Flight Procedure Tracking Form	Action: FLIGHT CHECK	Task Type: IAP	Date Open: 10/27/2004	Task #: 2004102707903901002	Request #: 20041027079039
Procedure: RNAV (GPS) RWY 27 ORIG		Airport ID: KN98	Airport: BOYNE CITY MUNI		Reimbursable #:
City: BOYNE CITY	ST: MI	GPS #:		Estimated Chart Date: 02/09/2012	FICO #:
Fac ID:	Fac. Type: LP ProcW	Specialist: JOHN ROSARIO			

Procedure Review

P3

	Rec'd	Rel'd	Full Name	Comments
Lead:	05/27/2011	10/20/2011	JOSE ALFONSO	
QA:	10/20/2011	10/20/2011	STEVEN SZUKALA	
Liaison:	10/20/2011		Terrell	

Procedure Comments: ENROUTE **Remark Type:** INFORMATION

pkg 1 of 4

BOYNE CITY, MI BOYNE CITY MUNI (KN98) RNAV (GPS) RWY 27, ORIG (LP) ENROUTE-YES FC: 12.13.11 PUB: 2.9.12

ATTACHED FORMS: 8260-3; 8260-10; 8260-9; 8260-2(S): ADENO-INT, REV 5; KIYRE, ORIG; UHOZA, ORIG; WOMOP-INT, ORIG; YOVUG, ORIG.

CONTACT: JOSE ALFONSO/STEVE BARNETT, AJV-353 LEADS, 405.954.6378/9307:

RNAV (GPS) RWY 27

BOYNE CITY MUNI (N98)

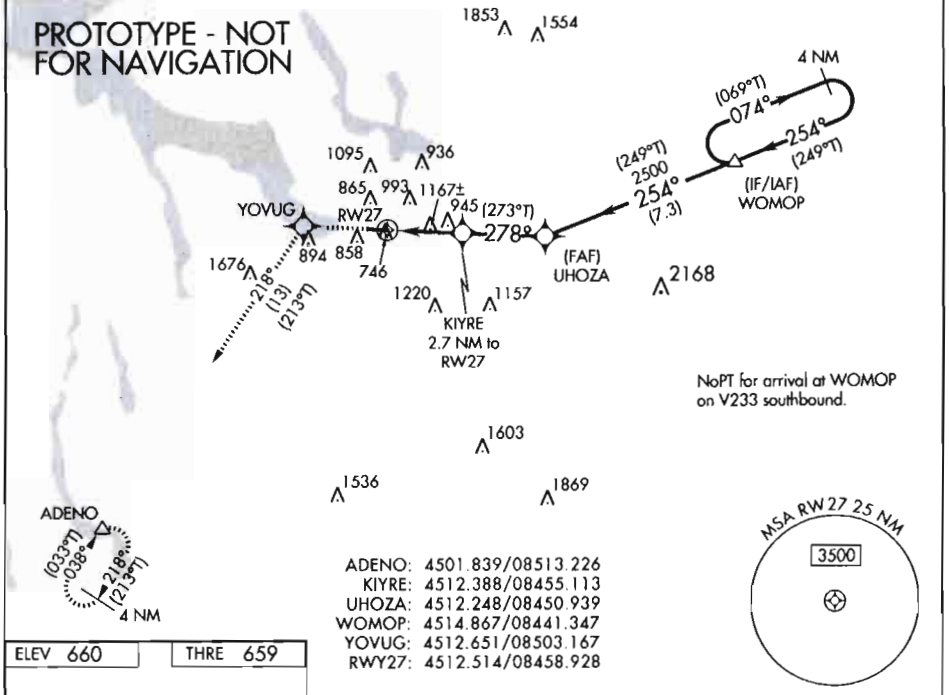
WAAS	APP CRS	Rwy Idg	4001
CH 50326	278°	THRE	659
W27A		Apt Elev	660

Use Charlevoix altimeter setting; when not received, use Harbor Springs altimeter setting. When VGSI inop, procedure NA at night. DME/DME RNP-0.3 NA. Visibility reduction by helicopters NA.

MISSED APPROACH: Climb to 3000 direct YOVUG and on track 218° to ADENO and hold.

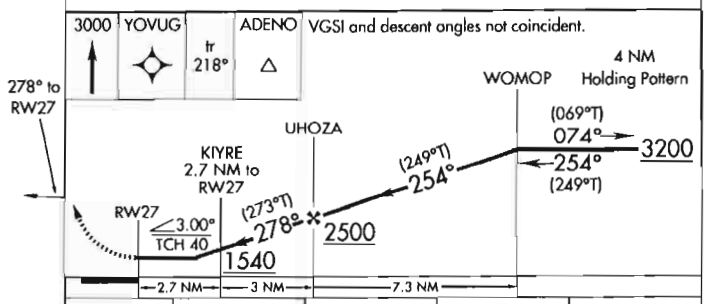
CHARLEVOIX AWOS-3	UNICOM	
120.0	122.8 (CTAF)	122.9

PROTOTYPE - NOT FOR NAVIGATION



ADENO: 4501.839/08513.226
KIYRE: 4512.388/08455.113
UHOZA: 4512.248/08450.939
WOMOP: 4514.867/08441.347
YOVUG: 4512.651/08503.167
RWY27: 4512.514/08458.928

ELEV 660 | THRE 659



CATEGORY	A	B	C	D
LP MDA	1460-1 801 (800-1)	1460-1¼ 801 (800-1¼)	NA	
LNAV MDA	1480-1 821 (900-1)	1480-1¼ 821 (900-1¼)	NA	
CIRCLING	1480-1¼ 820 (900-1¼)	1500-1¼ 840 (900-1¼)	NA	

