

III a (20)

MIT SUBSIDI

OIL REFINERY

2 of 2

76

S E C R E T

MISSION RESUME

Mission Number 291 3 August 1945

1. Date: 25/26 July 1945
2. Target: Mitsubishi Oil Refinery (90.17 - 116) and Hayama Petroleum Center at Kawasaki (90.17 - 127)
3. Participating Unit: 315th Bombardment Wing
4. Number A/C Airborne: 83
5. % A/C Bombing Primary: 90.36% (75 primary and 1 opportunity)
6. Type of Bombs and Fuzes: AN-M64, 500# G.P., 1/10 sec. delay nose and 1/40 sec. delay tail.
7. Tons of Bombs Dropped: 650 tons on primary, 9 tons on opportunity and 18 tons by Wind-Run A/C
8. Time Over Primary: 252323K - 260003K
9. Altitude of Attack: 16,500 - 18,100
10. Weather Over Target: 0/10 - 4/10
11. Total A/C Lost: 1
12. Resume of Mission: Photo reconnaissance showed 32% of storage tank units, and 1 furnace, 1 asphalt loading unit, 1 can manufacturing plant and 2 warehouses of the Mitsubishi Oil Refinery (90.17 - 116) was destroyed and 36% of the storage tanks, 5 U/I buildings, 7 probable office buildings, and 4 maintenance sheds of Hayama Petroleum Co. (90.17 - 127) was destroyed. Targets were visible to only 3 A/C. Flak was of heavy caliber, moderate to intense, accurate to inaccurate. Intense S/L activity was encountered and rope was used with barying success. Two Wind-Run A/C bombed Shimizu Aluminum Plant at Shimizu. Seven A/C were non-effective. Three B-29's landed at Iwo Jima. The aircraft that was lost suffered a direct flak hit over the target. No E/A. Average bomb load: 18,664 lbs. Average fuel reserve: 1109 gallons.

S/L Searchlight

U/I Unidentified
A/C Aircraft
E/C Enemy Aircraft

S E C R E T

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TWENTIETH AIR FORCE
APO 234, c/o POSTMASTER
SAN FRANCISCO, CALIFORNIA

27 July 1945

STRIKE ATTACK REPORT 131

20 Air Force Mission 291
Target: 90.17-116 & 127
Mitsubishi Oil Refinery
Hayama Petroleum Refinery
Heading Over Target: 41° True
Time of Attack: 251237Z

Bombing Accuracy: Unknown
Bomb Load: 2883 x 500 G.P.
Fuzing: 1/10 nose, 1/40 tail
No. A/C Over Target: 76
Bursts on Target: Unknown

Aircraft tracks plotted from scope photos indicate possible excellent results to be expected from this mission. The return on the scope of the target and vicinity, as indicated by the scope photos, was generally good. Target identification was excellent, with rare exceptions.

TABLE OF STATISTICS

Wing:

64 cameras completed mission
51 or 80% of above had pictures satisfactory for plotting.
43 or 90% of plotted pictures were over target.*

Groups:

Group	Cameras completing Mission	Cameras obtaining pictures satisfactory for plotting		Plotted tracks passing over target	
	Number	Number	Percent	Number	Percent
16th	24	18	75	14	83
331st	8	7	88	6	86
501st	26	22	85	20	95*
502nd	6	4	67	3	75

*Excluding wind aircraft

Rolls received: 401RD through 464RD

Approved *E. W. Webster, 1st Lt. AF, AC.*
for HAMILTON D. DANBY
MAJOR, AC

DISTRIBUTION C

Received from 315th Wing, 20 AF -
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Strike Attack Report 131
G.I.U. 2 OAF

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 RADAR TRACK PLOT
 TARGETS 90.17 - 116 - 127
 20th A.F. MISSION No. 291 *25/26 July*
DATE
 315th BOMB WING
 CBI



2607 C 35PTU



116 BGP 331 BGP 501 BGP 502 BGP

045

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TWENTIETH AIR FORCE
APO 234, c/o POSTMASTER
SAN FRANCISCO, CALIFORNIA

FLASH REPORT NO. 362

DATE: 28 July 1945

Mission No. 3PR5M 362

Target Area: Tokyo (90.17)

Date Flown: 28 July 1945

A/C Commander: T. C. Kendall,
1st Lt., AC:

Mean Time of Photography: 0951K

Altitude (average): 30,000'

(This tentative report is subject to change after a more detailed study and is to be considered strictly as advance information.)

Target 90.17-116; Mitsubishi Oil Refinery
Target 90.17-127, Hayama Petroleum Co.

20AF Mission 291, 25-26 July 1945. 315th Wing.

Quality and limitations of photographs: Very poor quality
24" Coverage indicates the following damage.

Target 90.17-116, Mitsubishi Oil Refinery.

- (a) 452,400 barrels or 32% of the original total capacity of storage tanks (1,404,400 bbls.) - Destroyed or damaged.
- (b) Two-iso-octane units and a furnace - " " "
- (c) An asphalt loading unit - destroyed or damaged.
- (d) A can manufacturing plant - damaged.
- (e) 2 medium-sized warehouses, one whse is for drum storage - damaged.
- (f) Open storage area - Cratered.

Most of the damage is concentrated in the southern and central part of the refinery. Photos show that a large refinery unit in the north-central part, five 80,000 bbls capacity storage tanks located in the northern and NE part of the plant, several offices in the southwestern part of the plant remain apparently undamaged.

Target 90.17-127, Hayama Petroleum Co.

- (a) 277,500 bbls or approx. 36% of the original total storage tank capacity (761,600 bbls) was destroyed or damaged.
- (b) 26,200 bbls or approx. 26% of the original total capacity of intermediate tanks (100,800 bbls) was destroyed or damaged.
- (c) Five unidentified buildings destroyed or damaged.
- (d) One probable office building damaged or destroyed.
- (e) Four Maintenance sheds destroyed or damaged.

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FLASH REPORT NO. 362, Cont'd.

Photos show that damage was concentrated in the SE part of the plant. The northeast section of this plant which comprises numerous storage and intermediate tanks, a cracking unit and a research building remain apparently undamaged. A possible compressor building, three large gas holders located in the extreme western and NW part of the plant also seen undamaged.

APPROVED *Arthur W. Brook 2.D. Lt. AC*...
for HAMILTON D. DARBY,
Major, AC, In Charge.

APPROVED *Arthur W. Brook 2.D. Lt. AC*...
for FRANK E. DELANEY,
Captain, AC, Asst A-2

DISTRIBUTION: "A"

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TWENTIETH AIR FORCE
APO 234, c/o POSTMASTER
SAN FRANCISCO, CALIFORNIA

30 July 1945

SUPPLEMENT to FLASH REPORT NO. 362

YOKOHAMA HARBOR: Naval: 5. Merchant: 14; about 30,000 G.T. inoperative and 28,000 G.T. operative.

NV: 1 SS
1 PC
1 PF
1 DD hull
1 CVE, YOKOHAMA type

MV: 7 over 200' inoperative
7 over 200' operative.

KAWASAKI HARBOR: Naval: none visible. Merchant: 2 over 200'; 13,200 G.T.

MV: 1 SBL, type A modified, fitting
1 Unidentified, building.

TARGET 90.14--2756, IKISU AIRFIELD: Poor quality 24" photos. Aircraft visible: none.

TARGET 90.14--1465, KONOIKE AIRFIELD: Hazy photos. Aircraft visible: 17 S/E, minimum.

Not in total: 2 T/E inoperative
10 C/E dummies

TARGET 90.13--2803, UTSUNOMIYA SOUTH AIRFIELD: Hazy photos. Aircraft visible: 44, minimum.

43 S/E
1 T/E
44 Not in total: 10 S/E inoperative

TARGET 90.14--2765, KATORI AIRFIELD: Poor quality 24" photos. Aircraft visible: 11 S/E, minimum.

TARGET 90.17--2750, ATSUGI AIRFIELD: Poor quality photos. Aircraft visible: 102, minimum.

72 S/E
30 T/E
102 Not in total: 58 S/E inoperative
17 T/E inoperative
2 F/E
21 dummies

Approved.....
for FRANK E. DELANEY
CAPT, AC, Asst A-2
Approved.....
HAMILTON D. DARBY
MAJOR, AC, In Charge

DISTRIBUTION: A

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3PR3M248-3R:117-XXIBC-5:28:1452K-40":30000-3603M12927E/3522N/3941E

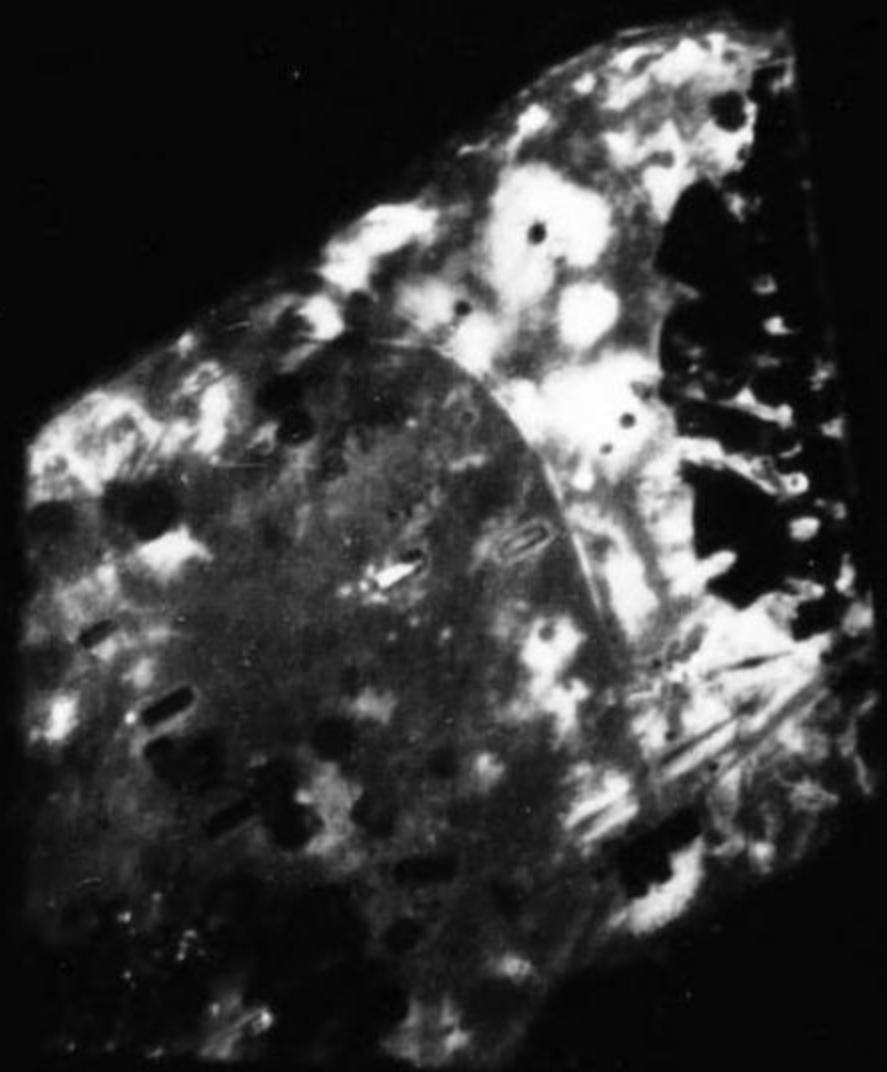


3PR5M248-3A

116

20HF

Resl.



3PR5M248-3R 2000



0.200

0.200

0.200

3PR5M248-3R 114 20NF Rest



REST

3PR5M248-2

XXIBC

RESTRICTED

60



3PR5M 2-8-2.

XXIBO

RESTRICTED

61



3PR5M248 62-XXIBC-5:28:1452K-24":30000-3603N13927E/3529N13941E

RESTRICTED



S E C R E T

MISSION RESUME

Mission Number 310 14 August 1945

- 1018
630
1667.3
- 1017.3
26
1043.3
1. Date: 1/2 August 1945
 2. Target: Kawasaki Petroleum Center at Hayama and Mitsubishi Oil Refinery (90.17 -128,127, and 116)
 3. Participating Unit: 315th Bombardment Wing
 4. Number A/C Airborne: 128
 5. %A/C Bombing Primary: 93.75% (120 primary and 2 opportunity)
 6. Type of Bombs and Fuzes: M64, 500# G.P. bombs fuzed with 1/10 sec. delay nose and 1/40 sec. delay tail.
 7. Tons of Bombs Dropped: 1017.3 tons on primary and 26 tons on opportunity.
 8. Time Over Primary: 012314K - 020046K
 9. Altitude of Attack: 16,400 - 18,600
 10. Weather Over Target: 0/10 - 10/10
 11. Total A/C Lost: 0
 12. Resume of Mission: Photo reconnaissance revealed the following results of Missions 291 and 310:
116 - Mitsubishi Oil Refinery - 41% of storage tank capacity destroyed.
127 - Hayama Petroleum Center - 43% of storage tank capacity and 35% of intermediate tank capacity damaged.
128 - Kawasaki Petroleum Center - 35% of storage capacity and 15% intermediate tank capacity destroyed.
- Six A/C were non-effective. Flak was heavy, medium, meager to intense and accurate. Flak damaged 22 A/C. Thirty to 35 E/A made 9 attacks. No claims. One Wind-Run A/C is not included in the above total. Six A/C bombed visually and 114 bombed by radar. Seven B-29's landed at Iwo Jima. Average bomb load: 18,410 lbs. Average fuel reserve: 1039 gallons.

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TWENTIETH AIR FORCE
APO 234, c/o POSTMASTER
SAN FRANCISCO, CALIFORNIA

4 August 1945

STRIKE ATTACK REPORT NO. 133

20 AF MISSION 310
315TH WING MISSION 12
TARGETS: 90.17-128, 116, 127
Kawasaki Area
TRUE HEADING OVER TARGET: 41° Briefed
TIME OF ATTACK: 011314Z to 011436Z

BOMBING ACCURACY: Unknown
BOMB LOAD: 4078 x 500 GP
FUZING: 1/10 Nose
1/40 Tail
AIRCRAFT OVER TARGET: 120
BURSTS ON TARGET: Unknown

NARRATIVE REPORT

Two plots are attached, one of each of the assigned targets. This report will cover statistics on the basis of a consolidated mission, and not as related to individual plots. Target identification was good as indicated by scope photos. Although 50 automatic bomb release indicators were reported installed in A/C completing mission, only 15 were visible on plotted film. 5 of these 15 were computed to fall in both targets.

TABLE OF STATISTICS

Wing:

97 cameras completed mission. *
73 or 75% of above had pictures satisfactory for plotting.
63 or 86% of plotted pictures passed over the target.

Groups:

Group	Camera complet-	Cameras obtaining pictures		Plotted tracks pass-	
	ing Mission *	satisfactory for plotting		ing over target.	
	Number	Number	Percent	Number	Percent
16th	28	19	68	18	95
331st	19	15	84	13	87
501st	31	26	84	22	85
502nd	19	13	69	10	84 **

* Excluding radar malfunctions, operator discrepancies, and AC not returned.
** Excluding wing crew.

Rolls received: 401RD through 499RD, excluding 488RD

Inclosures: 2 Radar Track Plots

Report received from A-", 315th Wing.
Reproduced and distributed by CIU, 20th Air Force.

