



# Alaska Gold Company

A NovaGold Subsidiary

---

February 21, 2006

RECEIVED  
FEB 21 2006

Mac McLean, Habitat Biologist IV  
Alaska Department of Natural Resources  
Office of Habitat Management and Permitting  
1300 College Road  
Fairbanks, Alaska 99701

Alaska Dept. of Natural Resources  
Office of  
Habitat Management and Permitting

**Re: Title 41 Fish Habitat Permit Big Hurrah Creek Mine near Nome, Alaska**

Dear Mr. McLean:

Alaska Gold Company proposes to improve Big Hurrah Creek floodplain function and fish overwintering habitat as part of our project to rehabilitate the 2.5 miles of existing access road along the creek.

Road improvements are needed to provide safe truck access to the proposed Big Hurrah Mine facilities located at the mouth of Little Hurrah Creek. A total of 93,000 cubic yards (cy) of material would be removed from the Big Hurrah floodplain for repairing the access road. Of that amount, 83,000 cy would be historic placer mine tailings, 10,000 cy will be excavated from 5,000 feet of the creek channel to create two pools for fish over-wintering habitat, and 10,000 cy would be excavated along the access road alignment to accommodate the typical road section.

Big Hurrah Creek is a braided system located in a broad valley with a full bank width of approximately 32 feet and floodplain width of 71 feet. The river floodplain has been frequently disturbed by placer mining since the early 1900's. Large mine tailing deposits are distributed throughout the flood plain below the confluence of Little Hurrah Creek (Sheet C-17).

---

P.O. Box 640, Nome, Alaska 99762-0640 USA • Telephone 1-907-443-5272 • Facsimile 1-907-443-5472

Head Office:

Suite 3454, Four Bentall Centre, 1055 Dunsmuir Street, P.O. Box 49215, Vancouver, BC V7X 1K8 Canada  
Telephone 1-604-669-6227 • Facsimile 1-604-669-6272

Historic mine tailings have influenced the geomorphology of the Big Hurrah Creek floodplain. The deposition of these tailings and natural events are likely responsible for the formation of the braided channel morphology. The tailings have influenced creek flows resulting in a higher width to depth ratio and decreased channel sinuosity. The widening of the floodplain and a reduction in channel depth has reduced the potential availability of over-wintering habitat for Dolly Varden (*Salvelinus malma*).

Removal of the mine tailings from the flood plain would help stabilize the creek channel and improve creek hydrological function over a wider range of flows. Removal of mine tailings would increase flood plain width to 81 feet and increase stream width to 37 feet. Reestablishing the flood plain would improve river flows, sediment regimes, and fish habitat.

Heavy equipment will be required to operate in the active creek channel to transport mine tailings scattered throughout the flood plain and install the culverts. Equipment crossings shall be made from bank to bank in a direction substantially perpendicular to the direction of stream flow. Equipment crossings shall be made only at locations with gradually sloping banks. There shall be no crossings at locations with sheer or cut banks.

To minimize impacts to pink salmon (*Oncorhynchus gorbuscha*), chum (*O. keta*), coho (*O. kisutch*) and Dolly Varden, construction would occur in spring, early summer, or fall to avoid impacts to salmon. Construction equipment would avoid spawning concentrations of pink, chum, and coho. Heavy equipment would use the shortest possible route between the mine tailings and the construction site. Silt fences would be used to isolate as much of the road construction site from the creek as practicable.

The historic mine tailings and river rock should be relatively free of sediments and organic materials. Excavation and use of this material for the road project is not expected to affect water quality. Alaska Gold Company will use appropriate mitigation measures such as silt fencing to isolate the construction site from the creek and other recognized best management practices.

Installation of the culverts in the Big Hurrah Creek and Linda Vista Creek, development of two pools for fish over wintering habitat, operation of heavy equipment in the creek, crossing the creek with equipment, and the discharge of historic mine tailings for road embankment below the ordinary high water mark will require a Title 41 fish habitat permit.

The channel will be excavated to create two pools with depths ranging from five to ten feet in depth at the head or deep end of the pool and two feet deep at the shallow or tail out. The pools will be designed and constructed to prevent fish entrapment especially under low flow conditions.

### **Big Hurrah Creek**

The proposed Big Hurrah Mine facilities will be located in Little Hurrah Creek which is located approximately 2.5 miles up stream from the confluence of Big Hurrah Creek and Solomon River in Township 10 S, Range 28 West, Kateel River Meridian (Sheet T1). Three anadromous fish streams are located along the access road and at the mine site, Big Hurrah Creek, Linda Vista Creek, and Little Hurrah Creek. The mine would require reconstruction of the access road located in the State right-of-way parallel to Big Hurrah Creek. The road would begin along an existing road spurring off the Nome-Council Highway at approximately Milepost 40. The access road would continue along the north bank of Big Hurrah Creek and cross the stream approximately 400 feet into the route (Sheets C-1 through C-11).

The proposed access road would then travel in a westerly direction along the south side of the Big Hurrah Creek bed for approximately two miles. In this two mile stretch the road crosses Linda Vista Creek. Culverts would be installed to allow for fish passage and/or to prevent ponding of water. A 16'7" by 10'1" corrugated steel pipe arch culvert would be installed in Big Hurrah Creek approximately 200 meters from the confluence with Solomon Creek. A culvert would also be placed in Linda Vista Creek to allow for fish passage and several unnamed streams to prevent ponding. Embankment materials would consist of rock and gravel abutments on either side of the Big Hurrah Creek stream channel

The route would then continue west to Little Hurrah Creek where the route would veer south for approximately 800 feet and enter the mine site (Sheet C11 through C-16). The mine site would be located on the west and east banks just upstream of the mouth of Little Hurrah Creek.

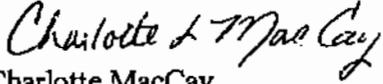
Alaska Gold is prepared to complete a fish habitat permit for the culvert crossing for Big Hurrah and Linda Vista Creeks, however not for Little Hurrah Creek because although it is listed as an anadromous stream, the observed fish habitat as noted by the Office of Habitat Management and Permitting is outside of the proposed area of development and disturbance.

### **Rock Creek**

The Proposed Rock Creek Mine facilities would be located on the north side of Glacier Creek Road at Township 10 South, Range 24 West, Sections 14, 15, 22, 23, 25, 26, and 33, Kateel River Meridian (Figure 1). Three anadromous fish streams are located in the project area, Snake River, Glacier Creek, and Rock Creek. The Rock Creek Access and Haul Road would utilize at least two culverts for crossing Rock Creek. The stream crossing additions would not affect fish habitat at the crossing locations as the fish habitat terminates where Rock Creek intersects Glacier Creek Road. Alaska Gold concludes the development at Rock Creek, including the access and haul road does not need the Title 41 permit from ADNR Office of Habitat Management and Permitting.

