

**PHASE I ENVIRONMENTAL ASSESSMENT  
Arctic Environmental Strategy  
Action on Waste Program  
Whitehorse, YT**

0201-96-12447

HJ-035 / HJ-041 / HJ-045

Submitted to:

AES - Action on Waste Program

February, 1997

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## EXECUTIVE SUMMARY

EBA Engineering Consultants Ltd. (EBA) was requested to provide preliminary environmental investigations at three locations along the Alaska Highway. The sites were identified as Site 21 Pump Station D of the Canol No. 4 pipeline, Site 22 Kluane Maintenance Camp, and Site 28 Duke River Maintenance Camp. #J041

HJ 035  
HJ 045

The objective of these investigations was to determine if contaminants were present on the sites, and if so are the contaminants migrating from the sites. Only the first phase of the investigations was completed. This included obtaining current and historical information to enable the development of specific sampling programs for each site.

A review of historical air photos shows the location of each of the sites and the facilities associated with them. Utilizing the airphotos and information available from reports on the sites under investigation, target sampling areas have been identified.

## 1.0 INTRODUCTION

On August 29th, 1996, EBA Engineering Consultants Ltd. (EBA) received approval to proceed with the assessment of three sites along the Alaska Highway. The sites listed as Sites 21, 22 and 28 were located close to the current alignment of the Alaska highway near Kloo Lake, Silver City and Duke River. The approval was based on a proposal submitted by EBA, to the Action on Waste program of the Arctic Environmental Strategy, dated August 27, 1996.

The proposal was for Phase I and II environmental assessments of the three sites. This report deals only with the Phase I portion of the work, completed in accordance with CSA Standard Z768-94 Phase I Environmental Site Assessment, April 1994. The Phase II component could not be completed due to an early snow cover in the study areas.

### 1.1 OBJECTIVE

The original objective of this assessment was to determine if contaminants were present on the sites, and if so are the contaminants migrating from the sites. The objective of the Phase I portion of the assessment was to obtain current and historical information to determine if the potential for contamination existed, and if so to enable the development of specific sampling programs for each site.

### 1.2 BACKGROUND INFORMATION

The Arctic Environmental Strategy - Action on Waste program initiated a series of environmental investigations at various sites throughout the Yukon. These sites were generally associated with past exploration, industrial or military operations. The three sites covered by this report were all reported as being associated with the U.S. military.

### 1.3 TASKS COMPLETED

The tasks completed for this assessment were as follows:

- a review of available air photos, some dating back to 1947 was conducted,
- background information was compiled from literature reviews,
- geological and topographical maps were reviewed,
- persons with personal knowledge of the sites were interviewed,
- an aerial survey of the sites was conducted to identify current site conditions, and
- a photographic inventory of each site was compiled from the aerial survey.

## 2.0 RESULTS

### 2.1 Site 21

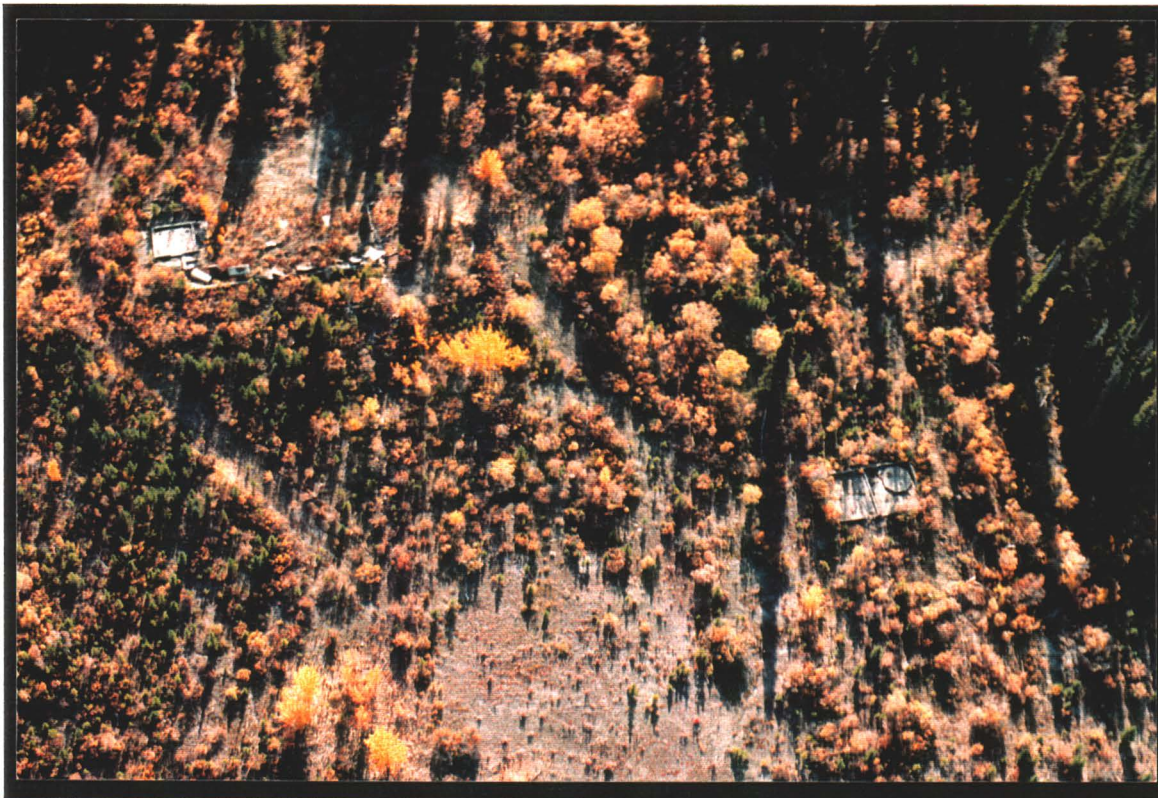
The site is identified as Canol No. 4 Pump Station D near Jarvis River.

