APPENDIX F

CUP APPLICATION for the MORGAN FAMILY GRAVEL PIT

Gallatin County

July 2008

MDEQ Environmental Assessment Draft

MORRISON MAIERLE, INC.
An Employee-Owned Company

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DRAFT ENVIRONMENTAL ASSESSMENT

PERMIT TMC-xxx, THREEWAY MINING COMPANY, INCORPORATED MORGAN FAMILY PIT

DRAFT
ENVIRONMENTAL ASSESSMENT

The Department of Environmental Quality (DEQ) prepared this **draft** 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, not the popularity of the project.

The DEQ developed this **draft** EA using the best available information. Individuals, agencies, and organizations with knowledge of specific locations or conditions may possess information that was not available to DEQ during preparation of this **draft** EA. As a result and in accordance with MEPA, DEQ will evaluate comments on this draft EA submitted by the public and if warranted, compile and further evaluate additional information or data and make revisions that will be incorporated into a final EA. Responses to the public comments and potential permit conditions or mitigation measures developed as a result of public input will also be included in the final EA.

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.

Project Name: Morgan Family LLC Gravel Pit

Proponent: Threeway Mining Company, Incorporated (TMC, Inc.)

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

County: Gallatin

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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 may 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 estimated at 25feet 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 2017. 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.

Normal hours of operation for the crusher would be from 7 a.m. to 7 p.m. Monday through Friday, and from 8 a.m. to 5 p.m. on Saturdays for 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 2017, 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. Fencelines delineate the northern and eastern boundaries and separate adjoining land owners. The southeastern bound 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 2017, 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.

The following areas of concern were identified by one or more residents in their response to the October 2007 resident notification letters:

- Dust and air quality
- Aesthetics, noise, light, hours of operations
- Traffic safety and highway impacts
- Size of the pit and future amendments
- Property values
- Emergency Zoning and Mining Moratorium

COMMENT: The commentor expressed concern over water rights and potential for the Proposed Action to impact water quality.

Response: *Please see Section 2- Water Quality for discussion of these issues.*

COMMENT: The commentor suggests the Proposed Action would have a negative effect on dust

and ensuing air quality

Response: *Please see Section 3- Air Quality for discussion of air quality permits, emission limits, health, fugitive dust.*

COMMENT: The commentor suggests the Proposed Action would have a negative effect on aesthetics, visual

Response: *Please see Section 8 – Aesthetics for discussion of these issues. DEQ has the authority to set reasonable hours of operation and can enforce violations of permitted hours of operation.*

COMMENT: The commentor suggests the Proposed Action would increase traffic on US 191 and may increase accidents.

Response: *Please see Section 11: Health and Human Safety for a discussion of the commissioned traffic study.*

COMMENT: The commentor suggests the Proposed Action may be amended to increase the size of the gravel pit.

Response: *DEQ cannot address potential amendments in this EA as they are speculative. DEQ only has authority to permit an action for which they have received an application. Please see Section 16: Locally Adopted Plans for a discussion of zoning and other evolving issues surrounding gravel pits in the vicinity of the Proposed Action.*

COMMENT: The commentor suggests the Proposed Action would have a negative effect on property values

Response: *Please see Section 21- Other Economic Issues for a discussion of how gravel pits affect property values.*

Alternatives Considered

A. No Action Alternative: Under this alternative the permit for TMC, Inc. to open a gravel pit on the land owned by the Morgan Family LLC would be denied. The land would remain as pasture until other uses of the land were proposed and implemented. Gravel consumption is high in this area as a result of increasing population in general and denial of this application would simply move the demand for this gravel and thus any impacts into other nearby gravel pit sources.

B. Proposed Action: Please see the detailed description of the Proposed Action, above.

C. Agency-Modified Alternative: Under the pertinent resource areas, DEQ has included proposed mitigation for potential resource impacts described in this draft EA. Public and agency comments on the draft EA will be reviewed and DEQ may choose to propose required mitigations as part of their preferred alternative. A description of the agency (DEQ) preferred alternative will be included in the Final EA. TMC, Inc. would be required to implement mitigation actions included in that alternative as part of the terms of their permit.

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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 Irretrievable 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

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pit is temporary.