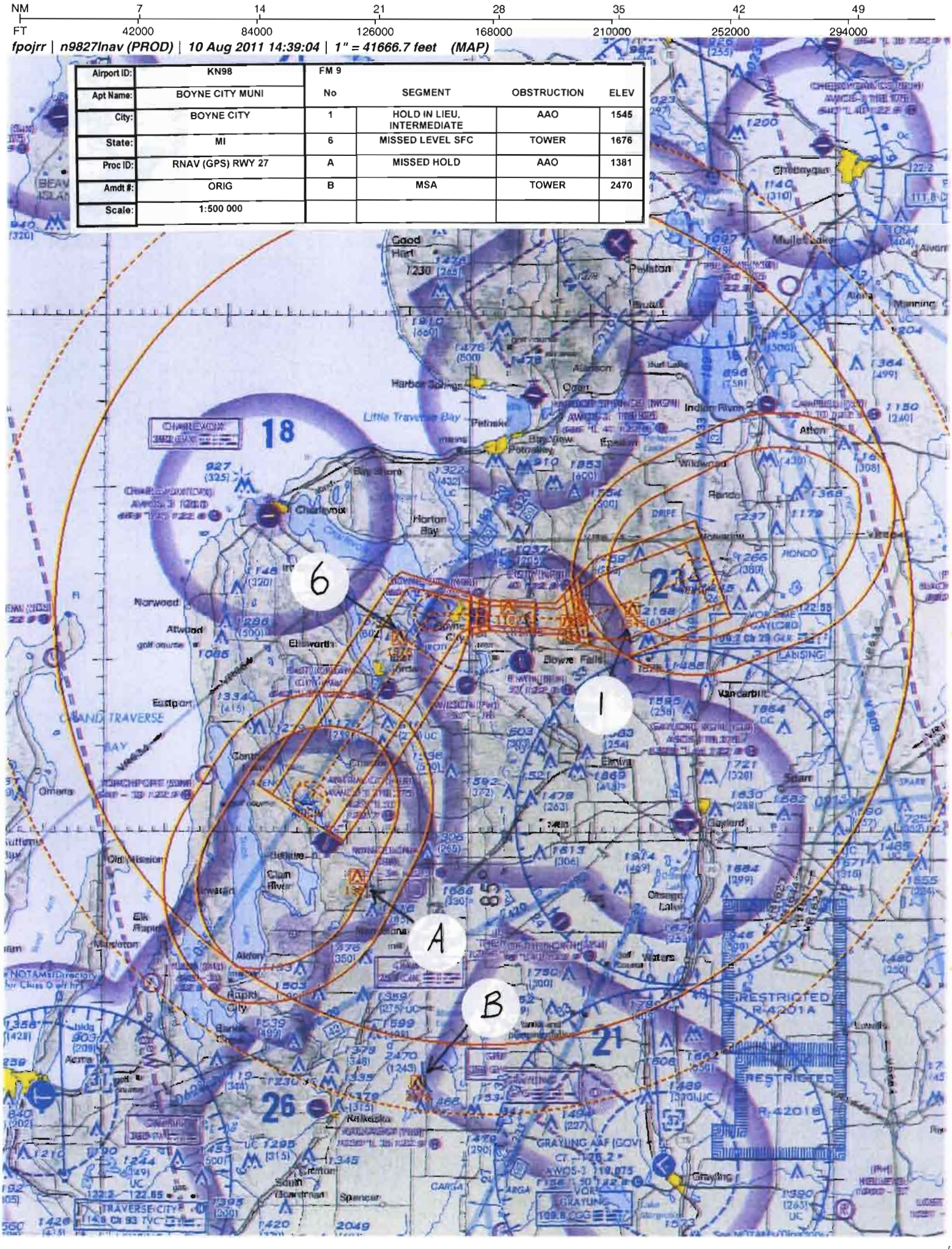
REIL Rwy 27
MIRL Rwy 9-27

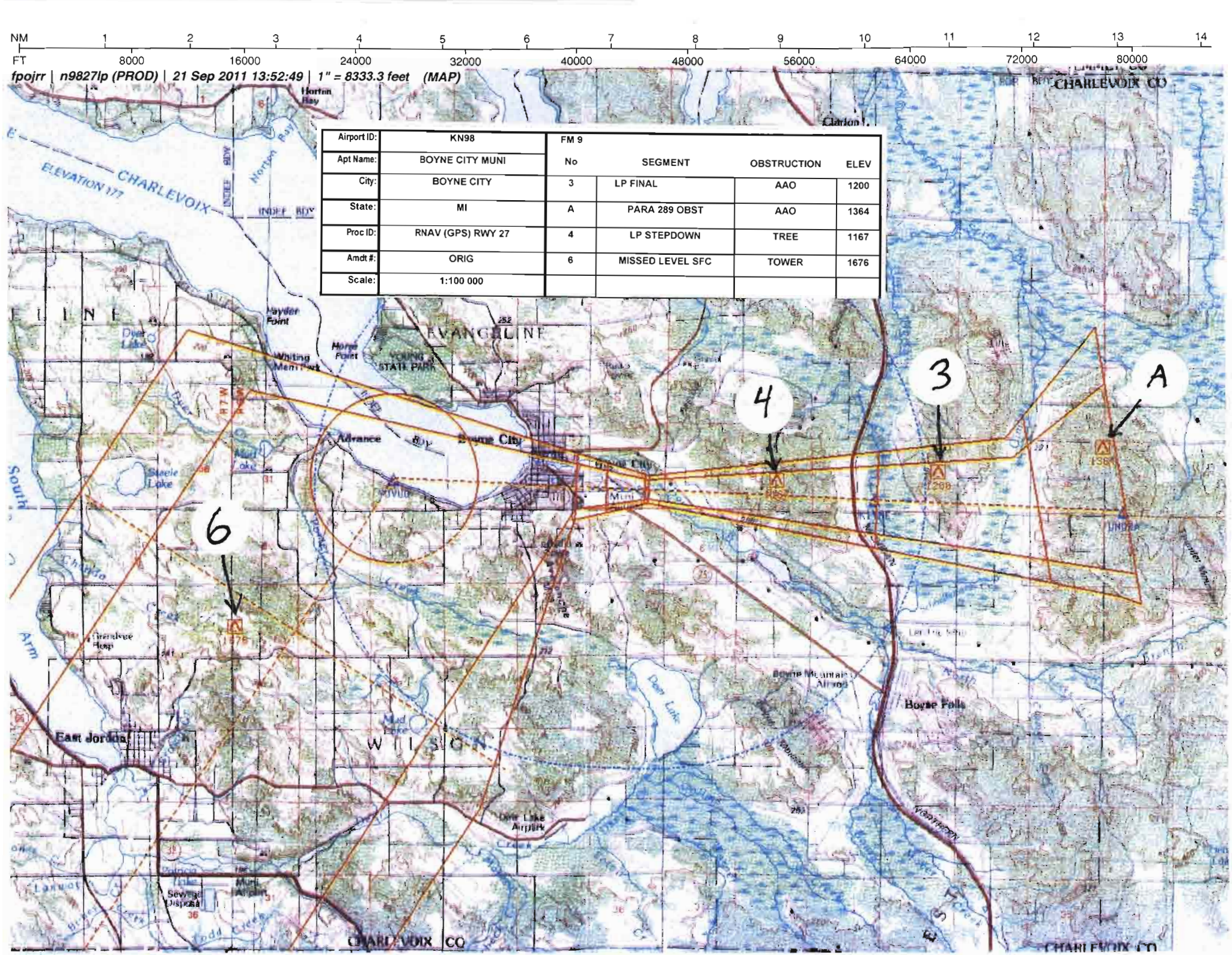
NM 7 14 21 28 35 42 49

FT 42000 84000 126000 168000 210000 252000 294000

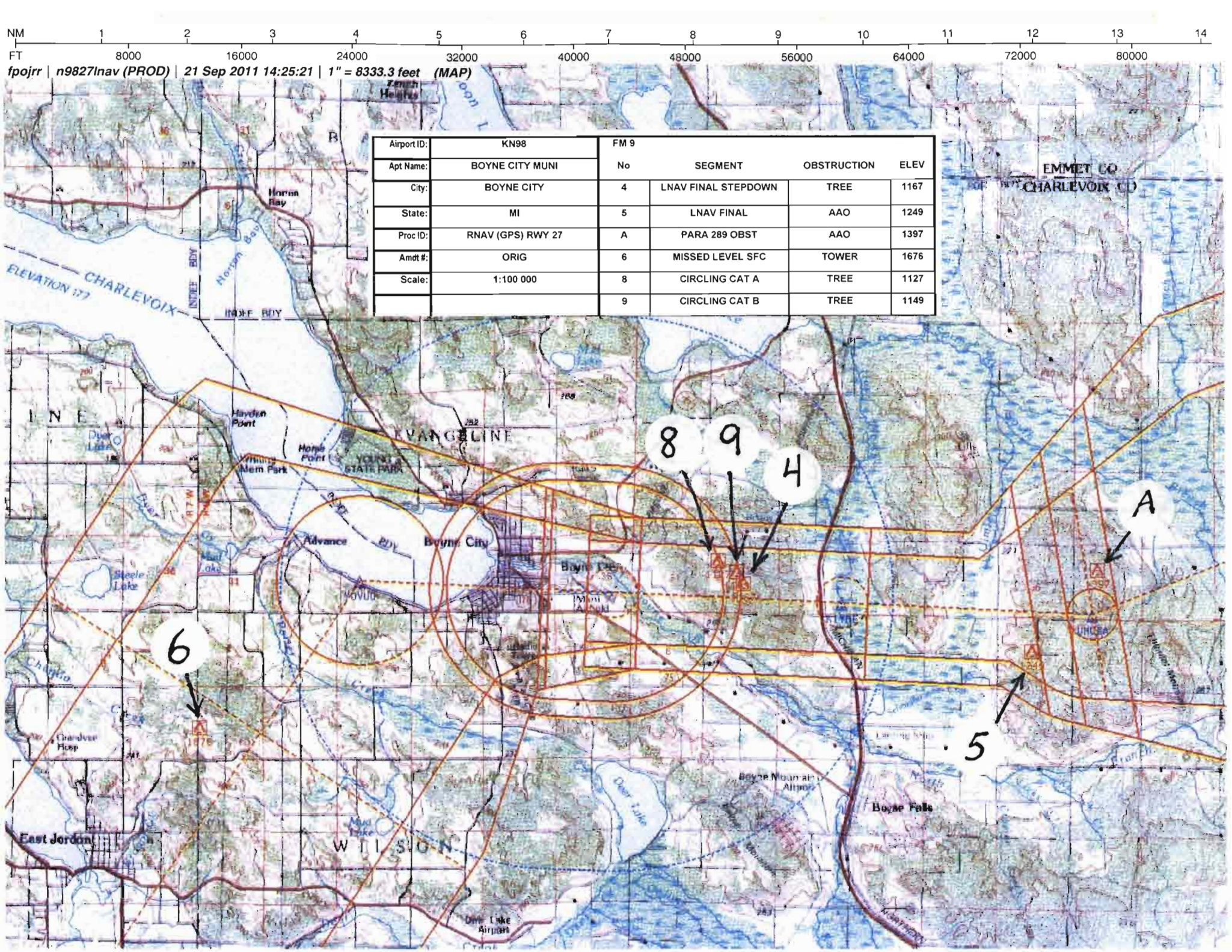
fpojrr | n9827lnav (PROD) | 10 Aug 2011 14:39:04 | 1" = 41666.7 feet (MAP)

Airport ID:	KN98	FM 9			
Apt Name:	BOYNE CITY MUNI	No	SEGMENT	OBSTRUCTION	ELEV
City:	BOYNE CITY	1	HOLD IN LIEU, INTERMEDIATE	AAO	1545
State:	MI	6	MISSED LEVEL SFC	TOWER	1676
Proc ID:	RNAV (GPS) RWY 27	A	MISSED HOLD	AAO	1381
Amdt #:	ORIG	B	MSA	TOWER	2470
Scale:	1:500 000				





Airport ID:	KN98	FM 9			
Apt Name:	BOYNE CITY MUNI	No	SEGMENT	OBSTRUCTION	ELEV
City:	BOYNE CITY	3	LP FINAL	AAO	1200
State:	MI	A	PARA 289 OBST	AAO	1364
Proc ID:	RNAV (GPS) RWY 27	4	LP STEPDOWN	TREE	1167
Amdt #:	ORIG	6	MISSED LEVEL SFC	TOWER	1676
Scale:	1:100 000				



Airport ID:	KN98	FM 9			
Apt Name:	BOYNE CITY MUNI	No	SEGMENT	OBSTRUCTION	ELEV
City:	BOYNE CITY	4	LNAV FINAL STEPDOWN	TREE	1167
State:	MI	5	LNAV FINAL	AAO	1249
Proc ID:	RNAV (GPS) RWY 27	A	PARA 289 OBST	AAO	1397
Amdt #:	ORIG	6	MISSED LEVEL SFC	TOWER	1676
Scale:	1:100 000	8	CIRCLING CAT A	TREE	1127
		9	CIRCLING CAT B	TREE	1149

US DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

RNAV - STANDARD INSTRUMENT APPROACH PROCEDURE TITLE 14 CFR PART 97.33