If you have any questions please contact me at (907) 743-9366 or by e-mail at [cmaccay@bristol-companies.com](mailto:cmaccay@bristol-companies.com) (please note the recent change in e-mail address).

Sincerely,

  
Charlotte MacCay  
Environmental Manager

Enclosures:

Big Hurrah Location and Vicinity Map (Sheet T-1)  
Big Hurrah Mine Access Road Design (Sheets C-1 to C-17)  
Rock Creek Location and Vicinity Map (Figure 1)  
Title 41 Fish Habitat Permit Application



FH# \_\_\_\_\_  
(Office Use Only)

GENERAL WATERWAY/WATERBODY APPLICATION  
ALASKA DEPARTMENT OF NATURAL RESOURCES  
Office of Habitat Management and Permitting  
Office Locations

**A. APPLICANT**

1. Name: Alaska Gold Company
2. Address (Mailing): PO Box 640 Nome, Alaska 99762  
Email Address: \_\_\_\_\_  
Telephone: (907) 443-5272 or (907) 743-9366 Fax: (907) 443-5472 or (907) 563-6713
3. Project Contractor: Name: Alaska Gold Company  
Address: P.O. Box 640 Nome, Alaska 99762  
Email Address: \_\_\_\_\_  
Telephone: (907) 443-5272 Fax: (907) 743-9366

**B. TYPE AND PURPOSE OF PROJECT: Fish Habitat Improvement/Mine Access Road Rehabilitation**

**C. LOCATION OF PROJECT SITE**

1. Name of River, Stream, or Lake: Big Hurrah Creek or Anadromous Stream No: \_\_\_\_\_
2. Legal Description: Township 10 S Range 28W  
Meridian Kateel River Section \_\_\_\_\_ USGS Quad Map Solomon C-5
3. Plans, Specifications, and Aerial Photograph. See specific instructions

**D. TIME FRAME FOR PROJECT: Spring 2006 TO Fall 2007 (m/d/yy)**

**E. CONSTRUCTION METHODS:**

1. Will the stream be diverted?  Yes  No  
How long? Permanently
2. Will stream channelization occur?  Yes  No
3. Will the banks of the stream be altered or modified?  Yes  No

Describe: Approximately one mile of the north bank of Big Hurrah Creek will realigned to direct the creek flow to the south side of the channel to allow the rehabilitation of the mine access road. Historic mine tailings will be removed from the floodplain. The material for altering the stream

banks would consist of mine tailings and material from the channel. A total of 93,000 cubic yards (cy) of material would be removed from the Big Hurrah floodplain for repairing the access road. Of that amount, 83,000 cy would be historic placer mine tailings, 10,000 cy will be excavated from 5,000 feet of the creek channel to create pools (5-10 feet in depth) for fish over-wintering habitat, and 10,000 cy would be excavated along the access road alignment to accommodate the typical road section.

A 16 ft. 7 Inch by 10 ft. 1 inch corrugated steel pipe arch culvert will be installed near the mouth of Big Hurrah Creek. On either side of the culvert, road embankments would extend from the stream banks into the existing channel. A culvert would also be installed in Linda Vista Creek to provide fish passage and several other unmanned creeks to prevent ponding. Road improvements are needed to provide safe truck access to the proposed Big Hurrah Mine facilities located at the mouth of Little Hurrah Creek.

4. List all tracked or wheeled equipment (type and size) that will be used in the stream (in the water, on ice, or in the floodplain): ATV, pick-up truck, loader, dump truck, dozer, tracked excavator, Lowboy Truck.

How long will equipment be in the stream? 4 to 6 weeks

5. a. Will material be removed from the floodplain, bed, stream, or lake?  Yes  No

Type: Mine Tailings, Cobble, and Gravel

Amount: 93,000 cubic yards

- b. Will material be removed from below the water table?  Yes  No

If so, to what depth? Two pools would be excavated to a depth between five and ten feet in the channel to collect ground water in the winter and provide overwintering habitat. A channel would be constructed to the pools to allow for fish movement and to prevent fish entrapment under low flow conditions.

Is a pumping operation planned?  Yes  No

6. Will material (including spoils, debris, or overburden) be deposited in the floodplain, stream, or lake?  Yes  No

If so, what type? Mine Tailings and material from the creek channel

Amount: 10,000 cubic yards

Disposal site location(s): North Bank Blg Hurrah Creek \_\_\_\_\_

7. Will blasting be performed?  Yes  No

Weight of charges: \_\_\_\_\_

Type of substrate: \_\_\_\_\_

8. Will temporary fills in the stream or lake be required during construction (e.g., for construction traffic around construction site)?  Yes  No

9. Will ice bridges be required?  Yes  No

**F. SITE REHABILITATION/RESTORATION PLAN:** On a separate sheet present a site rehabilitation/restoration plan. See specific instructions

**G. WATERBODY CHARACTERISTICS:**

Width of stream: 32 Feet Depth of stream or lake: Approximately 2.0 Feet

Type of stream or lake bottom (e.g., sand, gravel, mud): cobble, boulders, sand, and gravel

Stream gradient Shallow to Moderate

**H. HYDRAULIC EVALUATION:**

1. Will a structure (e.g., culvert, bridge support, dike) be placed below ordinary high water of the stream?  Yes  No

If yes, attach engineering drawings or a field sketch, as described in Step B.

For culverts, attach stream discharge data for a mean annual flood (Q=2.3), if available.

If applicable, describe potential for channel changes and/or increased bank erosion:

Installation of a culvert for a road crossing of the Big Hurrah Creek will reduce erosional forces and the introduction of sediments caused by truck traffic crossing the creek bed. The approaches to the culvert crossing will direct river flows through the culvert resulting in a more defined channel and consolidation of the braided creek morphology.

