Flight Procedures Cover Page	Task Action: FLIGHT CHECK	Task Type: IAP	Estimated Chart Date: 03/27/2020	APWS Task ID: E4E95038002748ADA4C2BF2237BF4A73	APWS Request ID: 5A245E1E25904FD09F45F84D1FEB3765
Procedure: RNAV (GPS) Y RWY 19 AMDT 1		Enroute: NO	Specialist: Bayse, Christine		Agreement Number:
Airport ID: KTEB	Airport Name: TETERBORO		Airport City: TETERBORO		State: NJ
Facility ID:	Facility Type:	Flight Inspection Remark Type: Hold FC Slot			

Procedure Comments:

8260-1: MAXIMUM ALTITUDE RESTRICTION LOWER THAN CLEARANCE LIMIT ON MISSED APPROACH
ACTIVE AIRPORT DATA USED FOR KTEB.
CONTACT: GEORGE DAVIS 405-954-9960 OR WARDELL HENNING 405-954-9954

12/17/19: THIS IS AN UPDATED COPY OF THE FORMS DEVELOPED ON 07/12/19.
1. UPDATED THE MISSED APPROACH INSTRUCTIONS FROM "(DO NOT EXCEED 210 KIAS UNTIL BUBGE) CLIMB TO 500 THEN CLIMBING RIGHT TURN DIRECT BUBGE, CROSS BUBGE AT OR BELOW 1500, THEN CLIMB TO 3000 ON TRACK 274.75 TO EXXAM AND HOLD, CONTINUE CLIMB-IN-HOLD TO 3000." TO "CLIMB TO 500 THEN CLIMBING RIGHT TURN DIRECT BUBGE, CROSS BUBGE AT 1500, THEN CLIMB TO 3000 ON TRACK 274.75 TO EXAM AND HOLD, CONTINUE CLIMB-IN-HOLD TO 3000".
2. REMOVED NOTE "CHART NOTE: WHEN CIRCLING TO RWY 24 AT NIGHT, OPERATIONAL VGSI REQUIRED. REMAIN ON OR ABOVE VGSI GLIDEPATH UNTIL THRESHOLD".

12/18/19: THIS IS AN UPDATED COPY OF THE FORM EXAMM DEVELOPED ON 07/12/19.
1. ADDED RNAV (GPS) X RWY 19 AT KTEB TO FIX USE.

02/07/20: THIS IS AN UPDATED COPY OF THE FORMS DEVELOPED ON 07/12/19.
1. UPDATED ADDITIONAL FLIGHT DATA NOTE FROM "CHART MAXIMUM 1500 AT BUBGE" TO "CHART MANDATORY 1500 AT BUBGE".
2. REMOVED NOTE "CAUTION: ON MISSED APPROACH, DO NOT EXCEED 1500 UNTIL PASSING BUBGE".
3. UPDATED CHANGE-REASON 23 FROM "UPDATED HOLDING PATTERN FROM "SW, RT, 061.25 INBOUND" TO "NE, RT, 132.00 INBOUND"" TO "UPDATED HOLDING PATTERN FROM "SW, RT, 061.25 INBOUND" TO "NW, RT, 132.00 INBOUND"".

QUALITY 18 CHECKED

FIPC BASIC FORM

PROCEDURE:	AIRPORT NAME:	AIRPORT ID:	SPECIAL CONTROL NO:
RNAV (GPS) Y RWY 19 AMDT 1	TETERBORO	KTEB	YG-12-158-19

FAC ID: KTEB19.01Y	CITY: TETERBORO	ST: NJ	ORIG CHART DATE: 03/26/2020

DFL TYPE:	THIRD PARTY:	EST. TIME ON SITE:	REIMB. NUMBER:	PTS TASK ID:
PROC/S	☐ YES	0.4		

PREFLIGHT NOTES

REVIEWER:	DATE:
COMMENTS:	CHECK ONE: ☐ FLT CK REQ ☐ NFCR ☐ REJECT

	YES	NO
CPV COMPLETE?	X	

PROCEDURE RESULTS

INSPECTION DATE:	CREW #:	N #:	INSTRUMENT PROCEDURE STATUS:	ARINC CODING:
03/08/2020	VN422	N79	☒ SAT ☐ SAT W/CHANGES ☐ UNSAT	☐ SAT ☒ SAT/GOLD ☐ UNSAT

FLIGHT INSPECTOR SIGNATURE:	PRINTED NAME:	NOTAM INITIATED?
daniel kirby @ 03/09/2020 09:02	KIRBY, DANIEL WILLIAM	☐ YES ☒ NO

FLIGHT INSPECTOR REMARKS:

IN-FLIGHT OBSTACLE REPORT

OBSTRUCTION ID #:	COORDINATES OR LOCATION:	GNSS ALTITUDE (MSL):	BAROMETRIC ALTITUDE (MSL):	HEIGHT ABOVE GROUND LEVEL:

SIGNED/COMPLETE (REC 04/08/2020)

As part of the Flight Standards Official Distribution process for all Special Instrument Approach Procedures (IAPs), Waiver/Approval requests, defined in Flight Standards Quality Management Systems (QMS), Procedure Review Board (PRB) and FAA Order 8260.60, copies of the final signed procedures can be viewed at the links provided below:

1. Waiver Package

TETERBORO, TETERBORO, NJ, United States

"RNAV (GPS) Y RWY 19 AMDT 1"

W_NJ_Teterboro_KTEB_RNAV_(GPS)_Y_RWY_19_AMDT_1_V4.pdf

PROCEDURE REVIEW BOARD (PRB) RESULTS

September 26, 2019

*****PRB recommendations do not constitute approval*****

14. Waiver/Approval: (TEB) TETERBORO, TETERBORO, NJ - ILS OR LOC RWY 19 AMDT 1

https://swims.faa.gov/PTR/Edit/7723

Requested by: AIS

Digitally signed by
WARDELL HENNING
Feb 07, 2020

PRB Result: DISAPPROVED

Waiver - Provided ELS does not mitigate providing less than required obstacle clearance. Suggest contacting AFS-420 section E for feedback/input on rework prior to resubmitting to PRB.

Additional comments:

a. Approval Request for VGSI mitigation of 20:1 penetrations

1) The request letter requests mitigation of "straight-in." This is a circling runway.

