Flight Procedure Tracking Form	Action: FLIGHT CHECK	Task Type: IAP	Date Open: 07/07/2011	Task #: 2011070726620801006	Request #: 20110707266208
Procedure: RNAV (RNP) Z RWY 31 AMDT 1		Airport ID: KBNA	Airport: NASHVILLE INTL		Reimbursable #:
City: NASHVILLE	ST: TN	GPS #:		Estimated Chart Date: 11/15/2012	FICO #:
Fac ID:	Fac. Type: Proc-P	Specialist: CHRISTOPHER COX			

P2

Procedure Review

	Rec'd	Rel'd	Full Name	Comments
Lead:	05/07/2012	08/13/2012	MARLON ROBINSON	
QA:	08/13/2012	08/17/2012	STEVEN SZUKALA	
Liaison:	08/17/2012		K. Spurlin	P2 - WAIVER - APPROVAL

Procedure Comments: ENROUTE **Remark Type:** INFORMATION PKG 2 of 6

NASHVILLE, TN NASHVILLE INTL (KBNA) RNAV (RNP) Z RWY 31, AMDT 1 ENROUTE-YES FC BY 9/18/12 PUB 11/15/12

ATTACHED FORMS: 82603, 8260-9, 8260-10, 8260-1
8260-2(S): BGEDD ORIG, CFVTC ORIG, CFVTN ORIG, COVBI ORIG, CUSUT ORIG, GILME ORIG, JARAS INT REV 1 (INFO), MUGEE ORIG, NEZRU ORIG, ONUGE INT REV 2 (INFO), TIBVE ORIG, USISE ORIG, ZEVEM ORIG.

CONTACT: DON SMITH/MARLON ROBINSON-AJV-352 LEADS, 405.954.1036/405.954.3636.

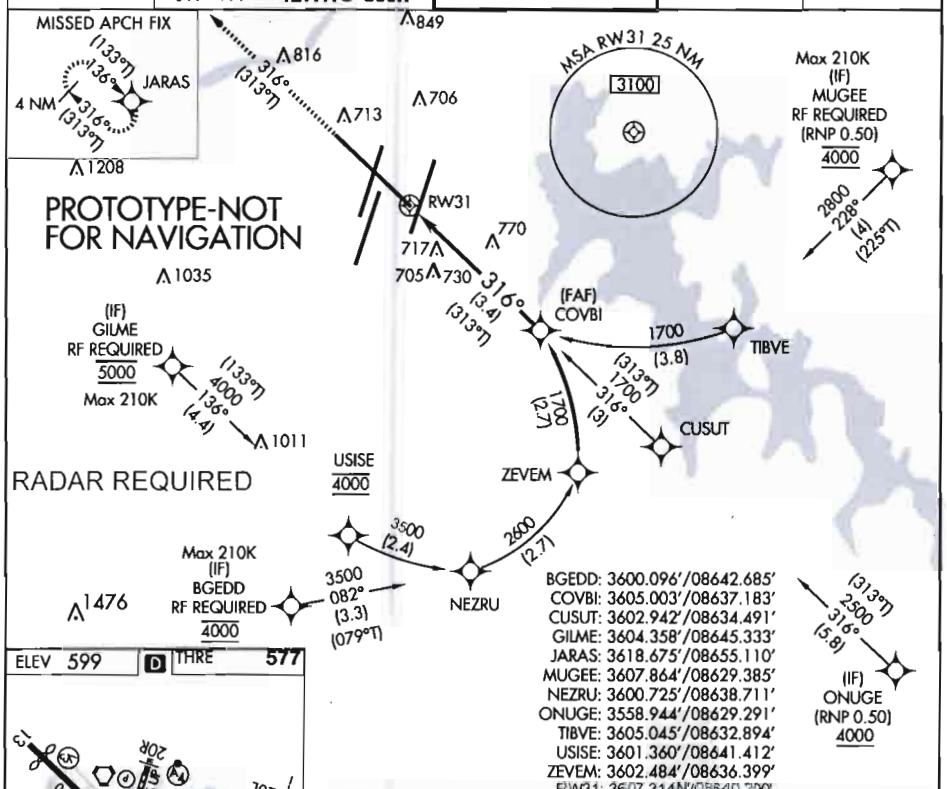
APP CRS	Rwy ldg	9487
316°	THRE	577
	Apt Elev	599

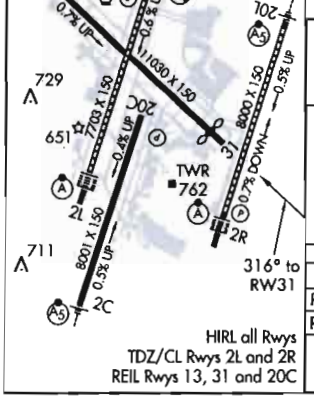
RNAV (RNP) Z RWY 31
NASHVILLE INTL (BNA)

For uncompensated Baro-VNAV systems, procedure NA below -16°C (4°F) or above 54°C (130°F). GPS required.

MISSED APPROACH: Climb to 3100 on track 316° to JARAS and hold.

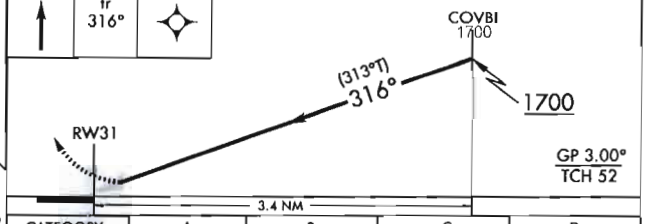
ATIS	NASHVILLE APP CON	NASHVILLE TOWER	GND CON	CLNC DEL
135.1	200°-018° 120.6 372.0 019°-199° 127.175 360.7	118.6 257.8	121.9 348.6	126.05





3100	tr 316°	JARAS

See planview for multiple IF locations.



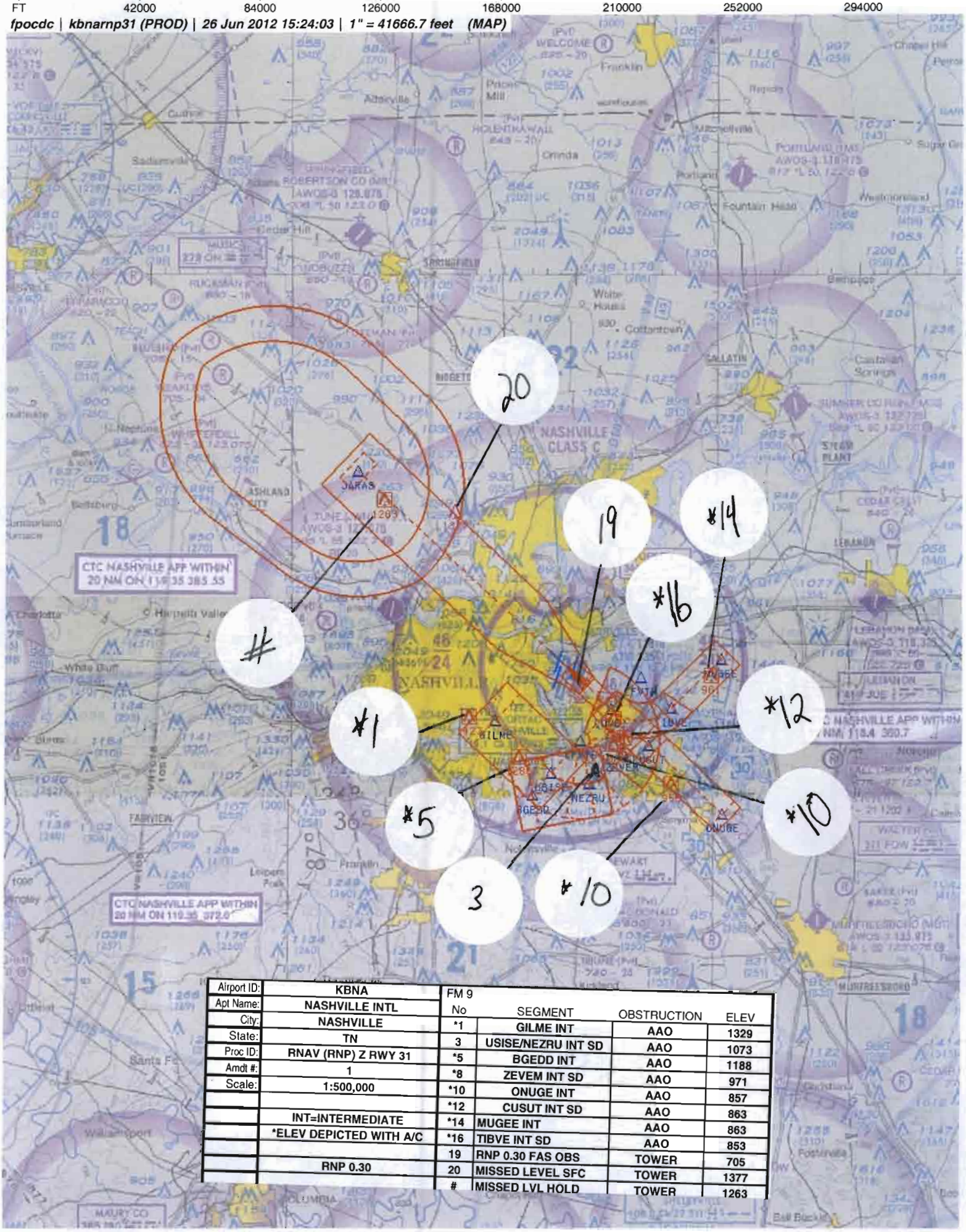
CATEGORY	A	B	C	D
RNP 0.25 DA	1025-1½ 448 (500-1½)			
RNP 0.30 DA	1099-1¾ 522 (600-2)			

AUTHORIZATION REQUIRED

NM 7 14 21 28 35 42 49

FT 42000 84000 126000 168000 210000 252000 294000

fpocdc | kbnarnp31 (PROD) | 26 Jun 2012 15:24:03 | 1" = 41666.7 feet (MAP)



Airport ID:	KBNA
Apt Name:	NASHVILLE INTL
City:	NASHVILLE
State:	TN
Proc ID:	RNAV (RNP) Z RWY 31
Amdt #:	1
Scale:	1:500,000
	INT=INTERMEDIATE
	*ELEV DEPICTED WITH A/C
	RNP 0.30

