ORDER

I90 O 7110.1C

HOUSTON I90 TRACON

STANDARD OPERATING PROCEDURES

May 29, 2014

DEPARTMENT OF TRANSPORTATION

FEDERAL AVIATION ADMINISTRATION

RECORD OF CHANGES

DIRECTIVE NO. **I90 O 7110.1C**

CHANGE TO BASIC	SUPPLEMENT			OPTIONAL	CHANGE TO BASIC	SUPPLEMENT			OPTIONAL

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
Houston TRACON I90
Houston, Texas

I90 ORDER 7110.1C

Effective Date:
05/29/14

SUBJ: Houston I90 TRACON Standard Operating Procedures

This order prescribes air traffic control procedures for use by personnel providing air traffic control services within the airspace delegated to the Houston TRACON (I90). Control room personnel are required to be familiar with the provisions of this order that pertain to their operational responsibilities and to exercise their best judgment if they encounter situations not covered by it.

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Houston I90 TRACON

Distribution: I90 Personnel

Initiated By: I90-530

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CHAPTER 1. GENERAL

SECTION 4. INTRODUCTION

1-1-1. PURPOSE OF THIS ORDER

This order defines the duties, responsibilities, and allocated airspace for all positions of operation at Houston TRACON (I90).

1-1-2. AUDIENCE

This order is addressed to all Houston TRACON air traffic personnel.

1-1-3. WHERE CAN I FIND THIS ORDER

This order can be found in the official facility binders at Houston TRACON. An electronic version of this order is available on the FAA Facility Directives Repository at https://loa.faa.gov/.

1-1-4. WHAT THIS ORDER CANCELS

This order cancels Order I90 7110.1B, Standard Operating Procedures, dated July 25, 2013.

1-1-5. EFFECTIVE DATE

May 29, 2014

SECTION 2. TERMS OF REFERENCE

1-2-1. ABBREVIATIONS

As used in this order, the following abbreviations have the meanings indicated: (See TBL 1-1-1.)

1-2-2. DEFINITIONS.

The Houston Terminal Area is that area contained within the Houston TRACON airspace, excluding Beaumont, College, and Industry Satellite airspace. The Beaumont Terminal Area is that area contained within the Beaumont Satellite airspace. The College Station Terminal Area is that area contained within the College and Industry Satellite airspace. South satellite airports are those airports within the Houston Terminal Area that are south of V222. North satellite airports are those airports within the Houston Terminal Area that are north of V222.

1-2-3. USAGE.

Procedures in this order are supplemental to the requirements of JO 7110.65, Air Traffic Control, and JO 7210.3, Facility Operation and Administration.

TBL 1-1-1
ABBREVIATIONS

Abbreviation	STARS Keyboard Symbol	Meaning
M	1M	Departure North
R	1R	Tomball Satellite
W	1W	Departure West
P	1P	Lakeside Satellite
N	1N	West Arrival
X	1X	Eagle Lake Arrival
U	1U	College Satellite
T	1T	College Final
Z	1Z	Industry Satellite
E	1E	Departure East
L	1L	Departure South
B	1B	SanJac Satellite
J	1J	Beaumont Satellite
D	1D	East Arrival
G	1G	Gulf Arrival
H	1H	Hobby Final
A	1A	Final North
I	1I	Final Center
O	1O	Final South
MN	3A	Monitor Final North
MC	3I	Monitor Final Center
MS	30	Monitor Final South
M**NA**	8L	Monitor North Alternate
SCD	1S	Satellite Clearance Delivery
FD	2Q	Flight Data (CLL/BPT)
C-M	2M	Coordinator Departure North
C-W	2W	Coordinator Departure West
C-P	2P	Coordinator Lakeside Satellite
C-H	2H	Coordinator Hobby Final
UTL	8H	Utility
UTL	8I	Utility
UTL	8J	Utility
OM	1Q	Operations Manager
TMC	1Y, 1K	Traffic Management Coordinator TRACON

ABBREVIATIONS

Abbreviation	Meaning
AAR	Adapted Arrival Route
ADR	Adapted Departure Route
AFD	Airport Facility Directory
CIC	Controller-In-Charge
FSL	Full Service Level
FAA	Federal Aviation Administration
GLS	Ground Based Augmentation System Landing System
GPS	Global Positioning System
HOU	Ellington LRR Site
ILS	Instrument Landing System
IVSR	Interim Voice Switch Replacement
LCH	Lake Charles LRR Site
LRR	Long Range RADAR
MSAW	Minimum Safe Altitude Warning
NTZ	No Transgression Zone
OPD	Optimized Profile Descent
QNA	Morales LRR Site
QYS	Rogers LRR Site
RNAV	Area Navigation
RNP	Required Navigation Performance
SDM	Supplemental Display Monitor
SI	Supervisor TRACON
SPC	Special Condition Codes
STAR	Standard Terminal Arrival Route
STARS	Standard Terminal Automation Replacement System
TCW	Terminal Controller Workstation
TDW	Tower Display Workstation
TMC	Traffic Management Coordinator Radar
TMT	Traffic Management Coordinator Tower
TRSA	Terminal Radar Service Area
TW	Terminal/Tower Workstation
WS	Watch Supervisor

CHAPTER 2. PROCEDURES

SECTION 1. GENERAL

2-1-1. DEVIATIONS

If operationally advantageous, deviations from these procedures may be coordinated on an individual basis, except as noted in Paragraph 8-17-1.

2-1-2. CONTROL TRANSFER

a. Control must be transferred at the time of completion of a radar handoff and frequency change as specified in JO 7110.65.

b. After control transfer, the receiving controller is responsible for coordination (s) affecting his/her aircraft. The receiving controller may climb departure aircraft, descend arriving aircraft, adjust airspeed, and/or make course changes of 60 degrees or less in the transferring controller's airspace. Exceptions to these procedures are outlined in the I90/IAH and I90/HOU letters of agreement.

2-1-3. RUNWAY UTILIZATION

a. Runway 8L/26R is considered noise sensitive from 2200 local to 0600 local. Runway use during this period is limited to operational necessity only. Runway 8L/26R must not be advertised as an arrival or departure runway during this period. If, during this period, the pilot requests use of Runway 8L/26R, the controller must advise the pilot that the runway is noise sensitive and verify that an operational requirement exists:

PHRASEOLOGY-

"Runway 8L/26R is noise sensitive. Verify operational requirement."

If the pilot confirms the operational requirement, comply with the request. The I90 WS/CIC must log the request for arrival on the I90 Daily Record of Facility Operation (FAA Form 7230-4), specifying the aircraft call sign, aircraft type, runway requested, and the statement, "pilot operational requirement."

b. Deviation from the runway usage described herein may be required as a result of adverse weather, traffic mix, runway closures, equipment failures, emergency situations, and/or airport construction activities.

c. Between 2200 hours and 0600 hours local, inbound aircraft:

1. From the east assigned Runway 26R/L and/or Runway 27 must be established on a straight-in final and issued a crossing restriction of 15 NM east of IAH at or above 4,000 feet MSL.

2. From the west assigned Runway 26L/26R and/or Runway 27 must be at 4,000 MSL or above until turning final.

3. From the east assigned Runway 8R/8L and/or Runway 9 must be at 4,000 MSL or above until turning final.

4. From the west assigned Runway 8R/8L and/or Runway 9 must be established on a straight-in final and issued a crossing restriction of 15 NM west of IAH at or above 4,000 MSL.

d. The following preferential runway configurations must be used at IAH to the extent possible:

1. West Flow/Departing South.

(a) Arrivals on Runways 26L/26R/27.

(b) Departures on Runways 15L/15R/26L/26R.

2. West Flow/Departing North.

(a) Arrivals on Runways 26L/26R/27.

(b) Departures on Runways 33R/33L.

3. East Flow.

(a) Arrivals on Runways 8L/8R/9.

(b) Departures on Runways 15L/15R/8R/8L/9.

e. When performing an east/west flow runway change, utilize the following checklist. Items on this checklist are not necessarily sequential. Any task on this list may be delegated; however, it is the responsibility of the WS to ensure that all items are completed.

1. Notify TMC and TMT of the need to change runways.

2. Coordinate to determine the most advantageous time to transition from one runway configuration to another.

3. Ensure HOU is on the “short box” if landing RY 12R prior to activating both descent areas.

Identify to IAH the last aircraft to land on each runway in the old configuration and the first aircraft to land under the new runway configuration. When the aircraft are identified, both the new and old descent areas are considered active and IAH will use the departure corridors as depicted in Appendix 2, page 17, of the I90-IAH Letter of Agreement. These corridors will be used until the last aircraft in the old configuration has landed.

NOTE- *IAH may continue Runway 15L/R departures in left turns over the Runway 27/26L/R final. If unable, coordinate a specific departure heading/departure sector frequency with I90.*

4. Notify IAH or HOU when a runway change has occurred at the other airport.

5. When a runway change occurs at DWH, the departure list must be moved to Tomball Sector or Lakeside Sector as appropriate. Notify all positions that a runway change has been made. This notification must include the last aircraft in the old configuration and the first aircraft in the new configuration.

6. Notify ZHU TMU of the new runway configuration and the availability of dual routes or Optimized Profile Descent (OPD).

7. Ensure IAH changes the TDWR ribbon displays, ASDE-X, and ATIS, as appropriate.

8. Change the system area to reflect the new runway configuration.

9. Coordinate with IAH about when to change the ILS to the new runway configuration.

2-1-4. REDUCED LONGITUDINAL SEPARATION

Reduced longitudinal separation (2.5 NM) between arrivals may be applied for all east/west runways at IAH for aircraft established on the final approach course within 10 NM for the landing runway.

2-1-5. PARALLEL APPROACH SEPARATION

In addition to separation prescribed in JO 7110.65, 5-9-6a3, 2 NM diagonal separation is permitted between aircraft on Runways 26R/27 and Runways 8L/9 via waiver.

2-1-6. WIDELY SPACED PARALLEL APPROACH OPERATIONS

Widely Spaced Parallel Approach operations may be utilized as defined in the IAH/I90 LOA and per JO 7110.65 requirements.

2-1-7. MODE C ALTITUDE

Aircraft being handed off in level flight with altitude information displayed (Mode C or scratchpad) must be considered to be at their assigned altitude. Pilot reported altitude for aircraft in level flight during mode C outages must be entered in to the STARS data tag.

2-1-8. AIRSPACE CONFIGURATION CHANGES

Any change to the airspace configuration cancels all previously coordinated procedures pertinent to that airspace configuration. If, after an airspace configuration change, nonstandard headings or other procedures are needed, they must be re-coordinated on the basis of the new airspace configuration.

2-1-9. SECTORIZATION

Positions of operation are divided in West, East, and Common Areas:

West Side	Common	East Side
Departure North	Final Center	Departure East
Departure West	Final North	Departure South
West Arrival	Final South	East Arrival
Eagle Lake Arrival	Hobby Final	Gulf Arrival
College Final	Monitor Final Center	Beaumont Satellite
Industry Satellite	Monitor Final North	SanJac Satellite
Lakeside Satellite	Monitor Final South	
Tomball Satellite	Flight Data	
College Satellite	Satellite Clearance Delivery	

2-1-10. APPROACH PULL-OUT AREAS

Satellite or departure airspace, at or below 3,000 feet MSL, within the lateral confines of final airspace is for IAH departures, go-arounds, and/or pull-outs only. Final controllers, Final Monitor controllers, and IAH Local controllers have control to vector pull-outs within this airspace for resequencing.

2-1-11. FLOW CHART USAGE

Appendix 18 flow charts are guides that represent typical traffic flow for the various arrival configurations within the Houston Terminal Area. They are not a defined route.

2-1-12. OPTIMIZED PROFILE DESCENT (OPD) OPERATIONS

Aircraft that are capable of utilizing OPD procedures but have been altitude restricted, must be coordinated with the receiving controller if the altitude is different than the bottom altitude on the procedure.

2-1-13. ALTITUDE RESTRICTIONS FOR PRARI GATE DEPARTURES

10,000ft and 12,000ft must not be assigned to aircraft departing out the PRARI gate (J,P,N and Z).

Note: This restriction separates from the KIDDZ and TAKKL Arrivals.

SECTION 2. EQUIPMENT

2-2-1. RADAR

During single sensor operations the beacon control slash must be slightly offset from the primary target.

a. The SDM must not be used for control purposes.

2-2-2. ASR-9/ASR-11 SYSTEM SETTINGS/CRITERIA

The following systems settings/criteria are established for the North (IAH) and South (HUB) ASR-9's and the Beaumont (BPT) and Brenham (BNH) ASR-11's:

a. TCW weather level display must be at the discretion of the controller, except as per Paragraph 2-4-10(a), weather must be displayed in the STARS System Status Area.

b. Prominent obstructions identified by digital map marks. (See Appendix 21).

c. Permanent Echoes:

Azimuth/Range Site
116/10.2 NM BNH
153/01.1 NM BNH
019/09.4 NM BPT
081/07.5 NM BPT
326/02.0 NM HUB
118/02.0 NM IAH

d. Channel changes must not be attempted when either channel has high voltage on. Turn high voltage off before selecting new channel to go online.

2-2-3. RADAR SITE SELECTION FROM A TCW

a. Fusion must be the preferred sensor to the extent that it is operationally feasible.

b. When Fusion is not operationally feasible, controllers must select the North ASR-9 (IAH), South ASR-9 (HUB), BPT ASR-11, or BNH ASR-11 RADAR site as appropriate for their position of operation.

c. The WS/CIC must be responsible for implementing the use of MULTI MODE or any RADAR site other than IAH, HUB, BPT, and BNH.

    1. In the event the WS/CIC determines the operational need to use MULTI MODE or any of the Houston Air Route Traffic Control Center (ZHU) LRR sites (HOU, LCH, QYS, QNA), the WS/CIC must:

        a. Notify the SI and effected towers of planned MULTI MODE/LRR site implementation and termination.

        b. Make an entry in the Daily Record of Facility Operation, (FAA Form 7230-4).

        c. Notify ZHU Operations Manager in Charge (OMIC), so that no adjustments or changes will be made to the LRR site selected without first advising I90.

        d. Ensure all operating positions and satellite facilities are briefed on the increased separation requirements prior to implementation of MULTI MODE/LRR site.

2-2-4. WIND INFORMATION

Use the center field wind information for operational purposes.

2-2-5. RVR AVAILABILITY

Controllers must ensure that the applicable RVR runways are displayed at their position of responsibility.

2-2-6. I90/BPT/CLL ALTIMETER

Issue the appropriate altimeter to aircraft transitioning into and out of Houston Terminal airspace, Beaumont Satellite airspace, and the College Satellite airspace.

2-2-7. AUTOMATIC DEPENDENT SURVEILLANCE BROADCAST (ADS-B)

Ground Based Transmitter (GBT) identification and their locations (see Appendix A-23)

SECTION 3. CONTROL PROCEDURES

2-3-1. ADVANCE APPROACH INFORMATION

The first controller to work an aircraft that intends to land at an airport in his/her terminal area (see Paragraph 1-2-2) must inform the pilot of the appropriate approach/weather/airport condition information, unless the pilot states that appropriate ATIS code or indicates ASOS weather has been received. Excluding IAH and HOU airports, placing the approach information in the second area scratch pad of STARS, advises that the pilot has received current approach/ weather/ airport conditions. Controllers have the option to use "WX" in second scratch pad area, in lieu of approach information, to satisfy this requirement.

2-3-2. ATIS REQUIREMENTS

a. All operational positions must, upon being advised of a new ATIS code for airports within their terminal area (see Paragraph 1-2-2), broadcast the information on their respective frequencies.

b. Acknowledge the new ATIS codes displayed in the STARS GI text portion of the system status area by entering the delta symbol via the STARS keyboard.

2-3-3. ARRIVAL RUNWAY AND ALTITUDE ASSIGNMENTS

a. Unless otherwise stated in this order, aircraft being handed off to final controllers must be assigned 6,000 feet MSL.

b. Provide runway assignment information in the scratchpad when multiple options exist.

c. Utilize the charts below for optimal runway assignment and altitudes related thereto. Runway assignments are listed in preferential order.

ARRIVAL EAST (D)

DESTINATION	FLOW	ARRIVAL	RWY(S)
IAH	WEST	DOOBI	26L@080 **26R@060** **27@060**
IAH	WEST	WHACK	26R@060 26L@080 27@040
IAH	EAST	TWSTD	08L@060 08R@060 09@060
IAH	EAST	SKNRD	08L@060 08R@060 09@060
IAH	WEST	OHIIO conventional	**26R @060** **26L@080** **27@060**
IAH	EAST	OHIIO conventional	**08L @060** **08R@060** **09@060**
HOU	ALL	WAPPL	12R/04/30L@060 22@070
HOU	ALL	HUDZY conventional	**12R/04/30L@060** **22@070**

***__BOLD__ FACE INDICATES NO AVAILABLE RUNWAY TRANSITION

EAGLE LAKE ARRIVAL (X)

DESTINATION	FLOW	ARRIVAL	RWY(S)
IAH	WEST	TEJAS	27@060 26R@060 26L@060
IAH	EAST	HTOWN	08R@070 **09@060** **08L@060**
IAH	WEST	DUUUK conventional	**27@060** **26L@060** **26R@060**
IAH	EAST	DUUUK conventional	**08R@070** **09@060** **08L@060**
HOU	ALL	KIDDZ	12R@060 4@060 22@060 30L@060
HOU	ALL	BELLR	12R@060 4@060 22@060 30L@060
HOU	ALL	TCHDN conventional	**12R@060** **4@060** **22@060** **30L@060**

***__BOLD__ FACE INDICATES NO AVAILABLE RUNWAY TRANSITION

ARRIVAL WEST (N)

DESTINATION	FLOW	ARRIVAL	RWY(S)
IAH	WEST	DRLLR	26R@060 26L@070 27@060
IAH	WEST	MSCOT	26R@060 26L@070 27@060
IAH	EAST	GUSHR	08L@060 **08R@080** **09@060**
IAH	EAST	TTORO	08R@080 **08L@060** **09@060**
IAH	WEST	RIICE conventional	**26R @060** **26L@070** **27@060**
IAH	EAST	RIICE conventional	**08L@060** **08R@080** **09@060**

***__BOLD__ FACE INDICATES NO AVAILABLE RUNWAY TRANSITION

GULF ARRIVAL (G)

DESTINATION	FLOW	ARRIVAL	RWY(S)
IAH	WEST	GILL	27@060 26L@070 **26R@060**
IAH	EAST	HKORY	08R@060 09@060 08L@060
HOU	12/04	BAYYY	12R@060 04@060
HOU	22/30	PUCKS	22@040 30@060
IAH	WEST	GILCO conventional	**27@060** **26L@070** **26R@060**
IAH	EAST	GILCO conventional	**08R@060** **09@060** **08L@060**
HOU	ALL	HUB110/50 conventional	**RADAR VECTORS** **@060**
HOU	ALL	TKNIQ	**RADAR VECTORS** **@060**
IAH	WEATHER OFFLOAD	BOOZZ	**RADAR VECTORS** **26L @070** **all others @ 060**
HOU	WEATHER OFFLOAD	TKNIQ	**RADAR VECTORS** **@060**

***__BOLD__ FACE INDICATES NO AVAILABLE RUNWAY TRANSITION

d. When required, East Arrival and Gulf Arrival must vector arrivals to a point outside the trips bar defined in 8-17-1d.

e. When required, West Arrival and Eagle Lake Arrival must vector arrivals to a point outside the trips bar defined in 8-17-1d.

f. All other runway/flow combinations shall be managed by the TMC/Watch Supervisor, ie., Straight 15 or Straight 33 operation.

2-3-4. SPEED CONTROL

Aircraft being handed off to final controllers must be assigned 210 knots, or less, prior to communication transfer, unless a different speed is coordinated by the final controller. In addition, Arrival positions must not delete the STAR/OPD speeds, except to break a tie or stack.

2-3-5. CONTROLLED AREA INTRUSIONS

Control personnel must report instances of controlled area intrusions to the SI. Control personnel must attempt to track and identify such aircraft, including starting a STARS track and making handoffs as appropriate. The SI must make the notification required in accordance with JO 8020.16.

2-3-6. CLOSING/CONSOLIDATION POSITIONS

When closing or consolidating a position, the controller must ensure that the IVSR is "call forwarded" to the new position. When opening or deconsolidation a position, the controller must ensure that the IVSR is returned to the normal configuration.

2-3-7. SUPPLEMENTARY NOTAM HANDLING PROCEDURES

a. The Notice to Airmen (FDC) 28-day publication must be routed to I90-530 support specialist, who will check the NOTAM section of the Information Display System (IDS) for accuracy and make corrections where appropriate. This data must also be compared to the Airport Facility Directory (AFD).

b. NOTAMs affecting Standard Instrument Approach Procedures (SIAP) must be annotated on the appropriate SIAP in the IDS, with "CHECK FDC NOTAMs" in red.

c. As an additional safe guard, I90-530 support specialist will mark the cover of each new U.S. Terminal Procedures publication and military equivalent placed in the operational quarters with "CHECK FDC NOTAMs"

2-3-8. SKYDIVE ACTIVITY

a. B&B Airpark (TE88): The drop zone (DZ) is within 2 NM radius of TE88 from the surface up to and including 14,500 feet MSL.

1. The Responsible Party will contact the TRACON Watch Supervisor at least 30 minutes prior to the first operation for the day with the expected time parachute operations will begin and terminate.

2. The TRACON Watch Supervisor must inform the B-Side supervisor when parachute activities will begin at TE88.

3. The B-Side supervisor must activate the DZ.

(a) Using a STARS keyboard enter F16, G, B [associated number] to display the DZ on the appropriate displays (B, L, W, X, N, P, H, Q and 8T)

(b) Coordinate the activity with the associated controllers.

4. When the DZ is in effect the airspace will be designated to SanJac. All other controllers must keep aircraft clear of the DZ, unless coordination with SanJac has been completed prior to the aircraft entering the DZ.

5. Workload permitting, SanJac must provide radar services to all jump aircraft in the DZ during parachute operation.

6. SanJac will advise the B-side supervisor when parachute activities are terminated for the day.

7. The B-side supervisor will advise the appropriate control positions and remove the DZ (F12, [associated number], DEL on a STARS keyboard will remove the DZ on all displays)

8. After removing the B&B DZ the B-side supervisor will enter F16, RES, slew to reinstall the DZ into the STARTS list for future use.

Note-*The DZ must remain displayed until skydive activity for the DZ is terminated for the day.*

b. All other skydive activity will be coordinated through I90-530.

2-3-9 WHARTON (ARM)/BAY CITY (BYY) SHELF PROCEDURES

1. All positions handing aircraft off to the Eagle Lake Low Sector destined ARM or BYY must coordinate with SANJAC, LAKESIDE, and INDUSTRY for the release of the ARM/BYY shelf prior to communications transfer to ZHU.

2. The SANJAC, LAKESIDE and INDUSTRY positions must be advised when the ARM/BYY shelf has been returned by ZHU.

3. Automated point outs may be used for coordinating the release of the ARM/BYY shelf. The STARs scratch pad must contain ARM/BYY identifying these aircraft. Acceptance of the point out grants approval for the release of the ARM/BYY shelf to Eagle Lake low.

SECTION 4. STARS CONTROLLER ENTRIES

2-4-1. TRACKS

Tracks must be initiated and automated functions used to the maximum extent possible on all aircraft that are being provided approach control services. Targets that will not hold a tag must be coordinated.

2-4-2. CONFIGURATION ENTRIES

The WS/CIC is responsible for STARS configuration entries.

2-4-3. SCRATCH PAD INFORMATION

a. Information entered in the scratch pad must be kept up to date.

b. Aircraft not assigned, or established on an RNAV routing must have “AAA” displayed in the second scratch pad.

2-4-4. DEPARTURE GATE SYMBOLOGY

In field 2 of the full data block, STARS depicts the following gate/route symbols in conjunction with a two digit indication of the filed altitude:

SYMBOL	GATE	SID	TRANSITION/ ROUTE	BOUNDRY FIX
A	GOMER	CLL	2ND SCRATCHPAD FIX	
L	GOMER	STYCK **LOA**	WTSON/DOLEY	WILLIS
M	GOMER	DREMR **CRIED**		BLTWY

D	GOMER	WYLSN **GIFFA**	GIFFA/MAJKK	BUMCO
Y	CLEEP	INDIE **LFK**		SUSHI
W	CLEEP	STRYA **AEX**	DPATY/JBULL	MUSIQ
K	CLEEP	LURIC **ELD**	HAWES/ORRTH	MUSIQ
J	PRARI	BNDTO/PITZZ/RETYR/ BORRN **JCT**	CRGER	ZUUUU
P	PRARI	BNDTO/PITZZ/RETYR/ BORRN **IDU**	JCT/SAT/MNURE	BOCCK
N	PRARI	**IDU..CLL..**		
Z	PRARI	BNDTO/PITZZ/RETYR/ BORRN	WAILN	WEEED
F	FREEP	RITAA/PTRON/KARRR **PSX**	CRP/PSX/YOMOM	SKUBA
V	FREEP	**KEEDS V20 MAGUS**		
H	AGGIT	RITAA/PTRON/KARRR **NGP**	DPORT/NGP	JAWNS
T	TRIOS	GUMBY/MMUGS/MMALT **LCH**	LCH	HOURN
T	TRIOS	**DAS V306 LCH**	2nd Scratchpad FIX	
E	TRIOS	GUMBY/MMUGS/MMALT	GUSTI	JAAYE
S	TRIOS	GUMBY/MMUGS/MMALT/ ELOCO	LLA	YOKEM
S	TRIOS	**SBI (ADR)**	+AAA	SBI270016
B	BOLOS	**VUH V70 SBI**	2nd Scratchpad FIX	
U	BOLOS	FLYZA/PEECE/WATFO	ANKRR/KELPP/MUSYL	VUH

		BOWFN (WX REROUTE)		
G	BOLOS	**EFD 176**	+EEE	
G	AGGIT	**EFD 206**	+WWW	

*****BOLD** INDICATES CONVENTIONAL ROUTE

EXAMPLE-
M35 = GOMER Gate, DREMR SID, FL350
U33 = BOLOS Gate, MUSYL, FL330
B09 = Tower En Route, VUH V70 SBI
2nd SCRATCHPAD = NEXT NAVAID/FIX (LCH, LLA, etc.)

2-4-5. APPROACH/RUNWAY INFORMATION

Display in the scratch pad area, information from a and b below to indicate the type of approach and the runway to which the approach is applicable.

a. Approach Abbreviations

T - VOR Approach
I - ILS Approach
N - NDB Approach
G - GLS Approach
V - Visual Approach with preceding aircraft in sight
VA- Visual Approach to an uncontrolled Airport
C - Contact Approach
A - Assigned Runway
R - Requested Runway
S - RNAV Approach
W - Radar separated Visual Approach with airport in sight
P- RNP Approach

b. Runway Identifiers

6R = Runway 26R
6L = Runway 26L
5R = Runway 15R
5L = Runway 15L
8R = Runway 8R
8L = Runway 8L
3R = Runway 33R
3L = Runway 33L
09 = Runway 9
27 = Runway 27

c. A VFR practice instrument approach must be denoted with a “P” in field 5 of the data block

N78932
S17 C172 P

Controllers must make these scratch pad entries as an aid to final controllers when assigning a runway other than that specified elsewhere in this order. Final controllers must ensure that the required entries are made for coordination to the Tower.

Note- *I90 may be used to indicate the ILS Runway 9 Approach.*

2-4-6. MODE OF OPERATION

STARS must be operated in Full Service Level (FSL) mode, unless a failure occurs. In the event of a TRACON FSL failure, controllers must change to Emergency Full Service Level (EFSL) mode after coordination with the WS/CIC on duty.

a. The WS/CIC must:

   1. Notify all towers and operating positions affected by the mode change.

   2. Notify the ZHU sector(s) affected.

   3. Make an entry in the Daily Record of Facility Operation, (FAA Form 7230-4).

b. The controller must select the appropriate single site sensor for their respective position.

2-4-7. AUTOMATED POINT-OUT PROCEDURES

a. The initiating controller must ensure that scratchpad information is correct, prior to beginning an automated point-out.

b. The receiving controller must, via automation:

   1. Approve the point-out, via “SLEW,” or,

   2. Disapprove the point-out, via “U, N, SLEW,” or,

   3. Accept control of the aircraft via “*, *, SLEW”

c. After an automated point-out is approved, any change to the aircraft flight path, altitude, or data block/scratchpad must be verbally coordinated.

2-4-8. SYSTEM STATUS AREA

a. Controllers must display the following fields in the System Status Area:

   1. Weather.

   2. Time.

   3. Altimeter.

   4. SPC Codes.

5. SYS OFF indications.

6. TW OFF indications.

7. MAIN GI text lines and all GI text lines that display ATIS codes for which controller has broadcast responsibility (see Paragraph 2-3-2).

8. Arrival Positions must set altitude filter limits to display at least FL200 and below.

2-4-9. DEFAULT DISPLAY SETTINGS

To reset a TCW to the preset default values, make the following entries:

a. MULTI FUNC (F7), K, ENTER

2-4-10. STARS POSTIONS SIGN-ON/OFF PROCEDURES

The following procedures shall be applied when opening (deconsolidating), closing (consolidating), or performing position relief:

a. After the specialist, including TMC's being relieved has provided the briefing, the relieving specialist must enter (normal sign-on):

    1. SIGN-ON menu key (or MULTIFUNC (F7),4)

    2. Enter operating initials

    3. Position ID (current position if omitted)

    4. SPACE (if the following entry is made)

    5. Sign-on time (current time if omitted)

    6. ENTER

b. To sign off, make the following entries:

    1. SIGN-ON menu key (or MULTIFUNC (F7),4)

    2. *

    3. Position ID (current position if omitted)

    4. SPACE (if the following entry is made)

    5. Sign-off time (current time if omitted)

6. ENTER

c. When signing on with a CPC-IT or developmental specialist, make the following entries:

1. SIGN-ON menu key (or MULTIFUNC (F7), 4)

2. Instructor initials

3. /,.,*,or+

   This identifies the user as an instructor (/), evaluator (.), certification official (*), or this session as OJT familiarization (+) with the developmental initials to follow.

4. Developmental initials.

5. SPACE (if the following entry is made)

6. Postion ID (current position if omitted)

7. SPACE (if the following entry is made)

8. Sign-on time (current time if omitted)

9. ENTER

d. Preference Sets (must be signed on)

1. PREF SET

2. Pref Set ID (1 to 32) or Pref Set Name

3. ENTER

e. When opening (deconsolidating) a position, make the following entries:

1. MULTI FUNC (F7)

2. C

3. ENTER, to deconsolidate position, then,

4. Sign on as in paragraph 2-4-10a

f. When closing a position using a full consolidation (which includes all active, inactive, and future flights), make the following entries:

1. MULT FUNC (F7)

2. C

3. Receiving controller (e.g.1L)

4. Sending controller (e.g. 1B)

5. +

6. ENTER (sending controller is automatically signed off)

g. When closing a position using a basic consolidation (which includes all inactive and future flights, but allows sending controller to retain control of active flights), make the following entries:

1. MULT FUNC (F7)

2. C

3. Receiving controller (e.g.1W)

4. Sending controller (e.g. 1P)

5. ENTER, to consolidate position, then,

6. Sign off as in paragraph 2-4-10b

CHAPTER 3.
PREARRANGED COORDINATION

SECTION 1. USAGE

3-1-1. PREARRANGED COORDINATION

Positions permitted to use prearranged coordination procedure (P-ACP) must be responsible for maintaining separation from all aircraft within the prearranged area.

a. Controllers who penetrate another controller's airspace using P- ACP must display data block information of that controller's aircraft which must contain, at a minimum, the position symbol and altitude information.

b. Arrival controllers must verbally coordinate with the appropriate Departure Controller(s) for all aircraft either entering or within the Houston Terminal designated prearranged airspace when their route does not follow a published STAR, PAR or other defined route.

c. P-ACP may be used as follows:

1. Departure West may use P-ACP to climb aircraft departing the Houston Terminal Area.

   (a) Within the lateral limits of Departure West airspace, excluding satellite airspace.

   (b) Within Eagle Lake Arrival Airspace as depicted in Appendix **???**

2. Departure North may use P- ACP to climb aircraft departing the Houston Terminal Area:

   (a) Within the lateral limits of Departure North airspace, excluding Satellite airspace.

   (b) Within Departure West, and Eagle Lake Arrival airspace as depicted in Appendix 19-1 & Appendix 19-2.

3. Departure South may use P- ACP to climb aircraft departing the Houston Terminal Area:

   (a) Within the lateral limits of Departure South airspace, excluding satellite airspace.

   (b) Within Departure North airspace, as depicted in Appendix 19-3 thru 19-7.

4. Departure East may use P- ACP to climb aircraft departing the Houston Terminal Area:

   (a) Within the lateral limits of Departure East airspace, excluding satellite airspace.

   (b) Within Departure North airspace, as depicted in Appendix 19-8 thru 19-10.

   (c) Within Departure South airspace as depicted in Appendix 19-8 thru 19-10, and for left turns en route to Departure East airspace.

5. Hobby Final may use P- ACP to descend aircraft landing Hobby:

   (a) Within Lakeside airspace, on the 12R final approach course from JABBS intersection, or from the boundary of the Hobby Final descent area, when HOU is landing Runway 12R/L.

   (b) Within Lakeside airspace that underlies the 4,000 – 6,000 feet MSL shelf of HOU Final descent area, when HOU is landing Runway 12R/L

   (c) Within SanJac airspace that underlines the Gulf Arrivals transition wings to Hobby Finial.

6. Final North may use P- ACP:

   (a) Within Departure North airspace, in a west flow, in the area specified in Appendix 19-11.

7. IAH Final(s) may use P- ACP

   (a) When IAH is in an east flow with Lakeside Satellite and Tomball Satellite airspace east of DWH Runway 17R/35L extended centerline.

8. SanJac Satellite may use P- ACP for turns only:

   (a) Within Departure South/East airspace that is within the IAH departure corridor once the satellite departure aircraft is clear of the IAH surface area airspace (this includes IAH airspace that is surface to 1,200 feet MSL).

9. Lakeside Satellite may use P- ACP for turns only:

   (a) Within Departure West airspace, that is within the IAH departure corridor, once the satellite departure aircraft is clear of the IAH

(b) surface area airspace (this included IAH airspace that is surface to 1,200 feet MSL).

10. Tomball Satellite may use P- ACP for turns only:

(a) Within Departure North airspace, that is within the IAH departure corridor, once the satellite departure aircraft is clear of the IAH surface area airspace (this includes IAH airspace that is surface to 1,200 feet MSL).

3-1-2. NON-TAGGED AIRCRAFT

Controllers must coordinate with the appropriate position(s) prior to entering airspace designated as prearranged coordination areas, as soon as practicable after receiving control of a non-tagged aircraft.

3-1-3. OFF STAR ROUTES

Arrival controllers must transfer radar identification of those aircraft which will enter the Houston Terminal Area on a route that does not correspond with a published STAR/PAR or other defined route to all appropriate controller(s).

3-1-4. RESTRICTIONS TO THE UTILIZATION OF PREARRANGED COORDINATION

a. A controller, who penetrates another controller's airspace, using prearranged coordination, must determine whether the lead aircraft is a Super, Heavy or B757, when separating aircraft operating directly behind or directly behind and less than 1,000 feet vertically separated.

REFERENCE- *FAAO JO 7210.3 Paragraph 3-6-7*

b. Controllers must not force another controller to use prearranged coordination, except for IAH departures assigned to Departure East that will initially enter Departure South airspace and IAH departures assigned to a satellite position.

c. The use of P- ACP is not authorized when STARS FSL is unavailable.

d. When either position using prearranged coordination is in STARS Multi Mode, do not use the Mode C readout of aircraft under the other controller's jurisdiction for separation.

e. Two positions of operation cannot be authorized to penetrate each other's airspace simultaneously.

f. Prearranged coordination is position specific and is non-transferrable.

CHAPTER 4. FLIGHT PROGRESS STRIPS

SECTION 1. STRIP USAGE

4-1-1. RADAR OPERATIONS

a. Full strips must be used for IFR overflights and IFR departures from satellite airports, except HOU.

b. In the event of the facility-wide failure of STARS FSL, full strips must be used for IFR operations.

SECTION 2. STRIP MARKINGS

4-2-1. GENERAL

Entries in spaces 1 through 9A must comply with Order JO 7110.65 for FDIO and manually prepared strips. Strip markings not required by this section are optional.

4-2-2. DEPARTURES

c. Space 8. Below departure airport, reflect the appropriate designator:

SYMBOL	GATE	SID	TRANSITION/ ROUTE	BOUNDRY FIX
A	GOMER	**CLL**	2ND SCRATCHPAD FIX	
L	GOMER	STYCK **LOA**	WTSON/DOLEY	WILLIS
M	GOMER	DREMR **CRIED**		BLTWY
D	GOMER	WYLSN **GIFFA**	GIFFA/MAJKK	BUMCO
Y	CLEEP	INDIE **LFK**		SUSHI
W	CLEEP	STRYA **AEX**	DPATY/JBULL	MUSIQ

K	CLEEP	LURIC **ELD**	HAWES/ORRTH	MUSIQ
J	PRARI	BNDTO/PITZZ/RETYR/ BORRN **JCT**	CRGER	ZUUUU
P	PRARI	BNDTO/PITZZ/RETYR/ BORRN **IDU**	JCT/SAT/MNURE	BOCCK
N	PRARI	**IDU..CLL..**		
Z	PRARI	BNDTO/PITZZ/RETYR/ BORRN	WAILN	WEEED
F	FREEP	RITAA/PTRON/KARRR **PSX**	CRP/PSX/YOMOM	SKUBA
V	FREEP	KEEDS V20 MAGUS		
H	AGGIT	RITAA/PTRON/KARRR **NGP**	DPORT/NGP	JAWNS
T	TRIOS	GUMBY/MMUGS/MMALT **LCH**	LCH	HOURN
T	TRIOS	**DAS V306 LCH**	2nd Scratchpad FIX	
E	TRIOS	GUMBY/MMUGS/MMALT	GUSTI	JAAYE
S	TRIOS	GUMBY/MMUGS/MMALT/ ELOCO	LLA	YOKEM
S	TRIOS	**SBI (ADR)**	+AAA	SBI270016
B	BOLOS	**VUH V70 SBI**	2nd Scratchpad FIX	
U	BOLOS	FLYZA/PEECE/WATFO BOWFN (WX REROUTE)	ANKRR/KELPP/MUSYL	VUH
G	BOLOS	**EFD 176**	+EEE	
G	AGGIT	**EFD 206**	+WWW	

***** BOLD** INDICATES CONVENTIONAL ROUTE

d. Space 9/9A. Ensure destination airport is depicted on strip.

4-2-3. SATELLITE AND OVERFLIGHT STRIPS

Must be marked and distributed to the first controller on both the “A” and “B” side who will work the aircraft. The determination of the first controller position is based on the route depicted on the Flight Progress Strip.

4-2-4. FLIGHT PROGRESS STRIP RETENTION

Strips will be retained in accordance with FAA Order 1350.15 Records Organization, Transfer, and Destruction Standards.

CHAPTER 5.

DUTY FAMILIARIZATION AND TRANSFER OF POSTION RESPONSIBILITY

SECTION 1. GENERAL

5-1-1. DUTY FAMILIARIZATION

All personnel must, as a minimum, familiarize themselves with the current and forecast weather, plus review and initial the action binder at the beginning of each shift prior to assuming any position of operation.

5-1-2. TRANSFER OF POSITION RESPONSIBILITY

All positions must maintain operational continuity through a transfer of position responsibility using the checklist provided for the position. When On the Job Training (OJT) is being or will be conducted there must be one Certified Professional Controller (CPC) responsible for the position plugged in with override capability at all times.

a. Relief briefing must be recorded utilizing the IVSR to the maximum extent possible.

b. After position relief briefing is complete, the relieved controller must remain plugged in for a minimum of 2 minutes with the relieving controller to make sure all pertinent information and traffic situations are communicated and understood (this overlap requirement may be waived by the supervisor/controller in charge, if the situation warrants). The relieved controller must indicate, via recorded line, when the overlap period has been concluded by stating position identifier “overlap complete”, and the employee’s operating initials. The 2-minute period will begin at the conclusion of the relief briefing. (Example “Arrival West overlap complete CC” or “P overlap complete CC”)

c. Do not simultaneously relieve critically dependent positions. Wait a minimum of 2 minutes after the first position has been relieved before beginning the relief process for the other position. The positions that have been identified as critical are IAH Finals and the short side feeder.

d. Position Relief Checklist.

    1. Status Information Areas (may be self-briefed).

        (a) Current weather.

        (b) PIREP’s.

(c) AIRMETS/SIGMETS's/CWA's.

(d) NOTAMs/special notices.

(e) Equipment:

(1) Navaids, radar site selected, (i.e. Fused, Single Sensor North Site) etc.

(f) Airspace/Runway Configuration.

(g) Status of OPDs/Climb Via

(h) State Runway Status.

(i) Flows/Restrictions.

(j) Special Operations/APREQS.

(k) Handwritten Notes.

(l) Satellite Releases.

(m) Traffic.

e. WS/FLM/CIC Relief Checklist.

1. Staffing (EAST vs. WEST)
2. Leave Request vs. Overtime.
3. Current Weather.
4. Forecasted Weather/PIREP's Required.
5. Position Open/Closed/Combined.
6. Airspace/Runway Configurations.
7. Status of OPDs and Dual STARs
8. Flows/Restrictions.
9. Special Operations.
10. Equipment Accuracy/Outages.

11. SAIDS Accuracy.

12. Pertinent NOTAMs.

f. TMC Position Relief Checklist.

1. Status Information Area (SIA)

(a) Review the OIS and NTML for runway configurations, AAR's and ADR's.

(b) Status of OPDs and Dual STARs

(c) Review the flow page for arrival, departure, EDCT, and GS information.

(d) Review the surface winds, winds aloft, and forecast winds.

(e) Review the CountOps and NTML for reportable delays.

2. Equipment.

(a) Specify TMU equipment as normal or identify any abnormalities existing with a particular piece of equipment.

3. Airport Condition.

(a) Specify low IFR, IFR, low VFR, or VFR conditions at IAH and HOU.

(b) Specify the runways where visual approaches are in use.

(c) Specify whether the high speed taxiways are visible from the tower.

(d) Specify whether the tower can provide visual separation between successive arrivals.

(e) Specify whether the departure complex is visible from the tower.

(f) Specify whether the missed approach for RWY 27 is being protected.

4. Airports Activities.

(a) Identify existing or proposed runway closures.

(b) Identify existing or proposed taxiway closures.

5. Altimeter Trends.

6. Weather Trends.

(a) Review the CWSU weather forecast.

(b) Review the terminal area forecast.

(c) Review the CCFP.

7. Flow Control

(a) Review current restrictions (Gates/MIT/MINIT).

(b) CDR(s)

(c) SWAP.

8. Special Activities.

(a) VIP movement

(b) TFR(s)

(c) Other.

9. Special Instructions.

10. TMU Staffing.

(a) Verify TRACON staffing is adequate to provide normal service.

(b) Verify tower staffing is adequate to provide normal service.

11. Training.

(a) TMU training.

(b) Operational position training.

12. Verbally State Runway Status.

(a) At IAH.

(b) At HOU.

13. Pertinent Operational NOTAMs.

(a) Non-standard arrival runway assignments.

(b) Non-standard departure runway assignments.

5-1-3. INFORMATION DISPLAY SYSTEM (IDS)

a. Current weather page.

b. PIREP’s page.

c. AIRMETS/SIGMET’s/CWA’s page.

d. NOTAMs page.

CHAPTER 6.

DUAL/TRIPLE SIMULTANEOUS APPROACH REQUIREMENTS

SECTION 1. GENERAL

6-1-1. DUAL/TRIPLE SIMULTANEOUS APPROACH REQUIREMENTS

Before conducting dual/triple simultaneous approaches, the following are required:

a. In fused mode the Final Monitor may use the Precision Approach Monitor "PAM".

b. In single sensor the IAH (north ASR) Radar site must be operating normally and must be used for monitor purposes.

c. IAH frequency override must be checked from the monitor positions to ensure normal override capability.

d. In Fused mode the IAH or HUB Radar site must be operating normally.

CHAPTER 7.

VFR TO IFR POP-UPS, VFR ON TOP (OTP) AND SVFR CLEARANCES

SECTION 1. HANDLING VFR TO IFR POP-UPS

7-1-1. FLIGHT PLAN REQUIREMENTS

Aircraft identification, type, destination, fuel, and the number of people on board must constitute an abbreviated IFR flight plan.

7-1-2. LOCAL

If the aircraft will remain within I90 airspace, or if the pilot is unable to maintain VFR, issue an IFR clearance as soon as traffic conditions permit.

7-1-3. EXITING TRACON AIRSPACE

If the pilot's request will place the aircraft in the en route structure (and the pilot can maintain VFR conditions), instruct the pilot to contact Automated Flight Service Station (AFSS) and file an IFR flight plan.

7-1-4. POINT-OUT REQUIREMENTS

Arrival controllers must coordinate with the appropriate departure controller(s) on VFR to IFR pop-up aircraft prior to entering Class B or issuing an IFR clearance in order to ensure the proper application of prearranged coordination procedures.

SECTION 2. LOCAL VFR ON TOP CLEARANCES

7-2-1. OTP REQUIREMENTS

Upon receipt of a local OTP request, Satellite Clearance Delivery must:

a. Ensure the following conditions are met prior to issuing a clearance.

1. Tops are reported at or below 4,500 feet MSL.

2. The pilot has stated that he/she will cancel IFR upon reaching OTP.

b. Assign altitude of OTP/3,000 feet MSL.

c. Assign clearance limits consistent with direction of flight as follows.

1. West – SHYNR intersection.

2. North – ALIBI LOM.

3. South – VUH VORTAC.

4. East – MHF VOR/DME.

d. Obtain departure release instructions from the controller who will initially work the aircraft and issue these instructions to the pilot.

e. For flights not received via FDIO, prepare the flight progress strip and enter flight information in the departure controller's TAB list.

SECTION 3. SVFR CLEARANCES

7-3-1 SVFR

At the following satellite airports, GLS, SGR, CLL, CXO, and BPT when the associated tower is closed.

a. When SCD advises that a SVFR is requested at the above airports, the appropriate Satellite position will select the applicable clearance delivery frequency, issue the SVFR clearance, and provide the release/clearance.

b. Upon completion of the SVFR operation, advise SCD, and release the clearance delivery frequency to SCD.

CHAPTER 8.

POSITION DUTIES AND RESPONSIBILITIES

SECTION 1. DEPARTURE NORTH (M) 132.25 VHF/285.425 UHF

8-1-1. DUTIES (M)

Departure North must:

a. Provide radar service to aircraft in airspace depicted in Appendix 1.

b. Upon completion of communications transfer from the appropriate Local Control, advise departure aircraft of radar identification and verify Mode C altitude information of aircraft received via the “quick look” function. Prior to turning departure aircraft, ensure separation exists between his/her aircraft and aircraft under control of the underlying satellite position.

c. Vector OHIIO north satellite arrivals clear of the descent area in use at IAH and hand off to Tomball Satellite.

d. Advise Tomball Satellite of any aircraft, at or below 3,000 feel MSL, other than IAH departures that will enter the Departure North surface to 5,000 feet MSL airspace.

e. Provide Class B services within the lateral boundaries of Departure North airspace from 500 feet MSL below delegated IFR altitudes to the vertical limits of Class B airspace.

SECTION 2. TOMBALL SATELLITE (R) 119.7 VHF/281.4 UHF

8-2-1. DUTIES (R)

Tomball Satellite must:

a. Provide radar service to aircraft in airspace depicted in Appendix 2.

b. Upon completion of communications transfer from Local Control, advise departure aircraft of radar identification and verify Mode C altitude information of aircraft received via the “quick look” function. Tomball Satellite must not turn, climb, or adjust the speed of departure aircraft until clear of the IAH surface area airspace (this includes IAH airspace that is surface to 1,200 feet MSL)

c. When IAH is in any flow other than an east flow, and DWH is landing Runways 17L/R, advise IAH of all approaches to Runways 35L/R.

d. Release DWH departures in accordance with the I90/DWH LOA.

e. When IAH is on an east flow, all Non-DWH satellite traffic must be vectored to remain west of 15 DME from IAH VORTAC.

f. Unless utilizing visual separation, IFR satellite aircraft must remain west of DWH Runway 17R/35L extended runway centerline on a heading that ensures divergence from IAH straight-in arrivals when IAH is on an east flow.

g. Provide Class B service within the lateral boundaries of Class B airspace within Tomball Satellite airspace.

h. Advise DWH Tower of appropriate MSAW alerts.

i. When DWH ATCT is closed coordinate all IFR, SVFR, and/or practice instrument approaches in the DWH Class E surface area with Lakeside Satellite (P).

j. Advise CXO Tower of appropriate MSAW alerts.

SECTION 3. DEPARTURE WEST (W) 126.675 VHF/339.8 UHF

8-3-1. DUTIES (W)

Departure West must:

a. Provide radar services to aircraft in airspace depicted in Appendix 3.

b. Upon completion of communications transfer from Local Control, advise departure aircraft of radar identification and verify Mode C altitude information of aircraft received via the “quick look” function. Prior to turning departure aircraft, ensure separation exists between his/her aircraft and aircraft under control of the underlying satellite position.

c. Provide Class B services within the lateral boundaries of Departure West airspace from 500 feet MSL below delegated IFR altitudes to the vertical limits of Class B airspace.

SECTION 4. LAKESIDE SATELLITE (P) 123.8 VHF/257.7 UHF

8-4-1. DUTIES (P)

Lakeside Satellite must:

a. Provide radar service to aircraft in airspace depicted in Appendix 4.

b. Upon completion of communications transfer from Local control, advise departure aircraft of radar identification and verify Mode C altitude information of aircraft received via the "quick look" function. Lakeside Satellite must not climb or adjust the speed of departure aircraft until clear of the IAH surface area airspace (this includes IAH airspace that is surface to 1,200 feet) or HOU airspace.

c. When DWH is landing Runway 35L/R, remain at or below 2,000 feet MSL while operating within the Prearranged Coordination areas (see I90/IAH LOA, Appendix 2), with any traffic other than IAH departures.

d. When DWH is landing Runway 35L/R and IAH is in an east flow, all IFR aircraft landing DWH must be established on a straight-in final no closer than 8 NM from the runway.

e. Release DWH departures in accordance with the I90/DWH LOA.

f. When IAH is on an east flow, all Non-DWH satellite traffic must be vectored to remain west of 15 DME from IAH VORTAC.

g. Advise Tomball Satellite of any aircraft that are within 8 NM west of DWH at or below 2,000 feet MSL when DWH is departing runway 17L/R. (Reference departures off of DWH to Tomball Satellite that make a wide turn).

h. Unless utilizing visual separation, IFR satellite aircraft must remain west of DWH Runway 17R/35L extended runway centerline on a heading that ensures divergence from IAH straight-in arrivals, when IAH is on an east flow.

i. When DWH is landing Runways 17L/R, advise IAH of all approaches to Runway 35L/R.

j. When DWH ATCT is closed coordinate all IFR, SVFR, and/or practice instrument approaches in the DWH Class E surface area with Tomball Satellite (R).

k. Provide Class B service within the lateral boundaries of Class B airspace within Lakeside Satellite airspace

l. Advise SGR and DWH of appropriate MSAW alerts.

SECTION 5. WEST ARRIVAL (N) 124.35 VHF/316.15 UHF

8-5-1. DUTIES (N)

West Arrival must:

a. Provide radar service to aircraft in airspace depicted in Appendix 5.

b. Ensure arrivals are assigned the appropriate runway transition if applicable, and airspeed in accordance with Paragraph 2-3-4.

c. Provide Class B service between 5,500 feet MSL and 10,000 feet MSL, within the lateral boundaries of Class B airspace, within West Arrival airspace.

d. Make appropriate primary scratchpad (scratchpad 1) entries as an aid to final controllers when assigning a runway other than the preferential runway as specified in the arrival charts.

e. Must coordinate the use of 8R with Eagle Lake Arrival.

SECTION 6. EAGLE LAKE (X) 119.17 VHF/291.67 UHF

8-6-1. DUTIES (X)

Eagle Lake Arrival must:

a. Provide radar service to aircraft in airspace depicted in Appendix 6.

b. Ensure arrivals are assigned appropriate runway transition if applicable and airspeed in accordance with Paragraph 2-3-4.

c. When it becomes necessary to enter a downwind to HOU Runway 12R, assign the aircraft 7,000 feet MSL.

d. Provide Class B service between 5,500 feet MSL and 10,000 feet MSL, within the lateral boundaries of Class B airspace, within Eagle Lake Arrival airspace. ?

e. Make appropriate primary scratchpad (scratchpad 1) entries as an aid to final controllers when assigning a runway other than the preferential runway as specified in the arrival charts.

f. Assign HOU arrivals the appropriate runway transition, when applicable.

SECTION 7. COLLEGE SATELLITE (U) 134.3 VHF/360.85 UHF

8-7-1. DUTIES (U)

College Satellite must:

a. Provide radar service to aircraft in airspace depicted in Appendix 7.

b. Upon completion of communications transfer from CLL Tower, radar identifies the aircraft and verifies Mode C altitude information of aircraft received via the “quick look” function.

c. Hand off aircraft that are above 5,000 feet MSL to College Final (T) prior to 10 NM from CLL, descending or level at 5,000 feet MSL.

d. Advise CLL Tower of appropriate MSAW alerts.

e. When College Station (Easterwood) ATC Tower is closed:

1. Update CLL altimeter in STARS.

2. Select the CLL clearance delivery frequency when advised of a SVFR request at Easterwood Field.

3. Issue IFR/SVFR clearances and release aircraft departing Easterwood Field when the weather at Easterwood Field is IFR.

4. Release the CLL clearance delivery frequency to Satellite Clearance Delivery when the weather at Easterwood Field is VFR.

SECTION 8. COLLEGE FINAL (T) 128.2 VHF/323.1 UHF

8-8-1. DUTIES (T)

College Final must:

a. College Final must provide radar service to aircraft in airspace depicted in Appendix 8.

b. Advise CLL Tower of appropriate MSAW alerts.

SECTION 9. INDUSTRY SATELLITE (Z) 124.22 VHF/306.97 UHF

8-9-1. DUTIES (Z)

Industry Satellite must:

a. Provide radar service to aircraft in airspace depicted in Appendix 9.

b. Ensure WHAEL arrivals cross WHAEL at or below 8000 feet MSL or the arrival must be pointed out to ZHU Industry Low sector.

SECTION 10. DEPARTURE EAST (E) 133.6 VHF/257.2 UHF

8-10-1. DUTIES (E)

Departure East must:

a. Provide radar service to aircraft in airspace depicted in Appendix 10.

b. Upon completion of communications transfer from Local Control, advise departure aircraft of radar identification and verify Mode C altitude information of aircraft received via the “quick look” function. Prior to turning departure aircraft, ensure separation exists between his/her aircraft and aircraft under control of the underlying satellite position.

c. When approaches are in progress to Runway 33R at IAH, Runway 22 or 30 at HOU with IAH East flow, or Runway 22 at HOU with IAH West flow, Departure East may initially work U, H, and F departures and handoff to Departure South.

d. When departures initially enter Departure South airspace, coordinate with Departure South for adjustments to IAH departure headings.

e. Provide Class B services within the lateral boundaries of Departure East airspace from 500 feet MSL below delegated IFR altitudes to the vertical limits of Class B airspace.

SECTION 11. DEPARTURE SOUTH (L) 127.125 VHF/269.075 UHF

8-11-1. DUTIES

Departure South must:

a. Provide radar services to aircraft in airspace depicted in Appendix 11.

b. Upon completion of communications transfer from Local Control, advise departure aircraft of radar identification and verify Mode C altitude information of aircraft received via the “quick look” function. Prior to turning departure aircraft, ensure separation exists between his/her aircraft and aircraft under control of the underlying satellite position.

c. Initially work HOU departures assigned the ELOCO SID and SBI 270016 ADR.

d. Advise Departure East of any aircraft other than IAH departures that are within Departure South airspace within 20 DME of IAH.

e. Work inbounds from BAYYY/TKNIQ landing south satellite airports and handoff to SanJac Satellite on a heading clear of the descent area in use at HOU.

f. Provide Class B services within the lateral boundaries of Departure South airspace from 500 feet MSL below delegated IFR altitudes to the vertical limits of Class B airspace.

SECTION 12. SANJAC SATELLITE (B) 134.45 VHF/284.0 UHF

8-12-1. DUTIES (B)

SanJac Satellite must:

a. Provide radar service to aircraft in airspace depicted in Appendix 12.

b. Upon completion of communications transfer from Local Control, advise departure aircraft of radar identification and verify Mode C altitude information of aircraft received via the “quick look” function. SanJac Satellite must not climb or adjust the speed of departure aircraft until clear of the IAH surface area airspace (this includes IAH airspace that is surface to 1,200 feet) or the HOU airspace.

c. Provide maximum assistance to expedite 00active scramble flights in accordance with JO 7610.4, Special Military Operations.

d. Advise HOU Tower prior to releasing LVJ departures.

e. Point-out to HOU Tower (4O) aircraft that will execute an instrument approach to EFD RWY 04 and TACAN RWY 17R.

f. Provide Class B service within the lateral boundaries of Class B airspace within SanJac Satellite airspace.

g. Advise EFD of appropriate MSAW alerts

h. Advise GLS Tower, of appropriate MSAW alerts.

i. When GLS Tower is closed:

1. Select the GLS clearance delivery frequency when advised of a SVFR request at GLS airport.

2. Issue IFR/SVFR clearances and release aircraft departing GLS airport when the weather at GLS airport is IFR.

3. Release the GLS clearance delivery frequency to Satellite Clearance Delivery when the weather at GLS airport is VFR.

SECTION 13. BEAUMONT SATELLITE (J) 121.3 VHF/377.1 UHF

8-13-1. DUTIES (J)

Beaumont Satellite must:

a. Provide radar service to aircraft in airspace depicted in Appendix 13.

b. Upon completion of communications transfer from BPT Tower, advise departure aircraft of radar identification and verify Mode C altitude information of aircraft received via the “quick look” function.

c. Provide TRSA service within the lateral boundaries of TRSA airspace as depicted in Appendix 20.

d. Advise BPT Tower of appropriate MSAW alerts

e. Restrict all DEPARTURES FILED PRARI/FREEP GATE at or below 16,000 feet to 6,000 feet or below.

f. Ensure South Satellite arrivals on the CESAN STAR are at or below 4000 feet MSL at PLEDO and handed off to San Jac Satellite position.

g. Update BPT altimeter in STARS when BPT Tower is closed.

SECTION 14. EAST ARRIVAL (D) 120.05 VHF/379.1 UHF

8-14-1. DUTIES (D)

East Arrival must:

a. Provide radar service to aircraft in airspace depicted in Appendix 14.

b. Ensure arrivals are assigned appropriate runway transition if applicable and airspeed in accordance with Paragraph 2-3-4.

c. Hand off HOU arrivals not on an OPD to Gulf Arrival at 10,000 feet MSL, Gulf Arrival has control for descent to 8,000 feet MSL.

d. Assign HOU arrivals the appropriate runway transition, when applicable, or heading as follows:

1. HOU Runway 30, to depart LUDVG/PRTCH on a 120 degree track.

2. HOU Runway 22, to depart LUDVG/PRTCH on a 150 degree track.

3. HOU Runway 12, to depart HUB VOR/DME on a 250 degree track.

4. HOU Runway 4, to depart LUDVG/PRTCH on a 170 degree track.

e. Handoff conventional arrivals destined GLS, LBX, EFD, BYY, ARM and SGR to Gulf Arrival at 10,000 feet MSL, Gulf Arrival has control for descent to 8,000 feet MSL.

Note: Aircraft on OPD's that have been altitude restricted shall use the same procedure as conventional arrivals and coordinated with Gulf Arrival.

f. Descend and vector all other satellite arrivals to remain clear of the descent areas in use, and handoff to the appropriate controller.

g. Provide Class B service between 5,500 feet and 10,000 feet MSL within the lateral boundaries of Class B airspace within East Arrival airspace.

h. Make appropriate primary scratchpad (scratchpad 1) entries as an aid to final controllers when assigning a runway other than the preferential runway as specified in the arrival charts.

i. Must coordinate with Gulf Arrival prior to assigning runway 27.

SECTION 15. GULF ARRIVAL (G) 119.62 VHF/290.5 UHF

8-15-1. DUTIES (G)

Gulf Arrival must:

a. Provide radar service to aircraft in airspace depicted in Appendix 15.

b. Ensure arrivals are assigned appropriate runway transition if applicable and airspeed in accordance with Paragraph 2-3-4.

c. Handoff or point-out TKNIQ arrivals (or arrivals assigned the non-RNAV HUB110050…HUB routing) landing south satellite airports (paragraph 1-2-2), except EFD [when landing Runway 17/22], T41, RWJ, T00, and HPY) to Departure South, at or prior to DOCCC waypoint, on a southwest heading clear of the descent area(s) in use at HOU. If Departure South accepts a point-out, hand off aircraft to SanJac Satellite and descend aircraft to an altitude 1,000 feet MSL above SanJac Satellite airspace and on a heading to remain clear of the descent area in use.

d. Handoff or point-out TKNIQarrivals (or arrivals assigned the non-RNAV HUB110050…HUB routing) that are landing EFD Runway 17/22, T41, RWJ, T00, and HPY to South Departure at or prior to FRDDYwaypoint, descending to 6,000 feet MSL on a northerly heading clear of the descent area(s) in use.

e. Handoff GLS, LBX, EFD, BYY, ARM and SGR arrivals on the WAPPL/HUDZY arrival to Departure South at or above 7,000 feet MSL. Assign HUDZY arrivals a heading to depart LUDVG on a 170 degree track. Departure South has control for turns within Gulf Arrival airspace, but no farther east than EFD.

NOTE- *When HOU is landing Runway's 4 or 12R SGR arrivals may be coordinated with HOU Final for routing through HOU Final Airspace.*

f. Work HOU arrivals from BAYYY/PUCKS/TKNIQ and assign, as applicable, the appropriate runway transition or a heading to enter the HOU descent area in use.

g. Work HOU arrivals assigned the non-RNAV HUB110050…HUB routing and assign a heading to enter the appropriate descent area in use.

h. Provide Class B service between 5,500 feet MSL and 10,000 feet MSL, as applicable, within the lateral boundaries of Class B airspace and within Gulf Arrival airspace, as depicted in Appendix 15.

i. Make appropriate primary scratchpad (scratchpad 1) entries as an aid to final controllers when assigning a runway other than the preferential runway as specified in the arrival charts.

j. Must coordinate with East Arrival prior to assigning 26L/R.

SECTION 16. HOBBY FINAL (H) 133.05/229.4

8-16-1. DUTIES (H)

Hobby Final must:

a. Provide radar service to aircraft in airspace depicted in Appendix 16.

b. Advise HOU Tower, of appropriate MSAW alerts.

c. Provide Class B service within the lateral boundaries of Class B airspace within Hobby Final airspace.

SECTION 17. FINAL NORTH (FN) 119.1, FINAL CENTER (FC) 120.65, FINAL SOUTH (FS) 134.0

8-17-1. DUTIES (FN), (FC), & (FS)

Final North, Final Center, and Final South must:

a. Provide radar service to aircraft in delegated airspace, as depicted in Appendix 17. When approaches are being made to the east/west parallel runways and it becomes necessary to subdivide responsibilities between two or more controllers, the airspace division must be a line in the No Transgression Zone equidistant from the adjacent runway(s). When only the outboard runways are in use, the centerline of the middle runway becomes the airspace division line.

b. Transfer communications to IAH at or prior to the Final Approach Fix.

c. When more than one final is open, a final controller may deviate from the procedures in this section after coordination is complete with the other Final(s) and will be solely responsible for all applicable separation.

NOTE- *Coordination must be on an individual basis and is not intended to indefinitely circumvent established procedures.*

d. When more than one final is open, display visual approach box, inner, duals, or trips bar map(s) as depicted in Appendix A-17, as appropriate.

e. When conducting visual approaches instruct aircraft assigned Runways 8L/8R/9 to cross FLIBZ/EELPO/SAYNO at or above 3,000 feet MSL. Final(s) must utilize P- ACP with Lakeside Satellite and Tomball Satellite airspace east of DWH Runway 17R/35L extended centerline/final approach course.

f. Turn base leg at or less than 210 knots.

g. When conduction visual approaches:

1. Ensure that no aircraft conducting a visual approach enter the visual reference box without standard separation, unless the aircraft has received and acknowledged a visual approach clearance.