Approved. *Richard C. Barr Major AC*
for HAMILTON D. DARBY
MAJOR, AC

DISTRIBUTION: "C"

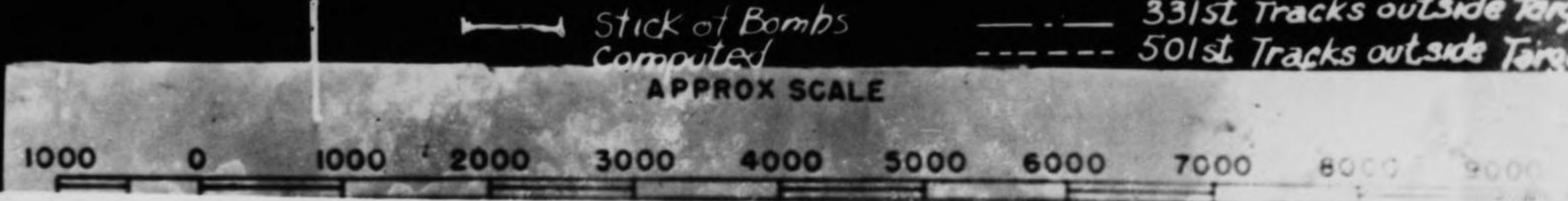


Strike Attack Report 133
C.I.U. 20AF

331ST - 501ST
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RADAR TRACK PLOT
TARGET 90.17-~~116~~-127/128
KAWASAKI PET. CENTER
A.F. MISSION # 310 1-2 AUG 45
315TH BOMBARDMENT WING
CONSOLIDATED PHOTO INTELL.
--- 331st Tracks outside Target
- - - 501st Tracks outside Target

AC OVER THE TARGET
331st 15 AC OR 27%
501st 22 AC OR 91%
AVIATION TOTALS 33AC OR 85%
Note: This is based on AC having picture
satisfactory for plotting

2694 C 35PTU
845 (COPY) (CONF.)





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 TWENTIETH AIR FORCE
 APO 234, c/o POSTMASTER
 SAN FRANCISCO, CALIFORNIA

4 August 1945

STRIKE ATTACK REPORT NO. 133

20 AF MISSION 310 BOMBING ACCURACY: Unknown
 315TH WING MISSION 12 BOMB LOAD: 4C78 x 500 GP
 TARGETS: 90.17-128, 116, 127 FUZING: 1/10 Nose
 Kawasaki Area 1/40 Tail
 TRUE HEADING OVER TARGET: 41° Briefed AIRCRAFT OVER TARGET: 120
 TIME OF ATTACK: 011314Z to 011436Z BURSTS ON TARGET: Unknown

NARRATIVE REPORT

Two plots are attached, one of each of the assigned targets. This report will cover statistics on the basis of a consolidated mission, and not as related to individual plots. Target identification was good as indicated by scope photos. Although 50 automatic bomb release indicators were reported installed in A/C completing mission, only 15 were visible on plotted film. 5 of these 15 were computed to fall in both targets.

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Inclosures: 2 Radar Track Plots

Report received from A-1, 315th Wing.
 Reproduced and distributed by CIU, 20th Air Force.

Approved *Richard C. Barr Major A1*
 for HAMILTON D. DARBY
 MAJOR, AC

DISTRIBUTION: "C"



Strike Attack Report I33
C.I.U. 20AF

331ST - 501ST
CONFIDENTIAL
RADAR TRACK PLOT
TARGET 90.17-~~127~~128
KAWASAKI PET. CENTER
A.F. MISSION # 310 1-2 AUG 45
315TH BOMBARDMENT WING
CONSOLIDATED PHOTO INTELL.
--- 331st Tracks outside Target
--- 501st Tracks outside Target

AC OVER THE TARGET
331st 13 AC OR 27%
501st 22 AC OR 95%

AVG TOTALS 33AC OR 85%
Note: % is based on AC having structure
satisfactory for plotting

Stick of Bombs
Computed

APPROX SCALE

1000 0 1000 2000 3000 4000 5000 6000 7000 8000 9000

2694 C 35PTU

8 45 (COPY) (CONF.)

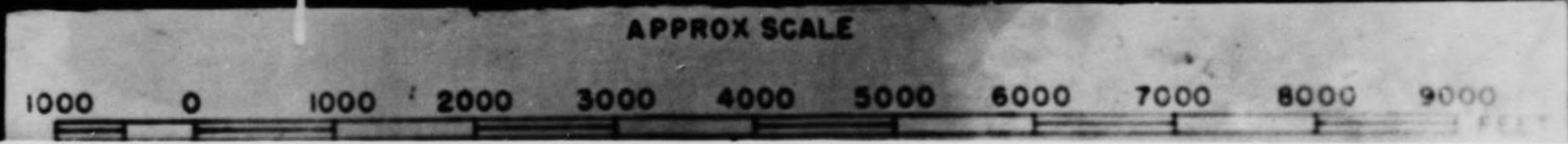


Strike Attack Report 133
C.I.U. 20AF

16TH - 502ND
CONFIDENTIAL
RADAR TRACK PLOT
TARGET 90.17-116-127-128
KAWASAKI PET. CENTER
A.F. MISSION #310 1-2 AUG 45
315TH BOMBARDMENT WING
CONSOLIDATED PHOTO INTELL.
..... 16th Tracks outside Target
----- 502nd Tracks outside Target

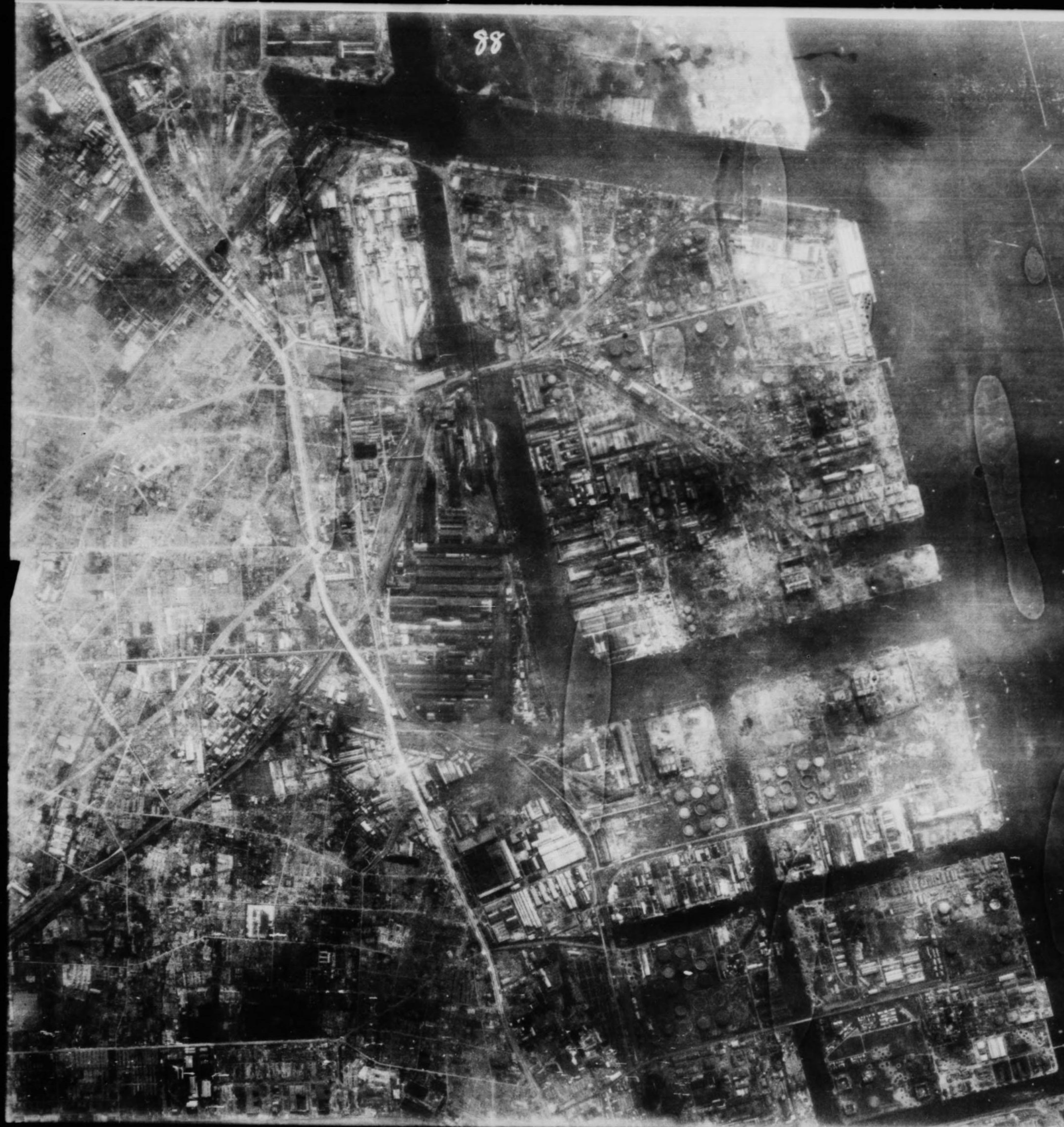
OVER THE TARGET
TOTALS 128 AC 99.90%
sent on AC having pictures
for plotting
Simg Crew

stick of bombs
Computed



2693 C 35PTU
45 (COPY) (CONF.)

88





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PHOTO INTELLIGENCE SECTION
EVALUATION BRANCH
PHOTOGRAPHIC DIVISION
AC/AS, INTELLIGENCE

FUNCTIONAL ANALYSIS REPORT NO. F/A-67
Date 16 February 1945

TARGET NO: 90.17-116
NAME OF TARGET: MITSUBISHI OIL REFINERY
LOCATION: KAWASAKI, TOKYO, JAPAN COORDINATES: 35°30' N- 139°44' E
PHOTOGRAPHY:

<u>Date</u>	<u>Mission</u>	<u>Print Nos.</u>
13 Dec 44	3PR/4M37A	2V49, 50 5R36-38

* Mosaic prepared from this photograph

1. This report has been prepared from a study of aerial photographs and a consideration of evaluated ground information supplied by the Joint Target Group.

2. FUNCTION:

Comprised of several fractionating towers and treatment units as well as large bulk storage areas, the KAWASAKI REFINERY of the MITSUBISHI OIL CO. is reported to be one of the more important producers of aviation gasoline by polymerization. In addition to high octane gasoline, the plant produces motor gasoline, kerosene, fuel oil, lubricating oil and asphalt.

3. LOCATION:

This refinery is located halfway between TOKYO and YOKOHAMA on reclaimed land, east of the mouth of the TSURUMI RIVER. Situated in a highly industrialized waterfront area, the plant site occupies about 57 acres, irregularly shaped, with 900 feet of waterfrontage.

4. SERVICES:

A bunkering pier (#102) and waterfront wharves on YOKOHAMA HARBOR facilitate tanker service to the refinery at several berths.

Railroad sidings to the warehouse area and tank car loading racks afford rail connections with the following railroads serving the area:

- (a) KEIHIN ELECTRIC R.R.
- (b) TSURUMIRINKO R.R.
- (c) Nambu Electric R.R.
- (d) TOKAIDO MAIN LINE R.R.

5. IDENTIFICATION OF FACILITIES:

<u>BUILDING</u>	<u>OCCUPANCY</u>	
1	Crude Oil Storage Tank	Diam 120'
2	" " " "	" 120' (Possibly Dismantled)
3	" " " "	" 120'
4	Warehouse	
5	"	
6	Unidentified	
7	"	
8	"	
9	10 Storage tanks	5 Tanks Diam 18' 5 Tanks " 25'

- 1 -

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F/A-67 Cont'd

10	Warehouse		
11	Workers Building		
12	Office Type Building		
13	Workers Residences		
14	4 Storage Tanks - 1 Tank	Diam. 75'	
	3 Tanks	Diam. 36'	
15	Warehouse		
16	Unidentified		
17	Unidentified		
18a	Possible Processing Building		
b	Probable Butane Tanks		
19	Warehouse		
20	Unidentified		
21 - 22	Iso-octane unit		
23	Furnace		
24	Accumulators and Horizontal Tanks		
25 - 26	Iso-octane unit		
27	Possible Processing Building		
28	Accumulators and Horizontal Tanks		
29	Intermediate Tank	Diam. 30'	
30	Furnace		
31	Boiler and Power House		
32	3 Horizontal Tanks	Length 30'	Diam. 10'
33	Storage Tank	Diam. 20'	
34	Storage Tank	Diam. 40'	
35	Storage Tank	Diam. 40'	
36	Storage Tank	Diam. 120'	(Possible Repairs)
37	Storage Tank	Diam. 120'	(Roof Removed)
38	Storage Tank	Diam. 120'	
39	Storage Tank	Diam. 120'	
40	Storage Tank	Diam. 120'	
41	Storage Tank	Diam. 120'	
42	Storage Tank	Diam. 120'	
43	Storage Tank	Diam. 120'	
44	Unidentified		
45	Furnace		
46	Furnace		
47 - 48 - 49	Cracking Unit		
50	Intermediate Tanks	2 Tanks	Diam. 30'
		6 Tanks	Diam. 20'
			(1 Possible Dis-
			mantling)
		1 Tank	Diam. 18'
51	Storage Tanks (2)	Diam. 30'	
52	Research Laboratory		
53	Offices		
54	Personnel Building		
55	Probable Shipping Offices		
56	Warehouse		
57	Warehouse		
58	Possible Offices		
59	Boiler House		
60	Storage Tank	Diam. 55'	
61	Possible Pump House		
62	Chemical Laboratory		
63	Intermediate Tanks	6 Tanks	Diam. 25'
		3 Tanks	Diam. 20'
			(1 Possible Dis-
			mantling)
64 - 65	Possible Treating Plant		
66	Gasoline Intermediate Storage Tanks	1 Tank	Diam. 30'
		11 Tanks	Diam. 25'
67 - 68	Primary Distillation Unit		

- 2 -

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69	Furnace
70	Storage Tank Diam. 30'
71	Storage Tank Diam. 78'
72	Storage Tank Diam. 78'
73	Storage Tank Diam. 102'
74	Storage Tank Diam. 30'
75	Furnace
76	Vacuum Distillation Unit
77	Storage Tanks 6 Tanks Diam. 15'
	4 Tanks Diam. 20'
78	Storage Tank Diam. 30'
79	Storage Tank Diam. 30'
80	Pressure Distillate Re-run Unit
81	Asphalt Loading Unit
82	Storage Tanks 2 Tanks Diam. 19'
	2 Tanks Diam. 22'
83	(a) Pump House (Possible Association with Gasoline Treating)
	(b) Horizontal Tanks (Possible Association with Gasoline Treating)
84	Storage Tanks 2 Tanks Diam. 19'
	2 Tanks Diam. 22'
85	Pump House
86	Storage Tanks (5) Diam. 25'
87	Storage Tanks Diam. 36'
88	Storage Tank Diam. 36'
89	Storage Tank Diam. 36'
90	Storage Tank Diam. 36'
91	Storage Tank Diam. 36'
92	Storage Tank Diam. 36'
93	Storage Tank Diam. 36'
94	Storage Tank Diam. 36'
95	Storage Tank Diam. 78'
96	Storage Tank Diam. 78'
97	Storage Tank 78'
98	Storage Tank 78'
99	Storage Tank 78'
100	Storage Tank 78'
101	Storage Tank 120'
102	Oil Bunkering Pier
103	Open Storage Area
104	Warehouse
105	Warehouse (Drum Storage)
106	Warehouse
107	Warehouse
108	Warehouse
109	Can Manufacturing Plant
110	Warehouse
111	Warehouse
112	Warehouse
113	Drum Manufacturing Plant
114	Tank Car Loading Rack Building

6. NOTES:

- (a) 5 Tanks removed in #36 to #41 area;
- (b) Tanks #1, 2, 3 possible blast walls with buttresses
- (c) 1 Tank removed #66 area
- (d) 1 Tank removed #86 area
- (e) Area #103 - misc. loose stores, possible construction and repair parts and Materials.
- (f) Several tall pylons, evidently for lightning arrestors, are observed in and about the storage tank areas,

F/A-67 Cont'd

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7. ACTIVITY:

No useful statement can be made concerning activity.

