attenuation, and attenuation resulting from air absorption as per international standards (ISO 1996). Although the calculations conservatively assume that atmospheric conditions are favorable for noise propagation, the estimated noise levels can vary significantly due to atmospheric conditions, and should be considered average noise levels, since temporary significant positive and negative deviations from the averages can occur (Harris 1998). Typically, favorable atmospheric conditions for noise propagation means that the wind is blowing from a source to a receiver at approximately 2 to 10 miles-per-hour, and a well-developed temperature inversion is in place, which typically occurs between approximately 2 hours after sundown to 2 hours after sunrise.

Loaders intermittently reach maximum noise levels,  $L_{max}$ , 85 dBA at a distance of 50 feet from the equipment (FTA 1995). Mobile crushers have been measured at  $L_{eq}$  66 dBA at 1,050 feet away from the equipment with a direct line of site from the listener to the equipment (BSA 2008). However, equipment noise can vary considerably depending on age, condition, manufacturer, use during a time period,

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changing distance and whether a direct line of sight is available between the equipment to a listener location. Please note that the source  $L_{max}$  and  $L_{eq}$  data are used to determine the  $L_{dn}$  based on the times of day and duration that the equipment operates.

#### *Typical Operations*

The estimated project noise levels at varying distances are summarized in **Table 2**. If the line of sight is blocked due to topography, depth of the pit, or constructed berms, the estimated noise levels would be reduced by 6 dBA or more due to shielding. As shown, the predicted project noise levels with a direct line of sight to a listener are predicted to be within the EPA  $L_{dn}$  55 dBA guideline within approximately 0.5 miles (2,640 feet) of the equipment, and within approximately 0.25 miles (1,320 feet) if the line of sight to the equipment is blocked.

Project Equipment Assumptions/ Primary Noise Source(s)	Condition	Noise Level at Receiver		
		0.25 miles (1,320 feet)	0.5 miles (2,640 feet)	1 mile (5,280 feet)
Crusher operating continuously between 7 a.m. and 7 p.m.	Direct line of sight between sources and listener	$L_{dn}$ 60 dBA	$L_{dn}$ 54 dBA	$L_{dn}$ 46 dBA
Two loaders that reach $L_{max}$ 40% of time between 7 a.m. and 7 p.m. (EPA 1971)	Line of sight between sources and listener blocked	$L_{dn}$ 54 dBA	$L_{dn}$ 48 dBA	$L_{dn}$ 40 dBA

The nearest residences west of Grey Wolf Trail are approximately 0.5 miles (2,640 feet) from the Phase 1 crusher location. Because the predicted project  $L_{dn}$  48-54 dBA (**Table 2**) at 0.5 miles from the crusher would exceed the estimated existing  $L_{dn}$  42 dBA at Location M1 (**Figure 3**) by 6 to 12 dBA, the operations would become the dominant ambient noise source during the day on Monday through Friday when the crusher is operating. Therefore, even though the project noise levels are predicted to be less than the EPA guideline of  $L_{dn}$  55 dBA, the increase of up to 12 dBA would likely cause a strong negative community reaction (FTA 1995) unless the noise is mitigated.

The nearest residences along Zachariah Lane are approximately 750 feet from the Phase 1 crusher location, and closer to US 191. Because the predicted project noise  $L_{dn}$  48-54 dBA (**Table 2**) at 0.5 miles (2,640 feet) from the crusher would equal or exceed the estimated existing  $L_{dn}$  48 dBA at Location M1 (**Figure 3**) by up to 6 dBA, the operations may become the dominant ambient noise source during the day on Monday through Friday when the crusher is operating. Therefore, even though the project noise levels are predicted to be less than the EPA guideline of  $L_{dn}$  55 dBA, the increase of up to 6 dBA would likely cause sporadic complaints (FTA 1995) unless the noise is mitigated. The proposed berms would not shield residences to the east and south, but the mining cut into the hillside may alleviate some noise impacts, depending on where the crusher is located. As the crusher is moved, noise levels at distances between 0.25 to 0.5 miles from its location would stay below the EPA level. However, the level of noise dissipation would depend on whether the line of sight between the crusher and a listener was blocked or not (Table 2).

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#### *Back-up alarms*

Because of their intermittent, high-pitched, impulsive sound, back-up alarms can cause high levels of annoyance and numerous complaints even at low noise levels, but have little influence on  $L_{eq}$  or  $L_{dn}$  values. Federal regulations indicate that backup alarms shall be audible above the surrounding background noise level behind the equipment, but does not specify a particular noise level (MSHA 2008). In general, back-up alarm sound levels can vary between  $L_{max}$  87 and 112 dBA at 4 feet away, depending on their volume setting, and whether the listener is to the side or directly behind a directional backup alarm. Directional back-up alarms are being considered for Morgan Pit equipment.

The estimated back-up alarm noise levels are summarized in **Table 3**. In **Table 3**, the low number of the stated noise level range indicates the noise to the side of the directional alarm, and the high number indicates the noise level directly behind the alarm. The directional back-up alarms being considered for the proposed gravel pit could be between  $L_{max}$  25 and 56 dBA at 0.5 miles away. Compared to the measured existing daytime ambient ( $L_{90}$ ) noise level of 39 dBA at Location M1 on Grey Wolf Trail and 43 dBA at Location M2 on Zachariah Lane (**Table 1**) (**Figure 3**), the back-up alarms could be less than the  $L_{90}$  when a listener is to the side of the equipment, which would likely be inaudible, or up to 25 dBA over the  $L_{90}$  in the area when the back of the equipment is directed at a listener, which could be clearly audible.

<b>Table 3: Estimated Noise Levels at Various Distances from Back-up Alarms</b>				
Equipment / Noise source(s)	Condition	Noise Level at Receiver		
		0.25 miles (1,320 feet)	0.5 miles (2,640 feet)	1 mile (5,280 feet)
• Back-up alarm	Direct line of sight between sources and listener	$L_{max}$ 37-62 dBA	$L_{max}$ 31-56 dBA	$L_{max}$ 25-50 dBA
	Line of sight between sources and listener blocked	$L_{max}$ 31-56 dBA	$L_{max}$ 25-50 dBA	$L_{dn}$ 19-44 dBA

#### *Mitigation*

The following measures could be considered to reduce the impacts of noise due to the project:

- Restrict the crusher and asphalt plant operation to workday hours (8:00 a.m. to 5:00 p.m.)
- Add berms or barriers along the southeastern permit boundary, in order to block the direct line of sight between the residences along Grey Wolf Trail and Zachariah Lane and the project area (See **Table 2**).
- Replace standard back-up alarms with Mine Safety and Health (MSHA)-approved, manually adjustable, ambient-sensitive, directional sound technology, or strobe light alarms. Adjustable and ambient-sensitive alarms typically limit the alarm noise to 5 to 10 dBA above the background noise, which would still typically be audible behind the equipment.
- Install high-grade mufflers on all diesel-powered equipment.
- Implement a regular maintenance schedule to ensure that equipment is operating properly.
- Use new equipment rather than older equipment.

