

Contact

Post:

REPUBLIC OF SINGAPORE
AERONAUTICAL
INFORMATION SERVICES
CIVIL AVIATION AUTHORITY
OF SINGAPORE
SINGAPORE CHANGI
AIRPORT
P.O. BOX 1, SINGAPORE
918141

Tel: (65) 6422 7036

AFS: WSSSYNYX

Fax: (65) 64410221

Email: caas_singaporeais@caas.gov.sgURL: www.caas.gov.sgURL: <https://aim-sg.caas.gov.sg>**AIP Supplement for
Singapore****AIRAC AIP SUP
085/2020****Effective from 03 DEC 2020****PERM****Published on 24 SEP 2020****SINGAPORE CHANGI AIRPORT – UPDATED INFORMATION AND DATA FOR
RUNWAY 02R/20L AND CONNECTING TAXIWAYS****1 INTRODUCTION**

1.1 This AIP Supplement informs aircraft operators and pilots that the third runway at Singapore Changi Airport, Runway 02R/20L, will be open for civil flights **effective from 03 December 2020 0000UTC**.

2 AERODROME INFORMATION AND DATA FOR RUNWAY 02R/20L

2.1 The updated information and data for Runway 02R/20L will be incorporated into AIP Singapore Part 3 – AERODROMES (AD), Section AD 2 AERODROMES – WSSS.

2.2 Please refer to **Annex A** for details.

2.3 The following charts currently published in AIP Singapore will be updated with information on Runway 02R/20L, new taxiways and supporting aerodrome infrastructure.

Charts	Refer to
Location of RWY 02R/20L in relation to RWY 02L/20R and RWY 02C/20C	Chart 1
Aerodrome Chart – ICAO	Chart 2
Aerodrome Advisory Chart – ICAO	Chart 3
Aerodrome Obstacle Chart - ICAO - TYPE B	Chart 4
Visual Approach Chart	Chart 5 to 5.1

2.4 The following new charts related to Runway 02R/20L will be published in the AIP Singapore.

New Charts	Refer to
Aerodrome Obstacle Chart - ICAO - TYPE A – RWY 02R/20L	Chart 6
Precision Approach Terrain Chart - ICAO - RWY 02R	Chart 7
Precision Approach Terrain Chart - ICAO - RWY 20L	Chart 8

3 OBSERVING SYSTEMS AND OPERATING PROCEDURES AT SINGAPORE CHANGI AIRPORT

3.1 Integrated and combination of MET Doppler X, S and C band weather radars and two wind lidars are used to detect windshear up to 20km and monitor storms up to 480km from WSSS. (This information will supersede information that is currently published in AIP Singapore, GEN 3.5, Table GEN 3.5.3, Row 3, Column 4, Item 'f'.)

3.2 Runway 02R/20L surface wind and RVR information

- a. Surface wind is measured by three ultrasonic wind sensors located as follows:

	Distance from threshold	Distance from runway centreline
One set at	428 metres north of RWY 02R	132 metres
One set at	Middle of runway	121 metres
One set at	435 metres south of RWY 20L	132 metres

- b. RVR observations are made by means of three sets of transmissometers, located as follows:

	Distance from threshold	Distance from runway centreline
1 st Set	421 metres north of RWY 02R	120 metres
2 nd Set	Middle of runway	121 metres
3 rd Set	425 metres south of RWY 20L	120 metres

- c. RVR is reported in steps of 25 metres between 0 and 400 metres, 50 metres between 400 and 800 metres and 100 metres between 800 and 1500 metres.

4 CANCELLATION

- 4.1 This AIP Supplement will be cancelled when the contents are incorporated into the AIP Singapore.

5 CONSULTATION

- 5.1 Please write to caas_singaporeais@caas.gov.sg if you have any queries regarding this AIP Supplement.

Annex A

WSSS – SINGAPORE / SINGAPORE CHANGI INTERNATIONAL RUNWAY 02R/20L INFORMATION AND DATA

Details in this Annex should be read in conjunction with AIP Singapore Part 3 – AERODROMES (AD), Section AD 2 AERODROMES – WSSS. Current information and data that stay relevant for Runway 02R/20L and the new connecting taxiways introduced in this AIRAC AIP Supplement are not repeated in this Annex.

Additional or superseding aeronautical information and data can be found in the following sections:

WSSS AD 2.2 AERODROME GEOGRAPHICAL AND ADMINISTRATIVE DATA	
8	Remarks
g. N/A	

WSSS AD 2.3 OPERATIONAL HOURS			
Operational Hours			
1	Aerodrome Administration:	RWY 02R/20L	H24

WSSS AD 2.6 RESCUE AND FIRE FIGHTING SERVICES		
1	AD category for fire fighting	RWY 02R/20L CAT 10 (No facilities for foaming of runways)

WSSS AD 2.8 APRONS, TAXIWAYS AND CHECK LOCATIONS DATA				
1	Apron surface and strength	RWY 02R/20L	Surface:	N/A
			Strength:	N/A
2	Taxiway width, surface and strength	RWY 02R/20L	Width:	25m width for TWY J and TWY K (between TWY K2 and TWY J12) 30m width for all other TWYs A, B, K <i>Note:</i> Open-air drains, demarcated by frangible poles, are installed within non-graded TWY strips at least 30m from the TWY centrelines. 0.5m-high lateral restraint at 30m east of TWY P1 centreline before the open drain.
			Surface:	Cement Concrete - TWY A (between A1 and A2, and between A11 and A12), A1, A2, A11, A12, TWY B (between B1 and B2, and between B13 and B14), B1, B2, B13, B14 Bituminous Concrete - TWY P1 (between N and N5) and all other TWYs A, B, J, K
			Strength:	PCN 90 R/B/W/T - TWY A (between A1 and A2, and between A11 and A12), A1, A2, A11, A12, TWY B (between B1 and B2, and between B13 and B14), B1, B2, B13, B14 PCN 80 F/B/X/T - TWY J and TWY K (between TWY K2 and TWY J12) PCN 82 F/B/X/T - TWY P1 (between N and N5) and all other TWYs A, B, J, K

WSSS AD 2.9 SURFACE MOVEMENT GUIDANCE AND CONTROL SYSTEM AND MARKINGS

2	<p>RWY and TWY markings and LGT</p> <p><u>RWY 02R/20L</u></p> <p>RWY LGT: refer to WSSS AD 2.14 and WSSS AD 2.15.</p> <p>TWY LGT: Blue lights on TWY curved edges. Blue TWY edge markers along selected straight TWY edge sections. Red stop bar lights at TWY INT controllable on/off. Red stop bar lights at Pattern “A” RWY HLDG PSN entrances to RWY are controllable on/off and are supplemented with elevated RWY guard lights and RWY designation sign at the sides. Red stop bar lights at Pattern “B” RWY HLDG PSN before entry into the RWY ILS sensitive area are controllable on/off with Category I/II RWY HLDG PSN sign.</p> <p>Internally lighted mandatory or information TWY signboards. “MIL” destination signs on the east of RWY 02R/20L indicate the direction to aircraft movement area for military use only.</p> <p>On the west of RWY 02R/20L, yellow taxiway centerline markings, supplemented by alternate green and yellow taxiway centreline lights along taxiways within ILS sensitive zone in the vicinity of the runway and green taxiway centreline lights with selective controls along taxi-routes to/from main RWY and aprons. On the east of RWY 02R/20L, no taxiway centreline lights.</p> <p>MARKING AIDS: THR, touchdown zone, RWY centreline, RWY side stripe, RWY designations, aiming point markings, TWY centreline, taxi holding positions – all taxiways.</p>
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AIRFIELD GROUND LIGHTING CONTROL AND MONITORING SYSTEM (AGLCMS) AND MARKINGS

The information below supersedes the information published in the AIP Singapore, Section WSSS AD 2.9, paragraph 4.1.1.