2. Provide no less than 2 NM in-trail spacing and compatible speed behind a preceding aircraft at the landing threshold. Additional spacing may be required for weather, construction, or departure volume (traffic management initiative).

3. When more than one final is open, no coordination is required when in compliance with 8-17-g.1.

NOTE- *Utilize the 30 degree or less intercept to final as prescribed in FAAO 7110.65U, Paragraph 7-4-4 c3 (d).*

h. When three final positions are open for IAH:

1. Ensure arrival aircraft data tags are associated with the final position normally assigned to each east/west runway.

Final North (A) = Runway 8L/26R
Final Center (I) = Runway 8R/26L
Final South (O) = Runway 9/27

2. Provide no less than 3 NM in-trail spacing and compatible speed behind a preceding aircraft at the runway threshold for Runway 26L. Additional spacing may be required for weather, construction, or departure volume (traffic management initiative).

i. Ensure that the required runway scratchpad entries are made.

j. In the event of the failure of FSL STARS or when the tower quick look function is otherwise unsatisfactory, call the arrival sequence to the appropriate local control via landline.

k. Advise IAH Tower, of appropriate MSAW alerts.

l. When Runway 8L or Runway 8R and 27 are in use:

1. One final must vector aircraft to Runway 8L or Runway 8R.

2. One final must vector aircraft to Runway 27.

m. When simultaneous widely spaced parallel approaches without monitors (outboards), dual parallel, dual simultaneous, or triple simultaneous approaches are being conducted with more than one final open, use the following altitudes:

1. West Arrival Flow:

(a) Runway 26L/27.

(1) Runway 26L must be vectored/routed so as to enter zone A at or above 7,000 feet MSL, enter zone B at or above 5,000 feet MSL.

(2) Runway 27 must be vectored/routed so as to enter zone A or B at or below 4,000 feet MSL, enter zone C at or below 2,000 feet MSL.

(b) Runway 26R/26L.

(1) Runway 26R must be vectored/routed so as to enter zone A or B at or below 4,000 feet MSL, enter zone C at 2,000 feet MSL.

(2) Runway 26L must be vectored/routed so as to enter zone A at or above 6,000 feet MSL, enter zone B at or above 5,000 feet MSL.

(c) Runway 26R/27.

(1) Runway 26R must be vectored/routed so as to enter zone A at or above 5,000 feet MSL.

(2) Runway 27 must be vectored/routed so as to enter zone A at or below 4,000 feet MSL, enter zone B at or below 3,000 feet MSL, enter zone C at or below 2,000 feet MSL.

NOTE- *Aircraft landing 26R may enter zone B at or above 5,000 feet MSL if instructed in the approach clearance to cross RAIDS intersection at or above 5.000 feet MSL*

(d) Runway 26R/26L/27.

(1) Runway 26R must be vectored/routed so as to enter zone A at 5,000 to 6,000 feet MSL.

(2) Runway 26L must be vectored/routed so as to enter zone A at or above 7,000 feet MSL.

(3) Runway 27 must be vectored/routed so as to enter zone A at or below 4,000 feet MSL, enter zone B at or below 3,000 feet MSL, enter zone C at or below 2,000 feet MSL.

2. East Arrival Flow:

(a) Runway 8L/8R

(1) Runway 8L must be vectored/routed so as to enter zone A or B at or below 4,000 feet MSL, enter zone C at 3,000 feet MSL.

(2) Runway 8R must be vectored/routed so as to enter zone A at or above 6,000 feet MSL, enter zone B at or above 5,000 feet MSL.

(b) Runway 8R/9.

(1) Runway 8R must be vectored/routed so as to enter zone A at or above 6,000 feet MSL, enter zone B at or above 5,000 feet MSL.

(2) Runway 9 must be vectored/routed so as to enter zone A or B at or below 4,000 feet MSL, enter zone C at 3,000 feet MSL.

(c) Runway 8L/9.

(1) Runway 8L must be vectored/routed so as to enter zone A at or below 4,000 feet MSL, enter zone B or zone C at 3,000 feet MSL.

(2) Runway 9 must be vectored/routed so as to enter zone A at or above 5,000 feet MSL.

NOTE- *Aircraft landing RWY 9 may enter zone B at or above 5,000 feet MSL if instructed in the approach clearance to cross MEDIC intersection at or above 5,000 feet MSL.*

(d) Runway 8L/8R/9

(1) Runway 8L must be vectored/routed so as to enter zone A at or below 4,000 feet MSL, enter zone B or zone C at 3,000 feet MSL.

(2) Runway 8R must be vectored/routed so as to enter zone A at or above 7,000 feet MSL.

(3) Runway 9 must be vectored/routed so as to enter zone A at 5,000 to 6,000 feet MSL.

(e) Transfer communication of dual simultaneous, or triple simultaneous approaches to the appropriate IAH Tower frequency prior to loss of vertical separation.

SECTION 18.
FINAL MONITORS (MONITOR NORTH (MN), MONITOR CENTER (MC), MONITOR SOUTH (MS))

8-18-1. DUTIES (MN), (MC), & (MS)

Final Monitors must:

a. Final Monitors must ensure both longitudinal and lateral separation for aircraft on adjacent localizers/final approach courses and on IAH Tower frequency. Application of visual separation by Local Control supersedes longitudinal separation responsibility by Final Monitors from the final approach fix to the threshold.

b. Final Monitors responsibility begins at MKAYE/DPLOY Intersection, as appropriate and on a perpendicular north and south across the adjacent runway final approach course. Responsibility terminates 1 NM from the approach end of the runway, when visual separation is applied, or when the aircraft reports the approach lights or runway in sight.

c. Final Monitor North must monitor the Runway 8L/26R final approach course.

d. Final Monitor Center must monitor the Runway 8R/26L final approach course.

e. Final Monitor South must monitor the Runway 9/27 final approach course.

f. Pull-Out Procedures. Assign aircraft a heading and altitude to avoid the deviating aircraft to establish separation as soon as possible. Coordinate with the appropriate Local Control, if the event is in or will enter IAH Tower airspace.

g. Final Monitors must advise IAH Tower when opening and closing.

8-18-2. FINAL MONITOR CHECKLIST

a. Adjust the radar to display traffic at least 25 NM from the appropriate runway.

b. Select the “No Transgression Zone” map.

c. Ensure Fusion is the selected sensor and PAM mode is operational.

d. Ensure that primary targets are adequate and beacon control slash is off.

e. Use normal IVSR jack; red jack override capability does not exist at the monitor positions.

f. Select the appropriate frequency.

g. Coordinate with the appropriate local control to obtain an override check (request Local Control transmit to an aircraft while you transmit simultaneously; ensure Local Control override). Advise the SI when override checks are complete.

SECTION 19. SATELLITE CLEARANCE DELIVERY (SCD)

8-19-1. DUTIES (SCD)

Satellite Clearance Delivery must:

a. Issue clearances for departures from satellite airports. Assign departures 2,000 feet MSL, and expect further clearance to requested altitude 10 minutes after departure.

b. Issue the appropriate altimeter setting to satellite airport departures.

c. Obtain and relay departure release, frequency, initial altitude, and appropriate restrictions as obtained from the appropriate radar controller.

d. After issuing a departure release to an aircraft at an uncontrolled airport, release the aircraft to the common traffic advisory frequency (CTAF) prior to departure.

PHRASEOLOGY-
Change to advisory frequency, contact Houston Departure control when clear of the traffic pattern.

e. Issue clearances via telephone for departures from uncontrolled satellite airports or when the pilot is unable to communicate via radio. Assign departures 2,000 feet MSL and to expect further clearance to requested altitude 10 minutes after departure. Issue the current time, and then a valid and void block time (not to exceed 5 minutes) and alternate instructions for the pilot to advise within 10 minutes of the void time, if he/she is unable to depart before the void time.

f. Clear tower en route departures from satellite airports south of V222 via radar vector V70 SBI, thence direct next fix in the filed route. Clear tower en route departures from satellite airports north of V222 landing in the Beaumont Terminal Airspace area via vector DAS direct BPT, direct destination.

g. Circle EDCT’s.

h. Select the appropriate clearance delivery frequency when GLS, CXO, CLL, SGR, BPT Towers are closed. Issue clearances and obtain departure releases from aircraft departing the above airports, in accordance with Paragraph 8-19-1 a, b, c, and d above.

i. When SVFR is requested in the GLS, CXO, CLL, SGR, or BPT Tower surface area(s), advise the appropriate satellite control position and release the clearance delivery frequency.

j. When Easterwood ATC Tower is open, SCD must retain control of the CLL clearance delivery frequency and advise aircraft requesting clearances to contact Easterwood ATC Tower for clearance.

SECTION 20. FLIGHT DATA (FD)

8-20-1. DUTIES (FD)

Flight Data must:

a. Amend the altitude to 9,000 feet MSL on those flights landing in the Lake Charles Approach Control or Beaumont Terminal Area that have requested an altitude above 9,000 feet MSL. Amend the altitude to 6,000 feet MSL on those flights landing in the I90 airspace west of BPT that have requested an altitude above 6,000 feet MSL.

b. Amend the altitude to 8,000 feet MSL and below, or 17,000 feet MSL and above, on those Beaumont Satellite flights routed westbound on V306 or V556. Enter requested altitude in the STARS data block with the command: F7, M, OK, ACID, 3 digit altitude, Enter.

c. Amend the altitude to 8,000 feet MSL on those flights landing in the College Station/Industry Satellite airspace that have requested an altitude above 8,000 feet MSL.

d. Provide IFR clearances to GLS and CXO Tower when requested.

e. Provide IFR clearances to satellite control Towers when the Satellite Tower FDIO is out of service.

f. Deliver flight progress strips for satellite departures that have been released, and for overflights, in accordance with Paragraph 4-2-3.

g. Update and revise FDIO strips as necessary to keep control positions correctly informed of impending traffic.

h. Enter departure times via FDIO or interphone for departures from uncontrolled satellite airports when STARS auto-acquisition does not occur.

i. Ensure that the appropriate AAR/ADR/ADAR, through coordination with ZHU or ZFW, Beaumont Satellite, College Satellite, or Industry Satellite is issued to all overflights.

j. When FRC’s received via FDIO do not conform to local PDR’s or the route is unknown, call the appropriate ZHU sector to verify the route of flight.

k. After receipt of an AIRMET/SIGMET/CWA:

1. Deliver the AIRMET/SIGMET/CWA to the Supervisor TRACON (SI).

2. When directed by the Supervisor TRACON (SI) enter AIRMET/SIGMET/CWA information on the appropriate page of the IDS.

3. Call the ZHU TMU to clarify the text of any garbled or partial transmission.

4. Relay AIRMET/SIGMET/CWA information to satellite control towers when the Satellite Tower FDIO is out of service.

l. When advised by TMC or SI that a Severe Weather Avoidance Program (SWAP) is in effect, enter into the FDIO a Reprocess Message (RM) for each affected aircraft. If the RM does not produce the correct SWAP route, either:

1. Manually correct the route, or

2. Advise TMC or SI to call ZHU TMU for manual reentry.

m. When advised of a pending Air Defense Command (ADC) scramble:

1. Provide a complete flight progress strip on each scramble to SanJac Satellite.

2. Ensure necessary information on the scramble is in STARS.

n. Ensure daily pertinent NOTAMs are correct and up-to-date in the IDS-4.

NOTE- *Pertinent NOTAMs include Runways, NAVAIDS, and Landing aids.*

SECTION 21. TRACON COORDINATOR POSITIONS (C-N/C-D/C-M/C-W/C-L/C-P/C-B/C-G/C-F/C-E/C-H/C-X/C-U)

8-21-1 DUTIES (C-N/C-D/C-M/C-W/C-L/C-P/C-B/C-G/C-F/C-E/C-H/C-X/C-U)

Coordinator must:

a. Perform duties as assigned by the Radar Controller.

SECTION 22. WATCH SUPERVISOR (WS)

8-22-1. DUTIES (WS)

The Watch Supervisor (WS) must:

a. Maintain oversight responsibility of control room, monitor the operation, make position assignments, direct, and assist controllers in the performance of their air traffic control duties.

b. Monitor and configure area equipment as necessary and complete Daily equipment checklist, reporting anomalies to the OM.

c. Ensure CEDAR entries including FAA Form 7230-4 and MOR's are correct and up-to-date.

d. Assign and ensure training is conducted in accordance with FAA Order 3120.4, Air Traffic Technical Training and facility policy.

e. Ensure adequate personnel coverage for entire control room. Advise the OM of any personnel request or operational requirement that affects shift staffing. The OM will determine if assigning or cancelling overtime is appropriate.

f. Perform the watch checklist during each shift.

g. Ensure timely position relief and process leave requests in accordance with FAA directives and FAA/NATCA labor agreement.

h. Disseminate NOTAMS to Flight Data and ensure they are correct and up to date in the IDS.

i. Assume Operation Manager Duties when assigned and Area FLM duties when necessary.

j. Ensure the runway change and simultaneous approach checklists are completed and logged in accordance to facility directives.

k. Ensure that operational personnel are appropriately briefed concerning changes to operational procedures or abnormal situations. Ensure monthly supplemental and refresher training is accomplished timely.

l. TMI’s are normally initiated by the Traffic Management Unit and managed by the Front Line Manager of the Sector(s) that are affected by them. The Watch Supervisor shall be briefed of any TMI’s coordinated by Area FLM’s and the Traffic Management Unit.

m. Assume TMC duties and responsibilities when not staffed.

SECTION 23. Front Line Manager (FLM)

8-23-1. DUTIES (FLM)

Front Line Manager (S1, S2) must:

a. Provide a primary function of general supervision to her/his designated area, and assist controllers in the performance of their air traffic control duties.

b. Ensure adequate personnel coverage for your area of responsibility and coordinate with the Watch Supervisor to open, close, combine and or de-combine sectors/positions based on operational necessity.

c. Keep the TMU and affected sectors informed of situations or circumstances that may cause congestion or delays.

d. Coordinate with the TMU to develop appropriate traffic management initiatives for sectors and airports in her/his area of responsibility. The Watch Supervisor shall be kept informed of any TMI's coordinated by Area FLM's and the Traffic Management Unit.

e. Continuously review traffic management initiatives affecting his/her area of responsibility and coordinate with TMU for extensions, revisions, or cancellations.

f. Ensure that traffic management initiatives are carried out in his/her area of responsibility.

g. Monitor and ensure all training is performed in accordance with FAA Order 3120.4, Air Traffic Technical Training and facility policy.

h. Perform WS duties when required. Assume S1 or S2 as appropriate.

i. Advise the WS of any aircraft that diverts from their original destination.

j. Monitor presidential aircraft movement.

k. Minimize control room distractions.

l. Assist the Watch Supervisor in completing the operational items on the simultaneous approaches and runway change checklists. Ensure all control room positions are kept informed of those changes as appropriate.

m. Solicit and disseminate PIREP's in accordance with JO 7110.65 and facility policy.

n. Monitor control room personnel to ensure timely position relief and that operational continuity is maintained through the use of the position relief checklist as outlined in paragraph 5-101.

o. Keep the Watch Supervisor and TMU informed of the status of secondary airport runways, NAVAIDS, TRACON equipment, and all other pertinent operational data.

p. Monitor and configure area equipment, as necessary. Report anomalies to the Watch Supervisor.

SECTION 24. OPERATIONS MANAGER (OM)

8-24-1. DUTIES (OM):

Operations Manager must:

a. Retain overall responsibility for the efficient and effective management of control room personnel, equipment, and administrative functions.

b. Maintain oversight responsibility for the entire control room by remaining actively engaged in the operation.

c. Ensure that all the required documentation relative to personnel, equipment, and administrative functions, is completed in accordance with national, regional, and facility directives.

d. Make assignments to WS and Area (S1 & S2) FLM positions. Ensure that operational briefings are conducted at the beginning of the morning and afternoon shift. Personnel at the briefing must include, as a minimum, one FLM/CIC from each Area and the Traffic Management Coordinator (TMC). Discussion at the briefing shall include shift goals and expectations, weather conditions and forecasts, equipment, staffing, runway configurations and TMU initiatives.

e. Assume Traffic Management responsibilities in the absence of the Traffic Management Officer (TMO).

f. Serve as the focal for data collection, recording, and reporting of air traffic occurrences during the shift.

g. Ensure MOCC is notified when facility equipment is not operating properly.

h. Be the focal point for equipment outage planning and coordinate the release and return of scheduled equipment outages.

i. Manage the use of overtime, as required.

j. Minimize control room distractions.

SECTION 25. TRAFFIC MANAGEMENT COORDINATOR TRACON (TMC)

8-25-1. DUTIES (TMC)

Traffic Management Coordinator TRACON must:

a. Be thoroughly familiar with all aspects of operations pertinent to existing conditions, which will affect traffic management.

b. Be the focal point for all traffic management initiatives.

c. Whenever practicable, initiate programs and flow procedures for IAH and HOU.

d. Adjust the flow of traffic inbound/outbound, in accordance with existing conditions. Coordinate with TMT departure/arrival transition periods for appropriate flow conditions.

e. Monitor the positions, NAVAID status, weather conditions, trends, forecasts, and other factors that could impair traffic management in the Houston terminal airspace, and take appropriate action.

f. When TBFM is in use, the I90 TMC must ensure the appropriate runway matrix is utilized.

g. Coordinate with Houston Center TMU and furnish the following:

1. Flow rate for IAH and HOU.

2. Runway(s) in use at IAH, HOU, and EFD.

3. NAVAID and frequency outages.

4. Runway closures.

5. Approaches in use.

6. Weather conditions (if appropriate).

7. Other data deemed pertinent to traffic management.

h. Inform satellite towers of current or anticipated traffic delays.

i. Notify HOU, EFD, CXO, DWH, GLS, SGR, CLL, and BPT when gate hold procedures are in effect for the Houston Terminal Area.

j. Coordinate with SI/WS flow control procedures in effect.

k. Coordinate with the ZHU TMU for updates or termination of implemented programs resulting in delays for aircraft.

l. Enter traffic delays via the OPSNET system.

m. Analyze data and keep the Traffic Management Officer (TMO) briefed on the following:

1. Facility demand by hour/day/month.

2. Heavy demand areas/sectors.

3. Traffic flows.

4. Breakdown of traffic according to category of user.

5. Restrictions necessary to prevent position/sector saturation. Recommendations for alternate plans of action.

6. Number of delays incurred, location, and length of delay(s).

n. Be responsible for determining the airspace configuration in use. Keep all positions informed of changes in the runway, airspace, and approach configuration in use

o. Coordinate changes he/she intiates which causes an aircraft to leave a published or negotiated route. This coordination must be with all affected control positions.

p. Advise DWH when IAH changes to/from east flow configuration.

q. Advise IAH when DWH is landing Runways 35L/R.

r. Keep IAH Supervisor Cab (SC) informed of the approach and runway in use at HOU.

s. Coordinate with SI to establish or discontinue simultaneous approaches.

t. Coordinate with SI to determine use of Runway 26R for departures, when requested by TMT.

u. When advised by TMT, advise Departure West and SI that Runway 26R/26L will be used for north or west departures or advise Departure East and SI that Runway 8L/8R/9 will be used for north or east departures.

v. When advised by IAH/HOU of delays exceeding 15 minutes, advise Houston Center TMU, SI, and WS.

w. Advise ZHU TMU and the facility manager when delays exceed 90 minutes, except for expected departure delay times (EDCT) created by ground delay programs.

x. Ensure that TDWR ribbon displays at operating positions display information for the current runway configuration in use.

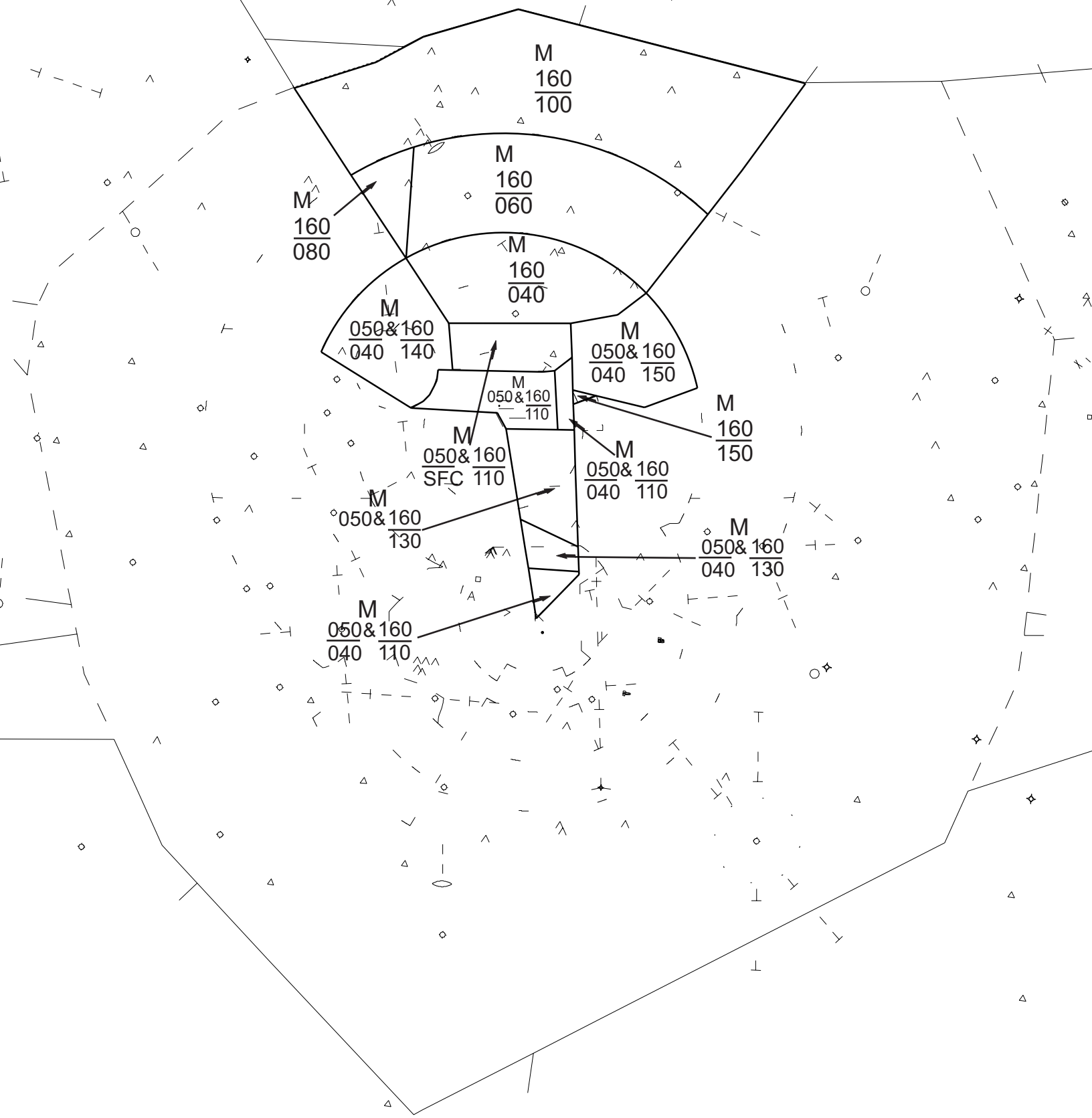
y. Upon initiating or receiving a traffic management (TM) initiative (excluding Ground Stops and EDCT information), edit the IDS flow page to include the reason for and time parameters of such TM initiatives.

z. Perform the duties of SI when required.

aa. Unscheduled shutdowns for extensive periods will preclude an accurate traffic count. In those situations, refer to the same hour(s) or, if necessary, substitute the entire day's count with the hour's or day's totals from the same day of the preceding week.

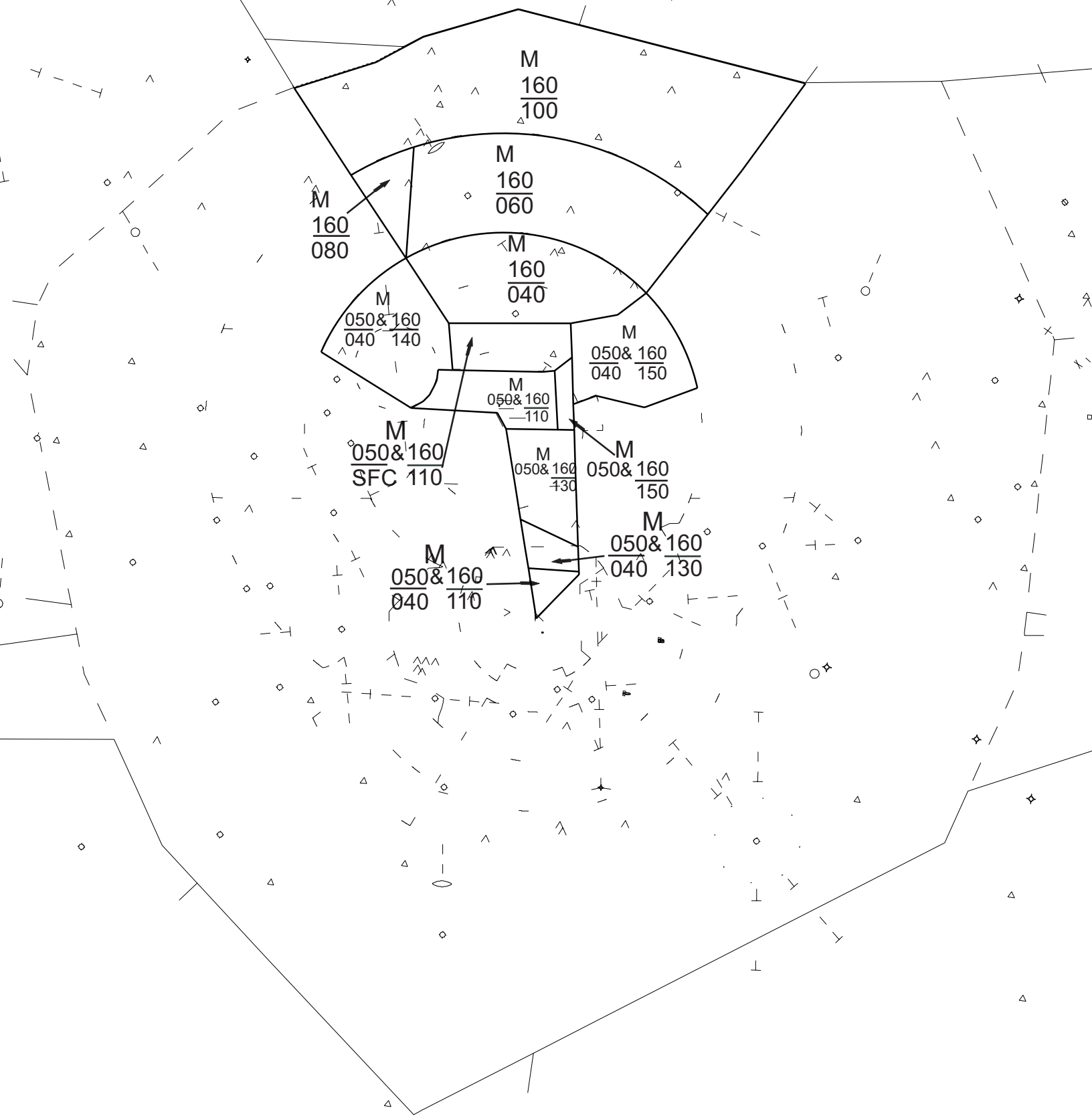
Departure North (M)
IAH 33

EXCLUDING TOWER AIRSPACE AND DESCENT AREAS IN USE



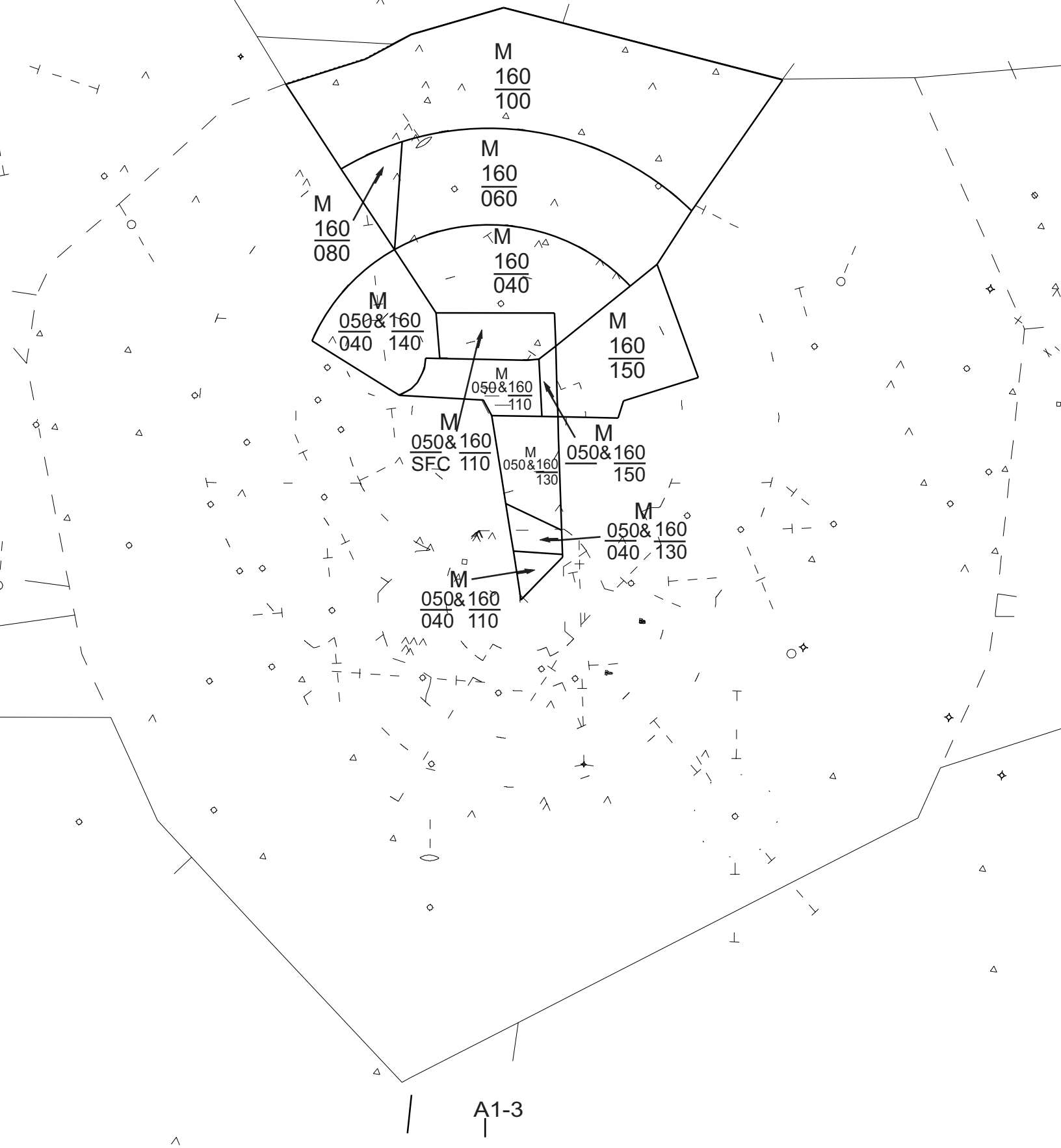
Departure North (M)
IAH 15

EXCLUDING TOWER AIRSPACE AND DESCENT AREAS IN USE



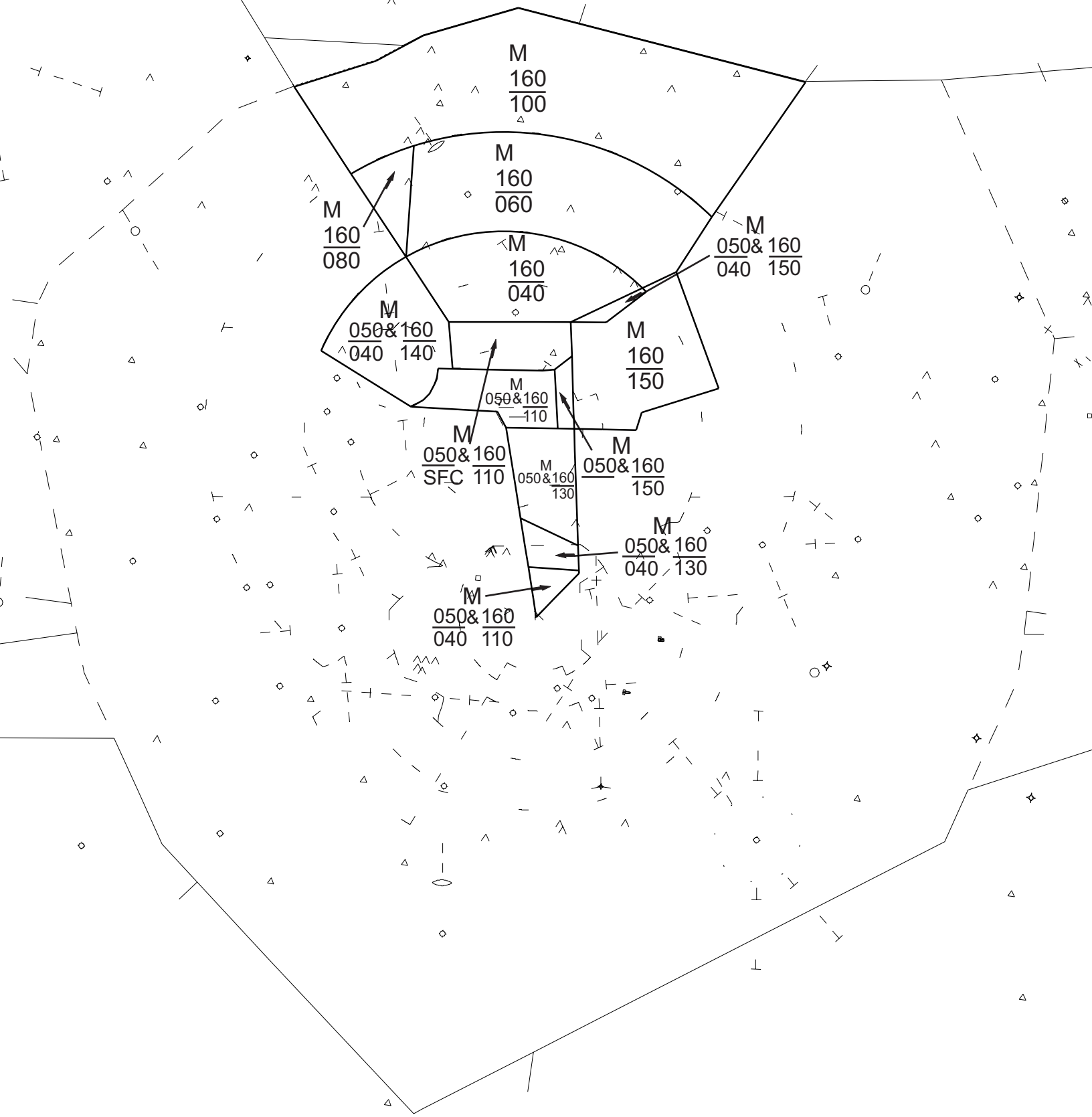
Departure North (M)
IAH West 15
HOU ALL

EXCLUDING TOWER AIRSPACE AND DESCENT AREAS IN USE



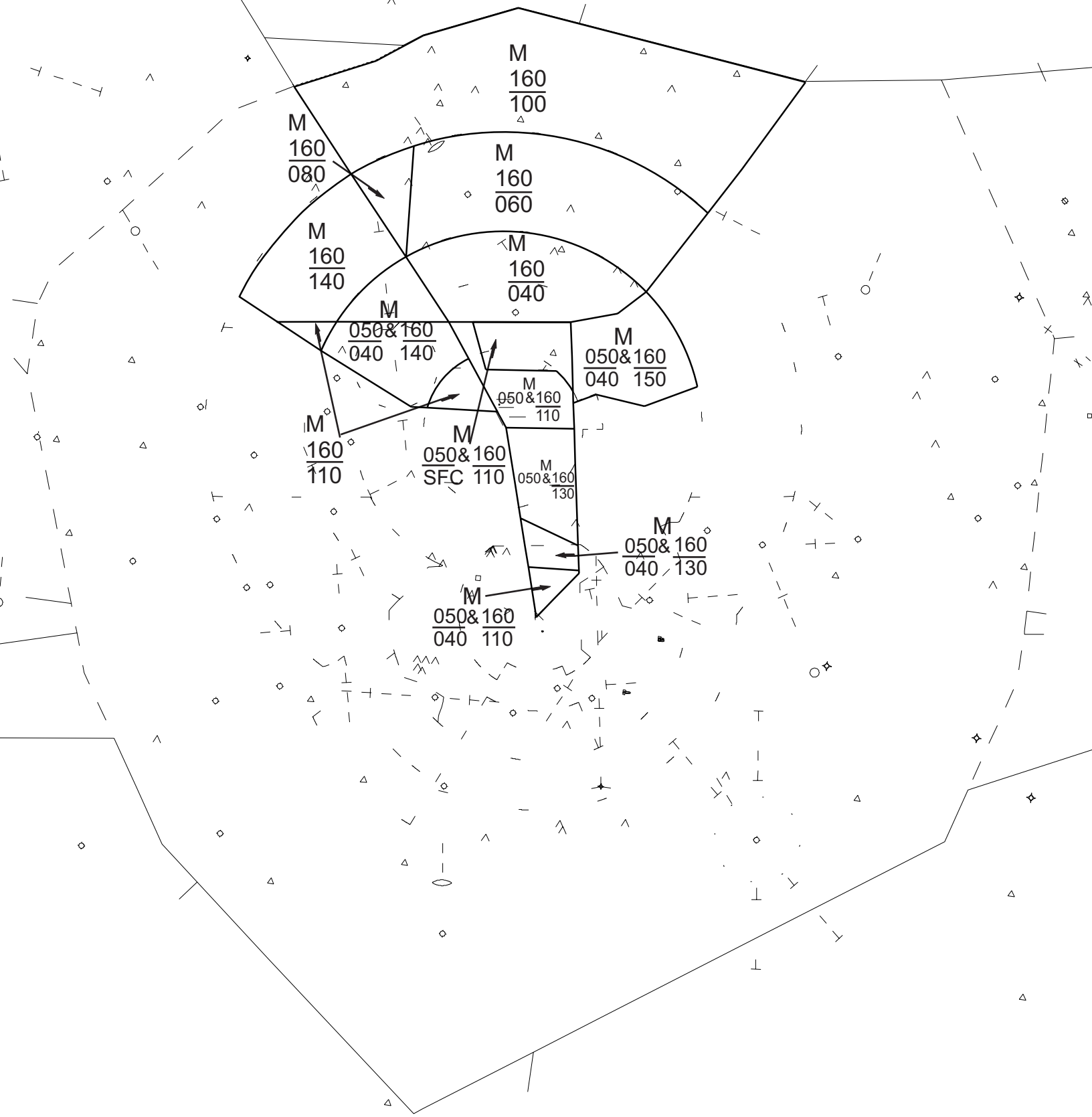
Departure North (M)
IAH East & West

EXCLUDING TOWER AIRSPACE AND DESCENT AREAS IN USE



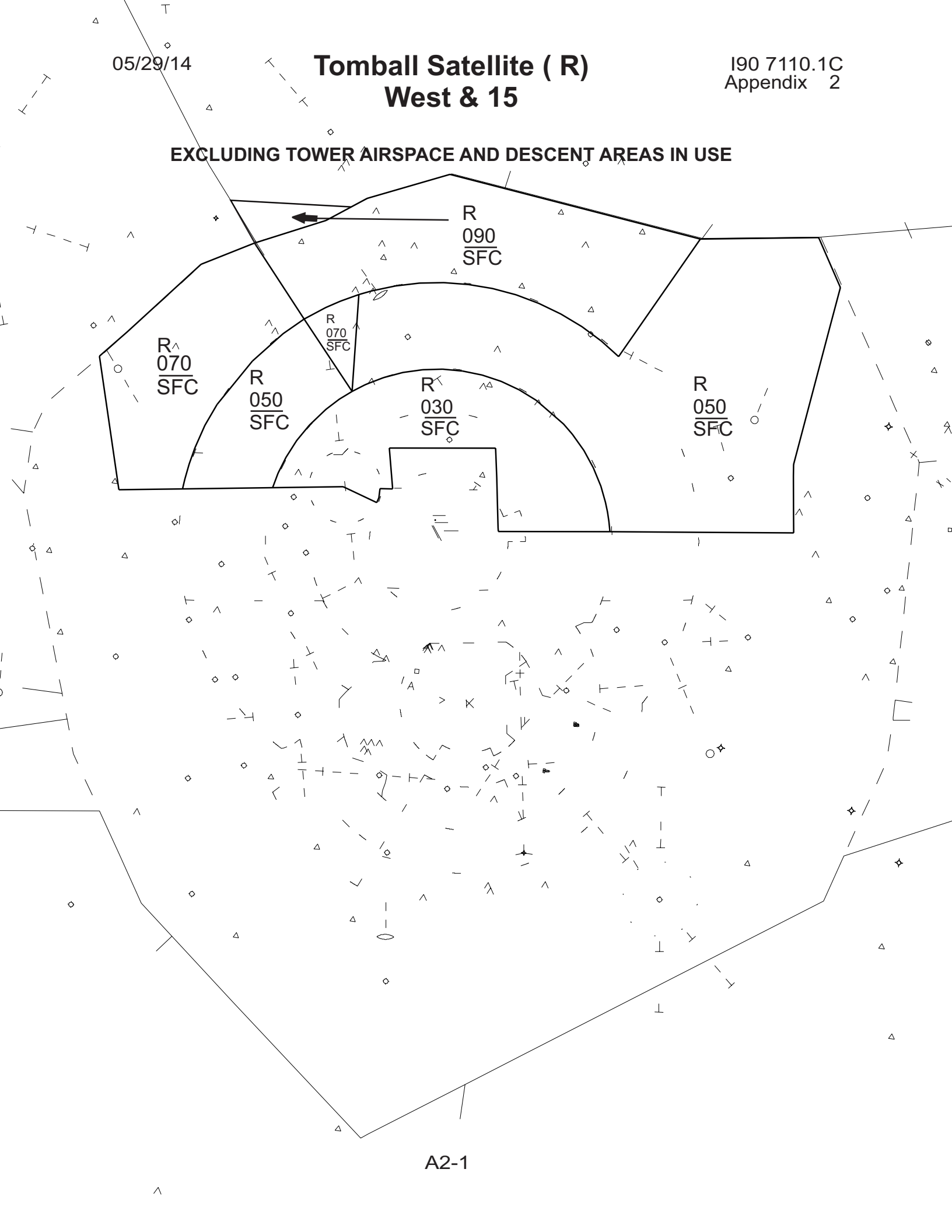
Departure North (M)
IAH East
HOU ALL

EXCLUDING TOWER AIRSPACE AND DESCENT AREAS IN USE



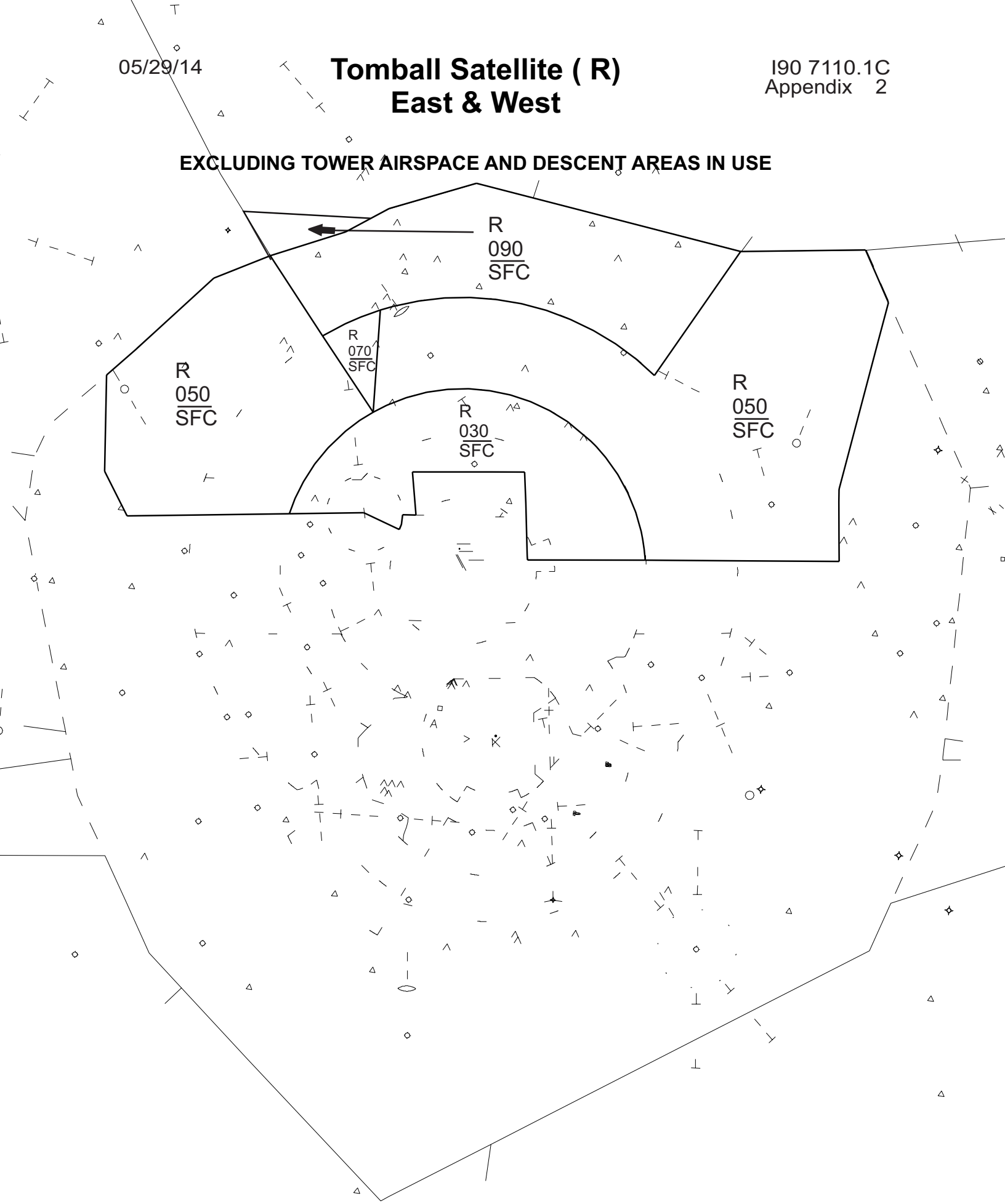
Tomball Satellite (R)
West & 15

EXCLUDING TOWER AIRSPACE AND DESCENT AREAS IN USE



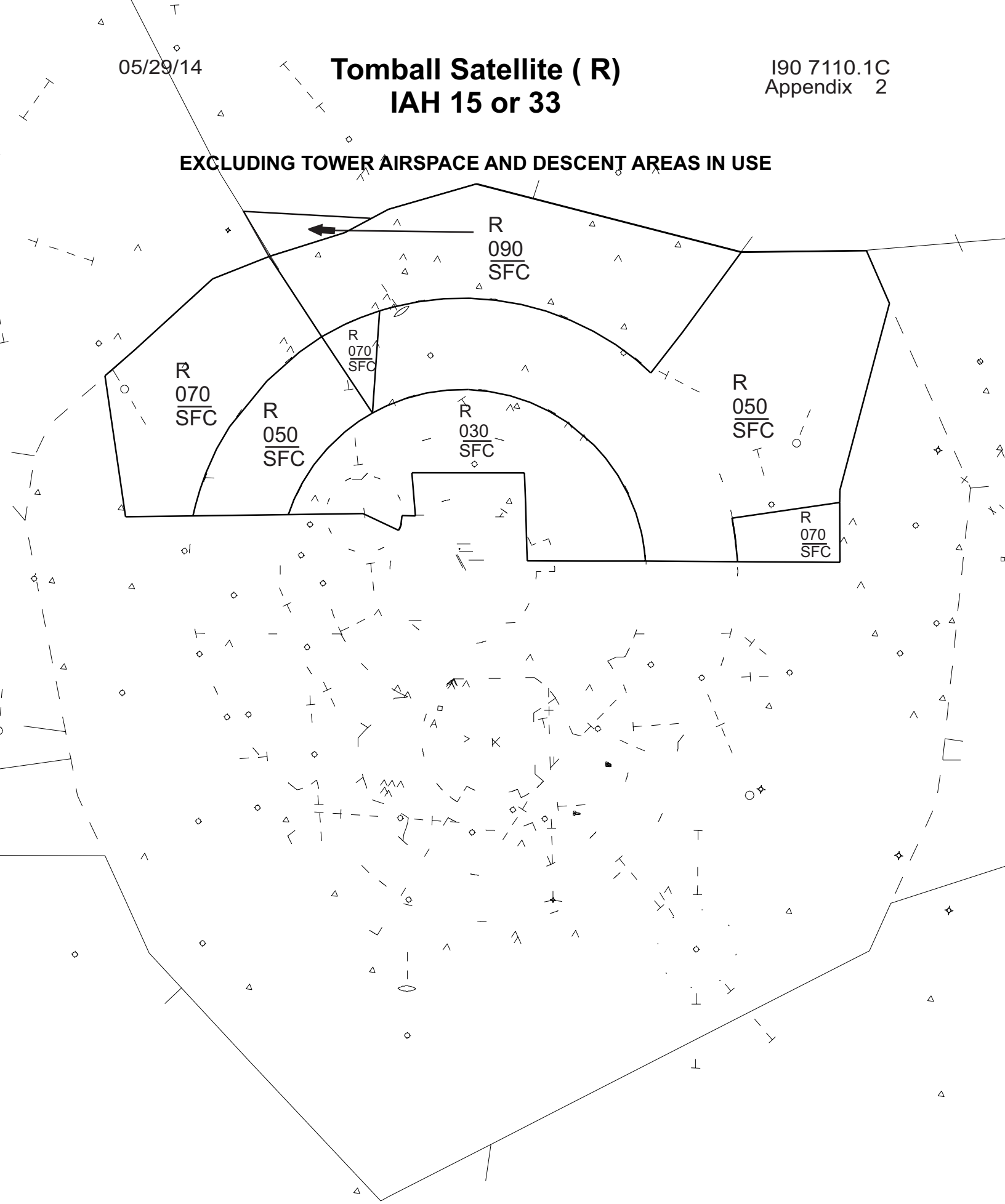
Tomball Satellite (R)
East & West

EXCLUDING TOWER AIRSPACE AND DESCENT AREAS IN USE



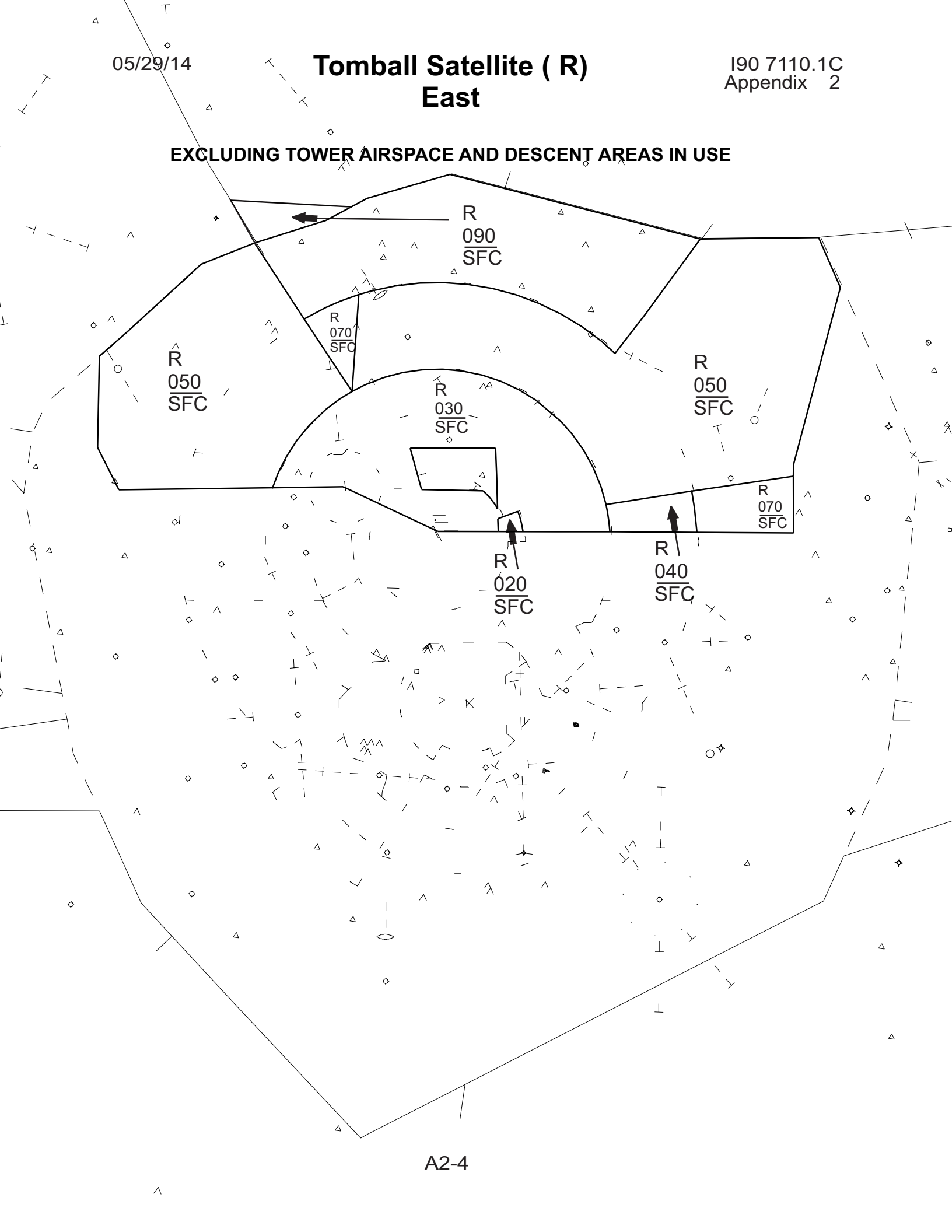
Tomball Satellite (R)
IAH 15 or 33

EXCLUDING TOWER AIRSPACE AND DESCENT AREAS IN USE



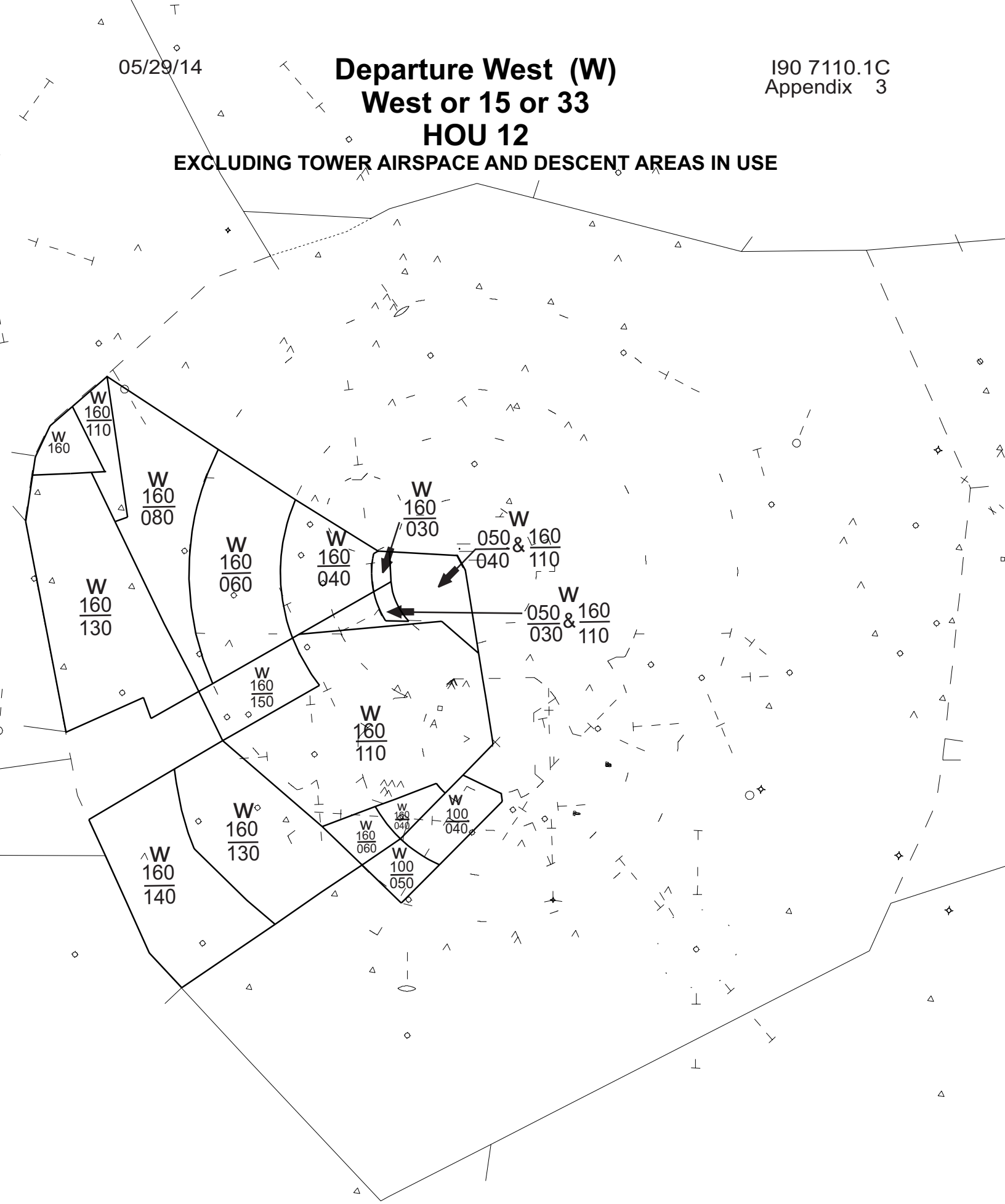
Tomball Satellite (R)
East

EXCLUDING TOWER AIRSPACE AND DESCENT AREAS IN USE



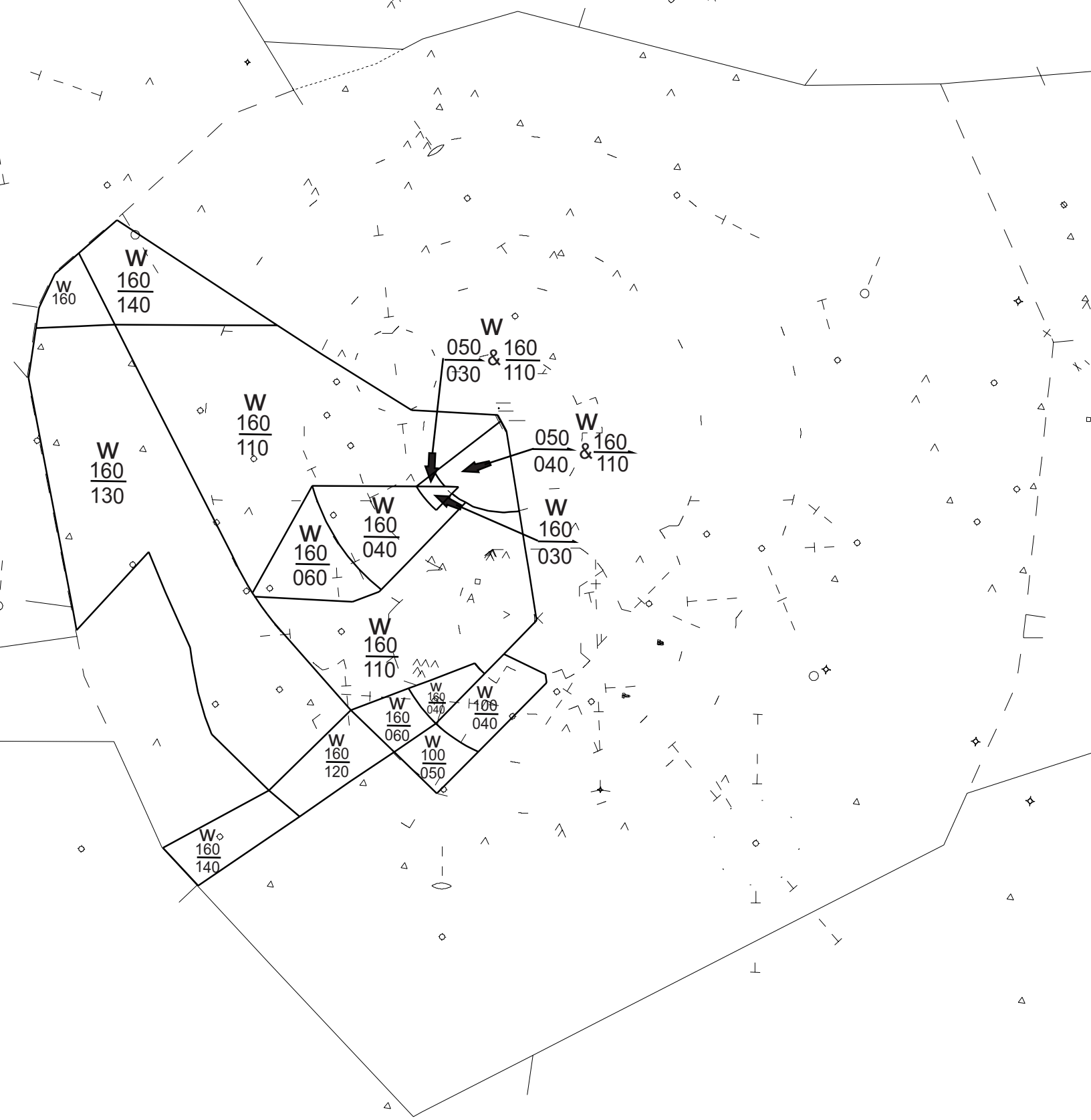
Departure West (W)
West or 15 or 33
HOU 12