2) Two of the listed obstructions are outside the circling visual area.

3) The building (34-020850) is lighted and requires no VGSI mitigation.

4) Paragraph 3-3-2c(2) cited is for straight-in visual area and is not applicable to this approval request; reference should be 3-3-2c(1).

b. Approval request for 210 KIAS restriction to BUBGE on the missed approach - The missed approach underlies or penetrates Class B airspace associated with KEWR, and the missed approach beyond BUBGE underlies Class B. Aircraft are restricted to 200 KIAS by FAR 91.117(c). This approval and missed approach restriction are unnecessary and could be confusing to pilots that think they can accelerate to or above 210 KIAS beyond BUBGE.

All of the 20:1 penetrations are lighted to RWY 24 and the approval request has been removed. The speed reistriction has been removed from the procedure.

[1]From: Stiles, Tracey (FAA) <Tracey.Stiles@faa.gov>

PROCEDURE REVIEW BOARD (PRB) RESULTS

January 9, 2020 (REC 01/15/2020)

PRB recommendations do not constitute approval

The PRB reviewed the following procedure packages:

7. Waiver: (TEB) TETERBORO, TETERBORO, NJ - RNAV (GPS) Y RWY 19 AMDT 1

https://swims.faa.gov/PTR/Edit/7722

Requested by: AIS

PRB Result: RETURN FOR REWORK

Digitally signed by
WARDELL HENNING
Feb 07, 2020

- Form 8260-3 Missed approach instructions "…cross BUBGE at 1500…" indicates a mandatory altitude, which is inconsistent with Additional Flight Data and Changes and Reasons item #18 on the form 8260-3 which specify a maximum altitude. Change to be consistent.
- Note "CAUTION: On missed approach, do not exceed 1500 until passing BUBGE" not addressed in ELS or otherwise required and should be deleted.
- Form 8260-3; Changes and Reasons #23 not consistent with Additional Flight Data entry. Should be "HOLD NW."

1. Note has been changed to say "mandatory" in additional flight data. There is an updated copy statement for this note that overrides the changes-reasons for 18.
2. Note "CAUTION: ON MISSED APPROACH, DO NOT EXCEED 1500 UNTIL PASSING BUBGE" has been removed.
3. Changes-reasons has been updated to the correct information due to the typo.

RNAV (GPS) Y RWY 19

TETERBORO (TEB)

WAAS CH 97736 W19A	APP CRS 195°	Rwy ldg 6230 TDZE 6 Apt Elev 8

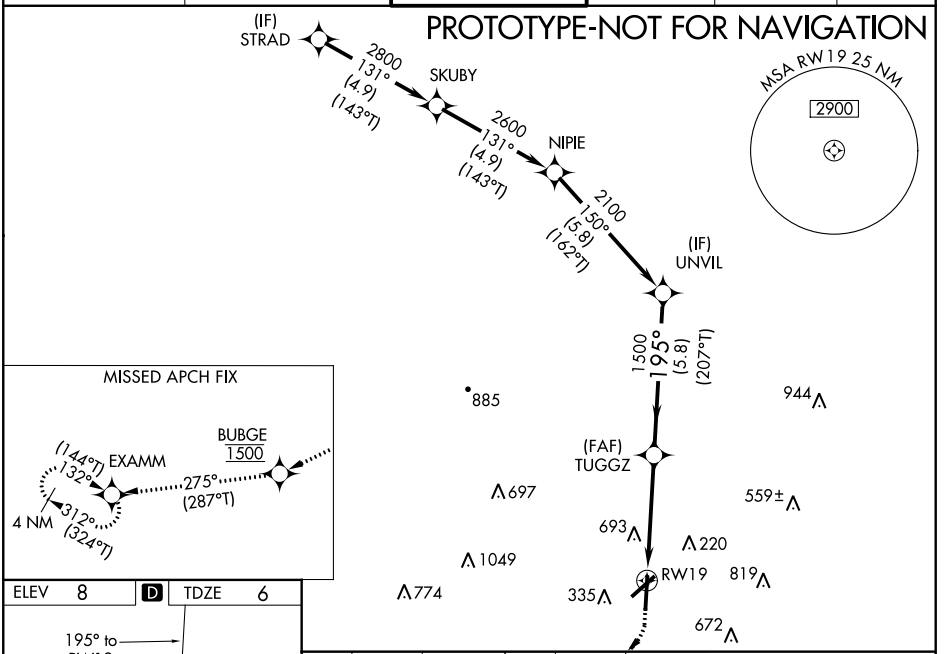
RNP APCH.

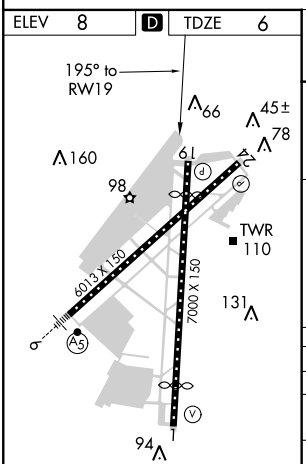
RADAR required for procedure entry.

Circling NA for Cats B, C, D NW of Rwy 06-19. For uncompensated Baro-VNAV systems, LNAV/VNAV NA below -14°C or above 54°C.

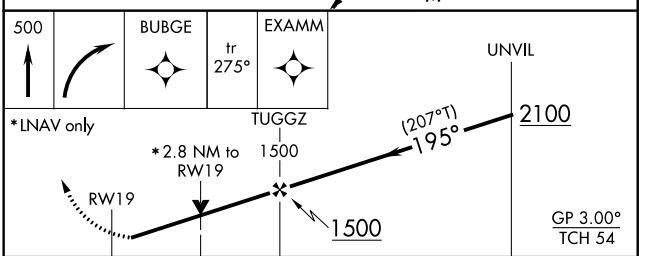
MISSED APPROACH:
Climb to 500 then climbing right turn direct BUBGE, cross BUBGE at 1500, then climb to 3000 on track 275 to EXAMM and hold, continue climb-in-hold to 3000.