The Advanced Surface Movement Guidance and Control System (A-SMGCS) at Singapore Changi Airport is able to control and monitor the runway and taxiway airfield lights such as the stop bars and green taxiway centreline lights, through the Airfield Ground Lighting Control and Monitoring System. The system is designed to provide pilots with visual guidance while taking off, landing and taxiing during day/night operations and during periods of low visibility. It is controlled by air traffic controllers at Singapore Changi Airport using the A-SMGCS display.

WSSS AD 2.10 AERODROME OBSTACLES

1. Obstacles in Approach/ TKOF Areas

The information below supersedes the information on RWY 02R/20L published in the **AIP Singapore, Section WSSS AD 2.10, Item 1d, k and l.**

IN APPROACH/ TKOF AREAS		
RWY/Area affected	Obstacles type, ELEV, Markings/LGT	Location of Obstacles
1	2	3
1` RWY 20L APCH RWY 02R TKOF	Mast HGT ranging from 98ft and above	Shipping channel APRX 2310m from THR RWY 20L
2 RWY 02R APCH RWY 20L TKOF	ILS LLZ (South), 26ft AMSL	011909.5N 1035954.7E
3 RWY 02R APCH RWY 20L TKOF	LLZ Building (South), 27ft AMSL	Within Approach
4 RWY 02R APCH RWY 20L TKOF	MM Building (South), 27ft AMSL	Within Approach / Takeoff
5 RWY 20L APCH RWY 02R TKOF	ILS LLZ (North), 26ft AMSL	012131.5N 1040054.7E
6 RWY 20L APCH RWY 02R TKOF	LLZ Building (North), 28ft AMSL	Within Approach
7 RWY 20L APCH RWY 02R TKOF	MM Building (North), 27ft AMSL	Within Approach / Takeoff

2. Obstacles in Circling area and at AerodromeThe information below supersedes the information published in the **AIP Singapore, Section WSSS AD 2.10, Item 2.**

IN CIRCLING AREA AND AT AERODROME		
	Obstacles type, ELEV, Markings/LGT	Location of Obstacles
1	Surface wind direction sleeves	Located at each end of RWY adjacent to GP antenna
2	RWY 02R Anemometer, 47ft AMSL	012105.7N 1040048.5E
3	RWY 20L Anemometer, 48ft AMSL	011931.7N 1040008.8E
4	RWY 02L Anemometer, 48ft AMSL	012110.5N 1035840.2E
5	RWY 20R Anemometer, 44ft AMSL	012222.7N 1035910.9E
6	RWY 02C Anemometer, 46ft AMSL	011955.4N 1035915.4E
7	RWY 20C Anemometer, 44ft AMSL	012128.1N 1035954.6E
8	RWY 02R GP Antenna, 67ft AMSL	012108.9N 1040049.4E
9	RWY 20L GP Antenna, 67ft AMSL	011929.1N 1040007.3E
10	RWY 02L GP Antenna, 67ft AMSL	012108.5N 1035839.1E
11	RWY 20R GP Antenna, 67ft AMSL	012225.5N 1035912.2E
12	RWY 02C GP Antenna, 67ft AMSL	011951.6N 1035914.7E
13	RWY 20C GP Antenna, 67ft AMSL	012131.3N 1035956.6E
14	Antenna, HGT 82ft AMSL, marked and LGTD	012036N 1035819E
15	Antenna, HGT 85ft AMSL, marked and LGTD	012039N 1035821E
16	Antenna, HGT 78ft AMSL, marked and LGTD	012042N 1035823E
17	Antenna, HGT 82ft AMSL, marked and LGTD	012053N 1035827E
18	Antenna, HGT 78ft AMSL, marked and LGTD	012049N 1035826E
19	FOD detection mast, HGT 29ft AMSL	012131N 1035956E
20	FOD detection mast, HGT 29ft AMSL	012124N 1035953E
21	FOD detection mast, HGT 29ft AMSL	012114N 1035949E
22	FOD detection mast, HGT 29ft AMSL	012109N 1035947E
23	FOD detection mast, HGT 29ft AMSL	012057N 1035941E
24	FOD detection mast, HGT 29ft AMSL	012046N 1035937E
25	FOD detection mast, HGT 29ft AMSL	012034N 1035932E
26	FOD detection mast, HGT 29ft AMSL	012029N 1035930E
27	FOD detection mast, HGT 29ft AMSL	012017N 1035925E
28	FOD detection mast, HGT 29ft AMSL	012005N 1035920E
29	FOD detection mast, HGT 29ft AMSL	011959N 1035917E
30	FOD detection mast, HGT 29ft AMSL	011952N 1035914E
31	Liquefied Natural Gas storage tanks, plants, gas stacks and flares within Malaysia's Pengerang Integrated Complex (PIC) extending up to HGT 1,500ft AMSL. Refer to AIP Malaysia for information on "Pengerang Integrated Complex Safety Area". Aircraft may overfly the area at 2,000ft and above.	Within area bounded by 012245N 1040705E 012245N 1040831E 012306N 1040954E 012301N 1041056E 012232N 1041058E 012114N 1041057E 012038N 1040939E 012031N 1040813E 012136N 1040704E 012245N 1040705E
Remarks: Obstacles are shown on the AOC, IAC and VAC.		