#### 2.1.1 LOCATION

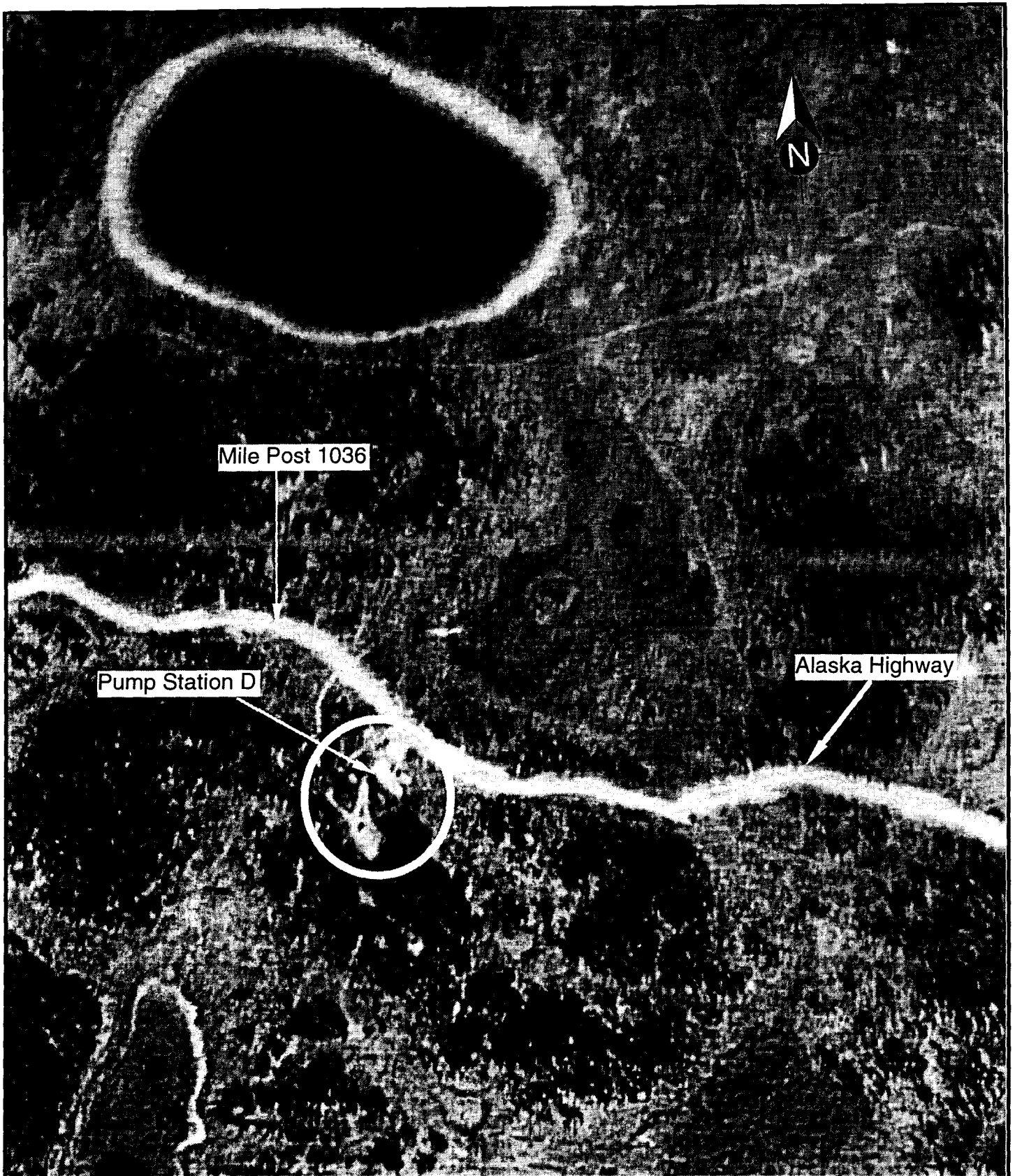
The site is described as being located at mile 1036.2 of the Alaska Highway which is about two miles west of Jarvis River. The geographical co-ordinates are given as 60 degrees 55 minutes 30 seconds N and 137 degrees 55 minutes 45 seconds W the corresponding UTM co-ordinates are northing 6 758 000 metres and easting 341 200 metres.