2. WATER QUALITY, QUANTITY AND DISTRIBUTION:

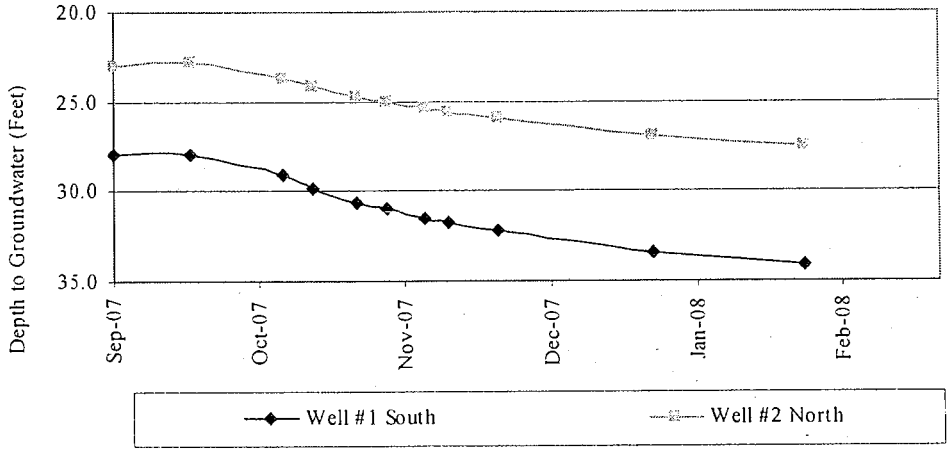
Applicant's Proposed Action: The applicant plans to open a new gravel pit and proposes to mine horizontally into the alluvial terrace. The undisturbed land and topsoil berms would be used for noise abatement. No dewatering of the mine is planned. Mining would remain above the water table, and the excavation 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 2007 through January 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. It would be expected that the highest water levels would be found earlier in the months of June or July. 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. The graph indicates a general downward trend in water level during the year. Additional groundwater monitoring would help to evaluate seasonal groundwater fluctuations.

Depth to Groundwater at Morgan Family LLC Gravel Pit Monitoring Wells



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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, 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

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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.

165 gpm x 60 min/hr. x 8 hr/day x 5 days/week x 26 weeks = 10,296,000 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. A Stormwater Pollution Control Plan (SPCP) has been completed for the existing operation.

Irreversible and Irretrievable 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 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,

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(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 (Hunttinga).

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). Criteria pollutants are particulate matter with an aerodynamic diameter of 10 microns or less (PM_{10}), carbon monoxide (CO), oxides of nitrogen (NOx), sulfur dioxide(SO_2), ozone (O3), and lead (Pb). Primary air quality impacts from the proposed project would relocate mining (PM_{10}), crushing (PM_{10}), screening (PM_{10}), material transfer (PM_{10}), unloading (PM_{10}), fueling (VOC), vehicles (CO, NOx, PM_{10}), windblown dust from roads and storage piles (PM_{10}), and asphalt drum mixing (CO, NOx, SOx, VOC plus hazardous air pollutants).

DEQ maintains three air monitoring stations for particulate matter in Gallatin County – Bozeman City Building, Belgrade ConAgra, and West Yellowstone. According to a 2007 presentation of air monitoring data (http://www.deq.state.mt.us/AirQuality/WhatsNew/BJ_Gallatin_General_Talk.pdf), airborne particulate matter less than 10 microns (PM_{10}) has consistently been less than 60 percent of the annual and daily federal regulatory standards since 1996. The Environmental Protection Agency (EPA) established $PM_{2.5}$ standards (particulate matter less than 2.5 microns) in 1997 and revised them in 2006. According to the available data, airborne $PM_{2.5}$ concentrations (the particulate matter most likely to be 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 98th percentile values as summarized below [Ref: http://www.deq.state.mt.us/AirQuality/WhatsNew/PM25_NAAQS_MT_Review_Mar_2008.pdf]

Table 3-1. Air quality monitoring stations results for $PM_{2.5}$ for Gallatin County 2005-2008.

Monitoring Site	% 24-Hour Limit	% Annual Limit
Belgrade	86	65(1)
Bozeman	63(2)	43(2)
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

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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 ensure that properties beyond the plant boundaries (e.g. houses, rivers) are protected. 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 but the quarry may reduce travel distances for regional projects. Primary sources of emissions would be from mining, gravel crushing, asphalt production, and stockpiles. No emissions are expected from the gravel wash plant.

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.

Fugitive dust is normally managed with water spray and regulated at mine sites by gauging opacity - measuring visibility through the dust plume. Mitigation measures for fugitive dust at this mine site include establishing vegetation on stockpiles that would remain for an extended period, and spraying water on the roadways and facilities floor. Other mitigation measures that may be used include application of chemical stabilizers or tackifiers to unpaved roads (e.g. magnesium chloride, lignin sulfonate), and reduction of the height of stockpiles. ARMB would be responsible for assuring compliance with the conditions of the air permit.