EXCLUDING TOWER AIRSPACE AND DESCENT AREAS IN USE



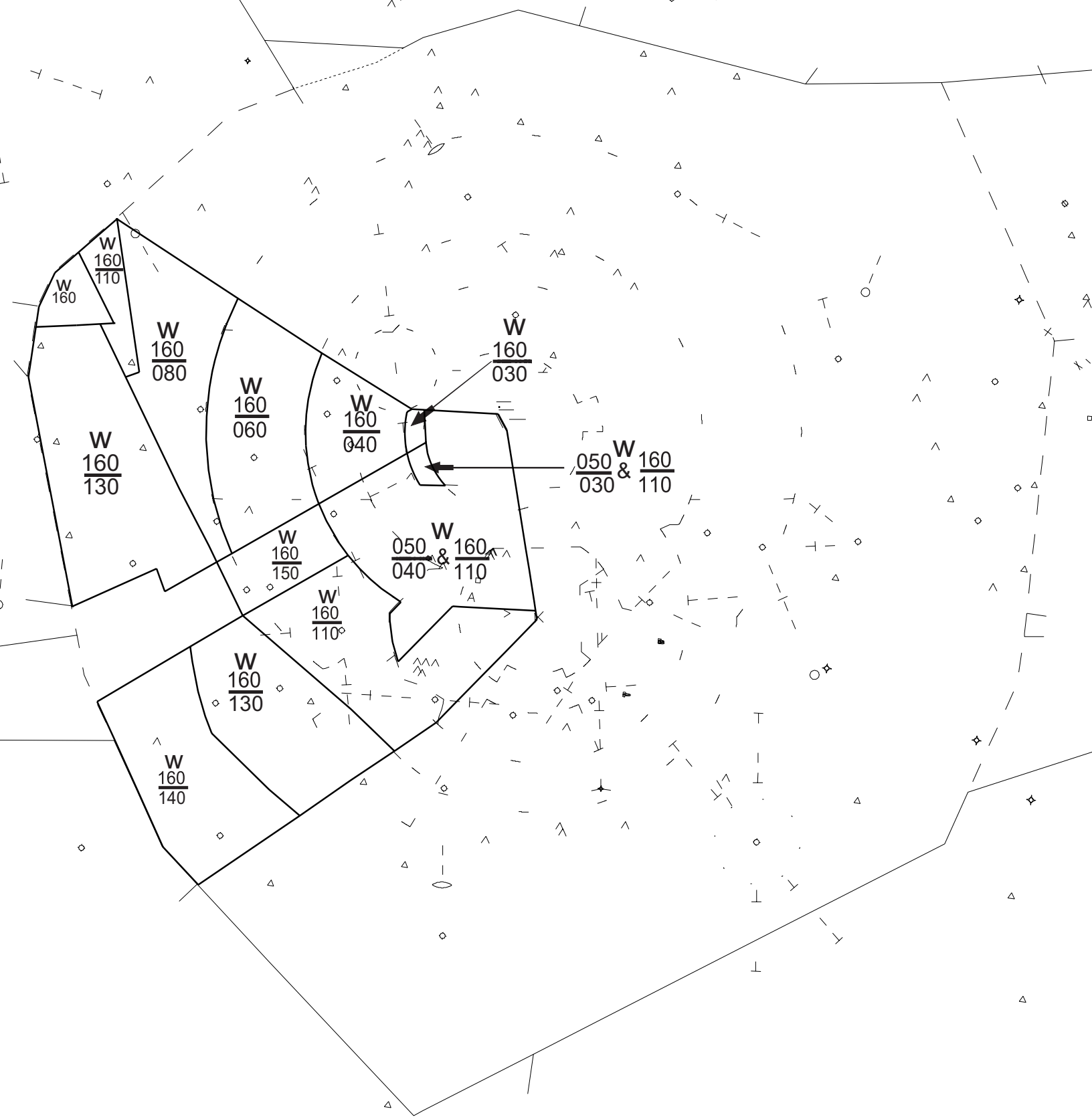
Departure West (W)
East
HOU 12

EXCLUDING TOWER AIRSPACE AND DESCENT AREAS IN USE



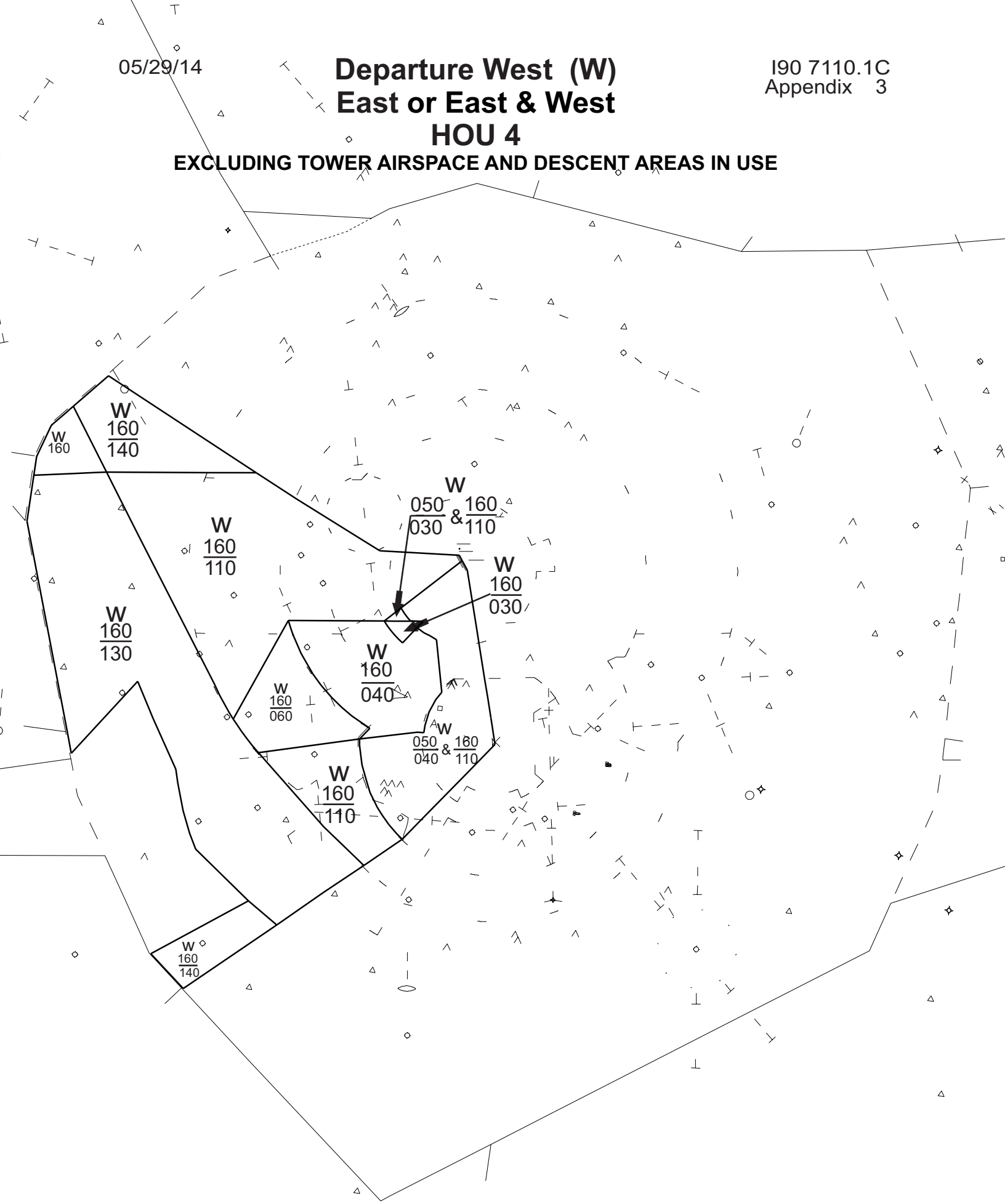
Departure West (W)
West & 15
HOU 4

EXCLUDING TOWER AIRSPACE AND DESCENT AREAS IN USE



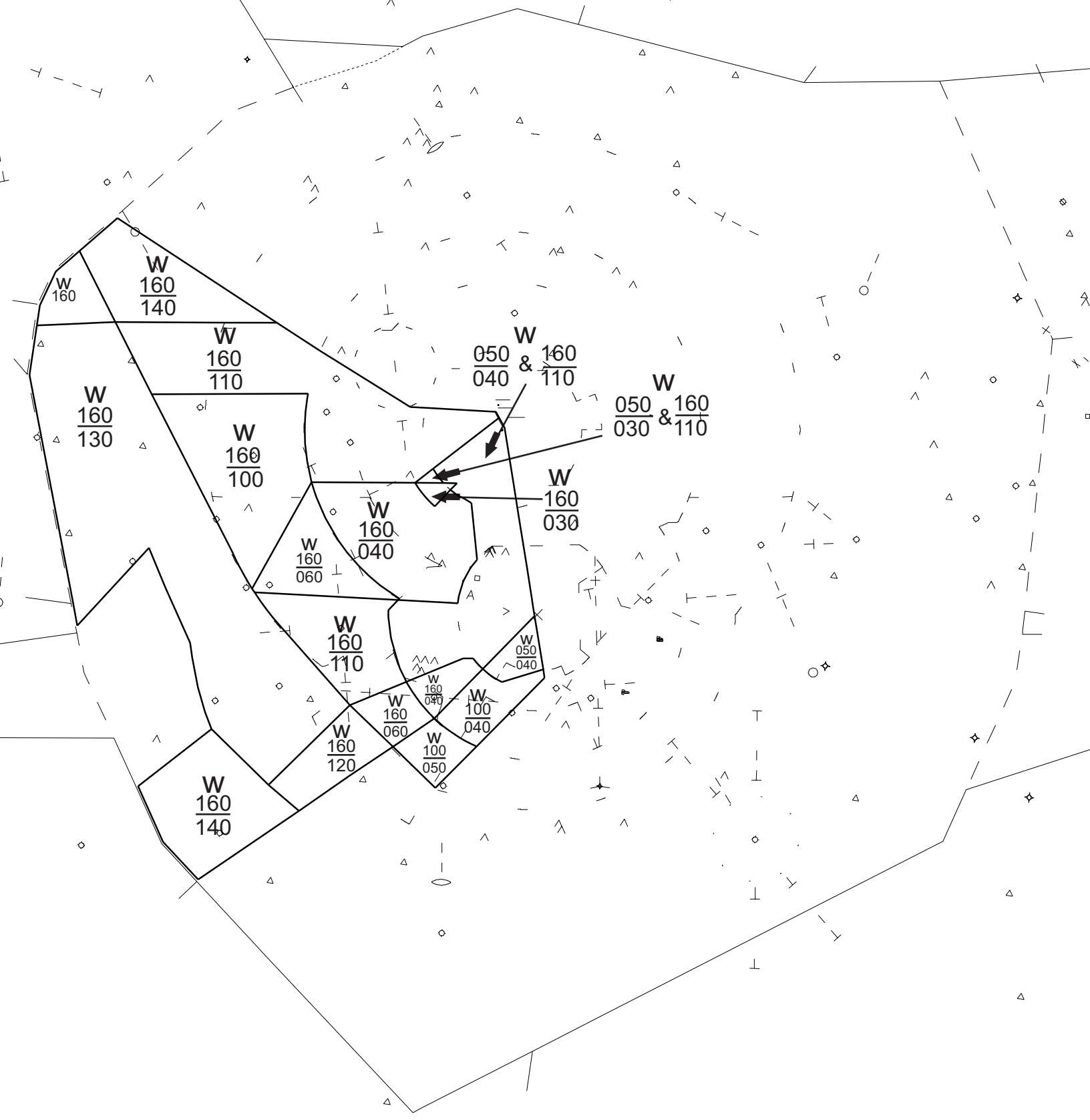
Departure West (W)
East or East & West
HOU 4

EXCLUDING TOWER AIRSPACE AND DESCENT AREAS IN USE



Departure West (W)
East
HOU 22

EXCLUDING TOWER AIRSPACE AND DESCENT AREAS IN USE

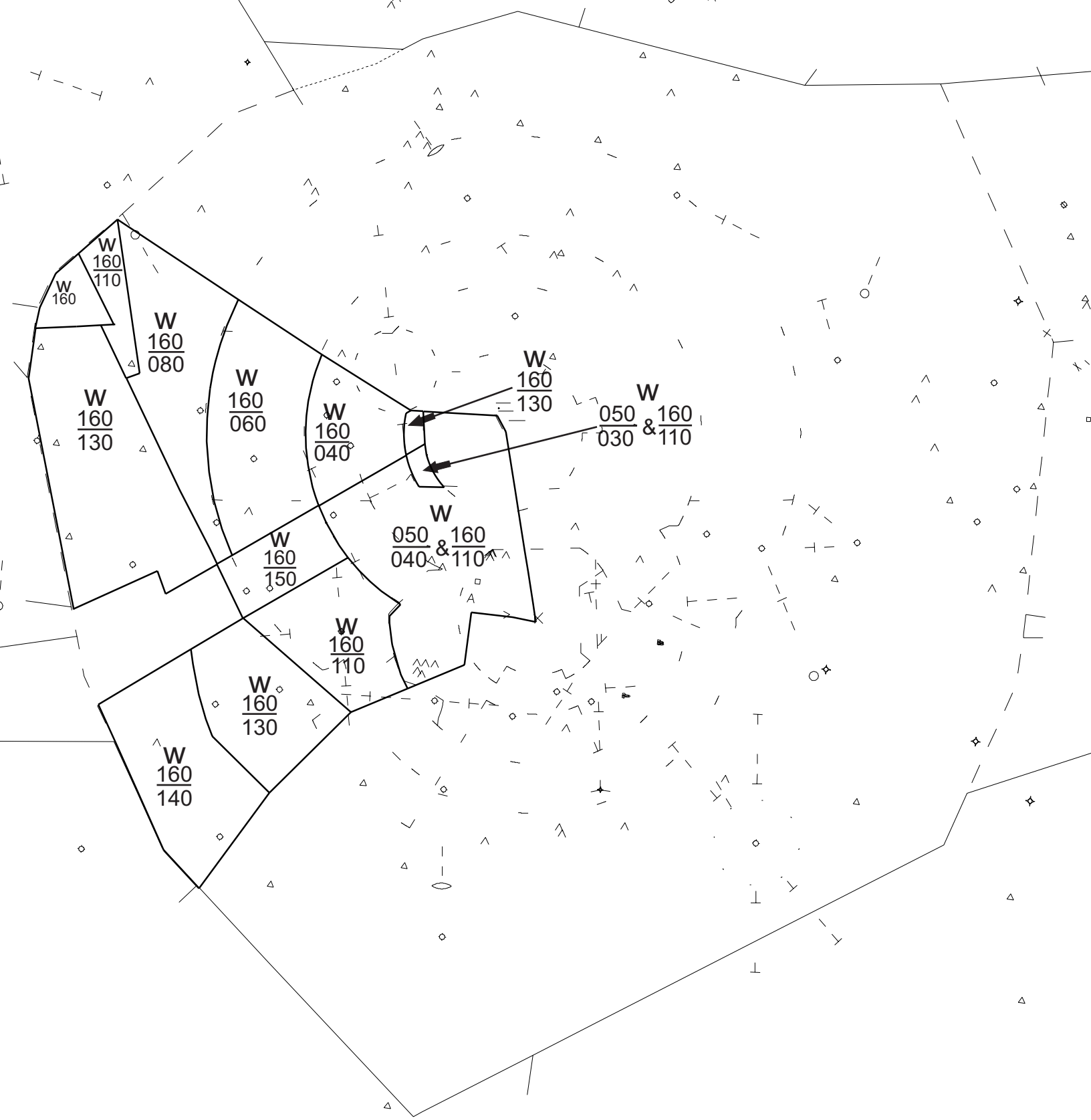


Departure West (W)
East
HOU 30

EXCLUDING TOWER AIRSPACE AND DESCENT AREAS IN USE

Departure West (W)
West & 15
HOU 30

EXCLUDING TOWER AIRSPACE AND DESCENT AREAS IN USE

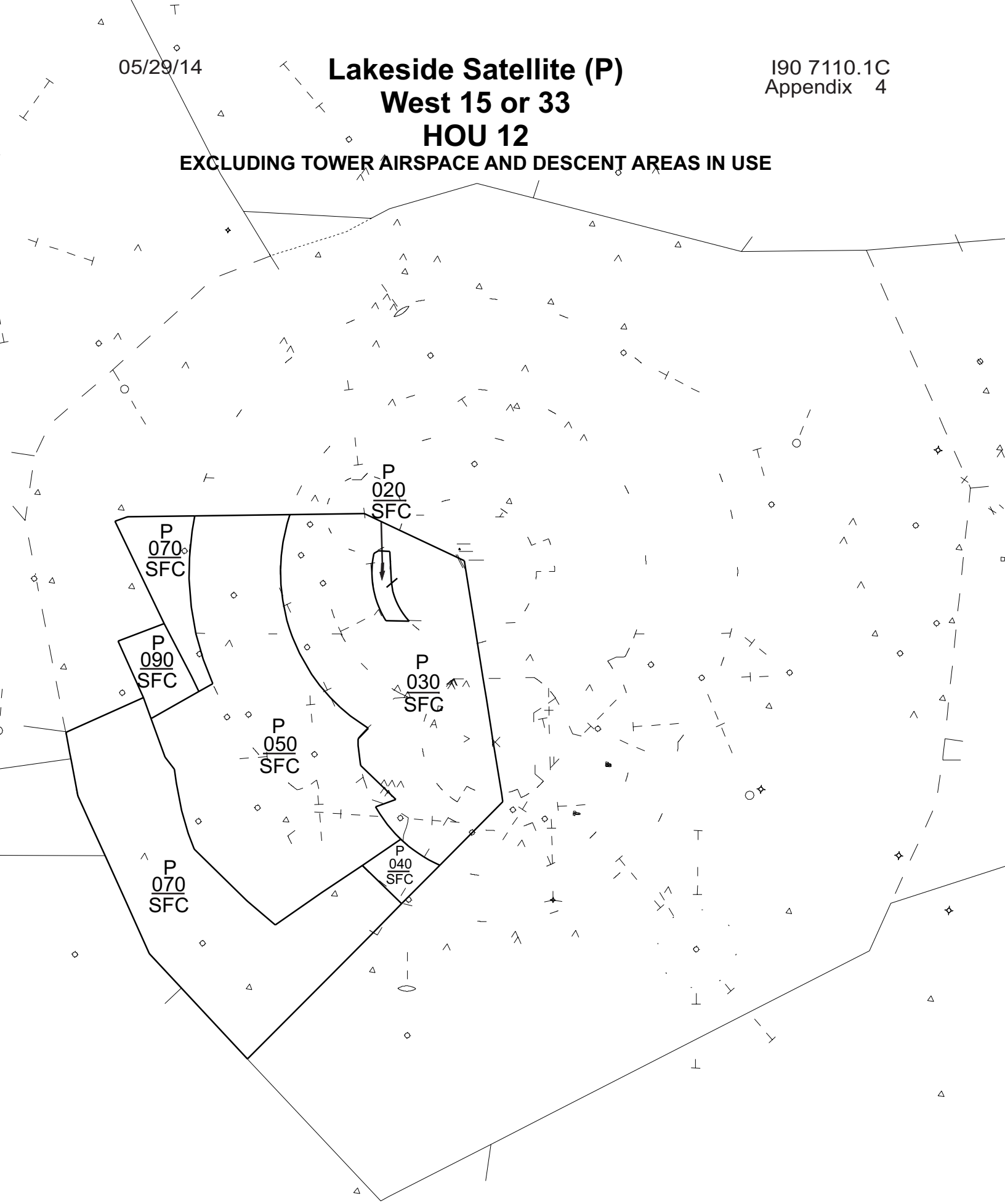


Departure West (W)
West & 15
HOU 22

EXCLUDING TOWER AIRSPACE AND DESCENT AREAS IN USE

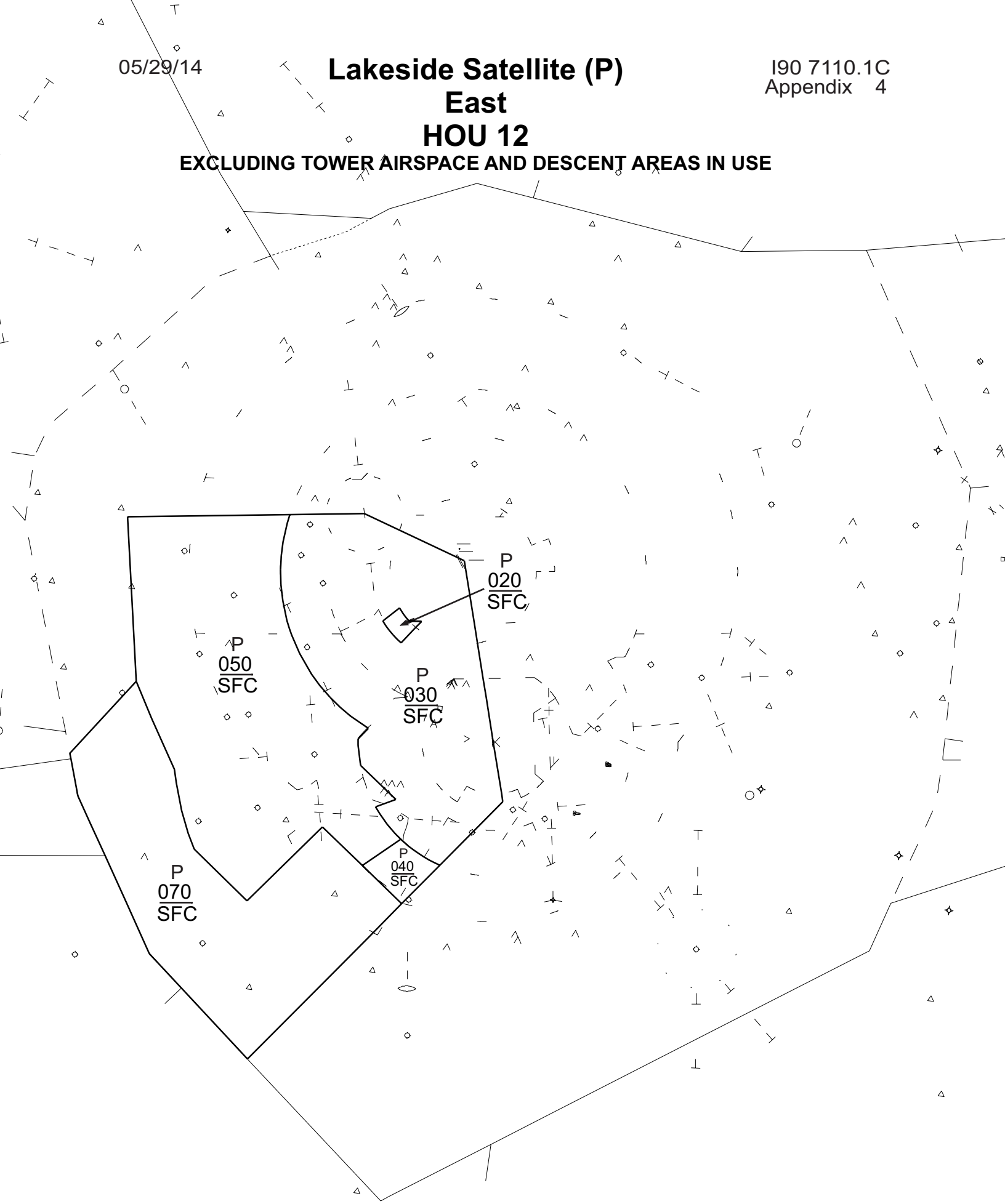
Lakeside Satellite (P)
West 15 or 33
HOU 12

EXCLUDING TOWER AIRSPACE AND DESCENT AREAS IN USE



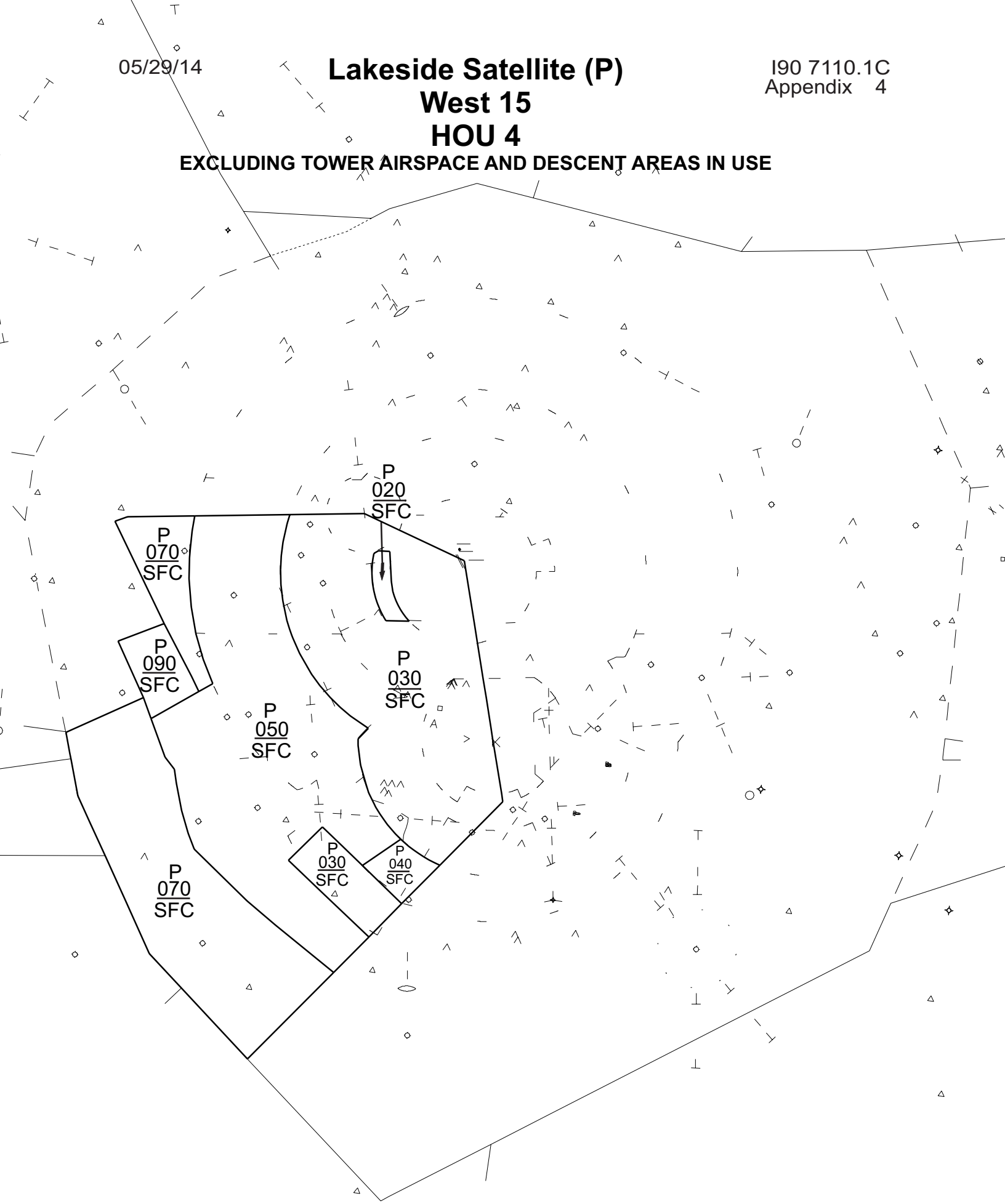
Lakeside Satellite (P)
East
HOU 12

EXCLUDING TOWER AIRSPACE AND DESCENT AREAS IN USE



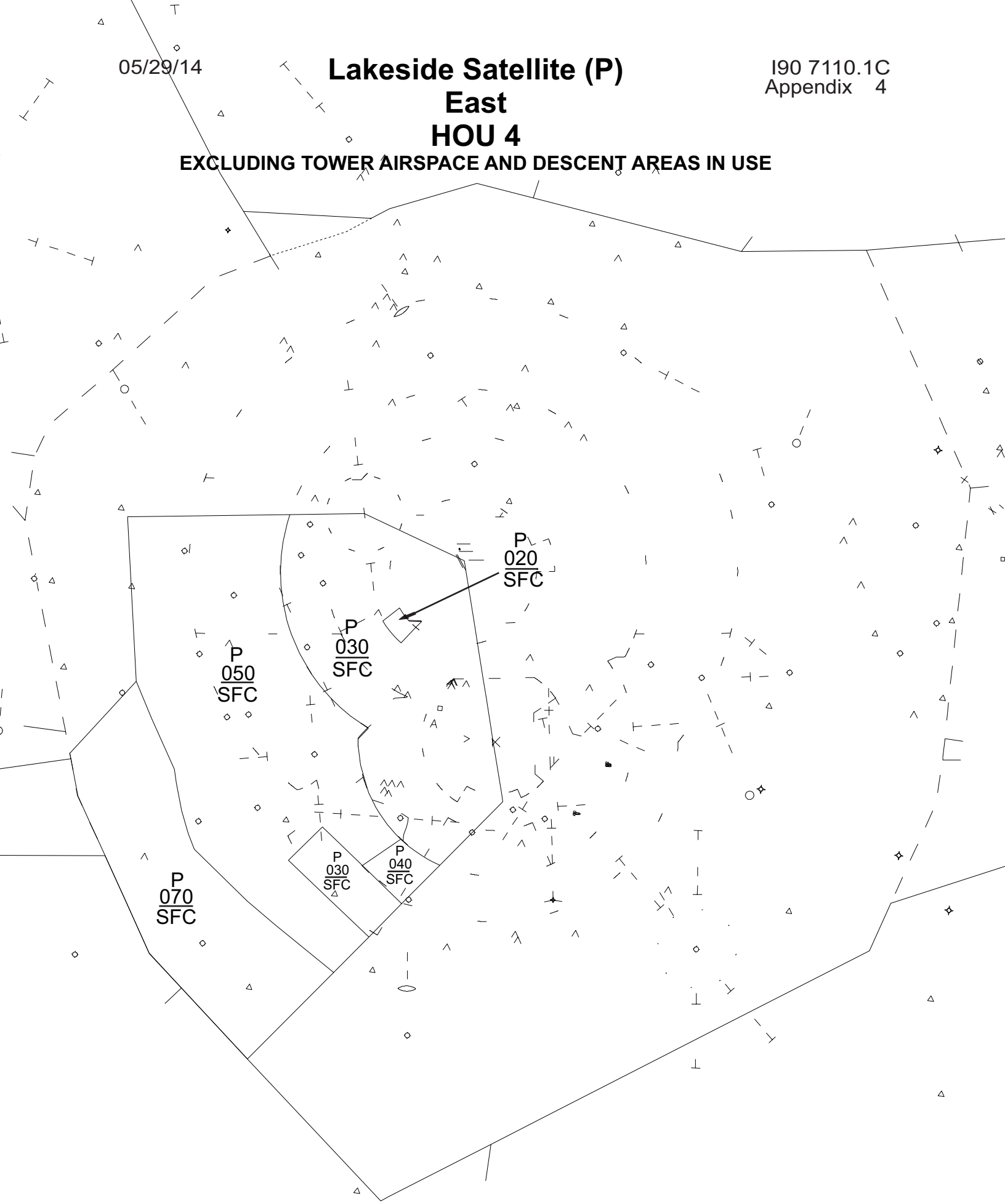
Lakeside Satellite (P)
West 15
HOU 4

EXCLUDING TOWER AIRSPACE AND DESCENT AREAS IN USE



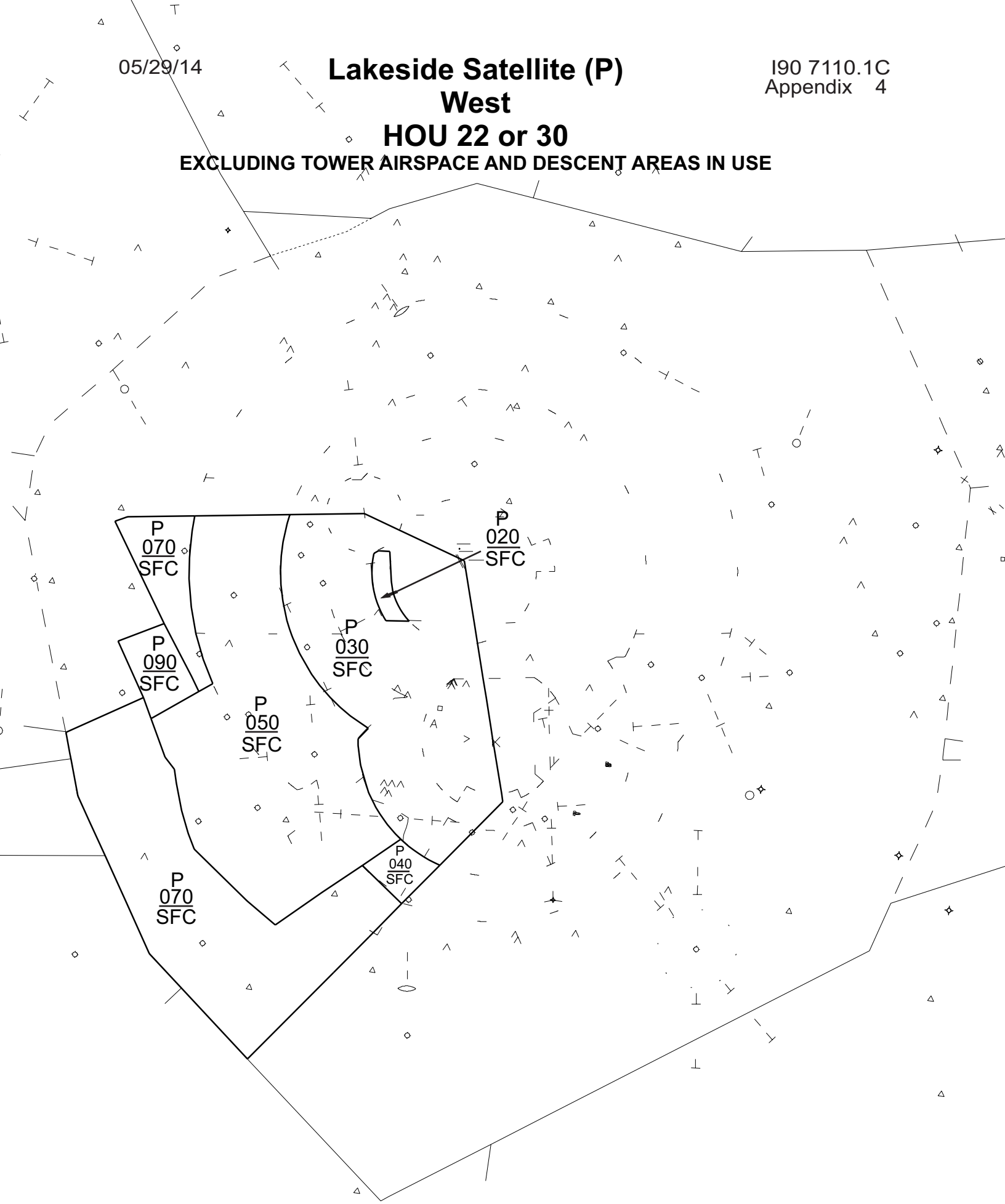
Lakeside Satellite (P)
East
HOU 4

EXCLUDING TOWER AIRSPACE AND DESCENT AREAS IN USE



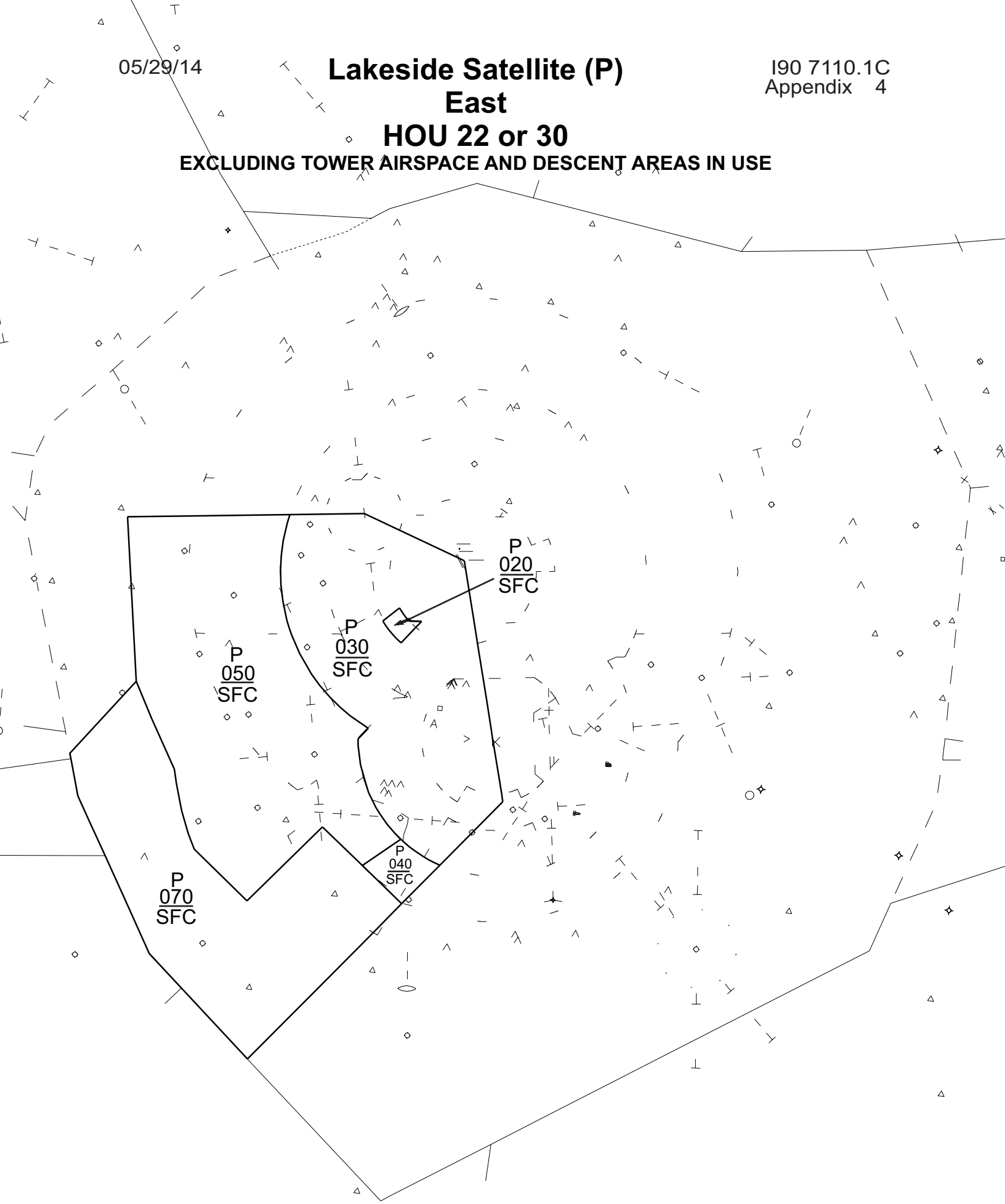
Lakeside Satellite (P)
West
HOU 22 or 30

EXCLUDING TOWER AIRSPACE AND DESCENT AREAS IN USE

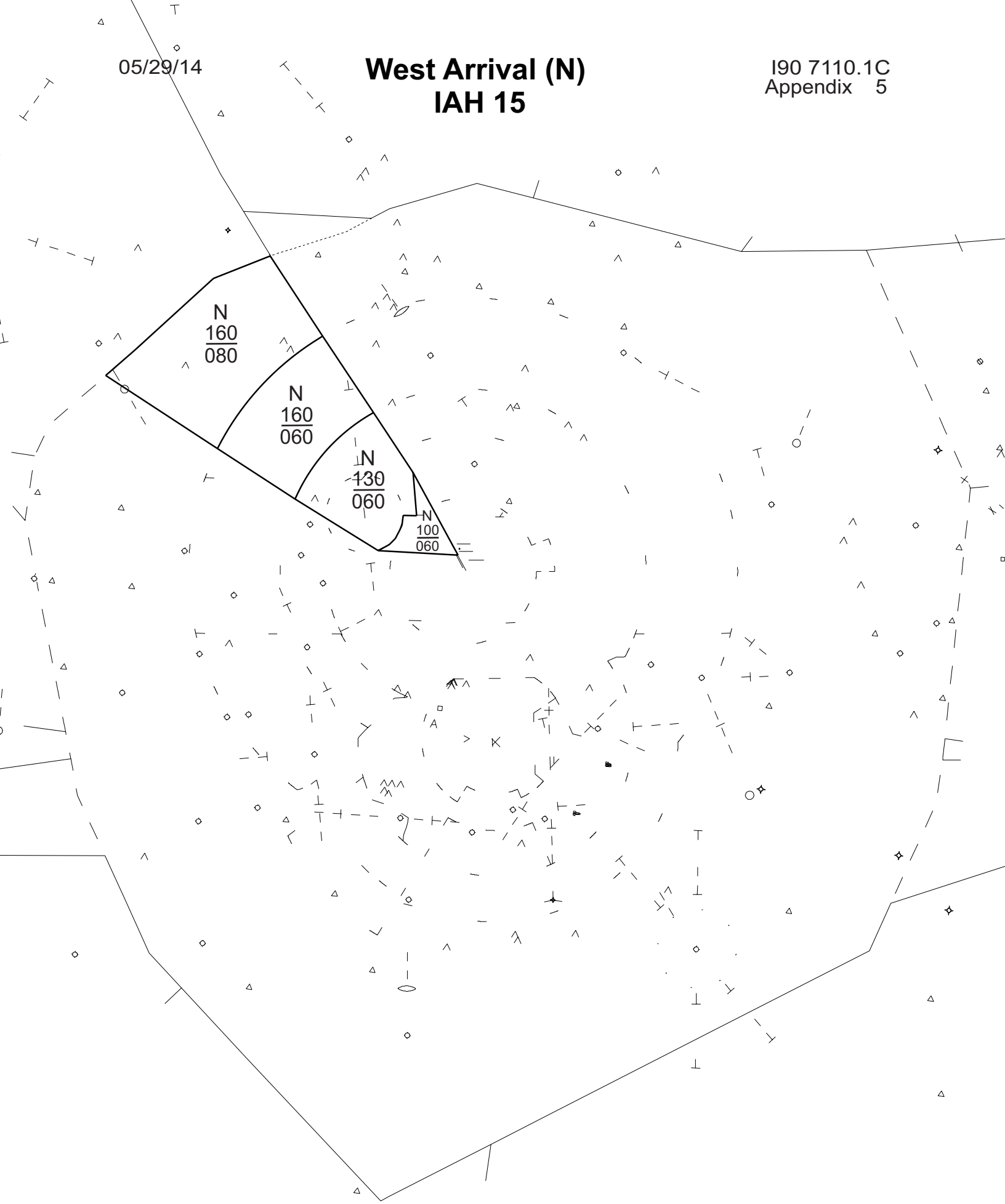


Lakeside Satellite (P)
East
HOU 22 or 30

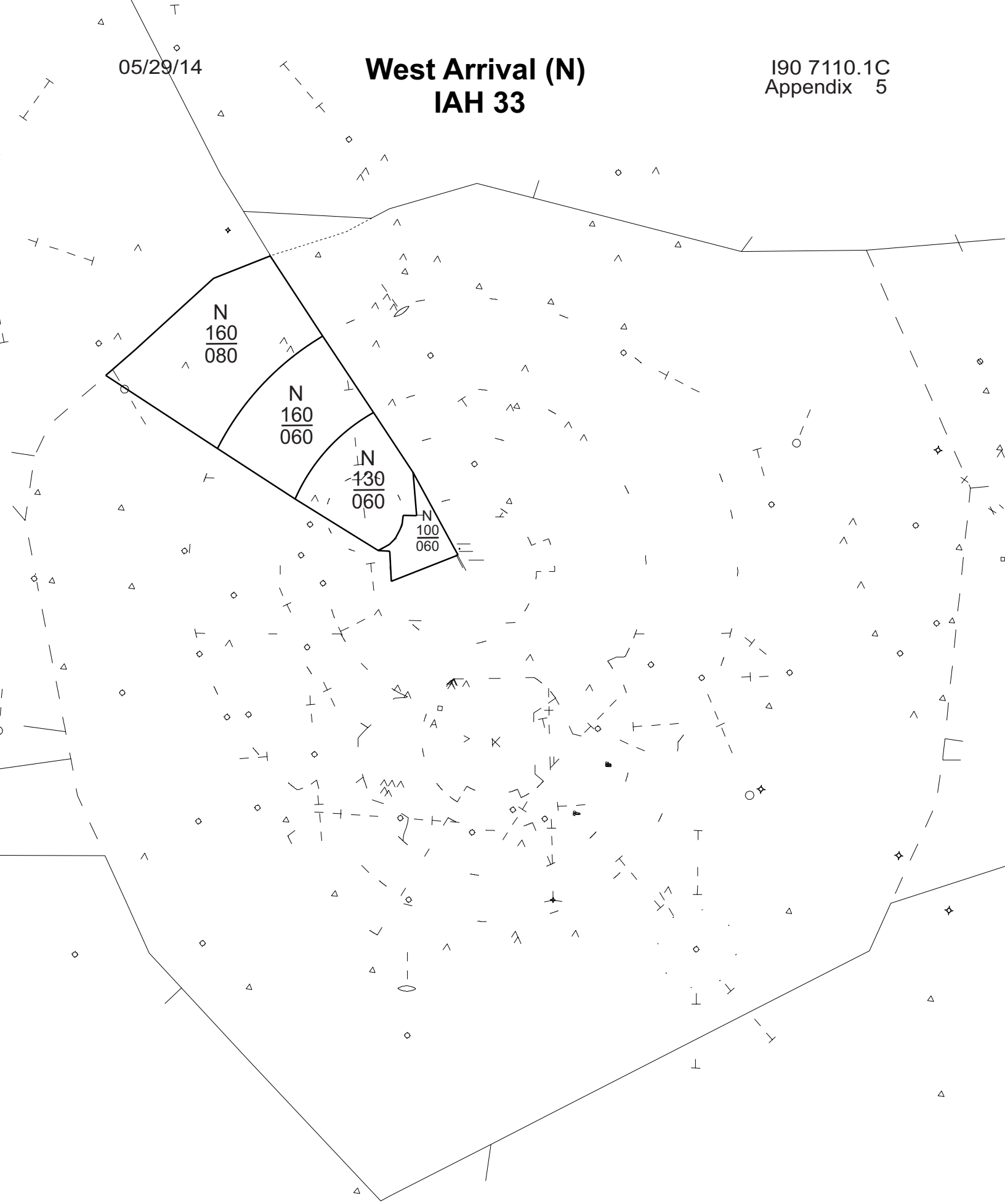
EXCLUDING TOWER AIRSPACE AND DESCENT AREAS IN USE



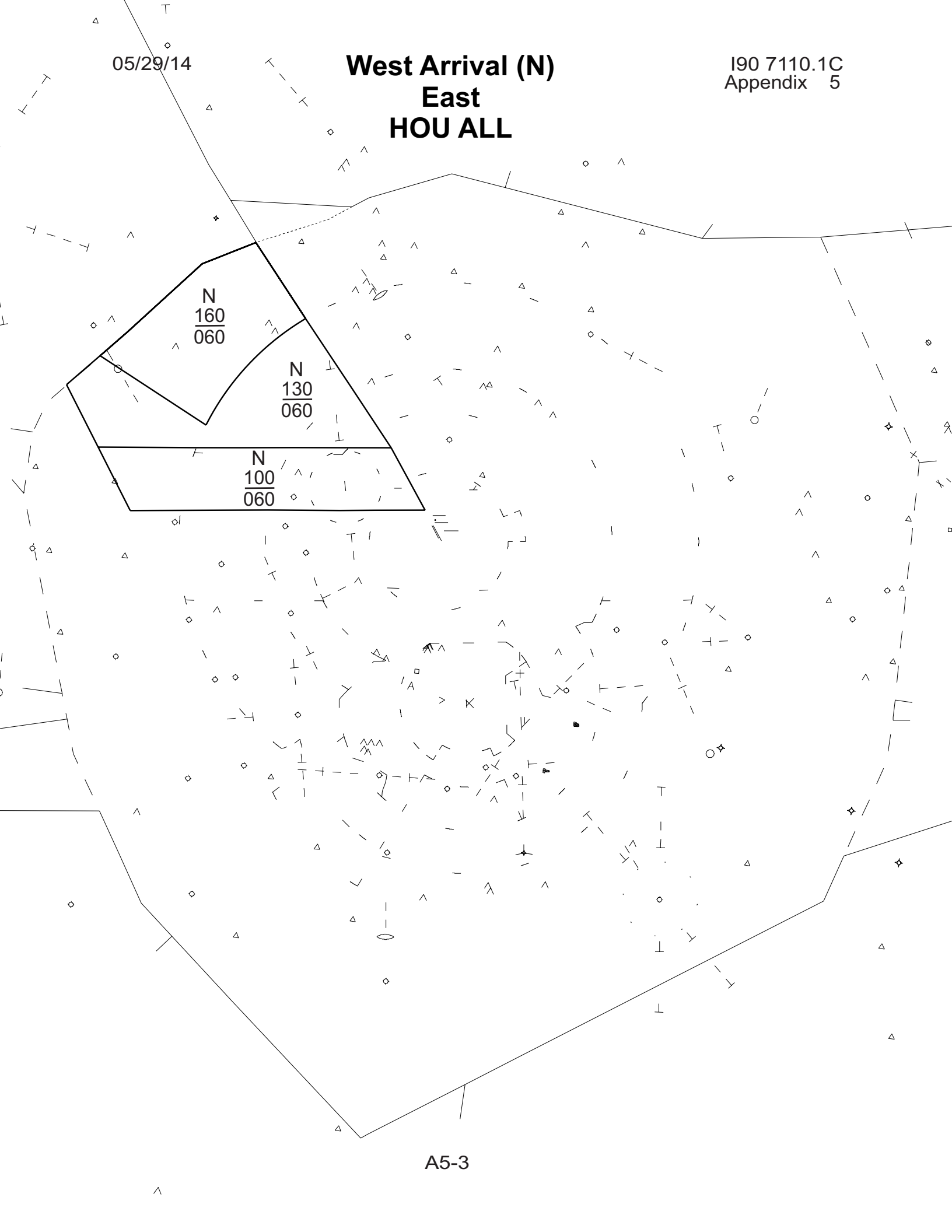
West Arrival (N)
IAH 15



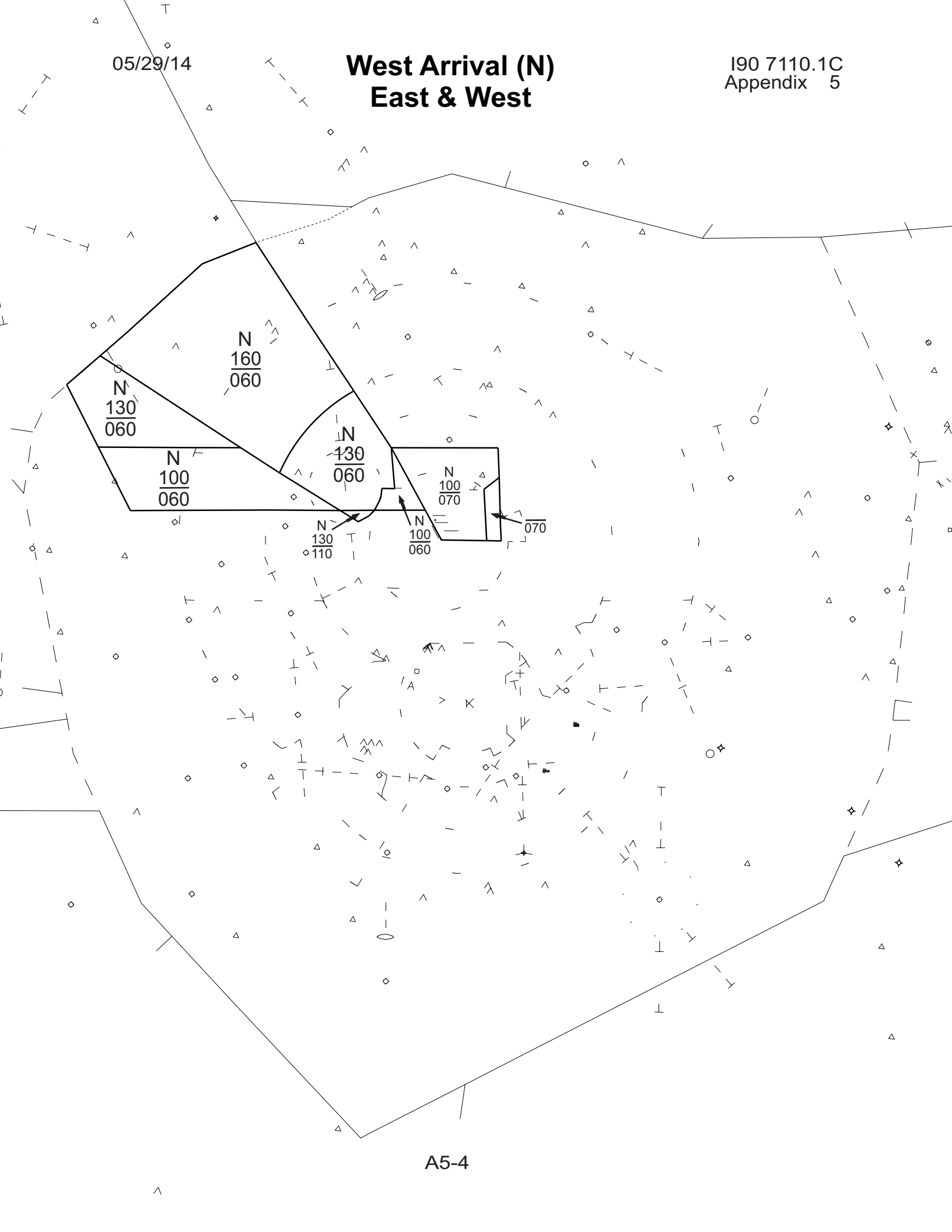
West Arrival (N)
IAH 33



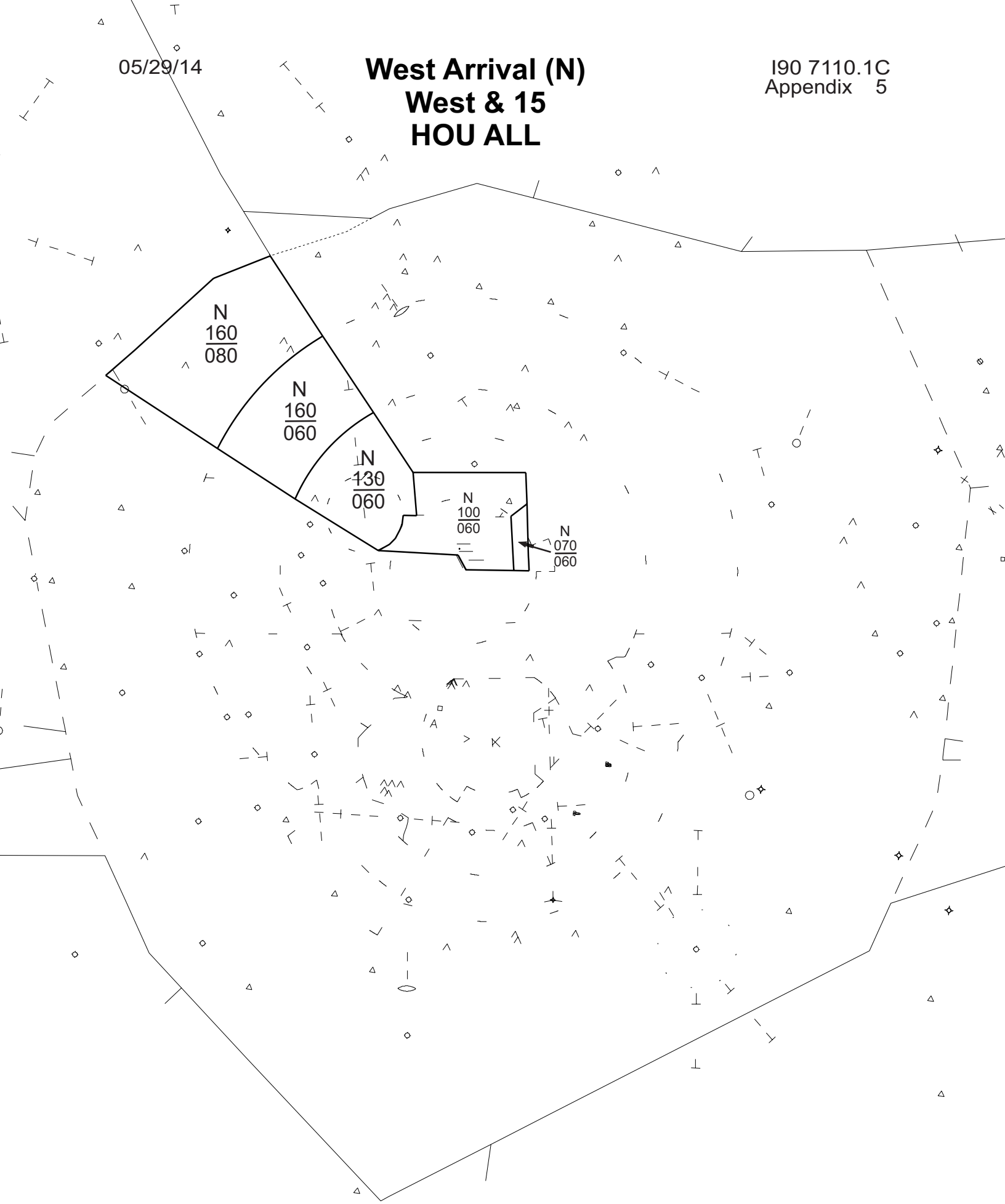
West Arrival (N)
East
HOU ALL



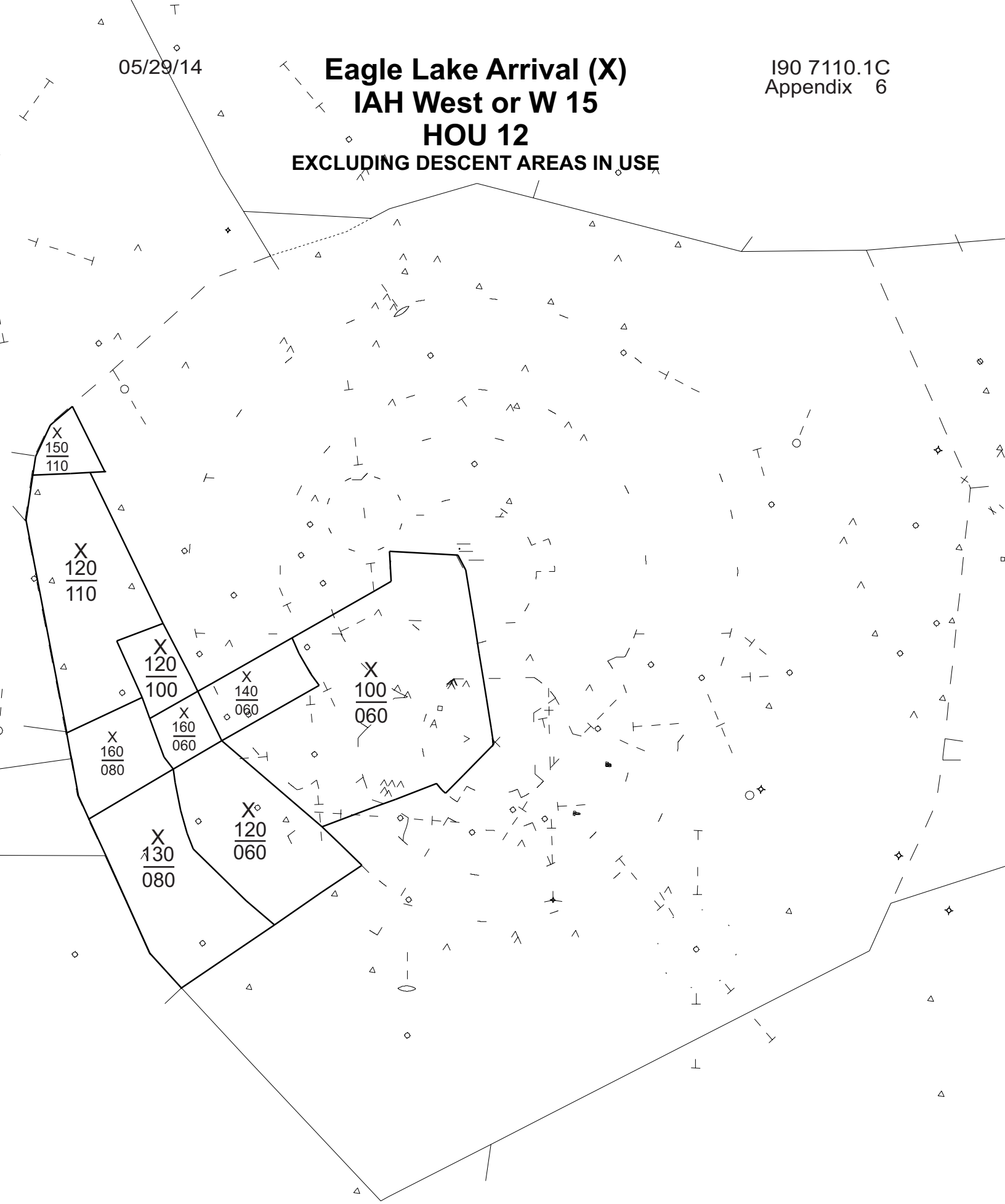
West Arrival (N)
East & West



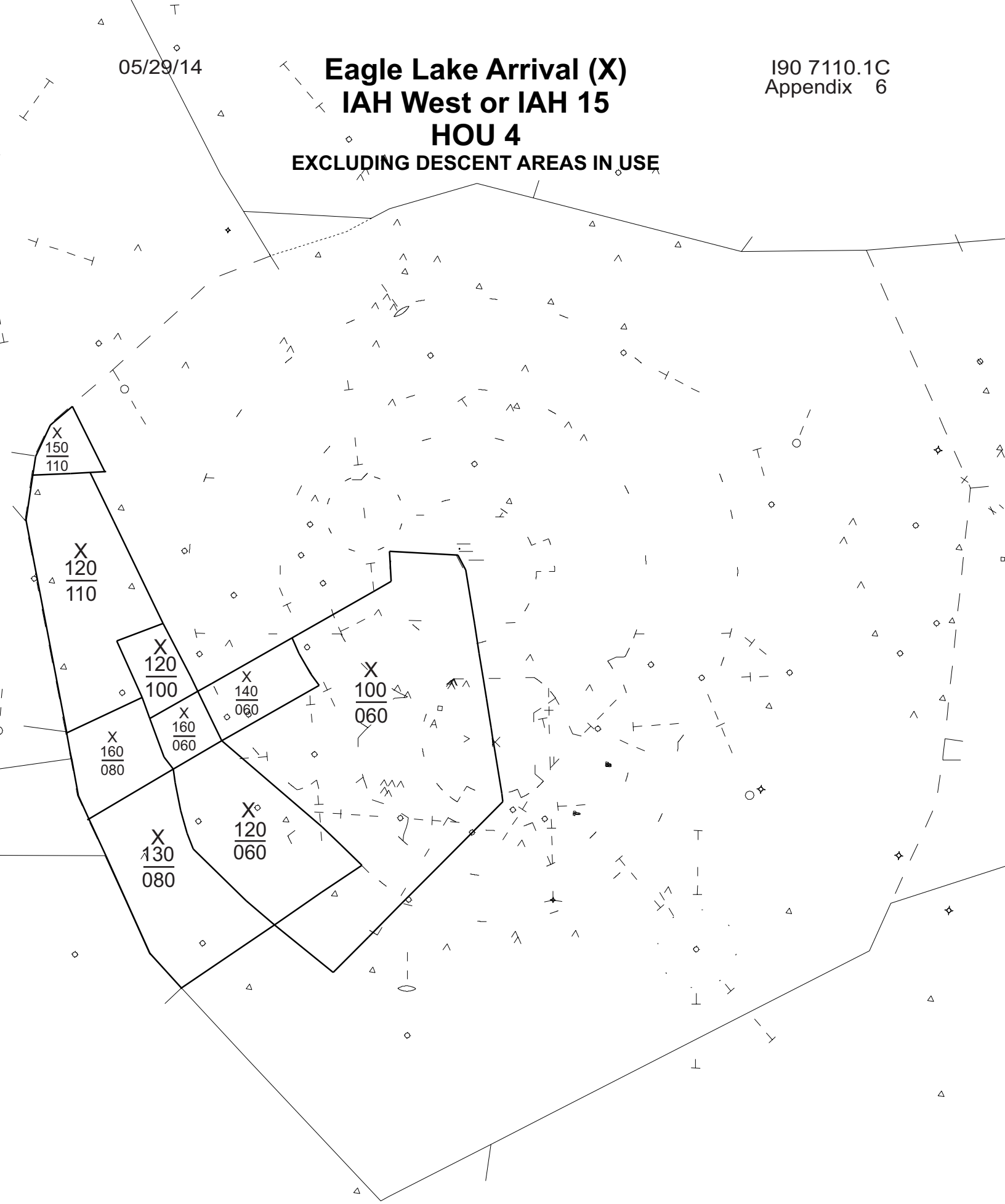
West Arrival (N)
West & 15
HOU ALL



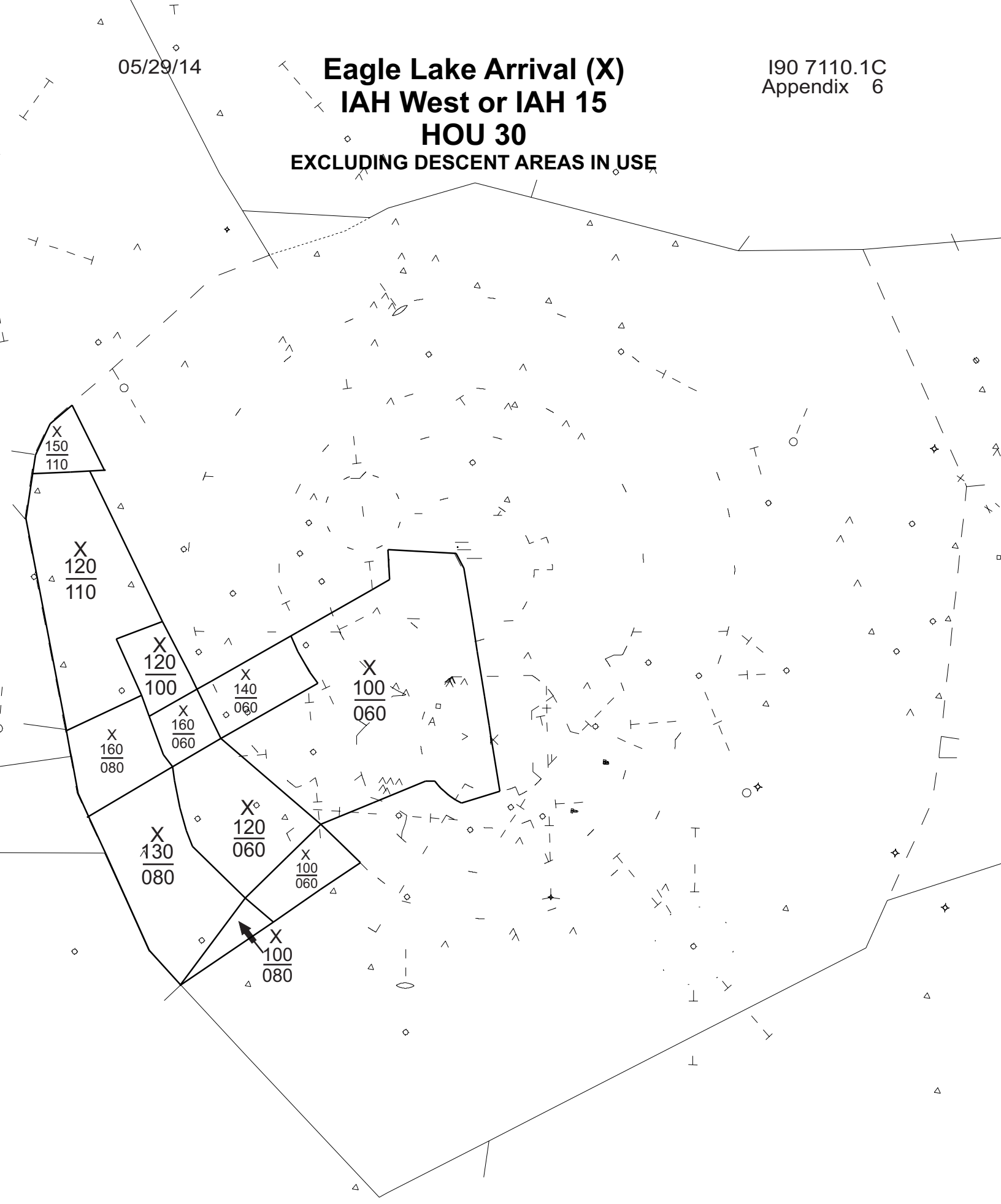
Eagle Lake Arrival (X)
IAH West or W 15
HOU 12
EXCLUDING DESCENT AREAS IN USE