WSSS AD 2.12 RUNWAY PHYSICAL CHARACTERISTICS

Designations RWY NR	TRUE BRG	Dimensions of RWY	Strength (PCN) and surface of RWY and SWY	THR coordinates and RWY end coordinates (THR Geoid Undulation)	THR elevation and highest elevation of TDZ of precision APCH RWY
1	2	3	4	5	6
02R	023.01°	4000m x 60m	82F/B/X/T Grooved Bituminous concrete	THR coordinates: 011920.59N 1035959.45E (10.32m) RWY end coordinates: 012120.45N 1040050.05E	4.80m 4.82m
20L	203.01°	4000m x 60m	82F/B/X/T Grooved Bituminous concrete	THR coordinates: 012120.45N 1040050.05E (10.36m)	4.79m
				RWY end coordinates: 011920.59N 1035959.45E	4.80m

Slope of RWY-SWY Transverse / Longitudinal	SWY Dimensions (m)	CWY Dimensions (m)	STRIP Dimensions (m)	Dimensions of RESA (m)	Locations and description of ARST system	OFZ
7	8	9	10	11	12	13
RWY 02R 1.25% / 0% SWY 1.21% / 0%	60 x 60	60 x 150	4240 x 280	240 x 150	Not Applicable	Yes
RWY 20L 1.25% / 0% SWY 1.22% / 0%	60 x 60	60 x 150	4240 x 280	240 x 150	Not Applicable	Yes

Remarks**14**

- 1) Open-air drains, demarcated by frangible poles, within the runway strip of RWY 02R/20L.
- 2) Not in use military hookwire system embedded in runway pavement at 490m from RWY 02R and RWY 20L thresholds.
- 3) **Scheduled Closure of RWY 02L/20R**
 - a. BTN 1700-2100UTC on every SUN and WED of the month (preventive maintenance work).
In the event of emergency, RWY will be re-opened within 30 minutes.
 - b. A 5-minute inspection conducted within the periods BTN 0100-0359UTC 0500- 0759UTC 0800-1059UTC daily.
- 4) **Scheduled Closure of RWY 02C/20C**
 - a. BTN 1700-2100UTC on every FRI of the month (preventive maintenance work).
In the event of emergency, RWY will be re-opened within 30 minutes.
 - b. A 5-minute inspection conducted within the periods BTN 0100-0359UTC 0500- 0759UTC 0800-1059UTC daily.
- 5) **Scheduled Closure of RWY 02R/20L**
 - a. BTN 1700-2100UTC on every MON of the month (preventive maintenance work).
In the event of emergency, RWY will be re-opened within 30 minutes.
 - b. A 5-minute inspection conducted within the periods BTN 0100-0359UTC 0500- 0759UTC 0800-1059UTC daily.
- 6) **Additional Inspection and Maintenance Closures**
 - a. On days when there is a scheduled 4-hour runway closure BTN 1700-2100UTC
 - i) 10-minute inspection conducted within the period BTN 1500-1610UTC on the other operational runway(s);
 - ii) 15-minute inspection conducted within the period BTN 2300-2359UTC on the other operational runway(s);
 - iii) 5-minute inspection conducted within period BTN 2300-2359UTC on the re- opened runway.
 - b. On days when there is no scheduled 4-hour runway closure BTN 1700-2100UTC
 - I) RWY 02L/20R;
 - i. 5-minute inspection conducted BTN 2300-2305UTC
 - ii. 30-minute maintenance will be conducted BTN 1830-1900UTC
 - II) RWY 02C/20C;
 - i. 5-minute inspection conducted BTN 2315-2320UTC
 - ii. 30-minute maintenance will be conducted BTN 1915-1945UTC
 - III) RWY 02R/20L
 - i. 5-minute inspection conducted BTN 2330-2335UTC
 - ii. 60-minute maintenance will be conducted BTN 2000-2100UTC

WSSS AD 2.13 DECLARED DISTANCES						
RWY Designator	Intersection Departures	TORA (m)	TODA (m)	ASDA (m)	LDA (m)	Remarks
1	2	3	4	5	6	7
20L	Not Applicable	4000	4060	4060	4000	NIL
	A3	3842	3902	3902	Not Applicable	
	A4	3027	3087	3087	Not Applicable	
	A5	2552	2612	2612	Not Applicable	
02R	Not Applicable	4000	4060	4060	4000	NIL
	A10	3842	3902	3902	Not Applicable	
	A9	2877	2937	2937	Not Applicable	
	A8	2402	2462	2462	Not Applicable	

WSSS AD 2.14 APPROACH AND RUNWAY LIGHTING								
RWY	APCH LGT Type, LEN, Intensity	THR LGT colour WBAR	PAPI (MEHT)	TDZ LGT LEN	RWY Centreline LGT, LEN, spacing, colour, INTST	RWY Edge LGT, LEN, spacing, colour, INTST	RWY End LGT colour	SWY LGT colour
1	2	3	4	5	6	7	8	9
02R	CAT II High Intensity Approach Lights (900m) consisting of extended centreline and Red row barrettes, 2 crossbars, 2 approach beacons and sequenced flashing lights.	Green supplemented by green wing-bar and 2 THR ident lights.	PAPI 003° located either side of RWY, 415m from THR. 2 White lights and 2 Red lights (19.7m), 3 White lights and 1 Red light (23.6m), 4 White lights (26.0m). ACFT with eye-to- wheel height greater than 8m are advised to fly with 2 White and 2 Red lights visible so as to achieve sufficient wheel clearance.	White. 900m (From THR) TDZ. Every 60m from THR.	Inset High Intensity centreline lights as follows: From THR to 900m from RWY end: White, 300m to 900m from RWY end: ALTN Red/ White, 300m to RWY end: Red.	Bi- directional White/ Amber edge lights as follows: From THR to 600m from RWY end: White, 600m to RWY end: Amber.	Red	Elevated Red

WSSS AD 2.14 APPROACH AND RUNWAY LIGHTING								
RWY	APCH LGT Type, LEN, Intensity	THR LGT colour WBAR	PAPI (MEHT)	TDZ LGT LEN	RWY Centreline LGT, LEN, spacing, colour, INTST	RWY Edge LGT, LEN, spacing, colour, INTST	RWY End LGT colour	SWY LGT colour
1	2	3	4	5	6	7	8	9
20L	CAT II High Intensity Approach Lights (900m) consisting of extended centreline and Red row barrettes, 2 crossbars, 2 approach beacons and sequenced flashing lights.	Green supplemented by green wing-bar and 2 THR ident lights.	PAPI 003° located either side of RWY, 415m from THR. 2 White lights and 2 Red lights (19.7m), 3 White lights and 1 Red light (23.6m), 4 White lights (26.0m). ACFT with eye-to- wheel height greater than 8m are advised to fly with 2 White and 2 Red lights visible so as to achieve sufficient wheel clearance.	White. 900m (from THR) TDZ. Every 60m from THR.	Inset High Intensity centreline lights as follows: From THR to 900m from RWY end: White, 300m to 900m from RWY end: ALTN Red/ White, 300m to RWY end: Red.	Bi- directional White/ Amber edge lights as follows: From THR to 600m from RWY end: White, 600m to RWY end: Amber.	Red	Elevated Red

WSSS AD 2.15 OTHER LIGHTING, SECONDARY POWER SUPPLY		
2	LDI location and LGT Anemometer location and LGT	RWY 02R/20L: Three ultrasonic wind sensors at the ends and middle of the runway. Windsocks at the ends of the runway. Transmissometers at both ends and in the middle of the runway.
3	TWY Edge and Centreline LGT	RWY 02R/20L: Blue lights on TWY curved edges and Green centreline lights on all TWY.