Bearings, headings, courses, and radials are magnetic. Elevations and altitudes are in feet, MSL, except HAT, HAA, TCH, and RA. Altitudes are minimum altitudes unless otherwise indicated. Ceilings are in feet above airport elevation. Distances are in nautical miles unless otherwise indicated, except visibilities which are in statute miles or in feet RVR.

TERMINAL ROUTES

FROM	TO	COURSE AND DISTANCE	ALTITUDE
WOMOP (IF/IAF)	UHOZA (FB)	253.93 / 7.27	2500
UHOZA *(FAF)*	KIYRE/2.70 NM TO RW27 (FB)	277.74 / 2.95	
KIYRE/2.70 NM TO RW27	RW27 (MAP) (FO)	277.69 / 2.70	
RW27 (MAP)	1060 MSL	277.69	
1060 MSL	YOVUG (FB)		
YOVUG	ADENO (FO)	218.43 / 12.95	3000

MISSED APPROACH

LP: RW27
LNAV: RW27

CLIMB TO 3000 DIRECT YOVUG AND ON TRACK 218.43 TO ADENO AND HOLD.

ADDITIONAL FLIGHT DATA:

HOLD SW, RT, 037.76 INBOUND.
CHART FAS OBST: 1167 TREE 451232N/0845645W
1397 AAO 451241N/0845051W.
1364 AAO 451255N/0845117W.
CHART CHARLEVOIX AWOS-3
WAAS CHANNEL # 50326
REFERENCE PATH ID: W27A
UHOZA TO RW27: 3.00/40
LTP HAE: 166 M

1. PT ____ SIDE OF COURSE ____ OUTBOUND ____ FT WITHIN ____ MILES OF ____ (IAF)
2. HOLD E WOMOP, RT, 253.93 INBOUND, 3200 FT. IN LIEU OF PT (IAF)
3. FAC: 277.74 FAF: UHOZA DIST FAF TO MAP: 5.65 THLD: 5.65
4. MIN. ALT: WOMOP 3200, UHOZA 2500, KIYRE/2.70 NM TO RW27 1540
5. DIST TO THLD FROM OM: ____ MM: ____ IM: ____ 150 HAT: ____ 100 HAT: ____ GS ANT: ____
6. MIN GS INCPT: ____ GS ALT AT: ____ OM: ____ MM: ____ IM: ____
7. GS ANGLE: ____ TCH: 34:1 IS NOT CLEAR
8. MSA FROM: RW27 3500

