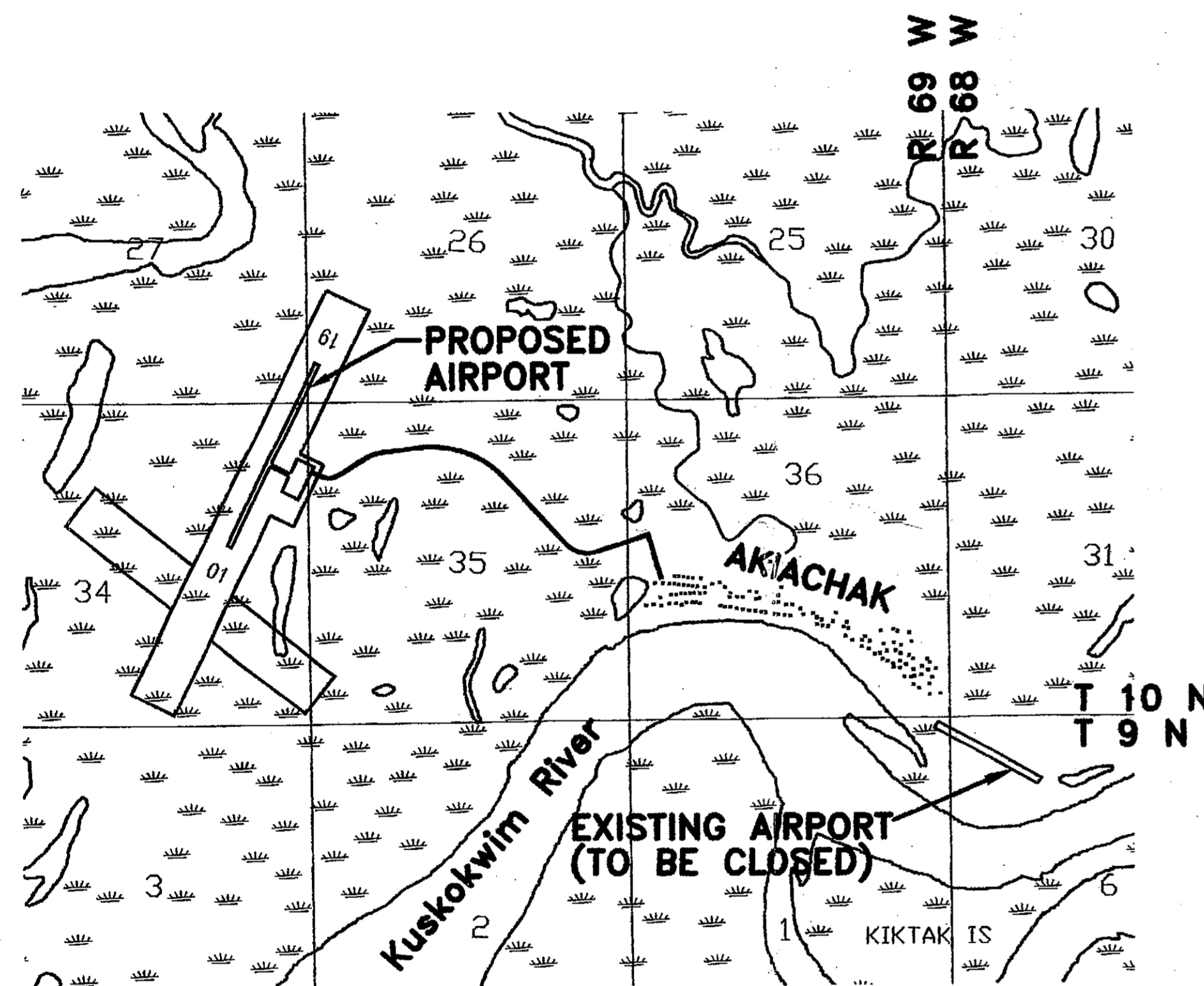


AKIACHAK NATIVE COMMUNITY AKIACHAK AIRPORT LAYOUT PLAN

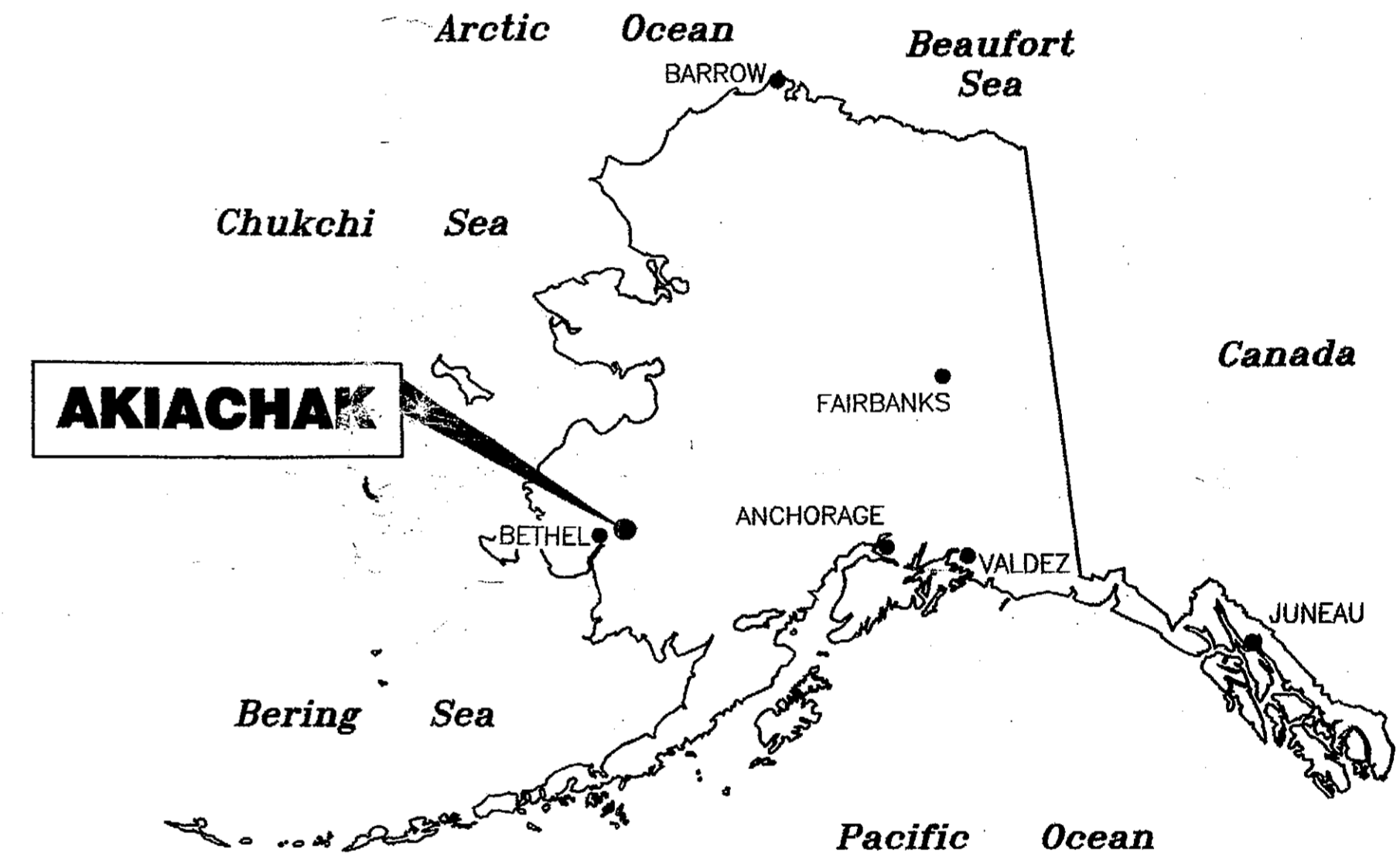
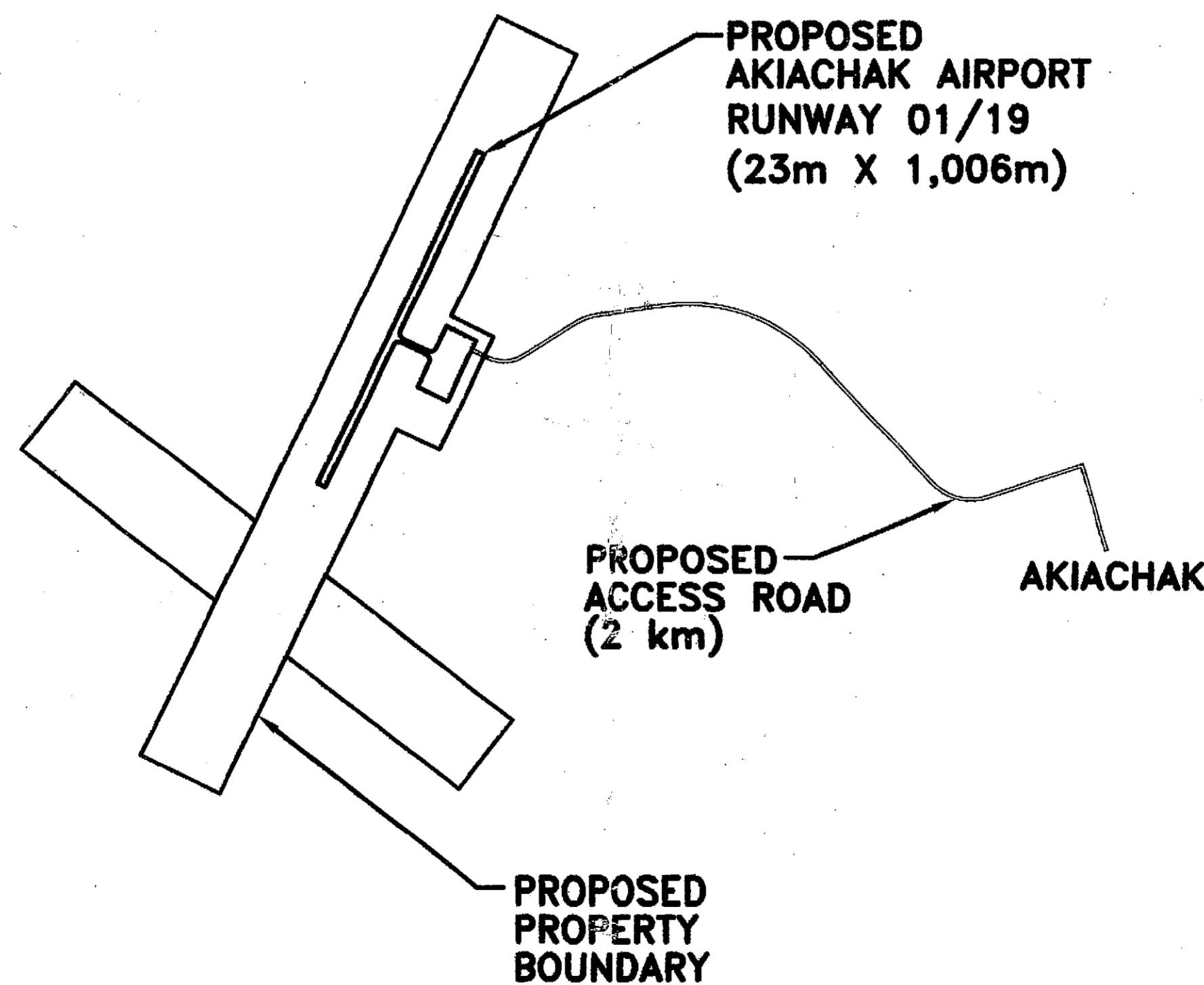
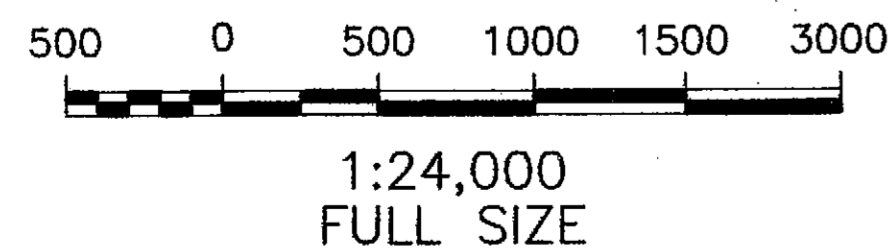
SEPTEMBER 9, 2002