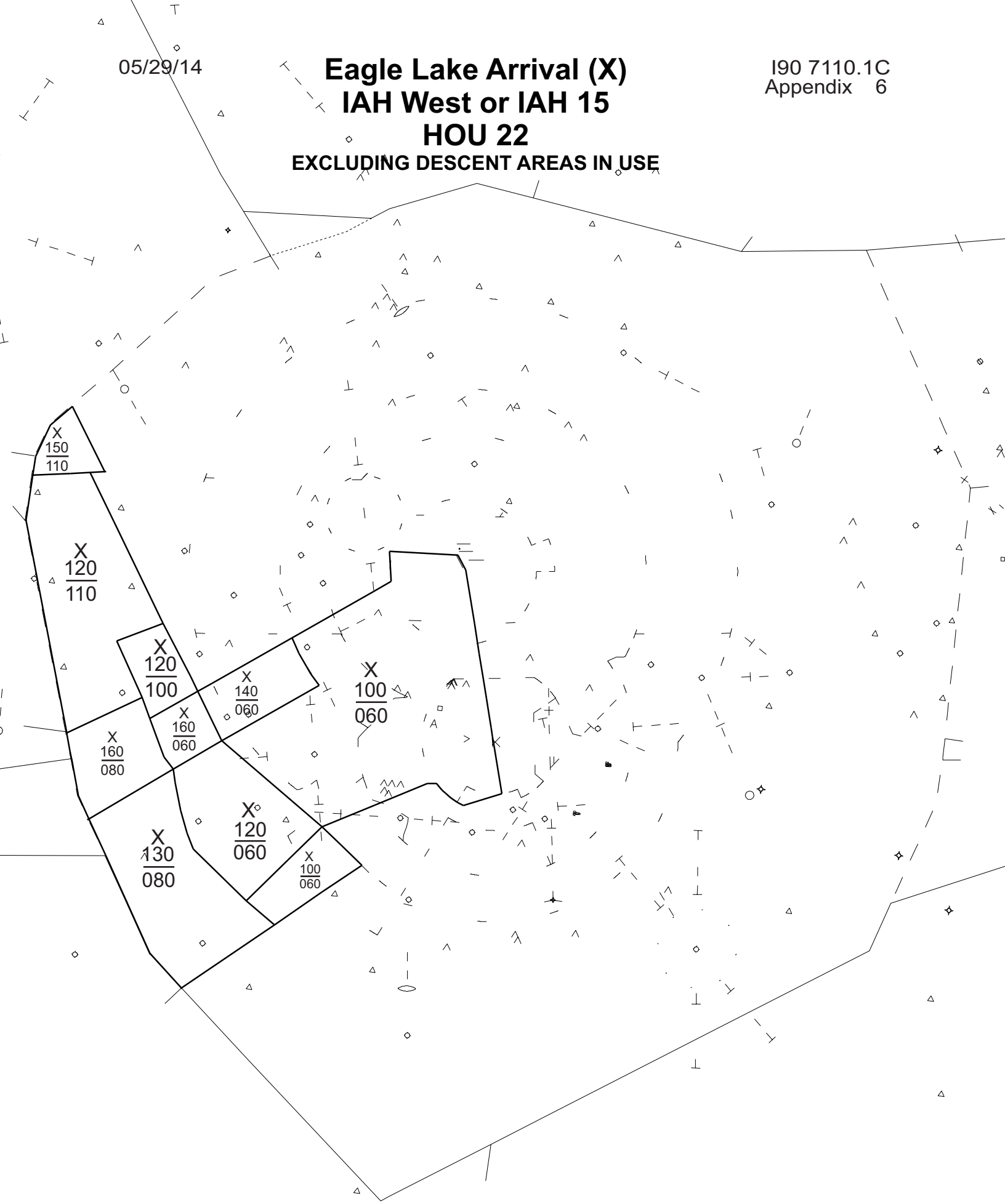
Eagle Lake Arrival (X)
IAH West or IAH 15
HOU 4
EXCLUDING DESCENT AREAS IN USE



Eagle Lake Arrival (X)
IAH West or IAH 15
HOU 30
EXCLUDING DESCENT AREAS IN USE

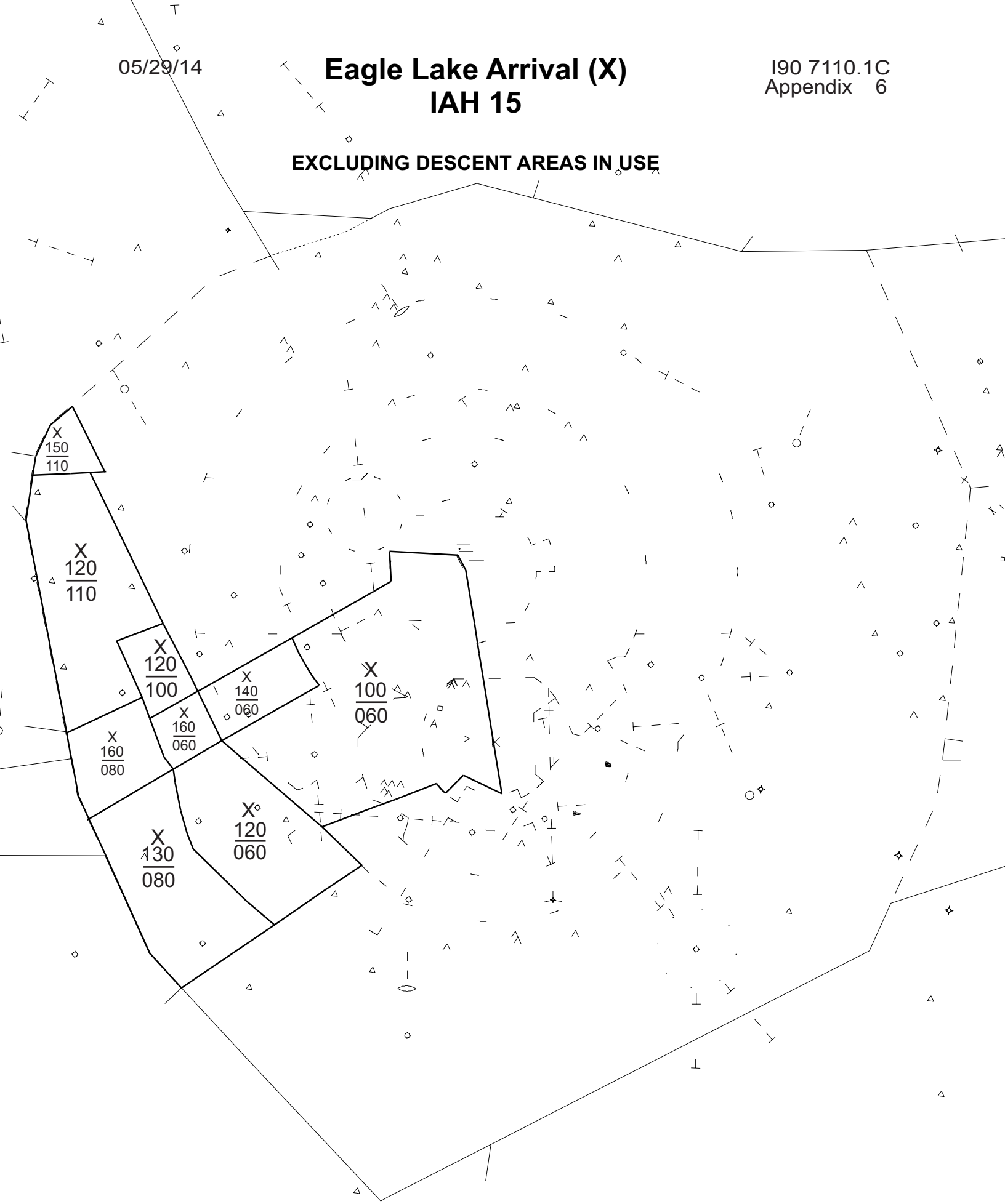


Eagle Lake Arrival (X)
IAH West or IAH 15
HOU 22
EXCLUDING DESCENT AREAS IN USE



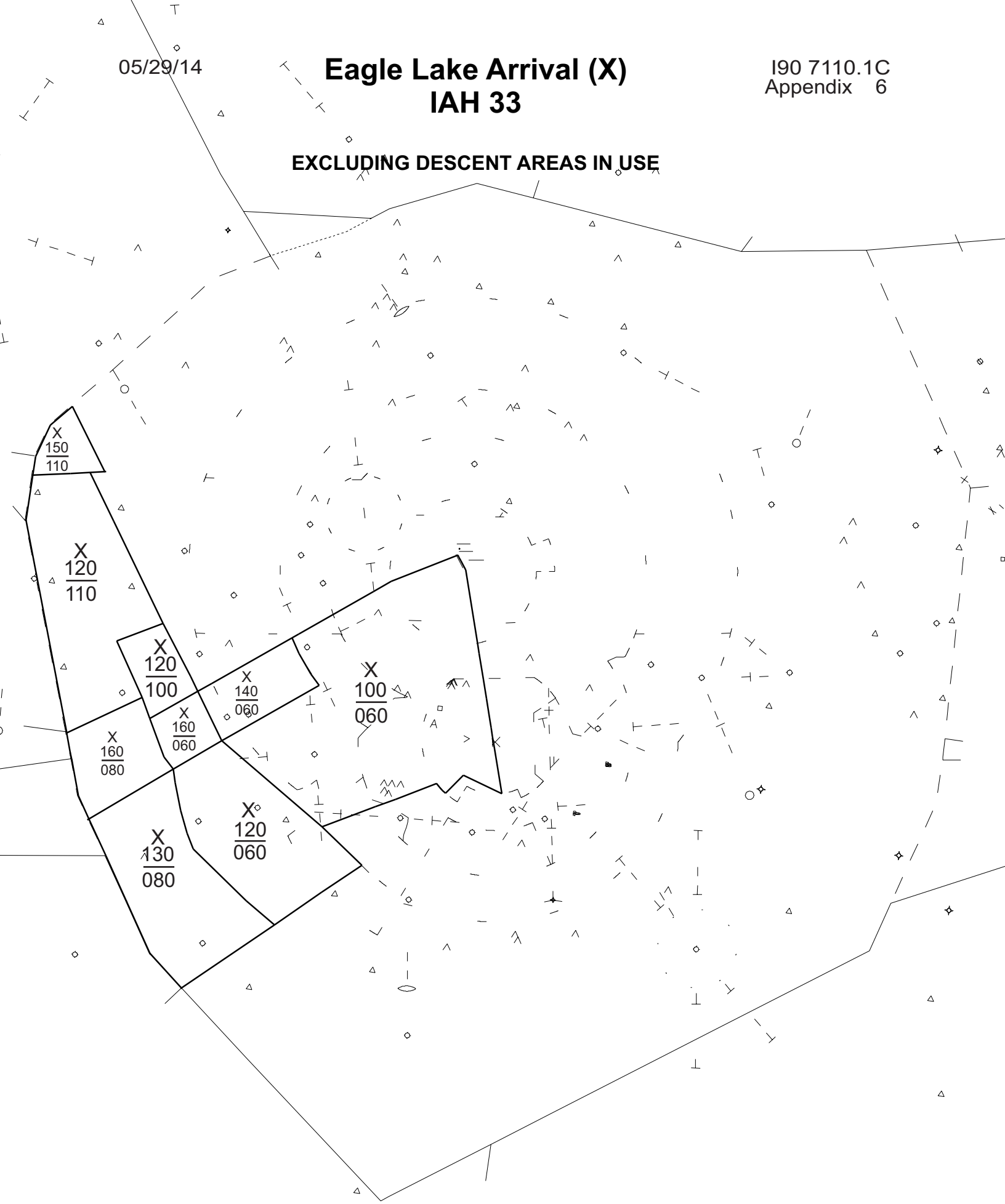
Eagle Lake Arrival (X)
IAH 15

EXCLUDING DESCENT AREAS IN USE

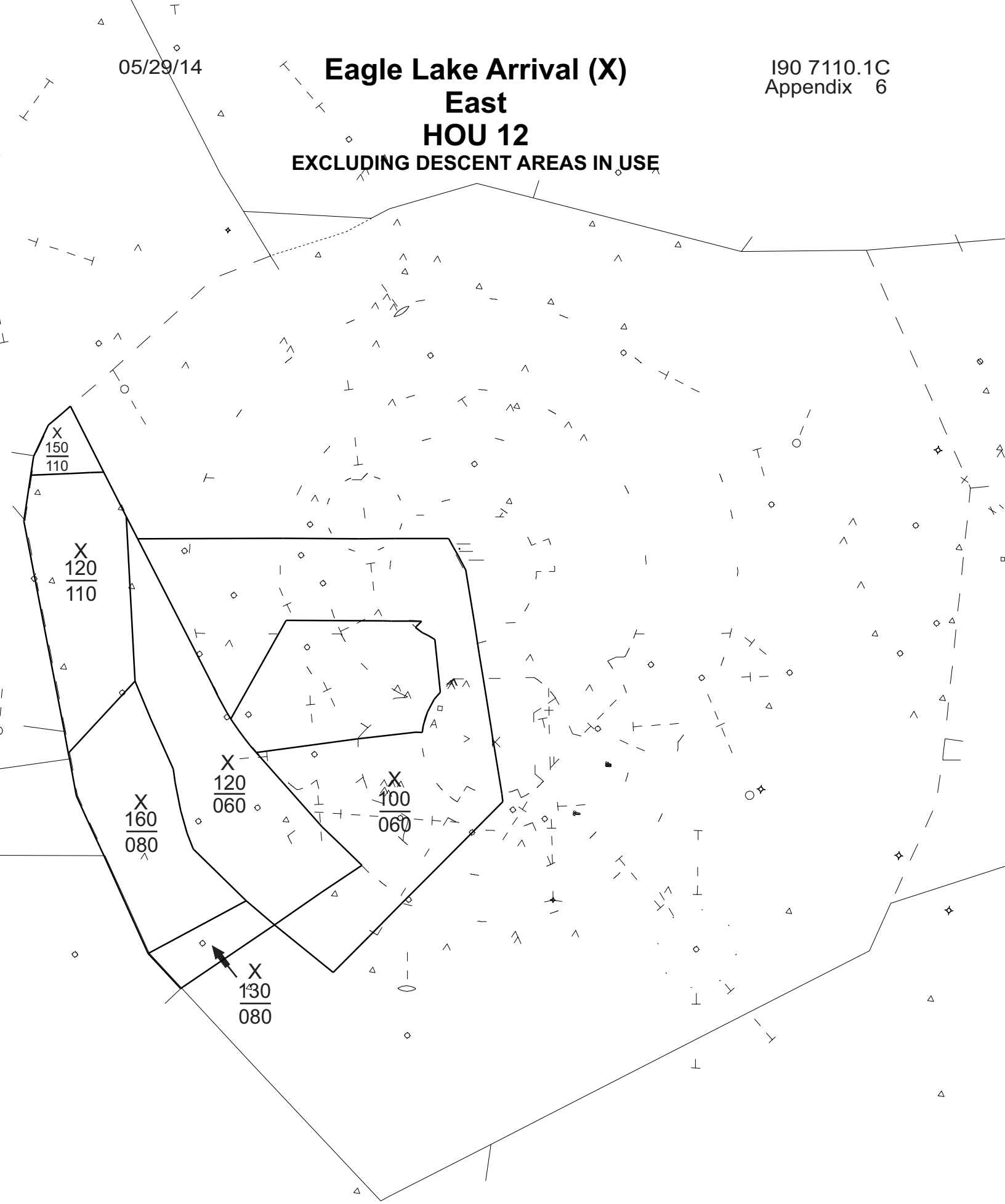


Eagle Lake Arrival (X)
IAH 33

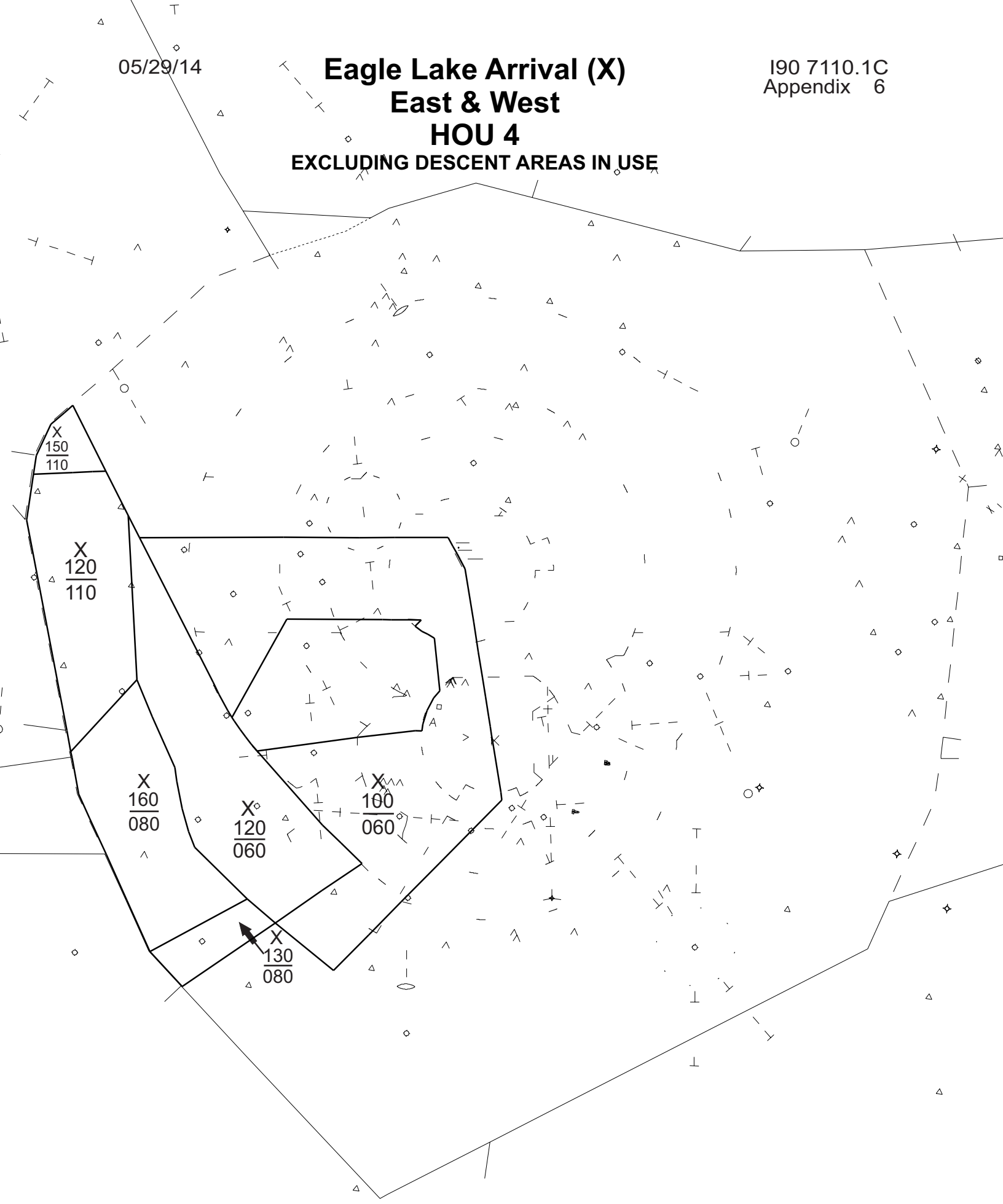
EXCLUDING DESCENT AREAS IN USE



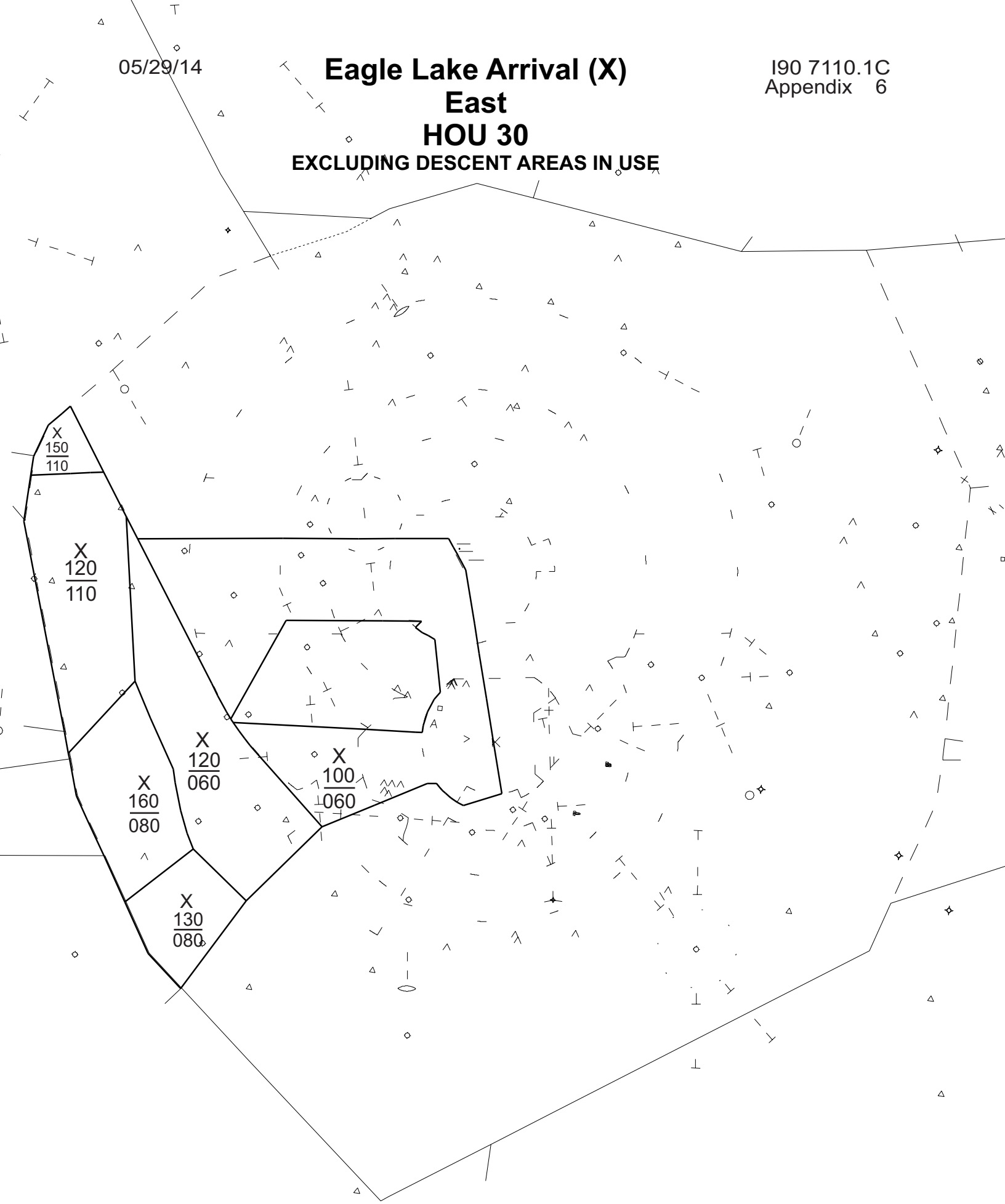
Eagle Lake Arrival (X)
East
HOU 12
EXCLUDING DESCENT AREAS IN USE



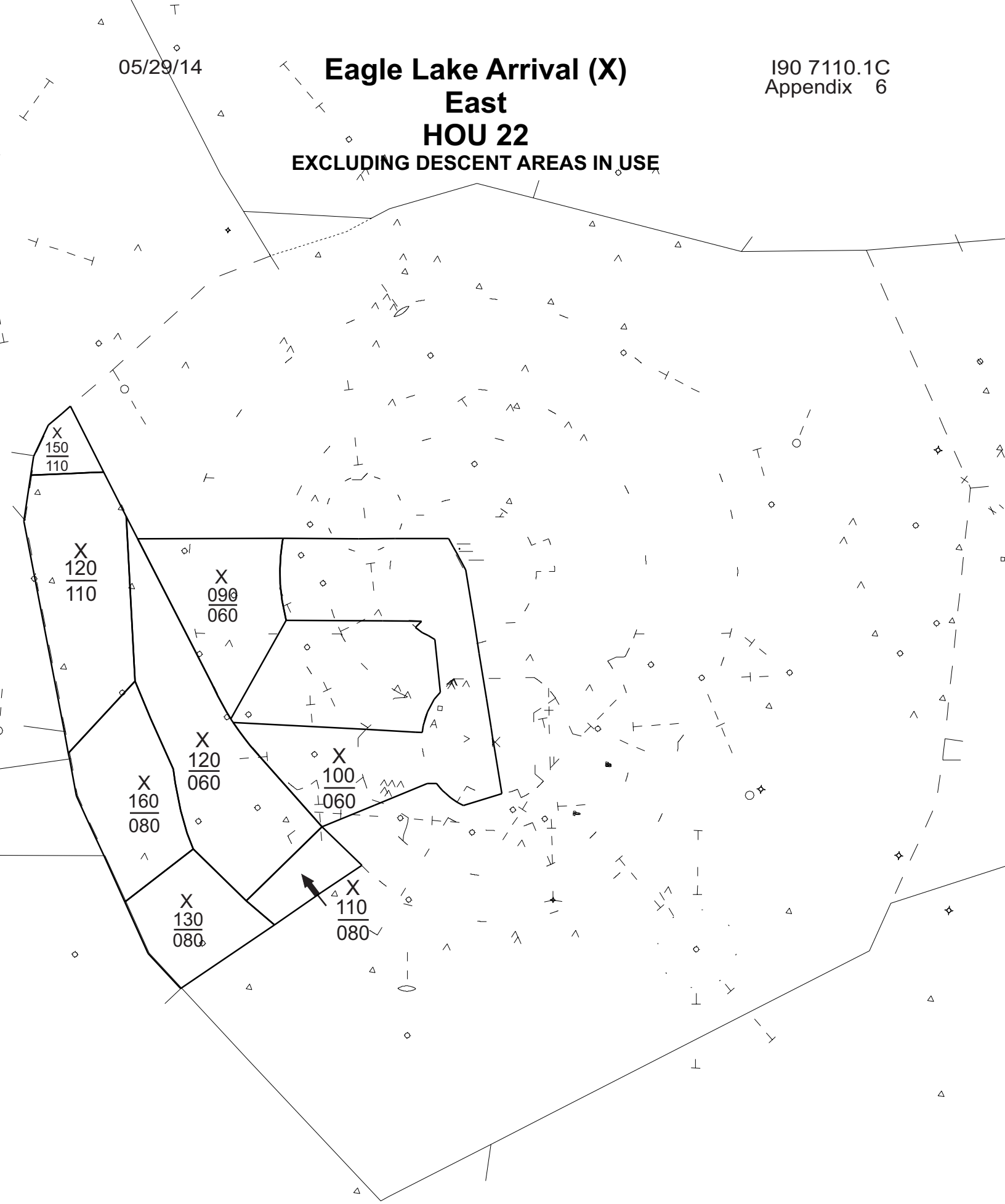
Eagle Lake Arrival (X)
East & West
HOU 4
EXCLUDING DESCENT AREAS IN USE



Eagle Lake Arrival (X)
East
HOU 30
EXCLUDING DESCENT AREAS IN USE

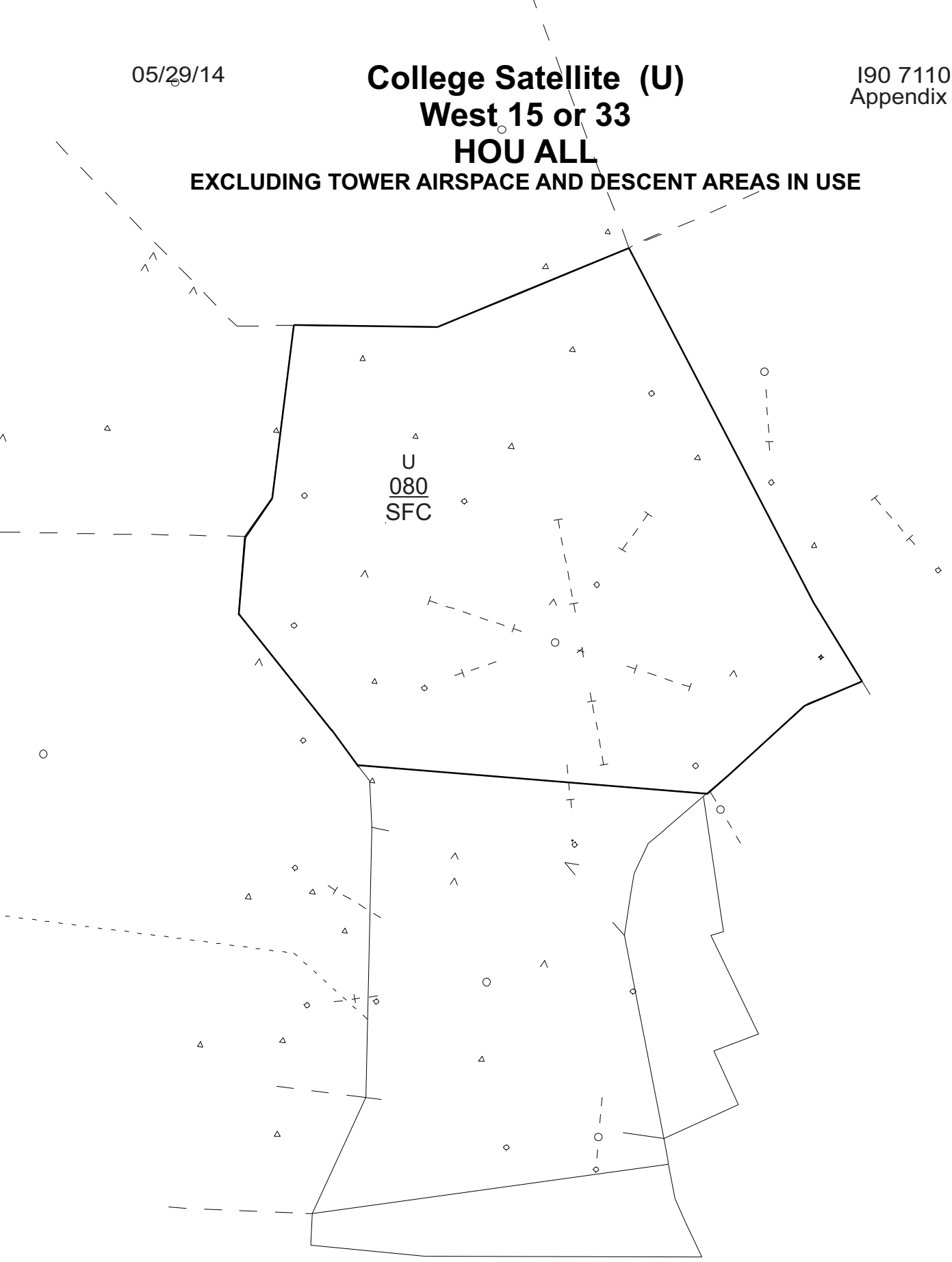


Eagle Lake Arrival (X)
East
HOU 22
EXCLUDING DESCENT AREAS IN USE

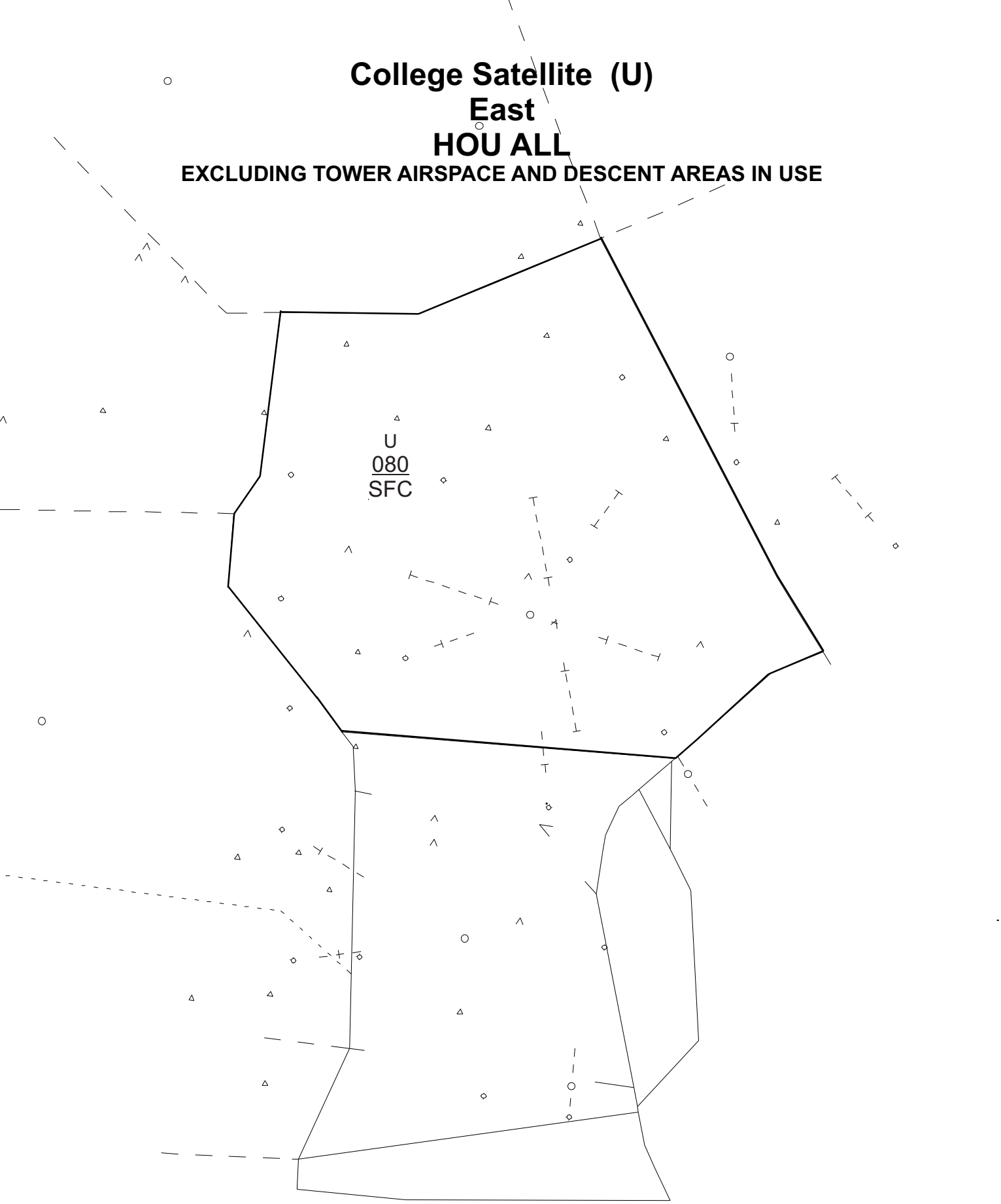


College Satellite (U)
West 15 or 33
HOU ALL

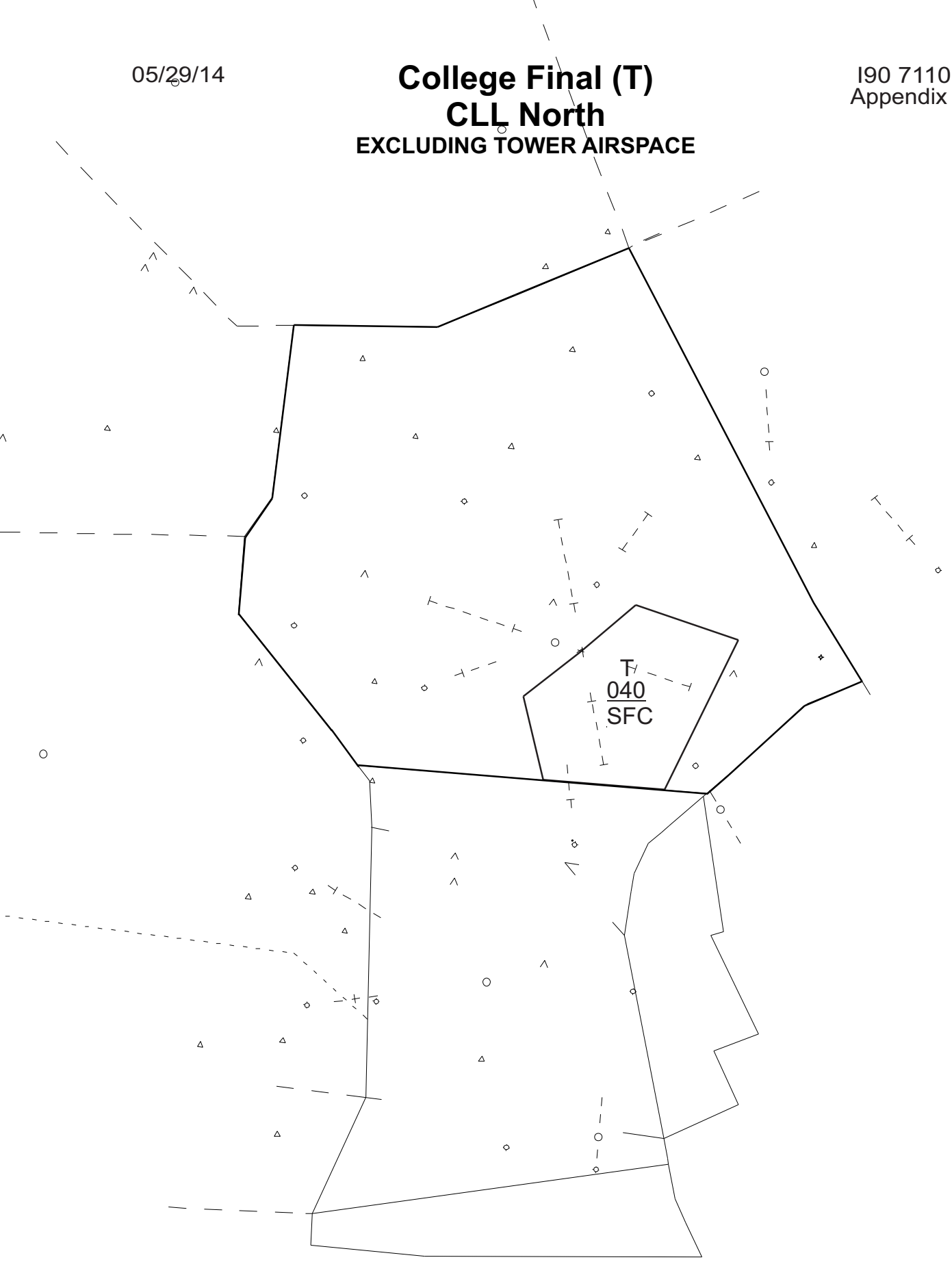
EXCLUDING TOWER AIRSPACE AND DESCENT AREAS IN USE



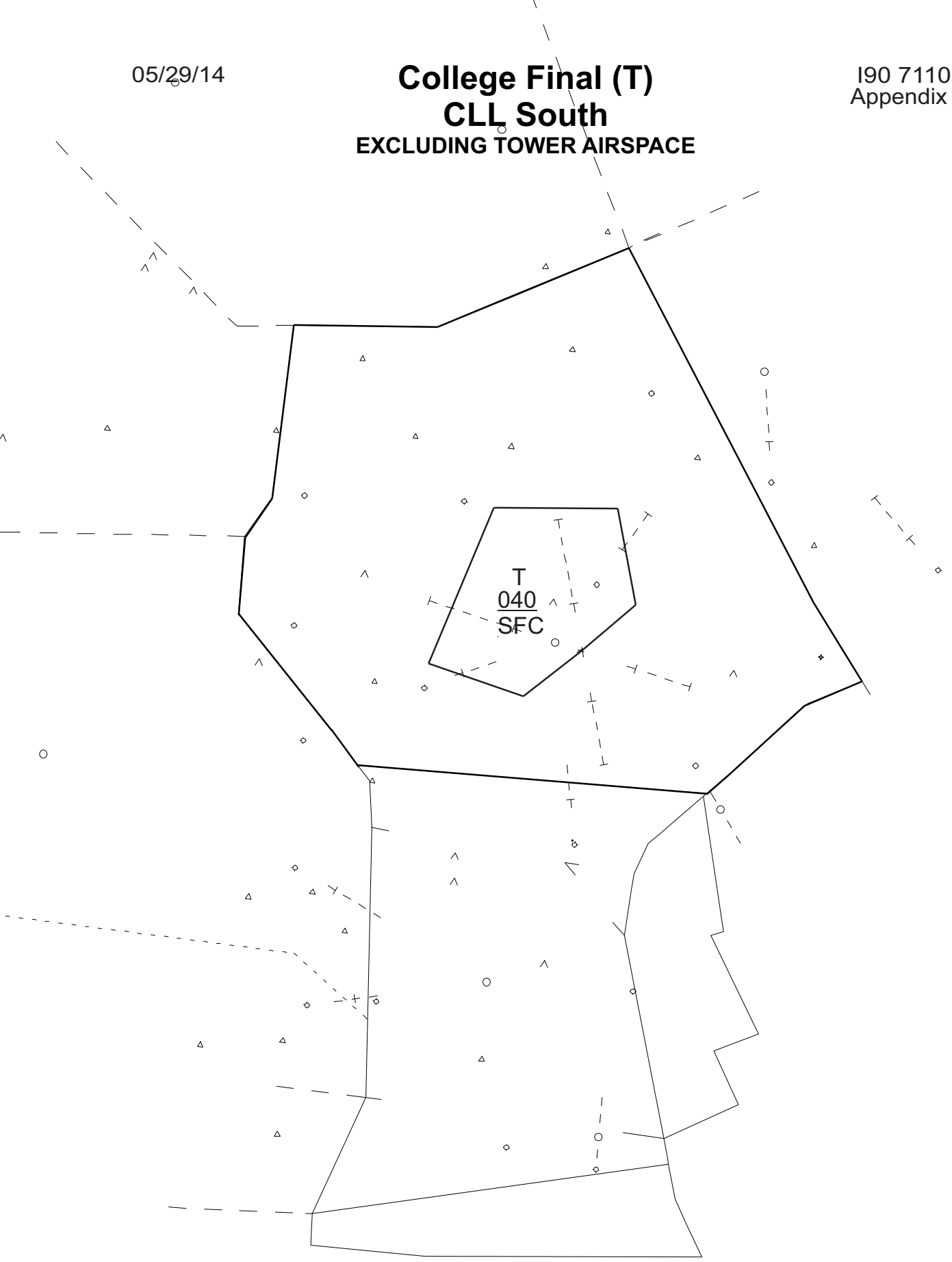
College Satellite (U)
East
HOU ALL
EXCLUDING TOWER AIRSPACE AND DESCENT AREAS IN USE



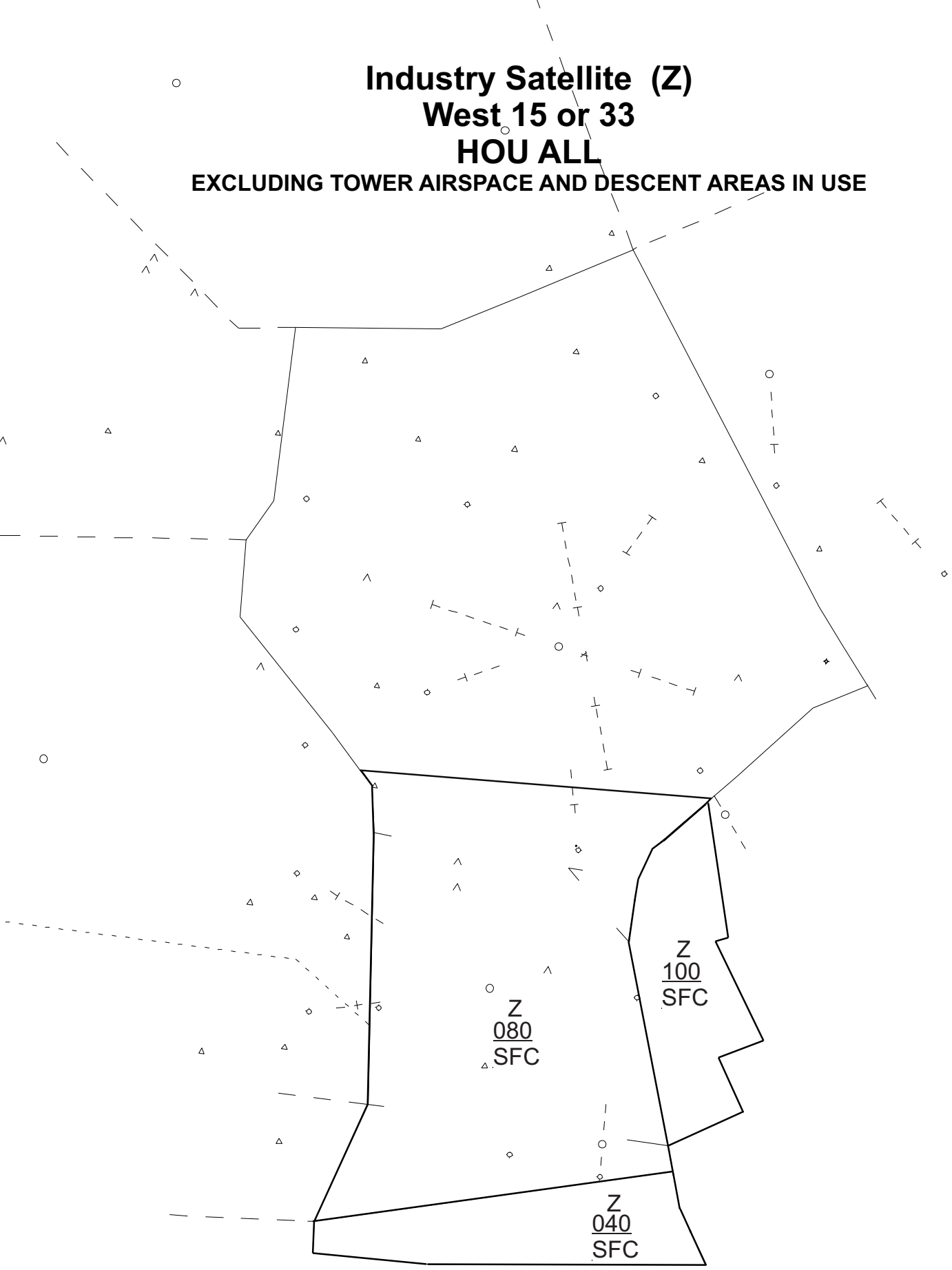
College Final (T)
CLL North
EXCLUDING TOWER AIRSPACE



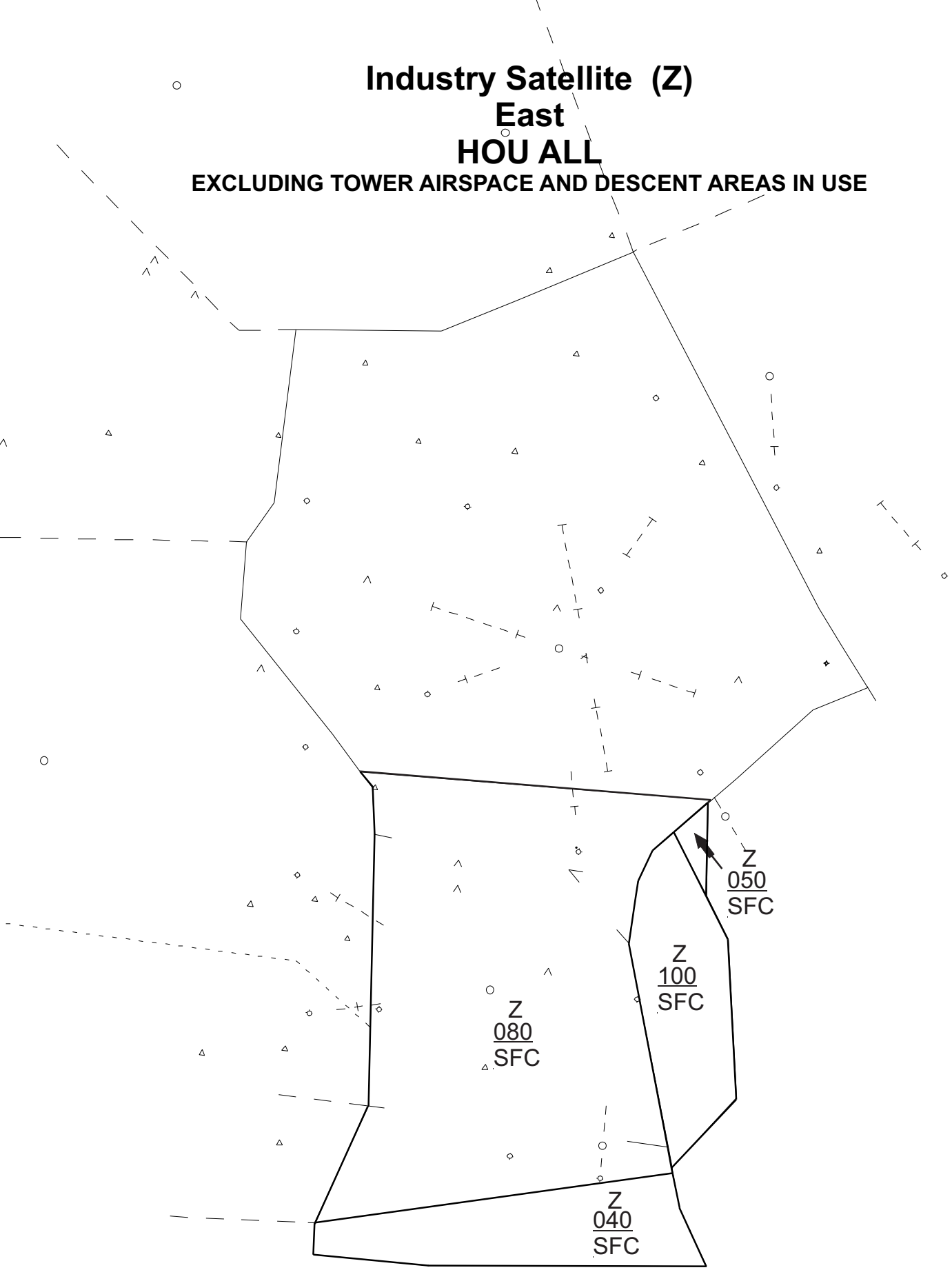
College Final (T)
CLL South
EXCLUDING TOWER AIRSPACE



Industry Satellite (Z)
West 15 or 33
HOU ALL
EXCLUDING TOWER AIRSPACE AND DESCENT AREAS IN USE

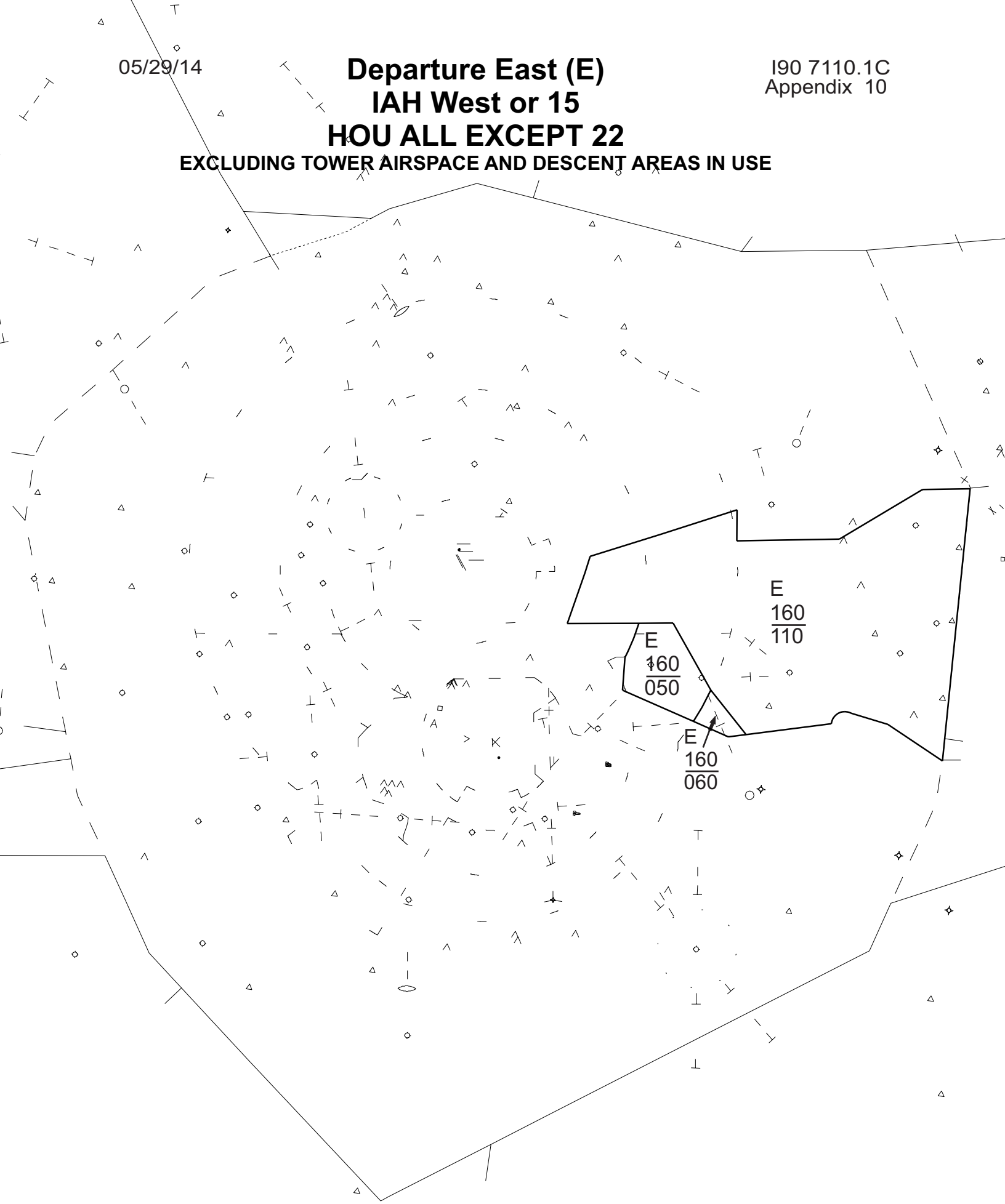


Industry Satellite (Z)
East
HOU ALL
EXCLUDING TOWER AIRSPACE AND DESCENT AREAS IN USE



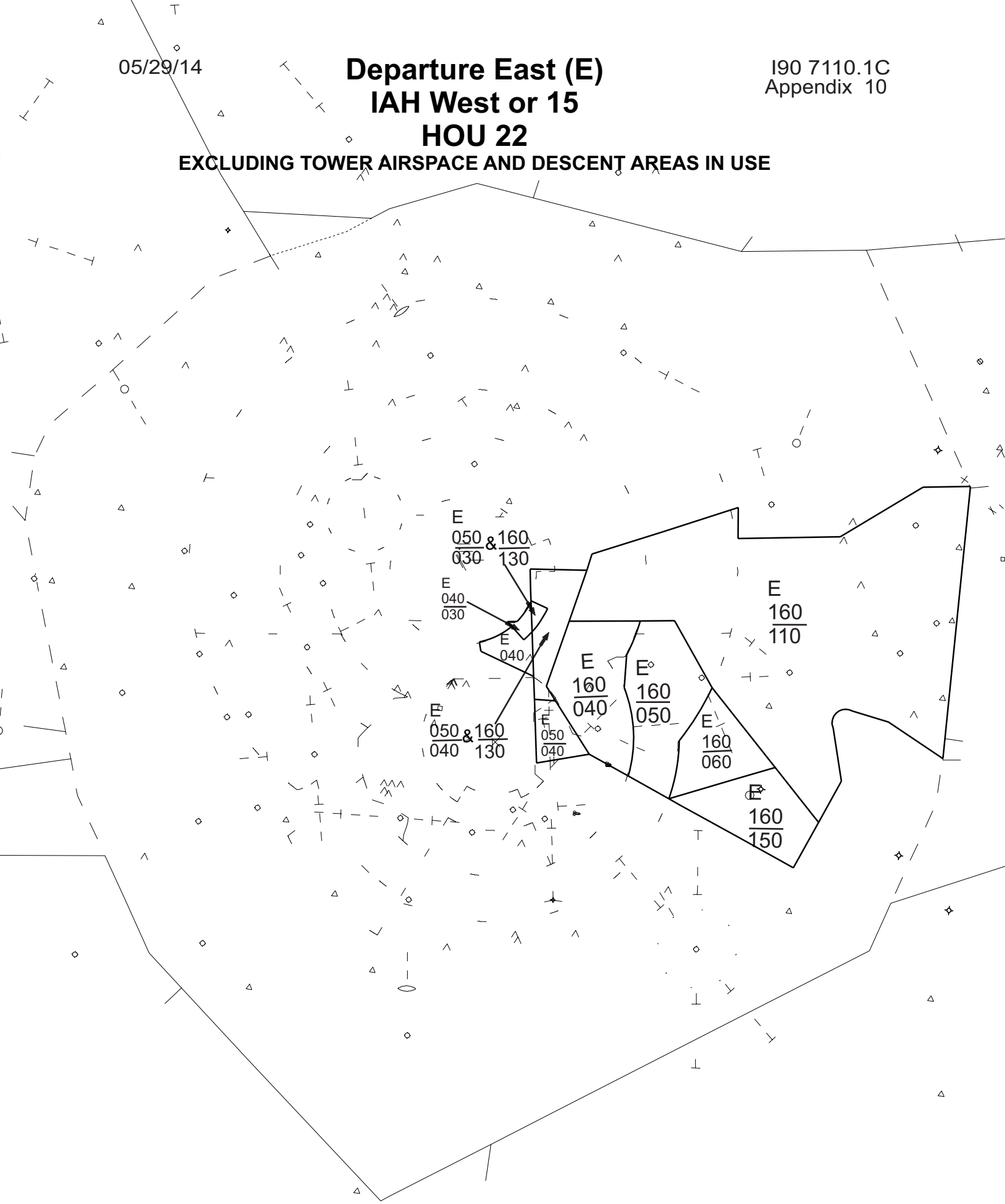
Departure East (E)
IAH West or 15
HOU ALL EXCEPT 22

EXCLUDING TOWER AIRSPACE AND DESCENT AREAS IN USE



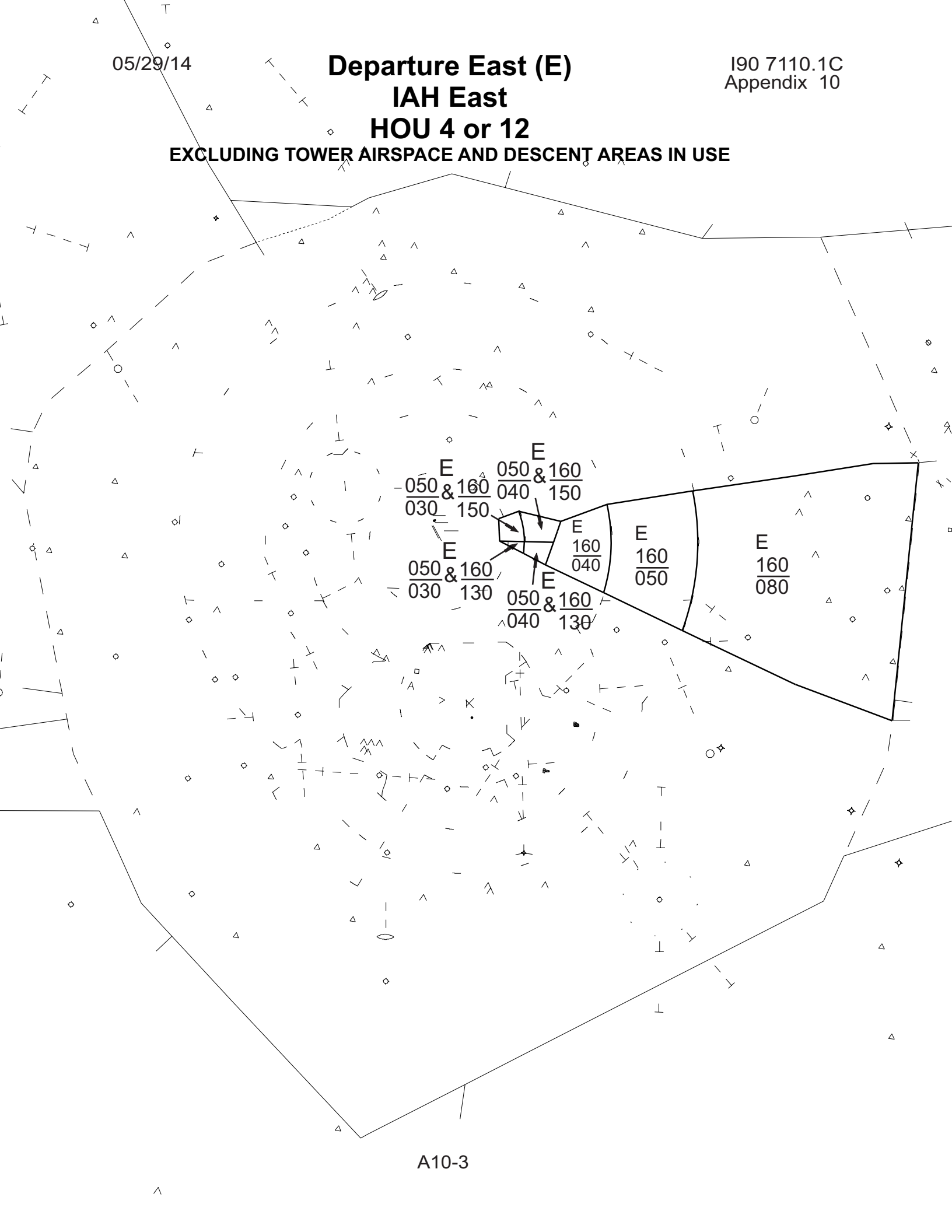
Departure East (E)
IAH West or 15
HOU 22