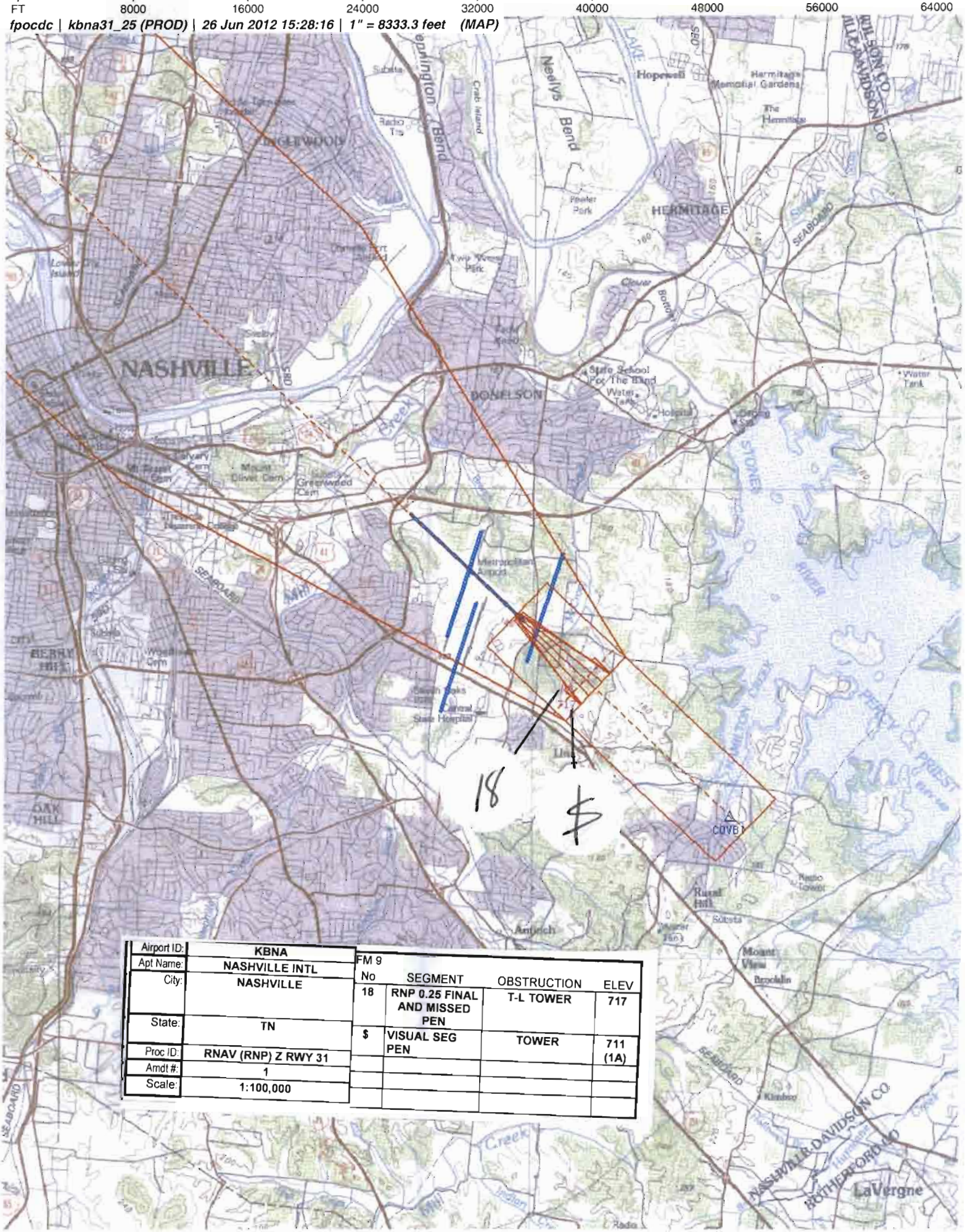
FM 9

No	SEGMENT	OBSTRUCTION	ELEV
*1	GILME INT	AAO	1329
3	USISE/NEZRU INT SD	AAO	1073
*5	BGEDD INT	AAO	1188
*8	ZEVEM INT SD	AAO	971
*10	ONUGE INT	AAO	857
*12	CUSUT INT SD	AAO	863
*14	MUGEE INT	AAO	863
*16	TIBVE INT SD	AAO	853
19	RNP 0.30 FAS OBS	TOWER	705
20	MISSED LEVEL SFC	TOWER	1377
#	MISSED LVL HOLD	TOWER	1263

NM 1 2 3 4 5 6 7 8 9 10

FT 8000 16000 24000 32000 40000 48000 56000 64000

fpocdc | kbna31_25 (PROD) | 26 Jun 2012 15:28:16 | 1" = 8333.3 feet (MAP)



Airport ID:	KBNA
Apt Name:	NASHVILLE INTL
City:	NASHVILLE
State:	TN
Proc ID:	RNAV (RNP) Z RWY 31
Amdt #:	1
Scale:	1:100,000

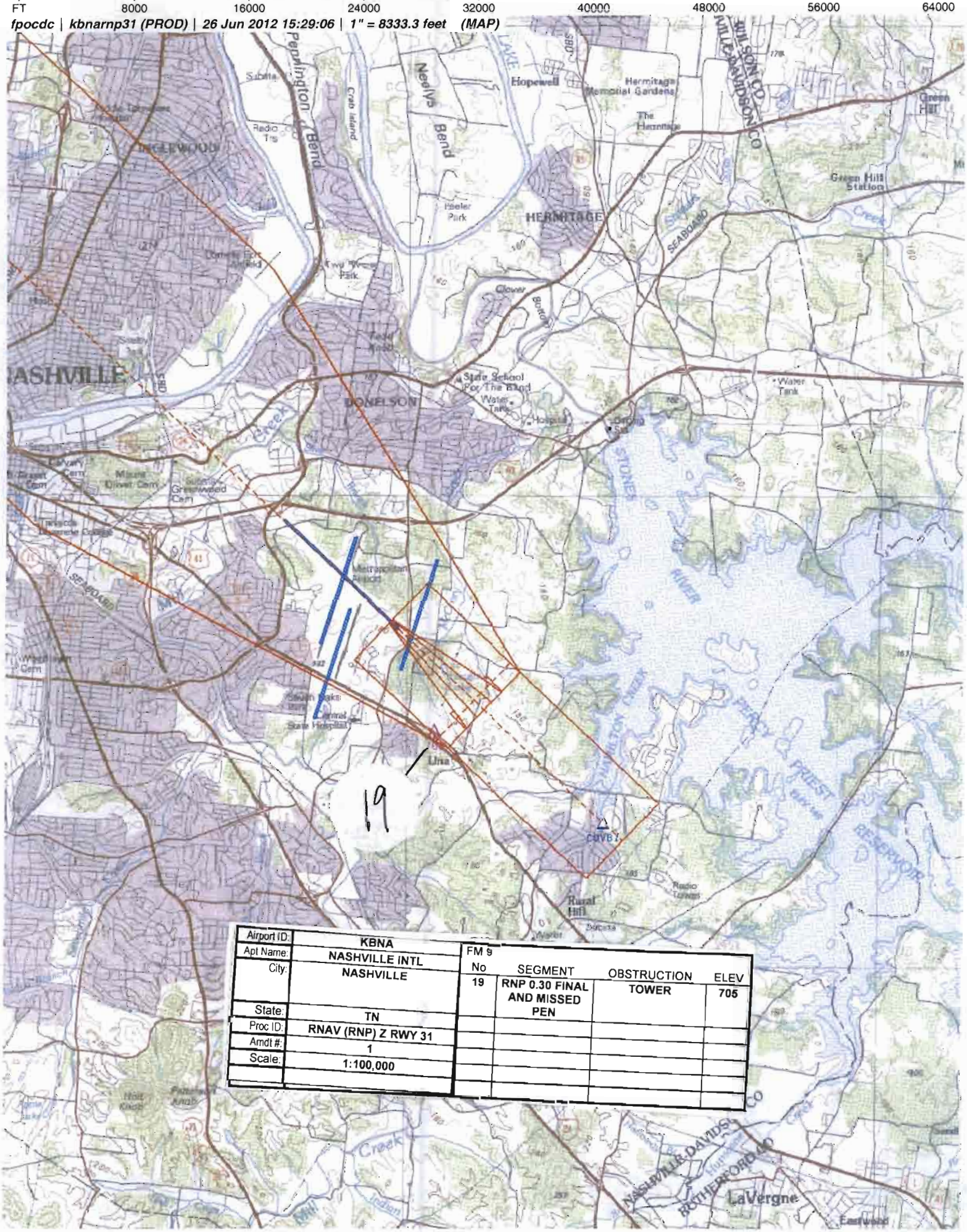
FM 9

No	SEGMENT	OBSTRUCTION	ELEV
18	RNP 0.25 FINAL AND MISSED PEN	T-L TOWER	717
$	VISUAL SEG PEN	TOWER	711 (1A)

NM 1 2 3 4 5 6 7 8 9 10

FT 8000 16000 24000 32000 40000 48000 56000 64000

fpocdc | kbnarnp31 (PROD) | 26 Jun 2012 15:29:06 | 1" = 8333.3 feet (MAP)



Airport ID:	KBNA
Apt Name:	NASHVILLE INTL
City:	NASHVILLE
State:	TN
Proc ID:	RNAV (RNP) Z RWY 31
Amdt #:	1
Scale:	1:100,000