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*Visual Resources:* Once the overburden berms are established and seeded, mining operations would be shielded from view. The berms would not be high enough to block the view of the nearby hills, and should not represent an appreciable impact on the visual resources of the surrounding area.

**Irreversible and Irretrievable Commitments of Resources:**

*Noise:* The change in noise due to the Proposed Action would not represent any irreversible or irretrievable commitments of resources.

*Visual Resources:* Changes to the visual resources and scenery during active mining should be partially shielded by the proposed overburden berms. Once reclamation is completed the lands would be graded and seeded to resemble the surrounding pasture lands. Therefore, any impacts to visual resources would be short-lived, and thus do not represent an irreversible or irretrievable commitment of resources.

**Cumulative Impacts:**

*Noise:* Cumulative effects from the construction and operation of the Proposed Action include the combination of noise sources from the mine and other noise sources. In addition to the mine operations and equipment; other noises, such as natural sources, traffic noise from US 191, and noise from recreational and residential activities, are also present in the vicinity of the project area, and would remain so into the future. However, the noise due to the Proposed Action would become the dominant noise source in the area when the crusher is operating, and would increase the noise above existing levels up to one mile from the site until final reclamation.

*Visual Resources:* The character of the lands bordering US 191 between Gallatin Gateway and the Four Corners area has evolved from primarily open pasture and agriculturally cultivated lands to include small industrial and retail businesses, and dispersed home sites. The proposed change in land use from agricultural to an active gravel pit is a temporary action, and the lands would be reclaimed to resemble their current appearance when the mine closes. Therefore, the Proposed Action would not contribute to the cumulative impacts to visual resources in the Gallatin Valley.

### 9. DEMANDS ON ENVIRONMENTAL RESOURCES OF LAND, WATER, AIR OR ENERGY:

**Applicant's Proposed Action:** The proponent proposes to mine gravel from an approximately 53-acre site. TMC, Inc. estimates it would remove up to 1.5 million cubic yards of gravel over the life of the project.

**Existing Environment:** A 75-foot wide buffer zone would separate the boundary from the Farmers Canal ditch, measured from the project boundary to the northwesterly top of the bank of the ditch. Gravel resources in Gallatin County are not particularly limited in the area. However, some of the gravel resources are located in floodplains and development of those deposits could pose environmental problems. Also, subdivisions are expanding, and it is becoming difficult to locate a gravel operation that does not abut some residences, and thus generate complaints. When gravel is used from pits located at a distance from the point of use, public complaints are registered about increased traffic and air pollution from trucks on the roads, wasting resources because of increased travel distances and increased costs of gravel products.

**Potential Impacts:** In general, there would be a loss of some vegetation, gravel resources, and surface material.

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**Irreversible and Irretrievable Commitments of Resources:** The mining and removal of gravel is irreversible. According to figures submitted to the Opencut Program in annual reports, In 2002, the Gallatin County Road Department operated 9 pits and mined 25,350 cubic yards of gravel from them, mostly for maintenance of the county road system. The road department also purchased gravel materials such as asphalt, sand and some gravel, and contracted chip sealing from the private sector. The private sector operated 32 pits and mined 2.1 million cubic yards in 2002. With an estimated population in Gallatin County of 72,000 people, the average gravel usage per person was 29.3 cubic yards.

In 2006 the average gravel use statewide in Montana was 18 cubic yards per person per year. Gallatin County is one of the fastest growing counties in the state with a 2006 population estimate of 81,000 people (U.S. Census 2006). Gravel operators reported that a total of 2.7 million cubic yards of aggregate was mined in Gallatin County in 2006. That is an increase of 600,000 cubic yards annually between 2002 and 2006 and an average of 31 cubic yards for every person in Gallatin County. The Storey Pit and the proposed Nuss-Rock Pit expansions are approximately eight and four miles from the Morgan Pit, respectively. When combined, these three pit applications are requesting permission to mine approximately 8.0 million cubic yards of material over the next 9 to 20 years. If these three pits attempted to service the complete gravel needs of Gallatin County, they would be depleted in less than three years

**Cumulative Impacts:** The removal of the gravel resource from the Morgan Family Pit site would contribute to the overall impacts of gravel removal within the Gallatin Valley. The rate and total amount of gravel extraction in the Gallatin Valley is increasing, commensurate with the rate of development and associated infrastructure such as roads and business development.

#### 10. IMPACTS ON OTHER ENVIRONMENTAL RESOURCES:

**Applicant's Proposed Action:** The proponent proposes to mine gravel from an approximately 53-acre site. TMC, Inc. estimates it would remove up to 1.5 million cubic yards of gravel over the life of the project. No other environmental resources, aside from gravel, are involved.

**Existing Environment:** There are no known studies, plans or projects on this tract at this time.

**Potential Impacts:** There would be no known impacts to other resources.

**Irreversible and Irretrievable Commitments of Resources:** The Proposed Action would not result in any irreversible or irretrievable commitments of environmental resources in addition to the previously stated impacts to gravel resources.

**Cumulative Impacts:** The Proposed Action would not contribute to cumulative impacts to other environmental resources in and around the project area.

#### 11. HUMAN HEALTH AND SAFETY:

**Applicant's Proposed Action:** The proponent proposes to mine gravel from an approximately 53-acre site. TMC, Inc. estimates it would remove up to 1.5 million cubic yards of gravel over the life of the project.

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### RESOURCES, POTENTIAL IMPACTS AND MITIGATION MEASURES

**Existing Environment:**

*Noise:* Please see the existing environment description under Section 8: Aesthetics.