EXCLUDING TOWER AIRSPACE AND DESCENT AREAS IN USE



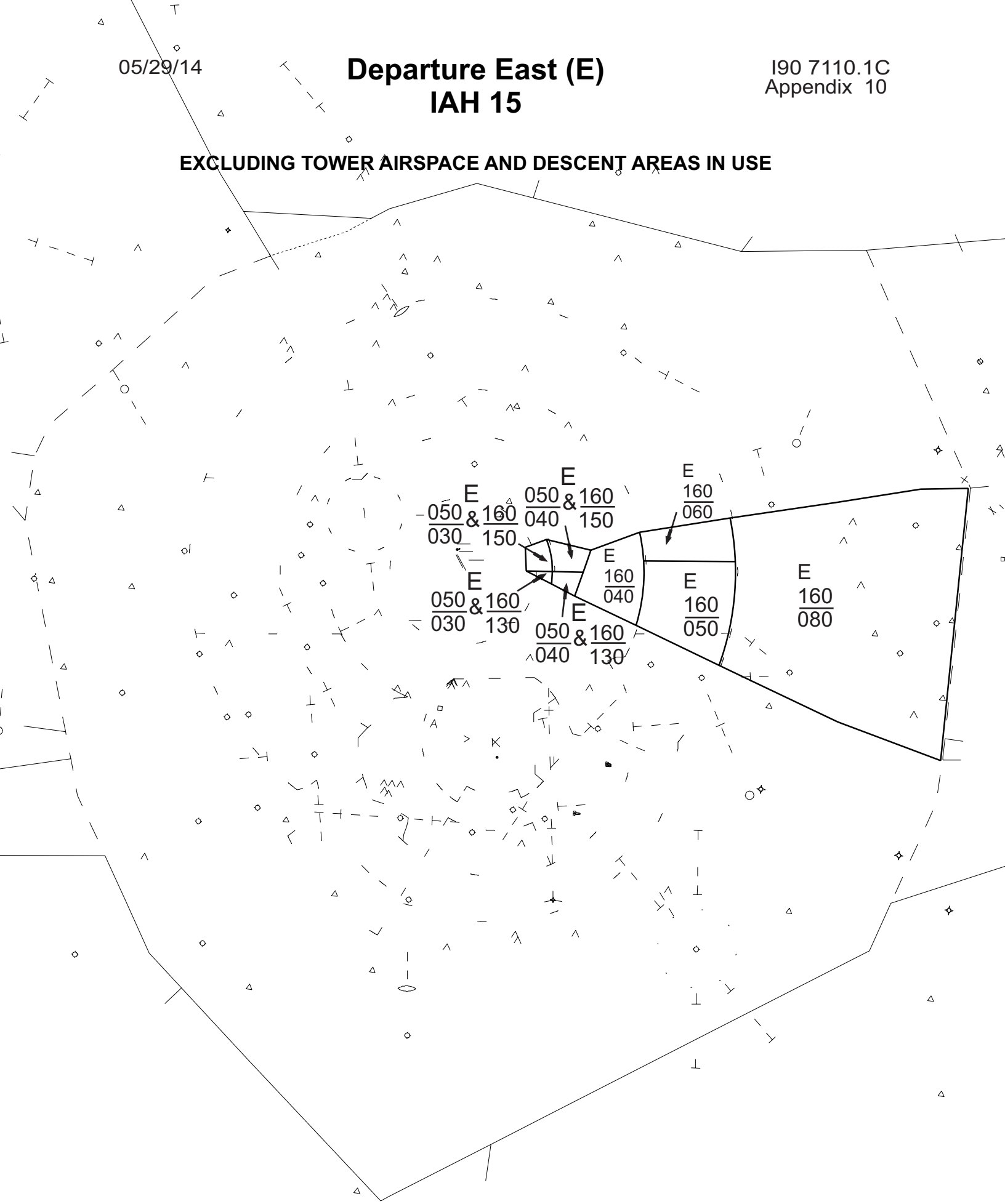
Departure East (E)
IAH East
HOU 4 or 12

EXCLUDING TOWER AIRSPACE AND DESCENT AREAS IN USE



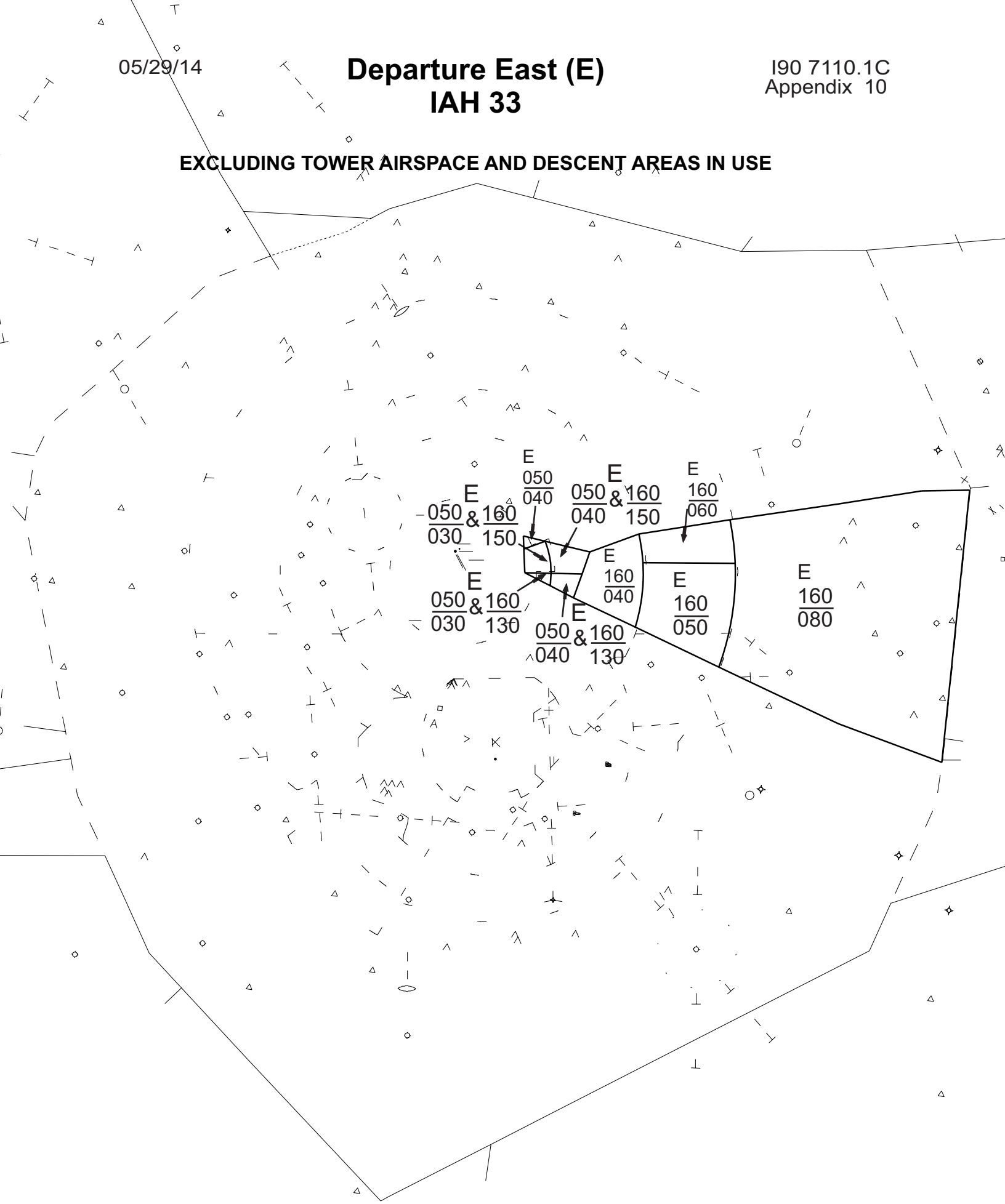
Departure East (E)
IAH 15

EXCLUDING TOWER AIRSPACE AND DESCENT AREAS IN USE



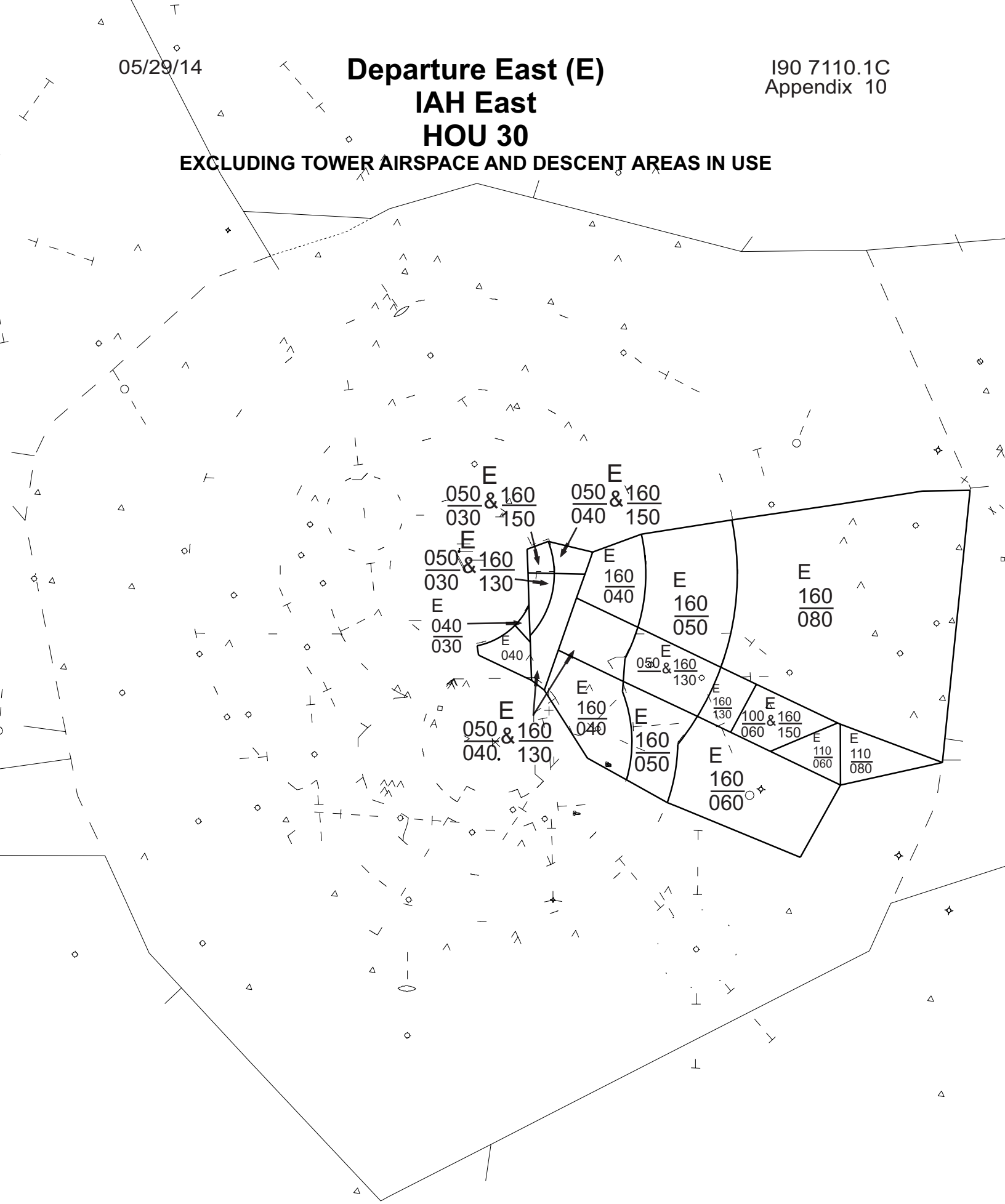
Departure East (E)
IAH 33

EXCLUDING TOWER AIRSPACE AND DESCENT AREAS IN USE



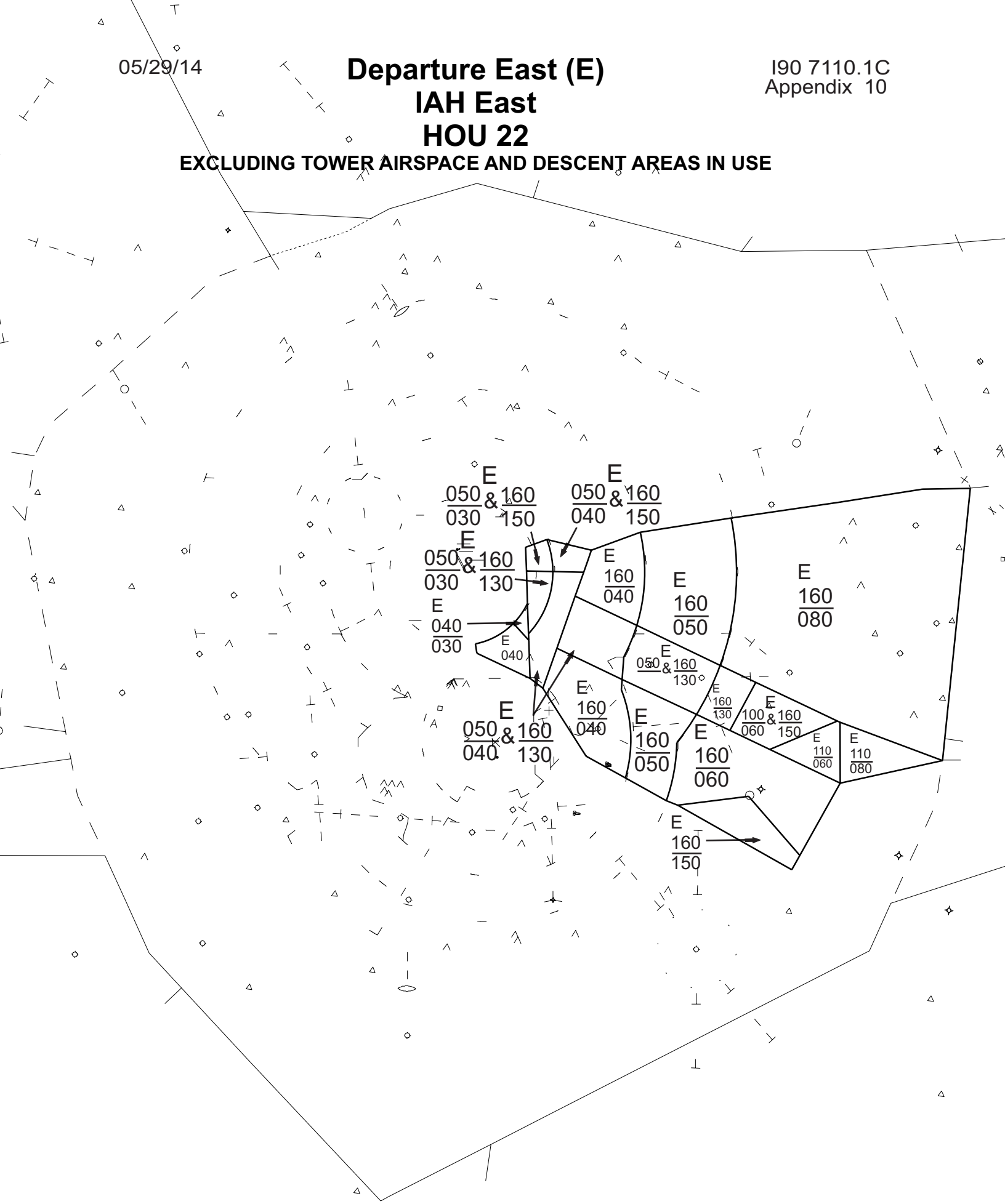
Departure East (E)
IAH East
HOU 30

EXCLUDING TOWER AIRSPACE AND DESCENT AREAS IN USE



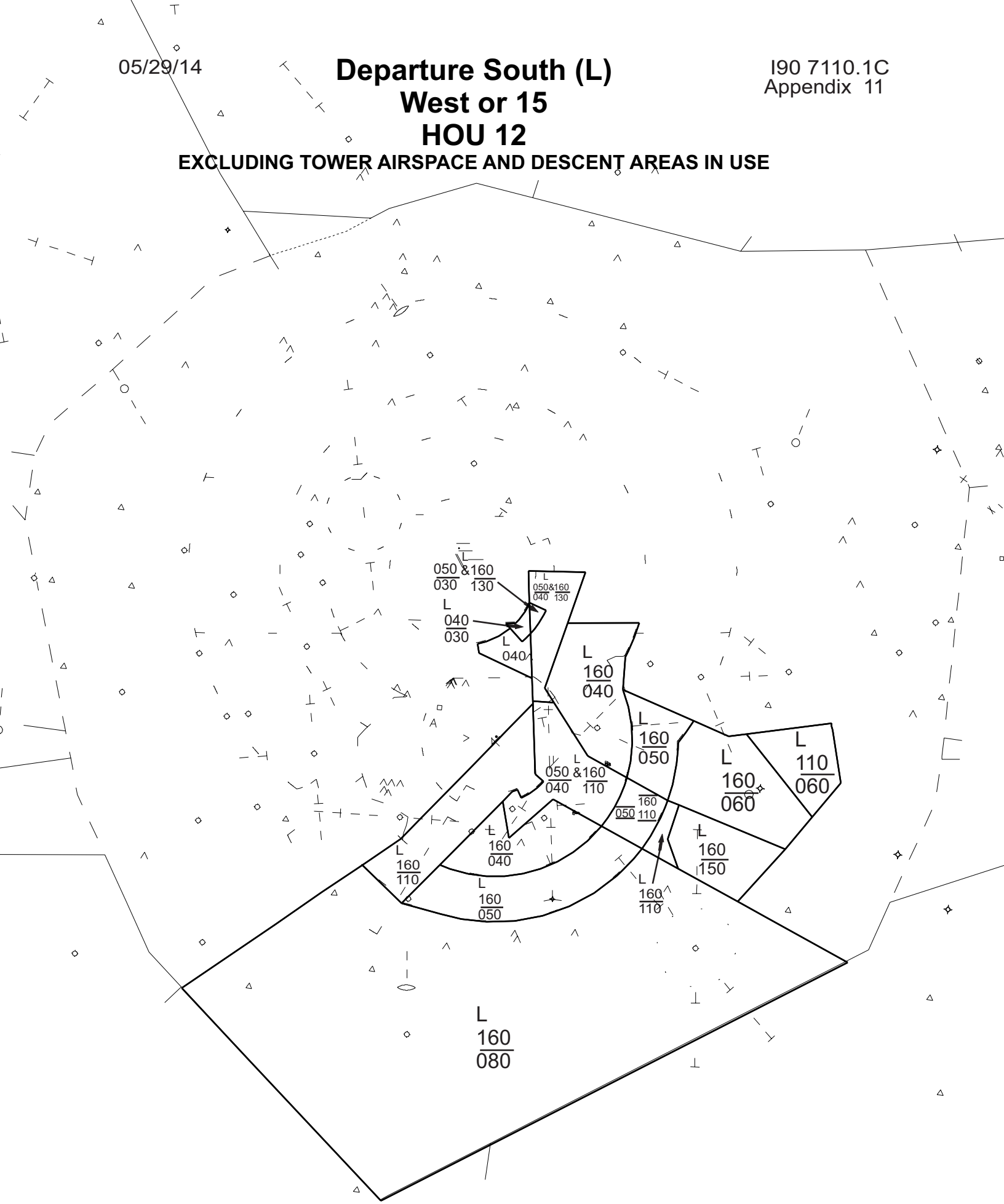
Departure East (E)
IAH East
HOU 22

EXCLUDING TOWER AIRSPACE AND DESCENT AREAS IN USE



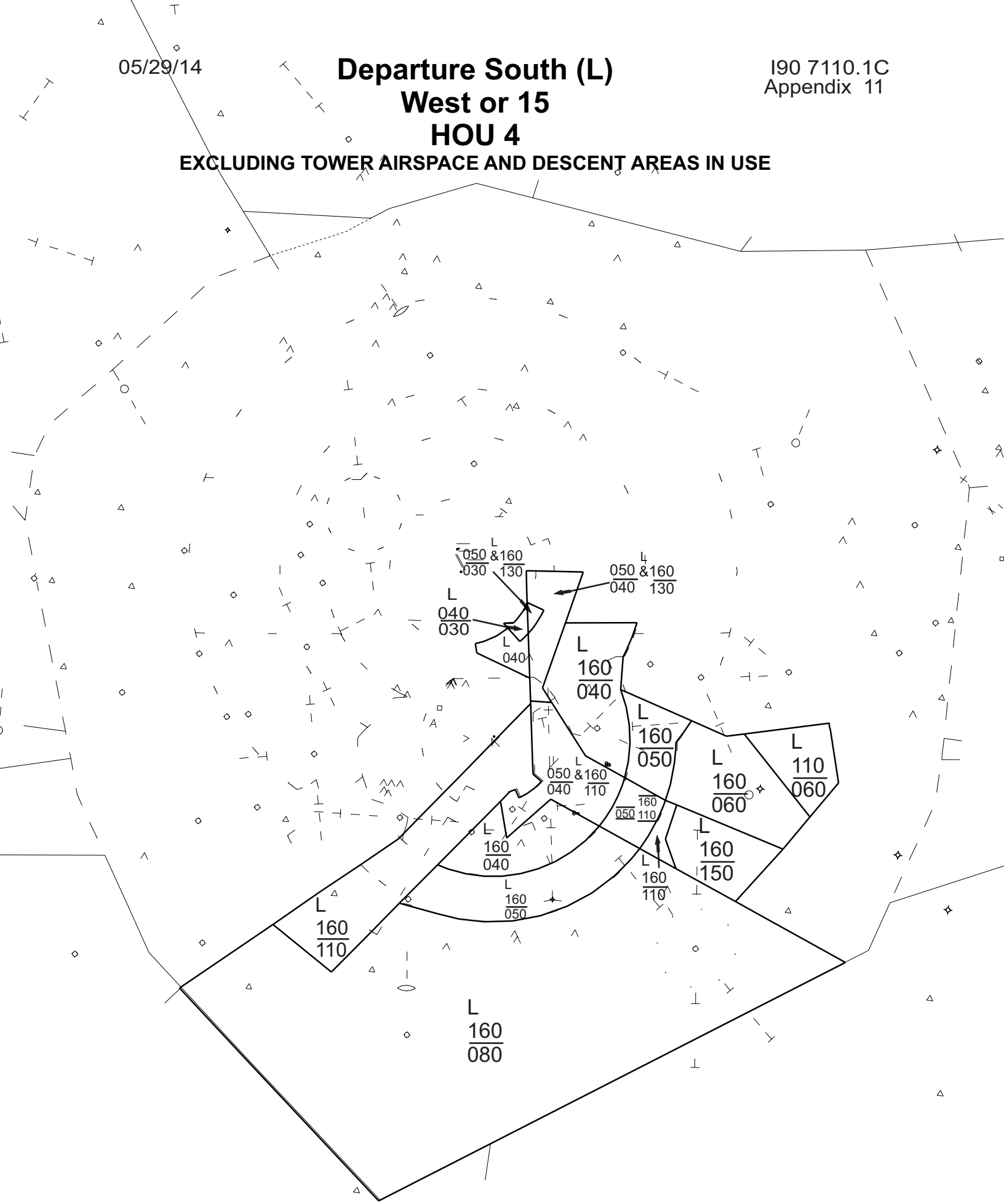
Departure South (L)
West or 15
HOU 12

EXCLUDING TOWER AIRSPACE AND DESCENT AREAS IN USE



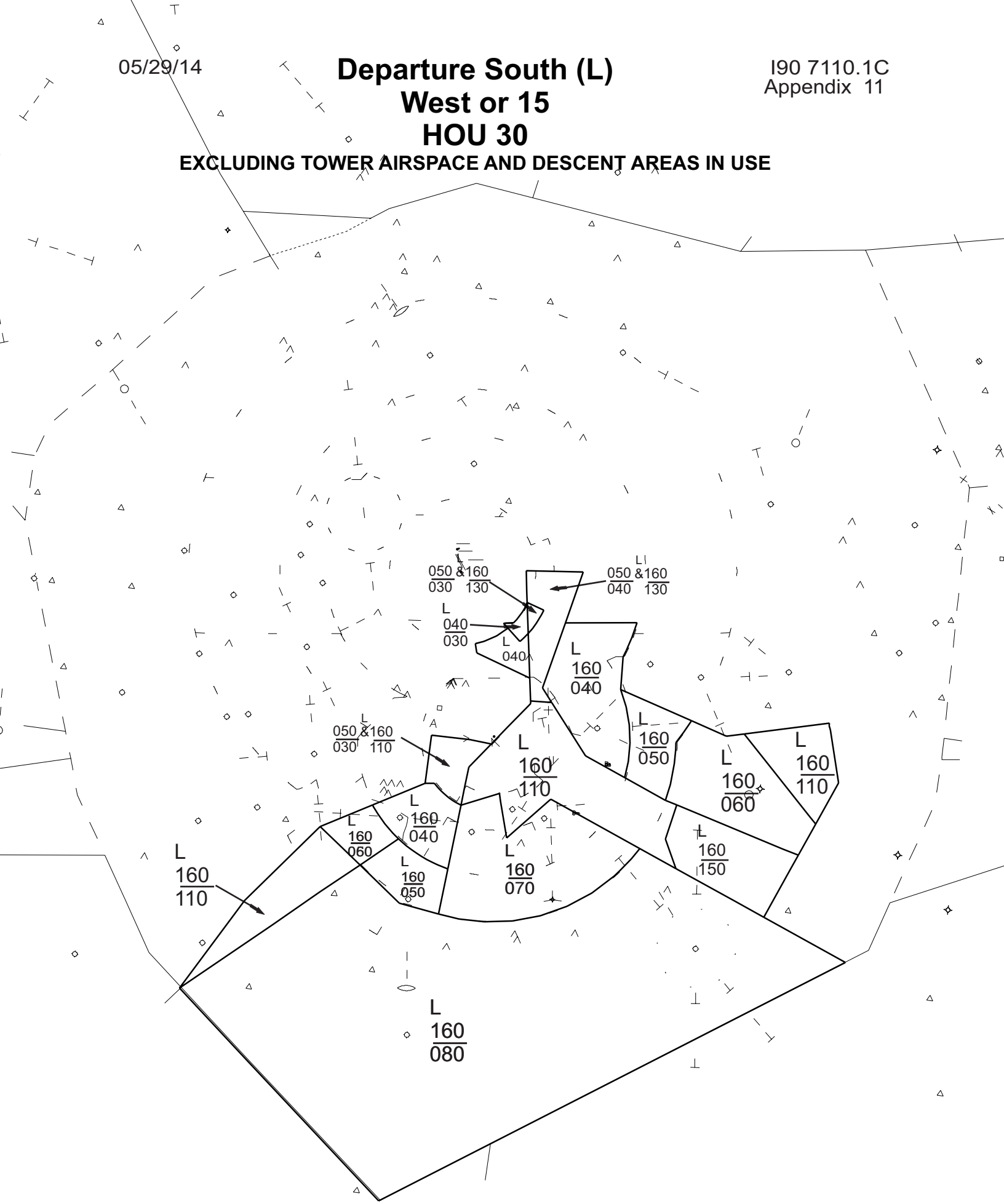
Departure South (L)
West or 15
HOU 4

EXCLUDING TOWER AIRSPACE AND DESCENT AREAS IN USE



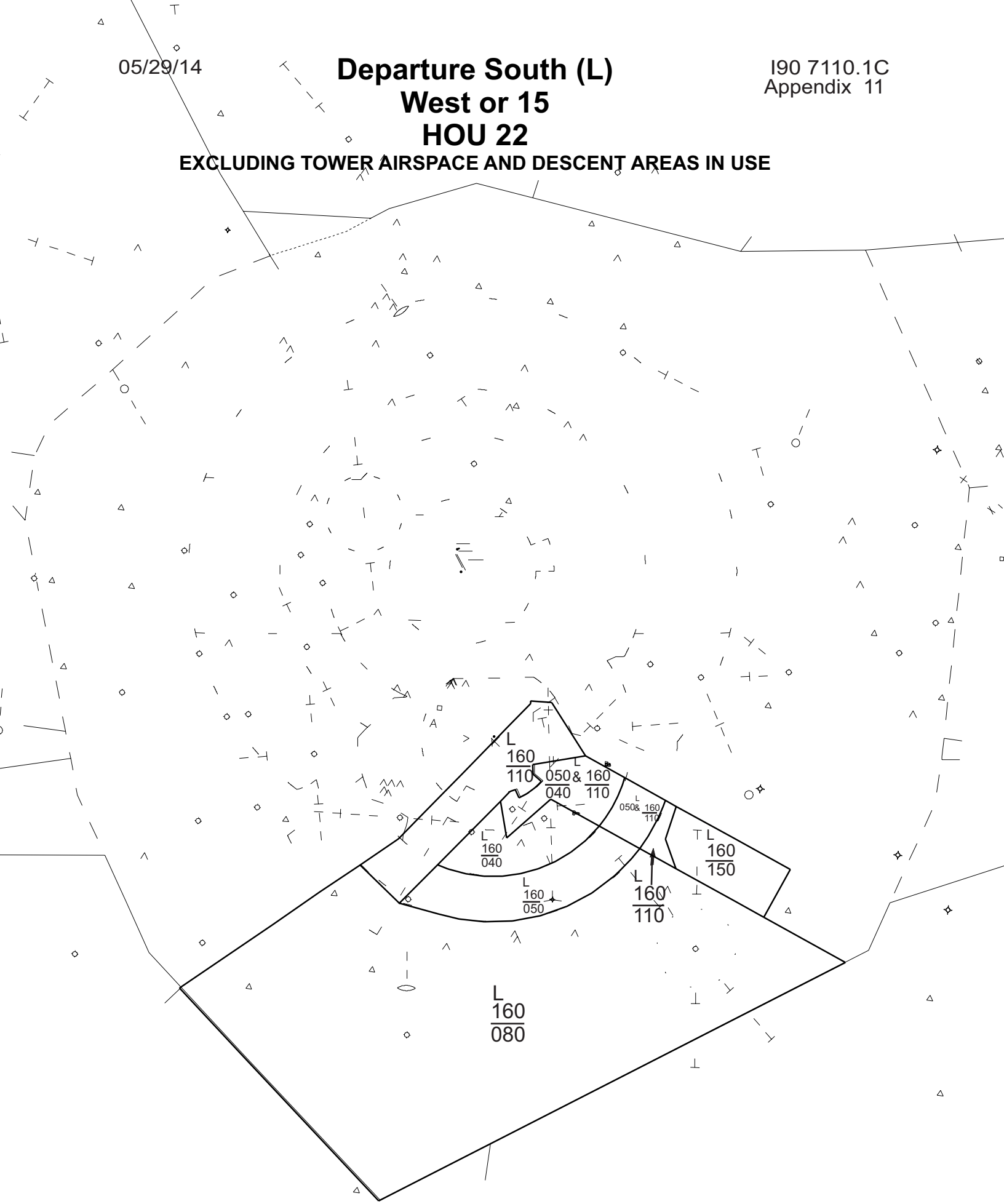
Departure South (L)
West or 15
HOU 30

EXCLUDING TOWER AIRSPACE AND DESCENT AREAS IN USE



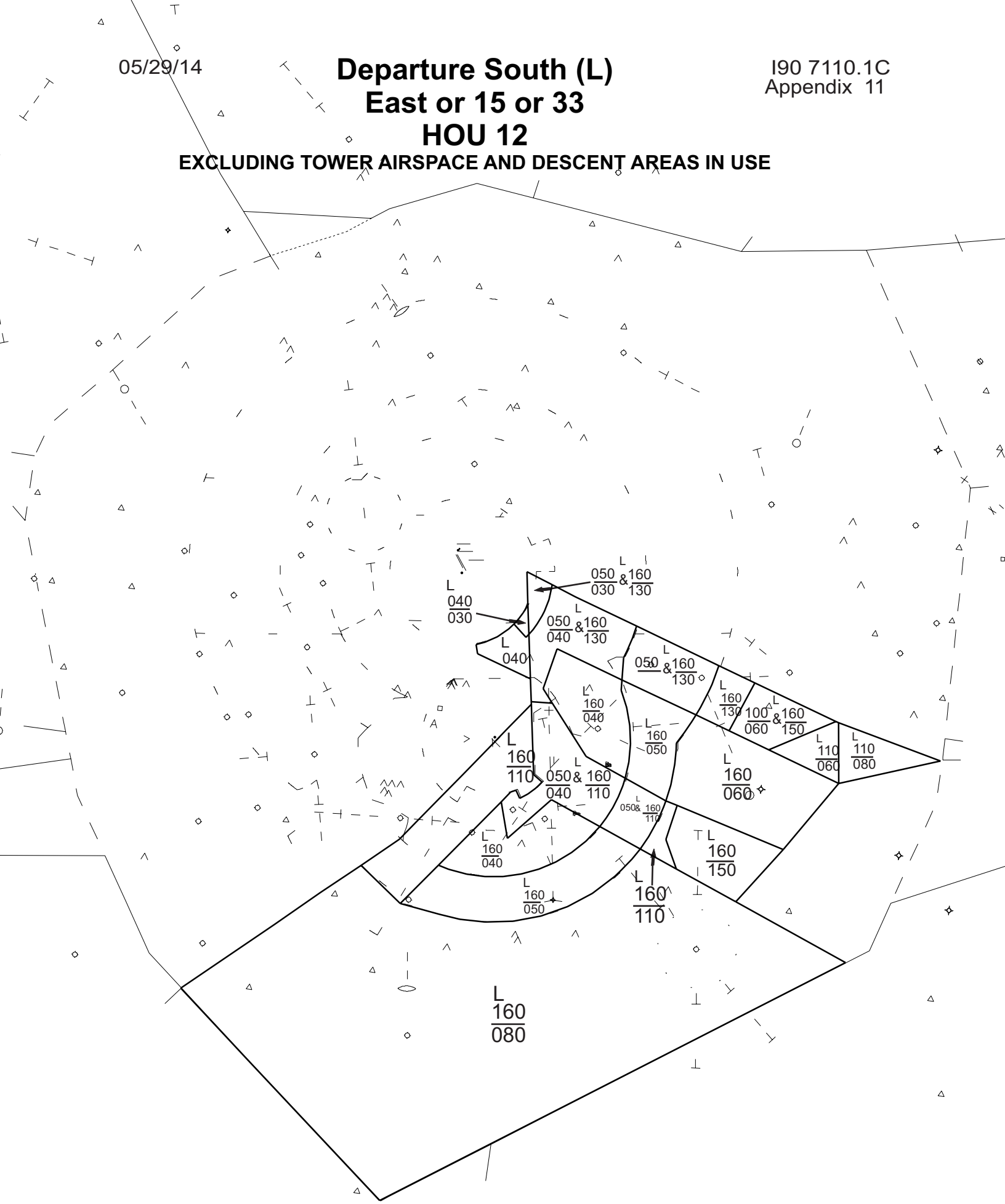
Departure South (L)
West or 15
HOU 22

EXCLUDING TOWER AIRSPACE AND DESCENT AREAS IN USE



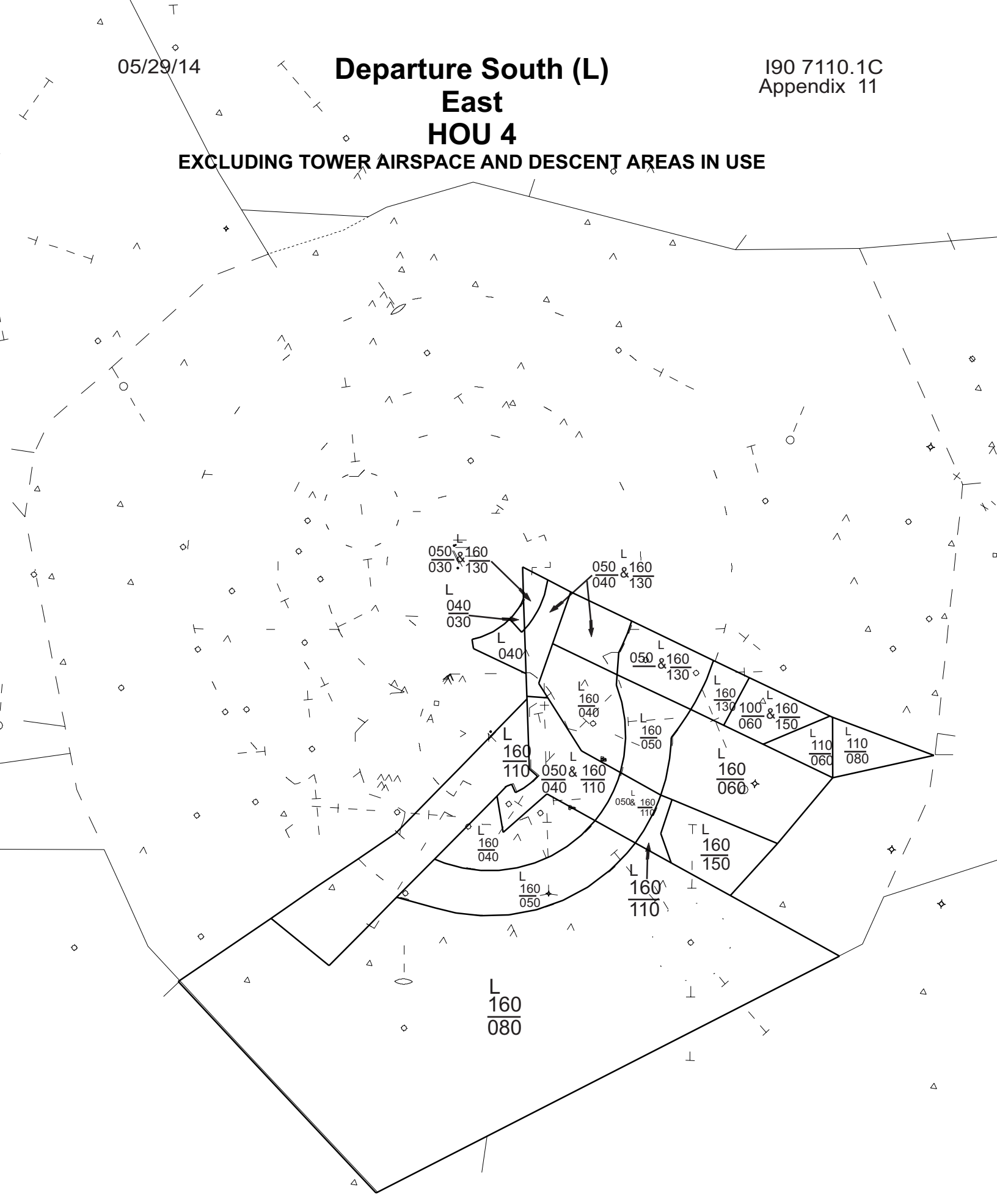
Departure South (L)
East or 15 or 33
HOU 12

EXCLUDING TOWER AIRSPACE AND DESCENT AREAS IN USE



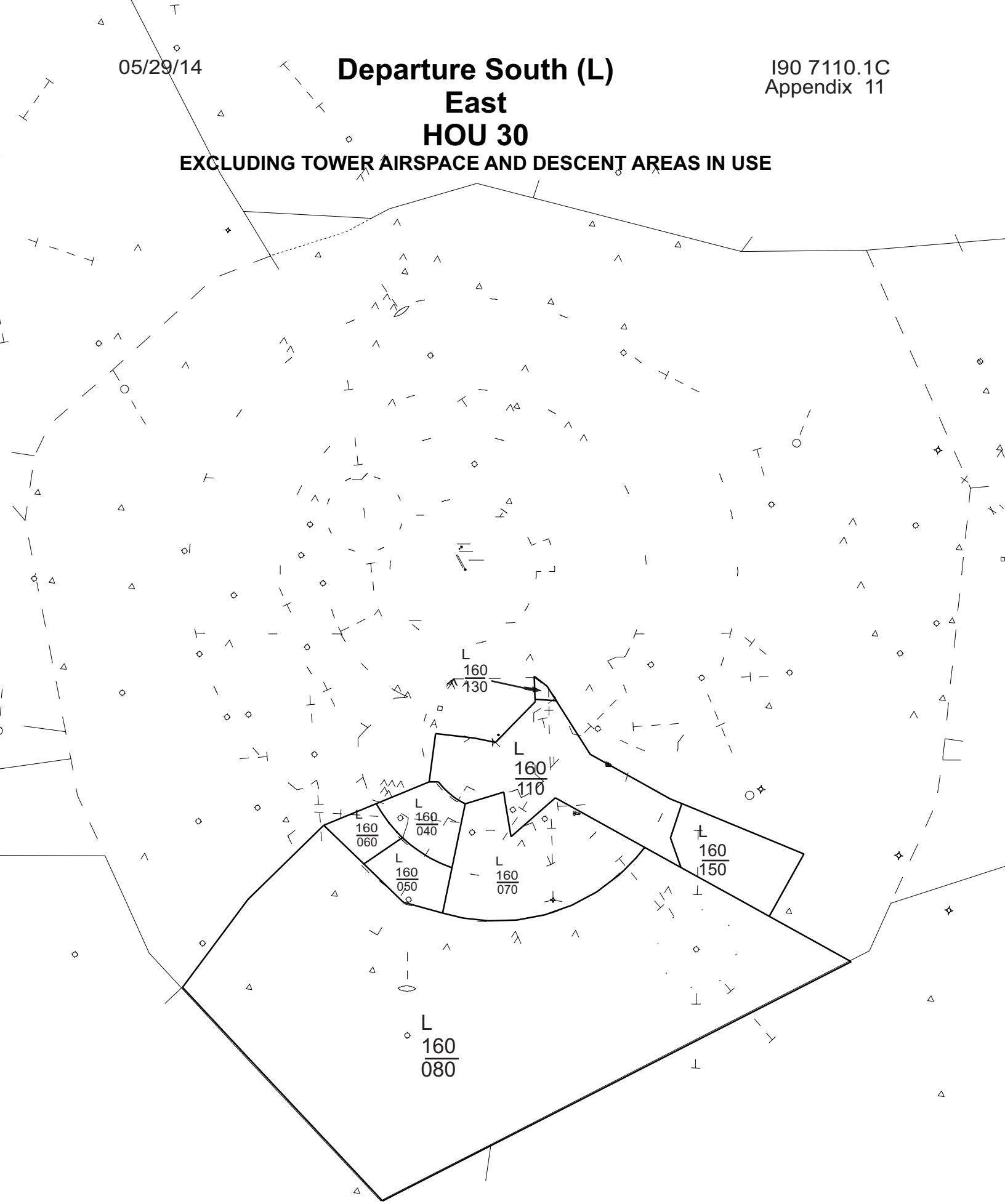
Departure South (L)
East
HOU 4

EXCLUDING TOWER AIRSPACE AND DESCENT AREAS IN USE



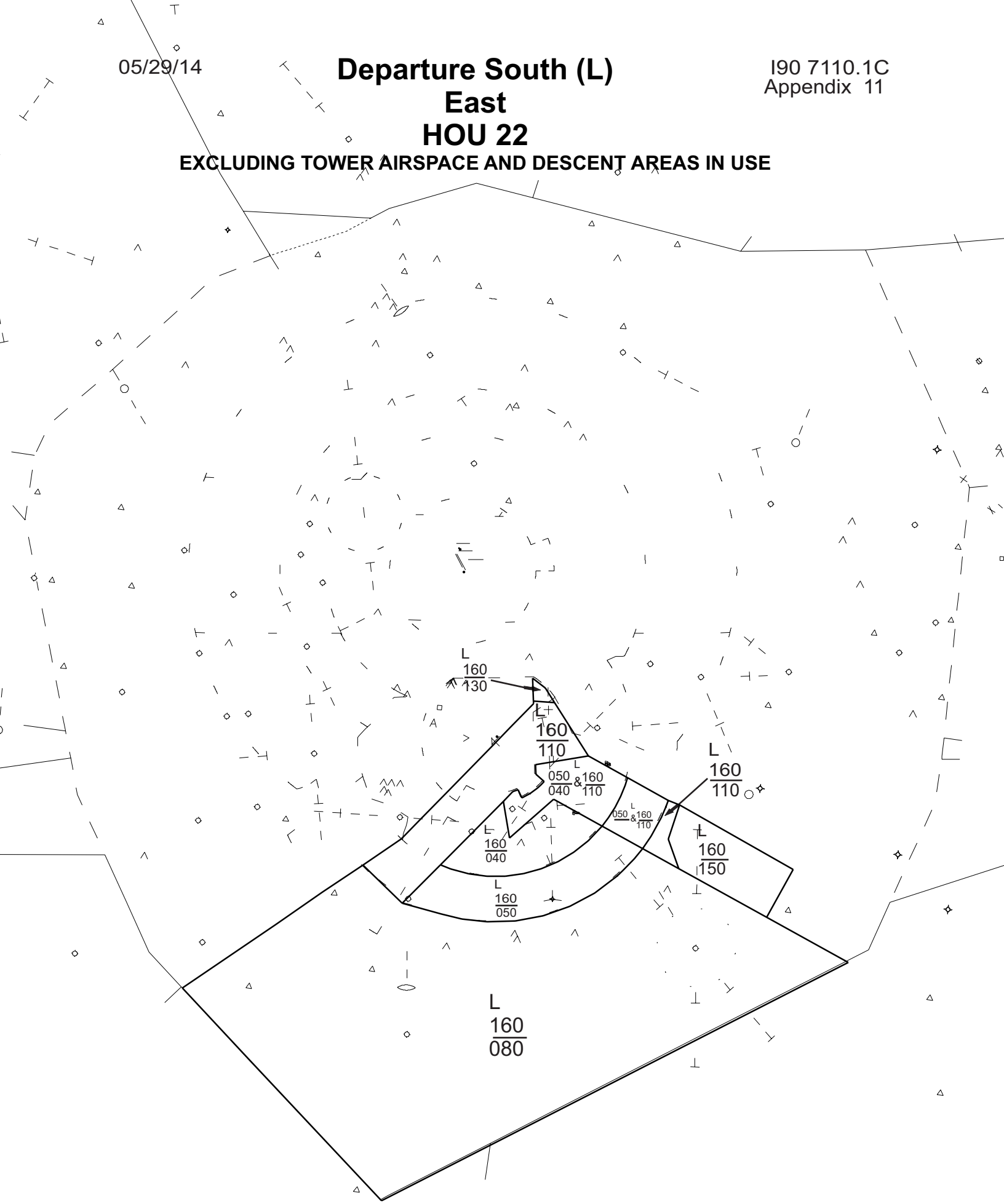
Departure South (L)
East
HOU 30

EXCLUDING TOWER AIRSPACE AND DESCENT AREAS IN USE



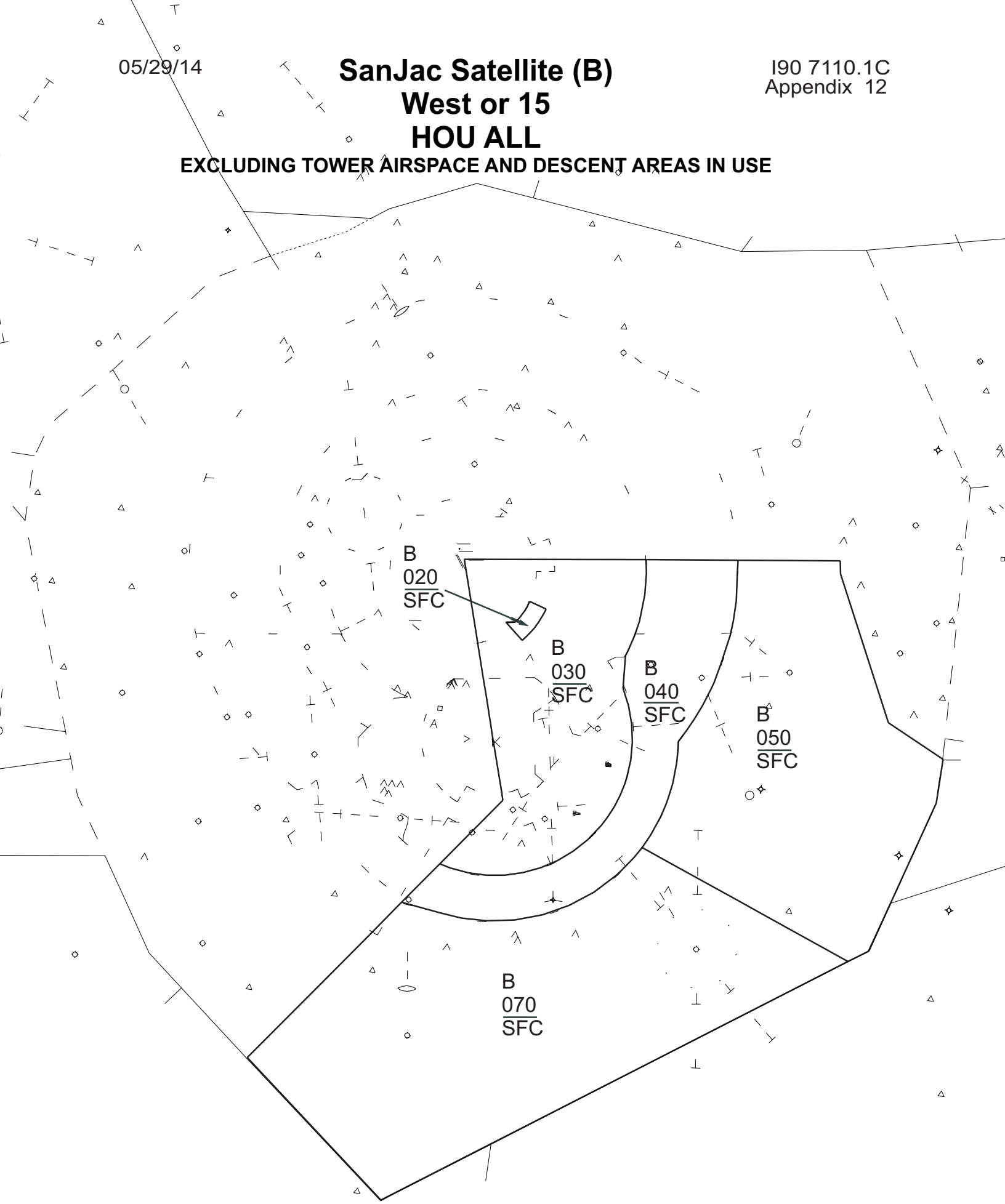
Departure South (L)
East
HOU 22

EXCLUDING TOWER AIRSPACE AND DESCENT AREAS IN USE



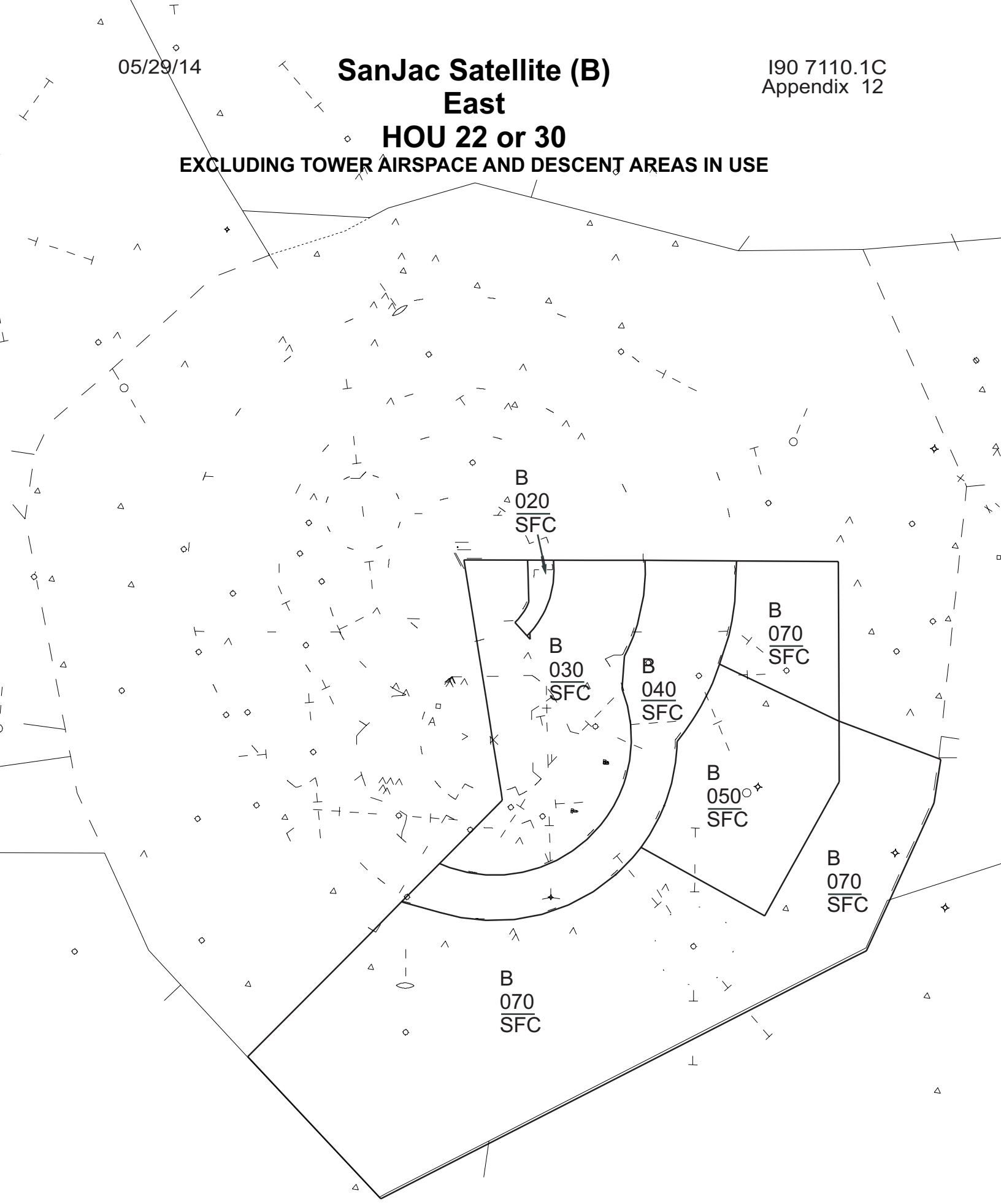
SanJac Satellite (B)
West or 15
HOU ALL

EXCLUDING TOWER AIRSPACE AND DESCENT AREAS IN USE



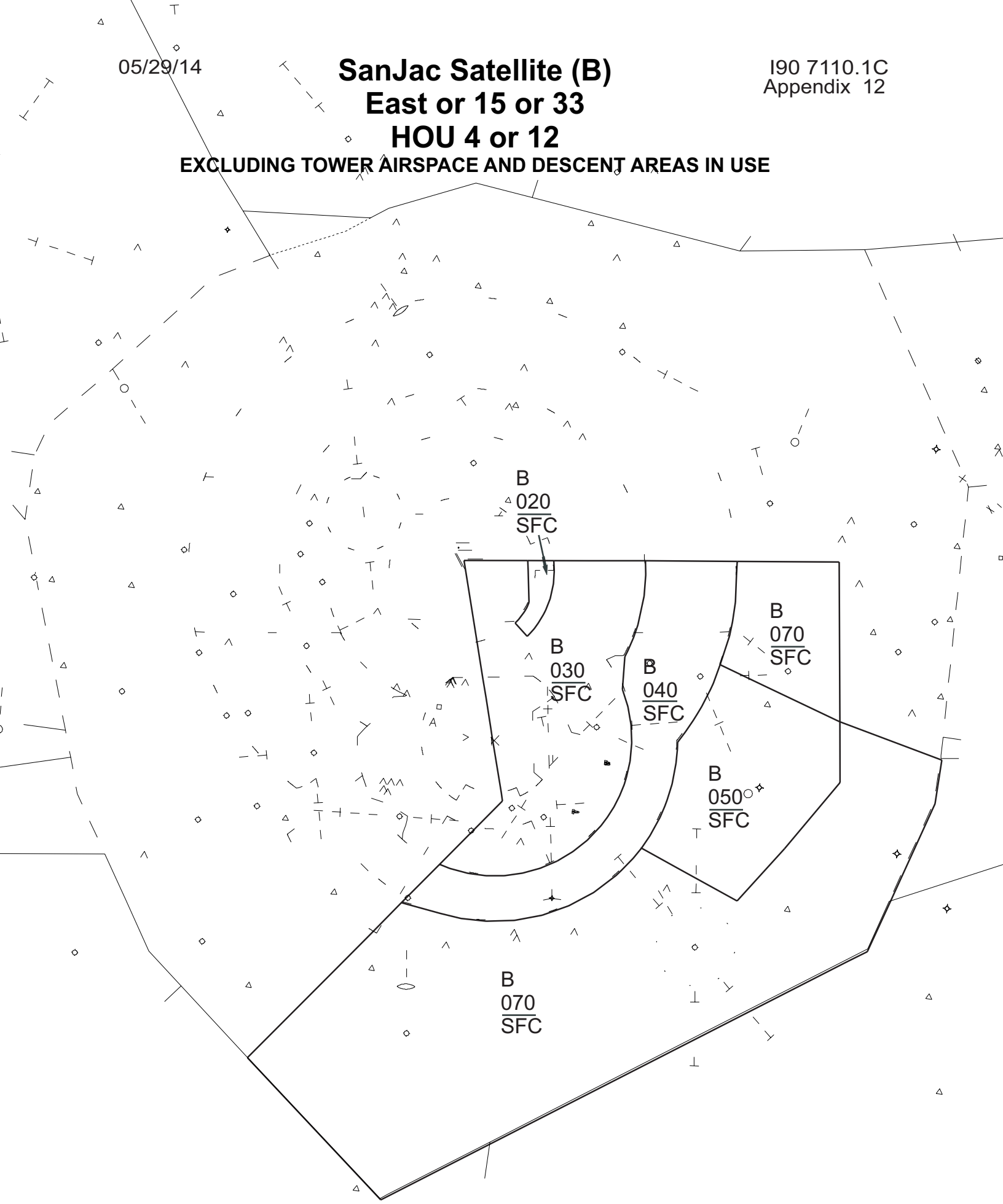
SanJac Satellite (B)
East
HOU 22 or 30

EXCLUDING TOWER AIRSPACE AND DESCENT AREAS IN USE

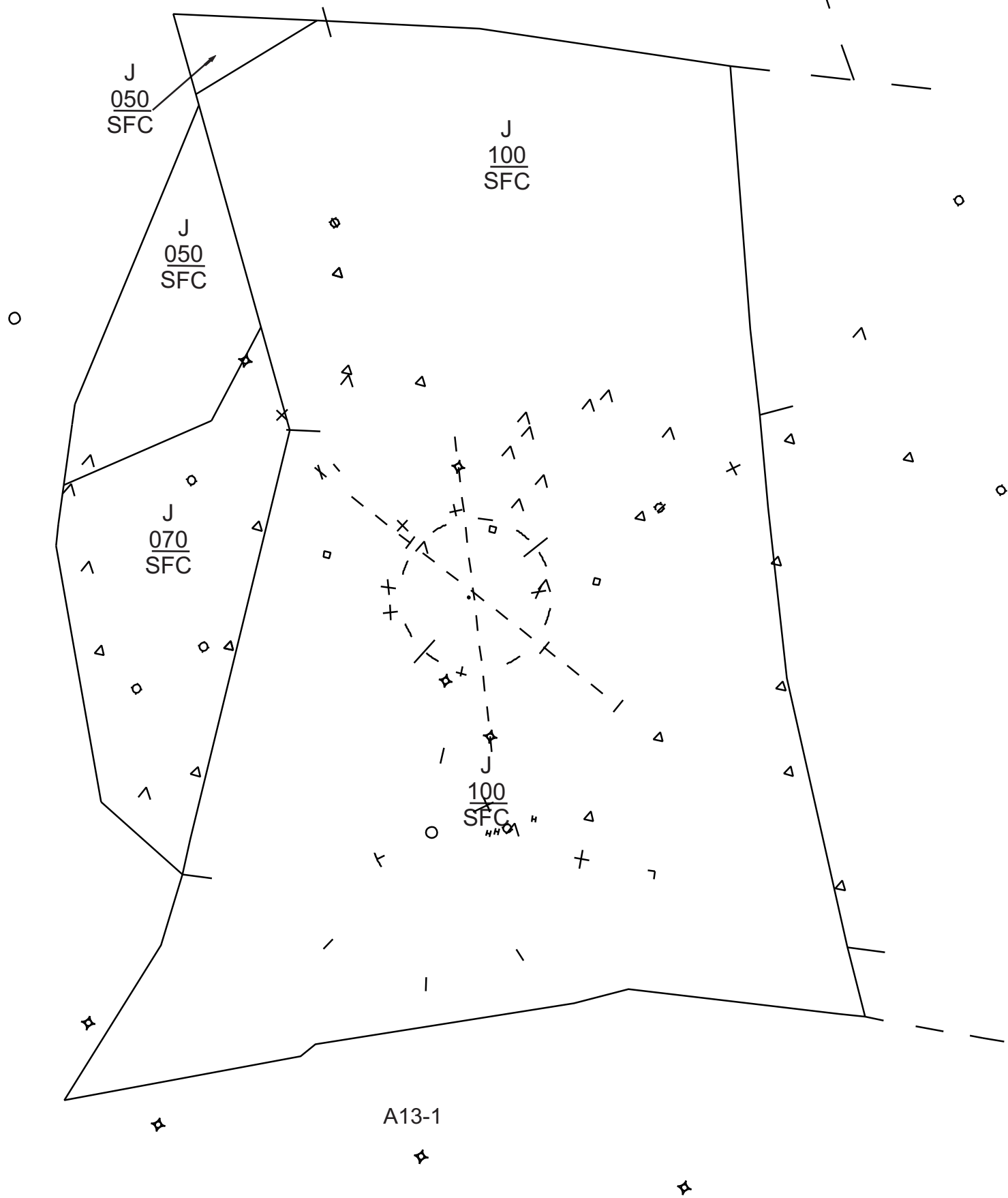


SanJac Satellite (B)
East or 15 or 33
HOU 4 or 12

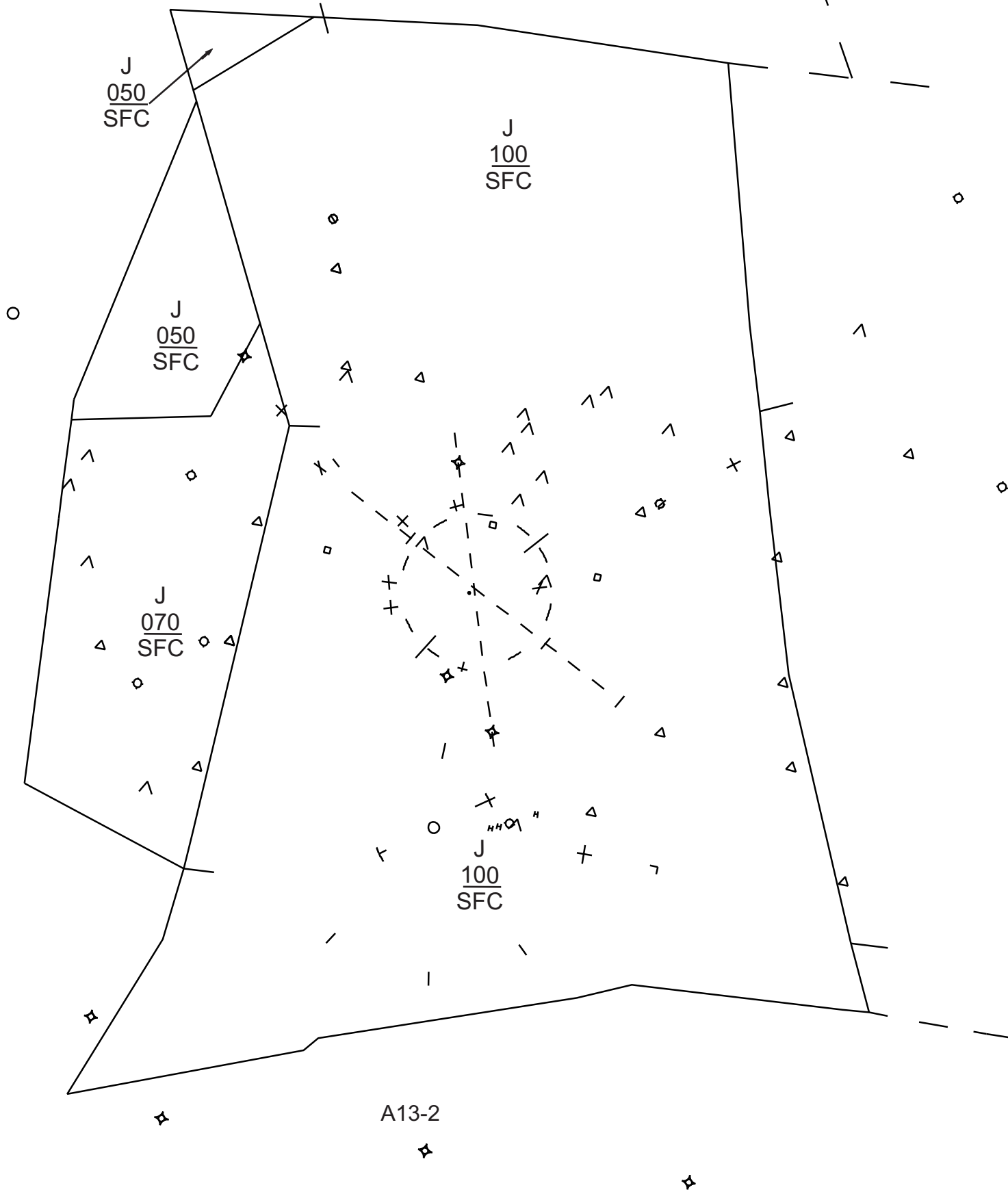
EXCLUDING TOWER AIRSPACE AND DESCENT AREAS IN USE



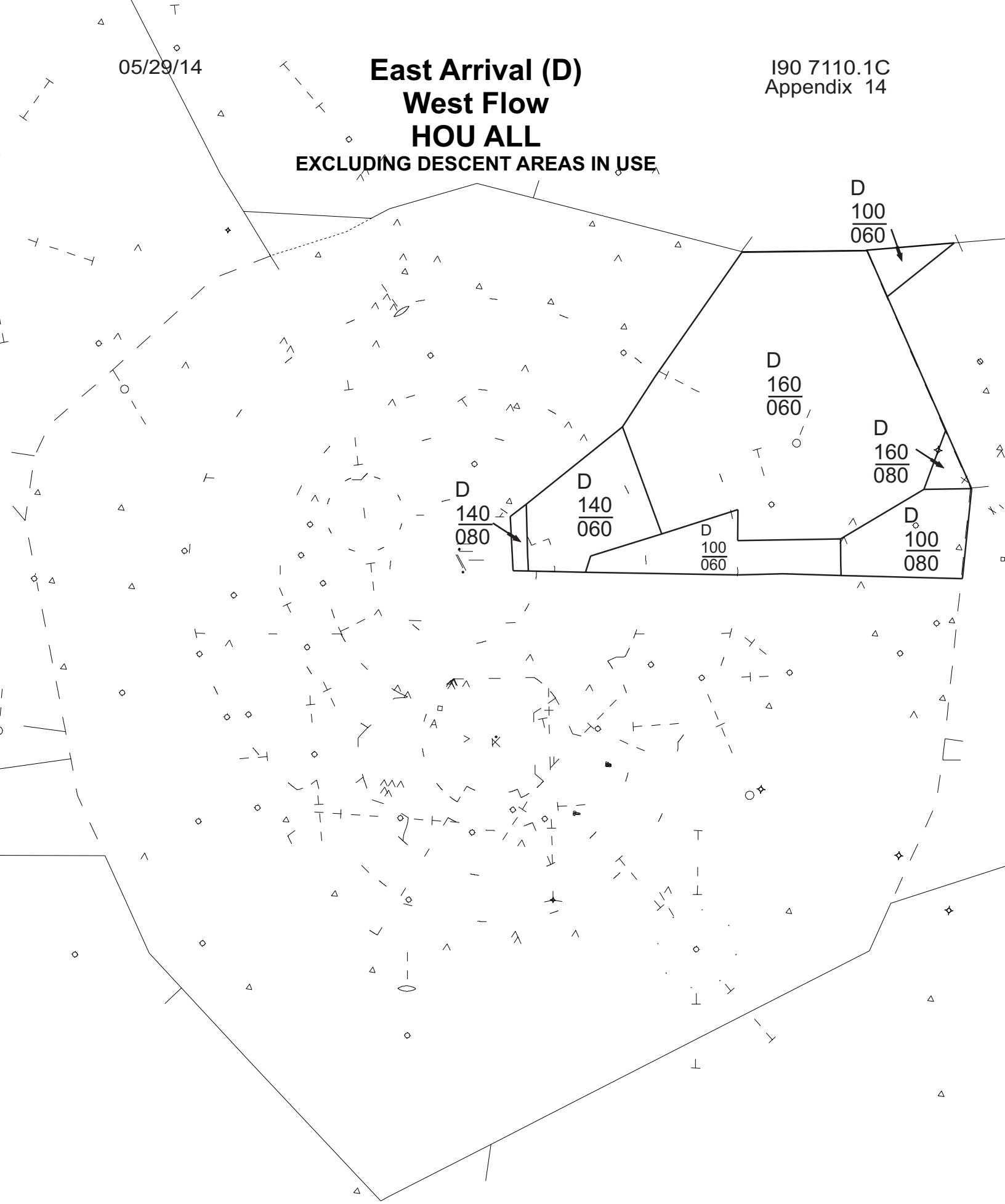
Beaumont Satellite (J)
West or 15
HOU ALL
EXCLUDING TOWER AIRSPACE