ENCL: C.F.L. 743.885

INTERPRETED BY:

E.W. SHYDER
Lt. (j.g.) USNR

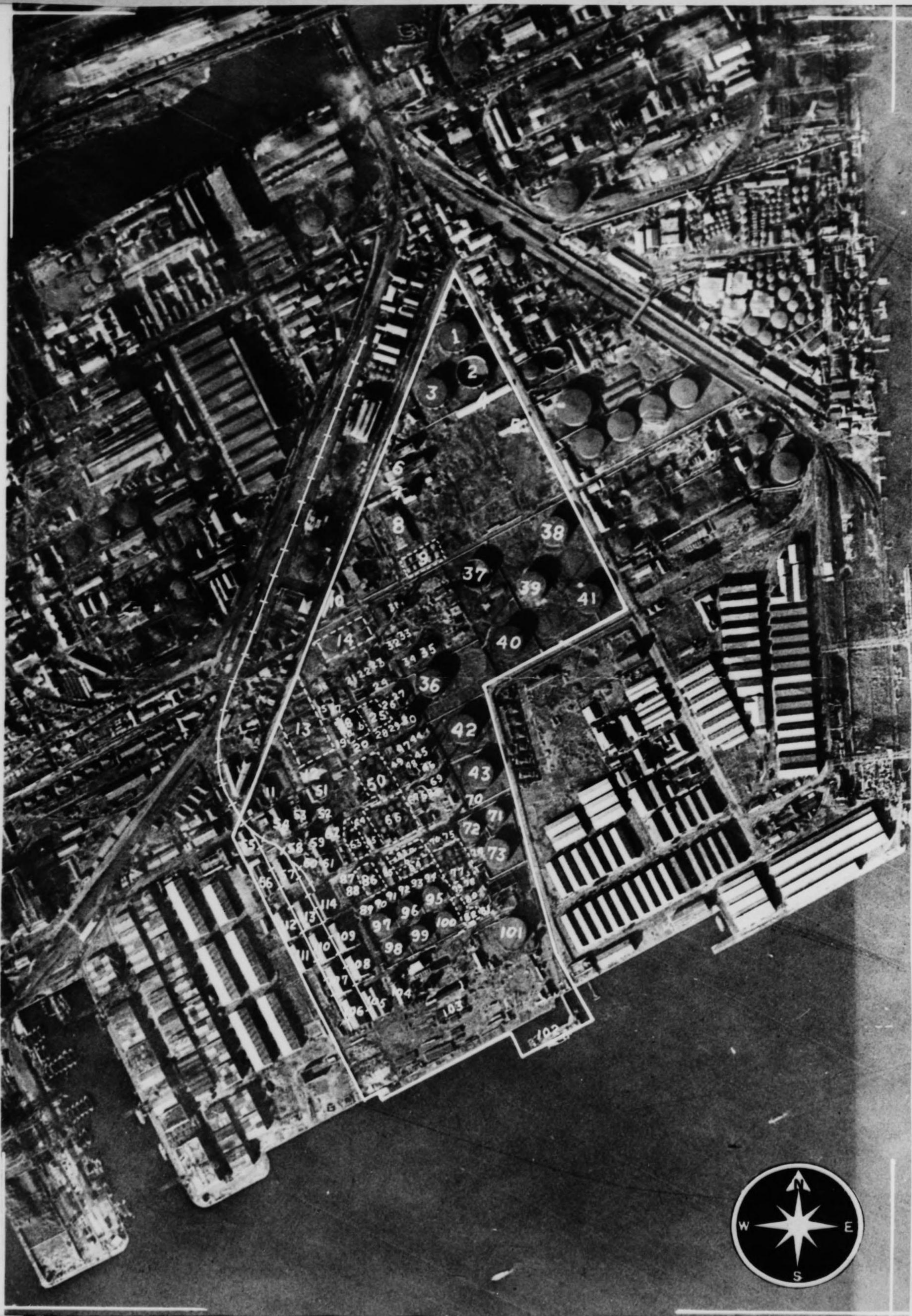
JTG CONSULTANT:

RUSSEL S. TARR
Major, Air Corps

APPROVED BY:

Lewis E. Stevens
LEWIS E. STEVENS
Major, Air Corps
Chief, Photo Intelligence Section
Evaluation Br., Photographic Division
Office of Asst. Chief of Air Staff
Intelligence

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TARGET NO. 90.17-116 NAME MITSUBISHI OIL REFINERY, KAWASAKI DATE 14 Feb 45 P/4
COMPLETED

APPROX. COORD. 35°30'N 139°44'E PHOTO DATE 13 Dec 44 SCALE 1/6,000

F/A NO. 67 SORTIE, PRINT NOS. 3PR/4M37A/2V:50 CONFIDENTIAL
C.F.L. 743.885

1. Crude Oil Storage Tank
2. " " " "
3. " " " "
4. Warehouse
5. "
6. Unidentified
7. "
8. "
9. 10 Storage Tanks
10. Warehouse
11. Workers Building
12. Office Type Building
13. Workers Residences
14. 4 Storage Tanks
15. Warehouse
16. Unidentified
17. Unidentified
- 18a. Possible Processing Building
- 18b. Probable Butane Tanks
19. Warehouse
20. Unidentified
- 21.) Iso-octane Unit
- 22.)
23. Furnace
24. Accumulators and Horizontal Tanks
- 25.) Iso-octane Unit
- 26.)
27. Possible Processing Building
28. Accumulators and Horizontal Tanks
29. Intermediate Tank
30. Furnace
31. Boiler and Power House
32. 3 Horizontal Tanks
33. Storage Tank
34. Storage Tank
35. Storage Tank
36. Storage Tank
37. Storage Tank
38. Storage Tank
39. Storage Tank
40. Storage Tank
41. Storage Tank
42. Storage Tank
43. Storage Tank
44. Unidentified
45. Furnace
46. Furnace
- 47.) Cracking Unit
- 48.)
- 49.)
50. Intermediate Tanks
51. Storage Tanks
52. Research Laboratory
53. Offices
55. Probable Shipping Offices
54. Personnel Building
56. Warehouse
57. Warehouse
58. Possible Offices
59. Boiler House
60. Storage Tank
61. Possible Pump House
62. Chemical Laboratory
63. Intermediate Tanks
- 64.) Possible Treating Plant
- 65.)
66. Gasoline Intermediate Storage Tanks
- 67.) Primary Distillation Unit
- 68.)
69. Furnace
70. Storage Tank
71. Storage Tank
72. Storage Tank
73. Storage Tank
74. Storage Tank
75. Furnace
76. Vacuum Distillation Unit
77. Storage Tanks
78. Storage Tank
79. Storage Tank
80. Pressure Distillate Re-run Unit
81. Asphalt Loading Unit
82. Storage Tanks
- 83a. Pump House (Possible Association with Gasoline Treating)
- 83b. Horizontal Tanks (Possible Association with Gasoline Treating)
84. Storage Tanks
85. Pump House
86. Storage Tanks
87. Storage Tanks
88. Storage Tank
89. Storage Tank
90. Storage Tank
91. Storage Tank
92. Storage Tank
93. Storage Tank
94. Storage Tank
95. Storage Tank
96. Storage Tank
97. Storage Tank
98. Storage Tank
99. Storage Tank
100. Storage Tank
101. Storage Tank
102. Oil Bunkering Pier
103. Open Storage Area
104. Warehouse
105. Warehouse
106. Warehouse
107. Warehouse
108. Warehouse
109. Car Manufacturing Plant
110. Warehouse
111. Warehouse
112. Warehouse
113. Drum Manufacturing Plant
114. Tank Car Loading Rack Building

COVER USED		AC/AS INTELLIGENCE PHOTOGRAPHIC DIVISION PHOTO-INTELLIGENCE SECTION LIMITED DAMAGE INTERPRETATION NO. <u>32</u>	CONFIDENTIAL	D/P
MISSION	3PR/5M 182		DATE	7 JUNE 45
PRINTS	2: 78-80 3R:120-3 3L:120-122		INTERPRETER	V. Smith, 1/1t AC
DATE	30 APR 45		SHEET NO.	1 OF 3
QUALITY	Good to hazy		AREA NO.	TARGET NO.
SCALE	1:9450		90:17	116
DATE OF ATTACK	status			

TARGET	MITSUBISHI OIL REFINERY	LOCATION	TOKYO, JAPAN
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This Limited Damage Interpretation has been undertaken in accordance with the conditions as checked below:

<input type="checkbox"/>	Photography is inadequate in scale	<input type="checkbox"/>	Damage is below 10% of built-up area
<input checked="" type="checkbox"/>	Photography is inadequate in quality	<input type="checkbox"/>	Total damage is less than 50,000 sq. ft.
<input checked="" type="checkbox"/>	Stereo coverage is lacking or incomplete	<input type="checkbox"/>	Excessive time between attack and photography
<input type="checkbox"/>	Detailed interpretation is not required	<input checked="" type="checkbox"/>	Other factors as noted below

REF. NO.	BUILDING		VISIBLE DAMAGE		DESCRIPTION OF DAMAGE
	AREA	STRUCT'L	SUPERF'L		
1	A				No damage visible
	b				Destroyed
	c				No damage visible
2					Protective wall about "c" destroyed. South end of building chipped off.
3					Roof gone. Damaged prior to 13/14 April.
					Tank O.K.. Pipe line connecting #3 to #1 is severely damaged.
	A				Near Miss. Building may have suffered some damage.
	1				Foundation being laid? See sketch #1
4					No visible damage
5					Destroyed
6					Building looks intact, although area about it has had several hits bursts.
	A				Two-thirds of building demolished
	B				Superficial damage to roof
	c				No visible damage
7					Wall distorted, roof sagging
8					Equipment north of building is damaged. Roof damaged in spots.
9					Tanks intact, pipe line damaged.
10	A				No damage visible
	B				No damage visible
	C				Roof stripped
11	A				No damage visible
	B				No damage visible
	C				Slightly damaged (photos hazy)
12					No damage visible
13					Blast walls about the houses severely damaged. Two houses have edges chipped off. (photos hazy)
14					Apparently intact
15					Apparently intact
16					Roof stripped, partially in prior attack
17	A				No damage visible

TOTALS			APPROVED BY:	east)
SITE	SITE AREA		Lee W. Kilgore, Major AC Chief, Evaluation Branch Photographic Division AC/AS, Intelligence	
	BUILT-UP AREA			
	% OF SITE BUILT-UP			
DAMAGE	AREA OF DAMAGE			
	% OF BUILT-UP AREA			

ALL AREAS ARE PLAN AREAS IN THOUSANDS OF SQUARE FEET

AREA NO.	TARGET NO.	LIMITED DAMAGE INTERPRETATION	CONFIDENTIAL	D/P
90:17	116	NO. 32	SHEET NO. 2	OF 3
18	A	No apparent damage		
	B	No apparent damage		
19		No apparent damage		
20		No apparent damage		
21		No apparent damage. Equipment to south is O.K.		
22	-----	No apparent damage. Cover too hazy to note details in equipment.		
23		Same as #22		
24		Five tanks destroyed. South and east blast walls destroyed		
25		No apparent damage (cover hazy)		
26 to 30, incl.	-----	No apparent damage (cover hazy)		
31	A	Possible roof-sag		
	B	O.K.		
	C	O.K.		
32		Destroyed		
33		No visible damage (cover hazy)		
34		No visible damage		
35	-----	No visible damage		
36		Roof damaged prior to attack of 13/14 April		
37		Roof damage and gaping holes in tank sides show on December 44 cover. Tank removed before 30 Apr 45		
38		No visible damage		
39		Destroyed (possibly removed)		
40	-----	Edges of roof frayed. Sides damaged		
41		No visible damage		
42		No visible damage		
43		Destroyed or removed		
44		Of two tanks, one may be damaged. (cover hazy)		
45		No visible damage		
46		No visible damage		
47	-----	Equipment connecting #47 to #48 is severely damaged. Details of towers are hazy on cover.		
	A	Roof seemingly damaged prior to 13 Dec 44 and repaired by 30 Apr 45.		
48		Northeast end of equipment chipped off. See sketch 2		
49		North end of equipment damaged prior to 13 Dec. 44 Southern severely damaged. Repairs to north end are in progress at this cover.		
50	-----	Of twelve tanks, three severely damaged prior to 13 Dec. 44. Debris of one cleared by 30 April 45		
	A	Outside equipment damaged		
	B	Small building adjoining B is destroyed. No visible damage to B. (cover is hazy)		
51 to 62, incl.		No visible damage		
62	A	Two-thirds destroyed		
63		Of nine tanks, one small tank severely damaged and one slightly damaged		
64		Two tanks severely damaged, also equipment to east.		
65	-----	No visible damage		
66		Two tanks destroyed prior to 13 Dec 44. Three others destroyed in attack of 13/14 April 45		
67		No visible damage		
68		Demolished		
69		Demolished; chimney still standing		
	A	Small building destroyed		
	B	No visible damage		
	C	Destroyed		
70		Severely damaged		
71 to 74, incl.		No visible damage		
75		Cover is too hazy to distinguish details.		
76		Possible damage to southwest corner of unit, see sketch		

AREA NO. 90.17	TARGET NO. 116	LIMITED DAMAGE INTERPRETATION NO. <u>32</u>	CONFIDENTIAL	D/P
			SHEET NO. 3 OF 3	

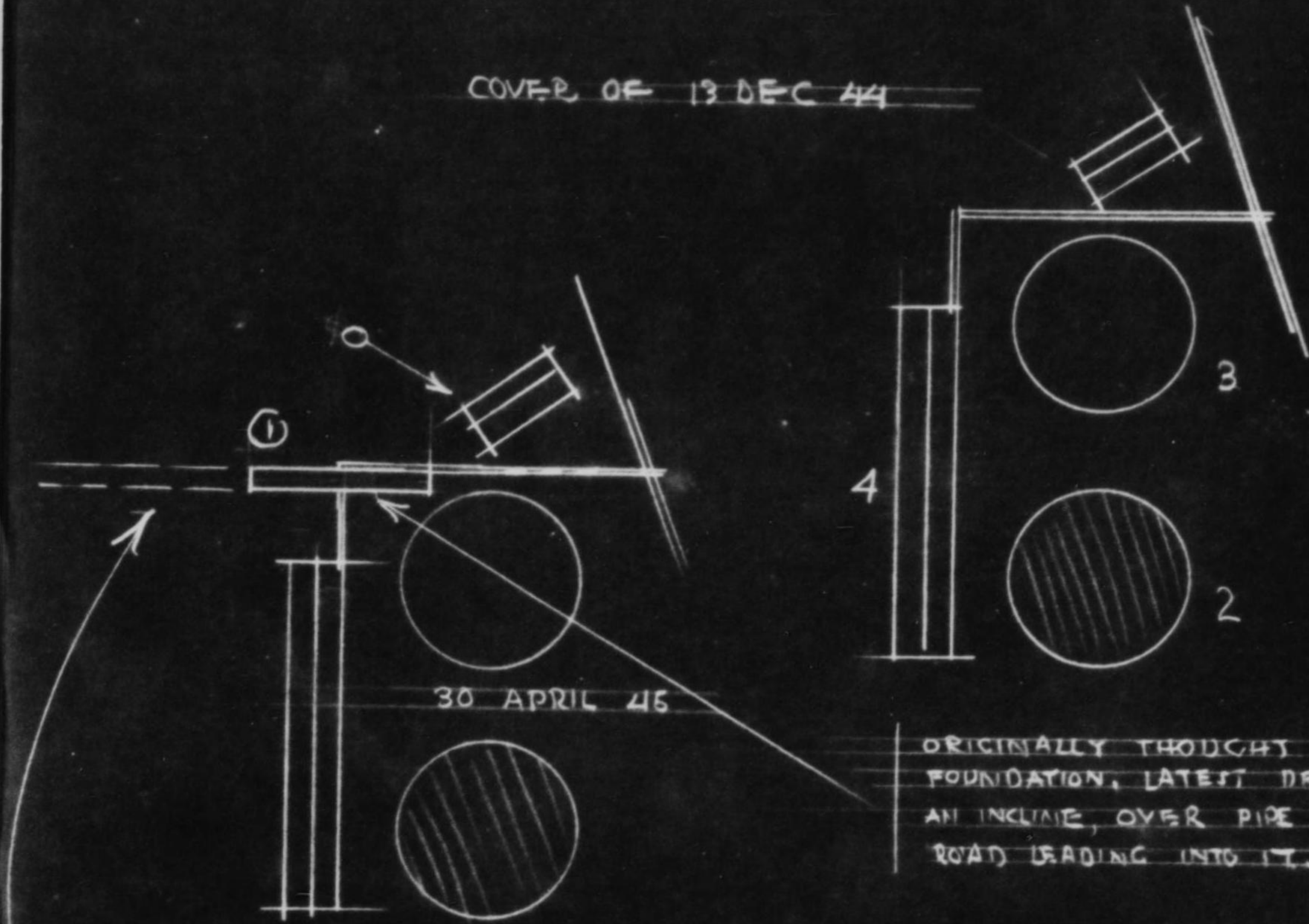
77		Pipes connecting #77 to #76 destroyed; confirming, to a certain extent, damage noted in #76. Of eleven tanks, five are severely damaged with possible damage to others (cover is too hazy to distinguish detail). Equipment east of tanks is damaged.
78	-----	Destroyed
79		Destroyed
80	A	Severely damaged, debris strewn about
	A	Possible damage to one tank
81		Southern unit and stack severely damaged
82		Possible damage to building south of two tanks
83	A	Equipment connecting 83A to 85 is damaged. Possible damage to southwest wall of building
	B -----	Of two units of equipment, western unit is destroyed and eastern unit superficially damaged
84		Six tanks destroyed, with possible damage to 7th
85		Northern end of building wiped off
86		Two tanks destroyed and two severely damaged
87		Possible superficial damage to roof
88		Possible superficial damage to roof
89 to 94, incl.	-----	Roof of #90 is bent. Possible damage to other roofs. (cover is hazy)
95 to 100, incl.		No visible damage
101		No visible damage
	A	No visible damage
	B	No visible damage
102		No visible damage. (No 40" post-attack stereo)
103		Demolished (")
	A	Demolished (")
	B -----	Small section knifed off (")
	C	No visible damage (")
	D	No visible damage (")
	E	Demolished (")
	F	Demolished (")
	G	Demolished (")
104		No visible damage (cover hazy) ")
	A	No damage visible (") ")
	B	No visible damage (") ")
	C	No visible damage (") ")
105 to 115, incl.	-----	No visible damage (") ")

