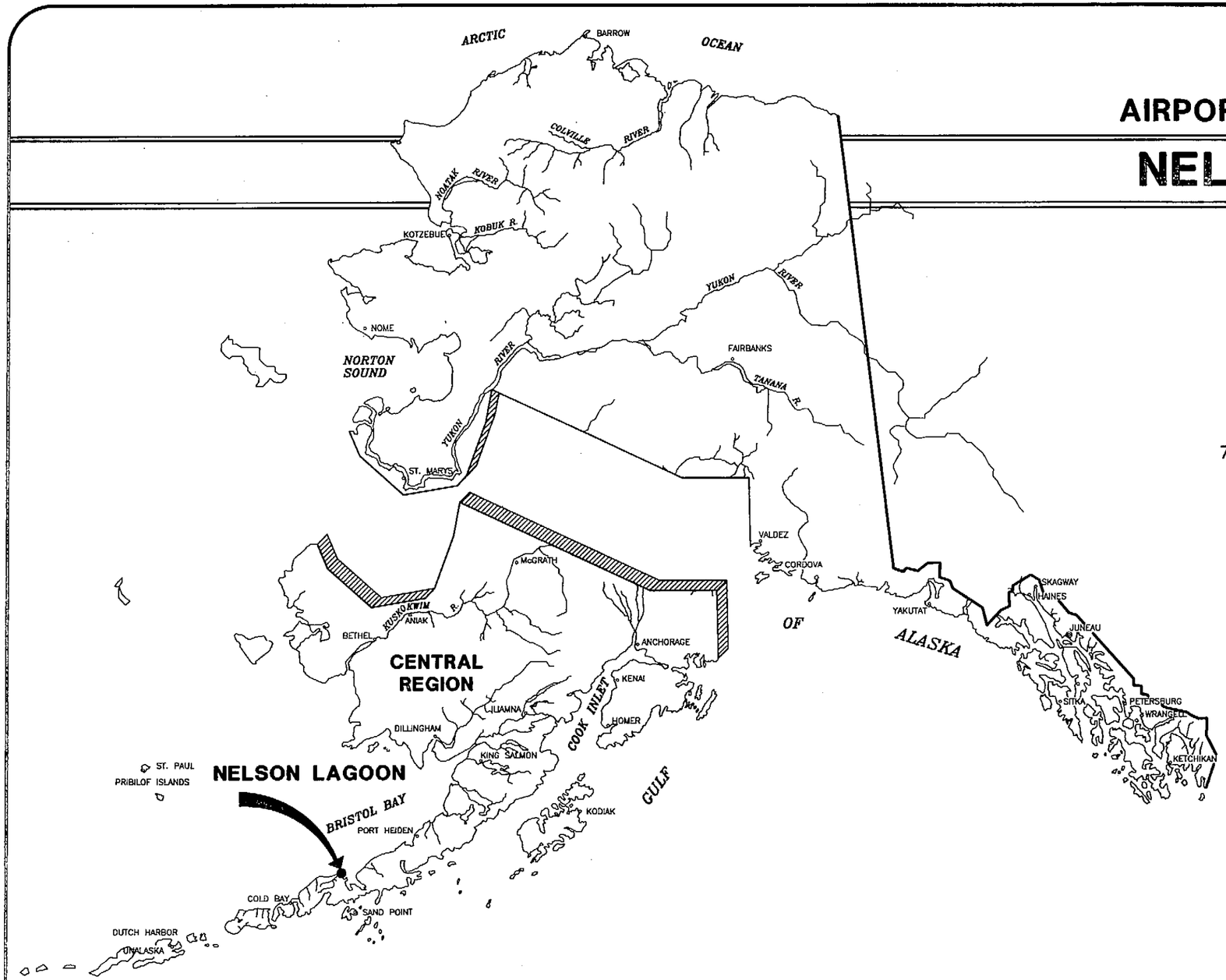
AIRPORT LAYOUT PLAN FOR

NELSON LAGOON

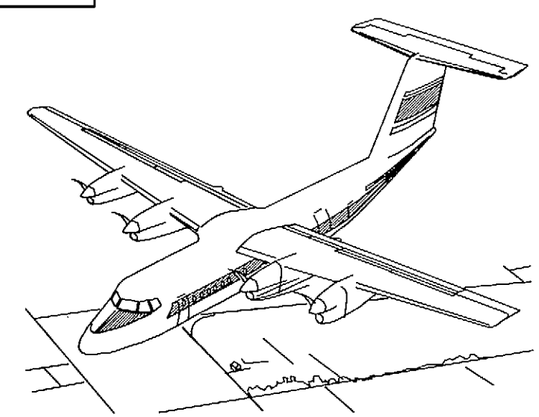
2000



DRAWING INDEX

1 – COVER SHEET AND INDEX
2 – VICINITY MAP AND DATA TABLES
3 – PLAN AND PROFILE
4 – TERMINAL AREA PLAN
5 – RUNWAY PROTECTION ZONE PLANS AND PROFILES
6 – F.A.R. PART 77 SURFACES
7,8 – PROPERTY PLAN
9 – NARRATIVE REPORT

METRIC



THIS A.L.P. SET SUPERCEDES A.L.P. SET DATED 6/14/96

SPONSORED BY
STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES
CENTRAL REGION

CONCUR _____ DATE 8/4/00
DAVID R. EBERLE — CONSTRUCTION & OPERATIONS DIRECTOR

APPROVED _____ DATE 8/3/00
STEVEN R. HORN, P.E. — REGIONAL PRECONSTRUCTION ENGINEER

AIRPORT LAYOUT PLAN CONDITIONAL APPROVAL SUBJECT TO ALP APPROVAL LETTER DATED 8-8-00
By: _____ DATE: 8-8-00
FAA AIRPORTS DIVISION
ALASKAN REGION, AAL-600

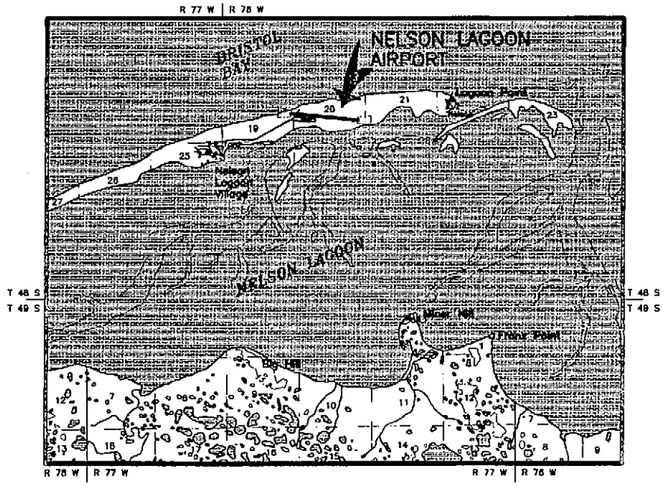
FAA AIRSPACE REVIEW NUMBER
96-AAL-072-NRA

NELSON LAGOON
AIRPORT LAYOUT PLAN

SHEET 1 OF 9

File:g:\data\nelsonlagoon\alp\cover — Date of Last Revision: 08/03/00 1=1 dcweb

Thu Aug 03 08:57:28 2000

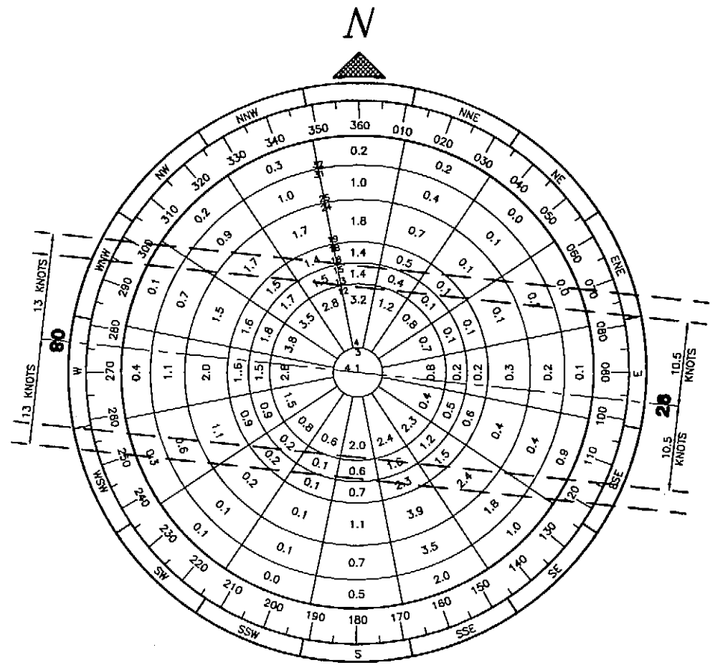


VICINITY MAP

1:63,360
T 48 S, R 76 W, SEC. 19, 20, & 21
SEWARD MERIDIAN
U.S.G.S. PORT MOLLER (D-4), ALASKA

CONVERSION FACTORS FROM SI UNITS

TO CONVERT FROM	TO	MULTIPLY BY
STATION (1000 METERS)	FEET	3280.84
KILOMETER (km)	MILE	0.6214
METER (m)	MILE	0.00062137
METER (m)	FOOT	3.28084
MILLIMETER (mm)	FOOT	0.00328084
MILLIMETER (mm)	INCH	0.3937008
SQUARE METER (m^2)	SQUARE FOOT	10.76391042
SQUARE METER (m^2)	SQUARE YARD	1.19599
HECTARE	ACRE	2.4711
CUBIC METER (m^3)	CUBIC FOOT	35.3146667
CUBIC METER (m^3)	CUBIC YARD	1.3079506
CUBIC METER (m^3)	GALLON (US LIQUID)	264.17204
CUBIC METER (m^3)	M. GAL.	0.26417204
KILOGRAM (kg)	POUND-MASS (LBM)	2.2046225
MEGAGRAM (Mg)	TON (SHORT)	1.10231
NEWTON (n)	POUND-FORCE (LBF)	0.2248089
LUX (lx)	FOOTCANDLE	0.092903
DEGREE CELSIUS (°C)	DEGREE FAHRENHEIT (°F)	T°F=(1.8 x T°C)+32



