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REPUBLIC OF SINGAPORE

AERONAUTICAL INFORMATION SERVICES
CIVIL AVIATION AUTHORITY OF SINGAPORE
SINGAPORE CHANGI AIRPORT
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AIP

AMENDMENT NR 2/16
31 MARCH 2016

1. SIGNIFICANT INFORMATION AND CHANGES

1.1 Singapore FIR

a)	Changes to the vertical limits for Seletar Control Zone 'A', Sembawang Aerodrome Traffic Zone and Light Aircraft Training Areas A, B and C	ENR 3.5-3 / Chart ENR 3.6-7 / Chart ENR 3.6-9 / Chart ENR 5.1-9 / Chart ENR 5.2-1 to ENR 5.2-2 WSSS AD 2-121 / Chart WSSL AD 2-21 to 2-37 / Charts WSAG AD 2-2

1.2 Singapore Changi Airport (WSSS)

a)	Removal of information pertaining to RWY 02R / 20L which is closed due to development works.	ENR 1.5-2 WSSS AD 2-1, 2-3, 2-4, 2-10 to 2-13, 2-15, 2-16, 2-21, 2-23
b)	Withdrawal of Instrument Approach Charts ICX ILS/DME RWY 02R and ICZ ILS/DME RWY 20L	WSSS AD 2-107 / Chart WSSS AD 2-115 / Chart

2. INSERT THE ATTACHED REPLACEMENT PAGES WHICH ARE MARKED WITH ASTERISKS IN THE CHECKLIST OF PAGES - GEN 0.4-1 TO GEN 0.4-4.

3. NEW OR REVISED INFORMATION IS INDICATED EITHER BY A HORIZONTAL ARROW OR A VERTICAL LINE.

4. RECORD ENTRY OF AMENDMENT ON PAGE GEN 0.2-1.

5. THIS AMENDMENT INCORPORATES INFORMATION CONTAINED IN THE FOLLOWING WHICH ARE HEREBY SUPERSEDED:

AIP SUPPLEMENT:
3/16 dated 23/2/16

NOTAMs:
A0319/16 dated 17/1/16
A0351/16 dated 22/2/16
A0368/16 dated 24/2/16
A0618/16 dated 22/3/16
A0672/16 dated 28/3/16
A0673/16 dated 28/3/16
A0674/16 dated 28/3/16
A0689/16 dated 30/3/16

GEN 0.3 RECORD OF CURRENT AIP SUPPLEMENTS

NR/ Year	*Subject*	*AIP section affected*	*Period of validity (from / to)*	*Cancellation record*
1/14	Paya Lebar AP - Luffer Cranes	AD	WIE / 31 DEC 16	
2/14	Paya Lebar AP - Luffer Cranes	AD	WIE / 31 DEC 16	
3/14	Paya Lebar AP - Luffer Crane	AD	WIE / 31 DEC 16	
4/14	Paya Lebar AP - Topless Cranes	AD	WIE / 31 DEC 16	
5/14	Paya Lebar AP - Topless Cranes	AD	WIE / 31 DEC 16	
218/14	Paya Lebar AP - Luffer Cranes	AD	WIE / 30 DEC 17	
219/14	Paya Lebar AP - Luffer Cranes	AD	WIE / 31 DEC 17	
220/14	Paya Lebar AP - Hammerhead and Luffer Cranes	AD	WIE / 31 DEC 17	
221/14	Paya Lebar AP - Luffer Crane	AD	WIE / 31 DEC 17	
222/14	Paya Lebar AP - Luffer Cranes	AD	WIE / 31 DEC 17	
223/14	Paya Lebar AP - Luffer Cranes	AD	WIE / 1 JUN 16	
224/14	Paya Lebar AP - Mobile Crane	AD	WIE / 1 JUN 16	
225/14	Paya Lebar AP - Crane	AD	WIE / 14 JUN 16	
226/14	Paya Lebar AP - Luffer Cranes	AD	WIE / 30 JUN 16	
227/14	Paya Lebar AP - Luffer Cranes	AD	WIE / 30 JUN 16	
238/14	Paya Lebar AP - Luffer Cranes	AD	WIE / 1 DEC 16	
239/14	Paya Lebar AP - Topless Cranes	AD	WIE / 31 DEC 16	
240/14	Paya Lebar AP - Topless Cranes	AD	WIE / 31 DEC 16	
241/14	Paya Lebar AP - Luffer Cranes	AD	WIE / 31 DEC 16	
242/14	Paya Lebar AP - Topless Cranes	AD	WIE / 31 DEC 16	
380/14	Paya Lebar AP - Hammerhead and Topless Cranes	AD	WIE / 31 DEC 16	
381/14	Paya Lebar AP - Topless Cranes / A Frames	AD	WIE / 31 DEC 16	
382/14	Paya Lebar AP - Topless Cranes	AD	WIE / 31 DEC 16	
383/14	Paya Lebar AP - Luffer and Hammerhead Canes	AD	WIE / 31 DEC 16	
384/14	Paya Lebar AP - Topless and Hammerhead Cranes	AD	WIE / 31 DEC 16	
21/15	Paya Lebar AP - Saddle Crane	AD	WIE / 4 DEC 17	
22/15	Paya Lebar AP - Luffer Cranes	AD	WIE / 9 DEC 17	
23/15	Paya Lebar AP - Topless Cranes	AD	WIE / 31 DEC 17	
24/15	Paya Lebar AP - Luffer Crane	AD	WIE / 31 DEC 17	
25/15	Paya Lebar AP - Hammerhead Cranes	AD	WIE / 31 DEC 17	
27/15	Singapore Changi AP - Work activities due to construction of new aircraft stands and modification of engine run-up bays at East Cargo Area	AD	WIE / 31 MAR 17	
29/15	Paya Lebar AP - Mobile Cranes	AD	WIE / 1 JAN 17	
30/15	Paya Lebar AP - Luffer Cranes	AD	WIE / 2 JAN 17	
31/15	Paya Lebar AP - Topless Cranes	AD	WIE / 3 JAN 17	
32/15	Paya Lebar AP - Luffer Crane	AD	WIE / 31 JAN 17	
33/15	Paya Lebar AP - Luffer Crane and Topless Cranes	AD	WIE / 31 JAN 17	
39/15	Paya Lebar AP - Luffer Crane	AD	WIE / 22 JUN 16	
40/15	Paya Lebar AP - Mobile Crane	AD	WIE / 29 JUN 16	
41/15	Paya Lebar AP - Luffer Crane	AD	WIE / 30 JUN 16	
42/15	Paya Lebar AP - Tower Crane	AD	WIE / 30 JUN 16	
57/15	Paya Lebar AP - Hammerhead Cranes	AD	WIE / 1 APR 16	
58/15	Paya Lebar AP - Luffer Crane	AD	WIE / 30 MAY 16	
59/15	Paya Lebar AP - Luffer Cranes	AD	WIE / 10 SEP 16	
60/15	Paya Lebar AP - Luffer Crane	AD	WIE / 30 SEP 16	
61/15	Paya Lebar AP - Topless Cranes	AD	WIE / 30 SEP 16	
62/15	Paya Lebar AP - Topless Cranes	AD	WIE / 31 DEC 16	
63/15	Paya Lebar AP - Luffer Crane	AD	WIE / 1 AUG 16	
64/15	Paya Lebar AP - Luffer Cranes	AD	WIE / 30 AUG 16	
65/15	Paya Lebar AP - Luffer Cranes	AD	WIE / 31 AUG 16	
66/15	Paya Lebar AP - Saddle Cranes and Luffer Crane	AD	WIE / 31 AUG 16	
67/15	Paya Lebar AP - Saddle Cranes	AD	WIE / 1 SEP 16	

GEN 0.3 RECORD OF CURRENT AIP SUPPLEMENTS				
NR/ Year	*Subject*	*AIP section affected*	*Period of validity (from / to)*	*Cancellation record*
68/15	Paya Lebar AP - Luffer Crane	AD	WIE / 7 JUL 17	
69/15	Paya Lebar AP - Tower Cranes	AD	WIE / 31 JUL 17	
70/15	Paya Lebar AP - Luffer Cranes and Saddle Cranes	AD	WIE / 19 AUG 17	
71/15	Paya Lebar AP - Tower Cranes	AD	WIE / 10 SEP 17	
72/15	Paya Lebar AP - Tower Cranes	AD	WIE / 10 SEP 17	
73/15	Paya Lebar AP - Saddle Cranes	AD	WIE / 9 OCT 17	
74/15	Paya Lebar AP -Topless Cranes and Luffer Crane	AD	WIE / 31 DEC 17	
75/15	Paya Lebar AP - Hydraulic Crawler Cranes	AD	WIE / 7 JAN 18	
76/15	Paya Lebar AP - Tower Cranes	AD	WIE / 31 MAR 18	
77/15	Paya Lebar AP - Saddle Cranes	AD	WIE / 1 MAY 18	
78/15	Paya Lebar AP - Tower Cranes	AD	WIE / 1 MAR 17	
79/15	Paya Lebar AP - Hammerhead Cranes	AD	WIE / 4 MAR 17	
80/15	Paya Lebar AP - Topless Cranes	AD	WIE / 1 APR 17	
81/15	Paya Lebar AP - Hammerhead Cranes	AD	WIE / 29 APR 17	
82/15	Paya Lebar AP - Topless Cranes	AD	WIE / 10 MAY 17	
83/15	Paya Lebar AP - Luffer Cranes	AD	WIE / 1 FEB 17	
84/15	Paya Lebar AP - Hammerhead Cranes	AD	WIE / 28 FEB 17	
85/15	Paya Lebar AP - Crane	AD	WIE / 28 FEB 17	
86/15	Paya Lebar AP - Luffer Crane	AD	WIE / 28 FEB 17	
87/15	Sembawang AD - Hammerhead Cranes	AD	WIE / 1 FEB 17	
108/15	Singapore Changi AP - Revised work activities area due to construction of new aircraft stands and new taxiways at West Cargo Area	AD	WIE / 2 AUG 16	
109/15	Singapore Changi AP - Shortening of Runway 20C approach lighting to 720m to facilitate the construction of the northern end-around-taxiway	AD	2 OCT 15 / 31 OCT 18	
116/15	Paya Lebar AP - Luffer Crane	AD	WIE / 14 NOV 16	
117/15	Paya Lebar AP - Crane	AD	WIE / 30 NOV 16	
118/15	Paya Lebar AP - Tower Cranes	AD	WIE / 31 DEC 16	
119/15	Paya Lebar AP - Luffer Cranes	AD	WIE / 31 DEC 16	
120/15	Paya Lebar AP - Topless Tower Cranes	AD	WIE / 1 APR 17	
121/15	Paya Lebar AP - Luffer Crane	AD	WIE / 1 JUN 17	
122/15	Paya Lebar AP - Topless Cranes	AD	WIE / 30 JUN 17	
123/15	Paya Lebar AP - Topless Cranes	AD	WIE / 30 JUN 17	
124/15	Paya Lebar AP - Luffer Cranes	AD	WIE / 30 JUN 17	
125/15	Paya Lebar AP - Luffer Crane	AD	WIE / 1 JUL 17	
126/15	Paya Lebar AP - Luffer Crane	AD	WIE / 30 DEC 17	
127/15	Tengah AD - Topless Cranes and Luffer Crane	AD	1 SEP 15 / 31 AUG 17	
128/15	Tengah AD - Topless Cranes	AD	1 SEP 15 / 31 AUG 17	
129/15	Tengah AD - Luffer Crane	AD	WIE / 31 DEC 17	
130/15	Sembawang AD - Luffer Cranes	AD	WIE / 31 DEC 17	
131/15	Paya Lebar AP - Topless Cranes	AD	WIE / 31 DEC 17	
132/15	Paya Lebar AP - Cranes	AD	WIE / 12 APR 18	
133/15	Paya Lebar AP - Luffer Crane and Topless Crane	AD	WIE / 30 JUN 18	
134/15	Paya Lebar AP - Luffer Cranes	AD	WIE / 30 JUN 18	
135/15	Tengah AD - Luffer Cranes	AD	WIE / 30 JUN 18	
138/15	Paya Lebar AP- Luffer Crane	AD	WIE / 30 JUN 17	
139/15	Paya Lebar AP- Topless Cranes and Luffer Crane	AD	WIE / 30 JUN 17	
140/15	Paya Lebar AP - Luffer Cranes	AD	WIE / 30 DEC 17	
141/15	Paya Lebar AP - Saddle Crane	AD	WIE / 30 DEC 17	

GEN 0.3 RECORD OF CURRENT AIP SUPPLEMENTS				
NR/ Year	*Subject*	*AIP section affected*	*Period of validity (from / to)*	*Cancellation record*
142/15	Paya Lebar AP - Topless Cranes	AD	WIE / 31 AUG 18	
151/15	Paya Lebar AP - Topless Cranes	AD	WIE / 6 MAY 16	
152/15	Paya Lebar AP - Topless Cranes	AD	WIE / 31 MAY 16	
153/15	Paya Lebar AP - Topless Crane	AD	WIE / 30 SEP 16	
154/15	Paya Lebar AP - Crawler Crane and Mobile Crane	AD	WIE / 13 OCT 16	
155/15	Paya Lebar AP - Luffer Crane	AD	WIE / 31 MAY 17	
156/15	Paya Lebar AP - Topless Cranes	AD	WIE / 1 JUN 17	
157/15	Paya Lebar AP- Luffer Crane	AD	WIE / 14 AUG 17	
158/15	Paya Lebar AP - Hammerhead and Luffer Cranes	AD	WIE / 30 JUN 17	
159/15	Paya Lebar AP - Luffer Cranes	AD	WIE / 31 JUL 17	
160/15	Paya Lebar AP - Luffer Cranes	AD	WIE / 15 AUG 18	
161/15	Paya Lebar AP - Luffer Cranes	AD	WIE / 1 SEP 18	
162/15	Sembawang AD - Topless Cranes	AD	31 OCT 15 / 31 OCT 18	
167/15	Singapore Changi AP - Introduction of Airport Collaborative Decision Making (A-CDM) Operational Trials	AD	22 FEB 16 / 30 JUN 16	
1/16	Singapore FIR - RSAF Aerial Flypast prior to and on Singapore's National Day, 9th August 2016	ENR	7 JUN 16 / 13 AUG 16	
2/16	Singapore Changi AP - Work schedule and movement area restrictions pertaining to runway resurfacing works, diversion of airside services and soil improvement works	AD	26 MAR 16 / 29 OCT 16	
3/16	Singapore FIR - Changes to the vertical limits for Seletar Control Zone 'A', Sembawang Aerodrome Traffic Zone and Light Aircraft Training Areas	ENR	31 MAR 16 / PERM	
4/16	Singapore Changi Airport - Shortening of Runway 02C Approach Lighting System to 810m to facilitate southern end-around-taxiway construction	AD	1 JUN 16 / 30 APR 20	
5/16	Paya Lebar AP - Tower Cranes	AD	WIE / 30 JUN 16	
6/16	Paya Lebar AP - Mobile Cranes	AD	WIE / 30 JUN 16	
7/16	Paya Lebar AP - Luffer Crane	AD	WIE / 30 JUN 16	
8/16	Paya Lebar AP - Mobile Cranes	AD	WIE / 31 JUL 16	
9/16	Paya Lebar AP - Luffer Crane	AD	WIE / 30 SEP 16	
10/16	Paya Lebar AP - Crawler Tower Crane	AD	WIE / 30 SEP 16	
11/16	Paya Lebar AP - Crawler Crane	AD	WIE / 30 SEP 16	
12/16	Paya Lebar AP - Crawler Luffer Crane	AD	WIE / 26 OCT 16	
13/16	Paya Lebar AP - Luffer Cranes	AD	WIE / 31 OCT 16	
14/16	Paya Lebar AP - Luffer Crane	AD	WIE / 31 OCT 16	
15/16	Paya Lebar AP - Mobile Crane	AD	WIE / 23 NOV 16	
16/16	Paya Lebar AP - Crawler Crane	AD	WIE / 30 NOV 16	
17/16	Paya Lebar AP - Topless Cranes	AD	WIE / 31 JAN 17	
18/16	Paya Lebar AP - Luffer Crane	AD	WIE / 31 DEC 16	
19/16	Sembawang AD - Luffer and Topless Cranes	AD	WIE / 31 DEC 16	
20/16	Paya Lebar AP - Topless Crane	AD	WIE / 31 DEC 16	
21/16	Paya Lebar AP - Crawler Cranes	AD	WIE / 31 DEC 16	
22/16	Sembawang AD - Tower Cranes and Piling Rigs	AD	WIE / 20 JAN 17	
23/16	Paya Lebar AP - Topless Cranes and Luffer Cranes	AD	WIE / 31 JAN 17	
24/16	Paya Lebar AP - Luffer Crane	AD	WIE / 31 JAN 17	
25/16	Paya Lebar AP - Luffer Cranes	AD	WIE / 31 DEC 17	
26/16	Paya Lebar AP - Topless Cranes	AD	WIE / 31 DEC 17	
27/16	Paya Lebar AP - Topless Cranes and Luffer Cranes	AD	WIE / 31 DEC 17	
28/16	Paya Lebar AP - Tower Cranes	AD	WIE / 26 MAR 18	

GEN 0.3 RECORD OF CURRENT AIP SUPPLEMENTS				
NR/ Year	*Subject*	*AIP section affected*	*Period of validity (from / to)*	*Cancellation record*
29/16	Paya Lebar AP - Luffer Cranes	AD	WIE / 31 OCT 16	
30/16	Paya Lebar AP - Saddle Cranes	AD	WIE / 31 OCT 16	
31/16	Paya Lebar AP - Saddle Cranes	AD	WIE / 31 OCT 16	
32/16	Paya Lebar AP - Luffer Crane	AD	WIE / 31 OCT 16	
33/16	Paya Lebar AP - Luffer Crane	AD	WIE / 31 OCT 16	
34/16	Paya Lebar AP - Saddle Cranes	AD	WIE / 31 OCT 16	
35/16	Paya Lebar AP - Cranes	AD	WIE / 31 OCT 16	
36/16	Paya Lebar AP - Luffer Crane	AD	WIE / 31 OCT 16	
37/16	Paya Lebar AP - Mobile Cranes and Crawler Cranes	AD	WIE / 31 OCT 16	
38/16	Paya Lebar AP - Saddle Cranes	AD	WIE / 31 OCT 16	
39/16	Paya Lebar AP - Topless Cranes	AD	WIE / 31 OCT 16	
40/16	Airspace closure Kuala Lumpur and Singapore FIRs EXERCISE BERSAMA SHIELD 16	ENR	21 APR 16 / 28 APR 16	
41/16	Singapore FIR - Airspace closure due to military exercise	ENR	21 APR 16 / 28 APR 16	
42/16	Singapore Changi AP - Opening of new aircraft stands 510, 511, 512, 513 and 514 at West Cargo Area	AD	28 APR 16 / PERM	

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GEN 3.2.5 LIST OF AERONAUTICAL CHARTS AVAILABLE

Title of Chart Series	*Scale*	*Name and/or number*		*Price ($)*	*Date*
World Aeronautical Chart ICAO (WAC)	1:1 000 000	WAC 2860		In AIP	15 JUL 99
Enroute Chart ICAO (ENRC)		ENR 6-1		In AIP	4 FEB 16
Instrument Approach Chart ICAO (IAC)		***Singapore Changi***			
	1:400 000	RWY 02L - ICW ILS/DME	WSSS AD 2-101	In AIP	31 MAR 16
	1:400 000	RWY 02C - ICE ILS/DME	WSSS AD 2-103	In AIP	31 MAR 16
	1:400 000	RWY 02C - VTK DVOR/DME	WSSS AD 2-105	In AIP	31 MAR 16
	1:400 000				
	1:400 000	RWY 20R - ICH ILS/DME	WSSS AD 2-109	In AIP	31 MAR 16
	1:400 000	RWY 20C - ICC ILS/DME	WSSS AD 2-111	In AIP	31 MAR 16
	1:400 000	RWY 20C - VTK DVOR/DME	WSSS AD 2-113	In AIP	31 MAR 16
	1:400 000				
	1:400 000	RWY 02L - RNAV(GNSS)	WSSS AD 2-117	In AIP	31 MAR 16
	1:400 000	RWY 02C - RNAV(GNSS)	WSSS AD 2-118	In AIP	31 MAR 16
	1:400 000	RWY 20R - RNAV(GNSS)	WSSS AD 2-119	In AIP	31 MAR 16
	1:400 000	RWY 20C - RNAV(GNSS)	WSSS AD 2-120	In AIP	31 MAR 16
		Paya Lebar			
	1:400 000	RWY 20 - PU DVOR/DME	WSAP AD 2-17	In AIP	31 MAR 16
	1:400 000	RWY 02 - PU DVOR/DME	WSAP AD 2-19	In AIP	31 MAR 16
	1:400 000	RWY 20 - IPS ILS/DME	WSAP AD 2-21	In AIP	31 MAR 16
	1:400 000	RWY 02 - IPN ILS/DME	WSAP AD 2-23	In AIP	31 MAR 16
Visual Approach Chart ICAO (VAC)	1:400 000	***Singapore Changi***	WSSS AD 2-121	In AIP	31 MAR 16
		Seletar			
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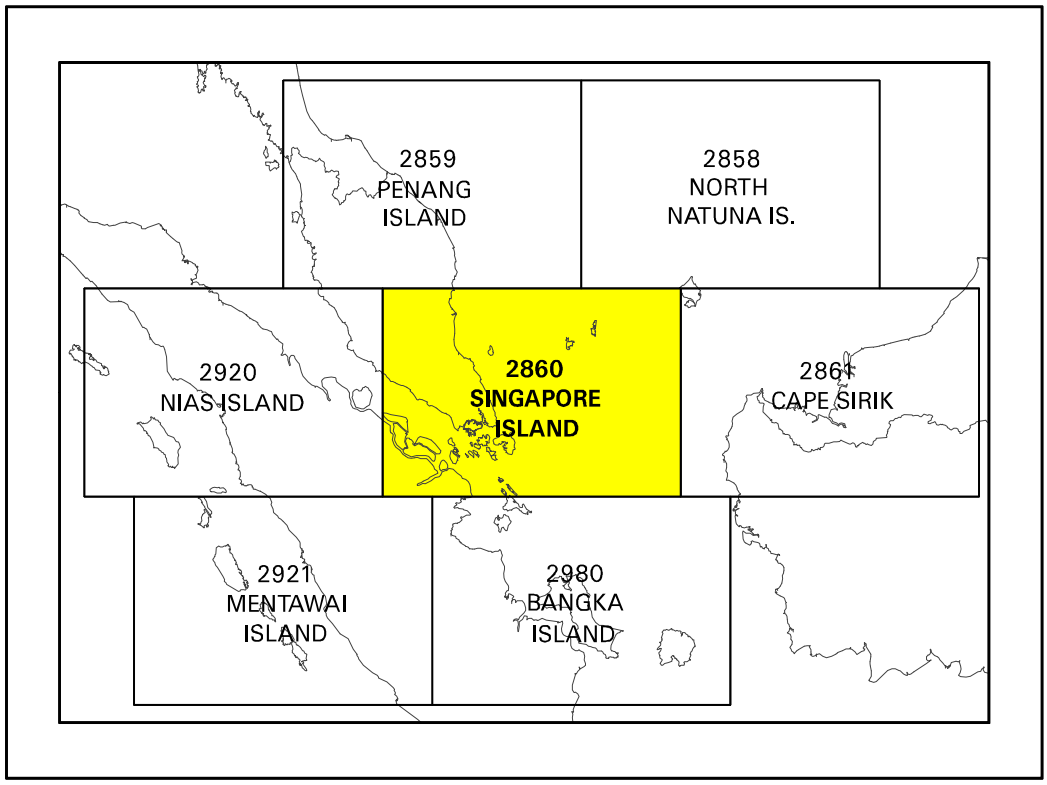
	1:100 000	RWY 21	WSSL AD 2-27	In AIP	31 MAR 16
Visual Departure Chart		***Seletar***			
	1:100 000	RWY 03	WSSL AD 2-29	In AIP	31 MAR 16
	1:100 000	RWY 21	WSSL AD 2-31	In AIP	31 MAR 16
Aerodrome Chart ICAO (AC)		***Singapore Changi***	WSSS AD 2-31	In AIP	31 MAR 16
		Seletar	WSSL AD 2-13	In AIP	25 JUN 15
		Paya Lebar	WSAP AD 2-11	In AIP	5 MAR 15
Aerodrome Obstacle Chart ICAO TYPE A (AOC)		***Singapore Changi***			
	1:10 000	RWY 20R/02L	WSSS AD 2-37	In AIP	20 AUG 15
	1:10 000	RWY 20C/02C	WSSS AD 2-39	In AIP	10 DEC 15
		Seletar			
	1:10 000	RWY 03/21	WSSL AD 2 -17	In AIP	5 MAR 15
		Paya Lebar			
	1:20 000	RWY 20/02	WSAP AD 2-15	In AIP	5 MAR 15
Aerodrome Obstacle Chart ICAO TYPE B (AOC)		***Singapore Changi***			
	1:25 000	RWY 02L/20R and 02C/20C	WSSS AD 2-41	In AIP	31 MAR 16
		Seletar			
	1:12 500	RWY 03/21	WSSL AD 2-19	In AIP	30 APR 15
Precision Approach Terrain Chart - ICAO (PATC)		***Singapore Changi***			
	1:2 500	RWY 02L	WSSS AD 2-43	In AIP	25 APR 96
	1:2 500	RWY 02C	WSSS AD 2-45	In AIP	25 APR 96

GEN 3.2.6 INDEX TO THE WORLD AERONAUTICAL CHART (WAC) - ICAO 1:1 000 000



PART 2 - ENROUTE (ENR)

ENR 0

ENR 0.6 TABLE OF CONTENTS TO PART 2

ENR 1. GENERAL RULES AND PROCEDURES

ENR 1.5 HOLDING, APPROACH AND DEPARTURE PROCEDURES

1. GENERAL

1.1 The holding, approach and departure procedures in use throughout the Singapore FIR are developed in accordance with the criteria contained in ICAO DOC 8168-OPS/611: Procedures for Air Navigation Services - Operations (PANS-OPS).

1.1.1 To ensure conformity with associated procedures, this section should be read in conjunction with section ENR 1.

1.1.2 An aircraft approaching an aerodrome under IFR for the purpose of making a landing shall conform to the holding and instrument approach procedures for the radio navigational aid employed as prescribed in the appropriate Instrument Approach charts WSSS AD 2-101 to WSSS AD 2-119.

1.1.3 Pilots will be expected to know the correct holding, approach and departure procedures.

Note: Due to military operations above, below and adjacent to controlled airspace within the Singapore/Johor Airspace Complex, pilots unable to remain within 500ft of the vertical limits, or within the lateral limits of the controlled airspace are required to advise ATC immediately.

1.2 HOLDING PROCEDURES

1.2.1 Initial approach tracks and holding patterns associated with Singapore Airports are detailed in charts ENR 3.6-5, ENR 3.6-7 and 3.6-9 prepared for the purpose. Holding patterns for other airfields are indicated on the applicable approach charts.

1.3 LOW LEVEL HOLDING AREAS

1.3.1 The holding areas for procedural traffic landing at Singapore Changi Airport or Seletar Airport depend on the runway in use at Singapore Changi Airport and are as follows:

a) RWY 02L/02C - SAMKO Holding Area (SHA) - Lower/Upper limits - 3,500ft / FL140.
b) RWY 20R/20C - NYLON Holding Area (NHA) - Lower/Upper limits - 2,500ft / FL140.

1.3.2 Details of these holding areas and those mentioned in paras 1.3.3 and 1.3.4 are given in sub-section ENR 3.6. They are also shown in charts ENR 3.6-7 and ENR 3.6-9.

1.3.3 An intermediate holding area - HOSBA Holding Area (HHA) - is also established. The lower/upper limits are 7,000ft/FL140.

1.3.4 A bad weather holding area - SINJON Holding Area - is established for Seletar bound commercial traffic. The lower/upper limits are 4 500ft/FL140.

1.4 HIGH LEVEL HOLDING AREAS

1.4.1 High Level Holding Areas are also established at NHA, SHA and HHA. The lower/upper limits are FL150/FL250. Details of these areas are given in sub-section ENR 3.6.

1.5 HOLDING SPEEDS

1.5.1 The maximum holding speed for all low level holding areas is 230kt.

1.5.2 The maximum holding speed for all high level holding areas is 265kt.

1.5.3 During conditions of turbulence, pilots could request ATC clearance to hold at speeds up to 280kt for both high and low level holding areas.

1.6 STANDARD INSTRUMENT DEPARTURE (SID) AND STANDARD INSTRUMENT ARRIVAL (STAR)

Pilots departing from and landing at Singapore Changi Airport should refer to the procedures in charts WSSS AD 2-51 to WSSS AD 2-100.

2. ARRIVING FLIGHTS

2.1 INSTRUMENT APPROACH PROCEDURES

2.1.1 Pilots making instrument approaches to Singapore Changi Airport should refer to the procedures in charts WSSS AD 2-101 to WSSS AD 2-119.

2.2 CATEGORY I ILS APPROACHES

2.2.1 Category I ILS approaches are generally available on RWY 02L/20R and RWY 02C/20C at Singapore Changi Airport. Pilots making Category I ILS approaches to Singapore Changi Airport should refer to the procedures in charts WSSS AD 2-101 to WSSS AD 2-119.

2.3 CATEGORY II ILS APPROACHES

(refer to page WSSS AD 2-22 for details)

2.4 VISUAL APPROACH PROCEDURES

2.4.1 An IFR flight operating into Singapore Changi Airport may be cleared for a visual approach subject to the following conditions:

a) the pilot has the aerodrome in sight and can conduct his approach with visual reference to terrain;

b) the flight will not cause delay to other traffic;

c) there is no conflicting tall vessel movement;

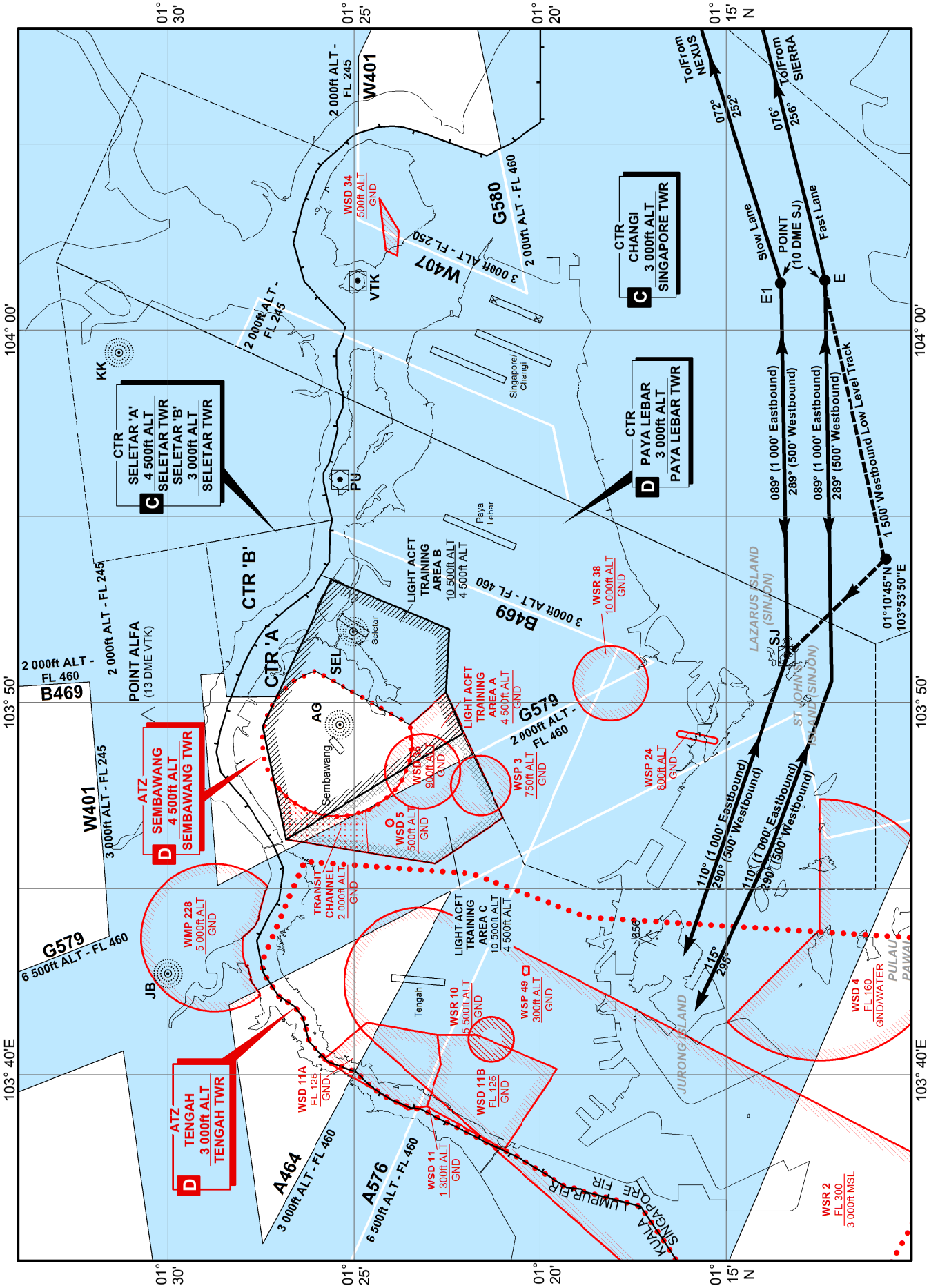
d) the cloud ceiling at the aerodrome is 4,000ft or more for landing on RWY 20 and 3,000ft or more for landing on RWY 02; and

e) the visibility at the aerodrome is 5km or more.

2.4.2 Notwithstanding para 2.4.1(d) and 2.4.1(e), 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.

2.4.3 Pilots may expect radar vectoring for separation and sequencing with other traffic prior to being cleared for a visual approach.

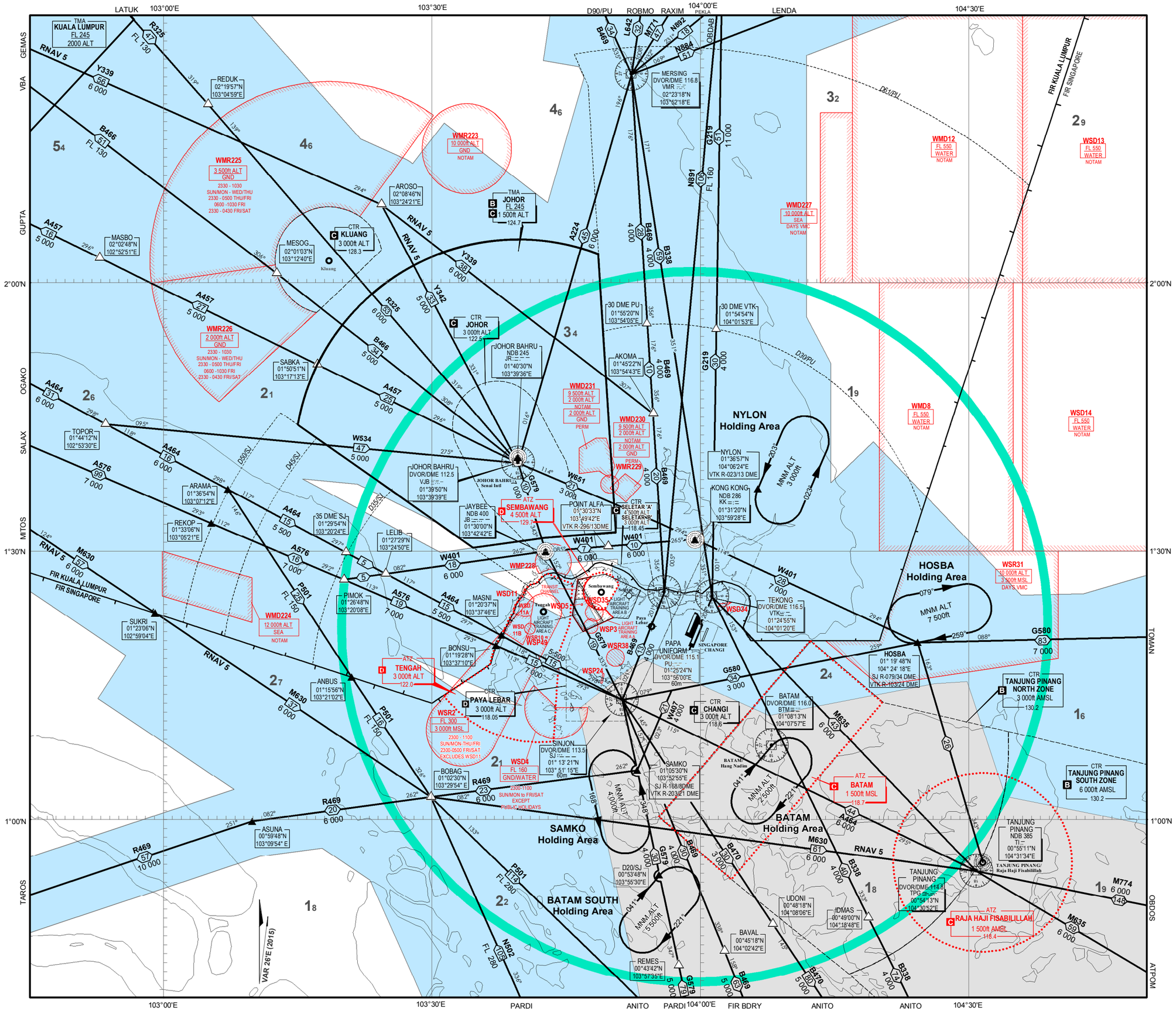
VMC CROSSING BY MILITARY AIRCRAFT



CHANGES: Airspace vertical limits of Seletar Control Zone 'A', Sembawang ATZ and Light Aircraft Training Areas revised. Prohibited Area WSP36 removed.