METRIC



VICINITY MAP

T 10 N, R 69 W
SEWARD MERIDIAN
U.S.G.S. BETHEL (D-7)
2002 MAGNETIC DECLINATION 16°01'



DNA

David Nairne + Associates Ltd
250-171 W Esplanade, North Vancouver BC V7M 3J9 CANADA
T (604) 984-3503 F (604) 984-0627 E dna@dnainc.com



FILE: Z:\09707 DNA\004 Phase II\Cad\ALP
DATE: 09/09/02

AIRPORT LAYOUT PLAN CONDITIONAL APPROVAL
SUBJECT TO ALP APPROVAL LETTER DATED 1/9/03

By: *[Signature]* DATE: 1/9/03
FAA AIRPORTS DIVISION
ALASKAN REGION, AAL-800

FAA AIRSPACE REVIEW NUMBER: 2002-AAL-171-NRA

BY	DATE	REVISIONS

AKIACHAK NATIVE COMMUNITY
AIRPORT LAYOUT PLAN

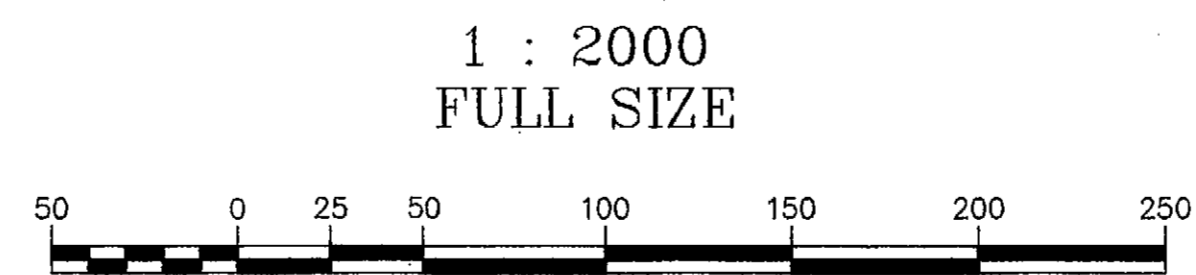
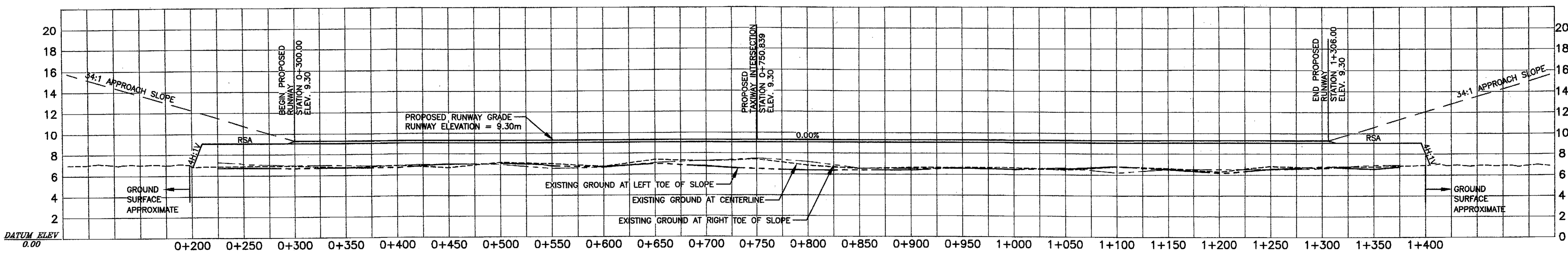
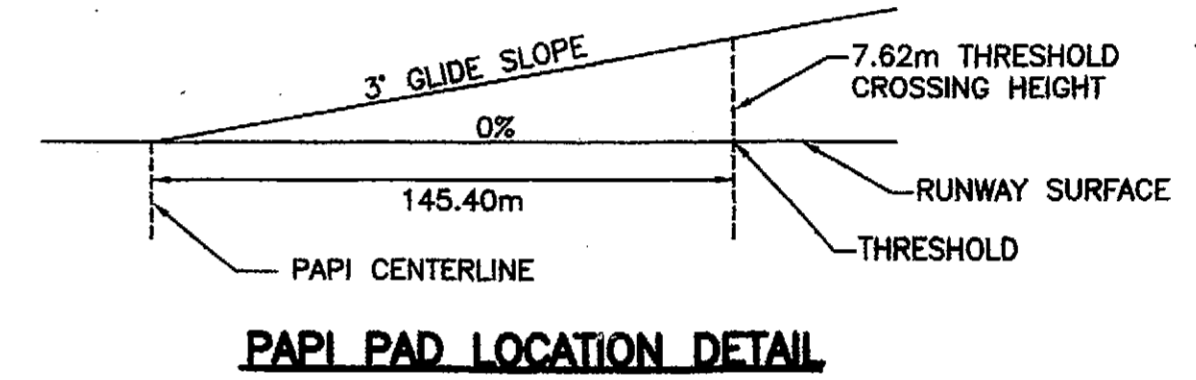
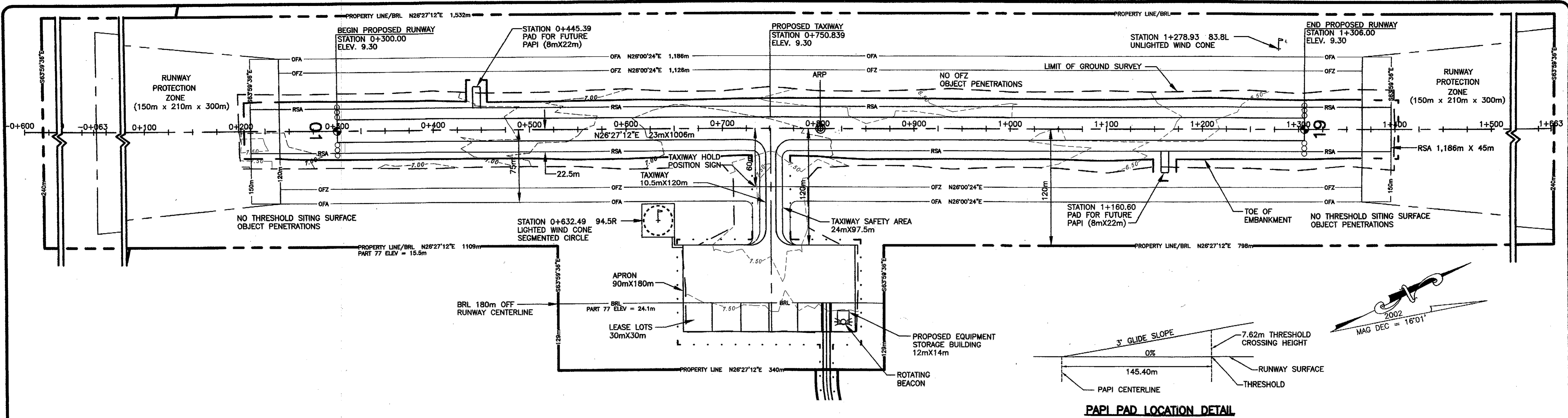
RECOMMENDED: *[Signature]* 10-7-02
E.S. WHARTON, P.E. HDR ALASKA, INC. PROJECT MANAGER

