

# ENVIRONMENTAL ASSESSMENT

**Project Name:** Bragg

**Proposed Implementation Date:** September 8, 2000

**Proponent:** Empire Sand & Gravel Co.

**Type and Purpose of Action:** The company proposes to operate a complete gravel operation including mining, crushing and screening 280,000 cubic yards of gravel from a 53 acre site. Mining would occur on a gravel terrace adjacent to the Yellowstone River, the crusher would be placed on a channel-type feature midway across the site to the north, and the stockpiles and asphalt plant would be placed on the upper bench on the north side of the site. The products would be used for MDOT highway projects in the vicinity. The mining portion of the site would be reclaimed by December 2000, and the facilities portion by December 2001. The company has proposed an alternate reclamation plan for a portion of the mine area. About 7.6 acres of the site could be reclaimed as a pond and wetland, and the rest as pasture.

**Location:** SE of Sec 9 and the SW of Sec 10 T12N R51E    **County:** Prairie

**N = Not present or No Impact will occur.**

**Y = Impacts may occur (explain under Potential Impacts).**

IMPACTS ON THE PHYSICAL ENVIRONMENT	
RESOURCE	[Y/N] POTENTIAL IMPACTS AND MITIGATION MEASURES
<p><b>1. GEOLOGY AND SOIL QUALITY, STABILITY AND MOISTURE:</b> Are fragile, compactible or unstable soils present? Are there unusual geologic features? Are there special reclamation considerations?</p>	<p>[ Y ] The site is located on a recent alluvial terrace on the north bank and adjacent to the Yellowstone River, and on a bench above the terrace. The ridge of terrace gravel averages 600 feet wide and the site including the bench averages 1200 feet wide.</p> <p>The soils are predominantly of the "Banks" series, consisting of 6 inches of sandy loam overlying sandy gravel. In some places the gravels are at the surface and in other places the gravel is overlain by 8 feet of silty overburden. The soils on the north bench are shallow and fine-grained, possibly of the "Lambert" series. The dryland pasture in the north half has been extensively grazed.</p> <p>Annual precipitation is 12 inches to 14 inches, most of which falls during May, June and July.</p> <p>The plan of operations states that the overburden and fine waste material would be placed in the old channel between the terrace and bench, and would slope toward the south. The gentle slopes would allow good revegetation and stabilization of this portion of the site. Reclamation of the river terrace is discussed in the water quality section below.</p>
<p><b>2. WATER QUALITY, QUANTITY AND DISTRIBUTION:</b> Are important surface or groundwater resources present? Is there potential for violation of ambient water quality standards, drinking water maximum contaminant levels, or degradation of water quality?</p>	<p>[ Y ] No wetlands are present on the site. The site is vegetated with sagebrush and bunchgrasses. A small spring lies to the east of the site, and seems to be geologically or fault controlled, since it lines up directly with a large gully in the hills to several hundred yards to the north. No impact is expected to occur to this spring.</p> <p>In analyzing the impacts from placing the mining portion of the project within the 100-year floodplain the Montana Dept. of Transportation, Army Corps of Engineers in Helena, and Montana Dept. of Natural Resources were contacted and had no concerns about the operation as proposed.</p> <p>Approximately half the site, which is the proposed mining area, lies within the 100-year floodplain. The Yellowstone River bounds the site on the south. The Yellowstone River flow and elevation fluctuates dramatically during the year. The worst-case 100-year flood event is estimated to be at 2081 feet elevation, while its normal spring high water mark is at 2065 feet. The river is presently, in September 2000, at 2059 feet.</p> <p>Ice jams occur about a mile downstream from the site. This might contribute</p>

to the fact that there is a 16-foot difference between the normal high water level and the estimated 100-year flood event.

An interior boundary within the site is what appears to be an old river floodway between the gravel terrace and the upper bench. The floor of this channel is at 2082 feet, or 1 foot above the 100-year mark.

Elevation of the site above the normal high water mark of the river ranges from about 9 feet to 19 feet, the high point of the terrace being 2084 feet. Test pits did not encounter groundwater, but it is estimated, based upon elevations of the river, that the present groundwater level is at 2060 feet. This is because the groundwater level varies closely with the height of the river. During spring runoff the groundwater level will rise to approximately 2065 feet and then slowly recede.

The plan of operations states that no disturbance would occur within 150 feet of the Yellowstone normal high water mark. Test pits revealed that 9+ feet of gravel at the west or upstream end of the site is overlain by an average of 5 feet of overburden. Farther to the east the overburden depth increases as the amount of gravel decreases. Mining would commence in the western portion of the site at an elevation of about 2072 feet, and would reach a depth of 15 or more feet, or an elevation of 2057 feet. Mining would reach groundwater even in dry years.