NOTE
WIND DATA WAS COLLECTED AND IS REPORTED HERE IN MILES PER HOUR.

WIND DATA

WIND COVERAGE:	10.5 KNOTS (12 MPH)	60.1%
	13.0 KNOTS (15 MPH)	71.6%
SOURCE:	WIND-CEILING-VISIBILITY DATA AT SELECTED AIRPORTS, VOLUME X PART A, ALASKA AND PACIFIC REGIONS, JUNE 1981, U.S.D.O.T., F.A.A. DATA USED IS FOR COLD BAY, ALASKA WHICH IS LOCATED 137 KILOMETERS (74 NAUTICAL MILES) SOUTHWEST OF NELSON LAGOON.	
PERIOD:	1958-1978	

NON-STANDARD CONDITIONS

ITEM	EXISTING	STANDARD	FUTURE

BASIC DATA TABLE

RUNWAY DATA

ITEM			RUNWAY 08/26 EXISTING	RUNWAY 08/26 FUTURE
EFFECTIVE GRADE			0.18%	0.18%
% WIND COVERAGE		10.5 KNOTS	60.1%	60.1%
		13 KNOTS	71.6%	71.6%
		16 KNOTS	N/A	N/A
		20 KNOTS	N/A	N/A
INSTRUMENT RUNWAY			NONE	N.P.
RUNWAY SURFACE			GRAVEL	ASPHALT
PAVEMENT STRENGTH	SINGLE WHEEL (S)	kg	N/A	20,500
		[lb.]	N/A	[45,000]
	TWIN WHEEL (T)	kg	N/A	45,500
		[lb.]	N/A	[100,000]
	SINGLE-TANDEM (ST)	kg	N/A	47,200
		[lb.]	N/A	[155,000]
APPROACH SURFACES			34:1	34:1
VISIBILITY MINIMUM			>1600m	>1600m
			[>1 MILE]	[>1 MILE]
RUNWAY LIGHTING			M.I.	M.I.
RUNWAY MARKING			NONE	N.P.
RUNWAY NAVIGATION AIDS			NONE	PAPI
AIRCRAFT APPROACH CATAGORY			B	B
AIRCRAFT DESIGN GROUP			II	II
RUNWAY SAFETY AREA DIMENSION			45m x 1400m	45m x 1550m
			[148'x4593']	[148'x5085']
RUNWAY DIMENSION			23m x 1220m	23m x 1370m
			[75'x4003']	[75'x4495']
RUNWAY OBJECT FREE AREA DIMENSION			150m x 1400m	150m x 1550m
			[492'x4593']	[492'x5085']
RUNWAY OBSTACLE FREE ZONE DIMENSION			120m x 1340m	120m x 1490m
			[394'x3399']	[394'x4888']
GEODETIC POSITIONS (N.A.D. 83)				
THRESHOLD (RUNWAY 08)		LAT.	56°00'29.20"N	56°00'29.71"N
		LONG.	161°10'12.35"W	161°10'20.96"W
THRESHOLD (RUNWAY 26)		LAT.	56°00'25.06"N	56°00'25.06"N
		LONG.	161°09'02.33"W	161°09'02.33"W

AIRPORT DATA

ITEM		EXISTING	FUTURE
AIRPORT ELEVATION (M.S.L.)		5.09m [16.7']	5.8m [19.03']
AIRPORT REFERENCE POINT (A.R.P.) (STA. 2+505)	LAT.	56°00'27.39"N	
	LONG.	161°09'41.65"W	
TAXIWAY LIGHTING		M.I.	M.I.
RAMP LIGHTING		NONE	FLOOD
MEAN MAX. TEMPERATURE, HOTTEST MONTH (JULY)		14°C [57°F]	14°C [57°F]
MAGNETIC DECLINATION, YEAR		16°12'E,1995	16°12'E, 1995
AIRPORT REFERENCE CODE		B-II	B-II
AIRPORT AND TERMINAL NAVIGATION AIDS		NONE	NONE
AIRPORT NAVIGATION AIDS		ROT. BEACON	ROT. BEACON

LEGEND

ITEM	EXISTING	FUTURE
PROPERTY LINE		
BUILDING RESTRICTION LINE		
AVIGATION & HAZARD EASEMENT		
AIRPORT REFERENCE POINT (A.R.P.)		
WIND CONE AND SEGMENTED CIRCLE		
CONTOURS	100	100
ROADWAYS		
BUILDINGS		
ROTATING BEACON		
SHORELINE		
ROADWAY RIGHT OF WAY LINE		
FENCE LINE	X-X-X-X-X-X	X—X—X—X
TREE LINE		
RUNWAY THRESHOLD LIGHTS		
BLM SURVEY MONUMENTS		
OTHER SURVEY MONUMENTS		

THIS A.L.P. SET SUPERCEDES A.L.P. SET DATED 6/14/96

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DATE: 08/03/00 1=1 dxwb

AIRPORT LAYOUT PLAN CONDITIONAL APPROVAL SUBJECT TO ALP APPROVAL LETTER DATED 8-8-00
By: [signature] DATE: 8-8-00
FAA, AIRPORTS DIVISION
ALASKAN REGION, AAL-600

FAA AIRSPACE REVIEW NUMBER: 96-AAL-072-NRA

BY	DATE	REVISIONS

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES
CENTRAL REGION

APPROVED: [signature]
STEPHEN M. RYAN, P.E. — DESIGN SECTION CHIEF
APPROVED: [signature]
JOHN G. WAHL, P.E. — PROJECT MANAGER

