Appendix V:
Airport Plans and Construction

APPENDIX V AIRPORT PLANS AND CONSTRUCTION

AIRPORT LAYOUT PLAN

This Appendix represents the compilation of the conceptual development for the Ravalli County Airport. It includes the design criteria, preliminary cost estimate, and then proceeds to the actual airport drawings. The Purpose and Need section defines the reasoning behind important features of the Airport Layout Plan (ALP).

The ALP drawings are the graphic representation, to scale, of the existing and preferred alternative, airport facilities located on the airport, and pertinent clearance and dimensional information necessary to show compliance with the applicable design standards. This package includes the following drawings:

- Airport Layout Plan
- Airport Air Space
- Airport Approach/Runway Protection Zone
- Future Terminal and Hangar Configuration
- Land Use Plan
- Airport Property Map – Exhibit "A"

The Ravalli County Airport ALP depicts the existing facilities as well as those facilities recommended to accommodate the forecast demand.

The ALP also contains an all-weather wind rose, runway data tables, infrastructure inventory legend, and approval box.

The proposed improvements are shown on the ALP. The forecasted usage of the Airport by the critical design aircraft indicated a need to increase the separation between the runway and taxiway to provide additional clearances.

The proposed changes to the airfield are shown on the ALP and have been time-staged to conform to two planning periods.

- Initial Development, 2009-2017
- Remaining Development, 2018-2030

Within these two planning periods, is a series of phases/priorities of improvements. The purpose of the ALP is to clearly identify existing and proposed facilities and/or development.

TABLE V-1: Airport Design Airplane and Airport Data

Item	Criteria
AIRCRAFT APPROACH CATEGORY	B
AIRPLANE DESIGN GROUP	II (>12,500 pounds)
Airplane wingspan	78.99 feet
Primary runway end is non-precision instrument	> 1-statute mile
Other runway end is	visual
Airplane undercarriage width (1.15 x main gear track)	19.17 feet
AIRPORT AND RUNWAY DATA	
Airport elevation	3644 feet
Mean daily maximum temperature of the hottest month	84.00 F.
Maximum difference in runway centerline elevation	38 feet
Length of haul for airplanes of more than 60,000 pounds	500 miles
Wet and slippery runways	
RUNWAY LENGTHS RECOMMENDED FOR AIRPORT DESIGN	
Small airplanes with approach speeds of less than 30 knots	410 feet
Small airplanes with approach speeds of less than 50 knots	1090 feet
Small airplanes with less than 10 passenger seats	
75 percent of these small airplanes	3770 feet
95 percent of these small airplanes	4800 feet
100 percent of these small airplanes	5170 feet
Small airplanes with 10 or more passenger seats	5170 feet
Large airplanes of 60,000 pounds or less	
75 percent of these large airplanes at 60 percent useful load	6190 feet
75 percent of these large airplanes at 90 percent useful load	8800 feet
100 percent of these large airplanes at 60 percent useful load	7680 feet
100 percent of these large airplanes at 90 percent useful load	9490 feet
Airplanes of more than 60,000 pounds	Approximately 6290 feet

REFERENCE: Chapter 2 of AC 150/5325-4B, Runway Length Requirements for Airport Design, no Changes included.

RUNWAY AND TAXIWAY WIDTH AND CLEARANCE STANDARD DIMENSIONS

Runway centerline to parallel taxiway/taxilane centerline .....240 feet
Runway centerline to edge of aircraft parking.....250 feet
Taxiway centerline to parallel taxiway/taxilane centerline.....105 feet
Taxiway centerline to fixed or movable object ....65.5 feet
Taxiway centerline to parallel taxilane centerline.....97 feet
Taxilane centerline to fixed or movable object.....57.5 feet

Runway protection zone at the primary runway end:

Length ..... 1000 feet
Width 200 feet from runway end..... 500 feet
Width 1200 feet from runway end..... 700 feet

Runway protection zone at other runway end:

Length .....1000 feet
Width 200 feet from runway end.....500 feet
Width 1200 feet from runway end.....700 feet

Runway obstacle free zone (OFZ) width..... ..... 400 feet
Runway obstacle free zone length beyond each runway end ..... 200 feet
Runway width ..... 75 feet
Runway shoulder width..... 10 feet
Runway safety area width.....150 feet
Runway safety area length beyond each runway end or stopway end, whichever is greater ..... 300 feet
Runway object free area width.....500 feet
Runway object free area length beyond each runway end or stopway end, whichever is greater ..... 300 feet
Taxiway width ....35 feet
Taxiway edge safety margin .....7.5 feet
Taxiway shoulder width.....10 feet
Taxiway safety area width..... .....79 feet
Taxiway object free area width ....131 feet
Taxilane object free area width .....115 feet
Taxiway wingtip clearance.....26 feet
Taxilane wingtip clearance.....18 feet

REFERENCE: AC 150/5300-13, AIRPORT DESIGN.

Should an aircraft exceeding 17,000 lbs. maximum takeoff weight be based at Ravalli County Airport, pavement strength should be evaluated and strengthening of the pavement sections may be required. The types of aircraft and number of operations should be monitored by the Airport Manager and Airport Board. As indicated above, changes in the design aircraft will result in increased development of the airport facilities.

STAGE DEVELOPMENT

The recommended projects to be constructed each year are as indicated below. Costs are determined using 2007 construction costs without any adjustments for inflation. Unless noted otherwise, proposed projects listed below are eligible for FAA funding at the time the ALP Narrative Report was submitted. Please note that, although the projects listed below are currently eligible for FAA funding, there is no guarantee that FAA funds will be available or that FAA will participate in the cost of any future developments.

TABLE V-2: Development & Cost Breakdown

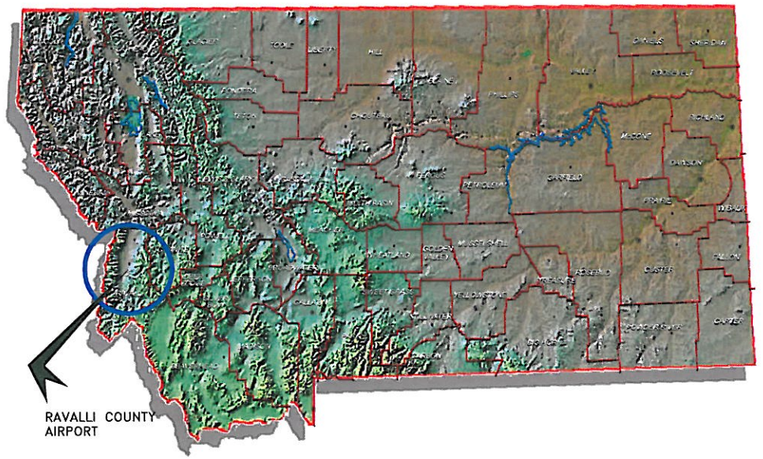
Initial Development (2009-2017)

Land Acquisition (Parcel 12 and a portion of Parcel 10) 132.0 Acres	$3,316,685
Land Acquisition (compatible land use) 96.0 Acres	$1,514,463
Build New Taxilanes on South End and Repair Parallel Taxiway	$ 532,741
Construct Relocated Runway 16-34 (5,200' x 75') and Safety Area Grading	$3,241,350
Construct Ladders "A1" and "A4"	$ 214,160
New Runway Lighting	$ 233,262
Relocate PAPI	$ 16,000
Parallel Taxiway "A" Lighting Improvements	$ 115,763
INITIAL DEVELOPMENT (2009-2017)	$9,184,424

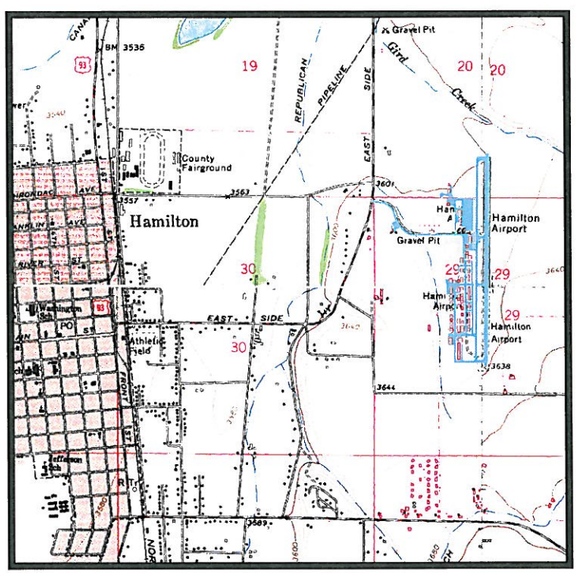
Remaining Development (2018-2030)

North Apron Reconstruction	$1,805,895
Taxiway "B" Reconstruction – North	$ 237,313
Animal Control Perimeter Fence, 19,500 L.F.	$ 454,368
Taxiway "B" Reconstruction – South	$ 625,118
Interior and South Apron Reconstruction	$1,290,752
Parallel Taxiway Extension and Ladder "A"	$ 752,456
Overlay Parallel Taxiway "A"	$ 371,598
Construct Ladders "A2" and "A3"	$ 219,949
Construct Taxiways "A3," Section 1 of "D," Misc Taxiway	$ 453,789
Access Road Improvements	$ 52,093
Misc. Taxilane Construction	$ 347,288
Fog Seal All Pavement Except Aprons	$ 23,153
Taxilane Construction	$ 694,575
Crack Seal All Pavement	$ 69,458
Overlay Runway 16-34 – PFC	$ 173,644
Overlay Aprons	$ 382,016
REMAINING DEVELOPMENT (2018-2030)	$7,970,829

TOTAL PROJECT COST 2009-2030	**$17,155,253**



LOCATION MAP



VICINITY MAP

RAVALLI COUNTY AIRPORT
AIRPORT LAYOUT PLANS

A.I.P. 3-30-0037-006-2005

PREPARED BY:

MORRISON MAIERLE, INC
An Employee-Owned Company

INDEX OF SHEETS

1/8	TITLE SHEET
2/8	AIRPORT LAYOUT PLAN
3/8	AIRSPACE DRAWING
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5/8	TERMINAL AREA PLAN
6/8	TERMINAL AREA PLAN
7/8	LAND USE
8/8	AIRPORT PROPERTY MAP – EXHIBIT 'A'

VERIFY SCALE!
THESE PRINTS MAY BE REDUCED. USE THE LINE BELOW MEASURE ONE INCH ON ORIGINAL DRAWING.
MODIFY SCALE ACCORDINGLY!