APPROVED: *[Signature]* 12/16/02
GEORGE PETER ANC PROJECT MANAGER AKIACHAK NATIVE COMMUNITY

DATE: 09/09/02
DESIGN: DJG
DRAWN: DJG
CHECKED: ESW

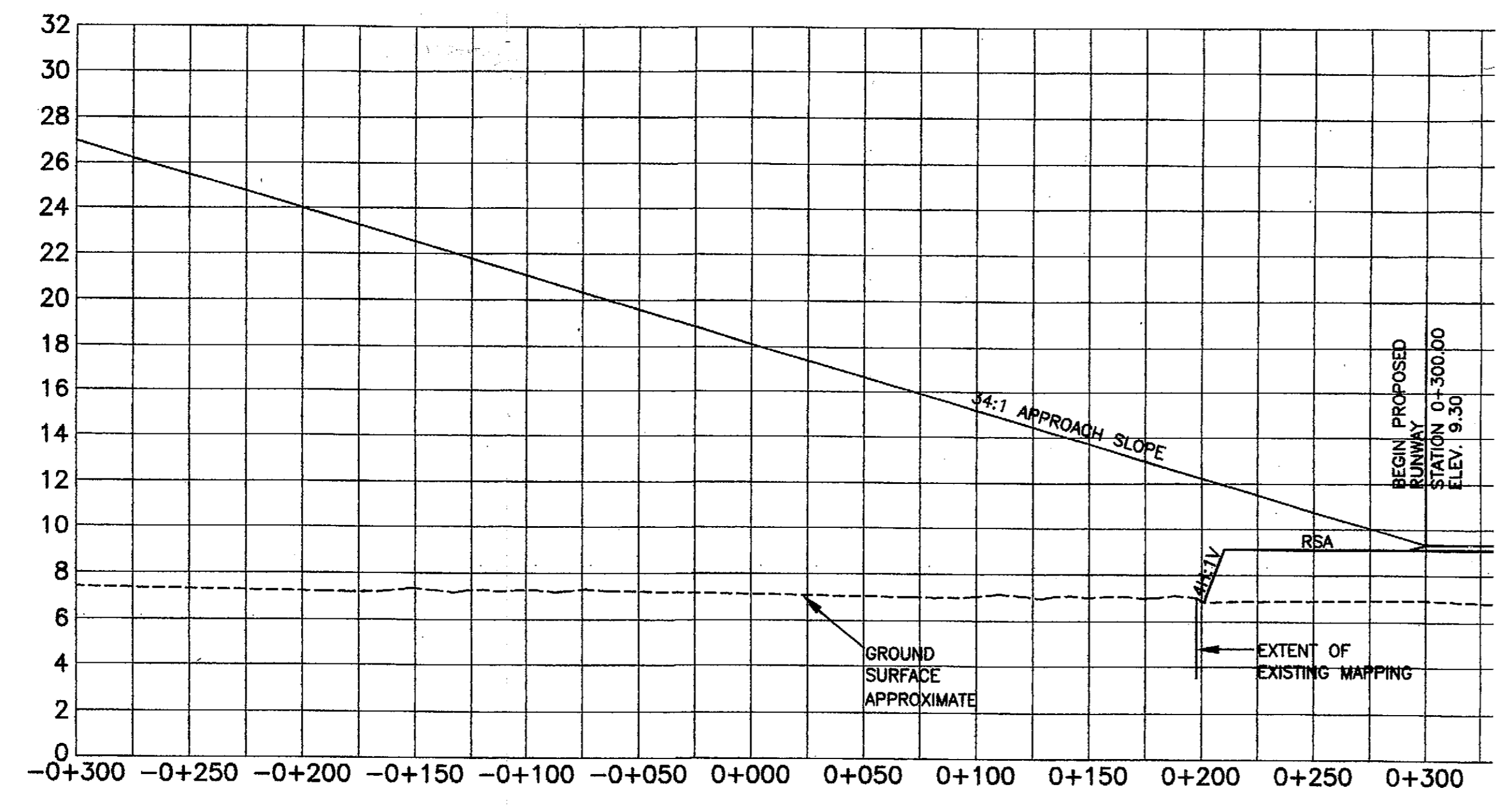
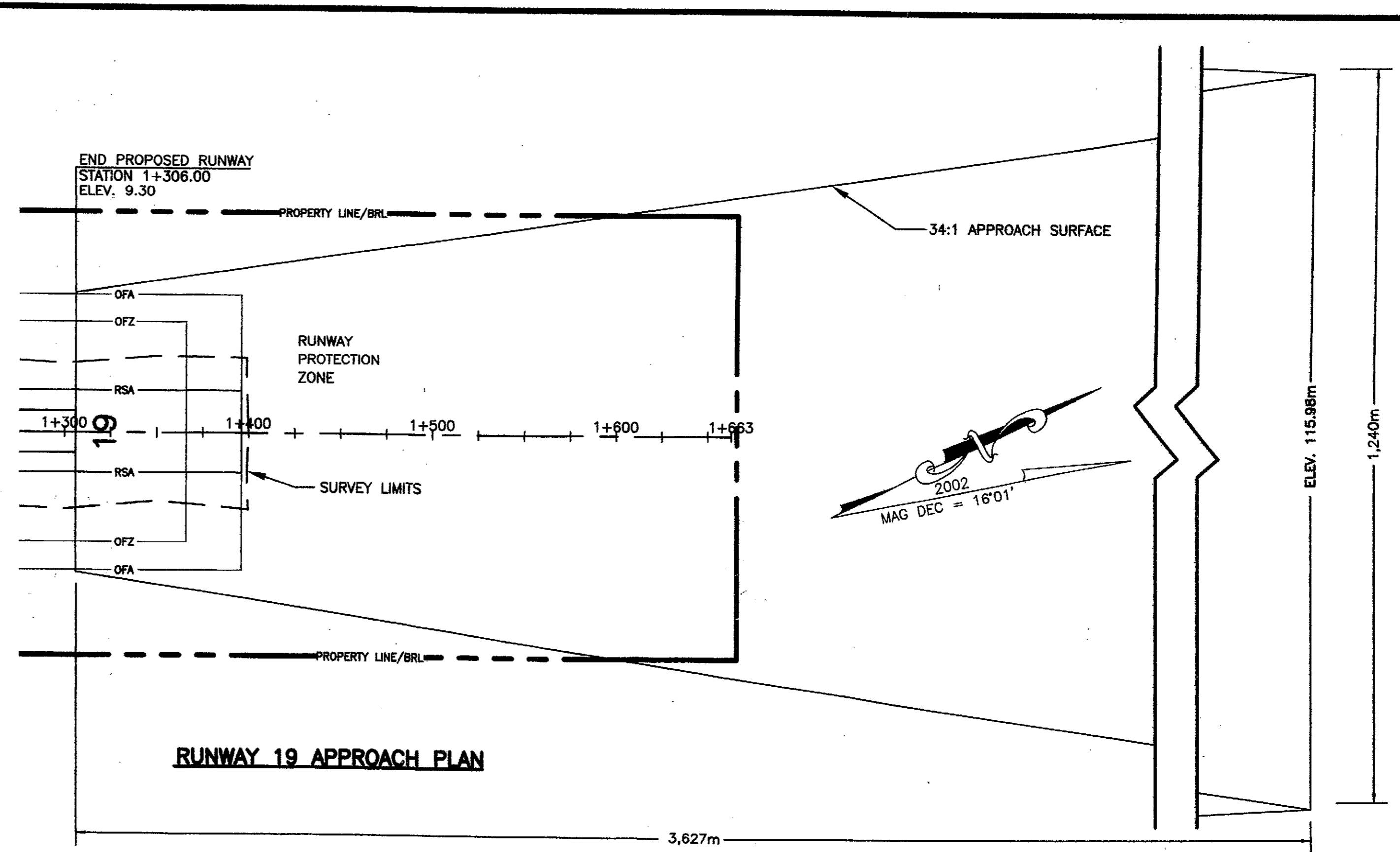
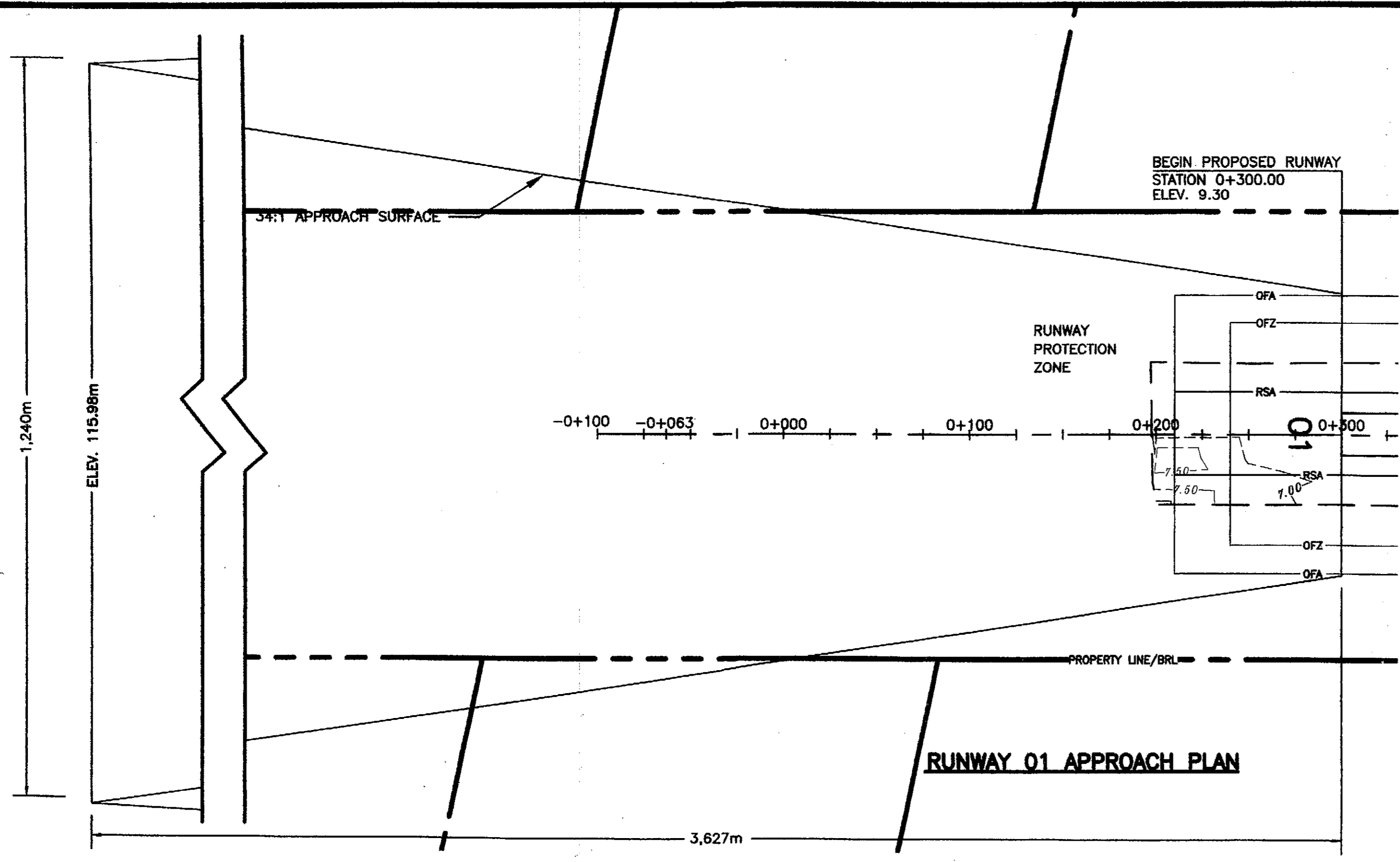
AKIACHAK AIRPORT
AIRPORT LAYOUT PLAN
COVER SHEET & VICINITY MAPS