### 2.1.2 ADJACENT INFRASTRUCTURE

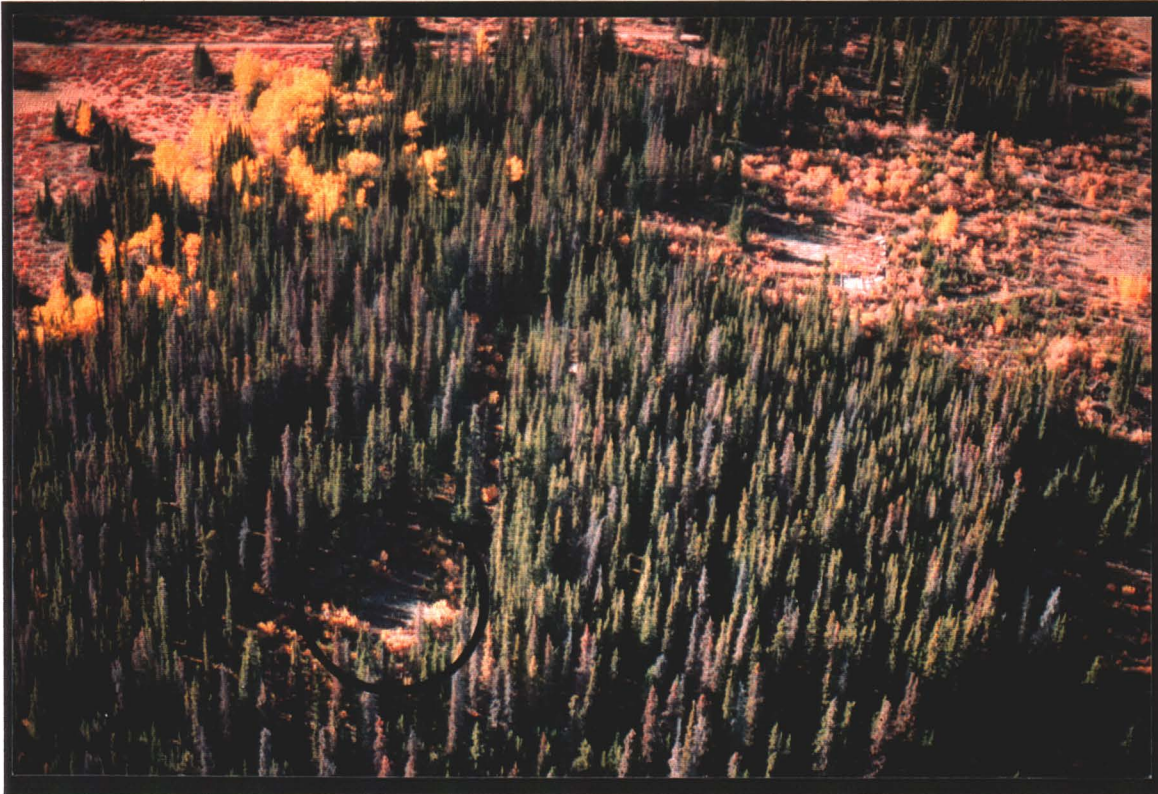
The pipeline, is reported to have operated from November 23, 1943 to the mid 1950s, (Bisset, 1995, p.65)<sup>1</sup>. It was replaced by the Haines-Fairbanks pipeline which was located in the Canol No. 4 right-of-way, the Canol No. 4 pipeline is reported to have been dismantled in 1962, (Bisset, 1995, p.66)<sup>2</sup>. Pump Station D was located adjacent to the former alignment of the Alaska Highway as shown in Airphoto #1, the Jarvis River is over 3 km away. The remains of buildings are still visible as shown in Photo #1 and an area of retarded vegetation, shown in Photo #2, may be a former waste disposal site.



**Photo # 1: Site 21 - Pumping Station D showing building remnants.**



 <b>EBA Engineering Consultants Ltd.</b>			PROJECT PRELIMINARY ENVIRONMENTAL INVESTIGATIONS - AES		
CLIENT <b>AES - ACTION ON WASTE PROGRAM</b>			TITLE <b>AIRPHOTO # 1: Site 21 1947</b>		
DATE	97 02 21	DWN.	DJW	CHKD.	
FILE NO. 0201-96-12447		DWNNG. 12447 Airphoto #1		REVISION 1	



**Photo # 2: Site 21 - Pumping Station D showing area of stressed vegetation.**

## **2.2 Site 22**

The site is identified as Kluane Maintenance Camp 180 at Mile 1056.0 on the Alaska Highway. The Public Road Administration map labels the camp as camp 150.

### **2.2.1 LOCATION**

The camp is shown near the shore of Kluane Lake approximately 500 meters south of the end of the Silver City Airfield runway. The geographic co-ordinates given were 61 degrees 01 minutes 15 seconds N and 138 degrees 25 minutes E, the corresponding UTM co-ordinates are northing 6 767 861 metres N and easting 639 605 metres. The actual site as indicated in Airphoto #2 is approximately 750 m to the south of the identified location.