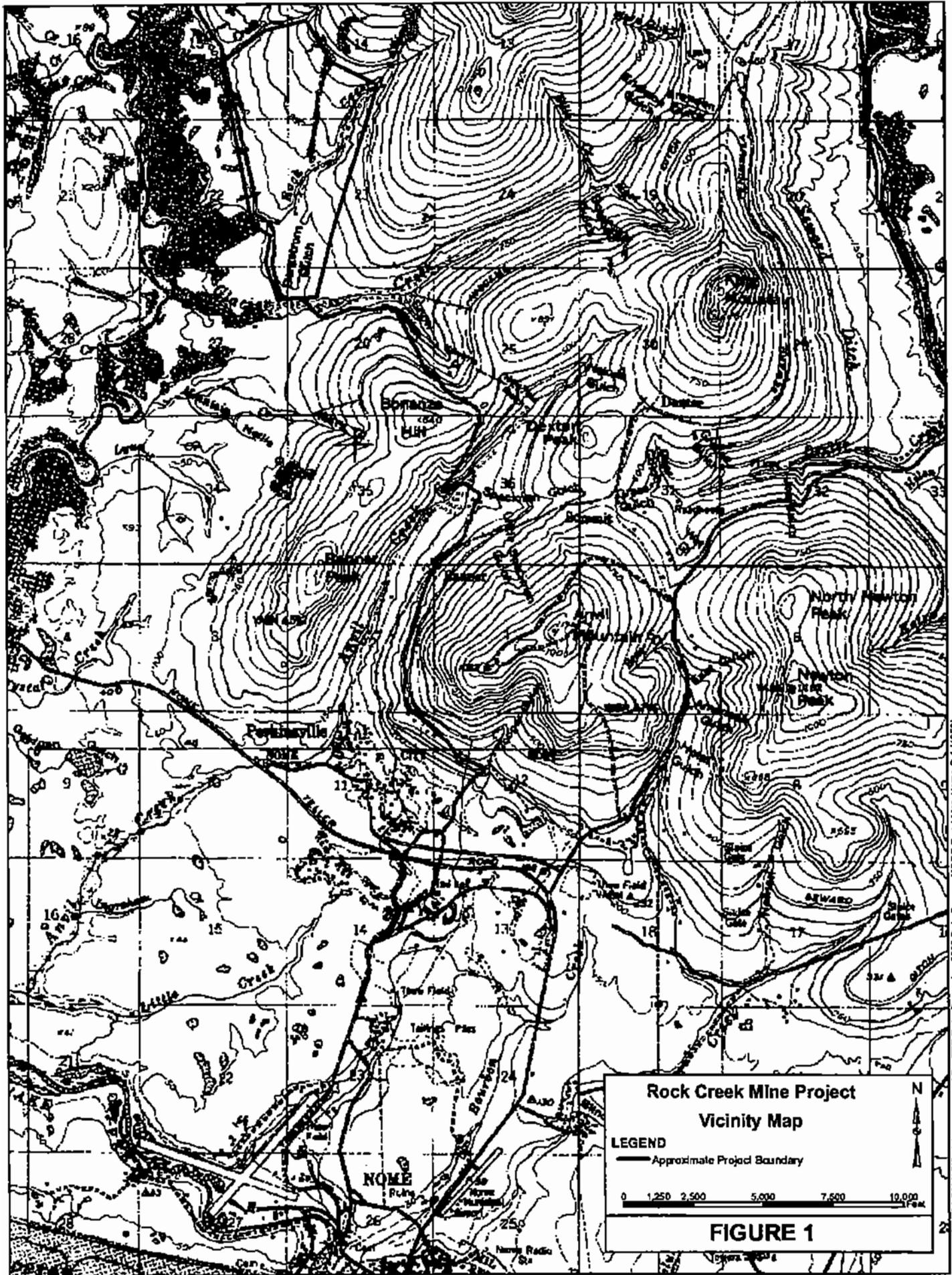
2. Will more than 25,000 cubic yards of material be removed?  Yes  No

If yes, attach a written hydraulic evaluation including, at a minimum, the following: potential for channel changes, assessment of increased aufeis (glaciering) potential, assessment of potential for increased bank erosion.

**I HEREBY CERTIFY THAT ALL INFORMATION PROVIDED ON OR IN CONNECTION WITH THIS APPLICATION IS TRUE AND COMPLETE TO THE BEST OF MY KNOWLEDGE AND BELIEF.**

Charlotta d. MacCoy  
Signature of Applicant

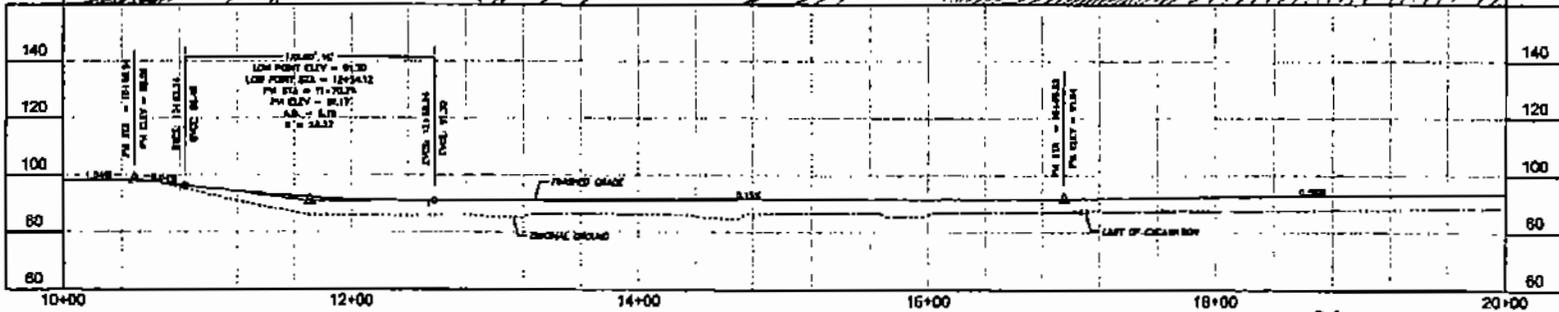
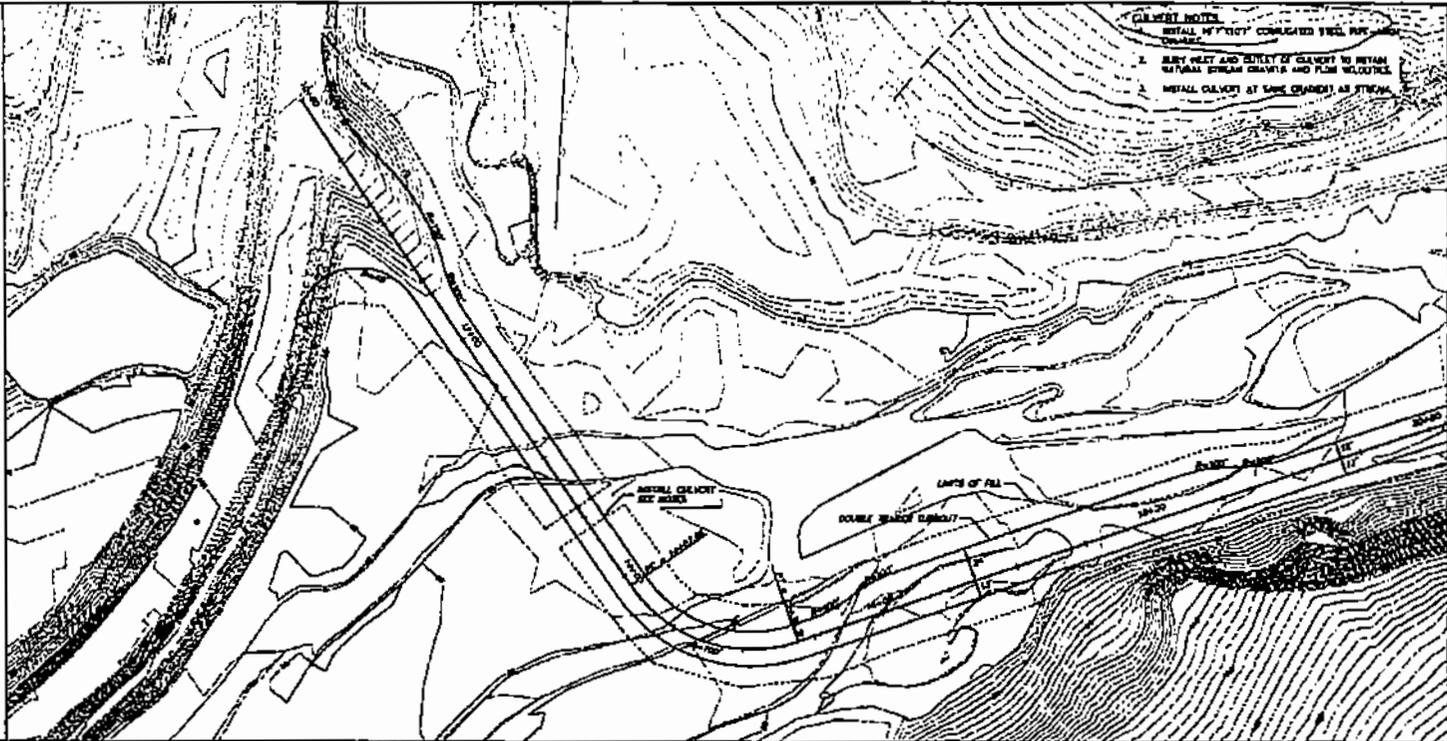
February 21, 2006  
Date