DATE 2/1/00
DESIGN VLC
DRAWN
CHECKED

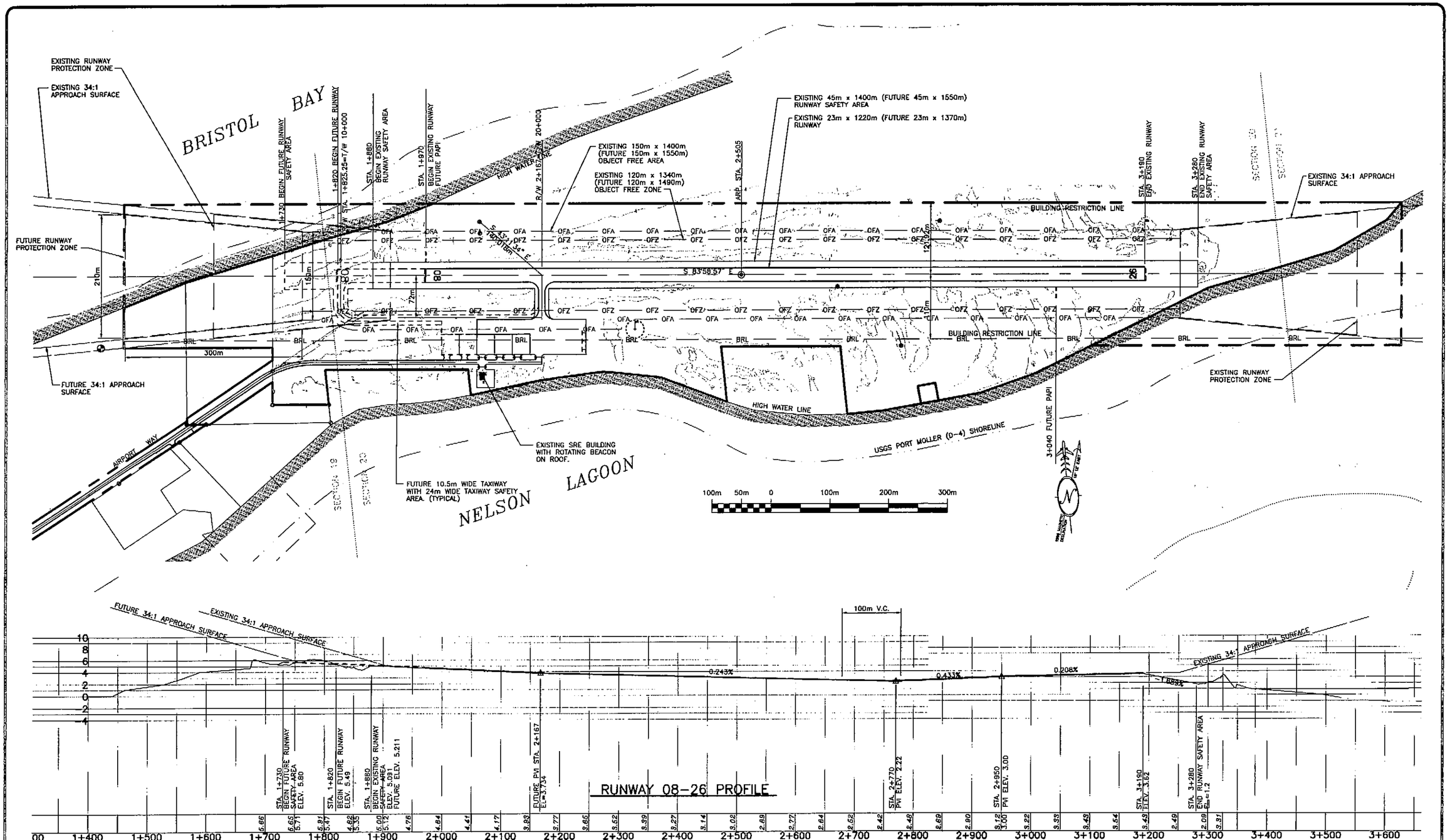
NELSON LAGOON AIRPORT

AIRPORT LAYOUT PLAN

VICINITY MAP AND DATA TABLES

SHEET 2 OF 9

Thu Aug 03 08:56:58 2000



AIRPORT LAYOUT PLAN CONDITIONAL APPROVAL 8-8-00
SUBJECT TO ALP APPROVAL LETTER DATED
BY: DATE: 8-8-00
FAA, AIRPORTS DIVISION
ALASKAN REGION, AAL-600

FAA AIRSPACE REVIEW NUMBER: 96-AAL-072-NRA

BY	DATE	REVISIONS

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES
CENTRAL REGION

APPROVED: STEPHEN M. RYAN, P.E. — DESIGN SECTION CHIEF
APPROVED: JOHN C. WAHL, P.E. — PROJECT MANAGER

DATE 8/3/00
DESIGN VLC
DRAWN
CHECKED

NELSON LAGOON AIRPORT

AIRPORT LAYOUT PLAN

PLAN AND PROFILE

SHEET 3 OF 9

FILE: g:\data\nelsonlagoon\alp\pnp
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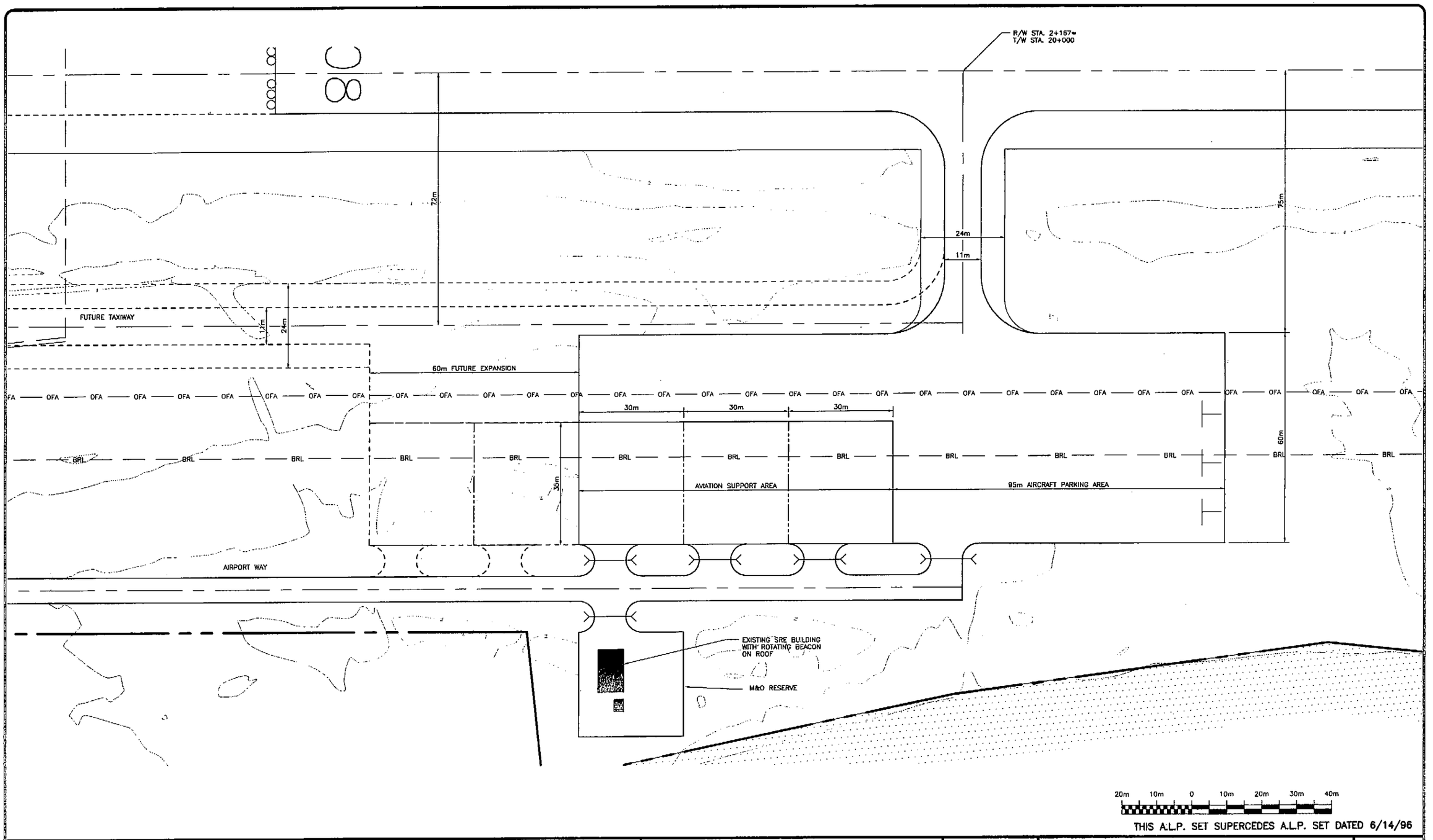

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AIRPORT LAYOUT PLAN CONDITIONAL APPROVAL SUBJECT TO ALP APPROVAL LETTER DATED 8-8-00
By: Barbara M. Brown DATE: 8-8-00
FAA, AIRPORTS DIVISION
ALASKAN REGION, AAL-600

