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NO. 10 MUSASHINO A/C ENGINE FACTORY . 3 DEC 44

2-5239-93

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CONSOLIDATED MISSION REPORT

FIELD ORDER NUMBER 21)
MISSION NUMBER 10
DATE OF MISSION
3 DECEMBER 1944

HEADQUARTERS
73RD BOMBARDMENT WING
APO #237, % POSTMASTER
SAN FRANCISCO, CALIFORNIA

2-5239-93

M10

Headquarters
73rd Bombardment Wing

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Field Order No. 21
Mission No. 9
3 December 1944

CONSOLIDATED MISSION REPORT

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S E C R E T

Headquarters
73rd Bombardment Wing
APO #237, % Postmaster
San Francisco, California

Field Order No. 21
Mission No. 10
Date of Mission
3 December 1944

CONSOLIDATED MISSION REPORT

TACTICAL NARRATIVE

1. The Target.

Field Order Number 21 of the 73rd Bombardment Wing directed that four Combat Groups form a Task Force to bomb as its primary target the Musashino A/C Engine Factory (Target No. 90.17-357), west of Tokyo, or, as its secondary and last resort target, the dock and industrial area of Tokyo proper.

2. Take-off

Eighty-six A/C were airborne. The first A/C took off at 022215Z, the last at 022343Z.

3. Bomb Loading

Each airborne A/C carried 7 x 500-lb GP bombs and 3 x 500-lb IB; a total of 602 GP bombs (150.5 tons) and 258 IB (64.5 tons). GP's were fused with .1 nose and .01 tail and IB'S with instantaneuous nose and non-delay tail.

4. Route Out

The Task Force followed Route "A" to the target, the westerly approach directed by Field Order 21. The first Group arrived without incident at the Initial Point (Mt. Fuji) at 030511Z, the last Group at 030623Z. One Group flew to the east of the IP because of westerly winds of 160 knots velocity.

5. Bombing Data

Seventy-six of our A/C arrived over Tokyo, fifty-nine of them bombing the Musashino A/C Engine Factory and eight of them the dock and industrial area of the city of Tokyo. Three of the A/C over the primary target were unable to drop bombs because of bomb release failures. Seven A/C bombed the following undesignated targets:

Oniya (35°13'N, 138°37'E)	(1 A/C)
Tsuchuria (36°02'N, 140°10'E)	(2 A/C)
Nii Jima (34°22'N, 139°17'E)	(1 A/C)
Hachijo Jima (33°08'N, 139°47'E)	(1 A/C)
Pagan Island	(2 A/C)

The first bombs were dropped on the primary target at 030503Z, the last at 030630Z, all by visual sighting and from altitudes which varied from 24,500 feet to 32,800 feet. The primary target received a total of 397 GP bombs (99.25 tons) and 169 IB (42.25 tons), secondary and last resort target (the docks and industrial area of Tokyo) a total of 56 GP bombs (14 tons) and 24 IB (6 tons). Eighty-four GP bombs (21 tons) and 37 IB (9.25 tons) were jettisoned. Ten GP bombs (2.5 tons) and five IB (1.25 tons) were returned.

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S E C R E T

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6. Enemy Opposition

An estimated 125 airborne E/A made 523 attacks, of which 191 were level (10:30 to 1:30 o'clock predominating), 104 from above (9 to 3 o'clock predominating), and 228 from below (8:30 to 2:30 o'clock predominating). There were 164 attacks made by ZEKES, the largest number of attacks reported for a specific A/C type. TOJOs are reported to have made 86 attacks, TONYs 65 attacks, IRVINGS 43 attacks, with the balance of the attacks being made by JACKS, NICKS, OSCARS, RUFES, FRANCESs, and unidentified S/E and T/E A/C.

Ten attacks are reported by an unidentified, highly-maneuverable T/E A/C, described by crews as "very sleek", and bearing some resemblance to the MOSQUITO. It was stated that this A/C was the only one which successfully maneuvered into position for a second attack immediately upon having completed one pass.

7. Enemy Tactics

The large majority of attacks came immediately after bombs were dropped, and continued in diminishing rate until approximately 50 miles beyond the coast of Japan. Attacks apparently were not standardized, an observation which supports the opinion of crews that all ranges of training and experience were represented in the ranks of the attacking pilots.

There is little evidence of coordinated attacks, and, with few exceptions, all attacks are believed to be the result of not more than one effort by each E/A against each B-29 formation.

8. Antiaircraft Fire

Heavy, moderate to intense, and inaccurate to accurate flak was met over the primary target, the greatest part of which was equally divided between barrage and continuously-pointed fire. Bursts were generally black, although a few white ones were seen. Antiaircraft phosphorus bombs at 28,000 feet were reported by several crews as their A/C left the Tokyo area.

Antiaircraft fire over the dock and industrial section of Tokyo was reported to be heavy, meager to moderate, and generally inaccurate barrage type. One crew reported a box of 50 bursts about five miles to its right.

9. Route Back

After crossing the coast of Japan on the way out from the target all A/C proceeded singly to base.

10. Damage Assessment

Analysis of strike photographs taken over the primary target area shows 235 bursts, 12 of which are visible on the target itself. Of these 12 bursts, six can be seen on the buildings of the Musashino A/C Engine Factory, one can be seen on the NE corner of the new rectangular building in the old plant area, one appears on the SW corner of the cylinder works, and one on the new assembly buildings.

One percent of the total bombs dropped over the primary target hit within 1000 feet of the Aiming Point. There are no photographs showing bomb strikes on secondary, last resort, and undesignated targets.

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S E C R E T

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11. Own Losses

One A/C was lost by enemy action over the primary target. One A/C is known to have been ditched on return flight, and three are missing, cause unknown. Total, five.

Six A/C received flak damage.

Personnel losses: 46 men missing.

12. Claims

Ten A/C are claimed as destroyed, 11 probably destroyed, and 18 damaged.

13. Weather

Winds of excessively high velocities were met enroute to and over the target, where the wind was reported to be 170 knots from 270° at altitudes above 30,000 feet.

The zone between 24°N and 35°N (the area between two frontal systems) was completely covered with a layer of altostratus and altocumulus clouds with tops approaching 20,000 feet. Over the target, weather was clear, with 2/10ths altostratus clouds rising to 20,000 feet. Visibility ranged up to 20 miles.

14. Observations of Importance

Harbor and Bay of Tokyo inactive.

Sixty ships of varying types were seen at anchor at Yokosuka (35°08'N-139°30'E), observing A/C heading NW, IAS 195, altitude 30,000 feet.

Huge stores of supplies and general shipping in Shimizu Harbor; observing A/C heading 185°; speed (IAS) 190; altitude 30,000 feet. No flak observed.

15. Landing Data

A/C returned individually to base at Saipan. The first A/C landed at 031100Z, and the last at 031450Z.

Kenneth P. Bergquist
KENNETH P. BERGQUIST
Colonel, Air Corps
DC/S, Opns and Trng

S E C R E T

Headquarters
73rd Bombardment Wing

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Field Order No. 21
Mission No. 10
3 December 1944

CONSOLIDATED MISSION REPORT

FORMATIONS

498TH BOMB GROUP

	CUT	CUT	I P
Air Sq #8	TT25 TT27 TT22 TT23 TT1 TT1 TT9 TT7 TT29 TT29 TT2 TT28	#8 TT25 TT27 TT22 TT23 TT1 TT1 TT9 TT9 TT29 TT29 TT2 TT28	*Sq 8 TT25 030616Z TT27 TT22 TT23 TT1 TT9 TT2 TT30 TT29 TT28 TT41 TT48 TT10 TT3 TT43 TT46 TT45 TT29 TT42
Air Sq #9	TT41 TT41 TT48 TT43 TT46 TT46 TT5 TT45 TT3 TT10 TT50 TT4 TT42	#9 TT41 TT41 TT48 TT43 TT46 TT46 TT5 TT45 TT3 TT10 TT50 TT4 TT42	#9 * This formation made IP 75 mi W of Fujiyama
1st A/C off: 022320			
OVER TARGET NO. 1		OVER TARGET NO. 2	
#9	TT43 TT43 TT46 TT45 TT29 TT42	TT50 Bomed NII JIMA	A/C returned individually 1st A/C landed: 031246Z
#8	TT25 TT25 TT27 TT22 TT23 TT1 TT1 TT9 TT9 TT30 TT29 TT2 TT28	TT50 Bomed NII JIMA	Interval - route Spacing - SOP
Heading: IP, 70° Targ, 70°		Time: IP - 030616Z Targ - 030623Z Beck - 031246Z (1st)	
Altitudes: 28,300' to 31,000'		SECRET	

COMMENTS: (Report position of your group to wing (a) according to F.O.;
(b) deviations if any and reasons)

LEGEND:

△ Aborts
 ▽ Feathered an engine and turned prior to IP. Bomed
 Nii Jima.

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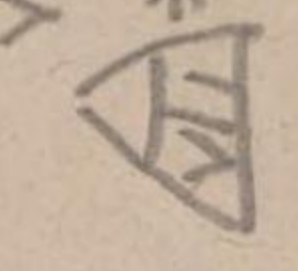
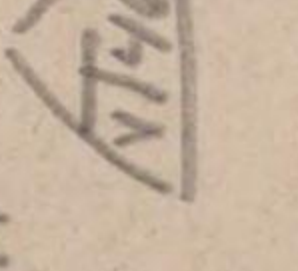
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73rd Bombardment Wing

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CONSOLIDATED MISSION REPORT

FORMATIONS

499TH BOMB GROUP

CUT	CUT	I P
Air Sq #1 VT5 VT4 VT9 VT3 VT8 VT6 VT1 Air Sq #2 VT29 VT27 VT41 VT42 VT50 VT46 VT44 VT47	#1 VT5 VT4 VT9 VT3 VT10 VT8 VT6  * #2 VT29 VT27 VT41 VT42 VT50  * VT44 VT47	#1 VT5- 030648Z. VT4 VT9 VT3 VT10 VT8 VT6 #2 VT29 VT27 VT41 VT50 VT42 VT49 VT47
1st A/C off: 022215Z	* Jettisoned bombs on Pagan Island	
OVER TARGET NO. 1	OVER TARGET NO. 2	RETURN
#1 VT5- VT4 VT9 VT3 VT8 VT6 #2 VT29 VT27 VT41 VT42 VT50 VT44 VT47	None	Aircraft returned individually 1st A/C landed 031120Z
Heading over IP and Target: 630 Altitudes: 28,300' 32,800'	Time over IP: 030504Z Time over target: 030511Z SECRET	Interval - Route Spacing - SOP

COMMENTS: (Report position of your group to wing (a) according to F.O.;
(b) deviations if any and reasons)

LEGEND:  Aborts 6

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Headquarters
73rd Bombardment Wing

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CONSOLIDATED MISSION REPORT

FORMATIONS

500TH BOMB GROUP

Air Sq #	OUT	#3	OUT	#4 *	I P
Air Sq #3	OUT zT42 zT48 zT46 zT47 zT30 zT45 zT36 zT49 zT50 zT22 zT41	#3 zT42 zT48 zT46 zT50 zT30 zT47 zT24 zT49 zT50 zT27 zT41	OUT zT42 zT48 zT46 zT47 zT30 zT45 zT50 zT24 zT49 zT41 zT22 zT41	#4 * zT42 zT48 zT46 zT50 zT30 zT47 zT24 zT49 zT50 zT27 zT41	030500Z zT11 zT10 zT25 zT10 zT5 zT9 zT24 zT9 zT27 zT28 zT7
Air Sq #4	OUT zT1 zT10 zT5 zT10 zT25 zT9 zT27 zT24 zT28 zT7 zT24 zT28 zT7	#4 zT1 zT10 zT5 zT10 zT25 zT9 zT27 zT24 zT28 zT7 zT24 zT28 zT7	OUT zT1 zT10 zT5 zT10 zT25 zT9 zT27 zT24 zT28 zT7 zT24 zT28 zT7	#3 zT42 zT48 zT46 zT50 zT30 zT47 zT24 zT49 zT50 zT27 zT41	0305122 zT42 zT48 zT46 zT47 zT30 zT45 zT50 zT24 zT41
1st A/C off: 022233Z					
OVER TARGET NO. 1					
OVER TARGET NO. 2					
RETURN					
* Sq #4 passed Sq #3 on way to IP					
* These planes were over PT but failed to get bombs away. Released bombs over secondary target.					
* Failed to release bombs. Bombed secondary target.					
Interval - Route Spacing - SOP					

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COMMENTS: (Report position of your group to wing (a) according to F.O.;
(b) ~~debarriers~~ debarriers if any and reasons) **Lost over target**
Could not bomb. Jettisoned.

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73rd Bombardment Wing

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CONSOLIDATED MISSION REPORT

BASIC DATA

1. TIME OF TAKE OFF:

Gp No	Place	First A/C	Last A/C	Elapsed Time	No A/C taking off	Ave. Take-Off Interval
499	Saipan	022215Z	022232Z	17 min.	16	63 sec.
500	Saipan	022233Z	022254Z	21 min.	22	57 sec.
497	Saipan	022256Z	022319Z	23 min.	24	58 sec.
498	Saipan	022320Z	022343Z	23 min.	24	58 sec.
Total	Saipan	022215Z	022343Z	86 min.	86	60 sec.

2. TIME OF LANDING:

Gp No	Place	First A/C	Last A/C	No of A/C
499	Saipan	031120Z	031303Z	14
500	Saipan	031104Z	031257Z	19
497	Saipan	031212Z	031409Z	20
498	Saipan	031246Z	031450Z	18
Total	Saipan	031104Z	031450Z	71

3. SQUADRON ASSEMBLY:

Sq No	Place	Altitude	Time of Assembly
Combat Sq #1	16°27'N, 144°30'E	1,000'	022257Z
Combat Sq #2	Same	Same	022320Z
Combat Sq #3	15°10'N, 145°30'E	Same	022247Z
Combat Sq #4	15°43'N, 145°17'E	Same	022315Z
Combat Sq #5	16°27'N, 144°34'E	Same	022325Z
Combat Sq #6	16°27'N, 144°35'E	Same	022355Z
Combat Sq #7	17°10'N, 144°00'E	Same	022400Z
Combat Sq #8	16°30'N, 144°35'E	480'	030010Z
Combat Sq #9	Same	Same	030010Z

4. GROUP ASSEMBLY:

None ordered.

5. WING ASSEMBLY:

None Ordered.

6. AIRCRAFT RETURNING EARLY:

A/C No	Sq No	Place	Time	Reason
W6(477)*	879	Saipan	030313Z	#3 propeller governor out
V1(4765)*	877	Saipan	030707Z	Fuel transfer system out
Z4(482)	881	Saipan	02400Z	#3 engine cut out at 1800 rpm
Z6(484)	881	Saipan	031104Z	Burned off exhaust stack
A10(4597)	869	Saipan	030215Z	#2 engine failure. Swallowed valve.
A45(3413)	871	Saipan	030225Z	Severe oil leak. Right magneto out.
A47(3426)	871	Tirdan	02221Z	Landing gear would not retract

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Basic Data, Par. 6, cont'd

T7 (3468)	873	Saipan	030650Z	Runaway Prop. Uncontrollable minimum -- rpm 2500.
T4 (4611)	873	Saipan	030318Z	#4 engine smoking and losing oil.
T5 (4614)	873	Saipan	030534Z	#1 engine feathered -- bad oil leak.

Total A/C returning early -- 10
*Jettisoned bombs on Pagan Island (15°35'N, 145°10'E) at 030227Z and 030606Z.

7. ROUTE OUT:

Route as Ordered	Time as Flown		Alt as Flown		Corr Temp
	1st Gp	Last Gp	Low Gp	High Gp	
Isley A/F #1, Saipan Assembly (16°27'N, 144°30'E)	022215Z	022343Z	---	---	---
24°00'N, 139°00'E	030504Z	030300Z	*See Note #1	1,200'	195 to 25 to 215 28
IP (35°23'N, 138°42'E)	030504Z	030616Z	29,000'	31,000'	195 to * 200
Target (35°43'N, 139°35'E)	030511Z	030623Z	29,000'	31,000'	195 to -26 to 200 -38
					205 -38

a. Deviations:

(1) 499th reported altitude of 15,000' with corr temp of -4°. 497th 498th and 500th reported altitudes from 800' to 1,100' with corr temp from 24 to 26°

(2) A/C scheduled but not airborne -- 6

(3) A/C returning early: 10 (See Section 6).

(4) A/C missing IP: See "Deviations" Section 9.

(5) A/C bombing secondary target: 8 (See Section 10).

(6) A/C bombing targets of opportunity: 7 (See Section 10).

(7) A/C A41(3425) dropped out of lead formation and joined third squadron for run over target.

(8) A/C A3(4591), leader second element of 869th Squadron, lost engine at IP and could not keep up with leader of first element. Of the five A/C comprising the two elements, 3 formed on A/C A3 leaving the formation leader alone 1000' above and ahead of the formation.

8. ROUTE BACK:

All A/C followed route back as outlined in Route "A" back, flight plan, Field Order 21, arriving at Isley A/F #1, Saipan, from 031104Z to 031450Z.

9. INITIAL POINT:

IP as ordered	Time as Flown		Altitude as Flown	
	First Gp	Last Gp	Lowest Gp	Highest Gp
Mt. Ruj1 (35°23'N, 138°42'E)	030504Z	030616Z	29,000'	31,000'

Comment: Excellent IP -- easily recognized.

Deviations: All A/C of 500th Bomb Group made landfall to the east of the IP because of winds blowing at the rate of 160 knots from 260°

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9.

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Basic Data, cont'd

10. TARGETS ATTACK DATA:

a. No. A/C attacking target:

Gp No.	No Attacking Primary	No Attacking Secondary	No Attacking Last Resort	No Attacking Target of Opp.
499	14	0	0	2*
500	14**	4	0	0
497	11	4	0	4***
498	20	0	0	1****
Total	59	8	0	7

***A/C A4(4596) left formation because of engine trouble and bombed Omiya (35°13'N, 138°37'E) at 030546Z, 33,100'.

A/C A23(4619) left formation because of engine trouble and bombed Hachiyo Jima (radar run) 33°08'N, 139°47'E, at 030615Z, 23,600'.

A/C A49(3414) and A/C A50(3418) because of excessive high winds bombed Tsuchuria (36°02'N, 140°10'E), A/C 49 at 030629Z, 26,800', A/C 50 at 030628Z, 31,200'.

***A/C T50(4607) bombed Ni Jima (34°22'N, 139°17'E) at 030605Z, 27,350'. A/C left formation just prior to IP because #9 intake pipe was blown off.

*Two aborting A/C dropped bombs on Pagan Island (See Section 6).

**Excludes 1 A/C lost over target.

b. Times over Primary and Secondary Targets

Time	499	500	497	498
030500 - 030510Z	7	-	-	-
030511 - 030520Z	7	8 (3 Sec)	-	-
030521 - 030530Z	-	10 (1 Sec)	-	-
030531 - 030540Z	-	-	-	-
030541 - 030550Z	-	-	-	-
030551 - 030600Z	-	-	4 (Sec)	-
030601 - 030610Z	-	-	11	-
030611 - 030620Z	-	-	-	3
030621 - 030630Z	-	-	-	14
Total	14	18** (4 Sec)	14 (4 Sec)	17*

* 3 A/C failed to return to base. Time over target unknown.

**Excludes 1 A/C lost over target.

c. Altitudes over target:

Altitudes	Totals	499	500	497	498
28,000' to 28,499'	6	1	4 (1 Sec)	0	1
28,500' to 28,999'	4	0	1	0	3
29,000' to 29,499'	8	4	3	0	1
29,500' to 29,999'	12	1	4 (2 Sec)	2	5
30,000' to 30,499'	6	0	2 (1 Sec)	0	4
30,500' to 30,999'	9	1	2	4	2
31,000' to 31,499'	8	2	0	5 (2 Sec)	1
31,500' to 31,999'	5	2	1	2 (1 Sec)	0
32,000' to 32,499'	1	1	0	0	0
32,500' to 32,999'	2	2	0	0	0
33,000' to 33,499'	1	0	0	1 (Sec)	0
Total	62	14	17* (4 Sec)	14** (4 Sec)	17***

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Basic Data, Par. 10 cont'd

*A/C A25(4686) bombed primary target from 24,500'. This total excludes one A/C lost over target.

**A/C A30(3461) went over primary target. Altitude unknown because plane ditched on return trip.

***3 A/C failed to return to base. Altitude over target unknown.

d. Headings over target:

Headings	Totals	499	500	497	498
50 to 59	8	3	0	2	3
60 to 69	27	5	8	6	8
70 to 79	4	1	1	1	1
80 to 89	7	2	3	0	2
90 to 99	3	1	2 (Sec)	0	0
100 to 109	2	0	2 (1 Sed)	0	0
110 to 119	1	0	0	0	1
120 to 129	3	2	1	0	0
Totals	55	14	17*(3 Sec)	9**	15***

*A/C Z30(4700) bombed on heading of 165° (Secondary target). This total excludes one A/C lost over target.

**A/C A1(4592) - heading 150° (Secondary Target)
 A/C A3(4591) - heading 196° (Secondary Target)
 A/C A5(4598) - heading 145° (Secondary Target)
 A/C A6(4594) - heading 21° (Secondary Target)
 A/C A46(4655) - heading 47° (Primary Target)

***A/C T1(3430) - Heading unknown
 A/C T46(3416) - Heading 45° (Primary Target)

3 A/C failed to return to base. Headings unknown.

e. Breakaway

499th - 45° right turn
 500th - 90° right turn
 497th - Breakaway by individual A/C
 498th - 116°

f. Rally Point

None

g. Extra Runs Over Target

None

h. Reasons for failure to attack:

(1) A/C Z28(3436) was over target at 031415Z could not drop bombs because of rack malfunction. Jettisoned bombs by hand release.

(2) A/C A7(4593) went over secondary target but could not release bombs. Jettisoned bombs on return trip.

(3) A/C A29(4628) went over target but bomb bay doors failed to open fully. Jettisoned on return trip.

11. ESCORT DATA:

No escort ordered.

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Headquarters
73rd Bombardment Wing

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CONSOLIDATED MISSION REPORT

LOSS AND DAMAGE

12. CASUALTIES -- PERSONNEL:

See Consolidated Statistical Report, Table X, Casualties.

13. AIRCRAFT LOST:

- a. A/C A30(3461) ditched at 031422Z at position approximately 15°30'N - 145°30'E. Cause is not known certainly, but was believed to have been lack of fuel. No further details have been received at time of this report.
- b. A/C Z1(4656) lost over target. Last seen with two engines out and losing altitude with fighters continuing attacks.

14. AIRCRAFT MISSING:

- a. A/C A29(4681) missing -- Cause unknown
- b. A/C A28(3432) missing -- Cause unknown
- c. A/C A10(4735) missing -- Cause unknown

15. TOTAL AIRCRAFT FAILING TO RETURN:

Five

16. DAMAGE TO AIRCRAFT:

- a. A/C T49(4544). The bombardier fired on a TONY which was making a frontal and level attack. He saw tracers enter TONY which began to wing over hitting the inboard side of #3 engine and doing a cartwheel under the B-29 wing. This action folded the B-29 engine cowlings up under the wing.

The impact knocked the wing off the TONY, causing him to careen into another TONY. Both planes went down.

The B-29 returned to Base on three engines with wing sprung.

- b. For further damage see Engineering Report.

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Headquarters
73rd Bombardment Wing

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CONSOLIDATED MISSION REPORT

AA AND AIR TO AIR BOMBING

17. ENEMY AA FIRE:

Primary target (35°43'N, 139°35'E): Fifty-nine A/C bombed the primary target. Heavy, moderate to intense, and inaccurate to accurate flak was experienced. Eight A/C were damaged by flak and altitudes and locations in the formations are as follows:

- a. A/C in #7 position, 2nd Combat Squadron, lead combat group at 30,000'.
- b. A/C in #7 position, 1st Combat Squadron, 2nd Combat Group at 30,000'.
- c. A/C in #5 position, 2nd Combat Squadron, 2nd Combat Group at 30,000'.
- d. A/C in #11 position, 2nd Combat Squadron, 2nd Combat Group at 30,000'.
- e. A/C in #2 position, 1st Combat Squadron, 5th Combat Group at 29,000'.
- f. A/C in #5 position, 1st Combat Squadron, 5th Combat Group at 29,800'.
- g. A/C in #6 position, 1st Combat Squadron, 5th Combat Group at 29,000'.
- h. A/C in #6 position, 2nd Combat Squadron, 5th Combat Group at 29,500'.

No A/C were lost to flak alone or to flak as a contributing cause.

Bursts were generally level, although some were reported as being low and some high. Bursts were both ahead and behind and right and left, but there was no preponderance of deviations in any one of these directions. All three types of fire were encountered, but most fire was equally divided between barrage and continuously-pointed. Bursts were generally black, although a few white bursts were observed. Several reports of antiaircraft phosphorus bombs at 28,000 feet were made and these were observed when leaving Tokyo.

Secondary target (Dock area, Tokyo Waterfront): Eight A/C attacking the secondary target reported heavy, meager to moderate, and generally inaccurate flak. No A/C were hit or destroyed by flak. There was no preponderance of deviations in any one direction. Fire encountered over this area was classified as barrage and one crew reported a box of bursts about 5 miles to its right.

Targets of Opportunity: No reports of flak were made by A/C bombing targets of opportunity. Heavy meager, inaccurate flak was reported by one A/C at 18°04'N, 145°03'E. The A/C was flying at 11,500'. It is quite likely that this fire was delivered by a vessel, inasmuch as there is no land area at these coordinates.

This was a daylight mission. Clouds were from 2/10 to 7/10 undercast.

Comments: It is interesting to note that the AA fire over the primary target show no predominance of deviations in any one direction. This situation occurred over this same area and was experienced by crews of this organization on a previous mission. It is felt that despite the fact that A/C were flying at altitudes above the range of known Japanese guns, such

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AA and Air to Air Bombing, Par 17, cont'd

a wide scattering of bursts along with the common use of barrage fire, indicates inexperience of gun crews. The number of A/C damaged on this mission is no criterion of the accuracy of flak encountered, but as our attacks increase it is expected that their ability to find their targets will improve.

18. OUR TACTICS VERSUS AA:

Slight turns and loss of altitude.

19. AIR TO AIR BOMBING AND ROCKETS:

No air-to-air bombs or rockets were reported.