WSSS AD 2.18 ATS COMMUNICATION FACILITIES				
Service Designation	Call Sign	Frequency (P-Pri, S- Sec)	Hours of operation	Remarks
TWR	Singapore Tower	118.6 MHz	H24	for TKOF/LDG. for ACFT operating on RWY 02L/20R for vehicular movements on RWY 02L/20R
		118.25 MHz		for ACFT operating on RWY 02C/20C for vehicular movements on RWY 02C/20C
		131.4 MHz		for ACFT operating on RWY 02R/20L for vehicular movements on RWY 02R/20L
	Singapore Ground	124.3 MHz	1600-0000 0000-1600	for push-back / taxiing of all aircraft. for ground movement of aircraft (including towing aircraft) west of Terminal 3.
		121.725 MHz	0000-1700 2100-0000	for push-back / taxiing of all aircraft. for ground movement of aircraft (including towing aircraft) east of Terminal 2.
		121.85 MHz	0000-1800 2300-0000	for push-back / taxiing of all aircraft. for ground movement of aircraft (including towing aircraft) north of Terminal 1.
		121.00 MHz	H24	for ground emergency
		122.55 MHz		for push-back / taxiing of all aircraft for ground movement of aircraft (including towing aircraft) of Terminal 4
		125.65 MHz		for push-back / taxiing of all aircraft for ground movement of aircraft (including towing aircraft) west of Terminal 4
		127.275 MHz		for taxiing of all aircraft for ground movement of aircraft (including towing aircraft) west of RWY 02R/20L and east of RWY 02C/20C
	Singapore Delivery	121.65 MHz	H24	for Pre-flight check/ATC clearance
119.6 MHz		0030-0230 1200-1300	for issuance of ATC clearance	

WSSS AD 2.18 ATS COMMUNICATION FACILITIES				
Service Designation	Call Sign	Frequency (P-Pri, S- Sec)	Hours of operation	Remarks
TWR	Changi Tower / Changi Apron	121.9 MHz	H24	<p>Requests for engine runs on aprons and taxiways west of RWY 20C/02C, excluding runways, would be regulated by Changi Apron. All towing request to contact Changi Apron followed by instruction to contact respective Singapore Ground frequency for towing clearance.</p> <p>Request for vehicular movements on taxiways, excluding runways, west of RWY 02C/20C including taxiways K and J west of taxiway junction K/K1 and J/J1 would be regulated by Changi Tower.</p> <p>For aircraft on tow and vehicular movements on RWY 02C/20C or RWY 02L/20R when the runway is closed for maintenance.</p> <p>All personnel operating the radio station on board an aircraft that is on the ground in Changi Airport should possess the Aircraft Radio Operator Approval (AROA) or other equivalent certification.</p>
	Changi East Tower	119.675 MHz		<p>Request for vehicular movements on taxiways, excluding runway, east of RWY 02C/20C including taxiways K and J east of taxiway junction K/K1 or J/J1 would be regulated by Changi East Tower.</p> <p>For aircraft on tow and vehicular movements on RWY 02R/20L when the runway is closed for maintenance.</p> <p>All personnel operating the radio station on board an aircraft that is on the ground in Changi Airport should possess the Aircraft Radio Operator Approval (AROA) or other equivalent certification.</p>
	Changi East Ground	120.95 MHz	Not for use, unless with prior coordination	For start-up / taxiing of all aircraft east of RWY 02R/20L
D-ATIS	Changi Airport Departure Information	128.6 MHz	H24	<p>(Broadcasting with half hour updated MET INFO) Data Link Service available. AP IDENT WSSS Messages comply with ARINC 623 Standards. Updating of data: H+00 to H+10 and H+30 to H+40</p>
	Changi Airport Arrival Information	128.025 MHz		

WSSS AD 2.22 FLIGHT AND GROUND PROCEDURES

1. Arrivals – Minimum Runway Occupancy Time

- a. To enhance planning, pilots can make reference to the Landing Exit Distance (LED), information below which is measured from threshold to tangent point where the exit taxiway centreline starts to curve away from the runway centreline:

RWY	Exit Taxiway (LED in metres)	Remarks
20L	A7* (1750), A8* (2225) and A9* (2700)	Note 1: Recommended exit taxiways are bold and underlined. Note 2: * Indicates Rapid Exit Taxiway (RET) and maximum design ground speed for the exit taxiway is 50kts.
02R	A6 * (1900), A5* (2375) and A4* (2850)	

2. Reduced Runway Separation Minima

- a. When reduced Runway Separation Minima is applied, the successive landing aircraft may be given a clearance to land before the first aircraft has cleared the runway-in-use after landing or crossed the runway end on departure provided there is reasonable assurance that the following separation distances will exist when the landing aircraft crosses the runway threshold:

RWY	Landing following Landing	Landing following Departure
02R/20L	The preceding aircraft has landed and has passed a point at least 2500m from the threshold of the runway, (abeam TWY A5 for RWY 02R or TWY A8 for RWY 20L) is in motion and will vacate the runway without backtracking.	The departing aircraft is/will be airborne and has passed a point at least 2500m from the threshold of the runway (abeam TWY A5 for RWY 02R or TWY A8 for RWY 20L)

3. Take-Off and Landing

- a. Departing aircraft will normally be directed by ATC to use the full length of the runway for take-off. On obtaining an ATC clearance the aircraft shall enter the runway via designated taxiways:

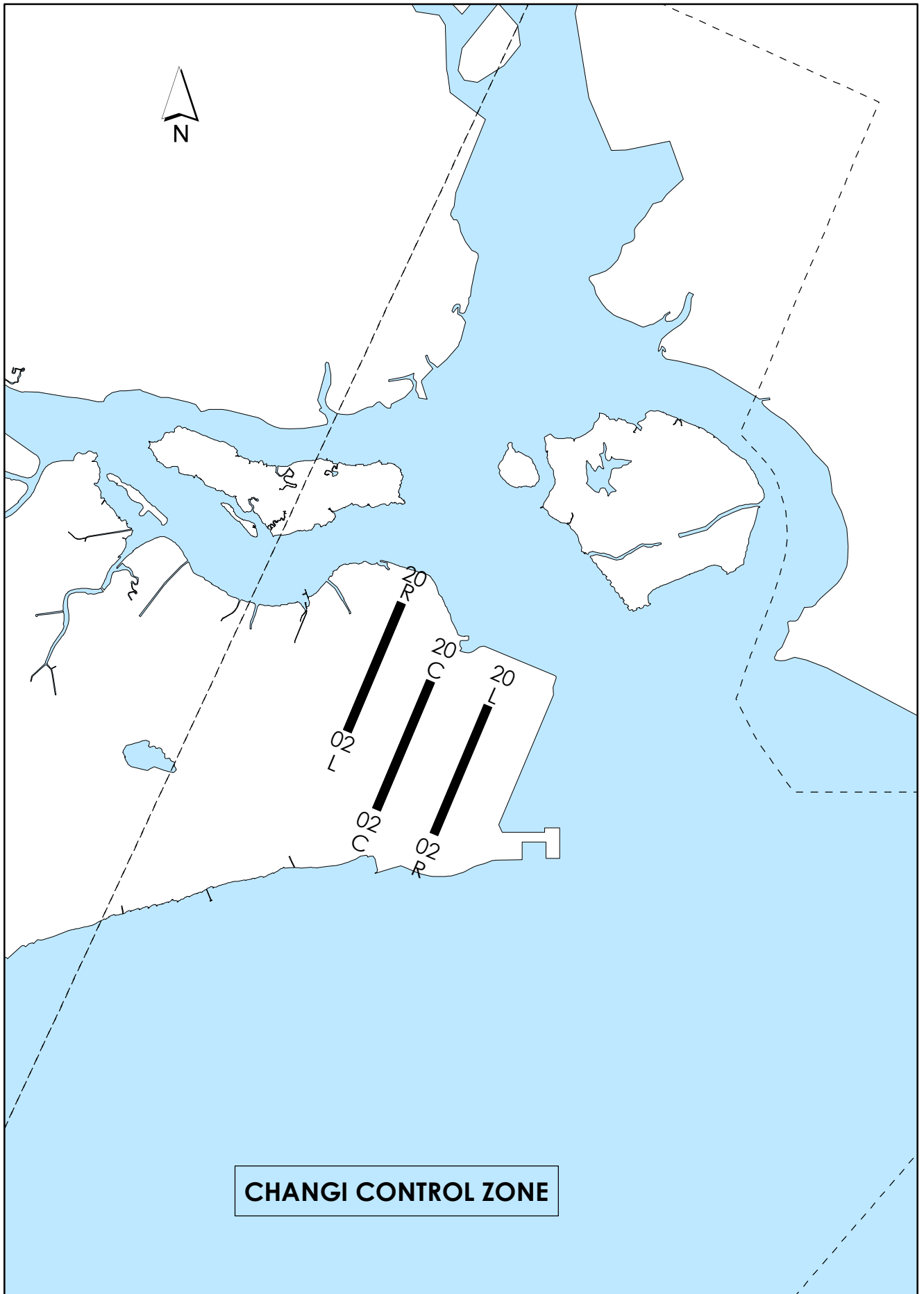
RWY 02R – TWY A10, A11 or A12

RWY 20L – TWY A1, A2 or A3

Charts

Location of RWY 02R/20L in relation to RWY 02L/20R and RWY 02C/20C [Chart 1](#)
Aerodrome Chart [Chart 2](#)
Aerodrome Advisory Chart [Chart 3](#)
Aerodrome Obstacle Chart - Type B [Chart 4](#)
Visual Approach Chart [Chart 5](#)
Visual Approach Chart [Chart 5.1](#)
Aerodrome Obstacle Chart - Type A [Chart 6](#)
Precision Approach Terrain Chart - RWY 02R [Chart 7](#)
Precision Approach Terrain Chart - RWY 20L [Chart 8](#)

**LOCATION OF RUNWAY 02R/20L IN RELATION TO
RUNWAY 02L/20R AND RUNWAY 02C/20C**



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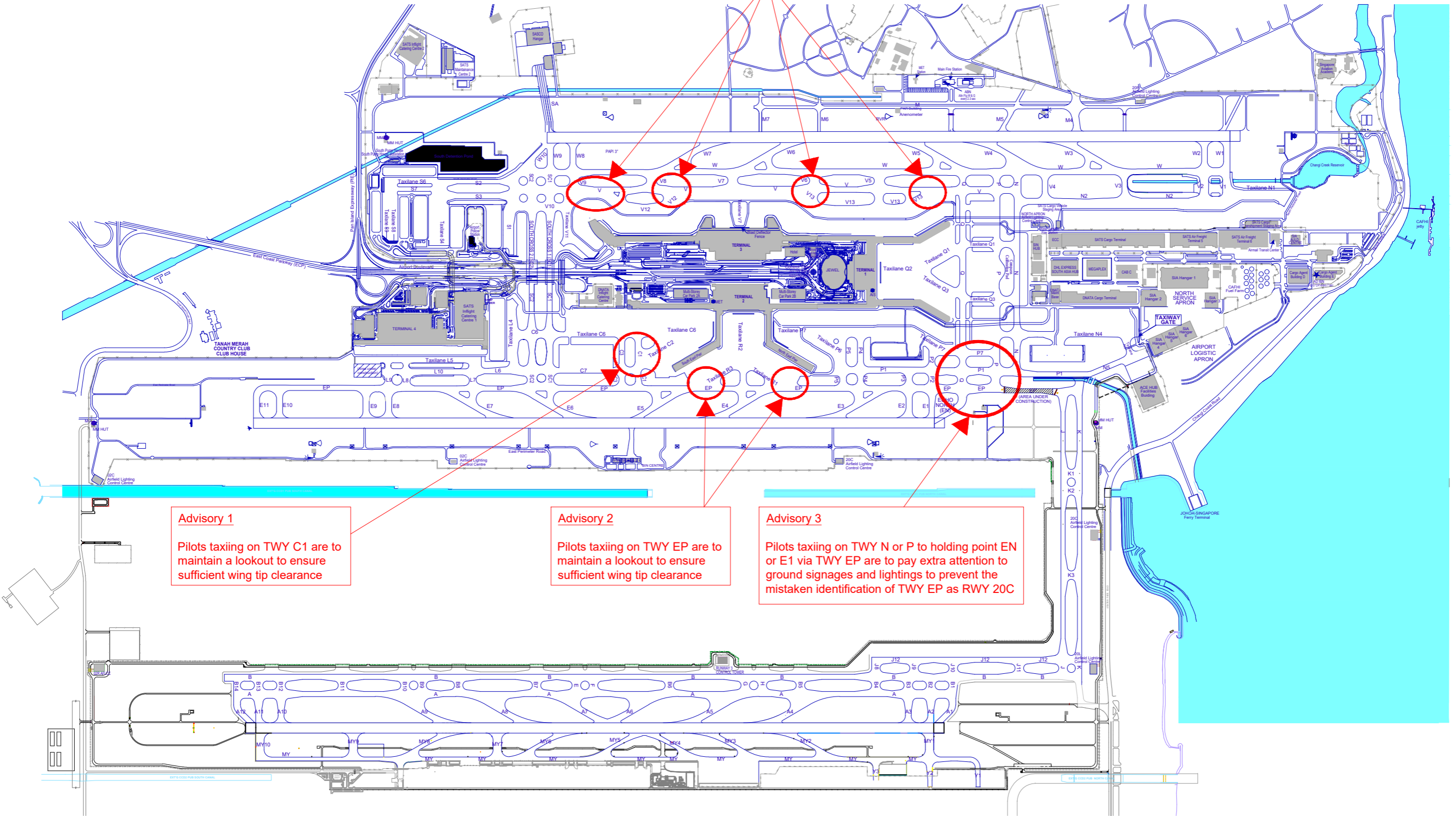
AERODROME ADVISORY CHART

Advisory 4
Pilots taxiing on TWY V are to maintain a lookout to ensure sufficient wing tip clearance

Advisory 1
Pilots taxiing on TWY C1 are to maintain a lookout to ensure sufficient wing tip clearance