SHEET
1
OF
8

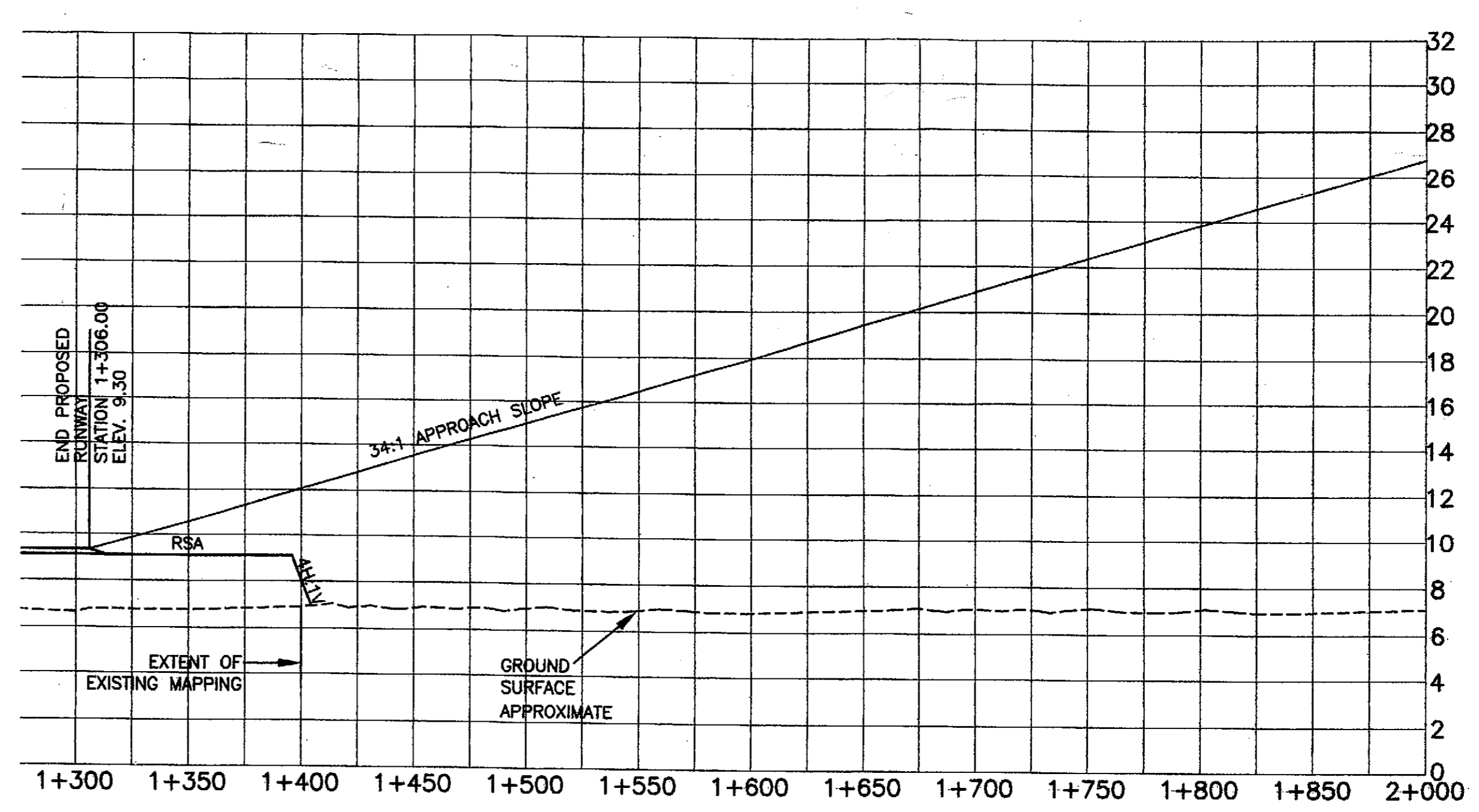


1 : 2000
FULL SIZE

FILE: Z:\09707 DNA\004\CAD\ALP DATE: 09/09/02 PLOT SCALE: 1:1 REVISED BY: SJM	AIRPORT LAYOUT PLAN CONDITIONAL APPROVAL SUBJECT TO ALP APPROVAL LETTER DATED <u>1/9/03</u> By: <u>[Signature]</u> DATE: <u>1/9/03</u> FAA AIRPORTS DIVISION ALASKAN REGION, AAL-800 FAA AIRSPACE REVIEW NUMBER: 2002-AAL-171-NRA	<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>BY</th> <th>DATE</th> <th>REVISIONS</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	BY	DATE	REVISIONS							AKIACHAK NATIVE COMMUNITY AIRPORT LAYOUT PLAN APPROVED: <u>[Signature]</u> 10-7-02 E.S. WHARTON, PE PROJECT MANAGER APPROVED: <u>[Signature]</u> 12/16/02 GEORGE PETER AKIACHAK NATIVE COMMUNITY	Date Drawn: 09/09/02 Designer: DJG Drawn by: DJG Checked by: ESW	AKIACHAK AIRPORT AIRPORT LAYOUT PLAN RUNWAY LAYOUT	SHEET 3 OF 8
BY	DATE	REVISIONS													