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Authority

NND 160000

By MNA/PA Date 8/30/05

Headquarters
73rd Bombardment Wing

S E C R E T

Field Order No. 21
Mission No. 10
Date of Mission
3 December 1944

CONSOLIDATED MISSION REPORT

COMBAT DATA

20. ANALYSIS OF ATTACKS BY ENEMY A/C:

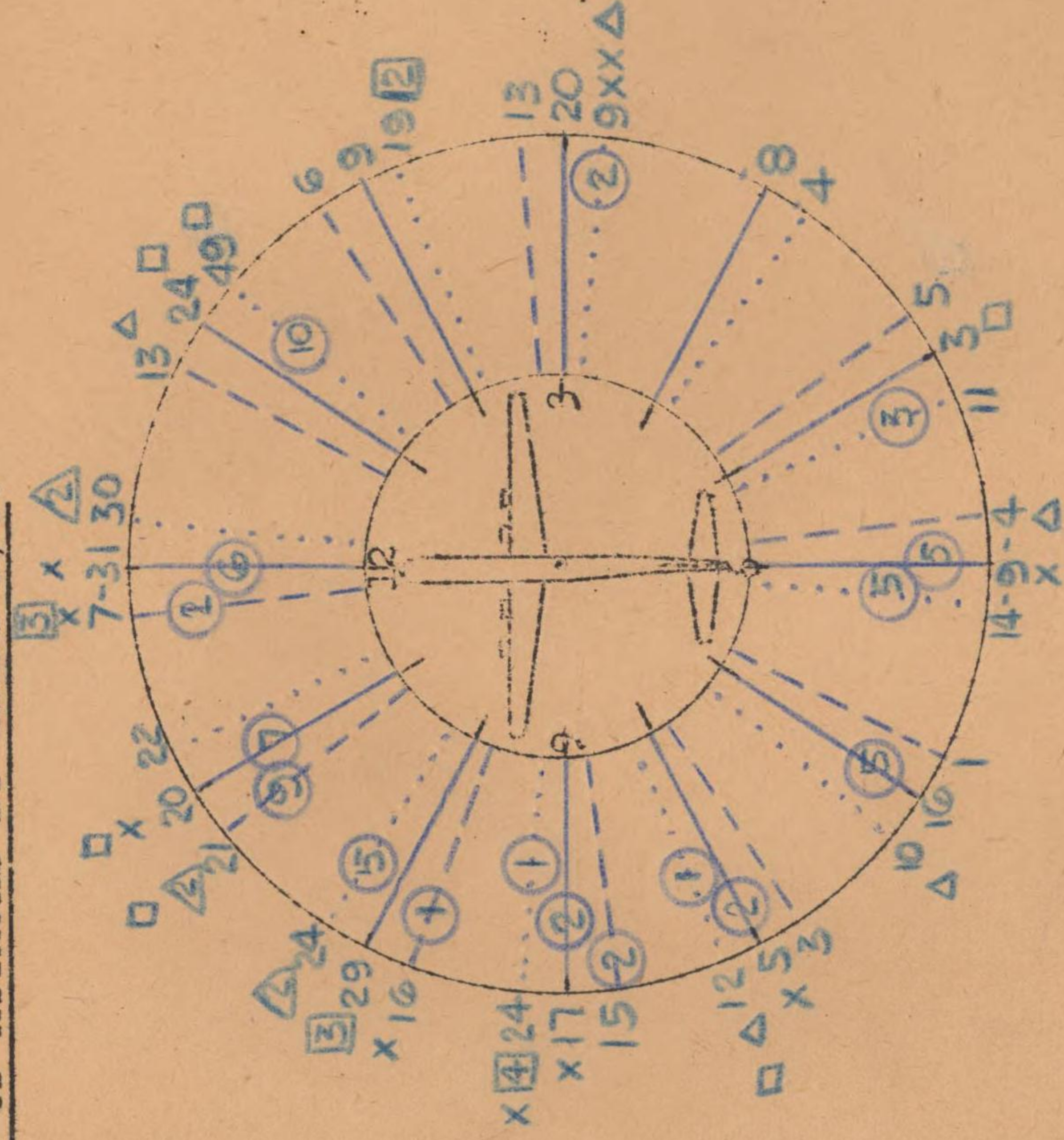
LEGEND

ATTACKS

Level From ———
Above From - - -
Below From

ENEMY A/C

Destr'd x
Prob Δ
Dest'd □
Damaged ◻



TOTALS

<u>ATTACKS</u>	523
Level From	191
Above High From	104
Below Low	0
E/A Dest'd	10
E/A Prob Dest'd	11
E/A Damaged	18

Note: The number of E/A attacking is shown at the outside end of each line. Attacks made by twin-engine enemy aircraft are indicated by "o" interruption in attack line, and when more than one T/E attack is made, the total is shown inside the "o".

21. YARDS AT WHICH E/A OPENED FIRE:

Yds	100	200	300	400	500	600	700	800	900	1000 or more
No. A/C Firing	3	23	31	110	106	57	43	65	40	45

Comments: There was no consistency in reported ranges at which E/A opened fire from different directions and at various angles of approach; however, fire on frontal attacks was opened as an average between 400 and 500 yards; right side attacks at between 600 and 700 yards; left side attacks at between 500 and 700 yards; and tail attacks at between 600 and 700 yards.

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Headquarters
73rd Bombardment Wing

Field Order No. 21
Mission No. 10
3 December 1944

CONSOLIDATED MISSION REPORT

COMBAT DATA

22. TYPES OF E/A ATTACKING

The total of 523 attacks were made by the types of aircraft indicated below:

ZEKE	164	NICK	12
ZEKE (32)	22	OSCAR	11
TOJO	86	RUFE	3
TONY	65	FRANCES	1
IRVING	43	Unidentified S/E	90
JACK	14	Unidentified T/E	12

Ten of the attacks made by unidentified twin-engine A/C came from A/C described by crews of the last Squadrons over the targets as having inline engines. This type of aircraft was reported only by crews of the same organization, flying in different positions, on the only comparable previous mission. The identification of this aircraft by the reporting crews was positive, and it was declared definitely not to be an IRVING, NICK, or FRANCES.

The reports on this inline-engine aircraft state that it is very fast, extremely maneuverable and armed with either 2 x 12.7-mm machine guns and 2 x 20-mm cannons, or 4 x 20-mm cannons mounted in the nose. Reporting crews say this is the only enemy aircraft successfully maneuvering into position for a repeat attack immediately upon completing one pass.

The fighter is said to have a long slim fuselage, low wings, wide at the roots, tapering on leading and trailing edges to rather pointed tips. The horizontal stabilizer is believed to have tapered leading edges and straight trailing edges. The engine nacelles are set low and well forward without air scoops or other projections. The over-all impression is that it is "very sleek" and bears some resemblance to the MOSQUITO.

22A. ENEMY AIRCRAFT SIGHTED (NOT ATTACKING)

It is impossible to state the total number of airborne enemy aircraft in the target areas; however, several crews reported sighting 50 to 60 separate airborne enemy aircraft at one time.

In addition to the types of E/A mentioned in paragraph 22, one JANIS, one FRED, and one MIKE were reported over the target areas. An unidentified flying boat was reported south of the IP at about 15,000' headed toward Tokyo Bay.

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Combat Data (contd)

23. TYPE AND ACCURACY ENEMY FIRE AND TYPE PROJECTILE:

Enemy aircraft are reported to have used 7.7-mm machine guns, 12.7-mm machine guns, and 20-mm cannons. Some specific examples of reported types of fire from E/A are:

IRVINGS 2 x 12.7-mm MG and 2 x 20-mm cannons
TONYS 4 x 12.7-mm MGs
ZEKES 2 x 20-mm cannons
TOJOS 2 x 12.7-mm MGs
Unidentified T/E (inline) - 2 x 12.7-mm and 2 x 20-mm,
or 4 x 20-mm on nose with
none on wings.

The majority of attacks were pressed to from 300 to 500 yards with all degrees of aggressiveness being represented. The enemy fire was very inaccurate in most cases.

24. ENEMY AIRCRAFT MARKINGS:

A wide variety of markings and colorings was reported. Most of the T/E A/C were black, and a large percentage of the S/E A/C bore camouflage designs. Other specific cases were:

- a. Some unidentified T/E A/C were silver with bright red roundels, and others a camouflage green.
- b. NICK - red fuselage with yellow wings and red bands on wing sections inboard of nacelles.
- c. TONY - deep red or orange spinner with white and red octagonal markings on the sides of the cowlings and, in some instances, red stripes under the air scoops.
- d. TONY - silver with inboard portion of wings in olive drab.
- e. TONY - "steel blue" body and red nose.
- f. TOJO - grey with horizontal red stripes.
- g. ZEKE - silver with bright red roundels on wings and fuselage.
- h. JACK - yellow "sun rays" emanating from red roundels.
- i. RUFÉ - dark with bright red roundels.
- j. MIKE - solid grey with cream nose.

25. ENEMY TACTICS:

a. The large majority of attacks came immediately after bombs were dropped and continued until the B-29s were well past the coastline. However, there was an attempt to intercept some of the intermediate Squadrons on the way in from the IP.

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Combat Data (contd)

Par 25 (contd)

- b. There appeared to be little standardization in attacks, which supports the opinions of crews that all ranges of training and experience were well represented in the groups of enemy pilots attacking.
- c. The first Squadron to bomb received practically no fighter opposition. A breakdown of the total number of attacks by Ground Groups, according to progression over the target areas, follows:
- (1) 14 B-29s over primary and secondary targets received 50 attacks, 47 of which were by S/E A/C.
 - (2) 20 B-29s over primary and secondary targets received 269 attacks, 233 of which were by S/E A/C.
 - (3) 17 B-29s over primary and secondary targets, plus four over targets of opportunity, received 100 attacks, 93 of which were by S/E A/C.
 - (4) 20 B-29s over primary and secondary targets, plus one over a target of opportunity, received 104 attacks, 80 of which were by S/E A/C.
- d. There were several reports of E/A performing aerobatics out of range. Some of these were carried on while other E/A attacked.
- e. There was little indication of coordinated attacks, although the following cases were reported:
- (1) Two TONYS, abreast, came from above at 3 o'clock with one breaking over and one under.
 - (2) One fighter was thought to be trying to attract attention by half-hearted attacks from ahead and below while other fighters attacked from the sides.
- f. With few exceptions, all attacks were believed to be the result of not more than one effort by each enemy aircraft against each B-29 formation. It was believed that some of the fighters attacked one formation and then went on to meet a following bomber formation.
- g. The only reported cases of repeat attacks involved the unidentified twin-inline-engine A/C which attacked from about 12 o'clock and above, breaking off in a Split S, and came back for an attack on the tail or came up and around in front for another frontal attack.
- h. The predominant type of breakaway was a roll under the B-29s, exposing the undersides of the fighters to the bombers, and then down.

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Combat Data (contd)

Par 25 (contd)

1. Special attention was again given to the B-29s in difficulty, with one, having a feathered propeller, reporting 24 separate attacks coming in from either 3 or 9 o'clock.

26. ENEMY FORMATIONS:

There was little reported evidence of formations being used by E/A before, during, or after attacks. In some instances fighters moved in pairs or larger numbers but without indication of a definite pattern.

27. OUR TACTICS AND FIREPOWER VERSUS ENEMY AIRCRAFT:

B-29s generally opened fire before attacking fighters brought their guns to bear. These distances were reported as being from 600 to 1500 yards. Gunners seemed to feel that enemy pilots were reluctant to come in against their fire, although some were aggressive.

Our crews reported no evasive maneuvers being used except for one flight turning to put the sun at its back to make frontal attacks more difficult.

28. RESULTS OF HITS ON ENEMY AIRCRAFT:

The following is a general classification of hits on E/A according to observed results:

**FIRE AND SMOKE:
(out of control)**

2 TONY
4 ZEKE
3 JACK
3 IRVING

1 NICK
1 ZEKE (32)
1 unidentified S/E fighter

EXPLODED:

1 ZEKE
2 unidentified S/E
1 unidentified T/E

**PARTS BLOWN OFF:
(and smoking)**

2 ZEKE
4 TONY
1 TOJO

1 IRVING
1 unidentified S/E

CRASHED:

1 TONY
1 ZEKE

BROKE IN HALF:

1 ZEKE

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Combat Data (contd)

Par 28 (contd)

BURST INTO FLAMES:

1 IRVING 1 ZEKE

HEAVY SMOKE:

1 ZEKE 2 TOJO
1 FRED 2 unidentified T/E

28A. CLAIMS BY A/C AND BY GUN POSITION:

<u>A/C NO</u>	<u>GUN POSITION</u>	<u>TYPE A/C</u>
<u>Destroyed:</u>		
42-24606	TG	unident T/E
42-24544	Bombardier	2 TONYS
42-24592	RG	1 ZEKE
42-24594	TG	1 ZEKE
42-24593	Bombardier	1 JACK
42-63447	Bombardier	1 TONY
42-24671	RSG	1 ZEKE
42-24696	LG	1 unident S/E
42-24668	Crew (no gun position claims full credit)	1 ZEKE
<u>Probably Destroyed:</u>		
42-24592	RSG	ZEKE
42-63423	RG	JACK
42-63423	TG	unident S/E
42-63430	RG	TONY
42-24608	RG	ZEKE
42-24682	RSG	NICK
42-24657	RG	IRVING
42-24676	LG, TG	IRVING
42-63429	RG, TG	TOJO
42-63436	TG	IRVING
42-63436	RG	1 ZEKE
<u>Damaged:</u>		
42-24594	LG	ZEKES
42-24606	TG	JACK
42-24601	TG	FRED
42-63416	RG	unident T/E
42-24544	RSG	unident T/E
42-24610	TG	1 ZEKE
42-24654	RSG	2 unident S/E
42-24651	Bombardier	1 TOJO
42-24669	RSG, RG, TG	1 TOJO
42-24600	LG, TG	1 IRVING
42-24700	TG	1 ZEKE
42-24657	Bombardier	1 TONY
42-24686	LG	ZEKE (32)
42-24643	RSG	1 TONY
42-24689	Bombardier	1 TONY
42-24657	LG	1 IRVING

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Headquarters
73rd Bombardment Wing

Mission No. 10
Field Order No. 21
3 December 1944

CONSOLIDATED MISSION REPORT
OBSERVATIONS AND CREW COMMENTS

29. EXPENDITURE OF AMMUNITION:

See Consolidated Statistical Report, Table XII, Ammunition Consumption Data.

30. OUR OBSERVED LOSSES BY E/A:

a. A/C Z(4656) was the lead ship of the second squadron. It was seen to be attacked by a ZEKE (Model 32) which apparently registered hits, for #2 engine began smoking and was feathered. As it lost altitude, observers saw #4 engine feathered and then started again. At the time several fighters were engaged in firing at the crippled ship.

31. OUR OBSERVED LOSSES BY A/A:

No definite information is available concerning other A/C lost. Observers saw bursts of flak and fighters around them.

32. OBSERVATIONS:

- a. Several crews reported that the harbor and Bay of Tokyo seemed rather quiet and inactive.
- b. Sixty ships at Yokosuka (35°08'N, 139°30'E), observing A/C heading NW speed 195, 30,000' altitude.
- c. Forty S/E A/C on N portion Oshima. Observing A/C heading 185°, speed 190, 30,000' altitude.
- d. Huge stores of supplies and shipping in Shimizu Harbor. Observing A/C 32,000' at 030510Z. No flak observed.

33. COMMENTS ON MAPS, CHARTS, AND PHOTOS USED:

Quite adequate.

34. CREW SUGGESTIONS:

- a. Guns need to be harmonized on a harmonization range.
- b. One gunner suggested that the marker on the computer box should be on the bottom instead of the top; it would be easier to read.
- c. Gunners in waist position can not fire accurately with present safety belt fastened.
- d. Guns should not be cleared after dark.
- e. Crews state that altitude below 31,000' over enemy territory is out of reason because of decreased flak and fighter opposition above that altitude.

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Observations and Crew Comments, Par. 34, cont'd.

f. Crews have been greatly confused by last minute changes in target and details of missions.

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Headquarters
73rd Bombardment Wing

Mission No. 10
Field Order No. 21
3 December 1944

CONSOLIDATED MISSION REPORT

GENERAL TECHNICAL DATA

35. **FUNCTIONING OF OXYGEN EQUIPMENT:**

Walk around bottles are not always filled prior to flight.

36. **FUNCTIONING OF CLOTHING AND EQUIPMENT:**

Suggest that rear tail gunner be provided with smaller M4 flak helmet and electric flying suit.

37. **CAMERAS:**

See Photographic Officer's Report.

38. **TECHNICAL FAILURES:**

See Engineering Report.

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MNAPA Date 8/30/05

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Headquarters
73rd Bombardment Wing

Mission No. 10
Field Order No. 21
3 December 1944

CONSOLIDATED MISSION REPORT

BOMBING DATA

39. BOMB DATA:
See Consolidated Statistical Report, Tables III and IV.
40. TARGET ATTACK DATA:
See Consolidated Statistical Report, Tables III and IV.
41. CONDITION OVER TARGET:
The weather over the target area was CAVU. The AA was inaccurate, moderate, and of heavy caliber. The smoke from small fires around the target area did not handicap the bombing run. The camouflage is ineffective. Fighter opposition was moderate. Wind approximated 200 knots from the west.
42. IP AND AP:
The I.P. (Mt. Fuji) was very easily identified. The A.P. was satisfactory.
43. REASONS FOR FAILURE TO BOMB:
There were six cases of bomb release malfunctions reported.
44. RESULTS OF BOMBING OBSERVED:
Apparently only one A/C dropped any bombs on the target. Bombing errors were large.
45. POSSIBLE SOURCES OF ERROR IN BOMBING:
a. Failure to turn lead over to Deputy upon failure of C-1 Automatic Pilot.
b. Poor formation resulting in poor bomb pattern.
c. Variations in altitude flown from briefed altitude.
d. Extremely high winds combined with failure to follow briefed axis of attack resulted in poor bombing runs.
46. USE OF RADAR AND EFFICIENCY:
Not used for bombing, satisfactory as a navigation aid.
47. COMMENTS AND SUGGESTIONS:
Recommend a separate salvo system for bomb bay tanks. Recommend that field orders be prepared in sufficient time to allow crews time to thoroughly study target and approaches. If the C-1 Automatic Pilot fails, the leader must have the Deputy take over.

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Headquarters
73rd Bombardment Wing

Mission No. 10
Field Order No. 21
3 December 1944

CONSOLIDATED MISSION REPORT

BOMB IMPACT DATA

Paragraphs 48 through 51

No. of A/C over Target: 59 bombed primary target, 8 bombed Tokyo urban and dock areas, and 7 bombed Gmija, Tsuchuria, Hajhija Jima, Nii Jima and Pagan.

Direction of Attack: (Heading given only for those targets covered by strike attack photograph; see basic data 10 d for additional information. Varied from 210°T to 196°T on primary target.)

Bomb Load: 7 x 500-lb GP AN M64 3 x 500-lb IB M76. 397 M6A's and 169 M76's dropped on primary target.

Aiming Point: Center of the large assembly building in western half of target area.

Photographic Coverage and Quality: Complete coverage of the target area and adjacent area. Photographs of dock area near Hama Palace show no bomb strikes. Quality varies from fair to excellent.

SUMMARY

Approximately 235 bomb bursts can be seen on the photographs. In the target area 12 bursts are visible, 6 of which are seen on the buildings. 1 burst is observed on the NE corner of the new rectangular building in the old plant area. On the SW corner of the cylinder works near the center of the target area, 1 burst can be seen. 600 feet to the SE, 1 burst can be seen on the new assembly building. 1 burst is observed on the administration building of the new plant. 1 direct hit and a near miss set fire to the building at the SE edge of the plant. This building was apparently destroyed by fire. 5 bursts can be seen in the area immediately to the west of the plant.

Outside the target area, approximately 54 bursts are observed 3000 feet N and slightly W of the AP. 15,000 feet W of the AP, 29 bursts can be seen with direct hits on the road and railroad. 18,000 feet N of the AP 17 craters are visible. These could possibly have been caused by Mission #7. Between the two railroads NE of the AP, 46 bursts and 4 fires are visible. 35 bursts can be seen 4400 feet N of target 356 and 12 bursts can be seen in the small village to the south. 18 bursts can be seen immediately to the S of the target.

CONCLUSION

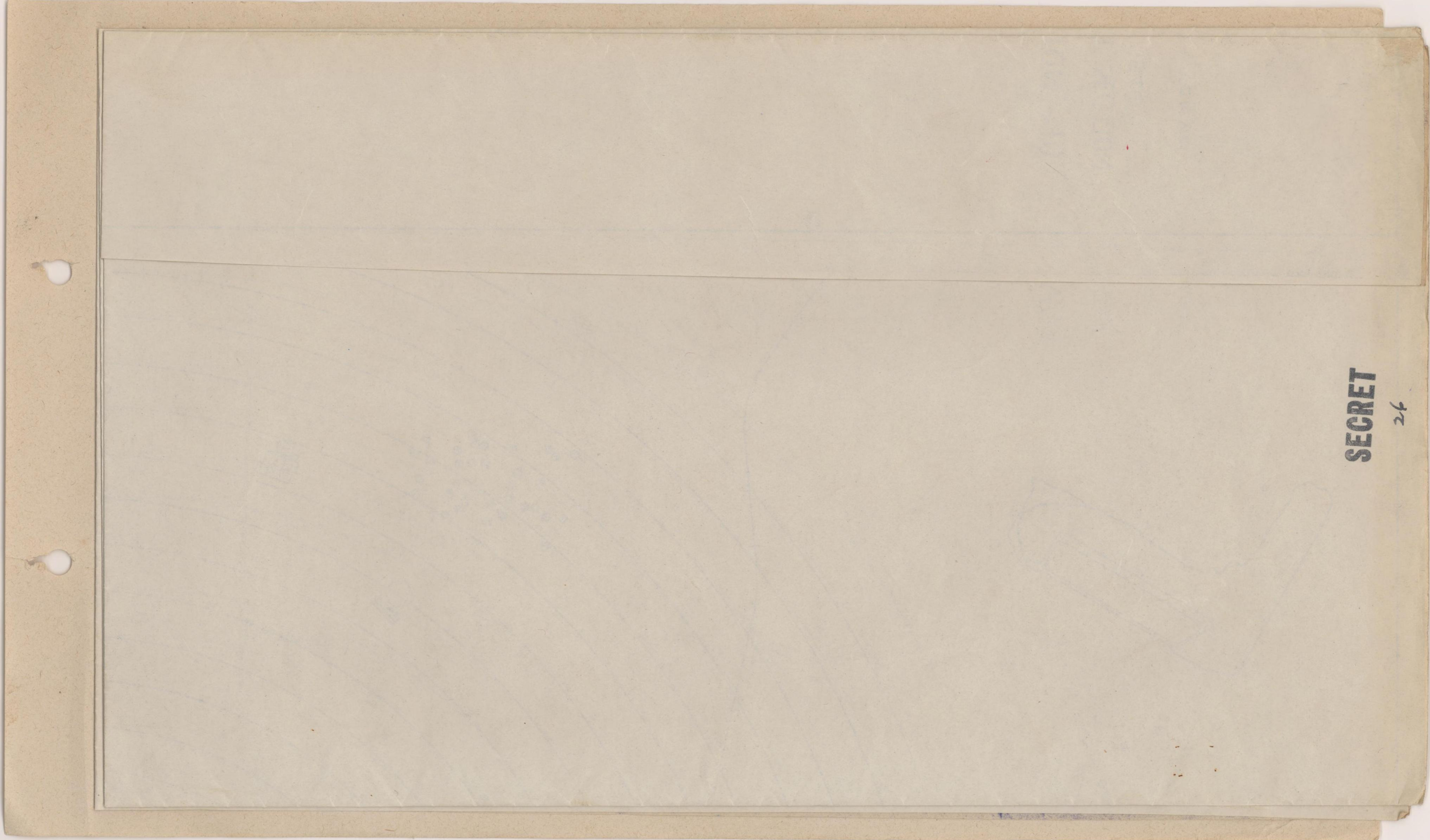
Since only 1% of the total bombs dropped hit within 1000 feet of the AP, the results of the bombing are considered to be unsatisfactory. Since only photographs of the primary target showed bomb strikes, no evaluation of the bombing of secondary and last resort targets was made.

OBJECTIVE INTELLIGENCE DATA

The holes in the sawtooth roof of the large building at the N end of the new area have been partially repaired. Two holes in the large sawtooth building at the N end of the old area have been partially repaired also. No attempt has been made to repair the outer buildings of the plant or the barracks-warehouse area to the North.

