

MAP GUIDELINE

This document provides information to help Operators assemble permit maps and boundary coordinates that meet requirements of the Opencut Mining Act (MCA Title 82, chapter 4, part 4) and its implementing rules (ARM Title 17, chapter 24, subchapter 2). The primary purpose of the maps and coordinates is to document and display the site's physical location and approved permit boundaries. The maps also show existing and proposed features of the site, the surrounding area, and the proposed operation. The maps are critical components of the permit application and constitute legal documents that become part of the permit.

Section I - Boundary Coordinate Requirements

The Opencut Mining Program accepts maps drawn accurately to scale by an Operator or consultant if the maps are based on boundary coordinates obtained using a Global Positioning System (GPS) unit. Alternatively, maps must be drawn accurately to scale by a licensed land surveyor. In either case, the requirements below apply.

1. Maps and boundary coordinates must define the following areas (see attached Example 1–Site Map):
 - a. Permit (or amendment) boundaries
 - b. Non-Bonded Areas
 - c. Partial Release Areas
2. Boundary coordinates must be provided as necessary to define the following points or line segments:
 - a. Each corner of the permit (or amendment) boundary;
 - b. Each point where the direction of the permit (or amendment) boundary changes;
 - c. The boundary between Bonded and Non-Bonded areas;
 - d. The centerline of any permitted access roads as necessary to show the approximate locations of corners, curves, and the start and end points; and,
 - e. The approximate center of the main permit area.
3. Submit boundary coordinates to the Program as follows:
 - a. Coordinates must be provided in **WGS 84 Decimal Degrees**.
 - b. Provide coordinates in the Microsoft Excel *Boundary Coordinate Table* available at: <http://www.deq.mt.gov/opencut/forms/BoundaryCoordinateTable.xlsx>.
 - c. Coordinates must be listed in geographic sequence so clear and adequate boundaries result from connecting Map ID #1 to Map ID #2 to Map ID #3, etc. (see Example 1).
 - d. Each coordinate point and its Map ID # must be displayed on the Site Map or a separate coordinate map (see Example 4).
 - e. Email the Microsoft Excel *Boundary Coordinate Table* to DEQOpencut@mt.gov with the “Subject” line completed as follows: **BCT(Operator-Site Name)**.
 - f. The Microsoft Excel table is used by the Program to assess and verify proposed boundaries. As a result, do not include a printout of the table in the paper application submitted to the Program’s Helena office.

Section II - Map Criteria

1. The Program recommends that Site and Area Maps be drawn on the 2009 air photo base which is available at various internet websites including:
 - Black & white and color Orthophotos in MrSID compressed format: [Montana Location Finder](#)
 - Color photos and maps from Google.com: <http://maps.google.com/>
 - USGS 7.5 Minute (1:24,000) Topographic Maps: [Montana Location Finder](#) (<http://maps2.nris.state.mt.us/scripts/esrimap.dll?name=LocMap&Cmd=Map>)
2. Create a Site Map at a scale of 1 inch = 400 (or less) feet (Examples 1 and 3). Alternative scales may be accepted by the Department as long as the map is easily readable.
3. Create an Area Map at an appropriate scale if necessary to show existing or proposed access roads or features that do not fit on the Site Map (Example 2).

4. No required map information can be within ½-inch of the sheet edge (to allow scanning by DEQ).
5. If maps are in color or larger than 11 x 17 inches, submit one paper copy and one electronic (pdf) copy of each map. If electronic (pdf) copy is not available, submit two copies of each map.
6. Maps must include the information listed below.

Section III - Map Labels & Features

ALL MAPS – Use the 2009 air photo base (use of topographic backgrounds is discouraged). The map legend must include the following six items:

1. Operator Name
2. Site Name
3. Legal Description (Section, Township, Range)
4. Bar Scale (reasonable & realistic)
5. Date of Drafting
6. North Arrow

SITE MAP - Show and label the following applicable existing and proposed features on the Site Map:

1. Access roads from the public road turnoff to the main permit area (if roads go beyond the Site Map, show the full extent on an Area Map).
2. Permit (or Amendment) Area Boundary
3. Non-Bonded Area Boundary (if applicable)
4. Partial Release Area Boundary (if applicable)
5. Mine-level areas including:
 - a. Mining areas
 - b. Mined-area backfill sites (if applicable)
 - c. Excess overburden and fines disposal sites (if applicable)
6. Facility-level areas including:
 - a. Staging areas
 - b. Heavy equipment parking areas
 - c. Fuel storage areas (if applicable)
 - d. Sight and sound barriers and berms (if applicable)
 - e. Soil stockpile areas
 - f. Overburden stockpile areas (if applicable)
 - g. Mine material stockpile areas
 - h. Processing facilities area including approximate locations of:
 - i. Crushers,
 - ii. Wash Plants,
 - iii. Asphalt Plants
 - iv. Concrete Plants
 - i. Concrete and Asphalt Recycling Stockpile Areas
 - j. Soil and Overburden Test Hole and Observation Point Locations
 - k. Monitoring well locations (existing or proposed)
 - l. Water system and structure including:
 - i. Supply wells
 - ii. Water recycling and settling ponds
 - iii. Surface water extraction points
 - iv. Discharge points for water used in opencut operations
 - m. Postmining land use areas, including the layout of Ponds or Wetlands (the Program strongly

recommends providing a separate Reclamation Map)

7. Postmining landowner stockpile area (if applicable)
8. Roads that will remain for landowner.

SITE MAP OR AREA MAP - Show and label the following existing and proposed features on the Site Map if it covers a sufficient area. Otherwise, show and label these features on the Area Map, as required:

1. Access roads (if roads extend beyond the Site Map border)
2. Land ownership (if access roads or the main permit area are on more than one landowner's property)
3. Soil test hole locations
4. Pertinent pre-mine features to include:
 - a. Water wells in and within 1,000 feet of the main permit area boundary
 - b. The following features within 500 feet of access roads and in and within 1,000 feet of the main permit area:
 - i. Existing surface disturbances (for example: historic mine areas, waste piles, garbage pits, etc.)
 - ii. Non-operation-related structures and facilities (for example: residential, commercial, industrial)
 - iii. Natural and man-made surface water features, including ditches
 - iv. Vegetation types
 - v. Important fish and wildlife habitats
5. Other pertinent features including, but not limited to:
 - a. Fences and gates
 - b. Aboveground utilities (for example, electric transmission lines)
 - c. Underground utility lines (for example, buried electric lines, petroleum pipelines, natural gas lines, sewer lines, and water lines)
 - d. Non-access roads
 - e. Livestock facilities
 - f. Buffer zones