MATCHLINE STATION 20+00



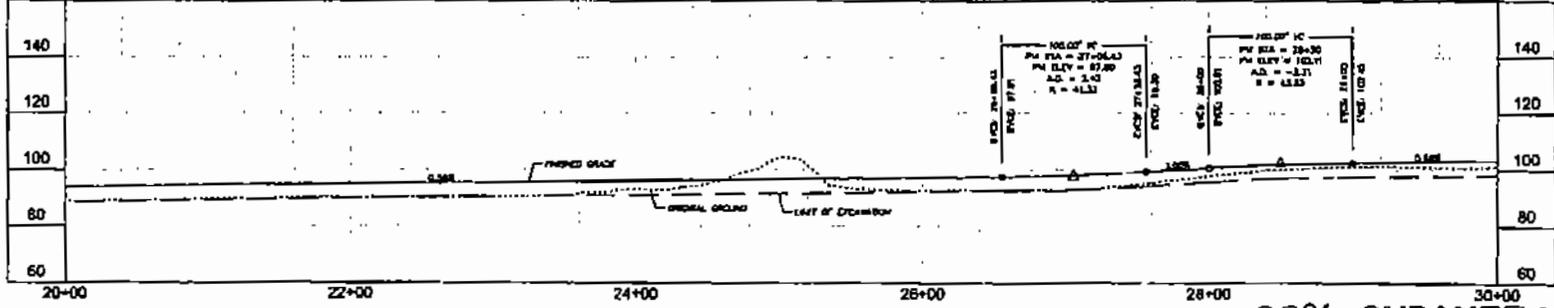
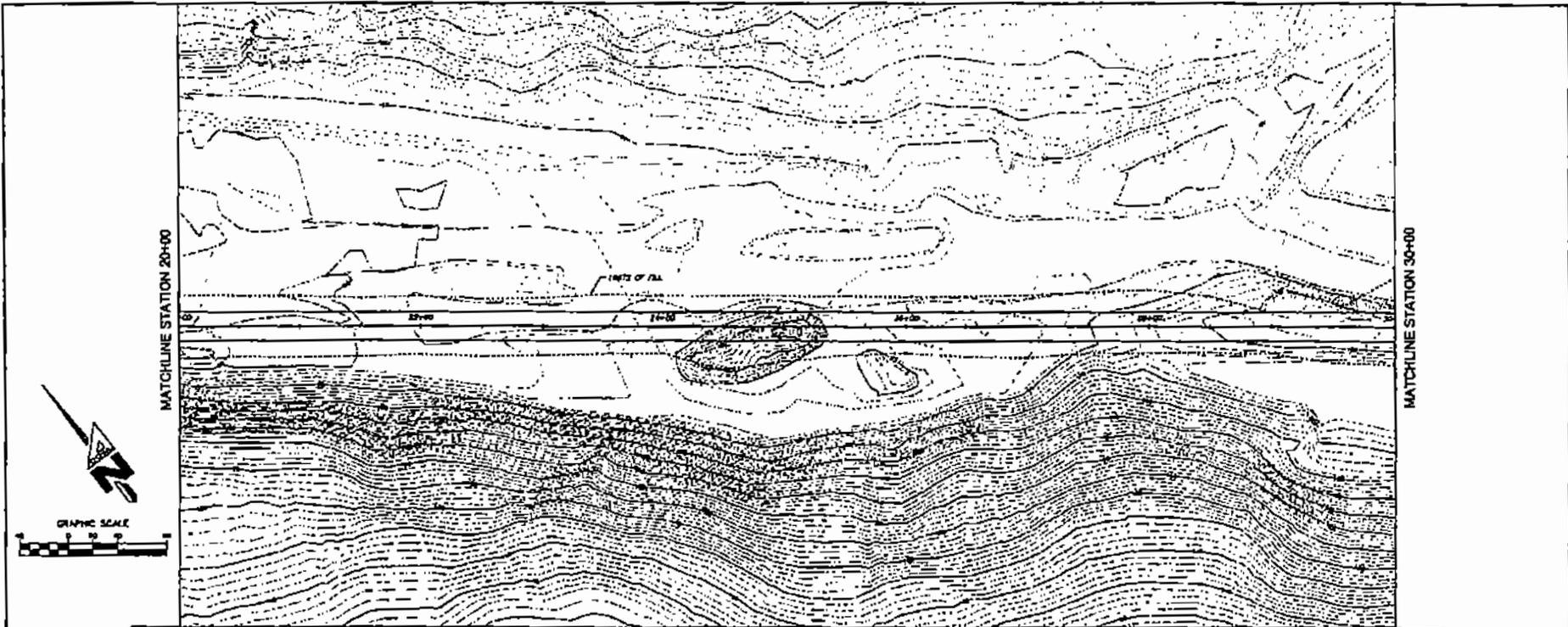
**35% SUBMITTAL**