AREA CHART - ICAO

**SINGAPORE/JOHOR AIRSPACE COMPLEX
LOW LEVEL HOLDING AREAS**



LEGEND

Terminal Control Area (TMA)
Name of TMA
Airspace Classification
Upper Limit
Lower Limit
Radio frequency(ies)
Example: TMA JOHOR B FL 145 C 1 500ft 124.7

Control Zone (CTR)
Name of CTR
Airspace Classification
Upper Limit
Radio frequency(ies)
Example: CTR C CHANGI 3 000ft 118.6m

Aerodrome Traffic Zone (ATZ)
Name of ATZ
Airspace Classification
Upper Limit
Radio frequency(ies)
Example: ATZ D TENGAH 3 000ft 122.0

ATS Routes
Route designator
Distance in nautical miles
Minimum flight altitude (ft)/flight level
Example: B469 / 20 / 4 000/FL 160

Oceanic Control Area (OCA)

Reporting Point
Compulsory
On request

DME distance from SJ Navaid — D35/SJ

Radio Navigation Aid
Name
Identification and frequency
Geographical Coordinates
Elevation of DME site
Example: SINJON DVOR/DME 113.5 SJ 01° 13' 21"N 103° 51' 15"E 60m

Collocated VOR and DME Radio Navigation Aids
Compass rose orientated on the chart to Magnetic North

Restricted Airspace
(P - Prohibited, R - Restricted, D - Danger)
Identification of area
Nationality letter
Vertical limits
Activation by NOTAM
Example: WSD13 FL 400 WATER NOTAM

NOTE :- See flip side for details of designated areas

Area Minimum Altitude (AMA)

Each quadrilateral contains an area minimum altitude (AMA) which represents the lowest altitude which may be used under instrument meteorological conditions (IMC). The AMA provides a minimum clearance of 1 000 feet (300m) above all terrains and obstacles in the quadrilateral. It is represented in thousands and hundreds of feet above mean sea level.

Example : 3 400 feet **34**

NOTE :- In computing the area minimum altitude, a margin of 200 feet (60m) for vegetation has been added for spot elevations.

Speed Control Procedures

Speed control procedures are in force unless notified otherwise by ATC or ATIS.

All arriving turbo-propeller and turbo-jet aircraft are to fly at not faster than indicated air speed 250 knots when within 40nm from Singapore Changi Airport or when at or below 10,000ft except all arriving aircraft into Singapore Changi Airport shall comply with the speed restrictions depicted on the transitions and RNAV STARS. Further speed reductions will be regulated by ATC as necessary.

Pilots who may not be able to comply with the speed limits specified above for reasons of flight safety and/or weather should inform ATC and state the speed(s) acceptable.

AIRSPACE CLASSIFICATION IN THE SINGAPORE FIR

Airspace		Levels	Classification
Controlled airspace		FL150 to FL460	A
		Surface to FL150	B
Controlled airspace more than 100 nm seaward from the shoreline		Lower limit to FL460	A
Control Zone (CTRs)	Changi CTR	Surface to upper limit	C
	Paya Lebar CTR		D
	Seletar CTR		C
ATZs		Surface to upper limit	D
Uncontrolled airspace			G*

* Aircraft operating in the Light Aircraft Training Areas A, B and C (please refer to page ENR 5.2-1) are required to have continuous two-way communications with the appropriate ATS authority.

SINGAPORE	D-ATIS	128.6
	APP	120.3
		119.3
	TWR	118.6
		118.25

Note :
FOR DEPARTURE AND ARRIVAL ROUTES REFER TO WSSS AD 2-51 TO WSSS AD 2-100

CIVIL AVIATION AUTHORITY
SINGAPORE

CHANGES: Airspace vertical limits of Seletar Control Zone 'A' and Sembawang ATZ revised. Prohibited Area WSP36 removed. Restricted Area WSR10 added.

Nautical Miles 10 0 10 20 30 40
Kilometers 10 0 10 20 30 40 50 60 70 80

PROHIBITED, RESTRICTED AND DANGER AREAS

	ACTIVITY	UPPER LIMIT / LOWER LIMIT	REMARKS
WSD1	Rifle Range	500ft ALT / GND	Permanently Active as in ENR 5
WSR2	Jet Let-down Sector	FL 300 / 3 000ft MSL	Permanently Active as in ENR 5
WSP3	-	750ft ALT / GND	Permanently Active as in ENR 5
WSD4	A/G and G/G Firing Range	FL 160 / GND/WATER	Permanently Active as in ENR 5
WSD5	Rifle Range	500ft ALT / GND	Permanently Active as in ENR 5
WMD8	Naval Air/Air Firing Range	FL 550 / WATER	Activation by NOTAM
WSD11	Small Arm Firing	1 300ft ALT / GND	Permanently Active as in ENR 5
WSD11A	Artillery Firing	FL 125 / GND	Activation by NOTAM
WSD11B	Artillery Firing	FL 125 / GND	Activation by NOTAM
WMD12	Naval Anti-aircraft Firing	FL 550 / WATER	Activation by NOTAM
WSD13	Naval Anti-aircraft Firing	FL 550 / WATER	Activation by NOTAM
WSD14	Naval Anti-aircraft Firing & Live Air/Air Firing	FL 550 / WATER	Activation by NOTAM
WSP24	-	800ft ALT / GND/WATER	Permanently Active as in ENR 5
WSR31	Training Area	10 000ft ALT / 3 500ft MSL	Permanently Active as in ENR 5
WSD33	Rifle Range	500ft ALT / GND	Permanently Active as in ENR 5
WSD34	Rifle Range	500ft ALT / GND	Permanently Active as in ENR 5
WSD35	Rifle Range	900ft ALT / GND	Permanently Active as in ENR 5
→ WSR10	-	5 500ft ALT / GND	Permanently Active as in ENR 5
WSR38	-	10 000ft ALT / GND	Permanently Active as in ENR 5
WSP49	-	300ft ALT / GND	Permanently Active as in ENR 5
	Transit Channel	2 000ft ALT / GND	Activated only for Military acft crossing
→ *	Light Aircraft Training Area A	4 500ft ALT / GND/*2 000ft	Training & Local Flts in VMC only
→ *	Light Aircraft Training Area B	10 500ft ALT / 4 500ft ALT	High Flying Training Ops in VMC only
→ *	Light Aircraft Training Area C	10 500ft ALT / 4 500ft ALT	High Flying Training Ops in VMC only
WMR223	Parachute Dropping	10 000ft ALT / GND	Permanently Active as in ENR 5
WMD224	Firing Range	12 000ft ALT / SEA	Activation by NOTAM
WMR225	RMAF Helicopter Training Area	3 500ft ALT / GND	Permanently Active as in ENR 5
WMR226	RMAF Helicopter Training Area	2 000ft ALT / GND	Permanently Active as in ENR 5
WMD227	Radar Bombing Range	10 000ft ALT / SEA	Activation by NOTAM
WMP228	Sultan's Palace	5 000ft ALT / GND	Permanently Active as in ENR 5
WMR229	Helicopter Operations	1 500ft ALT / GND	Permanently Active as in ENR 5
WMD230	Artillery Firing Range	2 000ft ALT / GND	Permanently Active as in ENR 5
WMD231	Artillery Firing Range	2 000ft ALT / GND	Permanently Active as in ENR 5

* In Transit Channel

* **AEROBATICS IS PROHIBITED IN LIGHT AIRCRAFT TRAINING AREAS A, B and C.**

SPECIAL NOTE :-

1. GLIDER FLYING

GLIDER FLYING MAY TAKE PLACE WITHIN TENGAH ATZ
BTN 0100/1000 ON SUNDAYS AND PUBLIC HOLIDAYS.
VERTICAL LIMIT 3 000ft.
DURING ABOVE ACTIVITY NO ATC WILL BE PROVIDED.

2. WEATHER BALLOONS

BALLOONS WILL BE RELEASED FOR MET OBS AT 0120N 10353E (UPPER AIR OBSERVATORY), BRG 244° MAG AND DIST 1.5NM FROM SOUTHERN END OF PAYA LEBAR RWY 02 AND AT 0122N 10359E (CHANGI MET STATION), BRG 014° MAG AND DIST 1.1NM FROM SOUTHERN END OF RWY 02L (SINGAPORE CHANGI).

(A) AT UPPER AIR OBSERVATORY,

(i) BALLOONS WILL BE RELEASED DAILY AT 2330 AND 1000 PLUS OR MINUS 30 MIN. RATE OF ASCENT IS 1 000ft (305m) PER MIN. MAX HGT OF BALLOON 110 000ft (33 500m). THE BALLOON, WHITE IN COLOUR AND 6ft (2m) DIAMETER, IS ATTACHED WITH RADIOSONDE EQUIPMENT. IT WILL BURST 1.5 TO 2 HR AFTER RELEASE AND RADIOSONDE EQUIPMENT WILL DESCEND WITHIN 60NM RADIUS.

(ii) A BALLOON WILL BE RELEASED BETWEEN 0130 - 0230 ON THE SECOND THU OF EVERY MONTH. RATE OF ASCENT IS 1 000ft (305m) PER MIN. MAX HGT OF BALLOON IS 115 000ft (35 000m). THE BALLOON, WHITE IN COLOUR AND 6ft (2m) DIAMETER, IS ATTACHED WITH OZONESONDE/RADIOSONDE EQUIPMENT AND PARACHUTE. IT WILL BURST 1.5 TO 2 HR AFTER RELEASE.

(B) AT CHANGI MET STATION, BALLOONS WILL BE RELEASED DAILY AT 0530 AND 1800 PLUS OR MINUS 15 MIN. RATE OF ASCENT IS 500ft (150m) PER MIN. MAX HGT OF BALLOON IS ABOUT 40 000ft (12 200m). THE BALLOON IS RED IN COLOUR AND 2.1ft (0.7m) IN DIAMETER. AT NIGHT, A SMALL PAPER LANTERN LIGHTED UP WITH A CANDLE IS ATTACHED. THE BALLOON WILL BURST 1 TO 1.5 HR AFTER RELEASE.

3. AEROMODELLING AND KITE FLYING

(A) GENERAL WARNING

i) PILOTS FLYING AT LOW ALTITUDES SHOULD WATCH OUT FOR POSSIBLE HAZARDS SUCH AS MODEL AIRCRAFT AND KITES, ESPECIALLY WHEN FLYING NEAR PARKS AND OPEN GROUND.

ii) THE LOCATION OF SOME OF THE PARKS IN SINGAPORE WHERE KITE AND AERO MODEL FLYING MAY OCCUR ARE SHOWN ON ENR 3.4-5. PILOTS SHOULD NOTE THAT THE CHART AT ENR 3.4-5 DOES NOT SHOW ALL THE PARKS IN SINGAPORE AND THAT HAZARDS SUCH AS KITE FLYING AND AERO MODEL FLYING MAY TAKE PLACE AT PARKS AND OPEN GROUND NOT INDICATED IN ENR 3.4-5.

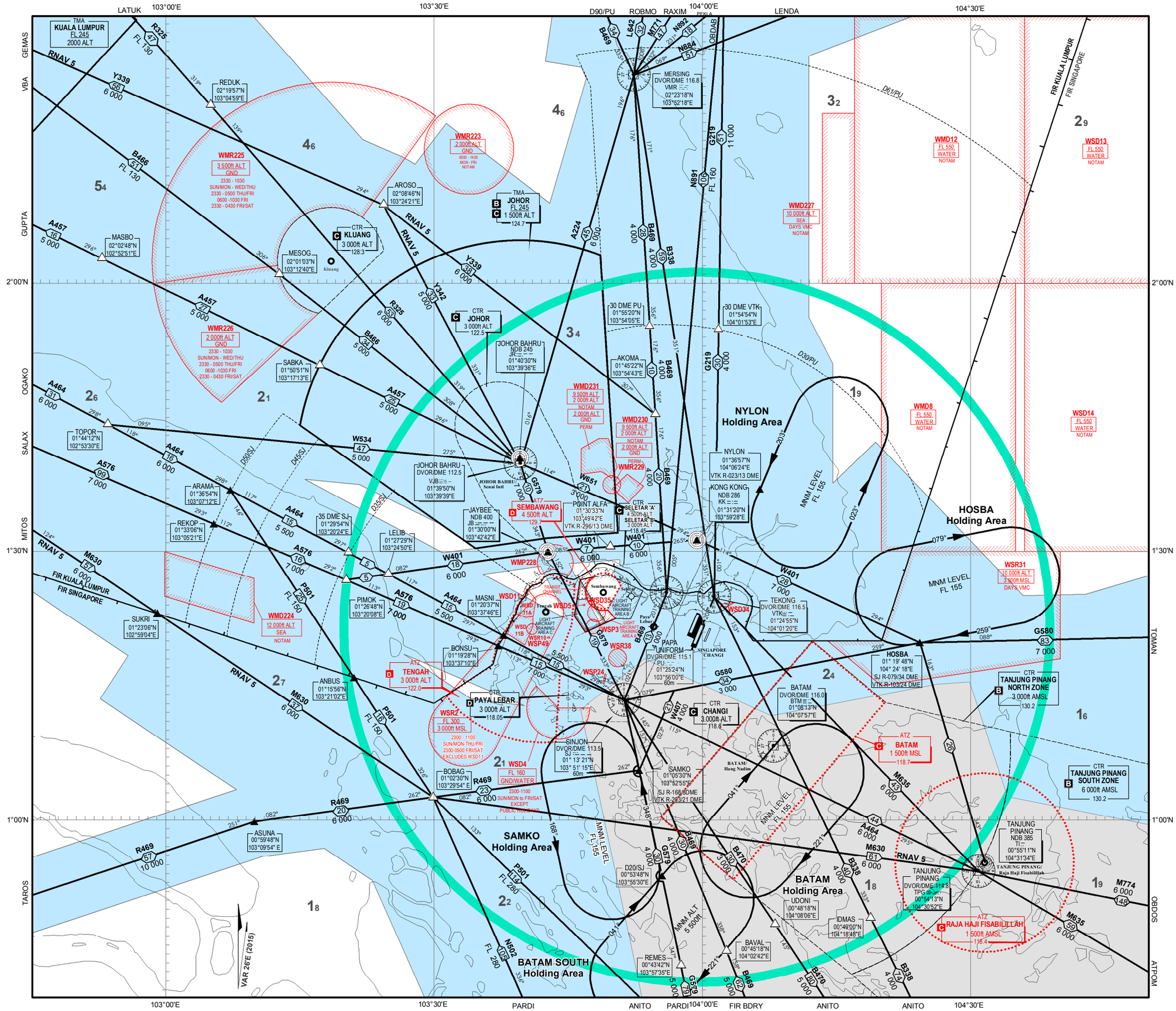
iii) ACCORDING TO THE SINGAPORE AIR NAVIGATION ORDER, 1985, KITE FLYING AND AERO MODEL FLYING ARE NOT PERMITTED ABOVE 200ft OR WITHIN 5km OF AN AERODROME. HOWEVER, PILOTS ARE ADVISED TO LOOK OUT FOR SUCH HAZARDS AT ALL TIMES AS MEMBERS OF THE PUBLIC MAY INADVERTENTLY FLY KITES OR AERO MODELS ABOVE THE HGT OF 200ft OR WITHIN 5km OF AN AERODROME.

(B) AERO MODELLING AT SEMBAWANG ATZ

AERO MODELLING MAY TAKE PLACE WITHIN SEMBAWANG ATZ
BTN 0200/0700 ON SUNDAYS AND PUBLIC HOLIDAYS.
DURING THE ABOVE ACTIVITY, SEMBAWANG ATZ WILL BE CLOSED TO ALL AIRCRAFT.

AREA CHART - ICAO

**SINGAPORE/JOHOR AIRSPACE COMPLEX
HIGH LEVEL HOLDING AREAS**



LEGEND

Terminal Control Area (TMA)	Name of TMA; Airspace Classification; Upper Limit; Lower Limit; Radio frequency(ies) — e.g. TMA JOHOR, B FL 145, C 1 500ft, 124.7
Control Zone (CTR)	Name of CTR; Airspace Classification; Upper Limit; Radio frequency(ies) — e.g. CTR CHANGI, C 3 000ft, 118.6m
Aerodrome Traffic Zone (ATZ)	Name of ATZ; Airspace Classification; Upper Limit; Radio frequency(ies) — e.g. ATZ TENGAH, D 3 000ft, 122.0
ATS Routes	Route designator; Distance in nautical miles; Minimum flight altitude (ft)/flight level — e.g. B469, 20, 4 000/FL 160
Oceanic Control Area (OCA)	
Reporting Point	Compulsory; On request
DME distance from SJ Navaid	D35/SJ
Radio Navigation Aid	Name; Identification and frequency; Geographical Coordinates; Elevation of DME site — e.g. SINJON DVOR/DME 113.5 SJ 01° 13' 21"N 103° 51' 15"E 60m
Collocated VOR and DME Radio Navigation Aids	Compass rose orientated on the chart to Magnetic North
Restricted Airspace (P - Prohibited, R - Restricted, D - Danger)	Identification of area; Nationality letter; Vertical limits; Activation by NOTAM — e.g. WSD13, FL 400, WATER, NOTAM
NOTE :- See flip side for details of designated areas	

Area Minimum Altitude (AMA)

Each quadrilateral contains an area minimum altitude (AMA) which represents the lowest altitude which may be used under instrument meteorological conditions (IMC). The AMA provides a minimum clearance of 1 000 feet (300m) above all terrains and obstacles in the quadrilateral. It is represented in thousands and hundreds of feet above mean sea level.

Example : 3 400 feet **34**

NOTE :- In computing the area minimum altitude, a margin of 200 feet (60m) for vegetation has been added for spot elevations.

Speed Control Procedures

Speed control procedures are in force unless notified otherwise by ATC or ATIS.

All arriving turbo-propeller and turbo-jet aircraft are to fly at not faster than indicated air speed 250 knots when within 40nm from Singapore Changi Airport or when at or below 10,000ft except all arriving aircraft into Singapore Changi Airport shall comply with the speed restrictions depicted on the transitions and RNAV STARS. Further speed reductions will be regulated by ATC as necessary.

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		Surface to FL150	B
Controlled airspace more than 100 nm seaward from the shoreline		Lower limit to FL460	A
Control Zone (CTRs)	Changi CTR	Surface to upper limit	C
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	Seletar CTR		C
ATZs		Surface to upper limit	D
Uncontrolled airspace			G*

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SINGAPORE	D-ATIS	128.6
	APP	120.3
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Note :
FOR DEPARTURE AND ARRIVAL ROUTES
REFER TO WSSS AD 2-51 TO WSSS AD 2-100

CIVIL AVIATION AUTHORITY
SINGAPORE

CHANGES: Airspace vertical limits of Seletar Control Zone 'A' and Sembawang ATZ revised. Prohibited Area WSP36 removed.

Nautical Miles 10 0 10 20 30 40
Kilometers 10 0 10 20 30 40 50 60 70 80

AIP AMDT 2/16

PROHIBITED, RESTRICTED AND DANGER AREAS

	ACTIVITY	UPPER LIMIT / LOWER LIMIT	REMARKS
WSD1	Rifle Range	500ft ALT / GND	Permanently Active as in ENR 5
WSR2	Jet Let-down Sector	FL 300 / 3 000ft MSL	Permanently Active as in ENR 5
WSP3	-	750ft ALT / GND	Permanently Active as in ENR 5
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WMD224	Firing Range	12 000ft ALT / SEA	Activation by NOTAM
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* In Transit Channel

* **AEROBATICS IS PROHIBITED IN LIGHT AIRCRAFT TRAINING AREAS A, B and C.**

SPECIAL NOTE :-

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BTN 0100/1000 ON SUNDAYS AND PUBLIC HOLIDAYS.
VERTICAL LIMIT 3 000ft.
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(ii) A BALLOON WILL BE RELEASED BETWEEN 0130 - 0230 ON THE SECOND THU OF EVERY MONTH. RATE OF ASCENT IS 1 000ft (305m) PER MIN. MAX HGT OF BALLOON IS 115 000ft (35 000m). THE BALLOON, WHITE IN COLOUR AND 6ft (2m) DIAMETER, IS ATTACHED WITH OZONESONDE/RADIOSONDE EQUIPMENT AND PARACHUTE. IT WILL BURST 1.5 TO 2 HR AFTER RELEASE.

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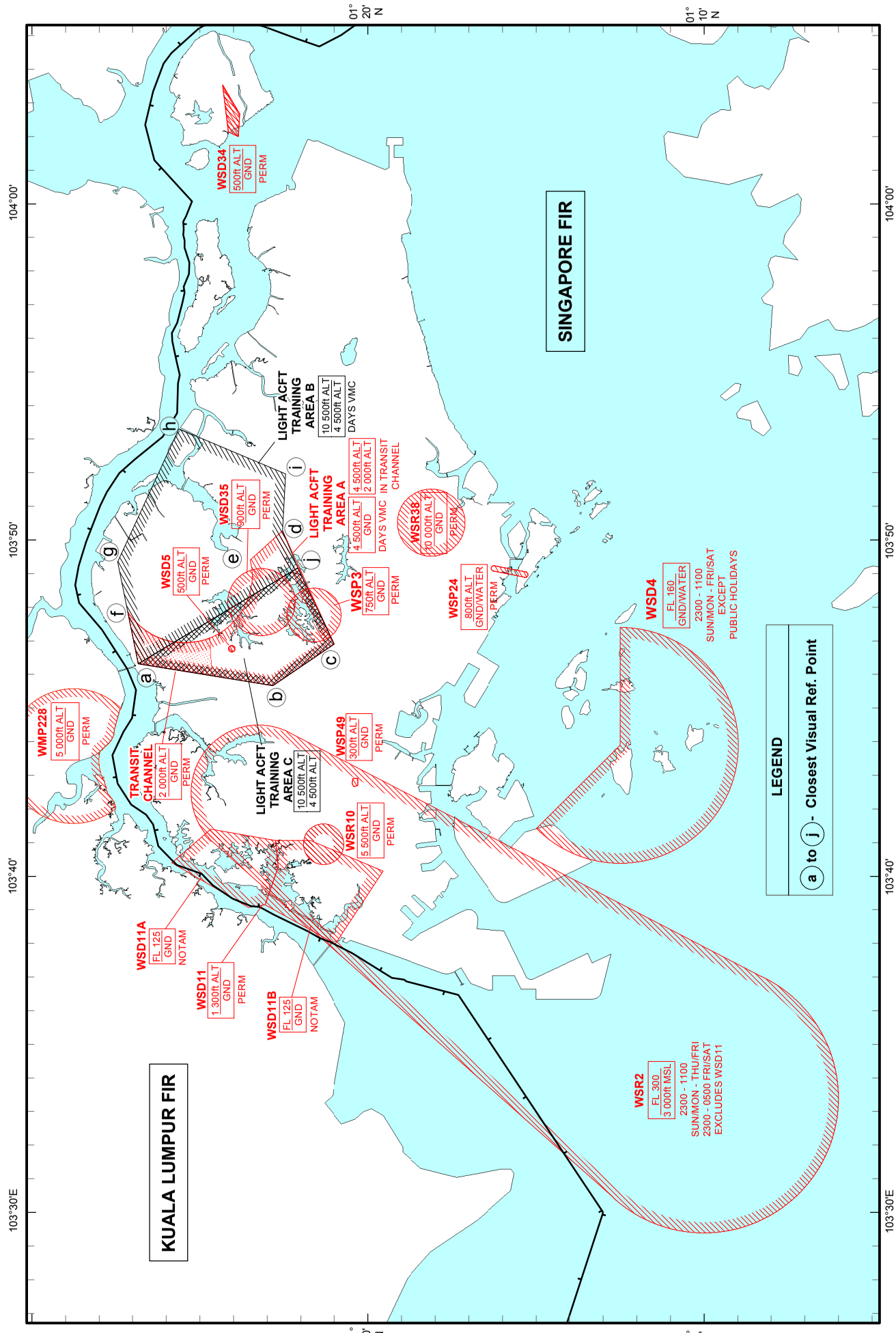
ii) THE LOCATION OF SOME OF THE PARKS IN SINGAPORE WHERE KITE AND AERO MODEL FLYING MAY OCCUR ARE SHOWN ON ENR 3.4-5. PILOTS SHOULD NOTE THAT THE CHART AT ENR 3.4-5 DOES NOT SHOW ALL THE PARKS IN SINGAPORE AND THAT HAZARDS SUCH AS KITE FLYING AND AERO MODEL FLYING MAY TAKE PLACE AT PARKS AND OPEN GROUND NOT INDICATED IN ENR 3.4-5.

iii) ACCORDING TO THE SINGAPORE AIR NAVIGATION ORDER, 1985, KITE FLYING AND AERO MODEL FLYING ARE NOT PERMITTED ABOVE 200ft OR WITHIN 5km OF AN AERODROME. HOWEVER, PILOTS ARE ADVISED TO LOOK OUT FOR SUCH HAZARDS AT ALL TIMES AS MEMBERS OF THE PUBLIC MAY INADVERTENTLY FLY KITES OR AERO MODELS ABOVE THE HGT OF 200ft OR WITHIN 5km OF AN AERODROME.

(B) AERO MODELLING AT SEMBAWANG ATZ

AERO MODELLING MAY TAKE PLACE WITHIN SEMBAWANG ATZ
BTN 0200/0700 ON SUNDAYS AND PUBLIC HOLIDAYS.
DURING THE ABOVE ACTIVITY, SEMBAWANG ATZ WILL BE CLOSED TO ALL AIRCRAFT.

PROHIBITED, RESTRICTED AND DANGER AREAS - CHART 2



ENR 5.2 MILITARY EXERCISE AND TRAINING AREAS

Name and Lateral Limits	*Upper Limit* *Lower Limit*	*Remarks* *Time of Activity*
1	*2*	*3*
LIGHT AIRCRAFT TRAINING AREA A		
(Training and Local Flying) All the airspace contained within the boundaries bounded by the following: 012650N 1034619E @ (Woodlands Customs Checkpoint) (a) 012249N 1034540E @ (cross-road junction of Upper Bukit Timah Road and Bukit Panjang Road/Choa Chu Kang Road) (b) 012100N 1034654E @ (Bukit Timah) (c) 012232N 1035016E @ (Mayflower Garden) (d) 012327N 1034922E @ (Sembawang ATZ boundary) and along the boundary of Sembawang ATZ (e) 012714N 1034752E @ (Admiralty Road West/Attap Valley Road) (f) 012650N 1034619E @ (Woodlands Customs Checkpoint) (a)	4 500ft ALT GND 4 500ft ALT 2 000ft ALT# Maximum Useable ALT: 4 000ft	1) The airspaces designated as Light Aircraft Training Areas are for Local Flying and Training purposes. Flights are to be conducted during DAYLIGHT hour and in VMC ONLY. The Training Areas are uncontrolled airspaces. It will be the responsibility of pilots to maintain adequate separation with other aircraft including those operating in the Seletar and Sembawang Aerodrome circuits. All aircraft are to operate strictly within the designated areas and not to stray out of the areas or intrude into adjacent controlled airspaces. 2) Aerobatics and test flights are prohibited in Light Aircraft Training Areas A, B and C. 3) The provision of FIS is the responsibility of Paya Lebar APP. However, due to the nature of training operations carried out, position and altitude of aircraft will not be made available. The only information that can be provided to pilots will be the number of REPORTED aircraft within the areas concerned. 4) On receipt of the relevant information, it shall be the responsibility of the pilot to decide whether his intended flight can be carried out safely in view of the prevailing air traffic. 5) To enable Paya Lebar APP to maintain an accurate record of aircraft operating in the areas and to disseminate up-to-date information, all pilots must report entering and leaving the Training Areas to Paya Lebar APP. 6) Pilots of all aircraft operating within the areas are required to keep a listening watch on the appropriate Paya Lebar APP VHF/RT control frequency 127.7MHz. 7) All flights in the Training Areas are to be conducted on Singapore QNH. This value can be obtained from Paya Lebar APP. 8) In the interest of flight safety, aircraft operating in Light Aircraft Training Area A are advised to make a broadcast on the controlling frequency specifying their callsign and position when climbing or descending through 2 000ft. # Above Transit Channel (see chart ENR 3.5-3) @ Closest Visual Reference Point (see chart ENR 5.1-9)
LIGHT AIRCRAFT TRAINING AREA B		
(High Flying Training Operations) The area includes the airspace above Seletar CTR A, Sembawang ATZ, parts of Paya Lebar CTR and Light Aircraft Training Area A and is contained within the following: 012650N 1034619E @ (Woodlands Customs Checkpoint) (a) 012205N 1034910E @ (Eastern edge of Pierce Reservoir) (j) 012232N 1035016E @ (Mayflower Garden) (d) 012227N 1035158E @ (Seletar Hill Estate) (i) 012537N 1035319E @ (East of Seletar Airfield) (h) 012727N 1034921E @ (Canberra/Admiralty Road) (g) 012650N 1034619E @ (Woodlands Customs Checkpoint) (a)	10 500ft ALT 5 000ft ALT Maximum Useable ALT: 10 000ft Minimum Useable ALT: 5 500ft	

ENR 5.2 MILITARY EXERCISE AND TRAINING AREAS		
Name and Lateral Limits	*Upper Limit* *Lower Limit*	*Remarks* *Time of Activity*
1	*2*	*3*
LIGHT AIRCRAFT TRAINING AREA C		
012650N 1034619E 012249N 1034540E 012100N 1034654E 012205N 1034910E 012650N 1034619E	10 500ft ALT 5 000ft ALT Maximum Useable ALT: 10 000ft Minimum Useable ALT: 5 500ft	The minimum flight altitude over Light Aircraft Training Area C is 11 000ft.
LOW FLYING OPERATIONS		
Helicopter Operations Extensive low flying operations mainly by helicopter operate during daylight hours within the Natuna / Anambas Groups of Islands in the area of the South China Sea Corridor between longitudes 105°E and 110°E, and the Indonesian Mainland.	5 000ft ALT GND / SEA	All aircraft intending to operate within this area are to contact Natuna Radio on 9025KHz, 122.1MHz or 118.1MHz for traffic information.

ENR 5.3 OTHER ACTIVITIES OF A DANGEROUS NATURE

1. WEATHER BALLOONS

1.1 Balloons will be released for MET observation at the Centre for Climate Research Singapore, Upper Air Observatory (012025N 1035317E), bearing 244° Mag and distance 1.5NM from southern end of Paya Lebar RWY 02.

1.1.1 At Upper Air Observatory, balloons will be released daily at 2330UTC and 1040UTC. Cut-off timings for the releases are at 0030UTC and 1230UTC respectively.

Rate of ascent of balloon: 320m per minute.
Maximum height of balloon: 115 000ft (35 000m).
Colour of balloon: uncoloured.
Diameter of balloon: 162m.

The balloon is attached with radiosonde equipment.
Weight of radiosonde equipment: 130g.
Payload (radiosonde plus parachute): 170g.
Size of radiosonde equipment: 145mm x 63mm x 46mm.

The balloon will burst 1.5 to 2 hours after release and radiosonde equipment will descend within 60NM radius.

1.1.2 At Upper Air Observatory, a balloon will be released between 2330UTC and 0030UTC on either the 2nd or 3rd week of the month.

Rate of ascent of balloon: 320m per minute.
Maximum height of balloon: 115 000ft (35 000m).
Colour of balloon: uncoloured.
Diameter of balloon: 191cm.

The balloon is attached with ozonesonde/radiosonde equipment and parachute.
Payload (ozonesonde/radiosonde equipment with parachute): 910g.
Size of ozonesonde equipment box: 191mm x 191mm x 254mm.
Size of radiosonde equipment: 145mm x 63mm x 46mm.

The balloon will burst 1.5 to 2 hours after release. Equipment will descend within 60NM radius.

INTENTIONALLY

LEFT

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AD 2 AERODROMES

WSSS AD 2.1 AERODROME LOCATION INDICATOR AND NAME
WSSS - SINGAPORE/Singapore Changi International

WSSS AD 2.2 AERODROME GEOGRAPHICAL AND ADMINISTRATIVE DATA		
1	*ARP coordinates and site at AD*	012133.16N 1035921.57E (Control Tower)
2	*Direction and distance from (city)*	061°, 17.2km from City Centre (The Fullerton, Singapore)
3	*Elevation/Reference temperature*	6.66m (21.85ft) / 32.6°C
4	*Geoid Undulation (AD elevation position)*	10.29m
5	*MAG VAR /Annual change*	26'E (2015) / negligible
6	*AD Administration, address, telephone, telefax, AFS*	
	RWY 02L/20R and RWY 02C/20C Changi Airport Group (Singapore) Pte Ltd Singapore Changi Airport P.O.Box 168, Singapore 918146 Tel: (65)65956868 or (65)65423223 AFS: WSSSYAYX	
7	*Types of traffic permitted*	IFR
8	*Remarks*	

a) Scheduled closure periods for RWY 02L/20R and RWY 02C/20C: see AIP page WSSS AD 2-12.

b) Not avbl to all non-scheduled civil acft types of 40-seater or below except in special circumstances. Acft larger than the above category shall not plan their arrival between 0900-1559UTC.

c) Aircraft shall leave nose-in position (90 degrees) with the aid of aircraft tow tractors. Reverse thrust or variable pitch propellers shall not be used. Aircraft operators shall make suitable arrangements.

d) PPR for aircraft not equipped with RTF.

e) A subsonic jet aircraft, unless otherwise exempted, is not permitted to operate in Singapore unless it possesses a noise certificate stating that it meets the noise standards of ICAO Annex 16, Volume 1, Chapter 3, or equivalent. The noise certificate may also take the form of a suitable statement contained in another document approved by the State of Registry of the aircraft.

f) Direct transit area: Overnight transit in Singapore City, TEL: (65)65956868 or (65)65423223

h) RVR minima for CAT II ILS operations is limited to 350m due to runway and taxiway light spacing requirements on the airfield.

i) Frangible poles are installed for the purpose of identifying 90m away from the centreline of RWY 02L/20R and RWY 02C/20C.

WSSS AD 2.3 OPERATIONAL HOURS						
1	*Aerodrome Administration:*					
	RWY 02L/20R and RWY 02C/20C	H24				
2	*Customs and Immigration*	H24		5	*ATS Reporting Office*	H24
3	*Health and Sanitation*	H24		6	*MET Briefing Office*	H24
4	*AIS Briefing Office*	H24		7	*Air Traffic Services*	H24

WSSS AD 2.4 HANDLING SERVICES AND FACILITIES		
1	*Cargo Handling Facilities*	Cargo terminals equipped with advanced storage stacker, material and pallet container handling systems, computerised cargo information, data and documentation systems. Forklift (10 tonnes), Aircraft Main Deck Loaders (27 tonnes), trailers (e.g. 20-40 containers) on hire from hauliers.
2	*Fuel / Oil Types*	JET A1 (for jet aircraft), Engine Oil - 2380, MJ02, 750, ET025. Lubricating Oil - Aeroshell 390, 750. Hydraulic Oil - Skydrol LD4, 500B4, 500B, Hyjet IV
3	*Fuelling Facilities / Capacity*	No limitation. H24 service.
4	*Hangar space for visiting aircraft*	By arrangement with SIA Engineering Company (SIAEC) or ST Aerospace Services Co. maintenance hangars with multiple aircraft stands to accommodate up to A380 size aircraft.
5	*Repair facilities for visiting aircraft*	Major and minor maintenance and repairs for commercial aircraft up to and including A380, subject to availability of specialised equipment / spares / tools.
6	*Remarks*	a) Marshalling Service: No pilot shall taxi an aircraft on its own into a gate/stand without the aid of a docking system or a marshaller. b) Oxygen And Related Servicing: Oxygen for all cabin and aircraft system. No CO2 recharging facilities.