MONTANA PROFESSIONAL ENGINEER
SCOTT T. BELL
8123 PE
REGISTERED

REVISIONS

NO.	DESCRIPTION	DATE	BY
1	SRE AND TAXIWAY	11/06	KMD

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Q.A. REVIEW
BY:
DATE:

RAVALLI COUNTY AIRPORT
AIRPORT LAYOUT PLAN
HAMILTON MONTANA
TITLE SHEET

PROJECT NO. 0877
SHEET NUMBER 1 OF 8
DRAWING NUMBER 1

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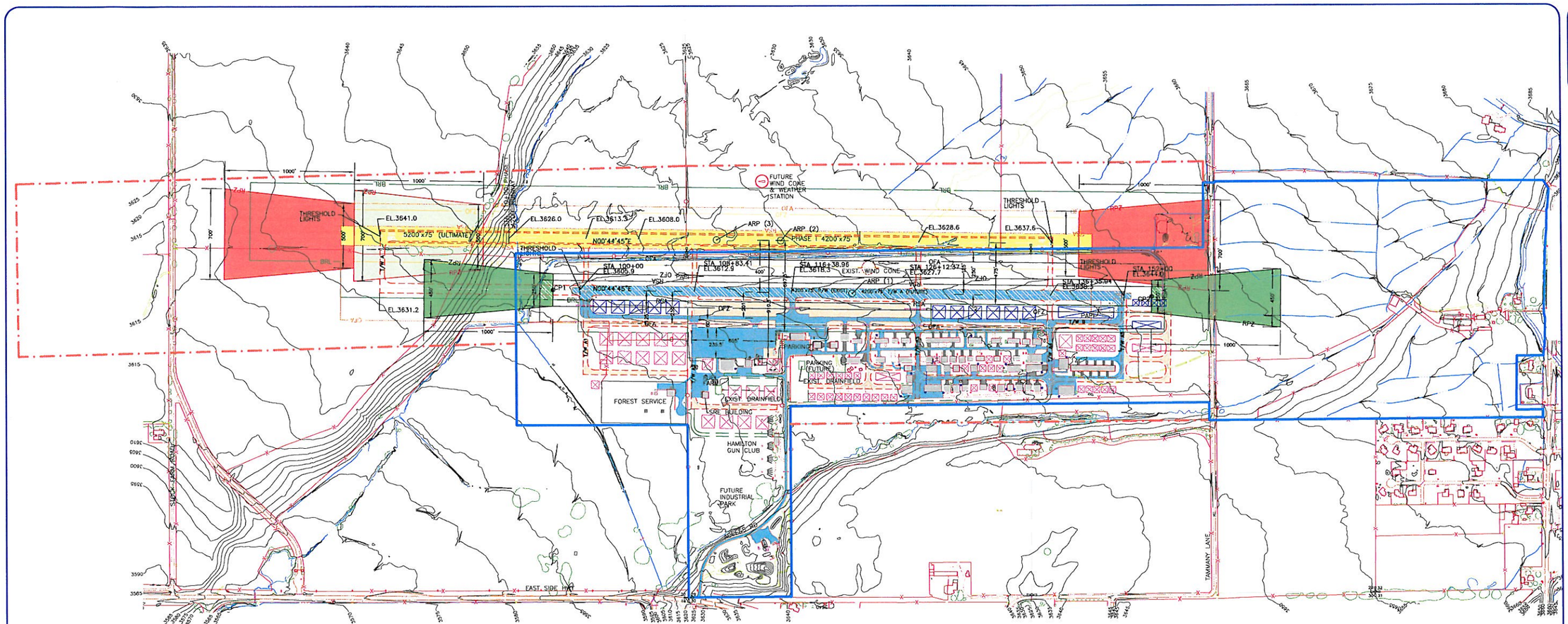
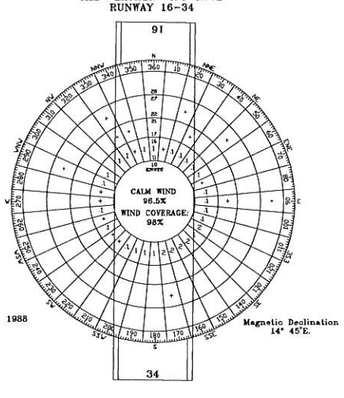


NOTE:
1. Noise contour data obtained in 2004.
2. All Weather Wind Rose per Carter-Burgess ALP 3-30-0037-03

RAVALLI COUNTY AIRPORT
ALL WEATHER WIND ROSE
RUNWAY 16-34



THRESHOLD SITING SURFACE PENETRATIONS	
DESCRIPTION	DISPOSITION
NONE	

MODIFICATIONS TO FAA STANDARDS		
DESCRIPTION	DATE	BY:
NONE		

OBSTRUCTION TABLE	
DESCRIPTION	DISPOSITION
NOTE: SEE AIRSPACE AND RPZ DRAWINGS FOR FURTHER DETAILS	

11/2006

GRAPHIC SCALE
(IN FEET)
1 inch = 400 ft.
CONTOUR INTERVAL – 5'

LEGEND	EXISTING	FUTURE
PAVEMENT		
BUILDING		
BUILDING AFTER RW RELOCATION		
FENCE		
GRAVEL		
AIRPORT BOUNDARY		
ADJACENT PROPERTY		
OFA (OBJECT FREE AREA)	OFA	OFA
OFZ (OBSTACLE FREE ZONE)	OFZ	OFZ
RPZ (RUNWAY PROTECTION ZONE)	RPZ	RPZ
RSA (RUNWAY SAFETY AREA)	RSA	RSA
BRL (BUILDING RESTRICTION LINE)	BRL	BRL
IRRIGATION DITCH / CREEKS		
WETLANDS		
CONTROL POINT	CP	
AIRPORT REFERENCE POINT		

EXISTING NON-STANDARD CONDITIONS							
ITEM	AIRPLANE DESIGN GROUP		STANDARD		NON-STANDARD CONDITION		REMARKS
	EXISTING	ULTIMATE	EXISTING	ULTIMATE	EXISTING	ULTIMATE	
RUNWAY-TAXIWAY SEPARATION	B-II	B-II	≥ 240'	≥ 204'	200'	NONE	TO BE RESOLVED BY SHIFTING THE RUNWAY TO THE EAST.

RUNWAY DATA	RUNWAY 16/34		
	EXISTING	PHASE I	ULTIMATE
EFFECTIVE / PRECENT GRADIENT IN %	0.91	0.70/1.30	0.63/1.30
RUNWAY (LENGTH / WIDTH)	4200' X 75'	4200' X 75'	5200' X 75'
USABLE RUNWAY LENGTH	4200'	4200'	5200'
APPROACH SURFACE (SLOPE)	20:1 / 20:1	34:1 / 34:1	34:1 / 34:1
INSTRUMENT RUNWAY / CATEGORY	VISUAL	NPI	NPI
MAXIMUM ELEVATION ABOVE MSL	3644.1	3638.0	3641.0
PAVEMENT DESIGN STRENGTH (ASPHALT)	17,000# SWL	17,000# SWL	17,000# SWL
RUNWAY LIGHTING	MIRL	MIRL	MIRL
RUNWAY MARKING	BASIC	NPI	NPI
VISUAL AIDS	VASI	PAPI-R/W 16 & 34	PAPI-R/W 16 & 34
RUNWAY SAFETY AREA (RSA) (L/W)	4800' X 150'	4800' X 150'	5800' X 150'
OBJECT FREE AREA (OFA) (L/W)	4800' X 500'	4800' X 500'	5800' X 500'
OBSTACLE FREE ZONE (OFZ) (L/W)	4600' X 250'	4600' X 400'	5600' X 400'
RUNWAY PROTECTION ZONE (RPZ) (L/W)	250'X450'X1000'	500'X700'X1000'	500'X700'X1000'
APPROACH VISABILITY MIN.	VISUAL 3 MI.	NOT < 1 MI.	NOT < 1 MI.
AIRCRAFT SERVED AIRPORT REFERENCE CODE	A & B B-II	A & B B-II	A, B, & C B-II

RUNWAY END COORDINATES (NAD 83)			
RUNWAY	EXISTING	PHASE 1	ULTIMATE
16	LAT 46°15'26.1" LONG. 114°07'31.6"	LAT 46°15'31.5" LONG. 114°07'25.8'	LAT 46°15'41.4" LONG. 114°07'26.0'
34	LAT 46°14'44.7" LONG. 114°07'32.3"	LAT 46°14'50.1" LONG. 114°07'26.6"	LAT 46°14'50.1" LONG. 114°07'26.6"