### 2.2.2 ADJACENT INFRASTRUCTURE

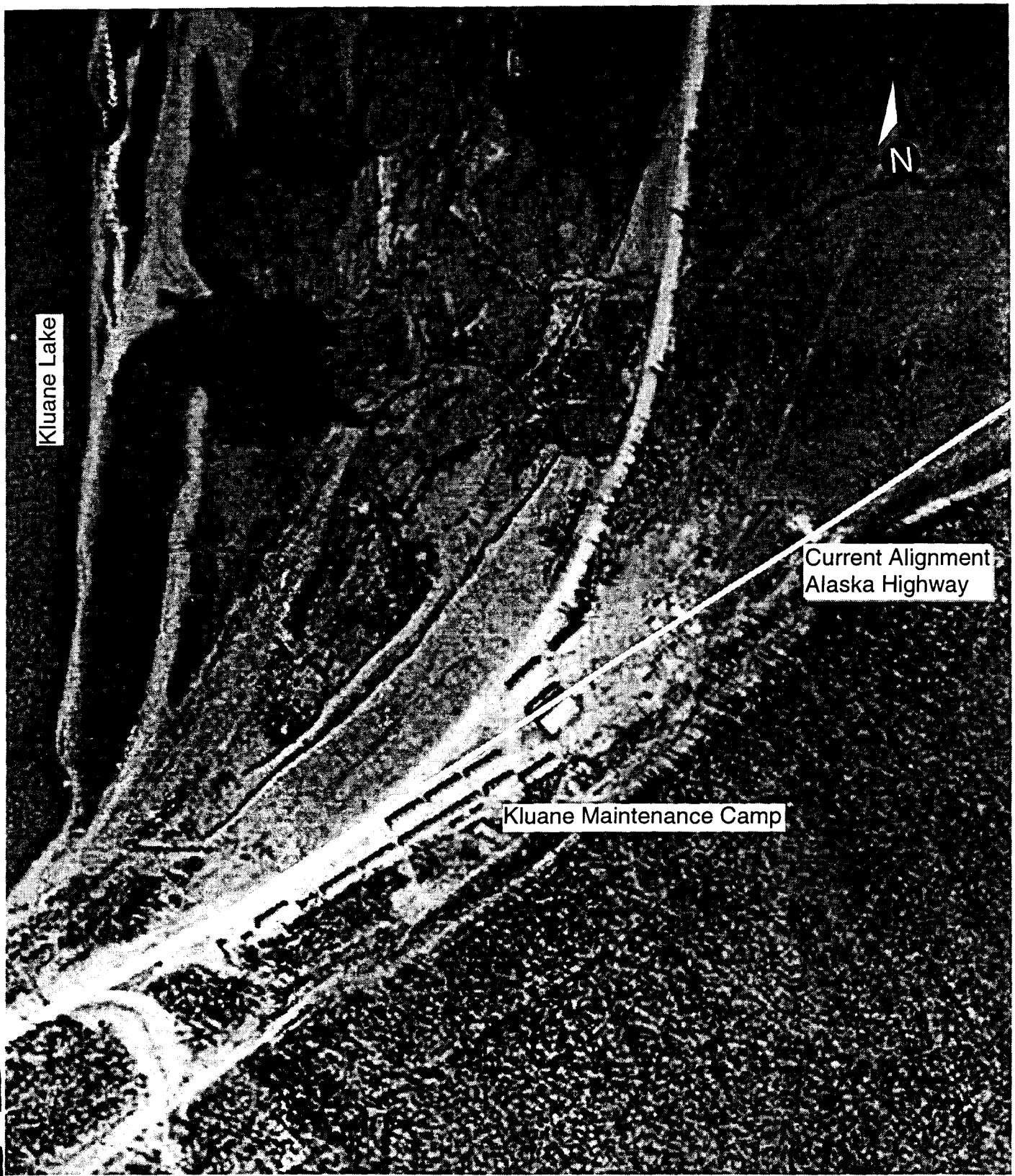
The original camp site was covered during realignment of the Alaska Highway as shown in Airphotos #2 and 3. The old highway is still visible to the north and west of the eastern end of the site. A helicopter pad as shown in Photos #3 is located to the northeast of the former buildings shown in Airphoto #2. Topham Creek borders the north site of the site.