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 will not cause harm to human health. Asphalt plants are operated seasonally, normally between

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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.

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 Irretrievable Commitments of Resources: Some topsoil may be lost during ground disturbance and berm construction. However, the proponent has committed to a reclamation plan that

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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 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 unlikely that this Proposed Action has any potential to impact 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.

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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.

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: A Class I cultural resources information file search was conducted in support of the subject EA. The Class I study involved a file search at the Montana State Historic Preservation Office (SHPO). No Class III cultural resources inventories have been conducted within the project area. Hence, it is currently not known whether prehistoric- or historic-period cultural properties are located within the proposed project area. It is possible that cultural resources do exist within the project area. A file search of the records at the SHPO provided limited information indicating that a portion of one cultural resource site (24GA0811) may be located within the project area. Limited information available from the existing site record indicates that the historic site defined as the Gallatin Valley Railroad grade may be located along the right-of-way of Highway 191, and, if so, would not be impacted by project operations. Attempts to confirm the site location more exactly with the archaeologist who recorded the site in 1989 are being pursued. A cursory inspection of the project area revealed that a 1970's era barn, farm shed, and related historic equipment are situated within the project area (C. Morgan, pers. comm. 2008). The historic structures have not been inventoried or subjected to evaluations in order to determine historical significance and eligibility for listing on the National Register of Historic Places. A professionally conducted systematic examination for cultural properties (Class III study) would determine if such resources exist within the project area. The historic Salesville Cemetery is located

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immediately adjacent to the south edge of the project area and would be avoided during all project operations.

Potential Impacts: If significant cultural resources are found to exist within the project area, they would undoubtedly be subjected to adverse impacts through the gravel pit excavation and mining operation. A professionally conducted systematic examination for cultural properties would determine if such resources exist within the project area, and to what extent the project might adversely impact cultural properties. If, during the course of project operations, cultural resources are inadvertently 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.

Irreversible and Irretrievable Commitments of Resources: If cultural properties are found to exist within the project area, any disturbance to significant historic and prehistoric sites would result in irreversible and irretrievable loss of such resources.

Cumulative Impacts: Impacts to any existing cultural resources would be sustained during the development and operation of the Morgan Pit. 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.

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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 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 90th 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

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light population density areas (Harris 1998).

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 gage 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.

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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, 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.

Table 2: Estimated Noise Levels at Various Distances from Source(s)

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 approximately750 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.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).

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**), 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.

Table 3: Estimated Noise Levels at Various Distances from Back-up Alarms

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 site between the residences along Grey Wolf Trail and Zachariah Lane and the project area.
- 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.

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

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 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 3 l cubic yards for every person in the 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:

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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:
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.

Table Noise-4: Summary of Predicted Traffic Noise Levels at 200 feet from centerline of US 191

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

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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.^{3} of material for the proposed 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.^{3} 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, 13 of these during the AM peak hours and 10 during the PM peak hours (Morrison Maierle 2008). The estimated additional average weekday trips includes 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 obeisance 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 commented that southbound turning lanes and northbound acceleration and deceleration lanes would be required for issuance of an approach permit (MDT 2008b).

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.

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.

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12. INDUSTRIAL, COMMERCIAL AND AGRICULTURAL ACTIVITIES AND PRODUCTION:

Applicant's Proposed Action: The proponent proposes to remove approximately 1.5 million cubic yards of material by the year 2017 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.

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14. LOCAL AND STATE TAX BASE AND TAX REVENUES:

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 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 Irretrievable 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 Irretrievable 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: The land being proposed for mining is un-zoned. Zoning compliance has been obtained from the Gallatin County Planning Department (Sullivan 2007). The zoning compliance letter noted that the property is in an area where a well-developed neighborhood planning effort is currently

IMPACTS ON THE PHYSICAL ENVIRONMENT

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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 covering all unincorporated and undeveloped areas of Gallatin County (Sullivan 2008). The interim zoning requires all gravel pit owners to obtain conditional use permits prior to commencing operation. The interim zoning would be in effect for one year, and would require applicants to submit a $4,000 fee for processing of their conditional use permit.