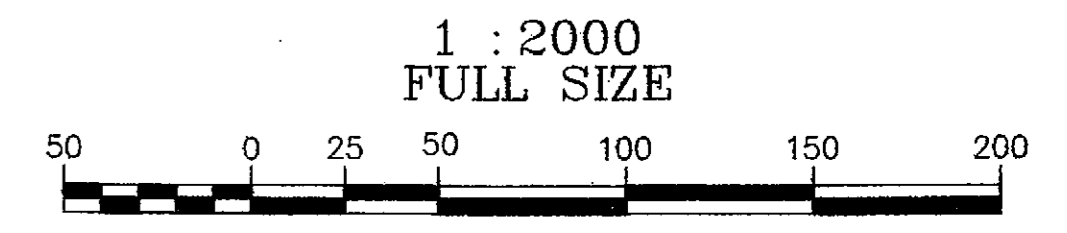


RUNWAY 01 APPROACH PROFILE



RUNWAY 19 APPROACH PROFILE

NO PENETRATION TO RUNWAY 01 & 19 APPROACH SLOPES



FILE: Z:\09707 DNA\004\CAD\ALP
DATE: 09/09/02
PLOT SCALE: 1:1
REVISED BY: SJM

AIRPORT LAYOUT PLAN CONDITIONAL APPROVAL
SUBJECT TO ALP APPROVAL LETTER DATED 1/19/03

By: [Signature] DATE: 1/19/03

FAA AIRSPACE REVIEW NUMBER: 2002-AAL-171-NRA

BY	DATE	REVISIONS

AKIACHAK NATIVE COMMUNITY AIRPORT LAYOUT PLAN

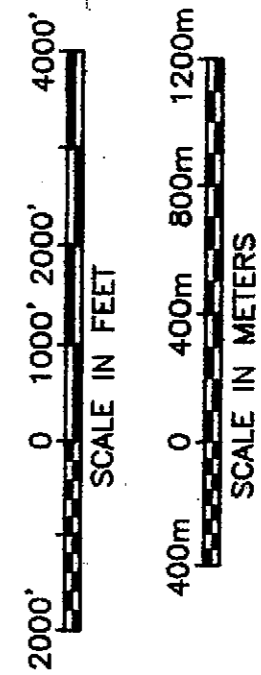
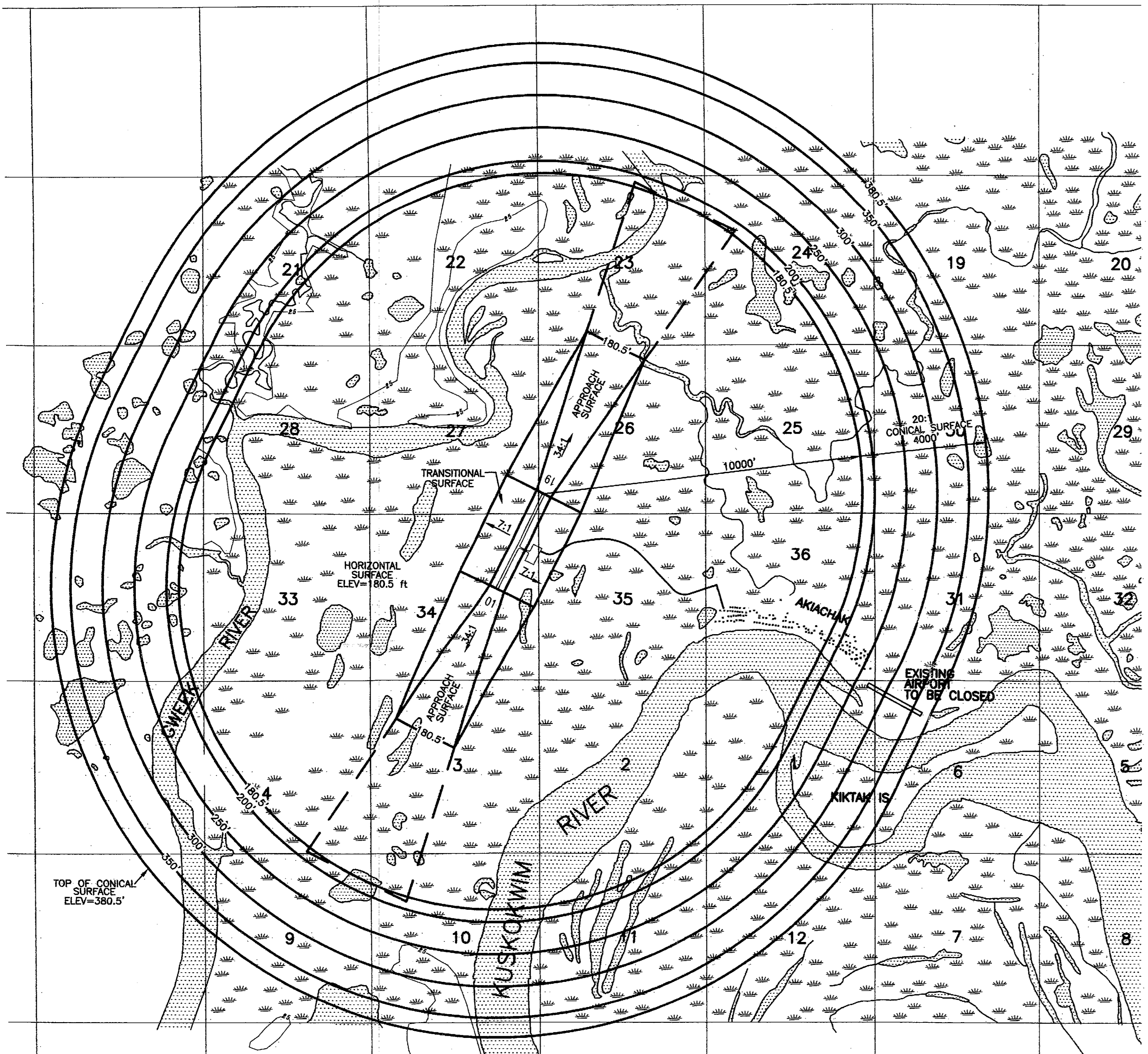
APPROVED: [Signature] 10-7-02
E.S. WHARTON, PE PROJECT MANAGER

APPROVED: [Signature] 12/16/02
GEORGE PETER AKIACHAK NATIVE COMMUNITY

Date Drawn: 09/09/02
Designer: DJG
Drawn by: DJG
Checked by: ESW

AKIACHAK AIRPORT
AIRPORT LAYOUT PLAN
RUNWAY APPROACH SURFACES

SHEET
4
OF
8

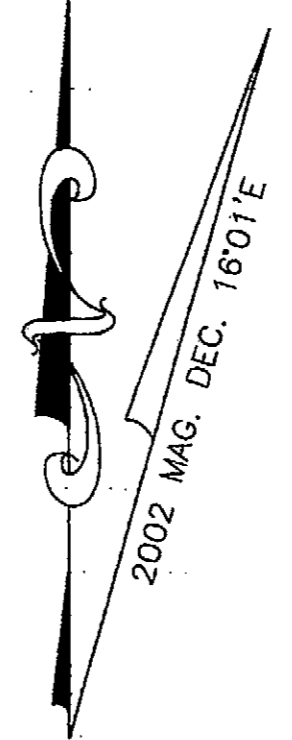


LEGEND

Water Surface symbol: [stippled pattern] WATER SURFACE

NOTES

1. RUNWAY CENTERLINE ELEVATION IS 30.5 ft (9.30m).
2. NO USGS CONTOURS EAST OF GWEEK RIVER. PHOTOGRAMMETRIC MAPPING AND GROUND SURVEYS INDICATE THAT THE ELEVATION OF EXISTING GROUND IN THE AREA OF PROPOSED AIRPORT AND APPROACHES IS APPROXIMATELY 22.0 ft (6.7m).