ARP COORDINATES		
ARP #	COORDINATES	TYPE
1	LAT 46°15'05.4" LONG. 114°07'32.0"	EXISTING RUNWAY
2	LAT 46°15'10.8" LONG. 114°07'26.2"	PHASE I RUNWAY
3	LAT 46°15'15.7" LONG. 114°07'26.1"	ULTIMATE RUNWAY

AIRPORT DATA		
	EXISTING	ULTIMATE
AIRPORT ELEVATION	3644.1 (NAVD 88)	3641.0 (NAVD 88)
ARP COORDINATES (NAD 83)	LAT 46°15'05.4" LONG. 114°07'32.0"	LAT 46°15'10.8" LONG. 114°07'26.2"
MEAN MAX TEMP	84° F	84° F
NPIAS ROLE	GENERAL AVIATION	GENERAL AVIATION
AIRPORT REFERENCE CODE (ARC)	B-II	B-II
WIND COVERAGE 12 MPH	98%	98%
DESIGN AIRCRAFT / AIRPORT REFERENCE CODE	CATEGORY B GROUP II	CATEGORY B GROUP II

CONTROL POINTS				
NAME	NORTHING	EASTING	ELEVATION	DESCRIPTION
CP1	24,670.57	40,837.82	3603.7	REBAR w/ CAP 200' NORTH OF R/W 16
CP2	20,051.09	40,777.68	3643.5	REBAR w/ CAP 200' SOUTH OF R/W 34.

TAXIWAY DATA	T/W A		T/W B		T/W A1	T/W A2	T/W A3	T/W A4	T/W A5
	EXISTING	ULTIMATE	EXISTING	ULTIMATE	ULTIMATE	ULTIMATE	ULTIMATE	ULTIMATE	ULTIMATE
WIDTH	R/W 16-34	50'	30'	35'	35'	35'	35'	35'	35'
T/W DESIGN GROUP	R/W 16-34	B-II	B-II SMALL	B-II	B-II	B-II	B-II	B-II	B-II
PAVEMENT STRENGTH	R/W 16-34	17K SWL	17K SWL	17K SWL	17K SWL	17K SWL	17K SWL	17K SWL	17K SWL

NOTE:
PARALLEL TAXIWAY SYSTEM TAXIWAYS ARE LIGHTED WITH MEDIUM INTENSITY LIGHTS.

CONDITIONALLY APPROVED
Subject to comments of our letter dated 4/26/07

4-20-07
Airports District Office — Date
Federal Aviation Administration
Airspace Approval Date 3-12-03
Airspace Case No. 2003-ANM-54-NRA

SPONSOR APPROVAL
RAVALLI COUNTY AIRPORT
4-16-07
RAVALLI COUNTY COMMISSION — DATE

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MONTANA REGISTERED PROFESSIONAL ENGINEER
SCOTT T. BELL
8123 PE

REVISIONS				
NO.	DESCRIPTION	DATE	BY	
1	SRE AND TAXIWAY	11/06	KMD	

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SINCE 1945

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CHK'D. BY: TJE
APPR. BY: STB
DATE: 11-06
Q.A. REVIEW
BY:
DATE:

RAVALLI COUNTY AIRPORT
AIRPORT LAYOUT PLAN
HAMILTON MONTANA
AIRPORT LAYOUT PLAN

PROJECT NO
0877
SHEET NUMBER
2 OF 8
DRAWING NUMBER
2

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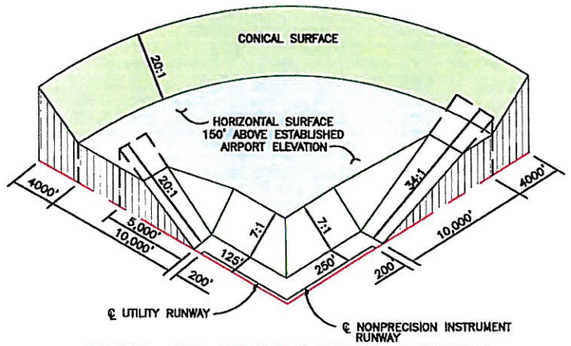
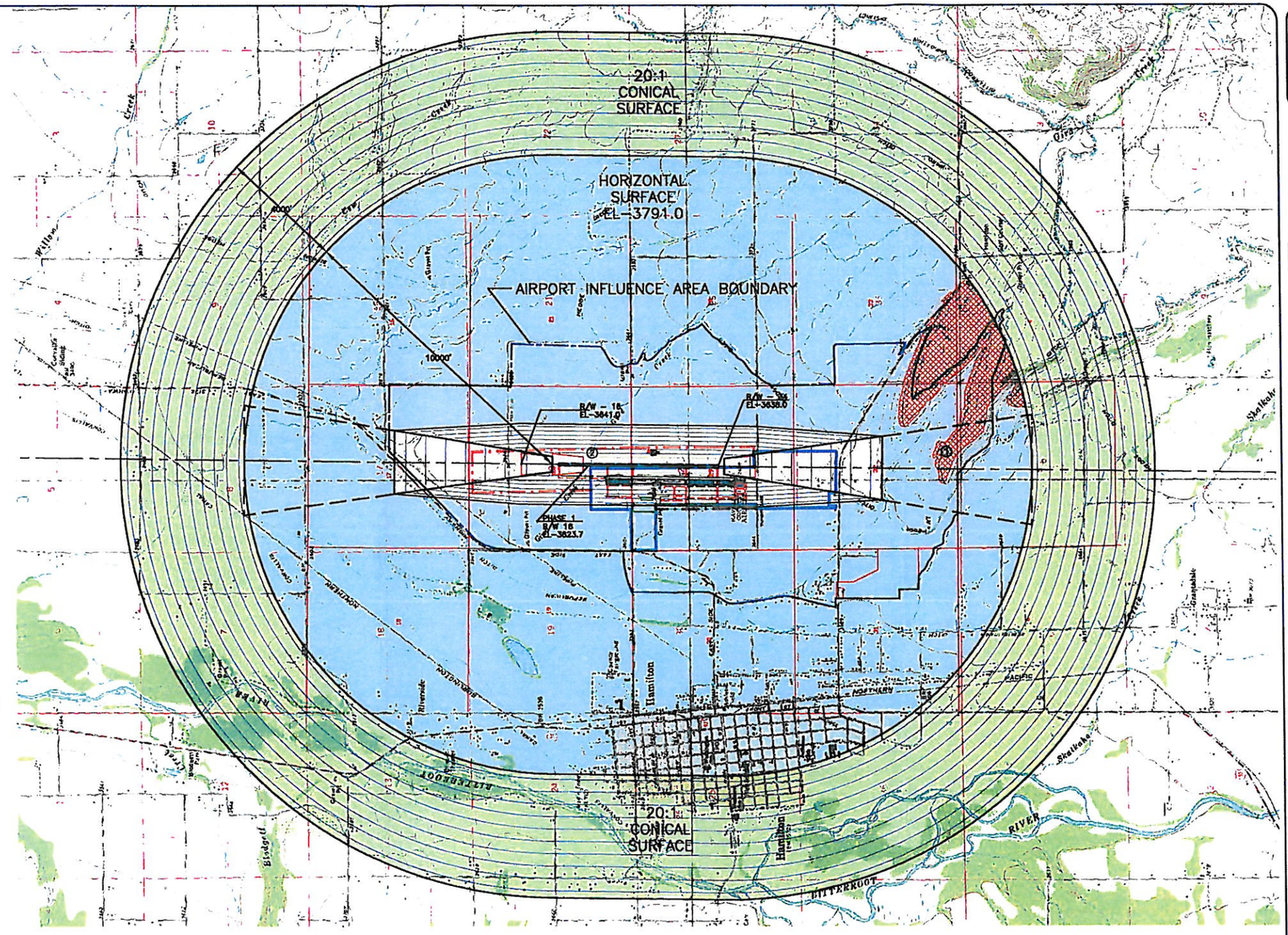


TYPICAL CIVIL AIRPORT IMAGINARY SURFACES



LEGEND

PRIMARY SURFACE

7:1 TRANSITION SURFACE

34:1 APPROACH SURFACE (BELOW HORIZONTAL SURFACE)

34:1 APPROACH SURFACE (ABOVE HORIZONTAL SURFACE)

HORIZONTAL SURFACE

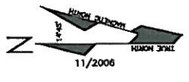
20:1 CONICAL SURFACE

AIRPORT BOUNDARY

FUTURE AIRPORT BOUNDARY

AIRPORT INFLUENCE AREA BOUNDARY
(CURRENTLY UNDER REVIEW FOR HEIGHT, SLOPE & NOISE.)