**Alternative II (pond/wetland)** would affect about 15 acres of the site. At reclamation this Fall, the company plans to construct an approximately 8-acre pond and wetlands system that would accommodate fluctuation of the groundwater level. The pond area would expand and contract with the change in groundwater level. Slopes in this portion would vary from 4:1 to 10:1. Grasses such as reed canarygrass, orchard grass, and intermediate wheatgrass would be planted because they can withstand seasonal inundation. Because the company would mine deeper for its gravel, less surface area would be disturbed on the terrace. This alternative would have no effect on the facilities/stockpile area.

No impact is expected to occur to groundwater.

Upstream several hundred yards from the site, the Yellowstone impacts sandstone cliffs on its north bank. At this point the river deflects to the south and creates a "hungry bank" opposite from the site. It is difficult to know when this occurred, but the deposition of silt and sandy fines over the gravel, and the existence of 40-foot tall cottonwood trees, and fine stand of sagebrush, indicate that this has been a stable system for many years.

The site is covered with sagebrush starting at an elevation of about 2063 feet, which indicates that it seldom gets inundated. The elevation of the high bank of the pond/wetlands system would be at approximately 2072 feet. This leaves about 9 vertical and 100+ horizontal feet of natural vegetation to protect the upstream side of the wetlands site from overland flow erosion and deposition of fines.

It is quite probable that this site would get wet in a 100-year event. In constructing the new bridge immediately downstream of the site, the MDOT based its estimate of the 100-year event on water backing up behind ice jams downstream, more than on spring runoff events. The erosional environment of the two situations is totally different. Reclamation on this site would be successful. No impact to surface waters would occur.

**Alternative I or Company's Proposal** could result in the mining of up to 27 acres. This alternative would entail backfilling the mine site with the overburden and using an approved dryland seed mix. This could leave the mine site at the reclaimed elevation of about 2062 feet, or several feet below the normal springtime high water mark. Because spring is a time of fast moving current and high load in the river, erosion could occur until the

	<p>vegetation was reestablished well.</p> <p>The company has received for a stormwater permit from the Water Protection Bureau of MtDEQ.</p> <p>The crusher, asphalt plant, and material stockpiles would be located above the 100-year flood plain. No impacts to water quality are expected from the location and operation of this portion of the plan. No man-made wastes or asphalt would be buried on-site.</p>
<p><b>3. AIR QUALITY:</b> Will pollutants or particulate be produced? Is the project influenced by air quality regulations or zones (Class I airshed)?</p>	<p>[ N ] No designated Class I or Class II airsheds exist in the area. Both the asphalt plant and crusher emissions are regulated by the Air and Waste Management Bureau of DEQ and must meet all applicable standards set forth in the Clean Air Act. The crusher is equipped with spray nozzles to suppress dust, and a water truck would be available for dust control on-site and on the haul road.</p>
<p><b>4. VEGETATION COVER, QUANTITY AND QUALITY:</b> Will vegetative communities be permanently altered? Are any rare plants or cover types present?</p>	<p>[ N ] The site is presently used as dryland pasture. Many plant species are xeric, such as yucca, prickly pear, sagewort, sagebrush and green needle grass. No rare species or cover types were found during a field inspection, and none were reported in an NRIS search.</p>
<p><b>5. TERRESTRIAL, AVIAN AND AQUATIC LIFE AND HABITATS:</b> Is there substantial use of the area by important wildlife, birds or fish?</p>	<p>[ N ] The site is about a mile north of Terry adjacent to the Yellowstone River. The south half of the site lies in the 100-year floodplain. Because of the open sagebrush habitat, wildlife use of the site is more for traversing along the river than for lingering. Deer, raccoons, coyotes and other plains animals have been observed.</p> <p><b>Alternative II</b> would increase diversity on the site by creating an 8-acre wetland, as well as rejuvenate the rangeland.</p> <p><b>Alternative I or Company's Proposal</b> would have less diversity because wetland would not be constructed. Alternative I might be more detrimental to small, stationary wildlife such as mice, skunks, snakes, because it could be inundated more regularly due to the lower elevation at final reclamation. This also could result in more disturbance acres because mining would not proceed as deep as in Alternative II, and thus, would require more surface area for the same volume of material.</p>
<p><b>6. UNIQUE, ENDANGERED, FRAGILE OR LIMITED ENVIRONMENTAL RESOURCES:</b> Are any federally listed threatened or endangered species or identified habitat present? Any wetlands? Species of special concern?</p>	<p>[ Y ] The Montana Natural Heritage Program has 1 listing for an historic peregrine falcon nest in section 9. The nest has not been observed to be occupied. Its location is in the sandstone cliffs west of the mining area. No impact to this unoccupied nest site would occur.</p> <p>In 1979 a Western Hognose Snake was observed in section 10. This snake is listed as an S-3, which means that it is widespread but could have future problems due to such things as habitat destruction. This snake has a varied diet, but in flood plains seems to prefer, toads, frogs, and other small amphibians.</p> <p><b>Alternative II</b>, which would construct about 8 acres of wetlands, could improve habitat for this species. <b>Alternative I</b> probably would have no effect since the site habitat is presently a sagebrush/ grassland, and would pretty much remain so.</p> <p>The least tern is present in the area, but the proposed site is not suitable habitat for the species.</p> <p>Several aquatic species are also listed as residents of the Yellowstone River. The proposed action would not impact these aquatic species.</p>
<p><b>7. HISTORICAL AND ARCHAEOLOGICAL SITES:</b> Are any historical, archaeological or paleontological resources present?</p>	<p>[ N ] The State Historical Preservation Office has no listings for this area. The MtDOT conducted a Class III site inspection. No resources eligible for listing on the National Register were discovered. However, if a resource were discovered, operations would be shifted to another area for a reasonable period of time to allow for assessment of the find.</p>

