

Flight Procedures Cover Page	Task Action: FLIGHT CHECK	Task Type: STAR	Estimated Chart Date: 04/17/2025	APWS Task ID: 1E9B7CAE5B40482F8D3DE007561E40D4	APWS Project ID: F864FB6083014F8DB56FA47BDE565411
Procedure: STAR WAPPL SEVEN (RNAV) ARRIVAL HOUSTON TX KHOU		Enroute: YES	Specialist: Gorman, Barbara		Agreement Number:
Airport ID: KHOU			Airport City: HOUSTON		State: TX
Facility ID:	Facility Type:	Flight Inspection Remark Type: New FC Slot			
<div>Procedure Comments: APPROVAL LETTER (1): DESCENT GRADIENT GREATER THEN MAXIMUM PERMISSIBLE GRADIENT ALLOWED. ACTIVE DATA USED FOR KHOU AIRPORT AND RUNWAYS. CONTACT: CASIMIR TABABKA 405.954.7931</div> <div>11/26/2024</div> <div><div>QUALITY 14 CHECKED</div><div>QUALITY 38 CHECKED</div></div>					

<b>FIPC DME/DME FORM</b>									
<b>PROCEDURE:</b> STAR WAPPL SEVEN (RNAV) ARRIVAL HOUSTON TX				<b>AIRPORT NAME:</b> WILLIAM P HOBBY		<b>AIRPORT ID:</b> KHOU		<b>SPECIAL CONTROL NO:</b> OG-12-089-24	
<b>FAC ID:</b> WAPPL7			<b>CITY:</b> HOUSTON			<b>ST:</b> TX		<b>ORIG CHART DATE:</b> 04/17/2025	
<b>DFL TYPE:</b> PROC/D		<b>THIRD PARTY:</b> <input type="checkbox"/> YES		<b>EST. TIME ON SITE:</b> 1.0		<b>REIMB. NUMBER:</b> AC0721		<b>PTS TASK ID:</b> 1E9B7CAE5B40482F8D3DE007561E40D4	
<b>PREFLIGHT NOTES</b>									
<b>REVIEWER:</b>							<b>DATE:</b>		
<b>COMMENTS:</b>							<b>CHECK ONE:</b>		
							<input type="checkbox"/> FLT CK REQ <input type="checkbox"/> NFCR <input type="checkbox"/> REJECT		
									YES
							<b>CPV COMPLETE?</b>		X
<b>PROCEDURE RESULTS</b>									
<b>INSPECTION DATE:</b> 04/10/2025		<b>CREW #:</b> VN568		<b>N #:</b> N66		<b>INSTRUMENT PROCEDURE STATUS:</b> <input checked="" type="checkbox"/> SAT <input type="checkbox"/> SAT W/CHANGES <input type="checkbox"/> UNSAT		<b>ARINC CODING:</b> <input checked="" type="checkbox"/> SAT <input type="checkbox"/> SAT/GOLD <input type="checkbox"/> UNSAT	
<b>FLIGHT INSPECTOR SIGNATURE:</b> russell roslewski @ 04/14/2025 07:42				<b>PRINTED NAME:</b> ROSLEWSKI, RUSSELL BRIAN				<b>NOTAM INITIATED?</b> <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	
<b>FLIGHT INSPECTOR REMARKS:</b>									
<b>DME/DME STATUS:</b> <input type="checkbox"/> SAT <input type="checkbox"/> UNSAT		<b>SPECIALIST SIGNATURE:</b>				<b>PRINTED NAME:</b>			
<b>SPECIALIST REMARKS:</b>									
<b>IN-FLIGHT OBSTACLE REPORT</b>									
<b>OBSTRUCTION ID #:</b>		<b>COORDINATES OR LOCATION:</b>		<b>GNSS ALTITUDE (MSL):</b>		<b>BAROMETRIC ALTITUDE (MSL):</b>		<b>HEIGHT ABOVE GROUND LEVEL:</b>	



# Federal Aviation Administration

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## Memorandum

Date: September 23, 2024  
To: Charles R Erickson, (Acting) Fight Procedures Team Manager  
From: Morgan S. Lee, Support Manager (A), Airspace and Procedures  
Prepared by: William Roth, Senior ATC Specialist, NAVTAC Support  
Subject: Letter of Approval Request WAPPL STAR, KHOU

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BUGZY TO PRTCH Descent Gradient.