Beaumont Satellite (J)
East or 15
HOU ALL
EXCLUDING TOWER AIRSPACE

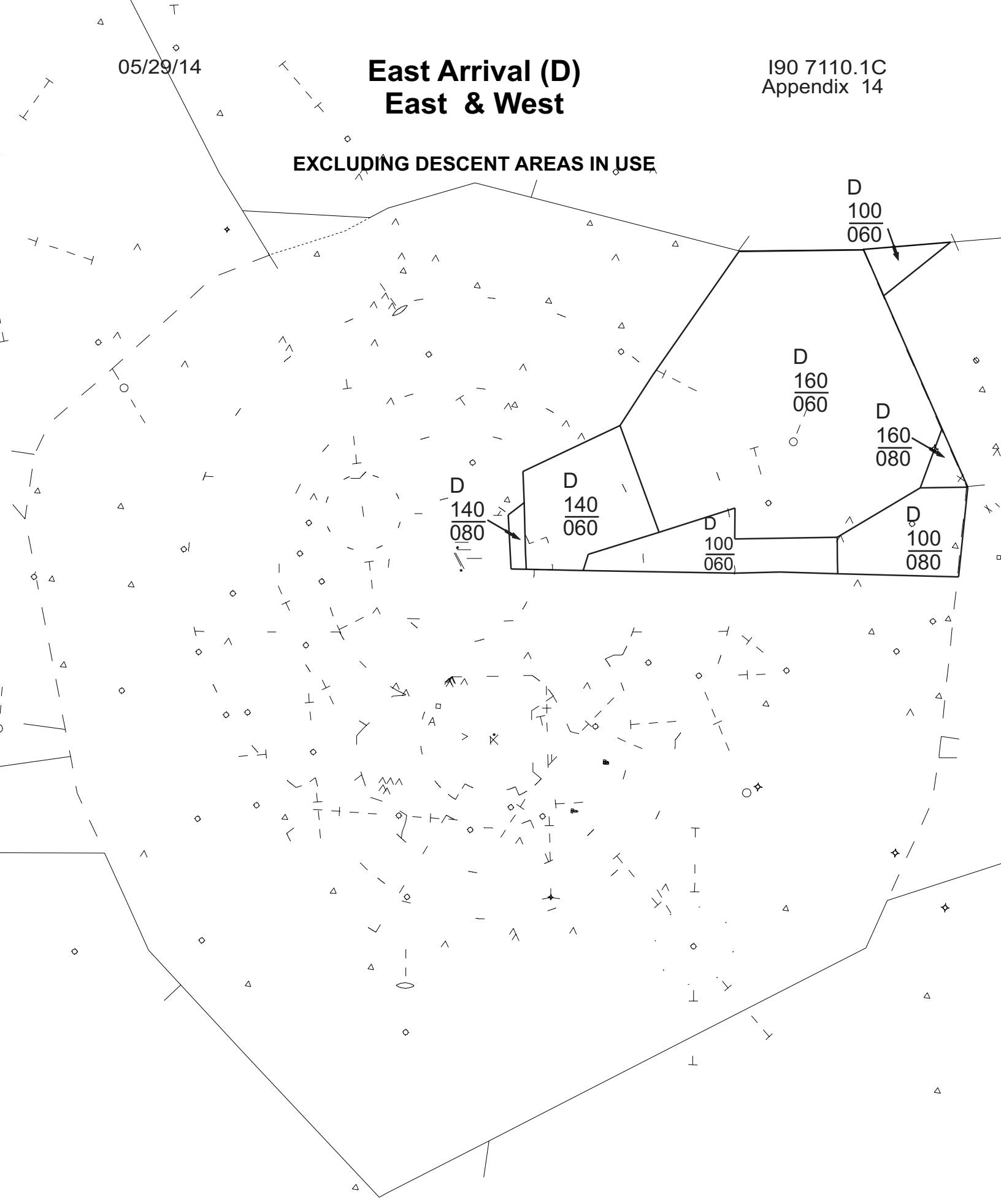


East Arrival (D)
West Flow
HOU ALL
EXCLUDING DESCENT AREAS IN USE

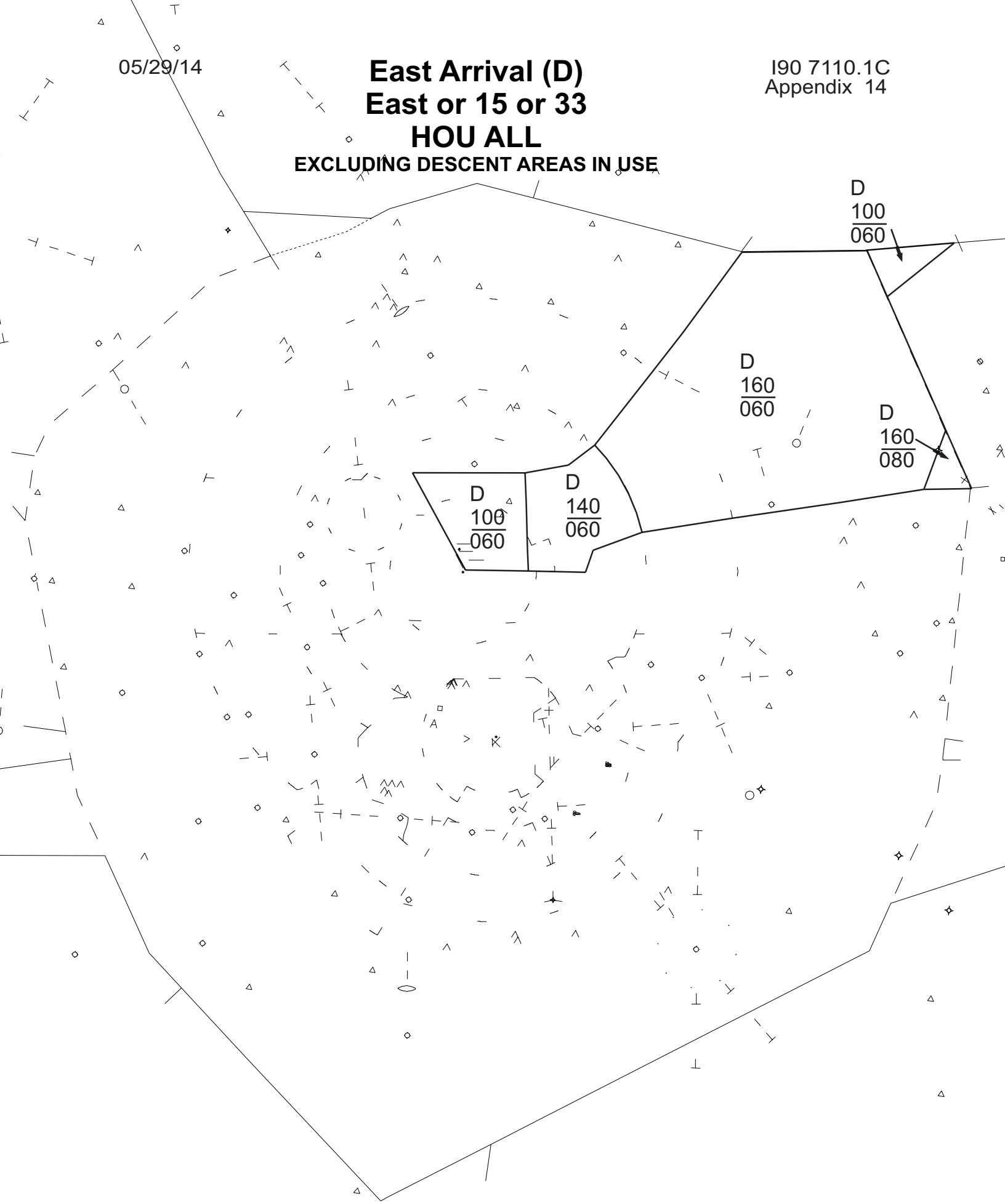


East Arrival (D)
East & West

EXCLUDING DESCENT AREAS IN USE

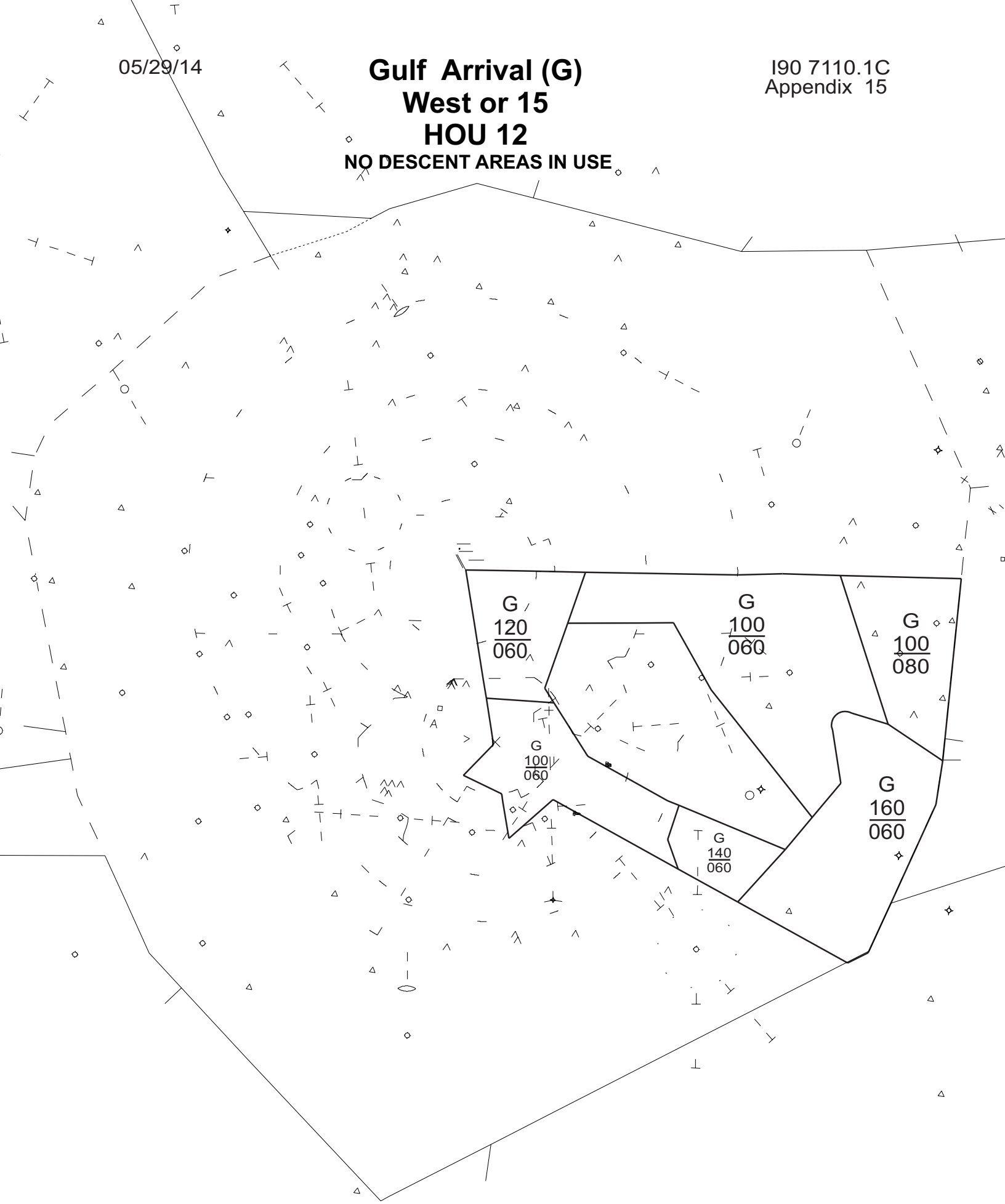


East Arrival (D)
East or 15 or 33
HOU ALL
EXCLUDING DESCENT AREAS IN USE



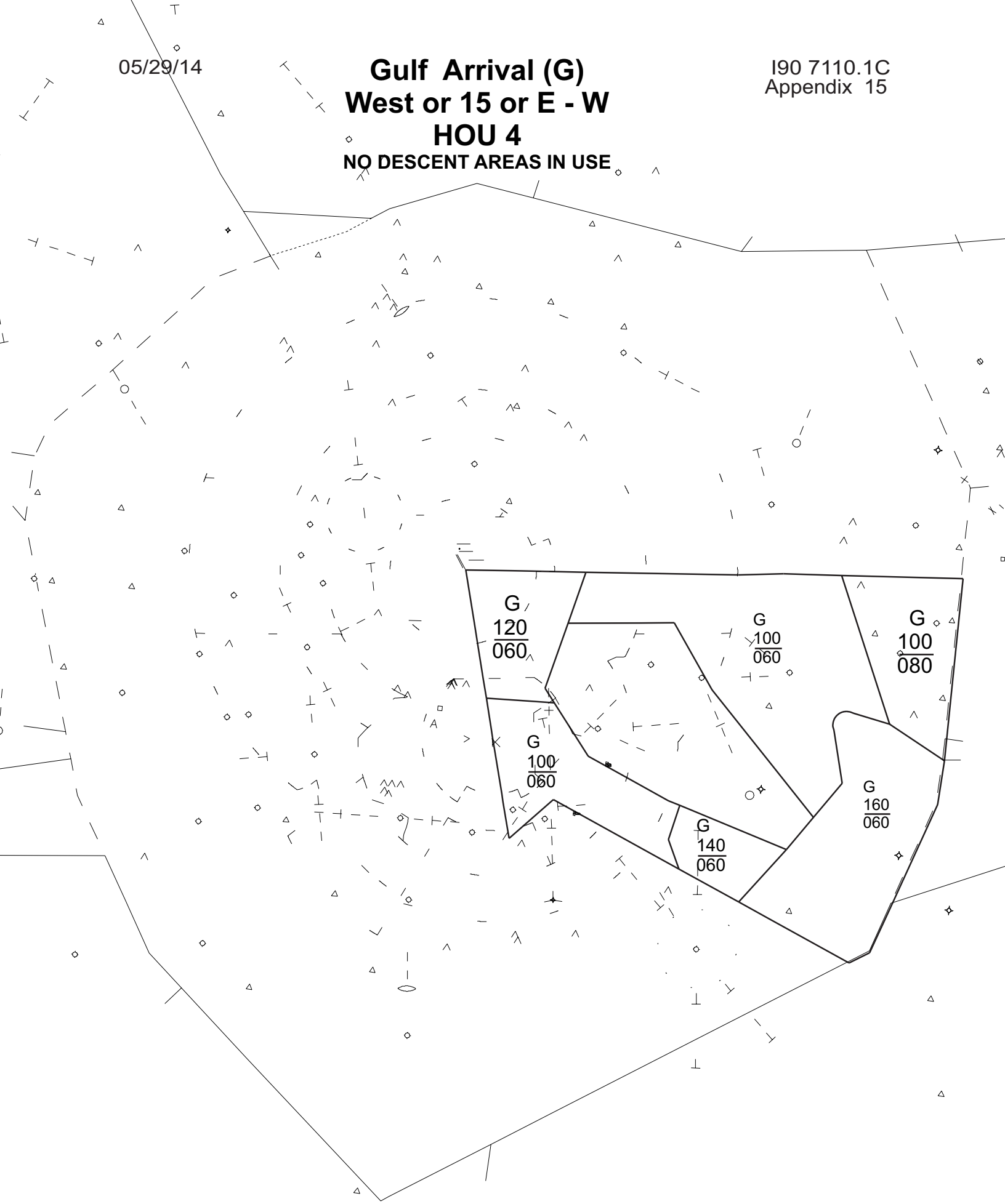
Gulf Arrival (G)
West or 15
HOU 12

NO DESCENT AREAS IN USE



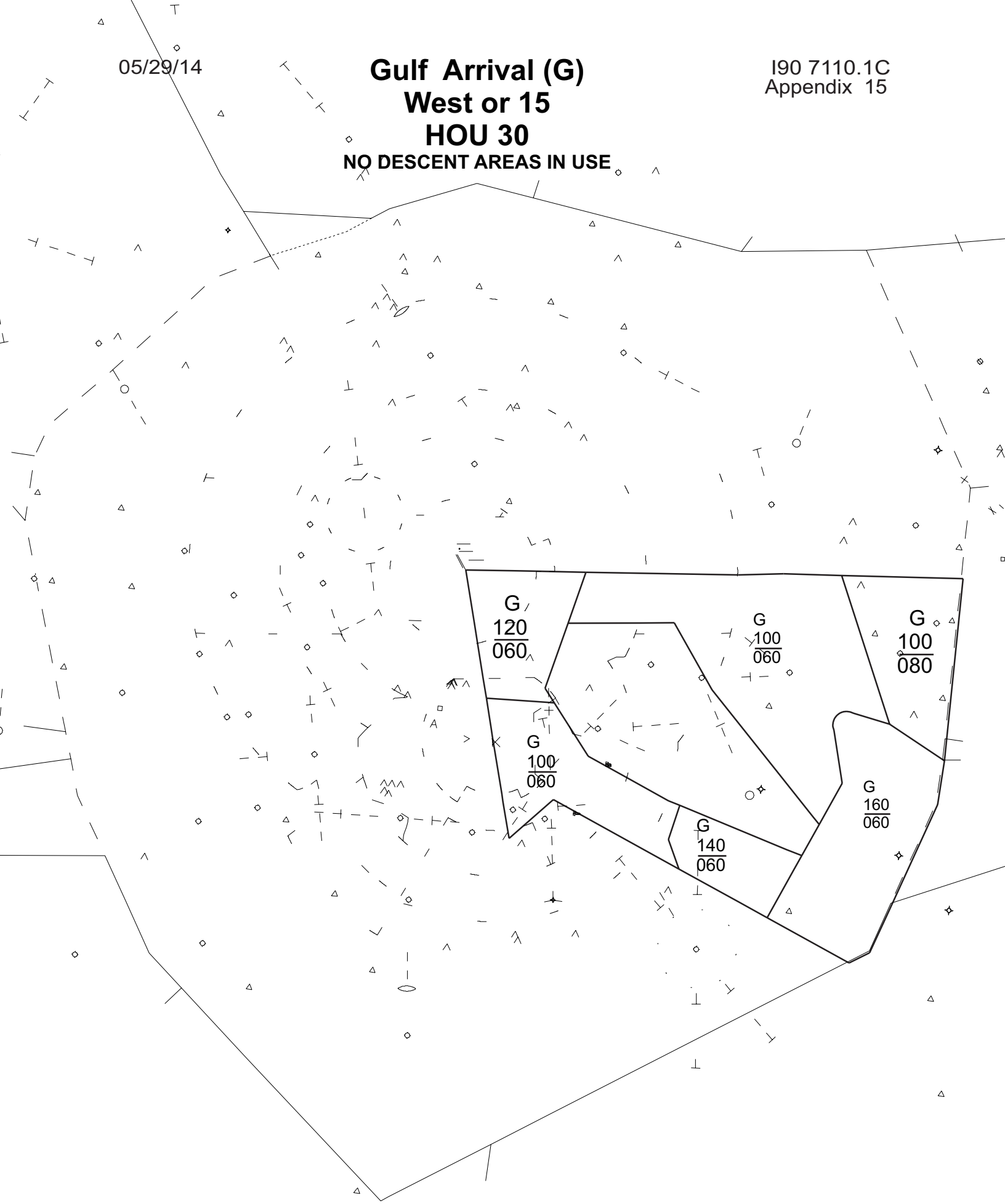
Gulf Arrival (G)
West or 15 or E - W
HOU 4

NO DESCENT AREAS IN USE



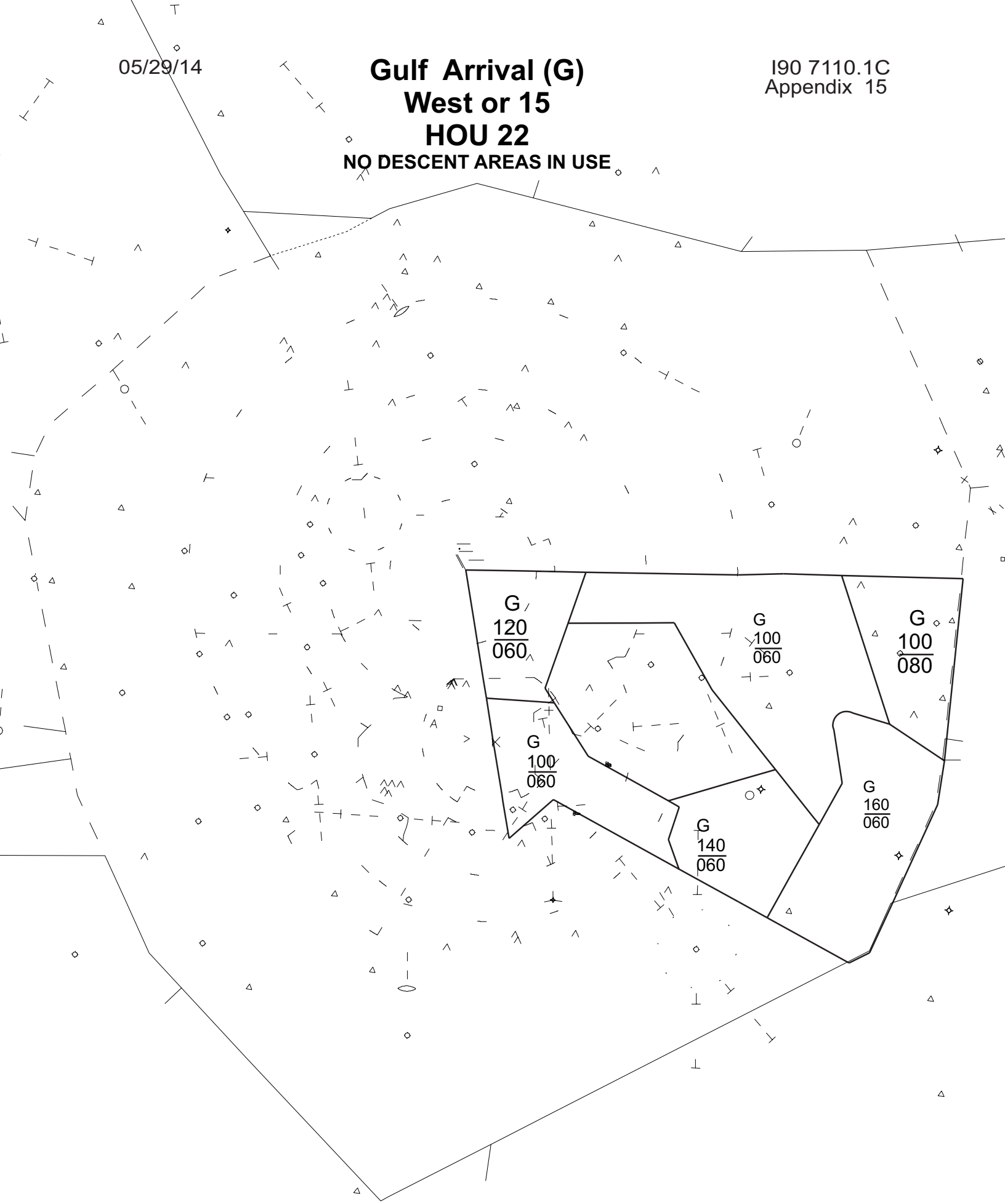
Gulf Arrival (G)
West or 15
HOU 30

NO DESCENT AREAS IN USE



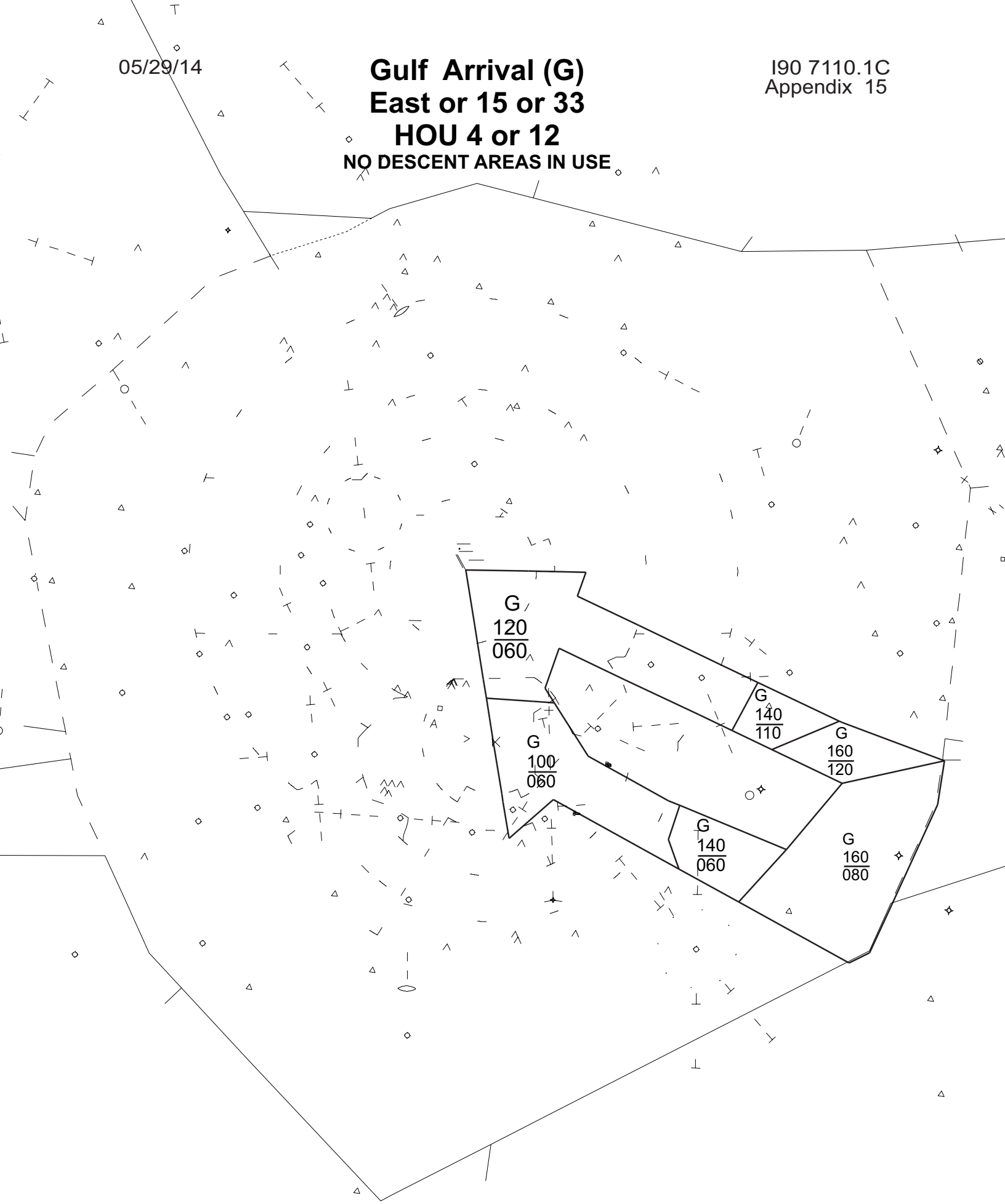
Gulf Arrival (G)
West or 15
HOU 22

NO DESCENT AREAS IN USE

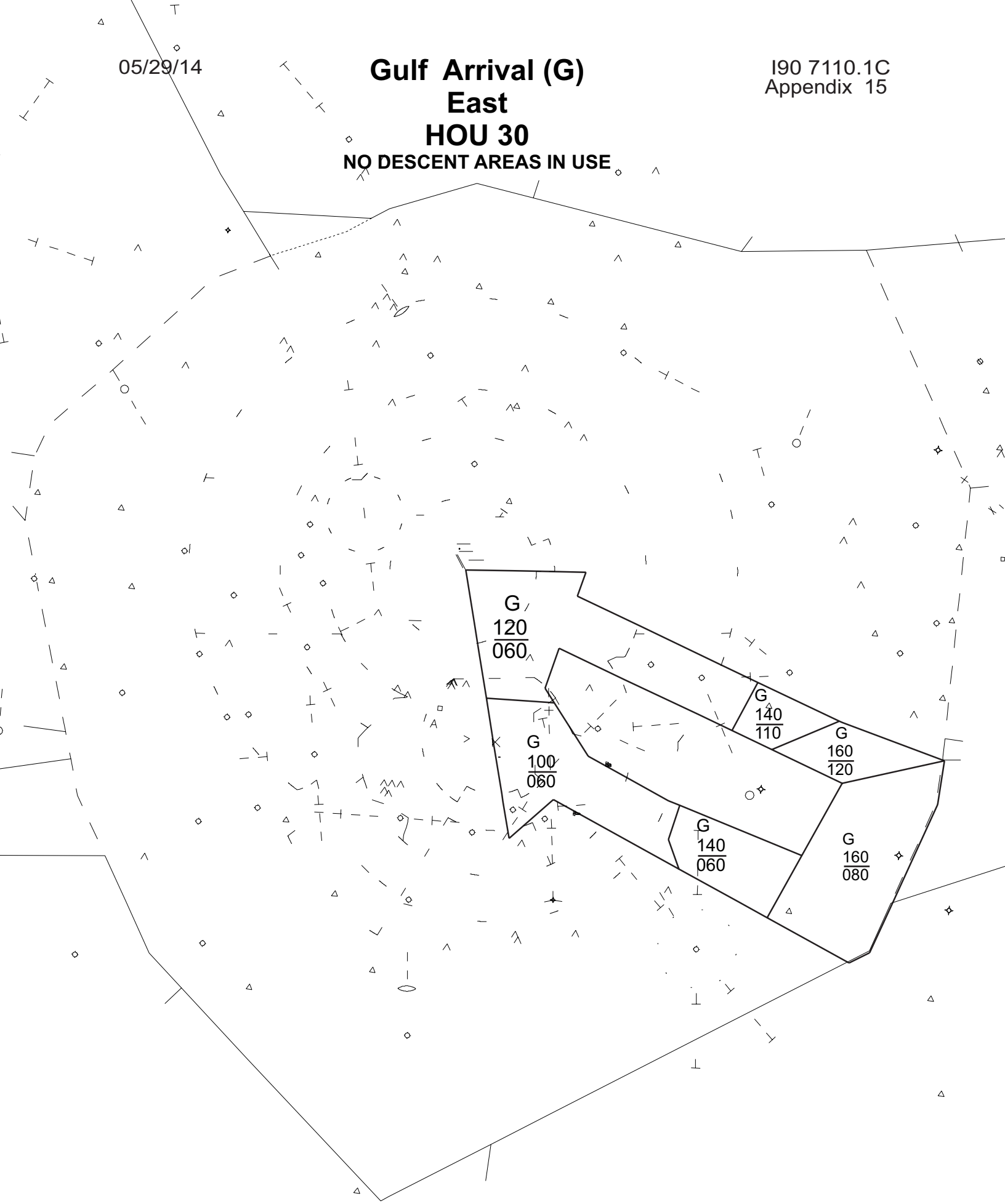


Gulf Arrival (G)
East or 15 or 33
HOU 4 or 12

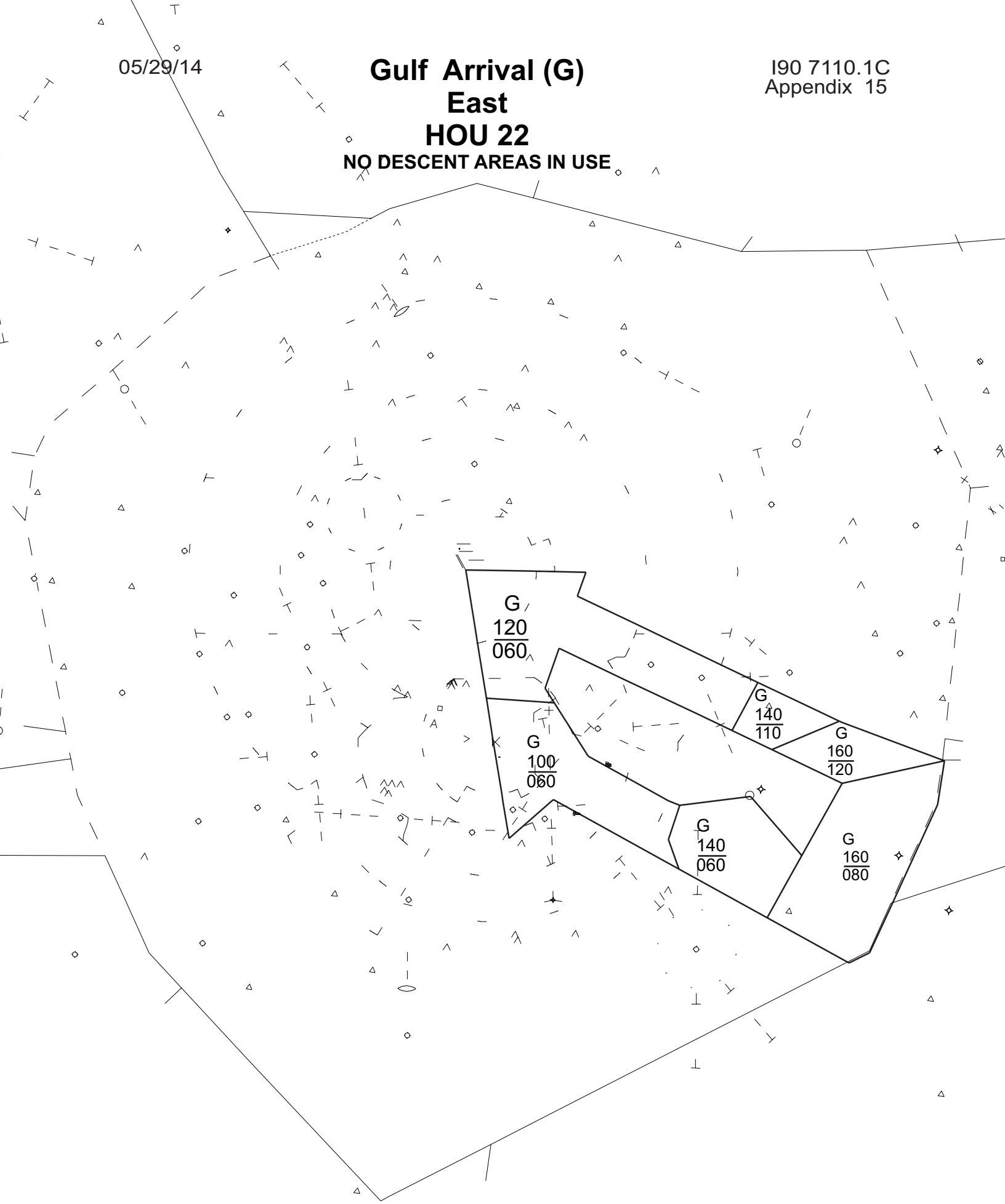
NO DESCENT AREAS IN USE



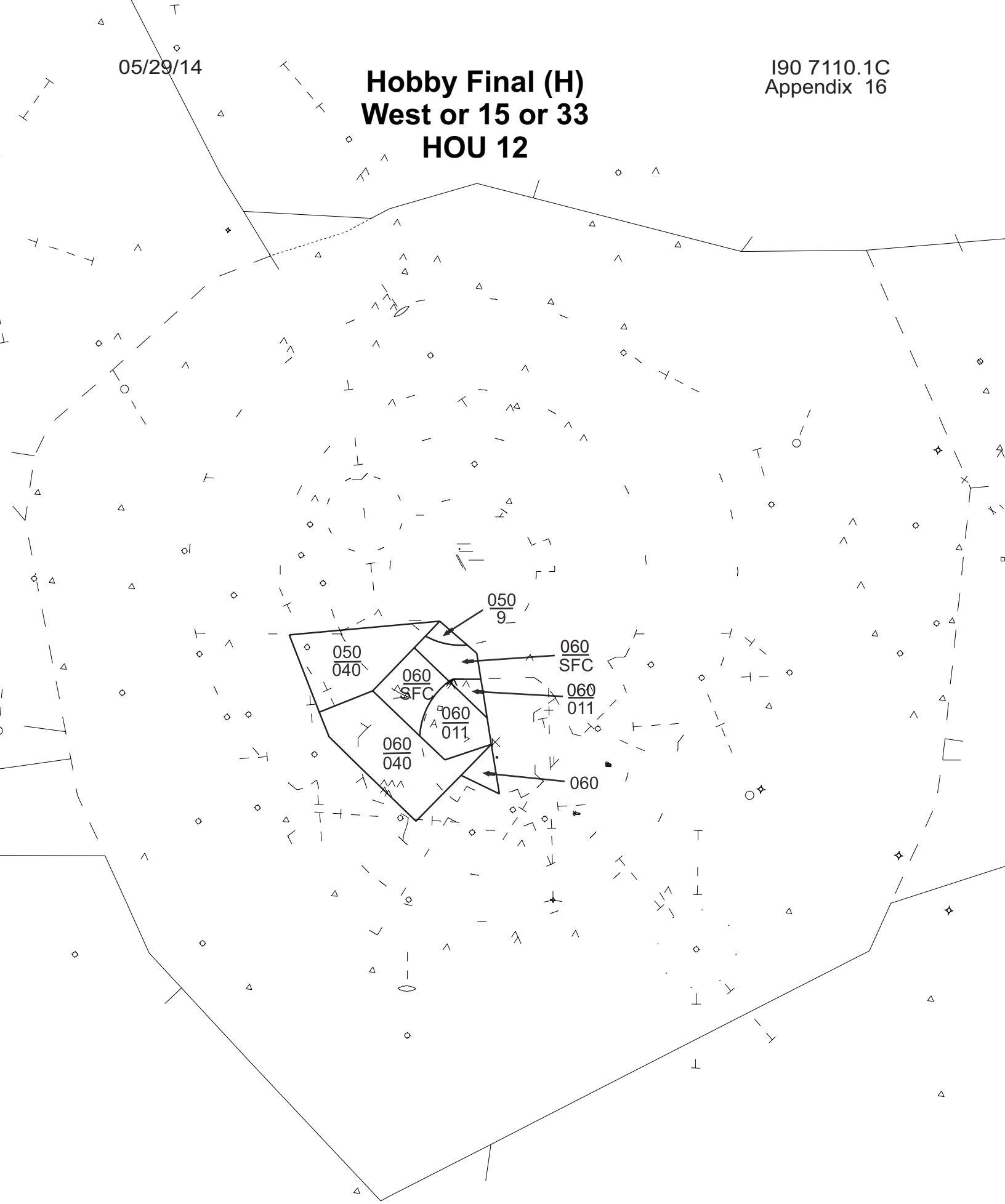
Gulf Arrival (G)
East
HOU 30
NO DESCENT AREAS IN USE



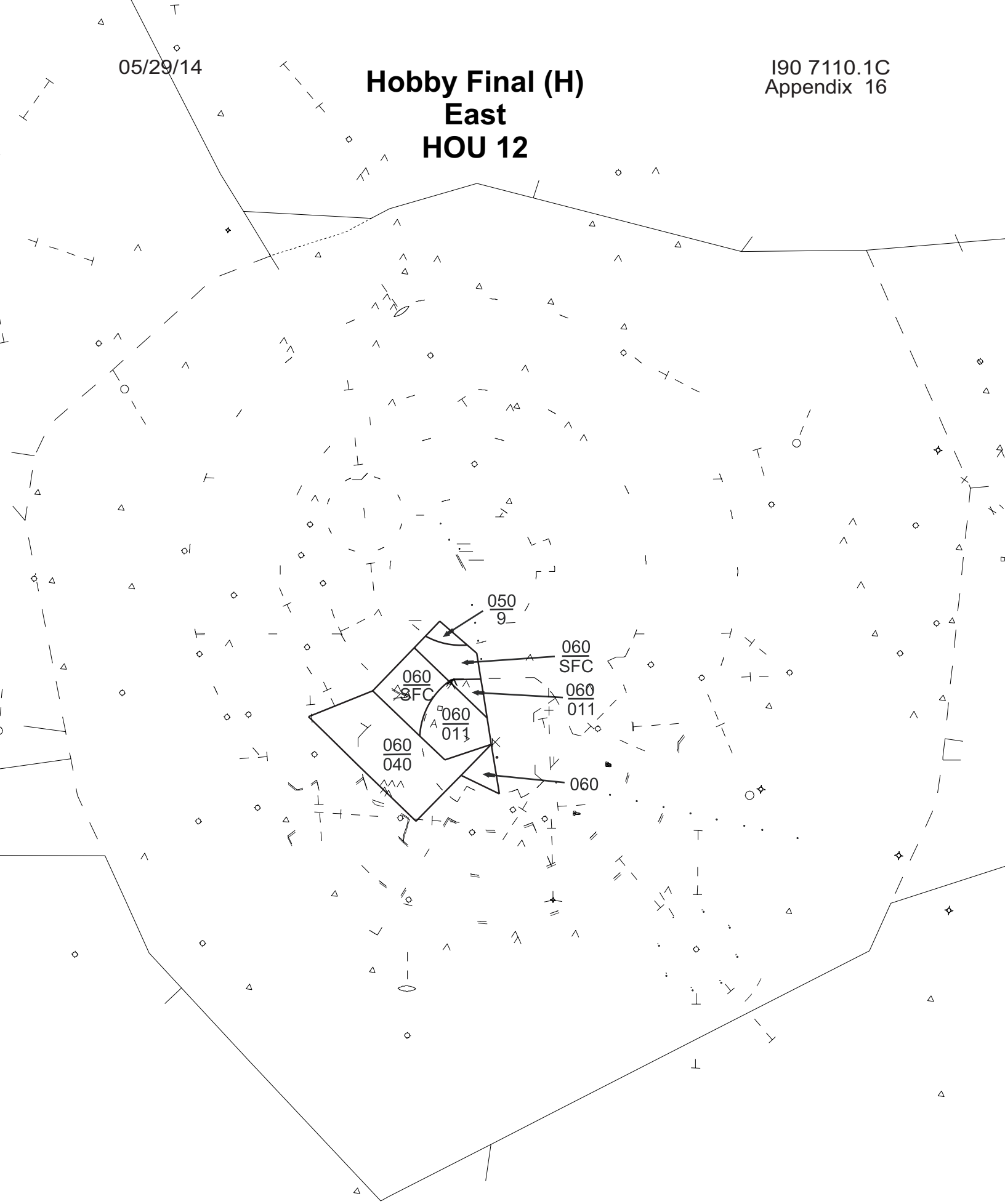
Gulf Arrival (G)
East
HOU 22
NO DESCENT AREAS IN USE



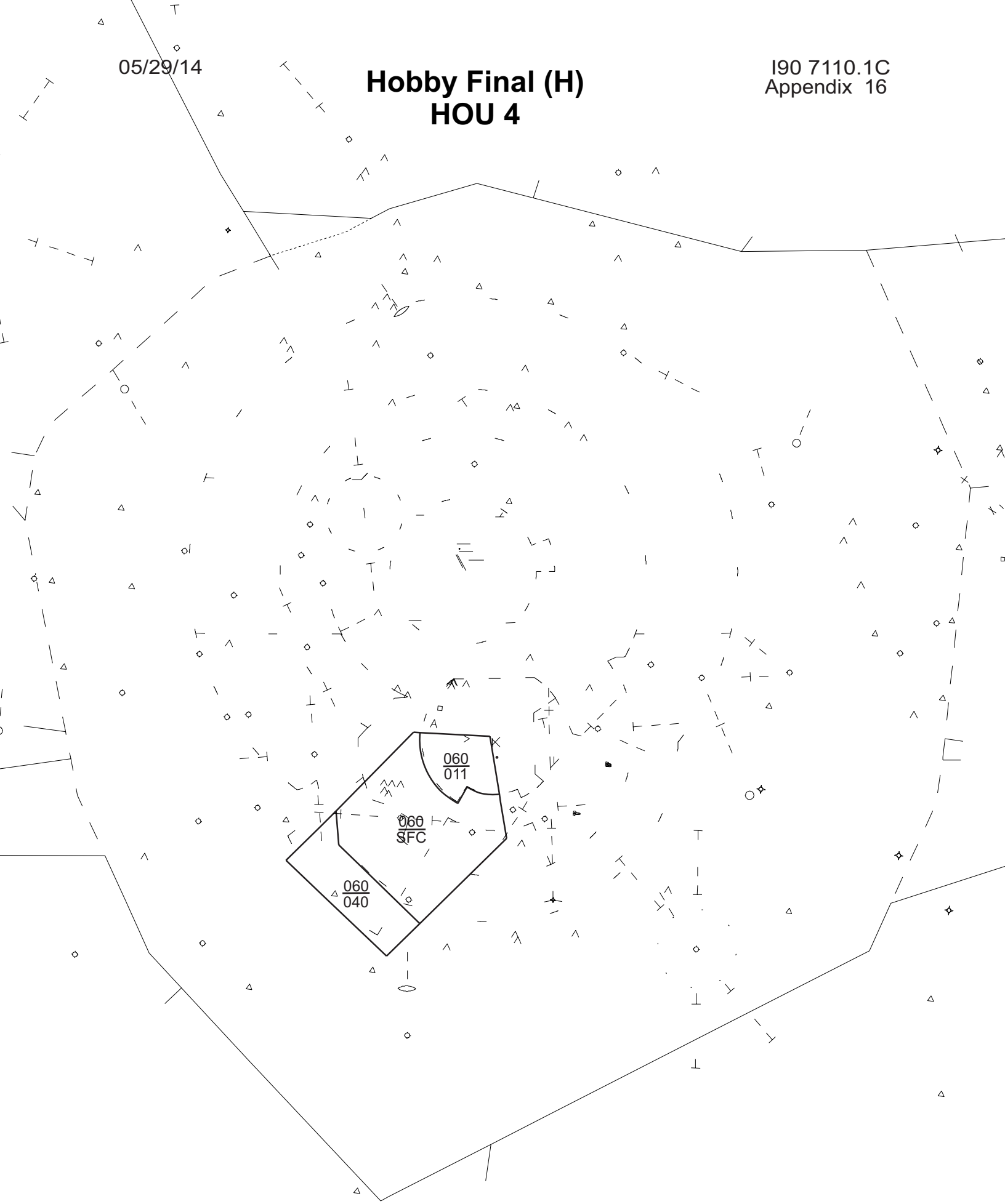
Hobby Final (H)
West or 15 or 33
HOU 12



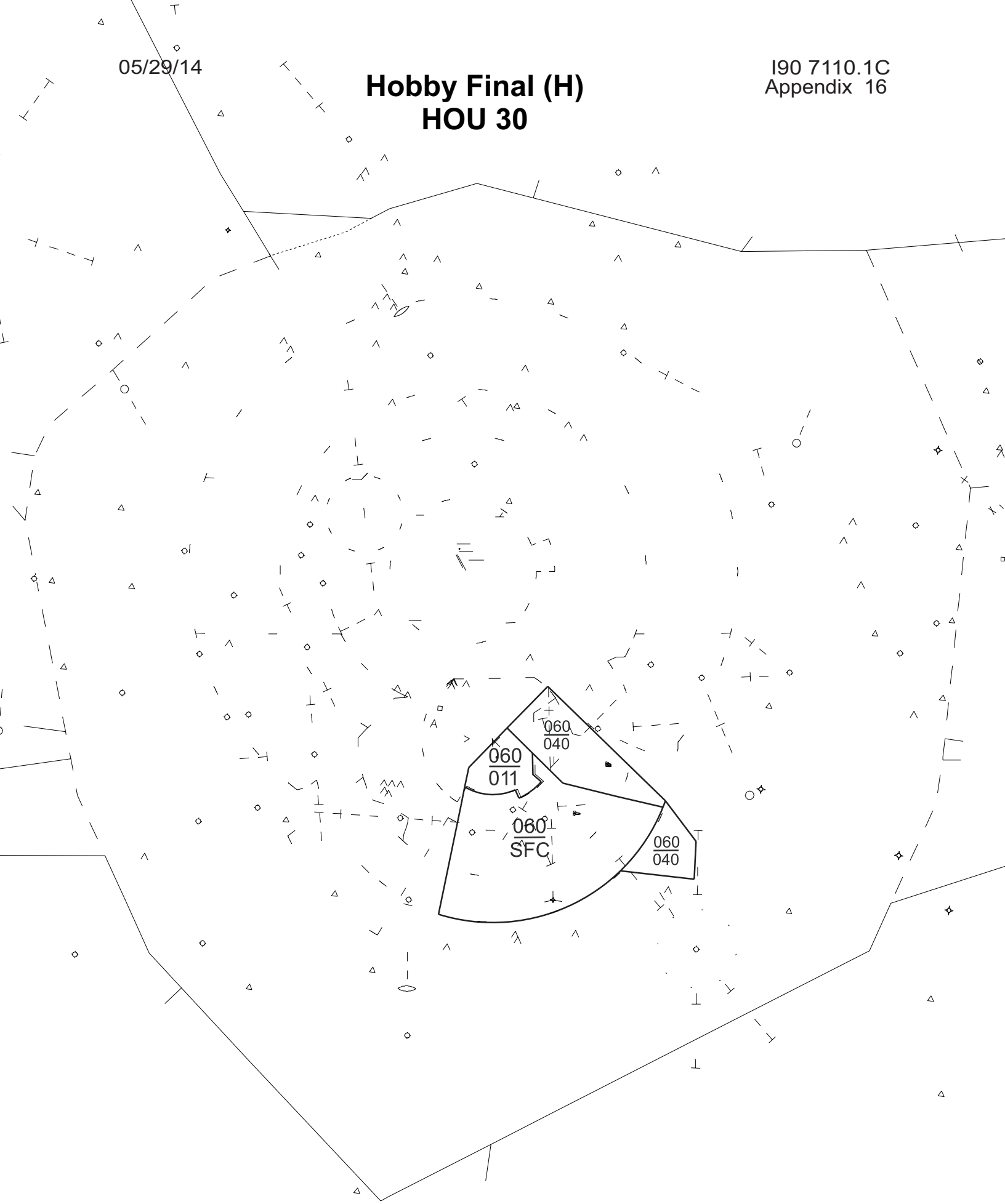
Hobby Final (H)
East
HOU 12



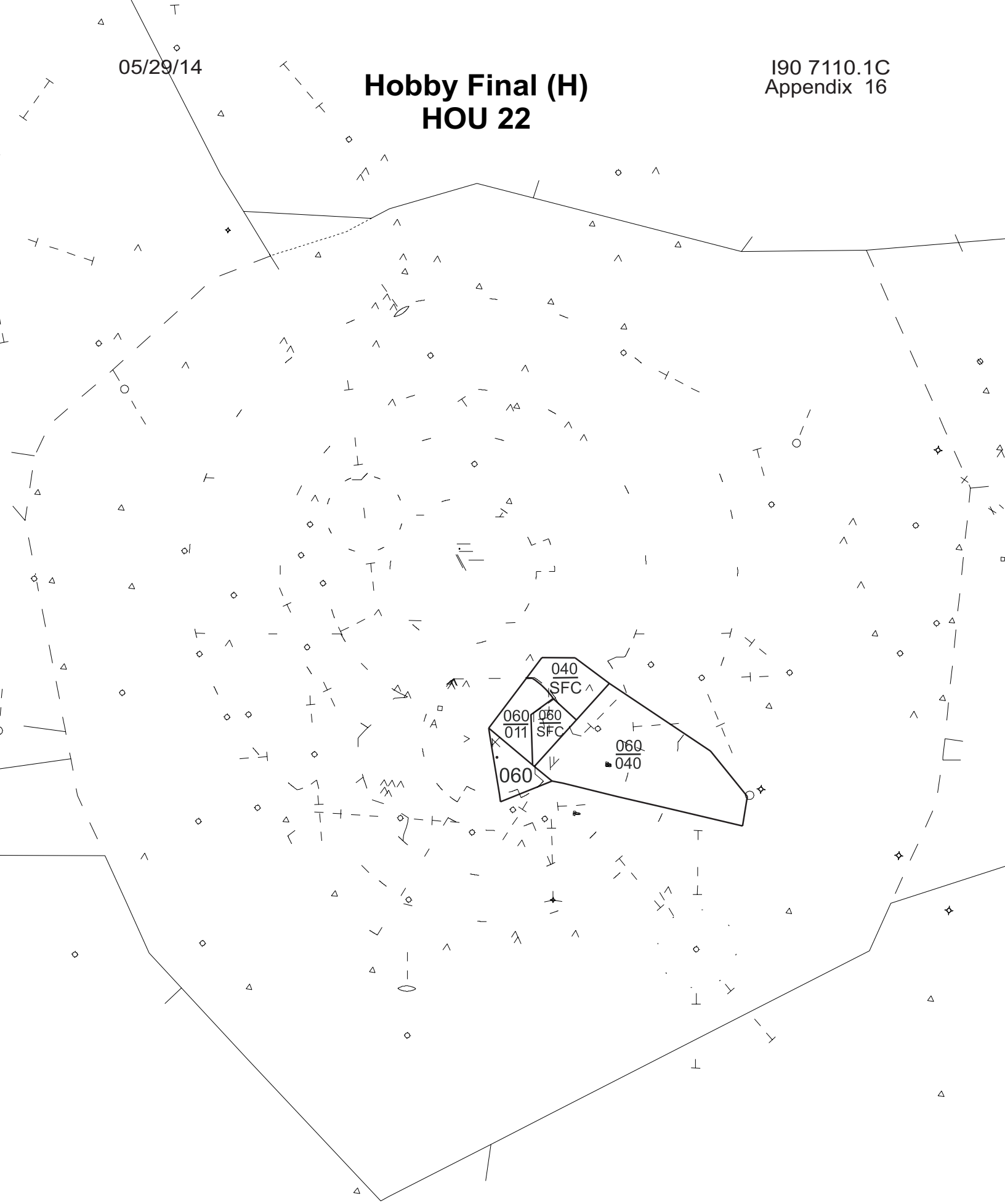
Hobby Final (H)
HOU 4



Hobby Final (H)
HOU 30

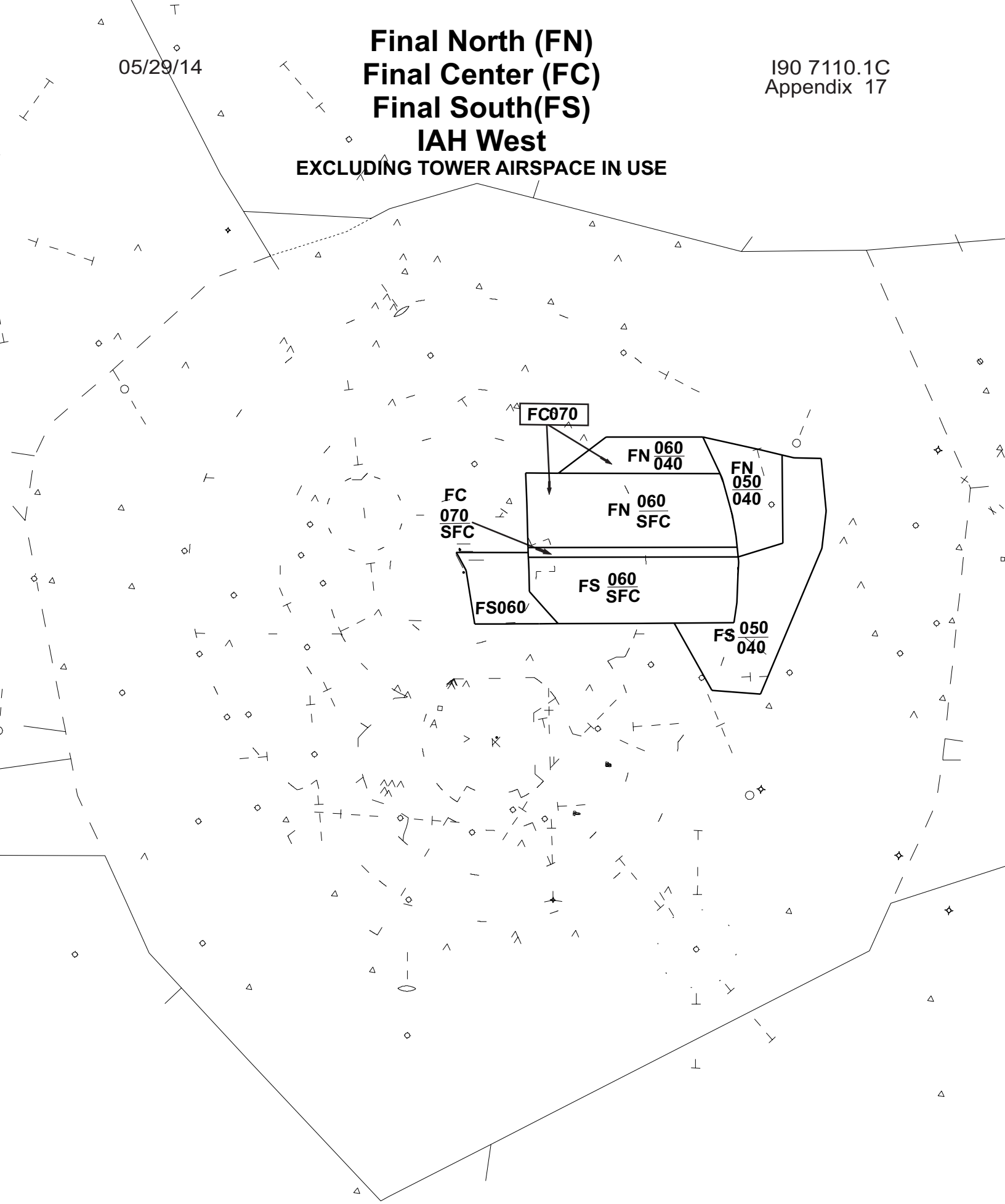


Hobby Final (H)
HOU 22



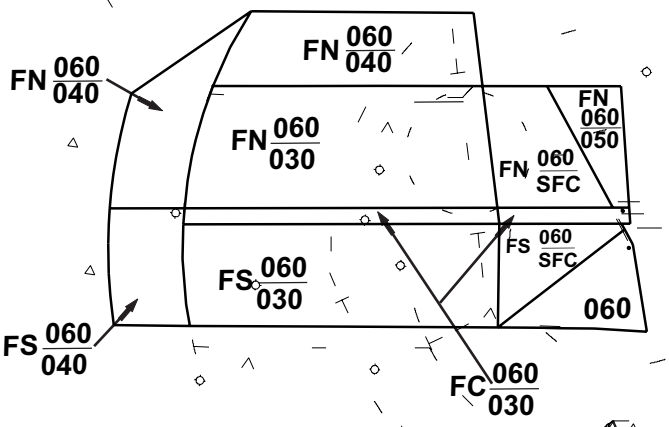
Final North (FN)
Final Center (FC)
Final South(FS)
IAH West

EXCLUDING TOWER AIRSPACE IN USE



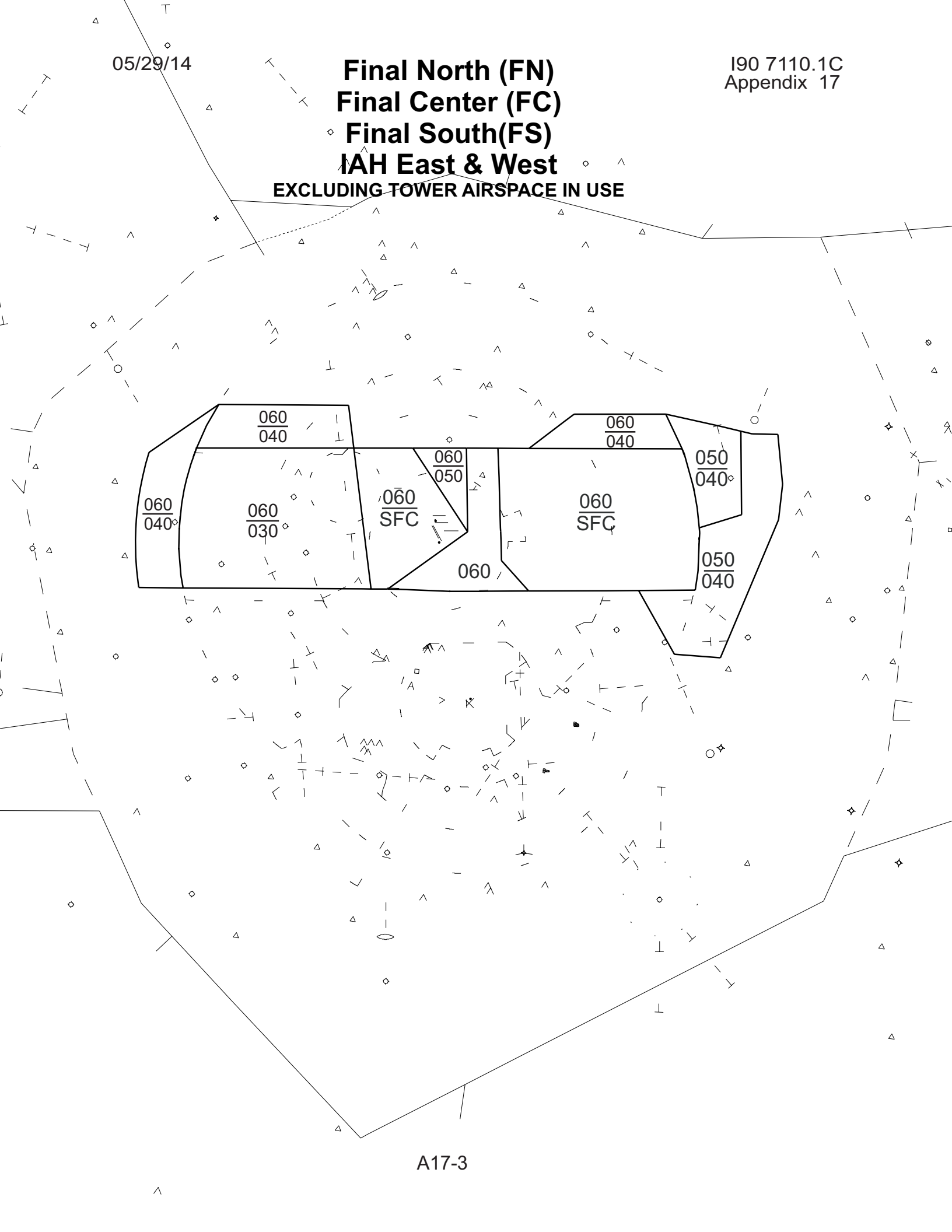
Final North (FN)
Final Center (FC)
Final South(FS)
IAH East