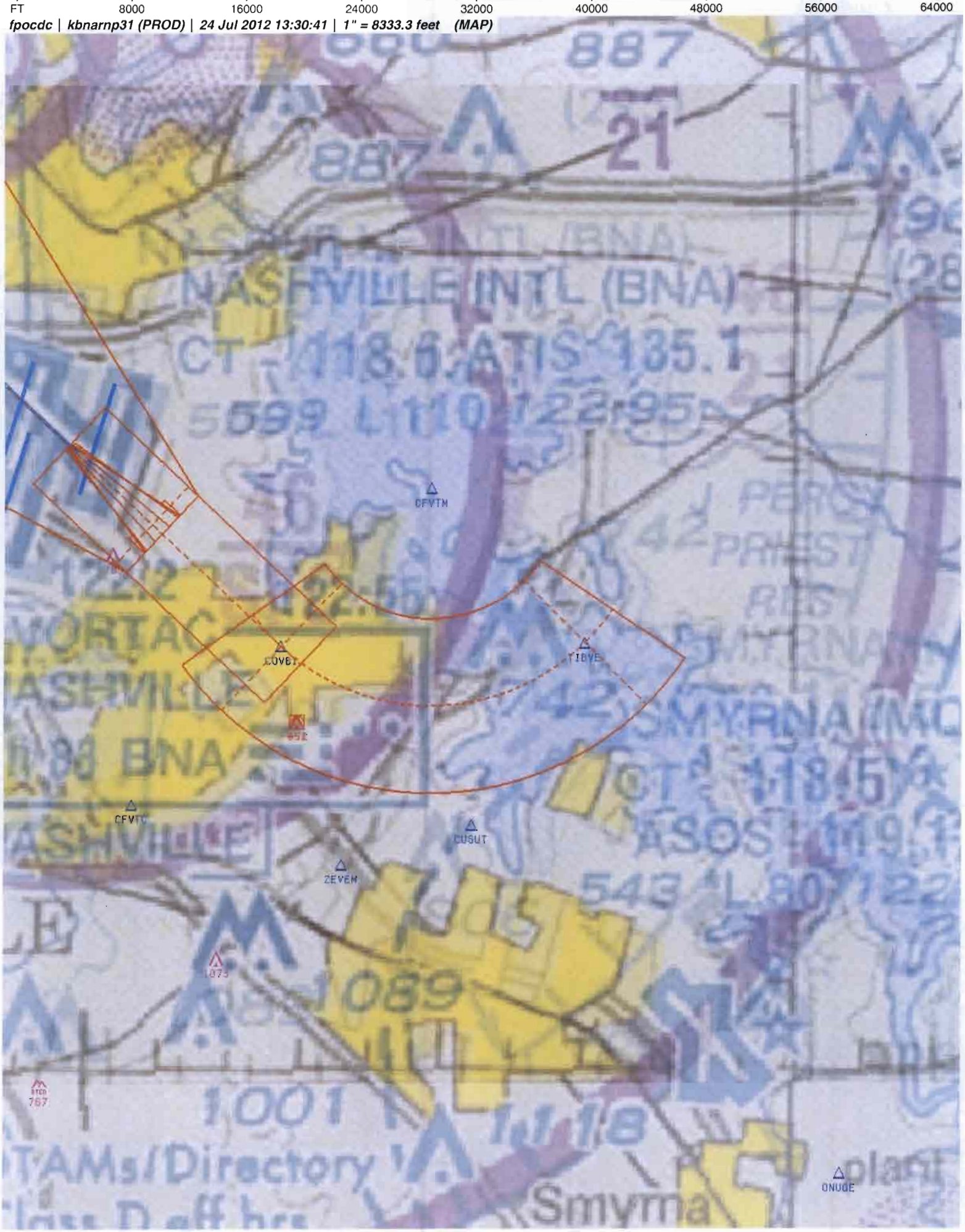
FM 9

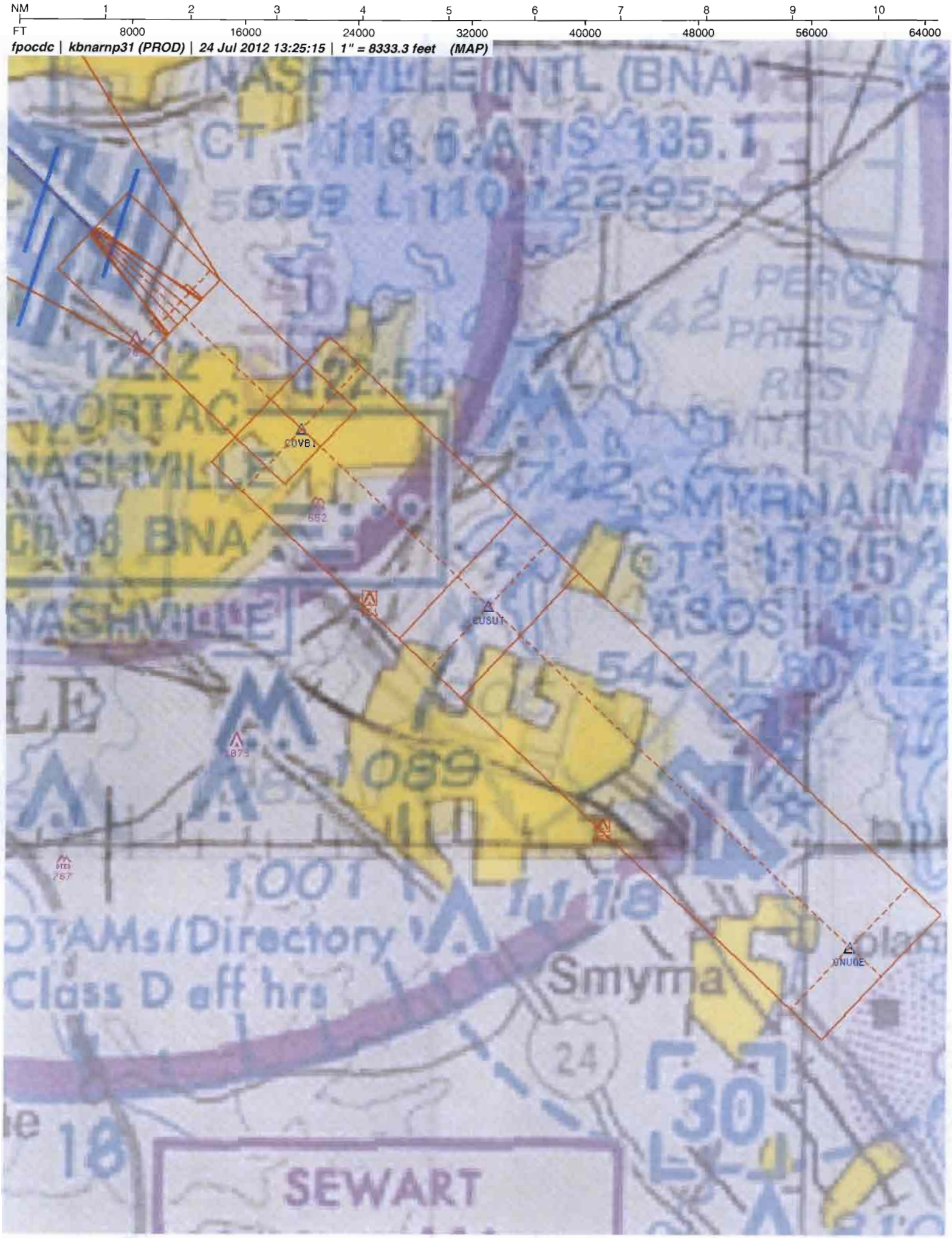
No	SEGMENT	OBSTRUCTION	ELEV
19	RNP 0.30 FINAL AND MISSED PEN	TOWER	705

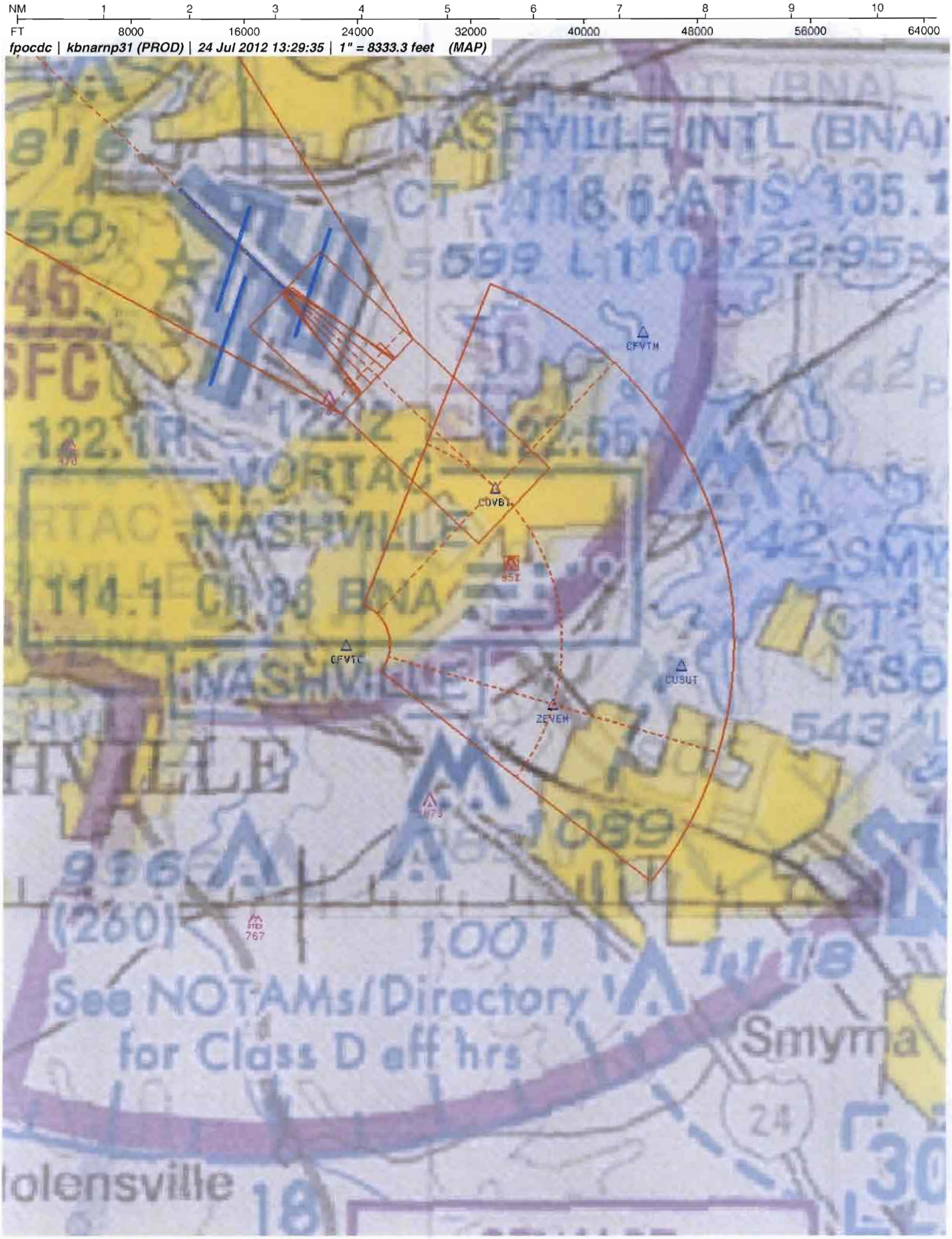
NM 1 2 3 4 5 6 7 8 9 10

FT 8000 16000 24000 32000 40000 48000 56000 64000

fpocdc | kbnarnp31 (PROD) | 24 Jul 2012 13:30:41 | 1" = 8333.3 feet (MAP)




NM 1 2 3 4 5 6 7 8 9 10
FT 8000 16000 24000 32000 40000 48000 56000 64000
fpocdc | kbnarnp31 (PROD) | 24 Jul 2012 13:25:15 | 1" = 8333.3 feet (MAP)
NASHVILLE INTL (BNA)
CT - 118.6 ATIS 135.1
599 L 110 122.95
PERCY PRIEST RESY
VORTAC
NASHVILLE
Ch 88 BNA
NASHVILLE
SMYRNA
CT 118.5
ASOS
543 L 80
1089
1001
OTAMs/Directory
Class D eff hrs
Smyrna
24
30
SEWART


NM 1 2 3 4 5 6 7 8 9 10
FT 8000 16000 24000 32000 40000 48000 56000 64000
fpocdc | kbnarnp31 (PROD) | 24 Jul 2012 13:29:35 | 1" = 8333.3 feet (MAP)
NASHVILLE INTL (BNA)
CFVTM
CDVBT
CFVTC
CUSUT
ZEVEH
See NOTAMs/Directory
for Class D off hrs
Smyrna

US DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

RNAV (RNP) - STANDARD, INSTRUMENT APPROACH PROCEDURE, TITLE 14 CFR PART 97.33

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TERMINAL ROUTES

FROM	TO	COURSE AND DISTANCE	ALTITUDE
GILME (IF)	USISE (TF) (FB) (RNP 1.00)	136.27 / 4.37	4000
USISE	NEZRU (RF) (FB) (RNP 1.00)	(2.50 NM RADIUS CCW (CFVTC))/2.37	3500
BGEDD (IF)	NEZRU (TF) (FB) (RNP 1.00)	081.97 / 3.28	3500
NEZRU	ZEVEM (RF) (FB) (RNP 1.00)	(2.50 NM RADIUS CCW (CFVTC))/2.74	2600
ZEVEM	COVBI (RF) (FB) (RNP 1.00)	(2.50 NM RADIUS CCW (CFVTC))/2.74	1700
(SEE FORM 8260-10)			

MISSED APPROACH

RNP: DA

CLIMB TO 3100 ON TRACK 316.31 TO JARAS AND HOLD.