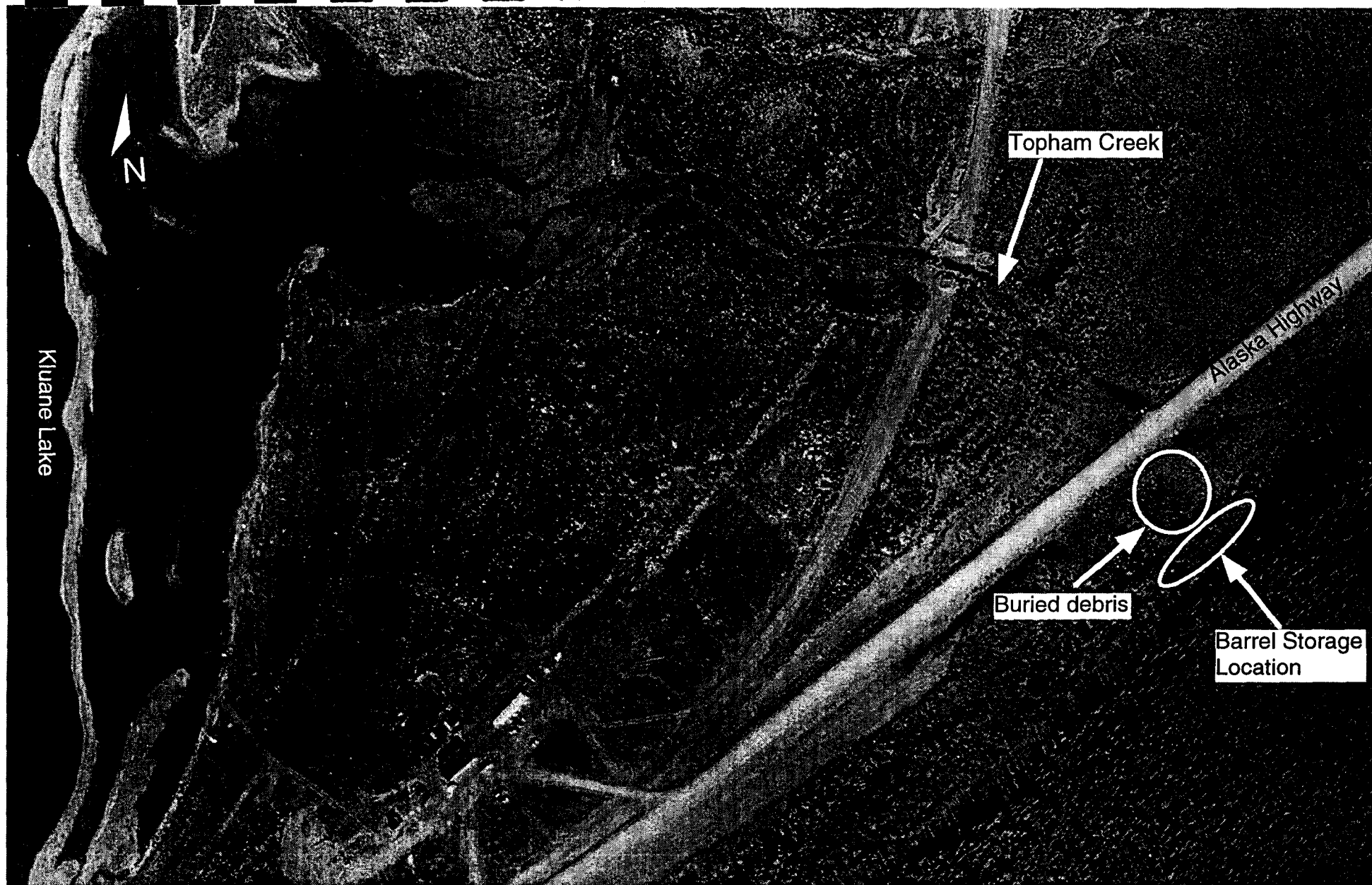
**Photo # 3: Site 22 - Former Kluane Maintenance Camp showing helicopter pad and Topham Creek in foreground.**

### 2.3 Site 28

The site is identified as the Duke River maintenance camp 200 at mile 1098.0 of the Alaska Highway, this is same site identified as the Bates and Rogers camp at Duke River.



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CLIENT <b>AES - ACTION ON WASTE PROGRAM</b>	TITLE <b>AIRPHOTO #2: Site 22 1956</b>				
DATE 97 01 28	DWN. DJW	CHKD.	FILE NO. 0201-96-12447	DWNG. 12447 Airphoto 2	REVISION 0



**eba** *EBA Engineering Consultants Ltd.*

PROJECT PRELIMINARY ENVIRONMENTAL INVESTIGATIONS - AES

CLIENT  
**AES - ACTION ON WASTE PROGRAM**

TITLE  
**AIRPHOTO # 3: Site 22 1985**

DATE 97 01 28 DWN. DJW CHKD.