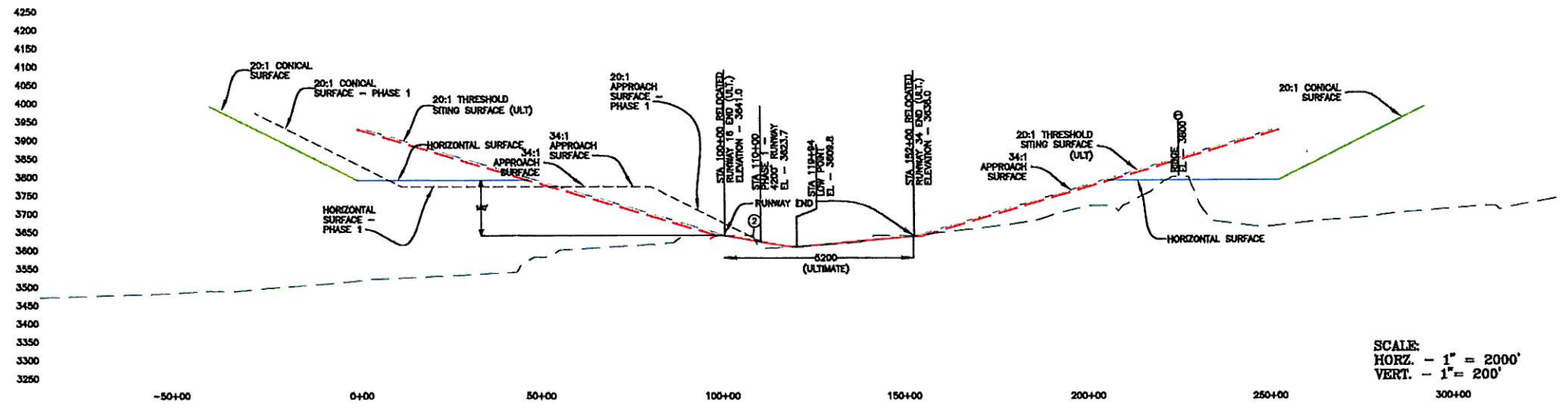
OBSTRUCTION



GRAPHIC SCALE
(IN FEET)
1 inch = 2000ft.

OBSTRUCTION TABLE		
	DESCRIPTION	DISPOSITION
1	TERRAIN (ULTIMATE PART 77)	NO ACTION
2	TERRAIN (ULTIMATE PART 77)	REMOVE WITH FUTURE PROJECT
NOTE: SEE ALSO INNER APPROACH DRAWING		

NOTE:
1. OBSTRUCTION TABLE BASED ON EXISTING RUNWAY AS A VISUAL RUNWAY NUMEROUS OBSTRUCTIONS IF EXISTING RUNWAY UPGRADED TO NPI.
2. EXISTING RUNWAY AND APPROACH SURFACES NOT SHOWN FOR CLARITY. SEE INNER APPROACH DRAWING FOR DETAILS.



SCALE:
HORZ. - 1" = 2000'
VERT. - 1" = 200'

VERIFY SCALE!
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MODIFY SCALE ACCORDINGLY!

MONTANA PROFESSIONAL ENGINEER
SCOTT T. BELL
8123 PE
REGISTERED

REVISIONS			
NO.	DESCRIPTION	DATE	BY
1	SRE AND TAXIWAY	11/06	KMD

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DATE: 11-06
Q.A. REVIEW
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DATE:

RAVALLI COUNTY AIRPORT
AIRPORT LAYOUT PLAN
HAMILTON MONTANA

AIRSPACE DRAWING
RELOCATED RUNWAY 16 - 34

PROJECT NO.
0877
SHEET NUMBER
3 OF 8
DRAWING NUMBER
3

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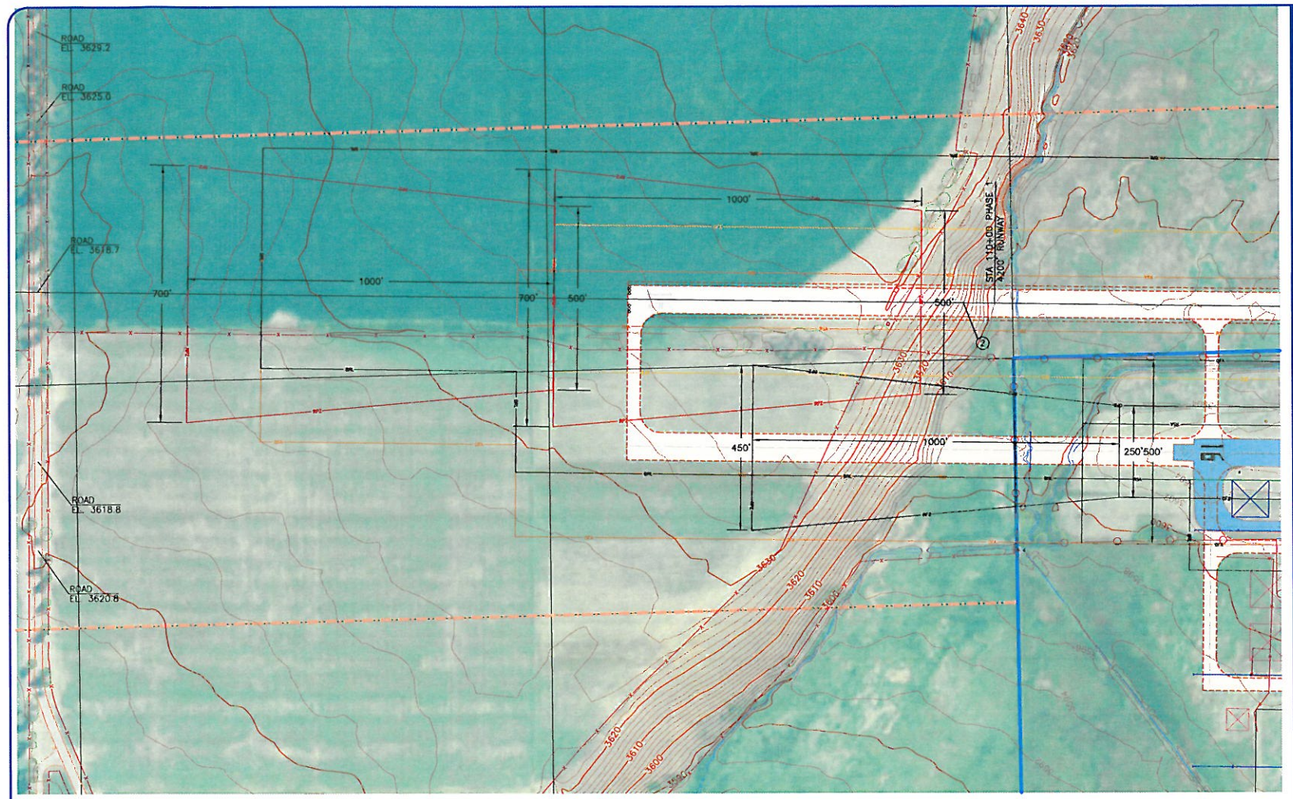
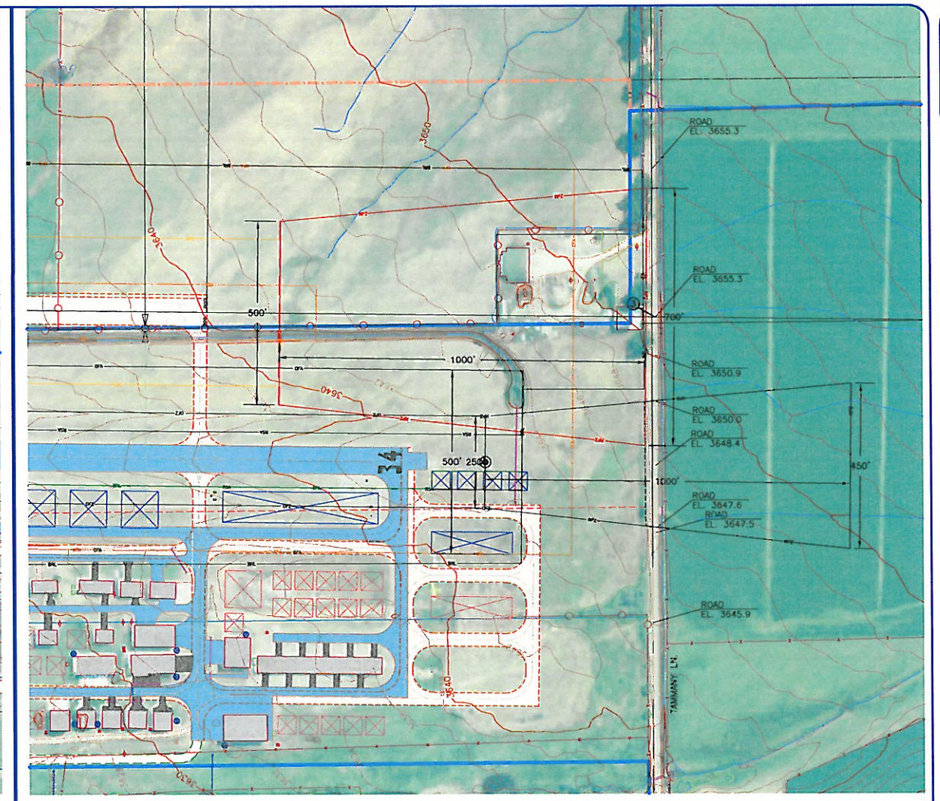




11/2006

GRAPHIC SCALE

(IN FEET)

1 inch = 200 ft.