PRTCH TO UBETR Descent Gradient.

BUGZY TO RTWNG Descent Gradient.

WAPPL TO WLMOR Descent Gradient.

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### **BUGZY TO PRTCH Descent Gradient.**

Currently, FAAO 8260.3E, para 2-2-8a (2), the maximum permissible descent gradient below 10,000ft MSL is 318 ft/nm (approximately 3.0 degrees). BUGZY has a restriction of AT OR BELOW 10000ft MSL and PRTCH has a restriction of AT or BELOW 7000ft MSL. The descent gradient (1238.93 ft/nm) from BUGZY TO PRTCH is greater than the maximum permissible gradient allowed. Flight Standards approval is required.

The WAPPL STAR serves the William P. Hobby Airport. The descent gradient of 1238.93ft/NM from BUGZY TO PRTCH is calculated by measuring from 10000ft MSL at BUGZY descending to AT or BELOW 7000ft MSL at PRTCH over a distance of 2.42NM. However, the gradient over multiple fixes is within the maximum permissible descent gradient. Descending from altitude of BETWEEN 10000ft MSL and 12000ft MSL at SWWAA to at 6000 at MOLLR over a distance of 22.07NM, is a gradient of 181.24 ft/NM when measured from the restriction at SWWAA and the restriction at MOLLR. The altitude restrictions at BUGZY and PRTCH are for ATC operational requirements. Industry indicates that the procedure can be easily managed without increased energy management actions by the flight crew and these altitude restrictions have been published on this procedure for several years without any reported issues.

### **PRTCH TO UBETR Descent Gradient.**

Currently, FAAO 8260.3E, para 2-2-8a (2), the maximum permissible descent gradient below 10,000ft MSL is 318 ft/nm (approximately 3.0 degrees). PRTCH has a restriction of AT OR BELOW 7000ft MSL and UBETR has a restriction of AT

6000ft MSL. The descent gradient (333.23 ft/nm) from PRTCH TO UBETR is greater than the maximum permissible gradient allowed. Flight Standards approval is required.

The WAPPL STAR serves the William P. Hobby Airport. The descent gradient of 333.23ft/NM from PRTCH TO UBETR is calculated by measuring from AT OR BELOW 7000ft MSL at PRTCH descending to AT 6000ft MSL at UBETR over a distance of 3.00NM. However, the gradient over multiple fixes is within the maximum permissible descent gradient. Descending from altitude of AT OR ABOVE 8000ft MSL at PUSHN to at 6000 at UBETR over a distance of 11.52NM, is a gradient of 173.61 ft/NM when measured from the restriction at PUSHN and the restriction at UBETR. The altitude restrictions at PRTCH and UBETR are for ATC operational requirements. Industry indicates that the procedure can be easily managed without increased energy management actions by the flight crew and these altitude restrictions have been published on this procedure for several years without any reported issues.

#### **BUGZY TO RTWNG Descent Gradient.**

Currently, FAAO 8260.3E, para 2-2-8a (2), the maximum permissible descent gradient below 10,000ft MSL is 318 ft/nm (approximately 3.0 degrees). BUGZY has a restriction of AT OR BELOW 10000ft MSL and RTWNG has a restriction of AT 7000ft MSL. The descent gradient (393.84ft/nm) from BUGZY TO RTWNG is greater than the maximum permissible gradient allowed. Flight Standards approval is required.

The WAPPL STAR serves the William P. Hobby Airport. The descent gradient of 393.84ft/NM from BUGZY TO RTWNG is calculated by measuring from 10000ft MSL at BUGZY descending to AT 7000ft MSL at RTWNG over a distance of 7.61NM. However, the gradient over multiple fixes is within the maximum permissible descent gradient. Descending from altitude of BETWEEN 10000ft MSL and 12000ft MSL at SWWAA to at 7000 at RTWNG over a distance of 22.86NM, is a gradient of 131.23 ft/NM when measured from the restriction at SWWAA and the restriction at RTWNG. The altitude restrictions at BUGZY and RTWNG are for ATC operational requirements. Industry indicates that the procedure can be easily managed without increased energy management actions by the flight crew and these altitude restrictions have been published on this procedure for several years without any reported issues.