Advisory 2
Pilots taxiing on TWY EP are to maintain a lookout to ensure sufficient wing tip clearance

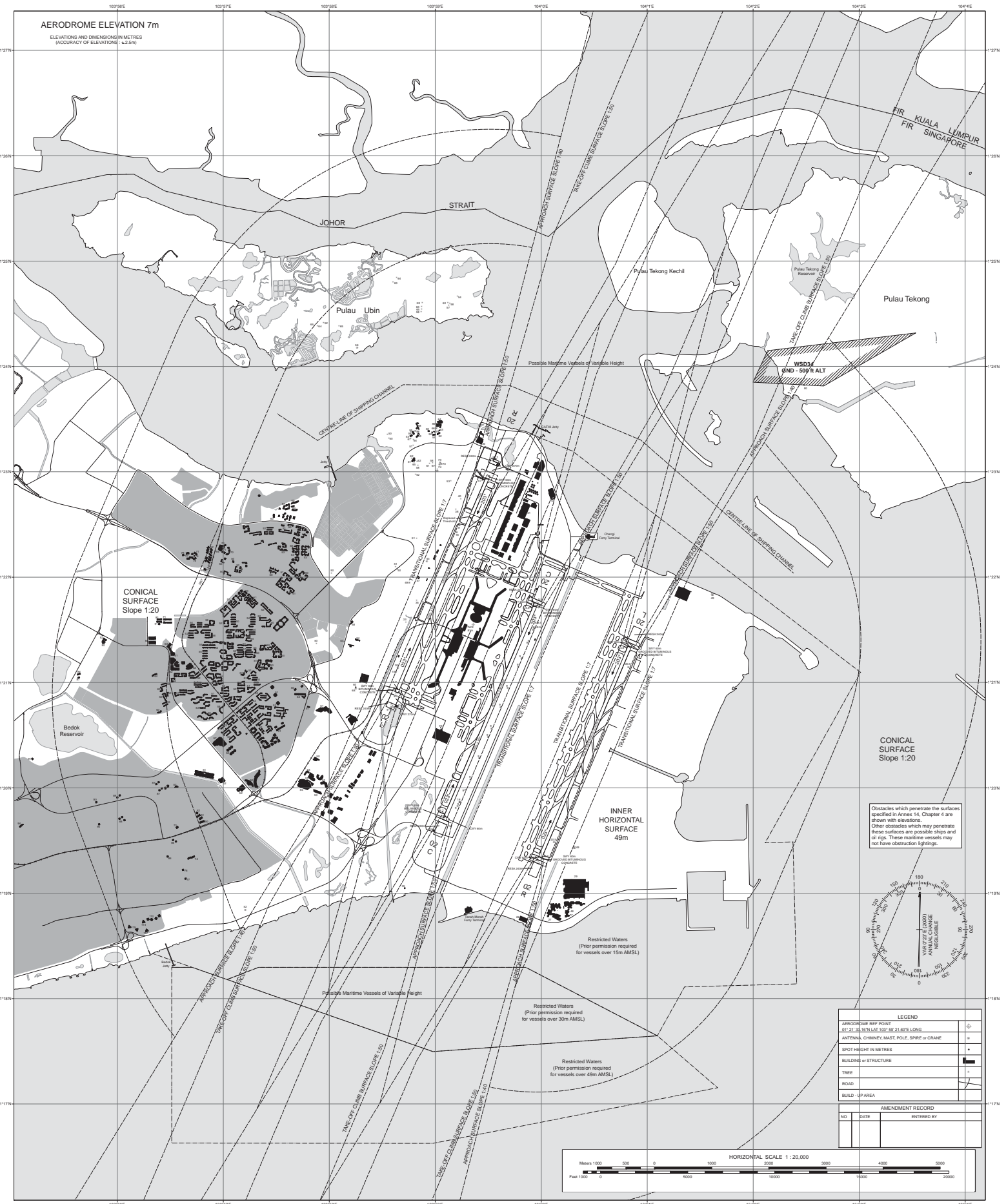
Advisory 3
Pilots taxiing on TWY N or P to holding point EN or E1 via TWY EP are to pay extra attention to ground signages and lightings to prevent the mistaken identification of TWY EP as RWY 20C



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AERODROME OBSTACLE CHART - ICAO TYPE B

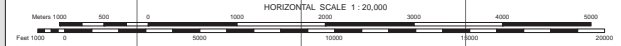
SINGAPORE / Singapore Changi



Obstacles which penetrate the surfaces specified in Annex 14, Chapter 4 are shown with elevators. Other obstacles which may penetrate these surfaces are possible ships and oil rigs. These maritime vessels may not have obstruction lightings.

LEGEND	
AERODROME REF POINT	□
ANTENNA, CHIMNEY, MAST, POLE, SPIRE or CRANE	+
SPOT HEIGHT IN METRES	*
BUILDING or STRUCTURE	■
TREE	+
ROAD	—
BUILD-UP AREA	▨

AMENDMENT RECORD		
NO	DATE	ENTERED BY



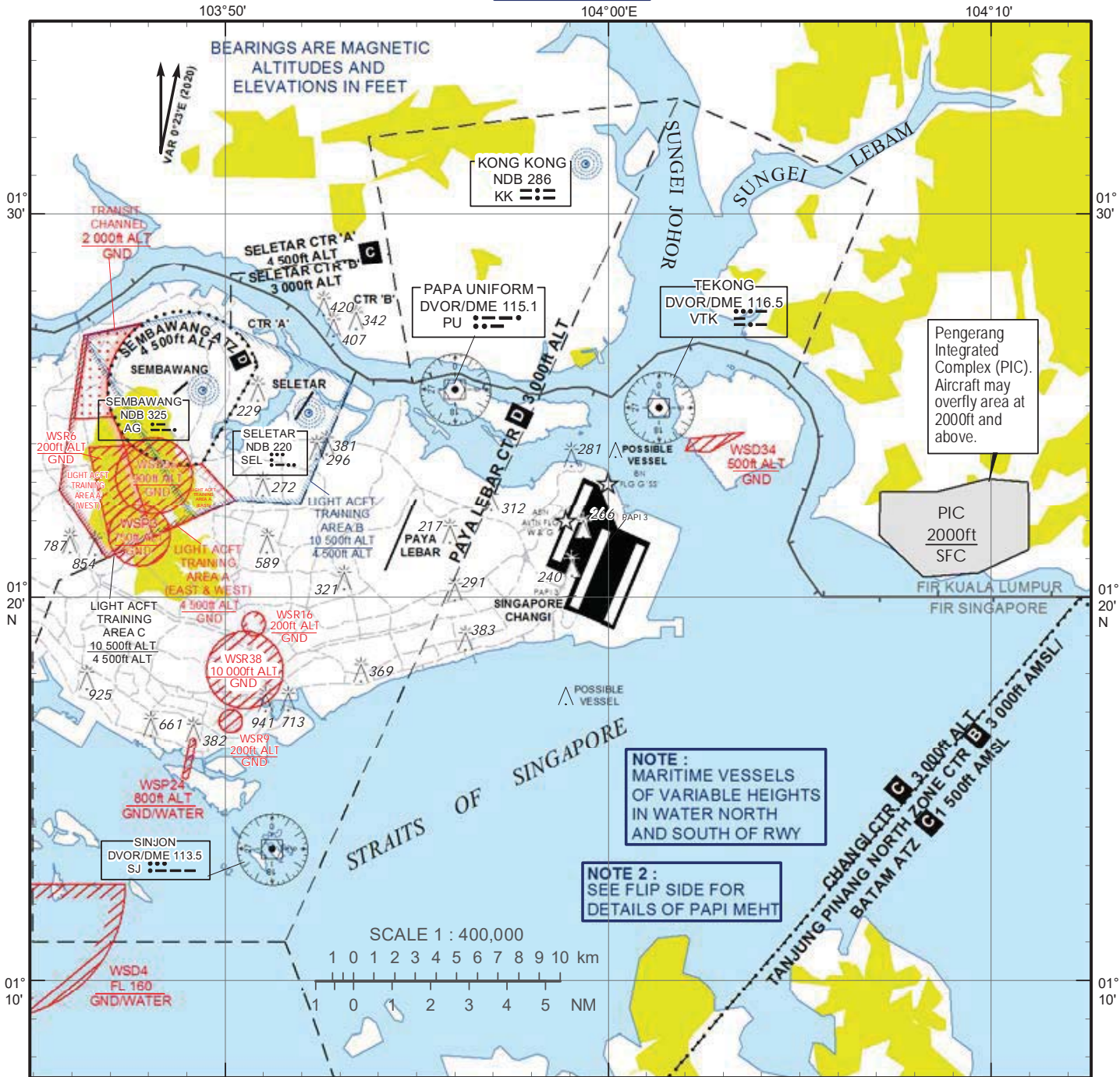
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VISUAL APPROACH CHART - ICAO