FILE NO 0201-96-12447 DWNG.12447 Airphoto 3 REVISION 0

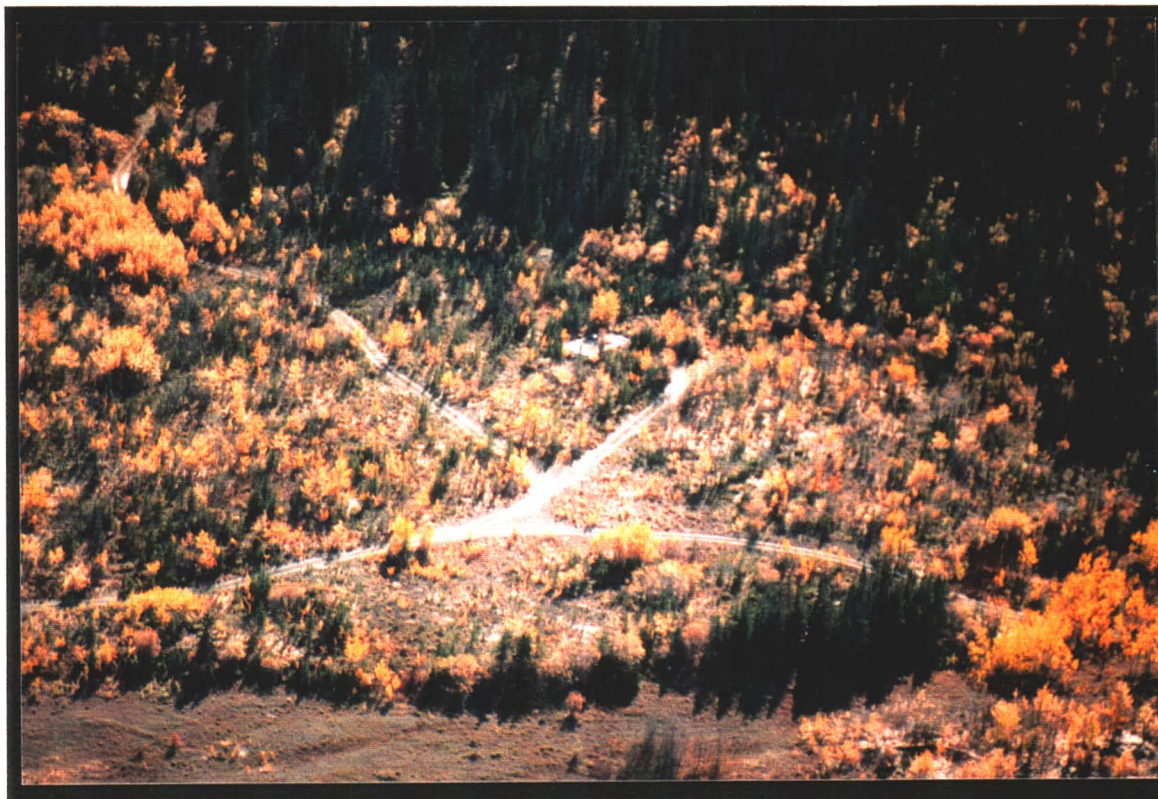
### 2.3.1 LOCATION

The camp was located on the south side of the Alaska Highway east of the Duke River. The geographic co-ordinates of the site are 61 degrees 22 minutes 13 seconds N. and 139 degrees 8 minutes 27 seconds E, the corresponding UTM co-ordinates are northing 6 805 200 metres and easting 599 400 metres.

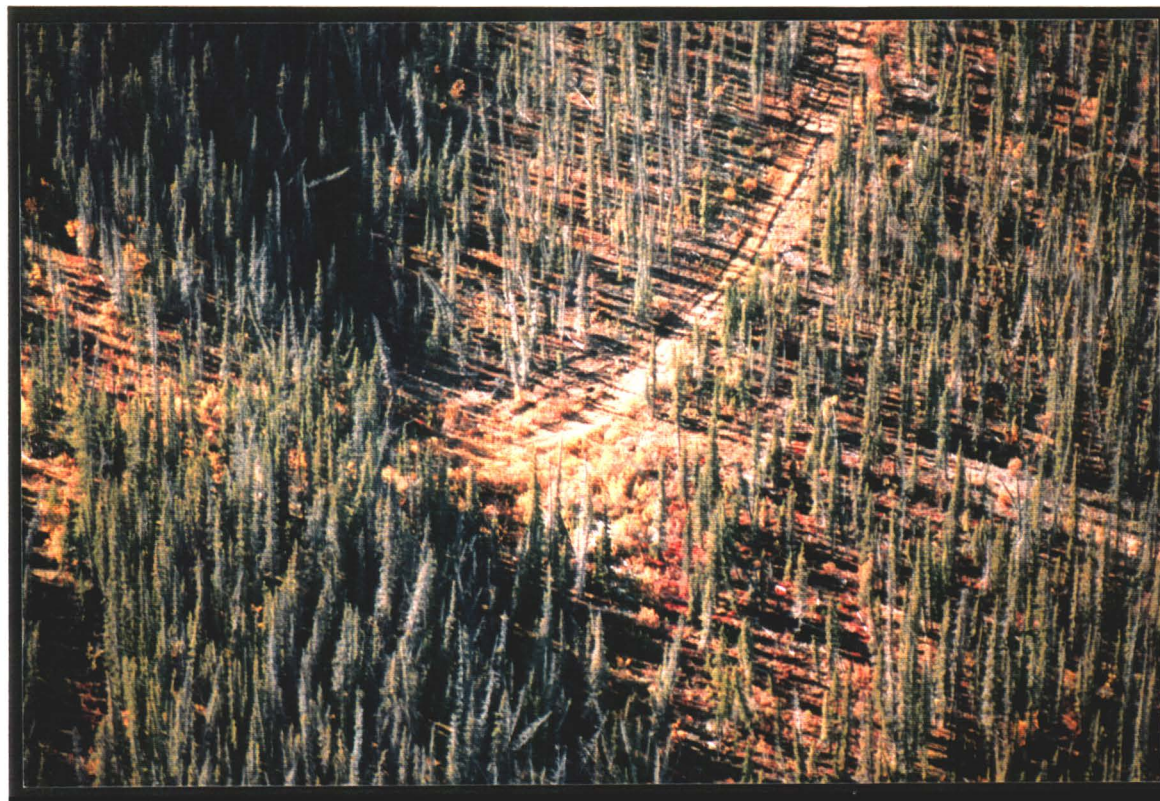
### 2.3.2 ADJACENT INFRASTRUCTURE

The current alignment of the Alaska Highway crossing of the Duke River is approximately 500 m to the north of the site. The former alignment runs adjacent to the site and numerous trails, presumably used by recreational vehicles cross the site and lead into the surrounding forest.