*Truck Traffic:* US 191 is a national highway system route under the jurisdiction of MDT. It serves as a major commuter route between Big Sky, Gallatin Gateway, and Bozeman (Morrison Maierle 2008). The peak hour traffic count for US 191 past the proposed gravel pit was measured at 705 and 978 vehicles per hour during the AM and PM peak hours, respectively (Morrison Maierle 2008). The posted speed limit adjacent to the site is 70 mph during the day and 65 mph at night for passenger vehicles, and 60 mph during the day and 55 mph at night for trucks. The proposed highway access point is currently used only by the current resident (at the Morgan Family Pit site), with minimal potential for other incidental traffic. US 191 is relatively flat, approaching the highway access point from the north and from the south, resulting in an adequate sight distance (Morrison Maierle 2008).

**Potential Impacts:**

*For more information on water quality impacts related to human health issues please refer to Section 2: Water Quality. For human health impacts related to air quality, see Section 3: Air Quality.*

*Noise:* The primary human effect due to noise is annoyance. The degree of annoyance due to a noise is subjective and can vary dramatically from person to person based on the level, duration and frequency content of the noise, and other non-acoustic factors, such as prior exposure to similar noises, the age and health of a listener, attitude toward the noise source, the time of day that the noise occurs, etc. Other effects on humans may include speech interference, stress reactions, sleep interference, lower morale, efficiency reduction, and fatigue (Harris 1998). However, the EPA guideline of  $L_{dn}$  55 dBA or less was determined as sufficient to protect public health and welfare in residential areas (EPA 1979). The noise from the Proposed Action is not expected to exceed the EPA guideline beyond 0.5 miles (2,640 feet) from the site.

**Table Noise-4** summarizes the predicted traffic noise levels. The predicted traffic noise  $L_{eq}(h)$  levels exceed the MDT  $L_{eq}(h)$  66 dBA traffic noise impact criteria (MDT 2001) whether the haul trucks are included in the traffic mix or not, and the addition of the haul trucks is not predicted to change the predicted  $L_{eq}(h)$  compared to the existing conditions.

<b>Table Noise-4: Summary of Predicted Traffic Noise Levels at 200 feet from centerline of US 191</b>		
Condition	AM Peak Hour $L_{eq}(h)$	PM Peak Hour $L_{eq}(h)$
Existing US 191	66	67
US 191 with additional haul trucks	66	67

*Truck Traffic:* The applicant must comply with workplace Occupational Safety and Health (OSHA) and Mine Safety and Health (MSHA) regulations. Even though cautionary signing on US 191 required by MDT would be used to warn about truck traffic, there would be some increased hazard because of truck traffic. MDT requested a traffic impact study be completed to assess potential impacts to existing and future roadway operations from site development (MDT 2008a). Morrison Maierle (2008) used data from the nearby Nuss pit in Gallatin Gateway as well as data from out-of-state gravel pits to determine an average weekday truck trip generation rate of 0.80 trips per 1000 yd.<sup>3</sup> of material for the proposed

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Morgan Family Pit. As a more conservative index, Morrison Maierle (2008) used an average weekday truck trip generation rate of 0.97 trips per 1000 yd.<sup>3</sup> of material to estimate traffic generation for their traffic assessment. Based on these values, the traffic assessment found that the proposed Morgan Family Pit would generate approximately 157 additional average weekday trips per day, 13 of these during the a.m. peak hours and 10 during the p.m. peak hours (Morrison Maierle 2008). The estimated additional average weekday trips include trips made by the approximately seven full-time employees commuting to and from work at the gravel pit.

The traffic assessment also reviewed conditions for site access (entering and exiting the gravel pit) based on requirements for a WB-67 design vehicle (interstate tractor-semitrailer truck combination having approximately obseisance 65 feet). The site access was evaluated for site distance, approach geometry, and queue storage requirements (Morrison Maierle 2008). The level terrain in the area does not present any sight obstructions due to changes in grade, and there are no sight obstructions resulting from vegetation or other fixed objects adjacent to the roadway (Morrison Maierle 2008). Morrison Maierle's (2008) study determined that additional turn lanes off of US 191 would not be justified given the probable increase in truck traffic. Trucks pulling onto or turning off of US 191 had the potential to reduce the speed of individual vehicles, but the traffic assessment found that the addition of site-generated traffic would have minimal impact to the area transportation system. However, after reviewing the study, MDT is requiring a southbound turning lane and northbound acceleration and deceleration lane on US 191 prior to the issuance of an approach permit (MDT 2008b). MDT may require TMC. Inc. to remove these lanes at the end of the gravel pit's life.

#### **Irreversible and Irrecoverable Commitments of Resources:**

*Noise:* The change in noise due to the Proposed Action would not represent any irreversible or irretrievable commitments of resources.

*Truck Traffic:* The changes in the truck and highway traffic due to the Proposed Action would not represent any irreversible or irretrievable commitments of resources.

#### **Cumulative Impacts:**

*Noise:* Cumulative effects from the construction and operation of the Proposed Action include the combination of noise sources from the mine and other noise sources. In addition to the mine operations and equipment, other noises, such as natural sources, traffic noise from US 191, and noise from recreational and residential activities, are also present in the vicinity of the project area, and would remain into the future. However, the noise due to the Proposed Action would become the dominant noise source in the area when the crusher is operating, and would increase the noise above existing levels up to 1 mile from the site.

*Truck Traffic:* The proposed Morgan Family Pit would increase truck traffic on US 191; however, the number of additional average weekday trips would be spread across the workday and would not significantly contribute to an increase in overall traffic on this highway. If the conditions for the approach permit outlined by MDT are met, the cumulative impacts due to increase in truck traffic on US 191 would be negligible.

## 12. INDUSTRIAL, COMMERCIAL AND AGRICULTURAL ACTIVITIES AND PRODUCTION:

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**Applicant's Proposed Action:** The proponent proposes to remove approximately 1.5 million cubic yards of material by the year 2018 when final reclamation is completed.

**Existing Environment:** The land is currently used as pasture. TMC, Inc. has chosen this site because of the large gravel deposit underneath the surface.

**Potential Impacts:** There would be a loss of grazing and cropping on about 53 acres of land as the area is rotated from undisturbed to active mining to reclaimed pasture. The site would be fully reclaimed by the year 2017. The reclamation plan calls for no change in the overall area of existing pasture land.

**Irreversible and Irretrievable Commitments of Resources:** The removal of 1.5 million cubic yards of material represents an irreversible and irretrievable commitment of gravel, an industrial resource. Although the land surface would be graded and returned to agriculture upon reclamation, the industrial material (gravel) that has been excavated would not be returned. Once the area is fully reclaimed, the land would be returned to its current agricultural use. Therefore, there would be no irreversible or irretrievable commitments of agricultural resources as a result of this Proposed Action.