DAMAGE SKETCHES

MITSUBISHI OIL REFINERY
TOKYO - BAY

SKETCH No 1

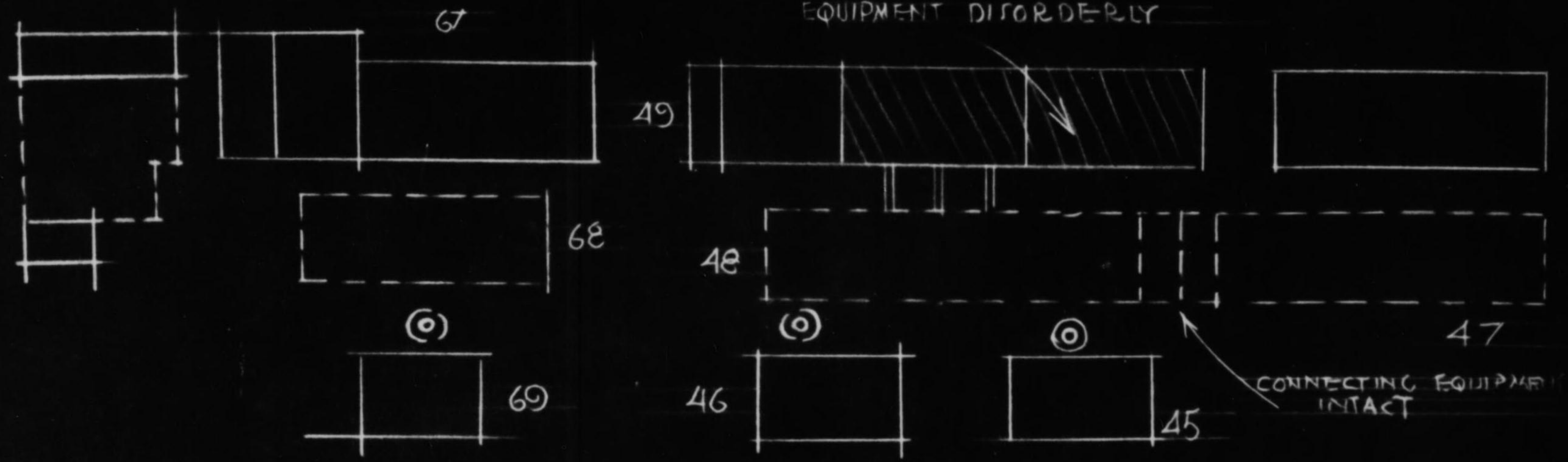
COVER OF 13 DEC 44



30 APRIL 45

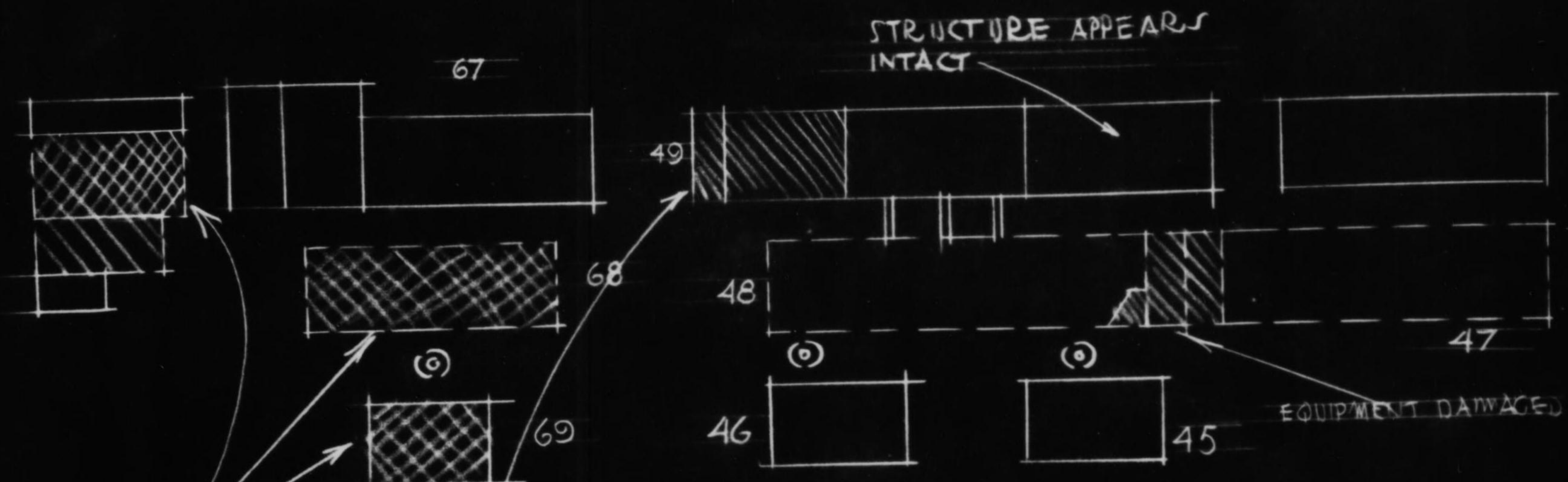
ORIGINALLY THOUGHT TO BE A FOUNDATION, LATEST DEDUCTION IS:- AN INCLINE OVER PIPE LINE - NEW ROAD LEADING INTO IT.

NEW ROAD?



COVER OF 13 DEC 44

SKETCH No 2



COVER OF 30 APRIL

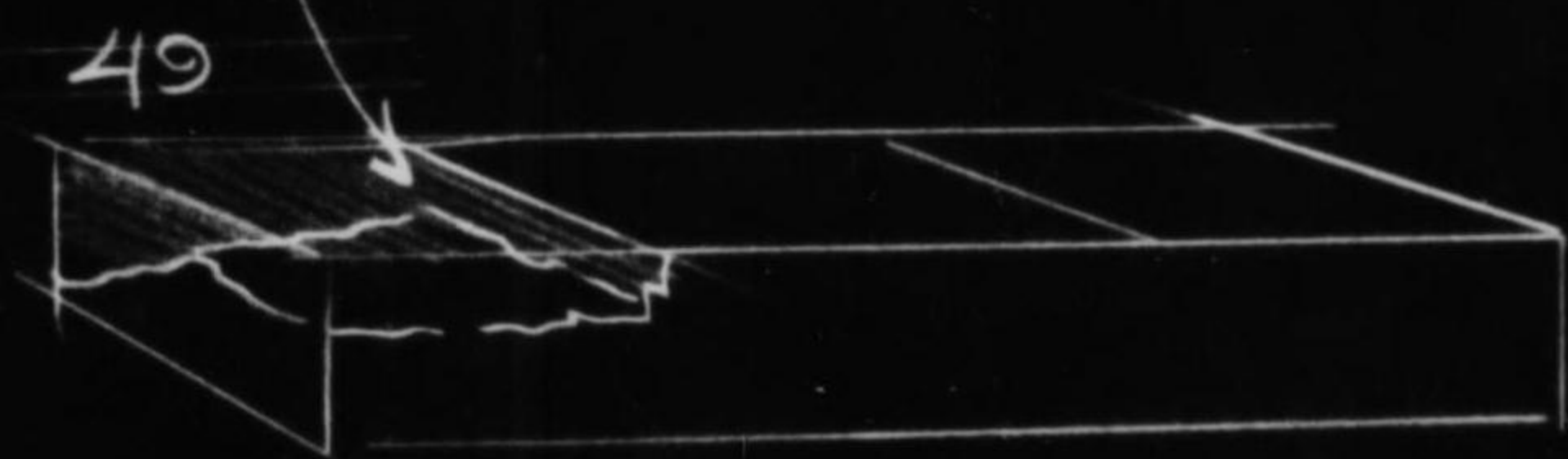
SKETCH No 2

DE MOLISHED

STRUCTURE APPEARS INTACT

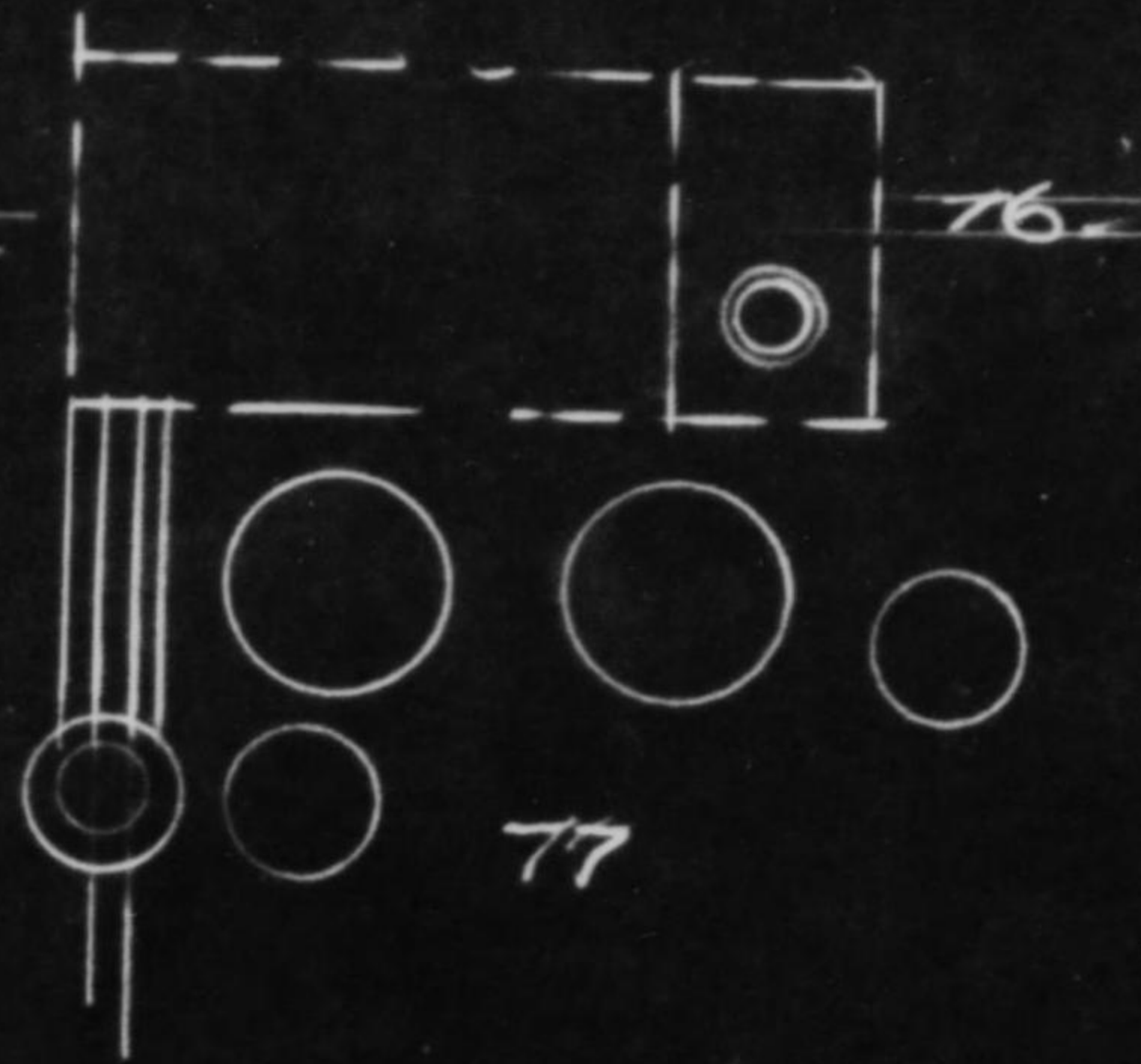
EQUIPMENT DAMAGED

SEVERELY DAMAGED



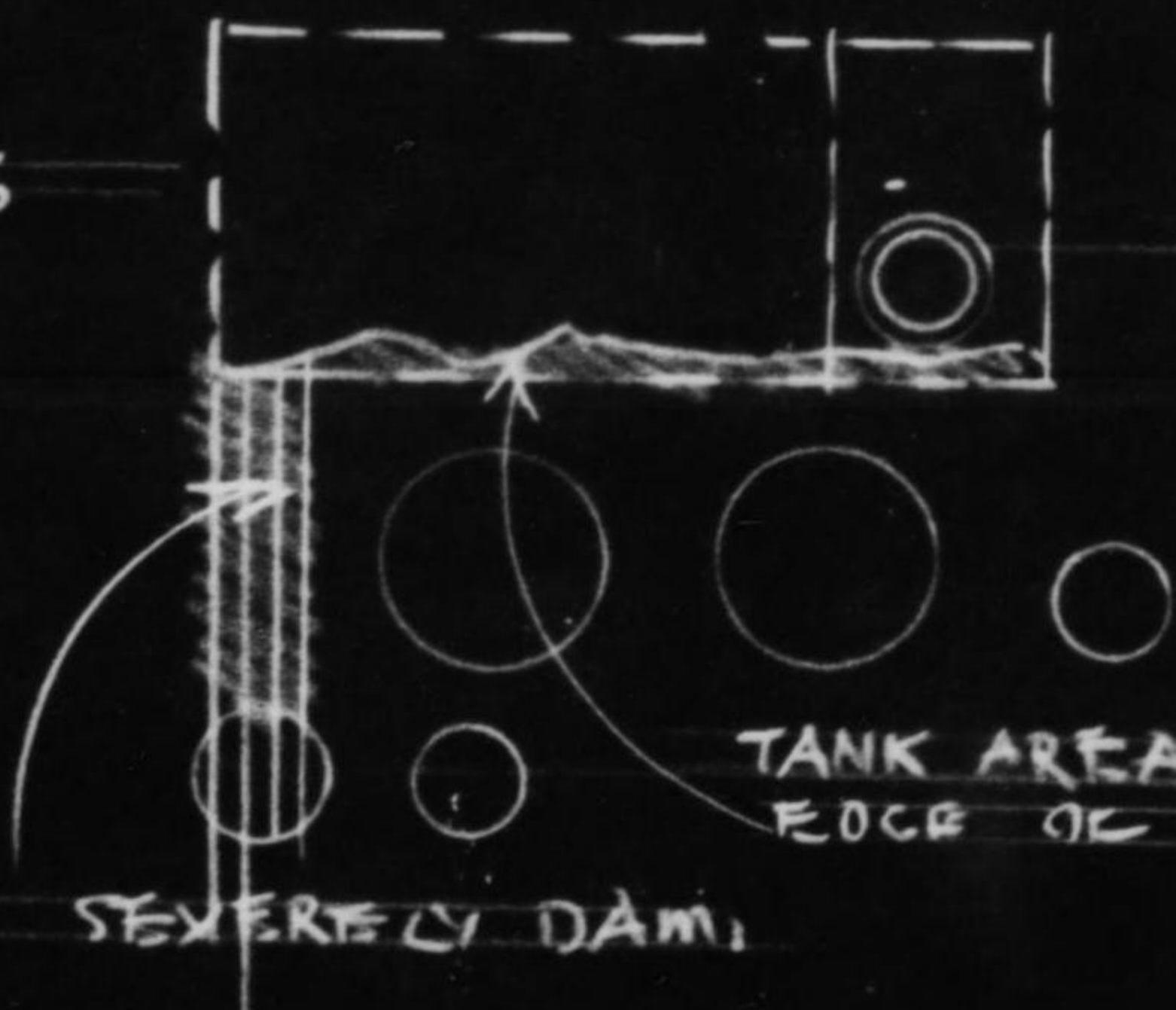
SKETCH NO. 3

COVER OF 13 DEC 44



76

COVER OF 30 APR 45



PIPES SEVERELY DAM.