WSSS AD 2.5 PASSENGER FACILITIES		
1	*Hotels*	Rooms available inside transit area, adjacent to airport terminal and in the city but advisable advance booking.
2	*Restaurants*	Available in both transit and public areas.
3	*Transportation*	Buses, taxis and MRT train. Car rental service is available from 0700-2300 hours daily
4	*Medical Facilities*	Available H24 at Airport Clinic. Ambulance. General Hospitals located at Simei (12km) and City (23km).
5	*Banks and Post Offices*	Available at airport
6	*Tourist Office*	Available at airport
7	Remarks	Internet address: http://www.changiairport.com.sg for airport and flight information, shops and restaurants, facilities and services, flight connections and tourist information.

WSSS AD 2.6 RESCUE AND FIRE FIGHTING SERVICES		
1	*AD category for fire fighting*	CAT 10 (No facilities for foaming of runways)
2	*Rescue equipment*	Adequately provided as recommended by ICAO.
3	*Capability for removal of disabled aircraft*	Four 25-ton (Type G) and two 40-ton (Type F) pneumatic elevators, two 80-ton hydraulic recovery jacks, one set of tethering equipment and other accessory equipment. Capable of handling all wide-bodied aircraft. Provided by SIA at Tel:(65)65416329 or (65)65427116.
4	*Remarks*	All Airport Emergency Service personnel are trained in rescue and fire-fighting as well as medical first-aid.

WSSS AD 2.7 SEASONAL AVAILABILITY - CLEARING
There is no requirement for clearing. The aerodrome is available throughout the year.

WSSS AD 2.8 APRONS, TAXIWAYS AND CHECK LOCATIONS/POSITIONS DATA				
1	*Apron surface and strength*	*RWY 02L/20R* *RWY 02C/20C*	*Surface:* *Strength:*	Concrete PCN 85/R/B/W/U
2	*Taxiway width, surface and strength*	*RWY 02L/20R* *RWY 02C/20C*	*Width:* *Surface:* *Strength:*	45m (147ft) Taxiway V2; 35m (115ft) Taxiways NC3, EP and WP; 25m (82ft) Taxiway EP (from Taxilanes B1 and B3); 23m (75ft) Taxiway SA; 30m (100ft) All other Taxiways Cement Concrete - Taxiways W1, W9, E1, E3, E11 and EP (between E10 and E11) Bituminous Concrete - All other Taxiways PCN 85/R/B/W/U - Taxiways W1, W9, E1, E3, E11 and EP (between E10 and E11) PCN 72/F/B/W/U - All other Taxiways
3	*ACL location and elevation*	See WSSS AD 2-31/Chart (flip side) for coordinates and elevations of aircraft stands.		
4	*INS checkpoints*			
5	*Remarks*	NIL		

WSSS AD 2.9 SURFACE MOVEMENT GUIDANCE AND CONTROL SYSTEM AND MARKINGS	
1	*Use of aircraft stand ID signs, TWY guidelines and visual docking/parking guidance system of aircraft stands.*
	Taxiing guidance signs at all intersections with TWY and RWY at all holding positions. Guidelines at apron. Nose-in guidance at aircraft stands. For information on Safegate Aircraft Docking Guidance System, Aircraft Parking Restrictions, Procedures for Start-up and Pushback of Aircraft, Pushback Procedures for Aircraft (Diagrams), Taxiing Guidance System at Singapore Changi Airport, refer to pages WSSS AD 2-5 to WSSS AD 2-9. Fixed yellow lights (aircraft stand manoeuvring guidance lights: ASMGL) are provided along aircraft stands 4 to 9 lead-in markings with one fixed red light near the aircraft nose gear stopping position at the Budget Terminal apron.
2	*RWY and TWY markings and LGT*
	RWY 02L/02C and RWY 20C RWY LGT: refer to pages WSSS AD 2-14 and WSSS AD 2-15. TWY LGT: Blue LGT on TWY curved edges, selected straight TWY edge sections and apron TWY edges only. Blue TWY edge markers along selected straight TWY edge sections. Red stop bar at TWY INT controllable on/off. Red stop bar LGT at TWY HLDG PSN entrances to RWY are controllable on/off and are supplemented with elevated RWY guard LGT at the sides. Internally/externally lighted mandatory or information TWY signboards. Yellow TWY centre line markings, supplemented by green centre line LGT with selective control along rapid exit TWY, taxi-routes to and from main RWY and aprons. MARKING AIDS: THR, touchdown zone, centre line, side stripe, RWY designations, aiming point markings, TWY centre line, taxi holding positions - all taxiways, apron guide lines. For positions of aircraft nosewheel in relation to stopbar and description of the Safegate Aircraft Docking Guidance System - see pages WSSS AD 2-5.1 and WSSS AD 2-5.2.
	RWY 20R RWY LGT: refer to pages WSSS AD 2-14 and WSSS AD 2-15. TWY LGT: same as for RWY 02L/02C and RWY 20C. MARKING AIDS: Pre-threshold centre-line, transverse stripe for displaced THR, RWY designations, THR, touchdown zone, aiming point marking, RWY centre-line and stripe marking aids.
3	*Stop Bars:* Stop bars where appropriate.
4	*Remarks:* Nil

WSSS AD 2.9 SURFACE MOVEMENT GUIDANCE AND CONTROL SYSTEM AND MARKINGS

AIRCRAFT PARKING RESTRICTIONS

1. TERMINAL 1 AIRCRAFT STANDS - Aircraft types that can be parked at stands (✈) are as follows:

Stands	C1	C11	C13	C15	C16	C17	C18	C19	C20	C22	C23	C24	C25	C26
A300	✈		✈	✈	✈	✈	✈					✈	✈	✈
A310	✈		✈	✈	✈	✈	✈		✈	✈	✈	✈	✈	✈
A319	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈
A320	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈
A321	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈
A332	✈		✈	✈		✈	✈		✈	✈	✈	✈	✈	✈
A333	✈		✈	✈		✈	✈		✈	✈	✈	✈	✈	✈
A342	✈		✈	✈		✈	✈		✈	✈	✈	✈	✈	✈
A343	✈		✈	✈		✈	✈		✈	✈	✈	✈	✈	✈
A345	✈		✈	✈					✈	✈	✈	✈	✈	✈
A346			✈									✈		✈
A359	✈		✈	✈					✈	✈	✈	✈	✈	✈
A380											✈		✈	✈
B707	✈		✈	✈										
B717	✈		✈	✈	✈	✈	✈	✈						
B727	✈		✈						✈	✈				
B737	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈
B747	✈		✈	✈					✈	✈	✈	✈	✈	✈
B74S	✈		✈	✈									✈	✈
B757	✈		✈	✈	✈	✈	✈		✈	✈	✈	✈	✈	✈
B762	✈		✈	✈	✈	✈	✈		✈	✈	✈	✈	✈	✈
B763	✈		✈	✈	✈	✈	✈		✈	✈	✈	✈	✈	✈
B772	✈		✈	✈		✈	✈		✈	✈	✈	✈	✈	✈
B773	✈		✈	✈					✈	✈	✈	✈	✈	✈
B773ER	✈		✈	✈					✈	✈	✈	✈	✈	✈
B788	✈		✈	✈		✈			✈	✈	✈		✈	✈
B789	✈		✈	✈		✈			✈	✈	✈	✈	✈	✈
BA146			✈											
DC10	✈			✈		✈	✈						✈	✈
DC9			✈	✈										
F100	✈		✈	✈	✈	✈	✈	✈						
IL62	✈		✈	✈	✈	✈	✈						✈	✈
IL86	✈		✈	✈	✈	✈	✈						✈	✈
IL96	✈		✈	✈	✈	✈	✈						✈	✈
L101	✈			✈		✈	✈						✈	✈
MD11	✈			✈		✈	✈		✈	✈	✈	✈	✈	✈
MD80/82	✈		✈	✈	✈	✈	✈	✈					✈	✈
MD83			✈	✈	✈	✈	✈	✈						
MD88	✈		✈	✈	✈	✈	✈	✈					✈	✈

2. TERMINAL 1 AIRCRAFT STANDS - Aircraft types that can be parked at stands (✈) are as follows:

Stands	D30	D32	D34	D35	D36	D37	D38	D40	D41	D42	D44	D46	D47	D48	D49
A300		✈	✈	✈	✈	✈		✈	✈	✈	✈	✈	✈	✈	✈
A310		✈	✈	✈	✈	✈		✈	✈	✈	✈	✈	✈	✈	✈
A319	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈
A320	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈
A321	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈
A332		✈	✈		✈	✈		✈	✈	✈	✈	✈	✈	✈	✈
A333		✈	✈		✈	✈		✈	✈	✈	✈	✈	✈	✈	✈
A342		✈	✈		✈	✈		✈	✈	✈	✈	✈	✈	✈	✈
A343		✈	✈		✈	✈		✈	✈	✈	✈	✈	✈	✈	✈
A345		✈	✈					✈	✈	✈	✈	✈	✈	✈	✈
A346		✈	✈									✈			✈
A359		✈	✈					✈	✈	✈	✈	✈	✈	✈	✈
A380												✈			✈
B707		✈	✈						✈	✈	✈				
B717		✈	✈	✈	✈	✈	✈		✈	✈	✈	✈	✈	✈	
B727		✈	✈						✈	✈	✈				
B737	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈
B747		✈	✈					✈	✈	✈	✈	✈	✈	✈	✈
B74S		✈	✈						✈	✈	✈	✈	✈	✈	✈
B757		✈	✈	✈	✈	✈		✈	✈	✈	✈	✈	✈	✈	✈
B762		✈	✈	✈	✈	✈		✈	✈	✈	✈	✈	✈	✈	✈
B763		✈	✈	✈	✈	✈		✈	✈	✈	✈	✈	✈	✈	✈
B772		✈	✈		✈	✈		✈	✈	✈	✈	✈	✈	✈	✈
B773		✈	✈						✈	✈	✈				✈
B773ER		✈	✈						✈	✈	✈				✈
B788		✈	✈					✈	✈	✈	✈	✈			✈
B789		✈	✈			✈		✈	✈	✈	✈	✈		✈	✈
BA146		✈	✈												
DC10			✈		✈	✈			✈	✈	✈	✈	✈	✈	✈
DC9		✈	✈												
F100		✈	✈	✈	✈	✈	✈		✈	✈	✈		✈	✈	
IL62		✈	✈	✈	✈	✈			✈	✈	✈	✈	✈	✈	✈
IL86		✈	✈	✈	✈	✈			✈	✈	✈	✈	✈	✈	✈
IL96		✈	✈	✈	✈	✈			✈	✈	✈	✈	✈	✈	✈
L101			✈		✈	✈			✈	✈	✈	✈	✈	✈	✈
MD11			✈		✈	✈			✈	✈	✈	✈	✈	✈	✈
MD80		✈	✈	✈	✈	✈	✈		✈	✈	✈	✈	✈	✈	✈
MD82		✈	✈	✈	✈	✈	✈		✈	✈	✈	✈	✈	✈	✈
MD83		✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈
MD88		✈	✈	✈	✈	✈	✈		✈	✈	✈	✈	✈	✈	✈
YK42										✈					

3. TERMINAL 2 AIRCRAFT STANDS - Aircraft types that can be parked at stands (✈) are as follows:

Stands	E1	E2	E3	E4	E5	E6	E7	E8	E10	E11	E12	E20	E22	E24	E26	E27	E28
A300		✈	✈	✈	✈	✈		✈		✈	✈	✈	✈	✈	✈	✈	✈
A310	✈	✈	✈	✈	✈	✈	✈	✈		✈	✈	✈	✈	✈	✈	✈	✈
A319	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈		✈	✈	✈
A320	✈	✈	✈	✈	✈	✈	✈	✈		✈	✈	✈	✈		✈	✈	✈
A321			✈		✈								✈		✈	✈	✈
A332			✈	✈	✈			✈		✈	✈	✈	✈	✈	✈	✈	✈
A333			✈	✈	✈			✈		✈	✈	✈	✈	✈	✈	✈	✈
A342			✈	✈	✈			✈		✈	✈		✈	✈	✈	✈	✈
A343			✈	✈	✈			✈		✈	✈		✈	✈	✈	✈	✈
A345			✈	✈	✈			✈		✈	✈		✈	✈	✈	✈	✈
A346				✈	✈			✈									
A359				✈	✈			✈		✈	✈	✈	✈	✈	✈	✈	✈
A380					✈			✈		✈							
B707															✈	✈	✈
B727	✈	✈	✈	✈	✈	✈		✈		✈	✈	✈	✈	✈	✈	✈	✈
B737	✈	✈	✈	✈	✈	✈	✈	✈		✈	✈	✈	✈		✈	✈	✈
B747			✈	✈	✈			✈		✈	✈	✈	✈	✈	✈	✈	✈
B748					✈			✈		✈							
B74S			✈	✈	✈			✈		✈	✈		✈	✈	✈	✈	✈
B757	✈	✈	✈	✈	✈	✈		✈		✈	✈	✈	✈	✈	✈	✈	✈
B762	✈	✈	✈	✈	✈	✈		✈		✈	✈	✈	✈	✈	✈	✈	✈
B763	✈	✈	✈	✈	✈	✈		✈		✈	✈	✈	✈	✈	✈	✈	✈
B772			✈	✈	✈			✈		✈	✈	✈	✈	✈	✈	✈	✈
B772LR			✈														
B773				✈	✈	✈		✈		✈			✈	✈	✈	✈	✈
B773ER				✈	✈			✈		✈			✈	✈	✈	✈	✈
B788				✈	✈			✈		✈	✈	✈	✈	✈	✈	✈	✈
B789				✈	✈			✈		✈	✈	✈	✈	✈	✈	✈	✈
DC10				✈	✈	✈		✈		✈	✈				✈	✈	✈
DC9												✈					
F70	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈			
F100															✈	✈	✈
IL62															✈	✈	✈
IL86															✈	✈	✈
IL96															✈	✈	✈
L101				✈	✈	✈		✈		✈	✈				✈	✈	✈
MD11				✈	✈	✈		✈		✈	✈				✈	✈	✈
MD80															✈	✈	✈
MD82															✈	✈	✈
MD83																✈	
MD87												✈					
MD88															✈	✈	✈

Stands	E24L	E24R
A319, A320, A321, B737, MD83	✈	✈

4. TERMINAL 2 AIRCRAFT STANDS - Aircraft types that can be parked at stands (✈) are as follows:

Stands	F30	F31	F32	F33	F34	F35	F36	F37	F40	F41	F42	F50	F52	F54	F56	F58	F59	F60
A300		✈	✈		✈	✈			✈	✈	✈	✈	✈	✈	✈	✈	✈	✈
A310		✈	✈	✈	✈	✈			✈	✈	✈	✈	✈	✈	✈	✈	✈	✈
A319	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈		✈		✈		✈
A320	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈		✈		✈		✈
A332		✈			✈				✈	✈	✈	✈	✈	✈	✈	✈	✈	✈
A333		✈			✈				✈	✈	✈	✈	✈	✈	✈	✈	✈	✈
A342		✈			✈				✈	✈	✈		✈	✈	✈	✈	✈	✈
A343		✈			✈				✈	✈	✈		✈	✈	✈	✈	✈	✈
A345		✈			✈				✈	✈	✈		✈	✈	✈	✈	✈	✈
A346											✈							✈
A359		✈									✈	✈		✈	✈	✈	✈	✈
A380		✈									✈							✈
B707												✈		✈			✈	✈
B727	✈	✈	✈	✈	✈	✈		✈	✈	✈	✈	✈		✈	✈	✈	✈	✈
B737	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈		✈		✈		✈
B747		✈			✈	✈			✈	✈	✈	✈	✈	✈	✈	✈	✈	✈
B748		✈									✈							✈
B74S		✈			✈				✈	✈	✈			✈	✈	✈	✈	✈
B757		✈	✈	✈	✈	✈			✈	✈	✈	✈	✈	✈	✈	✈	✈	✈
B762		✈	✈		✈	✈			✈	✈	✈	✈	✈	✈	✈	✈	✈	✈
B763		✈	✈		✈	✈			✈	✈	✈	✈	✈	✈	✈	✈	✈	✈
B772		✈		✈	✈				✈	✈	✈	✈	✈	✈	✈	✈	✈	✈
B772LR														✈		✈		✈
B773										✈	✈			✈	✈	✈	✈	✈
B773ER										✈	✈			✈	✈	✈	✈	✈
B788		✈		✈	✈						✈	✈	✈	✈	✈	✈	✈	✈
B789		✈		✈	✈						✈	✈	✈	✈	✈	✈	✈	✈
DC10					✈	✈				✈	✈			✈	✈	✈	✈	✈
DC9												✈		✈	✈	✈		
F70	✈	✈	✈	✈	✈	✈		✈	✈	✈	✈	✈		✈	✈	✈	✈	✈
L101					✈	✈				✈	✈			✈	✈	✈	✈	✈
MD11					✈	✈				✈	✈			✈	✈	✈	✈	✈
MD87												✈		✈				

Stands	F52L	F52R	F56L	F56R	F59L	F59R
A319	✈	✈	✈	✈	✈	✈
A320	✈	✈	✈	✈	✈	✈
A321	✈	✈	✈	✈	✈	✈
B737(100-500)	✈	✈	✈	✈	✈	✈
B737(600-900)	✈	✈	✈	✈		✈
MD83	✈	✈	✈	✈	✈	✈

5. TERMINAL 3 AIRCRAFT STANDS - Aircraft types that can be parked at stands (✈) are as follows:

Stands	A1	A2	A3	A4	A5	A9	A10	A11	A12	A13	A14	A15	A16	A17	A18	A19	A20	A21
A300		✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈		
A310		✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈		
A319		✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈		
A320		✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈		
A321		✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈		
A332	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈		✈
A333	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈
A343	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈
A345	✈	✈	✈	✈	✈		✈	✈	✈	✈	✈	✈	✈	✈				
A346		✈		✈	✈		✈	✈	✈	✈	✈							
A359	✈	✈	✈	✈	✈		✈	✈	✈	✈	✈	✈		✈				
A380		✈		✈	✈		✈											
B737			✈			✈		✈	✈	✈	✈		✈	✈	✈	✈		
B744	✈	✈	✈	✈	✈		✈	✈	✈	✈	✈	✈	✈	✈				
B788		✈		✈	✈		✈	✈	✈	✈		✈	✈	✈	✈	✈	✈	✈
B789	✈	✈		✈	✈		✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈
B757		✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈		
B767		✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈		
B772	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈
B773		✈		✈	✈		✈	✈	✈	✈	✈							
B773ER		✈		✈	✈		✈	✈	✈	✈	✈							

Stands	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10
A300		✈	✈	✈	✈	✈	✈	✈	✈	✈
A310		✈	✈	✈	✈	✈	✈	✈	✈	✈
A319		✈	✈	✈	✈	✈	✈	✈	✈	✈
A320		✈	✈	✈	✈	✈	✈	✈	✈	✈
A321		✈	✈	✈	✈	✈	✈	✈	✈	✈
A332	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈
A333	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈
A343	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈
A345	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈
A359	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈
A346		✈		✈	✈		✈			
A380		✈		✈	✈		✈			
B707									✈	✈
B737			✈			✈				
B744	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈
B788	✈	✈	✈	✈	✈		✈	✈	✈	✈
B789	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈
B757		✈	✈	✈	✈	✈	✈	✈	✈	✈
B767		✈	✈	✈	✈	✈	✈	✈	✈	✈
B772	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈
B773		✈		✈	✈	✈	✈	✈	✈	✈
B773ER		✈		✈	✈	✈	✈	✈	✈	✈

6. REMOTE STANDS - Aircraft types that can be parked at stands (✈) are as follows:

Stands	103	104	200	200L	200R	201	202	202L	202R	203	205	206	207	208	209
A300, A310	✈	✈	✈			✈	✈			✈	✈	✈	✈	✈	✈
A319, A320	✈	✈		✈	✈	✈		✈	✈	✈	✈	✈	✈	✈	✈
A321				✈	✈			✈	✈						
A330, A342	✈	✈	✈			✈	✈			✈	✈	✈			
A343, A345	✈	✈	✈			✈	✈			✈	✈	✈			
A359	✈	✈	✈			✈	✈			✈	✈	✈			
A380	✈	✈													
AT72			✈			✈	✈			✈	✈	✈	✈	✈	✈
B707, B727	✈	✈	✈			✈	✈			✈	✈	✈	✈	✈	✈
B737	✈	✈		✈	✈	✈		✈	✈	✈	✈	✈	✈	✈	✈
B747, B74S, B788	✈	✈	✈			✈	✈			✈	✈	✈			
B748	✈	✈													
B757	✈	✈	✈			✈	✈			✈	✈	✈	✈	✈	✈
B767, B772, B773	✈	✈	✈			✈	✈			✈	✈	✈			
B773ER	✈	✈	✈			✈	✈			✈	✈	✈			
B789	✈	✈	✈			✈	✈			✈	✈	✈			
DC8	✈	✈													
DC10	✈	✈	✈			✈	✈			✈	✈	✈			
DHC7													✈	✈	✈
F70	✈	✈	✈			✈	✈			✈	✈	✈	✈	✈	✈
IL62			✈			✈	✈			✈	✈	✈			
L101	✈	✈	✈			✈	✈			✈	✈	✈			
MD11	✈	✈	✈			✈	✈			✈	✈	✈			
MD83						✈				✈	✈	✈	✈	✈	✈

Stands	300	301	302	303	304	305	306	307	308	309	310	400	401	402	403	404
A300, A310	✈	✈	✈	✈	✈	✈	✈			✈	✈	✈	✈	✈		
A319, A320	✈	✈	✈	✈	✈	✈	✈			✈	✈	✈	✈	✈	✈	
A330, A342	✈		✈								✈	✈	✈			
A343, A345	✈		✈								✈	✈	✈			
A359	✈		✈								✈					
AT72				✈	✈	✈	✈									
B707	✈	✈	✈	✈	✈	✈	✈			✈	✈	✈	✈	✈		
B727	✈	✈	✈	✈	✈	✈	✈			✈	✈	✈	✈	✈	✈	
B737 (100-500)	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈
B737 (600-900)	✈	✈	✈	✈	✈	✈	✈			✈	✈	✈	✈	✈	✈	
B747	✈		✈								✈	✈	✈			
B74S, B788	✈		✈								✈	✈	✈			
B757, B767	✈	✈	✈	✈	✈	✈	✈			✈	✈	✈	✈	✈		
B772, B773	✈		✈								✈	✈	✈			
B773ER	✈		✈								✈	✈	✈			
B789	✈		✈								✈	✈	✈			
DC10	✈		✈				✈				✈	✈	✈			
DC8	✈	✈	✈	✈	✈	✈	✈			✈	✈					
F70	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	
L101	✈		✈				✈				✈	✈	✈			
MD11	✈		✈				✈				✈	✈	✈			
MD83												✈	✈	✈	✈	

WSSS AD 2.9 SURFACE MOVEMENT GUIDANCE AND CONTROL SYSTEM AND MARKINGS

AIRFIELD GROUND LIGHTING CONTROL AND MONITORING SYSTEM (AGLCMS) AND MARKINGS

1. INTRODUCTION

1.1 The taxiing guidance system at Singapore Changi Airport consists of stop bars and selectable segments of green taxiway centreline lights. The system is designed to provide pilots with visual guidance while taxiing during night operations and during periods of low visibility. It is controlled by the Ground Movement Controller (GMC) at Changi Control Tower using the Airfield Ground Lighting Control and Monitoring System (AGLCMS).

2. ROUTE SELECTION AND PRIORITY

2.1 When a taxiing route is selected on the AGLCMS, corresponding segments of taxiway centreline lights on the manoeuvring area are switched on automatically. When two or more routes are selected, the system will give priority to the first route and activate red stopbar lights across conflicting routes, as necessary. A segment of the centreline lights of the conflicting routes that cut across the first route will also be suppressed. The GMC has the option of over-riding the taxiing route priority by selecting or deselecting the appropriate stopbar lights.

2.2 All taxiing guidance lights on taxiways leading to the runways terminate at the runway holding positions where, by default, red stopbar lights remain on unless deselected by the runway controller. When deselected, these stopbar lights will re-activate automatically after 50 seconds. Pilots shall not cross any lighted red stopbar lights.

2.3 Pilots shall enter / cross the runway or taxiway only when both the following conditions are met:
The crew have
a) received positive ATC clearance to enter / cross the runway or taxiway, and
b) observed that the red stop-bar lights are turned off.

3. TAXI INSTRUCTIONS USING THE GREEN TAXIWAY CENTRELINE LIGHTS

3.1 ATC will use the phraseology “Taxi on the greens .....” when issuing a clearance to pilots to taxi along the directional guidance provided by the green taxiway centreline lights.

4. INFORMATION AND MANDATORY SIGNS / MARKINGS

4.1 When following the directional guidance provided by the green taxiway centreline lights and red stop bar lights, pilots are advised to also navigate their taxi route with reference to information and mandatory signs/markings provided at the airport so as to maintain situational awareness of their whereabouts at all times.

WSSS AD 2.10 AERODROME OBSTACLES							
IN APPROACH / TKOF AREAS				***IN CIRCLING AREA AND AT AD***			
	RWY/Area affected	*OBST type, ELEV, Markings/LGT*	*Coordinates*		*OBST type, ELEV, Markings/LGT*		*Coordinates*
	1	2	3		1		2
a)	RWY 20R APCH RWY 02L TKOF	Mast HGT ranging fm 98ft AMSL and above.	Shipping channel aprx1290m from THR RWY 20R.	a)	Surface wind direction sleeves		LOC at each end of RWY adjacent to GP hut
b)	RWY 20C APCH RWY 02C TKOF	Mast HGT ranging fm 98ft AMSL and above.	Shipping channel aprx 2630m from THR RWY 20C.	b)	PAR hut		Besides RWY 02L/20R, opposite the PTB
c)	RWY 02L/20R APCH RWY 02L/20R TKOF RWY 02C/20C APCH RWY 02C/20C TKOF	ILS LLZ co-located with LLZ antennas.	Within the RWY strip.	c)	Frangible PAR reflectors		LOC at ends of RWY 02L/20R
d)	RWY 20R APCH	Two antennae, HGT 72ft AMSL, marked and LGTD	012311N 1035928E	d)	GP huts co-located with GP antennas		Within the RWY strip
e)	RWY 20R APCH	Antenna, HGT 88ft AMSL, marked and LGTD	012315N 1035931E	e)	Antenna, HGT 82ft AMSL, marked and LGTD		012036N 1035819E
f)	RWY 02L APCH	Antenna, HGT 82ft AMSL, marked and LGTD	012051N 1035827E	f)	Antenna, HGT 85ft AMSL, marked and LGTD		012039N 1035821E
g)	RWY 02L APCH	Pole, HGT 128ft AMSL, marked and LGTD	011859N 1035748E	g)	Antenna, HGT 78ft AMSL, marked and LGTD		012042N 1035823E
h)	RWY 02L APCH	Pole, HGT 160ft AMSL, marked and LGTD	012058N 1035814E	h)	Antenna, HGT 82ft AMSL, marked and LGTD		012053N 1035827E
i)	RWY 02L APCH	Pole, HGT 131ft AMSL, marked and LGTD	012038N 1035848E	i)	Antenna, HGT 78ft AMSL, marked and LGTD		012049N 1035826E
j)	RWY 20L APCH	Shipping channel	Aprx1600m from THR RWY 20L.				
				l)	Frangible poles, HGT 9ft AMSL		Installed aprx 200m fm centre of RET to identify 58m away fm TWY WP CL towards RWY 02L/20R
Obstacles in the APCH/TKOF areas, circling area and at the aerodrome are shown on the AOC, IAC and VAC.							

WSSS AD 2.11 METEOROLOGICAL INFORMATION PROVIDED		
1	*Associated MET Office*	Singapore Changi (WSSS)
2	*Hours of service*	H24
3	*Office responsible for TAF preparation* *Periods of validity*	Singapore Changi (WSSS) 12, 30
4	*Type of landing forecast, Interval of issuance*	TREND
5	*Briefing/consultation provided*	P
6	*Flight documentation, Language used*	Charts or Tabular forms, English
7	*Charts and other information available for briefing or consultation*	S, U, P
8	*Supplementary equipment available for providing information*	HRPT: High Resolution Picture Transmission APT: Automatic Picture Transmission MDWR: MET Doppler Weather Radar MAINT: Second WED of every month BTN 0200-0900 ALTN period: THU following the second WED.
9	*ATS units provided with information*	Singapore ACC, Singapore RCC
10	*Additional information*	TEL: 65422837 (MET Office)

WSSS AD 2.12 RUNWAY PHYSICAL CHARACTERISTICS					
Designations RWY NR	*TRUE BRG*	*Dimensions of RWY (m)*	*Strength (PCN) and surface of RWY and SWY*	*THR coordinates (THR Geoid Undulation)*	*THR elevation and highest elevation of TDZ of precision approach RWY*
1	*2*	*3*	*4*	*5*	*6*
02L	023.02°	4 000 x 60	72/F/B/W/U Bituminous concrete	012056.26N 1035838.83E (10.29m)	6.66m 6.23m
20R (Threshold displaced by 740m southwards)	203.02°	4 000 x 60	72/F/B/W/U Bituminous concrete	012233.95N 1035920.06E (10.29m)	4.01m 4.31m
02C	023.03°	4 000 x 60	72/F/B/W/U Bituminous concrete	011943.51N 1035905.86E (10.28m)	4.32m 4.52m
20C	203.03°	4 000 x 60	72/F/B/W/U Bituminous concrete	012143.37N 1035956.46E (10.28m)	4.58m 4.56m

WSSS AD 2.12 RUNWAY PHYSICAL CHARACTERISTICS (continued)					
Slope of RWY-SWY Transverse / Longitudinal	*SWY Dimensions (m)*	*CWY Dimensions (m)*	*STRIP Dimensions (m)*	*OFZ*	*Remarks*
7	*8*	*9*	*10*	*11*	*12*
RWY 02L 0.76 / 0.24%	60 X 60	270 X 150	4 240 X 300	Yes	Scheduled closure of runways (see below)
RWY 20R 1.45 / 0.25%	60 X 60	270 X 150	4 240 X 300		
RWY 02C 1.50 / 0.03%	60 X 60	60 X 150	4 240 X 300		
RWY 20C 1.38 / 0.07%	60 X 60	60 X 150	4 240 X 300		

Remarks (continued from above)	
Scheduled Closure of RWY 02L/20R	
1a)	BTN 1630-2200 on every MON and THU of the month (*preventive maintenance work).* In the event of an emergency, RWY will be re-opened within 30 minutes.
1b)	BTN 0225-0240 0630-0635 1000-1005 2300-2305 daily (*inspection).* In the event of an emergency, RWY will be re-opened within 5 minutes.
Scheduled Closure of RWY 02C/20C	
2a)	BTN 1630-2200 on every first, second and fourth WED of the month (*preventive maintenance work).* In the event of an emergency, RWY will be re-opened within 30 minutes.
2b)	BTN 0300-0315 0650-0655 1020-1025 2320-2325 daily (*inspection*). In the event of emergency, RWY will be re-opened within 5 minutes.

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
20R	Not applicable	4000	4270	4060	3260	Thr displaced by 740m southwards
	W2	3850	4120	3910	Not applicable	
	W3	3050	3320	3110	Not applicable	
	W4	2600	2870	2660	Not applicable	
	W5	2150	2420	2210	Not applicable	
02L	Not applicable	4000	4270	4060	4000	Nil
	W8	3850	4120	3910	Not applicable	
	W7	3050	3320	3110	Not applicable	
	W6	2600	2870	2660	Not applicable	
20C	Not applicable	4000	4060	4060	4000	Nil
	E2	3850	3910	3910	Not applicable	
	E3	3425	3485	3485	Not applicable	
	E4	2750	2810	2810	Not applicable	
	E5	2250	2310	2310	Not applicable	
02C	Not applicable	4000	4060	4060	4000	Nil
	E10	3850	3910	3910	Not applicable	
	E9	3345	3405	3405	Not applicable	
	E8	3205	3265	3265	Not applicable	
	E7	2555	2615	2615	Not applicable	
	E6	2105	2165	2165	Not applicable	

Note: Intersection departures are allowed subject to the following:
(a) initiated by pilot and approved by ATC, traffic permitting.
(b) ATC is able to keep aircraft visual at all times

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
02L	CAT II High Intensity consisting of extended centreline and red row barrettes, 2 crossbars, 2 approach beacons and sequenced flashing lights.	Green supple-mented by green wing-bar and 2 THR ident lights.	PAPI 3° loc either side of RWY, 422m behind RWY THR, 2 white LGT and 2 red LGT (20.6m), 3 white LGT and 1 red LGT (23.1m), 4 white LGT (25.6m). Aircraft with eye-to-wheel hgt greater than 8m are adz to fly with 2 white and 2 red LGT visible so as to achieve sufficient wheel clearance.	White	Inset High Intensity centreline lights as flw: From THR to 900m fm RWY end: White, 300m to 900m fm RWY end: Altn red/ white, 300m to RWY end: Red.	Bi-direc-tional raised White/Amber edge lights.	Red	Ele-vated Red
20R	CAT I High Intensity distance-coded centreline lgts showing variable white and crossbars at 150m, 300m, 450m, 600m and 750m.	Green supple-mented by green wing-bar and 2 THR ident lights.	PAPI 3° located either side of RWY, 410m fm THR. 2 white LGT and 2 red LGT (20.0m), 3 white LGT and 1 red LGT (22.6m), 4 white LGT (25.0m). Aircraft with eye-to-wheel hgt greater than 8m are adz to fly with 2 white and 2 red LGT visible so as to achieve sufficient wheel clearance.	Nil	Inset High Intensity centreline lights as flw: From THR to 900m fm RWY end: white, 300m to 900m fm RWY end: Altn red/ white, 300m to RWY end: Red.	Red RWY edge lgts in the direction of RWY 20R before the displaced thr. Bi-direc-tional raised White/Amber edge lights after the displaced THR.	Red	Ele-vated Red
02C	CAT I High Intensity consisting of centreline barrettes showing variable white, 1 crossbar, 2 approach beacons and sequenced flashing lights.	Green supple-mented by green wing-bar and 2 THR ident lights.	PAPI 3° located either side of RWY, 418m fm THR. 2 white LGT and 2 red LGT (19.8m), 3 white LGT and 1 red LGT (23.7m), 4 white LGT (26.2m). Aircraft with eye-to-wheel hgt greater than 8m are adz to fly with 2 white and 2 red LGT visible so as to achieve sufficient wheel clearance.	Nil	Inset High Intensity centreline lights as flw: From THR to 900m fm RWY end: White, 300m to 900m fm RWY end: Altn red/ white, 300m to RWY end: Red.	Bi-direc-tional raised White/Amber edge lights.	Red	Ele-vated Red

WSSS AD 2.14 APPROACH AND RUNWAY LIGHTING (continued)								
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
20C	CAT II High Intensity consisting of extended centreline and red row barrettes, 2 crossbars, 2 approach beacons and sequenced flashing lights.	Green supple-mented by green wing-bar and 2 THR ident lights.	PAPI 3° located left side of RWY, 418m from THR. 2 white LGT and 2 red LGT (19.8m), 3 white LGT and 1 red LGT (23.7m), 4 white LGT (26.2m) Aircraft with eye-to-wheel height greater than 8m are adz to fly with 2 white and 2 red LGT visible so as to achieve suffi-cient wheel clear-ance.	White	Inset High Intensity centreline lights as follows: From THR to 900m from RWY end: White, 300m to 900m from RWY end: Alternate red / white, 300m to RWY end: Red.	Bi-direc-tional raised white / amber edge lights.	Red	Ele-vated Red

WSSS AD 2.15 OTHER LIGHTING, SECONDARY POWER SUPPLY		
1	*ABN/IBN location, characteristics and hours of operation*	ABN: 012209.22N 1035858.47E (western side of RWY 02L/20R) Alternate FLG W G EV 2.3 SEC, Operating hours HN + IMC IBN: 012301.28N 1035959.52E (top of building N of SIA hangar) FLG G 'CH' EV 7 SEC, Operating hours HN + IMC
2	*LDI location and LGT Anemometer location and LGT*	Pressure tube anemometer and wind vane situated 345m west of middle of RWY 02L/20R. Cup anemometers and wind vanes at ends and middle of both runways. Windsocks at ends of both runways. Transmissometers at both ends and in the middle of both runways
3	*TWY Edge and Centreline Lightin*g	RWY 02L/20R and RWY 02C/20C: blue lights on taxiway curved edges and apron taxiway edges and green centreline lights on all taxiways.
4	*Secondary power supply/switch-over time*	Automatic standby generator power supply available for airfield lighting with switchover time of 1 second during Category II low visibility operations.
5	*Remarks*	Vehicles painted yellow or displaying chequered red/white or orange/white flag at highest point of vehicle

WSSS AD 2.16 HELICOPTER LANDING AREA
Please see section ENR 3.4

WSSS AD 2.17 ATS AIRSPACE		
1	*Designation and Lateral Limits*	**CHANGI CTR** 013300N 1040149E 013042N 1040654E 012542N 1040448E thence along Kuala Lumpur / Singapore FIR boundary to 012000N 1041218E 010018N 1035524E 011100N 1035134E 013300N 1040149E
2	*Vertical Limits*	SFC to 3,000ft ALT
3	*Airspace Classification*	C
4	*ATS Unit Callsign Language(s)*	Singapore Tower English
5	*Transition Altitude*	11 000ft (3 350m)
6	*Remarks*	A helicopter shall not be operated within the Changi CTR unless prior permission has been obtained from the Director-General of Civil Aviation, CAAS. Email to caas_ats_ansp@caas.gov.sg

2.3 AERODROME CHARACTERISTICS OF SINGAPORE CHANGI AND PAYA LEBAR AIRPORTS

2.3.1 Tabulated below are details of aerodrome characteristics of Singapore Changi Airport and Paya Lebar Airport which indicate the similarities and significant differences for ease of identification by pilots operating into these two airports.