D-ATIS	NEW YORK APP CON	TETERBORO TOWER	GND CON	CLNC DEL	CPDLC
114.2 132.85	127.6 379.9	119.5	121.9	128.05	





TDZ/CL Rwys 6 and 19
REIL Rwys 1, 6, 19 and 24
HIRL Rwys 1-19 and 6-24



CATEGORY	A	B	C	D
LPV DA	219-¾ 213 (300-¾)			
LNAV/VNAV DA	1096-4 1090 (1100-4)			
LNAV MDA	960-1¼ 954 (1000-1¼)	960-1½ 954 (1000-1½)	960-3 954 (1000-3)	
C CIRCLING	960-1¼ 952 (1000-1¼)	960-1½ 952 (1000-1½)	960-3 952 (1000-3)	1040-3 1032 (1100-3)

40°51′N-74°04′W

TETERBORO (TEB)
RNAV (GPS) Y RWY 19

OLD

RNAV (GPS) Y RWY 19

TETERBORO (TEB)

WAAS CH 97736 W19A	APP CRS 195°	Rwy ldg 6230 TDZE 6 Apt Elev 8

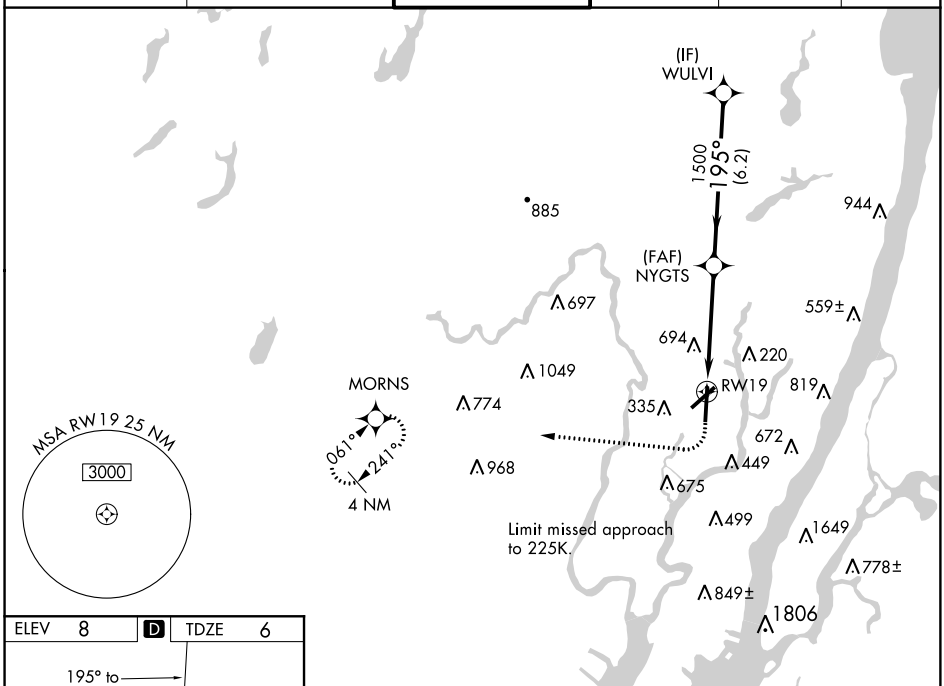
RNP APCH.

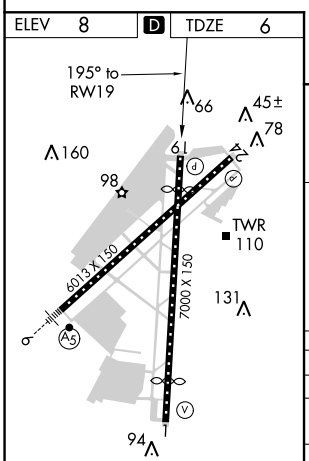
RADAR required for procedure entry.

For uncompensated Baro-VNAV systems, LNAV/VNAV NA below -12°C (11°F) or above 54°C (130°F). Circling NA for Cats B, C, and D NW of Rwys 6 and 19. Circling Rwy 24 NA at night. Rwy 19 helicopter visibility reduction below ¾ SM NA.

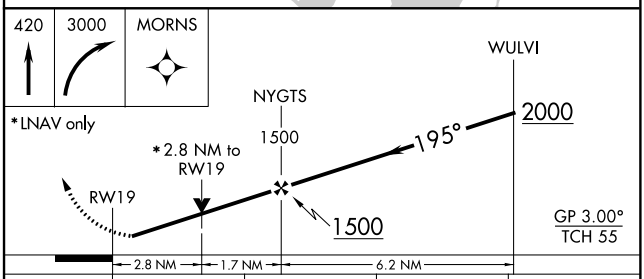
MISSED APPROACH: Climb to 420 then immediate climbing right turn to 3000 direct MORNS and hold.

D-ATIS	NEW YORK APP CON	TETERBORO TOWER	GND CON	CLNC DEL	CPDLC
114.2 132.85	127.6 379.9	119.5	121.9	128.05	





TDZ/CL Rwys 6 and 19
REIL Rwys 1, 6, 19 and 24
HIRL Rwys 1-19 and 6-24



CATEGORY	A	B	C	D
LPV DA	218-¾ 212 (300-¾)			
LNAV/VNAV DA	1090-4 1084 (1100-4)			
LNAV MDA	960-1¼ 954 (1000-1¼)	960-1½ 954 (1000-1½)	960-3 954 (1000-3)	
C CIRCLING	960-1¼ 952 (1000-1¼)	960-1½ 952 (1000-1½)	960-3 952 (1000-3)	1040-3 1032 (1100-3)

NE-2, 15 AUG 2019 to 12 SEP 2019

FLIGHT PROCEDURE STANDARDS WAIVER

1. FLIGHT PROCEDURE IDENTIFICATION:

Teterboro, New Jersey
Teterboro Airport (TEB)
RNAV (GPS) Y RWY 19

2. WAIVER REQUIRED AND APPLICABLE STANDARD:

The missed approach incorporates a maximum altitude restriction that is lower than the clearance limit altitude. Order 8260.3D paragraph 2-8-1. "The missed approach must be simple, specify a charted missed approach altitude (altitude at clearance limit), and a clearance limit fix/facility. When required by obstacles or deemed operationally advantageous, the missed approach may also specify an interim "climb-to" altitude to identify a turn point. Any other interim altitude restriction is not permitted ".