TANK AREA DAMAGED
EDGE OF UNIT SEEMS CHIPPED

M. PI-64589

COVER USED		AC/AS INTELLIGENCE PHOTOGRAPHIC DIVISION PHOTO-INTELLIGENCE SECTION	CONFIDENTIAL	D/P
MISSION	3PR/5M 182		DATE	7 JUNE 45
PRINTS	2: 78-80 3R:120-3 3L:120-122		INTERPRETER	V. Smith, 1/lt AC
DATE	30 APR 45		SHEET NO.	1 OF 3
QUALITY	Good to hazy		AREA NO.	90:17
SCALE	1:9450		TARGET NO.	116
DATE OF ATTACK	status		NO.	32

TARGET	MITSUBISHI OIL REFINERY	LOCATION	TOKYO, JAPAN
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This Limited Damage Interpretation has been undertaken in accordance with the conditions as checked below:

<input type="checkbox"/>	Photography is inadequate in scale	<input type="checkbox"/>	Damage is below 10% of built-up area
<input checked="" type="checkbox"/>	Photography is inadequate in quality	<input type="checkbox"/>	Total damage is less than 50,000 sq. ft.
<input checked="" type="checkbox"/>	Stereo coverage is lacking or incomplete	<input type="checkbox"/>	Excessive time between attack and photography
<input type="checkbox"/>	Detailed interpretation is not required	<input checked="" type="checkbox"/>	Other factors as noted below

REF. NO.	BUILDING		VISIBLE DAMAGE		DESCRIPTION OF DAMAGE
	AREA	STRUCT'L	SUPERF'L		
1	A				No damage visible
	b				Destroyed
	c				No damage visible
2					Protective wall about "c" destroyed. South end of building chipped off.
3					Roof gone. Damaged prior to 13/14 April. Tank O.K.. Pipe line connecting #3 to #1 is severely damaged.
	A				Near Miss. Building may have suffered some damage. Foundation being laid? See sketch #1
4	1				No visible damage
5					Destroyed
6					Building looks intact, although area about it has had several miss bursts.
	A				Two-thirds of building demolished
	B				Superficial damage to roof
	c				No visible damage
7					Wall distorted, roof sagging
8					Equipment north of building is damaged. Roof damaged in spots.
9					Tanks intact, pipe line damaged.
10	A				No damage visible
	B				No damage visible
	C				Roof stripped
11	A				No damage visible
	B				No damage visible
	C				No damage visible
12					Slightly damaged (photos hazy)
13					No damage visible
					Blast walls about the houses severely damaged. Two houses have edges chipped off. (photos hazy)
14					Apparently intact
15					Apparently intact
16					Roof stripped, partially in prior attack
17	A				No damage visible

TOTALS			APPROVED BY:	east)
SITE	SITE AREA		Lee W. Kilgore, Major AC Chief, Evaluation Branch Photographic Division AC/AS, Intelligence	
	BUILT-UP AREA			
	% OF SITE BUILT-UP			
DAMAGE	AREA OF DAMAGE			
	% OF BUILT-UP AREA			

ALL AREAS ARE PLAN AREAS IN THOUSANDS OF SQUARE FEET

AREA NO.	TARGET NO.	LIMITED DAMAGE INTERPRETATION	CONFIDENTIAL	D/P
90:17	116	NO. 32	SHEET NO. 2	OF 3
18	A	No apparent damage		
	B	No apparent damage		
19		No apparent damage		
20		No apparent damage		
21		No apparent damage. Equipment to south is O.K.		
22	-----	No apparent damage. Cover too hazy to note details in equipment.		
23		Same as #22		
24		Five tanks destroyed. South and east blast walls destroyed		
25		No apparent damage (cover hazy)		
26 to 30, incl.	-----	No apparent damage (cover hazy)		
31	A	Possible roof-sag		
	B	O.K.		
	C	O.K.		
32		Destroyed		
33		No visible damage (cover hazy)		
34		No visible damage		
35	-----	No visible damage		
36		Roof damaged prior to attack of 13/14 April		
37		Roof damage and gaping holes in tank sides show on December 44 cover. Tank removed before 30 Apr 45		
38		No visible damage		
39		Destroyed (possibly removed)		
40	-----	Edges of roof frayed. Sides damaged		
41		No visible damage		
42		No visible damage		
43		Destroyed or removed		
44		Of two tanks, one may be damaged. (cover hazy)		
45		No visible damage		
46		No visible damage		
47	-----	Equipment connecting #47 to #48 is severely damaged. Details of towers are hazy on cover.		
	A	Roof seemingly damaged prior to 13 Dec 44 and repaired by 30 Apr 45.		
48		Northeast end of equipment chipped off. See sketch 2		
49		North end of equipment damaged prior to 13 Dec. 44 Southern severely damaged. Repairs to north end are in progress at this cover.		
50	-----	Of twelve tanks, three severely damaged prior to 13 Dec. 44. Debris of one cleared by 30 April 45		
	A	Outside equipment damaged		
	B	Small building adjoining B is destroyed. No visible damage to B. (cover is hazy)		
51 to 62, incl.		No visible damage		
62	A	Two-thirds destroyed		
63		Of nine tanks, one small tank severely damaged and one slightly damaged		
64		Two tanks severely damaged, also equipment to east.		
65	-----	No visible damage		
66		Two tanks destroyed prior to 13 Dec 44. Three others destroyed in attack of 13/14 April 45		
67		No visible damage		
68		Demolished		
69		Demolished; chimney still standing		
	A	Small building destroyed		
	B	----- No visible damage		
	C	Destroyed		
70		Severely damaged		
71 to 74, incl.		No visible damage		
75		Cover is too hazy to distinguish details.		
76		Possible damage to southwest corner of unit, see sketch		

AREA NO. 90.17	TARGET NO. 116	LIMITED DAMAGE INTERPRETATION NO. <u>32</u>	CONFIDENTIAL	D/P
			SHEET NO. 3 OF 3	

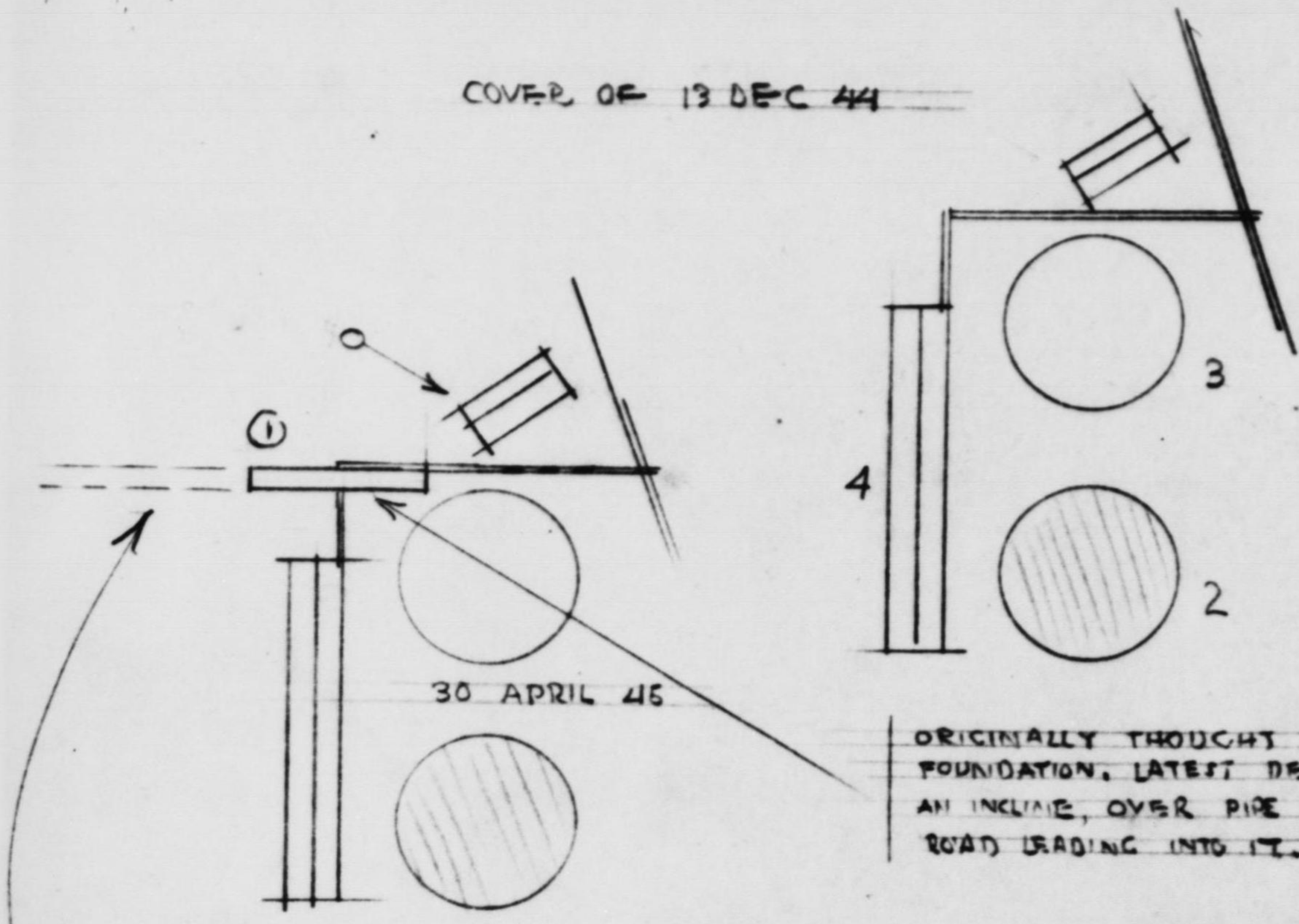
77		Pipes connecting #77 to #76 destroyed; confirming, to a certain extent, damage noted in #76. Of eleven tanks, five are severely damaged with possible damage to others (cover is too hazy to distinguish detail). Equipment east of tanks is damaged.
78	-----	Destroyed
79		Destroyed
80	A	Severely damaged, debris strewn about
	A	Possible damage to one tank
81		Southern unit and stack severely damaged
82		Possible damage to building south of two tanks
83	A	Equipment connecting 83A to 85 is damaged. Possible damage to southwest wall of building
	B -----	Of two units of equipment, western unit is destroyed and eastern unit superficially damaged
84		Six tanks destroyed, with possible damage to 7th
85		Northern end of building wiped off
86		Two tanks destroyed and two severely damaged
87		Possible superficial damage to roof
88		Possible superficial damage to roof
89 to 94, incl.	-----	Roof of #90 is bent. Possible damage to other roofs. (cover is hazy)
95 to 100, incl.		No visible damage
101		No visible damage
	A	No visible damage
	B	No visible damage
102		No visible damage. (No 40" post-attack stereo)
103		Demolished (")
	A	Demolished (")
	B -----	Small section knifed off (")
	C	No visible damage (")
	D	No visible damage (")
	E	Demolished (")
	F	Demolished (")
	G	Demolished (")
104		No visible damage (cover hazy)")
	A	No damage visible (")")
	B	No visible damage (")")
	C	No visible damage (")")
105 to 115, incl.	-----	No visible damage (")")

DAMAGE SKETCHES

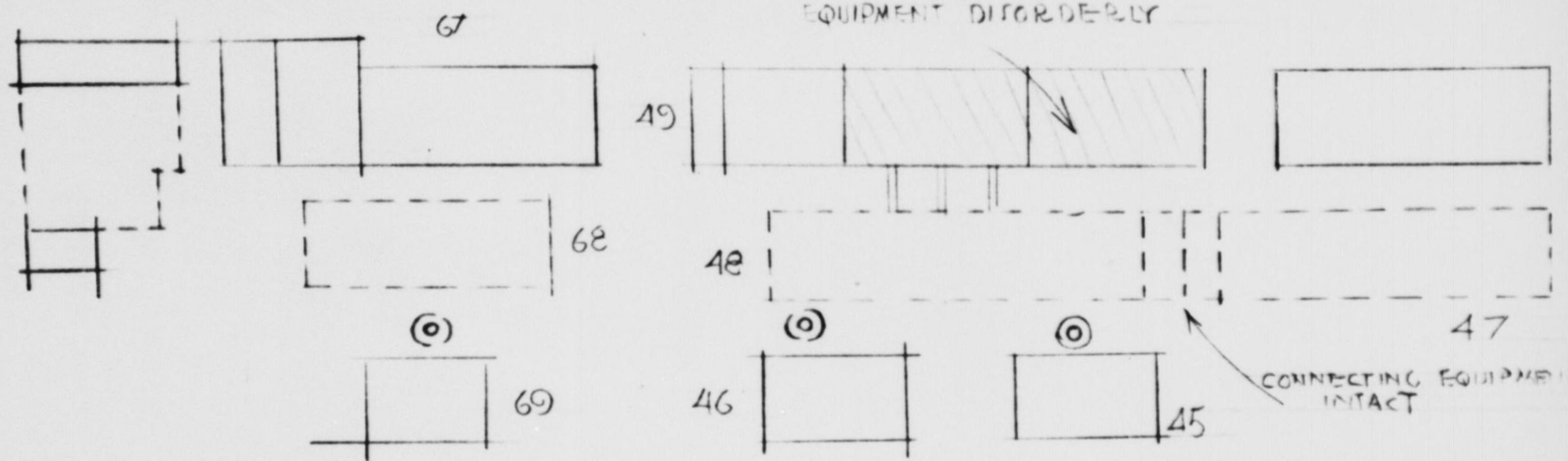
○
MITSUBISHI OIL REFINERY
TOKYO - BAY

SKETCH No 1

COVER. OF 13 DEC 44

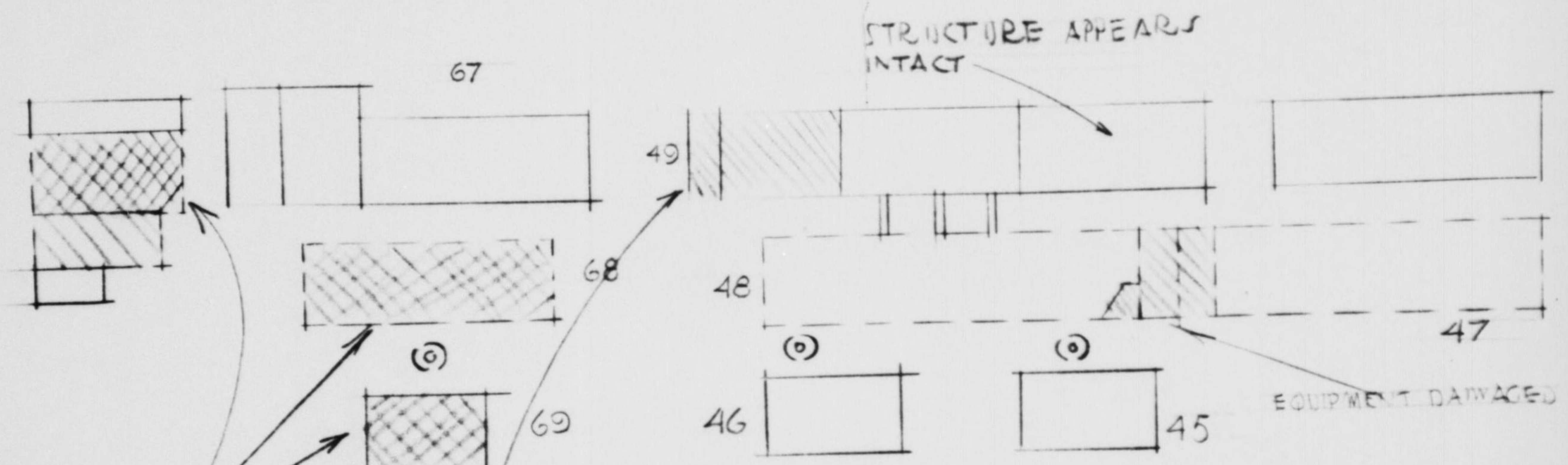


NEW ROAD?