Aeronautical Service	Paya Lebar Airport	Singapore Changi Airport	Significant Differences and Remarks
Magnetic heading of RWY	02/20	02L/20R 02C/20C	Exercise caution due to similar RWY alignment
Approach Lights	RWY 02 Modified Calvert High INTST with centreline and 3 crossbars. High INTST white LGT with brilliancy control and sequenced flashing lights.	RWY 02L Precision APCH LGT CAT II. Extended centreline with red side row barettes, 2 crossbars, 2 APCH beacons and sequenced flashing lights.	
	RWY 20 Modified Calvert High INTST with centreline and 3 crossbars. High INTST white LGT with brilliancy control and sequenced flashing lights.	RWY 20R Precision APCH LGT CAT I. Centreline barettes flashing white, 2 APCH beacons and sequenced flashing lights. (ref chart WSSS AD 2-31)	
ILS	RWY 20 - Nil	RWY 20R IDENT ICH No back beam LLZ 108.9 MHz GP 329.3 MHz	
	RWY 02 - Nil	RWY 02L IDENT ICW No back beam LLZ 110.9 MHz GP 330.8 MHz	
IBN	Flashing R ‘PL’ HN and IMC	Flashing G ‘CH’ HN and IMC	
ABN	Nil	ALTN Flashing W G every 2.3 SEC	

WSSS AD 2.21 NOISE ABATEMENT PROCEDURES

1.1 To alleviate the problem of noise, all aircraft on AWY G579 between SINJON (SJ) and JAYBEE (JB) shall operate at/ above 5,000ft.

1.2 The Standard Instrument Departure routes for aircraft departing on RWY 20R/20C are for the purpose of noise abatement in addition to being used for air traffic control.

1.3 Departures on RWY 20R are restricted between 1600-2200UTC. This restriction is not applicable when RWY 20C/ 02C is unavailable because of maintenance works or for other reasons.

1.4 Unless it is necessary for operational or safety reasons, when using engine reverse, arrivals on RWY 02L/20R between 1600-2200UTC may not exceed idle reverse thrust.

WSSS AD 2.22 FLIGHT AND GROUND PROCEDURES

1. LOW VISIBILITY PROCEDURES (LVP) FOR CATEGORY II ILS OPERATIONS

1.1 Introduction

1.1.1 Category II ILS approaches will be made available at Singapore Changi Airport to authorised flights during prolonged periods of low visibility, except during thunderstorms. RVR minima for CAT II ILS operations is limited to 350m due to runway and taxiway light spacing requirements on the airfield.

1.2 Authorisation for Category II ILS Approaches

1.2.1 Operators who wish to conduct Category II ILS operations at Singapore Changi Airport must have obtained operational approval from the relevant State of Operator and be authorised by the Civil Aviation Authority of Singapore.

1.3 Category II ILS Runways

1.3.1 At Singapore Changi Airport, Category II ILS approaches are available only on RWY 02L and RWY 20C, which are also equipped with precision approach Category II lighting system. When required, pilots making Category II ILS approaches to Singapore Changi Airport should refer to the procedures in the Instrument Approach Charts WSSS AD 2-101 to WSSS AD 2-119 and the Precision Approach Terrain Charts for RWY 02L and RWY 20C at WSSS AD 2-43 and WSSS AD 2-45 respectively.

1.4 Initiation of Category II ILS Operations

1.4.1 Preparations will be made to implement LVP for Category II ILS operations at Singapore Changi Airport during prolonged period of low visibility, except during thunderstorms, when the RVR drops below 800 metres.

1.4.2 Availability of the Category II ILS approaches will be made known through NOTAM and ATIS broadcasts as well as air traffic control radio communications.

1.4.3 During LVP operations, aircraft will not be cleared for Category II ILS approach if any of the ILS or approach/runway lights fall below Category II requirements. Aircraft will not be cleared for landing if the Touchdown Zone RVR is unserviceable.

1.5 ILS Sensitive Areas

1.5.1 Upon landing, pilots shall report to Changi Tower once the aircraft has cleared the runway and has passed the ILS sensitive areas demarcated by alternate yellow and green lights along the centrelines of Rapid Exit Taxiways and Cross Taxiways.

1.6 Termination of LVP for Category II ILS Operations

1.6.1 LVP for Category II ILS operations will be terminated when RVR has improved above 800 metres. Termination of LVP for Category II ILS operations will be made known through NOTAM and ATIS broadcasts as well as air traffic control radio communications.

1.7 Operations of Flights Not Authorised for Category II ILS Operations

1.7.1 During Category II ILS operations, if the RVR is 550 metres or above, flights not authorised for Category II ILS operations may continue to make approaches and land. Airlines planning to operate flights not authorised for Category II ILS operations into Changi shall monitor the METAR to ascertain the RVR values when launching their flights and be prepared to divert if the RVR is below 550 metres.

2. RUNWAY UTILISATION

2.1 Runway-in-use

2.1.1 The runway-in-use (Departure/Arrival) is selected by Aerodrome Control as the optimum for general purposes and to maximise runway utilisation. If the assigned runway is unsuitable for a particular operation, the pilot can obtain permission from ATC to use another runway but should anticipate delay.

2.2 Departures

2.2.1 Pilots should arrange their taxi such that they are ready to depart without delay on reaching the runway holding point. As standard ICAO wake turbulence separation is being applied, pilots are to advise ATC early if more time is needed for the aircraft to be ready for departure. When informed, ATC will be able to make changes in the departure sequence, if necessary, to minimise delays to other succeeding departures.

2.2.2 Pilots should complete cockpit checks prior to line-up for departure and keep any checks on the runway to a minimum.

2.2.3 Conditional line-up clearance may be used by ATC to facilitate an expeditious flow of traffic. On receipt of line-up clearance, pilots should taxi into position promptly without delay. Unless given instructions to line-up and wait, pilots should be ready and prepared to depart without stopping. On receipt of take-off clearance, pilots to commence take-off roll without delay.

2.3 Clearance for Immediate Take-Off

2.3.1 A pilot receiving the ATC instruction ‘cleared for immediate take-off’ is required to act as follows:
(a) if waiting clear of the runway, taxi immediately on to it and begin take-off run immediately without stopping the aircraft;
(b) if already lined-up on the runway, take-off without delay;
(c) if unable to comply with the instruction, inform ATC immediately.

2.4 Arrivals - Minimum Runway Occupancy Time (ROT)

2.4.1 Arriving aircraft upon landing are reminded that it is imperative to vacate the runway as quickly as practicable to enable ATC to apply minimum spacing on final approach and minimize the occurrence of ‘go-arounds’.

2.4.2 To achieve minimum ROT and reduce missed approaches due to occupied runway, pilots should vacate the runway via the first available exit taxiway corresponding to operational requirements, or as instructed by ATC. If an exit taxiway other than the first available exit taxiway is required, pilots shall advise the Tower Controller on first contact.

2.4.3 To enhance planning, pilots can make reference to the Landing Exit Distance (LED), the distance from threshold to the furthest edge of the exit taxiway:

RWY	Exit Taxiway (LED in metres)	Remarks
20R	**W6*** (**1655**), **W7*** (**2123**) and W8 (3061)	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.
20C	**E6*** (**1948**), **E7*** (**2391**) and E8 (3152)	
02L	**W5*** (**1966**), **W4*** (**2491**) and W3* (2876)	
02C	**E5*** (**2055**), **E4*** (**2565**) and E3* (3267)	

2.4.4 Pilots can expect initial taxi instructions from the Runway Controller before clearing the exit taxiway. Aircraft vacating the runway-in-use should not stop on the exit taxiway until the entire aircraft has passed the runway holding point.

2.4.5 BTN 0830-1030 daily estimated delays of about 15 minutes can be expected for arrivals into Singapore Changi Airport.

2.5 Land after Procedures

2.5.1 Normally, only one aircraft is permitted to land or take-off on the runway-in-use at any one time. However, when the traffic sequence is two successive landing aircraft, the second aircraft may be allowed to land before the first aircraft has cleared the runway-in-use provided:

(a) the runway is long enough;
(b) during daylight hours;
(c) the second aircraft will be able to see the first aircraft clearly and continuously until it is clear of the runway;
(d) the second aircraft has been warned.

2.5.2 ATC will provide this warning in the landing clearance as shown in para 2.7.

2.5.3 Responsibility for ensuring adequate separation between the two aircraft rests with the pilot of the second aircraft.

2.6 Special Landing Procedures

2.6.1 Special landing procedures may be in force at Singapore Changi Airport in conditions shown as follows:
(a) When the runway-in-use is temporarily occupied by other traffic, landing clearance may be issued to an arriving aircraft provided that at the time the aircraft crosses the threshold of the runway-in-use the following separation distances will exist:
i) Landing following landing
The preceding landing aircraft will be clear of the runway-in-use or will be at least 2,500m from the threshold of the runway-in-use.
ii) Landing following departure
The departing aircraft will be airborne and at least 2,500m from the threshold of the runway-in-use, or if not airborne, will be at least 2,500m from the threshold of the runway-in-use.

2.6.2 These procedures will be used only under the following conditions:
(a) during daylight hours;
(b) visibility of at least 5km;
(c) cloud ceiling of 1,500ft in the departure/missed approach area;
(d) ATC is satisfied that the pilot of the next arriving aircraft will be able to observe continuously the relevant traffic;
(e) no unfavourable surface wind conditions (including significant tailwind, windshear, turbulence, etc.);
(f) when the runway is dry and free of all precipitants such that there is no evidence that the braking action may be adversely affected.

2.7 Phraseology

2.7.1 When issuing a landing clearance following the application of these procedures, ATC will issue the second aircraft with the following instructions:

.... (Callsign) ... after the landing / departing .... (Aircraft Type) Runway .....(Designator) cleared to land.

3. PROCEDURES FOR PUSH BACK AND ASSIGNMENT OF FLIGHT LEVELS TO AIRCRAFT DEPARTING FROM SINGAPORE CHANGI AIRPORT

3.1 Aircraft departing from Singapore Changi Airport shall adhere to the procedures for push back and assignment of flight levels.

3.2 Assignment of flight levels to departing aircraft is made on a first-come-first-served basis. Aircraft will normally be assigned the level requested unless an alternate level is offered after coordination with the adjacent ATC centres.

3.3 Departing flights from Singapore requesting FL280 or FL320 on L759, M770, N571, N571/N877 or P628 will be cleared as follows:
a) aircraft departing Singapore will be cleared to FL280;
b) succeeding aircraft on the same route will be cleared to FL280 with 10 min longitudinal separation provided there is no closing speed with the preceding aircraft;
c) additional longitudinal separation as appropriate shall be provided by ATC for the faster aircraft following a slower aircraft on the same route;
d) the first aircraft from either Singapore or Kuala Lumpur to be over GUNIP on N571 or N571/N877, the Kuala Lumpur/Bangkok FIR boundary on M770 or L759 and VPL on P628 can expect its requested flight level.

3.4 To avoid confusion, pilots shall use the correct phraseology as detailed in para 3.5 when ready for push back.

12.4 Pilots are reminded to always use minimum power when starting engines, when manoeuvring within the apron area or when manoeuvring from apron taxiways to other parts of the aerodrome. It is especially critical when commencing to taxi that break-away thrusts are kept to an absolute minimum and then be reduced to idle thrusts as soon as possible.

13. TAKE-OFF AND LANDING

13.1 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 02C - TWY E10 or E11
RWY 02L - TWY W8, W9 or W10
RWY 20C - TWY E1, E2
RWY 20R - TWY W1, W2

13.2 The pilot-in-command shall not take-off or land without a clearance from Aerodrome Control.

13.3 The pilot-in-command shall not run-up on the runway in use unless authorised by Aerodrome Control. Engine run-ups in the holding pan or taxiway holding point clear of the runway in use may be carried out subject to approval by Aerodrome Control.

13.4 After landing, the pilot-in-command shall vacate the runway by the shortest suitable route and to contact Ground Control who will issue specific taxi route instructions to its assigned aircraft stand.

13.5 Aircraft with radio communication failure shall vacate the runway and stop on the taxiway and watch for light signals from Aerodrome Control.

14. ARRIVING AIRCRAFT

14.1 The pilot-in-command of an arriving aircraft shall contact the appropriate Approach Control Unit 10 minutes before entering the CTR or ATZ.

15. LIGHT AIRCRAFT OPERATIONS

15.1 Light aircraft operations into and out of Singapore Changi Airport may be approved subject to the following conditions:

a) Prior permission has been granted;
b) Aircraft is suitably equipped;
c) Pilot is appropriately rated;
d) Subject to ATC.

15.2 Flight notification shall be given by filing a flight plan.

15.3 All such operations will be regulated in accordance with IFR procedures.

WSSS AD 2.23 ADDITIONAL INFORMATION

1. BIRD CONCENTRATION IN THE VICINITY OF THE AIRPORT

1.1 A number of varieties of birds are found in Singapore throughout the year. The larger birds commonly found in Singapore Changi Airport include the following:

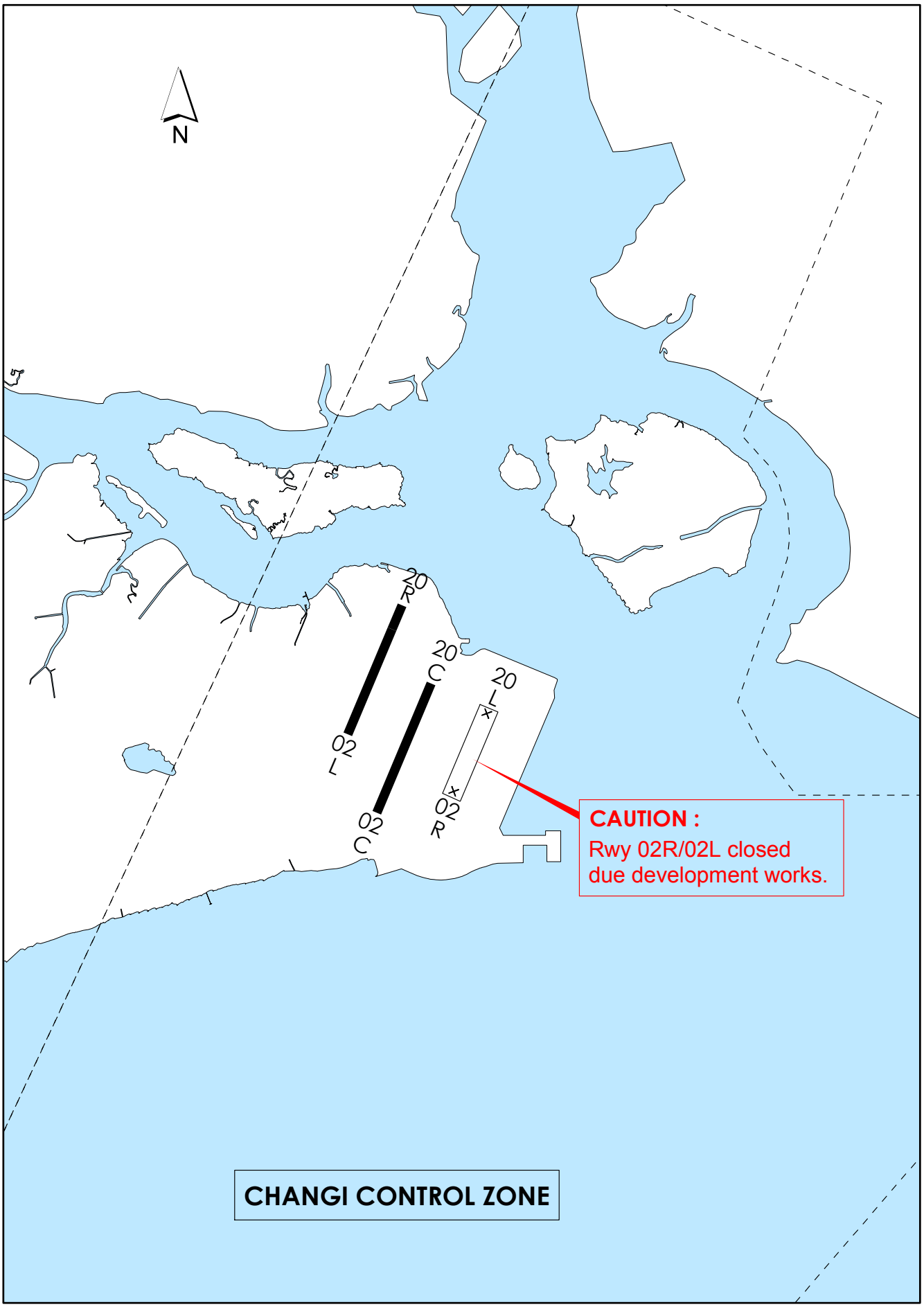
- cattle egrets (weighing approximately 300g each)
- grey herons (weighing approximately 500g each)
- brahminy kites (weighing approximately 600g each)

1.2 There could be an increase in bird activities during the migratory months of September to April. During this period, migratory birds may use the airport as their feeding ground.

1.3 Handheld laser device, long range acoustic device and alternating amplified bird cries of distress are used for bird dispersal within Singapore Changi Airport

WSSS AD 2.24 CHARTS RELATED TO SINGAPORE CHANGI AIRPORT	
Location of RWY 02R/20L in relation to RWY 02L/20R and RWY 02C/20C	WSSS AD 2-29
Aerodrome Chart - ICAO	WSSS AD 2-31
Aerodrome Advisory Chart	WSSS AD 2-33
Aerodrome Obstacle Chart - ICAO - TYPE A - RWY 02L/20R	WSSS AD 2-37
Aerodrome Obstacle Chart - ICAO - TYPE A - RWY 02C/20C	WSSS AD 2-39
Aerodrome Obstacle Chart - ICAO - TYPE B	WSSS AD 2-41
Precision Approach Terrain Chart - ICAO - RWY 02L	WSSS AD 2-43
Precision Approach Terrain Chart - ICAO - RWY 20C	WSSS AD 2-45
$RNAV_{(GNSS)}$ SIDs and STARs - Introduction	WSSS AD 2-47 to 2-50
$RNAV_{(GNSS)}$ SID - RWY 02L/20R - ANITO 6E / ANITO5F	WSSS AD 2-51 to 2-52
$RNAV_{(GNSS)}$ SID - RWY 02C/20C - ANITO 6A / ANITO 5B	WSSS AD 2-53 to 2-54
$RNAV_{(GNSS)}$ SID - RWY 02L/20R - ADMIM 1E / ADMIM 1F	WSSS AD 2-55 to 2-56
$RNAV_{(GNSS)}$ SID - RWY 02C/20C - ADMIM 1A / ADMIM 1B	WSSS AD 2-57 to 2-58
$RNAV_{(GNSS)}$ SID - RWY 02L/20R - TOMAN 2E / TOMAN 2F	WSSS AD 2-63 to 2-64
$RNAV_{(GNSS)}$ SID - RWY 02C/20C - TOMAN 2A / TOMAN 2B	WSSS AD 2-65 to 2-66
$RNAV_{(GNSS)}$ SID - RWY 02L/20R - BAVUS 1E / BAVUS 1F	WSSS AD 2-67 to 2-68
$RNAV_{(GNSS)}$ SID - RWY 02C/20C - BAVUS 1A / BAVUS 1B	WSSS AD 2-69 to 2-70
$RNAV_{(GNSS)}$ SID - RWY 02L/20R - AROSO 2E / AROSO 2F	WSSS AD 2-71 to 2-72
$RNAV_{(GNSS)}$ SID - RWY 02L/20R - MASBO 2E / MASBO 2F	WSSS AD 2-71-1 to 2-72-1
$RNAV_{(GNSS)}$ SID - RWY 02C/20C - AROSO 2A / AROSO 2B	WSSS AD 2-73 to 2-74
$RNAV_{(GNSS)}$ SID - RWY 02C/20C - MASBO 2A / MASBO 2B	WSSS AD 2-73-1 to 2-74-1
$RNAV_{(GNSS)}$ SID - RWY 02L/20R - MERSING 5E / MERSING 6F	WSSS AD 2-75 to 2-76
$RNAV_{(GNSS)}$ SID - RWY 02C/20C - MERSING 5A / MERSING 6B	WSSS AD 2-77 to 2-78
$RNAV_{(GNSS)}$ SID - RWY 02C/20C - VENIX 1A / VENIX 1B	WSSS AD 2-79 to 2-80
$RNAV_{(GNSS)}$ SID - RWY 02L/20R - VENIX 1E / VENIX 1F	WSSS AD 2-79-1 to 2-80-1
$RNAV_{(GNSS)}$ SID - RWY 02C/20C - KADAR 1A / KADAR 1B	WSSS AD 2-79-2 to 2-80-2
$RNAV_{(GNSS)}$ SID - RWY 02L/20R - KADAR 1E / KADAR 1F	WSSS AD 2-79-3 to 2-80-3
$RNAV_{(GNSS)}$ STAR - RWY 02L/02C - ARAMA 1A	WSSS AD 2-81 to 2-82
$RNAV_{(GNSS)}$ STAR - RWY 02L/02C - ASUNA 1A	WSSS AD 2-81-1 to 2-82-1
$RNAV_{(GNSS)}$ STAR - RWY 20R/20C - ARAMA 1B	WSSS AD 2-83 to 2-84
$RNAV_{(GNSS)}$ STAR - RWY 20R/20C - ASUNA 1B	WSSS AD 2-83-1 to 2-84-1
$RNAV_{(GNSS)}$ STAR - RWY 02L/02C - KARTO 1A	WSSS AD 2-85 to 2-86
$RNAV_{(GNSS)}$ STAR - RWY 02L/02C - OBDOS 1A	WSSS AD 2-85-1 to 2-86-1
$RNAV_{(GNSS)}$ STAR - RWY 20R/20C - KARTO 1B	WSSS AD 2-87 to 2-88
$RNAV_{(GNSS)}$ STAR - RWY 20R/20C - OBDOS 1B	WSSS AD 2-87-1 to 2-88-1
$RNAV_{(GNSS)}$ STAR - RWY 20R/20C - LELIB 3B	WSSS AD 2-89 to 2-90
$RNAV_{(GNSS)}$ STAR - RWY 02L/02C - BIKTA 1A	WSSS AD 2-91 to 2-92
$RNAV_{(GNSS)}$ STAR - RWY 02L/02C - MABAL 1A	WSSS AD 2-91-1 to 2-92-1
$RNAV_{(GNSS)}$ STAR - RWY 20R/20C - BIKTA 1B	WSSS AD 2-93 to 2-94
$RNAV_{(GNSS)}$ STAR - RWY 20R/20C - MABAL 1B	WSSS AD 2-93-1 to 2-94-1
$RNAV_{(GNSS)}$ STAR - RWY 02L - LEBAR 2A	WSSS AD 2-95 to 2-96
$RNAV_{(GNSS)}$ STAR - RWY 20R - LEBAR 2B	WSSS AD 2-95-1 to 2-96-1
$RNAV_{(GNSS)}$ STAR - RWY 02L/02C - REPOV 1A	WSSS AD 2-97 to 2-98
$RNAV_{(GNSS)}$ STAR - RWY 02L/02C - SURGA 1A	WSSS AD 2-97-1 to 2-98-1
$RNAV_{(GNSS)}$ STAR - RWY 20R/20C - REPOV 1B	WSSS AD 2-99 to 2-100
$RNAV_{(GNSS)}$ STAR - RWY 20R/20C - SURGA 1B	WSSS AD 2-99-1 to 2-100-1
$RNAV_{(GNSS)}$ STAR - RWY 02L/02C - VEPLI 1A	WSSS AD 2-99-2 to 2-100-2
$RNAV_{(GNSS)}$ STAR - RWY 20R/20C - VEPLI 1B	WSSS AD 2-99-3 to 2-100-3
Instrument Approach Chart - ICAO - RWY 02L - ICW ILS/DME	WSSS AD 2-101
Instrument Approach Chart - ICAO - RWY 02C - ICE ILS/DME	WSSS AD 2-103
Instrument Approach Chart - ICAO - RWY 02C - VTK DVOR/DME	WSSS AD 2-105
Instrument Approach Chart - ICAO - RWY 20R - ICH ILS/DME	WSSS AD 2-109
Instrument Approach Chart - ICAO - RWY 20C - ICC ILS/DME	WSSS AD 2-111
Instrument Approach Chart - ICAO - RWY 20C - VTK DVOR/DME	WSSS AD 2-113
Instrument Approach Chart - ICAO - RWY 02L - $RNAV_{(GNSS)}$	WSSS AD 2-117
Instrument Approach Chart - ICAO - RWY 02C - $RNAV_{(GNSS)}$	WSSS AD 2-118
Instrument Approach Chart - ICAO - RWY 20R - $RNAV_{(GNSS)}$	WSSS AD 2-119
Instrument Approach Chart - ICAO - RWY 20C - $RNAV_{(GNSS)}$	WSSS AD 2-120
Visual Approach Chart - ICAO	WSSS AD 2-121

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



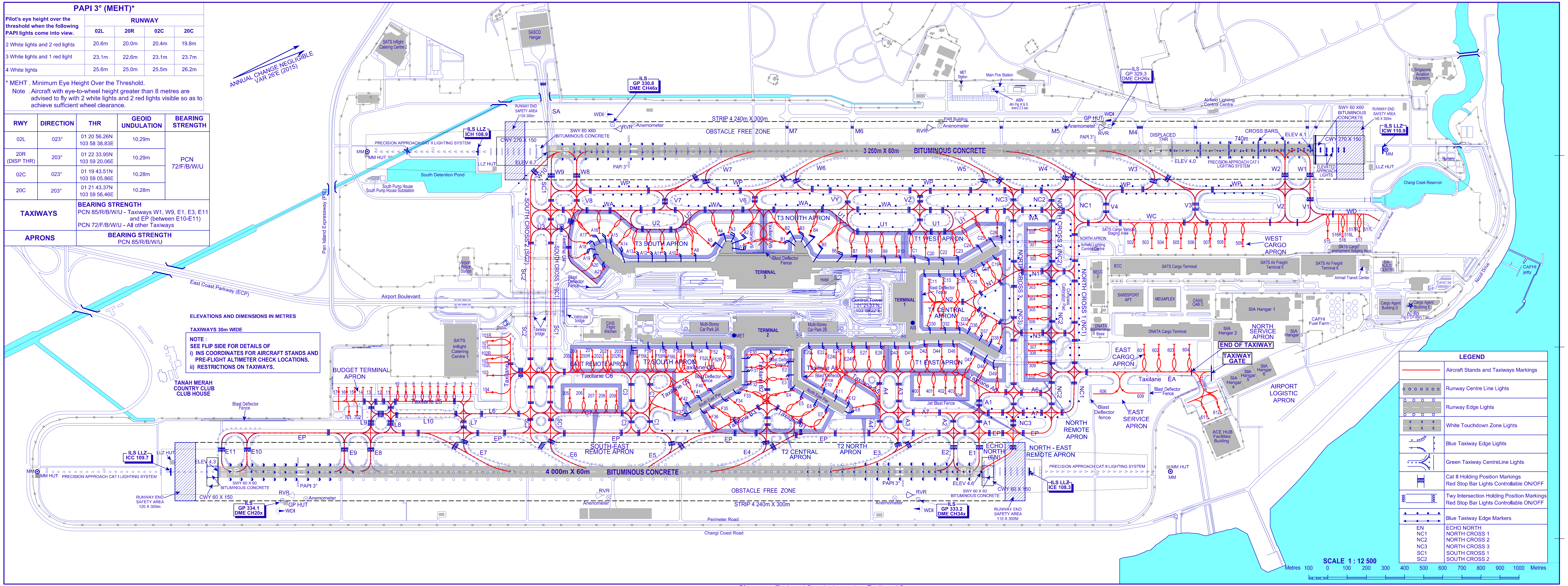
AERODROME CHART - ICAO

01° 21' 33"N
103°59' 22"E

AERODROME ELEVATION 6.66m

TWR	118.6 / 118.25
GND	124.3 / 121.85 / 121.725
DELIVERY	121.65

SINGAPORE/SINGAPORE CHANGI



PAPI 3° (MEHT)*				
Pilot's eye height over the threshold when the following PAPI lights come into view.	RUNWAY			
	02L	20R	02C	20C
2 White lights and 2 red lights	20.6m	20.0m	20.4m	19.8m
3 White lights and 1 red light	23.1m	22.6m	23.1m	23.7m
4 White lights	25.6m	25.0m	25.5m	26.2m

* MEHT . Minimum Eye Height Over the Threshold.
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.

RWY	DIRECTION	THR	GEOID UNDULATION	BEARING STRENGTH
02L	023°	01 20 56.26N 103 58 38.83E	10.29m	PCN 72/F/B/W/U
20R (DISP THR)	203°	01 22 33.95N 103 59 20.06E	10.29m	
02C	023°	01 19 43.51N 103 59 05.86E	10.28m	
20C	203°	01 21 43.37N 103 59 56.46E	10.28m	

TAXIWAYS	BEARING STRENGTH PCN 85/R/B/W/U - Taxiways W1, W9, E1, E3, E11 and EP (between E10-E11) PCN 72/F/B/W/U - All other Taxiways
APRONS	BEARING STRENGTH PCN 85/R/B/W/U

LEGEND	
	Aircraft Stands and Taxiways Markings
	Runway Centre Line Lights
	Runway Edge Lights
	White Touchdown Zone Lights
	Blue Taxiway Edge Lights
	Green Taxiway CentreLine Lights
	Cat II Holding Position Markings Red Stop Bar Lights Controllable ON/OFF
	Twy Intersection Holding Position Markings Red Stop Bar Lights Controllable ON/OFF
	Blue Taxiway Edge Markers
EN	ECHO NORTH
NC1	NORTH CROSS 1
NC2	NORTH CROSS 2
NC3	NORTH CROSS 3
SC1	SOUTH CROSS 1
SC2	SOUTH CROSS 2

Changes : Taxiway L5 re-designated as Taxilane L5.
INS coordinates of Aircraft Stand D40 revised.