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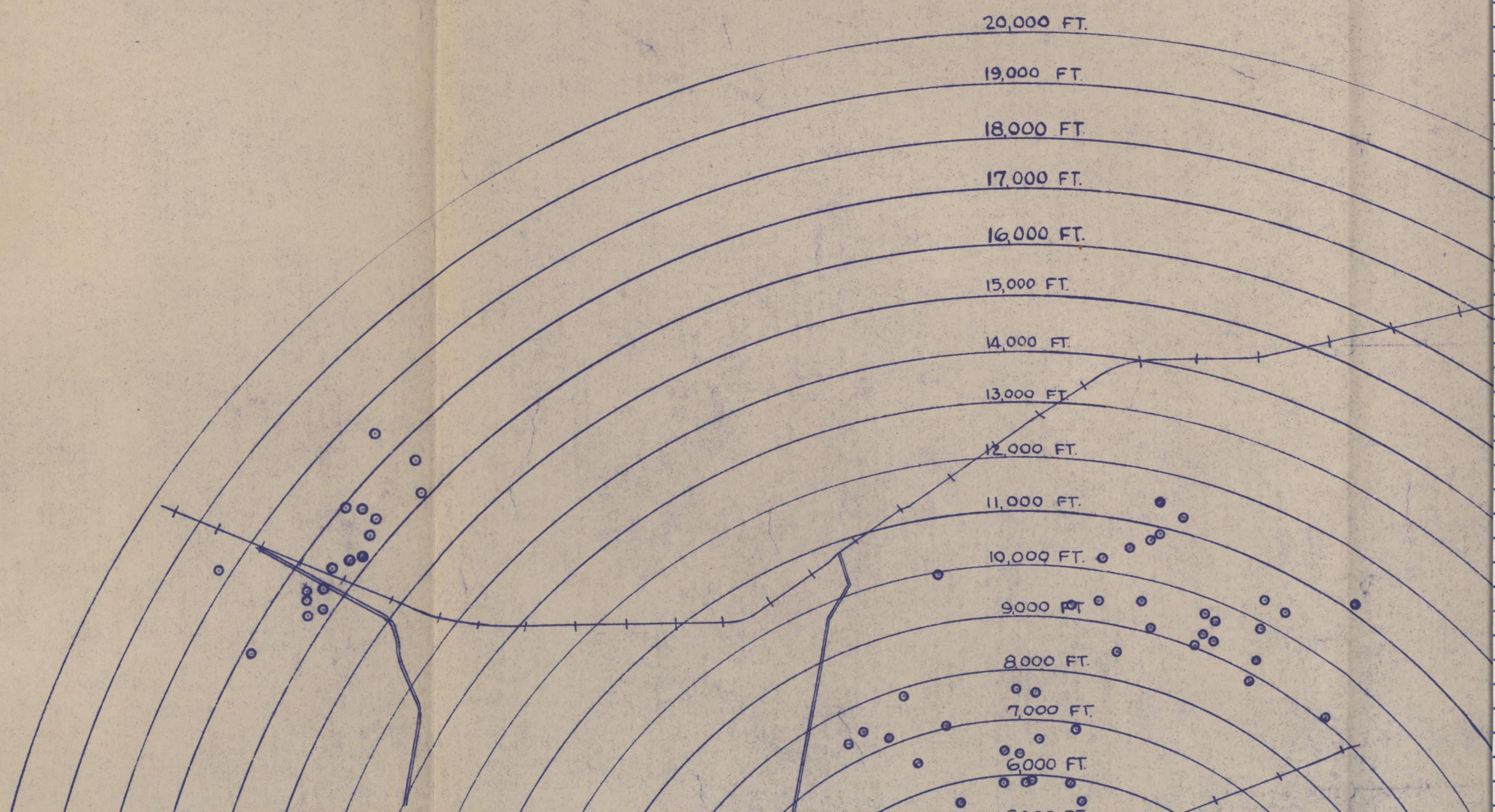
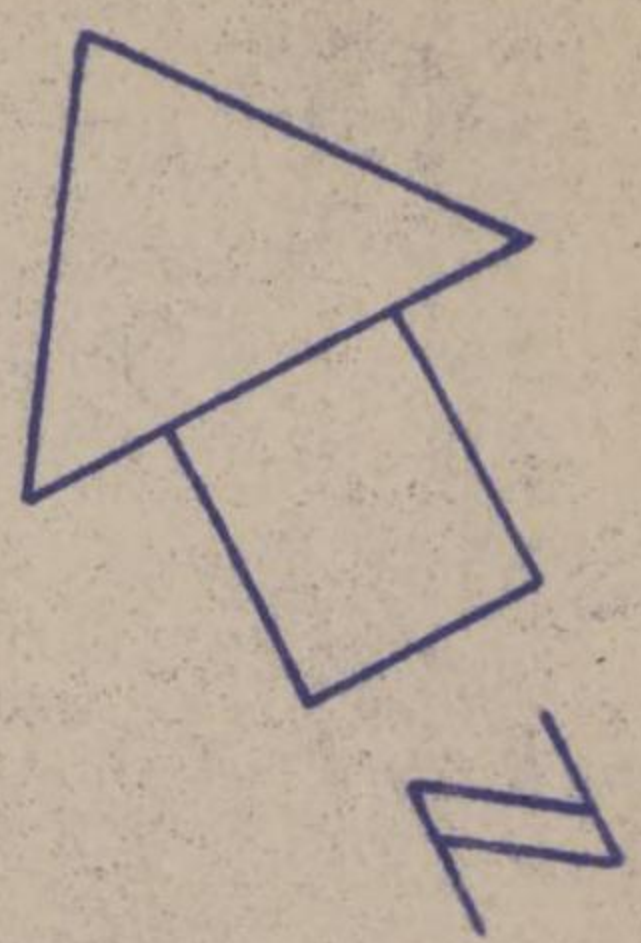


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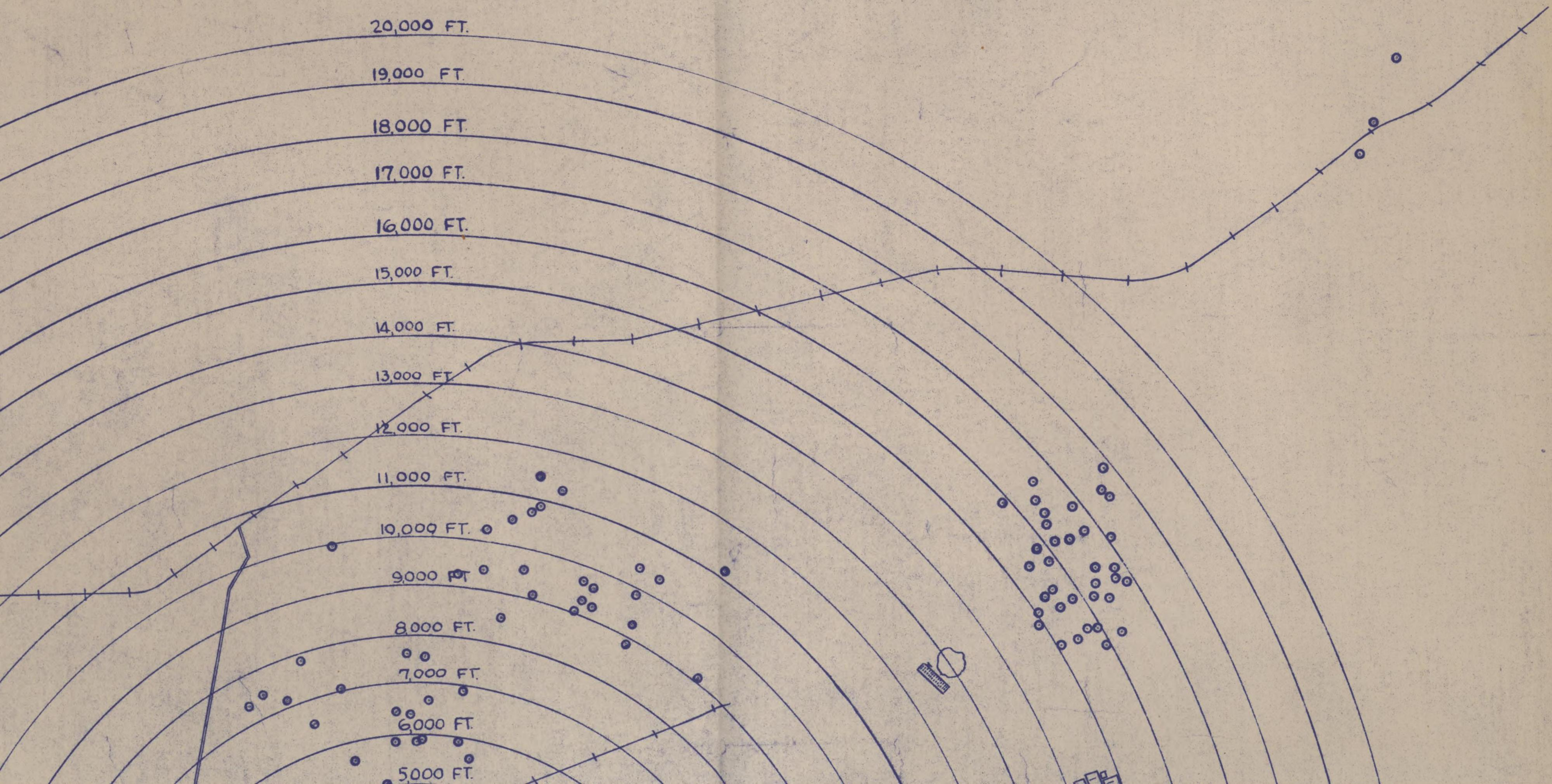
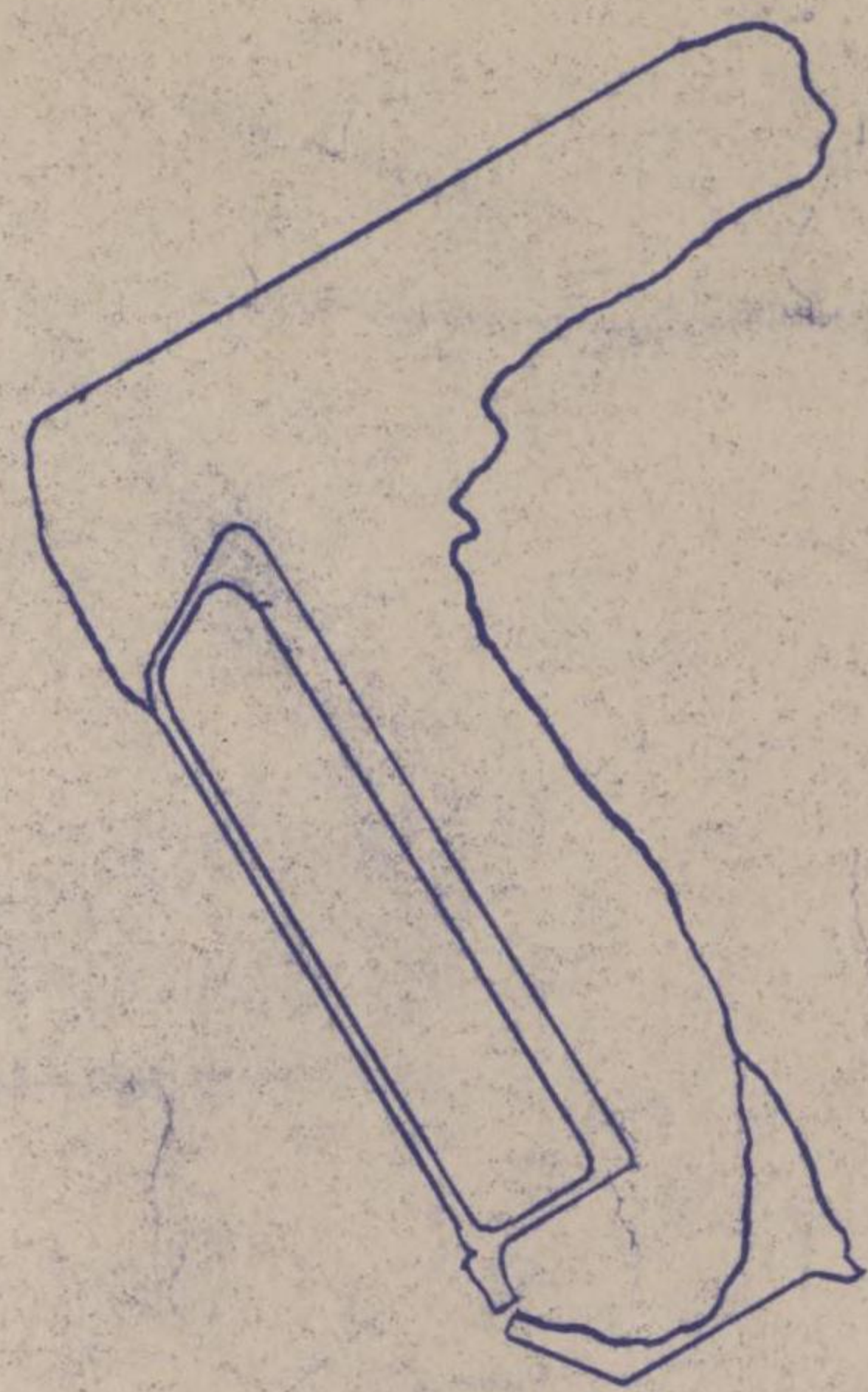
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Authority *NND 160008*
By *MMN/PA* Date *8/3/05*

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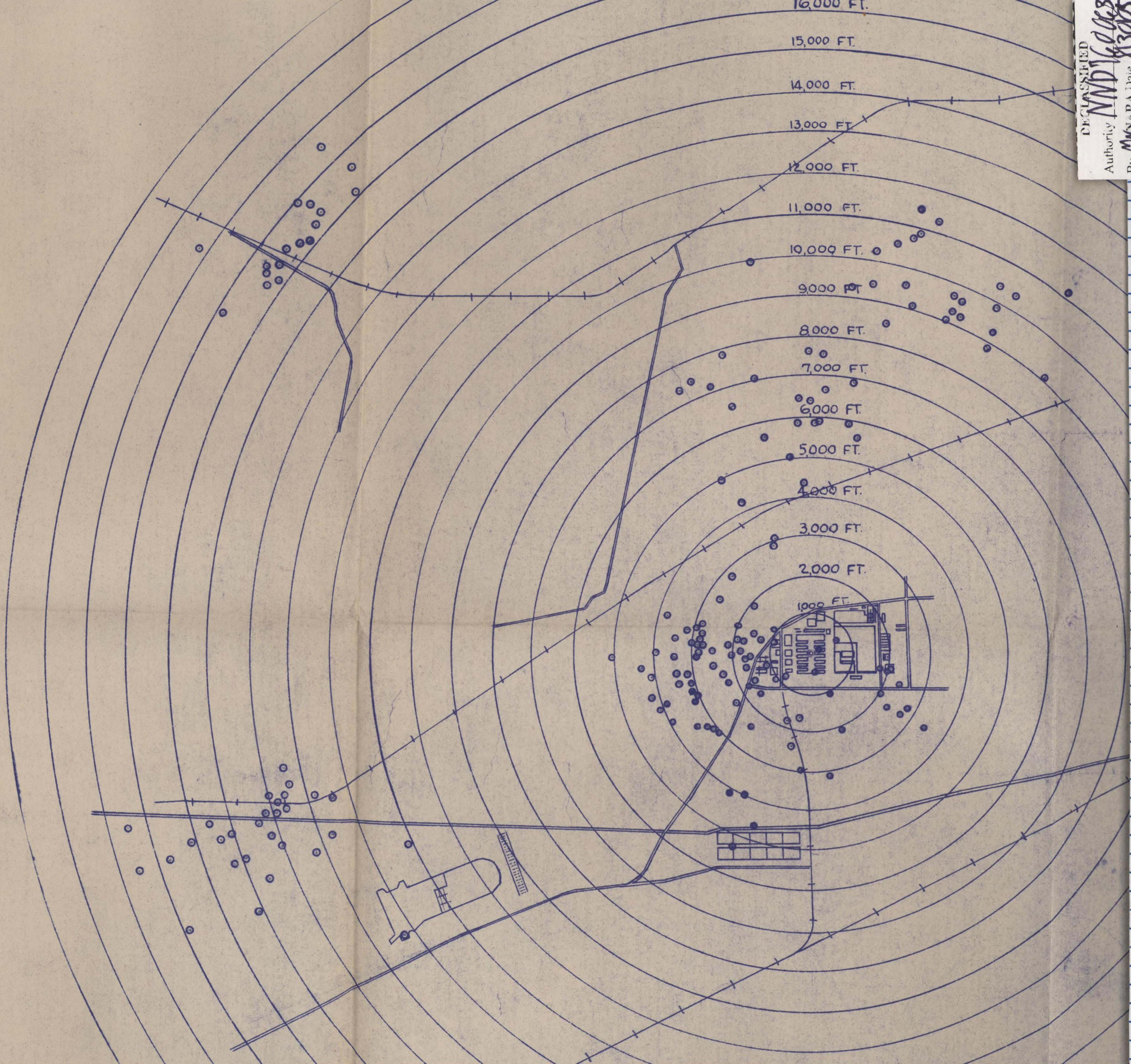


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Authority NND 160000
By MNARA Date 8/3/05

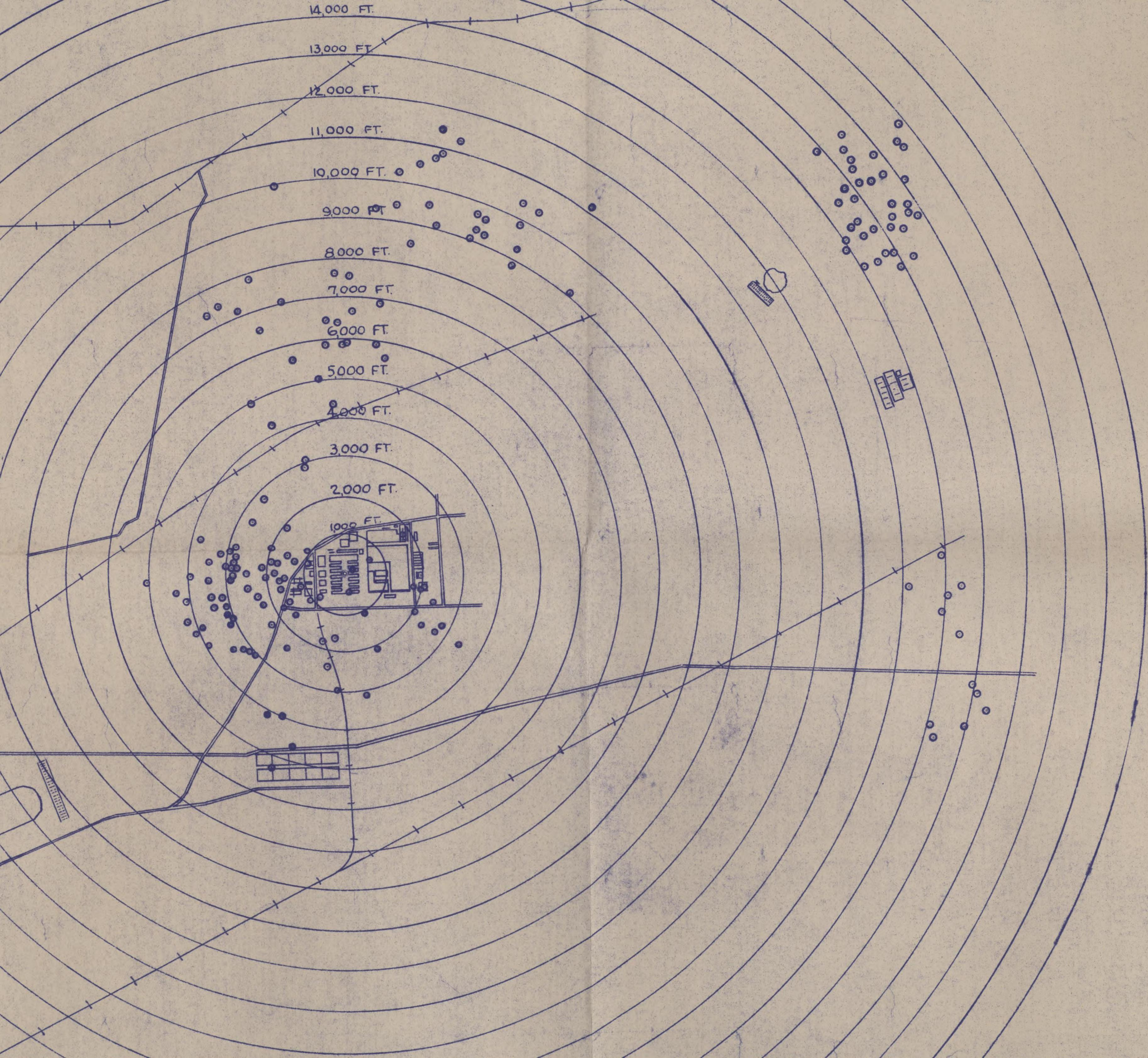
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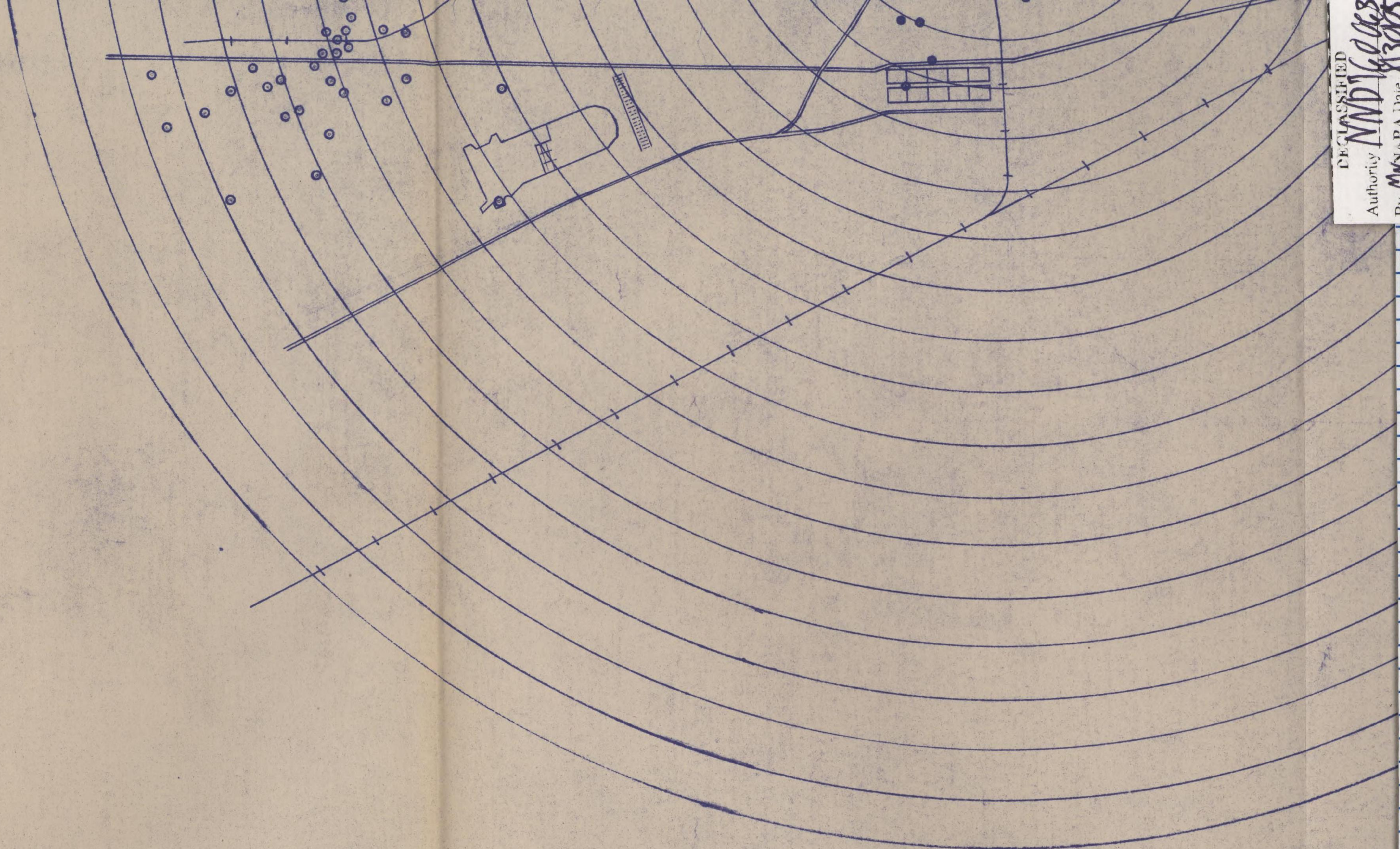


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By MNA/PA Date 8/30/05



DECLASSIFIED
Authority NND 160003
By MN/PA Date 8/30/05



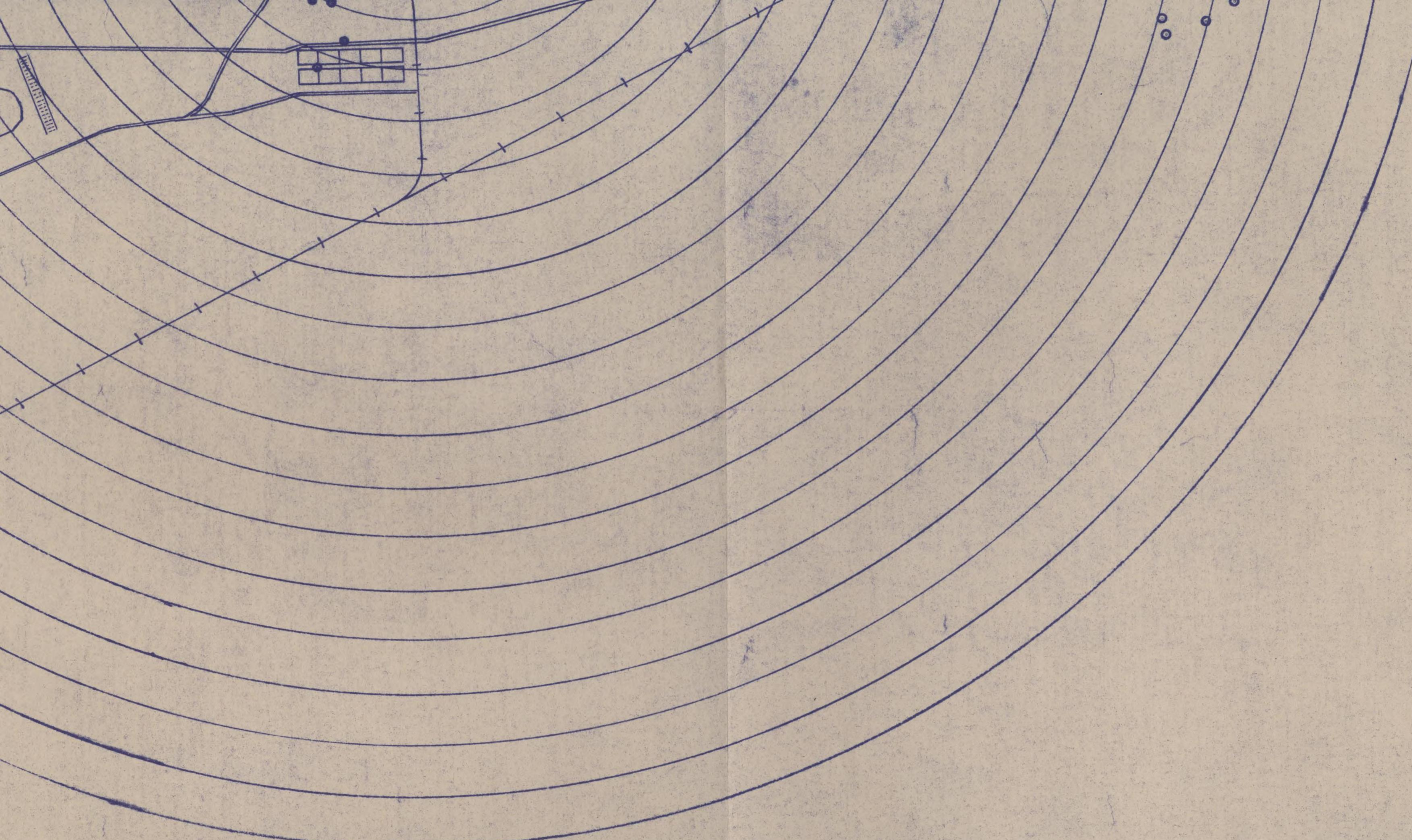


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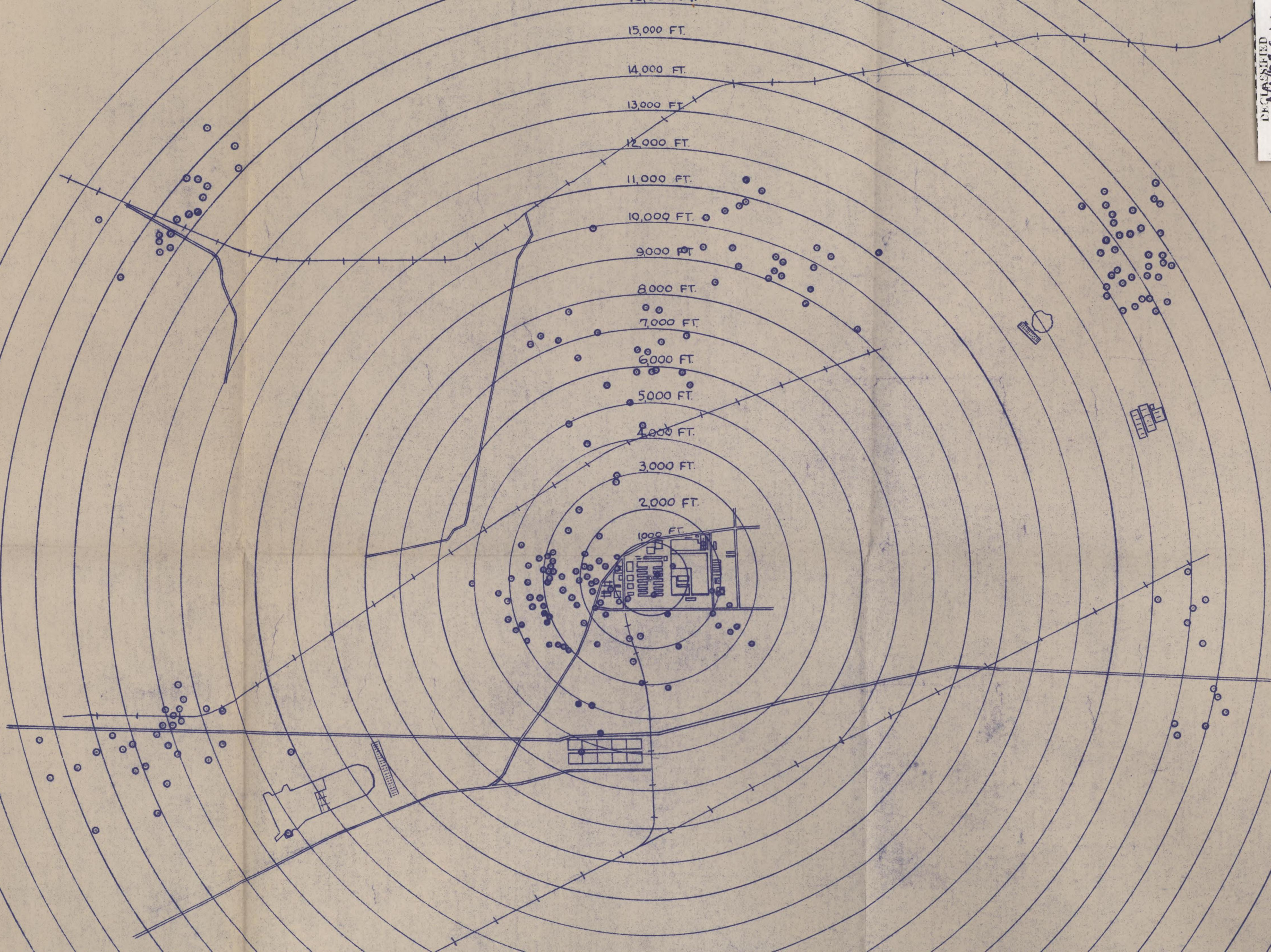
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By **MM/PA Dne 1/3/05**