Potential Impacts: TMC, Inc. acquired its zoning compliance prior to the November 2007 meeting. It is unclear how the progress of the Morgan Family Pit permit application may affect or tier with the new interim zoning. However, TMC, Inc. is applying to the county for a conditional use permit for this site, as well as the Nuss and Storey pit amendments.

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.

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18. DENSITY AND DISTRIBUTION OF POPULATION AND HOUSING:

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 Irretrievable 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 Irretrievable 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.

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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.

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.

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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 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, and thus would not be expected to be affected in this case.

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)

Irreversible and Irretrievable Commitments of Resources: The Proposed Action would not result in any irreversible or irretrievable commitments of resources related to the area's social and economic circumstances.

Cumulative Impacts: 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.

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 clearance
Gallatin County Water Quality Protection District	Stormwater Prevention Plan

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. Mitigation measures included in the Plan of Operations would reduce visual impacts of the proposed operation. Requirements placed on the proponent by the Opencut Mining Act ensure that impacts due to noise and light are acceptable. DEQ would also abide by 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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27. EA Prepared By: Garcia and Associates Third-Party Contractor

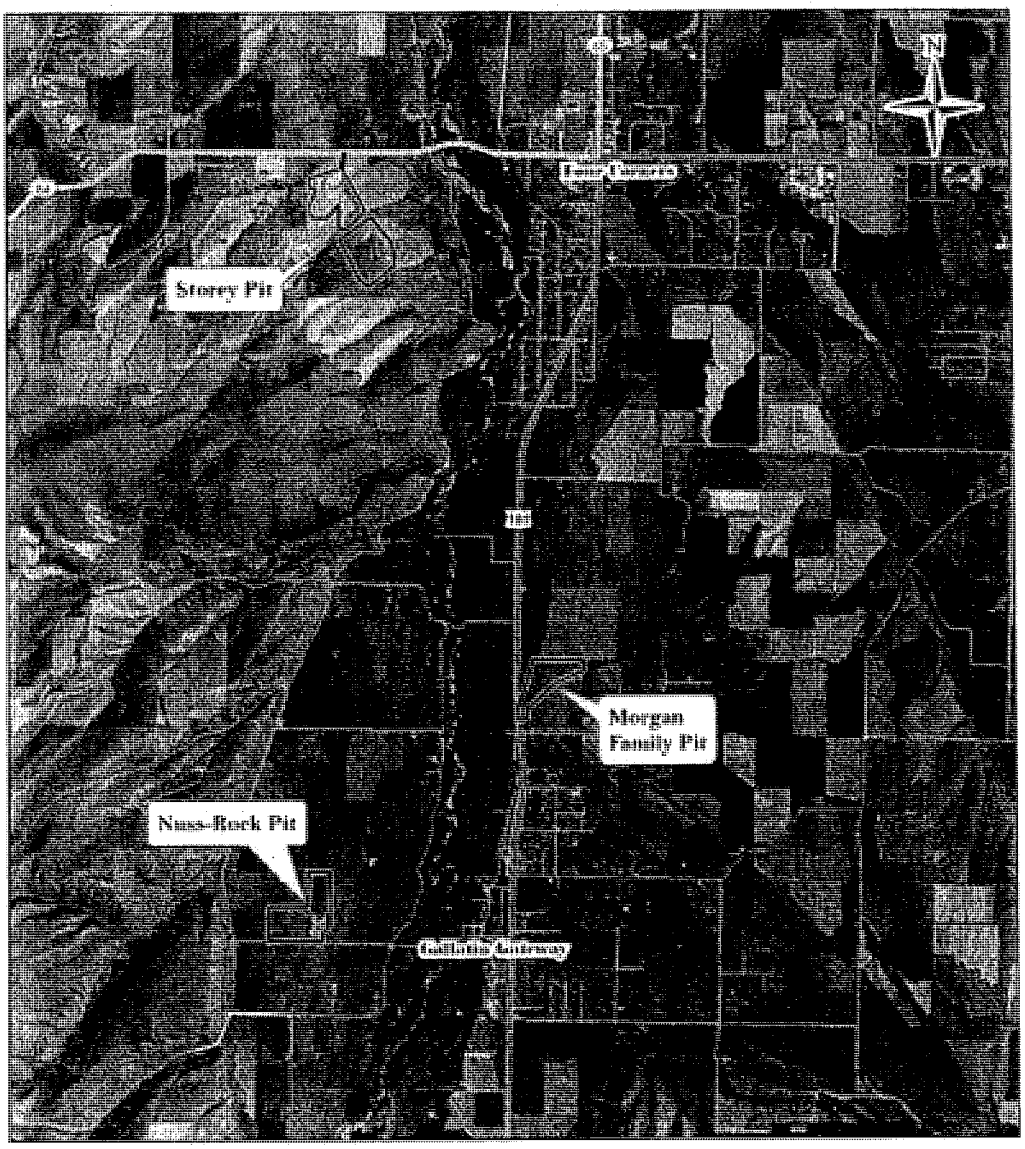
Jo Stephen	Opencut Mining Program Environmental Specialist
Name	Title