INS COORDINATES FOR AIRCRAFT STANDS AND PRE-FLIGHT ALTIMETER CHECK LOCATIONS

LOCATION	STAND NR	NORTH LAT	EAST LONG	ELEVATION
T3 SOUTH APRON	A1	01 21 21.52	103 59 06.25	4.75m (15.58ft)
	A2	01 21 21.75	103 59 04.00	4.65m (15.26ft)
	A3	01 21 19.86	103 59 02.79	4.66m (15.29ft)
	A4	01 21 17.61	103 59 02.54	4.79m (15.72ft)
	A5	01 21 15.50	103 59 03.62	4.86m (15.94ft)
	A9	01 21 12.56	103 59 03.65	5.02m (16.47ft)
	A10	01 21 10.34	103 59 02.40	5.04m (16.54ft)
	A11	01 21 07.93	103 59 01.41	5.25m (17.22ft)
	A12	01 21 05.76	103 59 00.49	5.38m (17.65ft)
	A13	01 21 03.59	103 58 59.58	5.48m (17.98ft)
	A14	01 21 01.66	103 58 57.59	5.57m (18.27ft)
	A15	01 21 00.77	103 58 55.41	5.46m (17.91ft)
	A16	01 20 59.27	103 58 54.20	5.51m (18.08ft)
	A17	01 20 57.25	103 58 54.06	5.23m (17.16ft)
	A18	01 20 55.87	103 58 55.25	5.37m (17.62ft)
	A19	01 20 55.26	103 58 57.13	5.40m (17.72ft)
	A20	01 20 56.09	103 58 58.83	5.45m (17.88ft)
	A21	01 20 57.10	103 59 00.80	5.49m (18.01ft)
T3 NORTH APRON	B1	01 21 26.86	103 59 08.37	4.82m (15.81ft)
	B2	01 21 28.18	103 59 06.82	4.68m (15.35ft)
	B3	01 21 30.33	103 59 07.30	4.65m (15.26ft)
	B4	01 21 32.03	103 59 08.60	4.75m (15.58ft)
	B5	01 21 32.98	103 59 10.89	4.80m (15.75ft)
	B6	01 21 35.15	103 59 13.16	4.96m (16.27ft)
	B7	01 21 37.65	103 59 13.93	4.97m (16.31ft)
	B8	01 21 39.94	103 59 15.20	5.09m (16.70ft)
	B9	01 21 42.19	103 59 16.16	5.13m (16.83ft)
	B10	01 21 44.47	103 59 17.12	5.10m (16.73ft)
T1 WEST APRON	C1	01 21 46.75	103 59 18.08	5.09m (16.70ft)
	C20	01 21 48.83	103 59 19.23	5.08m (16.67ft)
	C22	01 21 51.00	103 59 20.13	5.15m (16.90ft)
	C23	01 21 53.56	103 59 20.77	5.08m (16.67ft)
	C24	01 21 56.54	103 59 20.97	4.89m (16.04ft)
	C25	01 21 59.12	103 59 20.59	4.99m (16.37ft)
	C26	01 22 01.48	103 59 20.76	5.01m (16.44ft)
T1 CENTRAL APRON	C11	01 21 47.42	103 59 23.82	5.07m (16.63ft)
	C13	01 21 49.64	103 59 24.75	5.05m (16.57ft)
	C15	01 21 51.90	103 59 25.71	5.05m (16.57ft)
	C16	01 21 53.63	103 59 26.42	4.91m (16.11ft)
	C17	01 21 55.63	103 59 26.07	5.03m (16.50ft)
	C18	01 21 57.86	103 59 25.75	4.99m (16.37ft)
	C19	01 21 59.79	103 59 25.63	4.95m (16.24ft)
	D30	01 21 44.54	103 59 30.14	5.09m (16.70ft)
	D32	01 21 46.73	103 59 31.07	5.08m (16.67ft)
	D34	01 21 49.03	103 59 32.04	5.07m (16.63ft)
	D35	01 21 50.87	103 59 32.82	5.02m (16.47ft)
	D36	01 21 51.98	103 59 34.52	5.06m (16.60ft)
	D37	01 21 53.37	103 59 36.28	4.97m (16.31ft)
	D38	01 21 54.58	103 59 37.77	4.99m (16.37ft)
T1 EAST APRON →	D40	01 21 38.13	103 59 32.89	5.07m (16.63ft)
	D41	01 21 40.30	103 59 33.81	5.07m (16.63ft)
	D42	01 21 42.70	103 59 34.48	5.11m (16.77ft)
	D44	01 21 44.97	103 59 35.44	5.14m (16.86ft)
	D46	01 21 47.40	103 59 36.72	5.08m (16.67ft)
	D47	01 21 49.19	103 59 38.89	4.93m (16.17ft)
	D48	01 21 50.60	103 59 40.77	4.97m (16.31ft)
	D49	01 21 52.23	103 59 42.35	4.98m (16.34ft)
T2 NORTH APRON	E8	01 21 27.99	103 59 38.45	4.68m (15.35ft)
	E10	01 21 24.15	103 59 32.67	4.71m (15.45ft)
	E11	01 21 25.57	103 59 34.37	4.78m (15.68ft)
	E12	01 21 27.20	103 59 36.42	4.75m (15.58ft)
	E20	01 21 24.36	103 59 27.08	5.04m (16.54ft)
	E22	01 21 26.64	103 59 28.04	5.07m (16.63ft)
	E24	01 21 29.01	103 59 29.06	5.09m (16.70ft)
	E24L	01 21 28.32	103 59 28.77	5.10m (16.73ft)
	E24R	01 21 29.53	103 59 29.28	5.08m (16.67ft)
	E26	01 21 31.19	103 59 29.96	5.08m (16.67ft)
	E27	01 21 33.46	103 59 30.93	5.03m (16.50ft)
	E28	01 21 35.74	103 59 31.89	5.08m (16.67ft)
T2 CENTRAL APRON	E1	01 21 20.02	103 59 25.58	4.91m (16.11ft)
	E2	01 21 19.28	103 59 27.30	4.90m (16.08ft)
	E3	01 21 18.44	103 59 29.27	4.82m (15.81ft)
	E4	01 21 18.10	103 59 31.70	4.80m (15.75ft)
	E5	01 21 19.56	103 59 33.72	4.90m (16.08ft)
	E6	01 21 21.22	103 59 35.93	4.84m (15.88ft)
	E7	01 21 22.48	103 59 37.46	4.73m (15,52ft)
	F30	01 21 14.71	103 59 23.33	4.92m (16.14ft)
	F31	01 21 13.87	103 59 25.30	4.91m(16.11ft)
	F32	01 21 13.03	103 59 27.26	4.85m (15.91ft)
	F33	01 21 11.30	103 59 28.54	4.91m (16.11ft)
	F34	01 21 08.98	103 59 28.96	4.92m (16.14ft)
	F35	01 21 06.28	103 59 29.29	4.90m (16.08ft)
	F36	01 21 04.34	103 59 29.67	4.82m (15.81ft)

INS COORDINATES FOR AIRCRAFT STANDS AND PRE-FLIGHT ALTIMETER CHECK LOCATIONS

LOCATION	STAND NR	NORTH LAT	EAST LONG	ELEVATION
T2 SOUTH APRON	F37	01 20 59.83	103 59 27.87	4.75m (15.58ft)
	F40	01 21 05.62	103 59 25.34	4.85m (15.91ft)
	F41	01 21 03.19	103 59 25.58	4.82m (15.81ft)
	F42	01 21 00.61	103 59 25.96	4.72m (15.49ft)
	F50	01 21 10.69	103 59 21.32	5.03m (16.50ft)
	F52	01 21 08.51	103 59 20.40	5.11m (16.77ft)
	F52L	01 21 07.82	103 59 20.11	5.16m (16.93ft)
	F52R	01 21 09.04	103 59 20.62	5.08m (16.67ft)
	F54	01 21 06.14	103 59 19.40	5.22m (17.13ft)
	F56	01 21 03.96	103 59 18.48	5.30m (17.39ft)
	F56L	01 21 03.27	103 59 18.18	5.42m (17.78ft)
	F56R	01 21 04.49	103 59 18.70	5.34m (17.52ft)
	F58	01 21 01.58	103 59 17.47	5.49m (18.01ft)
	F59	01 20 59.41	103 59 16.55	5.64m (18.50ft)
	F59L	01 20 58.72	103 59 16.26	5.67m (18.60ft)
	F59R	01 20 59.93	103 59 16.78	5.60m (18.37ft)
	F60	01 20 56.91	103 59 15.50	5.77m (18.93ft)
EAST REMOTE APRON	200	01 20 47.83	103 59 11.67	6.23m (20.44ft)
	200L	01 20 46.91	103 59 11.92	6.29m (20.64ft)
	200R	01 20 48.35	103 59 11.89	6.18m (20.28ft)
	201	01 20 49.99	103 59 12.62	5.96m (19.55ft)
	202	01 20 52.34	103 59 13.57	5.94m (19.49ft)
	202L	01 20 51.65	103 59 13.28	5.76m (18.90ft)
	202R	01 20 52.87	103 59 13.79	5.73m (18.80ft)
	203	01 20 54.52	103 59 14.47	5.92m (19.42ft)
SOUTH-EAST REMOTE APRON	101	01 20 34.88	103 59 04.05	4.49m (14.73ft)
	101L	01 20 34.60	103 59 04.70	4.60m (15.09ft)
	101R	01 20 35.11	103 59 03.50	4.53m (14.86ft)
	102	01 20 33.76	103 59 06.65	4.49m (14.73ft)
	102L	01 20 33.53	103 59 07.33	4.62m (15,16ft)
	102R	01 20 34.00	103 59 06.10	4.60m (15.09ft)
	103	01 20 32.88	103 59 09.35	4.67m (15,32ft)
	104	01 20 31.77	103 59 11.96	4.39m (14.40ft)
	205	01 20 43.91	103 59 17.06	4.77m (15,65ft)
	206	01 20 46.08	103 59 17.98	4.76m (15.62ft)
	207	01 20 47.91	103 59 18.88	4.74m (15,55ft)
	208	01 20 49.48	103 59 19.54	4.74m (15.55ft)
	209	01 20 51.06	103 59 20.21	4.75m (15.58ft)
NORTH REMOTE APRON	300	01 22 06.95	103 59 22.67	4.53m (14,86ft)
	301	01 22 06.41	103 59 24.69	4.93m (16.17ft)
	302	01 22 05.21	103 59 26.75	4.97m (16.31ft)
	303	01 22 03.55	103 59 31.40	5.32m (17.45ft)
	304	01 22 02.84	103 59 33.06	5.35m (17.55ft)
	305	01 22 02.14	103 59 34.71	5.30m (17.39ft)
	306	01 22 01.41	103 59 36.42	5.16m (16.93ft)
	307	01 21 59.39	103 59 40.36	5.16m (16.93ft)
	308	01 21 58.96	103 59 41.35	5.10m (16.73ft)
	309	01 21 58.52	103 59 43.17	5.06m (16.60ft)
	310	01 21 57.42	103 59 44.96	4.74m (15.55ft)
NORTH-EAST REMOTE APRON	400	01 21 38.71	103 59 40.14	4.31m (14.14ft)
	401	01 21 40.98	103 59 41.10	4.31m (14.14ft)
	402	01 21 42.85	103 59 41.89	4.30m (14,11ft)
	403	01 21 44.37	103 59 42.53	4.29m (14.07ft)
	404	01 21 45.45	103 59 42.98	4.20m (13,78ft)
WEST CARGO APRON	502	01 22 22.23	103 59 31.62	4.35m (14.27ft)
	503	01 22 24.98	103 59 32.78	4.29m (14,07ft)
	504	01 22 27.26	103 59 33.74	4.29m (14,07ft)
	505	01 22 29.54	103 59 34.70	4.32m (14.17ft)
	506	01 22 31.81	103 59 35.66	4.38m (14.37ft)
	507	01 22 34.11	103 59 36.64	4.36m (14.30ft)
	508	01 22 36.41	103 59 37.61	4.29m (14,07ft)
	509	01 22 39.12	103 59 38.76	4.09m (13.42ft)
	515	01 22 52.90	103 59 43.20	4.09m (13.43ft)
	516	01 22 55.39	103 59 43.97	4.04m (13,26ft)
	516L	01 22 56.24	103 59 43.80	3.96m (12.98ft)
	516R	01 22 54.93	103 59 43.25	3.95m (12.97ft)
	517	01 22 58.02	103 59 45.08	4.05m (13.27ft)
	517L	01 22 58.83	103 59 44.99	3.98m (13.05ft)
	517R	01 22 57.55	103 59 44.35	3.96m (12.98ft)
EAST CARGO APRON	601	01 22 16.52	103 59 49.27	4.27m (14,01ft)
	602	01 22 18.80	103 59 50.23	4.30m (14,11ft)
	603	01 22 21.15	103 59 51.02	4.29m (14,07ft)
	604	01 22 23.46	103 59 51.99	4.31m (14,14ft)
EAST SERVICE APRON	606	01 22 09.09	103 59 53.22	2.70m (8,86ft)
	609	01 22 12.19	103 59 54.57	3.01m (9,88ft)
ACEHUB	611	01 22 22.14	104 00 02.87	4.01m (13.16ft)
	612	01 22 24.50	104 00 02.87	3.91m (12.83ft)

INS COORDINATES FOR AIRCRAFT STANDS AND PRE-FLIGHT ALTIMETER CHECK LOCATIONS

LOCATION	STAND NR	NORTH LAT	EAST LONG	ELEVATION
BUDGET TERMINAL APRON	1	01 20 28.69	103 59 10.05	3.97m (13.02ft)
	2	01 20 27.39	103 59 09.51	4.04m (13.25ft)
	3	01 20 26.09	103 59 08.96	3.90m (12.80ft)
	4	01 20 24.80	103 59 08.41	3.86m (12.66ft)
	5	01 20 23.50	103 59 07.86	3.85m (12.63ft)
	6	01 20 22.20	103 59 07.32	3.86m (12.66ft)
	7	01 20 20.90	103 59 06.77	3.83m (12.57ft)
	8	01 20 19.60	103 59 06.22	3.84m (12.60ft)
	9	01 20 18.31	103 59 05.67	3.83m (12.57ft)
	10	01 20 17.03	103 59 05.07	3.85m (12.63ft)
	11	01 20 15.77	103 59 04.43	3.90m (12.80ft)
	12	01 20 14.50	103 59 03.89	3.94m (12.93ft)
	13	01 20 12.78	103 59 03.16	3.99m (13.09ft)
	14	01 20 11.48	103 59 02.62	4.01m (13.16ft)
	15	01 20 10.33	103 59 01.72	4.60m (15.09ft)
	16	01 20 09.03	103 59 01.17	4.60m (15.09ft)
	17	01 20 07.74	103 59 00.62	4.60m (15.09ft)
	701	01 20 07.51	103 59 05.69	5.03m (16.50ft)
	702	01 20 08.81	103 59 06.24	5.03m (16.50ft)

RESTRICTIONS ON TAXIWAYS

1) Pilots are advised to apply minimum thrust when
   i) turning into TWY A1, A3, A4 and Taxilane A5 while taxiing either northwards or southwards on Taxilane A6, and
   ii) thereafter when taxiing along TWY A1 up to and including the TWY A7/A1 junction.
   This is in view of apron activities at aircraft stands D40, D41, D47, D48, D49, E22, E24, E27 and E28.

2) TWY SA can only be used by aircraft with maximum wingspan 65m. TWY SA is a one-way live TWY for aircraft taxiing into SASCO hangar via RWY 02L. Only tow-out operation is allowed from SASCO hangar into TWY SA and RWY 02L.

3) Pilots operating aircraft with wheelbase longer than B747 or 26m shall take note that judgemental oversteering may be required when manoeuvring round taxiway turns.

4) TWY NC3 (between TWY WA and TWY A6) is a TWY with reduced minimum separation distances between the TWY centreline and object. Due to the reduced minimum separation distances, pilots are advised to adhere strictly to the TWY centreline and to slow down the taxi speed accordingly. TWY NC3 (between TWY WA and TWY A6) can only be used by aircraft with maximum wingspan 65m.

5) Taxiway centreline along TWY EP between TWY B1 and B3 offset eastward by 2.5m away from aircraft stands E7 and F36.

6) Pilots are advised to apply minimum thrust when turning into taxiway WA from taxilane V6.

7) Taxilane U4 (behind aircraft stands A18 to A21) can only be used by aircraft with maximum wingspan 61m.

8) TWY N1 (behind aircraft stands C16 to C19 and between TWY NC2 and TWY NC3), TWY N2 and TWY N3 (behind aircraft stands D35 to D38 and between TWY NC2 and TWY NC3) can only be used by aircraft with maximum wingspan 65m.

9) Taxilane A6 (behind aircraft stands E20 to E24) and Taxilane C6 (behind aircraft stands F50 to F54) can only be used by aircraft with maximum wingspan 65m (towing and pushback exempted).

→ 10) Taxilane L5 can only be used by aircraft with maximum wingspan 36m.

11) TWY L8, L9 and L10 can only be used by aircraft with maximum wingspan 65m.

→ 12) Pilots are advised to exercise caution when taxiing near Taxilane L5, L8, L9 and L10.

13) Pilots are advised to apply speed limit of 20 knots when taxiing along TWY SOUTH CROSS 1 and SOUTH CROSS 2.

14) Pilots turning aircraft into aircraft stand A2 or aircraft stand B2 are advised to wait for any aircraft holding at Taxilane V6, at the inner cul-de-sac portion of the terminal building to vacate this portion before turning into aircraft stand A2 or aircraft stand B2.

15) TWY M4, M5, M6 and M7 are solely for use by Republic of Singapore Air Force (RSAF) aircraft.

RADIO ALTIMETER OPERATIONS AREA

A radio altimeter operating area is established in the pre-threshold area of Runway 02L/20R and Runway 02C/20C. The size of the radio altimeter operating area is 300m length and 120m width.

AIRCRAFT STANDS WITH SAFEGATE AIRCRAFT DOCKING GUIDANCE SYSTEM.

TOTAL AIRCRAFT PARKING POSITIONS : 174

AERODROME OBSTACLE CHART - ICAO
TYPE B

SINGAPORE / Singapore Changi

AERODROME ELEVATION 7m

ELEVATIONS AND DIMENSIONS IN METRES
(ACCURACY OF ELEVATIONS : ± 2.5m)

103°56'E 103°57'E 103°58'E 103°59'E 104°0'E 104°1'E 104°2'E 104°3'E 104°4'E

1°27'N 1°26'N 1°25'N 1°24'N 1°23'N 1°22'N 1°21'N 1°20'N 1°19'N 1°18'N 1°17'N

FIR KUALA LUMPUR
FIR SINGAPORE

STRAIT
JOHOR

APPROACH SURFACE SLOPE 1:40
TAKE-OFF CLIMB SURFACE SLOPE 1:50

Pulau Ubin

Pulau Tekong Kechil

Pulau Tekong Reservoir

Pulau Tekong

TAKE-OFF CLIMB SURFACE SLOPE 1:50

WSD34
GND - 500 ft ALT

Possible Maritime Vessels of Variable Height

APPROACH SURFACE SLOPE 1:50

CENTRE-LINE OF SHIPPING CHANNEL

CAFHI Jetty

Jetty

RESA 140m

CWY 270m

SWY 60m BITUMINOUS CONCRETE

203°

Displaced Threshold

TRANSITIONAL SURFACE SLOPE 1:7

Changi Ferry Terminal

APPROACH SURFACE SLOPE 1:50

CENTRE-LINE OF SHIPPING CHANNEL

APPROACH SURFACE SLOPE 1:40

APPROACH SURFACE SLOPE 1:50

CONICAL SURFACE Slope 1:20

RESA 110m

CWY 60m

SWY 60m BITUMINOUS CONCRETE

TWR 85m

023°

SWY 60m BITUMINOUS CONCRETE

RESA 110m

CWY 270m

TRANSITIONAL SURFACE SLOPE 1:7

TRANSITIONAL SURFACE SLOPE 1:7

SWY 150m ASPHALT

203°

TRANSITIONAL SURFACE SLOPE 1:7

Bedok Reservoir

APPROACH SURFACE SLOPE 1:50

SWY 60m BITUMINOUS CONCRETE

RESA 120m

CWY 60m

023°

INNER HORIZONTAL SURFACE 49m

SWY 150m ASPHALT

CAUTION :
Rwy 02R/20L closed due development works.

CONICAL SURFACE Slope 1:20

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

VAR 26° E (2015)
ANNUAL CHANGE NEGLIGIBLE

Bedok Jetty

APPROACH SURFACE SLOPE 1:40

TAKE-OFF CLIMB SURFACE SLOPE 1:50

APPROACH SURFACE SLOPE 1:50

Tanah Merah Ferry Terminal

Restricted Waters
(Prior permission required for vessels over 15m AMSL)

Possible Maritime Vessels of Variable Height

Restricted Waters
(Prior permission required for vessels over 30m AMSL)

TAKE-OFF CLIMB SURFACE SLOPE 1:50

APPROACH SURFACE SLOPE 1:40

Restricted Waters
(Prior permission required for vessels over 49m AMSL)

LEGEND

AERODROME REF POINT 01° 21' 33.16"N LAT 103° 59' 21.60"E LONG	⌖
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

HORIZONTAL SCALE 1 : 25,000

Meters 1000 500 0 1000 2000 3000 4000 5000

Feet 1000 0 5000 10000 15000 20000

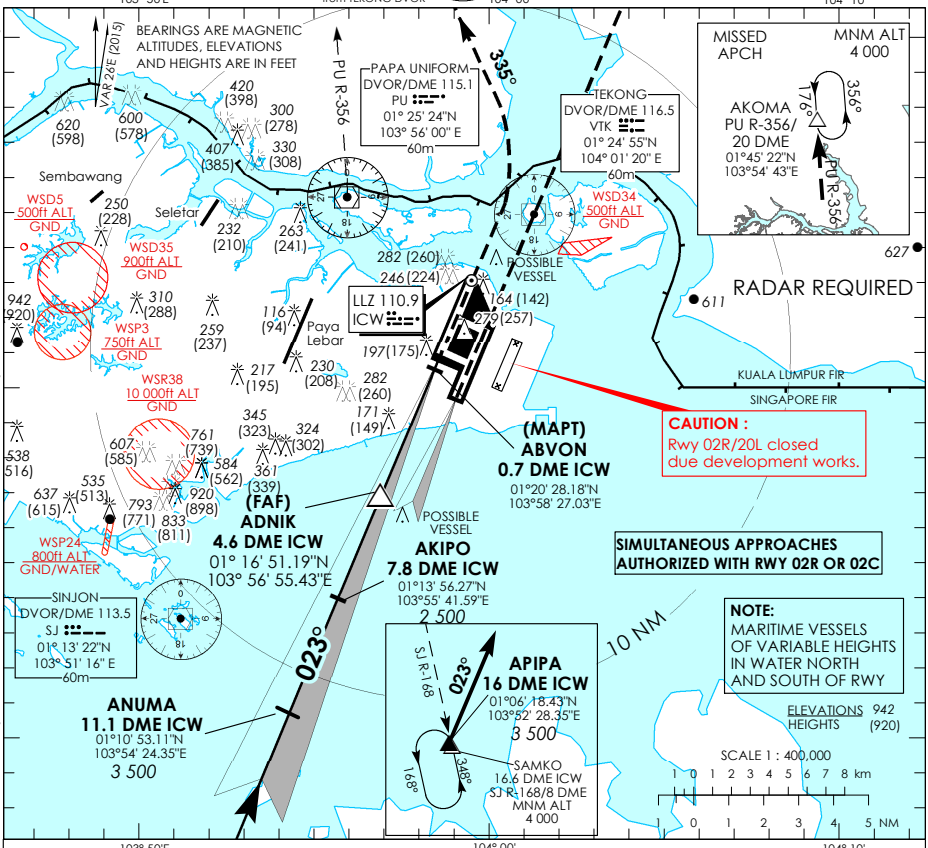
INSTRUMENT APPROACH CHART

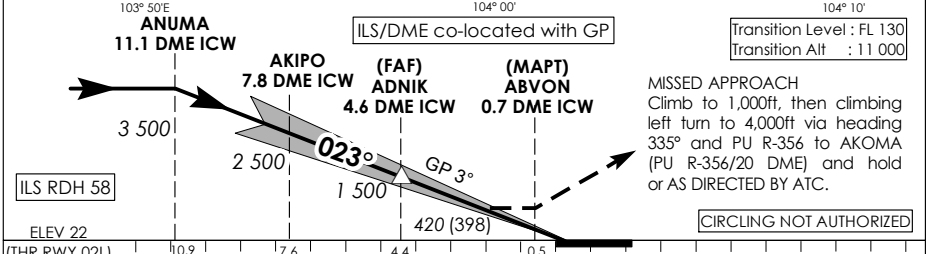
AERODROME ELEV 22ft
HEIGHT RELATED TO
THR RWY 02L - ELEV 22ft

MSA 25 NM
from TEKONG DVOR

D-ATIS	AP ID WSSS
	128.6
APP	120.3
	119.3
TWR	118.6
	118.25

SINGAPORE/ SINGAPORE CHANGI
ICW ILS/DME
RWY 02L





* TIMING NOT AUTHORIZED WHEN GP INOP

Category of Aircraft		OCA (OCH) A	B	C	D	D_L
Straight-in	CAT I ILS	**173 (151)**	**187 (165)**	**203 (181)**	**216 (194)**	**219 (197)**
	CAT II ILS	**88 (66)**	**98 (76)**	**108 (86)**	**127 (105)**	**127 (105)**
	GP INOP	**420 (398)**				

Distance	4 DME	3 DME	2 DME
Altitude (Height)	**1290 (1268)**	**970 (948)**	**660 (638)**
Speed knots	70	120	150	185
FAF - MAPT 3.9nm min : s *	**3 : 21**	**1 : 57**	**1 : 34**	**1 : 16**
Rate of descent/GS ft/min	**370**	**635**	**795**	**980**

CHANGES : Rwy 02R/20L closed due development works.
Prohibited Area WSP36 removed.

INSTRUMENT APPROACH CHART

AERODROME ELEV 22ft
HEIGHT RELATED TO
THR RWY 02C - ELEV 14ft

MSA 25 NM from TEKONG DVOR
3400' 090° 1900' 2100' 180° 360°

D-ATIS	AP ID WSSS
APP	128.6 120.3
TWR	119.3 118.6 118.25

SINGAPORE/ SINGAPORE CHANGI
ICE ILS/DME RWY 02C

103° 50'E 104° 00' 104° 10'

BEARINGS ARE MAGNETIC
ALTITUDES, ELEVATIONS
AND HEIGHTS ARE IN FEET

VAR 2.6E (2015)

TEKONG
DVOR/DME 116.5
VTK
01° 24' 55"N
104° 01' 20" E
60m

VTK R-023

MISSED APCH
NYLON
VTK R-023/
13 DME
01°36' 57"N
104°06' 24"E
203°
023°
MNM ALT
3 000

Sembawang
Seletar
Paya Lebar

WSD5 500ft ALT GND
WSD35 900ft ALT GND
WSP3 750ft ALT GND
WSR38 10 000ft ALT GND
WSP24 800ft ALT GND/WATER
WSD34 500ft ALT GND

POSSIBLE VESSEL

LLZ 108.3
ICE

RADAR REQUIRED

KUALA LUMPUR FIR
SINGAPORE FIR

CAUTION :
Rwy 02R/20L closed due development works.

(MAPT) LAGUS
0.7 DME ICE
01°19' 15.29"N
103°58' 54.00"E

(Stepdown Fix) LUXOL
2.0 DME ICE
01°18' 02.73"N
103°58' 23.38"E

(FAF) LASIN
4.6 DME ICE
01° 15' 38.25"N
103° 57' 22.39"E

LELON
7.8 DME ICE
01°12' 43.51"N
103°56' 08.62"E
2 500

NOTE:
MARITIME VESSELS OF VARIABLE HEIGHTS IN WATER NORTH AND SOUTH OF RWY

SINJON
DVOR/DME 113.5
SJ
01° 13' 22"N
103° 51' 16" E
60m

023°
10 NM

SAMKO
15.6 DME ICE
SJ R-168/8 DME
MNM ALT
4 000

SJ R-168

LIDVA
16 DME ICE
01°05' 05.67"N
103°52' 55.38"E
4 500

SIMULTANEOUS APPROACHES AUTHORIZED WITH RWY 02R OR 02L

LEPNA
14.2 DME ICE
01°06' 48.29"N
103°53' 38.82"E
4 500

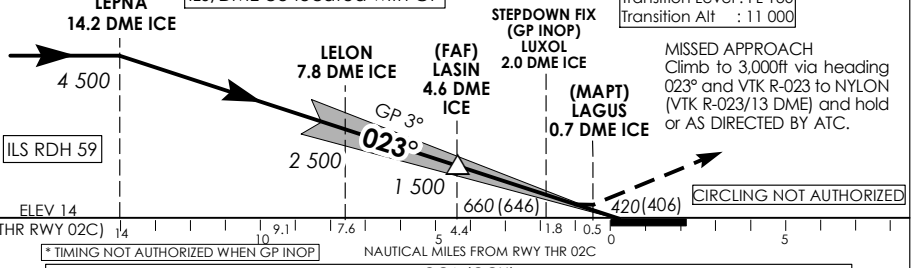
ELEVATIONS 942
HEIGHTS (928)

SCALE 1 : 400,000
1 0 1 2 3 4 5 6 7 8 9 km
1 0 1 2 3 4 5 NM

01° 20'
01° 10' N

ILS/DME co-located with GP

Transition Level : FL 130
Transition Alt : 11 000



MISSED APPROACH
Climb to 3,000ft via heading 023° and VTK R-023 to NYLON (VTK R-023/13 DME) and hold or AS DIRECTED BY ATC.

* TIMING NOT AUTHORIZED WHEN GP INOP

OCA (OCH)						
Category of Aircraft		A	B	C	D	D_L
Straight-in	CAT I ILS	170 (156)	180 (166)	196 (182)	209 (195)	212 (198)
	GP INOP (with stepdown fix)	420 (406)				
	GP INOP (without stepdown fix)	660 (646)				

Distance		4 DME		3 DME	
Altitude (Height)		1290 (1276)		970 (956)	
Speed	knots	70	120	150	185
FAF - MAPT 3.9nm	min : s*	3 : 21	1 : 57	1 : 34	1 : 16
Rate of descent/GS	ft/min	370	635	795	980

CHANGES : Rwy 02R/20L closed due development works.
Prohibited Area WSP36 removed.

INSTRUMENT APPROACH CHART - ICAO

AERODROME ELEV 22ft
HEIGHT RELATED TO AD ELEV

MSA 25 NM from TEKONG DVOR
3400' 1900' 2100' 090° 180° 360°

D-ATIS	AP ID WSSS
	128.6
APP	120.3
	119.3
TWR	118.6
	118.25

SINGAPORE/ SINGAPORE CHANGI
VTK DVOR/DME
RWY 02C

103° 50'E — 104° 00' — 104° 10'
01° 30' — 01° 20' — 01° 10' N

BEARINGS ARE MAGNETIC
ALTITUDES, ELEVATIONS AND HEIGHTS ARE IN FEET

VAR 26E (2015)

TEKONG
DVOR/DME 116.5
VTK
01° 24' 55"N
104° 01' 20" E
60m

MISSED APCH
NYLON
VTK R-023/ 13 DME
01°36' 57"N
104°06' 24"E
MNM ALT 3 000
VTK R-023
203°
023°

VTK R-023

Sembawang
Seletar
Paya Lebar

WSD5 500ft ALT GND
WSD35 900ft ALT GND
WSP3 750ft ALT GND
WSR38 10 000ft ALT GND
WSD34 500ft ALT GND
WSP24 800ft ALT GND/WATER

POSSIBLE VESSEL

KUALA LUMPUR FIR
SINGAPORE FIR

MAPT
6 DME VTK

CAUTION :
Rwy 02R/20L closed due development works.

Stepdown Fix
8 DME VTK

FAF
13.3 DME VTK
01° 12' 40.35"N
103° 56' 07.29"E

023°

IF
16.6 DME VTK
2 500

SINJON
DVOR/DME 113.5
SJ
01° 13' 22"N
103° 51' 16" E
60m

R-168 SJ
023°
MNM ALT 4 000
SAMKO
(8 DME SJ/ 21 DME VTK- R-203 VTK)
348°

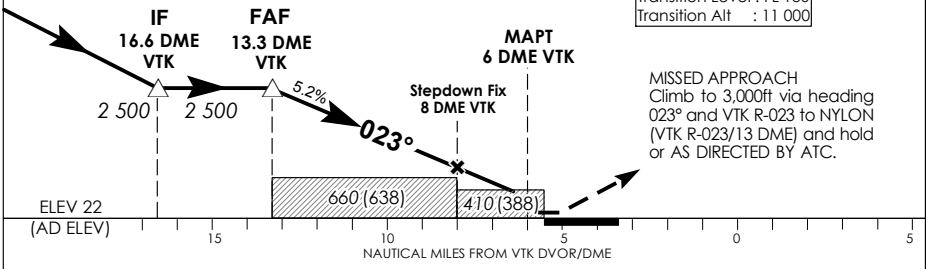
10 NM

NOTE:
MARITIME VESSELS OF VARIABLE HEIGHTS IN WATER NORTH AND SOUTH OF RWY

ELEVATIONS 942
HEIGHTS (920)

SCALE 1 : 400, 000
1 0 1 2 3 4 5 6 7 8 9 km
1 0 1 2 3 4 5 NM

Transition Level : FL 130
Transition Alt : 11 000



MISSED APPROACH
Climb to 3,000ft via heading 023° and VTK R-023 to NYLON (VTK R-023/13 DME) and hold or AS DIRECTED BY ATC.

OCA (OCH)				
Category of Aircraft	A	B	C	D
Straight-in with stepdown fix	**410 (388)**			
Straight-in without stepdown fix	**660 (638)**			

Distance	13 DME	12 DME	11 DME	10 DME	9 DME	8 DME
Altitude (Height)	**2420 (2398)**	**2100 (2078)**	**1790 (1768)**	**1470 (1448)**	**1150 (1128)**	**830 (808)**
Speed	knots	70	120	150	185	
FAF - MAPT 7.3nm	min : s	**6 : 16**	**3 : 39**	**2 : 56**	**2 : 23**	
Rate of descent/GS	ft/min	**370**	**635**	**795**	**980**	

CHANGES : Rwy 02R/20L closed due development works.
Prohibited Area WSP36 removed.

INSTRUMENT APPROACH CHART

AERODROME ELEV 22ft
HEIGHT RELATED TO
DTHR RWY 20R - ELEV 13ft

MSA 25 NM
from TEKONG DVOR
3400' 090° 1900' 2100' 180° 360°

D-ATIS	AP ID WSSS
	128.6
APP	120.3
	119.3
TWR	118.6
	118.25

SINGAPORE/ SINGAPORE CHANGI
ICH ILS/DME RWY 20R

103° 50'E 104° 00' 104° 10'

SIMULTANEOUS APPROACHES AUTHORIZED WITH RWY 20L OR 20C

RWY 20R ILS DME NOT AVAILABLE BEYOND 15 DEG WEST OF RWY 20R CENTRELINE BELOW 2500FT

VAR 26°E (2015)

BEARINGS ARE MAGNETIC
ALTITUDES, ELEVATIONS
AND HEIGHTS ARE IN FEET

01° 30'

10 NM

IGULA
11.1 DME ICH
01°32' 32.27"N
104°03' 32.66"E
3 500

IDVAS
7.8 DME ICH
01°29' 34.66"N
104°02' 17.75"E
2 500

(FAF)
IDURO
4.6 DME ICH
01° 26' 39.84"N
104° 01' 03.94"E

(MAPT)
IDUNA
0.8 DME ICH
01°23' 05.80"N
103°59' 33.58"E

203°

IPNAK
16 DME ICH
01°37' 11.93"N
104°05' 30.83"E
3 500

NYLON
(16.2 DME ICH/
VTK R-023/
13 DME)
MNM ALT
3 000

TEKONG
DVOR/DME 116.5
VTK
01° 24' 55"N
104° 01' 20" E
60m

RADAR REQUIRED

WSD34
500ft ALT
GND

POSSIBLE VESSEL

LLZ 108.9
ICH

Sembawang
Seletar
Paya Lebar

WSD5
500ft ALT
GND

WSD35
900ft ALT
GND

WSP3
750ft ALT
GND

WSR38
10 000ft ALT
GND

WSP24
800ft ALT
GND/WATER

SINJON
DVOR/DME 113.5
SJ
01° 13' 22"N
103° 51' 16" E
60m

CAUTION :
Rwy 02R/20L closed due development works.

KUALA LUMPUR FIR
SINGAPORE FIR

ELEVATIONS 942
HEIGHTS (929)

NOTE:
MARITIME VESSELS OF VARIABLE HEIGHTS IN WATER NORTH AND SOUTH OF RWY

POSSIBLE VESSEL

SCALE 1 : 400,000
1 0 1 2 3 4 5 6 7 8 9 km
1 0 1 2 3 4 5 NM

MISSED APCH
SJ R-168
SJ R-146
MNM ALT
5 000
SAMKO
SJ R-168/8 DME
01°05'; 30"N
103°52' 55"E
348°
168°

ILS/DME co-located with GP

MISSED APPROACH
Climb straight ahead to 5,000ft.
On crossing SJ R-146, proceed direct to SAMKO Holding Area and hold or AS DIRECTED BY ATC.

CIRCLING NOT AUTHORIZED

Transition Level : FL 130
Transition Alt : 11 000

GP 3°

ILS RDH 57

ELEV 13
(DTHR RWY 20R)

10 5 0 0.6 4.4 5 7.6 9.1 10 10.9
DISPLACED THR
NAUTICAL MILES FROM RWY DTHR 20R

* TIMING NOT AUTHORIZED WHEN GP INOP

		OCA (OCH)				
Category of Aircraft		A	B	C	D	D_L
Straight-in	CAT I ILS	**152 (139)**	**159 (146)**	**179 (166)**	**192 (179)**	**195 (182)**
	GP INOP	**420 (407)**				

Distance	4 DME		3 DME		2 DME	
Altitude (Height)	**1290 (1277)**		**970 (957)**		**650 (637)**	
Speed	knots	70	120	150	185	
FAF - MAPT 3.9nm	min : s *	**3 : 21**	**1 : 57**	**1 : 34**	**1 : 16**	
Rate of descent/GS	ft/min	**370**	**635**	**795**	**980**	

CHANGES : Rwy 02R/20L closed due development works.
Prohibited Area WSP36 removed.

INSTRUMENT APPROACH CHART

AERODROME ELEV 22ft
HEIGHT RELATED TO
THR RWY 20C - ELEV 15ft

MSA 25 NM
from TEKONG DVOR

D-ATIS	AP ID WSSS
	128.6
APP	120.3
	119.3
TWR	118.6
	118.25

SINGAPORE/ SINGAPORE CHANGI
ICC ILS/DME RWY 20C

103° 50'E — 104° 00' — 104° 10'

BEARINGS ARE MAGNETIC
ALTITUDES, ELEVATIONS
AND HEIGHTS ARE IN FEET

VAR 28E (2015)

RADAR REQUIRED

SIMULTANEOUS APPROACHES AUTHORIZED WITH RWY 20L OR 20R

ELALU
14.2 DME ICC
01°34' 39.87"N
104°05' 24.21"E
4 500

EGORA
16 DME ICC
01°36' 21.37"N
104°06' 07.23"E
4 500

NYLON
16.7 DME ICC
VTK R-023/
13 DME

MNM ALT
3 000

203° / 023°

10 NM

ELBEB
7.8 DME ICC
01°28' 44.66"N
104°02' 54.38"E

(FAF)
ELMIN
4.6 DME ICC
01° 25' 49.68"N
104° 01' 40.51"E
2 500

203°

TEKONG
DVOR/DME 116.5
VTK
01° 24' 55"N
104° 01' 20" E
60m

602

Sembawang

WSD5
500ft ALT
GND

WSD35
900ft ALT
GND

WSP3
750ft ALT
GND

Seletar

WSD34
500ft ALT
GND

POSSIBLE VESSEL

(MAPT)
ESBIT
0.7 DME ICC
01°22' 12.07"N
104°00' 08.64"E

627

LLZ 109.7
ICC

Paya Lebar

CAUTION :
Rwy 02R/20L closed due development works.