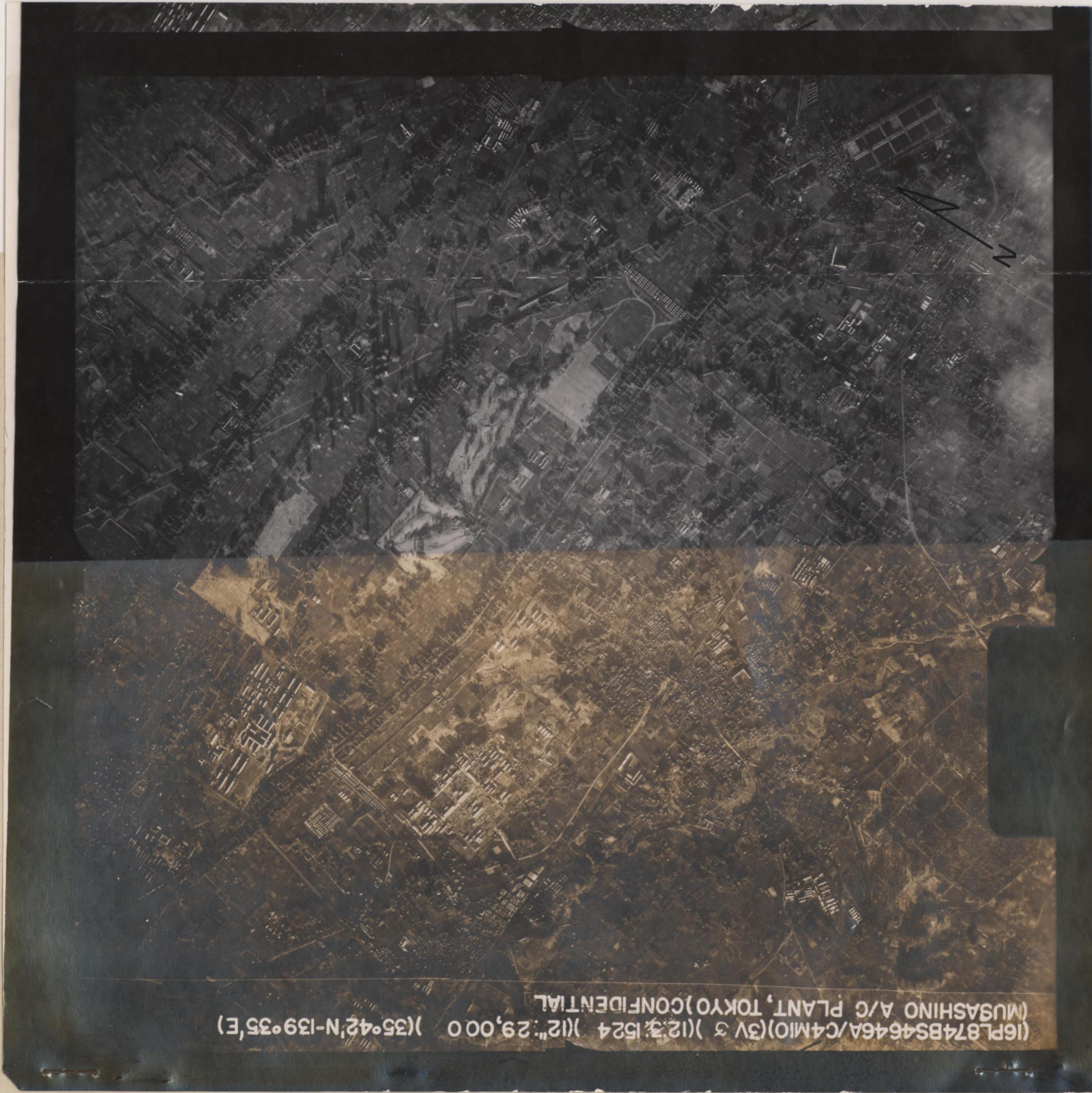


BOMB PLOT - MISSION # 10
TARGET INTELLIGENCE SECTION
73RD B.W. - 4 DEC. 1944
MUSASHINO A/C PLANT - TOKYO

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By *MMN/PA Dne 8/30/05*



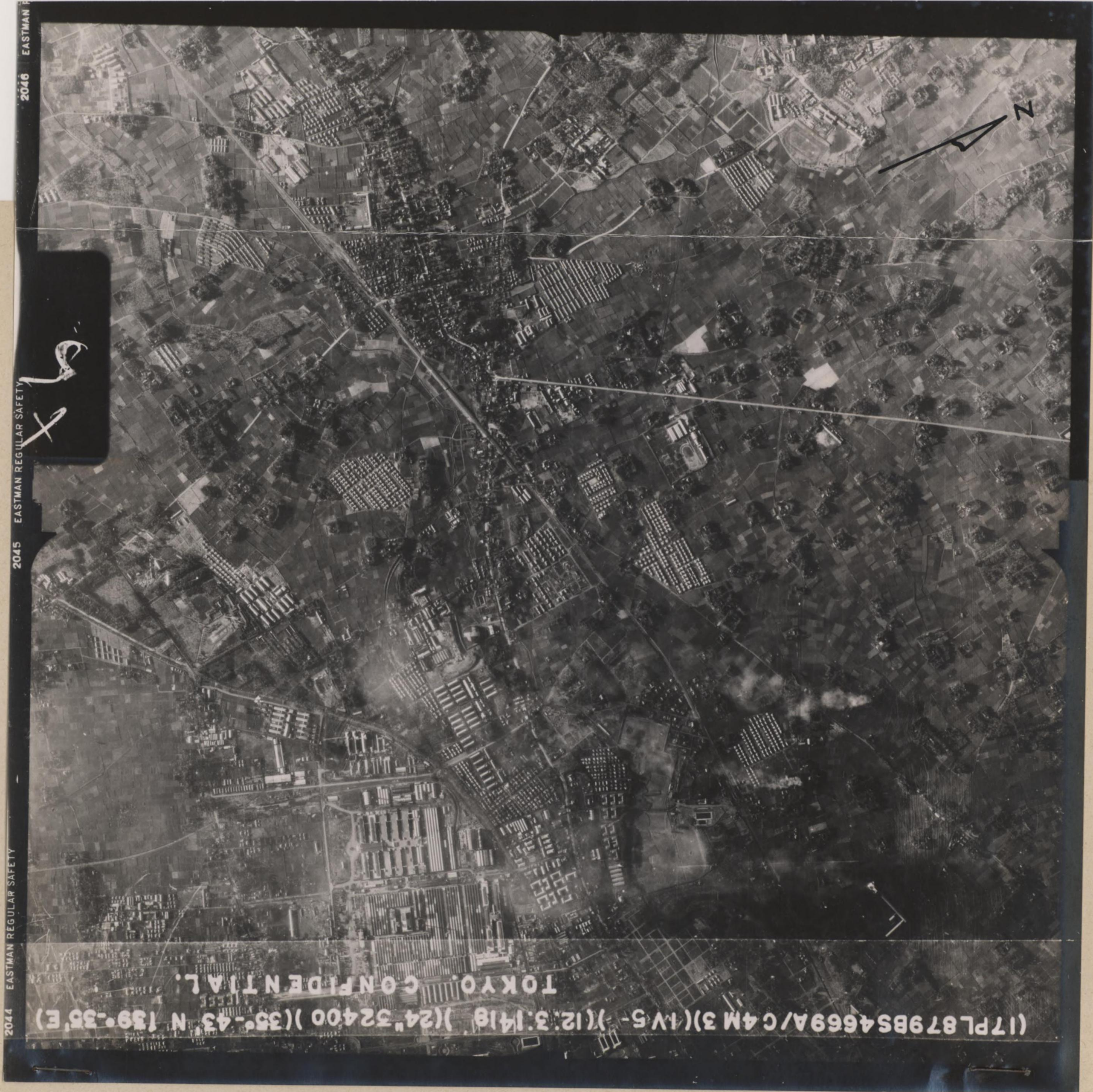


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(MUSASHINO A/C PLANT, TOKYO) CONFIDENTIAL

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Authority NND 16-08-08
By MNARA Date 11-30-08



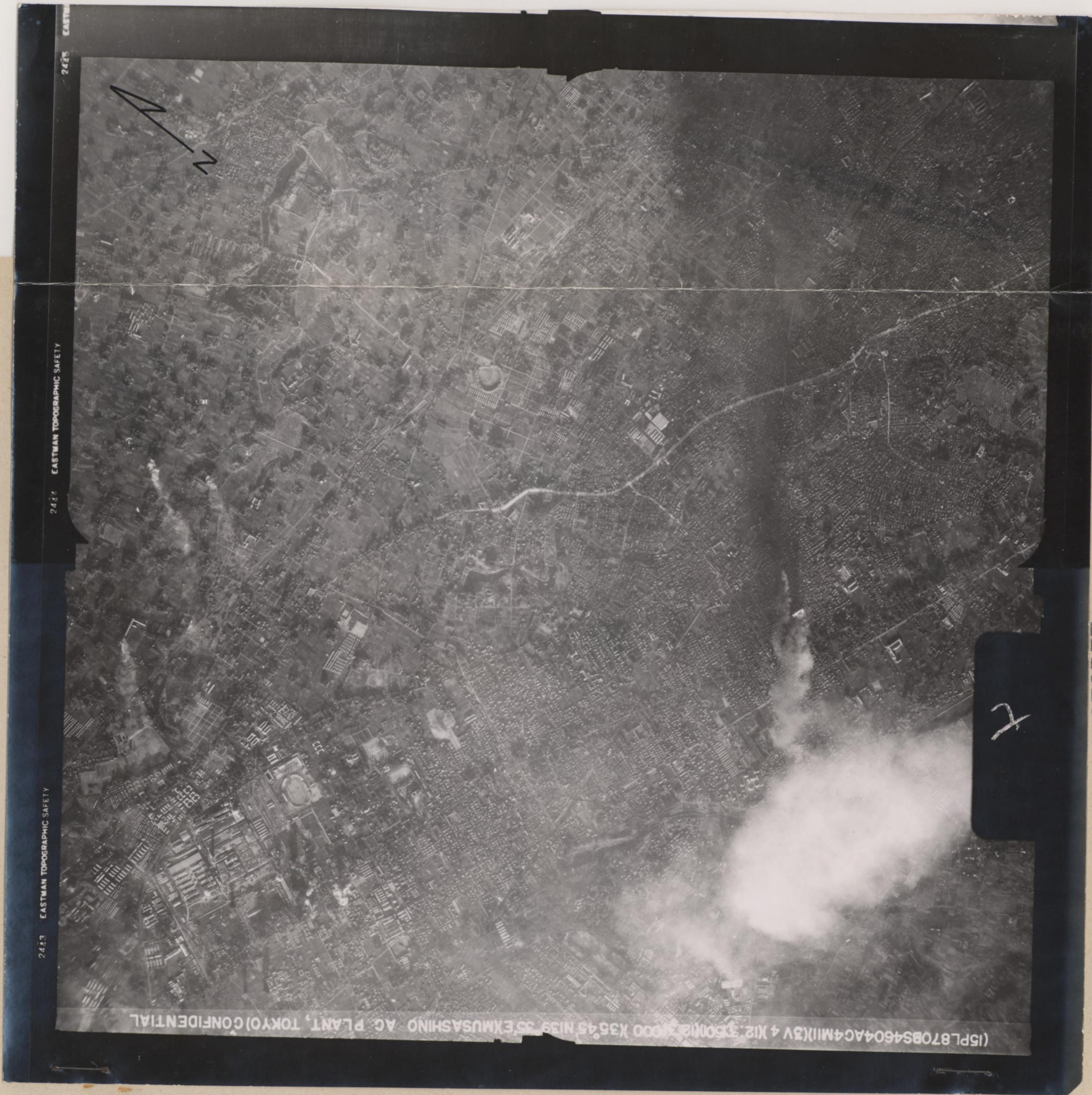
2044 EASTMAN REGULAR SAFETY 2045 EASTMAN REGULAR SAFETY 2046 EASTMAN REGULAR SAFETY

Handwritten markings: 'X' and 'S' on a black background.

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TOKYO. CONFIDENTIAL.

SECRET 28

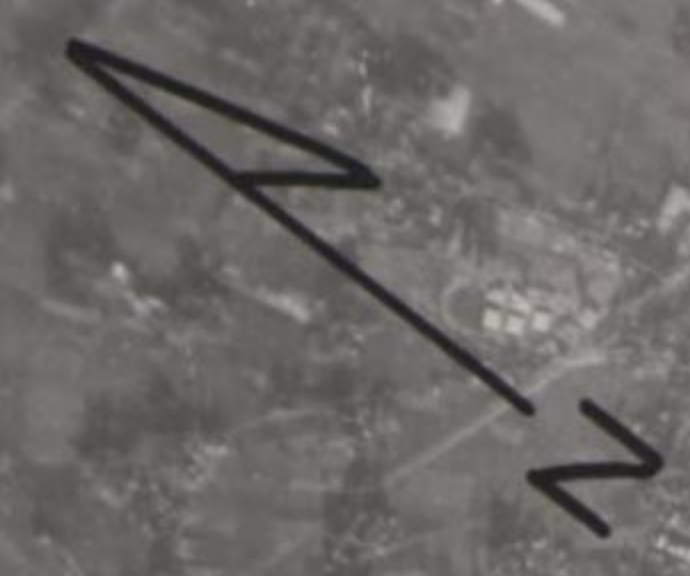
DECLASSIFIED
Authority NND 160000
By MNARA Date 8/3/05



2413 EASTMAN TOPOGRAPHIC SAFETY

2414 EASTMAN TOPOGRAPHIC SAFETY

2415 EASTMAN TOPOGRAPHIC SAFETY



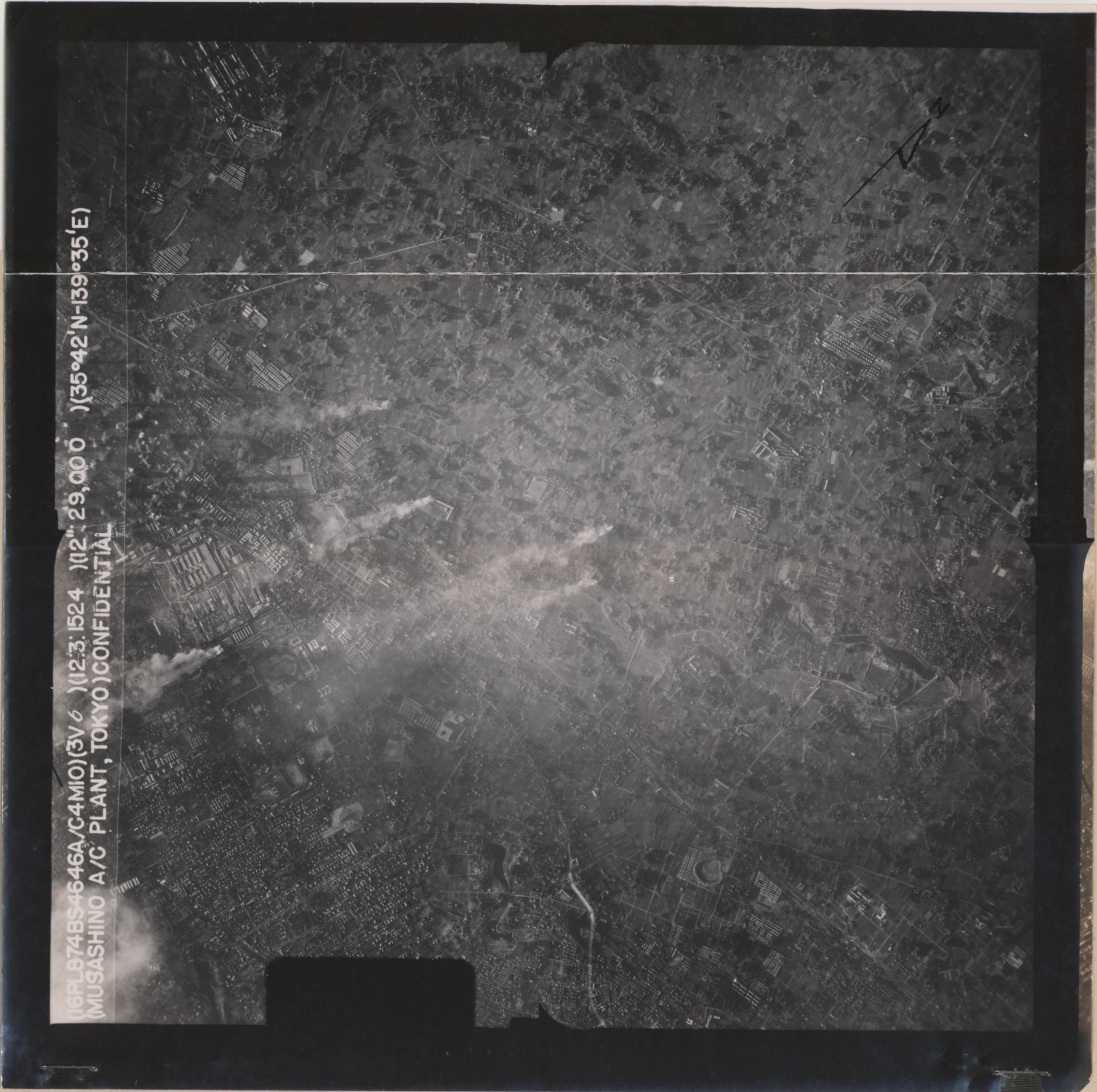
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7

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29

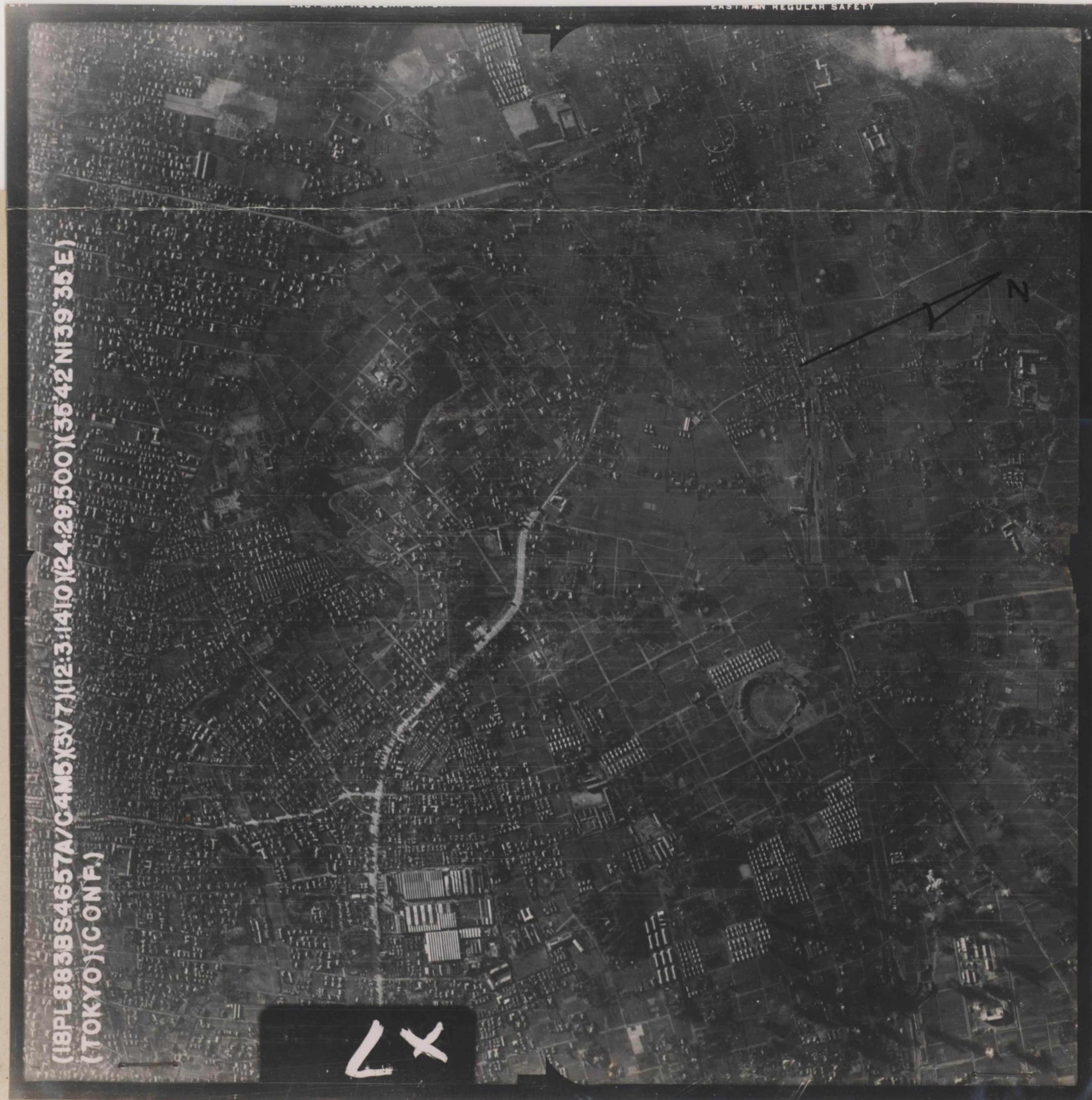
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Authority NND 168068
By MNARA Date 8/3/05

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(MUSASHINO A/C PLANT, TOKYO) CONFIDENTIAL



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Authority *NND 160008*
By *MMN/PA Dale 8/3/08*



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(TOKYO)(CONF.)