EXCLUDING TOWER AIRSPACE IN USE

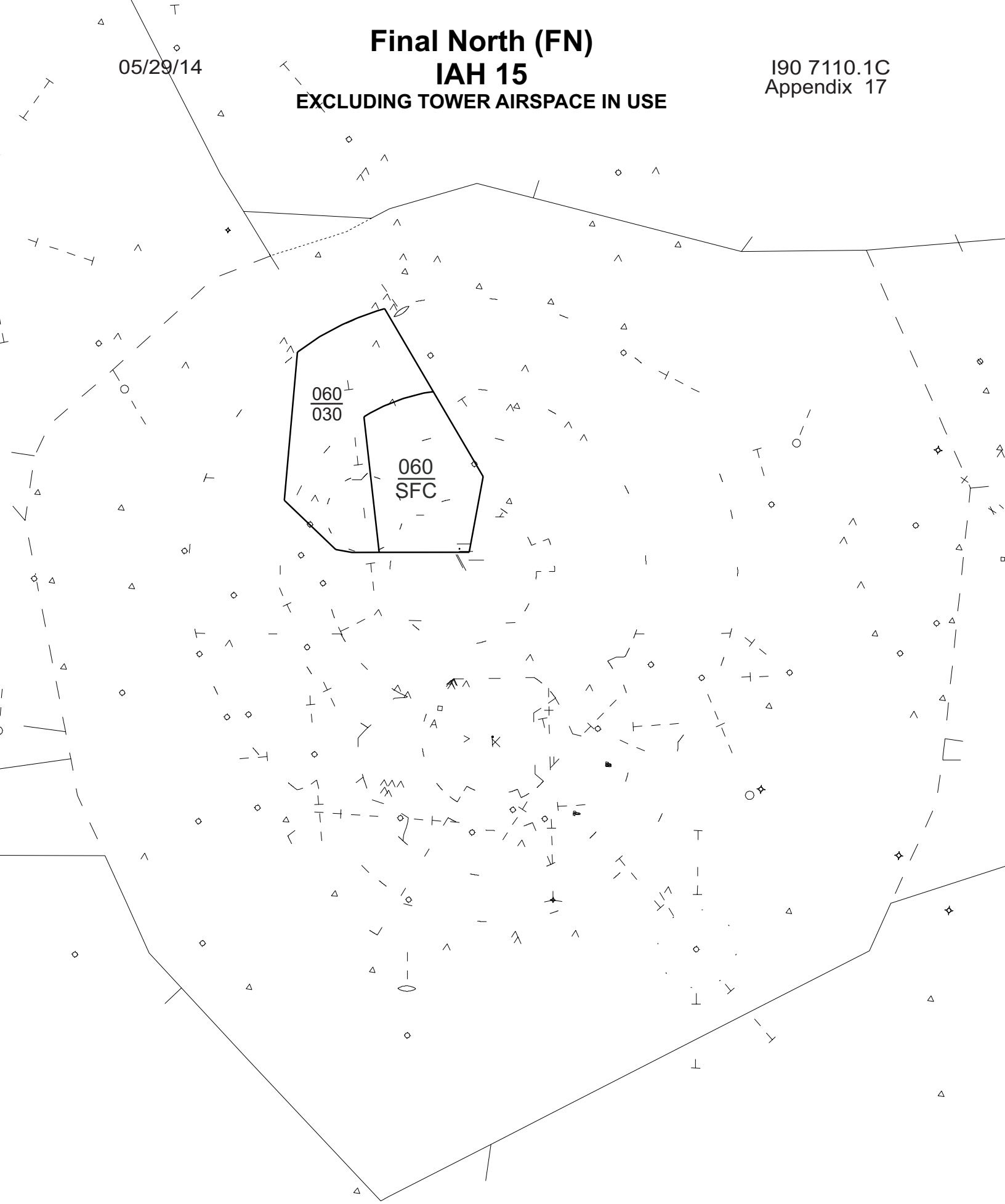


Final North (FN)
Final Center (FC)
Final South(FS)
IAH East & West

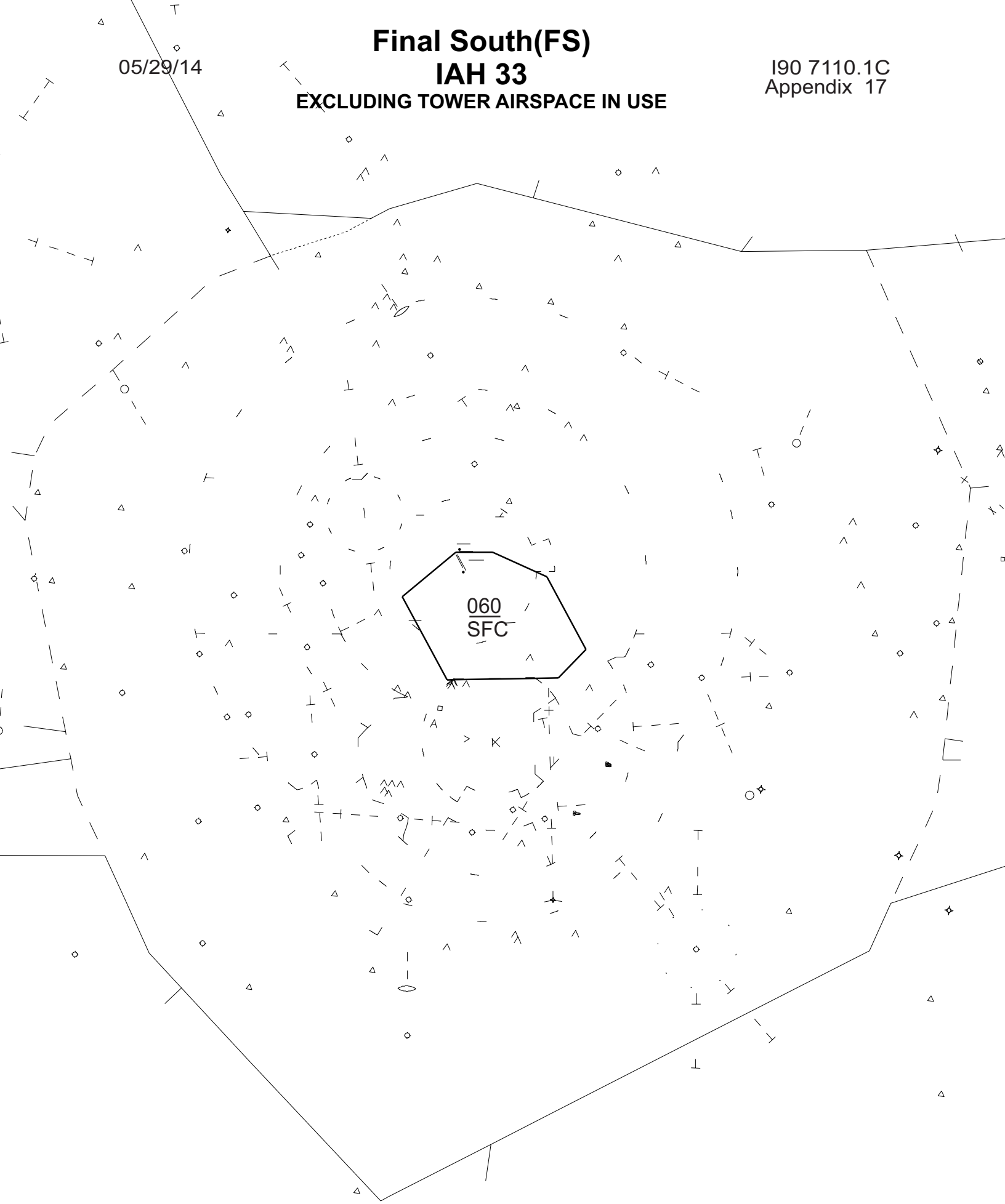
EXCLUDING TOWER AIRSPACE IN USE



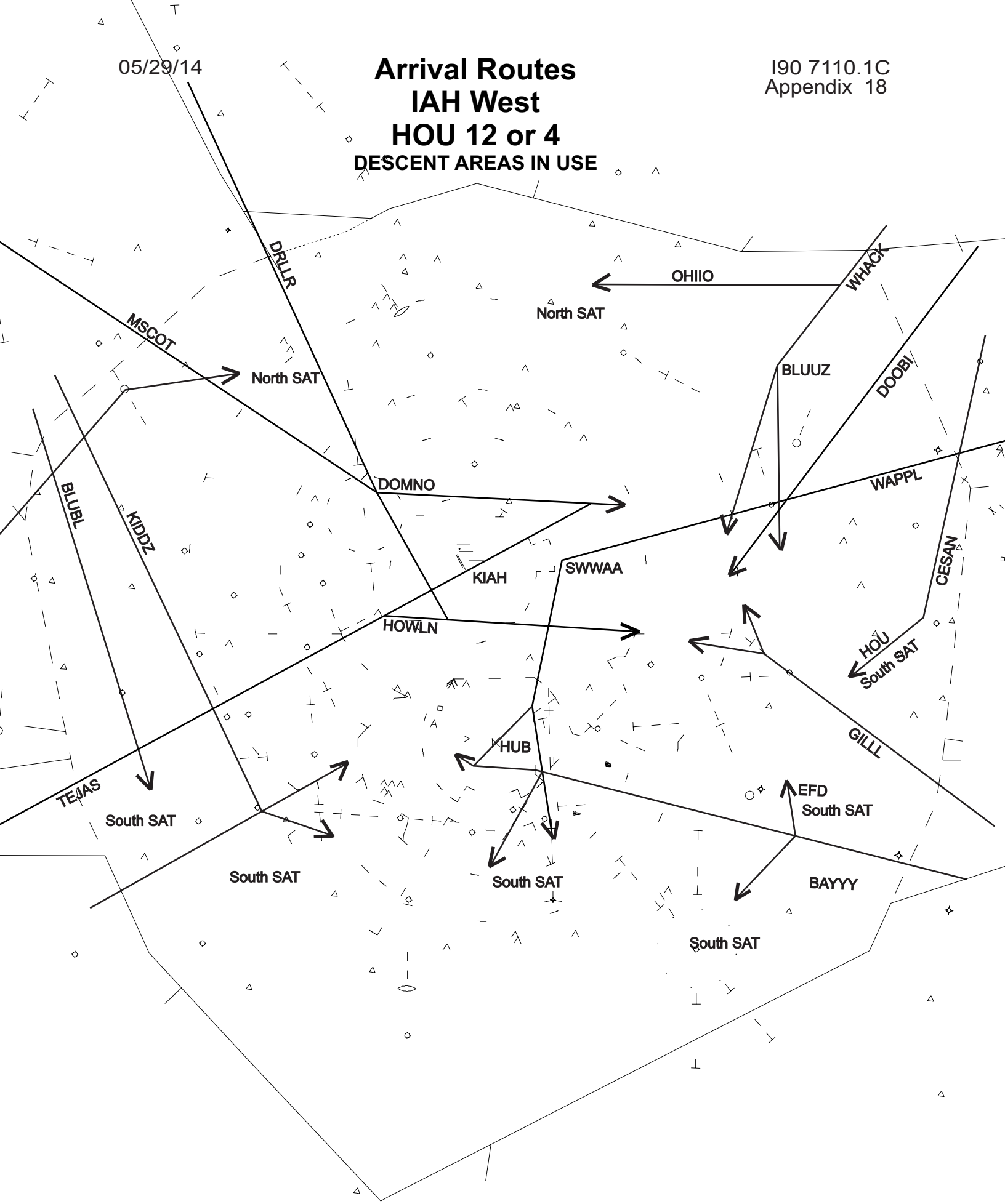
Final North (FN)
IAH 15
EXCLUDING TOWER AIRSPACE IN USE



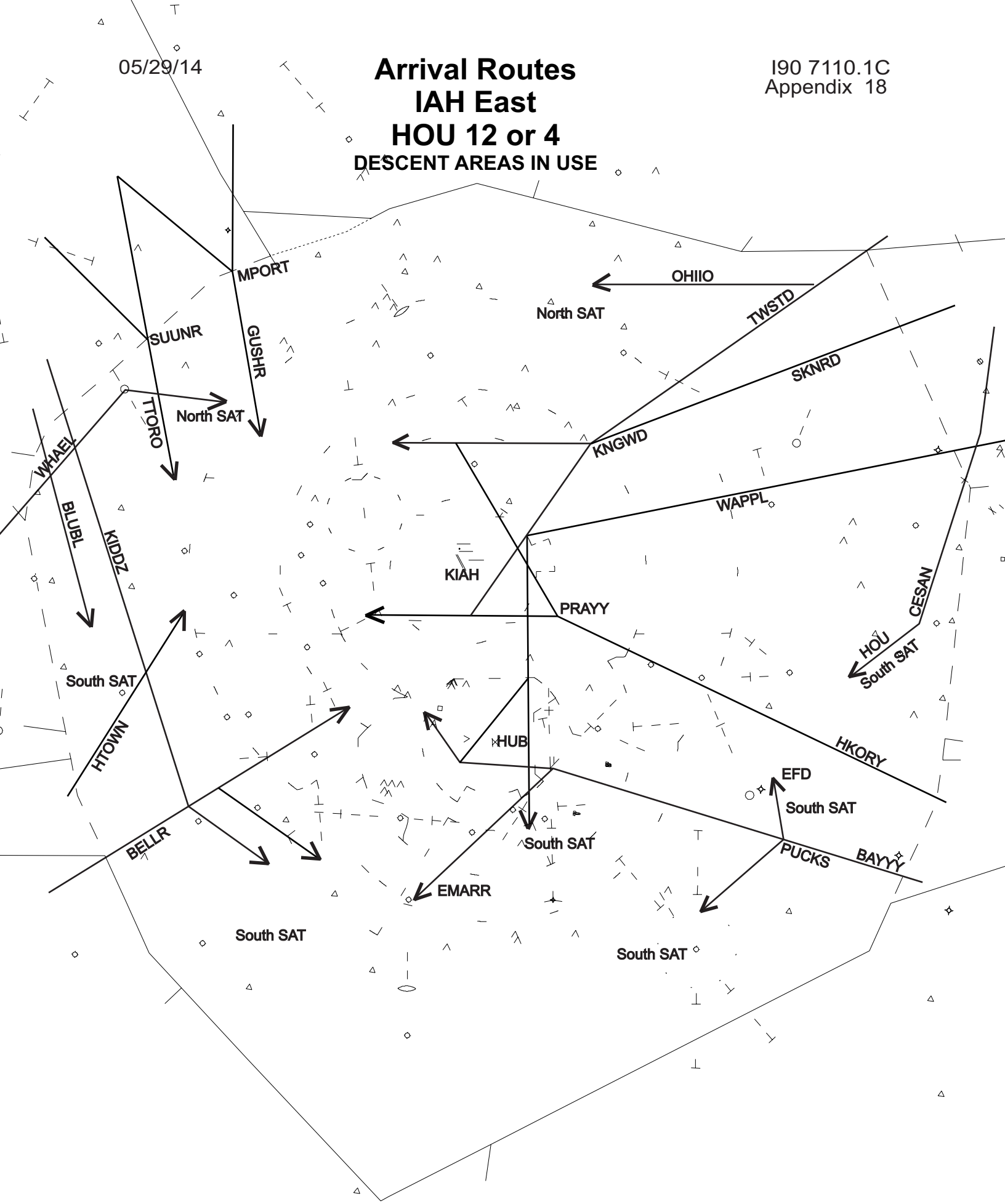
Final South(FS)
IAH 33
EXCLUDING TOWER AIRSPACE IN USE



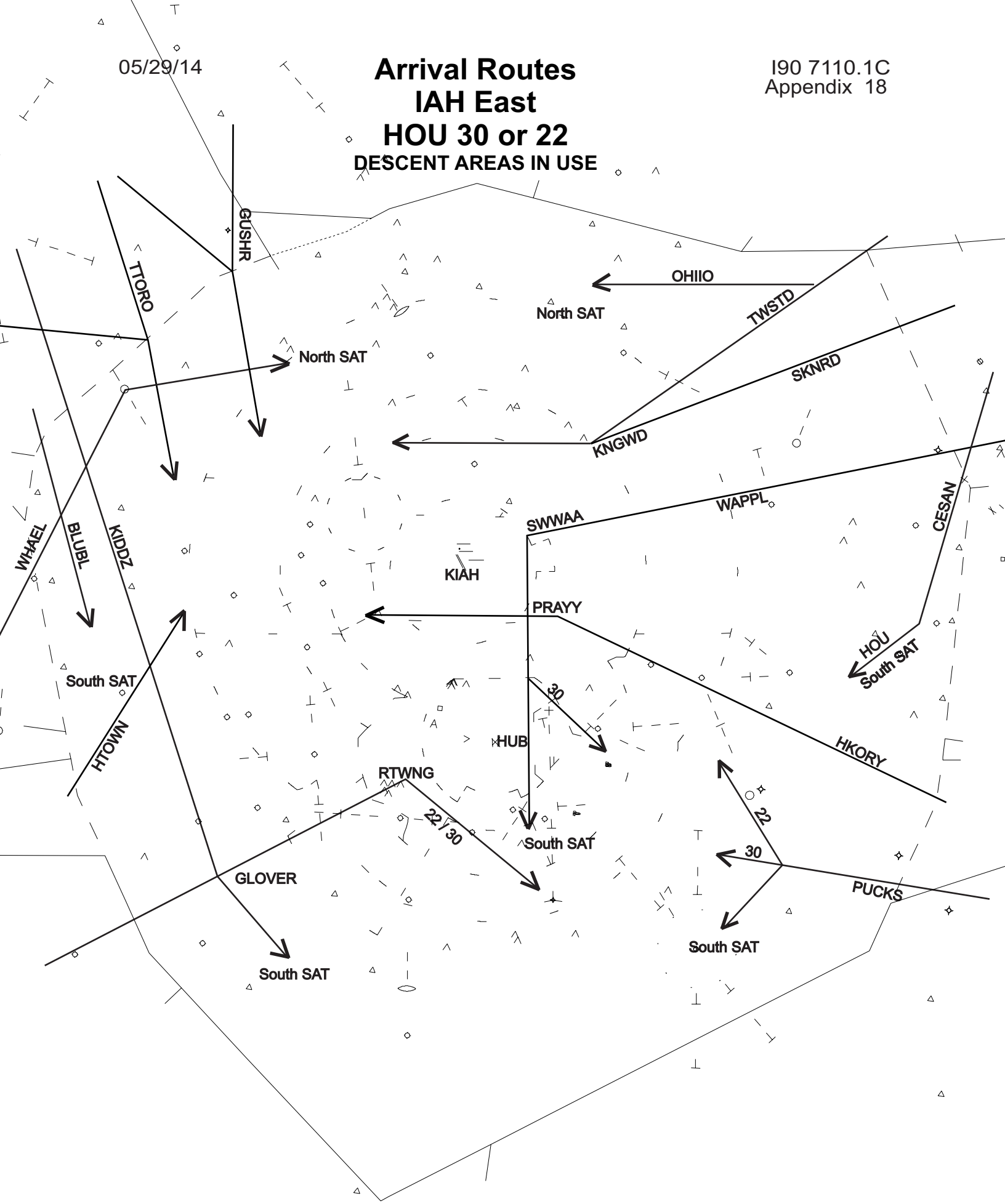
Arrival Routes
IAH West
HOU 12 or 4
DESCENT AREAS IN USE



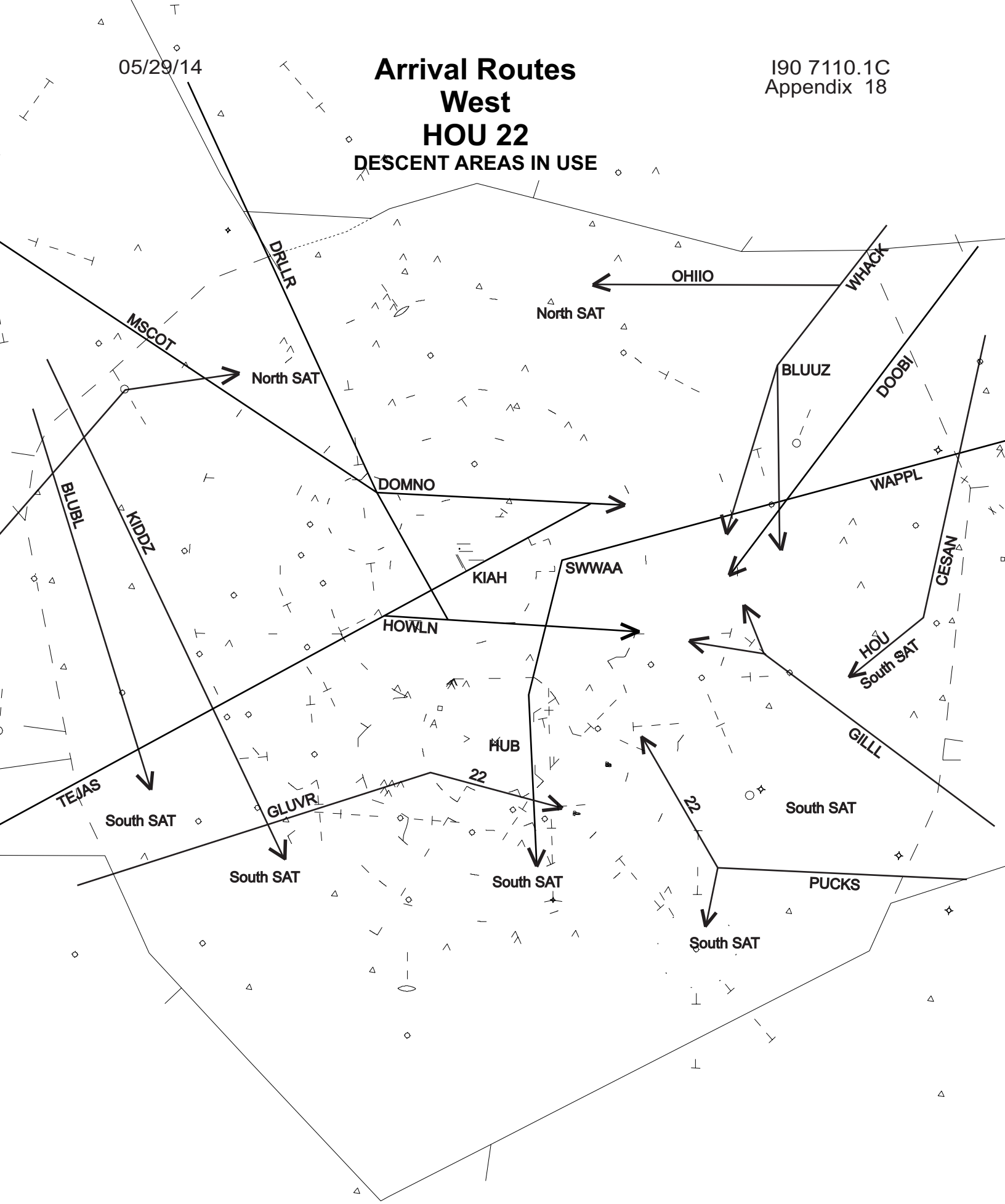
Arrival Routes
IAH East
HOU 12 or 4
DESCENT AREAS IN USE



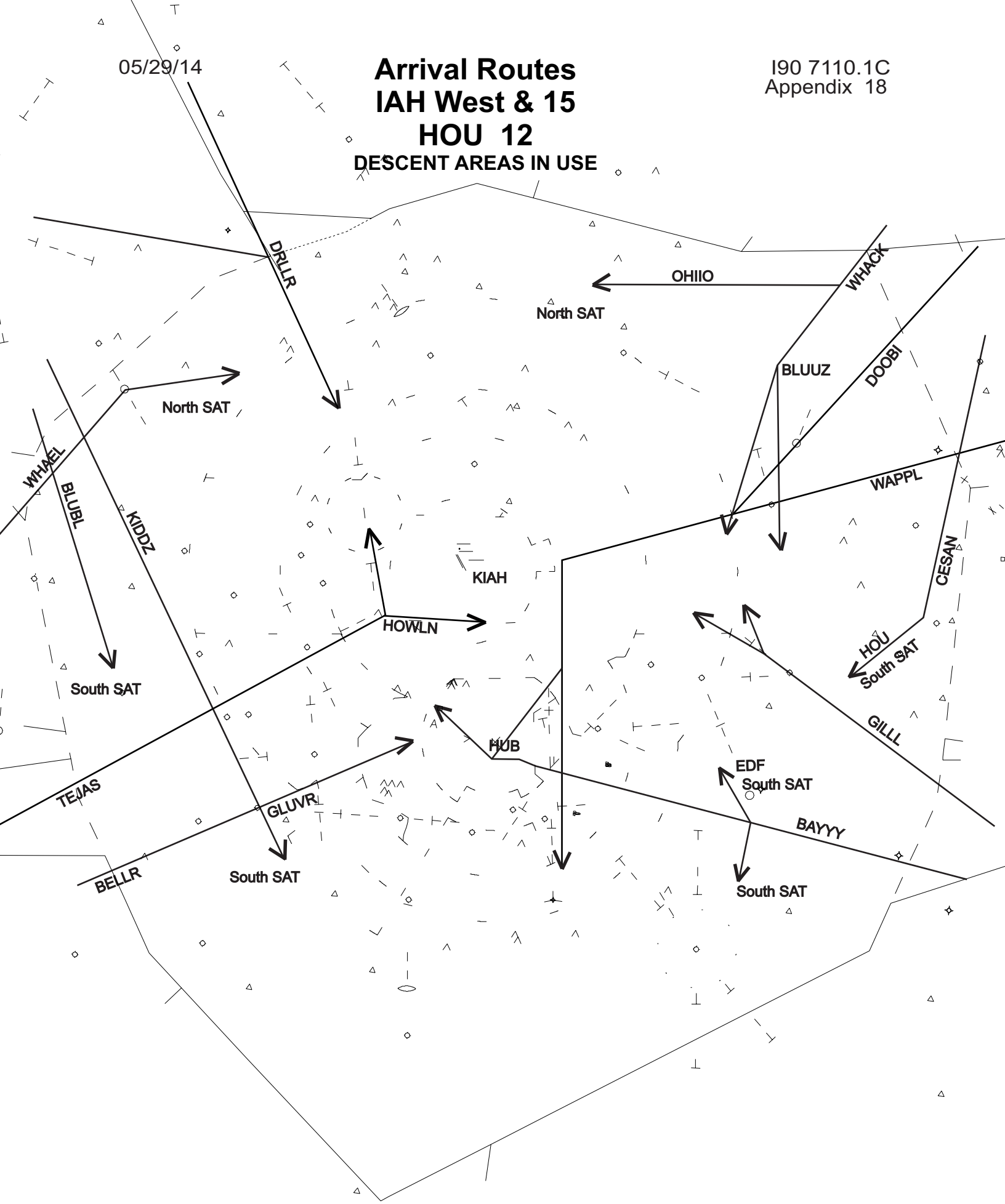
Arrival Routes
IAH East
HOU 30 or 22
DESCENT AREAS IN USE



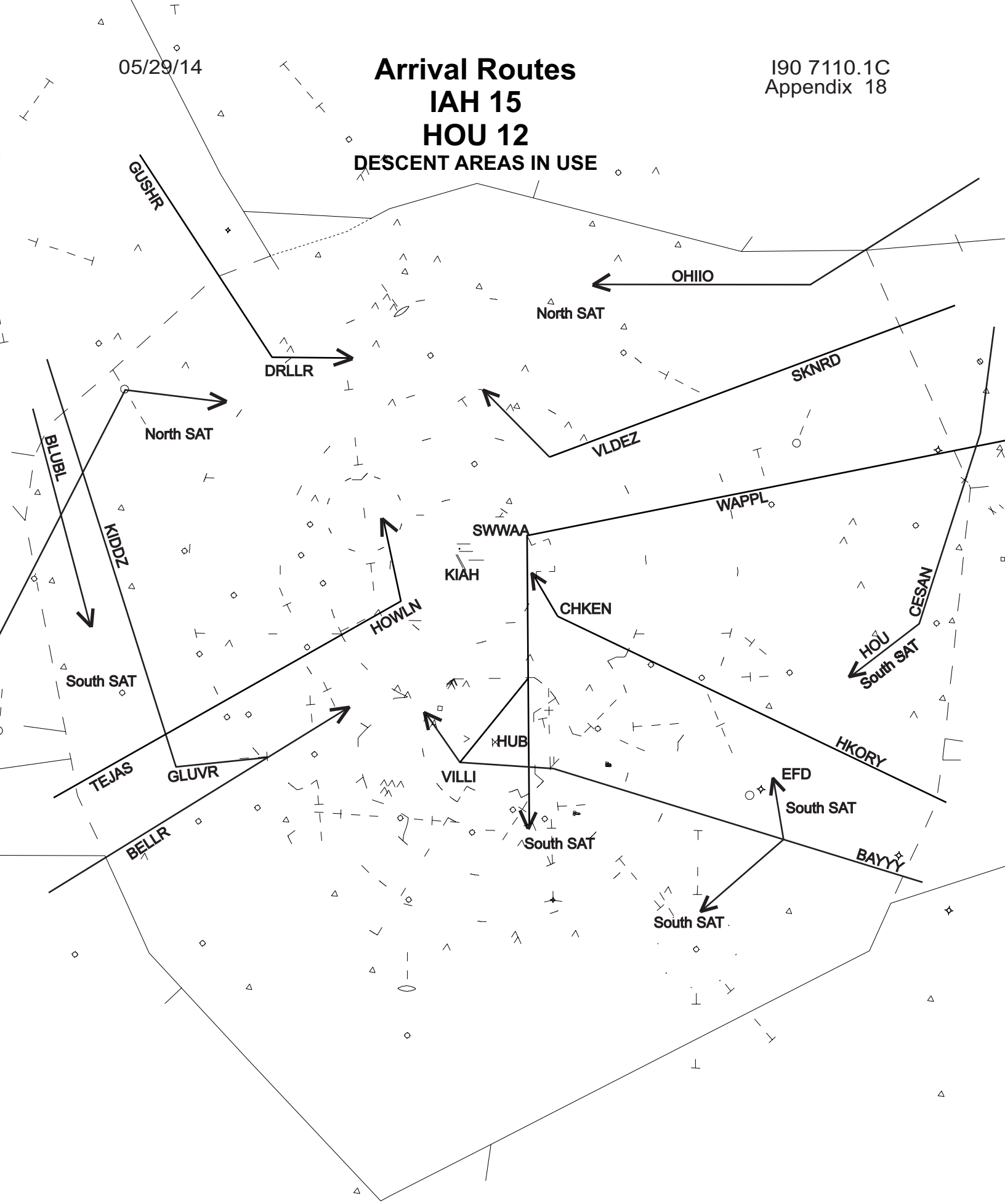
Arrival Routes
West
HOU 22
DESCENT AREAS IN USE



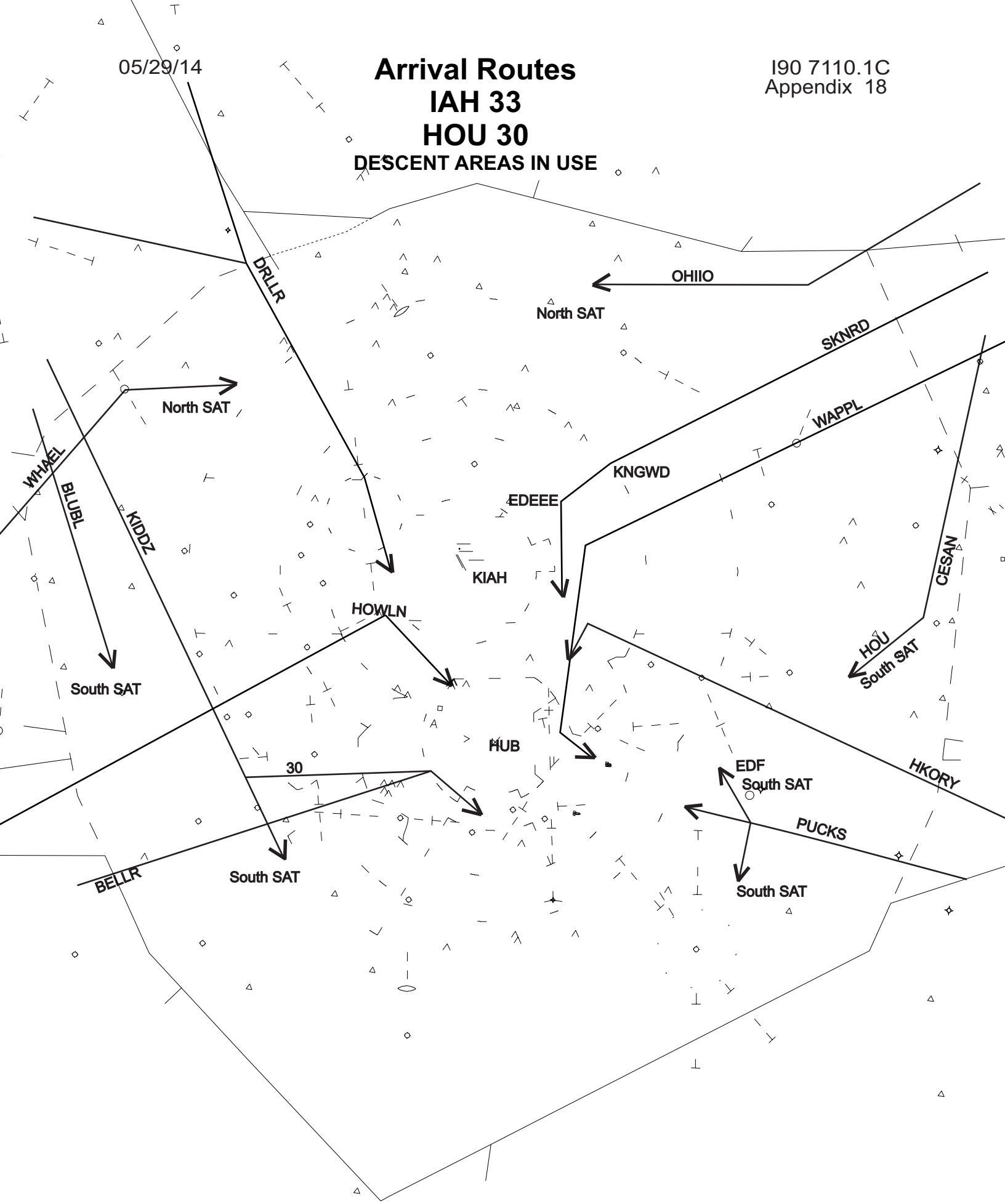
Arrival Routes
IAH West & 15
HOU 12
DESCENT AREAS IN USE



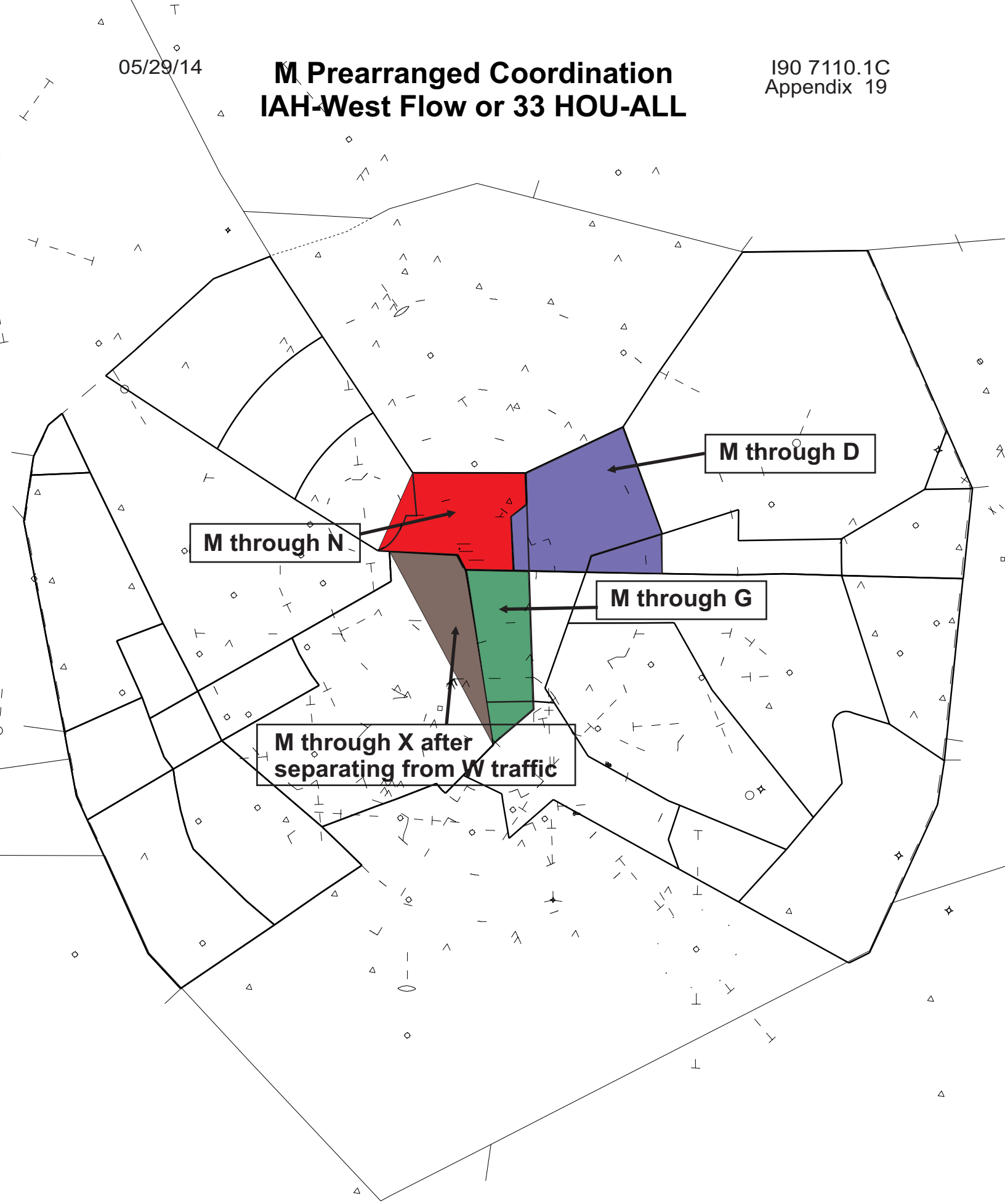
Arrival Routes
IAH 15
HOU 12
DESCENT AREAS IN USE



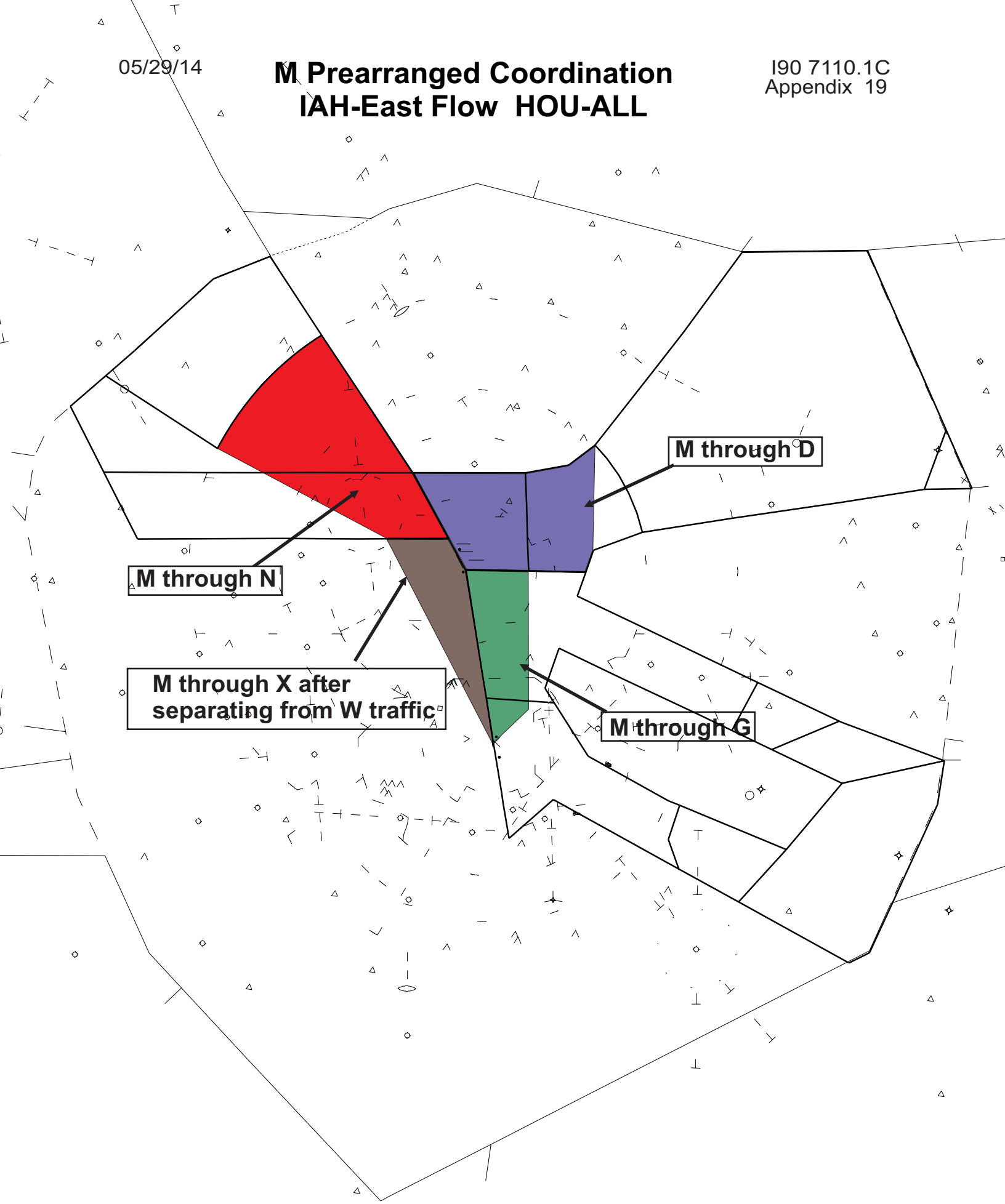
Arrival Routes
IAH 33
HOU 30
DESCENT AREAS IN USE



M Prearranged Coordination
IAH-West Flow or 33 HOU-ALL

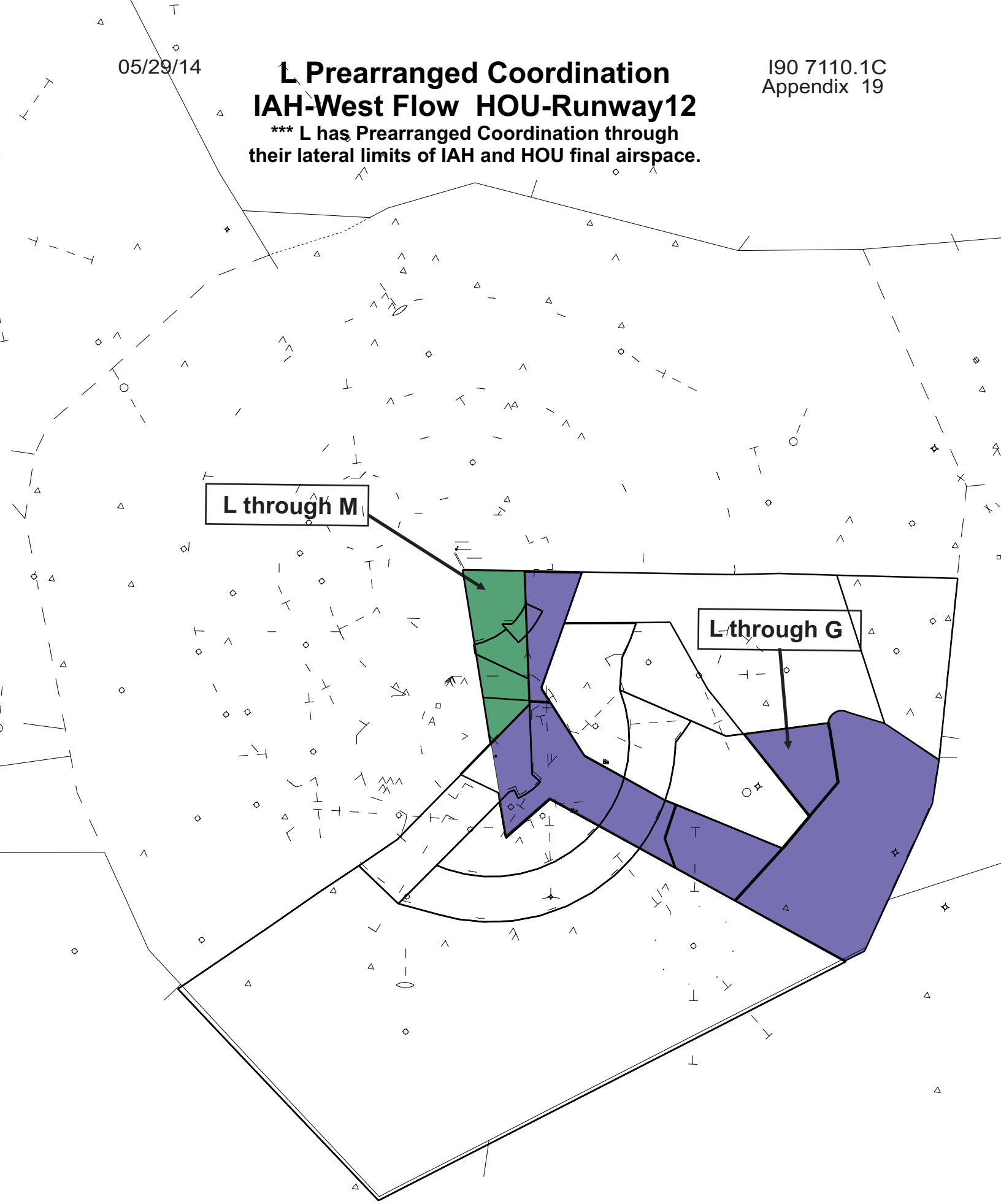


M Prearranged Coordination
IAH-East Flow HOU-ALL



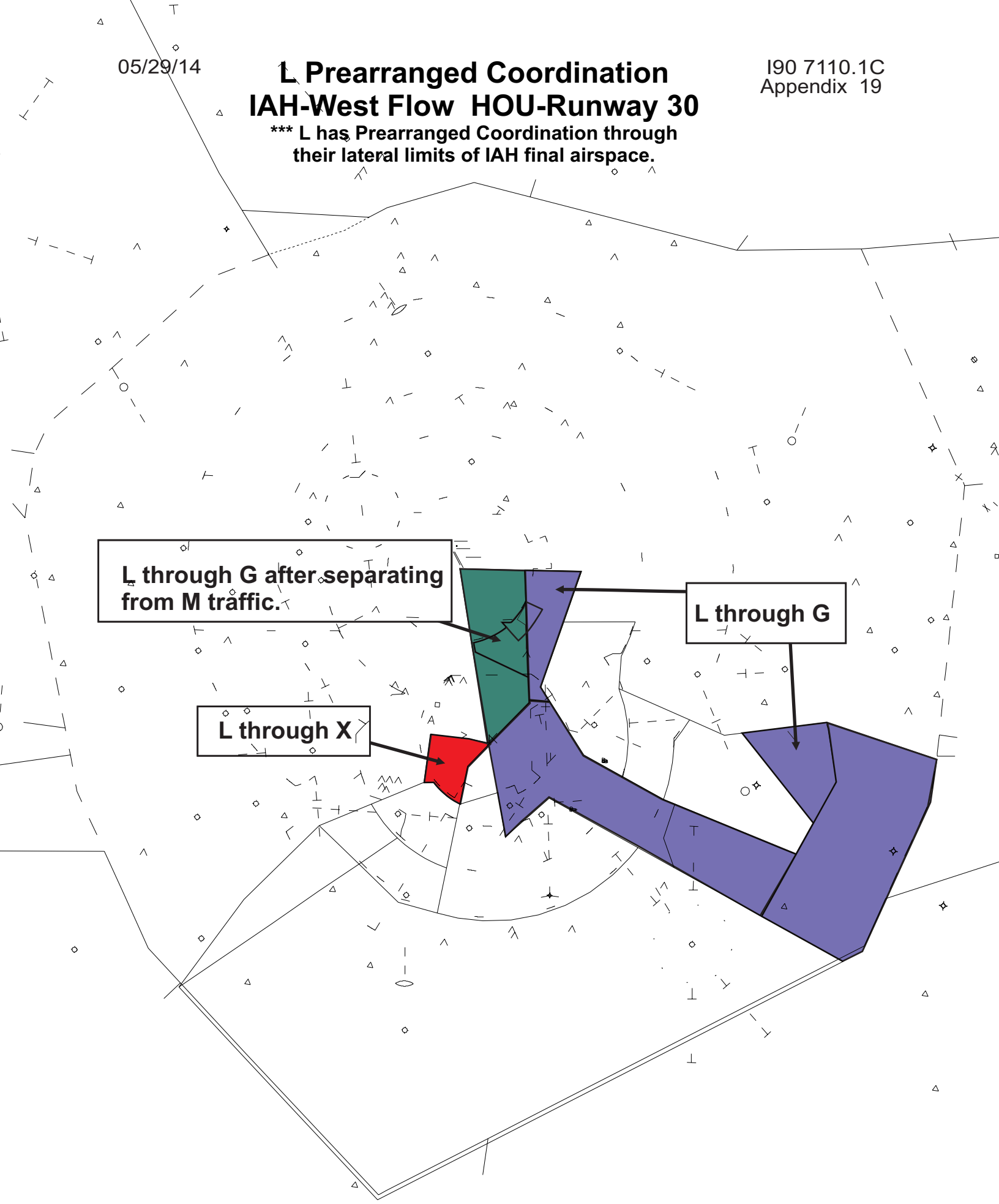
L Prearranged Coordination
IAH-West Flow HOU-Runway12

***** L has Prearranged Coordination through their lateral limits of IAH and HOU final airspace.**



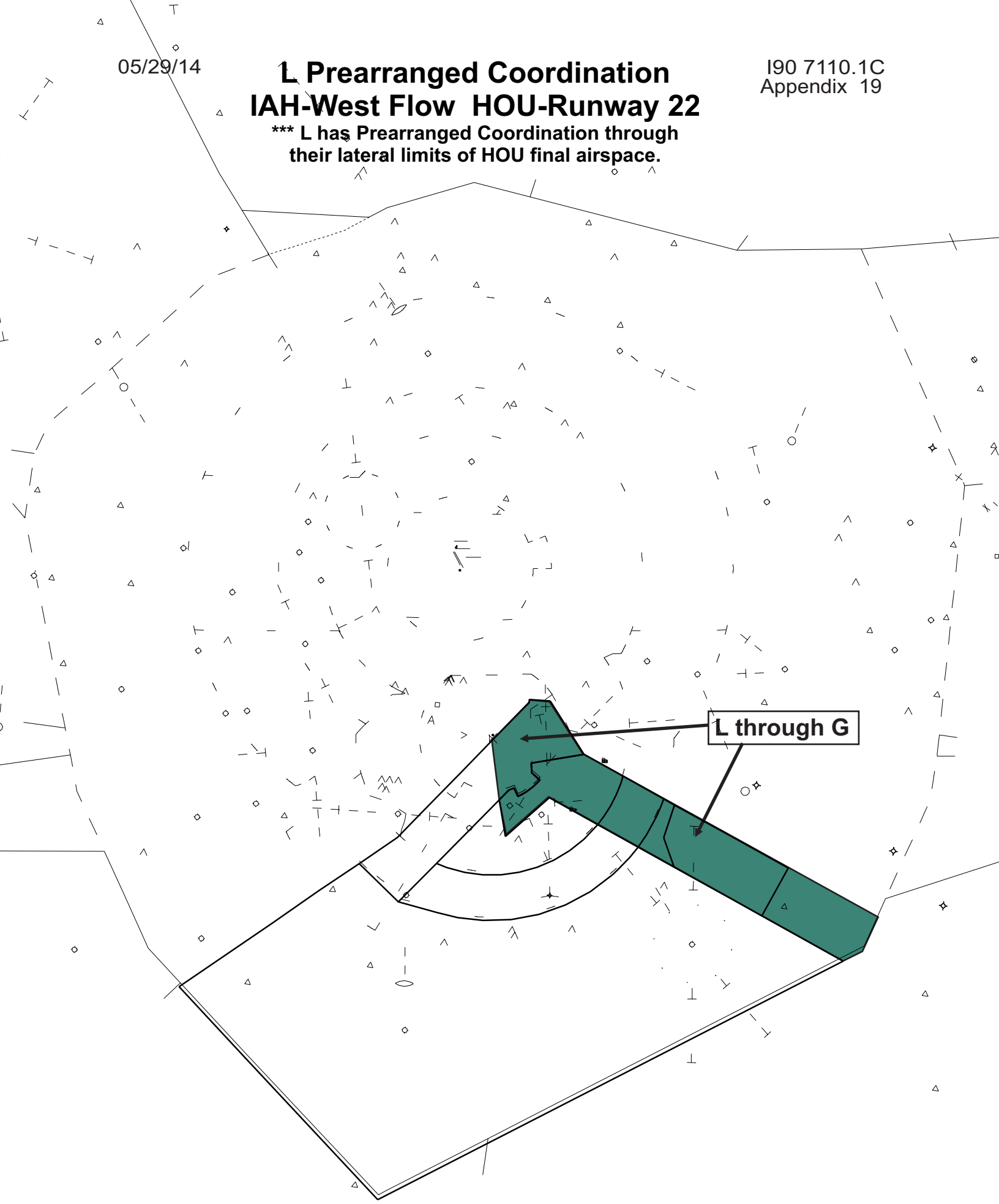
L Prearranged Coordination
IAH-West Flow HOU-Runway 30

***** L has Prearranged Coordination through their lateral limits of IAH final airspace.**



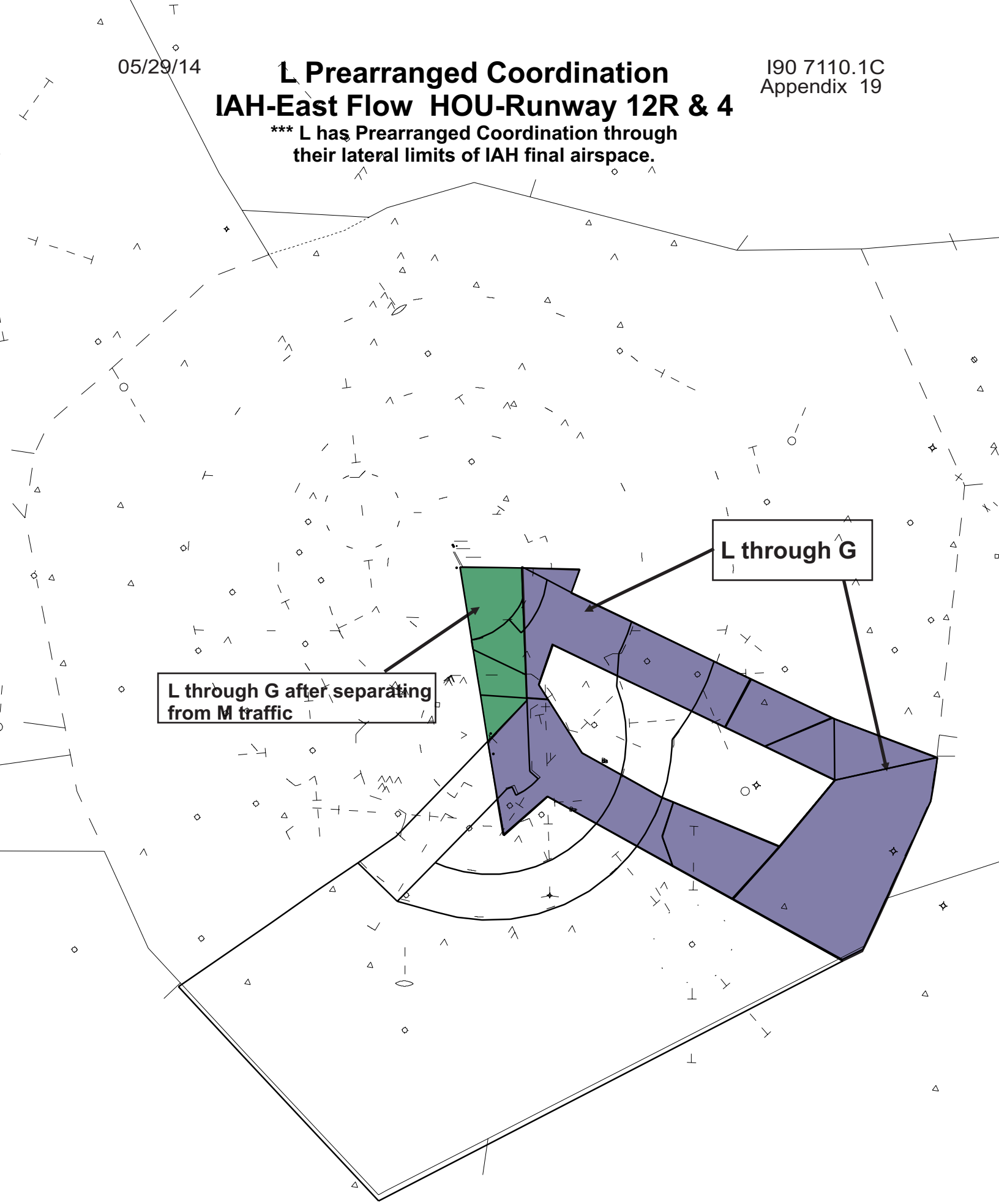
L Prearranged Coordination
IAH-West Flow HOU-Runway 22

***** L has Prearranged Coordination through their lateral limits of HOU final airspace.**



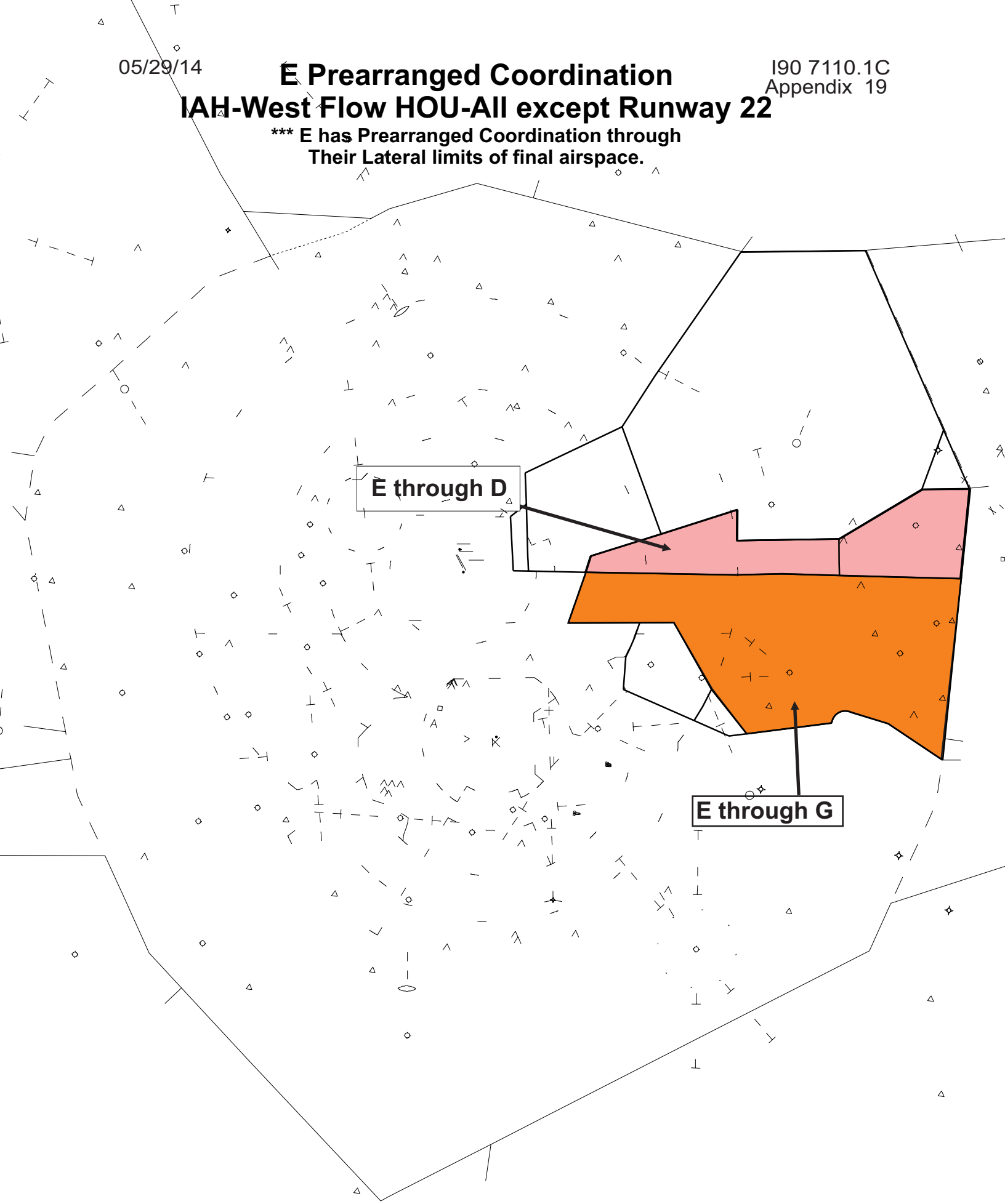
L Prearranged Coordination
IAH-East Flow HOU-Runway 12R & 4