NO.	DATE	DESCRIPTION
1	10/1/2010	PRELIMINARY
2	10/15/2010	REVISED
3	10/25/2010	REVISED
4	11/10/2010	REVISED
5	11/20/2010	REVISED
6	12/1/2010	REVISED
7	12/15/2010	REVISED
8	12/30/2010	REVISED
9	1/10/2011	REVISED
10	1/20/2011	REVISED
11	2/10/2011	REVISED
12	2/20/2011	REVISED
13	3/10/2011	REVISED
14	3/20/2011	REVISED
15	4/10/2011	REVISED
16	4/20/2011	REVISED
17	5/10/2011	REVISED
18	5/20/2011	REVISED
19	6/10/2011	REVISED
20	6/20/2011	REVISED
21	7/10/2011	REVISED
22	7/20/2011	REVISED
23	8/10/2011	REVISED
24	8/20/2011	REVISED
25	9/10/2011	REVISED
26	9/20/2011	REVISED
27	10/10/2011	REVISED
28	10/20/2011	REVISED
29	11/10/2011	REVISED
30	11/20/2011	REVISED
31	12/10/2011	REVISED
32	12/20/2011	REVISED
33	1/10/2012	REVISED
34	1/20/2012	REVISED
35	2/10/2012	REVISED
36	2/20/2012	REVISED
37	3/10/2012	REVISED
38	3/20/2012	REVISED
39	4/10/2012	REVISED
40	4/20/2012	REVISED
41	5/10/2012	REVISED
42	5/20/2012	REVISED
43	6/10/2012	REVISED
44	6/20/2012	REVISED
45	7/10/2012	REVISED
46	7/20/2012	REVISED
47	8/10/2012	REVISED
48	8/20/2012	REVISED
49	9/10/2012	REVISED
50	9/20/2012	REVISED
51	10/10/2012	REVISED
52	10/20/2012	REVISED
53	11/10/2012	REVISED
54	11/20/2012	REVISED
55	12/10/2012	REVISED
56	12/20/2012	REVISED
57	1/10/2013	REVISED
58	1/20/2013	REVISED
59	2/10/2013	REVISED
60	2/20/2013	REVISED
61	3/10/2013	REVISED
62	3/20/2013	REVISED
63	4/10/2013	REVISED
64	4/20/2013	REVISED
65	5/10/2013	REVISED
66	5/20/2013	REVISED
67	6/10/2013	REVISED
68	6/20/2013	REVISED
69	7/10/2013	REVISED
70	7/20/2013	REVISED
71	8/10/2013	REVISED
72	8/20/2013	REVISED
73	9/10/2013	REVISED
74	9/20/2013	REVISED
75	10/10/2013	REVISED
76	10/20/2013	REVISED
77	11/10/2013	REVISED
78	11/20/2013	REVISED
79	12/10/2013	REVISED
80	12/20/2013	REVISED
81	1/10/2014	REVISED
82	1/20/2014	REVISED
83	2/10/2014	REVISED
84	2/20/2014	REVISED
85	3/10/2014	REVISED
86	3/20/2014	REVISED
87	4/10/2014	REVISED
88	4/20/2014	REVISED
89	5/10/2014	REVISED
90	5/20/2014	REVISED
91	6/10/2014	REVISED
92	6/20/2014	REVISED
93	7/10/2014	REVISED
94	7/20/2014	REVISED
95	8/10/2014	REVISED
96	8/20/2014	REVISED
97	9/10/2014	REVISED
98	9/20/2014	REVISED
99	10/10/2014	REVISED
100	10/20/2014	REVISED



**BIG HURRAH MINE ACCESS ROAD  
ROAD PLAN AND PROFILE**

NO.	DATE	DESCRIPTION	BY	CHKD.
1	10/1/2010	PRELIMINARY		
2	10/15/2010	REVISED		
3	10/25/2010	REVISED		
4	11/10/2010	REVISED		
5	11/20/2010	REVISED		
6	12/1/2010	REVISED		
7	12/15/2010	REVISED		
8	12/30/2010	REVISED		
9	1/10/2011	REVISED		
10	1/20/2011	REVISED		
11	2/10/2011	REVISED		
12	2/20/2011	REVISED		
13	3/10/2011	REVISED		
14	3/20/2011	REVISED		
15	4/10/2011	REVISED		
16	4/20/2011	REVISED		
17	5/10/2011	REVISED		
18	5/20/2011	REVISED		
19	6/10/2011	REVISED		
20	6/20/2011	REVISED		
21	7/10/2011	REVISED		
22	7/20/2011	REVISED		
23	8/10/2011	REVISED		
24	8/20/2011	REVISED		
25	9/10/2011	REVISED		
26	9/20/2011	REVISED		
27	10/10/2011	REVISED		
28	10/20/2011	REVISED		
29	11/10/2011	REVISED		
30	11/20/2011	REVISED		
31	12/10/2011	REVISED		
32	12/20/2011	REVISED		
33	1/10/2012	REVISED		
34	1/20/2012	REVISED		
35	2/10/2012	REVISED		
36	2/20/2012	REVISED		
37	3/10/2012	REVISED		
38	3/20/2012	REVISED		
39	4/10/2012	REVISED		
40	4/20/2012	REVISED		
41	5/10/2012	REVISED		
42	5/20/2012	REVISED		
43	6/10/2012	REVISED		
44	6/20/2012	REVISED		
45	7/10/2012	REVISED		
46	7/20/2012	REVISED		
47	8/10/2012	REVISED		
48	8/20/2012	REVISED		
49	9/10/2012	REVISED		
50	9/20/2012	REVISED		
51	10/10/2012	REVISED		
52	10/20/2012	REVISED		
53	11/10/2012	REVISED		
54	11/20/2012	REVISED		
55	12/10/2012	REVISED		
56	12/20/2012	REVISED		
57	1/10/2013	REVISED		
58	1/20/2013	REVISED		
59	2/10/2013	REVISED		
60	2/20/2013	REVISED		
61	3/10/2013	REVISED		
62	3/20/2013	REVISED		
63	4/10/2013	REVISED		
64	4/20/2013	REVISED		
65	5/10/2013	REVISED		
66	5/20/2013	REVISED		
67	6/10/2013	REVISED		
68	6/20/2013	REVISED		
69	7/10/2013	REVISED		
70	7/20/2013	REVISED		
71	8/10/2013	REVISED		
72	8/20/2013	REVISED		
73	9/10/2013	REVISED		
74	9/20/2013	REVISED		
75	10/10/2013	REVISED		
76	10/20/2013	REVISED		
77	11/10/2013	REVISED		
78	11/20/2013	REVISED		
79	12/10/2013	REVISED		
80	12/20/2013	REVISED		
81	1/10/2014	REVISED		
82	1/20/2014	REVISED		
83	2/10/2014	REVISED		
84	2/20/2014	REVISED		
85	3/10/2014	REVISED		
86	3/20/2014	REVISED		
87	4/10/2014	REVISED		
88	4/20/2014	REVISED		
89	5/10/2014	REVISED		
90	5/20/2014	REVISED		
91	6/10/2014	REVISED		
92	6/20/2014	REVISED		
93	7/10/2014	REVISED		
94	7/20/2014	REVISED		
95	8/10/2014	REVISED		
96	8/20/2014	REVISED		
97	9/10/2014	REVISED		
98	9/20/2014	REVISED		
99	10/10/2014	REVISED		
100	10/20/2014	REVISED		