MAG VAR: 5W EPOCH YEAR: 1985

MINIMUMS

TAKEOFF: SEE FAA FORM 8260-15A FOR THIS AIRPORT ALTERNATE: N A | X |

CATEGORY =====>	A			B			C			D			E		
	DH/MDA	VIS	HAT/HAA	DH/MDA	VIS	HAT/HAA	DH/MDA	VIS	HAT/HAA	DH/MDA	VIS	HAT/HAA	DH/MDA	VIS	HAT/HAA
LP MDA	1460	1	801	1460	1 1/4	801		NA			NA				
LNAV MDA	1480	1	821	1480	1 1/4	821		NA			NA				
CIRCLING	1480	1 1/4	820	1500	1 1/4	840		NA			NA				

NOTES:
CHART NOTE: USE CHARLEVOIX ALTIMETER SETTING; WHEN NOT RECEIVED, USE HARBOR SPRINGS ALTIMETER SETTING.
CHART NOTE: WHEN VGSI INOP, PROCEDURE NA AT NIGHT.
CHART NOTE: DME/DME RNP-0.3 NA.
(SEE FORM 8260-10)

QUALITY CHECK

CITY AND STATE	ELEVATION: 660 THRE: 659 AIRPORT NAME:	FACILITY IDENTIFIER:	PROCEDURE NO./AMDT NO./EFFECTIVE DATE:	SUP:
BOYNE CITY, MI	BOYNE CITY MUNI	RNAV	RNAV (GPS) RWY 27, ORIG	AMDT: NONE
				DATED

ALL AFFECTED PROCEDURES REVIEWED?	COORDINATES OF FACILITIES	REQUIRED EFFECTIVE DATE
[X] YES [ ] NO		**CONCURRENT**

COORDINATED WITH:

ATA	AAT	ALPA	APA	AOPA	NBAA	OTHER (specify)
[ ]	[ ]	[X]	[ ]	[X]	[X]	[X] **ZMP, AIRPORT MANAGER**

FLIGHT CHECKED BY

NAME:	FIFO	DATE:

DEVELOPED BY

NAME:	FIFO	DATE:
JOHN R. ROSARIO	**AJV-353**	**06/21/2011**

APPROVED BY

NAME:		FIFO	DATE:
LARRY H STROUT	**MANAGER**	**AJV-353**	

CHANGES:

REASONS:

EFFECTIVE CONCURRENT WITH: AIRSPACE DOCKET 11-AGL-16

THIS FORM WAS PDF EDITED
TERMINAL ROUTES: ADDED (FAF), REMOVED 1540, REMOVED DUPLICATE RWY27 /
LINE 7: REMOVED 3.00 AND 40

QUALITY 1 CHECKED

US DEPARTMENT OF TRANSPORTATION - FEDERAL AVIATION ADMINISTRATION

RNAV - STANDARD
INSTRUMENT APPROACH PROCEDURE - TITLE 14 CFR PART 97.33

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NOTES, (CONT.):
CHART NOTE: VISIBILITY REDUCTION BY HELICOPTERS NA.
CHART PLANVIEW NOTE: NOPT FOR ARRIVAL AT WOMOP ON V233 SOUTHBOUND.
CHART PROFILE NOTE: VGSI AND DESCENT ANGLES NOT COINCIDENT.

QUALITY 9 CHECKED

CITY AND STATE	ELEVATION: 660 THRE: 659	FACILITY IDENTIFIER:	PROCEDURE NO./ AMDT NO./EFFECTIVE DATE:	SUP:
BOYNE CITY, MI	AIRPORT NAME: **BOYNE CITY MUNI**	**RNAV**	**RNAV (GPS) RWY 27, ORIG**	AMDT: **NONE**
				DATED:

ALL AFFECTED PROCEDURES REVIEWED? ☐ YES ☐ NO	COORDINATES OF FACILITIES	REQUIRED EFFECTIVE DATE

COORDINATED WITH:

ATA ☐ AAT ☐ ALPA ☐ APA ☐ AOPA ☐ NBAA ☐ OTHER (specify) ☐ _____

FLIGHT CHECKED BY		
NAME:	FIFO	DATE:
DEVELOPED BY		
NAME:	FIFO	DATE:
APPROVED BY		
NAME:	FIFO	DATE:

CHANGES:

REASONS:

QUALITY CHECKED

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FAS DATA BLOCK INFORMATION

DATA FIELD	DATA
OPERATION TYPE	0
SBAS SERVICE PROVIDER IDENTIFIER	0
AIRPORT IDENTIFIER	N98
RUNWAY	RW27
APPROACH PERFORMANCE DESIGNATOR	0
ROUTE INDICATOR	
REFERENCE PATH DATA SELECTOR	0
REFERENCE PATH IDENTIFIER (APPROACH ID)	W27A
LTP/FTP LATITUDE	451230.8165N
LTP/FTP LONGITUDE	0845855.6735W
LTP/FTP ELLIPSOIDAL HEIGHT	+01660
FPAP LATITUDE	451234.9200N
FPAP LONGITUDE	0850101.5700W
THRESHOLD CROSSING HEIGHT (TCH)	00040.0
TCH UNITS SELECTOR (METERS OR FEET USED)	F
GLIDEPATH ANGLE (GPA)	03.00
COURSE WIDTH AT THRESHOLD	106.75
LENGTH OFFSET	1528
HORIZONTAL ALERT LIMIT (HAL)	40.0
VERTICAL ALERT LIMIT (VAL)	0.0
CRC REMAINDER	8F20681C

ADDITIONAL PATH POINT RECORD INFORMATION

ICAO CODE	K5
LTP ORTHOMETRIC HEIGHT	+02010
FPAP ORTHOMETRIC HEIGHT	+02010

QUALITY 9 CHECKED

CITY AND STATE	ELEVATION: 660 THRE: 659	FACILITY IDENTIFIER:	PROCEDURE NO./ AMDT NO./EFFECTIVE DATE:	SUP:
BOYNE CITY, MI	AIRPORT NAME: BOYNE CITY MUNI	RNAV	RNAV (GPS) RWY 27, ORIG	AMDT: NONE
				DATED:

ALL AFFECTED PROCEDURES REVIEWED? ☐ YES ☐ NO	COORDINATES OF FACILITIES	REQUIRED EFFECTIVE DATE

COORDINATED WITH:

ATA ☐ AAT ☐ ALPA ☐ APA ☐ AOPA ☐ NBAA ☐ OTHER (specify) _____

FLIGHT CHECKED BY		
NAME:	FIFO	DATE:
DEVELOPED BY		
NAME:	FIFO	DATE:
APPROVED BY		
NAME:	FIFO	DATE:

CHANGES:

REASONS:

QUALITY CHECKED 9

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ARINC PACKET - 424-18 - RNAV (GPS)

```
                 1         2         3         4         5         6         7         8         9         0         1         2         3
WP       123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012
         ------------------------------------------------------------------------------------------------------------------------------------
         SUSAEAENRT   ADENO K50    C   L N45015032W085131353                    W0063     NAR           ADENO
         SUSAEAENRT   KIYRE K50    W     N45122327W084550678                    W0067     NAR           KIYRE
         SUSAEAENRT   UHOZA K50    W     N45121486W084505634                    W0067     NAR           UHOZA
         SUSAEAENRT   WOMOP K50    C   L N45145203W084412079                    W0069     NAR           WOMOP
         SUSAEAENRT   YOVUG K50    W     N45123906W085031001                    W0065     NAR           YOVUG

                 1         2         3         4         5         6         7         8         9         0         1         2         3
AIRPORT  123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012
         ------------------------------------------------------------------------------------------------------------------------------------
         SUSAP N98 K5AN98     0     040YHN45123173W084592359W005000660         1800018000C    MNAR    BOYNE CITY MUNI

                 1         2         3         4         5         6         7         8         9         0         1         2         3
SEGMENT  123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012
         ------------------------------------------------------------------------------------------------------------------------------------
         SUSAP N98 K5FR27   AWOMOP 010WOMOPK5EA0EE AR   HF                   25390040    + 03200     18000                A JS
         SUSAP N98 K5FR27   R      010WOMOPK5EA0E  I    IF                                + 03200     18000                A JS
         SUSAP N98 K5FR27   R      020UHOZAK5EA1E  F 051TF                   25390073    + 02500                 RW27  K5PGA JS
         SUSAP N98 K5FR27   R      020UHOZAK5EA2WALP        N          ALNAV                                                JS
         SUSAP N98 K5FR27   R      021KIYREK5EA0E S  031TF                   27770030    V 0154001559        -300             A JS
         SUSAP N98 K5FR27   R      030RW27 K5PG0GY M 031TF                   27770027      00699             -300             A JS
         SUSAP N98 K5FR27   R      040         0  M     CA                   2777        + 01060                            A JS
         SUSAP N98 K5FR27   R      050YOVUGK5EA0E       DF                                                               A JS
         SUSAP N98 K5FR27   R      060ADENOK5EA0EY   010TF                   2184        + 03000                            A JS
         SUSAP N98 K5FR27   R      070ADENOK5EA0EE  R   HM                   03780040    + 03000                            A JS

                 1         2         3         4         5         6         7         8         9         0         1         2         3
RUNWAY   123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012
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                 1         2         3         4         5         6         7         8         9         0         1         2         3
PP       123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012
         ------------------------------------------------------------------------------------------------------------------------------------
         SUSAP N98 K5PR27   RW27 001 0000W27A0N4512308165W08458556735+016600300N4512349200W085010157001067515280004O0F4000008F20681C
         SUSAP N98 K5PR27   RW27 002E      +02010+02010LP        50326
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QUALITY CHECKED

CITY AND STATE	ELEVATION: 660 THRE: 659	FACILITY IDENTIFIER:	PROCEDURE NO./ AMDT NO./EFFECTIVE DATE:	SUP:
BOYNE CITY, MI	AIRPORT NAME: BOYNE CITY MUNI	RNAV	RNAV (GPS) RWY 27, ORIG	AMDT: NONE
				DATED:

ALL AFFECTED PROCEDURES REVIEWED? ☐ YES ☐ NO	COORDINATES OF FACILITIES	REQUIRED EFFECTIVE DATE

COORDINATED WITH:

ATA ☐ AAT ☐ ALPA ☐ APA ☐ AOPA ☐ NBAA ☐ OTHER (specify) ☐ _____

FLIGHT CHECKED BY		
NAME:	FIFO	DATE:
DEVELOPED BY		
NAME:	FIFO	DATE:
APPROVED BY		
NAME:	FIFO	DATE:

CHANGES:

REASONS:

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```
                1         2         3         4         5         6         7         8         9         0         1         2         3
MSA     12345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012
        ------------------------------------------------------------------------------------------------------------------------------
        SUSAP N98 K5SRW27 K5PG               0   18018003525                                                              M
```

QUALITY CHECKED

CITY AND STATE	ELEVATION: 660 THRE: 659	FACILITY IDENTIFIER:	PROCEDURE NO./ AMDT NO./EFFECTIVE DATE:	SUP:
BOYNE CITY, MI	AIRPORT NAME: BOYNE CITY MUNI	RNAV	RNAV (GPS) RWY 27, ORIG	AMDT: NONE
				DATED:

ALL AFFECTED PROCEDURES REVIEWED? ☐ YES ☐ NO	COORDINATES OF FACILITIES	REQUIRED EFFECTIVE DATE

COORDINATED WITH:

ATA ☐ AAT ☐ ALPA ☐ APA ☐ AOPA ☐ NBAA ☐ OTHER (specify) ☐ _____

FLIGHT CHECKED BY		
NAME:	FIFO	DATE:
DEVELOPED BY		
NAME:	FIFO	DATE:
APPROVED BY		
NAME:	FIFO	DATE:

CHANGES:

REASONS:

U.S. DEPARTMENT OF TRANSPORTATION - FEDERAL AVIATION ADMINISTRATION

RNAV STANDARD INSTRUMENT APPROACH PROCEDURE
FLIGHT STANDARDS SERVICE - FAR PART 97.33

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ARINC FLIGHT INSPECTION SUMMARY - VERSION 424-18 - RNAV (GPS)

ROUTES	TRANSITION	FIX	SEQ	USE	PATH	TURN	FO/FB	RNP	MAG(TRUE)	DISTANCE	ALTITUDE
	WOMOP	WOMOP	010	IAF	HF	R	FO		253.9(248.9T)	004.0	03200
		WOMOP	010	FACF	IF						03200
		UHOZA	020	FAF	TF		FB	0.5	253.9(248.9T)	007.3	02500
		KIYRE	021	SDF	TF		FB	0.3	277.7(272.7T)	003.0	0154001559
		RW27	030	MAP	TF		FO	0.3	277.7(272.7T)	002.7	00699

MISSED APPROACH	FIX	SEQ	USE	PATH	TURN	FO/FB	RNP	MAG(TRUE)	DISTANCE	ALTITUDE
		040		CA				277.7(272.7T)		01060
	YOVUG	050		DF		FB				
	ADENO	060		TF		FO	1.0	218.4(213.4T)		03000
	ADENO	070		HM	R	FO		037.8(032.8T)	004.0	03000

POINT DATA	WAYPOINT	LAT IN SECS	LONG IN SECS	LAT IN MINS	LONG IN MINS
	ADENO	N450150.32	W0851313.53	N4501.839	W08513.226
	KIYRE	N451223.27	W0845506.78	N4512.388	W08455.113
	UHOZA	N451214.86	W0845056.34	N4512.248	W08450.939
	WOMOP	N451452.03	W0844120.79	N4514.867	W08441.347
	YOVUG	N451239.06	W0850310.01	N4512.651	W08503.167
	RW27	N451230.82	W0845855.67	N4512.514	W08458.928

RUNWAY DATA	RWY	THRESHOLD ELEVATION	TCH
	RW27	00659	40

CITY AND STATE	ELEVATION: 660 THRE: 659	FACILITY IDENTIFIER:	PROCEDURE NO./ AMDT NO./EFFECTIVE DATE:	SUP:
BOYNE CITY, MI	AIRPORT NAME: BOYNE CITY MUNI	RNAV	RNAV (GPS) RWY 27, ORIG	AMDT: NONE
				DATED:

ALL AFFECTED PROCEDURES REVIEWED? ☐ YES ☐ NO	COORDINATES OF FACILITIES	REQUIRED EFFECTIVE DATE

COORDINATED WITH:

ATA ☐ AAT ☐ ALPA ☐ APA ☐ AOPA ☐ NBAA ☐ OTHER (specify) _____

FLIGHT CHECKED BY		
NAME:	FIFO	DATE:
DEVELOPED BY		
NAME:	FIFO	DATE:
APPROVED BY		
NAME:	FIFO	DATE:

CHANGES:

REASONS:

STANDARD INSTRUMENT APPROACH PROCEDURE DATA RECORD

PART - A OBSTRUCTION DATA

1. APP SEGMENT	FROM	TO	OBSTRUCTION	COORDINATES	ELEV. MSL	ROC	ALT. ADJUSTMENTS	MIN. ALT.
INTERMEDIATE	**WOMOP**	**UHOZA**	**1. AAO**	**451228.00N/0844636.00W**	**1545 (2C)**	**500**	**AT455**	**2500**
			2. TERRAIN	**451228.00N/0844636.00W**	**1345 (1300)**		**AS1000**	**2300**
FINAL: LP	**UHOZA**	**KIYRE/2.70 NM TO**	**3. AAO**	**451238.00N/0845403.00W**	**1200 (2C)**	**250**	**RA35 DG55**	**1540**
		RW27						
FINAL: LP STEPDOWN	**KIYRE/2.70 NM TO**	**RW27**	**4. TREE (KN98T2393)**	**451231.95N/0845645.05W**	**1167 (1A)**	**250**	**RA35**	**1460**
	RW27							
FINAL: LNAV	**UHOZA**	**KIYRE/2.70 NM TO**	**5. AAO**	**451143.00N/0845157.00W**	**1249 (2C)**	**250**	**RA35**	**1540**
		RW27						
FINAL: LNAV STEPDOWN	**KIYRE/2.70 NM TO**	**RW27**	**4. TREE (KN98T2393)**	**451231.95N/0845645.05W**	**1167 (1A)**	**250**	**RA35 XP20**	**1480**
	RW27							
2. HOLD-IN-LIEU-OF-PT	**WOMOP**	**P-5**	**1. AAO**	**451228.00N/0844636.00W**	**1545 (2C)**	**1000**	**AT655**	**3200**
			2. TERRAIN	**451228.00N/0844636.00W**	**1345 (1300)**		**AS1500**	**2800**
3. MISSED APPROACH MAP:	*RW27*	**ADENO**				**ASC**		**3000**
			6. TOWER (26-001068)	**451049.00N/0850550.20W**	**1676 (2C)**	**1000**		**2700**
ELEV:	**1325/1345**		**7. TERRAIN**	**450951.00N/0850515.00W**	**1132 (1100)**		**AS1500**	**2600**

4. CIRCLING AREA	DISTANCE	HT. ABV. ARPT.								
CATEGORY A	1.3 NM	REQUIRED 350	ACTUAL	**820**	**8. TREE (KN98T2063)**	**451248.52N/0845709.89W**	**1127 (1A)**	**300**	**RA35**	**1480**
CATEGORY B	1.5 NM	REQUIRED 450	ACTUAL	**840**	**9. TREE (KN98T2309)**	**451240.32N/0845651.68W**	**1149 (1A)**	**300**	**RA35**	**1500**
CATEGORY C	1.7 NM	REQUIRED 450	ACTUAL							
CATEGORY D	2.3 NM	REQUIRED 550	ACTUAL							
CATEGORY E	4.5 NM	REQUIRED 550	ACTUAL							

5. MINIMUM SAFE ALTITUDES — PRIMARY NAVAID: **RW27**

SECTOR	OBSTRUCTION	BRG/DIST	ELEVATION (MSL)	M S A	SECTOR	OBSTRUCTION	BRG/DIST	ELEVATION (MSL)	M S A
360-360	*TOWER (26-000479)*	**193/ 27.9**	**2470 (4D)**	**3500**					

CITY AND STATE	AIRPORT NAME:	FACILITY	PROCEDURE AND AMENDMENT NO:	REGION
BOYNE CITY, MI	**ELEVATION: 660** **BOYNE CITY MUNI**	**RNAV**	**RNAV (GPS) RWY 27, ORIG**	AGL

QUALITY CHECKED

PART B - SUPPLEMENTAL DATA

1. COMMUNICATIONS WITH:	2. WEATHER SERVICE	3. ALTIMETER SETTING
ZMP ARTCC	[ ] NWS OTHER: AWOS-3	SOURCE: KCVX / KMGN
	[ ] FAA	DISTANCE: 13.40 / 13.40
	[ ] A/C	HOURS REMOTE OPERATION: 24 / BACKUP
SATISFACTORY ON:		
[X] VHF [X] UHF [X] HF	LOCATION: KCVX	ADJUSTMENT: 35 / 35

4. MONITOR STATUS	PRIMARY NAVAID:	
	MONITOR POINT:	
	HRS OPTN: CAT 1	
	HRS OPTN: CAT 3	

5. APPROACH & RUNWAY LIGHTING	
[ ]	ALS
[ ]	(S) SALS
[ ]	MALS
[ ]	HIRL
[X]	MIRL 27 (PCL), 09 (PCL)
[X]	REIL 09
[ ]	TDZ
[ ]	C/LINE
[X]	OTHER (SPECIFY) PAPI-2L 27, 09 (PCL)

6. RUNWAY MARKINGS	BASIC BSC-F 27, 09	
	ALL WEATHER	
	INSTRUMENT	
7. RUNWAY VISUAL RANGE	APPROACH	
	MIDFIELD	
	ROLL OUT	
8. GLIDE PATH	GP ANGLE:	ELEV RWY THRESHOLD:
	DISTANCE FROM RWY:	ELEV GP ANTENNA:
		THRESHOLD CROSSING HEIGHT:

9. FINAL APPROACH COURSE AIMING			
	[X]	RUNWAY THRESHOLD	FT. FROM THRESHOLD
	[X]	ON CENTERLINE	FT. FROM CENTERLINE

10. WAIVERS: NONE

PART D - PREPARED BY: JOHN R. ROSARIO	DATE: 06/21/2011
TITLE: AERONAUTICAL INFORMATION SPECIALIST	OFFICE: AJV-353

PART C - REMARKS:

VDP NOT ESTABLISHED - FULL TIME REMOTE ALTIMETER.

PRECIPITOUS TERRAIN EVALUATION COMPLETED.

SEE ATTACHED AIRSPACE LETTER.