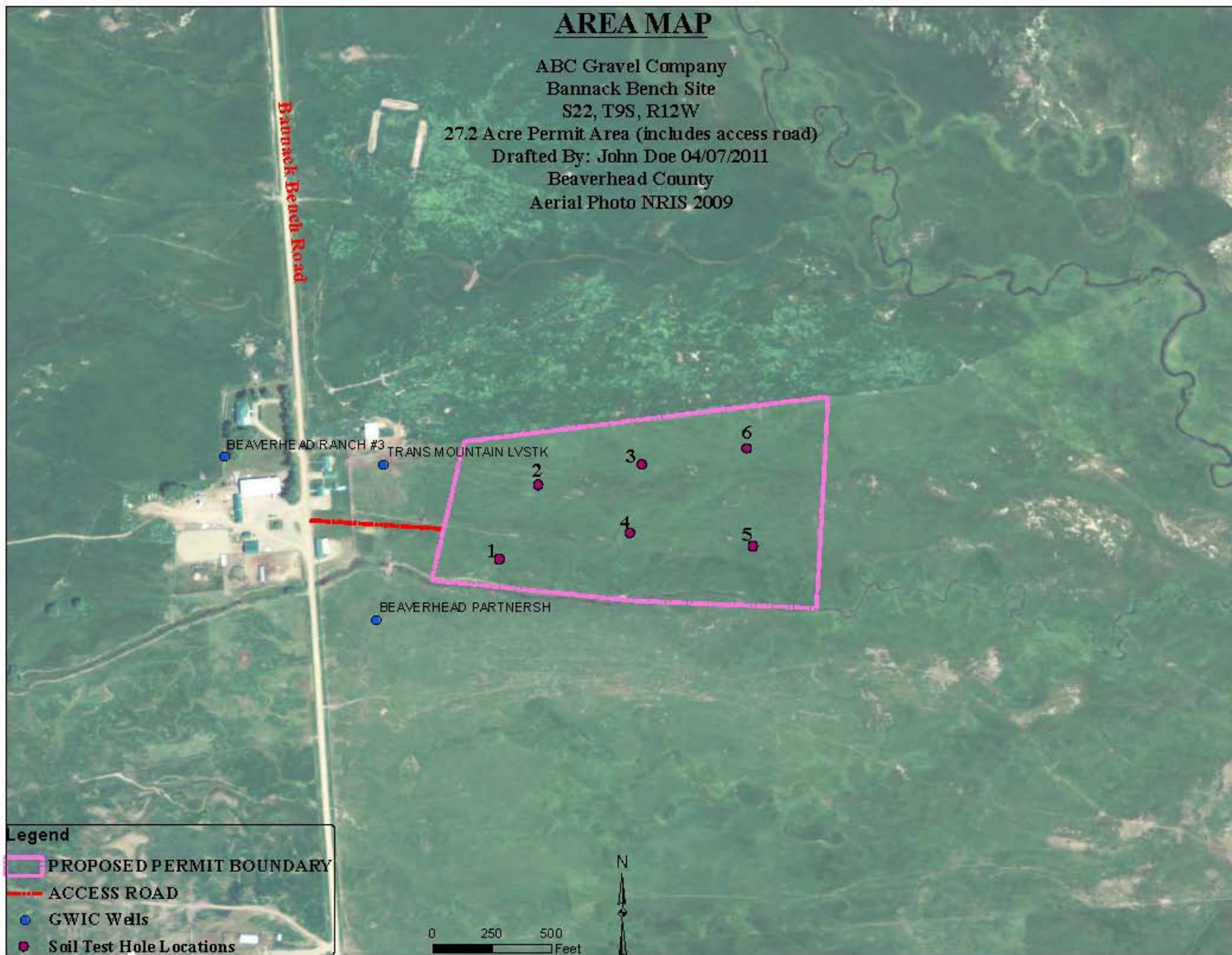
RECLAMATION MAP – This intent of this map is to show and label features that will remain at the site when full reclamation is completed (i.e. how it will look at final reclamation). A Reclamation map should be provided if necessary to “un-clutter” the Site Map and clearly show future reclamation features.

1. Postmining contours
2. Postmining land uses
3. Landowner material stockpile areas to remain
4. Roads to remain
5. Special features to remain