3. REASON FOR WAIVER (JUSTIFICATION FOR NONSTANDARD TREATMENT):

Air traffic control requests a maximum altitude restriction/hold-down altitude of 1500 feet MSL at BUBGE to ensure separation from possible overhead traffic landing Newark Liberty runways 22L/R descending to 2500 feet over the TEB VOR/DME (located mid-field).

4. EQUIVALENT LEVEL OF SAFETY PROVIDED:

1. No penetrations of the 40:1 surface exist between the MAP and BUBGE at the hold down altitude of 1500 feet.
2. The controlling obstacle for the hold-down segment is an AAO with a height of 840 feet MSL (404858.68N/0741353.13W), applying a 1000 feet of ROC + Rounding 840 feet to 900 feet = 1900 feet of altitude required. At 1500 ft hold-down altitude 660 ft of ROC is achieved.
3. Course diverge can be applied once the aircraft has established on a track to BUBGE, it will then be allowed to climb to the holding altitude of 3000 ft.
4. If no overhead Newark traffic exist aircraft will be allowed to climb to holding altitude of 3000 ft.
5. Obstacle clearance sufficiency is based on using vertical error budget (VEB) calculations as described within order 8260.58 and the conditions specific to TEB and this procedure versus a standard level surface value of 1000 feet. The following assumptions were used:

Body geometry = 29 feet (see note 1 below)
Cold temperature error = 280 feet (see note 2 below)
anpe = 0
wpr = 0
vae = 0
fte = 75 feet
ase = 60 feet
atis = 20 feet

Note 1. Based on narrow body using 25 degrees of bank.
Note 2. Based on AIM/TPP cold temperature error table using -30 degree C @ 1500 feet AGL. This is conservative compared to the ISAD calculation which yields 168 feet of error.
Application of the VEB formula yields 440 feet. To this value we add:
Allowable altimeter difference from field elevation = 75 feet
Practical test standard for maintain appropriate altitude = 100 feet
Final value equals 615 feet (440+75+100) which is less than the protected 660 ft of ROC.

6. The procedure is RADAR REQUIRED to provide for radar monitoring of aircraft executing the missed approach.

5. ALTERNATIVE ACTIONS DEEMED NOT FEASIBLE:

1. Air traffic control metering of traffic into Teterboro and Newark Liberty airports would results in excessive arrival and departure delays and a reduction in capacity to both airports.

6. COORDINATION WITH USER ORGANIZATIONS (SPECIFY):

7. SUBMITTED BY:

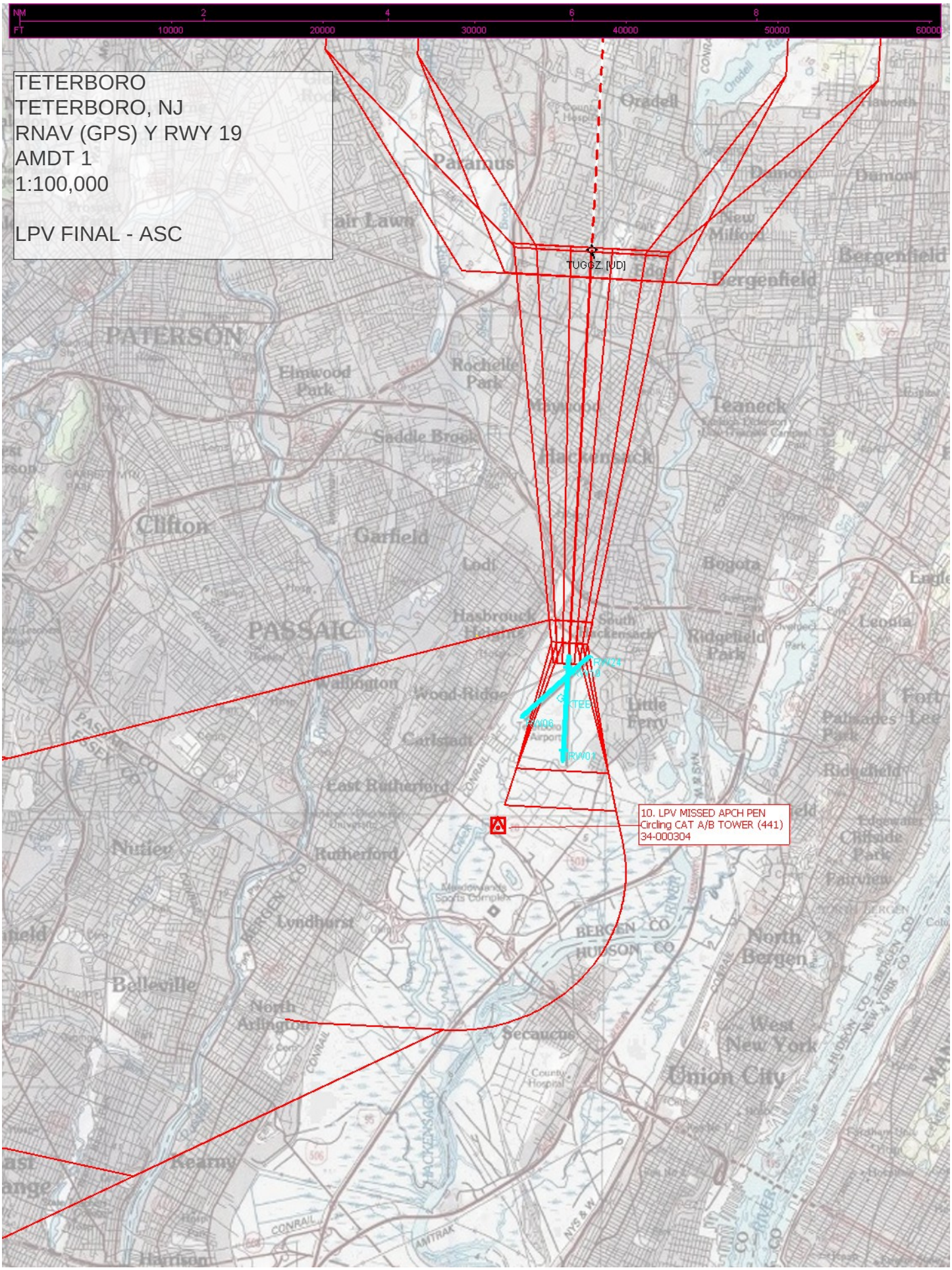
DATE	OFFICE IDENTIFICATION	TITLE	SIGNATURE
	AJV-A400	Manager, Instrument Flight Procedures Group	Lonnie Everhart *Digitally signed by* ***WARDELL HENNING*** Feb 07, 2020