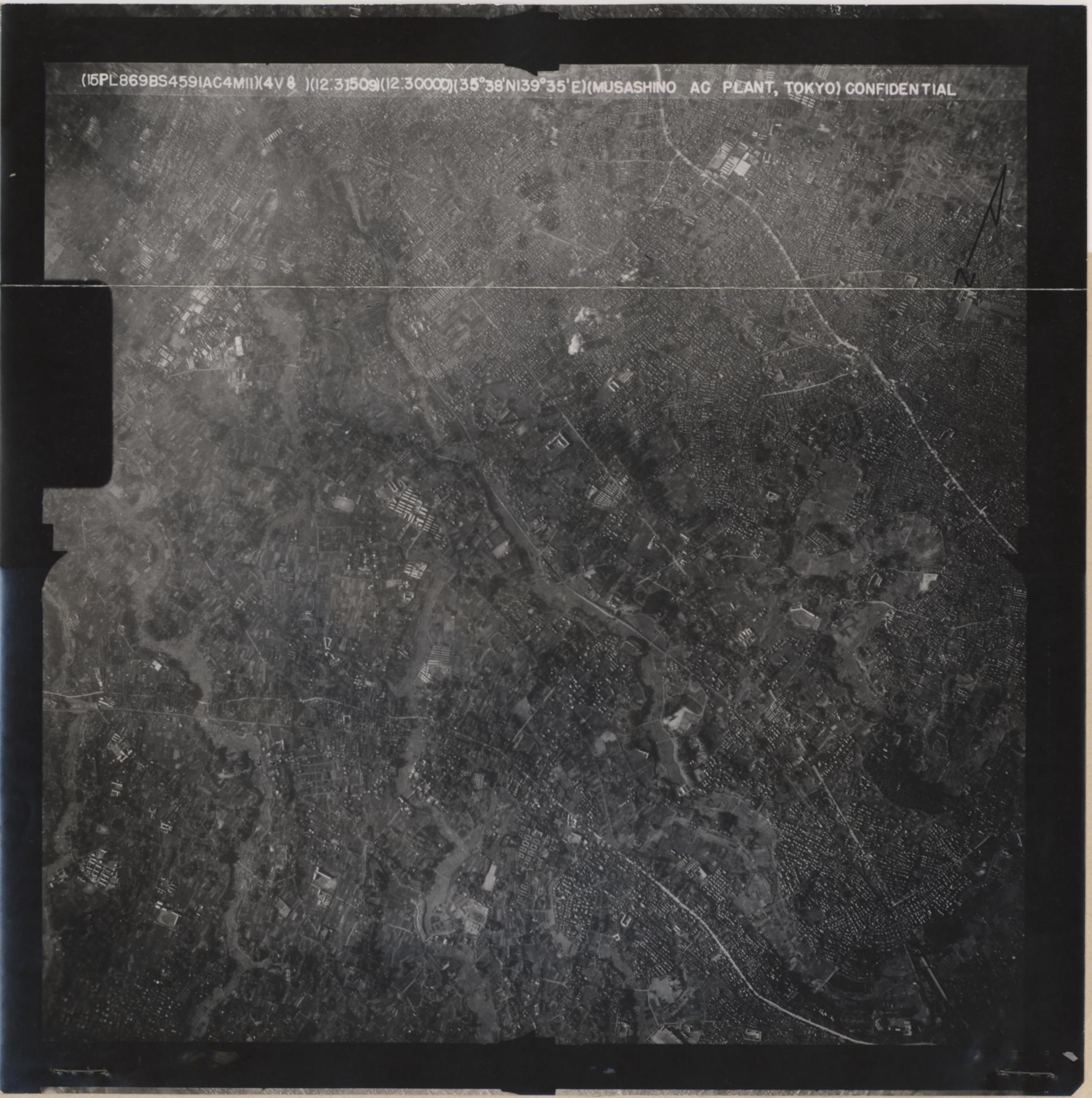
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EASTMAN REGULAR SAFETY

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31

DECLASSIFIED
Authority *NND 160008*
By *MNARA Date 8/3/08*

(15PL869BS4591AC4M11)(4V 8) (12.31509)(12.30000)(35°38'N139°35'E)(MUSASHINO AG PLANT, TOKYO) CONFIDENTIAL



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32

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Authority *NND 160008*
By *MNARA Date 8/3/08*

R E S T R I C T E D

73rd Bomb Wing

14 December 1944

Field Order 26

Mission No. 10

NAVIGATORS CONSOLIDATED REPORT

1. The navigators are learning from experience that winds of one hundred and thirty or forty knots are very tricky, and to over correct is better than to under correct. Many squadrons did not get over the initial point, even though it was visible for over ninety miles.
2. The Navigators feel that take-off time should be fairly late, making the trip back to the base, a night celestial hop. When this is not done the return trip gets very difficult, due to the low altitude of the sun.
3. Many navigators would like to have the B-3 driftmeter installed to enable them to obtain drifts above 30 degrees.
4. Navigation can be considered successful for this mission.

SECRET

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SECRET

Headquarters
73rd Bombardment Wing

Field Order No. 21
Mission No. 10
3 December 1944

CONSOLIDATED MISSION REPORT

BOMBARDIER

See paragraphs 41 through 47.

SECRET

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12 Dec 1944

J.G.H.

WEATHER SUMMARY

HEADQUARTERS 73RD BOMBARDMENT WING
CONSOLIDATED MISSION REPORT

FO #21
Mission #10
3 Dec 1944

In contrast to previous missions, the most serious weather factor was the excessively high winds enroute to and over the target. A cold low, centered over northern SAKHALIN ISLAND bounded on the south by a relatively warm high pressure belt, created a situation in which the pressure gradient increased with altitude.

The warm high extended some distance to the north of the base so that higher winds could be expected in the target area than would be possible with a constant pressure gradient between the low center and the base. This reasoning was followed due to the extreme scarcity of data in this area.

On this basis, winds of 170K at 35,000ft. were forecast for the target area with a high degree of confidence. The navigators' reports agreed very well with the winds forecast.

An analogous situation may be expected to develop about once a month with winds over the Empire in this velocity range for periods of 5 or 6 days. High winds also occur over the Empire whenever a strong surface cold front lies approximately 200 miles off the east coast regardless of whether there is a corresponding deep low (surface) over the Sea of Okhotsk or not.

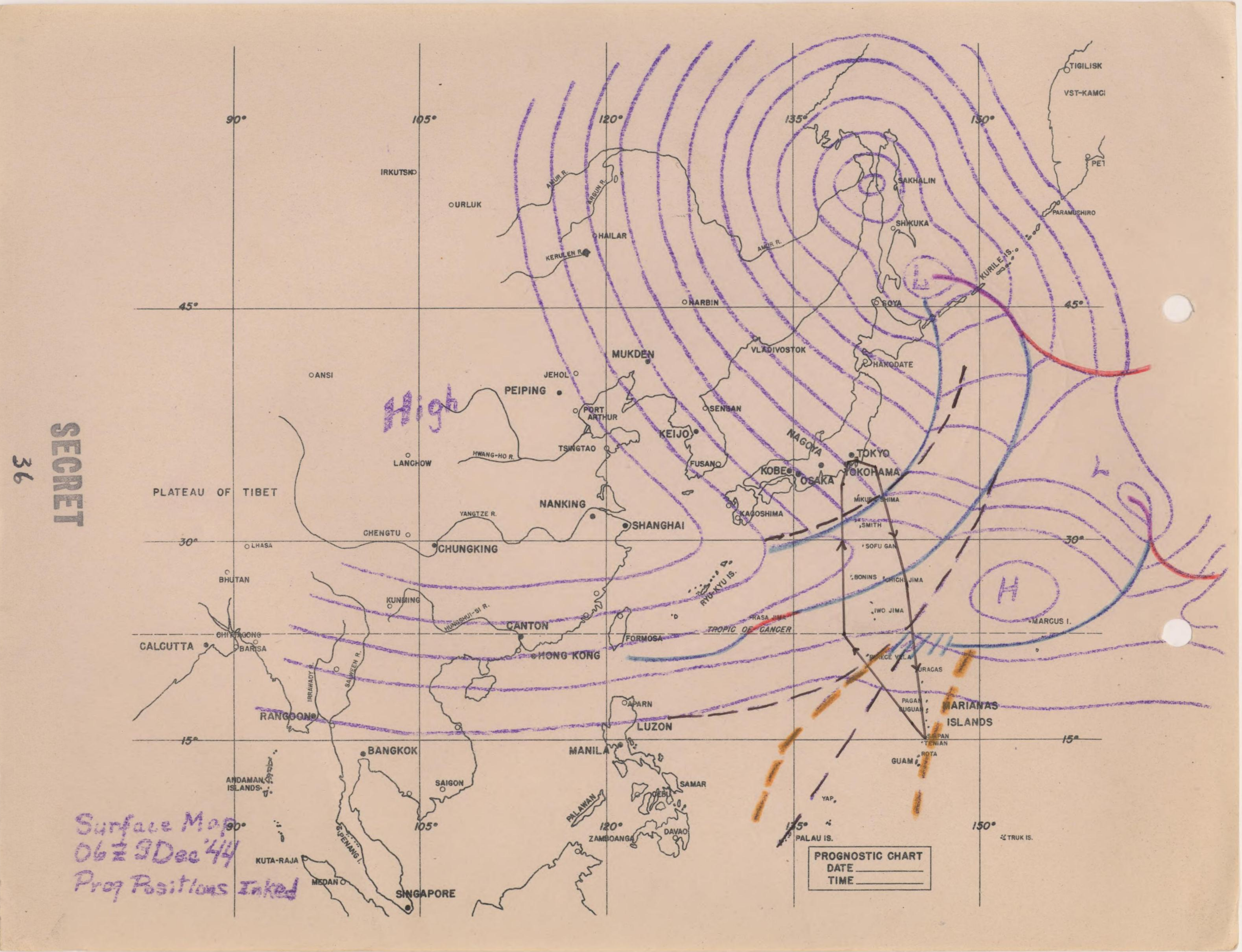
Two frontal systems lay between the base and target as shown on the enclosed synoptic map for target time with a trailing cold front fading out where it crossed the return route. The southernmost frontal system was encountered somewhat farther north than anticipated. The trough line shown crossing the routeout was very weak.

The zone between 24°N and 34°N (between the fronts) was completely covered with a layer of altostratus and altocumulus tops near 20,000ft. One plane returning from the target at 6,000ft. reported severe icing in the top of this layer with heavy continuous rain at lower levels throughout the zone. This weather ended abruptly at 25°N .

With the exception of the overcast of middle clouds over the entire frontal zone, where 8/10 coverage was forecast for the vicinity of each of the fronts only, the forecast was verified very well.

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Surface Map
 06 Z 3 Dec '44
 Prog Positions Inked

PROGNOSTIC CHART
 DATE _____
 TIME _____

DECLASSIFIED
 Authority NND 168062
 By MNARA Date 8/3/05

Pilots and Navigators Forecast 07-215Z Dec 44
Outgoing



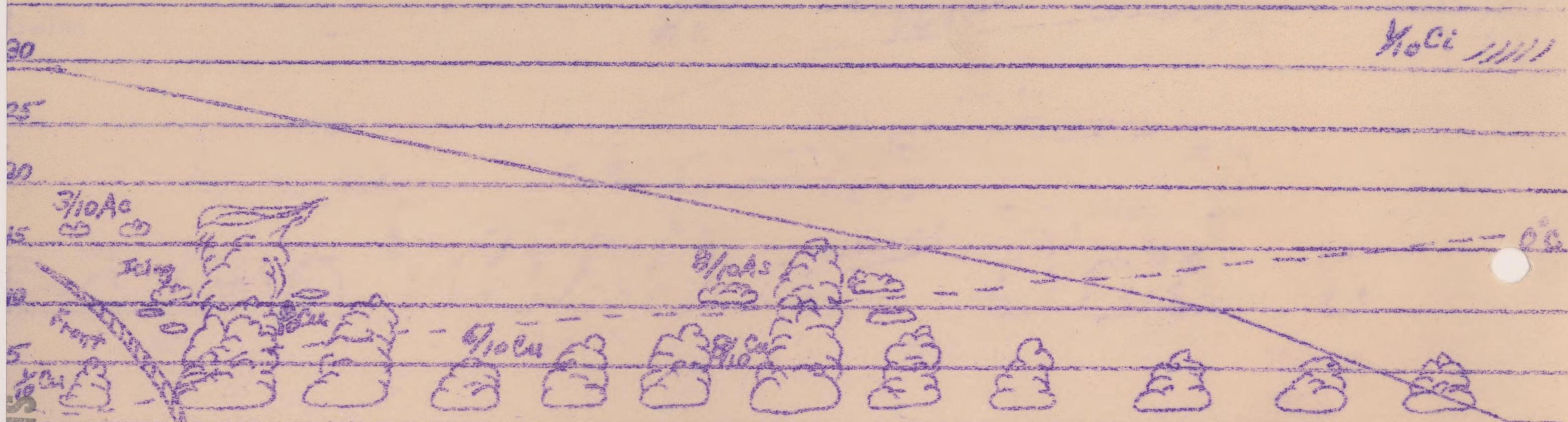
Time	20°N	25°N	30°N	Target
Base				29.97
Wt Stg	29.85			
Dirb	Nil	Mod in Clds	Light in Clds	Mod in clds Nil
Vis	15 Miles	15 Miles	15 miles	12 miles
5				270° 160K -53
10	220° 30K	-32°C 260° 45K	-34° 270° 105K	-35° 270° 145K -41
15	180° 25	-24°C 260° 35	-23° 260° 85	-25° 270° 125K -30
20	80° 15	-10°C 240° 25	-12° 255° 70	-13° 270° 110K -19
25	80° 15	0° 220° 20	2° 250° 50	-4° 260° 90K -11
30	80° 15	9° 180° 10	8° 240° 30	0° 250° 70K -4
35	80° 20	15° 110° 10K	16° 310° 25	12°
01	90° 18	24° 120° 10	22° 330° 20	20°
Surf	90° 18	28° 120° 10	26° 340° 14	24°

SECRET

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Pilots and Navigators Forecast 07-223, 2 Dec 44
Returning

MoCi 1111

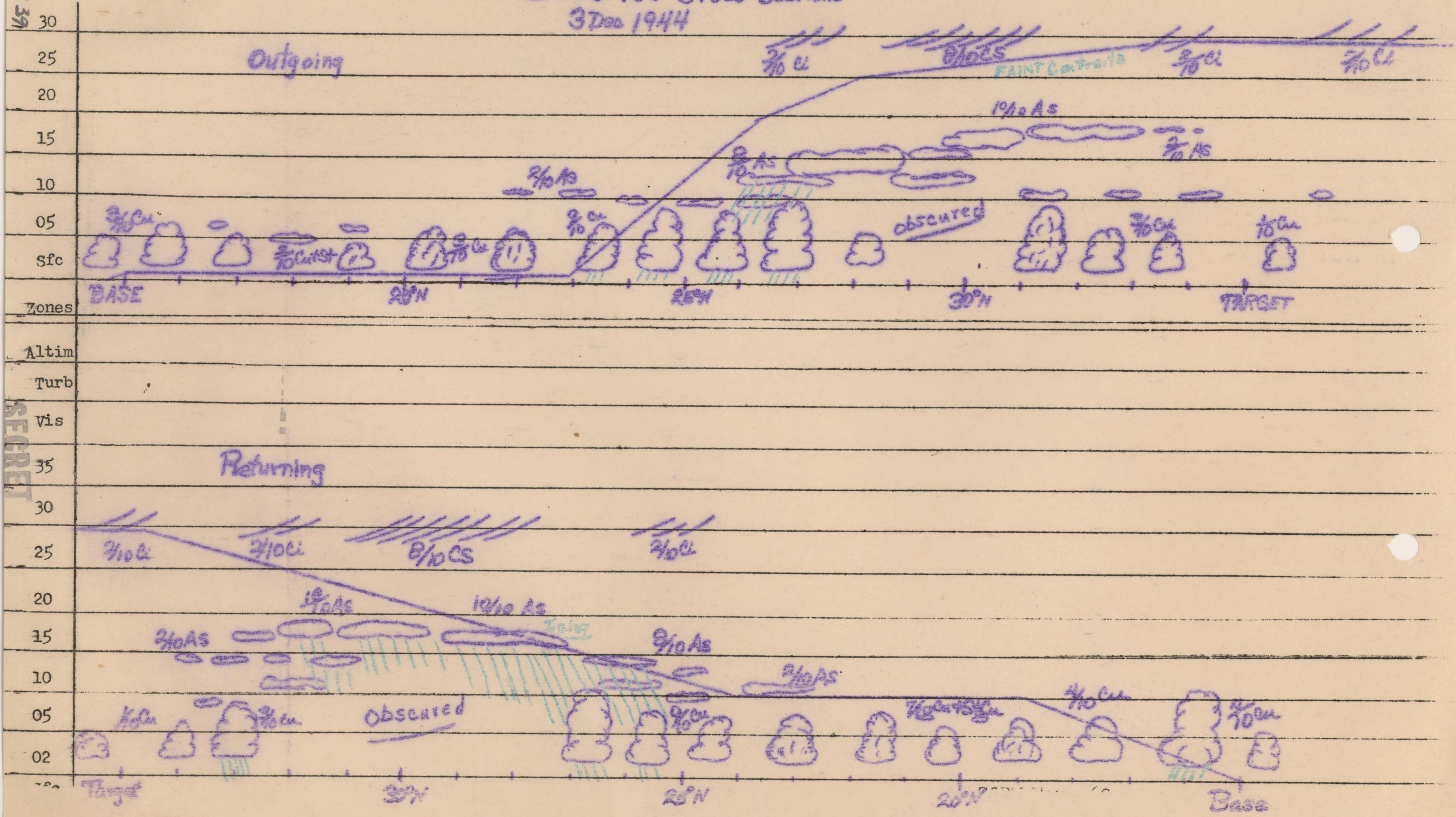


Target	36N	25N	20N	BASE
29.97				29.88
Turb Nil	Mod in Cld	Lgt in Cld	Mod in Cloud	NIL
Vis 15 mi	12 mi	15 mi	15 mi	15 mi
35 270 170K -53°	270 160K -53°	270 140K -49°		
30 270 165 -44	270 145 -41	270 135 -36	270 85K -35°	260 45K -34°
25 270 155 -34	270 125 -30	270 100 -26	260 75 -25	260 35 -23
20 270 140 -23	270 110 -19	260 80 -14	250 60 -13	240 35 -12
15 270 110 -16	260 90 -11	250 60 -6	250 45 -4	220 20 2
10 270 85 -11	250 70 -4	240 30 -2	240 30 9	130 10 8
05		300 25 10	310 20 13	110 10 16
04		330 17 20	330 15 21	120 10 23
03		340 14 23	340 12 24	120 10 26

SECRET

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Observed Cross Sections
 3 Dec 1944



Bombardier's Target Data

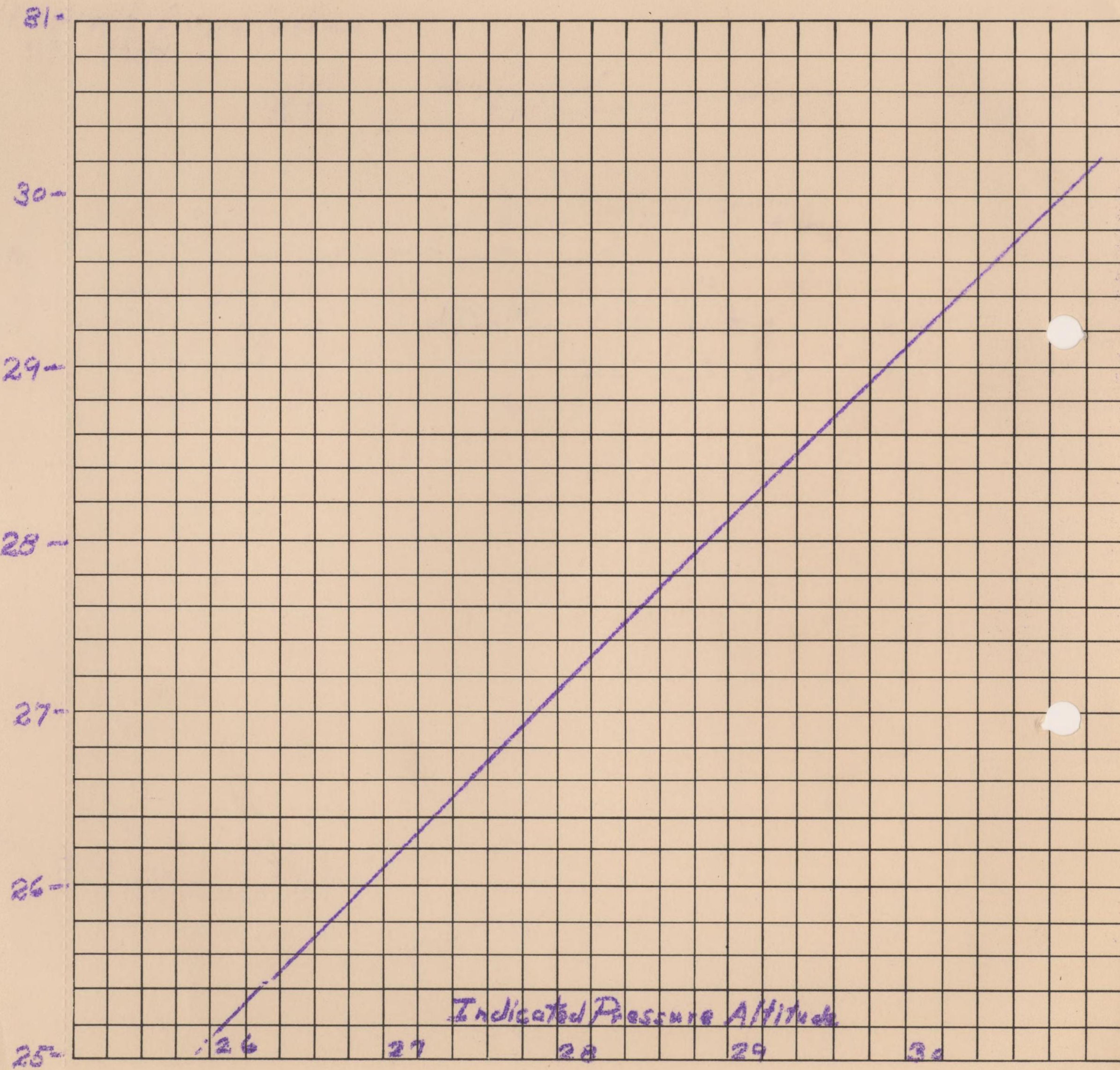
Tokyo 0600Z 3 Dec 44

IPA	28000	29000	30000	31000
Bomb Alt	27220	28210	29210	30200
Wind Dir	270	270	270	270
Wind Vel	184 mph	190 mph	190 mph	190 mph
Temp	-41°	-43°	-45°	-47°
Mean Temp	-19°	-20°	-21°	-22°

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Target Altimeter Setting 29.97°
 Pressure Altitude of Target +130 ft.

True Altitude Above Target



SECRET

MEMORANDUM

11 June 1945

TO: Colonel McInerney

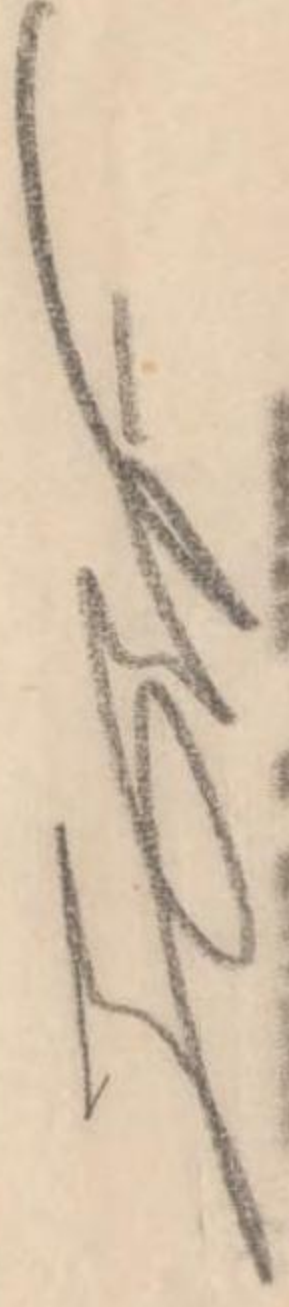
SUBJECT: U. S. Navy Bomb Tonnage Estimates

The following information is furnished pursuant to your request of this morning:

"According to the Navy Department, estimated bomb tonnages dropped on the Japanese homeland during 1945 was:

January	None
February	377.8
March	600
April	200
May	325
TOTAL	1502.8

It was emphasized by the Navy Department that these were estimates and it is trusted that they will serve your purposes satisfactorily."



EDWARD R. FINCH
Major, Air Corps
Chief, Foreign Statistics Branch

Mr. Santzig

SECRET

SECRET

FO NUMBER 24
MISSION NUMBER 10
3 December 1944

CONSOLIDATED MISSION REPORT

CFC GUNNERY

Mission Summary

1. Mission #10 of this wing encountered for the second time moderate opposition. The overall conclusions that can be drawn at this time are as follows:
 - a. Efficiency of gunnery employing CFC is increasing, because of greater confidence in the equipment.
 - b. The crews using the equipment against the enemy for the second time show marked improvement in crew discipline and fire control.
 - c. Mechanically, the equipment performance was very satisfactory.
 - d. Tactically, critiques have indicated failure of units to take full advantage of evasive action.
 - e. Secondary control of upper turrets by the ring sight gunner was practical and satisfactory when used.
 - f. E/A attacks from the nose section are almost impossible to counter.
2. The operation of the CFC equipment was as follows:
 - a. Complete CFC systems used (no total failure), operative - 100%.
 - b. Cal. .50 machine guns used operative - 96.5%.
 - c. 20 mm cannons used operative - 84%.
 - d. Turrets used operative - 98%.
3. Although 132,175 rounds of Cal. .50 ammunition (all types and 3,078 rounds of 20mm ammunition (all types), were expended, it is believed that this is not an accurate index of the ammunition necessary to accomplish the known damage.

The reasons for the high expenditure are as follows:

 - a. Lack of knowledge of the limitations of the equipment has led to firing on impossible targets.
 - b. A desire on part of the individual gunner to discourage and ward off E/A by the use of semi-accurate tracer fire at long range.
 - c. Excessive use of ammunition in test firing and clearing guns on return from enemy territory.
 - d. "a" and "b" above can be discontinued with experience and discipline; it is believed that "b" is desirable.
4. The following crew comments are submitted for consideration:
 - a. Additional ammunition (500 rds per gun carried now) is requested for lower turrets on missions at 30,000 feet, or above, within the limits of individual airplane's basic weight.

SECRET

4/1

SECRET

b. Critique was held at 73rd Wing Headquarters and included Group Gunnery and Armament Officers, Squadron Armament Officers, and Lead crew CPG Specialist Gunnery (580). All personnel expressed a desire that such a wing critique become SOP.

c. The problem of clearing the lower forward turret upon return from a mission is being investigated.

d. Difficulty is encountered in bringing tail turrets off limit stops. An auxiliary circuit must be devised to operate in event of such a malfunction in the back-out circuit.

e. Additional stress was laid on the mechanical efficiency of the equipment and on the fact that malfunctions were due to personnel failure in proper maintenance or mishandling of equipment.

f. All bright metal surfaces in any sighting station (such as Screw Heads) should be painted with lamp black paint. This is being accomplished.

Lessons Learned to Date:

1. Mention has been made in previous reports of this Command and the 58th Wing, of E/A nose attacks. This is in conflict with studies made as to the tremendous closing speeds of E/A and the B-29. The following opinions are submitted for consideration:

a. The nose attack is not a planned or purposeful attack, but rather an employment of an advantage of position by E/A.

b. The E/A in attempting to intercept a specific formation may find themselves above and ahead of the following formation or formations, and will attempt to make precise fly-through attacks from 11 through 1 o'clocks.

c. Due to an inability to evaluate the tremendous closing speeds the E/A will pass completely over the formation and his fire will be ineffective and/or, the E/A will attempt to correct by nosing down and will pass entirely below formation.

d. To substantiate the above, E/A when attacking from the forward sector will terminate below the formation in a nose-up position while trying to keep their guns bearing, this results in a power stall.

e. In addition, when any evasive action is employed that would tend to increase the deflection angle of the E/A, the E/A will disperse in confusion and disorder.

f. The difficulties in countering such an attack are apparent. This attack which is being greatly exploited by the enemy. Of 703 attacks to date, 266 have come from the nose sector. Our effectiveness was as follows:

- (1) 5 E/A destroyed.
- (2) 11 E/A probably destroyed.
- (3) 12 E/A damaged.

g. The effectiveness of the enemy in this type of attack has also been appreciable. All but two instances of serious battle damage (in the tail position) has been a result of this type of attack. On Mission No. 10, one B-29 was definitely lost in the target area, two forced to ditch with loss of their crews, and one returned to base with major damage, all from damage caused by this type of attack.