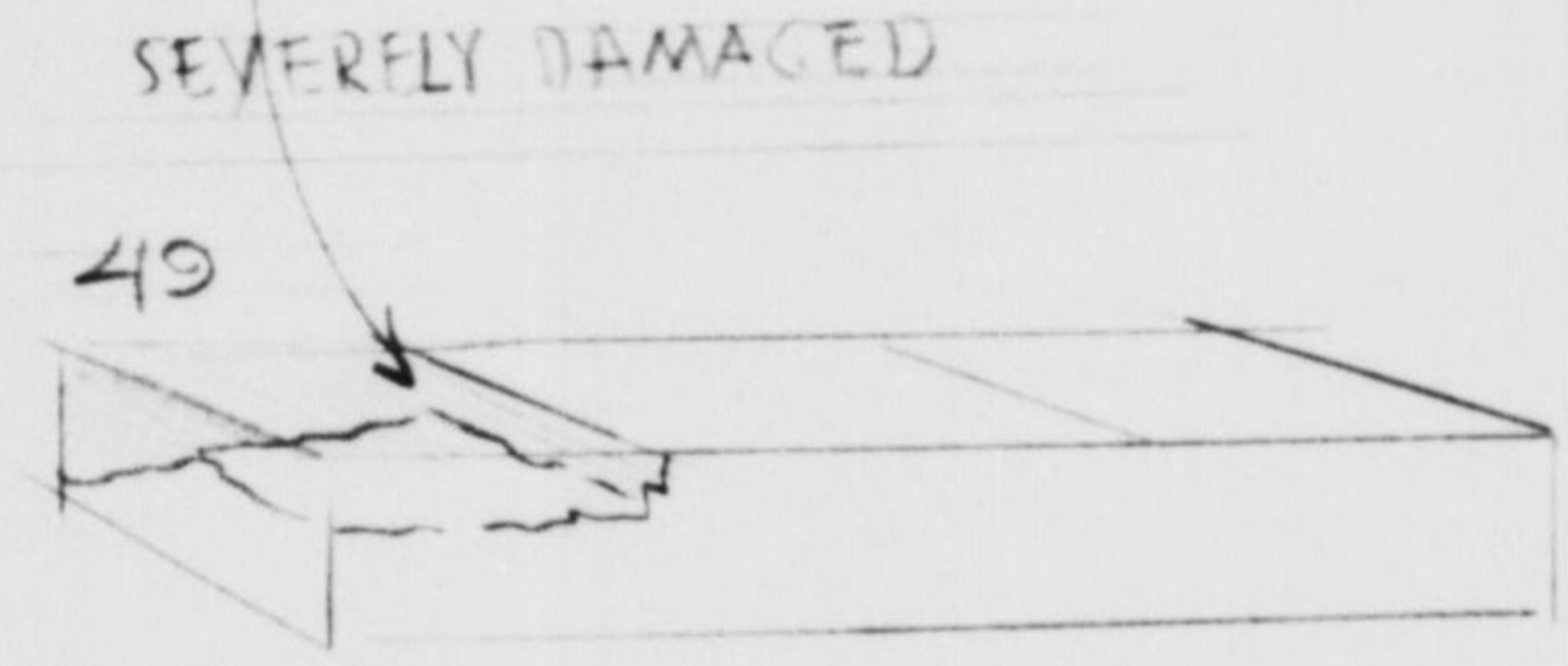
COVER OF 13 DEC 44

SKETCH No 2



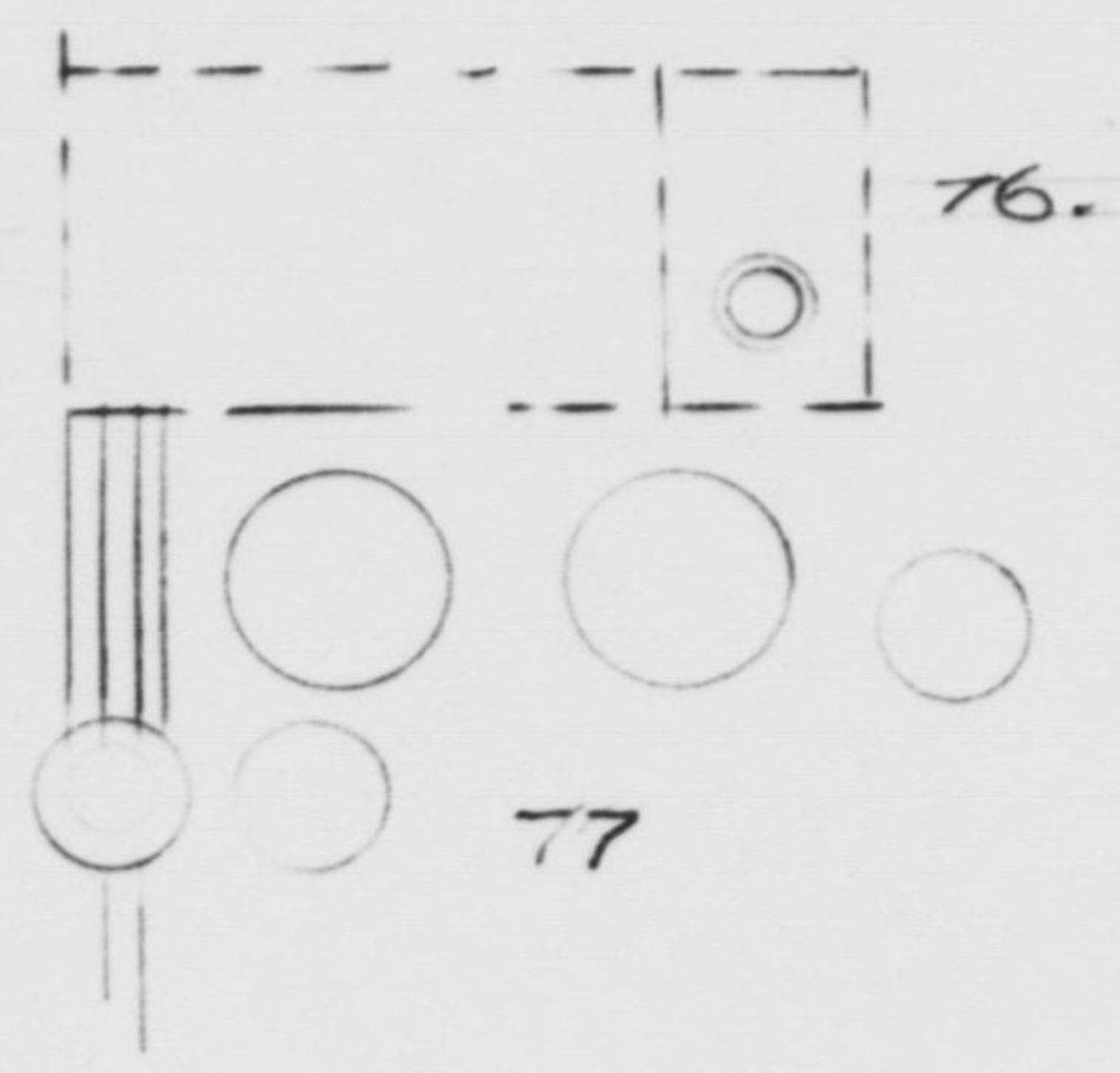
COVER OF 30 APRIL

SKETCH No 2



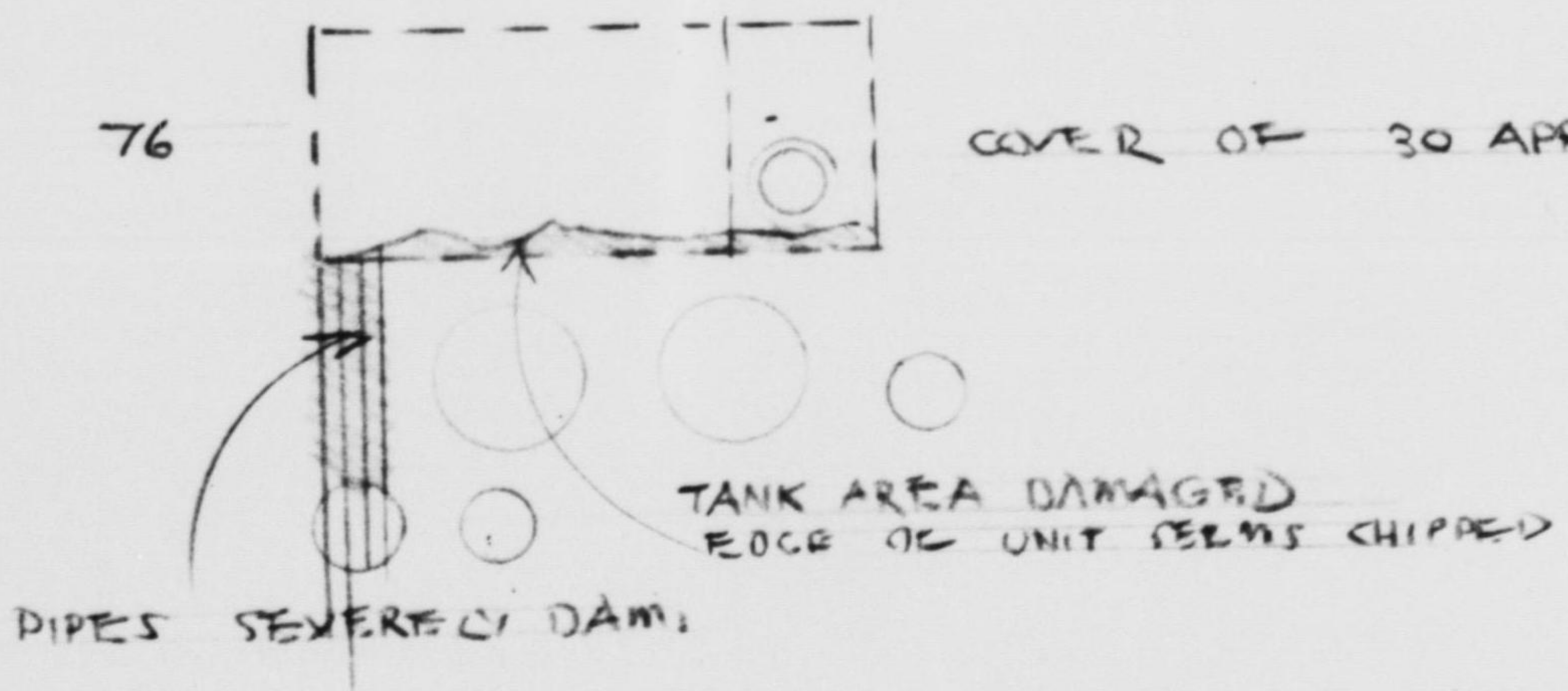
SKETCH No. 3

COVER OF 13 DEC 44



76

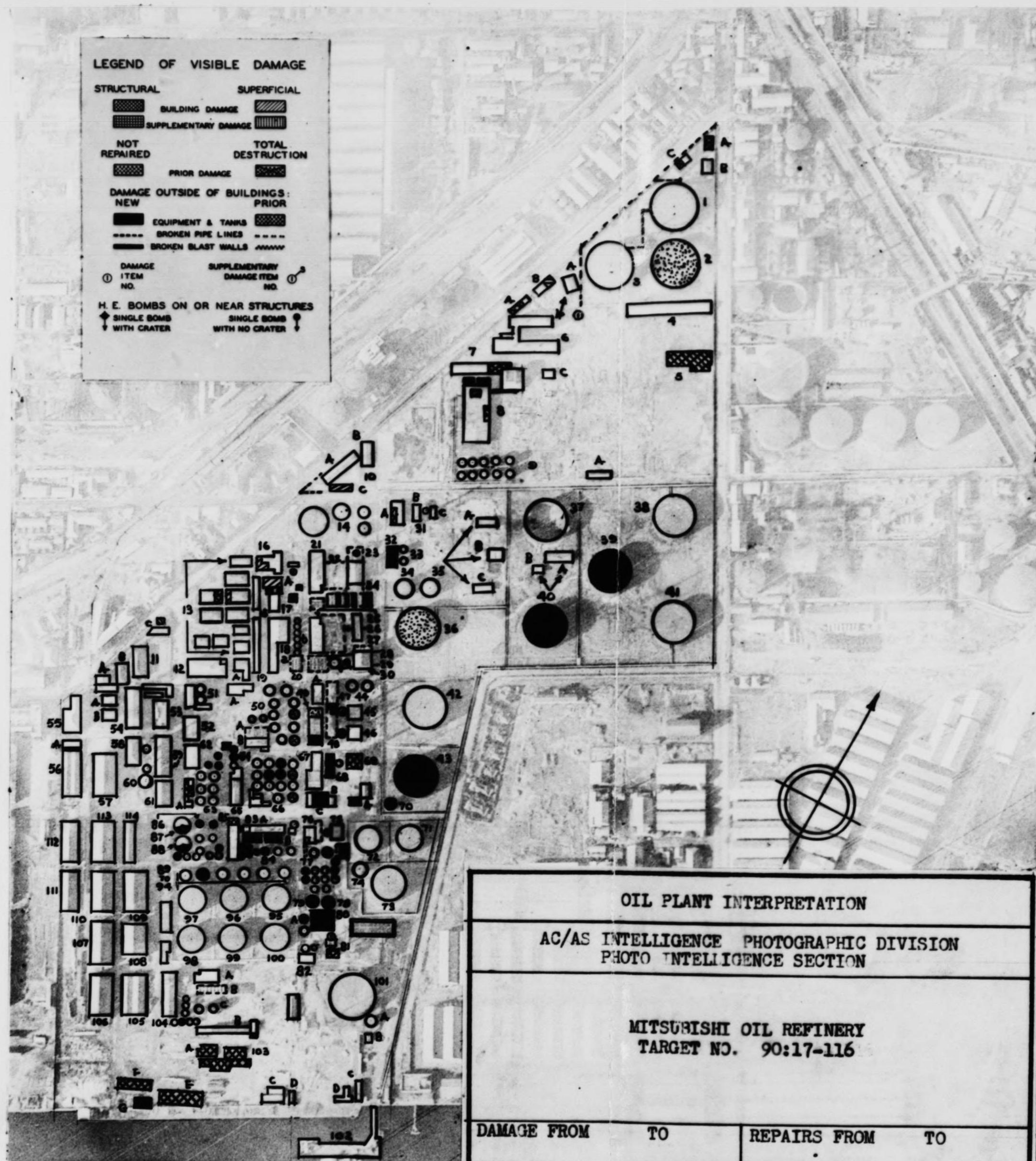
COVER OF 30 APR 45



PIPES SEVERELY DAMAGED

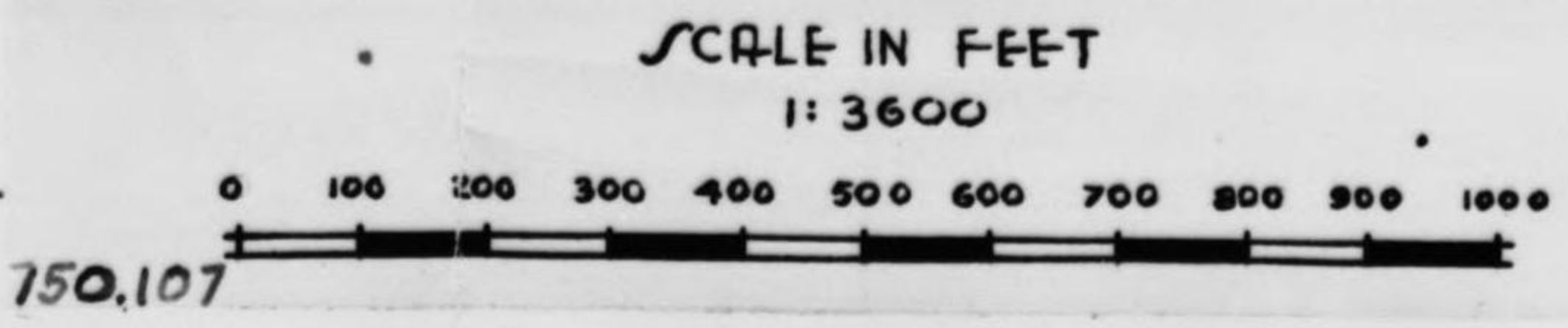
TANK AREA DAMAGED
EDGE OF UNIT SEEMS CHIPPED

1. Crude Oil Storage Tank
2. " " " "
3. " " " "
4. Warehouse
5. " " " "
6. Unidentified
7. " " " "
8. " " " "
9. 10 Storage Tanks
10. Warehouse
11. Workers Building
12. Office Type Building
13. Workers Residences
14. 4 Storage Tanks
15. Warehouse
16. Unidentified
17. Unidentified
- 18a. Possible Processing Building
- 18b. Probable Butane Tanks
19. Warehouse
20. Unidentified
21. Iso-octane Unit
22.)
23. Furnace
24. Accumulators and Horizontal Tanks
25.) Iso-octane Unit
26.)
27. Possible Processing Building
28. Accumulators and Horizontal Tanks
29. Intermediate Tank
30. Furnace
31. Boiler and Power House
32. 3 Horizontal Tanks
33. Storage Tank
34. Storage Tank
35. Storage Tank
36. Storage Tank
37. Storage Tank
38. Storage Tank
39. Storage Tank
40. Storage Tank
41. Storage Tank
42. Storage Tank
43. Storage Tank
44. Unidentified
45. Furnace
46. Furnace
47.) Cracking Unit
48.)
49.)
50. Intermediate Tanks
51. Storage Tanks
52. Research Laboratory
53. Offices
55. Probable Shipping Offices



CONFIDENTIAL

OIL PLANT INTERPRETATION			
AC/AS INTELLIGENCE PHOTOGRAPHIC DIVISION PHOTO INTELLIGENCE SECTION			
MITSUBISHI OIL REFINERY TARGET NO. 90:17-116			
DAMAGE FROM	TO	REPAIRS FROM	TO
DATE OF ATTACK	13/14 APRIL '45	REPORT NUMBER	D/P 32



150,107

54. Personnel Building
56. Warehouse
57. Warehouse
58. Possible Offices
59. Boiler House
60. Storage Tank
61. Possible Pump House
62. Chemical Laboratory
63. Intermediate Tanks
64.) Possible Treating Plant
65.)
66. Gasoline Intermediate Storage Tanks
67.) Primary Distillation Unit
68.)
69. Furnace
70. Storage Tank
71. Storage Tank
72. Storage Tank
73. Storage Tank
74. Storage Tank
75. Furnace
76. Vacuum Distillation Unit
77. Storage Tanks
78. Storage Tank
79. Storage Tank
80. Pressure Distillate Re-run Unit
81. Asphalt Loading Unit
82. Storage Tanks
- 83a. Pump House (Possible Association with Gasoline Treating)
- 83b. Horizontal Tanks (Possible Association with Gasoline Treating)
84. Storage Tanks
85. Pump House
86. Storage Tanks
87. Storage Tanks
88. Storage Tank
89. Storage Tank
90. Storage Tank
91. Storage Tank
92. Storage Tank
93. Storage Tank
94. Storage Tank
95. Storage Tank
96. Storage Tank
97. Storage Tank
98. Storage Tank
99. Storage Tank
100. Storage Tank
101. Storage Tank
102. Oil Bunkering Pier
103. Open Storage Area
104. Warehouse
105. Warehouse
106. Warehouse
107. Warehouse
108. Warehouse
109. Can Manufacturing Plant
110. Warehouse
111. Warehouse
112. Warehouse
113. Drum Manufacturing Plant
114. Tank Car Loading Rack Building

122

3PR/5MI82- 3L 4:30 F/40 31500 RES.