OBSTRUCTION DATA TABLE

NUMBER	PENETRATION DISTANCE		DESCRIPTION		DISPOSITION	
	FEET	(METERS)	NONE	NONE	NONE	NONE
NONE						

DATE	DESIGN	DRAWN	CHECKED	BY	DATE	REVISIONS
09/09/02	DJS	DJS	ESV			

AKIACHAK NATIVE COMMUNITY
PROJECT MANAGER
10-7-02
Ed Wharton

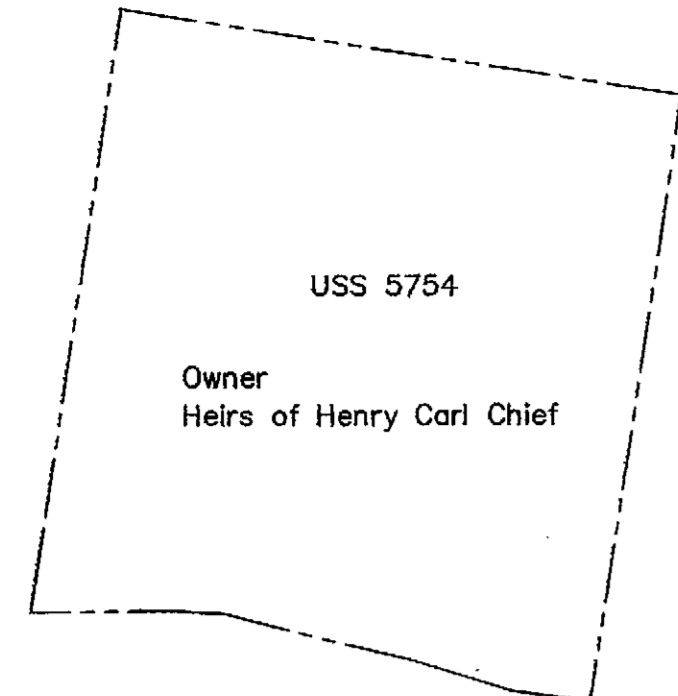
APPROVED: E.S. WHARTON, P.E.
APPROVED: GEORGE PETER

AKIACHAK AIRPORT
AIRPORT LAYOUT PLAN
F.A.R. PART 77

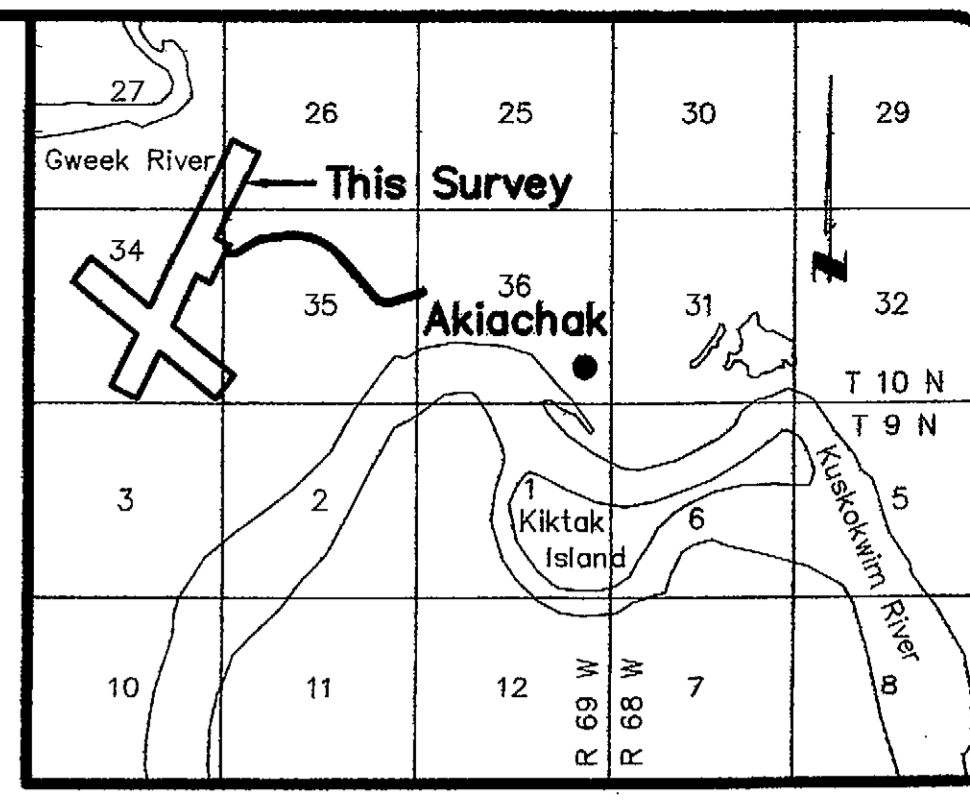
SHEET
5 OF 8

FAA AIRSPACE REVIEW NUMBER:
2002-AAL-171-NRA

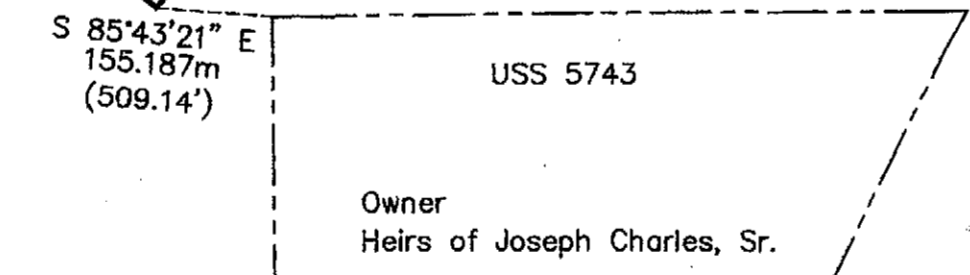
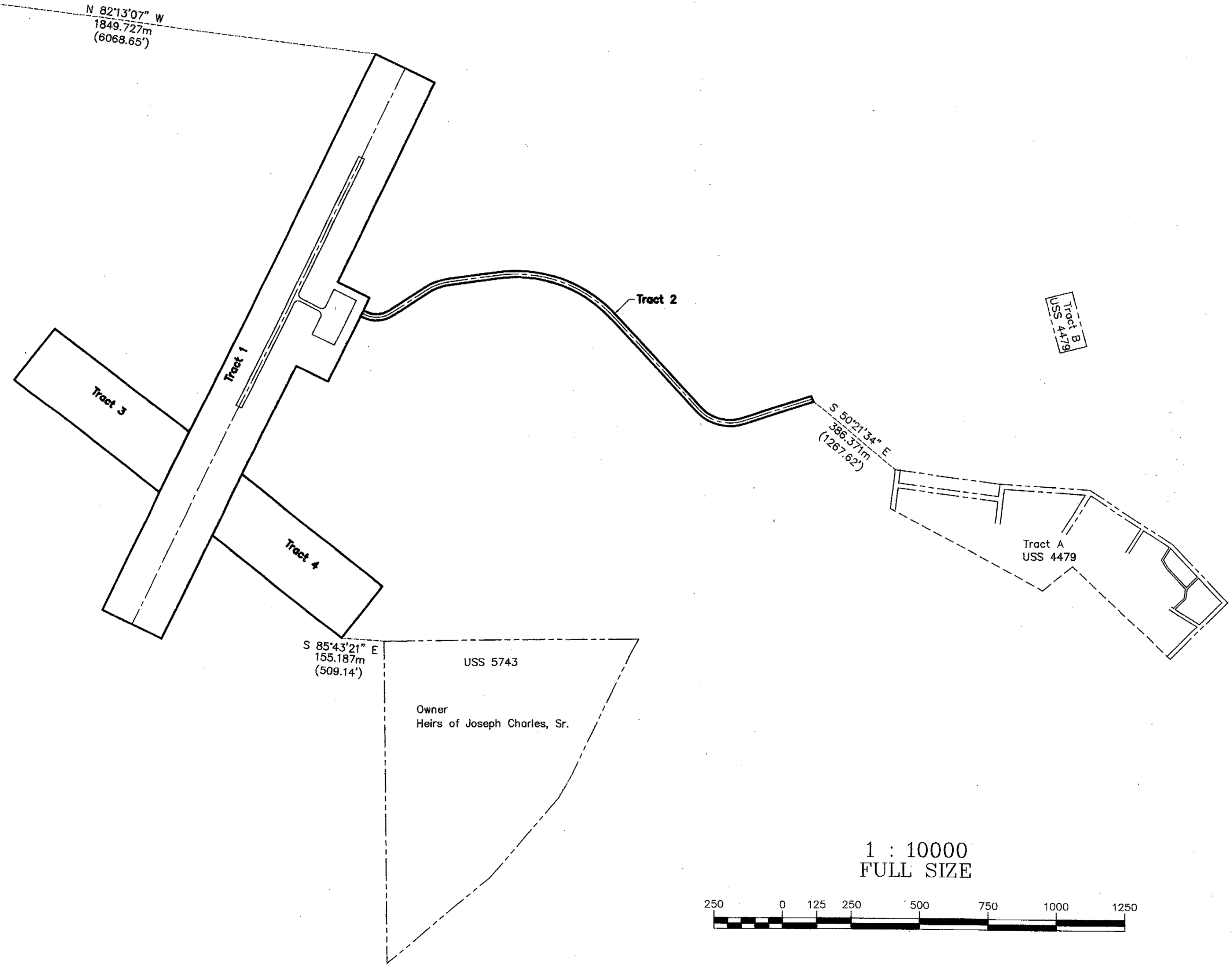
AIRPORT LAYOUT PLAN CONDITIONAL APPROVAL
SUBJECT TO ALP APPROVAL LETTER DATED 1/9/03
By: [Signature] DATE: 1/9/03
FAA AIRPORTS DIVISION
ALASKAN REGION, AAL-600



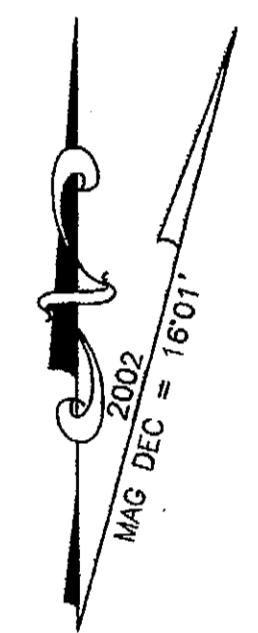
PROPERTY STATUS							
TRACT NUMBER	LARGER PARCEL	TAKE	REMAINDER	GRANTOR	ESTATE	DATE ACQ'D	ACQ'D UNDER A.I.P. No.
1		583140 Sq. mtrs		Akiachuk, Limited Calista Corporation	FEE (Surface Estate) FEE (Subsurface Estate)		
2		43664 Sq. mtrs		Akiachuk, Limited Calista Corporation	FEE (Surface Estate) FEE (Subsurface Estate)		
3		155785 Sq. mtrs		Akiachuk, Limited Calista Corporation	FEE (Surface Estate) FEE (Subsurface Estate)		Future Crosswind
4		150129 Sq. mtrs		Akiachuk, Limited Calista Corporation	FEE (Surface Estate) FEE (Subsurface Estate)		Future Crosswind



Vicinity Map
Scale 1:63360
T 10 N, R 69 W
SEWARD MERIDIAN
USGS Bethel D-7



Tract B
USS 4479



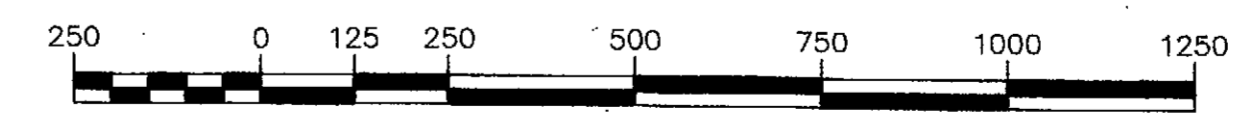
Surveyor's Certificate

I hereby certify that I am properly registered and licensed to practice Land Surveying in the State of Alaska, and that this drawing represents a survey made by me or under my direct supervision, and that the monuments shown hereon actually exist as described, and that all dimensions and other details are correct to the extent shown hereon.