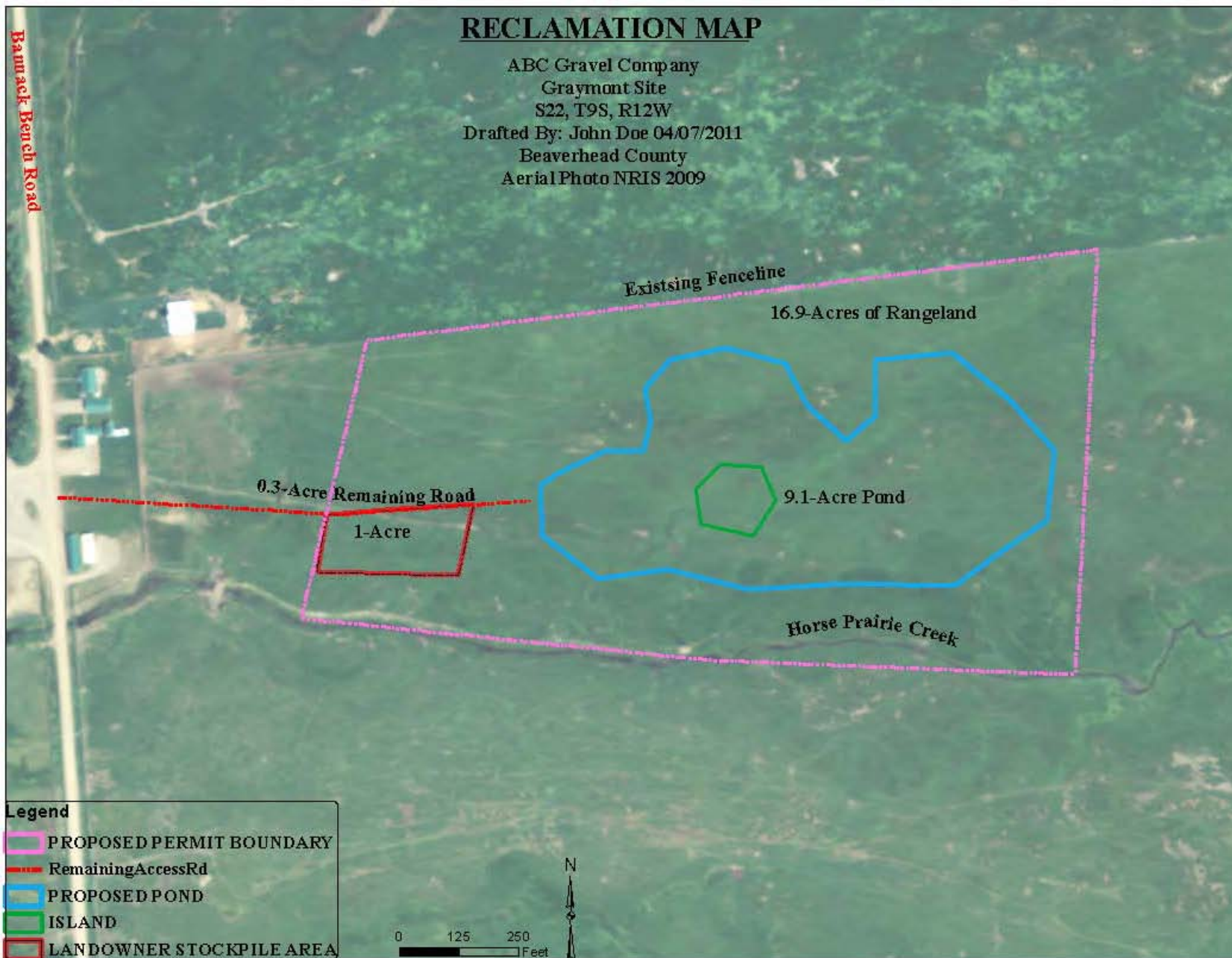
Example 1 – Site Map



Example 2 – Area Map



Example 3 – Reclamation Map



Example 4 – Boundary Coordinate Table

DEQ OPENCUT MINING PROGRAM • PO BOX 200901 • HELENA MT 59620-0901 • PHONE: 406-444-4970 • FAX: 406-444-4988 • Email: DEQOpencut@mt.gov

<u>BOUNDARY COORDINATE TABLE</u>			
<p>This Microsoft Excel table must be submitted for: a) a Permit Application; b) an Amendment Application changing acreage; c) a Request to Commence Operations in Non-Bonded Area; and d) a Partial Release Request. The Program will not accept boundary coordinates on any other form. This form must contain <u>only</u> Boundary Coordinates which include a) Permit Boundary; b) Non-Bond Area; and c) Partial Release Area. In addition, the the Boundary Coordinates must be in geographic sequence, so that the boundary can be created by connecting Map ID #1 to Map ID #2 to Map ID #3, etc. Do <u>not</u> enter a negative number in the "Longitude" column as it will automatically display as a negative number for you. Email this completed Microsoft Excel table to: DEQOpencut@mt.gov with the "Subject" line completed as follows: BCT (Operator Name), (Site Name).</p> <p>Note: Do <u>not</u> include a printed version of this table with the application submitted to the Opencut Program's Helena office. The electronic version received via email will be used by the DEQ to determine the acceptability of the application and this table will delineate your legal boundary.</p>			
Operator Name:		ABC Gravel Company	
Site Name:		Bannack Bench	
Permit # (if an Amendment, Request to Commence, or Partial Release Request):			None - New Permit
MAP ID#	LATITUDE	LONGITUDE	DESCRIPTION
	45.03303	-113.05218	Approximate Center of Site
1	45.032110	-113.055480	Permit Boundary
2	45.031980	-113.052150	Permit/Non-Bonded Boundary
3	45.031990	-113.049190	Permit/Non-Bonded Boundary
4	45.034440	-113.049160	Permit/Non-Bonded Boundary
5	45.034080	-113.052130	Permit/Non-Bonded Boundary
6	45.033730	-113.055050	Permit Boundary
7	45.032700	-113.055320	Access Road
8	45.032740	-113.057500	Access Road
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			
26			
27			
28			
29			