**Cumulative Impacts:** There are several gravel pits in operation or proposed for permitting within Gallatin County. The Morgan Family pit would contribute to the cumulative impact of the removal of gravel, a nonrenewable resource, in the Gallatin Valley. However, the reclamation plan would ensure that the Proposed Action would not contribute to cumulative impacts to agricultural activities or production in and around the project area.

### 13. QUANTITY AND DISTRIBUTION OF EMPLOYMENT:

**Applicant's Proposed Action:** TMC, Inc. anticipates that a workforce of seven, full-time workers would be needed to run the gravel operation. This number does not include truck drivers contracted by customers of TMC, Inc.

**Existing Environment:** The lands covered in this permit are managed by the Morgan Family. No additional workers are employed on the property.

**Potential Impacts:** The Proposed Action would directly contribute some jobs to the economy during the life of the pit. There may be potential for indirect job creation due to continued industrial resource development.

**Irreversible and Irretrievable Commitments of Resources:** The Proposed Action would not result in any irreversible or irretrievable commitments of resources related to local employment.

**Cumulative Impacts:** The Proposed Action may contribute to a slight increase in locally available jobs.

### 14. LOCAL AND STATE TAX BASE AND TAX REVENUES:

**Applicant's Proposed Action:** The Proposed Action would convert existing pasture land into active

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surface mining. Reclaimed lands would be planted with a wheatgrass mix and used for pasture; therefore, the change in land use is temporary.

**Existing Environment:** The proposed project site is currently used as a pasture. It is irrigated and is taxable as agricultural land.

**Potential Impacts:** A slight increase in tax revenue could occur because of this project. Gravel pits are generally appraised in the industrial category, which is a higher rate than the present agricultural rate. Also, some jobs would be supported by this pit, thus increasing both income and payroll taxes.

**Irreversible and Irrecoverable Commitments of Resources:** The Proposed Action would not result in any irreversible or irretrievable commitments of resources related to local and state tax base.

**Cumulative Impacts:** The Proposed Action may contribute to a slight increase in the local tax base.

### 15. DEMAND FOR GOVERNMENT SERVICES:

**Applicant's Proposed Action:** The Proposed Action would convert existing pasture land into active surface mining. Trucks would access the gravel pit via US 191. Reclaimed lands would be planted with a wheatgrass mix and used for pasture; therefore, the change in land use is temporary.

**Existing Environment:** The proposed project site is currently used as a pasture.

**Potential Impacts:** Please see Section 11: Human Health and Safety for a discussion of impacts due to traffic increases. No additional government services are anticipated as a result of this Proposed Action.

**Irreversible and Irrecoverable Commitments of Resources:** The Proposed Action would not result in any irreversible or irretrievable commitments of resources related to government services.

**Cumulative Impacts:** The Proposed Action would not contribute to the need for local government services.

### 16. LOCALLY ADOPTED ENVIRONMENTAL PLANS AND GOALS:

**Applicant's Proposed Action:** The Proposed Action would convert existing pasture land into active surface mining. Trucks would access the gravel pit via US 191. Reclaimed lands would be planted with a wheatgrass mix and used for pasture; therefore, the change in land use is temporary.

**Existing Environment:** Zoning compliance was obtained from the Gallatin County Planning Department (Sullivan 2007). The original zoning compliance letter noted that the property is in an area where a well-developed neighborhood planning effort is currently underway. Gallatin County Commissioners ruled against imposing site-specific zoning at their November 2007 meeting. Such zoning would have prevented the Morgan Family pit and two other pits proposed in Gallatin County from going forward (Tucker 2007).

However, at the May 7, 2008 meeting, the Gallatin County Commission voted to enact interim zoning

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covering all unincorporated and undeveloped areas of Gallatin County (Sullivan 2008). The initial compliance letter was rescinded. The interim zoning requires all gravel pit owners to obtain conditional use permits prior to commencing or expanding operations, and requires applicants to submit a \$4,000 fee for processing the conditional use permit (CUP) application.

TMC applied for a CUP on July 31, 2008. After a public hearing on November 5, 2008 and consideration of public comments and the staff report, the commissioners signed the Findings of Fact and Order on November 26 and 27, 2008. DEQ was notified by letter on January 30, 2009, by Tom Rogers of the Gallatin County Planning Department that TMC had complied with the Interim Zoning Regulation.

**Potential Impacts:** TMC, Inc. applied to the county for a conditional use permit for this site. The Gallatin County Commission approved the pit with Conditions of Approval.

**Irreversible and Irretrievable Commitments of Resources:** The Proposed Action would not result in any irreversible or irretrievable commitments of resources related to county planning.

**Cumulative Impacts:** The number of gravel pit permits pending before DEQ instigated the current discussions of county-wide and specific-use zoning within Gallatin County. The operation of the Morgan Family Pit may contribute to the overall direction and scope of planning within Gallatin County.

### 17. ACCESS TO AND QUALITY OF RECREATIONAL AND WILDERNESS ACTIVITIES:

**Applicant's Proposed Action:** The Proposed Action does not address any recreational potential within the tract. The current and proposed uses of the lands are agriculture and industrial, respectively. There are no wilderness areas in the general vicinity of the proposed project.

**Existing Environment:** US 191 is the primary route from the Four Corners area south to Big Sky, the Gallatin National Forest, and Yellowstone National Park. There are numerous access points to National Forest Lands, campgrounds, and other recreational areas off US 191 south of the proposed permit area. There is no recreational potential within this tract.

**Potential Impacts:** Other than a slight increase in truck traffic during operation of the pit, there should be no effect on people using the highway to access recreational areas in the Gallatin Valley or to the south in Gallatin Canyon.

**Irreversible and Irretrievable Commitments of Resources:** The Proposed Action would not result in any irreversible or irretrievable commitments of recreational resources or impinge upon access to those resources.

**Cumulative Impacts:** None.

### 18. DENSITY AND DISTRIBUTION OF POPULATION AND HOUSING:

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**Applicant's Proposed Action:** The Proposed Action does not include any housing or changes to housing.

**Existing Environment:** There is one trailer on the project site. The occupant would be allowed to continue to rent the trailer during the mining operation.

**Potential Impacts:** The Proposed Action would not result in additional housing in the area. There are no impacts on distribution of population and housing from the Proposed Action.