FAA AIRSPACE REVIEW NUMBER: 98-AAL-072-NRA

BY	DATE	REVISIONS

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES
CENTRAL REGION

APPROVED: STEPHEN M. RYAN, P.E. — DESIGN SECTION CHIEF
APPROVED: JOHN C. WAHL, P.E. — PROJECT MANAGER

DATE 8/3/00
DESIGN
DRAWN
CHECKED

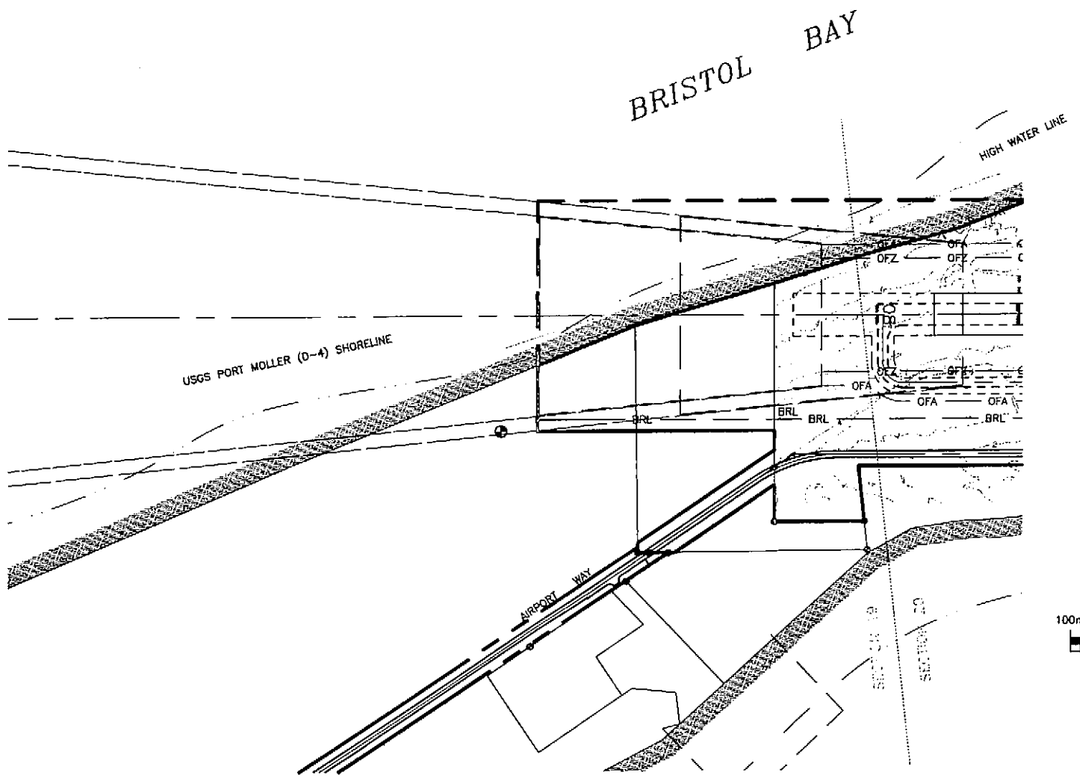
NELSON LAGOON AIRPORT

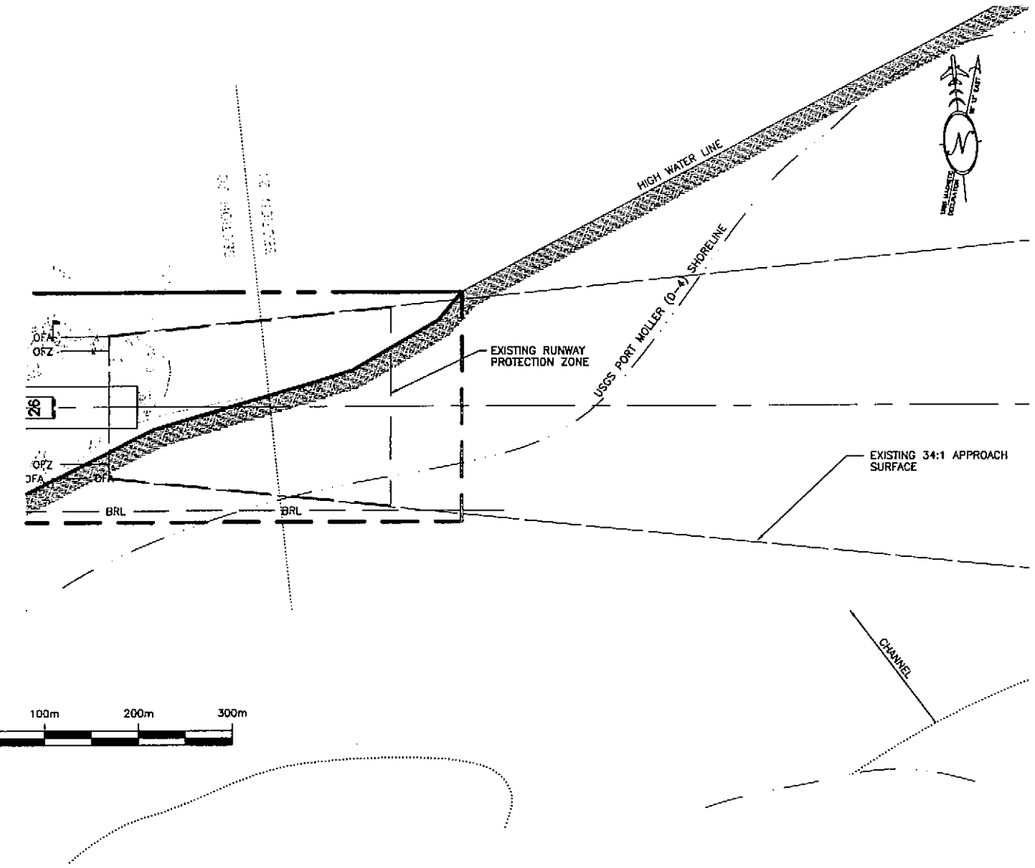
AIRPORT LAYOUT PLAN

TERMINAL AREA PLAN

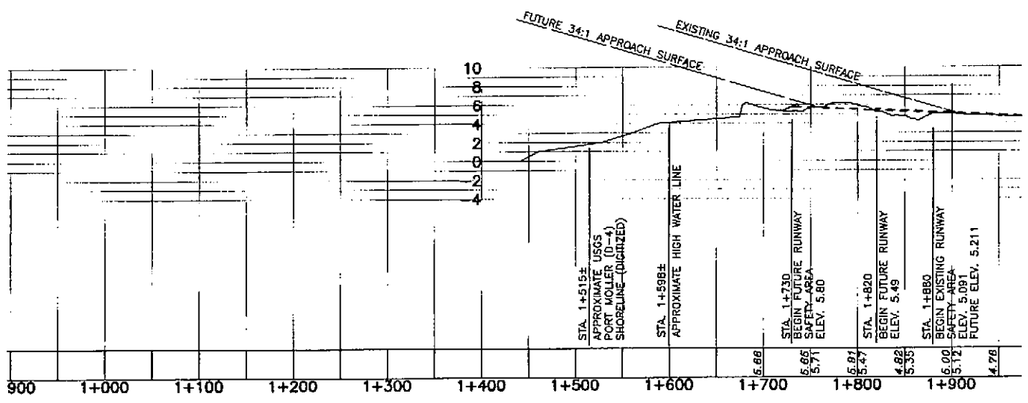
SHEET 4 OF 9

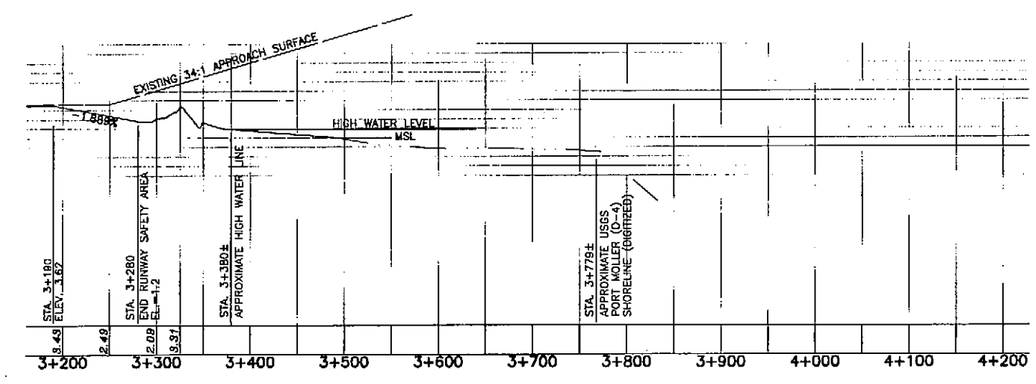
Thu Aug 03 08:56:26 2000





100m 50m 0 100m 200m 300m





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AIRPORT LAYOUT PLAN CONDITIONAL APPROVAL SUBJECT TO ALP APPROVAL LETTER DATED 8-8-00
By: Barbara Mahoney DATE: 8-8-00
FAA, AIRPORTS DIVISION
ALASKAN REGION, AAL-600