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2. Of all E/A encountered over the Japanese Islands, no final estimate can be made as to concentrations of attacks. While frontal attacks have been present in numbers as above, targets have presented themselves from all sectors. The word target is used in preference to attacks because all targets have not been in an attacking attitude, i. e., true pursuit curve or fly-through attacks.

3. Many analytical studies have been made in the U.S. in reference to modifications of the CFC installation such as removal of double parallel units, removal of forward fire power etc., it is the opinion of this Command, that, under present combat conditions over the Japanese homeland in daylight, the installation be retained as it is until further evidence indicates advisability of such change.

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CONSOLIDATED MISSION REPORT

GROUP FLIGHT ENGINEER AND GROUP ENGINEERING OFFICER

1. A/C Scheduled Out Failed to Take Off. _____ 6 _____
- 497th Group
A/C No. A-43----- Burned out battery and A.P.P. Hydraulic pressure to low to operate brakes.
- 498th Group
A/C No. T-21----- #2 & #3 engines backfired on start of take off run. Bomb door motor burned out.
- 499th Group
A/C No. 4650----- Cowl flap switch and motor inoperative. Starter burned out.
4647----- #1 Engine cut out on run up.
4673----- Oil press high and temp low. 75 RPM mag drop.
- 500th Group
A/C No. ----- Engine cut out at 1800 RPM.
2. A/C malfunctioning (Early return).
- 497th Group
A/C No. A-10----- #3 Engine Swallowed Valve.
A-45----- #2 Engine cutting out (Oil in distributor).
A-47----- Landing gear failed to retract.
- 498th Group
A/C No. T-4----- #17 Cylinder push rod base leaking oil.
T-7----- Prop governor inoperative on #4 Engine.
T-5----- #16 Cylinder on #1 Engine blown loose.
- 499th Group
A/C No. 4765----- Fuel transfer system failure.
4677----- Turbo regulator malfunction. RPM stuck at 2100.
- 500th Group
A/C No. 672----- Prop ground inoperative.
694----- Burned exhaust stack. Low manifold pressure.
3. A/C malfunctioning (A/C Completing Mission).
- a. Statement of Difficulties.
- (1) Generator Three reported out.
 - (2) Cylinder Head Gage New reported inoperative.
 - (3) Oil Leaks Seven reported excessive leaks.
 - (4) Cowl Flap Motor. Two reported inoperative.
 - (5) Oil Temp Regulators. Eight reported inoperative in automatic position.
 - (6) Prop Governor. Six reported sticking.
 - (7) Fuel Quantity Gages. 75% of gages reported inaccurate.
- b. Suggested Changes in Equipment.
- (1) Accurate fuel quantity gages are a necessity. Aircraft are being lost on each mission due to the fact that there is no accurate method of determining the actual amount of fuel consumed during flight.
 - (2) It is recommended that investigation be made as to the possibility of installing an emergency fuel transfer system. Failure of the present fuel transfer system has been the cause for a number of abortions.
 - (3) It is desirable to have a potentiometer type fuel quantity gage installed in the center wing and bomb bay tanks. This installation is desirable in that it is necessary to transfer fuel at high altitudes when cabin is pressurized under which condition it is not practical to get to the present gages now on the tanks.
 - (4) Distributor seals have high ratio in cause of magneto troubles.

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4. Damage to Aircraft.

497th Group

A/C No. A-47----- Wings; Wing tips and fuselage punctured by Enemy Flak. Service Group 3rd echelon, time 5 days.
A/C No. A-24----- 4; cut in rear portion of #1 nacelle. Three hours to repair.
A-26----- Bullet holes in wing fuel cell, No estimate.

498th Group

A/C No. T-30----- Flak hits in outboard wing section damaging spans, bulk heads and skin. Service Groups making repairs, time not estimated.
A/C No. T-49----- Hit in #3 nacelle by enemy fighters. Nacelle and engine damaged beyond repair. Squadron is repairing both.
A/C No. T-50----- Vertical stabilizer shot by its own guns and turret. Squadron during repair.
A/C No. T-3----- Flak damage to left forward bomb bay door. The Squadron is repairing door.
A/C No. T-45----- Hit by single piece of flak between radio operator and engineer station. Squadron doing repair work. Estimated time 10 hours.
A/C No. T-42----- Bullet entered #3 engine and hit the fins on #5 cylinder. Squadron replacing fins and repairing hole in cowl.

499th Group

None Reported.

500th Group

A/C No. 613----- Nose glass cracked. 3rd echelon. Three days with parts available
680----- Nose wheel retraction mechanism damaged. Tops of vertical stabilizer and lower right rear of fuselage punctured. Enemy flak and gun fire. Nose gear failed to lower on landing resulting in a crash landing. Service Groups assistance required. Time unknown.
721----- Fuselage and wings punctured. Enemy flak and gun fire. 3rd echelon. Five days.
660----- Fuselage and wing punctured. Enemy flak. Service Groups doing 3rd echelon work. Time ten days.
696----- Fuselage and wings punctured Enemy flak. 3rd echelon. Time five days.

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72007
 Date 19 Dec 1944
 BY King Photo Co

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 CONSOLIDATED MISSION REPORT
 PHOTOGRAPHIC

F. O. No. 21
 Mission No. 19
 Date of Mission 9 Dec 1944

	K-18	K-19	K-20	K-22	K-	K-	Total
a. Cameras installed	3	0	5	28	5	22	63
b. Cameras in aborting A/C	1	0	1	5	1	1	9
c. Cameras in lost A/C	0	0	0	1	0	2	3
d. Camera in A/C not lost but not returning.	0	0	0	0	0	0	0
e. Cameras with malfunctions	0	0	0	1	0	0	1
f. Cameras in operating condition not taking photos	2	0	4	11	4	8	29
g. Camera taking photos	0	0	0	10	0	11	21

1.

2. Breakdown of cameras taking photos by A/C Number:

A/C No.	Vertical camera		altitude	Number of photos taken		
	f. stop	shutter interval		K-18	K-19	K-20
1604	8	1/150	21000			8
1597	6.3	1/150	30000			10
1598	6.3	1/150	21000			4
1663	8	1/150	30600			12
1616	8	1/150	28600			27
1606	5	1/150	29000			67
1605	8	1/150	29000			62
1669	11	1/150	32400			4
1657	6	1/150	24500			6
1653	8	1/150	50000			7
1596						7
1592						3
1628						11
1602						10
1606						3
1610						10
1610						5
1699						15
1698						7
1682						15
1652						13

Incl 8

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3. Breakdown of cameras not taking photos by cause:

Cause	No. of cameras	Explanation
a. Mechanical failure	1	Magazine jammed.
b. Installation error		
c. Processing error		
d. Camera doors not open	2	
e. M/Switch not on		
f. Vacuum failure	2	Vacuum system out.
g. Power failure		
h. Light failure (Target)		
i. Enemy action		
j. Others	18	Too busy to take photos.
k.	2	Shutter set not in operation.
l.	4	Camera started too late;
m.		film exposed over water and
n.		clouds.
o. Total	29	

4. Remarks and suggestions:

5. Instructions for preparing this form:

a. This report will be prepared by Photo Lab Commander and certified by Group S-3:

b. Items:

1a, b, c, d, are self explanatory.

1e - The number of malfunctions due to installation or processing.

1f - Number of non-effective cameras due to camera m/switch not turned on, failure of vacuum to the extent of rendering pictures void, Intervalometer or camera fuze blown, tampering with intervalometer or camera, light conditions over target, enemy action, etc.

1g, g is equal to a minus b, c, d, e, and f.

Item 2 - The f. stop, shutter speed, interval between exposures, altitude will be given for only the vertical cameras by A/C number.

Item 3 - Give a definite explanation of the reason for any malfunction.

Certified by _____

~~GROUP S-3~~

Rank _____

Prepared by _____

~~PHOTO LAB COMMANDER~~

Rank _____

CONFIDENTIAL

Glenn F. Hellman
GLENN F. HELLMAN

1ST LT. AIR CORPS
WING PHOTO OFFICER

734 Bomb Wing
11 Dec 1944

FO #24

COMMUNICATIONS

1. Strike Reports: All primary and amplified strike reports with the exception of one strike report were received and receipted for by Wing Ground Station.
2. Tox-Type Transmissions: Wing Ground Station transmitted UGCPAG weather every hour on the half hour and time ticks every hour on the hour, traffic permitting.
3. Radio Frequencies: Frequencies 3145 and 11160 received slight interference as received by the Wing Ground Station. Majority of air-to-ground traffic was carried on the above-mentioned frequencies. Frequency 7310 received continuous heavy interference during the entire mission.
4. Navigation Aids: Aircraft did not take full advantage of navigational aids of this Island other than D/F bearings. During the mission, sixty-seven (67) bearings were requested, and only 49 bearings were obtained. Thirty six (36) of the bearings obtained were taken up frequency 3145.
5. Net Discipline and Security: Security of radio net in general was fair. Ground Station broke security by transmitting frequency in clear. One aircraft also broke security by transmitting in clear. Net discipline on all frequencies was fair. Continual interference by two of our own aircraft jammed frequency 3145.
6. Enemy Transmissions: Heavy interference on 7310 caused by two or three enemy stations transmitting continuously during entire mission.
7. Distress: Aircraft requested 16 urgent bearings on return leg of mission. Six (6) urgent and one SOS messages were sent by aircraft.

DECLASSIFIED
E.O. 11652, Sec. 3(E) and 5(D) of (E)
MND 74029
By CB/mt NARS, Date OCT 21 1975

SECRET

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6. Malfunctions:

SER	MALFUNCTION	497	498	499	500
SW-141A	Shorted	1			
RC-36	Interphone amplifier shorted	1			
	Noisy				1
	Shorted wire		1		
AN/ARN-13	Dynamotor overheated				1
	Receiver out				1
	Transmitter would not load on all channels		1		
AN/ARN-7	Antennae broken off in flight				1
	Compass out				1
RC-357	Marker beacon antenna lead-in broken		1		

SECRET

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73RD BOMB WING

S E C R E T

Field Order 21

17 December 1944

Mission No. 10

RADAR EMPLOYMENT AND RADAR EQUIPMENT PERFORMANCE

1. RADAR EMPLOYMENT:

a. AN/APQ-13 (Blind Bombing):

(1) No bombs were dropped by radar.

(2) A marked increase in the use of radar equipment for navigation was reported, both for fixes and for wind runs. Wind runs, in particular, were reported as useful in preparation for the bomb run when making landfalls in the target area.

(3) Cumulus clouds were detected by radar in numerous instances. Difficulty was experienced in some cases in distinguishing between islands and clouds at long ranges.

(4) Difficulties reported on earlier missions due to mutual interference among radar sets have largely disappeared. Careful tuning of the equipment, especially TR and RT boxes, has reduced interference to a minimum.

b. SCR-718 (Altimeter):

(1) Employment of the SCR-718 was normal.

c. SCR-695 (IFF):

(1) Employment of the IFF equipment was normal.

2. RADAR EQUIPMENT PERFORMANCE:

a. AN/APQ-13:

(1) Of 71 A/C reporting:

(a) 21 A/C reported excellent performance.

(b) 32 A/C reported satisfactory performance.

(c) 18 A/C reported unsatisfactory performance.

(2) 75% of all A/C reported radar equipment operational over the target.

b. SCR-718 (Altimeter):

(1) One (1) A/C reported SCR-718 failure.

c. SCR-695 (IFF):

(1) No A/C reported SCR-695 failure.

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S E C R E T

S E C R E T

CONSOLIDATED MISSION REPORT (RAVEN)

Combat Mission #10 - Flown 3 December 1944

1. Number of Radar Observers participating; 5.
2. Number of Radar Observers completed mission; 5.
3. Equipment employed;

Sets	AV Hours on	Malfunctions
AN/APR-4	5	None
AN/APR-5A	1	None
AN/APR-5	2	None
AN/APA-6X	2	RF meter inaccurate

4. Signals logged;

Band	Number	RF Range	Pulse Width Range
A-60-85	61	450-800	40-60 usec
B-85-120	56	250-600	35-60 usec
C-120-170	55	350-1000	12-15 usec
D-170-220	37	200-2800	10-50 usec
E-220-300	12		
F-300-1000	19		

Above, specify frequency

5. Track overlay; Annotated map showing;

- a. Track made good.
- b. Position in hourly intervals (2 time).
- c. Approximate position at intercept of signals. (Letters A-F are encircled to show location of A/C when signals in the band specified were heard).

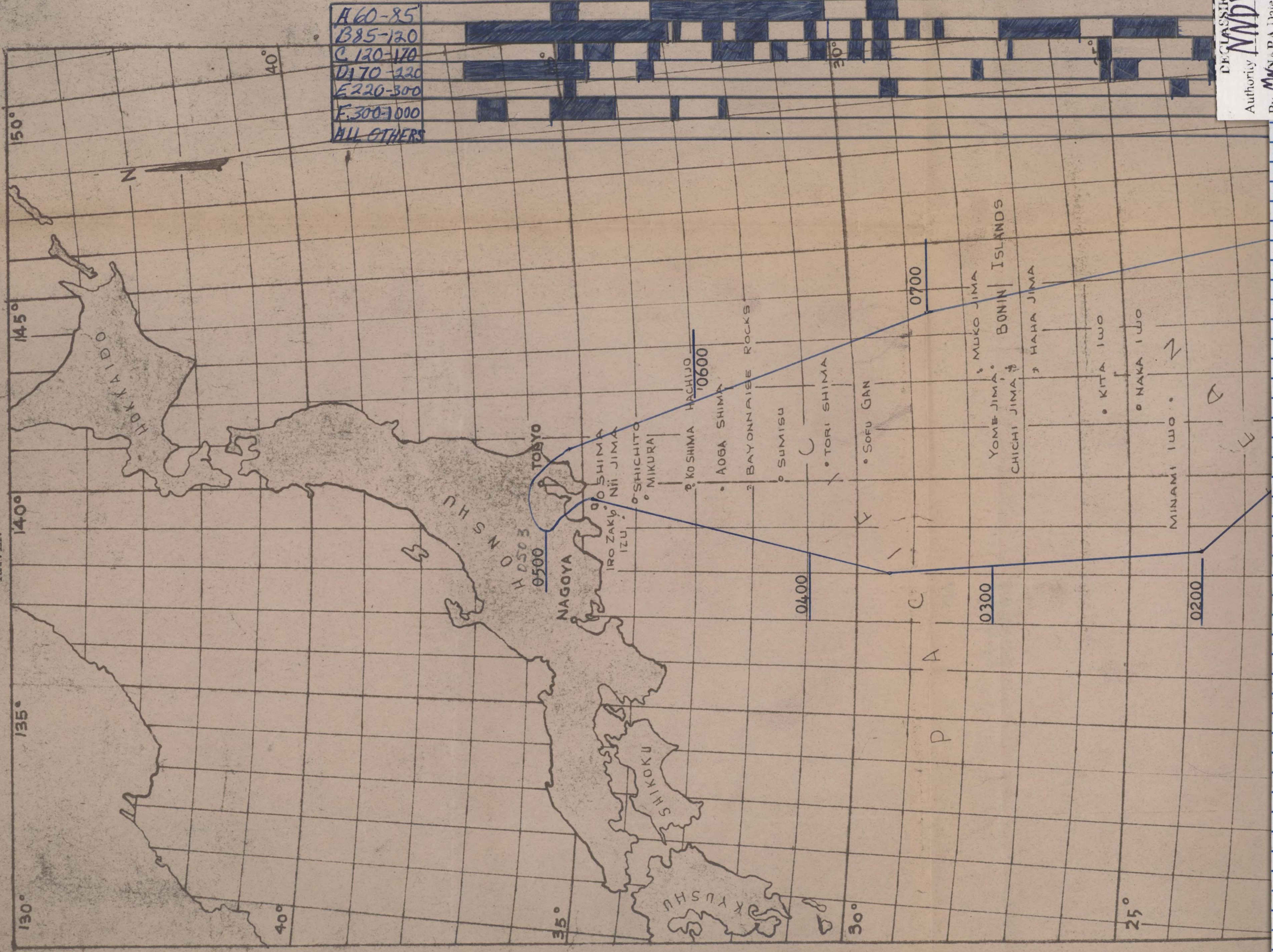
6. Remarks.

- a. Signals recorded in the 300-1000 MC channel and not viewed on the AP6X (the majority) must be considered doubtful due to excessive interference from the SCR 718.
- b. Numerous voice and CW signals were heard between 30-60 MC. Some signals in the same general frequency band were thought to be FM.
- c. Possibility of jamming of primary communications frequency being investigated.
- d. Evidence of enemy tracking was apparent when within 200 miles of the coast of Japan.
- e. Several instances of brief tracking followed by radar being shut down were noted.

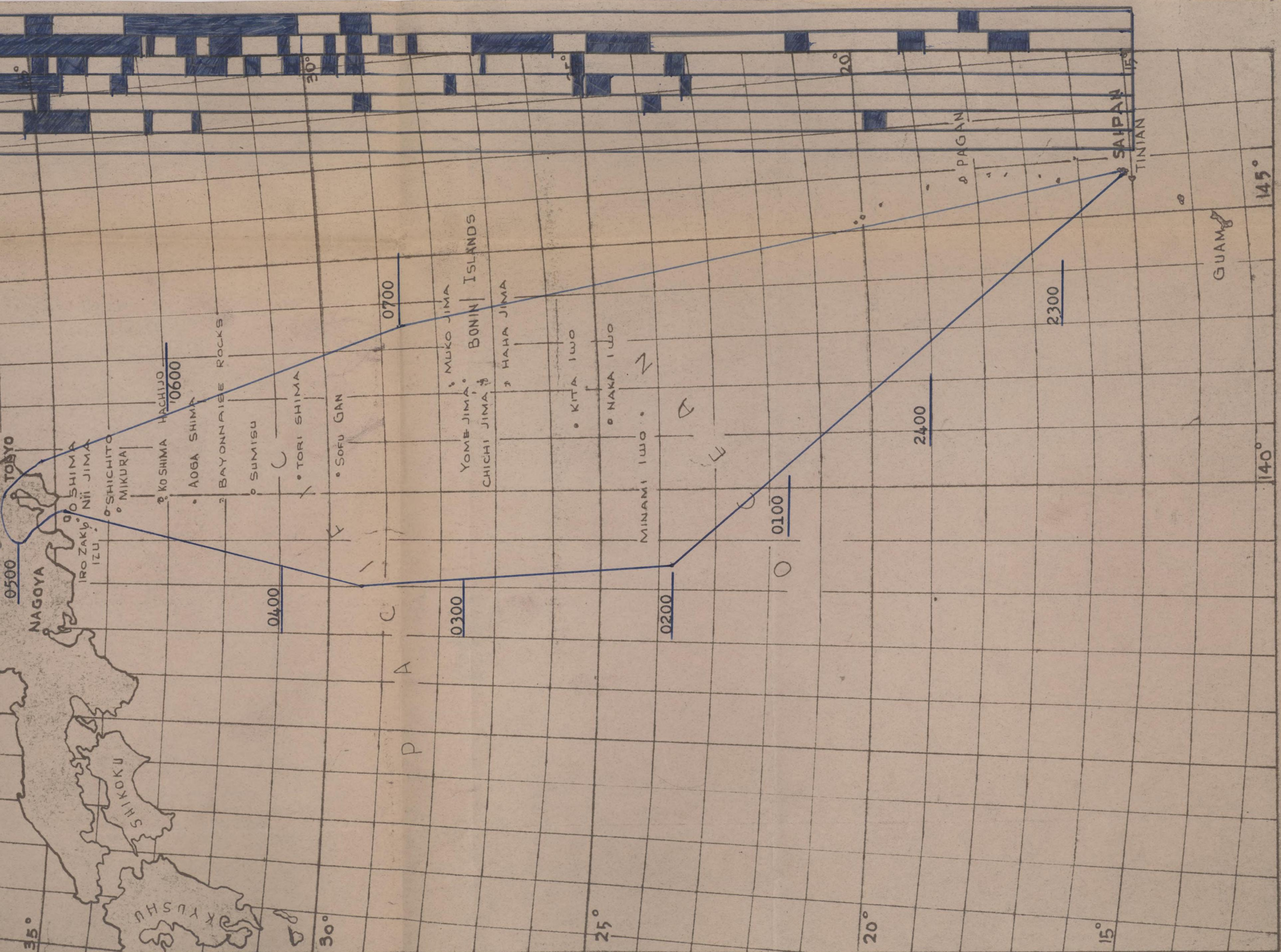
SECRET

5 Radar Observers

RAVEN



- A60-85
- B85-120
- C120-170
- D170-220
- E220-300
- F300-1000
- ALL OTHERS



Mission #10
 Date 3 Dec 44
 Take off 2219 - 2415
 Land 11040 - 1104

73RD BOMB WING

SECRET

FIELD ORDER NO 21

MISSION NO 10

3 Dec 44

Consolidated Statistical Summary

Primary Target MUSASHINO A/C PLANT - TOKYO, JAPAN

Table I Aircraft Participating

	NUMBER OF AIRCRAFT				
	TOTAL WING	497	498	499	500
A/C Scheduled to Take Off	92	25	25	19	23
A/C Falling to Take Off	6	1 a	1 d	3 g	1 i
A/C Airborne	86	24	24	16	22
Number of Non-Effective Sorties	13	5	3	2	3
Percent of Airborne A/C Non-Effective	15%	21%	13%	13%	14%
A/C Reaching Target	76	21 b	21 e	14 h	20 j
A/C Bombing Target	73	19 b	21 e	14 h	19 j
A/C Failing to Return to Home Base	5	1 c	3 f	0	1 k
Time of Take-off	2 DEC	2 DEC	2 DEC	2 DEC	2 DEC
Earliest	2215 Z	2256Z	2320 Z	2215 Z	2239 Z
Latest	2343 Z	2319Z	2343 Z	2232 Z	2254 Z
Time of Return	3 DEC	3 DEC	3 DEC	3 DEC	3 DEC
Earliest	1104 Z	1212Z	1246 Z	1120 Z	1104 Z
Latest	1450 Z	1409Z	1450 Z	1308 Z	1257 Z

- a. A/C 641 PUT MALFUNCTION; STARTER #4 ENGINE
 b. INCLUDES 4 A/C BOMBING T.O. & 4 A/C BOMBING SECONDARY TARGET
 c. A/C 641 DITCHED 22 MILES NE OF SAIPAN. CAUSE UNKNOWN
 d. A/C 609 FOULED PLUGS, BOMB BAY DOOR MOTOR BURNED OUT.
 e. INCLUDES 1 A/C BOMBING NIJIMA
 f. A/C 681 DITCHED CAUSE UNKNOWN
 g. A/C 432 MISSING " "
 A/C 735 MISSING " "
 A/C 650 COWL FLAP SWITCH & MOTOR INOPERATIVE. STARTER MOTOR BURNED OUT
 A/C 647 #1 ENGINE CUT OUT ON RUN UP
 A/C 673 OIL PRESSURE HIGH, COIL TEMP LOW. 75 RPM MAG. DROP
 h. EXCLUDES 2 A/C BOMBING PAGAN
 i. A/C 652 UNABLE TO REDUCE RPM BELOW 2600 ON #4 ENGINE
 j. INCLUDES 4 A/C BOMBING SECONDARY TARGET & 1 A/C LOST OVER TARGET
 k. A/C 656 LOST OVER TARGET; LAST SEEN WITH 2 ENGINES OUT & LOSING ALTITUDE -
 WITH FIGHTERS CONTINUING ATTACKS

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73RD BOMB WING

SECRETFIELD ORDER NO. 21MISSION NO. 103 Dec 44

Consolidated Statistical Summary

Table II Breakdown of Non-Effective Aircraft by Cause

CAUSE	NUMBER OF AIRCRAFT				
	TOTAL WING	497	498	499	500
Mechanical Failure	13	5 a	3 b	2 c	3 d
Personnel Failure					
Flight Conditions					
Enemy Action					
Unknown					
Other					
Total	13	5	3	2	3

a. A/C 593 BOMB RACK MALFUNCTION

A/C 597 #2 ENGINE FAILURE. SWALLOWED VALVE.

A/C 628 BOMB RACK MALFUNCTION

A/C 413 #3 ENGINE WOULD NOT OPERATE ON AUTO LEAN. #2 OIL SEAL BROKE, FLOODING MAGNETO.

A/C 426. LANDING GEAR WOULD NOT RAISE ON TAKE-OFF. WHEN ENGINES STARTED TO OVERHEAT BOMBS WERE JETTISONED TO LIGHTEN LOAD. TO SAVE BOMB BAY TANKS BOMBS WERE DROPPED ARMED. RESULTING EXPLOSION OF BOMBS IN SEA DAMAGED A/C. A/C LANDED AT TINIAN.

b. A/C 611 #17 CYLINDER PUSH ROD BASE LEAKING OIL. A/C RETURNED BECAUSE OF FIRE HAZARD.

A/C 468 PROP GOVERNOR & FEATHERING PUMP OUT ON #4 ENGINE

A/C 614 #16 CYLINDER #1 ENGINE WAS BLOWN LOOSE.

NOTE: A/C 607 WAS UNABLE TO REACH PRIMARY TARGET DUE TO #9 INTAKE PIPE BLOWN OFF.c. A/C 765 FUEL TRANSFER SYSTEM FAILURE & TURBO REGULATOR MALFUNCTION
A/C 677 PROP GOVERNOR FAILURE #3 ENGINE.NOTE: BOTH A/C BOMBED PAGAN AS A TARGET OF OPPORTUNITY

d. A/C 672 #3 ENGINE CUT OUT AT 1800 RPM

A/C 694 BURNED OFF EXHAUST STACK.

A/C 436 BOMB RACK MALFUNCTION.