8. AFS ACTIONS:

☐ **APPROVED** ☐ **DISAPPROVED** ☐ **NOT REQUIRED**

COMMENTS:

DATE	ROUTING SYMBOL	SIGNATURE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TETERBORO, NJ
RNAV (GPS) Y RWY 19
AMDT 1
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LPV FINAL - ASC
NM
FT
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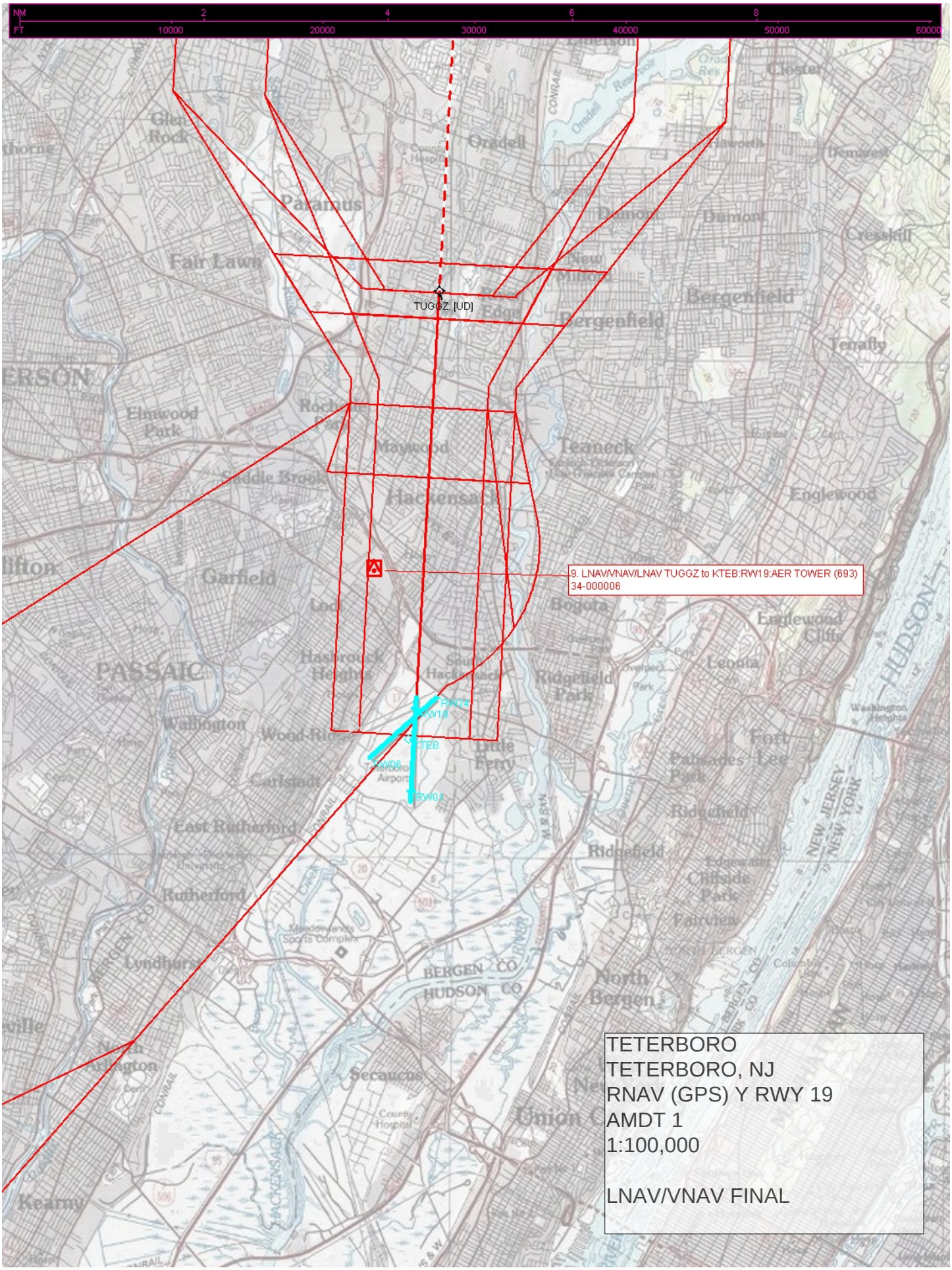
4
6
8
10000
20000
30000
40000
50000
60000
TUGGZ [UD]
10. LPV MISSED APCH PEN
Circling CAT A/B TOWER (441)
34-000304
Oradell
Paramus
Fair Lawn
Dumont
New Milford
Bergenfield
PATERSON
Elmwood Park
Rochelle Park
Teaneck
Saddle Brook
Hackensack
Clifton
Garfield
Lodi
Bogota
PASSAIC
Hasbrouck Heights
Ridgefield Park
Leonia
Wallington
Wood-Ridge
Little Ferry
Carlstadt
East Rutherford
Nutley
Rutherford
Lyndhurst
Belleville
North Arlington
Secaucus
North Bergen
West New York
Union City
Kearny
Harrison
BERGEN CO
HUDSON CO
CONRAIL
AMTRAK
NYS & W