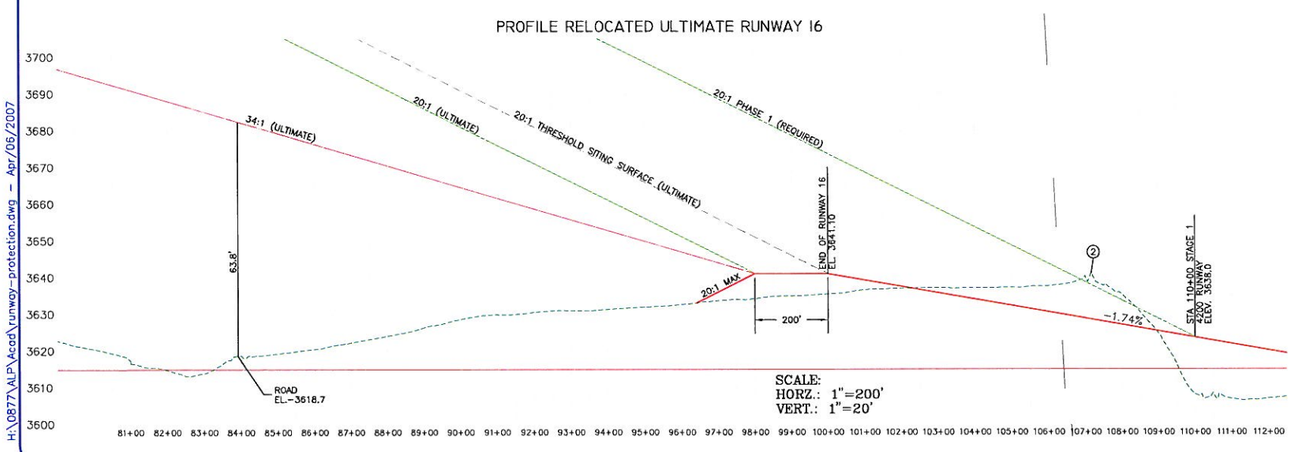
OBSTRUCTION TABLE

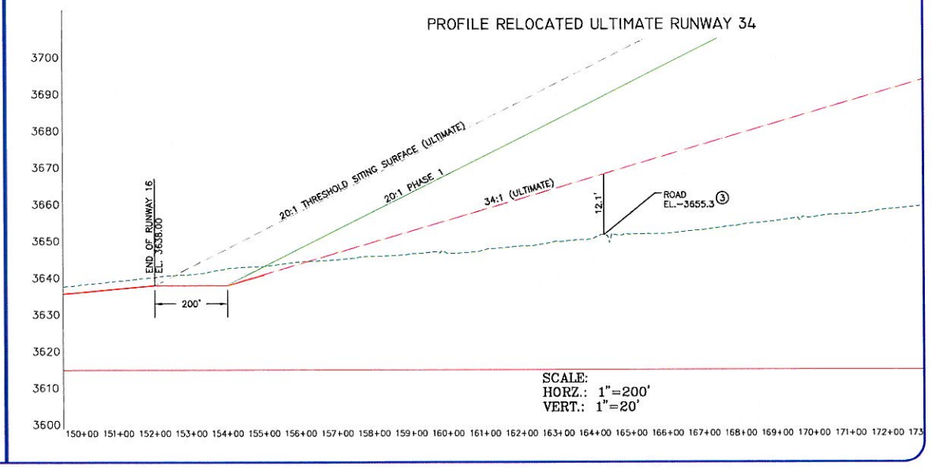
OBSTRUCTION NUMBER	DESCRIPTION	AMOUNT OF PENETRATION	PROPOSED DISPOSITION
2	EXISTING GROUND	12.6'	REMOVE WITH FUTURE PROJECT
3	ROAD SOUTH OF RW 34 AT +15' IS OBSTRUCTION AT ULTIMATE.	2.9'	RELOCATE/ RECONSTRUCT

NOTE:
OBSTRUCTION TABLE BASED ON ULTIMATE RUNWAY. EXISTING GROUND AT APPROACH ENDS OF THE ULTIMATE RUNWAY TO BE ADDRESSED DURING THAT CONSTRUCTION.

LEGEND

	EXISTING	FUTURE
PAVEMENT		
BUILDING		
BUILDING AFTER RW RELOCATION		
FENCE		
GRAVEL		
AIRPORT BOUNDARY		
ADJACENT PROPERTY		
OFA (OBJECT FREE AREA)	OFA	OFA
OFZ (OBSTACLE FREE ZONE)	OFZ	OFZ
RPZ (RUNWAY PROTECTION ZONE)	RPZ	RPZ
RSA (RUNWAY SAFETY AREA)	RSA	RSA
BRL (BUILDING RESTRICTION LINE)	BRL	BRL
IRRIGATION DITCH / CREEKS		
WETLANDS		
CONTROL POINT	CP	
AIRPORT REFERENCE POINT		





11/2006

GRAPHIC SCALE

(IN FEET)

1 inch = 200 ft.

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MODIFY SCALE ACCORDINGLY!

MONTANA SCOTT T. BELL 8123 PE PROFESSIONAL ENGINEER

REVISIONS			
NO	DESCRIPTION	DATE	BY
1	SRE AND TAXIWAY	11/06	KMD

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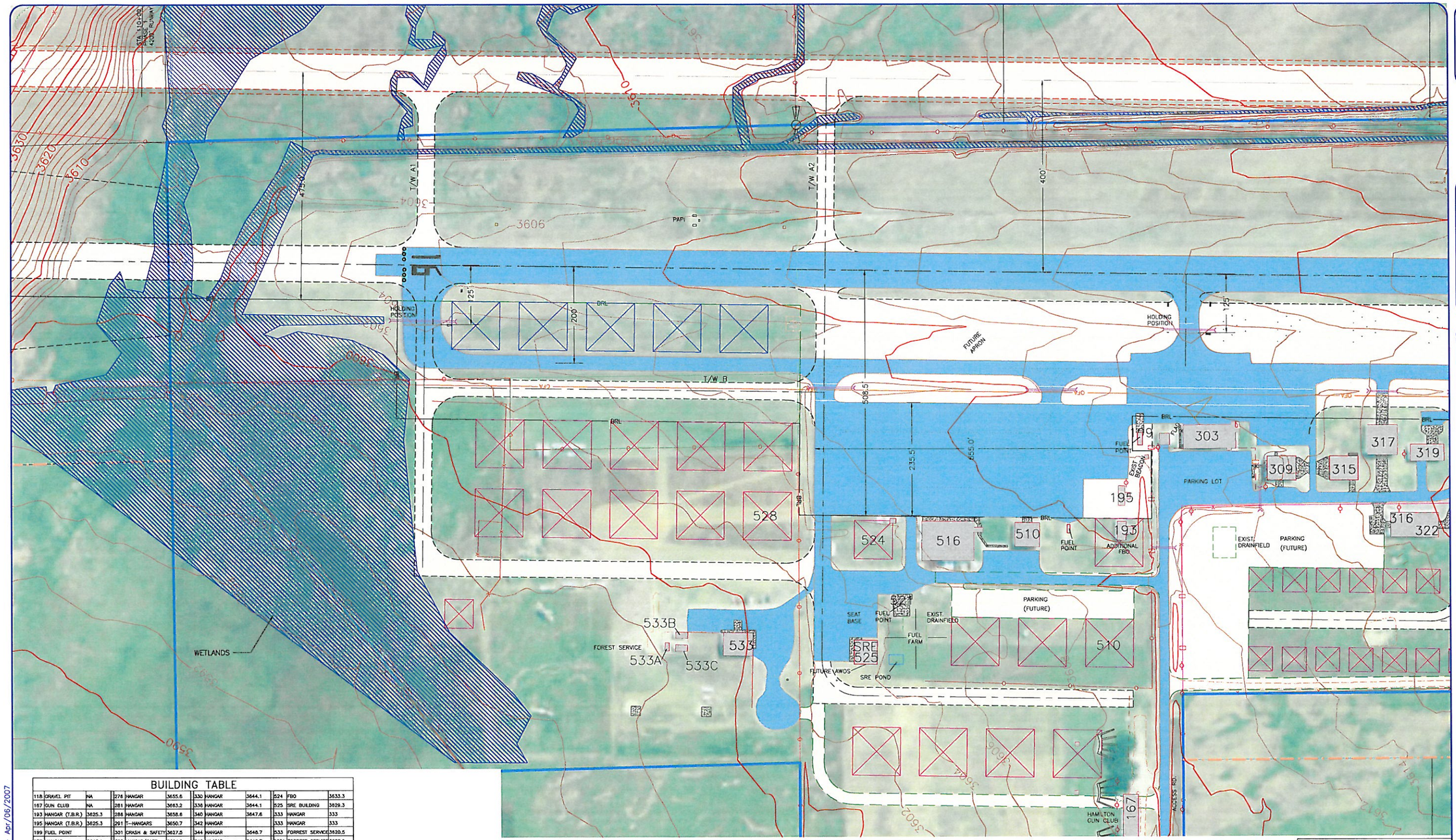
RAVALLI COUNTY AIRPORT
AIRPORT LAYOUT PLAN
HAMILTON MONTANA
RUNWAY 16-34 PROTECTION ZONE (ULTIMATE)