**Irreversible and Irrecoverable Commitments of Resources:** There are no irreversible or irretrievable commitments of population and housing resources from the Proposed Action.

**Cumulative Impacts:** There are no cumulative impacts to population and housing from the Proposed Action.

#### 19. SOCIAL STRUCTURES AND MORES:

**Applicant's Proposed Action:** The Proposed Action does not address any social structures or mores. The current and proposed uses of the lands are agriculture and industrial, respectively. Reclaimed lands would be planted with a wheatgrass mix and used for pasture; therefore, the change in land use is temporary.

**Existing Environment:** The project area is situated within an area that is currently known for its rural residential and agricultural activities. No existing surface mining activities are evident within the immediate vicinity.

**Potential Impacts:** Development of the Morgan Family Pit would impact the existing rural/agricultural setting by adding a non-traditional industrial/surface mining operation. A change in the intensity of land use with heavy equipment, increased road traffic, noise, and dust, would adversely impact the rural/agricultural scene of the area. These impacts would occur throughout the life of the project, but would cease with the completion of gravel mining operations.

**Irreversible and Irrecoverable Commitments of Resources:**  
None.

**Cumulative Impacts:** None.

#### 20. CULTURAL UNIQUENESS AND DIVERSITY:

**Applicant's Proposed Action:** The Proposed Action does not address any aspects of existing cultural diversity. Reclaimed lands would be planted with a wheatgrass mix and used for pasture; therefore, the change in land use is temporary.

**Existing Environment:** The current and proposed uses of the lands are agriculture and industrial, respectively.

**Potential Impacts:** The Proposed Action would not result in a shift to any unique quality of the area.

## IMPACTS ON THE PHYSICAL ENVIRONMENT

### RESOURCES, POTENTIAL IMPACTS AND MITIGATION MEASURES

**Irreversible and Irretrievable Commitments of Resources:** The Proposed Action would not result in any irreversible or irretrievable commitments of resources related to the areas cultural diversity.

**Cumulative Impacts:** None

#### 21. OTHER APPROPRIATE SOCIAL AND ECONOMIC CIRCUMSTANCES:

**Applicant's Proposed Action:** The Proposed Action would convert existing agricultural, open lands to an industrial use. Reclaimed lands would be planted with a wheatgrass mix and used for pasture; therefore, the change in land use is temporary.

**Existing Environment:** The project area is surrounded by open lands and scattered homesites on larger tracts.

**Potential Impacts:** Under the Opencut Mining Act DEQ has no authority or jurisdiction over property value issues. The Legislature has specifically limited DEQ's authority to issues relating to taxable value. Under Montana law, an administrative agency, such as DEQ, has only those powers granted to it by the Legislature through enactment of statutes. The Legislature has given DEQ two means of mitigating the effects of gravel operations on adjacent property. First, DEQ has authority to protect air quality; to minimize noise and visual impacts to the degree practicable through use of berms, vegetation screens, and limits on hours of operation; and to otherwise prevent significant physical harm to adjacent land. Second, in order to protect and perpetuate the taxable value of property, land on which operations are completed must be graded and revegetated or reclaimed to a locally approved land use.

In 1998, DEQ hired Mr. Philip Rygg, Member of the Appraisal Institute, to conduct a study on the effect of two open pit gravel mining operations near Bigfork, Montana on neighborhood property values. The purpose of the study was to assess if there was a measurable adverse effect on the property values within a one half mile radius of the active gravel pits. The following restrictions applied: neighborhood water quality and quantity would be protected; pit operations were limited to a gravel crusher, wash plant, cement batch mill, and pug mill; hours of operation were restricted to 6 a.m. to 7 p.m. Monday through Saturday; size of open mining area was not to exceed 33.7 acres; fueling areas were lined and bermed to contain spills; and reclamation would be completed by 2008.

Rygg employed a sales comparison technique to compare actual sales values of six properties adjacent to, or within 1/8 mile, of the gravel pits (subject sales), to comparable sales of 25 similar properties (in the Flathead Valley in economically similar neighborhoods with physically similar improvements) located outside the influence of the gravel pits (comp sales). The subject properties were influenced by noise, dust, traffic, fumes and/or views of the pits; all sales occurred while gravel pits were active. If there was a difference between the price of the influenced property and the price of the uninfluenced property that could not be attributable to other causes (e.g. size, age, land value or physical condition), the difference may be attributable to economic depreciation caused by the gravel pits.

Rygg concluded that, assuming continuation of the same level of gravel pit activity as in 1994-1996 (in 1997 there was a peak level of gravel pit activity), the presence of the gravel pits had not adversely affected the value of the subject properties, and therefore would not adversely affect the other properties in the neighborhood. Rygg stated that "*a continuation of this peak level of operation [1997 level] could*

## IMPACTS ON THE PHYSICAL ENVIRONMENT

### RESOURCES, POTENTIAL IMPACTS AND MITIGATION MEASURES

*eventually erode neighborhood property values, although existing market evidence is insufficient to validate such a hypothesis”.*

Rygg’s analysis was reviewed by Jim Fairbanks, Region 3 Manager of the Property Assessment Division of the Montana Department of Revenue (Fairbanks 1998). Fairbanks concluded that Rygg’s approach was valid, and stated that in his experience with arguments of Missoula County taxpayers asserting negative property value impacts from gravel pits, power lines, traffic etc.; there were no measurable impacts in virtually all cases. He stated that “*potential purchasers accept newly created minor nuisances that long-time residents consider value diminishing.*” (Fairbanks 1998).

Based on Rygg’s analysis and Fairbanks’ review, sale or market value of adjacent property has not been shown to be negatively affected by the presence of a gravel pit and associated operations.

Mr. Orville Bach presented comments to the Gallatin County Commission regarding gravel pits near Cameron Bridge Road, and makes the argument that there most likely will be negative effects on property values (Bach 2008). Mr. Bach taught college level economics for 33 years and is a Gallatin County Resident. In his comments he states there is excellent economic research available that provides data on economic damage resulting from gravel pit operations, and he includes nine citations to support this statement. He includes a figure from one of the citations showing the impact on residential property values based on distance of the property from the gravel mine – the closer the property, the greater the impact. Based on this figure, properties less than a quarter mile from the mine experienced up to a 32% decline in value. The impact on property value declined with increased distance from the gravel mine. Properties three miles away (the farthest distance in the analysis) experienced a 5% decline. Mr. Bach points out that declining property values could eventually translate into decreased property tax revenue for the County and that this decreased revenue may not be offset by property taxes paid by the gravel operation. The figures cited by Mr. Bach result from Dr. Diane Hite’s research.