10-7-02 44085
Date Registration Number

Lyle G. Riggins, Registered Land Surveyor

1 : 10000
FULL SIZE



AIRPORT LAYOUT PLAN CONDITIONAL APPROVAL
SUBJECT TO ALP APPROVAL LETTER DATED 12/10/03
By: *[Signature]* DATE: 1/6/03
FAA AIRPORTS DIVISION
ALASKAN REGION, AAL-600
FAA AIRSPACE REVIEW NUMBER: 2002-AAL-171-NRA

BY	DATE	REVISIONS

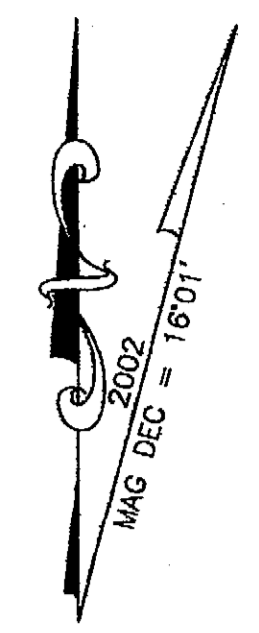
**AKIACHAK NATIVE COMMUNITY
AIRPORT LAYOUT PLAN**

APPROVED: *[Signature]* 12-7-02
E.S. WHARTON, PE PROJECT MANAGER
APPROVED: *[Signature]* 12/14/02
GEORGE PETER AKIACHAK NATIVE COMMUNITY

Date Drawn: 09/09/02
Designer: LGR
Drawn by: GJR
Checked by: LGR

AKIACHAK AIRPORT
AIRPORT LAYOUT PLAN
AIRPORT PROPERTY PLAN

SHEET
6 OF 8

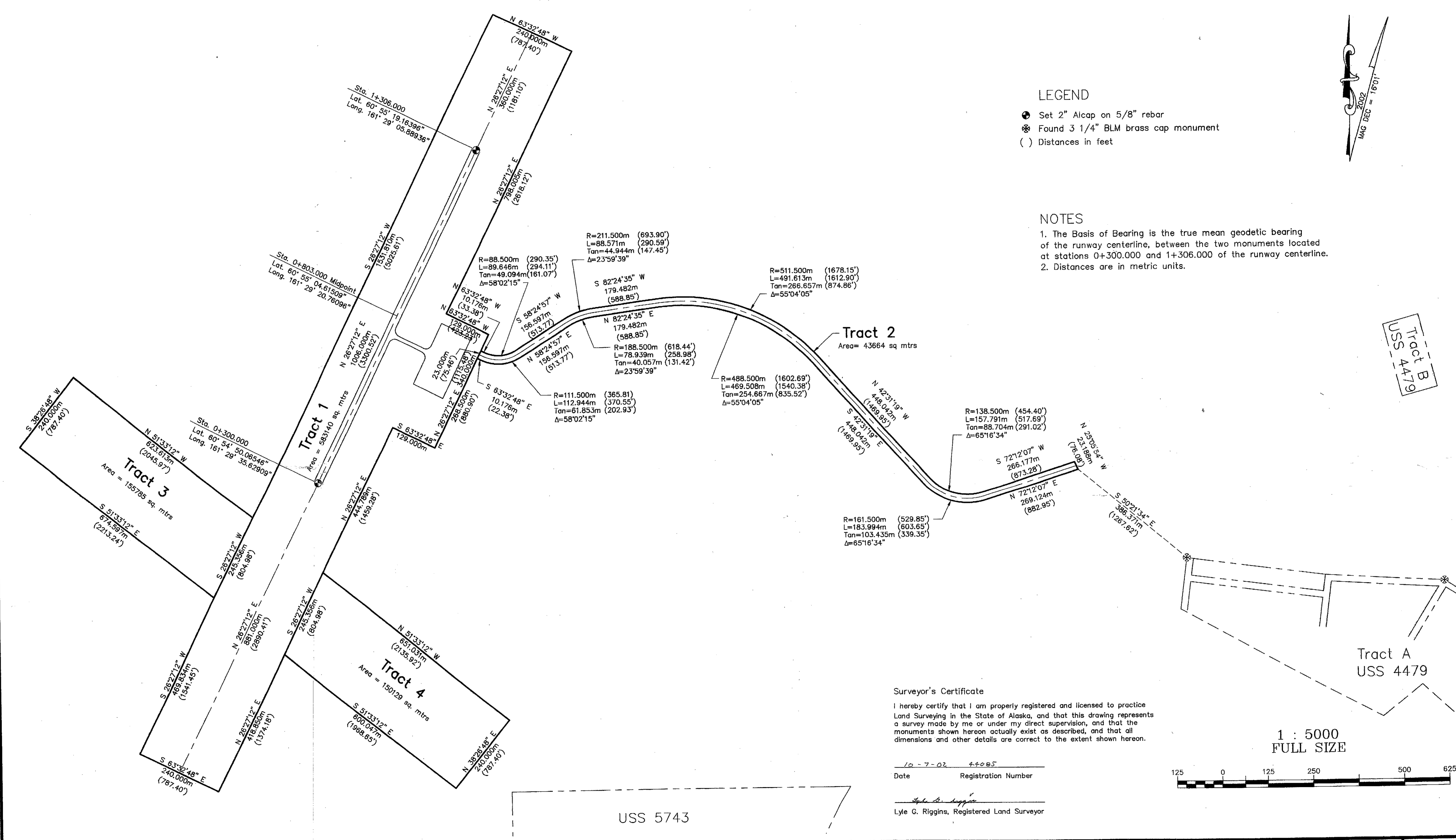


LEGEND

- Set 2" Alcap on 5/8" rebar
- ⊗ Found 3 1/4" BLM brass cap monument
- () Distances in feet

NOTES

1. The Basis of Bearing is the true mean geodetic bearing of the runway centerline, between the two monuments located at stations 0+300.000 and 1+306.000 of the runway centerline.
2. Distances are in metric units.



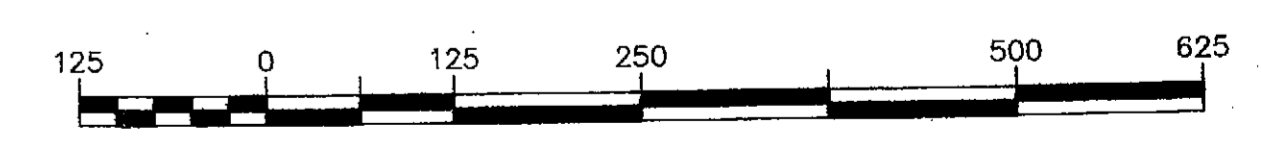
Tract B
USS 4479

Surveyor's Certificate

I hereby certify that I am properly registered and licensed to practice Land Surveying in the State of Alaska, and that this drawing represents a survey made by me or under my direct supervision, and that the monuments shown hereon actually exist as described, and that all dimensions and other details are correct to the extent shown hereon.

10-7-02 44095
 Date Registration Number
 Lyle G. Riggins
 Lyle G. Riggins, Registered Land Surveyor

1 : 5000
 FULL SIZE



AIRPORT LAYOUT PLAN CONDITIONAL APPROVAL, 1/9/03
 SUBJECT TO ALP APPROVAL LETTER DATED 1/9/03
 By: *[Signature]* DATE: 1/9/03
 FAA AIRPORTS DIVISION
 ALASKAN REGION, AAL-800
 FAA AIRSPACE REVIEW NUMBER: 2002-AAL-171-NRA

BY	DATE	REVISIONS

AKIACHAK NATIVE COMMUNITY AIRPORT LAYOUT PLAN

APPROVED: *[Signature]* 10.7.02 PROJECT MANAGER
 E.S. WHARTON, PE
 APPROVED: *[Signature]* 12/14/02
 GEORGE PETER AKIACHAK NATIVE COMMUNITY

Date Drawn: 09/09/02
 Designer: LGR
 Drawn by: GJR
 Checked by: LGR

AKIACHAK AIRPORT
 AIRPORT LAYOUT PLAN
 AIRPORT PROPERTY PLAN

SHEET
 7
 OF
 8

AKIACHAK AIRPORT

AIRPORT LAYOUT PLAN NARRATIVE REPORT

1. Background
The village of Akiachak is located in Yukon-Kuskokwim Delta on the north bank of the Kuskokwim River. It is located 27 kilometers (16.8 miles) northeast of Bethel and 617 kilometers (390 miles) west of Anchorage. It lies at approximately 60° 46' N Latitude, 161° 50' W Longitude (Sec. 36, T 10N, R 69W, Seward Meridian). In 2000 Akiachak's population was 585 of which 96% is Yup'ik. The current annual population growth rate is 2.3%.

In the winter ground vehicles can travel to Bethel on an ice-road on the frozen Kuskokwim River; in the summer boat traffic connects Akiachak to Bethel. During the period of freeze-up and break-up the airport provides the only access to the village. The airport is the primary means for transporting mail, freight, and people to the village. This existing airport has a single, unlighted 495 x 12 meter (1625 x 40ft) runway, with deficient safety areas. There is no separation between the runway and the apron. It is not feasible to extend this runway or its safety areas significantly; the village lies immediately west and the Kuskokwim River lies immediately east. The existing runway's alignment is across the prevailing winds.