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73RD BOMB WING

Consolidated Statistical Summary

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Table III Bombing Run

MISSION NO. 10

GROUP	TARGET NUMBER	NO. A/C REACHING TARGET	A/C DROPPING BOMBS			TIME OF RELEASE		ALTITUDE OF RELEASE		VISUAL BOMBING A/C SIGHTING FOR:			RADAR BOMBING		A/C OPERATED BY:	
			IN FORMATION	INDIVIDUAL	TOTAL	EARLIEST	LATEST	LOWEST	HIGHEST	R & D	RANGE	DROP ON LEADER	A/C SIGHTING	A/C DROPPING ON LEADER	C-1	MANUAL
497	1	12	11	0	11	0600Z	0610Z	29600	31500	2		9	0	0	2	9
	2	5	3	1	4	0550Z	0555Z	31100	33100	2		2	0	0	0	4
	3	4	2	2	4	0546Z	0629Z	26800	33100	2		1	1	0	1	3
	Total	21	16	3	19	0546Z	0629Z	26800	33100	6		12	1	0	3	16
498a	1	20	20	0	20	0620Z	0630Z	28300	31000	2		18	0	0	2	18
	3	1	0	1	1	0605Z		27,350		1		0	0	0	1	0
	Total	21	20	1	21	0605Z	0630Z	27350	31000	3		18	0	0	3	18
499	1	14	14	0	14	0503Z	0520Z	28300	32800	3		11	0	0	2	12
	3	2	0	2	2	0227Z	0606Z	16000	23300	2		0	0	0	0	2
	Total	16	14	2	16	0227Z	0606Z	16000	32800	5		11	0	0	2	14
500	1	20	14 b	0	14 b	0512Z	0525Z	24500	31550	3		11	0	0	3	11
	2	5	4	0	4	0515Z	0524Z	28170	30300	1		3	0	0	1	3
	Total	20	18 b	0	18 b	0512Z	0525Z	24500	31550	4		14	0	0	4	14
WING	1	66	59	0	59	0503Z	0630Z	24500	32800	10		49	0	0	9	50
	2	10	7	1	8	0515Z	0555Z	28170	33100	3		5	0	0	1	7
	3	7	2	5	7	0227Z	0629Z	16000	33100	5		1	1	0	2	5
	Total	78	68	6	74	0227Z	0630Z	16000	33100	18		55	1	0	12	62

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TARGET NUMBERS: #1 - MUSASHINO A/C PLANT, TOKYO, JAPAN

#2 - TOKYO URBAN & DOCK AREAS

#3 - TARGETS OF OPPORTUNITY: 497 OMIYA, TSUCHURIA, NANJIJO JIMA;

a. INCLUDES 3 A/C MISSING AFTER LEAVING TARGET AREA.

b. EXCLUDES 1 A/C LOST OVER TARGET

498 NIJIMA; 499 PAGAN

S-E-C-R-E-T

S-E-C-R-E-T

73RD BOMB WING
 3 December 1944

Consolidated Statistical Summary

FIELD ORDER NO. 21

Table IV Loading & Disposal of Bombs

MISSION NO. 10

GROUP	TYPE & WEIGHT OF BOMBS	FUSE SETTING		L O A D E D				R E L E A S E D O N T A R G E T						JETTISONED		UNKNOWN		RETURNED		PER CENT OF BOMBS RELEASED ON TARGET
		NOSE	TAIL	ON ALL AIRCRAFT		ON AIRBORNE AIRCRAFT		PRIMARY Musashino A/C Plant		SECONDARY Tokyo Urban & Dock Area		Targets Of Opportunity		No.	Tons	No.	Tons	No.	Tons	
				No.	Tons	No.	Tons	No.	Tons	No.	Tons	No.	Tons							
497	500lb GP AN M64 500lb IB M76	.1 Inst	.01 Non-Delay	175 75	43.75 18.75	168 72	42 18	77 32	19.25 8	28 12	7 3	27 11	6.75 2.75	36 16	9 4			1 .25	78%	
498	500lb GP AN M64 500lb IB M76	.1 Inst	.01 Non-Delay	189 81	47.25 20.25	168 72	42 18	133 58	33.25 14.5	0 0	0 0	7 3	1.75 .75	25 10	6.25 2.5			3 1	.75 .25	84%
499	500lb GP AN M64 500lb IB M76	.1 Inst	.01 Non-Delay	133 57	33.25 14.25	112 48	28 12	98 42	24.5 10.5	0 0	0 0	14 6	3.5 1.5							88%
500	500lb GP AN M64 500lb IB M76	.1 Inst	.01 Non-Delay	161 69	40.25 17.25	154 66	38.5 16.5	89 37	22.25 9.25	28 12	7 3	0 0	0 0	23 11	5.75 2.75	7 b 3 b	1.75 .75	7 3	1.75 .75	75%
WING	500lb GP AN M64	.1	.01	658	164.5	602	150.5	397	99.25	56	14	48	12	84	21	7	1.75	10	2.5	
TOTAL	500lb IB M76	Inst	Non-Delay	282	70.5	258	64.5	169	42.25	24	6	20	5	37	9.25	3	.75	5	1.25	
TOTAL				940	235	860	215	566	141.5	80	20	68	17	121	30.25	10	2.5	15	3.75	83%

a. EXCLUDES BOMBS DROPPED ON PAGAN
 b. A/C LOST OVER TARGET -- MAY HAVE BOMBED
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MISSION NO.

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Consolidated Statistical Summary

Table V Bombing Accuracy
Musashino A/C Plant

Target

G R O U P	Bombs Released On Target		Number of Hits and Distance from Target											
	No.	Tons	0-500'		500-1000'		1000-2000'		2000-3000'		TOTAL			
			No.	%	No.	%	No.	%	No.	%	No.	%		
497	109	27.25	5	5%	2	2%	1	1%	6	6%	14	13%		
498	191	47.75	0	0	0	0	11	6%	24	13%	35	19%		
499	140	35.00	NO HITS WITHIN 3000 FEET		3000 FEET		3000 FEET							
500	126	31.50	NO HITS WITHIN 3000 FEET		3000 FEET		3000 FEET							

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DECLASSIFIED
Authority NND 160000
By MNA/PA Date 8/3/05

73RD BOMB WING

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FIELD ORDER NO. 21MISSION NO. 10
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Consolidated Statistical Summary

Table VI Attacks & Passes by Enemy Aircraft

DIRECTION	ALTITUDE															Total Wing	
	HIGH			LEVEL			LOW			TOTAL			500	500			
	497	498	499	500	497	498	499	500	497	498	499	500			497		498
0100	1	9	3		5	12		7	1	5	29	14	7	26	32	21	86
0200	1			5	3		6	1	3		15		2	6		26	34
0300	12	1			11	8		1	6		1	2	29	9	1	3	42
0400					3	5					4	3	5			4	12
0500	2			3	2	1			4	2		5	8	3		8	19
0600	2	1	1		3	3		6	1	7		6	3	10	1	13	27
0700	1				6	1		9	2	2	1	5	9	3	1	14	27
0800	3							5				12	3			17	26
0900	8	4		3	5	2	1	9	5			19	18	6	1	31	56
1000	6			10	3			26		2		22	9	2		58	69
1100	3	13	1	4	1	7		12			4	17	5	20	5	33	63
1200	1		2	4	1	7		23	1	7	7	14	4	14	9	41	68
TOTAL	40	27	7	30	37	49	1	104	23	28	42	135	100	104	50	269	523

Table VII Enemy Aircraft Destroyed & Damaged

GROUP	DESTROYED		PROBABLY DESTROYED		DAMAGED	
	497	498	499	500	497	498
497	3		3		1	
498		3		2		6
499		1	1	1		2
500		3		5		9
TOTAL WING	10		11		18	

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Consolidated Statistical Summary

Table VIII Aircraft Lost and Damaged

CAUSE	AIRCRAFT LOST				AIRCRAFT DAMAGED					
	TOTAL	497	498	499	500	TOTAL	497	498	499	500
	WING					WING				
ENEMY A/C	1				1 ^c	3	1	2		
ENEMY FLAK						6		3		3
ENEMY A/C & FLAK						3	1			2
ACCIDENT										
SELF-INFLICTED						2	1	1		
UNKNOWN	4	1 ^a	3 ^b							
OTHER										
TOTAL	5	1	3	0	1	14	3	6	0	5

^a A/C 461 - Ditched. Believed to be due to lack of fuel.^b A/C 681 - Ditched. A/C 432 Missing. A/C 735 Missing.^c A/C 656 - Seen losing altitude over target - 2 engines out, fighters attacking.

Table IX Repair of Damaged Aircraft

AIRCRAFT TO BE REPAIRED BY:	497	498	499	500	TOTAL
TACTICAL GROUP	2	5	0	3	10
SERVICE GROUP	0	1	0	2	3
DEPOT GROUP	1 ^a	0	0	0	1
TOTAL	3	6	0	5	14
NOT REPARABLE	0 ^a	0	0	0	0

^a A/C 426 Not yet decided whether or not A/C is repairable.58
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Consolidated Statistical Summary

TABLE X Casualties

	Total	F	CP	NB	BN	FE	ROM	RO	CFC	LG	BG	TG	Other
<u>Killed:</u>	NONE												
<u>Missing:</u>													
497th	11	1	1	1	1	1	1	1	1	1	1	1	0
498th	23	2	3	2	2	2	2	2	2	2	2	2	0
499th	0	0	0	0	0	0	0	0	0	0	0	0	0
500th	12	1	1	1	1	1	1	1	1	1	1	1	1
Total Wing	4	4	5	4	4	4	4	4	4	4	4	4	1
<u>Seriously Injured:</u>	NONE												
<u>Slightly Injured:</u>													
497th													
498th	1												
499th													
500th													
Total Wing	1												
<u>Total Casualties:</u>													
497th	11	1	1	1	1	1	1	1	1	1	1	1	0
498th	24	2	3	2	2	2	2	2	2	2	2	2	0
499th	0	0	0	0	0	0	0	0	0	0	0	0	0
500th	12	1	1	1	1	1	1	1	1	1	1	1	1
Total Wing	47	4	5	4	4	4	4	4	4	4	4	4	1
<u>No. Participating:</u>													
497th	269	24	24	24	24	24	24	24	24	24	24	24	5
498th	272	24	24	24	24	24	24	24	24	24	24	24	9
499th	192	16	16	16	16	16	16	16	16	16	16	16	16
500th	246	22	22	22	22	22	22	22	22	22	22	22	4
Total Wing	979	86	86	86	86	86	86	86	86	86	86	86	34

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Consolidated Statistical Summary

Table XI Fuel Consumption Data

	TOTAL WING	GROUP			
		497 a	498 b	499 c	500 d
Average Fuel Aboard	8005	8009	8000	8013	8000
Average Flying Time	14:01	14:09	14:35	13:45	13:36
Average Distance - Nautical Air Miles	2937	2938	2976	2954	2892
Fuel Used:					
Average	7190	7199	7136	7262	7176
Median	7241	7258	7200	7300	7208
Maximum	7880	7700	7880	7800	7700
Minimum	6400	6600	6400	6600	6793
Fuel Remaining:					
Average	815	810	864	744	824
Median	764	763	800	700	792
Maximum	1600	1400	1600	1400	1207
Minimum	120	300	120	200	300
Av Gallons per Hour	513	507	489	528	528
Av Gallons per Mile	2.45	2.45	2.40	2.46	2.48
Total Gasoline Con- sumed & Lost	573,653	158,785	161,151	109,054	144,665

- a. BASED ON 19 A/G
 b. BASED ON 17 A/G
 c. BASED ON 14 A/G
 d. BASED ON 20 A/G

APPROXIMATE GROSS WEIGHT AT TAKE-OFF 137,500 POUNDS

TIMES AT VARIOUS ALTITUDES:

497 1000 FT 4:15, 18000 FT :15, 30,000 FT :55
 498 1000 FT 4:25, 29000 FT 1:25
 499 1000 FT 3:45, 20000 FT :15, 30,000 FT 1:00
 500 1000 FT 3:30, 20000 FT :25, 30,000 FT 1:07

NOTE: DATA FOR MOST A/G ARE CALCULATED, NOT SERVICE

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73RD BOMB WING

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Consolidated Statistical Summary

Table XI Ammunition Consumption Data

	AMMUNITION EXPENDED PER GROUP					TOTAL
	497th	498th	499th	500th		
20 MM.						
Fired	819	1038	147	1074		3078
On Lost A/C	120	330	0	120		570
Total	939	1368	147	1194		3648
.50 Cal.						
Fired	41010	39371	9919	41875		132175
On Lost A/C	6000	18000	0	6000		30000
Total	47010	57371	9919	47875		162175

	AMMUNITION EXPENDED PER PLANE					TOTAL WING
	497th	498th	499th	500th		
Upper front	617	469	120	613		1455
Lower front	295	433	161	391		320
Upper rear	276	234	68	339		229
Lower rear	364	500	134	428		357
.50 Cal. Tail	351	551	130	323		339
Total .50 Cal.	1903	2187	613	2094		1700
20 MM Tail	39	58	9	54		40

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SECRET	
By Authority of the Commanding General	
19 Nov 44, 739W Lt	Initials
Date	

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By Auth of CG 3d BW

Initials

11/15/44

Date

73d Bomb Wg

SAIPAN

2100 Z 15 Nov 44

FO 21

MAPS: Sectional Aeronautical charts: MT FUJI, MARIANAS ISLANDS and GUAM, scale 1:1,000,000. Long Range Navigation Charts: CAROLINE ISLANDS and JAPAN, scale 1:3,000,000. Target Folder 90.17 JAPAN.

1. a. (1) HV intense accurate AAA in TOKYO area dnd along Northwest shore of TOKYO BAY, preliminary analysis reveals at least 150 guns between 90.17 - 357 and FUNABASHI. HV moderate to intense accurate AAA on CHIBA PENINSULA and along shore of SAGAMI BAY.
 - (2) Latest estimates indicate approximately 400-500 fighter I/C in TOKYO - NAGOYA area. Types known to be present are Sekes, JACKS, FRANKS, NICKS, OSCARS and possibly IRVINGS.
 - b. (1) Five lifeguard submarines will be located at the following points:
 - (a) 35° 27'N - 141° 35'E
 - (b) 34° 15'N - 138° 21'E
 - (c) 32° 38'N - 142° 25'E
 - (d) 29° 37'N - 143° 15'E
 - (e) 25° 00'N - 144° 10'E
 - (2) (a) Com Air Forward will provide air defense of the operating bases.
 - (b) Dumbo airplanes will patrol in the vicinity of the following points on the return route:
 - 1.
 - 2.
 - 3.
 - 4.

(To follow later)
2. 73d Wg Atks targets TOKYO (date to follow).
 Primary target: 90.17 - 357 (35° 43'N - 139° 35'E).
 Secondary and Last Resort target: Docking facilities and built up area in TOKYO bounded by coordinates (35° 39'N - 139° 46'E) (35° 43'N - 139° 47' 30"E) (35° 43'N - 139° 52'E) (35° 39'N - 139° 52'E). Location of Secondary and Last Resort target shown by attached map of TOKYO area.
 Method of bombing: Sq pattern (A/C drop on Sq Leader, Deputy Leader sight for range).
 Primary target: Visual with radar as aid.
 Secondary and Last Resort target: Complete radar approach with final adjustment by visual sighting if possible. Sq Leader makes decision at or before IP whether to Atk primary or secondary target. See Annex 1.

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Formation: Combat Gps composed of two 9-4/C Sqs in visual contact. Route formation from Departure Point to top of climb then Sqs in close formation until Turn Point (35° 19'N - 141° 36'E) or beyond until E/4 cease Atk. Then route formation to point opposite IWO JIMA. Then individual A/C to base.

3. a. 497th Bomb Gp furnishes two Sqs for lead combat Gp and lead Sq of 3rd Combat Gp.
- b. 498th Bomb Gp furnishes two Sqs for 2nd Combat Gp and 2nd Sq of 3rd Combat Gp.
- c. 499th Bomb Gp furnishes two Sqs for 4th Combat Gp.
- d. 500th Bomb Gp furnishes two Sqs for 5th Combat Gp.

x. (1) 1st, 3rd and 5th Combat Gps Atk via Route "A" as follows:

Route out and back: See Inclosure 1 - Flight Plan Route "A".

IP: MOUNT FUJI (35° 23'N - 138° 42'E). Between IP and target descend to bombing altitude, Lead Sq 28,000 ft, 2nd Sq 28,500 ft P.I.A.

Axis of Atk: Primary target - 63° true. Secondary target - 71° T.

Aiming point: Primary - center of West block. Secondary - Radar Northern tip of island at mouth of SUMIDA RIVER. Visual:

Any industrial target in area as specified in Par 2 above.

Maneuver after Atk: Primary target - turn left 45° then right 90° letting down 1,000 ft at 205 MPH. Proceed to TP (35° 19'N - 141° 36'E). Secondary target - turn right 45° then left turn on course to TP letting down 1,000 ft at 205 MPH.

(2) 2nd and 4th Combat Gps Atk via Route "B" as follows:

Route out and back: See Inclosure 2 - Flight Plan Route "B".

IP: OHAMI AIRFIELD (35° 28'N - 140° 25'E). Between IP and target descend to bombing altitude, Lead Sq 29,000 ft, Second Sq 29,500 ft.

Axis of Atk: Primary target - 290° true, Secondary - 293° true.

Aiming point: Primary target - power house in center of East block.

Secondary - Radar: Mouth of ARA RIVER (35° 40'N - 139° 51'E).

Visual: Any industrial target in area as specified in Par 2 above.

Maneuver after Atk: Turn right 180° letting down 1,000 ft at 205 MPH return to TP (35° 19'N - 141° 36'E).

(3) Zero Hr: 1954 Z (Date to follow).

(4) Bomb load: 3 X 500 lb M-76 JB, 7 X 500 lb G.P. Fuze G.P.'s .10 sec nose, .025 sec tail. IB's instantaneous nose, none-delay tail.

(5) Intermeter setting: 150 ft.

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- (6) Gasoline load: 8,000 gals.
- (7) Ammunition load: 6,000 rds .50 cal, 120 rds 20 mm.
- 4. No change.
- 5. a. (1) Annex 3 (Comm).
- (2) SOP Communications XXI BOM COM dd 15 Nov 44.
- b. Command Posts:
 - (1) Air - Sq Leaders.
 - (2) Ground - Hq 73d Bomb Wg.

By command of Brigadier General O'DONNELL:

BRUGGE
DC/S, O & T

OFFICIAL:

Walker
WALKER
Asst A-3

- Annex 1 - Bombing Data
- Annex 2 - Cruising Control
- Annex 3 - Communications
- Annex 4 - Radar Countermeasures

- 3 Incls:
 - Incl 1 - Route "A"
 - Incl 2 - Route "B"
 - Incl 3 - Map TOKYO area

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ANNEX 1 TO FO 21 73D BOMB WG

BOMBING DATA

1. Primary Target: MUSASHINO Plant (90.17 - 357).

Coordinates: $(35^{\circ} 43'N - 139^{\circ} 35'E)$.

Axis of Atk: Route A - 63 T.

Route B - 291 $^{\circ}$ T.

Aiming Point: Route A - Center of West block.

Route B - Power house at center of East block.

Target Dimension: Appx 1000' X 2000'.

Elevation: 183'.

Initial Point: Route A - MOUNT FUJI ($35^{\circ} 22'N - 138^{\circ} 43'E$).

Route B - OHAMI AIRFIELD ($35^{\circ} 30'N - 140^{\circ} 26'E$).

Variation: 6 $^{\circ}$ W.

Method of Atk: By Sqs - Visual with radar as aid, leader sights for range and deflection, deputy leader sights for range only, others drop on leader.

2. Secondary and Last Resort Target: Docks and Urban area of TOKYO.

Coordinates: $(35^{\circ} 41'N - 139^{\circ} 49'E)$.

Axis of Atk: Route A - 71 T.

Route B - 293 $^{\circ}$ T.

Aiming Point:

This is intended for use as a radar alternate in the event of the primary being obscured for visual bombing. In the event that the Secondary target can be seen, aim for any of the industrial targets visible in the area bounded by $(35^{\circ} 39'N - 139^{\circ} 46'E)$ ($35^{\circ} 43'N - 139^{\circ} 47'30"E$) ($35^{\circ} 43'N - 139^{\circ} 52'E$) ($35^{\circ} 39'N - 139^{\circ} 52'E$) as shown in the attached chart, Incl 3.

Elevation: Average 50'.

Initial Points: Same as Primary target.

Method of Atk: By Sqs - Radar for leader, deputy leader sights for range only, others drop on leader.

3. Bomb Load: 7 ea 500 lb AN-M-64 G.P. (Use M-43 bomb tables; AN-M-103, .1 sec delay nose fuse; AN-M-101 42, .025 sec delay tail fuse.

3 ea 500 lb AN-M-76 I.B.; AN-M-103, instantaneous nose fuse; AN-M-101 42, non-delay tail fuse.

Intervalometer spacing: 150 ft.

Subtract 20 mils trail for visual bombing, do not subtract trail for radar bombing.

Order of release: 3 GP, 1 IB, 2 GP, 1 IB, 2 GP, 1 IB.

Bombing Altitude: Route A - 28,000 P.I.4. base.

Route B - 29,000 P.I.4. base.

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Annex 1 to FO 21 73BW
(cont'd)

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4. RADAR BOMBING DATA FOR SECONDARY TARGET

a. Special Instructions:

- (1) Leader and Deputy Leader will operate radar antenna in continuous 360° rotation only in the target area.
- (2) No. 4 A/C will operate as standby in the target area using SECTOR SCAN 30° to 90° only.
- (3) No. 7 A/C will operate as standby in the target area, using SECTOR SCAN 270° to 330° only.
- (4) Other A/C will not operate radar sets in the target area.
- (5) Bombing will be done on 20-MILE RANGE of scope.
- (6) ADJUSTABLE RANGE CONTROL will be preset to give 17 miles actual range on scope for bombing.

b. Offset Aiming Points:

(1) Route A:

- (a) Description: Northern tip of island in mouth of SUMIDA RIVER.
- (b) Coordinates: (35° 40'N - 139° 51'E).

(2) Route B:

- (a) Description: Bridge at mouth of AR. RIVER.
- (b) Coordinates: (35° 40'N - 139° 47'E)

c. Measure Course Error at

11.00 N.M. Slant Range

d. Begin Final Correction, Start Rate Motor

8.00 N.M. Slant Range

TOP SECRET

TOP SECRET

e. Final Course Correction Table:

Measure Course Error at 11.00NM Slant Range	Make Final Correction, Start Rate Motor at 8.00 NM Slant Range
0°	0°
1	1
2	2
3	3
4	4
5	6
6	7
7	9
8	10
9	11
10	13
11	14
12	16
13	18
14	19
15	22
16	23
17	24
18	26
19	28
20	30
21	33
22	36
23	39
24	42

f. Bombardier's Sighting Angle Table:

True Alt	Preset Tel. Angle
26,250	62.7°
500	62.4
750	62.1
27,000	61.8

TOP SECRET

Annex 1 to FO 21 73d
(cont'd)

TOP SECRET

4. f. (cont'd)	True Alt.	Preset Tel. Angle
	27,250	61.5°
	500	61.2
	750	60.9
	28,000	60.6
	28,250	60.3
	500	60.0
	750	59.7
	29,000	59.4
	29,250	59.1
	500	58.8
	750	58.5
	30,000	58.2
	30,250	57.9
	500	57.6
	750	57.3
	31,000	57.0
	31,250	56.7
	500	56.4
	750	56.1
	32,000	55.7
	32,250	55.4
	500	55.1
	750	54.8
	33,000	54.5
	33,250	54.2
	500	53.9
	750	53.6
	34,000	53.3

By command of Brigadier General O'DONNELL:

OFFICIAL:

W. Wilkin
WILKINSON
Asst A-3

BRUGGE
DC/S, O & T

TOP SECRET

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ANNEX NO 2 TO FO 21, 73D BOMB WG

CRUISE CONTROL

1. Fuel Requirements:

a. Est fuel single A/C	6700 gals	
b. Formation reserve	536 "	
c. 2 Hr endurance reserve	564 "	
d. Residual	<u>200</u> "	
e. Total required		8000 gals
f. Total aboard		8000 gals

2. Loading:

- a. Fuel -- Fill Wing tanks, center wing and bomb bay tanks.
- b. Ammunition -- 6000 rds of .50 cal and 120 rds 20 MM.
- c. Bombs -- 5400# in rear bomb bay.
- d. Approximate gross Wt at take-off -- 136,800#

3. Cruise Plan:

- a. See attached Route Plans.
- b. Airspeeds specified will be strictly adhered to in order to make time arrivals at target correct.