#### **WAPPL TO WLMOR Descent Gradient.**

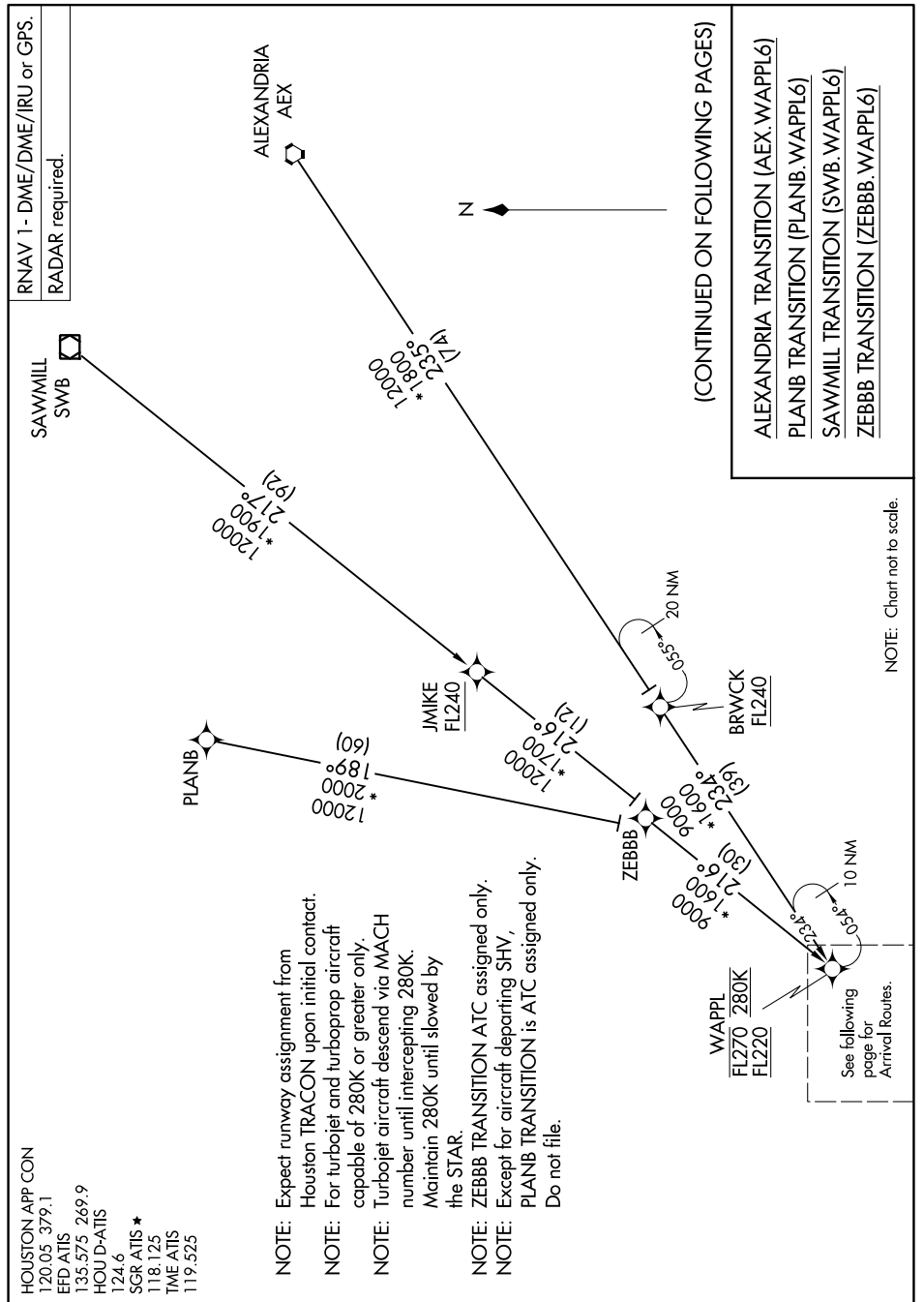
Currently, FAAO 8260.3E, para 2-2-8a (1), the maximum permissible descent gradient 10,000ft MSL and above is 330 ft/nm (approximately 3.11 degrees). WAPPL has a restriction of BETWEEN 22000ft MSL AND 27000ft MSL and WLMOR has a restriction of BETWEEN 15000 and 21000ft MSL. The descent gradient (436.34 ft/nm) from WAPPL TO WLMOR is greater than the maximum permissible gradient allowed. Flight Standards approval is required.