PROJECT NO. 0877
SHEET NUMBER 4 OF 8
DRAWING NUMBER 4



BUILDING TABLE

118	GRAVEL PIT	NA	276	HANGAR	3655.6	330	HANGAR	3644.1	524	FBO	3633.3
167	GUN CLUB	NA	281	HANGAR	3663.2	338	HANGAR	3644.1	525	SRE BUILDING	3629.3
193	HANGAR (T.B.R.)	3625.3	286	HANGAR	3658.6	340	HANGAR	3647.6	533	HANGAR	333
195	HANGAR (T.B.R.)	3625.3	291	T-HANGARS	3650.7	342	HANGAR		533	HANGAR	333
199	FUEL POINT		301	CRASH & SAFETY	3627.5	344	HANGAR	3646.7	533	FORREST SERVICE	3620.5
237	HANGAR	3646.1	303	HANGAR/CAFE	3634.9	346	HANGAR	3648.7	533A	FORREST SERVICE	3608.9
239	HANGAR	3643.6	309	HANGAR	3640.8	350	HANGAR	3648.7	533B	FORREST SERVICE	3608.9
240	HANGAR	3644.1	315	HANGAR	3644.0	352	HANGAR	3649.5	533C	FORREST SERVICE	3606.6
243	HANGAR	3644.4	317	HANGAR	3640.0	354	HANGAR	3647.5			
245	HANGAR	3645.2	319	HANGAR	3637.7	356	HANGAR				
250	HANGAR	3648.7	325	HANGAR	3640.8	358	HANGAR	3650.7			
251	HANGAR	3644.2	329	HANGAR	3643.6	362	HANGAR				
252	HANGAR	3644.7	333	HANGAR	3641.4	364	HANGAR	3652.5			
253	HANGAR	3949.7	339	HANGAR	3644.1	370	HANGAR	3656.9			
256	HANGAR	3647.2	343	HANGAR	3644.1	440	HANGAR	3644.1			
259	HANGAR	3649.0	345	HANGAR	3644.1	442	HANGAR	3644.1			
260	HANGAR	3653.7	347	HANGAR	3644.1	446	HANGAR	3644.1			
266	HANGAR	3658.1	356	HANGAR	3648.2	448	HANGAR	3644.1			
268	HANGAR	3650.9	365	HANGAR	3654.8	452	FBO	3648.7			
269	HANGAR	3657.6	375	HANGAR	3656.9	466	HANGAR	3655.2			
272	HANGAR	3650.9	316	HANGAR	3640.5	508	FUEL POINT				
274	HANGAR	3651.6	322	HANGAR	3640.5	510	HANGAR	3633.4			
275	HANGAR	3656.6	326	HANGAR	3644.3	521	FUEL POINT				

NOTE: TBR = TO BE REMOVED

OBSTRUCTION TABLE

NO.	DESCRIPTION	ROOF EL. / TOP EL.	EXISTING PART 77 EL.	EXISTING PENETRATION (FT.)	ULT. PART 77 EL.	ULT. PENETRATION (FT.)
1	FENCE NORTH OF OFA	--	--	UNKNOWN	--	--

NOTE: OBSTRUCTION TABLE BASED ON EXISTING RUNWAY AS A VISUAL RUNWAY. NUMEROUS OBSTRUCTIONS IF EXISTING RUNWAY UPGRADED TO NPI.

N 14°45' MAGNETIC VARIATION TRUE NORTH
11/2006

GRAPHIC SCALE
100 0 50 100
(IN FEET)
1 inch = 100 ft.

LEGEND

	EXISTING	FUTURE
PAVEMENT		
BUILDING		
BUILDING AFTER RW RELOCATION		
FENCE		
GRAVEL		
AIRPORT BOUNDARY		
ADJACENT PROPERTY		
OFA (OBJECT FREE AREA)	OFA	OFA
OFZ (OBSTACLE FREE ZONE)	OFZ	
RPZ (RUNWAY PROTECTION ZONE)	RPZ	RPZ
RSA (RUNWAY SAFETY AREA)	RSA	RSA
BRL (BUILDING RESTRICTION LINE)	BRL	BRL
IRRIGATION DITCH / CREEKS		
WETLANDS		
CONTROL POINT	CP	
AIRPORT REFERENCE POINT		

VERIFY SCALE!
THESE PRINTS MAY BE REDUCED. USE THE LINE BELOW TO MEASURE ONE INCH ON ORIGINAL DRAWING
MODIFY SCALE ACCORDINGLY!

MONTANA REGISTERED PROFESSIONAL ENGINEER
SCOTT T. BELL
8123 PE

REVISIONS				
NO.	DESCRIPTION	DATE	BY
1	SRE AND TAXIWAY	11/06	KMD

ENGINEERS
ECONOMISTS
SURVEYORS
PLANNERS
SINCE 1945

MORRISON MAIERLE, INC.
An Employee-Owned Company
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CHK'D. BY: TJE
APPR. BY: STB
DATE: 11-06
O.A. REVIEW
BY:
DATE:

RAVALLI COUNTY AIRPORT
AIRPORT LAYOUT PLAN
HAMILTON MONTANA
TERMINAL AREA

PROJECT NO. 0877
SHEET NUMBER 5 OF 8
DRAWING NUMBER 5

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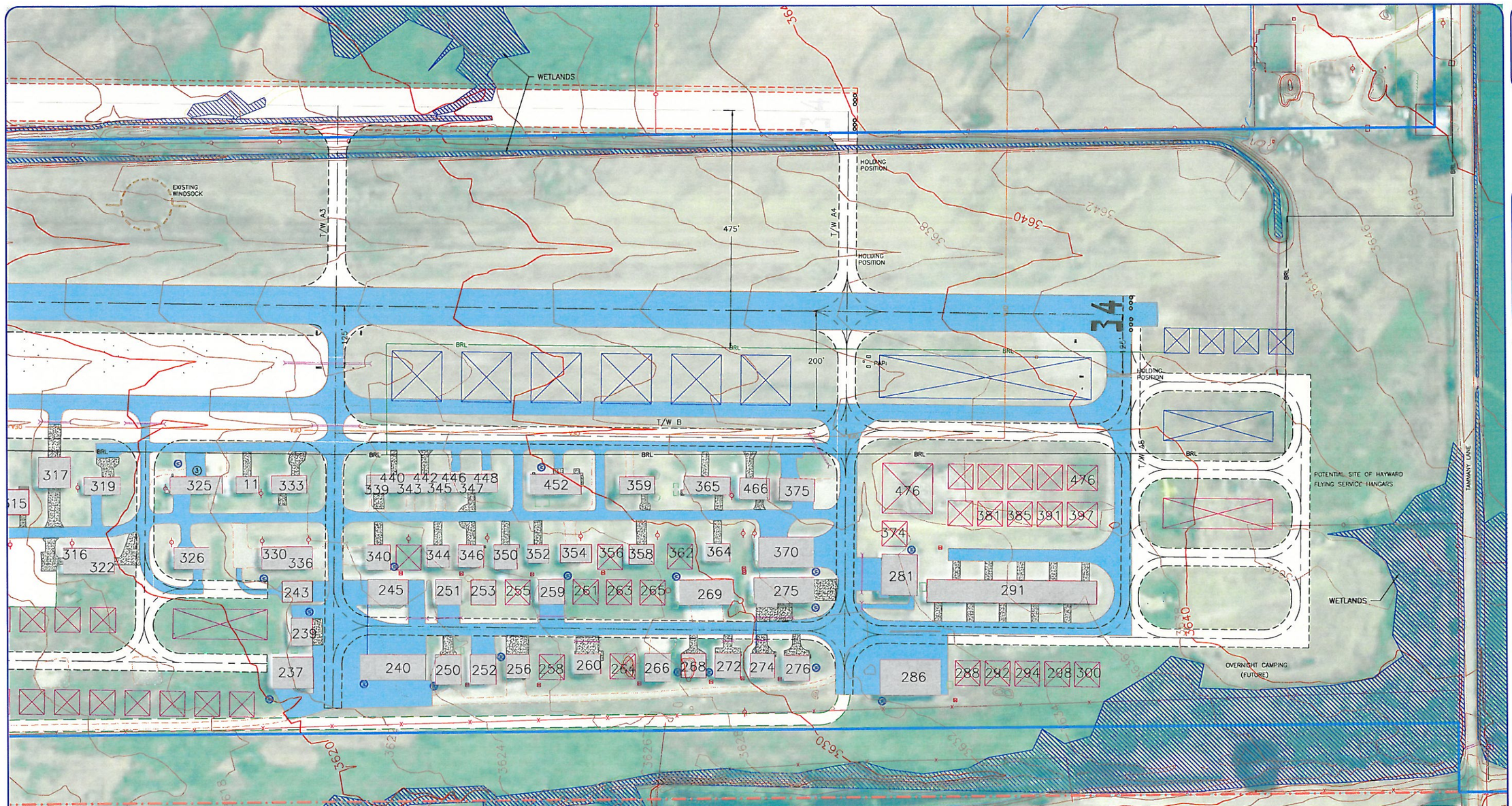

BUILDING TABLE

118	GRAVEL PIT	NA	276	HANGAR	3655.6	330	HANGAR	3644.1	524	FBO	3633.3
167	GUN CLUB	NA	281	HANGAR	3663.2	336	HANGAR	3644.1	525	SRE BUILDING	3629.3
193	HANGAR (T.B.R.)	3625.3	288	HANGAR	3658.6	340	HANGAR	3647.6	533	HANGAR	333
195	HANGAR (T.B.R.)	3625.3	291	T-HANGARS	3650.7	342	HANGAR		533	HANGAR	333
199	FUEL POINT		301	CRASH & SAFETY	3627.5	344	HANGAR	3648.7	533	FORREST SERVICE	3620.5
237	HANGAR	3646.1	303	HANGAR/CAFE	3634.9	346	HANGAR	3648.7	533A	FORREST SERVICE	3608.9
239	HANGAR	3643.6	309	HANGAR	3640.8	350	HANGAR	3648.7	533B	FORREST SERVICE	3608.9
240	HANGAR	3644.1	315	HANGAR	3644.0	352	HANGAR	3649.5	533C	FORREST SERVICE	3608.6
243	HANGAR	3644.4	317	HANGAR	3640.0	354	HANGAR	3647.5			
245	HANGAR	3645.2	319	HANGAR	3637.7	356	HANGAR				
250	HANGAR	3648.7	325	HANGAR	3640.8	358	HANGAR	3650.7			
251	HANGAR	3644.2	329	HANGAR	3643.6	362	HANGAR				
252	HANGAR	3644.7	333	HANGAR	3641.4	364	HANGAR	3652.5			
253	HANGAR	3940.7	339	HANGAR	3644.1	370	HANGAR	3656.9			
256	HANGAR	3647.2	343	HANGAR	3644.1	440	HANGAR	3644.1			
259	HANGAR	3649.0	345	HANGAR	3644.1	442	HANGAR	3644.1			
260	HANGAR	3653.7	347	HANGAR	3644.1	446	HANGAR	3644.1			
266	HANGAR	3658.1	359	HANGAR	3648.2	448	HANGAR	3644.1			
268	HANGAR	3650.9	365	HANGAR	3654.8	452	FBO	3648.7			
269	HANGAR	3657.6	375	HANGAR	3656.9	466	HANGAR	3655.2			
272	HANGAR	3650.9	316	HANGAR	3640.5	508	FUEL POINT				
274	HANGAR	3651.6	322	HANGAR	3640.5	510	HANGAR	3633.4			
275	HANGAR	3659.6	326	HANGAR	3644.3	521	FUEL POINT				