FAA AIRSPACE REVIEW NUMBER: 96-AAL-072-NRA

BY	DATE	REVISIONS

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES
CENTRAL REGION

APPROVED: STEPHEN M. RYAN, P.E. — DESIGN SECTION CHIEF
APPROVED: JOHN G. WAHL, P.E. — PROJECT MANAGER

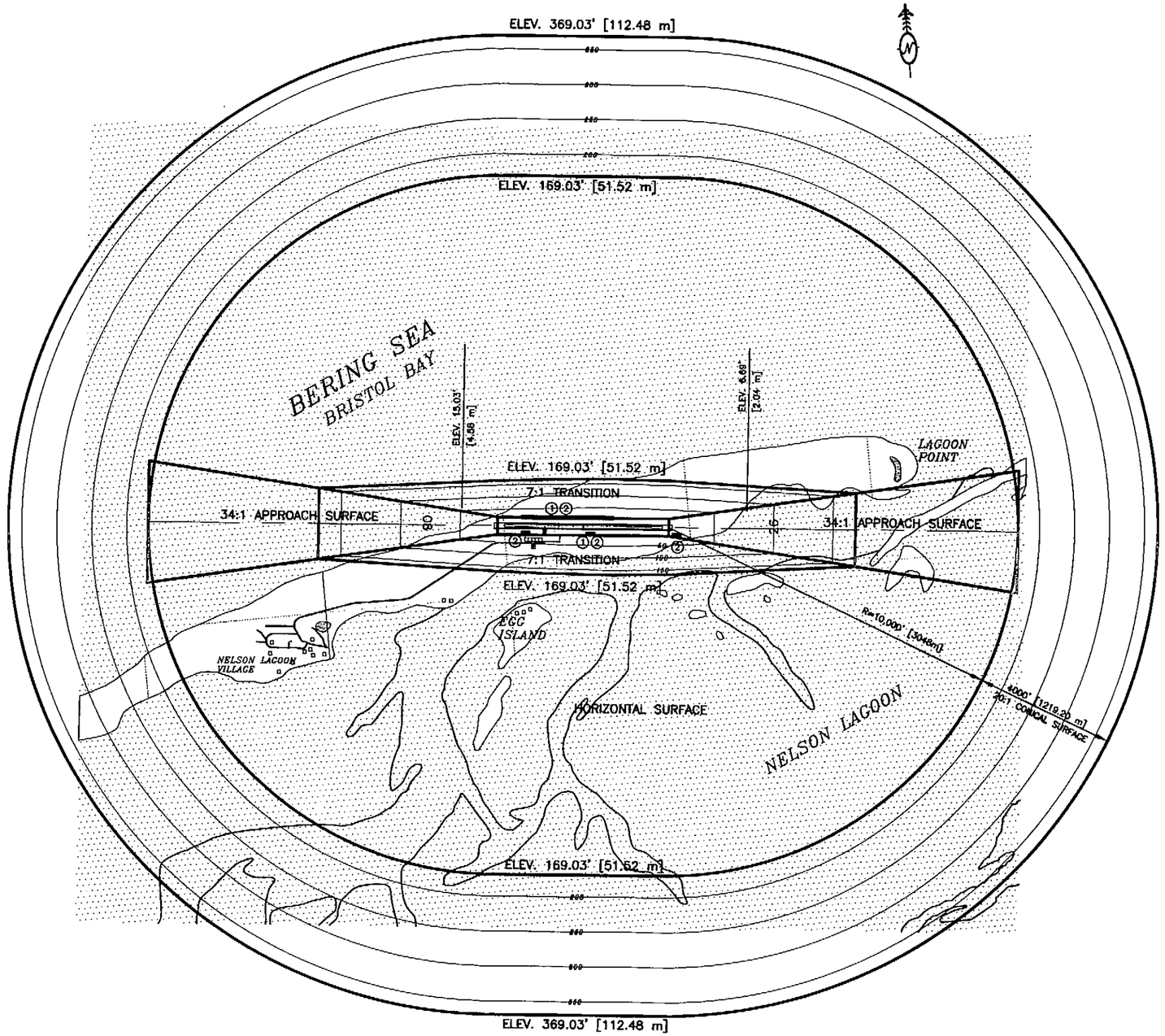
DATE 8/3/00
DESIGN MG
DRAWN GJ
CHECKED JGW

NELSON LAGOON AIRPORT

AIRPORT LAYOUT PLAN
INNER APPROACH SURFACES
PLAN AND PROFILE

SHEET 5 OF 9

Thu Aug 03 08:55:39 2000



1000' 0 1000' 2000' SCALE IN FEET

200 0 200 400 SCALE IN METERS

LEGEND

- WATER SURFACE
- LOW WATER CHANNELS
- 50' AIR SPACE CONTOUR

NOTES

1. AIRPORT ELEVATION IS 19.03' (5.8 m).
2. ELEVATIONS SHOWN ARE RELATIVE TO MEAN SEA LEVEL (MSL).
3. TERRAIN IS FLAT TO ROLLING DUNES LOWER THAN 33' (10 m).

OBSTRUCTION DATA TABLE

NUMBER	PENETRATION DISTANCE (METERS (FEET))	DESCRIPTION
1	0–1m (0–3')	DUNES BEYOND EXISTING O.F.Z.
2	0–3m (0–10')	DUNES BEYOND FUTURE O.F.Z.

FAA AIRSPACE REVIEW NUMBER:
96-AAL-072-NRA

AIRPORT LAYOUT PLAN CONDITIONAL APPROVAL SUBJECT TO ALP APPROVAL LETTER DATED 8-8-00

By: Barbara Mahan DATE: 8-8-00
FAA, AIRPORTS DIVISION
ALASKAN REGION AAL-600

FILE:
g:\data\nelsonlagoon\alp\part77
DATE:
08/03/00 1=1 daveb

Thu Aug 03 08:53:07 2000

THIS A.L.P. SET SUPERCEDES A.L.P. SET DATED 6/14/96

BY	DATE	REVISIONS

DATE 8/4/00
DESIGN
DRAWN
CHECKED

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES
CENTRAL REGION

DESIGN SECTION CHIEF
PROJECT MANAGER

APPROVED: STEPHEN W. FINN, P.E.
APPROVED: JOHN G. WAIL, P.E.

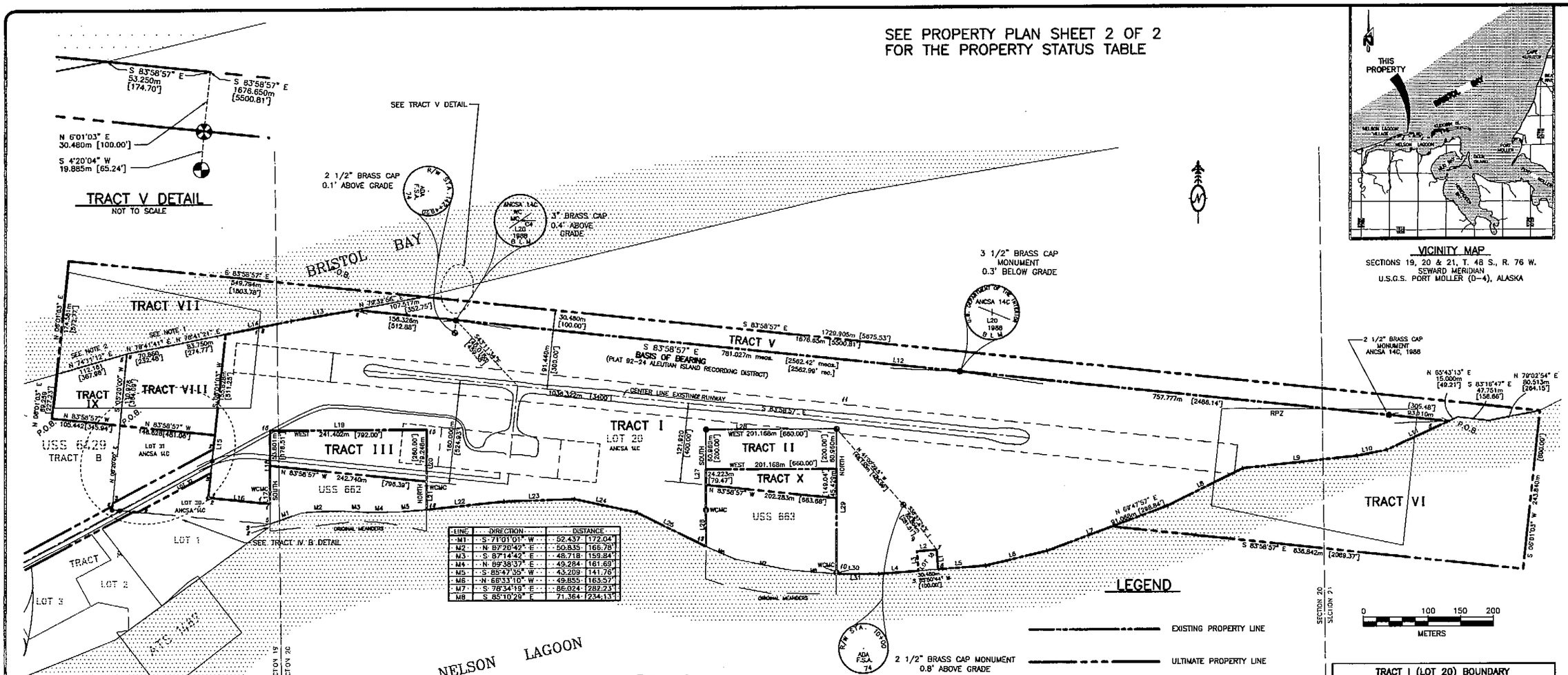
NELSON LAGOON AIRPORT

AIRPORT LAYOUT PLAN

F.A.R. PART 77

SHEET 6 OF 9

SEE PROPERTY PLAN SHEET 2 OF 2
FOR THE PROPERTY STATUS TABLE



LINE	DIRECTION	DISTANCE	
M1	S 71°01'01" W	52.437	[172.04']
M2	N 87°26'42" E	50.835	[166.78']
M3	S 87°14'42" E	48.718	[159.84']
M4	N 89°38'37" E	49.284	[161.69']
M5	S 85°47'35" W	43.209	[141.76']
M6	N 66°33'10" W	49.855	[163.57']
M7	S 78°34'19" E	86.024	[282.23']
M8	S 85°10'29" E	71.384	[234.13']