2. Forecasts
The forecast presented below is based on a combination of factors including past airport activity, available information about aircraft operations, socioeconomic factors, and demographics. The Air Carrier Activity Information System (ACAIS), a voluntary reporting database maintained by the FAA indicates that passenger enplanements have remained fairly steady between 1992 and 1998. Enplanements grew steadily from 1990 to 1994 when they peaked at 3,523. Since 1994 enplanements have declined to a low of 2,017 in 1998.

Forecasts (0-5, 6-10, 11-20 years)			
Item	0-5 Years	6-10 Years	11-20 Years
Total annual operations	4,261	4,821	5,993
Itinerant operations	4,261	4,821	5,993
Local operations	--	--	--
Number based aircraft	--	--	--
Annual operations of current critical aircraft, PA-31	1,065	1,205	1,498
Annual operations of future critical aircraft, PA-31	1,065	1,205	1,498
Number enplanements based on voluntary reporting in the FAA's Air Carrier Activity Information System	4,157	5,059	6,862
Airport Reference Code	B - II		

Most demanding aircraft
The majority (75%) of traffic forecast at Akiachak consists of small, single engine aircraft, reference code A-1. The most demanding aircraft expected to use the airport on a regular basis (25%) is the Piper PA-31, reference code B-1. Other aircraft expected to use the airport less than 1 percent of the time are DHC-6, Beech 1900, Cessna 441, Shorts Skyvan and DC-3. These other aircraft provide medic and heavier cargo service.

Most Demanding Aircraft	Approach speed - knots	Wingspan - feet	Weight - lbs.
Regular use - PA 31	100	40.7	6,200

3. Rationale for proposed development

a. Wind coverage
As part of the Akiachak Airport Master Plan project, wind data has been collected in Akiachak for a period of two years between March 2000 and March 2002. However, vandalism and a subsequently misaligned wind vane rendered data collected between November 2001 and March 2002 unusable. The wind analysis is based on 19 months of data.

The optimum runway bearing for the collected wind data is N26°E true. This bearing gives a wind coverage of 86.2% for a 10.5 knot crosswind and 91.5% for a 13 knot crosswind. The desired wind coverage is 95%; when this level of coverage is not achieved then an additional runway for crosswind operations should be considered. The optimum crosswind runway bearing for a 10.5 knot maximum crosswind is N54°W true and will provide 98.1% coverage.

Runway width has been increased because wind coverage is less than 95%.

b. Airspace
The proposed Part 77 imaginary surface will use a horizontal surface with 1,524 meter (5000ft) radii and 34:1 approach slopes. There will be no penetrations to the imaginary surfaces at the proposed airport location. Akiachak is located in a flat river delta.

c. Environmental Factors
Several types of wetland habitat will be impacted by the project. The Gweek River is also in the vicinity of the build alternative and will be used in the winter for an ice road. According to the USFWS, the Gweek River provides a migratory corridor for whitefish, sheefish and anadromous fish. Numerous bird species, moose, river otter, red fox, weasel species, arctic ground squirrel, arctic hare, lemming species, beaver, muskrat, and mink may also occur within the Akiachak area. Consultations with the Alaska Natural Heritage Program, the USFWS and NMFS indicate that there are no federal or state listed Threatened, Endangered, or Sensitive plants, animals, or communities to report in the project area. No historic or archaeological surveys have been completed in the project area. Although the build alternative is not anticipated to affect cultural resources in the area, a potential borrow site has been identified that could include a Native allotment. Correspondence with regional Native organizations and an Archeological Review conducted by Cultural Resource Consultants indicate that there are no known sites that would be affected by the project.

d. Obstructions to air navigation
There are no obstructions to navigation on the approaches. The proposed runway is located approximately 1.8 kilometers to the west of the village; aircraft will land and depart to the north and south thereby eliminating over flying the village.

e. Topography
The proposed airport is located in marshland between the Kuskokwim and Gweek Rivers. The runway is located on a narrow section of land that raises 1 to 2 meters (3 to 6.5ft) above the surrounding wetlands.

f. ATCT - not applicable, this will be an uncontrolled airport.

g. Wildlife hazards
The village, sewage lagoon and landfill are all located at least 1.8 kilometers from the runway.

4. Rationale for Modifications of Standards or unusual features
There are no modifications to standards. The recommended minimum length for an isolated primary runway is 914 meters (3000ft); the proposed Akiachak runway is 1,006 meters (3300ft) to be consistent with minimum runway lengths recommended by the Alaska Aviation System Plan (AASP) for community class airports. In Akiachak the most demanding aircraft forecast to use the airport on a regular basis is the PA 31, which would be served adequately by this runway length.

Akiachak desires to develop the airport into a freight hub. Therefore land for the airport includes space for lengthening the runway to the south and for expanding the apron. Two additional tracts are described to allow construction of a future crosswind runway to meet minimum recommended wind coverage. Neither the runway extension or crosswind runway are scheduled at this time. Both elements are considered long term development. Exact alignment and position of this runway has not been determined.

The access road will be 7.3m (24ft) wide and 1.9km (1.24mi) long. The road begins on the existing lagoon access road and traverses west along relatively higher ground to the proposed airport apron.

5. Equivalent Level of Safety
The proposed airport will be developed to the standards in FAA advisory circular 150/5300-13 for airport reference code B- II with visibility minimums of not less than 1 mile, and to practices reflected in the DOT/FAA Alaska Aviation System Plan. The runway length is discussed above in paragraph 4.

AKIACHAK AIRPORT DESIGN STANDARDS (B-II)

Design Element	Standard	Proposed Development
Primary runway length	Not less than 914 meters (3000ft) for an isolated runway	1,006m (3300ft)
Primary runway width	23m (75ft)	23m (75ft)
Runway surface	gravel	gravel
Distance to hold line	60m (200ft)	60m (200ft)
Distance to airplane parking area from runway centerline	75m (250ft)	120m (400ft)
Runway safety area beyond runway end	90m (300ft)	90m (300ft)
Runway Safety Area width	45m (150ft)	45m (150ft)
Object Free Area width	150m (500ft)	150m (500ft)
Obstacle Free Zone width	120m (400ft)	120m (400ft)
Runway Protection Zone		
Inner width	150m (500ft)	150m (500ft)
Outer width	210m (700ft)	210m (700ft)
Length	300m (1000ft)	300m (1000ft)
Building Restriction Line	100m (330ft)	180m (590ft)
Taxiway width	10.5m (35ft)	10.5m (35ft)
Taxiway safety area width	24m (79ft)	24m (79ft)
Taxiway OFA width	40m (131ft)	40m (131ft)
Lighting	MIRL and MITL †	MIRL and MITL
Apron size	61m x 91m (200ft x 300ft) †	90m x 180m (295ft x 590ft)
Lease lot size	--	4 @ 30mx30m (98ft x 98ft) 1 @ 25mx30m (82ft x 98ft)
Operations & maintenance lot	--	25m x 30m (82ft x 98ft)
Snow removal equipment building	--	1 heated, double bay
Terminal	--	none
Service access	--	2 lane gravel surface access road, 2km (1.24mile) long.
Standards are from FAA AC 150/5300-13 unless marked otherwise	† Alaska Aviation System Plan	

6. Summary of staged development with estimated costs (CIP)
Because of the high cost of mobilization to Akiachak and work in rural Alaska, the entire development shown on the master plan should be constructed in one phase. The existing airport should remain operational until the proposed relocation is made available. At that time the existing airport should be closed to prevent possible conflicts in use of airspace. The construction cost estimate in 2002 constant dollar terms per the phase 1 report is \$9.3 million.

Near term development (0-5 years) consists of the airport as shown in this layout plan. Long term development (5-20 years) consists of lengthening the primary runway TO 5,000 ft., constructing a crosswind runway, and expanding the apron. Tracts 1 and 2 shown on the property plan should be acquired in the near term. Tracts 3 and 4 should be acquired once crosswind runway orientation and placement is refined through ground surveys in the long term.

7. Coordination
The EA and master plan addresses the scope and results of the coordination that has occurred on this project. Coordination with the FHWA is not applicable on this project.

FILE: Z:\09707 DNA\004\CAD\ALP
DATE: 09/09/02
PLOT SCALE: 1:1
REVISED BY: SJM

AIRPORT LAYOUT PLAN CONDITIONAL APPROVAL
SUBJECT TO ALP APPROVAL LETTER DATED 1/9/03

By: *[Signature]* DATE: 1/9/03
FAA AIRPORTS DIVISION
ALASKAN REGION, AAL-800

FAA AIRSPACE REVIEW NUMBER: 2002-AAL-171-NRA

BY DATE REVISIONS

AKIACHAK NATIVE COMMUNITY AIRPORT LAYOUT PLAN

APPROVED: *[Signature]* 10-7-02 PROJECT MANAGER
E.S. WHARTON, PE
APPROVED: *[Signature]* 12/14/02
GEORGE PETER AKIACHAK NATIVE COMMUNITY

Date Drawn: 09/09/02
Designer: DJG
Drawn by: DJG
Checked by: ESJ

AKIACHAK AIRPORT
AIRPORT LAYOUT PLAN
NARRATIVE REPORT

SHEET
8
OF
8