ADDITIONAL FLIGHT DATA:

HOLD NW, RT, 136.17 INBOUND.
CHART FAS OBST: 717 T-L TWR 360622N/0863929W
CHART FAS OBST: 705 TOWER 360558N/0863934W
CHART: 711 TOWER 360627N/0863928W
DISTANCE TO THLD FROM 448 HATH: 1.24 NM.
ROUTE TYPE: A,H
ROUTE TYPE QUALIFIER 1: F
ROUTE TYPE QUALIFIER 2: S
#TCH 629.5 MSL (DO NOT CHART)
CHART MANDATORY 4000 AT MUGEE
CHART MANDATORY 5000 AT GILME
CHART MANDATORY 4000 AT BGEDD
CHART MINIMUM 4000 AT ONUGE
CHART MANDATORY 4000 AT USISE

1. PT ____ SIDE OF COURSE ____ OUTBOUND ____ FT WITHIN ____ MILES OF ____ (IAF)
2. PROFILE STARTS AT COVBI
3. FAC: 316.35 FAF: ____ DIST FAF TO MAP: ____ THLD: ____
4. MIN. ALT: COVBI 1700
5. DIST TO THLD FROM OM: 3.36 MM: ____ IM: ____ 150 HAT: ____ 100 HAT: ____ GS ANT: ____
6. MIN GS INCPT: 1700 GS ALT AT: COVBI 1700 OM: ____ MM: ____ IM: ____
7. GS ANGLE: 3.00 TCH: 52.1 # 34:1 IS CLEAR
8. MSA FROM: RW31 3100

MAG VAR: 3W EPOCH YEAR: 2010

MINIMUMS

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

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
AUTHORIZATION REQUIRED															
RNP 0.25 DA	1025	1 1/2	448	1025	1 1/2	448	1025	1 1/2	448	1025	1 1/2	448			
RNP 0.30 DA	1099	1 3/4	522	1099	1 3/4	522	1099	1 3/4	522	1099	1 3/4	522			

NOTES:
CHART NOTE: FOR UNCOMPENSATED BARO-VNAV SYSTEMS, PROCEDURE NA BELOW -16C (4F) OR ABOVE 54C (130F).
CHART NOTE: GPS REQUIRED.
CHART PLANVIEW NOTE AT GILME : MAX 210 KIAS.
CHART PLANVIEW NOTE AT BGEDD : MAX 210 KIAS.
(SEE FORM 8260-10)

QUALITY 1 QUALITY

CITY AND STATE	ELEVATION: 599 THRE: 577	FACILITY IDENTIFIER:	PROCEDURE NO./AMDT NO./EFFECTIVE DATE:	SUP:
NASHVILLE, TN	AIRPORT NAME: NASHVILLE INTL	RNAV	RNAV (RNP) Z RWY 31, AMDT 1	AMDT: ORIG-A
				DATED 06/30/2011

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

COORDINATED WITH:

ATA	AAT	ALPA	APA	AOPA	NBAA	OTHER (specify)
X		X	X	X	X	X ZME, NASHVILLE APP CON, APT MGR

FLIGHT CHECKED BY		
NAME:	FIFO	DATE:

DEVELOPED BY		
NAME: CHRISTOPHER COX	FIFO AJV-352	DATE: 06/26/2012

APPROVED BY		
NAME: DARRYEL ADAMS MANAGER	FIFO AJV-352	DATE:

CHANGES:

1. REMOVED SYI VOR AND CENOP INITIAL AND ADDED RF TRANSITIONS
2. RNP 0.25 RNP DA/HATH WAS 1012/435, IS 1025/448
3. RNP 0.30 RNP DA/HATH WAS 1121/544, IS 1099/522
4. REMOVED RNP 0.25 CLIMB GRADIENT
5. FAF WAS HOLER @ 6.1 NM/2600, IS COVBI @ 3.36 NM/1700 FT
6. ALT AT ONUGE WAS 3000 (MEA), IS 4000 (AT OR ABOVE)
7. ALL REFERENCES TO TDZE CHANGED TO THRE
8. RNP 0.25 NIGHT RESTRICTION REMOVED
9. CRITICAL COLD/HIGH TEMPS WERE -12C(11F) AND 47C(118F), ARE -16C(4F) AND 54C(130F)

REASONS:

1. DESIGN REQUEST IN ORDER TO TIE INTO RNAV STARS
2,3,4. OBSTACLES IN PREVIOUS PROCEDURES WERE CASE STUDIES; SINCE THEN THEY HAVE BEEN ADDED TO THE DATA BASE AND ASSIGNED ACCURACIES. MINIMA AFFECTED AND CG NOT REQUIRED.
5,6. DESIGN REQUEST
7. CHAPTER 3 OF THE 8260.3B VOLUME 1 STATES ALL HEIGHTS WILL BE MEASURED FROM THE THLD ELEVATION RATHER THAN THE TOUCHDOWN ZONE ELEVATION.
8. CG WAS REMOVED
9. STANDARD DEVIATION WAS APPLIED DUE TO THE ABSENCE AND UNAVAILABILITY OF HISTORICAL TEMPERATURE DATA AT THE TIME OF DEVELOPMENT

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TERMINAL ROUTES, (CONT.):

FROM	TO	COURSE AND DISTANCE	ALTITUDE
ONUGE (IF)	CUSUT (TF) (FB) (RNP 0.50)	316.44 / 5.81	2500
CUSUT	COVBI (TF) (FB) (RNP 0.50)	316.35 / 3.00	1700
MUGEE (IF)	TIBVE (TF) (FB) (RNP 0.50)	228.30 / 4.00	2800
TIBVE	COVBI (RF) (FB) (RNP 0.50)	(2.50 NM RADIUS CW (CFVTN))/3.84	1700
COVBI (FAF)	RW31 (MAP) (TF) (FO)	316.35 / 3.36	
RW31 (MAP)	JARAS (TF) (FO) (RNP 1.00)	316.31 / 16.56	3100

NOTES, (CONT.):
CHART PLANVIEW NOTE AT MUGEE : MAX 210 KIAS.
CHART PLANVIEW NOTE ADJACENT TO GILME: RF REQUIRED.
CHART PLANVIEW NOTE ADJACENT TO BGEDD: RF REQUIRED.
CHART PLANVIEW NOTE ADJACENT TO MUGEE: RF REQUIRED.
CHART PLANVIEW NOTE AT ONUGE: (RNP 0.50).
CHART PLANVIEW NOTE AT MUGEE: (RNP 0.50).
CHART PROFILE NOTE: SEE PLANVIEW FOR MULTIPLE IF LOCATIONS.
CHART PLANVIEW NOTE: RADAR REQUIRED.

QUALITY CHECKED

CITY AND STATE	ELEVATION: 599 THRE: 577	FACILITY IDENTIFIER:	PROCEDURE NO./ AMDT NO./EFFECTIVE DATE:	SUP:
NASHVILLE, TN	AIRPORT NAME: NASHVILLE INTL	RNAV	RNAV (RNP) Z RWY 31, AMDT 1	AMDT: ORIG-A
				DATED: 06/30/2011

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

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:

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.

ARINC PACKET - 424-18 - RNAV (RNP)

```
                 1         2         3         4         5         6         7         8         9         0         1         2         3
WP      123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012
        --------------------------------------------------------------------------------------------------------------------------------
        SUSAEAENRT   BGEDD K70    W     N36000578W086424111                      W0034     NAR           BGEDD
        SUSAEAENRT   CFVTC K70    W     N36031095W086391796                      W0034     NAR           CNF(CFVTC)
        SUSAEAENRT   CFVTN K70    W     N36064941W086350389                      W0035     NAR           CNF(CFVTN)
        SUSAEAENRT   COVBI K70    W     N36050020W086371098                      W0035     NAR           COVBI
        SUSAEAENRT   CUSUT K70    W     N36025649W086342947                      W0035     NAR           CUSUT
        SUSAEAENRT   GILME K70    W     N36042150W086451998                      W0034     NAR           GILME
        SUSAEAENRT   JARAS K70    W     N36184052W086550661                      W0033     NAR           JARAS
        SUSAEAENRT   MUGEE K70    W     N36075183W086292312                      W0036     NAR           MUGEE
        SUSAEAENRT   NEZRU K70    W     N36004349W086384268                      W0034     NAR           NEZRU
        SUSAEAENRT   ONUGE K70    C     N35585662W086291744                      W0036     NAR           ONUGE
        SUSAEAENRT   TIBVE K70    W     N36050269W086325363                      W0035     NAR           TIBVE
        SUSAEAENRT   USISE K70    W     N36012157W086412473                      W0034     NAR           USISE
        SUSAEAENRT   ZEVEM K70    W     N36022906W086362032                      W0035     NAR           ZEVEM

                 1         2         3         4         5         6         7         8         9         0         1         2         3
AIRPORT 123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012
        --------------------------------------------------------------------------------------------------------------------------------
        SUSAP KBNAK7ABNA     0     110YHN36072810W086404150W003000599         1800018000C    MNAR    NASHVILLE INTL

                 1         2         3         4         5         6         7         8         9         0         1         2         3
SEGMENT 123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012
        --------------------------------------------------------------------------------------------------------------------------------
        SUSAP KBNAK7FH31-Z ABGEDD 010BGEDDK7EA0E  B    IF                                 04000     18000210              A-FS
        SUSAP KBNAK7FH31-Z ABGEDD 020NEZRUK7EA0E    010TF                              + 03500                           A FS
        SUSAP KBNAK7FH31-Z ABGEDD 030ZEVEMK7EA0E   L010RF       0025000820    01920027  + 02600                 CFVTC K7EAA FS
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        SUSAP KBNAK7FH31-Z AONUGE 030COVBIK7EA0EE   051TF                              + 01700                           A FS
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        SUSAP KBNAK7FH31-Z H      020COVBIK7EA2W                                           A031A252                        FS
        SUSAP KBNAK7FH31-Z H      030RW31 K7PG0GY M 031TF                                 00630             -300          A FS
        SUSAP KBNAK7FH31-Z H      040JARASK7EA0EYM  010TF                              + 03100                           A FS
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CITY AND STATE	ELEVATION: 599 THRE: 577	FACILITY IDENTIFIER:	PROCEDURE NO. / AMDT NO. / EFFECTIVE DATE:	SUP:
NASHVILLE, TN	AIRPORT NAME: NASHVILLE INTL	RNAV	RNAV (RNP) Z RWY 31, AMDT 1	AMDT: ORIG A
				DATED: 06/30/2011

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

COORDINATED WITH:

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

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

CHANGES:

REASONS:

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```
        SUSAP KBNAK7FH31-Z H      050JARASK7EA0EE  R   HM                    13620040    + 03100                          A FS
                  1         2         3         4         5         6         7         8         9         0         1         2         3
RUNWAY  123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012
        SUSAP KBNAK7GRW31    0110303163 N36071881W086401201-0400    +0146800577074152150IIPNO1
                  1         2         3         4         5         6         7         8         9         0         1         2         3
MSA     123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012
        SUSAP KBNAK7SRW31 K7PG                0   18018003125                                                                    M
```

CITY AND STATE	ELEVATION: 599 THRE: 577	FACILITY IDENTIFIER:	PROCEDURE NO. / AMDT NO. / EFFECTIVE DATE:	SUP:
NASHVILLE, TN	AIRPORT NAME: NASHVILLE INTL	RNAV	RNAV (RNP) Z RWY 31, AMDT 1	AMDT: ORIG A
				DATED: 06/30/2011

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

COORDINATED WITH:

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

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

CHANGES:

REASONS:

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.

