

ENVIRONMENTAL ASSESSMENT

On an Application for an OPENCUT MINING PERMIT

The Montana Department of Environmental Quality (DEQ) prepared this Environmental Assessment (EA) in accordance with requirements of the Montana Environmental Policy Act (MEPA). An EA functions to identify, disclose, and analyze the impacts of a proposed action. This document may disclose impacts that have no legislatively required mitigation measures, or over which there is no regulatory authority.

The state law that regulates gravel mining operations in Montana is the Opencut Mining Act. This law and the rules adopted thereunder place operational guidance and limitations on a project during its lifetime, and provide for the reclamation of land affected by opencut mining operations.

Local governments and other state agencies may have authority over different resources and activities under their regulations. Approval or denial of this Opencut Application will be based on a determination of whether or not the proposed operation complies with the Opencut Mining Act and the rules adopted thereunder. The DEQ approval of this application would not relieve the operator from the obligation to comply with any other applicable federal, state, or county statutes, regulations, or ordinances. The operator is responsible for obtaining any other permits, licenses, approvals, etc. that are required for any part of the proposed operation.

APPLICANT: Woodrock, Inc.

COUNTY: Richland

SITE NAME: Balducke

DATE: October 2012

LOCATION: Section 6, Township 20 North, Range 59 East & Section 1, Township 20 North, Range 58 East

PROPOSAL: The applicant proposes to permit a new, short term gravel pit to mine, screen, crush, stockpile and transport 650,000 cubic yards of gravel from a 27.2-acre site located three miles east of Midway, adjacent and east of the Yellowstone river. The site is an active ranch that contained a feedlot on the northern end of the site and the landowner's residence on the southern end of the permit boundary. The feedlot and residence would be removed before mining occurred.

A reclamation bond would be held by DEQ to ensure that final reclamation of the site to rangeland/pasture would be completed by November 2017. This application contains all items required by the Opencut Mining Act and its implementing rules. Proponent commits to properly conducting opencut operations and would be legally bound by the permit.

IMPACTS ON THE PHYSICAL ENVIRONMENT	
RESOURCE	POTENTIAL IMPACTS AND MITIGATION MEASURES
1. TOPOGRAPHY, GEOLOGY AND SOIL QUALITY, STABILITY AND MOISTURE:	<p>The site is adjacent to the Yellowstone River which runs along the western border of the site. The main permit area rises approximately 35 feet above the river, and contains a cement embankment along the river from approximately the landowner's residence westward to an area of historic excavations located near the middle of the proposed permit area. The site consists mainly of two ridges, separated by a sloping coulee which runs E/W between the two.</p> <p>The onsite soils consist of silt loams. The operator will replace 12 inches of soil in the mine level area and 18 inches of soil in the facility level area. The site receives approximately 13.7 inches of precipitation per year.</p> <p><i>Impacts:</i> An irreversible and irretrievable removal of gravel from the site would occur. A small impact to the quantity and quality of soils from salvaging, stockpiling, and resoiling activities also would occur, but this would not impair</p>

IMPACTS ON THE PHYSICAL ENVIRONMENT	
RESOURCE	POTENTIAL IMPACTS AND MITIGATION MEASURES
	the capacity of the soils to support full reclamation. There are no unusual topographic, geologic, soil, or special reclamation considerations that would prevent reclamation success.
2. WATER QUALITY, QUANTITY AND DISTRIBUTION	<p>The site is located adjacent and to the east of the Yellowstone River. Water for dust control would be purchased from a commercial offsite source. Erosion control would be maintained between the Yellowstone river and the Opencut operation until fully reclaimed.</p> <p><i>Impacts:</i> The proposed activities would have a minimal effect on the quantity and quality of the surface and groundwater resources.</p> <p><i>Cumulative:</i> Another permitted site is located to the east. However, cumulative impacts should be negligible for this area.</p>
3. AIR QUALITY	<p>Air quality standards are based upon the Clean Air Act of Montana and pursuant rules and are administered by the DEQ Air Resources Management Bureau (ARMB). Its program is approved by the Environmental Protection Agency (EPA). These rules and standards are designed to be protective of human health and the environment.</p> <p>Air quality permits would be required on the processing equipment before installment. Machinery, such as generators, crushers and asphalt plants, are individually permitted for allowable emissions. Best Available Control Technology (BACT) is the usual standard applied.</p> <p>Fugitive dust is that which blows off the pit floor, stockpiles, gravel roads, farm fields, etc. It is considered to be a nuisance but not harmful to health.</p> <p><i>Impacts:</i> Air quality standards as set by the federal government and enforced by the ARMB would allow minimal detrimental air impacts.</p>
4. VEGETATION COVER, QUANTITY AND QUALITY	<p>There are no known rare or sensitive plants or cover types present in the site area. Onsite vegetation consists of pasture grasses such as western wheat grass, silver sage, blue grama, thickspike wheatgrass, crested wheatgrass, etc.; and provides approximately 90% cover. The vegetation would be removed as soil is stripped and the site would be replanted with plant species compatible with the proposed reclaimed use.</p> <p><i>Impacts:</i> No long term detrimental impacts to the vegetation would occur.</p>
5. TERRESTRIAL, AVIAN AND AQUATIC LIFE AND HABITATS:	<p>Although the area is used primarily for pasture, it also supports populations of deer, rodents, song birds, coyotes, foxes, raptors, insects and various other animal species. Population numbers for these species are not known.</p> <p><i>Impacts:</i> The proposed mine is expected to temporarily displace some individual species and it is likely that the site would be re-inhabited following reclamation to similar habitat.</p>
6. UNIQUE, ENDANGERED, FRAGILE OR LIMITED ENVIRONMENTAL RESOURCES:	<p>The Montana Natural Heritage Program (MNHP) lists the following 15 species of concern in the vicinity of the site:</p> <p>Great Blue Heron (<i>Ardea herodias</i>) is the largest heron in North America, 60 cm tall and 97 to 135 cm long. Its upper parts are gray, and the fore-neck is streaked with white, black, and rust-brown. Great Blue Herons breed from southern Alaska southeast across central Canada to Nova Scotia and south to Guatemala, Belize, and the Galapagos Islands. Most Montana nesting colonies</p>