KUALA LUMPUR FIR
SINGAPORE FIR

ELEVATIONS 942
HEIGHTS (927)

WSR38
10 000ft ALT
GND

ESLUX
6.7 DME VTK
01° 18' 44.31"N
103° 58' 40.44"E

130°

POSSIBLE VESSEL

EXOMO
VTK R-158/
22 DME
01° 04' 25.49"N
104° 09' 33.17"E

VTK R-158°
158°
338°

MISSED APCH
MNM ALT
4 000

NOTE:
MARITIME VESSELS OF VARIABLE HEIGHTS IN WATER NORTH AND SOUTH OF RWY

WSP24
800ft ALT
GND/WATER

SINJON
DVOR/DME 113.5
SJ
01° 13' 22"N
103° 51' 16" E
60m

SCALE 1 : 400,000
1 0 1 2 3 4 5 6 7 8 9 km
1 0 1 2 3 4 5 NM

103° 50'E — 104° 00'

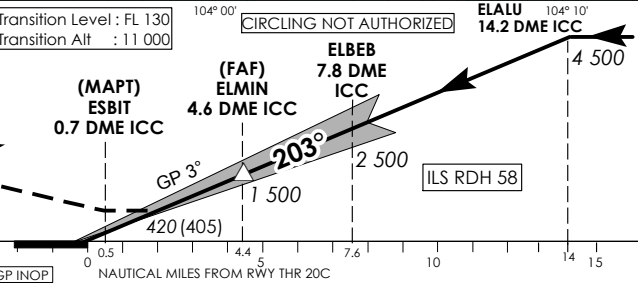
Transition Level : FL 130
Transition Alt : 11 000

CIRCLING NOT AUTHORIZED

MISSED APPROACH
Climb to 4,000ft via VTK R-203 to ESLUX (6.7 DME VTK). At ESLUX (1,000ft or above) turn left heading 130° to intercept VTK R-158 to EXOMO (VTK R-158/22 DME) and hold or AS DIRECTED BY ATC.

ILS/DME co-located with GP

ELEV 15
(THR RWY 20C)



* TIMING NOT AUTHORIZED WHEN GP INOP

OCA (OCH)						
Category of Aircraft		A	B	C	D	D_L
Straight-in	CAT I ILS	**166 (151)**	**180 (165)**	**196 (181)**	**209 (194)**	**212 (197)**
	CAT II ILS	**71 (56)**	**78 (63)**	**91 (76)**	**101 (86)**	**107 (92)**
	GP INOP	**420 (405)**				

Distance	4 DME		3 DME		2 DME	
Altitude (Height)	**1290 (1275)**		**970 (955)**		**650 (635)**	
Speed	knots	70	120	150	185	
FAF - MAPT 3.9nm	min : s *	**3 : 21**	**1 : 57**	**1 : 34**	**1 : 16**	
Rate of descent/GS	ft/min	**370**	**635**	**795**	**980**	

CHANGES : Rwy 02R/20L closed due development works.
Prohibited Area WSP36 removed.

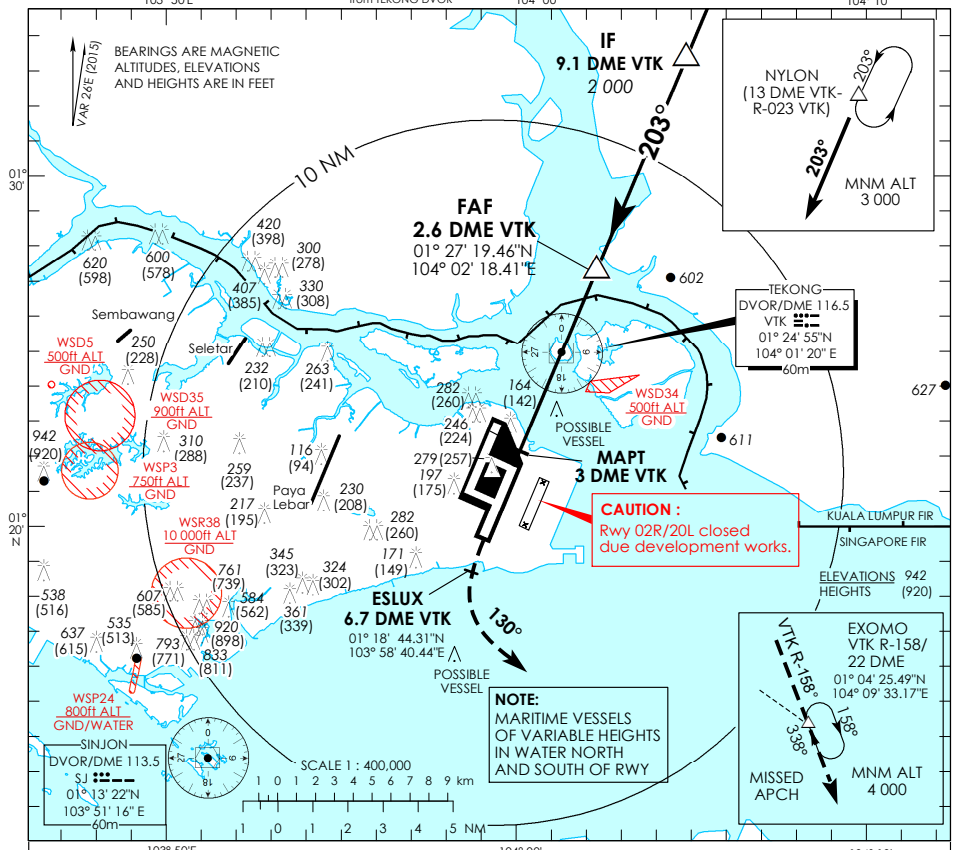
INSTRUMENT APPROACH CHART - ICAO

AERODROME ELEV 22ft
HEIGHT RELATED TO AD ELEV

MSA 25 NM from TEKONG DVOR
3400' (090°–180°) 1900' (180°–360°) 2100' (360°–090°)

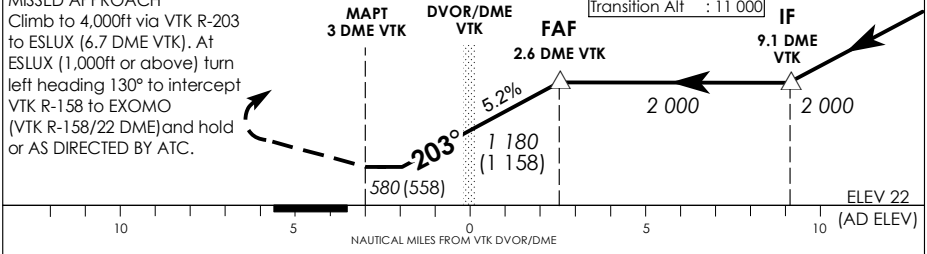
D-ATIS	AP ID WSSS
	128.6
APP	120.3
	119.3
TWR	118.6
	118.25

SINGAPORE/ SINGAPORE CHANGI
VTK DVOR/DME
RWY 20C



Transition Level : FL 130
Transition Alt : 11 000

MISSED APPROACH
Climb to 4,000ft via VTK R-203 to ESLUX (6.7 DME VTK). At ESLUX (1,000ft or above) turn left heading 130° to intercept VTK R-158 to EXOMO (VTK R-158/22 DME) and hold or AS DIRECTED BY ATC.



OCA (OCH)				
Category of Aircraft	A	B	C	D
Straight-in	580 (558)			

Distance	2 DME	1 DME	VTK	1 DME
Altitude (Height)	1820 (1798)	1500 (1478)	1180 (1158)	860 (838)
Speed	knots	70	120	150	185
FAF - MAPT 5.6nm	min : s	4 : 48	2 : 48	2 : 15	1 : 49
Rate of descent/GS	ft/min	370	635	795	980

CHANGES : Rwy 02R/20L closed due development works.
Prohibited Area WSP36 removed.

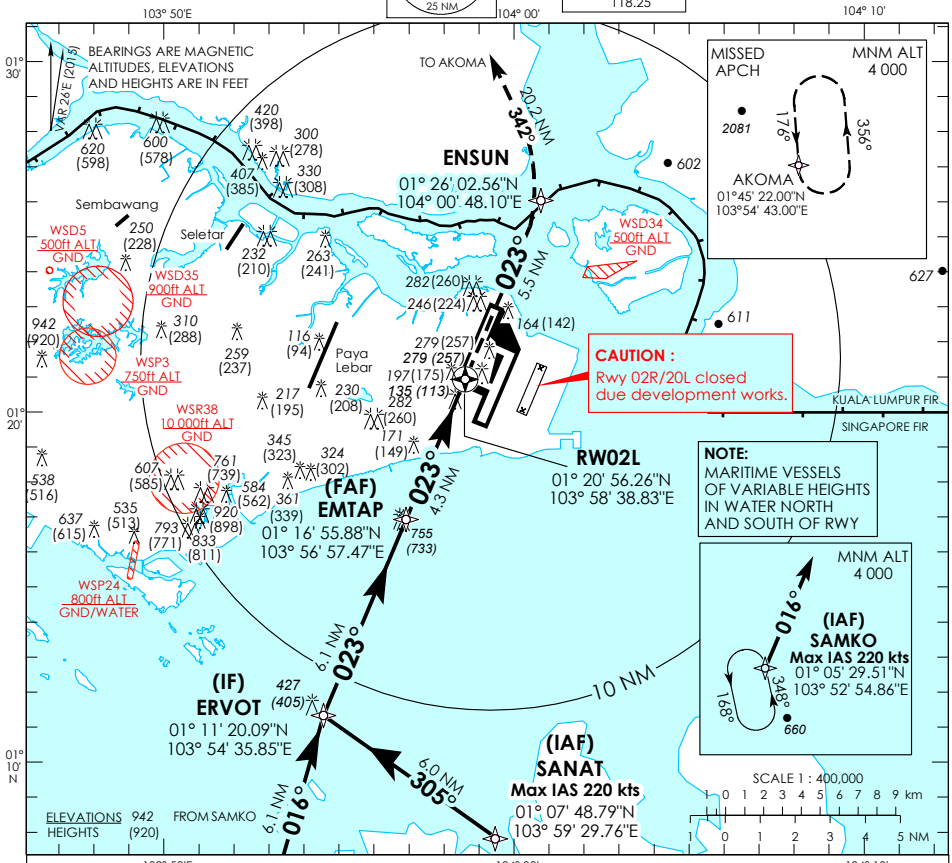
INSTRUMENT APPROACH CHART

AERODROME ELEV 22ft
HEIGHT RELATED TO THR RWY 02L - ELEV 22ft

MSA 3500 — ARP — 25 NM

D-ATIS	AP ID WSSS
	128.6
APP	120.3
	119.3
TWR	118.6
	118.25

SINGAPORE/ SINGAPORE CHANGI
RNAV (GNSS) RWY 02L



NAUTICAL MILES FROM THR RWY 02L					
		OCA (OCH)			
Category of Aircraft		A	B	C	D
LNAV/VNAV	2.5%	450 (430)			
LNAV	2.5%	540 (520)			

Fix	SAMKO	SANAT	ERVOT	EMTAP	RW02L	ENSUN	AKOMA
Altitude (Height)	**4000 (3978)**	**4000 (3978)**	**2800 (2778)**	**1400 (1378)**	**540 (518)**	**880 (858)**	**4000 (3978)**
Speed	knots	80	100	120	140	160	180
FAF - MAPt 4.3nm	min : s	**3 : 14**	**2 : 35**	**2 : 09**	**1 : 51**	**1 : 37**	**1 : 26**
Rate of descent/GS	ft/min	**424**	**530**	**637**	**743**	**849**	**955**

CHANGES : Rwy 02R/20L closed due development works.
Prohibited Area WSP36 removed.

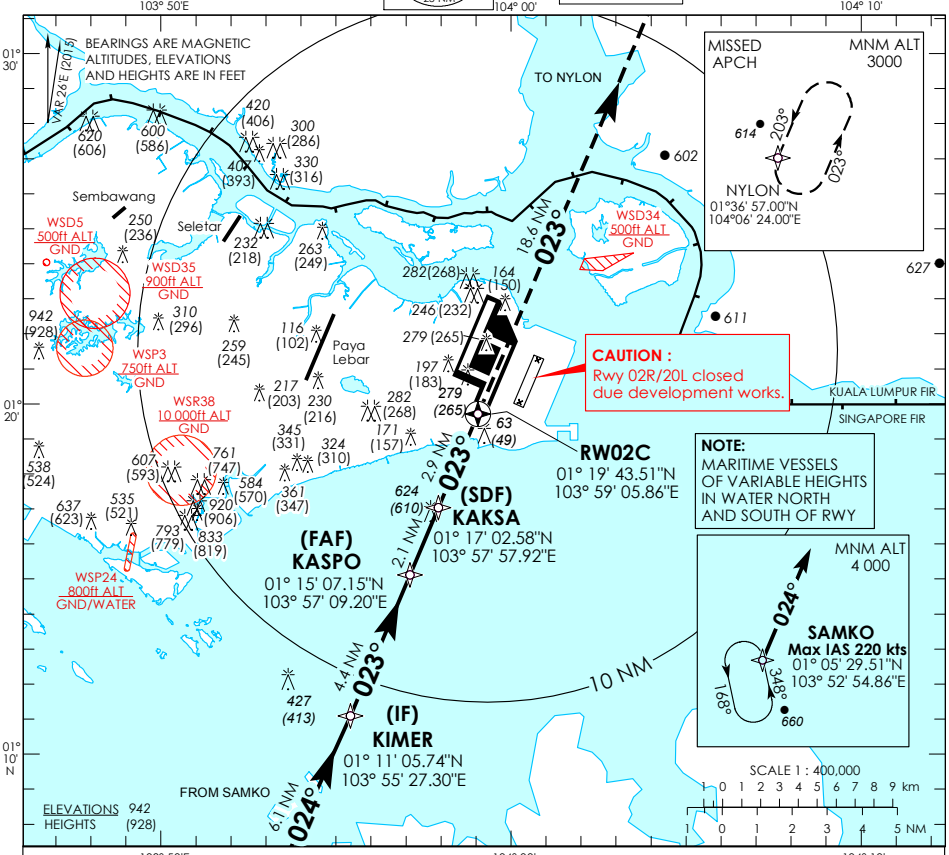
INSTRUMENT APPROACH CHART

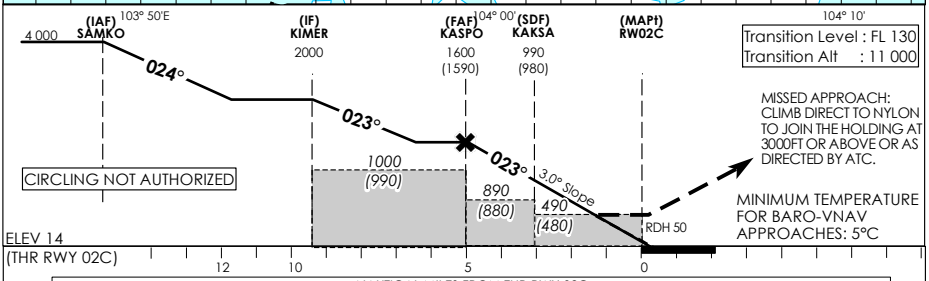
AERODROME ELEV 22ft
HEIGHT RELATED TO THR RWY 02C - ELEV 14ft

MSA 3500 — ARP — 25 NM

D-ATIS	AP ID WSSS
	128.6
APP	120.3
	119.3
TWR	118.6
	118.25

SINGAPORE/ SINGAPORE CHANGI
RNAV (GNSS) RWY 02C





NAUTICAL MILES FROM THR RWY 02C

Category of Aircraft		A	B	C	D
LNAV	2.5%		**490 (480)** OCA (OCH)		
LNAV without SDF	2.5%		**890 (880)** OCA (OCH)		
LNAV/VNAV	2.5%		**360 (350)** OCA (OCH)		

Fix		SAMKO	KIMER	KASPO	KAKSA	RW02C	NYLON
Altitude (Height)		**4000 (3986)**	**2000 (1986)**	**1600 (1586)**	**990 (976)**	**490 (476)**	**3000 (2986)**
Speed	knots	80	100	120	140	160	180
FAF - MAPt 5nm	min : s	**3 : 45**	**3 : 00**	**2 : 30**	**2 : 09**	**1 : 53**	**1 : 40**
Rate of descent/GS	ft/min	**425**	**531**	**637**	**743**	**849**	**955**

CHANGES : Rwy 02R/20L closed due development works.
Prohibited Area WSP36 removed.

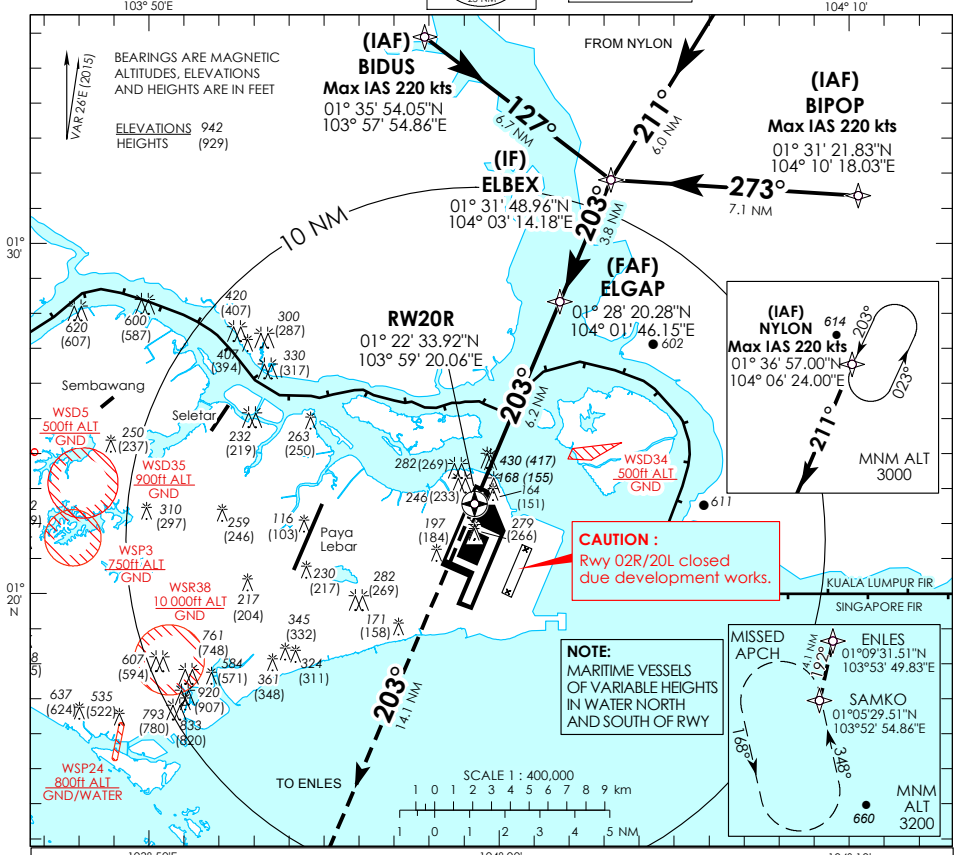
INSTRUMENT APPROACH CHART - ICAO

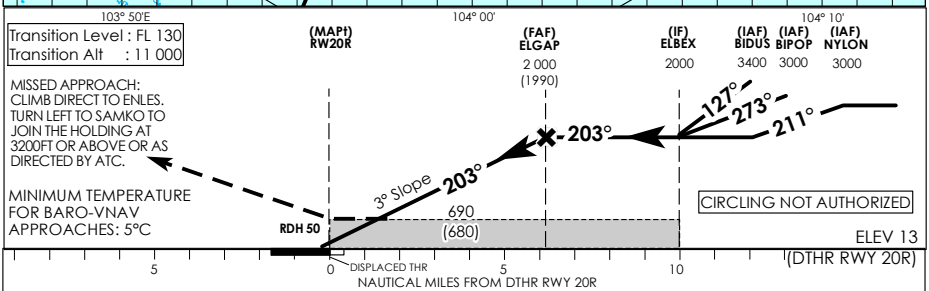
AERODROME ELEV 22ft
HEIGHT RELATED TO
DTHR RWY 20R - ELEV 13ft

MSA 3500 ARP 25 NM

D-ATIS	AP ID WSSS
	128.6
APP	120.3
	119.3
TWR	118.6
	118.25

SINGAPORE/ SINGAPORE CHANGI
RNAV (GNSS) RWY 20R





OCA (OCH)					
Category of Aircraft		A	B	C	D
LNAV/VNAV	2.5%	**690 (680)**			
LNAV	2.5%	**690 (680)**			

Fix		BIDUS	NYLON	BIPOP	ELBEX	ELGAP	RW20R	ENLES	SAMKO
Altitude (Height)		**3400 (3387)**	**3000 (2987)**	**3000 (2987)**	**2000 (1987)**	**2000 (1987)**	**690 (680)**	**2180 (2167)**	**3200 (3187)**
Speed	knots	80	100	120	140		160		180
FAF - MAPt 6.2 nm	min : s	**4 : 39**	**3 : 44**	**3: 06**	**2 : 40**		**2 : 20**		**2 : 04**
Rate of descent/GS	ft/min	**425**	**531**	**637**	**743**		**849**		**955**

CHANGES : Rwy 02R/20L closed due development works.
Prohibited Area WSP36 removed.

INSTRUMENT APPROACH CHART - ICAO

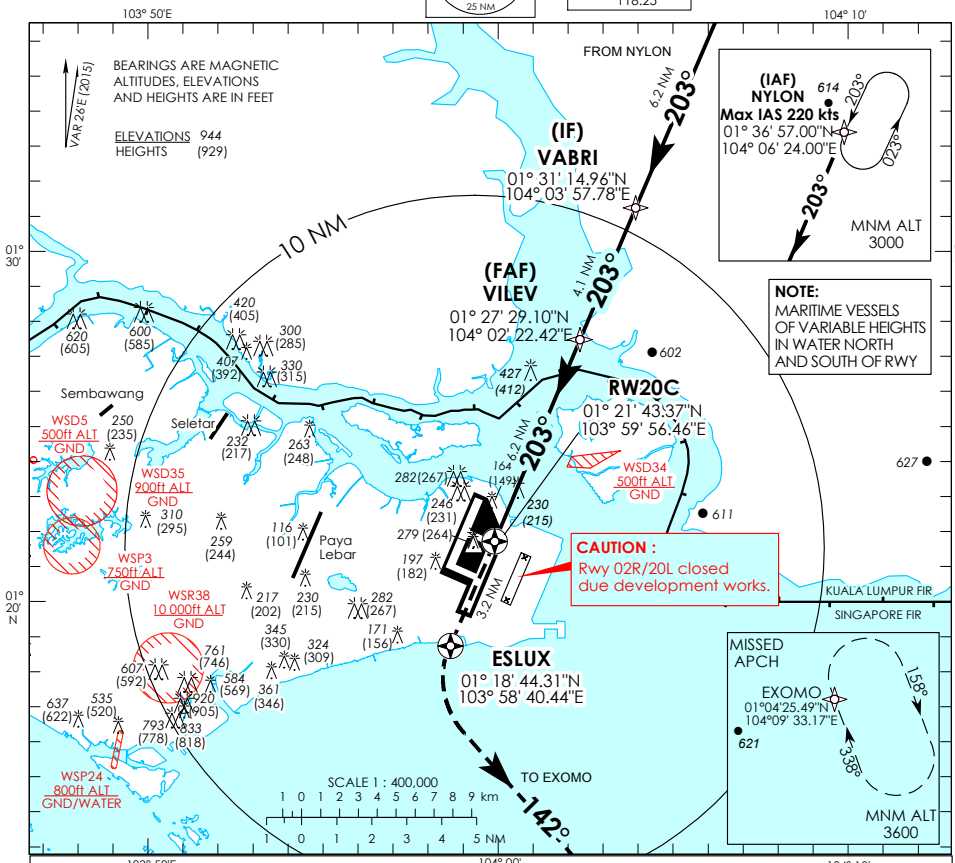
AERODROME ELEV 22ft
HEIGHT RELATED TO
THR RWY 20C - ELEV 15ft

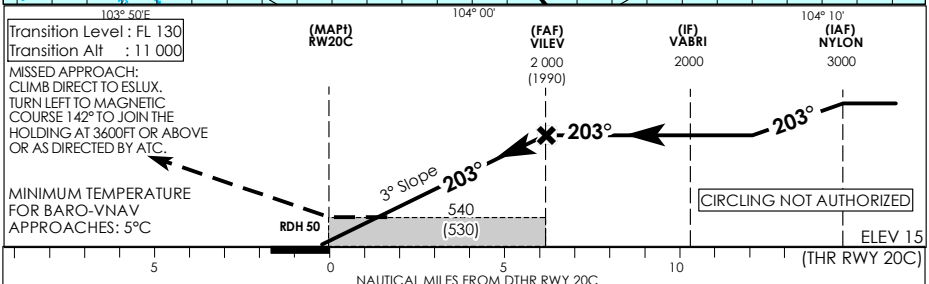
MSA 3500 ARP 25 NM

D-ATIS	AP ID WSSS
	128.6
APP	120.3
	119.3
TWR	118.6
	118.25

SINGAPORE/
SINGAPORE CHANGI

RNAV (GNSS) RWY 20C





OCA (OCH)					
Category of Aircraft		A	B	C	D
LNAV/VNAV	2.5%	**490 (480)**			
LNAV	2.5%	**540 (530)**			

Fix		NYLON	VABRI	VILEV	RW20C	ESLUX	EXOMO
Altitude (Height)		**3000 (2985)**	**2000 (1985)**	**2000 (1985)**	**540 (525)**	**540 (525)**	**3600 (3585)**
Speed	knots	80	100	120	140	160	180
FAF - MAPt 6.2 nm	min : s	**4 : 39**	**3 : 44**	**3: 06**	**2 : 40**	**2 : 20**	**2 : 04**
Rate of descent/GS	ft/min	**425**	**531**	**637**	**743**	**849**	**955**

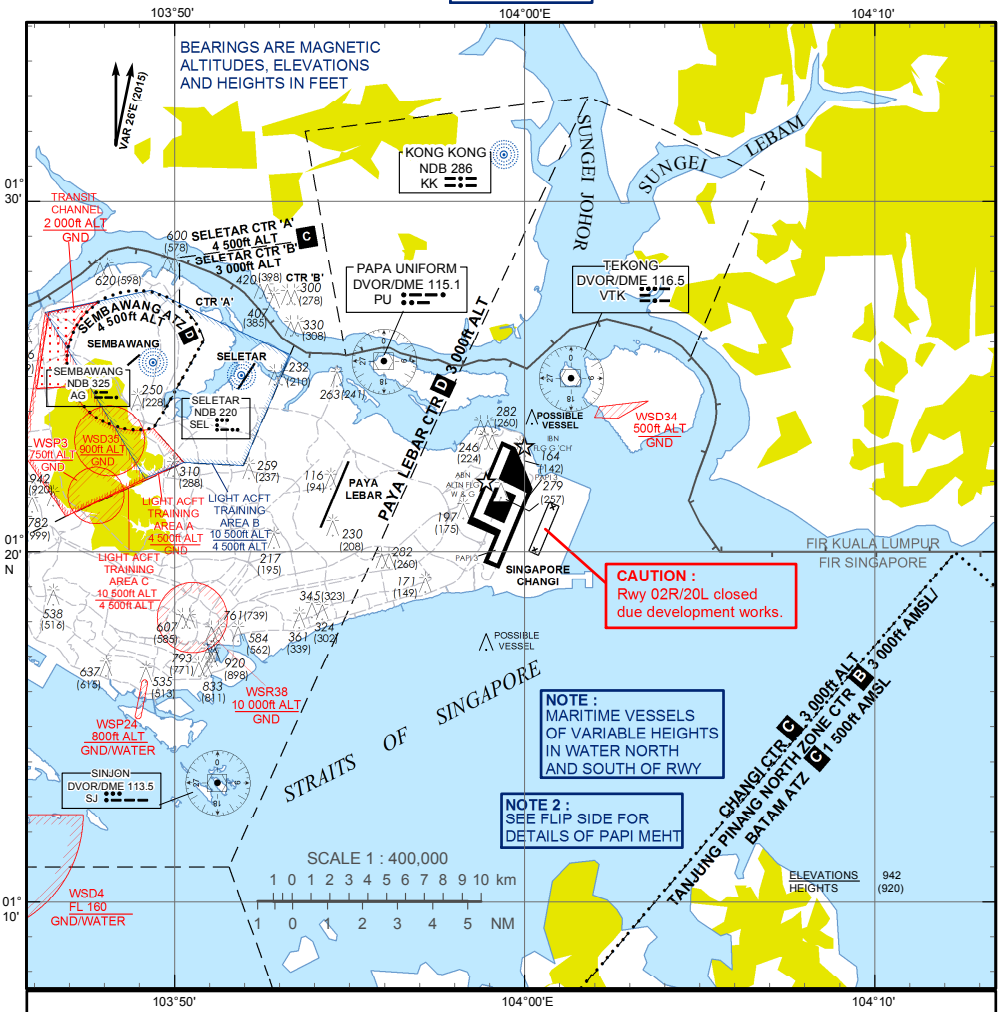
CHANGES : Rwy 02R/20L closed due development works.
Prohibited Area WSP36 removed.

VISUAL APPROACH CHART - ICAO

AERODROME ELEV 22 ft
HEIGHTS RELATED TO AD ELEV

D-ATIS	AP ID WSSS
	128.6
APP	120.3
	119.3
TWR	118.6
	118.25

SINGAPORE/SINGAPORE CHANGI



VISUAL APPROACH PROCEDURE

1. **An IFR flight operating into Singapore Changi Airport may be cleared for a visual approach subject to the following conditions :-**
   a) **The pilot has the aerodrome in sight and can conduct his approach with visual reference to terrain;**
   b) **The flight will not cause delay to other traffic;**
   c) **There is no conflicting tall vessel movement;**
   d) **The cloud ceiling at the aerodrome is 4,000ft or more for landing on RWY 20C/R and 3,000ft or more for on RWY 02C/L ; and**
   e) **The visibility at the aerodrome is 5km or more.**
2. **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.**
3. **Pilots may expect radar vectoring for separation and sequencing with other traffic prior to being cleared for a visual approach.**

CHANGES : Airspace vertical limits of Seletar Control Zone A, Sembawang ATZ and Light Aircraft Training Areas revised. Prohibited Area WSP36 removed. Rwy 02R/02L closed due development works.

PAPI 3° (MEHT)*				
Pilot's eye height over the threshold when the following PAPI lights come into view.	**RUNWAY**			
	02L	20R	02C	20C
2 White lights and 2 Red lights	20.6m	20.0m	20.4m	20.4m
3 White lights and 1 Red light	23.1m	22.6m	23.1m	23.1m
4 White lights	25.6m	25.0m	25.5m	25.5m

*MEHT : Minimum Eye Height Over the Threshold

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.

WSSL AD 2.8 APRONS, TAXIWAYS AND CHECK LOCATIONS/POSITIONS DATA		
1	*Apron surface and strength*	Surface: Bituminous concrete (aircraft stand C7) Strength: PCN44/F/C/X/T Surface: Concrete (all other aircraft stands) Strength: PCN41/R/C/W/T
2	*Taxiway width, surface and strength*	Width: 23m (75.5ft), 18m (59.1ft)TWY EC4, EC5 AND EC6 8m (26.2ft) TWY WS1 and WS2 Surface: Bituminous concrete Strength: PCN44/F/C/X/T
3	*Remarks*	

WSSL AD 2.9 SURFACE MOVEMENT GUIDANCE AND CONTROL SYSTEM AND MARKINGS		
1	*Use of aircraft stand ID signs, TWY guidelines and visual docking/parking guidance system of aircraft stands*	Taxiing guidance signs at all intersections with TWY and RWY at all holding positions. Guidelines at apron. Nose-in guidance at aircraft stands.
2	*RWY and TWY markings and LGT*	
	RWY LGT: refer to page WSSL AD 2-5 for details. RWY Turn Pad LGT / Markings: Only AVBL at THR RWY 03. Yellow turnpad centreline. TWY LGT: TWY Edge LGT: Blue LGT, inset, elevated and omni-directional. TWY markings: Yellow TWY centreline. MARKING AIDS: Threshold, touchdown zone, centre line stripes and RWY designation. RWY width outline from bituminous concrete surface by white lines. AIMING POINT MARKINGS: RWY 03: coincident with PAPI origin located 311.6m from THR respectively. RWY 21: coincident with PAPI origin located 232.8m from THR respectively.	
3	*Stop Bars: Red LGT across taxiways W1, W2, W3, E2, E3 and E4, flushed with TWY surface.* *Crash Alarm Stop Bars: Red LGT across junctions of EP, EC4 and EH2 TWY, flushed with TWY surface.* *(Note to pilots and tow-crew: Slow down when taxiing / towing on TWY EP between TWY EC4 and abeam the Control Tower. Keep a lookout for emergency vehicles that may cross the taxiway to respond to emergency on the RWY.)*	

WSSL AD 2.9 SURFACE MOVEMENT GUIDANCE AND CONTROL SYSTEM AND MARKINGS		
4	*Remarks*	
	a)	Aircraft operators/ground handlers shall be responsible for the safe and smooth operations of aircraft at the aircraft stands.
	b)	To enhance airside safety, all aircraft larger than Code A (i.e. up to but not including 15m wingspan) shall be marshalled into the aircraft stands.
	c)	Arriving aircraft will be assigned an aircraft stand. A ground handler shall marshall the aircraft into the aircraft stand.
	d)	A ground handler shall be at the aircraft stand when the aircraft is ready to depart. When the pilot signals that he is ready to taxi, the ground handler shall ensure that the area around the aircraft is clear before marshalling the aircraft out of the aircraft stand.
	e)	Only Code A aircraft, Code B aircraft, aircraft type Global Express, Global 5000, Global Express XRS, Fokker 50, Fokker 100, Gulfstream 500, Gulfstream 550, ATR 72-500, DASH 7and Falcon 7X are allowed to self-power out from aircraft stands C1, C2, C3, C4, C5 and C6.
	f)	Aircraft at stand C1 shall self-power out towards the north only.
	g)	Aircraft at stand C6 shall self-power towards the south only.
	h)	Aircraft at stands C2, C3, C4 and C5 are allowed to self-power out towards the south or the north.
	i)	Aircraft can self-power in from the north as well as the south via TWY WA.
	j)	All personnel, tow tugs and equipment shall be cleared from the aircraft stand and red chevron markings on the adjacent aircraft stands before self-power out can commence.
	k)	Aircraft with wingspan larger than 28.35m are not allowed to park at aircraft stand C7. Refuelling will not be allowed at aircraft stand C7.

WSSL AD 2.12 RUNWAY PHYSICAL CHARACTERISTICS

Designations RWY NR	*TRUE BRG*	*Dimensions of RWY (m)*	*Strength (PCN) and Surface of RWY and SWY*	*THR coordinates (THR GEOID Undulation)*	*THR Elevation*	*RWY End Elevation*	*Highest Elevation of Touchdown Zone*
1	2	3	4	5	6	7	8
03	033.33°	1836 x 46	44/F/C/X/T Bituminous concrete	012430.846N 1035143.791E (9.78m)	14m	5m	13m
21	213.33°	1836 x 46	44/F/C/X/T Bituminous concrete	012520.791N 1035216.425E (9.78m)	5m	14m	10m

CWY Dimensions	*STRIP Dimensions (m)*	*OFZ*	*Remarks (continued below)*
9	10	11	12
60m X 150m	1956m X 150m	Not applicable	RESA RWY 03 - 90m X 92m RESA RWY 21 - 240m X 92m

12 *Remarks:*

Scheduled closure periods for RWY 03/21

a) BTN 1600-2300 first FRI of EV month or second FRI if the first FRI is a public holiday. RWY CLSD to all TFC except medivac and EMERG flights. Advance notice of 30 minutes is required for EMERG opening of RWY.

b) BTN 0500-0515, 1030-1045, 1600-1615 and 2300-2315 daily for RWY inspection. Aircraft to expect delay.

c) BTN 1600-1800 EV TUE and FRI of EV month. RWY CLSD to all TFC except medivac and EMERG flights. Advance notice of 30 minutes is required for EMERG opening of RWY.

Runway turn pad

a) A lighted turn pad with centreline marking is provided at the threshold of RWY 03 which is able to serve aircraft up to B757-200.