AERODROME ELEV 22 ft

D-ATIS	AP ID WSSS
APP	128.025
TWR	124.05
	119.3
	118.6
	118.25

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- An IFR flight operating into Singapore Changi Airport may be cleared for a visual approach subject to the following conditions :-
 - The pilot has the aerodrome in sight and can conduct his approach with visual reference to terrain;
 - The flight will not cause delay to other traffic;
 - There is no conflicting tall vessel movement;
 - The cloud ceiling at the aerodrome is 4,000ft or more for landing on RWY 20C/R/L and 3,000ft or more for on RWY 02C/L/R ; and
 - The visibility at the aerodrome is 5km or more.
- Notwithstanding para 1d) and 1e), if the pilot reports that he has the aerodrome in sight and can conduct his approach with visual reference to terrain, the flight may be cleared for a visual approach.
- Pilots may expect radar vectoring for separation and sequencing with other traffic prior to being cleared for a visual approach.

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PAPI 3° (MEHT)*						
Pilot's eye height over the threshold when the following PAPI lights come in view.	RUNWAY					
	02L	20R	02C	20C	20L	02R
2 White lights and 2 Red lights	20.0m	20.0m	19.8m	19.8m	19.7m	19.7m
3 White lights and 1 Red light	24.0m	22.6m	23.7m	23.7m	23.6m	23.6m
4 White lights	26.4m	25.0m	26.2m	26.2m	26.0m	26.0m
<p>*MEHT : Minimum Eye Height Over the Threshold.</p> <p>Note : Aircraft with eye-to-wheel height greater than 8 metres are advised to fly with 2 white lights and 2 red lights visible so as to achieve sufficient wheel clearance.</p>						

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DIMENSIONS AND ELEVATIONS IN METRES

**AERODROME OBSTACLE CHART - ICAO
TYPE A (OPERATING LIMITATIONS)**

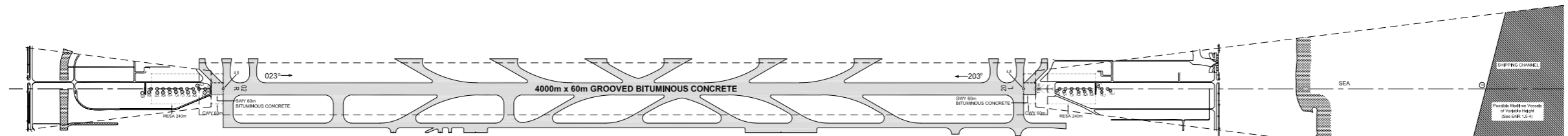
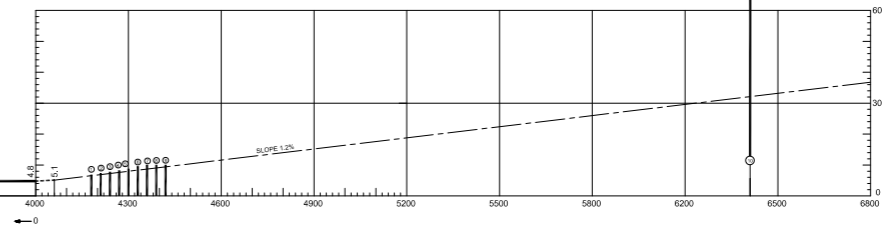
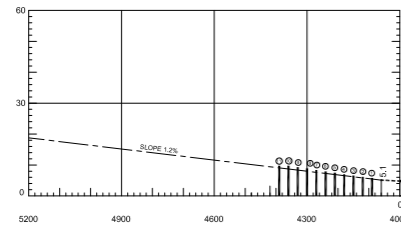
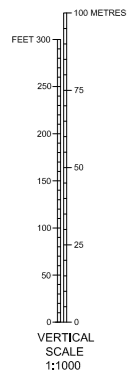
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MAGNETIC VARIATION 0°23'E (2020)

RWY 02R/20L

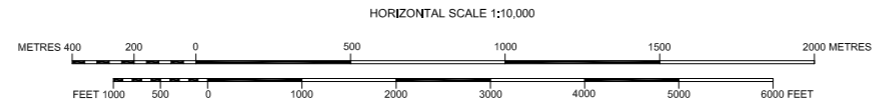
DECLARED DISTANCES

RWY 02R		RWY 20L
4000	TAKE-OFF RUN AVAILABLE	4000
4060	TAKE-OFF DISTANCE AVAILABLE	4060
4060	ACCELERATE STOP DISTANCE AVAILABLE	4060
4000	LANDING DISTANCE AVAILABLE	4000