ARINC SUMMARY - 424-18 - RNAV (RNP)

ROUTES	TRANSITION	FIX	SEQ	USE	PATH	TURN	FO/FB	RNP	MAG(TRUE)	DISTANCE	ALTITUDE	SPEED
	BGEDD	BGEDD	010		IF		FB				AT 04000	AB 210
	BGEDD	NEZRU	020		TF		FB	1.0			AA 03500	
	BGEDD	ZEVEM	030		RF	L	FB	1.0		002.7	AA 02600	
	BGEDD	COVBI	040		RF	L	FB	1.0		002.7	AA 01700	
	GILME	GILME	010		IF		FB				AT 05000	AB 210
	GILME	USISE	020		TF		FB	1.0			AT 04000	
	GILME	NEZRU	030		RF	L	FB	1.0		002.4	AA 03500	
	GILME	ZEVEM	040		RF	L	FB	1.0		002.7	AA 02600	
	GILME	COVBI	050		RF	L	FB	1.0		002.7	AA 01700	
	MUGEE	MUGEE	010		IF		FB				AT 04000	AB 210
	MUGEE	TIBVE	020		TF		FB	0.5			AA 02800	
	MUGEE	COVBI	030		RF	R	FB	0.5		003.8	AA 01700	
	ONUGE	ONUGE	010		IF		FB				AA 04000	
	ONUGE	CUSUT	020		TF		FB	0.5			AA 02500	
	ONUGE	COVBI	030		TF		FB	0.5			AA 01700	
		COVBI	020	FAF	IF		FB				AA 01700	
		RW31	030	MAP	TF		FO	0.3			AT 00630	

MISSED APPROACH	FIX	SEQ	USE	PATH	TURN	FO/FB	RNP	MAG(TRUE)	DISTANCE	ALTITUDE	SPEED
	JARAS	040		TF		FO	1.0			AA 03100	
	JARAS	050		HM	R	FO		136.2(133.2T)	004.0	AA 03100	

POINT DATA	WAYPOINT	LAT IN SECS	LONG IN SECS	LAT IN MINS	LONG IN MINS
	BGEDD	N360005.78	W0864241.11	N3600.096	W08642.685
	CFVTC	N360310.95	W0863917.96	N3603.183	W08639.299
	CFVTN	N360649.41	W0863503.89	N3606.824	W08635.065
	COVBI	N360500.20	W0863710.98	N3605.003	W08637.183
	CUSUT	N360256.49	W0863429.47	N3602.942	W08634.491
	GILME	N360421.50	W0864519.98	N3604.358	W08645.333
	JARAS	N361840.52	W0865506.61	N3618.675	W08655.110
	MUGEE	N360751.83	W0862923.12	N3607.864	W08629.385
	NEZRU	N360043.49	W0863842.68	N3600.725	W08638.711
	ONUGE	N355856.62	W0862917.44	N3558.944	W08629.291
	TIBVE	N360502.69	W0863253.63	N3605.045	W08632.894
	USISE	N360121.57	W0864124.73	N3601.360	W08641.412
	ZEVEM	N360229.06	W0863620.32	N3602.484	W08636.339
	RW31	N360718.81	W0864012.01	N3607.314	W08640.200

RUNWAY DATA	RWY	THRESHOLD ELEVATION	TCH

CITY AND STATE	ELEVATION: 599 THRE: 577	FACILITY IDENTIFIER:	PROCEDURE NO. / AMDT NO. / EFFECTIVE DATE:	SUP:
NASHVILLE, TN	AIRPORT NAME: NASHVILLE INTL	RNAV	RNAV (RNP) Z RWY 31, AMDT 1	AMDT: ORIG A
				DATED: 06/30/2011

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

COORDINATED WITH:

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

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

CHANGES:

REASONS:

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.

RW31 00577 52

CITY AND STATE	ELEVATION: 599 THRE: 577	FACILITY IDENTIFIER:	PROCEDURE NO. / AMDT NO. / EFFECTIVE DATE:	SUP:
NASHVILLE, TN	AIRPORT NAME: NASHVILLE INTL	RNAV	RNAV (RNP) Z RWY 31, AMDT 1	AMDT: ORIG A
				DATED: 06/30/2011

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

COORDINATED WITH:

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

FLIGHT CHECKED BY		
NAME:	FIFO	DATE:
DEVELOPED BY		
NAME:	NFPG	DATE:
APPROVED BY		
NAME:	NFPG	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: (RNP 1.00)	GILME	USISE	1. AAO	360409.00N/0864709.00W	1329 (4E)	500	AC98 AT2073	4000
			2. TERRAIN	360151.00N/0864339.00W	988 (1000)		AS1500	2500
INTERMEDIATE: (RNP 1.00)	USISE	NEZRU	3. AAO	360118.00N/0863806.00W	1073 (4E)	500	AC98 AT1829	3500
STEPDOWN			4. TERRAIN	355951.00N/0864036.00W	768 (800)		AS1500	2300
INTERMEDIATE: (RNP 1.00)	BGEDD	NEZRU	5. AAO	360151.00N/0864339.00W	1188 (4E)	500	AC98 AT1714	3500
			6. TERRAIN	360145.00N/0864306.00W	821 (800)		AS1500	2300
INTERMEDIATE: (RNP 1.00)	NEZRU	ZEVEM	3. AAO	360118.00N/0863806.00W	1073 (4E)	500	AT929 AC98	2600
STEPDOWN			7. TERRAIN	360121.00N/0863806.00W	873 (900)		AS1500	2400
INTERMEDIATE: (RNP 1.00)	ZEVEM	COVBI	8. AAO	360233.00N/0863657.00W	971 (4E)	500	AC98	1600
STEPDOWN			9. TERRAIN	360309.00N/0863751.00W	739 (700)		AS1000	1700
INTERMEDIATE: (RNP 0.50)	ONUGE	CUSUT	10. AAO	360018.00N/0863251.00W	857 (4E)	500	AC98 AT1045	2500
			11. TERRAIN	360209.00N/0863251.00W	657 (700)		AS1500	2200
INTERMEDIATE: (RNP 0.50)	CUSUT	COVBI	12. AAO	360257.00N/0863612.00W	863 (4E)	500	AC98	1500
STEPDOWN			13. TERRAIN	360300.00N/0863612.00W	663 (700)		AS1000	1700
2. PROCEDURE TURN	NA							
3. MISSED APPROACH MAP:								
ELEV:								

4. CIRCLING AREA	DISTANCE	HT. ABV. ARPT. REQUIRED	HT. ABV. ARPT. ACTUAL
CATEGORY A	1.3 NM	350	
CATEGORY B	1.5 NM	450	
CATEGORY C	1.7 NM	450	
CATEGORY D	2.3 NM	550	
CATEGORY E	4.5 NM	550	

5. MINIMUM SAFE ALTITUDES — PRIMARY NAVAID: RW31

SECTOR	OBSTRUCTION	BRG/DIST	ELEVATION (MSL)	M S A	SECTOR	OBSTRUCTION	BRG/DIST	ELEVATION (MSL)	M S A
360-360	TWR(47-000119)	243/ 09.0	2049 (4D)	3100					

QUALITY CHECKED 4

CITY AND STATE	ELEVATION: 599 / AIRPORT NAME:	FACILITY	PROCEDURE AND AMENDMENT NO:	REGION
NASHVILLE, TN	NASHVILLE INTL	RNAV	RNAV (RNP) Z RWY 31, AMDT 1	ASO

PART B - SUPPLEMENTAL DATA

1. COMMUNICATIONS WITH:	2. WEATHER SERVICE		3. ALTIMETER SETTING
BNA APP CON BNA TOWER	N W S	OTHER: ASOS	SOURCE: KBNA
	F A A		DISTANCE:
	A / C		HOURS REMOTE OPERATION:
SATISFACTORY ON:			
X V H F X U H F H F	LOCATION: KBNA		ADJUSTMENT: 0

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

5. APPROACH & RUNWAY LIGHTING	X	ALSF-2 02L, 02R
		(S) SALS
	X	MALSR 02C, 20L MALSF 20R
	X	HIRL 20C, 31, 02C, 20R, 13, 20L, 02L, 02R
		MIRL
	X	REIL 20C, 31, 13
	X	TDZ 02L, 02R
	X	C/L 20R, 20L, 02L, 02R
	X	OTHER (SPECIFY) PAPI-4R 20R, 02R VASI-6L 13 PAPI-4L 20C

6. RUNWAY MARKINGS	BASIC	
	ALL WEATHER	PIR-G 20C, 31, 02C, 20R, 13, 20L, 02L, 02R
	INSTRUMENT	
7. RUNWAY VISUAL RANGE	APPROACH	02C, 20R, 20L, 02L, 02R
	MIDFIELD	20L, 02R
	ROLL OUT	20R, 20L, 02L, 02R

8. GLIDE PATH	GP ANGLE: 3.00	ELEV RWY THRESHOLD: 577.4
	DISTANCE FROM RWY:	ELEV GP ANTENNA:
		THRESHOLD CROSSING HEIGHT: 52.1

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

10. WAIVERS: 1

ORDER 8260.52, PARAGRAPH 2.4; FAAO 8260.52 PARA 2.4: DESIGN INSTRUMENT APPROACH PROCEDURE SEGMENTS TO PROVIDE DESCENT AT THE STANDARD GRADIENT.FAAO 8260.54A PARA 2.6. THE OPTIMUM DESCENT GRADIENT IN THE INTERMEDIATE SEGMENT IS 150 FT/NM, MAXIMUM IS 318 FT/NM.

PART D - PREPARED BY: CHRISTOPHER COX	DATE: 06/26/2012
TITLE: AERONAUTICAL INFORMATION SPECIALIST	OFFICE: AJV-352

PART C - REMARKS:

MAX SPEED NEZRU TO ZEVEM - 210 KIAS.

MAX SPEED USISE TO NEZRU - 210 KIAS.

MAX SPEED TIBVE TO COVBI - 210 KIAS.

ACT BASED ON STANDARD (-30 C) ISA DEVIATION

AVERAGE COLD TEMPERATURE DATA WAS UNAVAILABLE AT THE TIME OF DEVELOPMENT.

VDP NOT ESTABLISHED - PROCEDURE IS RNP.

THRESHOLD DISPLACED 741.

PRECIPITOUS TERRAIN EVALUATION COMPLETED.