IMPACTS ON THE PHYSICAL ENVIRONMENT

RESOURCE	POTENTIAL IMPACTS AND MITIGATION MEASURES
	<p>are in cottonwoods along major rivers and lakes; a smaller number occur in riparian ponderosa pines and on islands in prairie wetlands. Great Blue Herons eat mostly fish but also amphibians, invertebrates, reptiles, mammals, and birds. Disturbance by humans and loss of protected colony sites are major threats.</p> <p>Bald eagle (<i>Haliaeetus leucocephalus</i>) is a bird of prey found in North America that is most recognizable as the national bird and symbol of the United States of America. This sea eagle has two known sub-species and forms a species pair with the white-tailed eagle. Its range includes most of Canada and Alaska, all of the contiguous United States and northern Mexico. It is found near large bodies of open water with an abundant food supply and old-growth trees for nesting.</p> <p>Whooping Crane (<i>Grus americana</i>) is the tallest bird of North America, reaching nearly 1.5 meters in height. The vocalization of the Whooping Crane is the feature that defines its common name. The loud resonating calls may be heard up to two miles away. The sexes appear similar; adult plumage is snowy-white overall, with males generally larger than females. The Whooping Crane has been observed in grain and stubble fields as well as wet meadows, wet prairie habitat, and freshwater marshes that are usually shallow and broad with safe roosting sites and nearby foraging opportunities. Migrants feed primarily in a variety of croplands. The Whooping Crane breeds monogamously with the same mate throughout life.</p> <p>Least tern (<i>Sternula antillarum</i>) is the smallest tern in North America, averaging 21 to 24 cm long with a wingspan of 51 cm. Its diminutive size, yellow bill, and white forehead are distinctive. The sexes are virtually identical. Least terns nest on unvegetated sand-pebble beaches and islands of large reservoirs and rivers in northeastern and southeastern Montana. Sites with gravel substrate provide the most suitable sites for nesting. Generally the least tern consumes small fishes (generally less than 9 cm long), but sometimes eats crustaceans or insects.</p> <p>Veery (<i>Catharus fuscescens</i>) is an 18-cm long bird with a reddish brown dorsum, white belly, gray flanks, and a straight slim bill. They are a summer resident in Montana and generally inhabit damp, deciduous forests and riparian areas. It is primarily a ground forager, with a diet including insects and fruit.</p> <p>Loggerhead shrike (<i>Lanius ludovicianus</i>) is a medium-sized songbird. Its summer range includes all of Montana. It winters from Oregon, Kansas, Tennessee, and Virginia southward to southern Mexico. Nests are found in sagebrush, bitterbush, and greasewood, and are equally successful in all three.</p> <p>Paddlefish (<i>Polyodon spathula</i>) is an ancient mostly cartilaginous fish with smooth skin and a close relative of the sturgeon. It grows up to 150 pounds or more. They are readily identifiable by the long paddle-like snout, long, tapered gill covers, and the backbone bent up into the upper lobe of the tail fin. Spawning migrations are tied closely with the timing of spring highwater. Although young of the year paddlefish will “bite” at small food particles, they eventually switch to filtering for food.</p> <p>Pallid Sturgeon (<i>Scaphirhynchus albus</i>) is the larger of the species of sturgeon found east of the continental divide. It grows to about 60 pounds. Because it is rare, little is known about this fish. The Pallid Sturgeon uses the Yellowstone River during spring and summer and the Missouri River below the confluence of the Yellowstone in the fall and winter. The Pallid sturgeon consumes minnows and bugs.</p>