NM
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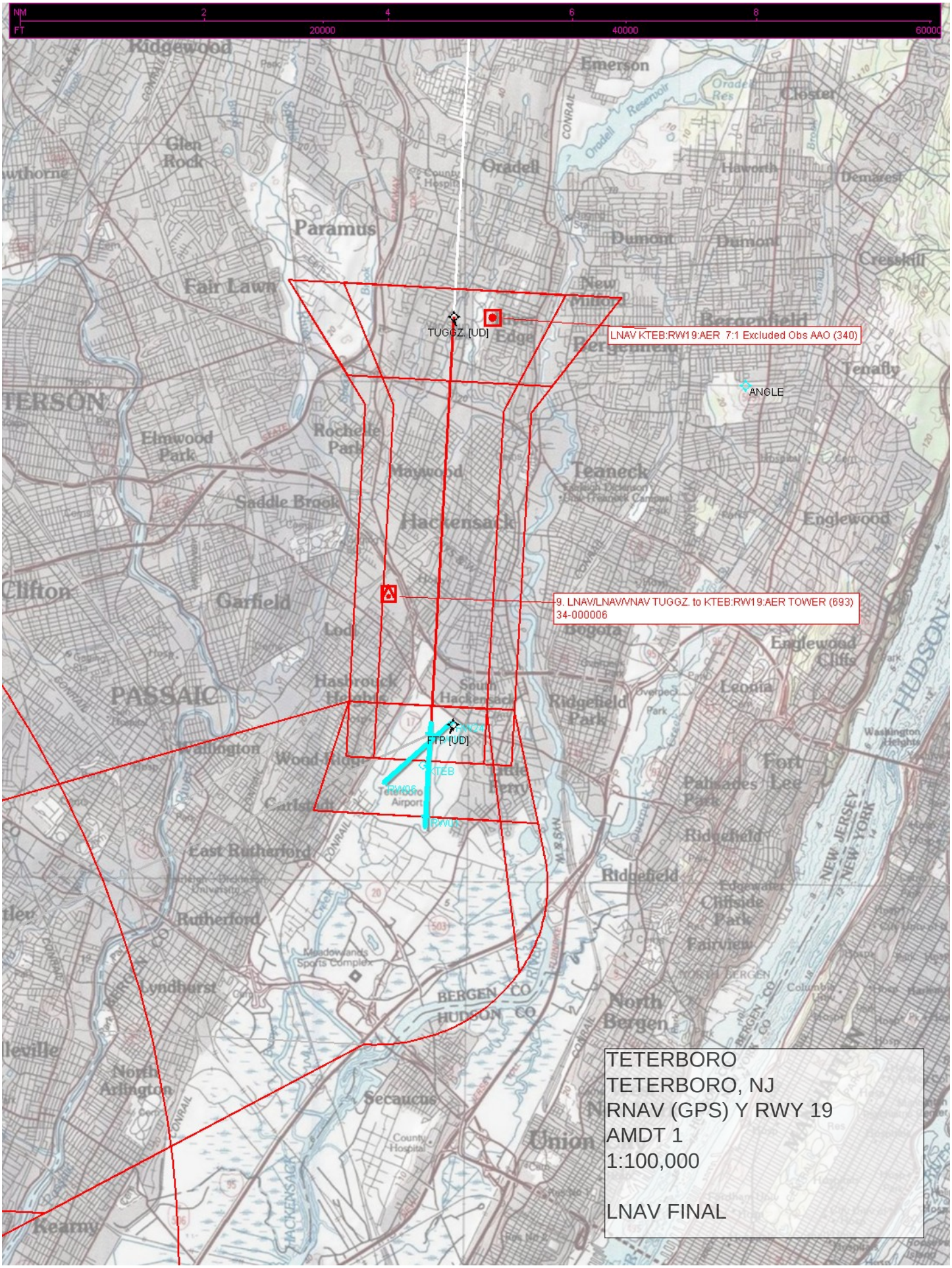
30000
40000
50000
60000
TUGGZ [UD]
9. LNAV/VNAV/LNAV TUGGZ to KTEB:RW19:AER TOWER (693)
34-000006
RW01
RW19
KTEB
RW06
RW01
Glen Rock
Oradell
Paramus
Fair Lawn
Dumont
Bergenfield
Tenafly
Elmwood Park
Maywood
Teaneck
Saddle Brook
Hackensack
Englewood
Garfield
Bogota
Englewood Cliffs
Hasbrouck Heights
Ridgefield Park
Leonia
Wallington
Wood-Ridge
Little Ferry
Fort Lee
Carlstadt
Palisades Park
East Rutherford
Ridgefield
Rutherford
Cliffside Park
Fairview
Lyndhurst
North Bergen
Secaucus
Kearny
PASSAIC
HUDSON
BERGEN CO
HUDSON CO
NEW JERSEY
NEW YORK
TETERBORO
TETERBORO, NJ
RNAV (GPS) Y RWY 19
AMDT 1
1:100,000
LNAV/VNAV FINAL