WAIVER: FAAO 8260.52 PARA 2.4 FAAO 8260.52 PARA 2.4: DESIGN INSTRUMENT APPROACH PROCEDURE SEGMENTS TO PROVIDE DESCENT AT THE STANDARD GRADIENT.FAAO 8260.54A PARA 2.6. THE OPTIMUM DESCENT GRADIENT IN THE INTERMEDIATE SEGMENT IS 150 FT/NM, MAXIMUM IS 318 FT/NM.

SEE ATTACHED AIRSPACE LETTER.

RNP 0.50 AT ONUGE AND AT MUGEE IS IN PLACE FOR TERRAIN AVOIDANCE: MIN ALTITUDE FOR AIRSPACE WAS ABOVE FAF ALTITUDE REQUESTED WITH RNP 1.00.

BLOCK 3: ALTIMETER SETTING
2. ASOS IS ON SERVICE-A
3. BACKUP ALTIMETER SOURCE NOT REQUIRED, REDUNDANT

RF SEGMENT	ALT	KIAS	KTAS	HAA	VKTW	TR	BA
ZEVEM-COVBI	2600	210.00	220.92	2001	54.00	2.50	23.80
NEZRU-ZEVEM	3500	210.00	224.70	2901	54.00	2.50	24.38
USISE-NEZRU	4000	210.00	226.80	3401	55.00	2.50	24.86
TIBVE-COVBI	2800	210.00	221.76	2201	53.00	2.50	23.78

AUTHORIZATION REQUIRED (AR) PER AJV-3 MEMO DATED 05/17/2011

NO VGSI INSTALLED

MANDATORY ALTITUDES REQUIRED BY ATC

APPLIED MEMO DATED OCT 03, 2011: REVISED PERFORMANCE BASED ON NAVIGATION (PBN) FLY-BY (FB)/RADIUS-TO-FIX (RF) TURN MAXIMUM BANK ANGLE LIMITS: OMNIDIRECTIONAL TAILWIND REQUIREMENTS: AND MINIMUM INITIAL DEPARTURE LEG SEGMENT LENGTH DESIGN CRITERIA.

TAIL WIND DATA DERIVED USING 8260.54A FORMULA 2-3B OR 30 KT TW PER 8260.54A PAR 2.4 STEP 2 EXCEPTION

ORDER 8260.52, "VISUAL SEGMENT" PENETRATIONS
711 TRMSN TWR (KBNA0110) 360626.75N/0863927.51W (20/3) (8.38)

QUALITY & CHECKED

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: (RNP 0.50)	MUGEE	TIBVE	14. AAO	360630.00N/0863003.00W	863 (4E)	500	AC98 AT1339	2800
			15. TERRAIN	360630.00N/0863003.00W	663 (700)		AS1500	2200
INTERMEDIATE: (RNP 0.50)	TIBVE	COVBI	16. AAO	360403.00N/0863657.00W	853 (4E)	500	AC98	1500
STEPDOWN			17. TERRAIN	360403.00N/0863657.00W	653 (700)		AS1000	1700
FINAL: RNP 0.25	COVBI	RW31	18. T-L TWR (47-000913)	360622.00N/0863929.00W	717 (1A)	21.70:1	AC3 MA51	1025/448
FINAL: RNP 0.30	COVBI	RW31	19. TOWER (47-020260)	360558.21N/0863933.99W	705 (5D)	21.69:1	AC50 MA63	1099/522
MISSED APPROACH (RNP 0.25-1.00)	DA	RW31 (40:1)	18. T-L TWR (47-000913	360622.00N/0863929.00W	717 (1A)	ASC	AC3	
MISSED APPROACH (RNP 0.30-1.00)	DA	RW31 (40:1)	19. TOWER (47-020260)	360558.21N/0863933.99W	705 (5D)	ASC	AC50	
MISSED APPROACH (RNP 0.25-1.00)	RW31	JARAS (40:1)				ASC		
MISSED APPROACH (RNP 0.30-1.00)	RW31	JARAS (40:1)				ASC		
3. MISSED APPROACH MAP:	DA / DA	JARAS				ASC		3100
			20. TOWER (47-001010)	361555.93N/0864812.67W	1377 (2C)	1000	AC20	2400
ELEV:	721/767		21. TERRAIN	361536.00N/0865424.00W	883 (900)		AS1500	2400

4. CIRCLING AREA	DISTANCE	HT. ABV. ARPT. REQUIRED	HT. ABV. ARPT. ACTUAL
CATEGORY A	1.3 NM	350	
CATEGORY B	1.5 NM	450	
CATEGORY C	1.7 NM	450	
CATEGORY D	2.3 NM	550	
CATEGORY E	4.5 NM	550	

5. MINIMUM SAFE ALTITUDES — PRIMARY NAVAID:

SECTOR	OBSTRUCTION	BRG/DIST	ELEVATION (MSL)	M S A	SECTOR	OBSTRUCTION	BRG/DIST	ELEVATION (MSL)	M S A

QUALITY CHECKED

CITY AND STATE	ELEVATION: 599 / AIRPORT NAME:	FACILITY	PROCEDURE AND AMENDMENT NO:	REGION
NASHVILLE, TN	NASHVILLE INTL	RNAV	RNAV (RNP) Z RWY 31, AMDT 1	ASO

PART B - SUPPLEMENTAL DATA

1. COMMUNICATIONS WITH:	2. WEATHER SERVICE			3. ALTIMETER SETTING
SATISFACTORY ON:		N W S	OTHER:	SOURCE:
		F A A		DISTANCE:
		A / C		HOURS REMOTE OPERATION:
V H F / U H F / H F	LOCATION:			ADJUSTMENT:

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

5. APPROACH & RUNWAY LIGHTING		**ALS**
		(S) SALS
		MALS
		HIRL
		MIRL
		REIL
		TDZ
		C/LINE
		OTHER (SPECIFY)

6. RUNWAY MARKINGS	BASIC	
	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		RUNWAY THRESHOLD	FT. FROM THRESHOLD
		ON CENTERLINE	FT. FROM CENTERLINE

10. WAIVERS:

PART D - PREPARED BY:	DATE:
TITLE:	OFFICE:

PART C - REMARKS:

RADIO FIX AND HOLDING DATA RECORD

NAME: BGEDD **STATE:** TN **COUNTRY:** US

LATITUDE/LONGITUDE: 360005.78N/0864241.11W **TYPE:** WP

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

FIX USE:

USE TYPE	USE TITLE	FAC	PAT	AIRPORT IDENT	CITY	STATE
IAP	RNAV (RNP) Z RWY 31			KBNA	NASHVILLE	TN (US)
STAR	CHSNE (RNAV)			KBNA	NASHVILLE	TN (US)

REQUIRED CHARTING: STAR, IAP

COMPULSORY REPORTING POINT: NO

RECORD REVISION NUMBER: ORIG **DATE OF REVISION:** 11/15/2012

DEVELOPED BY: **DATE:** 06/19/2012 **OFFICE:** AJV-352 **NAME:** CHRISTOPHER COX

APPROVED BY: **DATE:** **OFFICE:** AJV-352 **NAME:** DARRYEL ADAMS

SIGNATURE:

DISTRIBUTION:
NFDC
FPO: EST
ARTCC: ZME
ATC FACILITY: BNA APP CON, BNA ATCT
OTHER:

QUALITY CHECKED

RADIO FIX AND HOLDING DATA RECORD

NAME: CFVTC **STATE:** TN **COUNTRY:** US

LATITUDE/LONGITUDE: 360310.95N/0863917.96W **TYPE:** CNF

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

FIX USE:

USE TYPE	USE TITLE	FAC	PAT	AIRPORT IDENT	CITY	STATE
IAP	RNAV (RNP) Z RWY 31			KBNA	NASHVILLE	TN (US)

COMPULSORY REPORTING POINT: NO

RECORD REVISION NUMBER: ORIG **DATE OF REVISION:** 11/15/2012

DEVELOPED BY: **DATE:** 06/19/2012 **OFFICE:** AJV-352 **NAME:** CHRISTOPHER COX

APPROVED BY: **DATE:** **OFFICE:** AJV-352 **NAME:** DARRYEL ADAMS

SIGNATURE:

DISTRIBUTION:
NFDC
FPO: EST
ARTCC: ZME
ATC FACILITY: BNA APP CON, BNA ATCT
OTHER:

QUALITY CHECKED

RADIO FIX AND HOLDING DATA RECORD

NAME: CFVTN **STATE:** TN **COUNTRY:** US

LATITUDE/LONGITUDE: 360649.41N/0863503.89W **TYPE:** CNF

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

FIX USE:

USE TYPE	USE TITLE	FAC	PAT	AIRPORT IDENT	CITY	STATE
IAP	RNAV (RNP) Z RWY 31			KBNA	NASHVILLE	TN (US)

COMPULSORY REPORTING POINT: NO

RECORD REVISION NUMBER: ORIG **DATE OF REVISION:** 11/15/2012

DEVELOPED BY: **DATE:** 06/27/2012 **OFFICE:** AJV-352 **NAME:** CHRISTOPHER COX

APPROVED BY: **DATE:** **OFFICE:** AJV-352 **NAME:** DARRYEL ADAMS

SIGNATURE:

DISTRIBUTION:
NFDC
FPO: EST
ARTCC: ZME
ATC FACILITY: BNA APP CON, BNA ATCT
OTHER:

QUALITY CHECKED

RADIO FIX AND HOLDING DATA RECORD

NAME: COVBI **STATE:** TN **COUNTRY:** US

LATITUDE/LONGITUDE: 360500.20N/0863710.98W **TYPE:** WP

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

FIX USE:

USE TYPE	USE TITLE	FAC	PAT	AIRPORT IDENT	CITY	STATE
IAP	RNAV (RNP) Z RWY 31			KBNA	NASHVILLE	TN (US)

REQUIRED CHARTING: IAP

COMPULSORY REPORTING POINT: NO

RECORD REVISION NUMBER: ORIG **DATE OF REVISION:** 11/15/2012

DEVELOPED BY: **DATE:** 06/19/2012 **OFFICE:** AJV-352 **NAME:** CHRISTOPHER COX

APPROVED BY: **DATE:** **OFFICE:** AJV-352 **NAME:** DARRYEL ADAMS

SIGNATURE:

DISTRIBUTION:
NFDC
FPO: EST
ARTCC: ZME
ATC FACILITY: BNA APP CON, BNA ATCT
OTHER:

QUALITY CHECKED 4

RADIO FIX AND HOLDING DATA RECORD

NAME: CUSUT **STATE:** TN **COUNTRY:** US

LATITUDE/LONGITUDE: 360256.49N/0863429.47W **TYPE:** WP

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

FIX USE:

USE TYPE	USE TITLE	FAC	PAT	AIRPORT IDENT	CITY	STATE
IAP	RNAV (RNP) Z RWY 31			KBNA	NASHVILLE	TN (US)