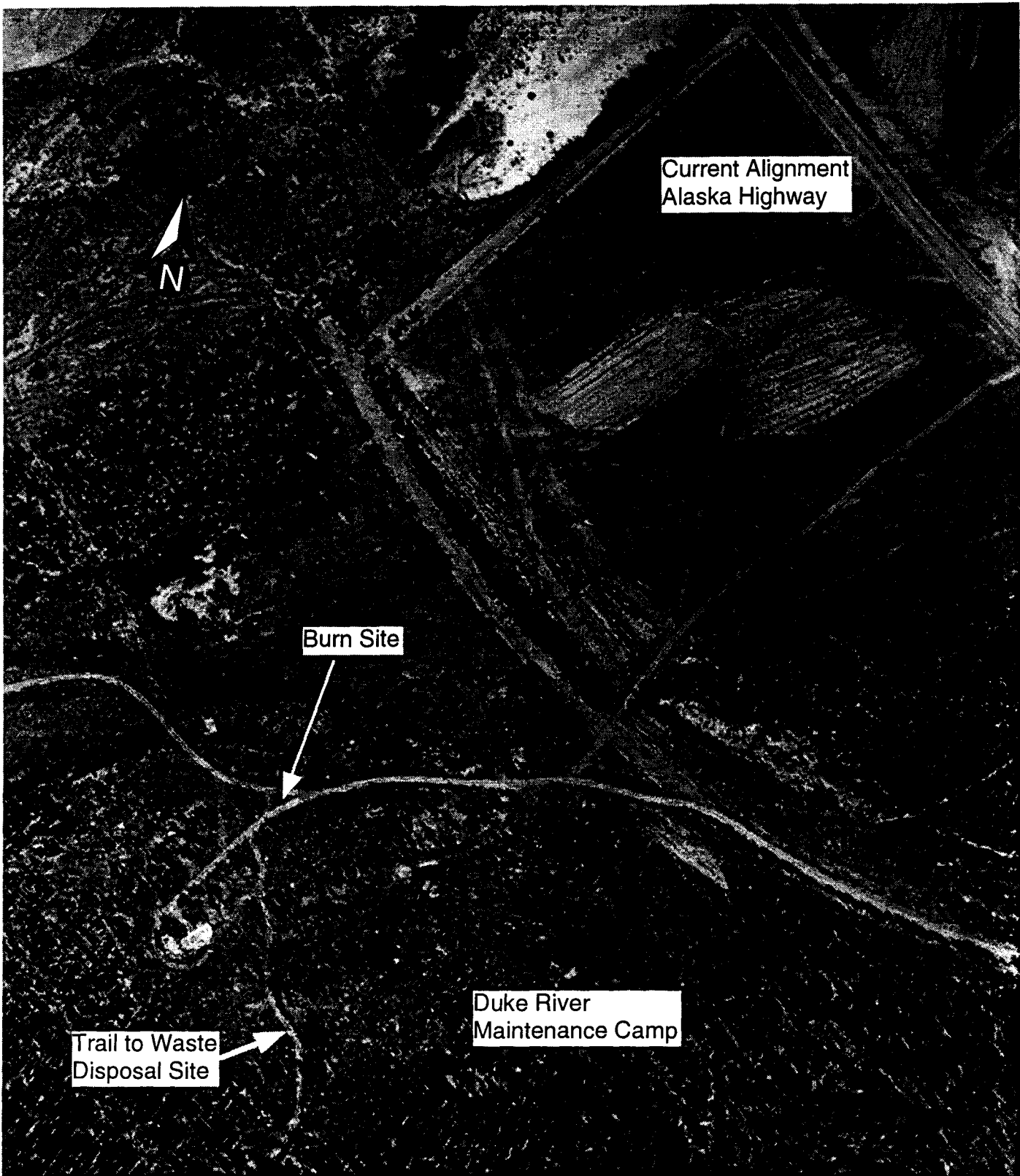
Airphotos taken in 1965 show areas of surface scraping between the new and old alignments of the Alaska Highway as well as to the north of the new alignment. These appear to be shallow borrow pits to obtain fill material for the realignment of the Alaska Highway. These sites are still clearly visible in Airphoto #4, and show signs of revegetation. There are still build foundations clearly visible as shown in Photo # 4 and the location identified as a possible waste disposal site is also visible (Photo #5).