NM
FT
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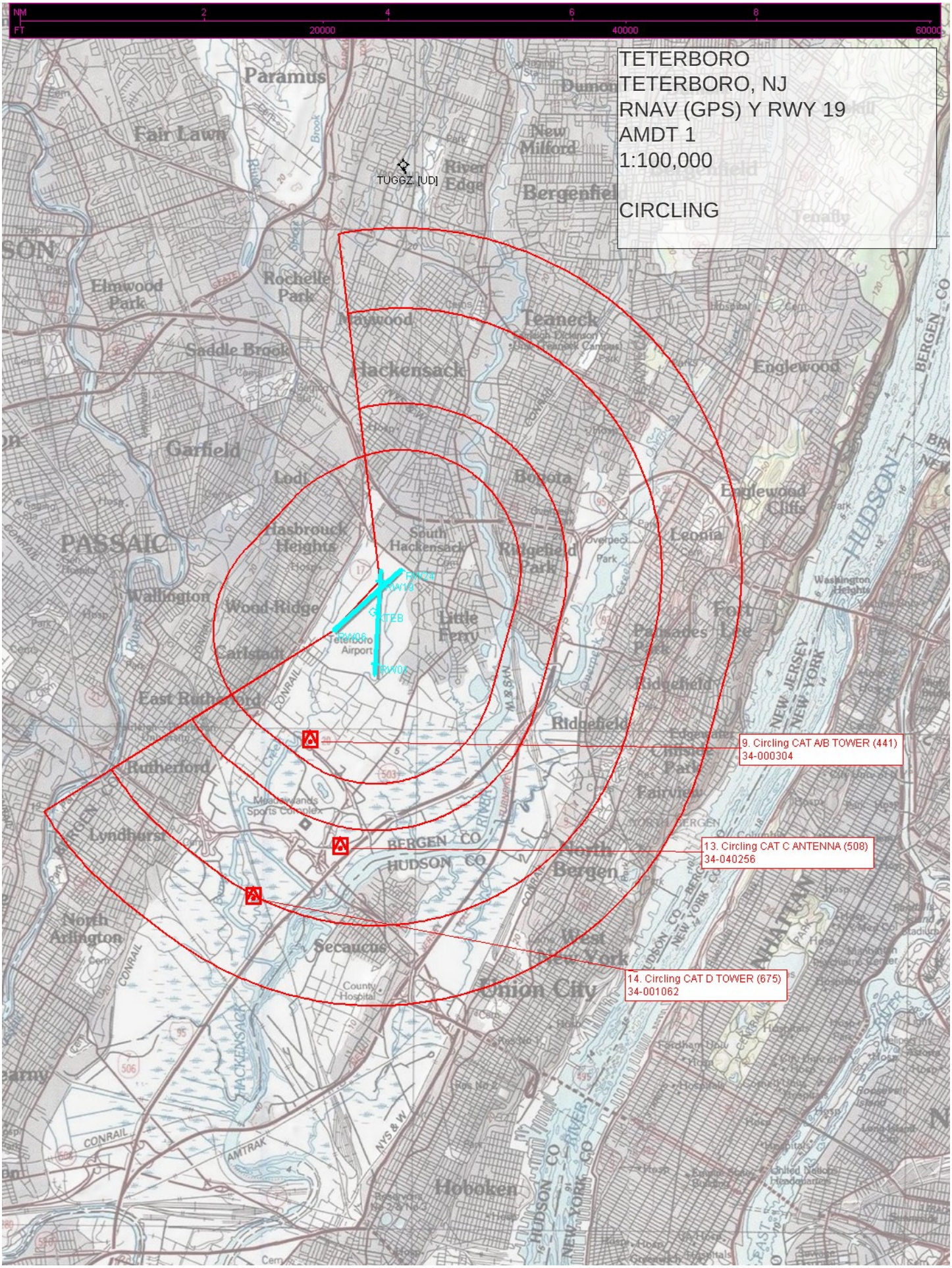
8
20000
40000
60000
TUGGZ [UD]
LNAV KTEB:RW19:AER 7:1 Excluded Obs AAO (340)
ANGLE
9. LNAV/LNAV/VNAV TUGGZ. to KTEB:RW19:AER TOWER (693)
34-000006
FTP [UD]
KTEB
RW06
RW19
Teterboro Airport
Paramus
Fair Lawn
Hackensack
Teaneck
Englewood
Clifton
Garfield
PASSAIC
Rutherford
East Rutherford
Secaucus
Union
Ridgefield
Fort Lee
TETERBORO
TETERBORO, NJ
RNAV (GPS) Y RWY 19
AMDT 1
1:100,000
LNAV FINAL