IMPACTS ON THE PHYSICAL ENVIRONMENT

RESOURCE	POTENTIAL IMPACTS AND MITIGATION MEASURES
	<p>Shortnose Gar (<i>Lepisosteus platostomus</i>) is a fish native to Montana and is found at only one location--the dredge ponds below Fort Peck Reservoir. Shortnose gar may reach a size and weight of about 31 inches and about 3.5 pounds. This prehistoric-appearing fish is cylindrically shaped, with an elongated bony head and snout containing one row of sharp, conical teeth. The dorsal fin is located well posterior and the pectoral and pelvic fins have no spots. The skin is covered with diamond shaped ganoid scales arranged in oblique rows, providing a very protective surface armor. Color varies from brownish or olive-green on the dorsal surface lightening to yellow on the sides and white on the belly. Gars are predaceous. They are spring, broadcast spawners. They have several unusual features including rectangular scales found only in primitive fishes, and a gas bladder that can function like a lung. Gars can survive in waters that have very little oxygen where most other fish would perish. Gar eggs are poisonous to humans.</p> <p>Sturgeon Chub (<i>Macrhybopsis gelida</i>) is a native minnow found in the eastern Montana prairie river drainages. They have small eyes and many external papillae on their bodies and fins. They feed mostly on small invertebrates living on the bottom substrate.</p> <p>Sicklefin Chub (<i>Macrhybopsis meeki</i>) is one of the rarest fishes in Montana. It is found in large, turbid streams in the plains region of Montana. It is similar to the sturgeon chub in appearance except that its pectoral fins are strikingly long. They have a conspicuous barbell at each corner of the mouth. They are a bottom feeder which locates its food primarily by taste.</p> <p>Sauger (<i>Sander canadensis</i>) is a fish native to Montana east of the Continental Divide. It inhabits both large rivers and reservoirs, but is mainly a river fish. In the spring, sauger broadcast their spawn over riffles in rivers. Sauger are a highly prized sport fish and in some areas outside Montana are also a commercial fish. Their major food items are insects and small fish.</p> <p>Blue Sucker (<i>Cycleptus elongates</i>) is a fish that appears to inhabit only the larger streams, primarily the Missouri and Yellowstone rivers. It has an elongated shape, long dorsal fin and slate-blue coloration. It grows to slightly larger than 10 pounds. They prefer water with low turbidity and swift current. They feed mainly on aquatic insects.</p> <p>Meadow Jumping Mouse (<i>Zapus hudsonius</i>) has coarse yellowish-brown upperparts, a broad dark dorsal stripe, a white venter, and yellowish-brown sides paler than the back. Meadow Jumping Mice have been found in dense, tall and lush grass and forbs in marshy areas (sometimes with standing water), riparian areas, woody draws, and grassy upland slopes, sometimes within or near forested sites of ponderosa pine. Their diet includes a wide variety of invertebrates (especially insects), seeds, leaves, buds, fruits, and subterranean fungi. They are basically solitary and docile, and usually nocturnal. They hibernate in winter, beginning in late September in the east, but more often in October, and emerge in late April and early May.</p> <p>Spiny Softshell Turtle (<i>Apalone spinifera</i>) is primarily a riverine species, occupying large rivers and river impoundments, but it also occurs in lakes, ponds along rivers, pools along intermittent streams, bayous, irrigation canals, and oxbows. It usually is found in areas with open sandy or mud banks, a soft bottom, and submerged brush and other debris. Adult females can reach 52 centimeters in carapace length, but much less in adult males (which average</p>

IMPACTS ON THE PHYSICAL ENVIRONMENT	
RESOURCE	POTENTIAL IMPACTS AND MITIGATION MEASURES
	<p>about 10 centimeters shorter). The shell of the spiny softshell is flattened (pancake-like), with flexible edges and covered with leathery skin; the snout is tubular; the tail is thick and long.</p> <p><i>Impacts:</i> None of the listed species have been found on this site. Even if suitable habitat did exist on this site, the disturbance area would be small and large areas of similar or identical habitat surrounds the site. The possible impact to these species would be minimal.</p>
7. HISTORICAL AND ARCHAEOLOGICAL SITES	<p>The Montana State Historic Preservation Office (SHPO) was notified of the application. It reported that no sites had been discovered previously within the designated search locale. A pedestrian survey of the area by DEQ personnel did not reveal any artifacts or signs of occupation. No signs were evident at depth in the previously disturbed area. SHPO does not feel that a cultural resource inventory is warranted at this site at this time.</p> <p><i>Impacts:</i> If during operations resources were to be discovered, activities would be temporarily moved to another area or halted until SHPO was contacted and the importance of the resources was determined.</p>
8. DEMANDS ON ENVIRONMENTAL RESOURCES OF LAND, WATER, AIR OR ENERGY	<p>There are no unusual demands on land, water, air or energy anticipated as a result of this project.</p> <p><i>Impacts:</i> Negligible impacts to land, water, air, or energy would occur.</p>