LEGEND

LOCALISER ANTENNA	⬮
IDENTIFICATION NUMBER	⊙
PRECISION APPROACH LIGHT	⊙
ROAD	—
FENCE	—
DRAIN	▨



ORDER OF ACCURACY
HORIZONTAL : ±1m
VERTICAL : ±1m

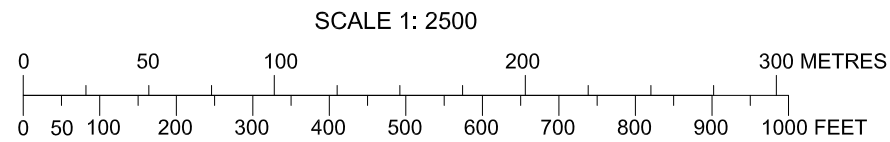
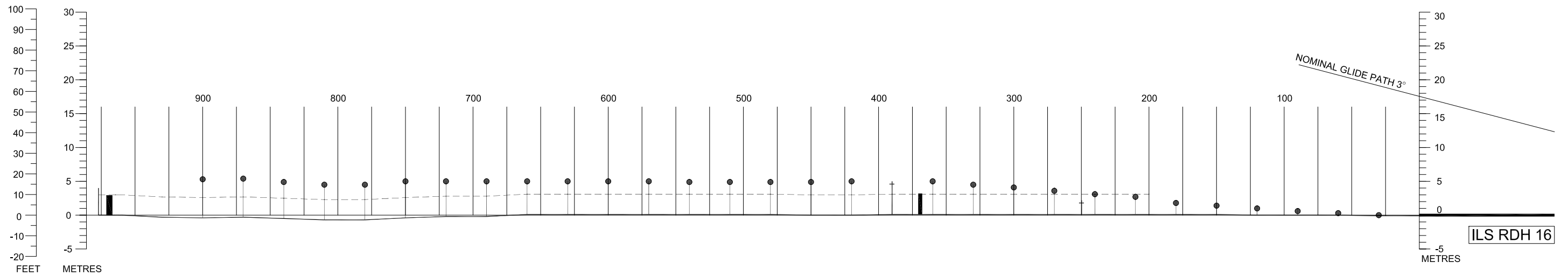
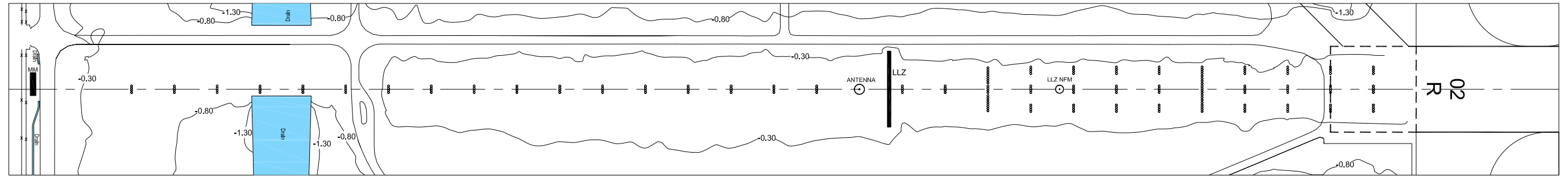
AMENDMENT RECORD

NO.	DATE	ENTERED BY

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PRECISION APPROACH TERRAIN CHART - ICAO

DISTANCES AND HEIGHTS IN METRES



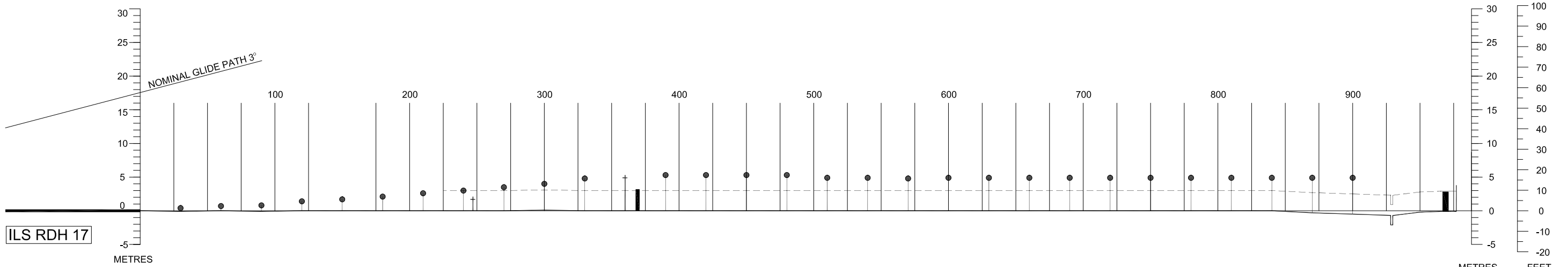
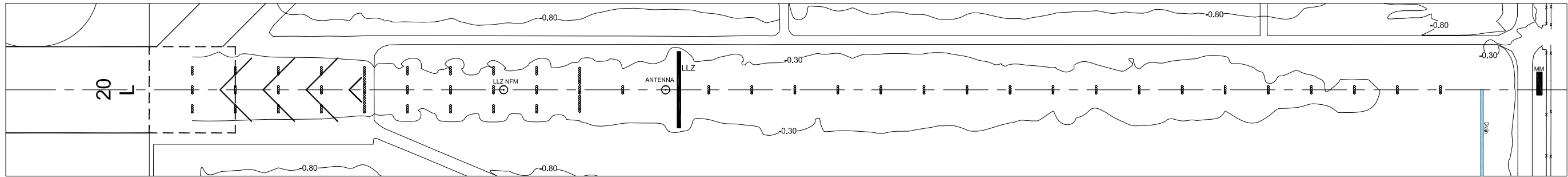
HORIZONTAL SCALE 1 : 2500
VERTICAL SCALE 1 : 500
CONTOUR AND HEIGHTS ARE RELATED
TO ELEVATION OF RWY THR

LEGEND		
ANTENNA		⊙ †
LOCALISER		LLZ
DRAIN		
FENCE		-x-x-
CONTOUR		~ -1.30 ~
PRECISION APPROACH LIGHT		○ ●
ROAD		==
BUILDING		■
CENTRE-LINE PROFILE		—
DEVIATION AT LEAST +/- 3M FROM CENTRE-LINE PROFILE		- - - -
AMENDMENT RECORD		
NO.	DATE	ENTERED BY

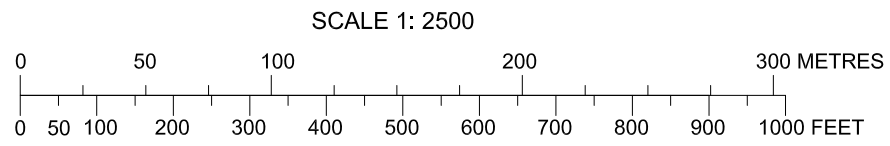
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PRECISION APPROACH TERRAIN CHART - ICAO

DISTANCES AND HEIGHTS IN METRES



ILS RDH 17



HORIZONTAL SCALE 1 : 2500
VERTICAL SCALE 1 : 500
CONTOUR AND HEIGHTS ARE RELATED TO ELEVATION OF RWY THR

LEGEND		
ANTENNA		
LOCALISER		
BUILDING		
DRAIN		
FENCE		
CONTOUR		
APPROACH LIGHT		
ROAD		
CENTRE-LINE PROFILE		
DEVIATION AT LEAST +/- 3M FROM CENTRE-LINE PROFILE		
AMENDMENT RECORD		
NO.	DATE	ENTERED BY

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