By command of Brigadier General O'DONNELL:

OFFICIAL:

Gibson
GIBSON
Wg Staff Engr

BRUGGE
DC/S, O & T

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1-

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18
90

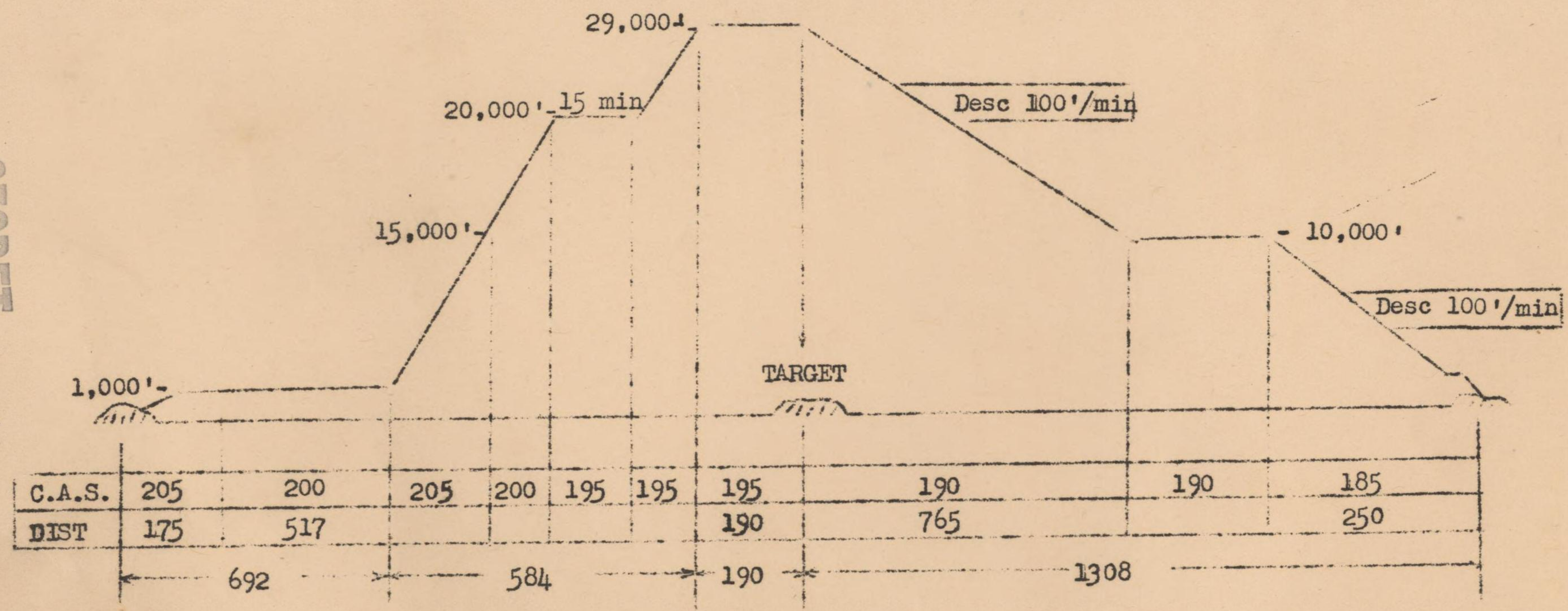
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CRUISE PLAN TO ANNEX 2 TO FO 21 73D BW

ROUTE "A"

SECRET

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By command of Brigadier General O'DONNELL:

BRUGGE
DC/S, O & T

OFFICIAL:
Gibson
GIBSON
Wg Staff Engr

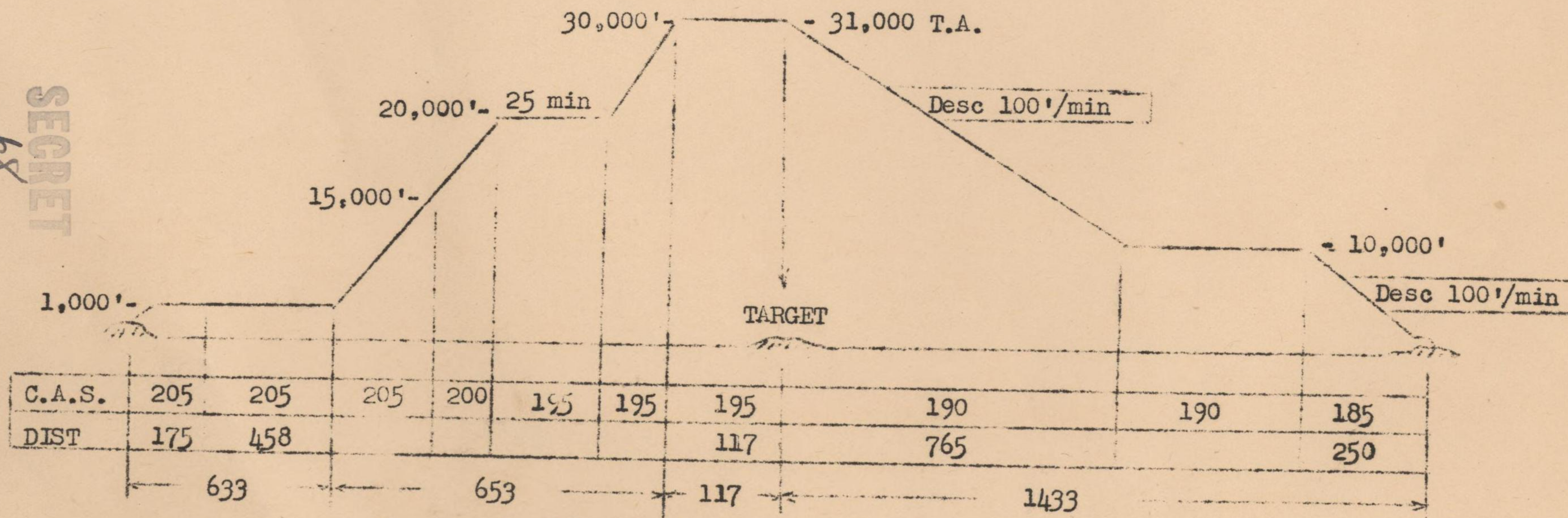
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Authority *NND 160000*
By *MMNARA Date 8/3/05*

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CRUISE PLAN TO ANNEX 2 TO FO 21 73D BW

ROUTE "B"

SECRET
68



By command of Brigadier General O'DONNELL:

OFFICIAL: *Gibson*
GIBSON
Wg Staff Engr

BRUGGE
DC/S, O & T

DECLASSIFIED
Authority NND 160000
By MNA/PA Date 8/30/05

S E C R E T

ANNEX 3 to FO #21. 73D BW

COMMUNICATIONS

1. Radio Frequencies:

a. Liaison AN/ART 13

- | | | | |
|-------|--------|---|----------------|
| 1. | 3145 | 73 BW Ground Station | (CW) |
| 2. | 7310 | 73 BW Ground Station | (CW) |
| 3. | 11160 | 73 BW Ground Station | (CW) |
| 4. | 4475 | Primary Dumbo Lifeguard | (Voice and CW) |
| 5. | 4420 | Secondary Dumbo Lifeguard | (Voice and CW) |
| 6. | 4595 | AACS Ground Station | (CW) |
| 7. | 8200 | AACS Ground Station | (CW) |
| 8. | 4495 | Saipan Tower | (Voice) |
| 9. | 7362.5 | 30th Bomb Group Primary | (CW) |
| 10. | 7590 | 30th Bomb Group Secondary | (CW) |
| Low - | 500 | Int'l Distress (CW) guarded by all stations
15-18 min and 45-48 min after the hour.
Guarded continuously by Lifeguard during strike | (CW) |

b. VHF Command:

- | | |
|-----------|------------------------------|
| Channel A | - Bomber to Fighter |
| Channel B | - Bomber to Bomber |
| Channel C | - Tower, Dumbo and Lifeguard |
| Channel D | - Homing |

c. SCR 274-N

(DO NOT USE COMMAND SET EXCEPT IN EMERGENCY)

2. Radio Call Signs and Call Words:

- | | |
|--------|--|
| V531 | - 497th Bombardment Group |
| V532 | - 498th Bombardment Group |
| V533 | - 499th Bombardment Group |
| V534 | - 500th Bombardment Group |
| 00V530 | - 73rd Bombardment Wing Ground Station |
| 00V550 | - 30th Bombardment Group Ground Station (Emerg. Alternate) |

3. Codes, Ciphers, and Recognition.

- | | |
|-----|---|
| a. | Air-Ground - CSP 1270 (CV) |
| b. | Authentication - Voice and CW - CSP 1270 (CV) |
| c. | Recognition Signals: |
| (1) | SP 02440 - Key List |
| | 02442 - Recognition Signals, Surface Vessels |
| | 02443 - Recognition Signals, Submarines |
| | 02312 - Air-Sea Recognition Procedure |

S E C R E T

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S E C R E T

4. Contact and Strike Reports:
 - a. Contact Reports - SOP Communications XXI Bomber Command dated 15 November 1944.
 - b. Strike Reports - SOP Communications XXI Bomber Command dated 15 November 1944.
5. Radio Aids to Navigation:
 - a. Extracts of NATAPOA covering Saipan, Tinian, and Guam.
6. Rescue Procedure and Facilities:
 - a. See Annex No 1 to Annex No 3 to F.O. 21.
7. IFF: Code 1
 - a. Turn on at take off. Turn off when 300 miles out from base.
 - b. Turn on again when 50 miles from target. Leave on until landing at home base.
 - c. EMERGENCY code in distress.
8. Distress Procedure:
 - a. SOP Communications XXI Bomber Command dated 15 November 1944.
 - b. Lost and Distress Procedures: Airplane Commander, Navigator, Radio and Radar Operator.

By Command of Brigadier General O'DONNELL:

BYRON E. BRUGGE
Colonel, Air Corps
Dep C/S Op. and Tng.

OFFICIAL:

Hotchkiss
EDWIN L. HOTCHKISS
Lt. Colonel, Air Corps
Communications Officer

S E C R E T

S E C R E T

ANNEX NO 4 TO FO 21 73RD BOMB WING

RADAR COUNTERMEASURES

1. Each Group will equip two A/C with search receivers and will provide two Radar Observers (7888) to operate the equipment.
2. The spectrum from 40 to 300 MC will be monitored continuously, a log being maintained.
3. The following information will be recorded:
 - a. Frequency.
 - b. Approximate P.R.F.
 - c. Time (G.C.T.)
 - d. Duration (time signal was heard).
 - e. Approximate sweep rate.
 - f. Time radar tracked flight.
 - g. Estimated distance from probable enemy radar location when tracking began.
 - h. Additional data obtainable.

By command of Brigadier General O'DONNELL:

OFFICIAL:

Wilkinson
WILKINSON
Asst A-3

BRUGGE
DC/S, O & T

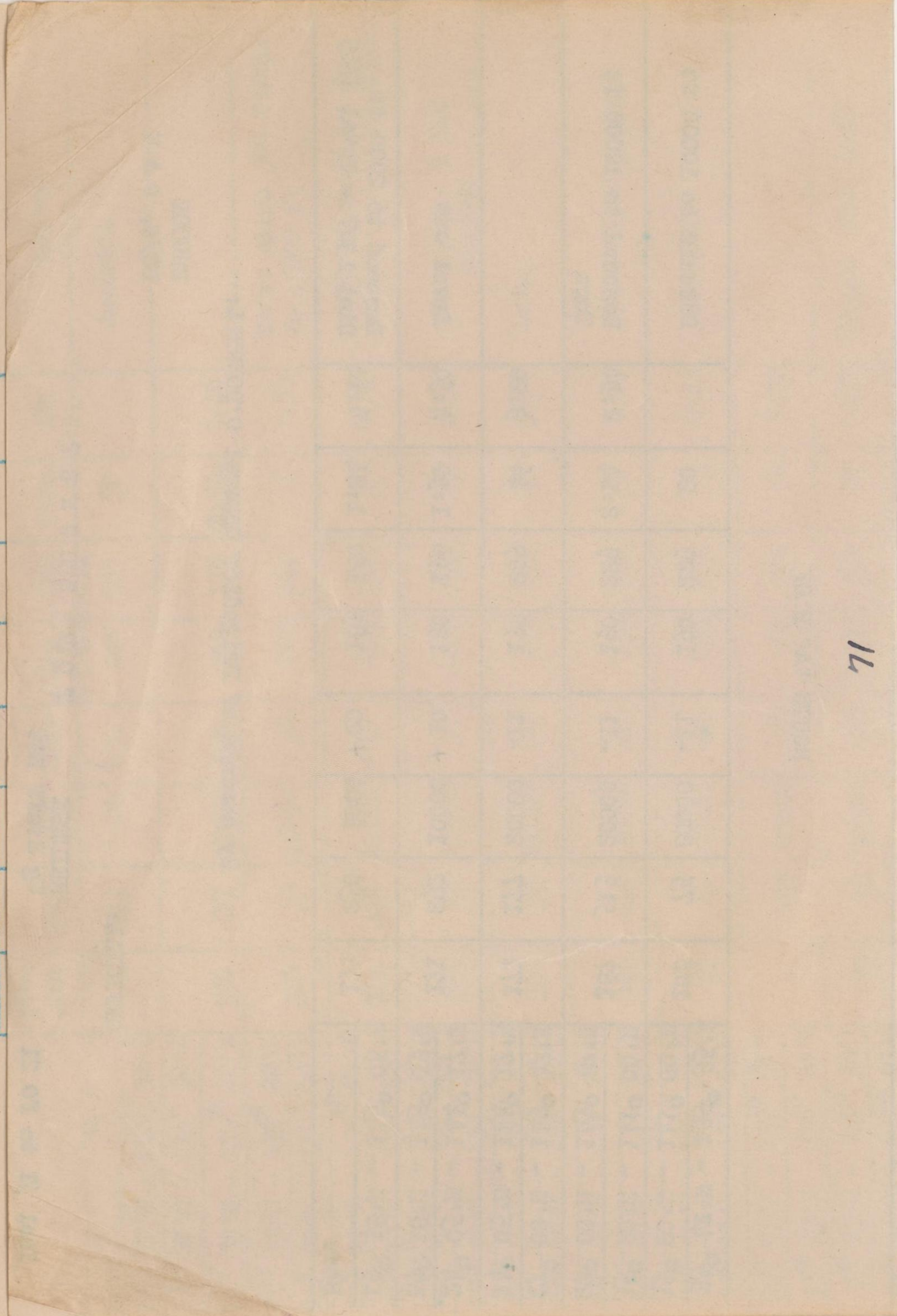
S E C R E T

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SECRET

ROUTE "A" OUT

FLIGHT PLAN



SECRET

ROUTE "A" OUT

FLIGHT PLAN

True Crs	Dist	Alt	Temp	IAS	TAS	Time	ETA	Remarks
	175	1000	+30	205	185	52		Assemble
	517	1800	+30	200	178	2:54	3:46	
326	33	10000	+10	205	211	9	3:55	Start climb 300 ft/min to 15000 ft
954	132	10000	+10	205	211	37	4:32	15000 ft continue to 20000
954	98	18500	-7	200	235	25	4:57	End climb - 2 min dog-leg
954	59	20000	-11	195	235	15	5:12	Level
954	243	26000	-25	195	258	57	6:09	Start climb - 29000
17	15	29000	-25	195	258	3	6:12	End climb
17	145	29000	-30	195	270	32	6:44	
68	45	29000	-38	195	270	10	6:54	Target Dist 1458

ROUTE "A" BACK

108	75	20000	-11	190	229	20		Descend to 10000 ft
167	53	20000	-11	190	229	2:14	2:34	Descend to 10000 ft Turn
171	177	20000	-11	190	229	46	3:20	
171	292	10000	+10	190	196	1:30	4:50	Level out
171	250	6000	+20	185	180	1:24	6:14	Descend to 2000 ft Dist 1307 - Total 2765

By command of Brigadier General O'DONKILL:

BRUGGE
DC/s, O & T

171790

OFFICIAL:

RELIANCE
WG Staff, NAV

SECRET

Incl #1 to FO 21

SECRET

ROUTE "D" OUT

FLIGHT PLAN

TIME	ALTITUDE	TYPE	STATUS	REMARKS
10:00	10000	100	+	10000
10:05	10000	100	+	10000
10:10	10000	100	+	10000
10:15	10000	100	+	10000
10:20	10000	100	+	10000
10:25	10000	100	+	10000
10:30	10000	100	+	10000
10:35	10000	100	+	10000
10:40	10000	100	+	10000
10:45	10000	100	+	10000
10:50	10000	100	+	10000
10:55	10000	100	+	10000
11:00	10000	100	+	10000
11:05	10000	100	+	10000
11:10	10000	100	+	10000
11:15	10000	100	+	10000
11:20	10000	100	+	10000
11:25	10000	100	+	10000
11:30	10000	100	+	10000
11:35	10000	100	+	10000
11:40	10000	100	+	10000
11:45	10000	100	+	10000
11:50	10000	100	+	10000
11:55	10000	100	+	10000
12:00	10000	100	+	10000

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SECRET

ROUTE "D" OUT

FLIGHT PLAN

True Course	Dist.	Alt	Temp	IAS	TAS	Time	ETA	Remarks
	175	1000	+30	205	165	52		Assemble
16° 27' N - 144° 30' E								
356	458	1000	+30	205	185	2:28	3:20	
16° 27' N - 144° 30' E								
356	165	10000	+10	205	211	47	4:07	Climb to 20000 ft
24° 05' N - 144° 00' E								
356	10	10000	+10	200	235	2	4:09	Turn
24° 05' N - 144° 00' E								
344	82	18000	-7	200	235	23	4:32	End climb - two min dog-leg
24° 05' N - 144° 00' E								
344	98	20000	-11	195	235	25	4:57	Level
24° 05' N - 144° 00' E								
344	290	26600	-25	195	260	67	6:04	Climb to 30000 ft
24° 05' N - 144° 00' E								
344	43	30000	-38	195	275	10	6:14	End climb - 2 min dog-leg
24° 05' N - 144° 00' E								
280	30	30000	-38	195	275	6	6:20	I.P.
24° 05' N - 144° 00' E								
280	44	30000	-38	195	275	10	6:30	Target Dist 1404
24° 05' N - 144° 00' E								

ROUTE "B" BACK

35° 42' N - 139° 35' E	108	75	20000	-11	190	229	20		Descend to 10000 ft
35° 20' N - 141° 00' E									
35° 20' N - 141° 00' E	167	513	30000	-11	190	229	2:14	2:34	Descend to 10000 ft turn
27° 00' N - 143° 47' E									
27° 00' N - 143° 47' E	171	177	20000	-11	190	229	46	3:20	Level out
24° 05' N - 144° 17' E									
24° 05' N - 144° 17' E	171	418	10000	+10	190	196	2:08	5:28	Level out
17° 19' N - 145° 22' E									
17° 19' N - 145° 22' E	190	250	6000	+20	185	189	1:24	6:52	Descend to 2000 ft Dist 1433 - Total 2837
Base (Given)									

By command of Brigadier General O'DONNILL:

OFFICIAL:

REINER
WG Staff Nav

BRIDGE
DC/S, O & T

Incl #2 to FO 21

SECRET

DECLASSIFIED
Authority NND 160000
By MNA/PA Date 8/30/00

SECRET

35° 45'
357
PRIMARY TARGET

35° 40'

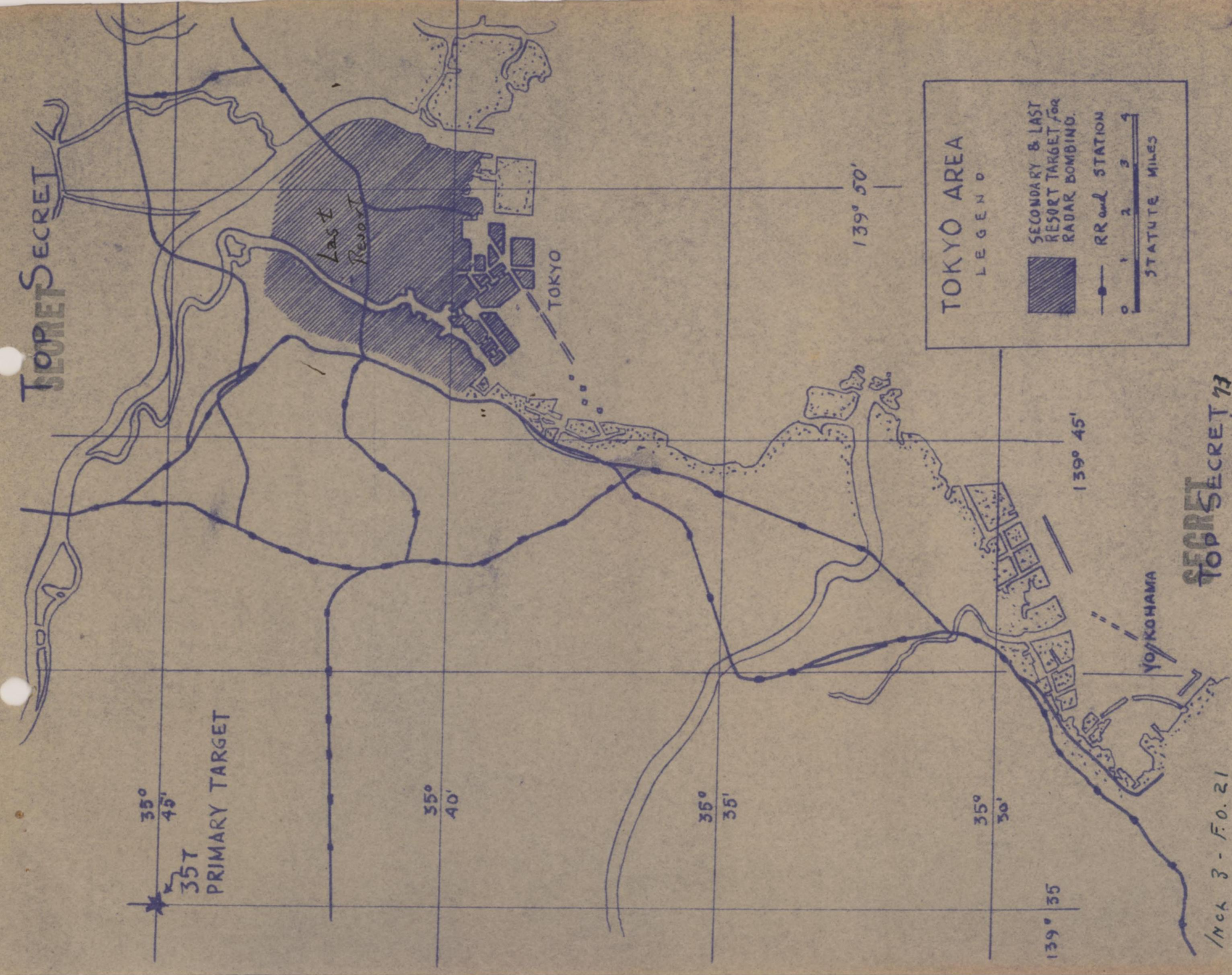
35° 35'

35° 30'

139° 35'

139° 45'

139° 50'



SECRET

NOA 3 - F.O. 21

~~TOP SECRET~~

SECRET
By Authority of the Commanding
General
19 Nov 44, 73 BW Ltr
Date Initials

~~TOP SECRET~~
BY AUTH of CG 73d BW
NOV 18 1944
Initials Date

73d Bomb WG
SAIPAN
0900 Z 16 Nov 44

AMENDMENT NO 1 TO FO 21 73D BOMB WG

1. Add to Par 1, b., (2), (b), to read:
 1. One (1) Dumbo airplane will be at
(23° 15' N - 142° 00'E)
at 0730 and will remain on position until passage of the force.
 2. Three (3) Dumbo airplanes and six (6) Coronados will remain at
SAIPAN to be dispatched on call.
 3. One (1) or more destroyers will be at
(21° 00'N - 144° 45'E)
on "D" day.
2. Add to Par 1, b.:
 - (3) If possible do not ditch within a seven (7) mile radius of
INUBIO SAKI
(35° 43'N - 140° 52'E).
Enemy mine fields prohibit friendly subs from penetrating the area.
3. Add to Par 3, x :
 - (8) Each Sq will carry a minimum of three (3) K-22 cameras for the
purpose of taking strike photographs.

By command of Brigadier General O'DONNELL:

BRUGGE
DC/S, O & T

OFFICIAL:

Walker
WALKER
ASST A-2

~~TOP SECRET~~

-1--

74

#25

TOP SECRET
 By Authority of the Commanding General
 29 Nov 44 73 Bw Lt
 Date Initials

TOP SECRET
 By auth of CG 73d BW

NOV 19 1944
 Initials Date

73d Bomb Wg
 SAIPAN
 0001Z 19 Nov 44

AMMENDMENT NO 2 TO FO 21 73d Bomb Wg

1. Change Par 1. b. (2) (b) to read:

1. The dumbo will be on station between 0830 and 0945 I. Its CW call is 24V213; its voice call, the reference name for IWO JIMA for the day. Its position is 100 mi 132° from IWO JIMA.
2. Three additional dumbos will be ready to take-off at 1430 I. Their call signs in order of their take-off are 60V240, 61V240 and 62V240.
3. The name of the destroyer is the SWANSON; its station is Lat 21° 00'N - Long 144° 00'E. Its speed is 22 Kts. Its voice call is BEARMEAT, its CW call One Sugar Uncle (1SU) using CSP 1270.

2. Change Par 3. x. (3) to read:

(3) Zero Hr: 2015Z(date to follow).

3. Add to Par 3. x. :

(9) Emergency Landing Flds:

- (a) ISLEY NO 2 - SAIPAN.
- (b) NAVY AGANA - GUAM
- (c) NAVY WEST FLD - TINIAN

The NORTH FLD at TINIAN is no longer operational.
 The WEST FLD is available for emergency use. The WEST FLD call sign is "PALM".

By command of Brigadier General O'DONNELL:

BRUGGE
 DC/S, O & T

OFFICIAL:

[Signature]
 WALKER
 Asst A-3

TOP SECRET

SECRET
Authority of the Commanding General
Initials
Date
19 Nov 44
7300Z

SECRET

TOP SECRET
By auth of CG 73d BV

Initials
Date
20 Nov 44

73d Bomb Wg
SAIPAN
0600Z 20 Nov 44

AMENDMENT NO 3 TO FO 21 73d Bomb Wg

1. Change Par 3. c. to read:
 - c. 499th Bomb Gp furnishes two Sqs for 4th Combat Cp and one Sq which flies as the 6th Combat Gp.
2. Change Par 3. x. (2) to read:
 - (2) 2nd, 4th and 6th Combat Gps Atk via Route "B" as follows except that the 6th Combat Gp returns to SAIPAN.
3. Change Par 3. x. (3) to read:
 - (3) Zero Hr: 2120 Z (date to be given verbally)

By command of Brigadier General O'DONNELL:

BRUGGE
DC/S, O & T

OFFICIAL:

Wilkinson
WILKINSON
Asst A-3

TOP SECRET

SECRET

SECRET
By Auth of CG 73d EW

WLD
Initials 2 Dec 44
Date

73D BOMB WG
SAIPAN
1000Z 2 Dec 44

AMENDMENT NO 1 TO FO 21 73D BOMB WG

1. Change par 1 b (1) to read:

1. b. (1) Five lifeguard submarines will be located at the following points:

- (a) $(35^{\circ} 00'N - 141^{\circ} 12'E)$
- (b) $(33^{\circ} 00'N - 141^{\circ} 45'E)$
- (c) $(25^{\circ} 00'N - 141^{\circ} 10'E)$
- (d) $(30^{\circ} 00'N - 142^{\circ} 50'E)$
- (e) $(25^{\circ} 00'N - 144^{\circ} 10'E)$

A rescue destroyer will be located in the vicinity of $(21^{\circ} 00'N - 144^{\circ} 25'E)$

2. Change par 1 b (2)(b) to read:

1. b. (2) (b) One Dumbo A/C will arrive at $(22^{\circ} 00'N - 143^{\circ} 55'E)$ 30 min prior to the ETA of strike force on route out and patrol to limit of endurance. Additional Dumbo A/C will be on call during return of strike force.

3. Change par 3 a, 3 b, 3 c, 3 d to read:

- a. 499th Bomb Op Max No A/C takes off zero hr. Climbs to 29,000 ft. Bombs at 28,000 ft and 28,500 ft.
- b. 500th Bomb Op Max No A/C takes off second. Climbs to 30,000 ft. Bombs at 29,000 ft and 29,500 ft.
- c. 497th Bomb Op Max No A/C takes off third. Climbs to 31,000 ft. Bombs at 30,000 ft and 30,500 ft.
- d. 498th Bomb Op Max No A/C takes off fourth. Climbs to 30,000 ft. Bombs at 29,000 ft and 29,500 ft.

4. Omit par 3 z (2).

5. Change par 3 z (3) to read:

3. z. (3) Zero hr; 2215z 2 Dec 44.

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-1- 77

SECRET

Amendment No 4 to FO 21 (contd)

6. Change for 3 x (h) to read;
3. x. (h) Bomb load: 3 x 500 lb M76 IB fused inst nose and non delay tail - 7 x 500 lb GP fused .10 sec nose and .01 sec tail.
7. Change Annex 1 to Annex 3 of FO 21 to : Incl 1 to Annex 3 of FO 24, which is attached.

By command of Brigadier General O'DONNELL;

BYRON E. BRUCE
Colonel, Air Corps
DG/S, O & F

OFFICIAL;

W. Wilkerson
WILKINSON
Asst A-3

Incl 1 - Incl 1 to Annex 3 of FO 24

SECRET

-2-

78.