Researchers have used the hedonic estimation method to evaluate impacts to housing prices from environmental “disamenities” (factors considered undesirable). Using this multivariate statistical approach, many characteristics of a purchased good (house) are regressed on the observed price, and thus, one can extract the relative contribution of the environmental variables to the price of the house (Boyle and Kiel 2001). Research has been conducted in many locations in the country, and on many types of disamenities (landfills, power plants, substations, hazardous waste sites, gravel mines, etc.). The study cited by Mr. Bach (Erickcek 2006) uses techniques and data developed by Dr. Hite to evaluate potential effects on property values of a proposed gravel mine in Richland Township, Michigan. Dr. Hite’s study evaluated effects of a gravel mine in Ohio. Both the Erickcek and Hite studies showed decreases in property values resulting from proximity of the property to the mine (Erickcek 2006). However, Erickcek states in footnote 6, “Only those owning property at the time of the establishment of the gravel mine would experience a loss in equity. Those purchasing property near an established mine would not experience an equity loss because any negative effects from the mine’s operation would have been incorporated into the purchase price.”

If homeowners believe their property values are decreased because of a gravel operation, they may appeal to the County and the State for tax adjustment. Impact-mitigating restrictions such as hours of operations, dust control, water testing and visual berms on operations of this nature have been successful elsewhere in the state. Formal tax appeals have not generated a reduction in taxable values of land affected by aggregate mining. In responding to valuation challenges of ad valorem tax appraisals, Montana Department of Revenue did not find measurable negative impacts to property values due to gravel pits and other “nuisances” (Fairbanks 1998)

<b>IMPACTS ON THE PHYSICAL ENVIRONMENT</b>
<b>RESOURCES, POTENTIAL IMPACTS AND MITIGATION MEASURES</b>
<p><b>Irreversible and Irretrievable Commitments of Resources:</b> The Proposed Action would not result in any irreversible or irretrievable commitments of resources related to the area’s social and economic circumstances.</p> <p><b>Cumulative Impacts:</b> Development of the Morgan Family Pit would contribute to the overall development progression in Gallatin Valley. However, the change in land use on this parcel is temporary, and does not constitute a significant contribution to cumulative impacts to social and economic circumstances in the county.</p>

**22. Public Involvement, Agencies, Groups or Individuals contacted:**

- Gallatin County Planning Department
- Gallatin County Weed Control Board
- Montana State Historical Preservation Office
- Montana Department of Transportation, Montana Natural Heritage Program
- Resident notification letters sent to landowners within 1,000 feet of permit area

**23. Other Governmental Agencies with Jurisdiction, List of Permits Needed:**

Agency	Permit
Montana Department of Natural Resources and Conservation	Water right conversion
Air Resources Management Bureau of the MT Department of Environmental Quality	Air quality permit
Gallatin County Weed Board	Weed control plan
Gallatin County Planning Office	Zoning compliance
Montana Department of Transportation	Approach permit

**24. Magnitude and Significance of Potential Impacts:** The potential impacts related to the general environment are not likely to be significant based on the lack of sensitive or critical vegetation, wildlife or their habitats. Water usage for the proposed operation would not result in any decrease of available water supply to the Gallatin Valley as the quantity of the water right would not change. In addition, water would be recycled on site. There are no identified water quality impacts that have the potential to adversely impact human health and safety. The Plan of Operations includes measures such locating soil berms along some of the site boundaries and placing the crusher on the floor of the pit to reduce noise, visual, and light impacts. DEQ would also enforce state and federal air guidelines and standards to ensure the protection of human health and welfare.

**25. Regulatory Impact on Private Property:** The Private Property Assessment Act requires the Department to analyze whether or not the department’s decision would constitute a “taking” of the landowner’s or operator’s property rights. The Private Property Assessment Act Checklist, attached below, would be completed when the permitting decision is made.

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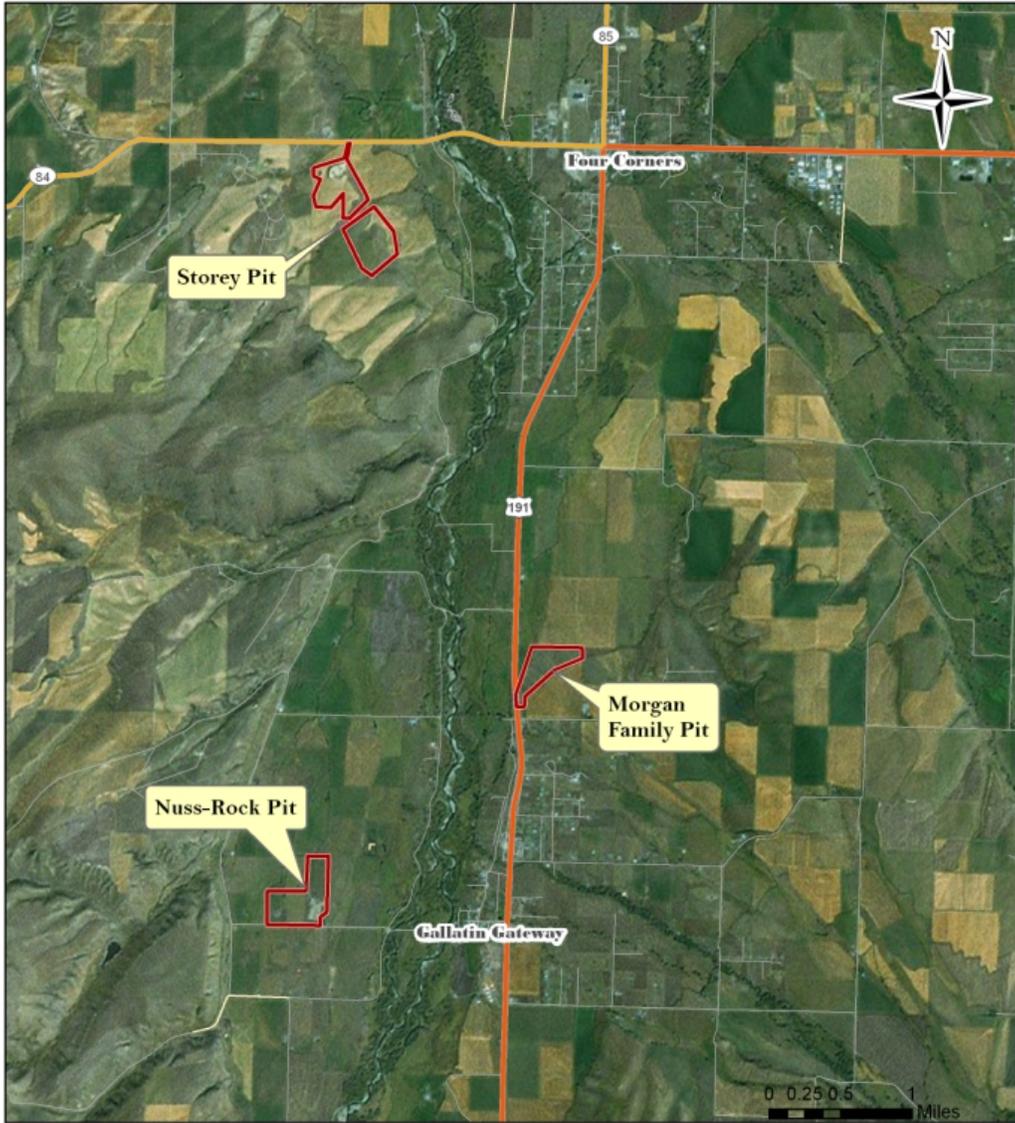
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27. EA Prepared By: Garcia and Associates Third-Party Contractor