END ST II / 123

3PR5MI82-3L:123-XXI B.C.-4:30:1252K-40"-31,500-3604N13918E

3PR/5MI82- 3L 4-30 F/40 31500 RES



3PR/5MI82 3L 4-30 F/40 31500 RES

7154 EASTMAN KODAK COMPANY



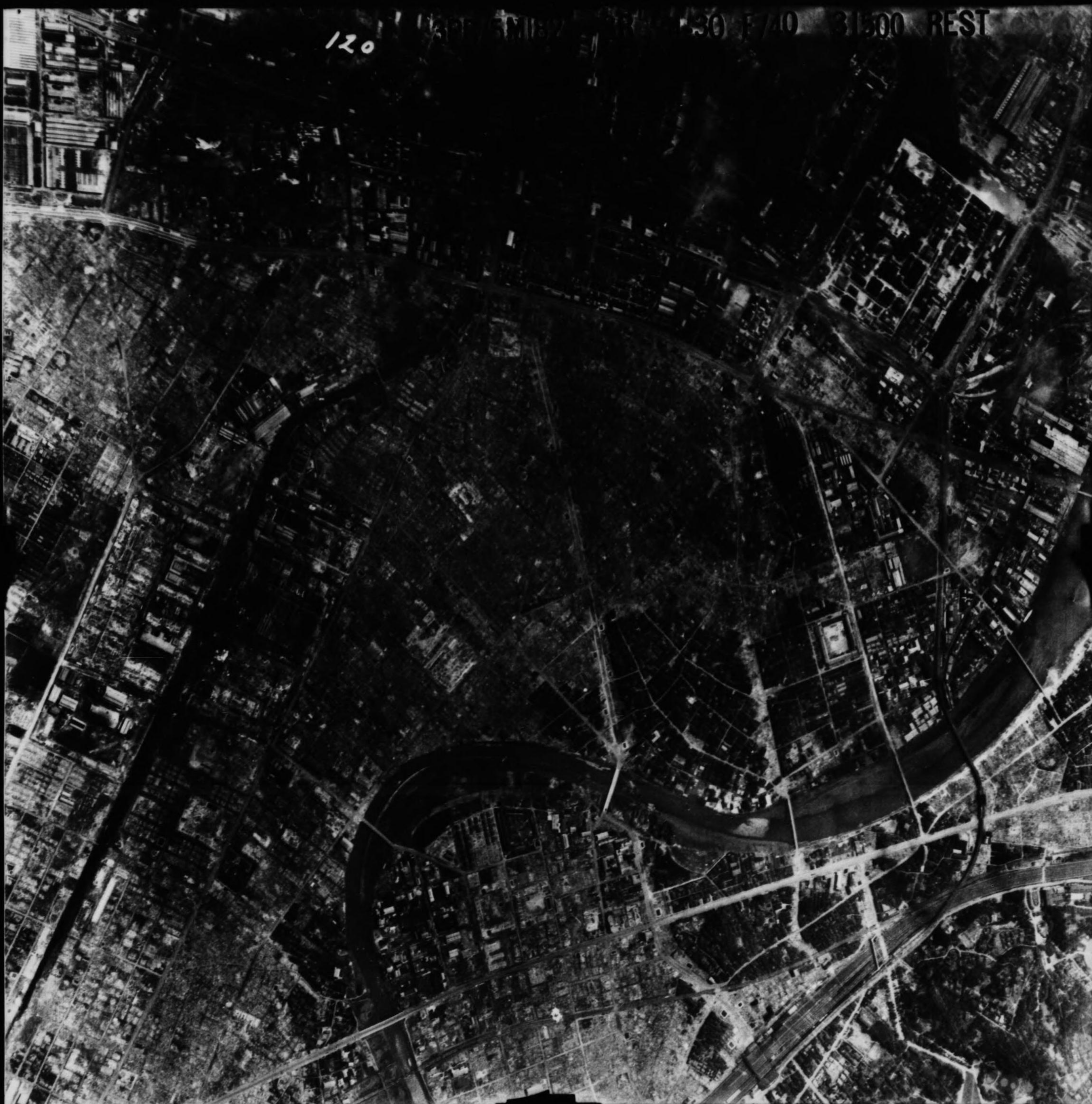
20
3PR/5MI82- 3L 4-30 F/40 31500 REST

3PR/5MI82 3L 4-30 F/40 31500 REST

3PR/5MI82- 3R 4-30 F/40 31500 REST



16734



16734

3P25M182-3R: 123-XY100. 4:30: 1252K-40: 31500- 3609N 13918E
3530N 13944E
RESTRICTED

7566 EASTMAN TOPOGRAPHIC SALES CO.



16734

122 3PR/5MI82- 3R 4-30 F/40 31500 R-37



16734

123 4 5 121

16734

8956 EASTMAN REGULAR SAFETY

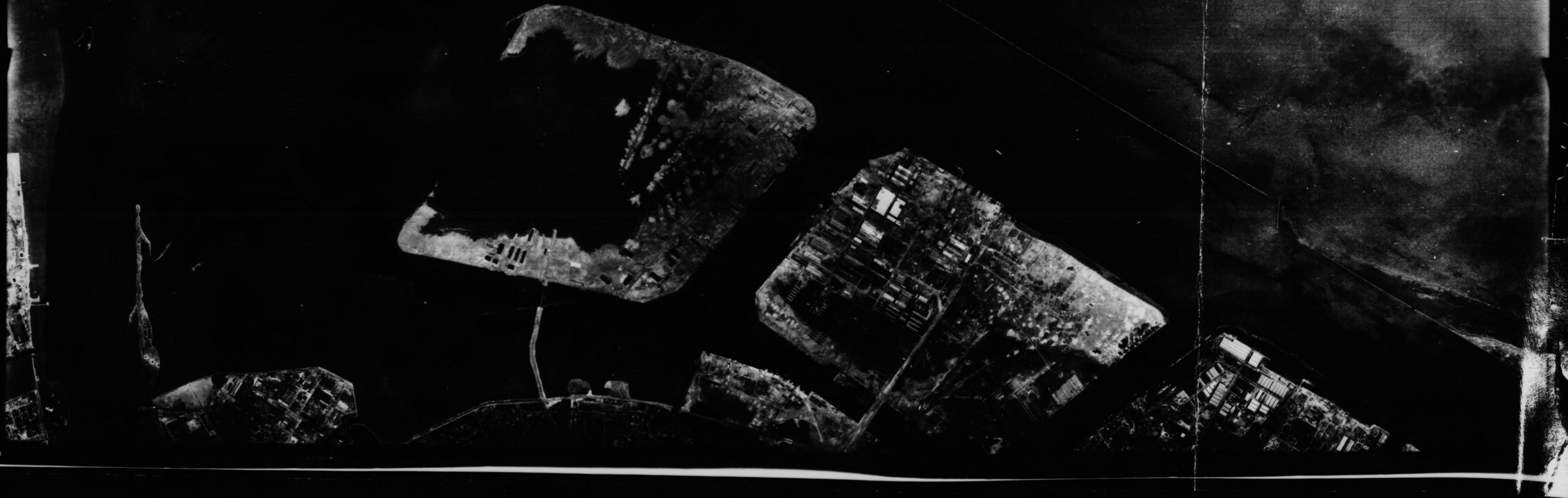
8957 EASTMAN REGULAR SAFETY

8958 EASTMAN REGULAR SAFETY

8959 EASTMAN REGULAR SAFETY

3PR5M182-2:80-XXI B.C. - 4:30:1252K-24": 31,500-3604N13918E/3530N13944E

RESTRICTED



16734

8960 EASTMAN REGULAR SAFETY

8961 EASTMAN REGULAR SAFETY

8962 EASTMAN REGULAR SAFETY

8963 EASTMAN REGULAR SAFETY

8964 EASTMAN

79

ZY XX18C 4-30 1724 31500 1657



16734

ILAR SAFETY

8965 EASTMAN REGULAR SAFETY

8966 EASTMAN REGULAR SAFETY

8967 EASTMAN REGULAR SAFETY

8968 EASTMAN REGULAR SAFETY

3PR/5M182 2V EXY1BC 4-30 F/24 31500 REST



COVER USED		AC/AS INTELLIGENCE PHOTOGRAPHIC DIVISION PHOTO-INTELLIGENCE SECTION LIMITED DAMAGE INTERPRETATION NO. <u>32</u>	CONFIDENTIAL	D/P
MISSION	3PR/5M 182		DATE	7 JUNE 45
PRINTS	2: 78-80 3R:120-3 3L:120-122		INTERPRETER	V. Smith, 1/lt AC
DATE	30 APR 45		SHEET NO.	1 OF 3
QUALITY	Good to hazy		AREA NO.	90:17 / TARGET NO. 116
SCALE	1:9450			
DATE OF ATTACK		status		

TARGET	MITSUBISHI OIL REFINERY	LOCATION	TOKYO, JAPAN
--------	-------------------------	----------	--------------

This Limited Damage Interpretation has been undertaken in accordance with the conditions as checked below:

<input type="checkbox"/>	Photography is inadequate in scale	<input type="checkbox"/>	Damage is below 10% of built-up area
<input checked="" type="checkbox"/>	Photography is inadequate in quality	<input type="checkbox"/>	Total damage is less than 50,000 sq. ft.
<input checked="" type="checkbox"/>	Stereo coverage is lacking or incomplete	<input type="checkbox"/>	Excessive time between attack and photography
<input type="checkbox"/>	Detailed interpretation is not required	<input checked="" type="checkbox"/>	Other factors as noted below

REF. NO.	BUILDING		VISIBLE DAMAGE		DESCRIPTION OF DAMAGE
	AREA	STRUCT'L	SUPERF'L		
1	A				No damage visible
	b				Destroyed
	c				No damage visible
2					Protective wall about "c" destroyed. South end of building chipped off.
3					Roof gone. Damaged prior to 13/14 April.
					Tank O.K.. Pipe line connecting #3 to #1 is severely damaged.
	A				Near Miss. Building may have suffered some damage.
	1				Foundation being laid? See sketch #1
4					No visible damage
5					Destroyed
6					Building looks intact, although area about it has had several mixx bursts.
	A				Two-thirds of building demolished
	B				Superficial damage to roof
	c				No visible damage
7					Wall distorted, roof sagging
8					Equipment north of building is damaged. Roof damaged in spots.
9					Tanks intact, pipe line damaged.
10	A				No damage visible
	B				No damage visible
	C				Roof stripped
11	A				No damage visible
	B				No damage visible
	C				Slightly damaged (photos hazy)
12					No damage visible
13					Blast walls about the houses severely damaged. Two houses have edges chipped off. (photos hazy)
14					Apparently intact
15					Apparently intact
16					Roof stripped, partially in prior attack
17	A				No damage visible
					Roof burnt; Connecting equipmt damaged (destroyed at east)

TOTALS			APPROVED BY:	east)
SITE	SITE AREA		for <i>Chas Ishier</i> Lee W. Kilgore, Major AC Chief, Evaluation Branch Photographic Division AC/AS, Intelligence	
	BUILT-UP AREA			
	% OF SITE BUILT-UP			
DAMAGE	AREA OF DAMAGE			
	% OF BUILT-UP AREA			

ALL AREAS ARE PLAN AREAS IN THOUSANDS OF SQUARE FEET

AREA NO.	TARGET NO.	LIMITED DAMAGE INTERPRETATION	CONFIDENTIAL	D/P
90:17	116	NO. 32	SHEET NO. 2	OF 3
18	A	No apparent damage		
	B	No apparent damage		
19		No apparent damage		
20		No apparent damage		
21		No apparent damage. Equipment to south is O.K.		
22	-----	No apparent damage. Cover too hazy to note details in equipment.		
23		Same as #22		
24		Five tanks destroyed. South and east blast walls destroyed		
25		No apparent damage (cover hazy)		
26 to 30, incl.	-----	No apparent damage (cover hazy)		
31	A	Possible roof-sag		
	B	O.K.		
	C	O.K.		
32		Destroyed		
33		No visible damage (cover hazy)		
34		No visible damage		
35	-----	No visible damage		
36		Roof damaged prior to attack of 13/14 April		
37		Roof damage and gaping holes in tank sides show on December 44 cover. Tank removed before 30 Apr 45		
38		No visible damage		
39		Destroyed (possibly removed)		
40	-----	Edges of roof frayed. Sides damaged		
41		No visible damage		
42		No visible damage		
43		Destroyed or removed		
44		Of two tanks, one may be damaged. (cover hazy)		
45		No visible damage		
46		No visible damage		
47	-----	Equipment connecting #47 to #48 is severely damaged. Details of towers are hazy on cover.		
	A	Roof seemingly damaged prior to 13 Dec 44 and repaired by 30 Apr 45.		
48		Northeast end of equipment chipped off. See sketch 2		
49		North end of equipment damaged prior to 13 Dec. 44 Southern severely damaged. Repairs to north end are in progress at this cover.		
50	-----	Of twelve tanks, three severely damaged prior to 13 Dec. 44. Debris of one cleared by 30 April 45		
	A	Outside equipment damaged		
	B	Small building adjoining B is destroyed. No visible damage to B. (cover is hazy)		
51 to 62, incl.		No visible damage		
62	A	Two-thirds destroyed		
63		Of nine tanks, one small tank severely damaged and one slightly damaged		
64		Two tanks severely damaged, also equipment to east.		
65	-----	No visible damage		
66		Two tanks destroyed prior to 13 Dec 44. Three others destroyed in attack of 13/14 April 45		
67		No visible damage		
68		Demolished		
69		Demolished; chimney still standing		
	A	Small building destroyed		
	B	No visible damage		
	C	Destroyed		
70		Severely damaged		
71 to 74, incl.		No visible damage		
75		Cover is too hazy to distinguish details.		
76		Possible damage to southwest corner of unit, see sketch		