① PLAT 92-24
② PLAT 94-7
③ DOTPF/DOWL 95

No.	DISTANCE
L15A ①	38.673m [126.88']
L15B ①	18.395m [60.35']
L15C ①	18.35m [60.35']
L15D ③	21.223m [69.63']
LA ②	20.797m [68.23']
LB ①	11.567m [37.95']
LB ②	11.592m [38.03']
LC ③	6.047m [19.84']
LD ①	10.630m [34.88']
LE ①	39.277m [128.86']

TRACT I (LOT 20) BOUNDARY
PLAT 92-94 ALEUTIAN ISLAND RECORDING DISTRICT

LINE	DIRECTION	DISTANCE
L1	N 04°16'53" W	30.011m [98.46']
L2	N 85°43'07" E	30.480m [100.00']
L3	N 04°16'53" W	29.944m [98.24']
L4	N 85°50'44" E	81.405m [267.18']
L5	N 85°50'44" E	73.597m [241.48']
L6	N 76°43'21" E	97.628m [320.30']
L7	N 69°47'57" E	197.590m [648.26']
L8	N 63°39'58" E	129.482m [424.81']
L9	N 83°52'24" E	176.869m [580.34']
L10	N 78°55'59" E	46.543m [152.70']
L11	N 65°43'13" E	104.949m [344.32']
L12	N 83°58'57" W	1695.304m [5562.01']
L13	S 80°25'27" W	100.572m [329.88']
L14	S 78°41'21" W	102.395m [335.94']
L15	S 08°01'03" W	252.515m [828.46']
L16	S 83°58'30" E	95.537m [313.44']
L17	NORTH	19.001m [62.34']
L18	NORTH	93.744m [307.56']
L19	EAST	241.402m [792.00']
L20	SOUTH	85.889m [281.82']
L21	SOUTH	38.860m [127.50']
L22	N 84°11'01" E	120.386m [394.88']
L23	N 88°14'41" E	108.037m [354.45']
L24	S 78°00'33" E	98.094m [321.83']
L25	S 83°42'07" E	119.220m [391.14']
L26	NORTH	55.984m [183.61']
L27	NORTH	123.316m [404.58']
L28	EAST	201.168m [660.00']
L29	SOUTH	220.076m [722.04']
L30	SOUTH	2.088m [6.85']
L31	S 89°42'34" E	65.145m [213.73']

NOTES

1. MEANDERS COMMON TO TRACT VII AND TRACT VIII ARE BASED ON PLAT 92-24 ALEUTIAN ISLAND RECORDING DISTRICT.
2. MEANDER FOR TRACT IX IS BASED ON ORIGINAL SURVEY MEANDER FOR USS 6429.
3. MEANDERS COMMON TO TRACT V AND TRACT VI AND MEANDERS COMMON TO TRACT V AND TRACT VII WERE SCALED FROM SEPTEMBER 1994 AERIAL PHOTOGRAPHS.
4. MEANDERS FOR USS 662 AND USS 663 WERE SCALED FROM SEPTEMBER 1994 AERIAL PHOTOGRAPHS.
5. A RECORD OF SURVEY WAS RECORDED 9/21/99, #99-8. THIS DRAWING DOES NOT CONTAIN ANY CHANGES THAT THE R.O.S. MAY HAVE FOUND.

THIS A.L.P. PROPERTY PLAN SUPERCEDES PROPERTY PLAN DATED 6/14/96

FILE: g:\data\nelsonlagoon\alp\propplan.dwg
DATE: 08/03/00 1=1 v=1 dcvab

AIRPORT LAYOUT PLAN CONDITIONAL APPROVAL SUBJECT TO ALP APPROVAL LETTER DATED 8-8-00
By: [signature] DATE: 8-8-00
FAA, AIRPORTS DIVISION
ALASKAN REGION, AAL-600

FAA AIRSPACE REVIEW NUMBER: 96-AAL-072-NRA

BY	DATE	REVISIONS

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES
CENTRAL REGION

APPROVED: [signature] STEPHEN M. RYAN, P.E. — DESIGN SECTION CHIEF
APPROVED: [signature] JOHN G. WAHL, P.E. — PROJECT MANAGER

DATE 8/3/00
DESIGN VLC
DRAWN [signature]
CHECKED [signature]

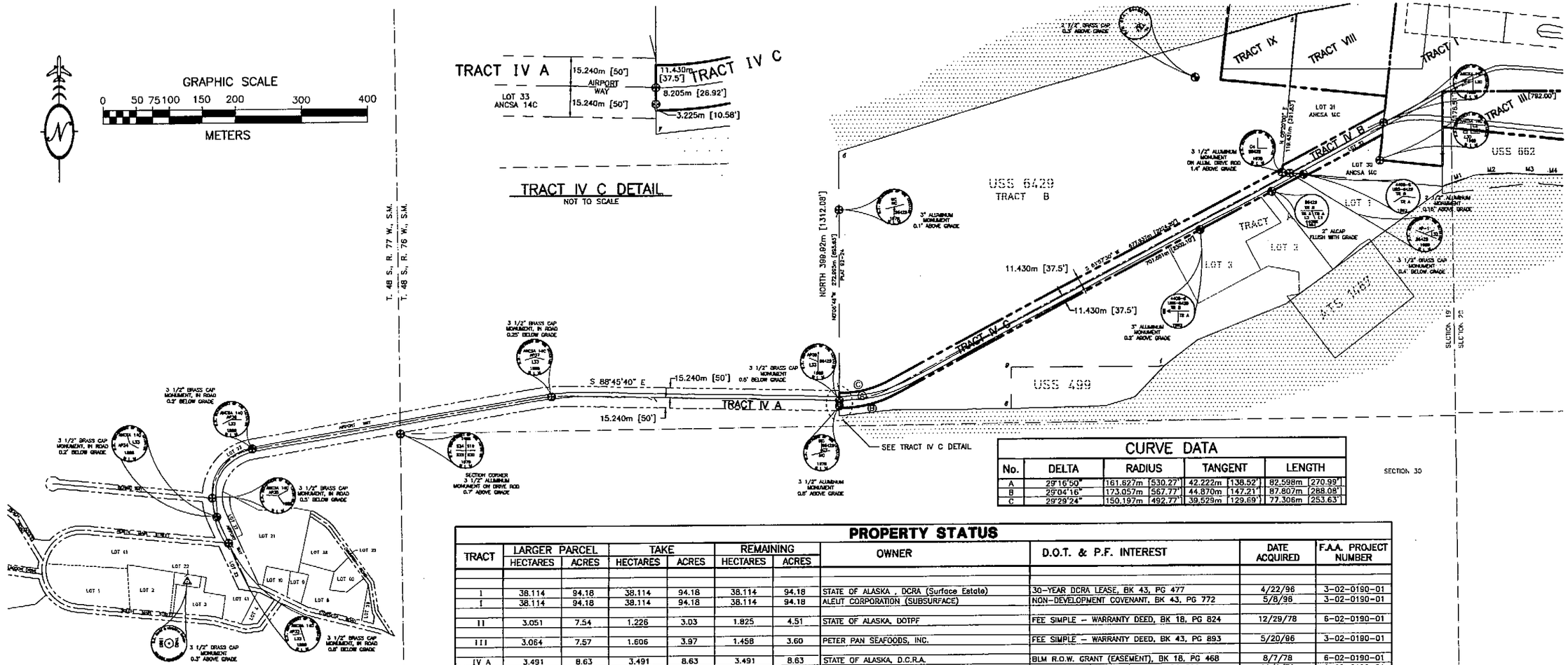
NELSON LAGOON AIRPORT

AIRPORT LAYOUT PLAN

PROPERTY PLAN (SHEET 1 OF 2)

SHEET 7 OF 9

Thu Aug 03 08:53:45 2000



CURVE DATA

No.	DELTA	RADIUS		TANGENT		LENGTH	
A	29°16'50"	161.627m	530.27'	42.222m	138.52'	82.598m	270.99'
B	29°04'16"	173.057m	567.77'	44.870m	147.21'	87.807m	288.08'
C	29°29'24"	150.197m	492.77'	39.529m	129.69'	77.306m	253.63'