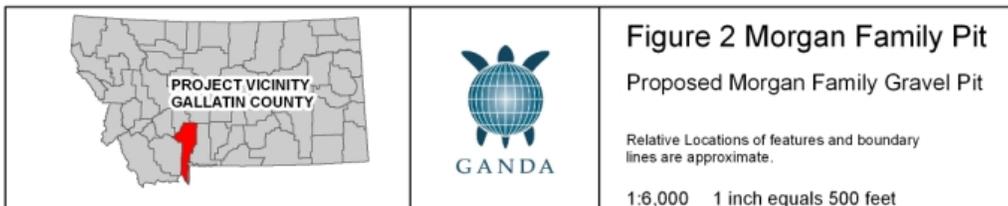
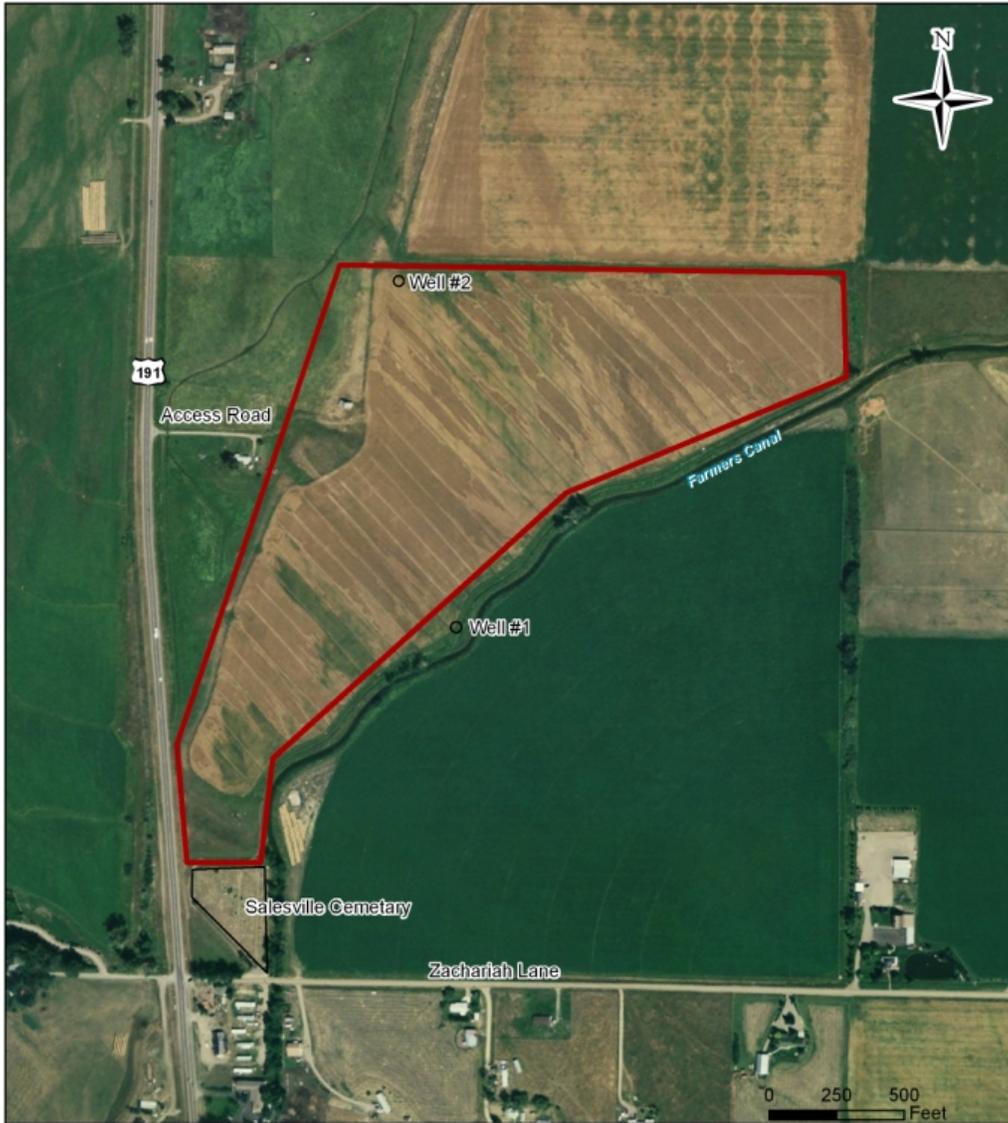
Jo Stephen Opencut Mining Program Environmental Specialist  
Name Title



# PROJECT MAPS



<p>PROJECT VICINITY GALLATIN COUNTY</p>	<p>GANDA</p>	<p><b>Figure 1 Vicinity Map</b> Proposed Morgan, Nuss and Storey Gravel Pits</p>
<p>Relative Locations of features and boundary lines are approximate.</p>		
<p>1:60,000 1 inch equals 5,000 feet</p>		