35% SUBMITTAL



NO.	DATE	DESCRIPTION

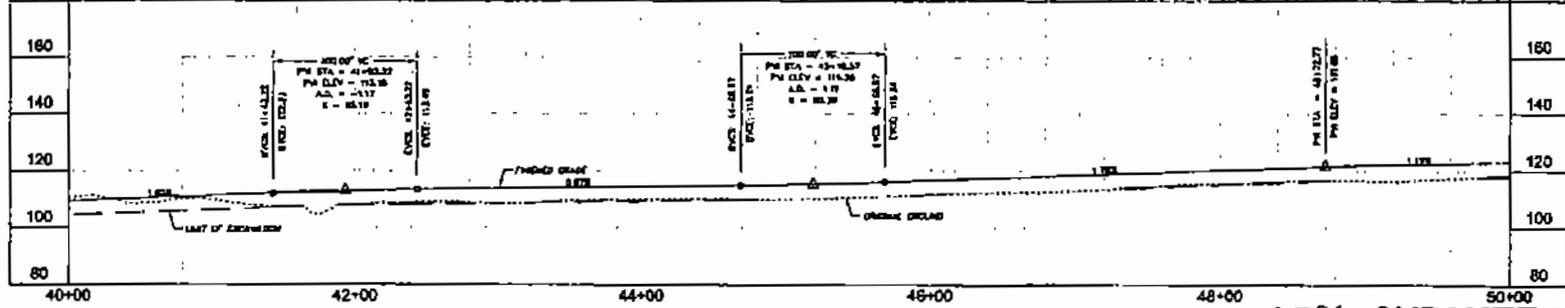
**DOWL ENGINEERS**  
 4040 Y Street Anchorage, Alaska 99503  
 Phone 283-2222 Fax 283-2222

BIG HURRAH MINE ACCESS ROAD  
 ROAD PLAN AND PROFILE

NO.	DATE	DESCRIPTION

C4





35% SUBMITTAL



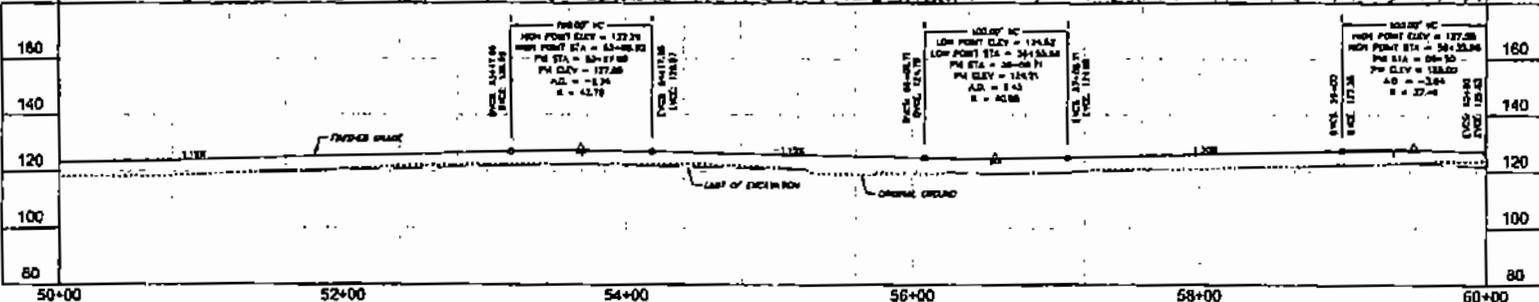
NO.	DATE	DESCRIPTION
1	12/15/11	ISSUED FOR PERMITTING
2	12/15/11	ISSUED FOR PERMITTING
3	12/15/11	ISSUED FOR PERMITTING
4	12/15/11	ISSUED FOR PERMITTING
5	12/15/11	ISSUED FOR PERMITTING
6	12/15/11	ISSUED FOR PERMITTING
7	12/15/11	ISSUED FOR PERMITTING
8	12/15/11	ISSUED FOR PERMITTING
9	12/15/11	ISSUED FOR PERMITTING
10	12/15/11	ISSUED FOR PERMITTING

**DOWL ENGINEERS**  
 400 W. 11th Avenue, Anchorage, Alaska 99501  
 Phone: 907.561.1111 Fax: 907.561.1112

**BIG HURRAH MINE ACCESS ROAD  
 ROAD PLAN AND PROFILE**

NO.	DATE	DESCRIPTION
1	12/15/11	ISSUED FOR PERMITTING
2	12/15/11	ISSUED FOR PERMITTING
3	12/15/11	ISSUED FOR PERMITTING
4	12/15/11	ISSUED FOR PERMITTING
5	12/15/11	ISSUED FOR PERMITTING
6	12/15/11	ISSUED FOR PERMITTING
7	12/15/11	ISSUED FOR PERMITTING
8	12/15/11	ISSUED FOR PERMITTING
9	12/15/11	ISSUED FOR PERMITTING
10	12/15/11	ISSUED FOR PERMITTING