LPV AND LNAV/VNAV NOT DEVELOPED DUE TO NUMEROUS PENETRATIONS REQUIRING WAIVER ACTION

KN98, KCVX, AND KMGN PRESSURE PATTERNS SAME
KN98 660, KMGN 686, KCVX 669
KMGN RA=34.46
KCVX RA = 32.08
KCVX AND KMGN ARE SAME DISTANCE FROM KN98. THE GREATER ADJUSTMENT (35 FEET) WAS APPLIED FOR BOTH LOCATIONS

DTED NOT USED IN FINAL, CIRCLING, AND MISSED APPROACH DUE TO REQUIRED ACCURACY ADJUSTMENT. AAO AND TREE OBSTACLES WERE DERIVED FROM 1:24/25 TOPO CHART, BY THE NEXT HIGHER METRIC CONTOUR, MINUS ONE FOOT METHOD

TERPS PARAGRAPH 289 APPLIED TO 1397 AAO 451241N/0845051W AND 1364 AAO 451255N/0845117W

TERPS, VOLUME 1, "VISUAL PORTION OF FINAL" PENETRATIONS

20:1 1027 TREE (KN98T1816) 451234.87N/0845731.18W (76.65)
1141 TREE (KN98T2240) 451240.99N/0845656.77W (69.10)
1147 TREE (KN98T2283) 451240.87N/0845653.98W (65.10)
985 TREE (KN98T1640) 451236.84N/0845739.43W (64.60)
THE TOP FOUR PENETRATIONS ARE LISTED HERE. THE ENTIRE LIST OF PENETRATORS IS VERY EXTENSIVE (SEE MR#1) AND HAS BEEN SUBMITTED AS SUPPORTING DATA. IT WILL BE FILED ALONG WITH PROCEDURE FORMS AND CORRESPONDENCE

34:1 1167 TREE (KN98T2393) 451231.95N/0845645.05W (239.09)
1149 TREE (KN98T2309) 451240.32N/0845651.68W (236.20)
1161 TREE (KN98T2384) 451233.48N/0845645.97W (235.24)
1163 TREE (KN98T2403) 451230.99N/0845644.36W (233.51)
THE TOP FOUR PENETRATIONS ARE LISTED HERE. THE ENTIRE LIST OF PENETRATORS IS VERY EXTENSIVE (SEE MR#2) AND HAS BEEN SUBMITTED AS SUPPORTING DATA. IT WILL BE FILED ALONG WITH PROCEDURE FORMS AND CORRESPONDENCE

NIGHT EFFECT OF RWY 9 AND 27 CIRCLING VISUAL AREAS PENETRATIONS (VAAR) MITIGATED BY VGSI NOTE, IAW 8260.3B CHANGE 20 PARAGRAPH 3.3.2.D(2)(D)

KCVX AND KMGN AWOS ON SERVICE-A

TREE HEIGHT 100'

VGSI DATA: 4.00/43

XP = TO ALLOW PUBLICATION OF LP MINIMA

THIS FORM WAS PDF EDITED
BLOCK 3: MAP: REMOVED DOUBLE PRINT
BLOCK 5: COMPLETED OBSTACLE NUMBER
PART B, BLOCK 2: REPLACED NULL WITH 3
BLOCK 3: ADDED 35
BLOCK 8: REMOVED DATA

QUALITY CHECKED

RADIO FIX AND HOLDING DATA RECORD

NAME: ADENO **STATE:** MI **COUNTRY:** US

LATITUDE/LONGITUDE: 450150.32N/0851313.53W **TYPE:** WP, INT, DME

AIRSPACE DOCKET: **FIX TYPE OF ACTION:** MODIFY

FIX MAKE-UP FACILITIES:

FAC	NAME	IDENT	TYPE	CLASS	MAG BRG	TRUE BRG	DME	DIST FROM FAC NM	DIST FROM FAC FEET	MRA	MAA
1	TRAVERSE CITY	TVC	VORTAC	H	034.76	032.76	25.92	25.92		3000	17500
2	GAYLORD	GLR	VOR/DME	L	279.02	273.02		21.99		3000	17500

HOLDING: **HOLDING TYPE OF ACTION:** MODIFY

PATTERNS:

PAT	DIR	IDENT	TYPE	RAD/CRS/BRG	CRS INBOUND	TURN (L OR R)	LEG LENGTH TIME	LEG LENGTH DME	HOLDING ALTITUDES MIN	HOLDING ALTITUDES MAX	TEMPLATES MIN	TEMPLATES MAX
1	SW		WP	217.76	037.76	R		4	3000	6000	5	6

CONTROLLING OBSTRUCTIONS:

PAT	AIRSPEED	OBSTRUCTION	COORDINATES	ELEVATION	ACCURACY CODE
UPN	200	TOWER (26-001068)	451049.00N/0850550.20W	1676	2C
1	200	AAO	445652.00N/0850918.00W	1381	2C

HOLDING RESTRICTIONS:
UNPLANNED HOLDING AUTHORIZED AT OR ABOVE 3000

REMARKS:
GAYLORD (FAC 2) AND TRAVERSE CITY (FAC 1) USED TO ESTABLISH FIX COORDINATES
PRECIPITOUS TERRAIN EVALUATION COMPLETED

FIX USE:

USE TYPE	USE TITLE	FAC	PAT	AIRPORT IDENT	CITY	STATE
EN ROUTE	V193-320	1, 2				(US)
IAP	RNAV (GPS) RWY 27		1	KN98	BOYNE CITY	MI (US)
IAP	RNAV (GPS) RWY 9			KN98	BOYNE CITY	MI (US)
IAP	RNAV (GPS) RWY 17			KBFA	BOYNE FALLS	MI (US)
IAP	RNAV (GPS) RWY 35			KBFA	BOYNE FALLS	MI (US)
IAP	RNAV (GPS) RWY 9			KGLR	GAYLORD	MI (US)

REQUIRED CHARTING: IAP, CONTROLLER, EN ROUTE LOW

COMPULSORY REPORTING POINT: NO

RECORD REVISION NUMBER: 5 **DATE OF REVISION:** 02/09/2012

REASON FOR REVISION:
FAC 1 AND 2 UPDATED, ADDED DIST FROM FACS 1 & 2 - CRITERIA
REFORMATTED UNPLANNED HOLDING DATA, UPDATED CONTROLLING OBSTACLE, UNPLANNED HOLDING ALTITUDE REVISED FROM 3500 TO 3000 - NEW OBSTACLE DATA
ADDED PAT 1 HOLDING DATA, OBSTACLE, ALTITUDES - FPT REQUEST
FORMATTED FIX USE AND ADDED KN98 SIAPS
ADDED PRECIPITOUS TERRAIN REMARK - CRITERIA
ADDED WP TO FIX TYPE - WP HOLDING FOR RNAV SIAPS

DEVELOPED BY: **DATE:** 06/16/2011 **OFFICE:** AJV-353 **NAME:** JOHN ROSARIO

APPROVED BY: **DATE:** **OFFICE:** AJV-353 **NAME:** LARRY STROUT

SIGNATURE:

DISTRIBUTION:
NFDC
FPO: CEN
ARTCC: ZMP
ATC FACILITY:
OTHER:

RADIO FIX AND HOLDING DATA RECORD

NAME: KIYRE **STATE:** MI **COUNTRY:** US

LATITUDE/LONGITUDE: 451223.27N/0845506.78W **TYPE:** WP

AIRSPACE DOCKET: **FIX TYPE OF ACTION:** ESTABLISH

FIX USE:

USE TYPE	USE TITLE	FAC	PAT	AIRPORT IDENT	CITY	STATE
IAP	RNAV (GPS) RWY 27			KN98	BOYNE CITY	MI (US)