NOTE: TBR = TO BE REMOVED

OBSTRUCTION TABLE

NO.	DESCRIPTION	ROOF EL. / TOP EL.	EXISTING PART 77 EL.	EXISTING PENETRATION (FT.)	ULT. PART 77 EL.	ULT. PENETRATION (FT.)
1	NONE	-	-	-	-	-

NOTE: OBSTRUCTION TABLE BASED ON EXISTING RUNWAY AS A VISUAL RUNWAY. NUMEROUS OBSTRUCTIONS IF EXISTING RUNWAY UPGRADED TO NPI.

MAGNETIC VARIATION 14°45'
TRUE NORTH
11/2006

GRAPHIC SCALE
100 0 50 100
(IN FEET)
1 inch = 100 ft.

LEGEND

	EXISTING	FUTURE
PAVEMENT		
BUILDING		
BUILDING AFTER RW RELOCATION		
FENCE		
GRAVEL		
AIRPORT BOUNDARY		
ADJACENT PROPERTY		
OFA (OBJECT FREE AREA)	OFA	OFA
OFZ (OBSTACLE FREE ZONE)	OFZ	
RPZ (RUNWAY PROTECTION ZONE)	RPZ	RPZ
RSA (RUNWAY SAFETY AREA)	RSA	RSA
BRL (BUILDING RESTRICTION LINE)	BRL	BRL
IRRIGATION DITCH / CREEKS		
WETLANDS		
CONTROL POINT	CP	
AIRPORT REFERENCE POINT		

VERIFY SCALE!
THESE PRINTS MAY BE DIMENSIONALLY INACCURATE. MEASURES ONE INCH ON ORIGINAL DRAWING
MODIFY SCALE ACCORDINGLY!

MONTANA PROFESSIONAL ENGINEER REGISTERED SCOTT T. BELL 8123 PE

REVISIONS				
NO.	DESCRIPTION	DATE	BY	
1	SRE AND TAXIWAY	11/06	KMD	

ENGINEERS
CONSULTANTS
SURVEYORS
PLANNERS
SINCE 1945
MORRISON MAIERLE, INC.
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2821 South Clark Street, Missoula, MT 59801
Phone: (406) 542-8080 Fax: (406) 542-0039

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APPR. BY: STB
DATE: 11-06
Q.A. REVIEW
BY:
DATE:

RAVALLI COUNTY AIRPORT
AIRPORT LAYOUT PLAN
HAMILTON MONTANA
TERMINAL AREA

PROJECT NO 0877
SHEET NUMBER 6 OF 8
DRAWING NUMBER 6

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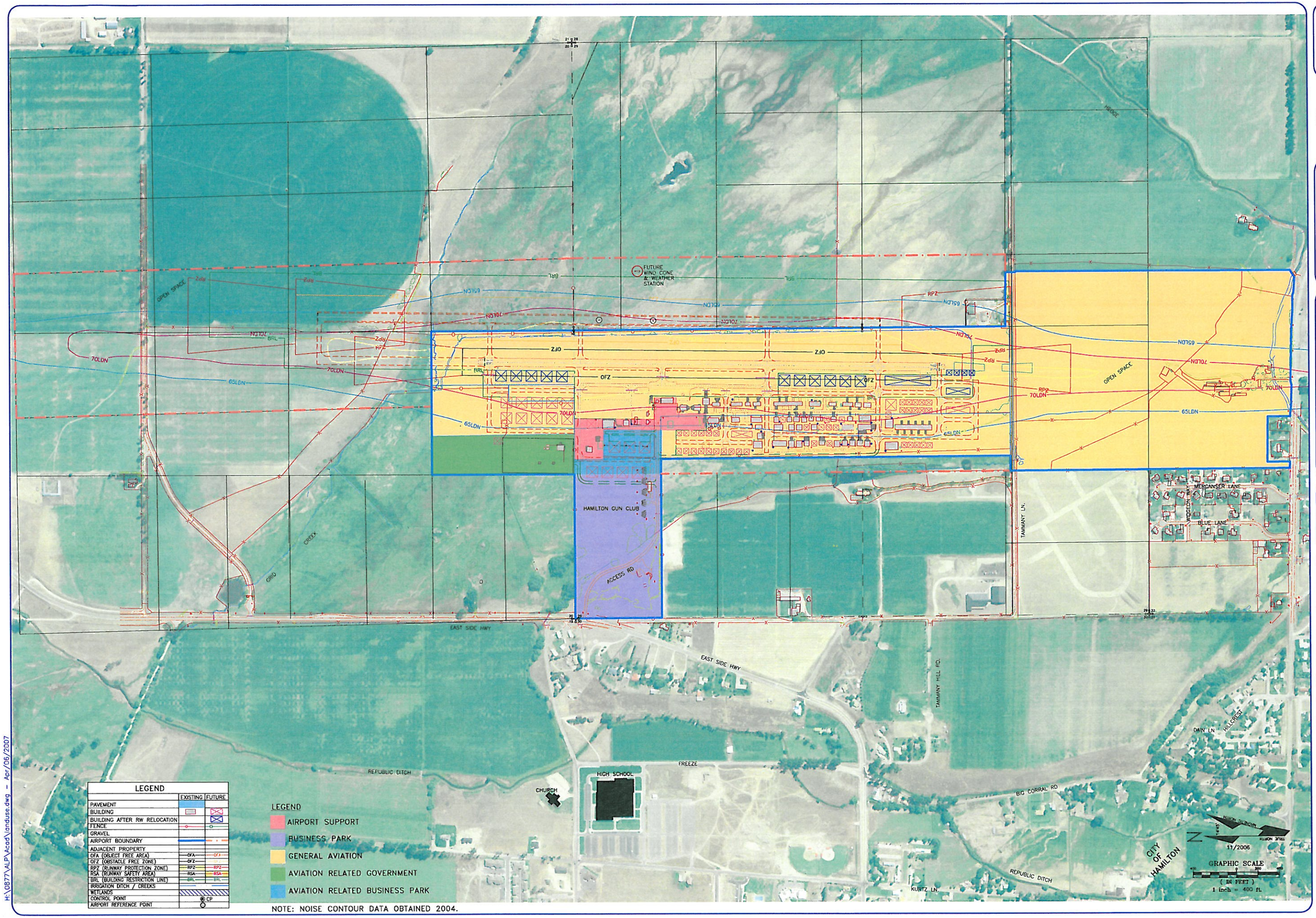

NOTE: NOISE CONTOUR DATA OBTAINED 2004.

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VERIFY SCALE!
THESE PRINTS MAY BE REDUCED. LINE BELOW MEASURES ONE INCH ON ORIGINAL DRAWING.
MODIFY SCALE ACCORDINGLY!