C6



35% SUBMITTAL



NO.	DATE	BY	CHKD.	DESCRIPTION



BIG HURRAH MINE ACCESS ROAD  
ROAD PLAN AND PROFILE

NO.	DATE	BY	CHKD.	DESCRIPTION

Sheet No. C7



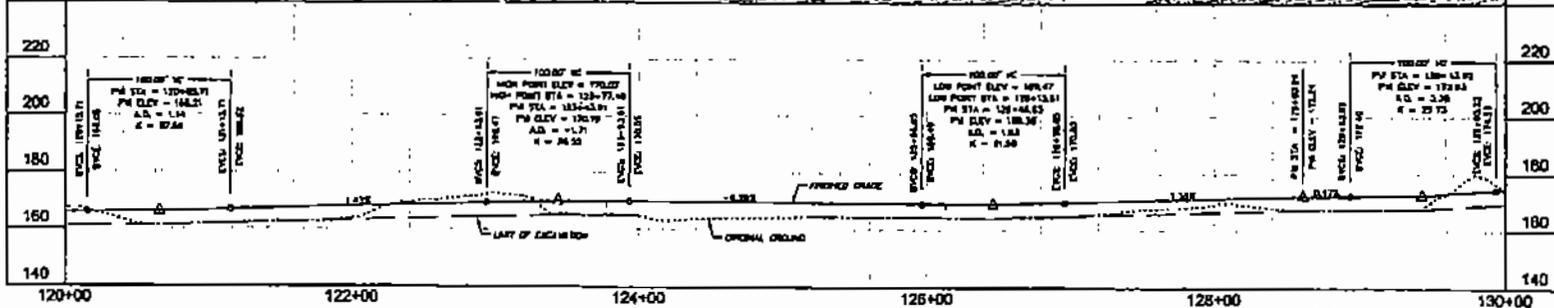












35% SUBMITTAL



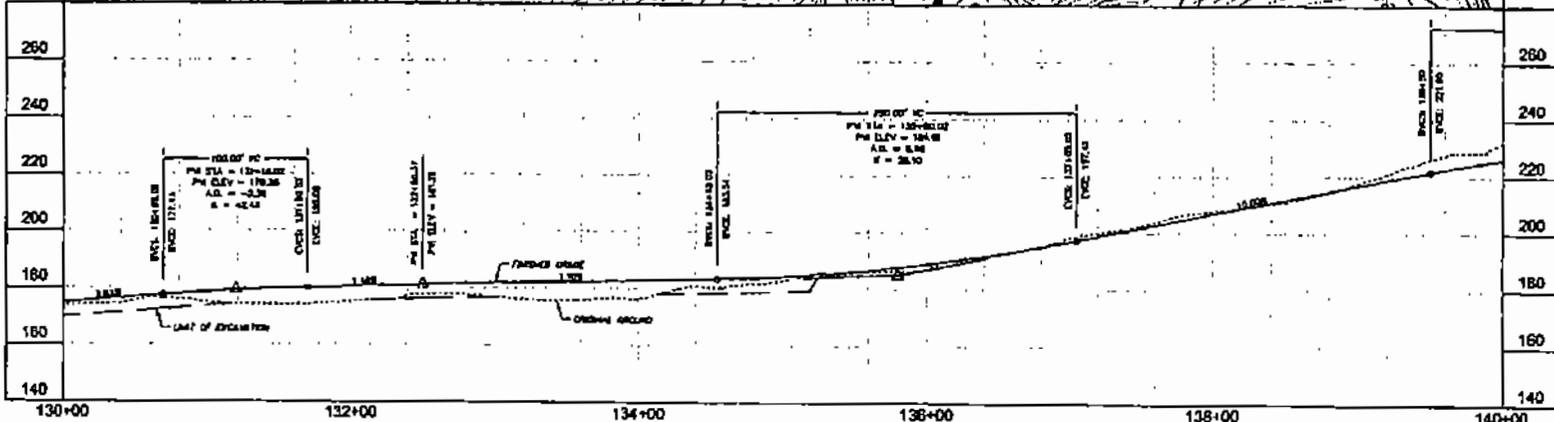
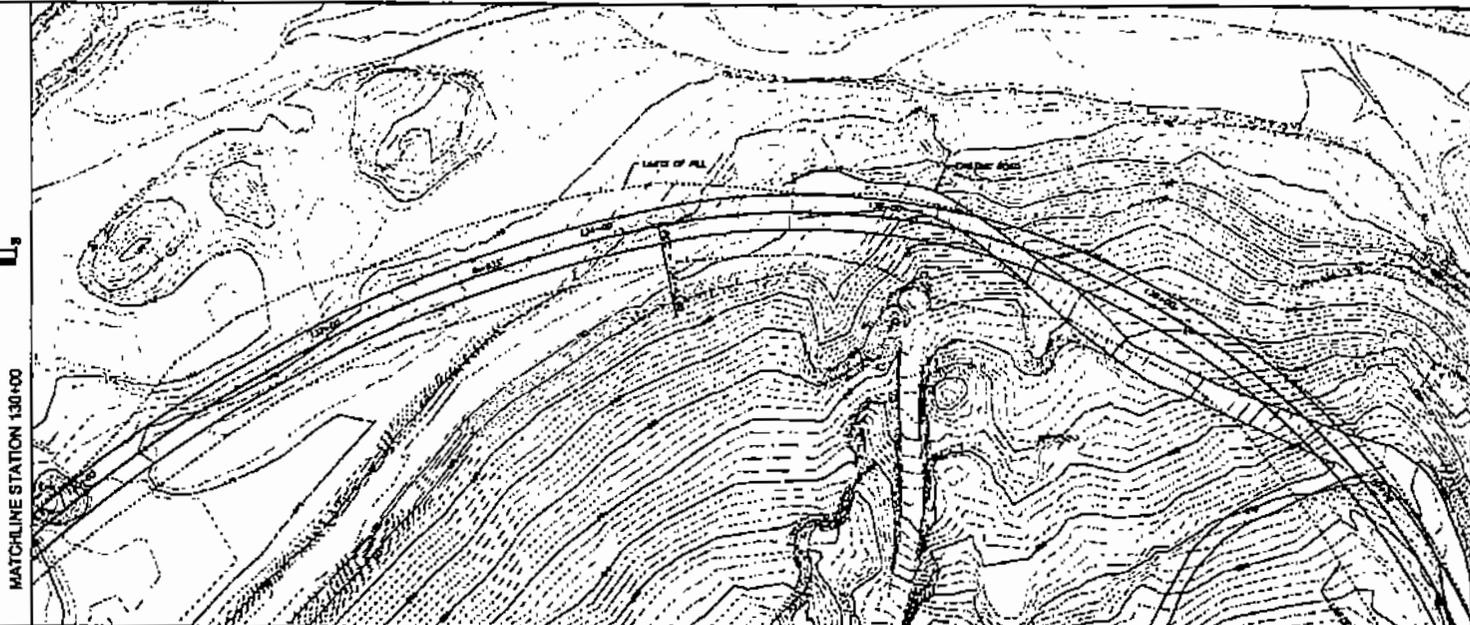
NO.	DESCRIPTION	DATE
1	DESIGNED	10/1/00
2	CHECKED	10/1/00
3	APPROVED	10/1/00