WSSL AD 2.13 DECLARED DISTANCES

RWY Designator	*TORA (m)*	*TODA (m)*	*ASDA (m)*	*LDA (m)*	*Remarks*
1	2	3	4	5	6
03	1 836	1 896	1 836	1 836	
21	1 836	1 896	1 836	1 836	

WSSL AD 2.14 APPROACH AND RUNWAY LIGHTING

RWY Desig-nator	*APCH LGT Type LEN INTST*	*THR LGT Colour WBAR*	*VASIS (MEHT) PAPI*	*TDZ LGT LEN*	*RWY CL LGT,LEN spacing, Colour, INTST*	*RWY Edge LGT LEN, spacing Colour, INTST*	*RWY End LGT Colour WBAR*	*SWY LGT LEN Colour*
1	2	3	4	5	6	7	8	9
03	Simple APCH LGT: 4 rows of barettes of 3 LGT each and 1 crossbar of 13 LGT. White, elevated, uni-directional APCH LGT and white, omni-directional CGL on top of elevated APCH LGT. Simple TDZ LGT: 2 pairs white, inset, uni-directional LGT.	Green with THR IDENT LGT	PAPI 3°(both sides of RWY) 2 white 2 red LGT (17.720m) 3 white 1 red LGT (20.323m) 4 white LGT (22.927m). ACFT with eye-to-wheel HGT greater than 6.3m are ADZ to fly with 2 white 2 red LGT visible so as to achieve sufficient wheel CLR.	Nil	Nil	White with yellow on last 600m of either end. Elevated, omni- directional and brilliancy controlled.	Red	Nil
21	APCH LGT: 1 row of inset APCH LGT of 4 LGT and 4 rows of barettes of 4 LGT each. White inset uni-directional APCH LGT and white omni-directional CGL on top of white, elevated uni-directional APCH LGT. Simple TDZ LGT: 2 pairs white, inset, uni-directional LGT.	Green with THR IDENT LGT	PAPI 3.5°(both sides of RWY) 2 white 2 red LGT (17.720m) 3 white 1 red LGT (19.286m) 4 white LGT (20.871m). ACFT with eye-to-wheel HGT greater than 6.3m are ADZ to fly with 2 white 2 red LGT visible so as to achieve sufficient wheel CLR.	Nil	Nil	White with yellow on last 600m of either end. Elevated, omni-directional and brilliancy controlled.	Red	Nil
	RWY 21 THR and RWY END LGT symmetrically disposed in 2 groups with a gap between the groups. RWY 21 THR and RWY END LGT reinstated to inset fitting.							

WSSL AD 2.15 OTHER LIGHTING, SECONDARY POWER SUPPLY		
1	*ABN/IBN location, characteristics and hours of operation*	ABN: 012448.000N 1035207.960E (on top of Control Tower) ALTN FLG W G EV 2.5 SEC. HN and IMC IBN: 012509.939N 1035152.143E (on top of West Substation) Flashing G 'SL' repeatedly. HN and IMC
2	*LD and LGTI location* *Anemometer location and LGT*	Cup anemometers and wind vanes and windsocks at ends of RWY.
3	*TWY edge and centre line marking*	TWY Edge LGT: Blue, elevated and omni-directional TWY Centreline Marking: Yellow
4	*Secondary power supply/switch-over time*	Automatic standby generator power supply available for airfield lighting.
5	*Remarks*	Vehicles painted yellow or displaying checkered red/white or orange/white flag at highest point of vehicle. WDI lighted.

WSSL AD 2.16 HELICOPTER LANDING AREA				
1	Coordinates of THR of FATO Geoid undulation	H03 012437.963N 1035152.072E		H21 012446.046N 1035157.344E
2	FATO elevation M/FT	H03- 10.45m/34.3ft; H21 - 9.36m/30.7ft		
3	FATO area dimensions, surface, strength, marking	Rectangle 297m x 21.5m, compacted turf, helicopter landing area designations, outline by concrete kerbs painted white.		
4	True BRG of FATO	033.33/213.33° Direction of TKOF zones: 034°GEO / 214°GEO		
5	Declared distance available		TODAH	RTODAH	LDAH
		H03	297m	297m	297m
		H21	297m	297m	297m
6	Approach and FATO lighting	Nil		
7	Remarks	Slope of helicopter landing area (transverse/longitudinal) H03 - 1.19%/0.44% ; H21 - 0.96%/0.44%		

WSSL AD 2.17 ATS AIRSPACE		
1	*Designation and Lateral Limits*	**SELETAR CTR** 012703N 1035009E 012825N 1035009E 012900N 1035425E 012534N 1035454E thence along international boundary to 012556N 1035326E 012227N 1035158E 012232N 1035016E 012327N 1034922E 012607N 1035053E and thence an arc of 2NM radius (centred at position 012527N 1034856E) joining 012607N 1035053E and 012703N 1035009E. **SELETAR CONTROL ZONE 'A'** Portion of Seletar CTR within Singapore FIR is known as Seletar CTR 'A'. **SELETAR CONTROL ZONE 'B'** The part in the Kuala Lumpur FIR is known as Seletar CTR 'B' and is bounded by 012825N 1035009E, 012900N 1035425E, 012534N 1035454E thence along the Peninsular Malaysia / Singapore international boundary to 012808N 1035010E to 012825N 1035009E from GND / sea level to 3 000ft. It will be activated only with prior approval of Johor Bahru ATC. (see chart WSSL AD 2-33).
2	*Vertical Limits*	**SELETAR CONTROL ZONE 'A'** SFC to 4 500ft ALT Maximum Useable ALT 4 000ft **SELETAR CONTROL ZONE 'B'** SFC to 3 000ft ALT
3	*Airspace Classification*	C
4	*ATS Unit Call sign* *Language(s)*	Seletar Tower English
5	*Transition Altitude*	11,000ft (3,350m)
6	*Remarks*	Nil

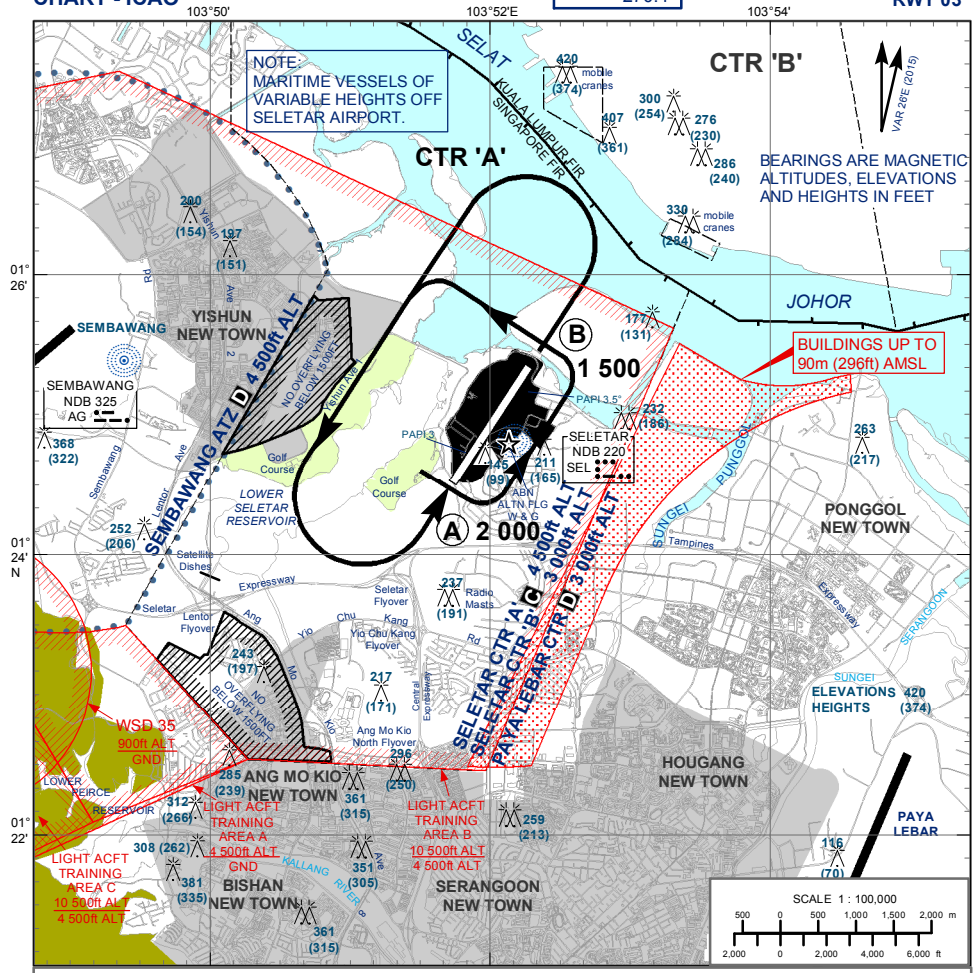
VISUAL APPROACH CHART - ICAO

AD ELEV 46 ft
HEIGHTS RELATED TO AD ELEV

APP	120.3
TWR	118.45
	270.4

SINGAPORE/SELETAR

RWY 03



JOINING PROCEDURE - RWY 03

1) Join overhead at 2 000ft ALT or as cleared by ATC and at a speed of not more than 170kt.

2) When over Position A, join the circuit crossing the upwind end of the runway (Position B) at 1 500ft ALT or above or at the altitude cleared by ATC.

3) Joining aircraft shall give way to circuit traffic already on downwind.

CAUTION

a) Pilots are required to keep clear of Sembawang ATZ.

b) Pilots should not fly to the east of the runway.
This is to keep clear of tall buildings up to 90m (296ft) AMSL to the east of Seletar CTR. (See area shaded in red).

Built-up residential areas - No overflying below 1 500ft (458m).
Aircraft types which are unable to safely manoeuvre clear of the restricted areas are not allowed to operate at Seletar Airport.

PAPI 3°		
Pilot's eye height over the threshold when the following PAPI lights come into view	RUNWAY	
	03	21
2 white lights and 2 red lights (MEHT)*	15.2m	15.3m
3 white lights and 1 red light	17.1m	16.6m
4 white lights	18.8m	18.0m

*MEHT : Minimum Eye Height Over the Threshold.

Note : Aircraft with eye-to-wheel height greater than 6.3 metres are advised to fly with 2 white and 2 red lights visible so as to achieve sufficient wheel clearance.

Note:

1) Pilots are to be advised of the steel structure 91m (300ft) AMSL 2nm north of the airfield.
2) Pilots are required to keep their turns within Seletar Control Zone.
3) Pilots are required to keep clear of Sembawang CTR and Paya Lebar CTR.

CHANGES : Airspace vertical limits of Seletar Control Zone 'A', Sembawang ATZ and Light Aircraft Training Areas revised. Prohibited Area WSP36 removed.

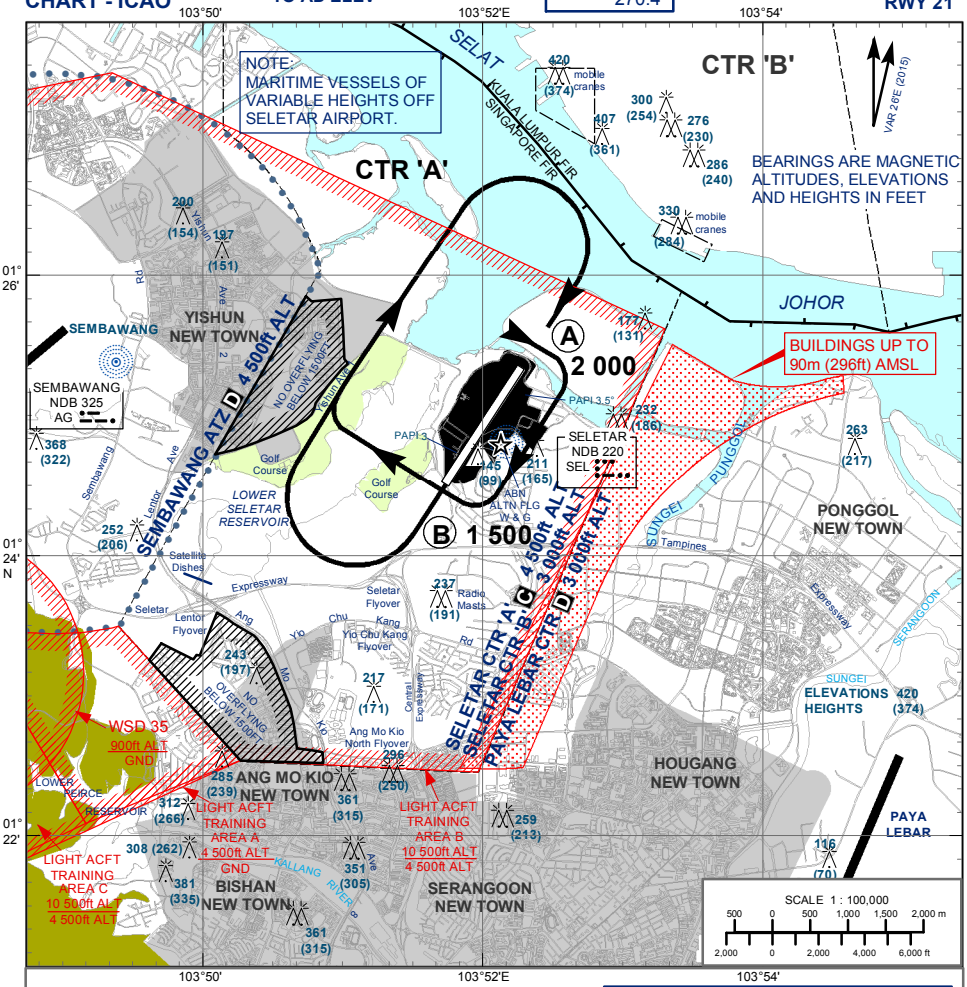
VISUAL APPROACH CHART - ICAO

AD ELEV 46 ft
HEIGHTS RELATED TO AD ELEV

APP	120.3
TWR	118.45
	270.4

SINGAPORE/SELETAR

RWY 21



JOINING PROCEDURE - RWY 21

1) Join overhead at 2 000ft ALT or as cleared by ATC and at a speed of not more than 170kt.

2) When over Position A, join the circuit crossing the upwind end of the runway (Position B) at 1 500ft ALT or above or at the altitude cleared by ATC.

3) Joining aircraft shall give way to circuit traffic already on downwind.

CAUTION

a) Pilots are required to keep clear of Sembawang ATZ.

b) Pilots should not fly to the east of the runway.
This is to keep clear of tall buildings up to 90m (296ft) AMSL to the east of Seletar CTR. (See area shaded in red).

Built-up residential areas - No overflying below 1 500ft (458m).
Aircraft types which are unable to safely manoeuvre clear of the restricted areas are not allowed to operate at Seletar Airport.

PAPI 3.5°		
Pilot's eye height over the threshold when the following PAPI lights come into view	RUNWAY	
	03	21
2 white lights and 2 red lights (MEHT)*	15.2m	15.3m
3 white lights and 1 red light	17.1m	16.6m
4 white lights	18.8m	18.0m

*MEHT : Minimum Eye Height Over the Threshold.

Note : Aircraft with eye-to-wheel height greater than 6.3 metres are advised to fly with 2 white and 2 red lights visible so as to achieve sufficient wheel clearance.

Note:

1) Pilots are to be advised of the steel structure 91m (300ft) AMSL 2nm north of the airfield.
2) Pilots are required to keep their turns within Seletar Control Zone.
3) Pilots are required to keep clear of Sembawang CTR and Paya Lebar CTR.

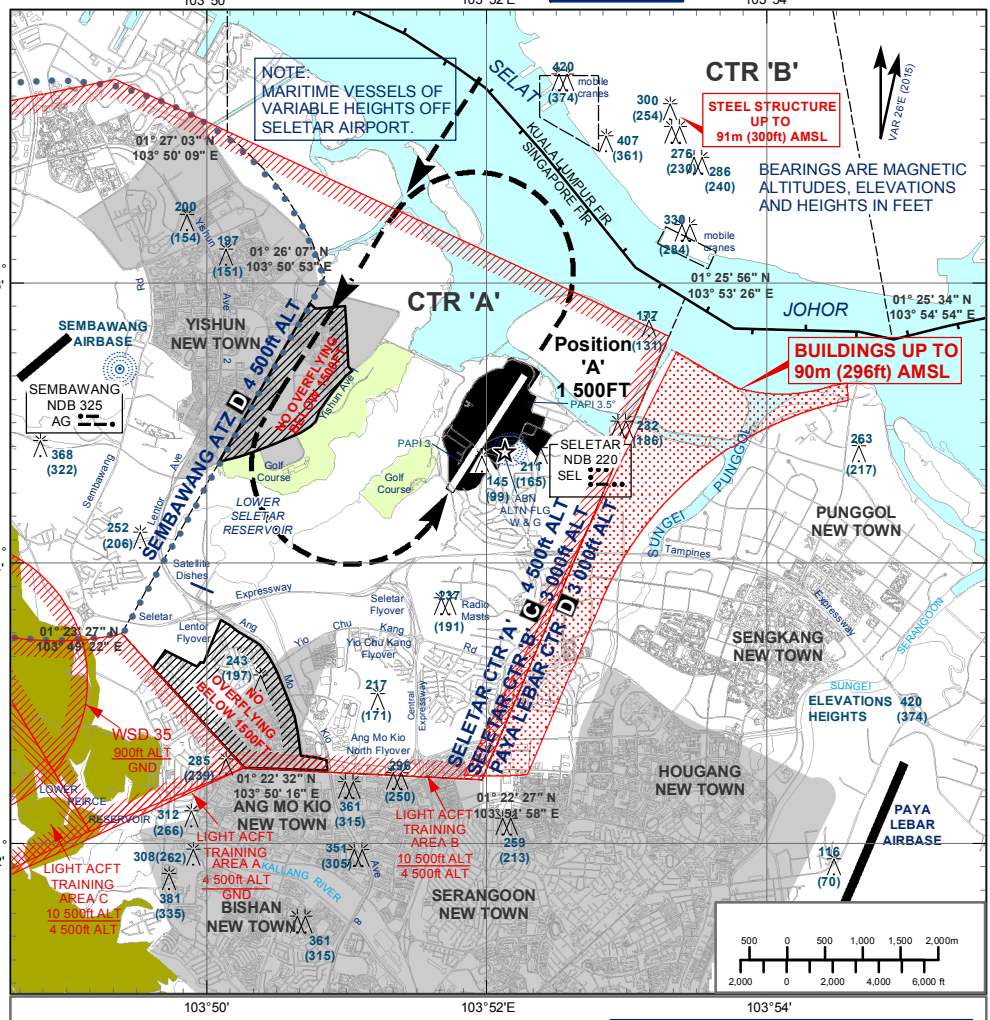
VISUAL APPROACH CHART - ICAO

AD ELEV 46 ft
HEIGHTS RELATED TO AD ELEV

APP 120.3
TWR 118.45
270.4

SINGAPORE/SELETAR

RWY 03



ADVISORY JOINING PROCEDURES FROM JB AND KK - RWY 03

Straight-in Approach

1) Join downwind at 2 000ft at a speed of not more than 170kt.
2) When downwind, descend from 2 000ft for a visual approach or as cleared by ATC. Pilots should have runway in sight.
3) Joining aircraft shall give way to circuit traffic already on downwind.

Circling Approach

1) Join downwind at 2 000ft at a speed of not more than 160kt.
2) When passing over position 'A', descend from 2 000ft to 1 500ft and turn left for downwind Runway 03. At downwind, descend for a visual approach or as cleared by ATC. Pilots should have runway in sight.
3) Joining aircraft shall give way to circuit traffic already on downwind.

PAPI 3°		
Pilot's eye height over the threshold when the following PAPI lights come into view	RUNWAY	
	03	21
2 white lights and 2 red lights (MEHT)*	15.2m	15.3m
3 white lights and 1 red light	17.1m	16.6m
4 white lights	18.8m	18.0m

*MEHT : Minimum Eye Height Over the Threshold.

Note : Aircraft with eye-to-wheel height greater than 6.3 metres are advised to fly with 2 white and 2 red lights visible so as to achieve sufficient wheel clearance.

CAUTION

a) Pilots are required to keep clear of Sembawang ATZ and Paya Lebar CTR. Turns should therefore be kept within Seletar CTR.

b) Pilots should not fly to the east of the runway. This is to keep clear of tall buildings up to 90m (296ft) AMSL there. Pilots should have all relevant obstructions in sight, including steel structure 91m (300ft) AMSL 2nm north of the airfield.

c) Built-up residential areas - No overflying below 1 500ft (458m).
Aircraft types which are unable to safely manoeuvre clear of the restricted areas are not allowed to operate at Seletar Airport.

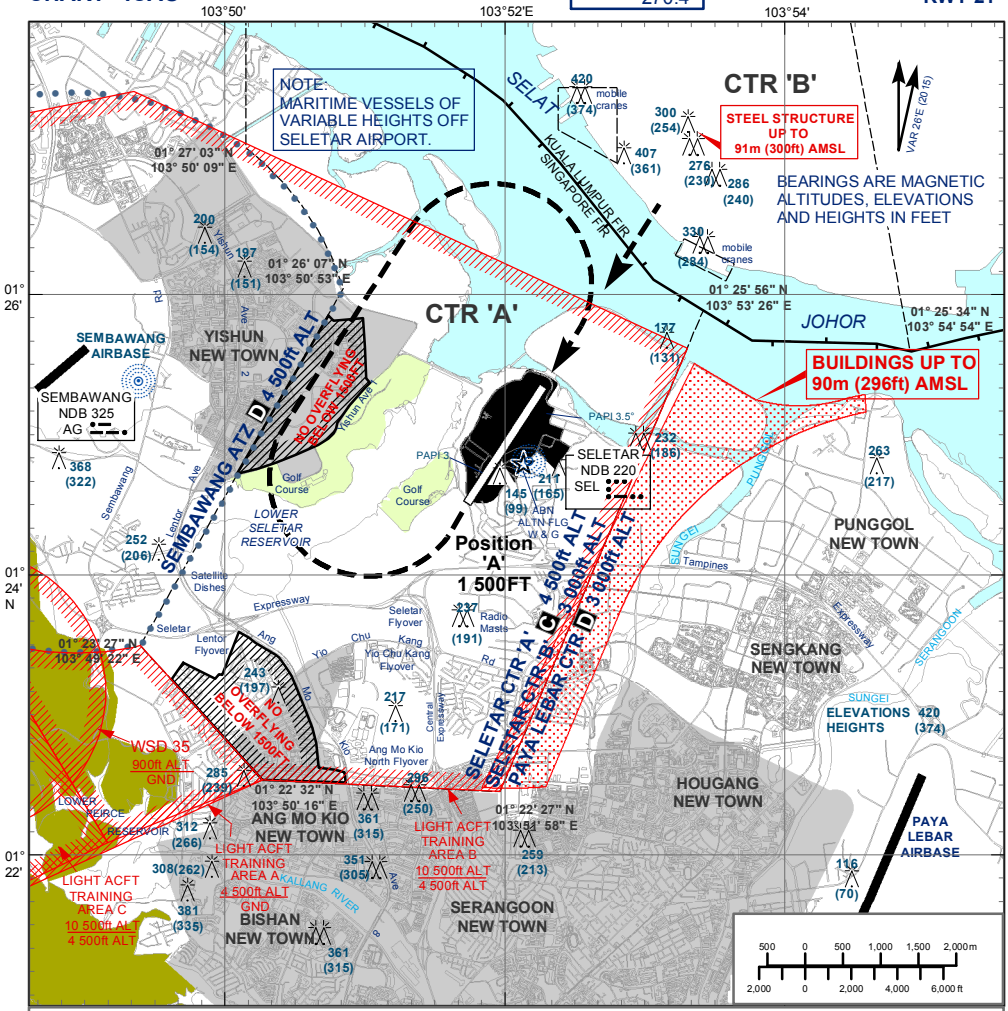
VISUAL APPROACH CHART - ICAO

AD ELEV 46 ft
HEIGHTS RELATED TO AD ELEV

APP	120.3
TWR	118.45 270.4

SINGAPORE/SELETAR

RWY 21



ADVISORY JOINING PROCEDURES FROM JB AND KK - RWY 21

Straight-in Approach

1) Join direct for a visual approach Runway 21, descending from 2 000ft at a speed of not more than 170kt, or as cleared by ATC. Pilots should have runway in sight.
2) Joining aircraft shall give way to circuit traffic already on downwind.

Circling Approach

1) Overfly the runway at 2 000ft at a speed of not more than 160kt.
2) When passing over position 'A', descend from 2 000ft to 1 500ft and turn right for down-wind Runway 21. At downwind, descend for a visual approach or as cleared by ATC. Pilots should have the runway in sight.
3) Joining aircraft shall give way to circuit traffic already on downwind.

PAPI 3.5°		
Pilot's eye height over the threshold when the following PAPI lights come into view	RUNWAY	
	03	21
2 white lights and 2 red lights (MEHT)*	15.2m	15.3m
3 white lights and 1 red light	17.1m	16.6m
4 white lights	18.8m	18.0m

*MEHT : Minimum Eye Height Over the Threshold.

Note : Aircraft with eye-to-wheel height greater than 6.3 metres are advised to fly with 2 white and 2 red lights visible so as to achieve sufficient wheel clearance.

CAUTION

a) Pilots are required to keep clear of Sembawang ATZ and Paya Lebar CTR. Turns should therefore be kept within Seletar CTR.

b) Pilots should not fly to the east of the runway. This is to keep clear of tall buildings up to 90m (296ft) AMSL there. Pilots should have all relevant obstructions in sight, including steel structure 91m (300ft) AMSL 2nm north of the airfield.

c) Built-up residential areas - No overflying below 1 500ft (458m).
Aircraft types which are unable to safely manoeuvre clear of the restricted areas are not allowed to operate at Seletar Airport.

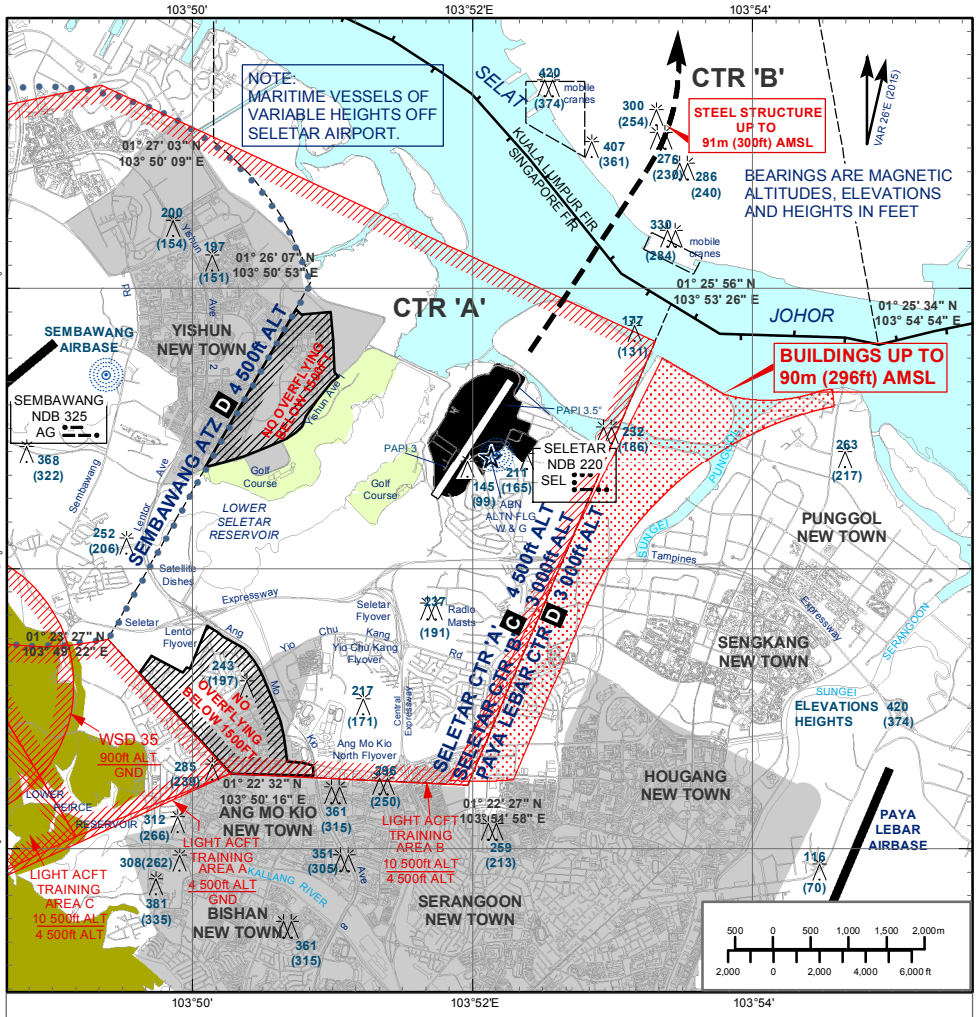
VISUAL DEPARTURE CHART

AD ELEV 46 ft
HEIGHTS RELATED TO AD ELEV

TWR 118.45
270.4

SINGAPORE/SELETAR

RWY 03



ADVISORY DEPARTURE PROCEDURE FOR RUNWAY 03

On departure, pilots of both fixed-wing and rotary-wing aircraft should climb ahead to an altitude cleared by ATC. Pilots can expect a radar heading to leave Seletar CTR. Where a radar heading is not given, pilots shall navigate to the next waypoint in accordance with their clearance.

CAUTION

a) Pilots are required to keep clear of Sembawang ATZ and Paya Lebar CTR. Turns should therefore be kept within Seletar CTR.

b) Pilots should not fly to the east of the runway. This is to keep clear of tall buildings up to 90m (296ft) AMSL there. Pilots should have all relevant obstructions in sight, including steel structure 91m (300ft) AMSL 2nm north of the airfield.

c) Built-up residential areas - No overflying below 1 500ft (458m)
Aircraft types which are unable to safely manoeuvre clear of the restricted areas are not allowed to operate at Seletar Airport.

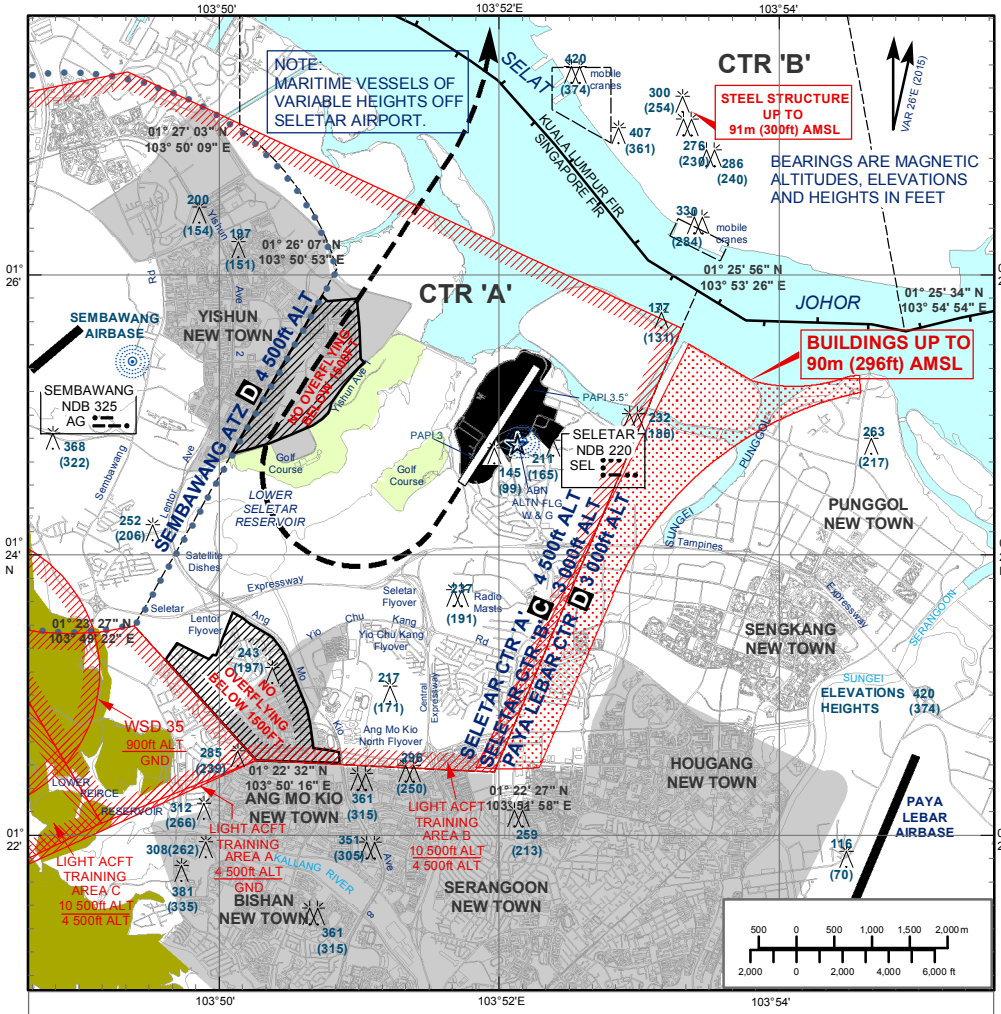
VISUAL DEPARTURE CHART

AD ELEV 46 ft
HEIGHTS RELATED TO AD ELEV

TWR 118.45
270.4

SINGAPORE/SELETAR

RWY 21



ADVISORY DEPARTURE PROCEDURES FOR RUNWAY 21

On departure, pilots can expect climb to an initial altitude cleared by ATC. Pilots of fixed-wing aircraft can expect to turn right to join the circuit pattern till end of downwind and then expect a radar heading to leave Seletar CTR. Where a radar heading is not given, pilots shall navigate to the next waypoint in accordance with their ATC clearance.

Pilots of rotary-wing aircraft can expect to turn left after departure to join the helicopter circuit pattern till end of downwind. Thereafter, they can expect further en-route clearance.

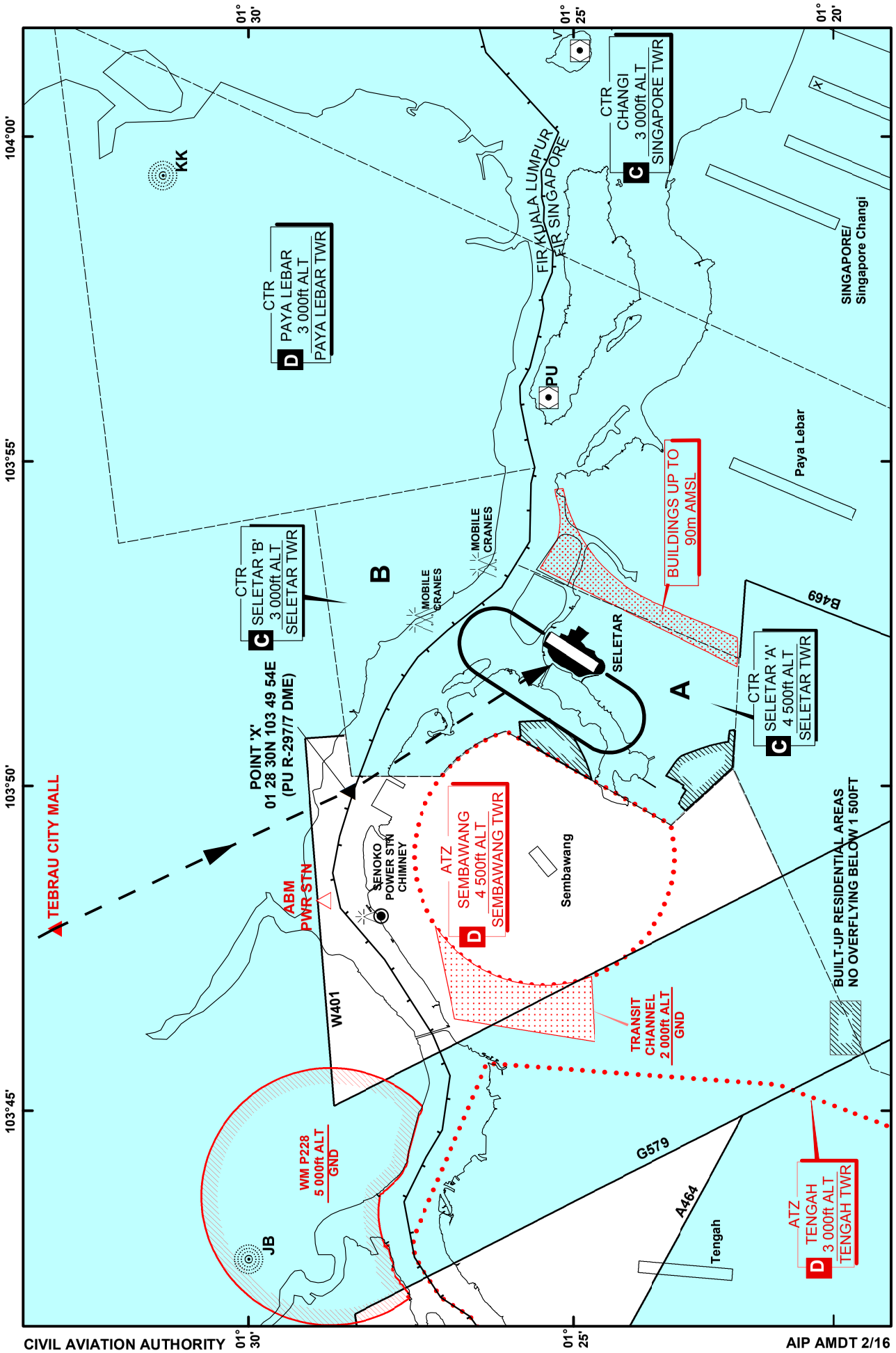
CAUTION

a) Pilots are required to keep clear of Sembawang ATZ and Paya Lebar CTR. Turns should therefore be kept within Seletar CTR.

b) Pilots should not fly to the east of the runway. This is to keep clear of tall buildings up to 90m (296ft) AMSL there. Pilots should have all relevant obstructions in sight, including steel structure 91m (300ft) AMSL 2nm north of the airfield.

c) Built-up residential areas - No overflying below 1 500ft (458m)
Aircraft types which are unable to safely manoeuvre clear of the restricted areas are not allowed to operate at Seletar Airport.