The WAPPL STAR serves the William P. Hobby Airport. The descent gradient of 436.34 ft/NM from WAPPL TO WLMOR is calculated by measuring from 22000ft MSL at WAPPL descending to the bottom of the restriction blocks altitude of BETWEEN 15000 and 21000ft MSL at WLMOR over a distance of 16.03 NM. However, the gradient over multiple fixes is within the maximum permissible descent gradient. Descending from altitude of AT or ABOVE 24000ft MSL at BRWCK to BETWEEN 15000 and 21000ft MSL at WLMOR, over a distance of 52.79NM, is a gradient of 170.49 ft/NM when measured from the restriction at BRWCK and the bottom of the restriction block at WLMOR. The altitude restrictions at WAPPL AND WLMOR are for ATC operational requirements. Industry indicates that the procedure can be easily managed without increased energy management actions by the flight crew and these altitude

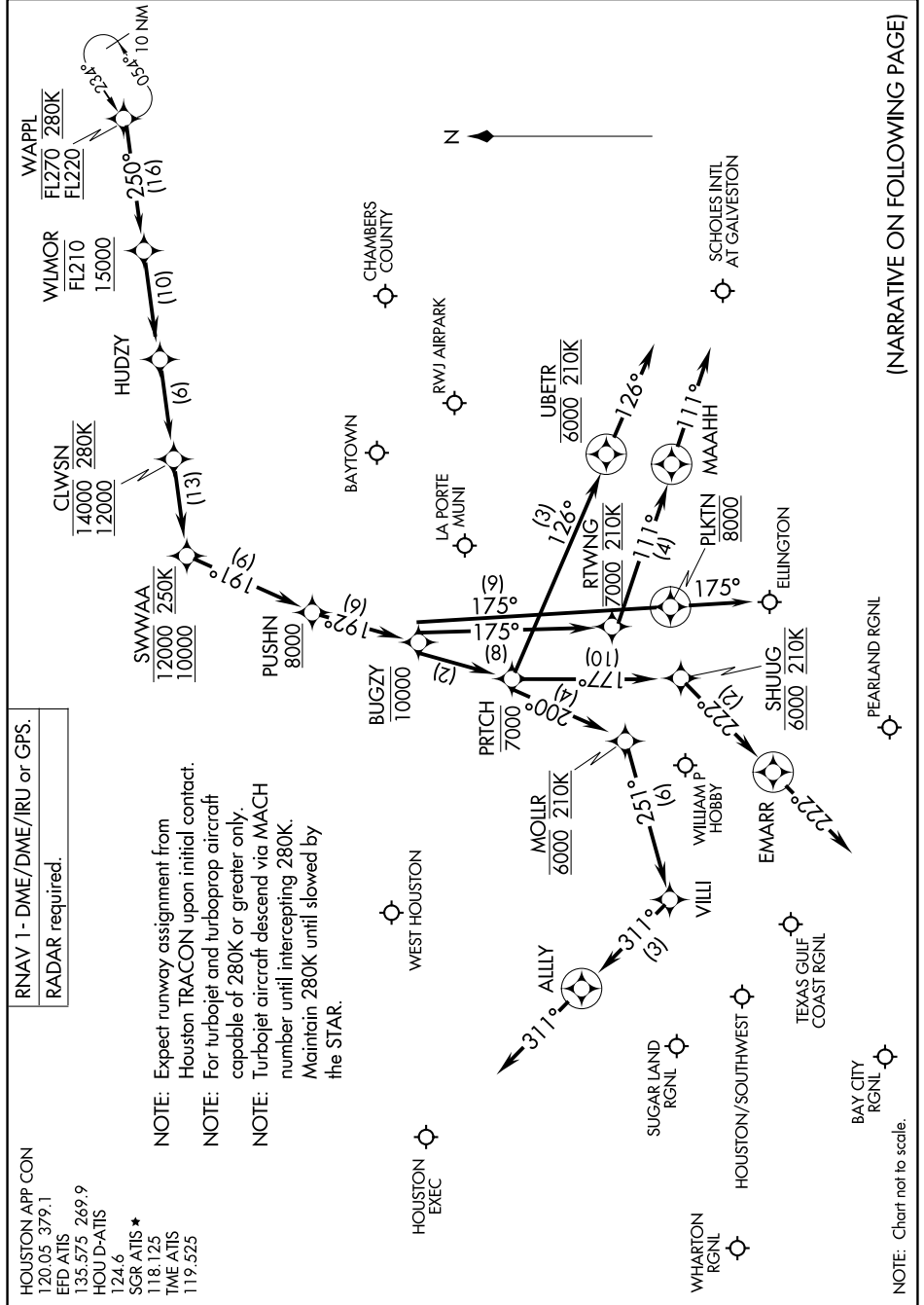
restrictions have been published on this procedure for several years without any reported issues.