TETERBORO
TETERBORO, NJ
RNAV (GPS) Y RWY 19
AMDT 1
1:100,000
CIRCLING
NM
FT
2
4
6
8
20000
40000
60000
TUGGZ [UDJ]
9. Circling CAT A/B TOWER (441)
34-000304
13. Circling CAT C ANTENNA (508)
34-040256
14. Circling CAT D TOWER (675)
34-001062
Teterboro Airport
TEB
RW06
RW24
RW14
RW01
Paramus
Fair Lawn
Elmwood Park
Rochelle Park
Maywood
Teaneck
Saddle Brook
Hackensack
Englewood
Garfield
Lodi
Bogota
Englewood Cliffs
Hasbrouck Heights
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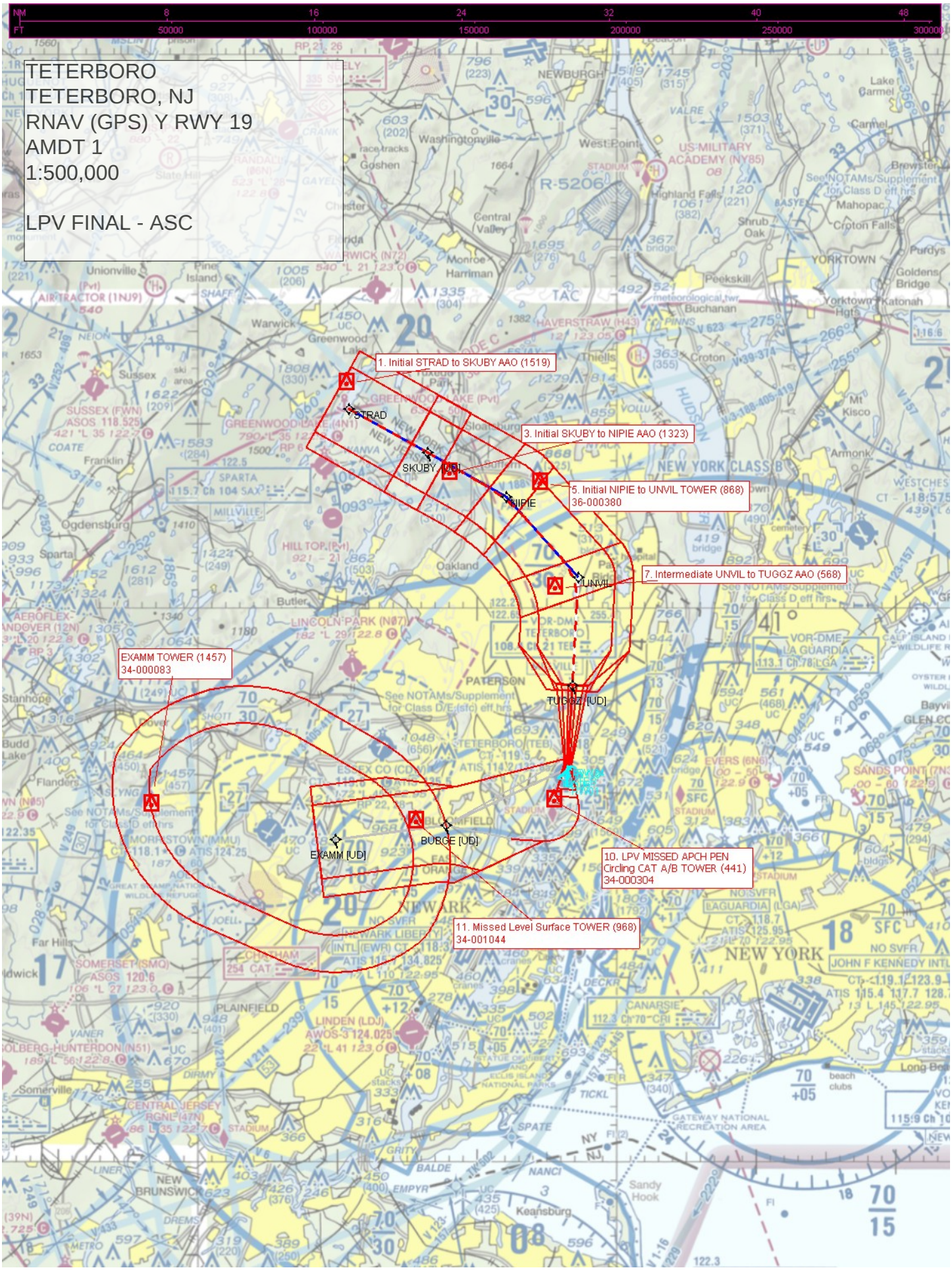
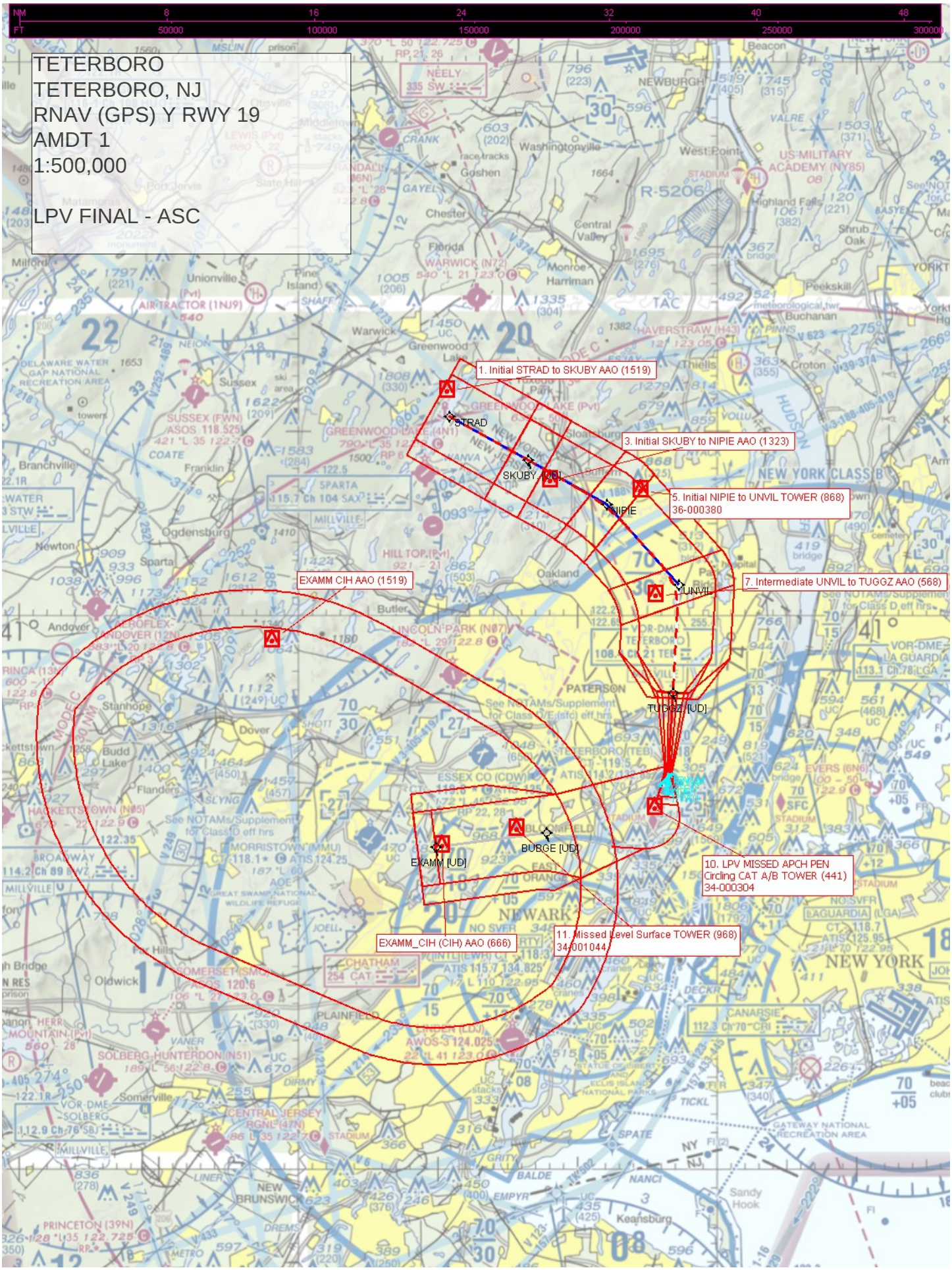
Carlstadt
East Rutherford
Ridgefield
Rutherford
Lyndhurst
North Bergen
North Arlington
Secaucus
West New York
Union City
Hoboken
PASSAIC
BERGEN CO
HUDSON CO
NEW JERSEY
NEW YORK
HUDSON
CONRAIL
AMTRAK
NYS & W
HACKENSACK
Meadowlands Sports Complex
County Hospital

TETERBORO
TETERBORO, NJ
RNAV (GPS) Y RWY 19
AMDT 1
1:500,000

LPV FINAL - ASC




TETERBORO
TETERBORO, NJ
RNAV (GPS) Y RWY 19
AMDT 1
1:500,000
LPV FINAL - ASC
1. Initial STRAD to SKUBY AAO (1519)
STRAD
3. Initial SKUBY to NIPIE AAO (1323)
SKUBY [UD]
5. Initial NIPIE to UNVIL TOWER (868)
36-000380
NIPIE
7. Intermediate UNVIL to TUGGZ AAO (568)
UNVIL
EXAMM CIH AAO (1519)
TUGGZ [UD]
BUBGE [UD]
EXAMM [UD]
10. LPV MISSED APCH PEN
Circling CAT A/B TOWER (441)
34-000304
11. Missed Level Surface TOWER (968)
34-001044
EXAMM_CIH (CIH) AAO (666)