REQUIRED CHARTING: IAP

COMPULSORY REPORTING POINT: NO

RECORD REVISION NUMBER: ORIG **DATE OF REVISION:** 11/15/2012

DEVELOPED BY: **DATE:** 06/19/2012 **OFFICE:** AJV-352 **NAME:** CHRISTOPHER COX

APPROVED BY: **DATE:** **OFFICE:** AJV-352 **NAME:** DARRYEL ADAMS

SIGNATURE:

DISTRIBUTION:
NFDC
FPO: EST
ARTCC: ZME
ATC FACILITY: BNA APP CON, BNA ATCT
OTHER:

QUALITY CHECKED 4

RADIO FIX AND HOLDING DATA RECORD

NAME: GILME **STATE:** TN **COUNTRY:** US

LATITUDE/LONGITUDE: 360421.50N/0864519.98W **TYPE:** WP

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

FIX USE:

USE TYPE	USE TITLE	FAC	PAT	AIRPORT IDENT	CITY	STATE
IAP	RNAV (RNP) Z RWY 31			KBNA	NASHVILLE	TN (US)
STAR	RYYMN (RNAV)			KBNA	NASHVILLE	TN (US)

REQUIRED CHARTING: STAR, IAP

COMPULSORY REPORTING POINT: NO

RECORD REVISION NUMBER: ORIG **DATE OF REVISION:** 11/15/2012

DEVELOPED BY: **DATE:** 06/19/2012 **OFFICE:** AJV-352 **NAME:** CHRISTOPHER COX

APPROVED BY: **DATE:** **OFFICE:** AJV-352 **NAME:** DARRYEL ADAMS

SIGNATURE:

DISTRIBUTION:
NFDC
FPO: EST
ARTCC: ZME
ATC FACILITY: BNA APP CON, BNA ATCT
OTHER:

QUALITY & CHECKED

RADIO FIX AND HOLDING DATA RECORD

NAME: JARAS **STATE:** TN **COUNTRY:** US

LATITUDE/LONGITUDE: 361840.52N/0865506.61W **TYPE:** WP

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

INFO ONLY

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	NW		WP	316.17	136.17	R		4	3100	6000	5	6

CONTROLLING OBSTRUCTIONS:

PAT	AIRSPEED	OBSTRUCTION	COORDINATES	ELEVATION	ACCURACY CODE
1	200	TOWER (47-000519)	361635.00N/0865313.00W	1263	5E

HOLDING RESTRICTIONS:
HOLDING LIMITED TO ESTABLISHED PATTERN.

REMARKS:
PRECIPITOUS TERRAIN EVALUATION COMPLETED.

FIX USE:

USE TYPE	USE TITLE	FAC	PAT	AIRPORT IDENT	CITY	STATE
IAP	RNAV (GPS) RWY 13		1	KBNA	NASHVILLE	TN (US)
IAP	RNAV (GPS) Y RWY 31		1	KBNA	NASHVILLE	TN (US)
IAP	RNAV (RNP) Z RWY 31		1	KBNA	NASHVILLE	TN (US)

REQUIRED CHARTING: IAP

COMPULSORY REPORTING POINT: NO

RECORD REVISION NUMBER: 1 **DATE OF REVISION:** 08/27/2009

REASON FOR REVISION:
REMOVED FAC 1 DATA.
ADDED HOLDING PATTERN, ALTITUDE, OBSTACLE AND ALL REQUIRED DATA.
ADDED HOLDING RESTRICTION: HOLDING LIMITED TO ESTABLISHED PATTERN.
ADDED REMARK FOR PRECIPITOUS TERRAIN.
UPDATED FIX USE.

DEVELOPED BY: **DATE:** 02/17/2009 **OFFICE:** AVN-110 **NAME:** MICHAEL DOJCAK

APPROVED BY: **DATE:** 06/30/2009 **OFFICE:** AVN-110 **NAME:** PETER GETZ

SIGNATURE:

DISTRIBUTION:
NFDC
FPO: EST
ARTCC: ZME
ATC FACILITY: BNA ATCT
OTHER:

INFO ONLY

QUALITY CHECKED

RADIO FIX AND HOLDING DATA RECORD

NAME: MUGEE **STATE:** TN **COUNTRY:** US

LATITUDE/LONGITUDE: 360751.83N/0862923.12W **TYPE:** WP

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

FIX USE:

USE TYPE	USE TITLE	FAC	PAT	AIRPORT IDENT	CITY	STATE
IAP	RNAV (RNP) Z RWY 31			KBNA	NASHVILLE	TN (US)
STAR	PASLY (RNAV)			KBNA	NASHVILLE	TN (US)

REQUIRED CHARTING: STAR, IAP

COMPULSORY REPORTING POINT: NO

RECORD REVISION NUMBER: ORIG **DATE OF REVISION:** 11/15/2012

DEVELOPED BY: **DATE:** 06/19/2012 **OFFICE:** AJV-352 **NAME:** CHRISTOPHER COX

APPROVED BY: **DATE:** **OFFICE:** AJV-352 **NAME:** DARRYEL ADAMS

SIGNATURE:

DISTRIBUTION:
NFDC
FPO: EST
ARTCC: ZME
ATC FACILITY: BNA APP CON, BNA ATCT
OTHER:

QUALITY CHECKED

RADIO FIX AND HOLDING DATA RECORD

NAME: NEZRU **STATE:** TN **COUNTRY:** US

LATITUDE/LONGITUDE: 360043.49N/0863842.68W **TYPE:** WP

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

FIX USE:

USE TYPE	USE TITLE	FAC	PAT	AIRPORT IDENT	CITY	STATE
IAP	RNAV (RNP) Z RWY 31			KBNA	NASHVILLE	TN (US)

REQUIRED CHARTING: IAP

COMPULSORY REPORTING POINT: NO

RECORD REVISION NUMBER: ORIG **DATE OF REVISION:** 11/15/2012

DEVELOPED BY: **DATE:** 06/19/2012 **OFFICE:** AJV-352 **NAME:** CHRISTOPHER COX

APPROVED BY: **DATE:** **OFFICE:** AJV-352 **NAME:** DARRYEL ADAMS

SIGNATURE:

DISTRIBUTION:
NFDC
FPO: EST
ARTCC: ZME
ATC FACILITY: BNA APP CON, BNA ATCT
OTHER:

QUALITY CHECKED 4

RADIO FIX AND HOLDING DATA RECORD

NAME: ONUGE **STATE:** TN **COUNTRY:** US

LATITUDE/LONGITUDE: 355856.62N/0862917.44W **TYPE:** WP, RADAR, 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	NASHVILLE	I-PNO	LOC		136.32	133.32		13.91		3000	5000
2	NASHVILLE	BNA	VORTAC	H	136.02	134.02	13.31	13.31		3000	17500
3	SHELBYVILLE	SYI	VOR/DME	L	355.59	354.59	25.30	25.30		3000	17500

HOLDING: **HOLDING TYPE OF ACTION:** NO CHANGE

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	SE	BNA	VORTAC	136.02	316.02	R	1		3000	14000	5	11
2	SE		WP	136.43	316.43	R		4	3000	6000	5	6

CONTROLLING OBSTRUCTIONS:

PAT	AIRSPEED	OBSTRUCTION	COORDINATES	ELEVATION	ACCURACY CODE
1	200	AAO	355700.00N/0861815.00W	1136	4E
2	200	AAO	355700.00N/0861815.00W	1136	4E

HOLDING RESTRICTIONS:
HOLDING LIMITED TO ESTABLISHED PATTERNS.

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

FIX USE:

USE TYPE	USE TITLE	FAC	PAT	AIRPORT IDENT	CITY	STATE
IAP	ILS OR LOC RWY 31	1, 2, 3	1	KBNA	NASHVILLE	TN (US)
IAP	RNAV (GPS) RWY 13		2	KBNA	NASHVILLE	TN (US)
IAP	RNAV (GPS) Y RWY 31		2	KBNA	NASHVILLE	TN (US)
IAP	RNAV (RNP) Z RWY 31			KBNA	NASHVILLE	TN (US)
STAR	SWFFT (RNAV)			KBNA	NASHVILLE	TN (US)

REQUIRED CHARTING: STAR, IAP

COMPULSORY REPORTING POINT: NO

RECORD REVISION NUMBER: 2 **DATE OF REVISION:** 11/15/2012

REASON FOR REVISION:
UPDATED CHART PUB TO INCLUDE STAR
UPDATED FIX USE
ADDED FACS USED TO ESTABLISH FIX LOCATION
ADDED DME DISTANCE TO FAC 3

DEVELOPED BY: **DATE:** 06/19/2012 **OFFICE:** AJV-352 **NAME:** CHRISTOPHER COX

APPROVED BY: **DATE:** **OFFICE:** AJV-352 **NAME:** DARRYEL ADAMS

SIGNATURE:

DISTRIBUTION: **NFDC**
FPO: EST
ARTCC: ZME
ATC FACILITY: BNA APP CON, BNA ATCT
OTHER:

QUALITY CHECKED

RADIO FIX AND HOLDING DATA RECORD

NAME: TIBVE **STATE:** TN **COUNTRY:** US

LATITUDE/LONGITUDE: 360502.69N/0863253.63W **TYPE:** WP

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

FIX USE:

USE TYPE	USE TITLE	FAC	PAT	AIRPORT IDENT	CITY	STATE
IAP	RNAV (RNP) Z RWY 31			KBNA	NASHVILLE	TN (US)

REQUIRED CHARTING: IAP

COMPULSORY REPORTING POINT: NO

RECORD REVISION NUMBER: ORIG **DATE OF REVISION:** 11/15/2012

DEVELOPED BY: **DATE:** 06/19/2012 **OFFICE:** AJV-352 **NAME:** CHRISTOPHER COX

APPROVED BY: **DATE:** **OFFICE:** AJV-352 **NAME:** DARRYEL ADAMS

SIGNATURE:

DISTRIBUTION: **NFDC**
FPO: EST
ARTCC: ZME
ATC FACILITY: BNA APP CON, BNA ATCT
OTHER:

RADIO FIX AND HOLDING DATA RECORD

NAME: USISE **STATE:** TN **COUNTRY:** US

LATITUDE/LONGITUDE: 360121.57N/0864124.73W **TYPE:** WP

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

FIX USE:

USE TYPE	USE TITLE	FAC	PAT	AIRPORT IDENT	CITY	STATE
IAP	RNAV (RNP) Z RWY 31			KBNA	NASHVILLE	TN (US)

REQUIRED CHARTING: IAP

COMPULSORY REPORTING POINT: NO

RECORD REVISION NUMBER: ORIG **DATE OF REVISION:** 11/15/2012

DEVELOPED BY: **DATE:** 06/19/2012 **OFFICE:** AJV-352 **NAME:** CHRISTOPHER COX

APPROVED BY: **DATE:** **OFFICE:** AJV-352 **NAME:** DARRYEL ADAMS

SIGNATURE:

DISTRIBUTION:
NFDC
FPO: EST
ARTCC: ZME
ATC FACILITY: BNA APP CON, BNA ATCT
OTHER:

QUALITY CHECKED

RADIO FIX AND HOLDING DATA RECORD

NAME: ZEVEM **STATE:** TN **COUNTRY:** US

LATITUDE/LONGITUDE: 360229.06N/0863620.32W **TYPE:** WP

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

FIX USE:

USE TYPE	USE TITLE	FAC	PAT	AIRPORT IDENT	CITY	STATE
IAP	RNAV (RNP) Z RWY 31			KBNA	NASHVILLE	TN (US)

REQUIRED CHARTING: IAP

COMPULSORY REPORTING POINT: NO

RECORD REVISION NUMBER: ORIG **DATE OF REVISION:** 11/15/2012

DEVELOPED BY: **DATE:** 06/26/2012 **OFFICE:** AJV-352 **NAME:** CHRISTOPHER COX

APPROVED BY: **DATE:** **OFFICE:** AJV-352 **NAME:** DARRYEL ADAMS

SIGNATURE:

DISTRIBUTION:
NFDC
FPO: EST
ARTCC: ZME
ATC FACILITY: BNA APP CON, BNA ATCT
OTHER:

US Department of Transportation
Federal Aviation Administration

FLIGHT PROCEDURES STANDARDS WAIVER

FLIGHT STANDARDS USE ONLY

CONTROL NO:

1. Flight Procedure Identification:
NASHVILLE, TN
NASHVILLE INTL (KBNA)
RNAV (RNP) ZRWY 31

2. Waiver Required and Applicable Standard:

FAAO 8260.52 Para 2.4. Design instrument approach procedure segments to provide descent at the standard gradient. FAAO 8260.54A Para 2.6. The optimum descent gradient in the intermediate segment is 150 FT/NM, maximum is 318 FT/NM.