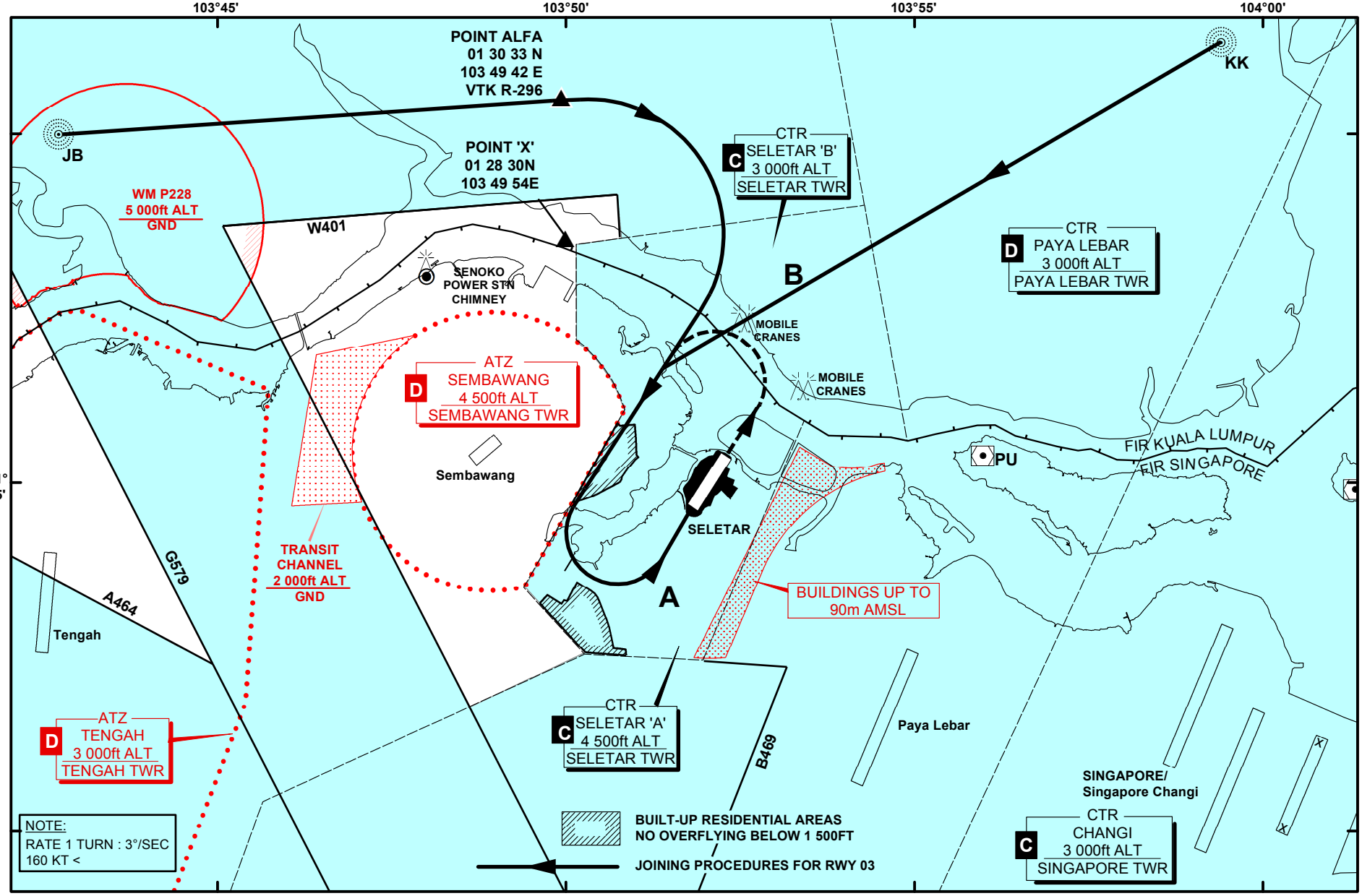
SELETAR AERODROME
JOINING PROCEDURE (VFR FLIGHTS) FROM JOHOR BAHRU



CIVIL AVIATION AUTHORITY
SINGAPORE

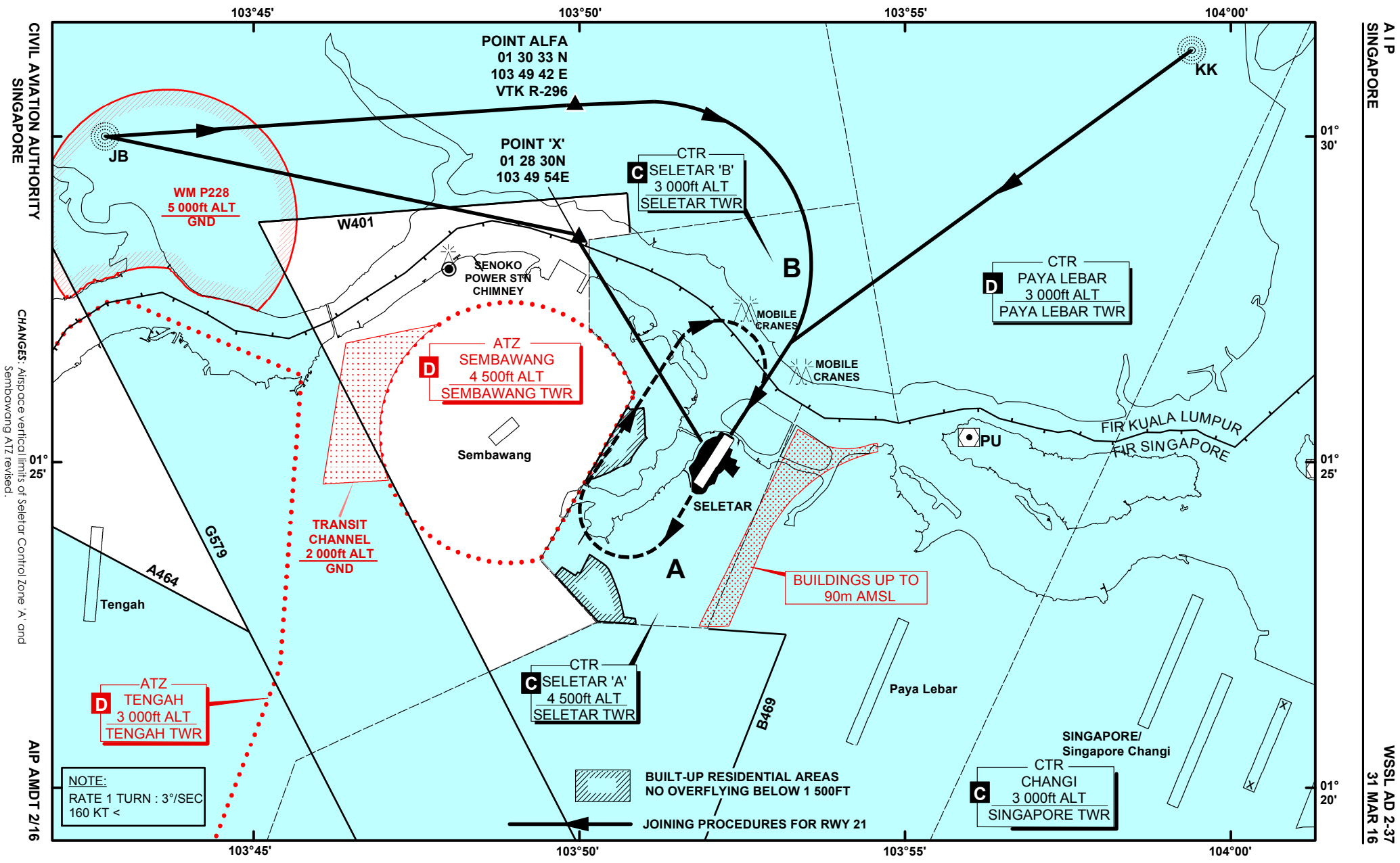
CHANGES: Airspace verical limits of Seletar Control Zone 'A' and Sembawang ATZ revised.

SELETAR AERODROME JOINING PROCEDURE (IFR FLIGHTS) FROM JB AND KK - RUNWAY 03



CHANGES: Airspace vertical limits of Seletar Control Zone 'A' and Sembawang ATZ revised.

SELETAR AERODROME JOINING PROCEDURE (IFR FLIGHTS) FROM JB AND KK - RUNWAY 21



CIVIL AVIATION AUTHORITY
SINGAPORE

CHANGES: Airspace vertical limits of Seletar Control Zone 'A' and Sembawang ATZ revised.

AIP AMDT 2/16

A I P
SINGAPORE

WSSL AD 2-37
31 MAR 16

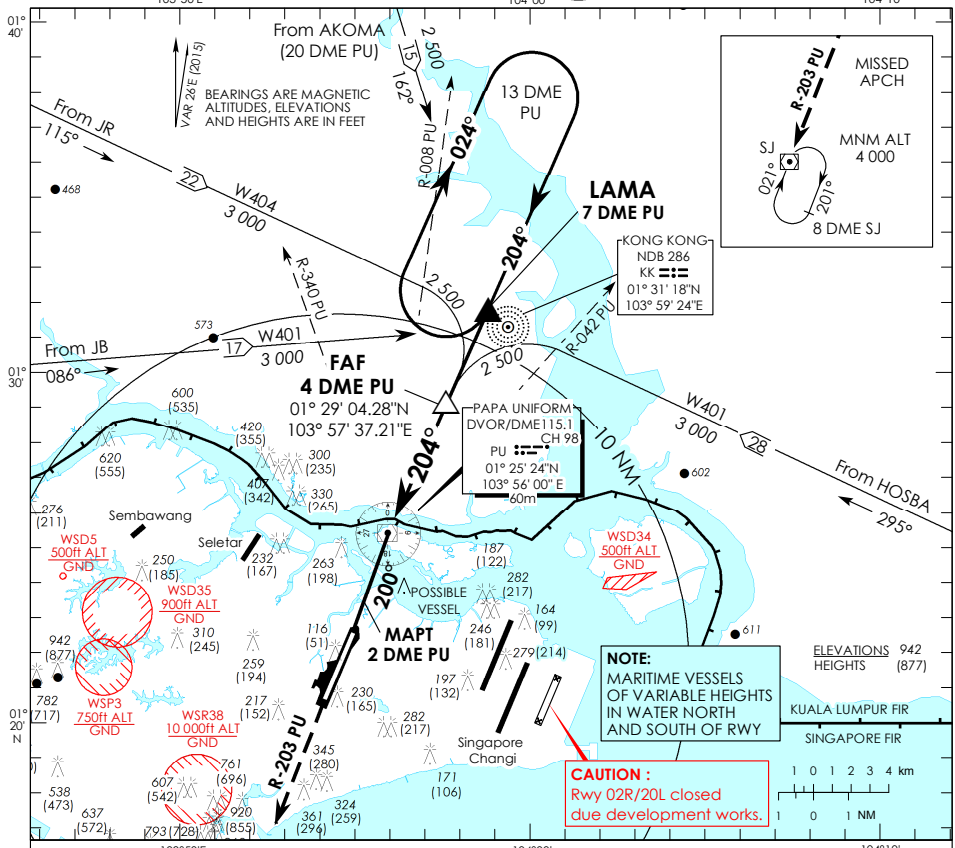
INSTRUMENT APPROACH CHART

AERODROME ELEV 65ft
HEIGHT RELATED TO AD ELEV - 65ft

MSA 25 NM from PAPA UNIFORM DVOR
3400' 2900' 2100' 090° 270° 80°

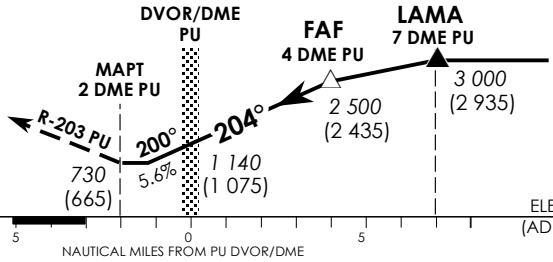
APP 120.3
119.9
TWR 118.05

SINGAPORE/ PAYA LEBAR
PU DVOR/DME RWY 20



Transition Level : FL 130
Transition Alt : 11 000

MISSED APPROACH
Climb to 4 000ft on R-203 PU to SJ DVOR/DME and hold South right turn 021° inbound or AS DIRECTED BY ATC



OCA (OCH)				
Category of Aircraft	A	B	C	D
Straight-in	**730 (665)**			

Distance	3 DME	2 DME	1 DME	PU DVOR/DME	1 DME
Altitude (Height)	**2160 (2095)**	**1820 (1755)**	**1480 (1415)**	**1140 (1075)**	**800 (735)**
Speed	knots	70	120	150	185
FAF - MAPT 6nm	min : s	**5 : 09**	**3 : 00**	**2 : 24**	**1 : 57**
Rate of descent/GS	ft/min	**370**	**635**	**795**	**980**

INSTRUMENT APPROACH CHART

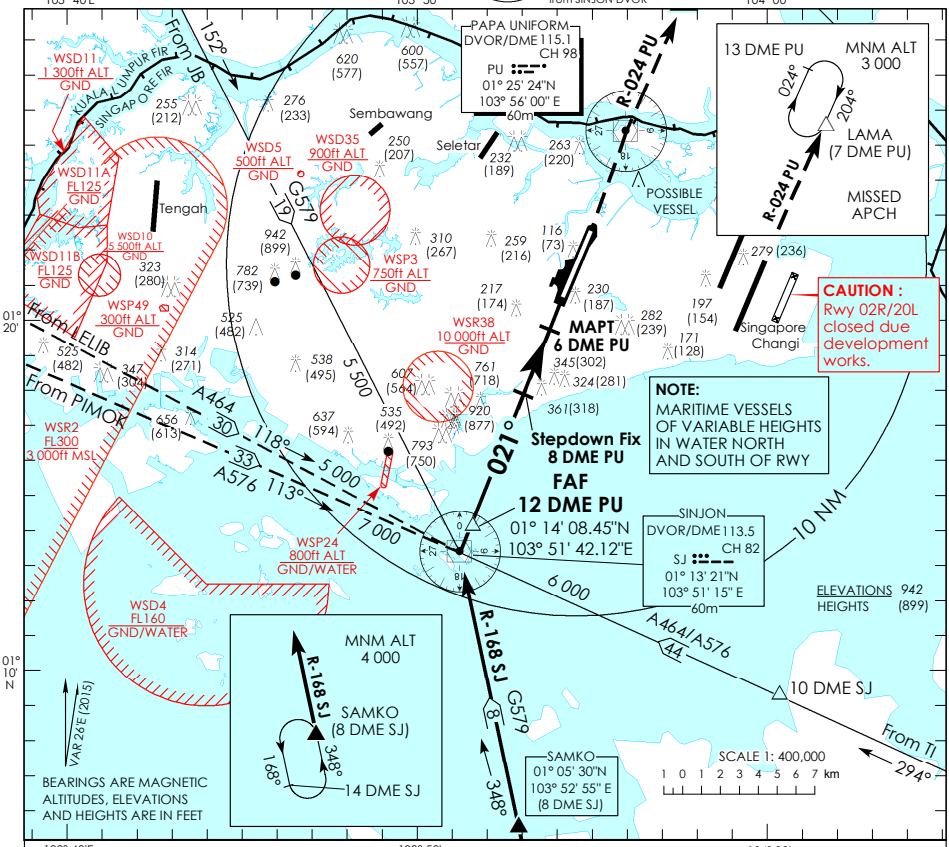
AERODROME ELEV 65ft
HEIGHT RELATED TO
THR RWY 02 - ELEV 43ft

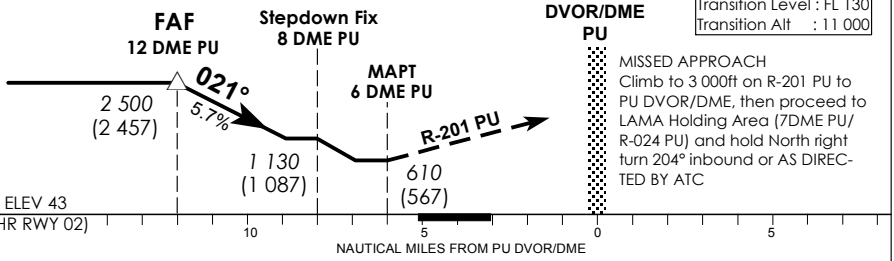
MSA 25 NM
from SINJON DVOR

APP	120.3
	119.9
TWR	118.05

SINGAPORE/
PAYA LEBAR

**PU DVOR/DME
RWY 02**





Transition Level : FL 130
Transition Alt : 11 000

MISSED APPROACH
Climb to 3 000ft on R-201 PU to PU DVOR/DME, then proceed to LAMA Holding Area (7DME PU/ R-024 PU) and hold North right turn 204° inbound or AS DIRECTED BY ATC

OCA (OCH)				
Category of Aircraft	A	B	C	D
Straight-in (with stepdown fix)	**610 (567)**			
Straight-in (without stepdown fix)	**1 130 (1 087)**			

Distance	11 DME	10 DME	9 DME	8 DME	7 DME
Altitude (Height)	**2170 (2127)**	**1820 (1777)**	**1470 (1427)**	**1130 (1087)**	**780 (737)**
Speed	knots	70	120	150	185
FAF - MAPT 6nm	min : s	**5 : 09**	**3 : 00**	**2 : 24**	**1 : 57**
Rate of descent/GS	ft/min	**370**	**635**	**795**	**980**

CHANGES : Rwy 02R/20L closed due development works.
Prohibited Area WSP36 removed.
Restricted Area WSR10 added.

INSTRUMENT APPROACH CHART

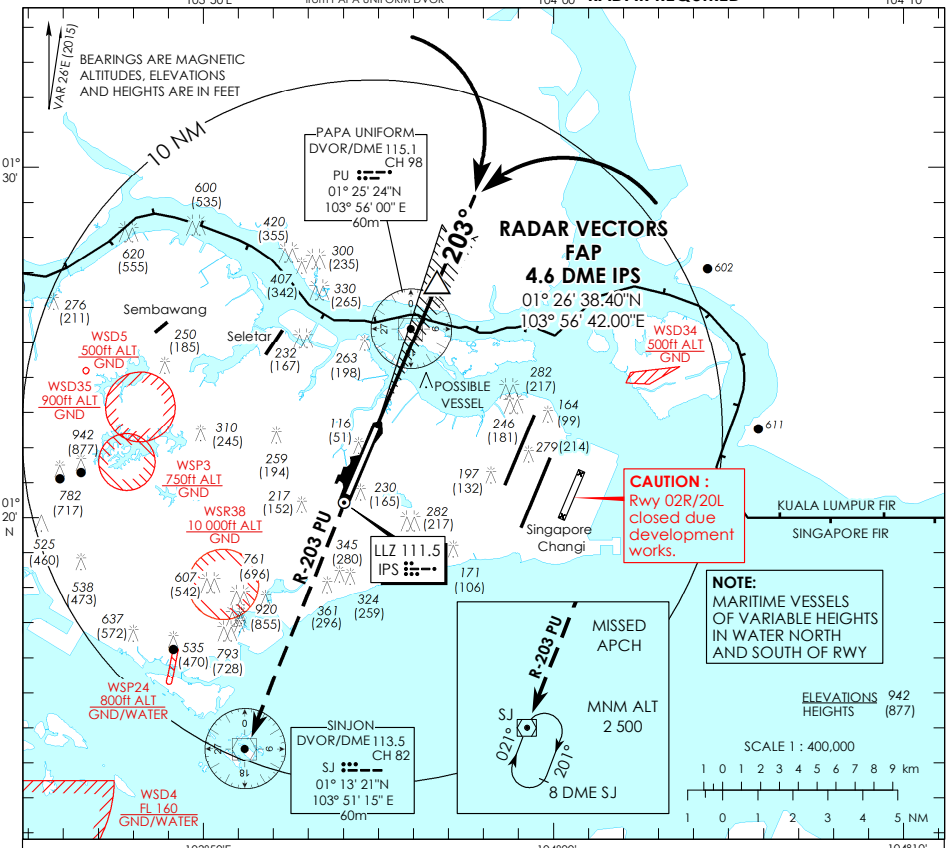
AERODROME ELEV 65ft
HEIGHT RELATED TO THR RWY 20 - 65ft

MSA 25 NM from PAPA UNIFORM DVOR
3400' 2900' 2100' 080° 090° 270°

ATIS Paya Lebar	148.9	
Singapore APP	120.3	
Paya Lebar APP	119.9	298.0
Paya Lebar TWR	118.05	263.1
GND CON	121.7	296.0

RADAR REQUIRED

SINGAPORE/ PAYA LEBAR
IPS ILS/DME RWY 20

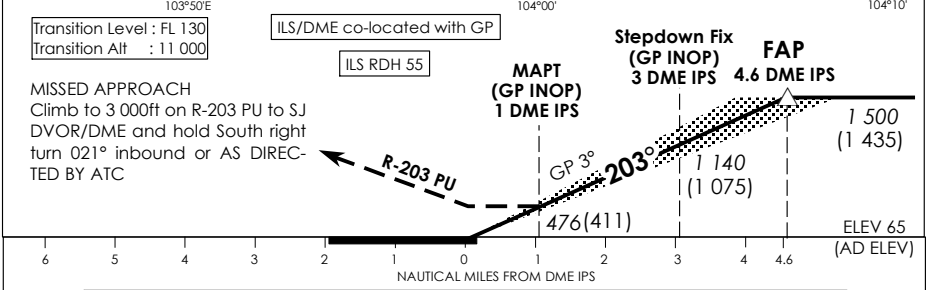


Transition Level : FL 130
Transition Alt : 11 000

ILS/DME co-located with GP

ILS RDH 55

MISSED APPROACH
Climb to 3 000ft on R-203 PU to SJ DVOR/DME and hold South right turn 021° inbound or AS DIRECTED BY ATC



OCA (OCH)					
Category of Aircraft		A	B	C	D
Straight-in	CAT I ILS	**194 (129)**	**204 (139)**	**214 (149)**	**224 (159)**
	GP INOP	**476 (411)**			

Distance		4 DME	3 DME	2 DME
Altitude (Height)		**1300 (1235)**	**1140 (1075)**	**820 (755)**
Speed	knots	70	120	150	185
FAF - MAPT 3.6nm	min : s	**3 : 06**	**1 : 48**	**1 : 27**	**1 : 11**
Rate of descent/GS	ft/min	**370**	**635**	**795**	**980**

CHANGES : Rwy 02R/20L closed due development works.
Prohibited Area WSP36 removed.

INSTRUMENT APPROACH CHART

AERODROME ELEV 65ft
HEIGHT RELATED TO
THR RWY 02 - ELEV 43ft

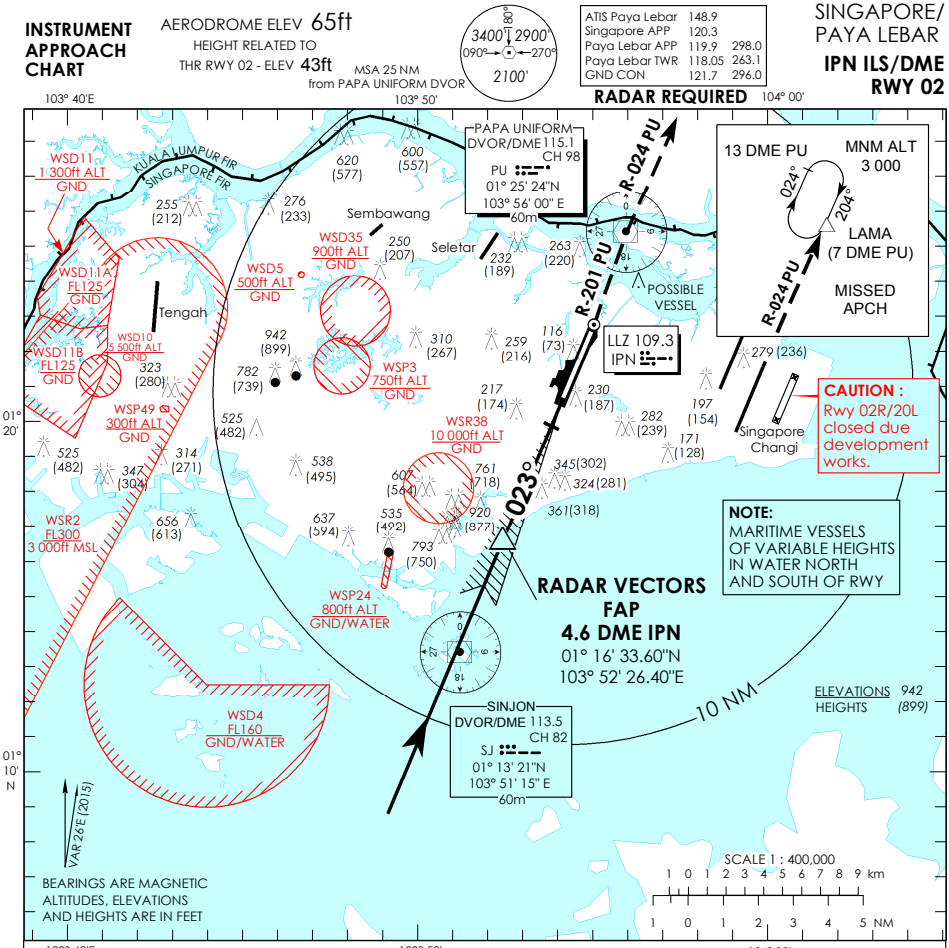
MSA 25 NM
from PAPA UNIFORM DVOR

ATIS Paya Lebar	148.9	
Singapore APP	120.3	
Paya Lebar APP	119.9	298.0
Paya Lebar TWR	118.05	263.1
GND CON	121.7	296.0

SINGAPORE/
PAYA LEBAR

IPN ILS/DME RWY 02

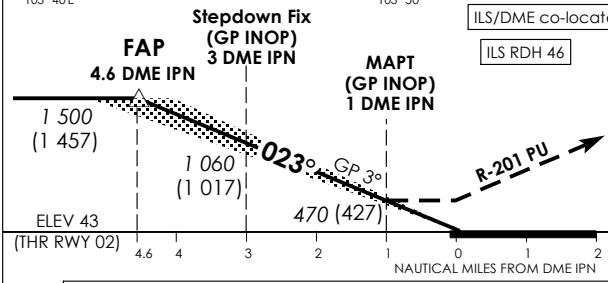
RADAR REQUIRED



ILS/DME co-located with GP

ILS RDH 46

Transition Level : FL 130
Transition Alt : 11 000



MISSED APPROACH
Climb to 3 000ft on R-201 PU to PU DVOR/DME, then proceed to LAMA Holding Area (7DME PU/ R-024 PU) and hold North right turn 204° inbound or AS DIRECTED BY ATC

OCA (OCH)					
Category of Aircraft		A	B	C	D
Straight-in	CAT I ILS	**178 (135)**	**188 (145)**	**198 (155)**	**208 (165)**
	GP INOP	**470 (427)**			

Distance	4 DME		3 DME		2 DME
Altitude (Height)	**1300 (1257)**		**1060 (1017)**		**740 (697)**
Speed	knots	70	120	150	185
FAF - MAPT 3.6nm	min : s	**3 : 06**	**1 : 48**	**1 : 27**	**1 : 11**
Rate of descent/GS	ft/min	**370**	**635**	**795**	**980**

CHANGES : Rwy 02R/20L closed due development works.
Prohibited Area WSP36 removed.

WSAT AD 2.8 APRONS, TAXIWAYS AND CHECK LOCATIONS/POSITIONS DATA		
1	*Apron surface and strength*	-
2	*Taxiway width, surface and strength*	Strength: LCN 80 (Taxiway E) Surface: Asphalt
3	*Remarks*	Nil

WSAT AD 2.10 AERODROME OBSTACLES	
In APCH / TKOF Areas	*In Circling Area and at Aerodrome*
RWY 18/36 APCH / TKOF Areas ILS LLZ co-located with LLZ antenna, HGT 21m AGL, 004 degrees MAG 260m from THR RWY 18 ILS LLZ co-located with LLZ antenna, HGT 15m AGL, 184 degrees MAG 290m from THR RWY 36	2 masts, HGT 6m, located on eastern shoulders of RWY 36, 233m from THR, 100m from RWY centreline and RWY 18, 273m from THR, 100m from RWY centreline. Masts LGTD at NGT. PAR hut co-located with GP antenna mast, HGT 16m AGL, 074 degrees MAG 100m from WSAT ARP. ILS GP huts co-located with GP antenna mast, HGT 19m AGL, at 029 degrees MAG 322m from THR RWY 36 and 123 degrees MAG 303m from THR RWY 18.

WSAT AD 2.12 RUNWAY PHYSICAL CHARACTERISTICS					
Designation RWY NR	*TRUE & MAG BRG*	*Dimensions of RWY (m)*	*Strength (PCN) and surface of RWY and SWY*	*THR coordinates*	*THR elevation and highest elevation of TDZ of precision APCH RWY*
1	2	3	4	5	6
18	184.5	2 743 x 46	PCN 110 F/A/W/T	-	50ft
36	004.5	2 743 x 46	PCN 110 F/A/W/T	-	50ft

12	*Remarks*	a) Intensive fixed wing flying operation east of runway. b) Helizone adjacent east of runway up to 800ft QNH. c) Arrestor Barrier both ends of runway. d) Hookwire cable installed 366m inwards from each end of runway. e) Intense bird activity after rain, and up to 2 hour after dusk and dawn.

WSAT AD 2.13 DECLARED DISTANCES					
RWY Designator	*TORA (m)*	*TODA (m)*	*ASDA (m)*	*LDA (m)*	*Remarks*
1	2	3	4	5	6
18 36	2 743 2 743	3 115 3 030	2 743 2 743	2 743 2 743	Nil Nil

WSAT AD 2.14 APPROACH AND RUNWAY LIGHTING									
RWY	*APCH LGT Type, LEN INTST*	*THR LGT colour WBAR*	*VASIS (MEHT) PAPI*	*TDZ LGT LEN*	*RCL LGT, LEN, spacing, colour, INTST*	*RWY edge LGT, LEN, spacing, colour, INTST*	*RWY End LGT, colour WBAR*	*SWY LGT, LEN colour*	*Remarks*
1	2	3	4	5	6	7	8	9	10
18	High intensity white centreline and two bars, superimposed omni-directional RED 'T' PAPI Sequenced flashing lights	Green	4 units PAPI on each side of RWY at 3° Glide Slope	NIL	NIL	High intensity omni-directional white variable intensity	Red	NIL	Distance to run markers illuminated
36	High intensity white centreline and five bars, superimposed omni-directional RED 'T' PAPI Sequenced flashing lights	Green	4 units PAPI on each side of RWY at 3° Glide Slope	NIL	NIL	High intensity omni-directional white variable intensity	Red	NIL	Distance to run markers illuminated

WSAT AD 2.15 OTHER LIGHTING, SECONDARY POWER SUPPLY	
TWY Lighting	Blue edge lights
IBN	012400N 1034254E, FLG R 'TN', operating hours HN and IMC.
Remarks	WDI lighted. Dispersal area floodlights

WSAT AD 2.17 ATS AIRSPACE		
1	*Designation and Lateral Limits*	**TENGAH ATZ** 010842N 1034336E thence clockwise around the arc of radius 14nm centred on 012242N 1034203E to 011351N 1033117E thence east along the Singapore / Kuala Lunmpur FIR boundary to 012728N 1034302E to 012620N 1034544E to 012150N 1034524E to 011845N 1034414E to 010842N 1034336E.
2	*Vertical Limits*	SFC to 3 000ft ALT
3	*Airspace Classification*	D
4	*ATS Unit Callsign Language(s)*	Tengah Approach English
5	*Transition Altitude*	11 000ft (3 350m)
6	*Remarks*	Controlling Authority: Tengah Approach During Aerodrome operating hours: Contact Tengah APP on 130.0MHz, 263.4MHz or 122.0MHz Outside Aerodrome operating hours: Contact SATCC (RSAF element) on 123.4MHz or 288.2MHz

AD 2 - AERODROMES

WSAG AD 2.1 AERODROME LOCATION INDICATOR AND NAME
WSAG - Sembawang Aerodrome

WSAG AD 2.2 AERODROME GEOGRAPHICAL AND ADMINISTRATIVE DATA		
1	*ARP coordinates and site at AD*	012536N 1034858E
2	*Elevation/Reference temperature*	25.82m (86ft) / 31.5°C
3	*MAG VAR*	26'E (2015)
4	*Ad Administration, address, telephone, telefax, telex, AFS*	RSAF Sembawang Airbase, Sembawang Road, Singapore TEL: (65)67508036 (Base Operations Centre) AFS: WSAGYWYX
5	*Types of traffic permitted*	VFR only
6	*Remarks*	Operator: Republic of Singapore Air Force. AD for helicopter use only.

WSAG AD 2.3 OPERATIONAL HOURS		
1	*Aerodrome Administration*	2300-1100 SUN/MON to THU/FRI, 2300-0500 FRI/SAT. Prior permission required on SUN and Public holidays.
2	*MET Briefing Office*	H24
3	*Air Traffic Services*	H24
4	*Remarks*	Nil

WSAG AD 2.6 RESCUE AND FIRE FIGHTING SERVICES		
1	*AD category for fire fighting*	CAT 4
2	*Rescue equipment*	Adequately provided as recommended by ICAO
3	*Capability for removal of disabled aircraft*	Sufficient salvage equipment provided by Airfield Ground Services section at Military Bases.
4	*Remarks*	All Airport Emergency Services personnel are trained in rescue and fire fighting as well as medical first-aid.

WSAG AD 2.8 APRON, TAXIWAYS AND CHECK LOCATIONS/POSITIONS DATA		
1	*Apron surface and strength*	Strength: PCN 26
2	*Taxiway width, surface and strength*	Strength: PCN 26
3	*Remarks*	Nil

WSAG AD 2.10 AERODROME OBSTACLES	
In Approach / TKOF Areas	*In Circling Area and at Aerodrome*
6 tower cranes, HGT 128m, located at 012800N 1035000E (Sembawang Shipyard). Marked/Lighted.	Nil

WSAG AD 2.12 RUNWAY PHYSICAL CHARACTERISTICS					
RWY Designator	*True and Magnetic Bearing*	*RWY Dimensions (m)*	*Strength and surface of RWY/ SWY*	*THR Coordinates*	*THR ELEV and highest ELEV of TDZ of Precision APCH RWY*
1	*2*	*3*	*4*	*5*	*6*
05	046°	914 x 30	LCN 26 Bitumen	Nil	86ft
23	226°	914 x 30	LCN 26 Bitumen	Nil	54ft

WSAG AD 2.13 DECLARED DISTANCES					
RWY Designator	*TORA (m)*	*TODA (m)*	*ASDA (m)*	*LDA (m)*	*Remarks*
1	*2*	*3*	*4*	*5*	*6*
05	914	975	975	914	Nil
23	914	975	975	914	Nil

WSAG AD 2.15 OTHER LIGHTING, SECONDARY POWER SUPPLY		
1	*IBN*	012500N 1034854E, FLG R 'AG', EV 20 SEC, OPR HR: HN and IMC
2	*WDI/Taxiway/Stopway*	Lighted

WSAG AD 2.17 ATS AIRSPACE		
1	*Designation and Lateral Limits*	**SEMBAWANG ATZ** An arc of 2NM radius centred on Sembawang Aerodrome (012527N 1034856E) commencing from 168° radial clockwise to 072° radial and thence a straight line joining these two points.
2	*Vertical Limits*	SFC to 4 500ft ALT Maximum Useable ALT 4 000ft
3	*Airspace Classification*	NIL
4	*ATS unit Callsign Language(s)*	Sembawang Tower English
5	*Transition Altitude*	11 000ft (3 350m)
6	*Remarks*	Controlling Authority: RSAF, Sembawang Air Base. Prior permission required for non-scheduled aircraft. Traffic Circuit: RWY 05 - left hand circuit Traffic Circuit: RWY 23 - right hand circuit Transit Channel: refer to chart ENR 3.5-3.