BIG HURRAH MINE ACCESS ROAD  
ROAD PLAN AND PROFILE

NO.	DESCRIPTION	DATE
1	DESIGNED	10/1/00
2	CHECKED	10/1/00
3	APPROVED	10/1/00

C14



35% SUBMITTAL



NO.	DATE	BY	CHKD.	DESCRIPTION

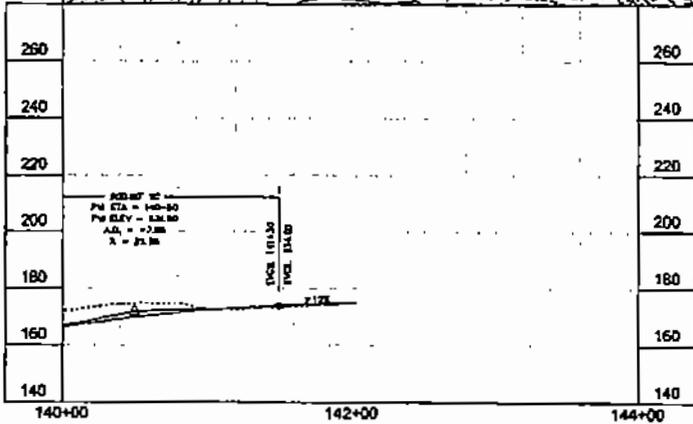
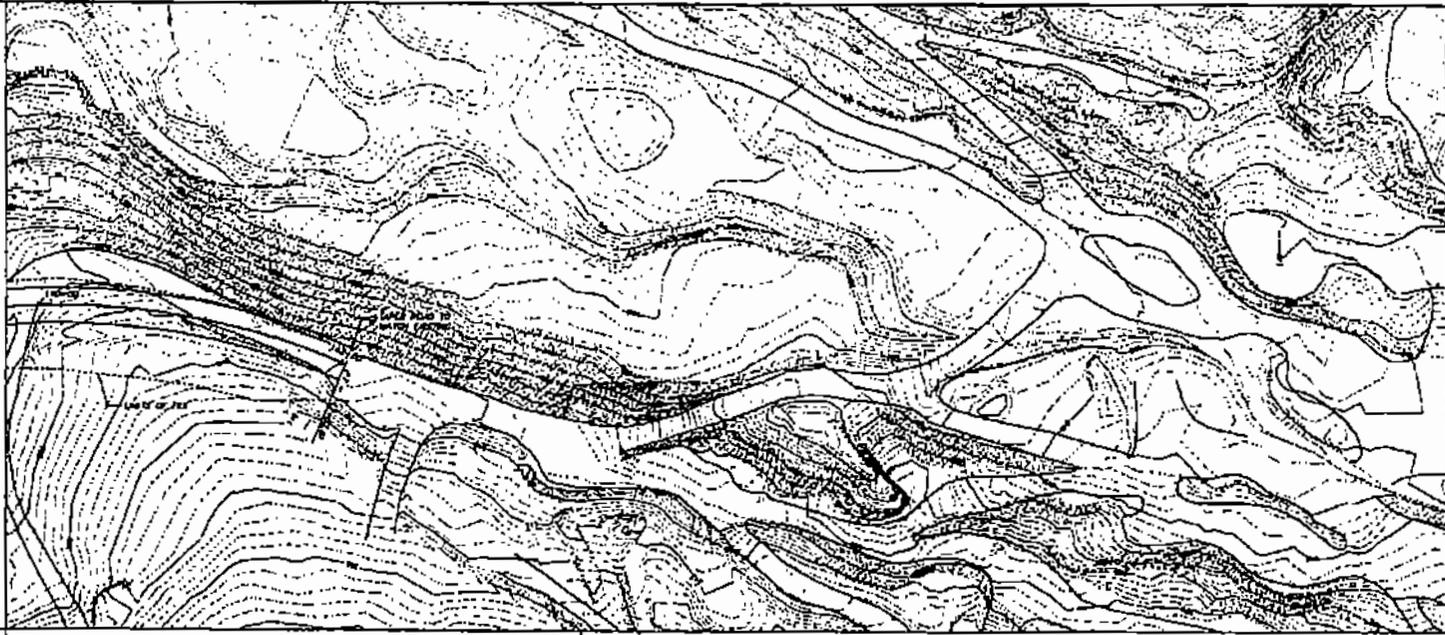


BIG HURRAH MINE ACCESS ROAD  
ROAD PLAN AND PROFILE

PROJECT NO.	
DATE	
SCALE	
BY	
CHKD.	
APP'D.	
TITLE	C15



MATCHLINE STATION 140+00



**35% SUBMITTAL**



NO.	DATE	DESCRIPTION
1	10/15/11	ISSUED FOR PERMITTING
2	10/15/11	ISSUED FOR PERMITTING
3	10/15/11	ISSUED FOR PERMITTING
4	10/15/11	ISSUED FOR PERMITTING
5	10/15/11	ISSUED FOR PERMITTING
6	10/15/11	ISSUED FOR PERMITTING
7	10/15/11	ISSUED FOR PERMITTING
8	10/15/11	ISSUED FOR PERMITTING
9	10/15/11	ISSUED FOR PERMITTING
10	10/15/11	ISSUED FOR PERMITTING



**BIG HURRAH MINE ACCESS ROAD  
ROAD PLAN AND PROFILE**

DESIGNED BY	DATE	SCALE	NO. OF SHEETS
CHECKED BY	DATE	NO. OF SHEETS	
APPROVED BY	DATE		
PROJECT NO.	2010-1		
DATE	10/15/11		
			<b>C16</b>



NO.	DATE	DESCRIPTION

**ADOWL**  
ENGINEERS

2000 W. 1st Street Anchorage, Alaska 99501  
907.562.1111 Fax 907.562.1112

BIG HURRAH MINE ACCESS ROAD  
BIG HURRAH CREEK

DATE	BY	SCALE

C17