MONTANA PROFESSIONAL ENGINEER
SCOTT T. BELL
8123 PE
REGISTERED

NO.	DESCRIPTION	DATE	BY
1	SRE AND TAXIWAY	11/06	KMD

REVISIONS

MORRISON MAIERLE, INC.
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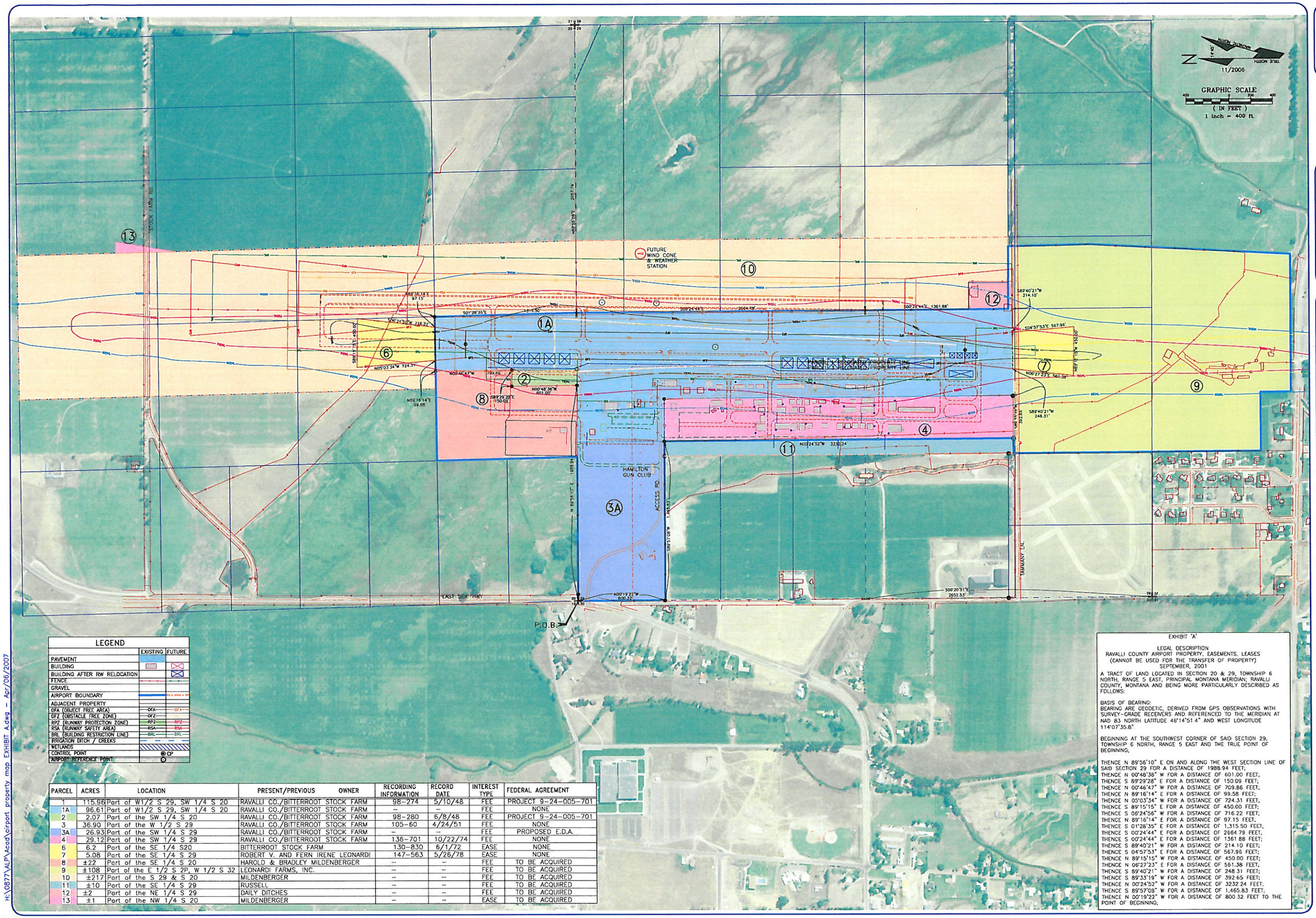
CHK'D. BY: TJE
APPR. BY: STB
DATE: 11-06
Q.A. REVIEW
BY:
DATE:

RAVALLI COUNTY AIRPORT
AIRPORT LAYOUT PLAN
HAMILTON MONTANA

LAND USE

PROJECT NO.
0877
SHEET NUMBER
7 OF 8
DRAWING NUMBER
7



LEGEND

	EXISTING	FUTURE
PAVEMENT		
BUILDING		
BUILDING AFTER RW RELOCATION		
FENCE		
GRAVEL		
AIRPORT BOUNDARY		
ADJACENT PROPERTY		
OFA (OBJECT FREE AREA)	OFA	OFA
OFZ (OBSTACLE FREE ZONE)	OFZ	
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BRL (BUILDING RESTRICTION LINE)	BRL	BRL
IRRIGATION DITCH / CREEKS		
WETLANDS		
CONTROL POINT	CP	
AIRPORT REFERENCE POINT		

PARCEL	ACRES	LOCATION	PRESENT/PREVIOUS OWNER	RECORDING INFORMATION	RECORD DATE	INTEREST TYPE	FEDERAL AGREEMENT
1	115.96	Part of W1/2 S 29, SW 1/4 S 20	RAVALLI CO./BITTERROOT STOCK FARM	98-274	5/10/48	FEE	PROJECT 9-24-005-701
1A	96.61	Part of W1/2 S 29, SW 1/4 S 20	RAVALLI CO./BITTERROOT STOCK FARM	–	–	FEE	NONE
2	2.07	Part of the SW 1/4 S 20	RAVALLI CO./BITTERROOT STOCK FARM	98-280	6/8/48	FEE	PROJECT 9-24-005-701
3	36.90	Part of the W 1/2 S 29	RAVALLI CO./BITTERROOT STOCK FARM	105-60	4/24/51	FEE	NONE
3A	26.93	Part of the SW 1/4 S 29	RAVALLI CO./BITTERROOT STOCK FARM	–	–	FEE	PROPOSED E.D.A.
4	29.12	Part of the SW 1/4 S 29	RAVALLI CO./BITTERROOT STOCK FARM	136-701	10/22/74	FEE	NONE
6	6.2	Part of the SE 1/4 S20	BITTERROOT STOCK FARM	130-830	6/1/72	EASE	NONE
7	5.08	Part of the SE 1/4 S 29	ROBERT V. AND FERN IRENE LEONARDI	147-563	5/26/78	EASE	NONE
8	±22	Part of the SE 1/4 S 20	HAROLD & BRADLEY MILDENBERGER	–	–	FEE	TO BE ACQUIRED
9	±108	Part of the E 1/2 S 2P, W 1/2 S 32	LEONARDI FARMS, INC.	–	–	FEE	TO BE ACQUIRED
10	±217	Part of the S 29 & S 20	MILDENBERGER	–	–	FEE	TO BE ACQUIRED
11	±10	Part of the SE 1/4 S 29	RUSSELL	–	–	FEE	TO BE ACQUIRED
12	±2	Part of the NE 1/4 S 29	DAILY DITCHES	–	–	FEE	TO BE ACQUIRED
13	±1	Part of the NW 1/4 S 20	MILDENBERGER	–	–	EASE	TO BE ACQUIRED

EXHIBIT "A"

LEGAL DESCRIPTION
RAVALLI COUNTY AIRPORT PROPERTY, EASEMENTS, LEASES
(CANNOT BE USED FOR THE TRANSFER OF PROPERTY)
SEPTEMBER, 2001

A TRACT OF LAND LOCATED IN SECTION 20 & 29, TOWNSHIP 6 NORTH, RANGE 5 EAST, PRINCIPAL MONTANA MERIDIAN; RAVALLI COUNTY, MONTANA AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BASIS OF BEARING:
BEARING ARE GEODETIC, DERIVED FROM GPS OBSERVATIONS WITH SURVEY-GRADE RECEIVERS AND REFERENCED TO THE MERIDIAN AT NAD 83 NORTH LATITUDE 46°14'51.4" AND WEST LONGITUDE 114°07'35.8".

BEGINNING AT THE SOUTHWEST CORNER OF SAID SECTION 29, TOWNSHIP 6 NORTH, RANGE 5 EAST AND THE TRUE POINT OF BEGINNING;

THENCE N 89°56'10" E ON AND ALONG THE WEST SECTION LINE OF SAID SECTION 29 FOR A DISTANCE OF 1988.94 FEET;
THENCE N 00°48'38" W FOR A DISTANCE OF 601.00 FEET;
THENCE S 89°29'28" E FOR A DISTANCE OF 150.09 FEET;
THENCE N 00°46'47" W FOR A DISTANCE OF 709.86 FEET;
THENCE N 89°16'14" E FOR A DISTANCE OF 99.58 FEET;
THENCE N 05°03'34" W FOR A DISTANCE OF 724.31 FEET;
THENCE S 89°15'15" E FOR A DISTANCE OF 450.00 FEET;
THENCE S 06°24'56" W FOR A DISTANCE OF 716.22 FEET;
THENCE N 89°16'14" E FOR A DISTANCE OF 97.15 FEET;
THENCE S 01°28'35" E FOR A DISTANCE OF 1,315.50 FEET;
THENCE S 00°24'44" E FOR A DISTANCE OF 2664.79 FEET;
THENCE S 00°24'44" E FOR A DISTANCE OF 1361.88 FEET;
THENCE S 89°40'21" W FOR A DISTANCE OF 214.10 FEET;
THENCE S 04°57'53" E FOR A DISTANCE OF 567.96 FEET;
THENCE N 89°15'15" W FOR A DISTANCE OF 450.00 FEET;
THENCE N 06°27'23" E FOR A DISTANCE OF 561.38 FEET;
THENCE S 89°40'21" W FOR A DISTANCE OF 248.31 FEET;
THENCE S 89°33'19" W FOR A DISTANCE OF 392.65 FEET;
THENCE N 00°24'52" W FOR A DISTANCE OF 3232.24 FEET;
THENCE S 89°57'08" W FOR A DISTANCE OF 1,465.83 FEET;
THENCE N 00°19'22" W FOR A DISTANCE OF 800.32 FEET TO THE POINT OF BEGINNING;

VERIFY SCALE!
THESE PRINTS MAY BE REDUCED. USE BELOW MEASURES ONLY WHEN ORIGINAL DRAWING.
1" = 40'
MODIFY SCALE ACCORDINGLY!

MONTANA LICENSED PROFESSIONAL ENGINEER
SCOTT T. BELL
8123 PE
REGISTERED PROFESSIONAL ENGINEER

NO	DESCRIPTION	DATE	BY
1	SRE AND TAXIWAY	11/06	KMD

REVISIONS

ENGINEERS
ARCHITECTS
SURVEYORS
PLANNERS
SINCE 1945
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DATE:

RAVALLI COUNTY AIRPORT
AIRPORT LAYOUT PLAN
HAMILTON MONTANA

EXHIBIT "A"
AIRPORT PROPERTY MAP

PROJECT NO. 0877
SHEET NUMBER 8 OF 8
DRAWING NUMBER 8

H:\0877\ALP\acad\airport property map EXHIBIT A.dwg – Apr/06/2007