PROPERTY STATUS

TRACT	LARGER PARCEL		TAKE		REMAINING		OWNER	D.O.T. & P.F. INTEREST	DATE ACQUIRED	F.A.A. PROJECT NUMBER
	HECTARES	ACRES	HECTARES	ACRES	HECTARES	ACRES				
I	38.114	94.18	38.114	94.18	38.114	94.18	STATE OF ALASKA , DCRA (Surface Estate)	30-YEAR DCRA LEASE, BK 43, PG 477	4/22/96	3-02-0190-01
I	38.114	94.18	38.114	94.18	38.114	94.18	ALEUT CORPORATION (SUBSURFACE)	NON-DEVELOPMENT COVENANT, BK 43, PG 772	5/8/96	3-02-0190-01
II	3.051	7.54	1.226	3.03	1.825	4.51	STATE OF ALASKA, DOTPF	FEE SIMPLE - WARRANTY DEED, BK 18, PG 824	12/29/78	6-02-0190-01
III	3.064	7.57	1.606	3.97	1.458	3.60	PETER PAN SEAFOODS, INC.	FEE SIMPLE - WARRANTY DEED, BK 43, PG 893	5/20/96	3-02-0190-01
IV A	3.491	8.63	3.491	8.63	3.491	8.63	STATE OF ALASKA, D.C.R.A.	BLM R.O.W. GRANT (EASEMENT), BK 18, PG 468	8/7/78	6-02-0190-01
IV A	3.491	8.63	3.491	8.63	3.491	8.63	STATE OF ALASKA, D.C.R.A.	R.O.W. GRANT (EASEMENT), BK 19, PG 328	11/1/79	6-02-0190-01
IV B	0.482	1.19	0.482	1.19	0.482	1.19	STATE OF ALASKA, D.C.R.A.	BLM R.O.W. GRANT (EASEMENT)	8/7/78	6-02-0190-01
IV B	0.482	1.19	0.482	1.19	0.482	1.19	STATE OF ALASKA, D.C.R.A.	ROW GRANT (EASEMENT), BK 43, PG 486	11/1/79	6-02-0190-01
IV C	28.331	70.01	1.756	4.34	28.331	70.01	HEIRS OF PAUL GUNDERSON	ROW GRANT (EASEMENT), BK 44, PG 382, 410	8/23/96	3-02-0190-01
V	LARGE	LARGE	5.246	12.96	LARGE	LARGE	NELSON LAGOON CORPORATION (SURFACE)	FEE SIMPLE-WARRANTY DEED, BK 43, PG 673	5/6/96	3-02-0190-01
V	LARGE	LARGE	5.246	12.96	LARGE	LARGE	ALEUT CORPORATION (SUBSURFACE)	NON-DEVELOPMENT COVENANT, BK 43, PG 772	5/8/96	3-02-0190-01
VI	LARGE	LARGE	8.698	21.49	LARGE	LARGE	STATE OF ALASKA, DNR	I.L.M.A., BK 44, PG 305	8/20/96	3-02-0190-01
VII	LARGE	LARGE	4.534	11.21	LARGE	LARGE	STATE OF ALASKA, DNR	I.L.M.A., BK 44, PG 305	8/20/96	3-02-0190-01
VIII	2.991	7.39	1.961	4.85	1.030	2.54	NELSON LAGOON CORPORATION (SURFACE)	FEE SIMPLE-WARRANTY DEED, BK 43, PG 673	5/6/96	3-02-0190-01
VIII	2.991	7.39	1.961	4.85	1.030	2.54	ALEUT CORPORATION (SUBSURFACE)	NON-DEVELOPMENT COVENANT, BK 43, PG 772	5/8/96	3-02-0190-01
IX	28.331	70.01	0.946	2.34	27.385	67.67	HEIRS OF PAUL GUNDERSON	FEE SIMPLE, BK 44, PG 378-381, 385-409	8/23/96	3-02-0190-01
X	2.943	7.27	0.701	1.73	2.242	5.54	PETER PAN SEAFOODS, INC.	FEE SIMPLE-WARRANTY DEED, BK 43, PG 888	5/20/96	3-02-0190-01

Aleutian Islands Recording District

THIS A.L.P. PROPERTY PLAN SUPERCEDES PROPERTY PLAN DATED 6/14/96

FILE: g:\data\nelsonlagoon\alp\propplan.dwg
DATE: 08/03/00 1=1 v=2 pjh

AIRPORT LAYOUT PLAN CONDITIONAL APPROVAL 8-8-00
SUBJECT TO ALP APPROVAL LETTER DATED
By: DATE: 8-8-00
FAA, AIRPORTS DIVISION
ALASKAN REGION, AAL-600

FAA AIRSPACE REVIEW NUMBER: 96-AAL-072-NRA

BY	DATE	REVISIONS

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES
CENTRAL REGION

APPROVED: STEPHEN M. RYAN, P.E. — DESIGN SECTION CHIEF
APPROVED: JOHN G. WAHL, P.E. — PROJECT MANAGER

DATE 8/3/00
DESIGN
DRAWN
CHECKED

NELSON LAGOON AIRPORT

AIRPORT LAYOUT PLAN

PROPERTY PLAN (SHEET 2 OF 2)

SHEET 8 OF 9

Thu Aug 03 08:53:54 2000

I. Purpose

This Airport Layout Plan Narrative Report is included with the Airport Layout Plan according to Federal Aviation Administration (FAA) Airport Design Advisory Circular 150/5300-13, Appendix 7. Dimensions for future construction items are according to FAA AC 150/5300-13 Change 5. This report presents the rationale for improvements to the Nelson Lagoon Airport.

II. Introduction

This Airport Layout Plan (ALP) supersedes a previous airport layout plan approved by the FAA on August 14, 1979. The reconstruction and extension of the runways prompted the revision of that ALP.

The Nelson Lagoon Airport is located 130 kilometers [70.5 nautical miles] northwest of Cold Bay, Alaska. This community and airport stand on a narrow sand spit on the Bristol Bay coast of the Alaska Peninsula. The Caribou and Sapsuk Rivers flow to Port Moller through the estuary paralleling the spit. An access road links the airport and the village of Nelson Lagoon about 2 kilometers [1.3 miles] to the southeast.

Aircraft provide the only year-round transportation service to Nelson Lagoon. The Bering Sea affords seasonal ocean access, but ice blocks the port estuary during the winter. There are no road links to other communities.

Nelson Lagoon had a permanent population of 83 persons in 1990. Records indicate a 2% average annual population growth rate between 1970 and 1990.

The Alaska Aviation System Plan (AASP) designates this airport as a "Community" class facility. The airports in this class provide primary access to a small rural community of at least 25 permanent residents without reliable alternative year round access.

III. Airport Usage and Forecasts

The Airport Master Record (FAA Form 5010, last revised 8-1-93) reports no data for aircraft operations. Voluntary reports from air carriers list 334 enplanements for 1994. These data may be presumed incorrect due to under-reporting of flights. In responding to a recent survey, air taxi operators stated that there are 6 scheduled flights per week and a summer season average of two charter flights per day to Nelson Lagoon. At least one Cessna 180 aircraft is based at Nelson Lagoon. Fish spotters and other itinerants pass through the area occasionally. Base-year (1995) operations are estimated from these responses. Projections of future aircraft operations (Table 1) are based on the observed 2% per year population growth rate.

Table 1: FORECAST OF FUTURE OPERATIONS

ITEM	1995	2000	2005	2015
Total Annual Operations	1500	1656	1828	2229
Annual Local Operations	100	110	122	149
Annual Itinerant Operations	1400	1546	1706	2080
Annual Enplanements	826	912	1007	1227
Annual Instrument Approaches	0	0	0	0
Annual Operations (current critical aircraft)	*	*	*	*
Annual Operations (future critical aircraft)	*	*	*	*
Annual Scheduled Operations	600	662	731	892
Annual Non-scheduled Operations	900	994	1097	1337

* No data available

IV. Design Rationale

This section discusses the design aircraft, the airport reference code and runway length for effective service by this airplane. Additional subsections discuss and summarize the proposed differences in primary feature dimensions (Table 2). The runway must be widened and lengthened to serve the expected demand for larger, faster airplanes. The existing and proposed separations between runway and other features are identical except for a short segment of the access road which must be realigned.

A. Design Aircraft

Potential design aircraft for future passenger service at this airport fit one of these categories:
1. single engine planes like the Cessna 207
2. twin engine planes like Islander and Piper Navajo
3. twin-turbine craft like Beech 1900 or Swearingen Metro II.

To determine the best choice for design aircraft, air carriers with scheduled flights were asked what airplanes would be serving this area within the planning interval. Their response predicted the current passenger service by single engine aircraft would evolve to light twin turbine aircraft of design group I and II in the near term.

One factor they cited for the future equipment shift is FAR Part 135 regulations. Single engine aircraft operate at a disadvantage under rules requiring twin engine planes for IFR or nighttime conditions. Short winter daylight hours and the prevailing maritime weather patterns frequently produce conditions requiring two engines. The longer distance between airports on the established routes in this region also helps makes the shift to twin turbine aircraft likely.

The twin turbine group includes the Swearingen Metro II and Saab 340 presently in the PenAir fleet. These aircraft operate effectively on 1220-meter [4000-foot] dry runways. The smaller twin turbine aircraft which could be selected for this service operate effectively on 1097- to 1189-meter [3600- to 3900-foot] runways. Selecting the longer runway meets the dry operating minimums for larger aircraft in this group and affords the smaller twin turbine craft a small safety margin for slippery conditions.