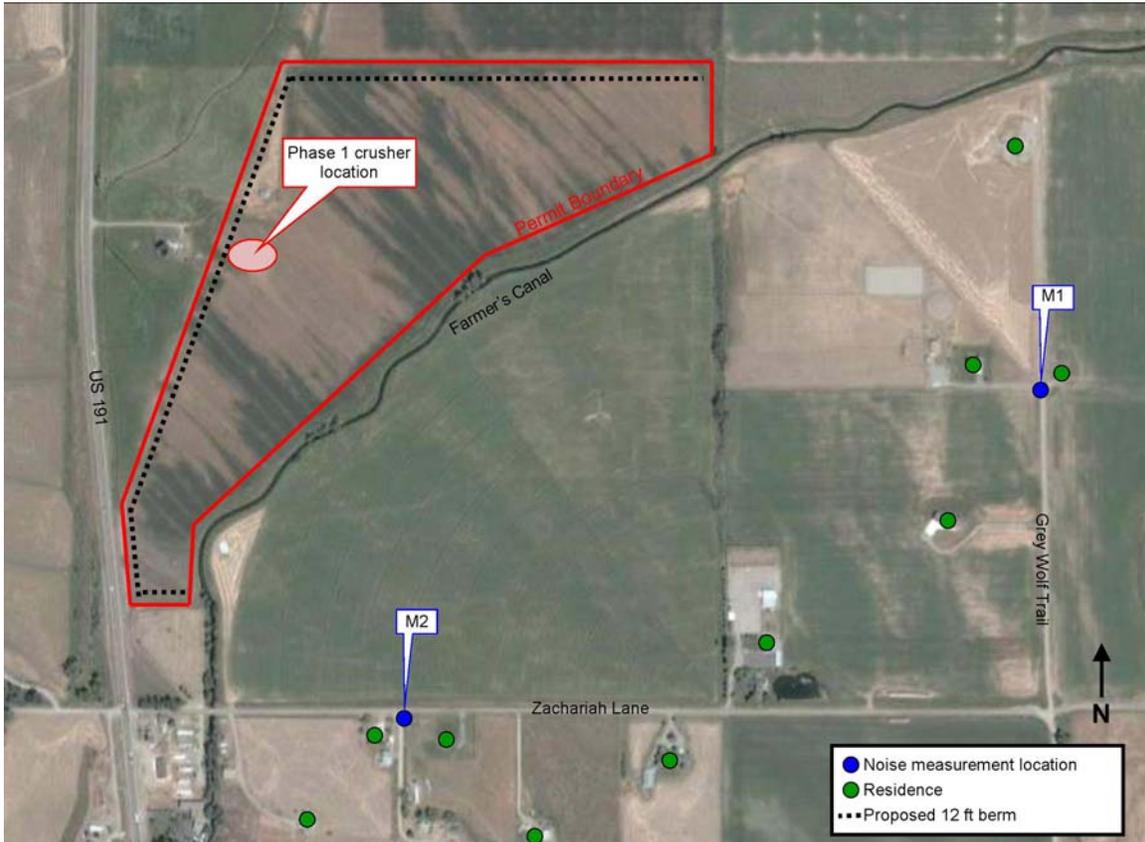


Figure 3: Ambient Noise Measurement Locations

APPENDIX

**Table A-1. Depth to Groundwater at the Proposed Morgan Family LLC Gravel Operation (feet below ground surface)**

<b>Date</b>	<b>Well #1 South</b>	<b>Well #2 North</b>
9/11/2007	28.00	23.00
9/27/2007	27.96	22.75
10/16/2007	29.10	23.67
10/22/2007	29.86	24.10
10/31/2007	30.58	24.65
11/6/2007	30.97	25.08
11/14/2007	31.50	25.35
11/19/2007	31.75	25.55
11/29/2007	32.20	25.92
12/31/2007	33.42	26.90
1/31/2008	34.15	27.55
2/28/2008	34.55	27.83
4/1/2008	35.00	28.03
5/1/2008	35.52	28.33
5/27/2008	28.12	21.88
6/26/2008	21.29	19.78
7/28/2008	20.35	19.28
9/2/2008	21.60	19.55
10/1/2008	23.61	20.83
11/3/2008	27.15	22.35

Note: Table updated from Draft EA with information through November 2008.

**PRIVATE PROPERTY ASSESSMENT ACT CHECKLIST**

**PROPERTY DESCRIPTION:** SE ¼ of Section 35, Township 2 South and Range 4 East

**COMPANY NAME:** Morgan Family, LLC

**DATE:**

**PREPARED BY:**

DOES THE PROPOSED AGENCY ACTION HAVE TAKINGS IMPLICATIONS UNDER THE PRIVATE ASSESSMENT ACT?

YES	NO	
		<i>1. Does the action pertain to land or water management or environmental regulation affecting private real property or water rights?</i>
		<i>2. Does the action result in either a permanent or indefinite physical occupation of private property?</i>
		<i>3. Does the action deprive the owner of all economically viable uses of the property?</i>
		<i>4. Does the action deny a fundamental attribute of ownership?</i>
		<i>5. Does the action require a property owner to dedicate a portion of property or to grant an easement? (If answer is NO, skip questions 5a and 5b and continue with question 6.)</i>
		<i>5a. Is there a reasonable, specific connection between the government requirement and legitimate state interests?</i>
		<i>5b. Is the government requirement roughly proportional to the impact of the proposed use of the property?</i>
		<i>6. Does the action have a severe impact on the value of the property?</i>
		<i>7. Does the action damage the property by causing some physical disturbance with respect to the property in excess of that sustained by the public generally? (If the answer is NO, skip questions 7a-7c)</i>
		<i>7a. Is the impact of government action direct, peculiar, and significant?</i>
		<i>7b. Has the government action resulted in the property becoming practically inaccessible, waterlogged, or flooded?</i>
		<i>7c. Has the government action diminished property values by more than 30% and necessitated the physical taking of adjacent property or property across a public way from the property in question?</i>

*Taking or damaging implications exist if YES is checked in response to question 1*

*and also to any one or more of the following questions: 2, 3, 4, 6, 7a, 7b, 7c; or if NO is checked in response to questions 5a or 5b.*

*If taking or damaging implications exist, the agency must comply with § 5 of the Private Property Assessment Act, to include the preparation of a taking or damaging impact assessment.*

*Normally, the preparation of an impact assessment will require consultation with agency legal staff.*