3. Reason for Waiver *(Justification for nonstandard treatment)*:

The descent gradient from NEZRU to ZEVEM AND FROM ZEVEM TO COVBI (PFAF) 328.47 FT per NM. The proponent's design request preclude movement of fixes to allow descent gradients in all segments to meet criteria.

4. Equivalent Level of Safety Provided:

1. Authorization required for this procedure.
2. Over-all descent gradient for the segment beginning at GILME is 274.19 FT/NM and the segment beginning at BGEDD is 267.79 FT/NM.
3. The procedure will be validated in the simulator and by Flight Check to meet flyability requirements.

5. How Relocation or Additional Facilities Will Affect Waiver Requirement:

N/A-RNAV procedure

6. Coordination With User Organizations *(Specify)*:
AJV-352

7. SUBMITTED BY

DATE:	Office Identification:	Title:	Signature:
	AJV-35	**MANAGER, TERMINAL PRODUCTS GROUP**	**GREGORY YAMAMOTO**

FAA FORM 8260 - 1 / July 2003 (computer generated)

8. CONTINUATION
Comments:

9. AFS ACTION		
		Approved
		Disapproved
		Not Required

Comments:		
Date:	Routing Symbol:	Signature:

TERMINAL AIRSPACE DATA REQUIREMENTS

CITY: **NASHVILLE** STATE: **TN**

AIRPORT NAME: **NASHVILLE INTL** ID: **KBNA**

PROCEDURE: **RNAV (RNP) Z RWY 31** AMDT: **1**

DOCKET#:
(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 **3.36**
   (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 **313.35**
4. High Terrain in **FINAL** segment containing 1000' point **673**
5. Distance from **THLD** to 1500' point **4.90**
   (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 *****
8. High Terrain in **INTERMEDIATE** segment containing 1500' point **739**
9. Threshold Coordinates (if straight-in) ... ****360718.813** / **0864012.01W**
10. ARP Coordinates ..... **360728.10N** / **0864041.50W**
11. Runway Approach End and distance furthest from ARP ..... RWY **20C**
    Distance **1.35** NM
12. FAF Coordinates ..... **360500.20N** / **0863710.98W**

REMARKS: Approach/Drawing attached.

***1500 FT POINT OCCURS IN RF SEGMENT**

RF: CFVTC 360310.95N/0863917.96W **DISPLACED THLD

THIS AIRSPACE EVALUATION IS FOR THE INTERMEDIATE SD SEGMENT BETWEEN ZEVEM AND COVBI (PFAF)

TERMINAL AIRSPACE DATA REQUIREMENTS

CITY: **NASHVILLE** STATE: **TN**

AIRPORT NAME: **NASHVILLE INTL** ID: **KBNA**

PROCEDURE: **RNAV (RNP) Z RWY 31** AMDT: **1**

DOCKET#:
(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 **3.36**
   (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 **313.35**
4. High Terrain in **FINAL** segment containing 1000' point **673**
5. Distance from **THLD** to 1500' point **5.24**
   (If 1500' point in PT maneuvering area or holding pattern note in remarks)
6. Width of **INTERMEDIATE** segment at 1500' point **2.00**
7. True Course of **INTERMEDIATE** segment containing 1500' point **313.35**
8. High Terrain in **INTERMEDIATE** segment containing 1500' point **663**
9. Threshold Coordinates (if straight-in) ... ****360718.813** / **0864012.01W**
10. ARP Coordinates ..... **360728.10N** / **0864041.50W**
11. Runway Approach End and distance furthest from ARP ..... RWY **20C**
    Distance **1.35** NM
12. FAF Coordinates ..... **360500.20N** / **0863710.98W**

REMARKS: Approach/Drawing attached.

****DISPLACED THLD**

THIS AIRSPACE EVALUATION IS FOR THE INTERMEDIATE SD SEGMENT BETWEEN CUSUT AND COVBI (PFAF)

TERMINAL AIRSPACE DATA REQUIREMENTS

CITY: **NASHVILLE** STATE: **TN**

AIRPORT NAME: **NASHVILLE INTL** ID: **KBNA**

PROCEDURE: **RNAV (RNP) Z RWY 31** AMDT: **1**

DOCKET#:
(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 **3.36**
   (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 **313.35**
4. High Terrain in **FINAL** segment containing 1000' point **673**
5. Distance from **THLD** to 1500' point **5.38**
   (If 1500' point in PT maneuvering area or holding pattern note in remarks)
6. Width of **INTERMEDIATE** segment at 1500' point **2.00**
7. True Course of **INTERMEDIATE** segment containing 1500' point *****
8. High Terrain in **INTERMEDIATE** segment containing 1500' point **653**
9. Threshold Coordinates (if straight-in) ... ****360718.813** / **0864012.01W**
10. ARP Coordinates ..... **360728.10N** / **0864041.50W**
11. Runway Approach End and distance furthest from ARP ..... RWY **20C**
    Distance **1.35** NM
12. FAF Coordinates ..... **360500.20N** / **0863710.98W**

REMARKS: Approach/Drawing attached.

***1500 FT POINT OCCURS IN RF SEGMENT**

CF: CFVTN 360649.41N/0863503.89W ****DISPLACED THLD**

THIS AIRSPACE EVALUATION IS FOR THE INTERMEDIATE SD SEGMENT BETWEEN TIBVE AND COVBI (PFAF)

KBNA
RNAV (RNP) Z RWY31
CUSUT TO PFAF
(OBS # 12 W/250' A/C APPLIED)

PFAF Calculations

Min Intermediate Segment Alt (a):	
LTP MSL Elevation (b):	
TCH:	
Glidepath Angle (Θ):	
Distance from LTP to PFAF (D):	**0.00**
	0.00 NM
LTP/FTP Latitude:	
LTP/FTP Longitude:	
True RWY Bearing/True Course:	
PFAF Latitude:	**000° 00' 00.00"**
PFAF Longitude:	**000° 00' 00.00"**

Latitude/Longitude valid for straight segment only

VEB OCS Origin & Slope

Intermediate Segment Altitude:	1700
LTP Elevation:	577.4
Glidepath Angle:	3
TCH:	52.1
RNP Value:	0.30
Δ ISA:	-30

Straight In Segment

(*Wingspan =<262*) LTP to Origin:	**3,894.37'**
(*Wingspan =<136*) LTP to Origin:	**3,677.44'**
OCS Slope Ratio:	**21.69 : 1**

RF Turn Segment | Bank angle:	**19.46°**
(*Wingspan =<262*) LTP to Origin:	**4,298.79'**
(*Wingspan =<136*) LTP to Origin:	**3,843.48'**
OCS Slope Ratio:	**21.69 : 1**

Version 2.0

VEB Temperature Limits

Glidepath Angle:	3.00°	
Max Glidepath Angle:	3.50°	
PFAF Elevation:	2500	
LTP Elevation:	9.5	
ACT:	-16.00°C	
Min Glidepath Angle	**2.75°**	
NA Below	**-15.23°C**	**4.59°F**
NA Above	**49.31°C**	**120.77°F**

Intermediate Segment VEB ROC

Glidepath Angle	3.00°
LTP MSL Elevation	577.40
TCH (ft)	52.10
OCS Slope	21.69
OCS Origin Distance (ft) *(measured along-track from LTP)*	3,894.37
Obstacle Distance (ft) *(measured along-track from LTP)*	32,748.45
VEB ROC *(at obstacle)*	**444**
Glidepath MSL altitude at Obstacle	2,371.47
OCS MSL altitude at Obstacle	1,927.64

KBNA
RNAV (RNP) Z RWY31
ZEVEM TO PFAF
(OBS # 8 W/250' A/C APPLIED)

PFAF Calculations

Min Intermediate Segment Alt (a):	
LTP MSL Elevation (b):	
TCH:	
Glidepath Angle (Θ):	
Distance from LTP to PFAF (D):	**0.00**
	0.00 NM
LTP/FTP Latitude:	
LTP/FTP Longitude:	
True RWY Bearing/True Course:	
PFAF Latitude:	**000° 00' 00.00"**
PFAF Longitude:	**000° 00' 00.00"**

Latitude/Longitude valid for straight segment only

VEB OCS Origin & Slope

Intermediate Segment Altitude:	1700
LTP Elevation:	577.4
Glidepath Angle:	3
TCH:	52.1
RNP Value:	0.30
Δ ISA:	-30

Straight In Segment

***(Wingspan =<262)* LTP to Origin:**	**3,894.37'**
***(Wingspan =<136)* LTP to Origin:**	**3,677.44'**
OCS Slope Ratio:	**21.69 : 1**
RF Turn Segment | Bank angle:	**19.46°**
***(Wingspan =<262)* LTP to Origin:**	**4,298.79'**
***(Wingspan =<136)* LTP to Origin:**	**3,843.48'**
OCS Slope Ratio:	**21.69 : 1**

Version 2.0

VEB Temperature Limits

Glidepath Angle:	3.00°	
Max Glidepath Angle:	3.50°	
PFAF Elevation:	2500	
LTP Elevation:	9.5	
ACT:	-16.00°C	
Min Glidepath Angle	**2.75°**	
NA Below	**-15.23°C**	**4.59°F**
NA Above	**49.31°C**	**120.77°F**

Intermediate Segment VEB ROC

Glidepath Angle	3.00°
LTP MSL Elevation	577.40
TCH (ft)	52.10
OCS Slope	21.69
OCS Origin Distance (ft) *(measured along-track from LTP)*	3,894.37
Obstacle Distance (ft) *(measured along-track from LTP)*	37,931.17
VEB ROC *(at obstacle)*	**477**
Glidepath MSL altitude at Obstacle	2,651.86
OCS MSL altitude at Obstacle	2,174.40