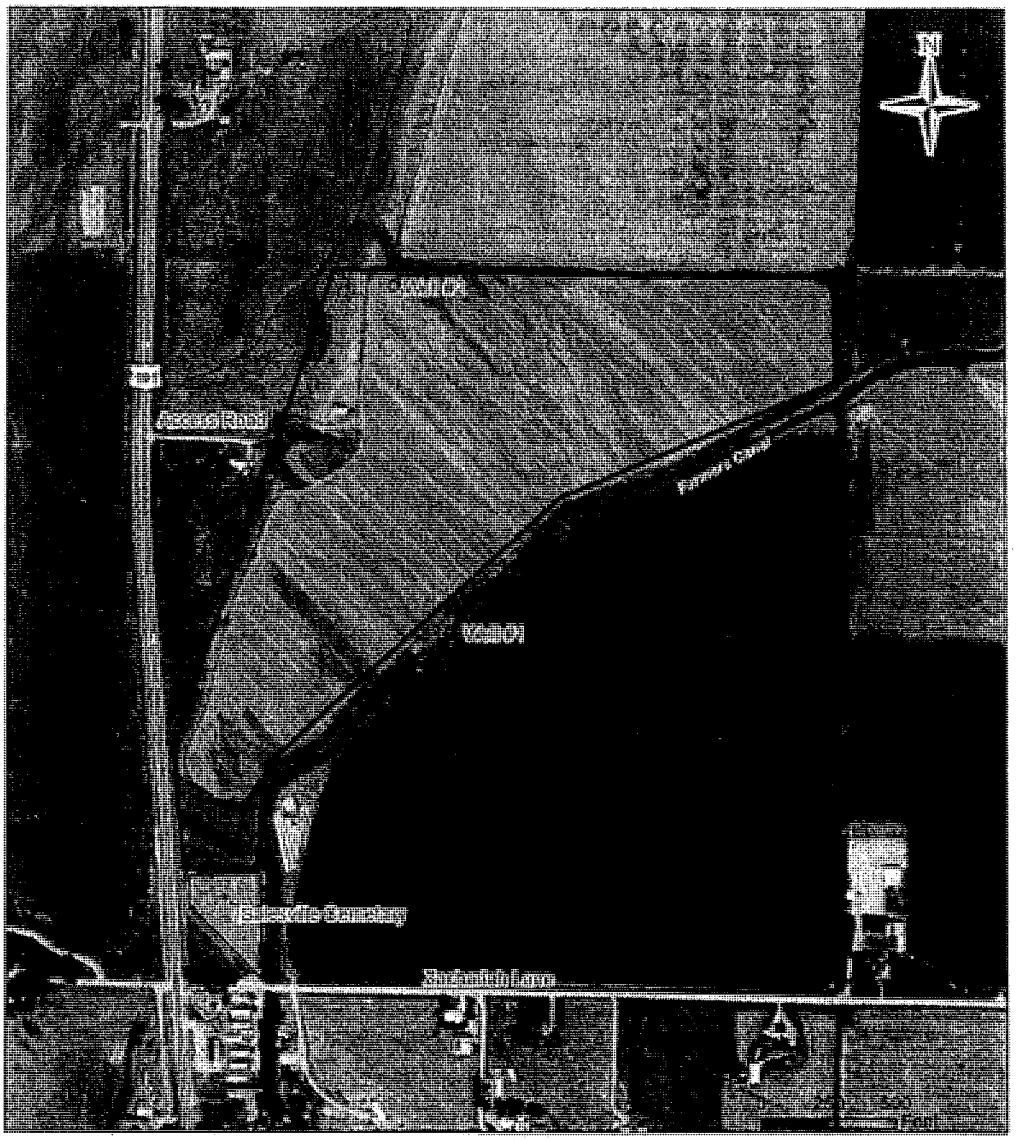
28. EA Reviewed By: Tom Ellerhoff Environmental Program Manager

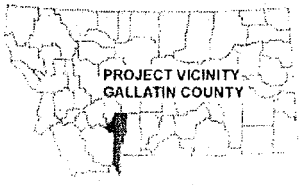
Name	Title

SEP 29 2008

PROJECT MAPS







GANDA

Figure 2 Morgan Family Pit

Proposed Morgan Family Gravel Pit

Relative Locations of features and boundary lines are approximate.