Sincerely,

Morgan S Lee  
(Acting) Support Manager, Airspace &  
Procedures  
Houston Center, Texas



SC-5, 03 OCT 2024 to 31 OCT 2024

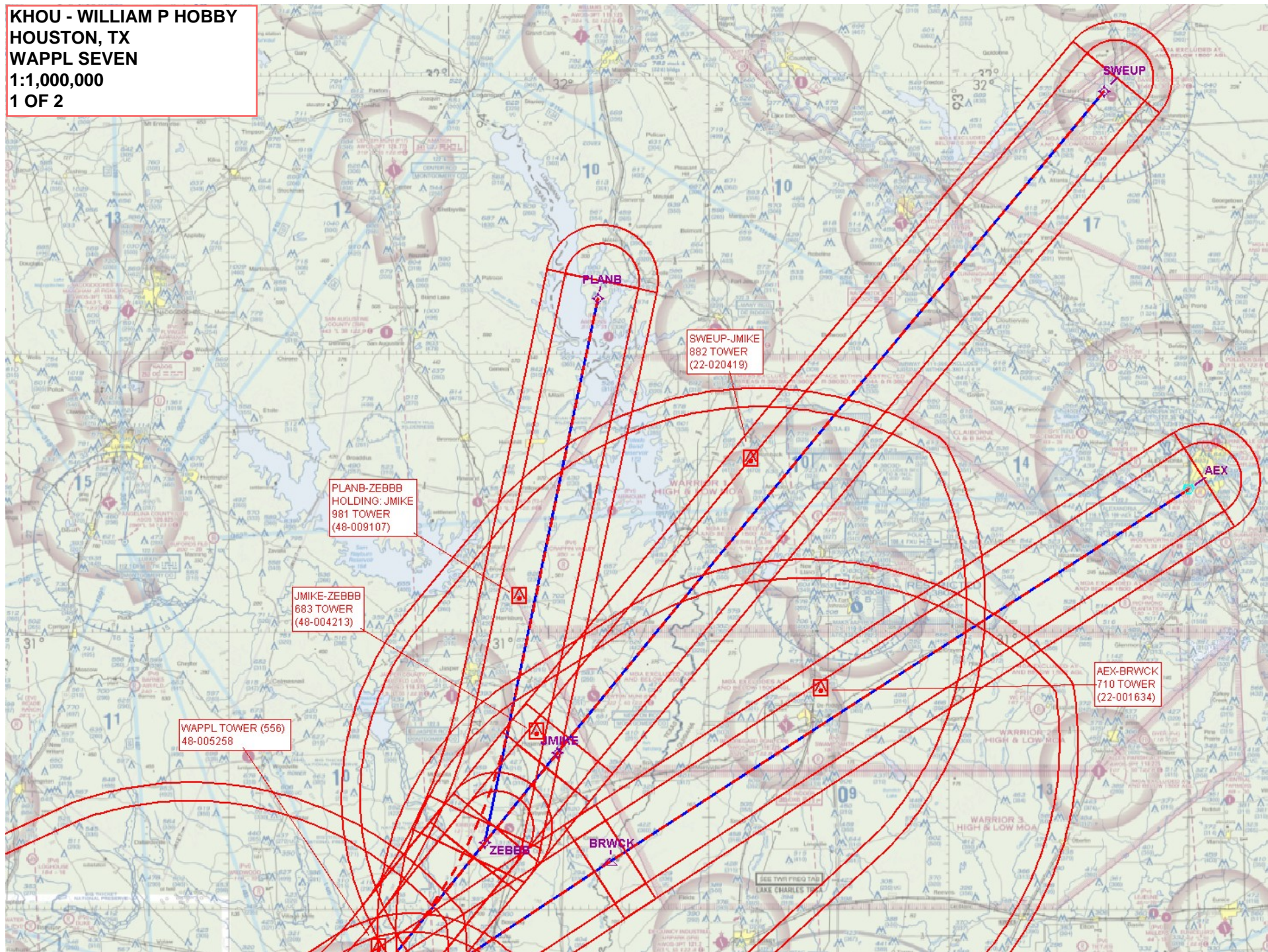


(NARRATIVE ON FOLLOWING PAGE)