**Photo # 4: Site 28 - Duke River Camp site showing trails and remains of buildings.**



**Photo # 5: Site 28 - Possible waste disposal site for Duke River camp.**



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CLIENT <b>AES - ACTION ON WASTE PROGRAM</b>	TITLE <b>AIRPHOTO # 4: Site 28 1975</b>				
DATE 97 01 28	DWN. DJW	CHKD.	FILE NO. 0201-96-12447	DWNG.12447 Airphoto 4	REVISION 0

### 3.0 EVALUATION OF FINDINGS

#### SITE 21

The (Bisset, 1995, p.21)<sup>3</sup>, report indicates that records of oil spills were not available in Whitehorse for the Canol No 4 pipeline and no references were found to indicate spills in the vicinity of the pump station itself. Reports from other pump stations indicate that spills were common and that often groundwater in the area had a taste and was not good to drink.

Mr. Ernie Kelly, when questioned about this pumping station indicated that it was under construction but was never put into operation, which would preclude some of the contamination associated with other pumping stations. The building remains at this site are still easily identifiable as well as a possible waste disposal site, (Photos # 1 & 2), even though the site was the subject of a previous clean-up (Yukon Archives)<sup>4</sup>

Soil conditions and groundwater in the area could be investigated by drilling three boreholes, and installing monitoring wells, in the vicinity of the building locations. This would give immediate results and could provide a long term monitoring station for the site. The possible disposal site should be test pitted and sampled to determine the cause of the vegetation stress.

#### SITE 22

While the site has been disturbed by the realignment of the Alaska Highway some remnants of the former maintenance camp appear to remain.

In the information provided by AES a storage area with ten 45 gallon drums was identified along the south side of the Alaska Highway. The drums were not found during the aerial survey, however, the area where they were located should be identifiable from its proximity to Topham Creek. A burial site identified by Edey, 1976<sup>5</sup>, was likewise not clearly visible but could also be located by the same method.

The site of the barrel storage, while not part of the maintenance camp is definitely a potential hydrocarbon contaminant location. Additionally the site of the buried debris should also be investigated in any Phase II activities. Both these areas are small and would lend themselves to test pits as a means of investigating subsurface soil conditions.

## SITE 28

This site is easily identified in Airphoto #4 at the edge of the Duke River. Bisset, 1995<sup>6</sup>, reports that in 1943 there was a sawmill at the Duke River, which milled timbers for the Bechtel-Price Callahan Co. and that there was a Bates & Rogers Co. camp on the south bank of the Duke River. The site of the Bates & Rogers Co. camp was later used as a maintenance camp, while the original camp is reported (AES information) to have comprised 26 buildings. Airphotos dated 1947 show that most of the camp was dismantled and that ten builds appear to be left at the site.

Edey, 1976<sup>7</sup> indicated a waste disposal site about 0.4 km from the site. During the aerial survey this location is still visible and shows some signs of variation in vegetation colouring, possibly stress (Photo #4). This site should be investigated by test pitting to determine the nature of the wastes disposed of and to collect subsurface samples for contaminant analysis.

The camp site itself is still accessible, with some debris and building foundations still visible. Edey, 1976<sup>8</sup> indicates that a possible burn site was located in the centre of the camp. The burn area still appears identifiable from its position relative to existing roads and building foundations (Photo #5). There does not appear to be any vegetation stress other than from the vehicular traffic. Burning should have destroyed hydrocarbons and denatured any pesticide residues that may have been burnt here. Analysis of soil for heavy metals should be considered for this location.

There are numerous reports of wastes being buried in Duke Meadows (Bisset, 1995)<sup>9</sup>, most of the reports mention that this included canned food. No mention of drums or chemical waste is made in the reports reviewed. An examination of the 1947 airphoto (which is poor quality) reveals an area

west of the camp site in the direction of the Duke River which may be the location referred to. This site should be test pitted to confirm that no potentially hazardous materials were buried.

#### 4.0 CONCLUSIONS

The sites investigated are still relatively accessible. A Phase II environmental investigation could be used to determine the presence of soil or groundwater contamination at each of the sites. The investigations should focus on areas of buried debris and storage of potentially hazardous materials, as identified in the airphotos. Since most of the potential contamination would have occurred at or near the surface any sampling program should concentrate on the top two metres of soil with downgradient sample locations having groundwater monitoring wells installed to confirm groundwater quality.

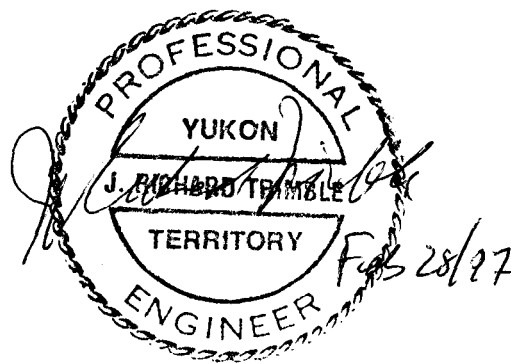
#### 5.0 CLOSURE

EBA trusts this report meets your requirements at this time. If you have any concerns or comments, we would be pleased to discuss the report or any other questions which you may have.

Respectfully submitted,  
EBA Engineering Consultants Ltd.



Don Wilson  
Senior Environmental Scientist



J. Richard Trimble, P. Eng.  
Project Director, Yukon Region

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