1:6,000 1 inch equals 500 feet

SEP 09 2008

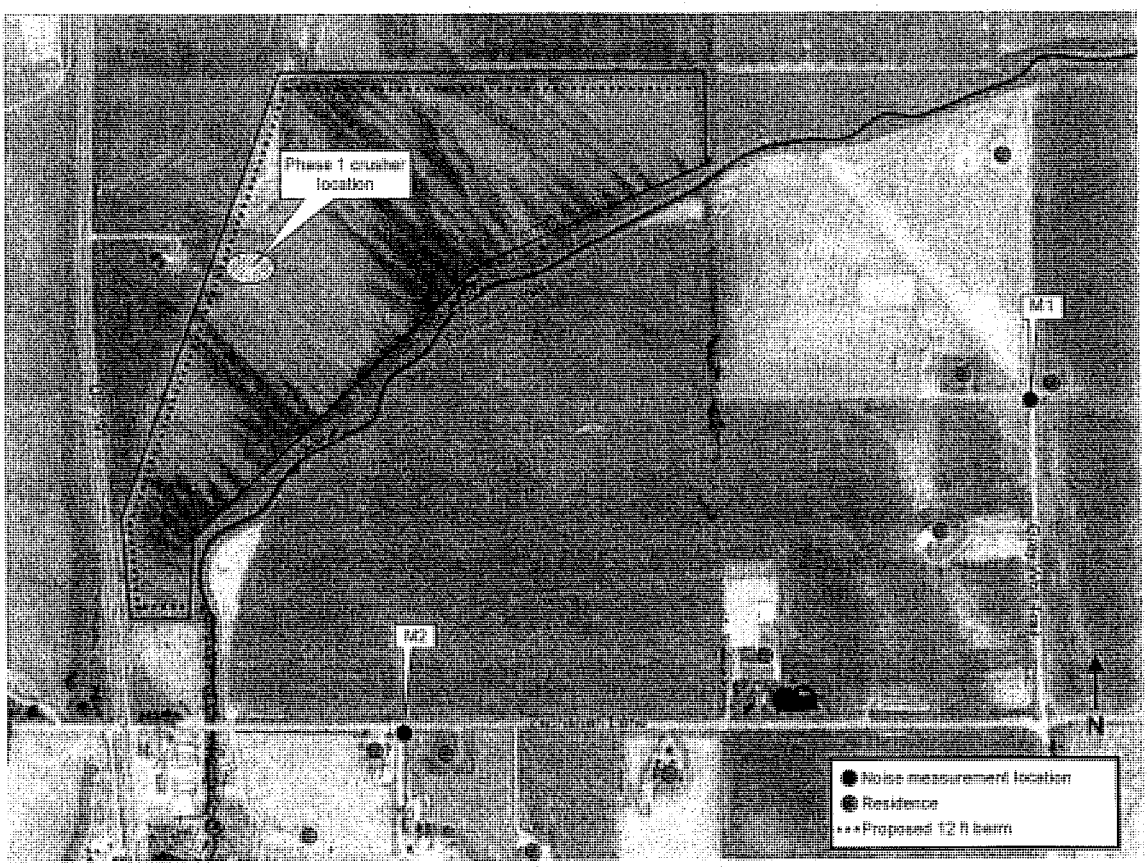


Figure 3: Ambient Noise Measurement Locations

APPENDIX

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

Date	Well #1 South	Well #2 North
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

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*	
		1. Does the action pertain to land or water management or environmental regulation affecting private real property or water rights?
		2. Does the action result in either a permanent or indefinite physical occupation of private property?
		3. Does the action deprive the owner of all economically viable uses of the property?
		4. Does the action deny a fundamental attribute of ownership?
		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.)
		5a. Is there a reasonable, specific connection between the government requirement and legitimate state interests?
		5b. Is the government requirement roughly proportional to the impact of the proposed use of the property?
		6. Does the action have a severe impact on the value of the property?
		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)
		7a. Is the impact of government action direct, peculiar, and significant?
		7b. Has the government action resulted in the property becoming practically inaccessible, waterlogged, or flooded?
		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?

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.