Emergency medical evacuation may be needed in small communities without hospitals. To address the facility needed to accommodate air ambulance service, several Anchorage-based operators were asked what aircraft they use. Two firms provide emergency services to this region aboard Cessna 550 Citation and Cessna 441 Conquest. Minimum runway lengths according to their policies are 1220 meters and 915 meters respectively. A third business offers service by Beech King Air 200C and Gates Lear 35. Their King Air operates effectively from 1220 meter-long runways and the Lear requires 1800- to 2000-meter runways.

Air cargo firms have not yet used larger aircraft at this airport. Local government officials expect that the recently completed dock will stimulate a need for more air cargo service. For this reason, they support a runway length of 1200 meters (4000') and the plan to lengthen it to 1372 meters [4500 feet]. Cargo service is not expected to exceed 4 operations per month.

According to FAA AC 150/5325-4A Section 1.2.A, a family or group of airplanes should be selected for the design aircraft when considering airports of this size. The pertinent circumstances in the discussion above support airplane design group B-II as the design aircraft. The following sections apply that choice to the standards proposed for the airport.

B. Airport Reference Code

Features of this airport met dimensional standards for "Basic Utility" airports following construction in 1979. Existing airport features meet current standards for a B-II facility.

The design aircraft warrants the B-II Airport Reference Code for this plan. Features of the proposed near term development accommodate the design aircraft with a runway length of 1220 meters [4000 feet]. Proposed long term development accommodates occasional heavier payloads for cargo aircraft with a 1372-meter [4500-foot] runway.

C. Wind Coverage

There is no wind data available for the Nelson Lagoon area. Cold Bay and Port Heiden are the two closest locations with a record of weather data. Although the topography around these two stations are somewhat different from each other and from Nelson Lagoon, wind data for Cold Bay and Port Heiden are similar enough to indicate that it is reasonable to assume similar conditions for Nelson Lagoon, midway between them.

Allowing a maximum crosswind component of 10.5 knots, runway 08-26 covers 60.1% of a 20-year interval of Cold Bay wind data. For a 13-knot crosswind allowance, this runway covers 71.8% of the same interval.

While this analysis demonstrates that coverage for both 10.5-knot and 13-knot crosswinds falls below desirable values, there are few options available to improve the coverage. The narrow shape of the peninsula limits crosswind runway alignments to bearings within a few degrees of the existing runway. Improvements constructed into waters of Bristol Bay or Nelson Lagoon would cost more to construct and would remain at greater risk of storm damage than those built on the uplands. Widening and lengthening the existing runway better serves the needs expressed by the community than improving the wind coverage.

D. Runway

The existing runway surface is 23 meters [75 ft] wide by 1220 meters [4000 ft] in length. Runway consists of a sand embankment with a 230 mm [9-inch] gravel surface. Safety area dimensions are 45 meters [150 ft] wide by 1400 meters [4600 ft]. The safety area extends 90 meters [300 ft] beyond each runway end. Medium intensity lighting is installed on both the runway and taxiway. Mid-term construction will lengthen the runway to 1370 meters [4500 feet] and lengthen the safety area to 1550 meters [5100 feet]. Long-term development will pave the runway. Paving will reduce maintenance costs since all gravel must be barged to the site.

E. Taxiway

The existing exit taxiway connects the runway to the apron at an intersection 198 meters east of 08 threshold. Existing taxiway dimensions are 9.1 meters (30 ft) wide and 50 meters (165 ft) in length. Near term development will provide a 10.5 meter (35 ft) wide taxiway. Taxiway safety area width will be expanded to 24 meters (79 ft). The proposed dimensions match Airplane Design Group II standards.

F. Aircraft Parking Area

The existing apron was built 60 meters [197 feet] wide by 185 meters [607 feet] in length with a 220 mm [9-inch] gravel surface. The distance from the runway centerline to the near edge of the apron is 75 meters [250 feet]. Future apron expansion to 60 meters [197 feet] wide and 245 meters [804 feet] in length for an area of 14,700 square meters [158,229 square feet]. This aircraft parking area will meet the guidelines of the Alaska Aviation Systems Plan for community class airports. The apron area includes aircraft support area measuring 30 meters [98 feet] by 90 meters [295 feet] expanding to 30 meters [98 feet] by 150 meters [492 feet] for a total aircraft support area of 4,500 square meters [48,437 square feet]. Four aircraft tie-downs are on the apron.

Buildings within aircraft support areas will be limted to 5 meters [16 feet] vertical at the building restriction line increasing to 9 meters [29 feet] vertical at the back edge of the aircraft support area.

G. Access Road

An access road about 2 kilometers (1.2 miles) long connects the airport to the Nelson Lagoon community. A portion of this road presently lies within the runway object free area. Realignment of about a half a kilometer (1640 feet) section of this access road will remove it from the object free area. This places vehicle access to the back edge of the apron and aviation support area and away from aircraft operations.

H. Nelson Lagoon Landfill Site

The existing landfill lies west of Nelson Lagoon about 2 kilometers. A total of about 4 km (2.5 miles) separate the landfill from the airport. The existing separation exceeds the 1524-meter (5000-foot) minimum required for separation from piston-engine aircraft and the 3048-meter (10,000-foot) minimum required for future turbine-powered aircraft.

I. Dimension summary

Table 2: Nelson Lagoon Airport Design Standards
Runway 08/26

Airport Feature	Existing* m	Existing* FEET	Standard m	Standard FEET	Future m	Future FEET
Runway Length	1220	4000	1220	4000	1370	4500
Runway Width	23	75	23	75	23	75
Runway Safety Area Width	45	150	45	150	45	150
Runway Safety Area Length Beyond Runway Ends	90	300	90	300	90	300
Runway Object Free Area Width	150	500	150	500	150	500
Taxiway Width	10.5	35	10.5	35	10.5	35
Taxiway Safety Area Width	24	79	24	79	24	79
Taxiway Object Free Area Width	40	131	40	131	40	131
Runway Centerline to edge of Aircraft Parking	75	250	75	250	75	250
RPZ Length	300	1000	300	1000	300	1000
RPZ Inner Width	75	250	150	500	150	500
RPZ Outer Width	210	700	210	700	210	700
Approach Slope Angle	34:1	34:1	34:1	34:1	34:1	34:1

* Dimensions for existing and proposed features differ slightly due to differences between conventions for SI and US customary units.

V. Staged Development

Development of the Nelson Lagoon Airport will be accomplished in phases of near-term (0-5 years), mid-term (6-10 years), and long-term (11-20 years).

A. Near-Term (0-5 years) Development

The runway was recently reconstructed. No near-term projects are planned.

B. Mid-Term (6-10 years) Development

Mid-term development will include a runway extension, apron expansion, and installation of a precision approach path indicating (PAPI) system.

Mid-Term Work Elements

1. Extend the runway from 1220 to 1370 meters. Extend safety area embankment from 1400 to 1550 meters.
2. Expand aviation support area subgrade according to demand.
3. Regrade and surface the runway, taxiway, and apron area.
4. Install PAPI navigation aid.

C. Long-Term (11-20 years) Development

Long-term development will consist of resurfacing and regrading the runway, taxiway, and apron. Asphalt surfacing for the runway may be used if funding allows.

VI. Property Status

Nelson Lagoon Airport is currently situated on a 38.11 hectare (94.18 acre) tract of land. The State of Alaska holds a lease on this property through November 15, 1998. A new property plan adds tracts to the airport to include the proposed expansions. The State of Alaska will acquire the interests necessary to enclose the airport as planned.

VII. Community Involvement

The residents of the village of Nelson Lagoon have been informed of the planned development by the Alaska DOTPF. Meetings were held to obtain comments and input from the local residents. The completion of this project requires an Environmental Assessment which provides opportunities for community input. Letters and comments from residents and local government officials remain filed with DOTPF, Central Region offices.

VIII. Non-Standard Conditions

This airport fully complies with applicable standards.

IX. Encroachments into Part 77 Surface

This airport fully complies with applicable standards.

THIS A.L.P. SET SUPERCEDES A.L.P. SET DATED 6/14/96

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AIRPORT LAYOUT PLAN CONDITIONAL APPROVAL SUBJECT TO ALP APPROVAL LETTER DATED 8-8-00
By: [signature] DATE: 8-8-00
FAA, AIRPORTS DIVISION
ALASKAN REGION, AAL-600

FAA AIRSPACE REVIEW NUMBER: 96-AAL-072-NRA

BY	DATE	REVISIONS

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES
CENTRAL REGION

APPROVED: [signature] STEPHEN M. RYAN, P.E. DESIGN SECTION CHIEF
APPROVED: [signature] JOHN G. WAHL, P.E. PROJECT MANAGER

DATE 8/3/00
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NELSON LAGOON AIRPORT

AIRPORT LAYOUT PLAN

NARRATIVE REPORT

SHEET 9 OF 9

Thu Aug 03 08:49:20 2000