<p><b>8. AESTHETICS:</b> Is the project on a prominent topographic feature? Will it be visible from populated or scenic areas? Will there be excessive noise or light?</p>	<p>[ Y ] The site lies about a mile north of Terry next to the Yellowstone River. Persons recreating on the Yellowstone would be within 150 yards. Because of the rise in elevation a partially obstructed view of the mine area would occur. The site would be quite visible from Secondary Route 253 because the route is adjacent to the site and because route 253 crosses the Yellowstone right there. During the 1+year time of operations, the site would have visual impacts. Noise from the operation would be heard from both the river and from the road. Noise from trucks and other road construction activities would also occur beginning next Spring. Because the site is a mile from Terry, noise impacts are expected to be slight.</p>
<p><b>9. DEMANDS ON ENVIRONMENTAL RESOURCES OF LAND, WATER, AIR OR ENERGY:</b> Will the project use resources that are limited in the area? Are there other activities nearby that will affect the project?</p>	<p>[ N ]</p>
<p><b>10. IMPACTS ON OTHER ENVIRONMENTAL RESOURCES:</b> Are there other studies, plans or projects on this tract?</p>	<p>[ N ]</p>
<p><b>IMPACTS ON THE HUMAN POPULATION</b></p>	
<p><b>RESOURCE</b></p>	<p><b>POTENTIAL IMPACTS AND MITIGATION MEASURES</b></p>
<p><b>11. HUMAN HEALTH AND SAFETY:</b> Will this project add to health and safety risks in the area?</p>	<p>[ N ] During the road construction the increased number of trucks might increase traffic hazards, but decreased speed limits, signing and other precautions would be taken to minimize these hazards.</p>
<p><b>12. INDUSTRIAL, COMMERCIAL AND AGRICULTURAL ACTIVITIES AND PRODUCTION:</b> Will the project add to or alter these activities?</p>	<p>[ N ] The site would be taken out of rangeland production for the 2-year life of the project.</p>
<p><b>13. QUANTITY AND DISTRIBUTION OF EMPLOYMENT:</b> Will the project create, move or eliminate jobs? If so, estimated number.</p>	<p>[ N ] Most of the product from this operation would be used on road reconstruction projects in the area. This means that jobs would move in and out with the road work. Some secondary jobs might be created in local businesses for the life of the project.</p>
<p><b>14. LOCAL AND STATE TAX BASE AND TAX REVENUES:</b> Will the project create or eliminate tax revenue?</p>	<p>[ N ] In that construction workers would move into the area for the duration of the job, local establishments such as restaurants, motels, gas stations and food stores would see an increase in sales.</p>
<p><b>15. DEMAND FOR GOVERNMENT SERVICES:</b> Will substantial traffic be added to existing roads? Will other services (fire protection, police, schools, etc) be needed?</p>	<p>[ N ] Truck traffic generated by this project would impact local residents during peak construction activity and could be annoying to the public, but it would not be dangerous or overburden the county's infrastructure.</p>
<p><b>16. LOCALLY ADOPTED ENVIRONMENTAL PLANS AND GOALS:</b> Are there State, County, City, USFS, BLM, Tribal, etc. zoning or management plans in effect?</p>	<p>[ N ]</p>
<p><b>17. ACCESS TO AND QUALITY OF RECREATIONAL AND WILDERNESS ACTIVITIES:</b> Are wilderness or recreational areas nearby or accessed through this tract? Is there recreational potential within the tract?</p>	<p>[ N ] The recreational potential of this site is low because it is private ground. However, with the Lewis and Clark bicentennial commemorations and activities, more people are expected to use the lower Yellowstone for rafting and camping activities. Impacts are not anticipated.</p>
<p><b>18. DENSITY AND DISTRIBUTION OF POPULATION AND HOUSING:</b> Will the project add to the population and require additional housing?</p>	<p>[ N ]</p>
<p><b>19. SOCIAL STRUCTURES AND MORES:</b> Is some disruption of native or traditional lifestyles or communities possible?</p>	<p>[ N ]</p>