SC-5, 03 OCT 2024 to 31 OCT 2024

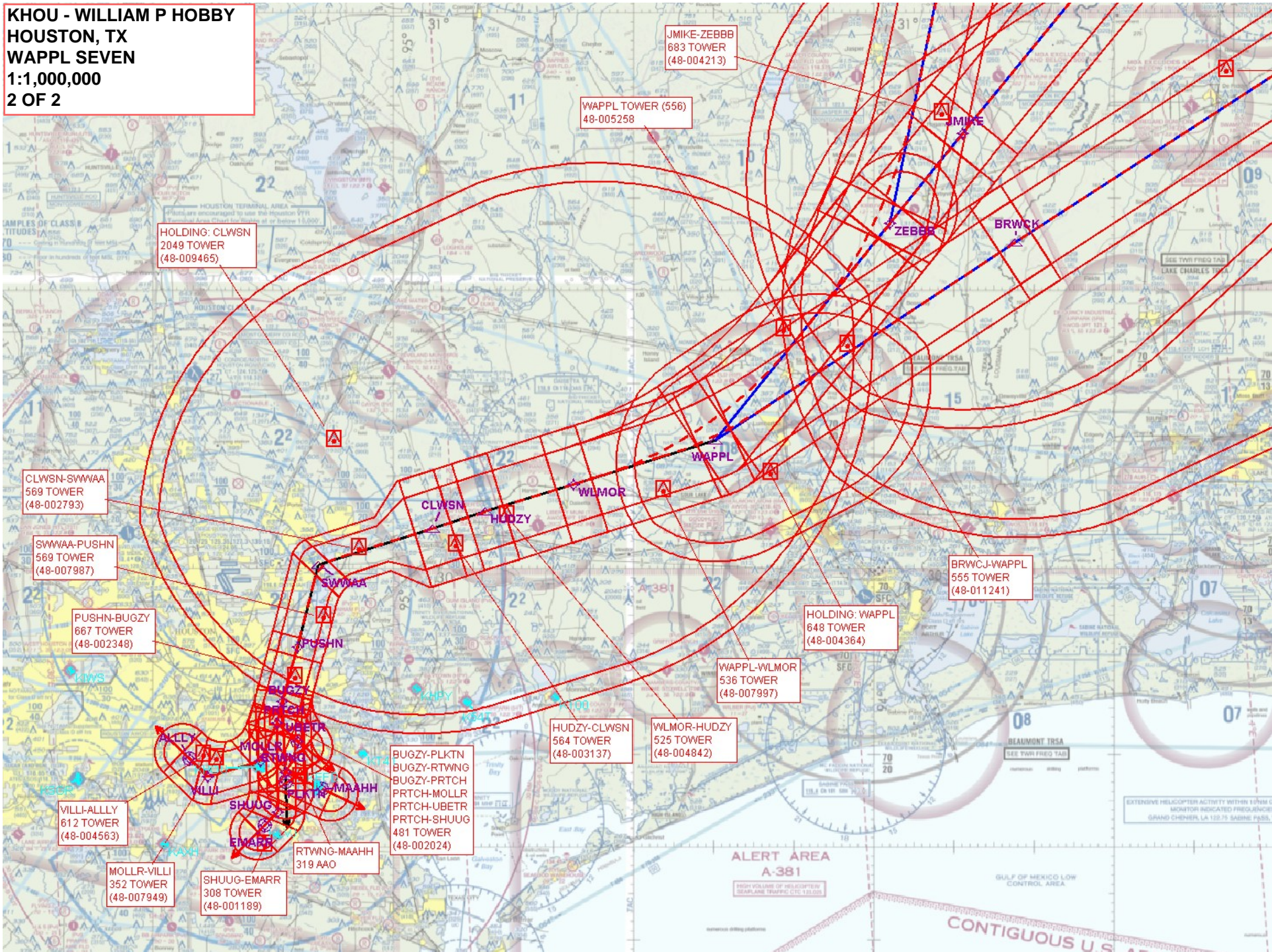


**KHOU - WILLIAM P HOBBY**  
**HOUSTON, TX**  
**WAPPL SEVEN**  
**1:1,000,000**  
**1 OF 2**



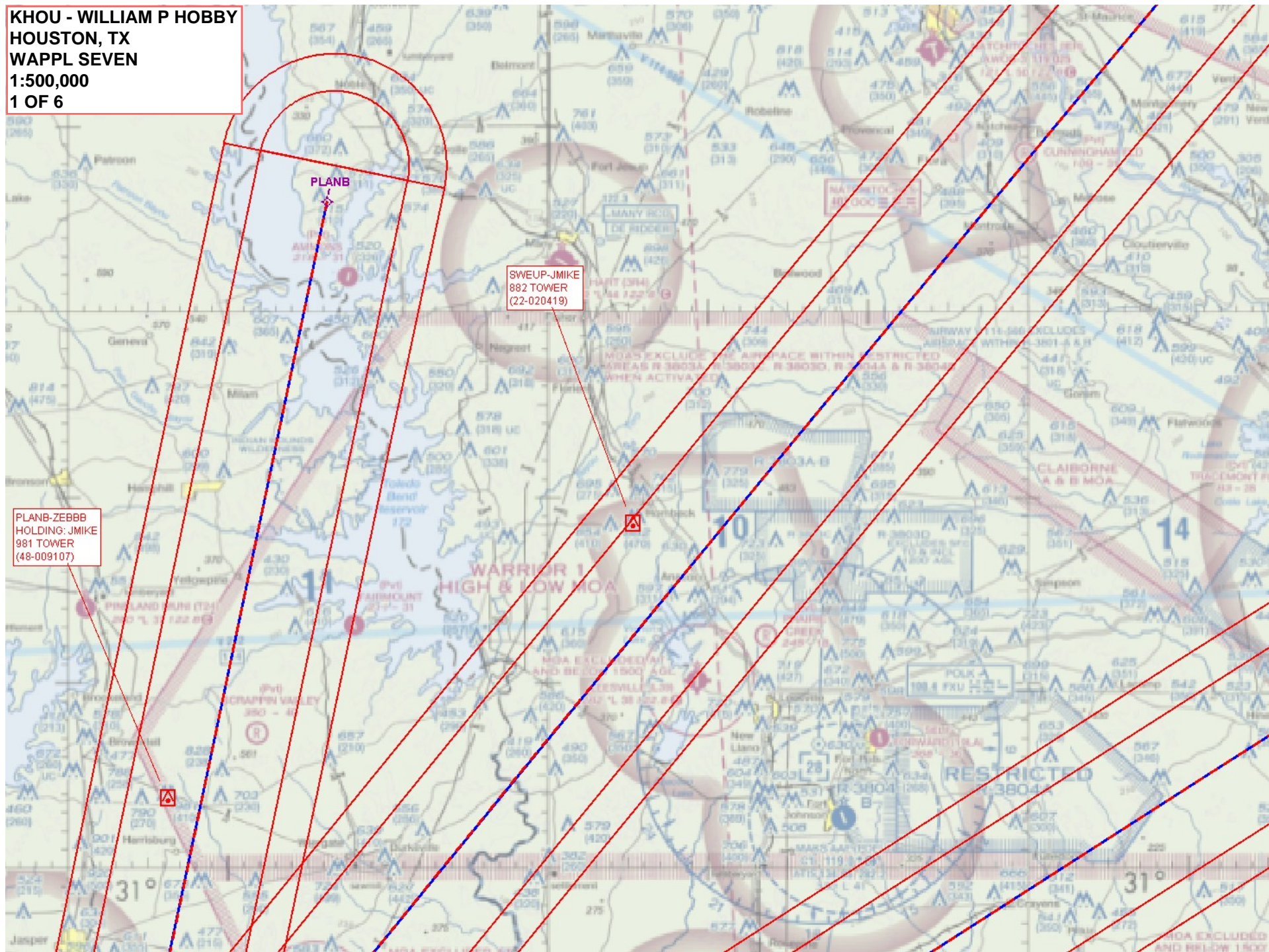


**KHOU - WILLIAM P HOBBY  
HOUSTON, TX  
WAPPL SEVEN  
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2 OF 2**





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2 OF 6