***** L has Prearranged Coordination through their lateral limits of IAH final airspace.**



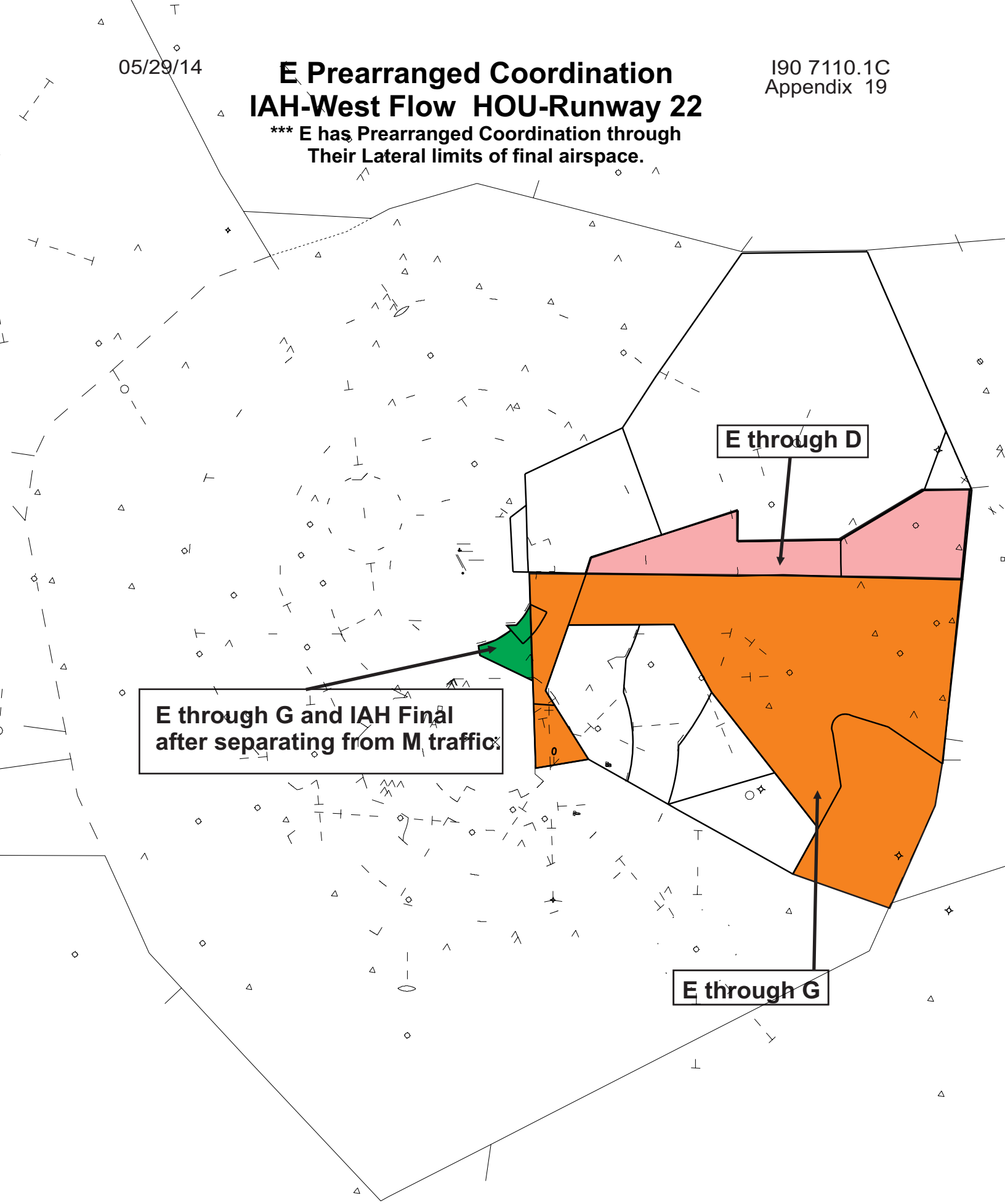
E Prearranged Coordination
IAH-West Flow HOU-All except Runway 22

***** E has Prearranged Coordination through
Their Lateral limits of final airspace.**

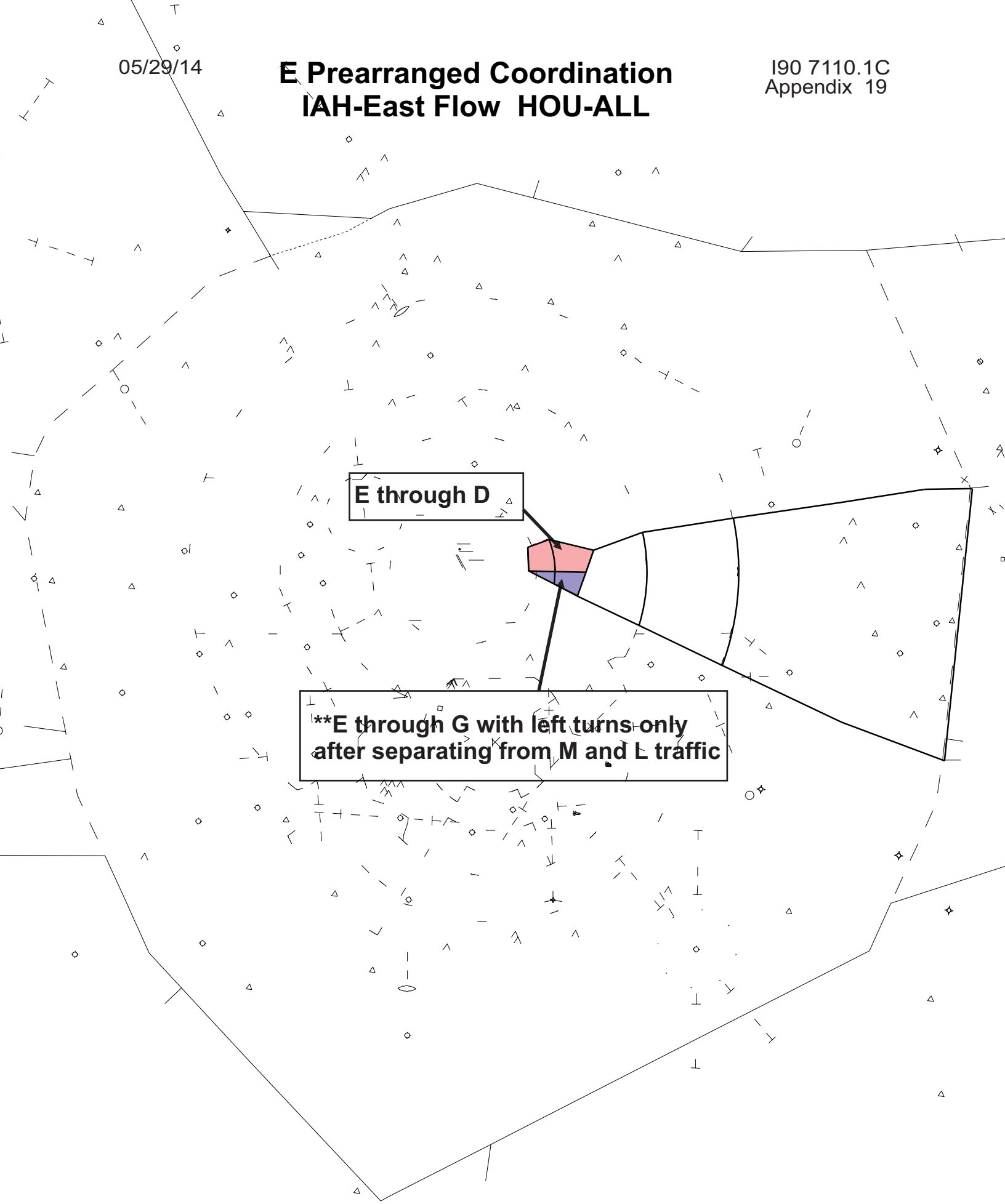


E Prearranged Coordination
IAH-West Flow HOU-Runway 22

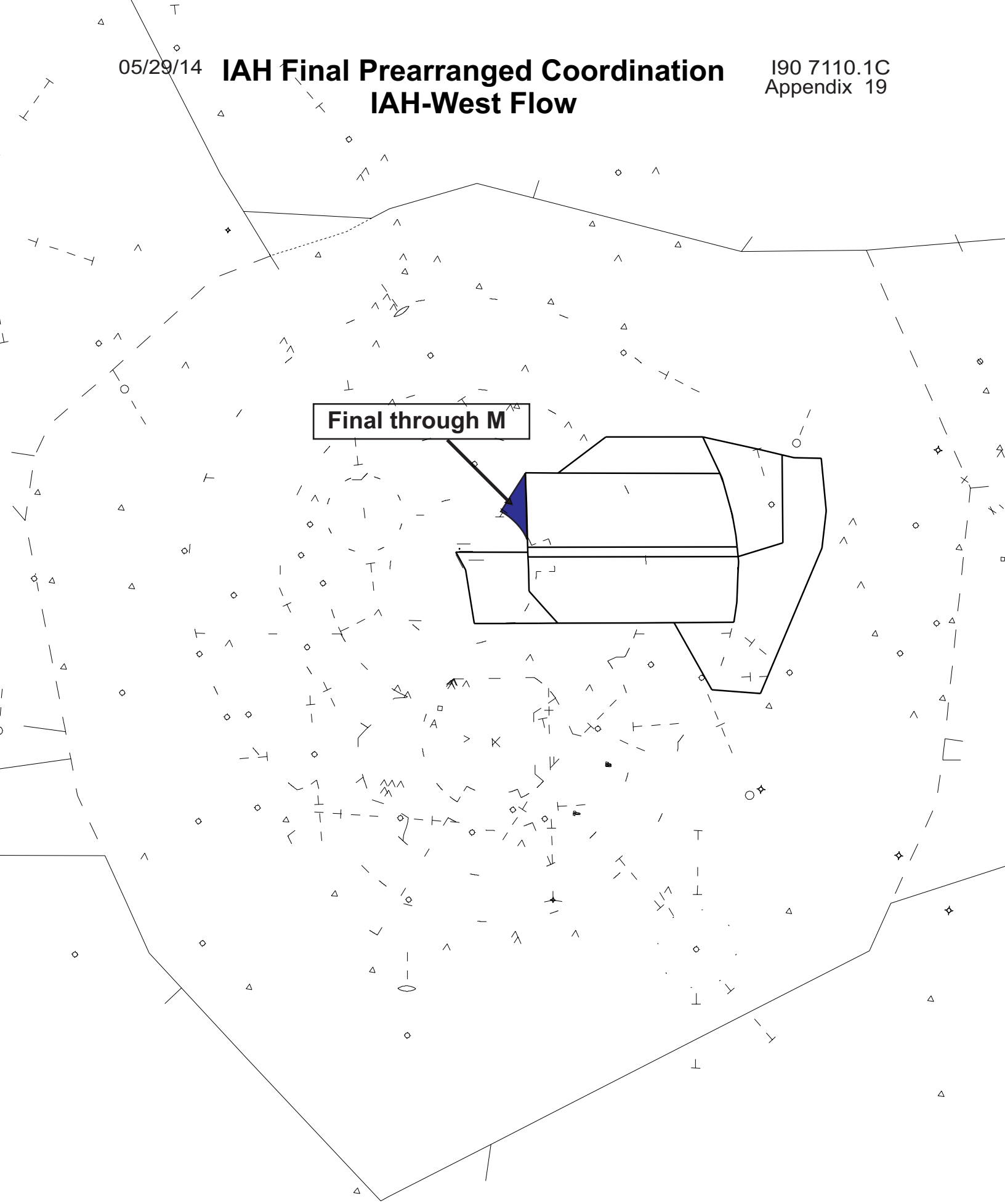
***** E has Prearranged Coordination through Their Lateral limits of final airspace.**



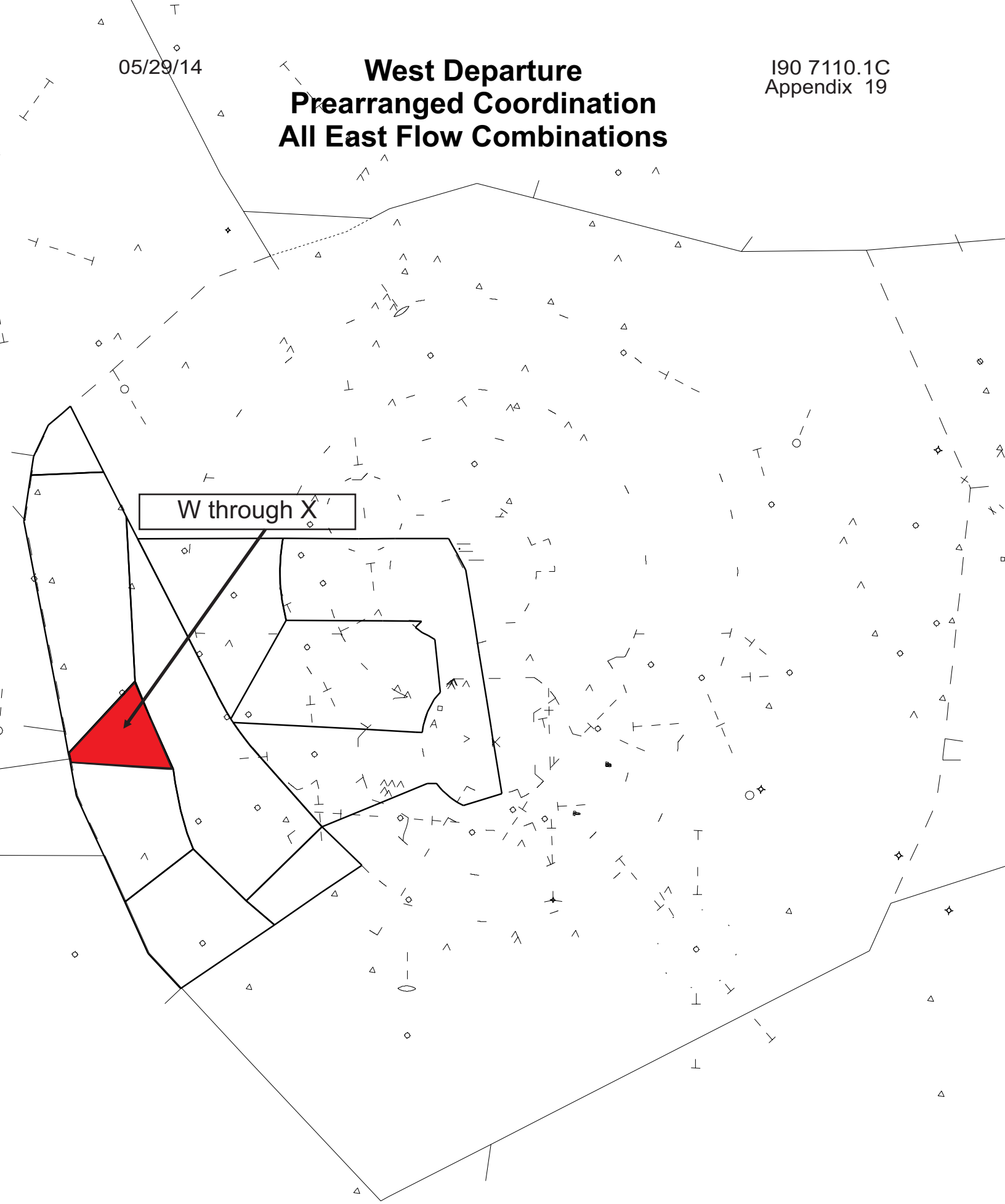
E Prearranged Coordination
IAH-East Flow HOU-ALL



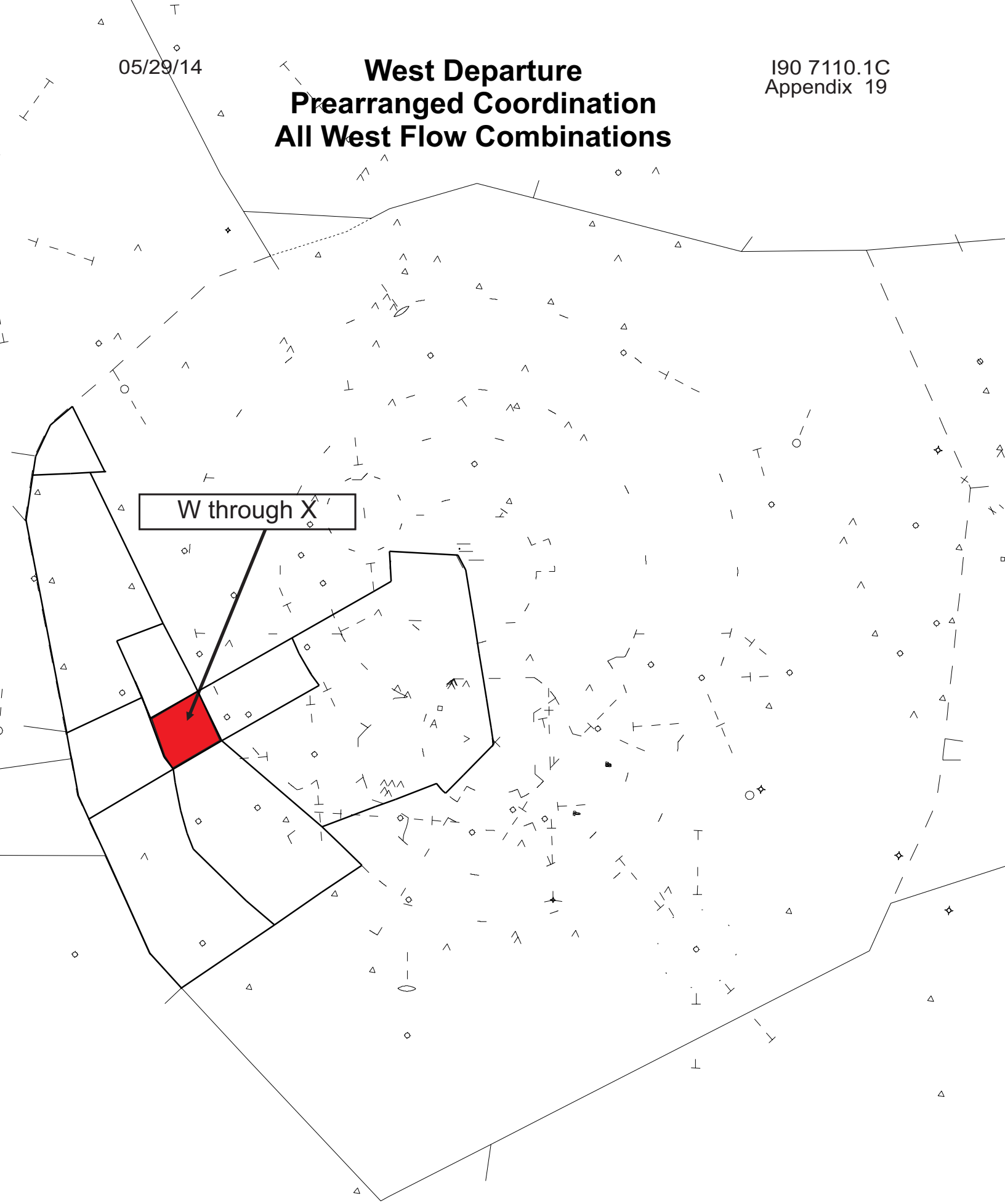
IAH Final Prearranged Coordination
IAH-West Flow



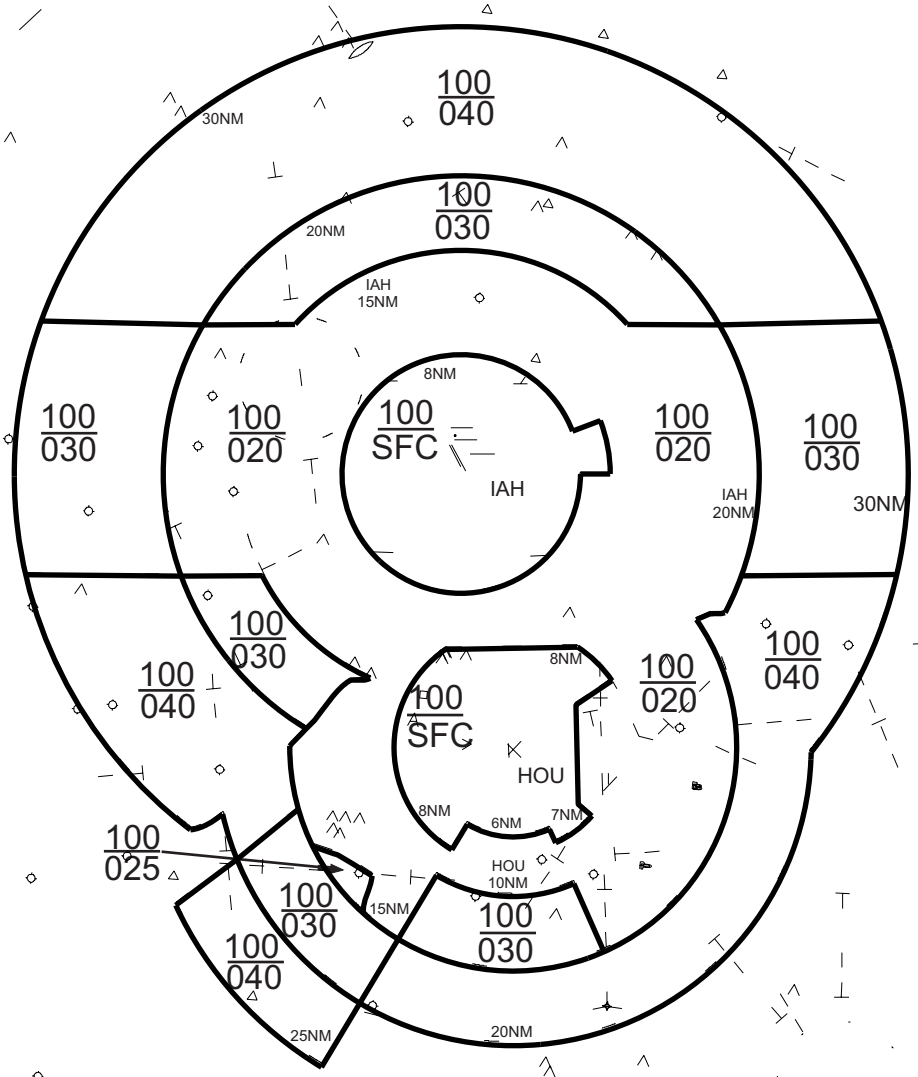
West Departure
Prearranged Coordination
All East Flow Combinations



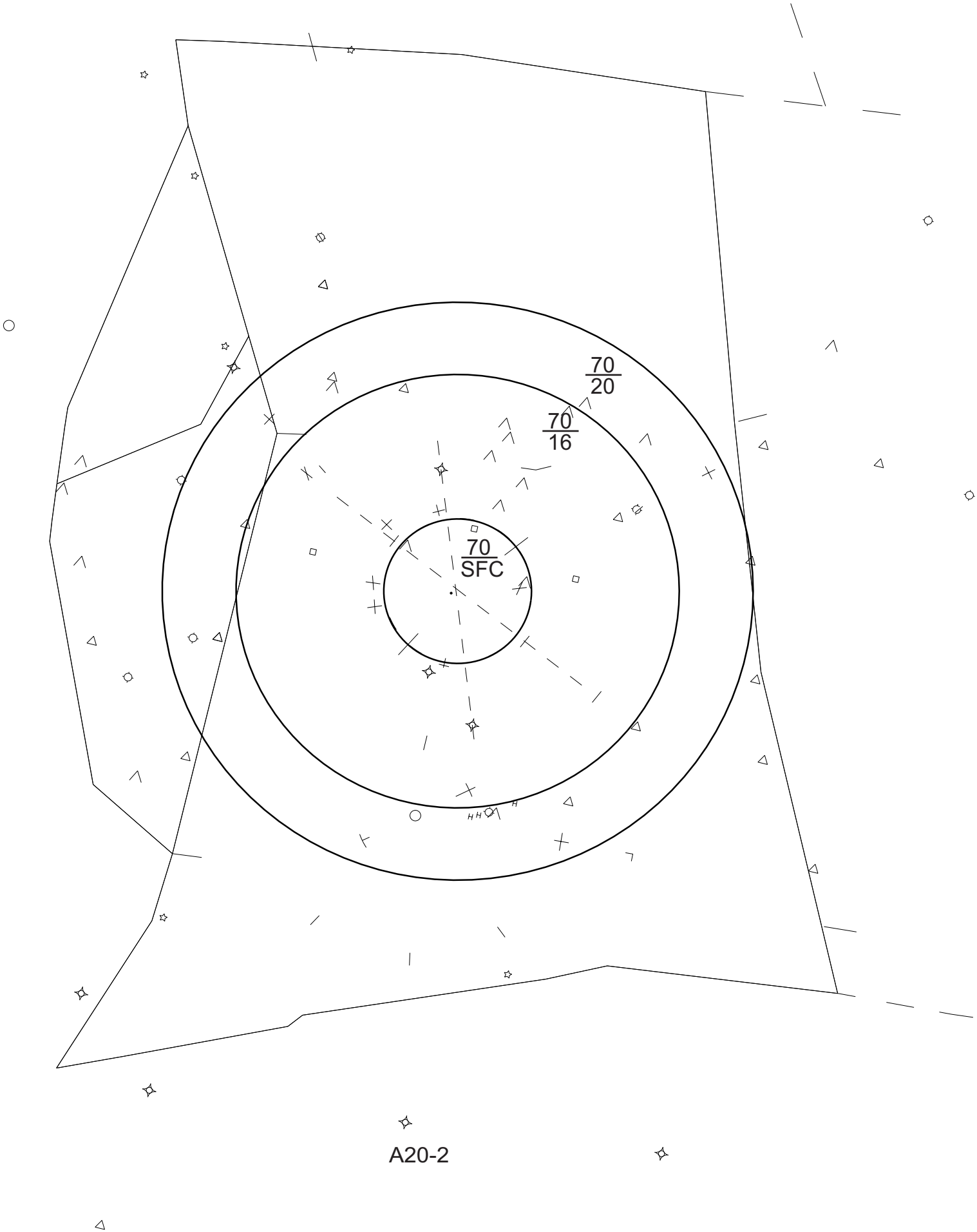
West Departure
Prearranged Coordination
All West Flow Combinations



Class B Airspace
HOU ALL
EXCLUDING TOWER AIRSPACE AND DESCENT AREAS IN USE



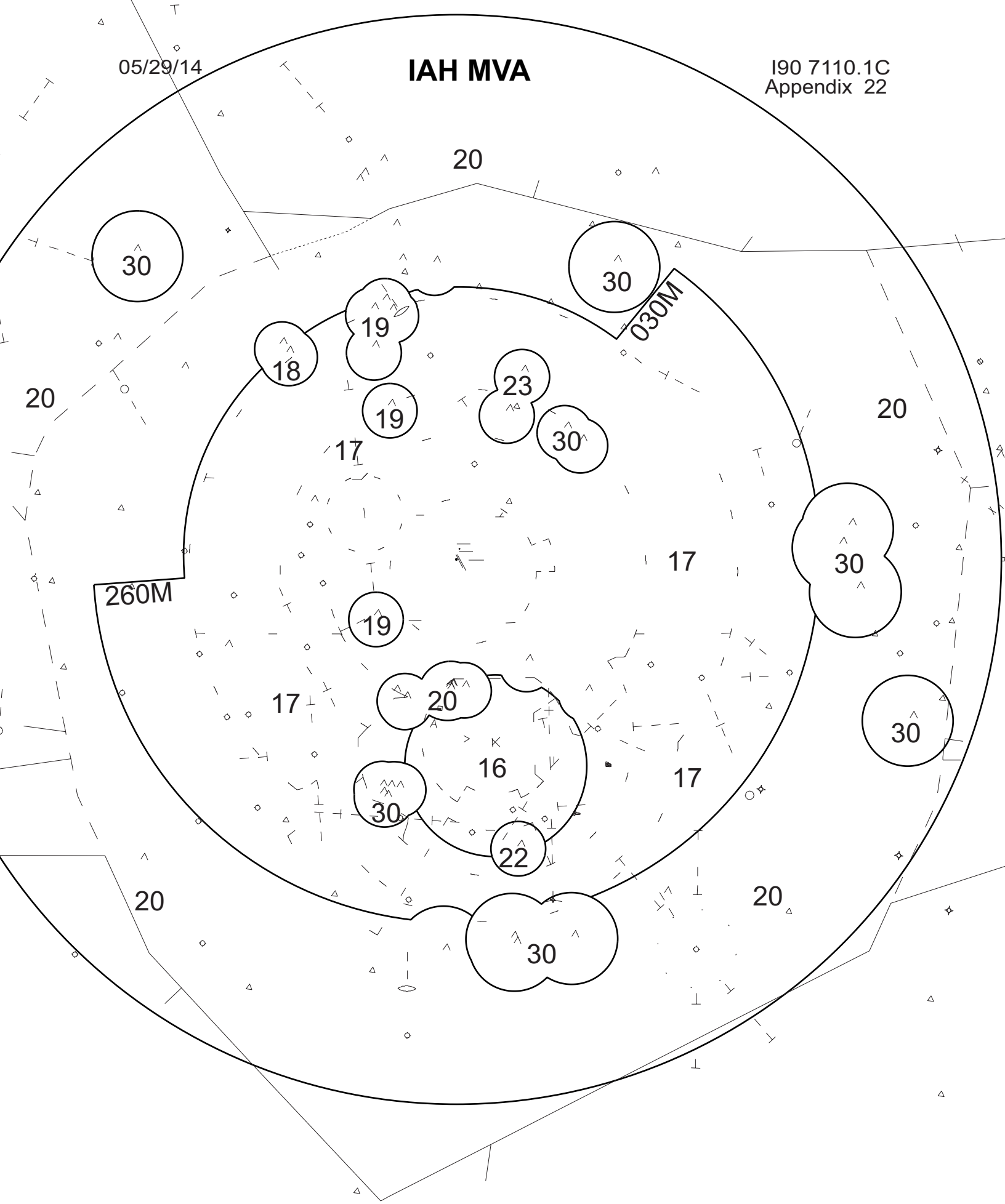
Terminal Radar Service Areas (TRSA)



Obstructions Identified by Digital Map Marks

Name	Altitude	Lat/long	IAH	HUB	BPT
Texas City Tower (008161)	230	292247.00 / 945504.00	143.30 / 43.47	122.60 / 23.35	229.06 / 57.55
Kendleton Tower (009781)	342	292625.44 / 960036.54	220.93 / 47.87	249.81 / 40.14	249.17 / 107.88
Beaumont Tower (001658)	500	300006.60 / 940537.68	84.50 / 65.63	64.21 / 65.58	309.15 / 4.71
Port Arthur Tower (004487)	502	294225.68 / 935605.88	97.90 / 76.04	80.31 / 70.02	156.12 / 15.17
Port Neches Tower (004361)	510	295836.00 / 935603.00	85.65 / 73.97	67.57 / 72.99	65.22 / 5.25
Vidor Tower (002756)	514	300340.00 / 935850.00	81.65 / 71.61	63.19 / 72.35	15.24 / 7.28
San Jacinto Monument (000853)	629	294500.00 / 950451.00	131.19 / 20.57	46.46 / 12.67	253.14 / 56.14
Beaumont Tower (004364)	648	301018.81 / 941255.03	74.77 / 60.15	53.68 / 64.25	319.26 / 16.59
Vidor Tower (004601)	656	300523.00 / 935714.00	80.36 / 73.09	62.34 / 74.27	19.57 / 9.39
Vidor Tower (003278)	666	300700.00 / 940001.00	78.92 / 70.82	60.45 / 72.68	03.35 / 10.26
Jacinto City Tower (002348)	667	294818.66 / 951219.38	141.20 / 13.91	11.93 / 11.70	257.42 / 61.95
Houston Tower (002150)	700	294513.00 / 952210.00	178.24 / 14.67	322.52 / 9.61	255.94 / 70.90
Tomball Tower (002747)	730	300547.00 / 953923.00	285.49 / 16.83	319.98 / 34.99	271.43 / 85.24
Houston Bldg (004421)	731	294459.00 / 9528.57.00	199.36 / 16.33	300.46 / 13.59	256.51 / 76.76
Navasota Tower(009189)	735	302326.74 / 960422.84	297.31 / 44.17	313.09 / 62.33	279.54 / 109.58
Willis Tower (013501)	757	302753.00 / 953021.00	339.21 / 29.02	341.47 / 52.13	287.35 / 82.80
New Waverley Tower (008658)	757	303217.00 / 952817.00	344.30 / 32.88	344.30 / 56.04	290.63 / 82.89
Willis Tower (009738)	759	302646.01 / 952930.01	340.04 / 27.75	341.98 / 50.88	286.81 / 81.71
Huntsville Tower (008167)	763	303604.00 / 952903.00	344.38 / 36.71	344.36 / 59.87	292.74 / 85.14
Huntsville Tower (000160)	765	304141.00 / 953305.00	341.21 / 42.93	342.30 / 66.07	294.90 / 90.85
Willis Tower (008988)	768	302655.73 / 953148.79	336.24 / 28.49	339.85 / 51.52	286.42 / 83.64
Katy Tower (008098)	770	294949.86 / 955007.80	243.33 / 27.06	288.44 / 32.13	261.22 / 94.48
Montgomery Tower (003811)	785	302303.00 / 954322.00	315.36 / 30.03	327.92 / 51.54	281.97 / 91.90
Houston Bldg (003465)	789	294527.00 / 952220.00	178.87 / 14.45	322.54 / 9.88	256.14 / 71.00
Plantersville Tower (009774)	803	302020.00 / 955545.00	299.40 / 36.22	316.66 / 55.12	278.82 / 101.60
Montgomery Tower (005985)	821	302208.00 / 954231.00	315.31 / 28.86	328.19 / 50.40	281.54 / 90.95
Houston Bldg (004070)	874	294538.00 / 952159.00	177.70/14.25	324.60 / 9.88	256.26 / 70.67
Huntsville Tower (009382)	893	304059.20 / 953344.20	340.24 / 42.40	341.69 / 65.52	294.34 / 91.01
Conroe Tower (005324)	905	301619.00 / 952940.00	330.92 / 17.94	338.45 / 40.83	279.67 / 78.71
Satsuma Tower (004102)	923	295316.00 / 953123.00	228.21 / 11.04	315.81 / 20.84	262.77 / 77.99
Panorama Vil Tower (004505)	932	302243.74 / 953141.88	333.29 / 24.52	338.64 / 47.47	283.71 / 82.16
Bellaire Bldg (004155)	974	294414.00 / 952741.00	194.82 / 16.61	300.60 / 12.25	255.82 / 75.79
Livingston Tower (003243)	985	304142.00 / 945616.00	22.26 / 46.96	9.95 / 66.74	308.72 / 65.05
Plum Grove Tower (004306)	995	301227.00 / 950529.00	42.40 / 18.52	9.80 / 36.49	281.01 / 57.47
Huntsville Tower (005055)	996	304309.00 / 953041.00	344.29 / 43.92	344.30 / 67.08	296.36 / 89.78
New Waverley Tower (002706)	996	303204.08 / 952400.24	350.71 / 32.18	348.03 / 55.26	291.61 / 79.46
Danbury Tower (003743)	1038	291634.00 / 952246.00	176.80 / 43.25	190.58 / 21.25	235.72 / 81.25
Houston Tower (000874)	1047	294527.00 / 952019.00	171.90 / 14.44	331.94 / 9.06	255.90 / 69.27
Houston Bldg (003440)	1049	294537.00 / 952151.00	177.23 / 14.26	325.13 / 9.81	256.22 / 70.56
Vidor Tower (000155)	1049	300825.00 / 935845.00	77.88 / 72.06	59.79 / 74.26	7.61 / 11.85
Houston Bldg (004185)	1049	294531.00 / 952204.00	177.96 / 14.37	323.89 / 9.82	256.16 / 70.76
Houston Tower (000950)	1051	293426.00 / 952832.00	189.11 / 26.19	251.15 / 11.04	248.89 / 78.78
Mauriceville Tower (002495)	1060	301127.00 / 935309.00	76.06 / 77.26	59.27 / 79.94	22.01 / 16.38
Nelsonville Tower (008964)	1063	295953.00 / 962615.00	265.25 / 56.47	285.76 / 65.01	267.00 / 125.55
Vidor Tower (005325)	1078	301042.00 / 935427.00	76.49 / 76.04	59.41 / 78.60	19.51 / 15.22
Fenton Tower (001251)	1086	302400.00 / 930011.00	73.28 / 124.55	62.82 / 127.05	57.80 / 59.85
Alvin Tower (000937)	1200	292757.00 / 951324.00	162.92 / 32.59	159.80 / 9.45	240.52 / 68.73
Vidor Tower (002020)	1248	300921.00 / 935911.00	77.11 / 71.79	59.02 / 74.31	5.04 / 12.69
Splendora Tower (005943)	1347	301545.40 / 951447.93	14.35 / 16.77	356.85 / 38.59	281.90 / 66.13
Cleveland Tower (007922)	1349	302003.00 / 951252.00	14.76 / 21.36	358.90 / 42.95	285.89 / 65.89
Lunita Tower (001983)	1349	301727.00 / 933436.00	73.83 / 94.08	60.07 / 97.04	43.72 / 31.26
Hitchcock Tower (008734)	2013	291801.00 / 950640.00	158.06 / 43.66	151.25 / 20.78	230.90 / 68.56
Houston Tower (001217)	1546	293326.00 / 953005.00	191.33 / 27.51	248.24 / 12.61	248.49 / 80.36
Fenton Tower (000809)	1549	302347.00 / 930004.00	73.39 / 124.61	62.93 / 127.07	58.03 / 59.84
Carlos Tower (004538)	1982	303316.54 / 960152.39	308.57 / 48.46	319.95 / 68.62	284.77 / 110.22
Liverpool Tower (008070)	1985	291756.82 / 951412.12	166.67 / 42.29	169.67 / 19.18	233.75 / 74.11
Stowell Tower (011866)	2009	294153.00 / 942409.00	104.67 / 52.78	78.77 / 45.63	277.70 / 24.54
Liverpool Tower (005320)	2017	291719.00 / 951353.00	166.42 / 42.96	169.04 / 19.83	233.22 / 74.21
Missouri City Tower (011854)	2030	293345.24 / 953035.88	192.42 / 27.33	250.17 / 12.95	248.80 / 80.70
Winnie Tower (014266)	2040	295609.78 / 943039.38	89.64 / 44.07	59.19 / 43.99	263.62 / 25.14
Nome Tower (005838)	2042	300306.00 / 943138.00	80.55 / 43.16	51.04 / 46.67	278.69 / 26.71
Shepherd Tower (011281)	2049	303207.00 / 950105.00	23.39 / 36.56	8.41 / 56.45	299.66 / 62.31
Missouri City Tower (004048)	2049	293430.00 / 952938.00	191.16 / 26.38	252.57 / 11.96	249.14 / 79.68
Missouri City Tower (010625)	2049	293415.70 / 953038.30	192.82 / 26.86	252.39 / 12.87	249.15 / 80.59
Missouri City Tower (008133)	2049	293341.00 / 953005.00	191.48 / 27.27	249.33 / 12.54	248.66 / 80.29
Devers Tower (014621)	2049	300102.20 / 943247.89	83.25 / 42.05	52.52 / 44.70	273.99 / 27.30
Missouri City Tower (004356)	2049	293435.00 / 953037.00	192.99 / 26.55	253.77 / 12.78	249.37 / 80.48
Splendora Tower (009465)	2049	301351.00 / 950726.00	35.60 / 18.34	6.75 / 37.46	281.87 / 59.47
Matagorda Balloon (008206)	15000	284235.00 / 955735.00	197.55 / 83.41	208.82 / 65.32	229.30 / 125.45

IAH MVA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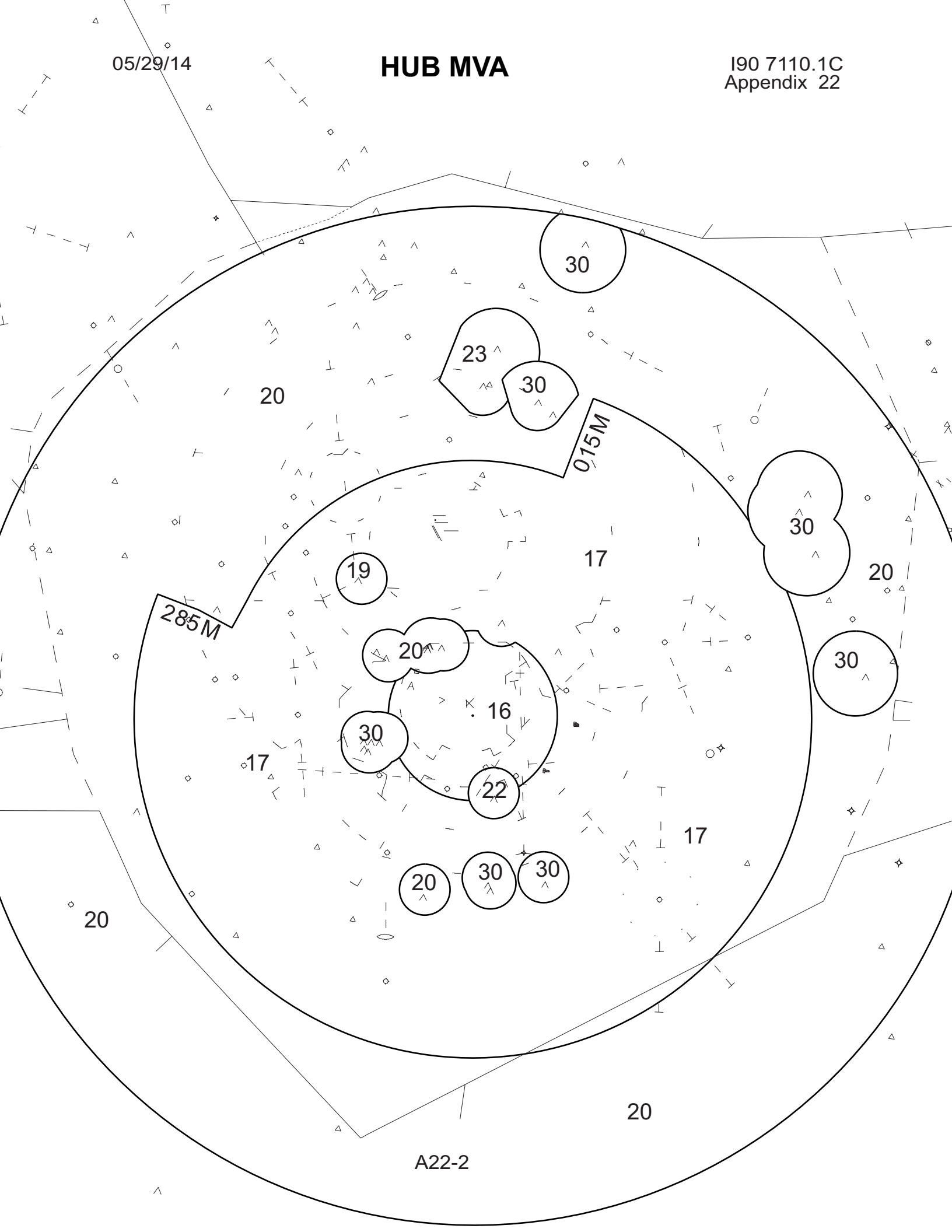
HUB MVA



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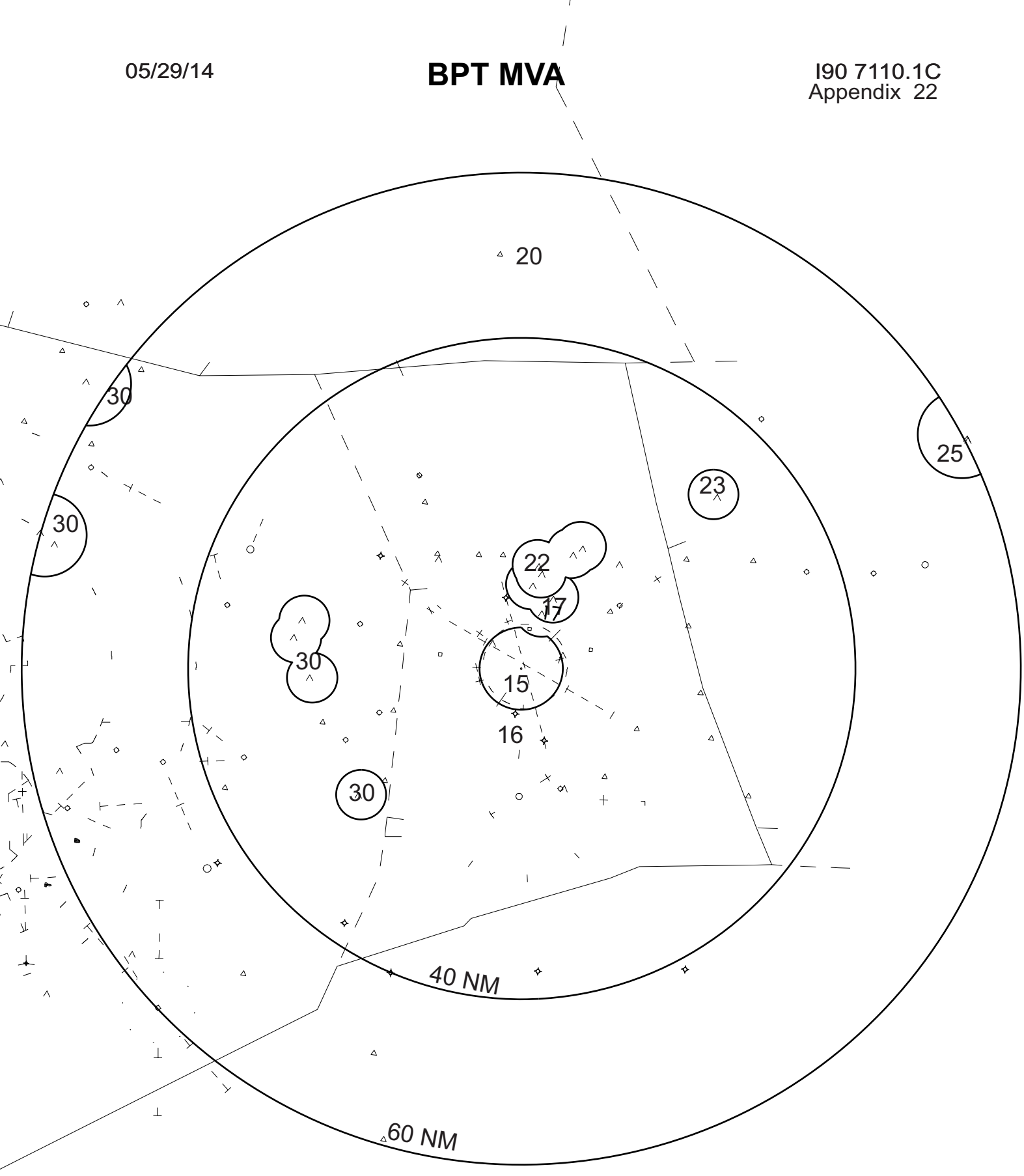
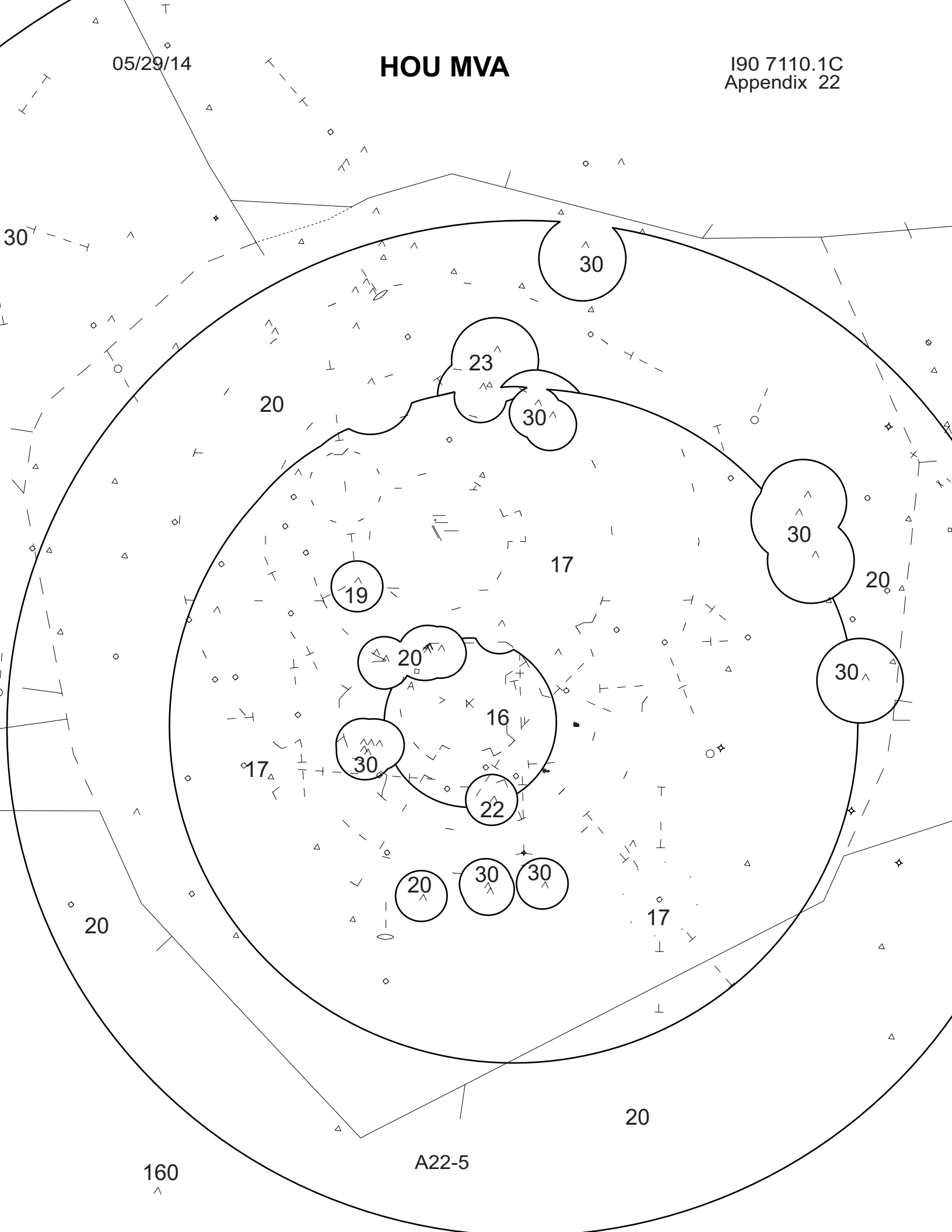


BNH MVA

HOU MVA



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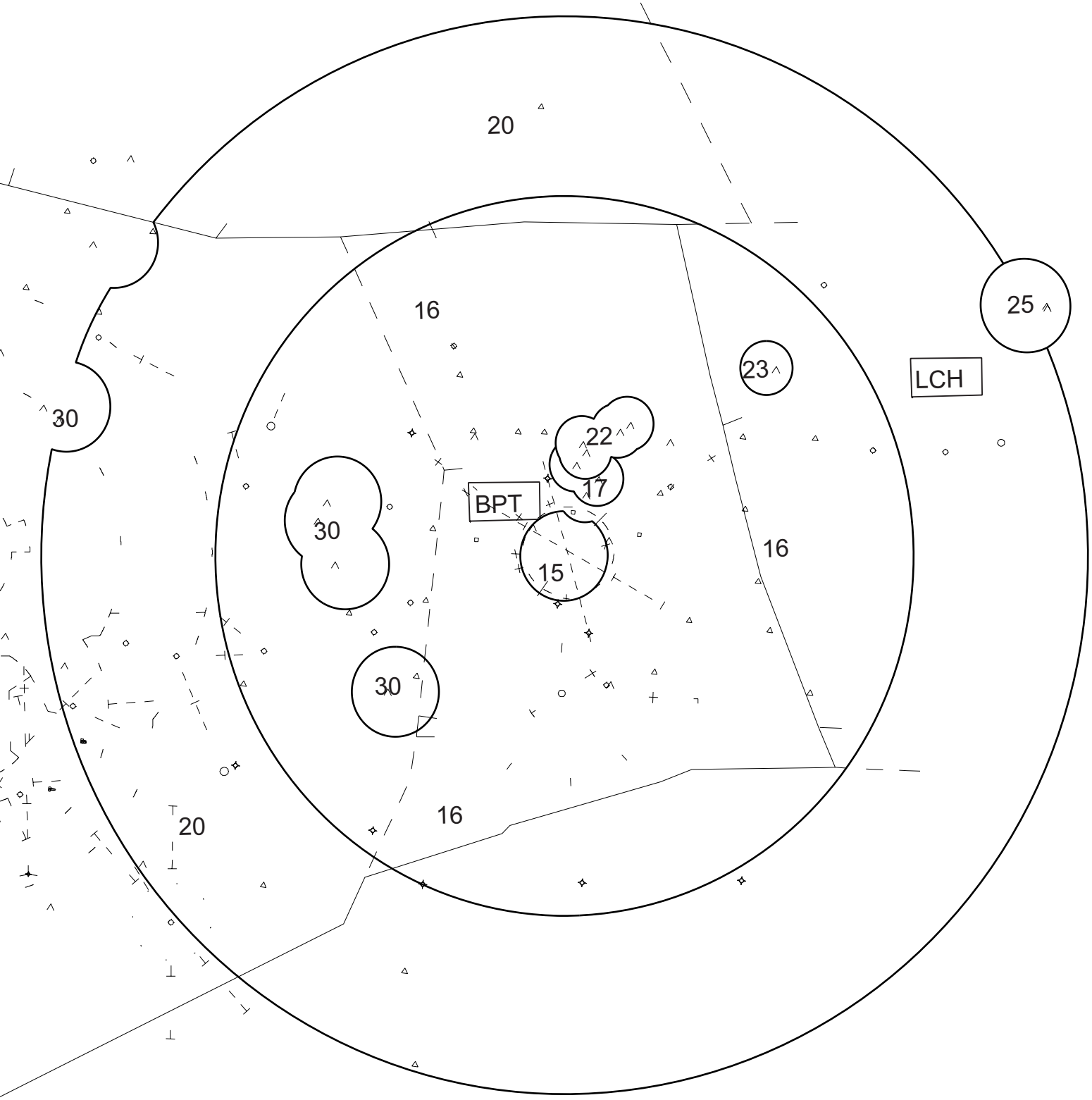

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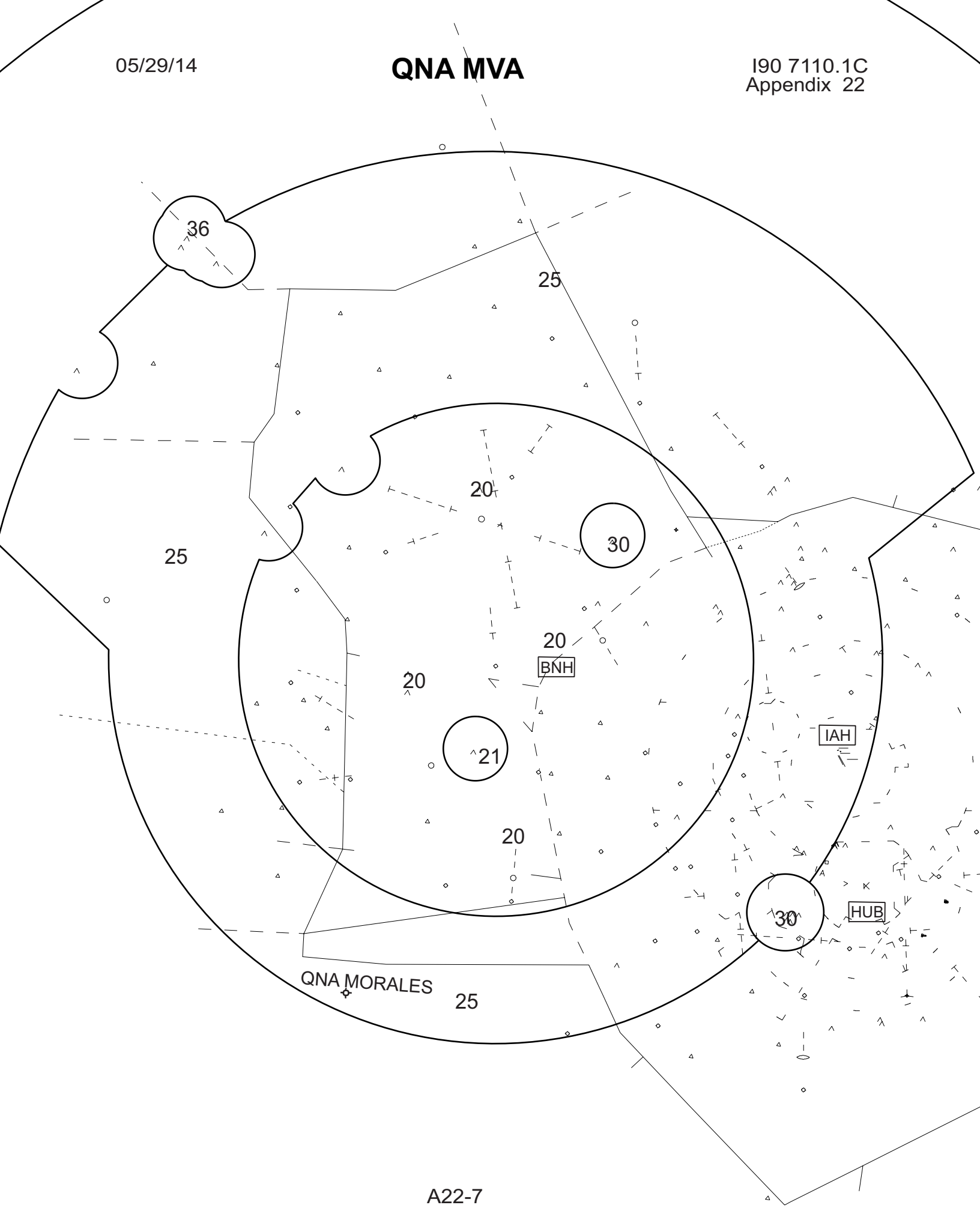

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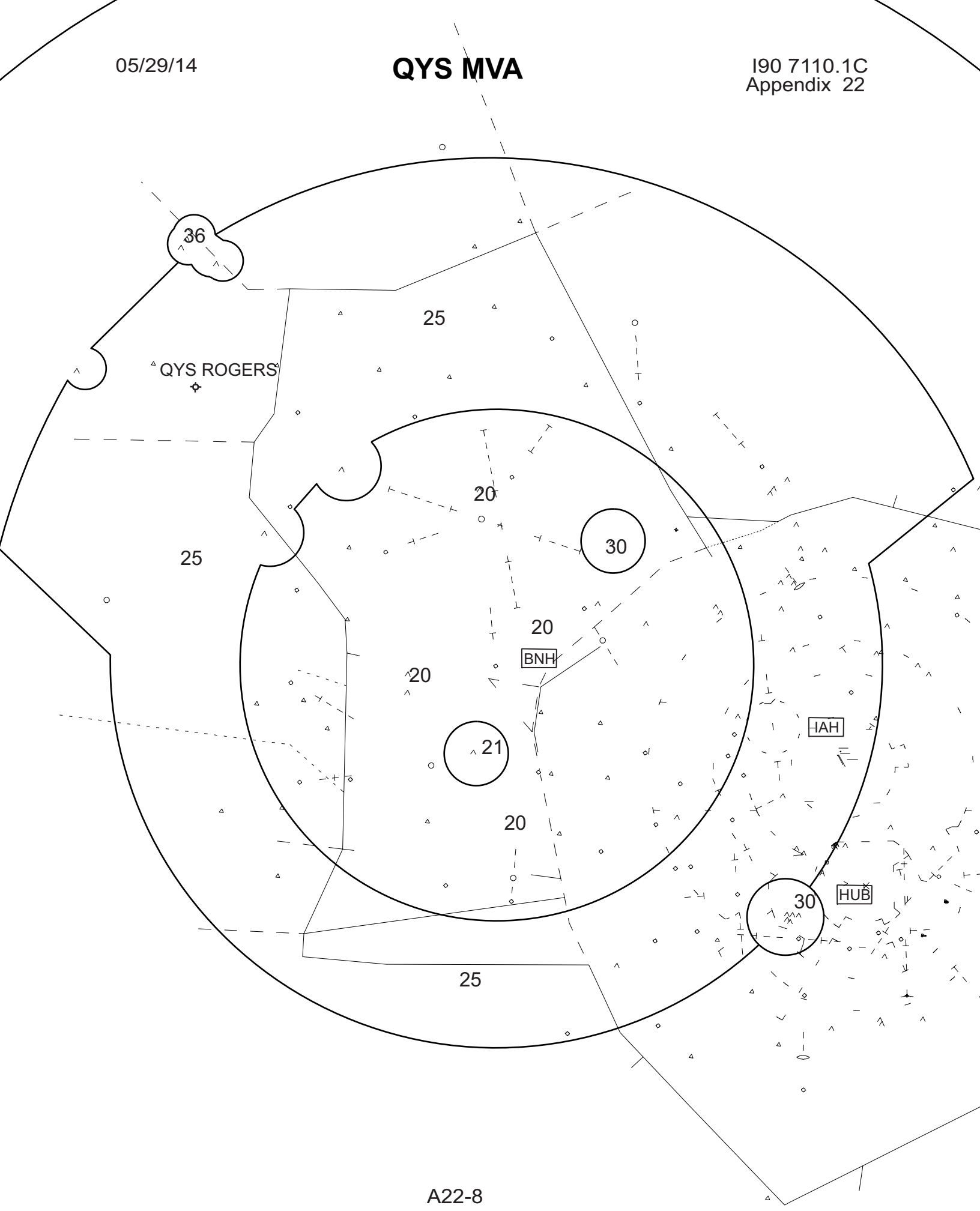
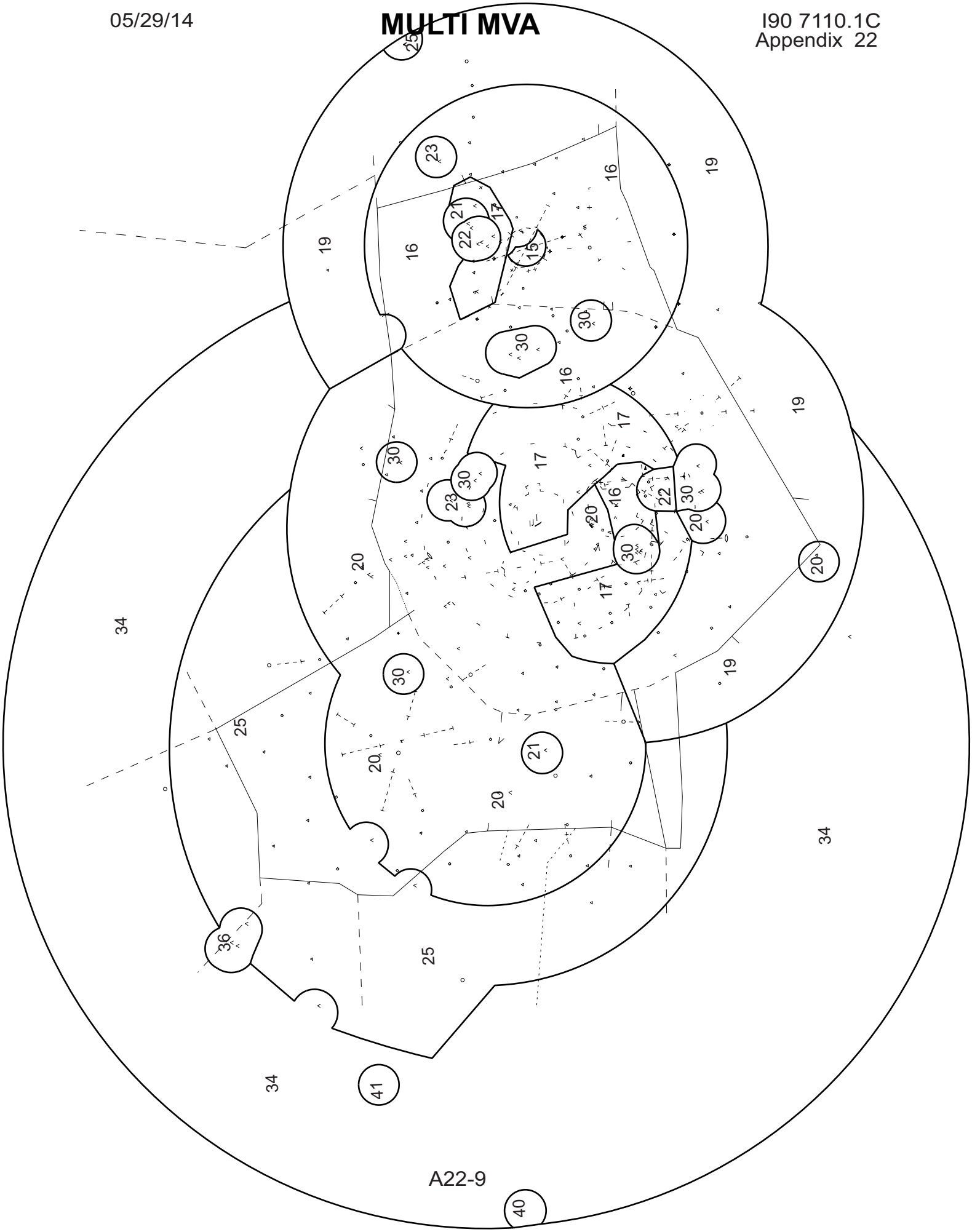


MULTI MVA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ADS-B GROUND STATIONS

SHORT NAME	STATION NAME	STATION ID	LATITUDE	LONGITUDE
LBX	LAKE JACKSON	13	290634.884N	0952733.876W
WINNI	WINNIE STOWEL	14	293407.608N	0942336.203W
LGRNG	LA GRANGE	329	294209.179N	0965402.844W
VCT	VICTORIA	330	285044.051N	0965513.367W
CAMRN	CAMERON	331	311211.412N	0970304.248W
GTOWN	GEORGETOWN	335	303512.420N	0974056.040W
CONRO	HOUSTON	339	301406.540N	0952757.528W
LAKCH	LAKE CHARLES	340	302356.867N	0931401.212W
ORG	ORANGE COUNTY AIRPORT	342	300413.511N	0934742.648W
WTNY	LAKE WHITNEY	352	315734.220N	0971819.800W
MARCO	SAN MARCOS	353	295320.372N	0975155.810W

Wharton (ARM)/BAY CITY (BYY) Shelf