IMPACTS ON THE HUMAN POPULATION	
RESOURCE	POTENTIAL IMPACTS AND MITIGATION MEASURES
9. LOCALLY ADOPTED ENVIRONMENTAL PLANS AND GOALS	<p>County zoning clearance has been obtained.</p>
10. DENSITY AND DISTRIBUTION OF POPULATION AND HOUSING	<p>As seen on the aerial photo of the surrounding area, the only nearby residence is the landowners, which is planned to be removed.</p> <p><i>Impact:</i> This commercial pit is being sited in this area because of the location of the resource, and to service oil industries needs for drill pads and roads.</p>
11. AESTHETICS	<p>The site is located in a common pastureland area. There would be a temporary alteration of aesthetics while mining is under way. However, reclamation would return the area to a visually acceptable landscape. This project is considered to be short term, i.e., planned to take 5 years to complete.</p>
12. QUANTITY/ DISTRIBUTION OF EMPLOYMENT	<p>Existing employees would mainly be utilized for this operation. There is low potential that this project would create a significant number of new jobs.</p> <p><i>Impacts:</i> New employment opportunities would be limited.</p>
13. INDUSTRIAL, COMMERCIAL, AGRICULTURAL ACTIVITIES AND PRODUCTION	<p>The acreage listed in the proposal would be taken out of pastureland use. Upon completion of mining, the land would be reclaimed to rangeland/pastureland.</p> <p><i>Impacts:</i> Pastureland production would be reduced as soil stripping and operations progress across the site. When the entire site is opened up for mining and mine-related activities, all pastureland activities would cease, but would be restored as the site is reclaimed.</p>

PRIVATE PROPERTY ASSESSMENT ACT (PPAA) CHECKLIST

DOES THE PROPOSED AGENCY ACTION HAVE TAKINGS IMPLICATIONS UNDER THE PPAA?

YES	NO	
X		1. Does the action pertain to land or water management or environmental regulation affecting private real property or water rights?
	X	2. Does the action result in either a permanent or indefinite physical occupation of private property?
	X	3. Does the action deprive the owner of all economically viable uses of the property?
	X	4. Does the action deny a fundamental attribute of ownership?
	X	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?
	X	6. Does the action have a severe impact on the value of the property?
	X	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.



- LEGEND**
- PROJECT BOUNDARY
 - EXISTING WELL
 - SOL/OVERBURDEN (STOCKPILED SEPARATELY)
 - EXISTING FENCE
 - TEST PIT LOCATION
 - EXISTING INCLINOMETER
 - BOUNDARY COORDINATE POINT
 - SILT FENCE
 - OVERHEAD POWER
 - EXISTING ROAD
 - CONCRETE RIP RAP

NOTES:
 - SURVEY PERFORMED BY OTHERS

BOUNDARY COORDINATE TABLE

BOUNDARY COORDINATE REFERENCE NUMBER	EASTING	NORTHING
BC1-1	47.51841	-104.25541
BC1-2	47.51859	-104.25577
BC1-3	47.51877	-104.25613
BC1-4	47.51895	-104.25649
BC1-5	47.51913	-104.25685
BC1-6	47.51931	-104.25721
BC1-7	47.51949	-104.25757
BC1-8	47.51967	-104.25793
BC1-9	47.51985	-104.25829
BC1-10	47.52003	-104.25865
BC1-11	47.52021	-104.25901
BC1-12	47.52039	-104.25937
BC1-13	47.52057	-104.25973
BC1-14	47.52075	-104.26009
BC1-15	47.52093	-104.26045
BC1-16	47.52111	-104.26081
BC1-17	47.52129	-104.26117
BC1-18	47.52147	-104.26153



PROJECT ENGINEER: DRAWN BY: JAS
 DESIGNED BY: RO: JAS REVIEWED BY: JAS

NO.	REVISIONS	DRAWN BY	DATE

WOODROCK, INC.-BALDUCKE PIT SITE MAP
 SEC 6, T20N, R59E, & SEC 1 T20N R58E, RICHLAND COUNTY, MT

31 ESCORTWAY DRIVE
 BOZEMAN, MT 59718
 PHONE (406) 592-0071
 WWW.ALLIEDENGINEERING.COM

**Civil Engineering
 Geotechnical Engineering
 Land Surveying**



PROJECT # 17-046
 DATE: 09/27/2012
 SHEET C1.2
 WOODROCK, INC.
 SITE MAP



Received Opencut 9/24/2012