REQUIRED CHARTING: IAP

COMPULSORY REPORTING POINT: NO

RECORD REVISION NUMBER: ORIG **DATE OF REVISION:** 02/09/2012

DEVELOPED BY: **DATE:** 06/06/2011 **OFFICE:** AJV-353 **NAME:** JOHN ROSARIO

APPROVED BY: **DATE:** **OFFICE:** AJV-353 **NAME:** LARRY STROUT

SIGNATURE:

DISTRIBUTION:
NFDC
FPO: CEN
ARTCC: ZMP
ATC FACILITY:
OTHER:

QUALITY CHECKED

RADIO FIX AND HOLDING DATA RECORD

NAME: UHOZA **STATE:** MI **COUNTRY:** US

LATITUDE/LONGITUDE: 451214.86N/0845056.34W **TYPE:** WP

AIRSPACE DOCKET: **FIX TYPE OF ACTION:** ESTABLISH

FIX USE:

USE TYPE	USE TITLE	FAC	PAT	AIRPORT IDENT	CITY	STATE
IAP	RNAV (GPS) RWY 27			KN98	BOYNE CITY	MI (US)

REQUIRED CHARTING: IAP

COMPULSORY REPORTING POINT: NO

RECORD REVISION NUMBER: ORIG **DATE OF REVISION:** 02/09/2012

DEVELOPED BY: **DATE:** 06/15/2011 **OFFICE:** AJV-353 **NAME:** JOHN ROSARIO

APPROVED BY: **DATE:** **OFFICE:** AJV-353 **NAME:** LARRY STROUT

SIGNATURE:

DISTRIBUTION:
NFDC
FPO: CEN
ARTCC: ZMP
ATC FACILITY:
OTHER:

QUALITY CHECKED

RADIO FIX AND HOLDING DATA RECORD

NAME: WOMOP **STATE:** MI **COUNTRY:** US

LATITUDE/LONGITUDE: 451452.03N/0844120.79W **TYPE:** WP, DME

AIRSPACE DOCKET: **FIX TYPE OF ACTION:** ESTABLISH

FIX MAKE-UP FACILITIES:

FAC	NAME	IDENT	TYPE	CLASS	MAG BRG	TRUE BRG	DME	DIST FROM FAC NM	DIST FROM FAC FEET	MRA	MAA
1	PELLSTON	PLN	VORTAC	L	188.64	182.64	23.00	23.00		3200	17500

HOLDING: **HOLDING TYPE OF ACTION:** ESTABLISH

PATTERNS:

PAT	DIR	IDENT	TYPE	RAD/CRS/BRG	CRS INBOUND	TURN (L OR R)	LEG LENGTH TIME	LEG LENGTH DME	HOLDING ALTITUDES MIN	HOLDING ALTITUDES MAX	TEMPLATES MIN	TEMPLATES MAX
1	E		WP	073.93	253.93	R		4	3200	6000	5	6

CONTROLLING OBSTRUCTIONS:

PAT	AIRSPEED	OBSTRUCTION	COORDINATES	ELEVATION	ACCURACY CODE
1	200	AAO	451228.00N/0844636.00W	1545	2C

HOLDING RESTRICTIONS:
HOLDING LIMITED TO ESTABLISHED PATTERN

REMARKS:
PRECIPITOUS TERRAIN EVALUATION COMPLETED

FIX USE:

USE TYPE	USE TITLE	FAC	PAT	AIRPORT IDENT	CITY	STATE
EN ROUTE	V233	1				(US)
IAP	RNAV (GPS) RWY 27		1	KN98	BOYNE CITY	MI (US)
IAP	RNAV (GPS) RWY 9		1	KN98	BOYNE CITY	MI (US)

REQUIRED CHARTING: IAP, CONTROLLER, EN ROUTE LOW

COMPULSORY REPORTING POINT: NO

RECORD REVISION NUMBER: ORIG **DATE OF REVISION:** 02/09/2012

DEVELOPED BY: **DATE:** 06/15/2011 **OFFICE:** AJV-353 **NAME:** JOHN ROSARIO

APPROVED BY: **DATE:** **OFFICE:** AJV-353 **NAME:** LARRY STROUT

SIGNATURE:

DISTRIBUTION:
NFDC
FPO: CEN
ARTCC: ZMP
ATC FACILITY:
OTHER:

RADIO FIX AND HOLDING DATA RECORD

NAME: YOVUG **STATE:** MI **COUNTRY:** US

LATITUDE/LONGITUDE: 451239.06N/0850310.01W **TYPE:** WP

AIRSPACE DOCKET: **FIX TYPE OF ACTION:** ESTABLISH

FIX USE:

USE TYPE	USE TITLE	FAC	PAT	AIRPORT IDENT	CITY	STATE
IAP	RNAV (GPS) RWY 27			KN98	BOYNE CITY	MI (US)

REQUIRED CHARTING: IAP

COMPULSORY REPORTING POINT: NO

RECORD REVISION NUMBER: ORIG **DATE OF REVISION:** 02/09/2012

DEVELOPED BY: **DATE:** 06/15/2011 **OFFICE:** AJV-353 **NAME:** JOHN ROSARIO

APPROVED BY: **DATE:** **OFFICE:** AJV-353 **NAME:** LARRY STROUT

SIGNATURE:

DISTRIBUTION:
NFDC
FPO: CEN
ARTCC: ZMP
ATC FACILITY:
OTHER:

QUALITY CHECKED

TERMINAL AIRSPACE DATA REQUIREMENTS

CITY: **BOYNE CITY** STATE: **MI**

AIRPORT NAME: **BOYNE CITY MUNI** ID: **KN98**

PROCEDURE: **RNAV (GPS) RWY 27** AMDT: **ORIG**

DOCKET # : **11-AGL-16**
(96-AXX-X/Required/Not Required)

ALL DIST TO 1/100 NM; ELEV TO NEAREST FT; COORD TO 1/100 SEC; DEG TO 1/100 DG.

1. Distance from **THLD** to 1000' point **4.65**
   (Enter THLD, FAF, ARP, FACILITY, as appropriate)
2. Width of **FINAL** segment at 1000' point **1.20**
   (Enter appropriate segment , final, intermediate, etc.)
3. True Course of **FINAL** segment containing 1000' point **272.74**
4. High Terrain in **FINAL** segment containing 1000' point **1200**
5. Distance from **FAF** to 1500' point **6.47**
   (If 1500' point in PT maneuvering area or holding pattern note in remarks)
6. Width of **INTERMEDIATE** segment at 1500' point **4.00**
7. True Course of **INTERMEDIATE** segment containing 1500' point **248.93**
8. High Terrain in **INTERMEDIATE** segment containing 1500' point **1300**
9. Threshold Coordinates (if straight-in) ... **451230.82N** / **0845855.67W**
10. ARP Coordinates ..... **451231.73N** / **0845923.59W**
11. Runway Approach End and distance furthest from ARP.....RWY **27**
    Distance **0.33** NM
12. FAF Coordinates ..... **451214.86N** / **0845056.34W**
    (Click to Select)

REMARKS: Approach/Drawing attached. NOTE: FINAL AND INTERMEDIATE COURSES ARE DIFFERENT.