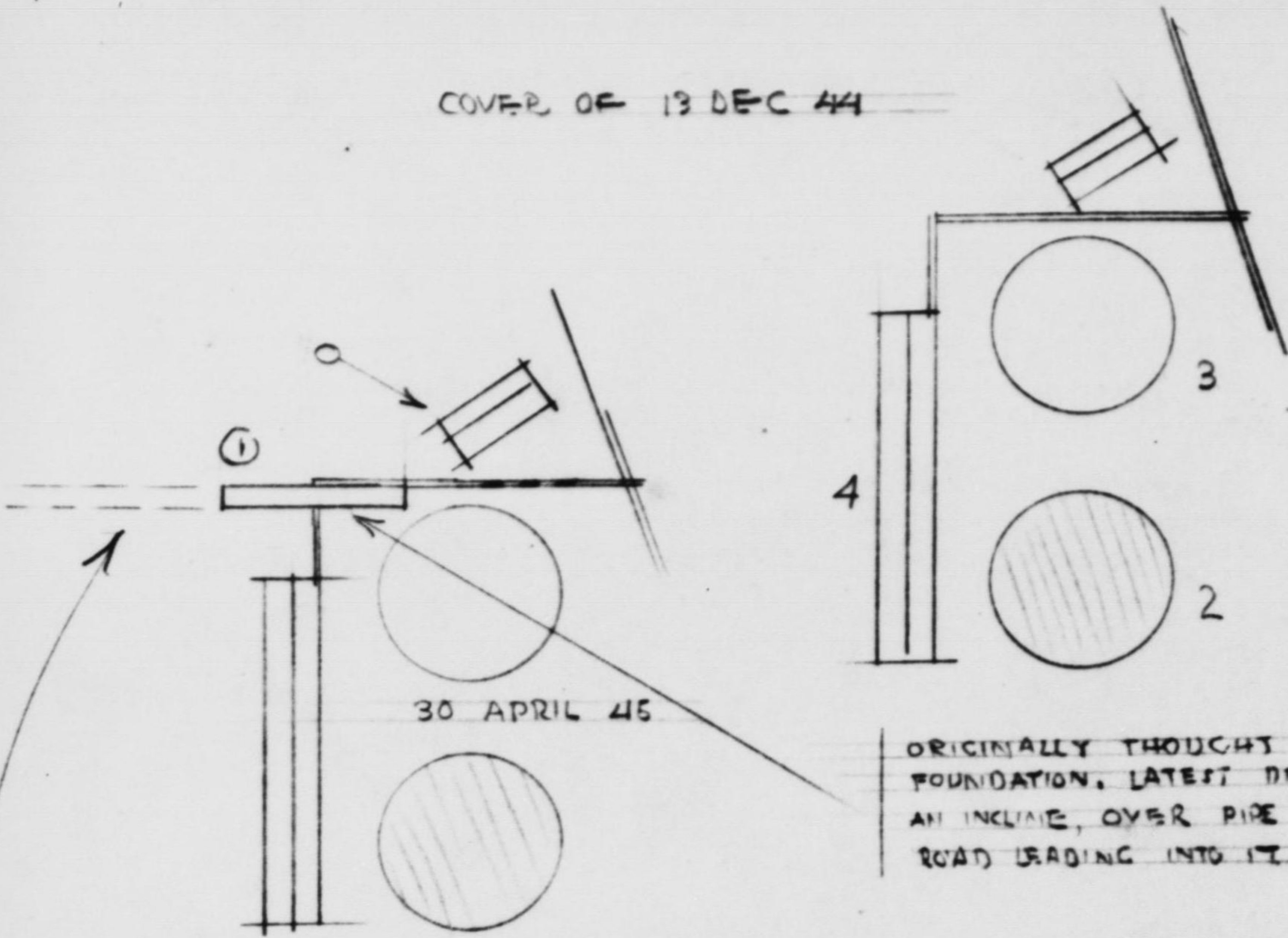
AREA NO.	TARGET NO.	LIMITED DAMAGE INTERPRETATION		CONFIDENTIAL	D/P
90.17	116	NO. 32		SHEET NO. 3	OF 3
77		Pipes connecting #77 to #76 destroyed; confirming, to a certain extent, damage noted in #76. Of eleven tanks, five are severely damaged with possible damage to others (cover is too hazy to distinguish detail). Equipment east of tanks is damaged.			
78	-----	Destroyed			
79		Destroyed			
80	A	Severely damaged, debris strewn about			
	A	Possible damage to one tank			
81		Southern unit and stack severely damaged			
82		Possible damage to building south of two tanks			
83	A	Equipment connecting 83A to 85 is damaged. Possible damage to southwest wall of building			
	B -----	Of two units of equipment, western unit is destroyed and eastern unit superficially damaged			
84		Six tanks destroyed, with possible damage to 7th			
85		Northern end of building wiped off			
86		Two tanks destroyed and two severely damaged			
87		Possible superficial damage to roof			
88		Possible superficial damage to roof			
89 to 94, incl.	-----	Roof of #90 is bent. Possible damage to other roofs. (cover is hazy)			
95 to 100, incl.		No visible damage			
101		No visible damage			
	A	No visible damage			
	B	No visible damage			
102		No visible damage. (No 40" post-attack stereo)			
103		Demolished (")			
	A	Demolished (")			
	B -----	Small section knifed off (")			
	C	No visible damage (")			
	D	No visible damage (")			
	E	Demolished (")			
	F	Demolished (")			
	G	Demolished (")			
104		No visible damage (cover hazy)"			
	A	No damage visible (")")			
	B	No visible damage (")")			
	C	No visible damage (")")			
105 to 115, incl.	-----	No visible damage (")")			

DAMAGE SKETCHES

○
MITSUBISHI OIL REFINERY
TOKYO - BAY

SKETCH No 1

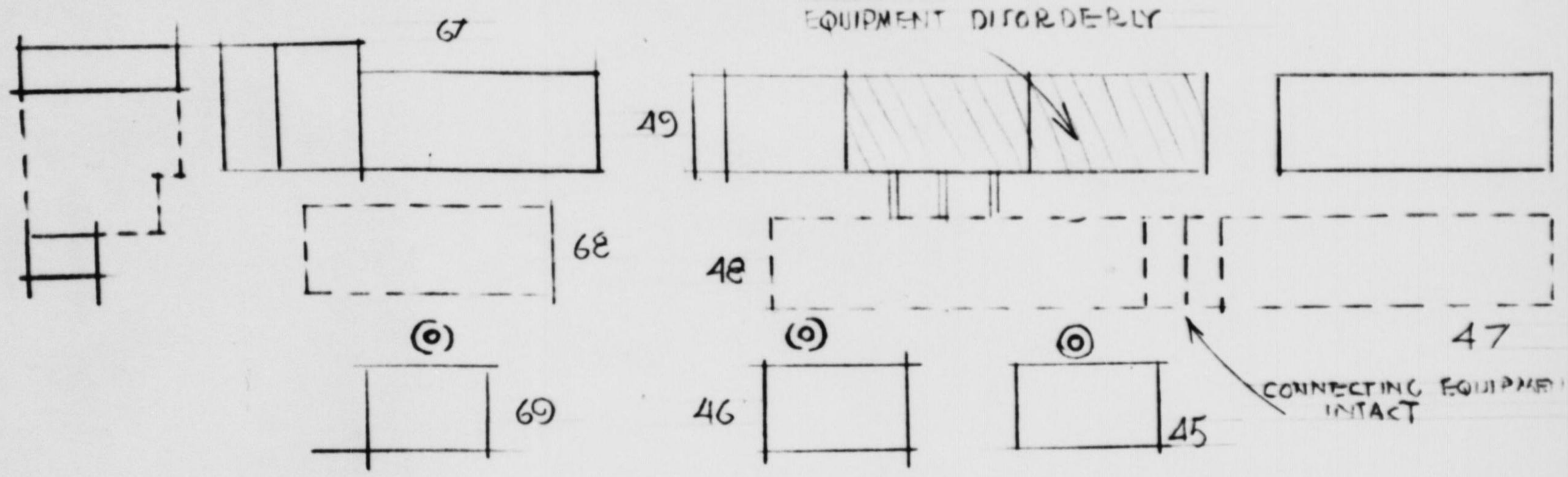
COVERD. OF 13 DEC 44



30 APRIL 45

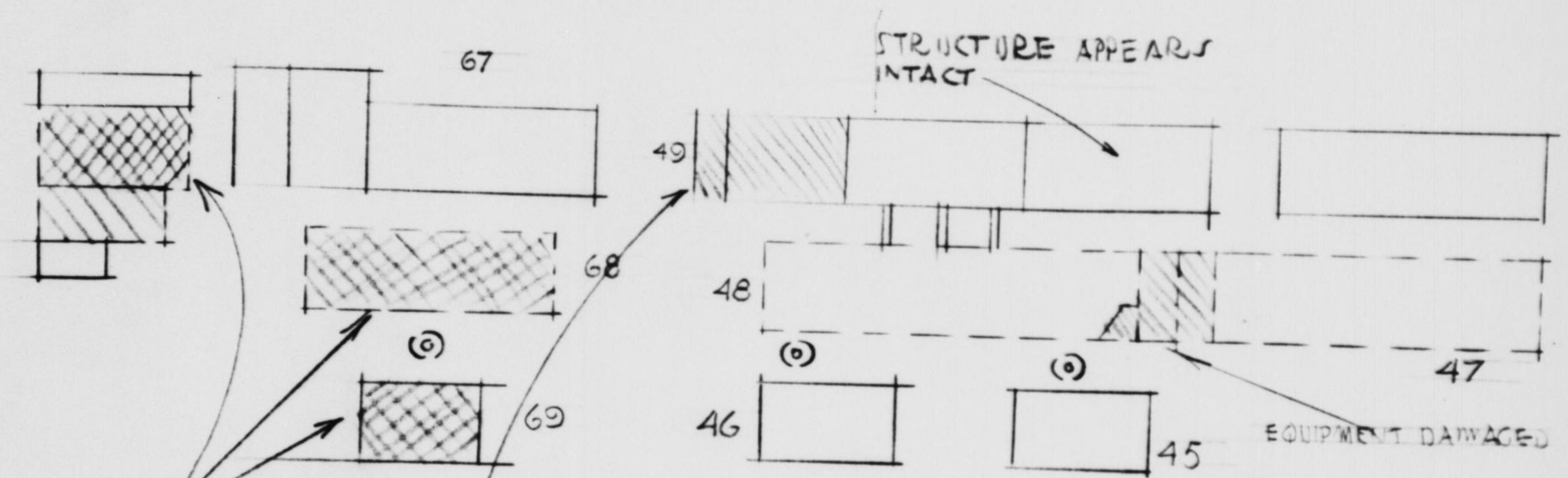
ORIGINALLY THOUGHT TO BE A
FOUNDATION. LATEST DEDUCTION IS:-
AN INCLINE, OVER PIPE LINE - NEW
ROAD LEADING INTO IT.

NEW ROAD?



COVER OF 13 DEC 44

SKETCH No 2

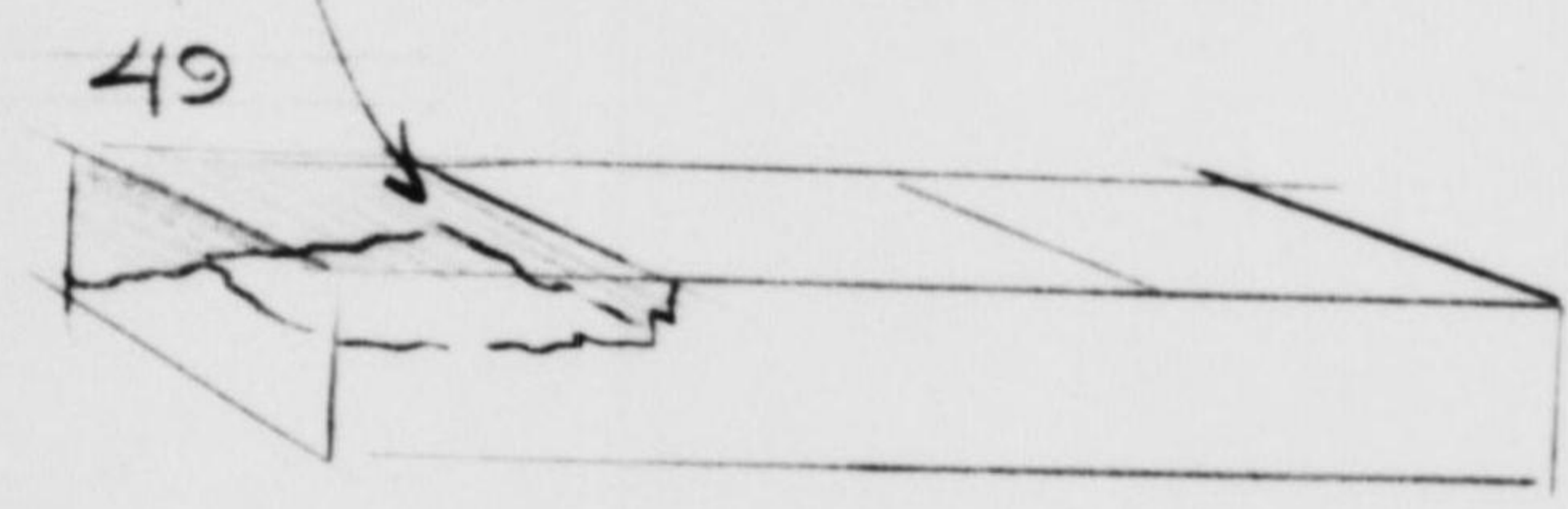


DEMOLISHED

COVER OF 30 APRIL

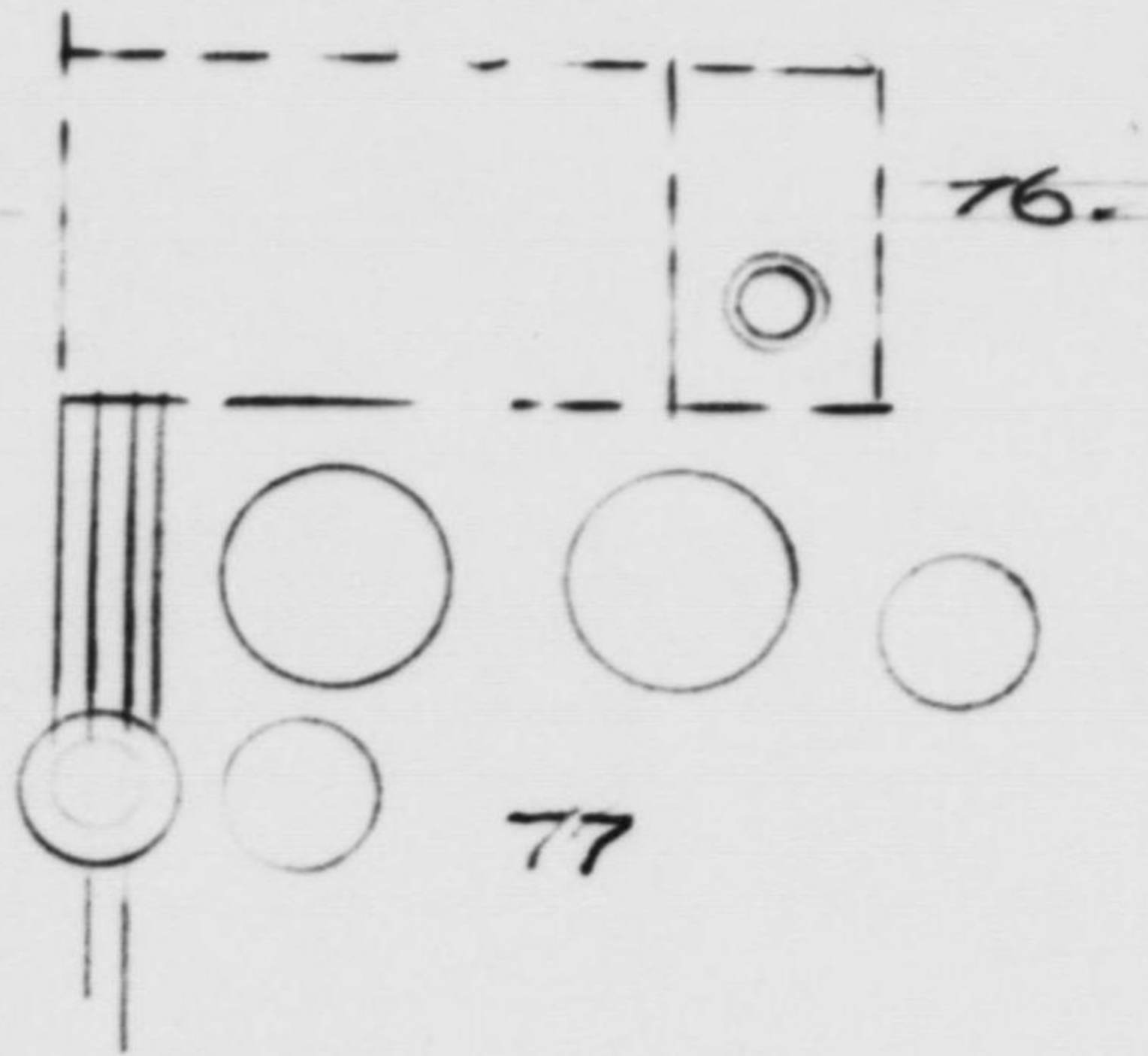
SKETCH No 2

SEVERELY DAMAGED



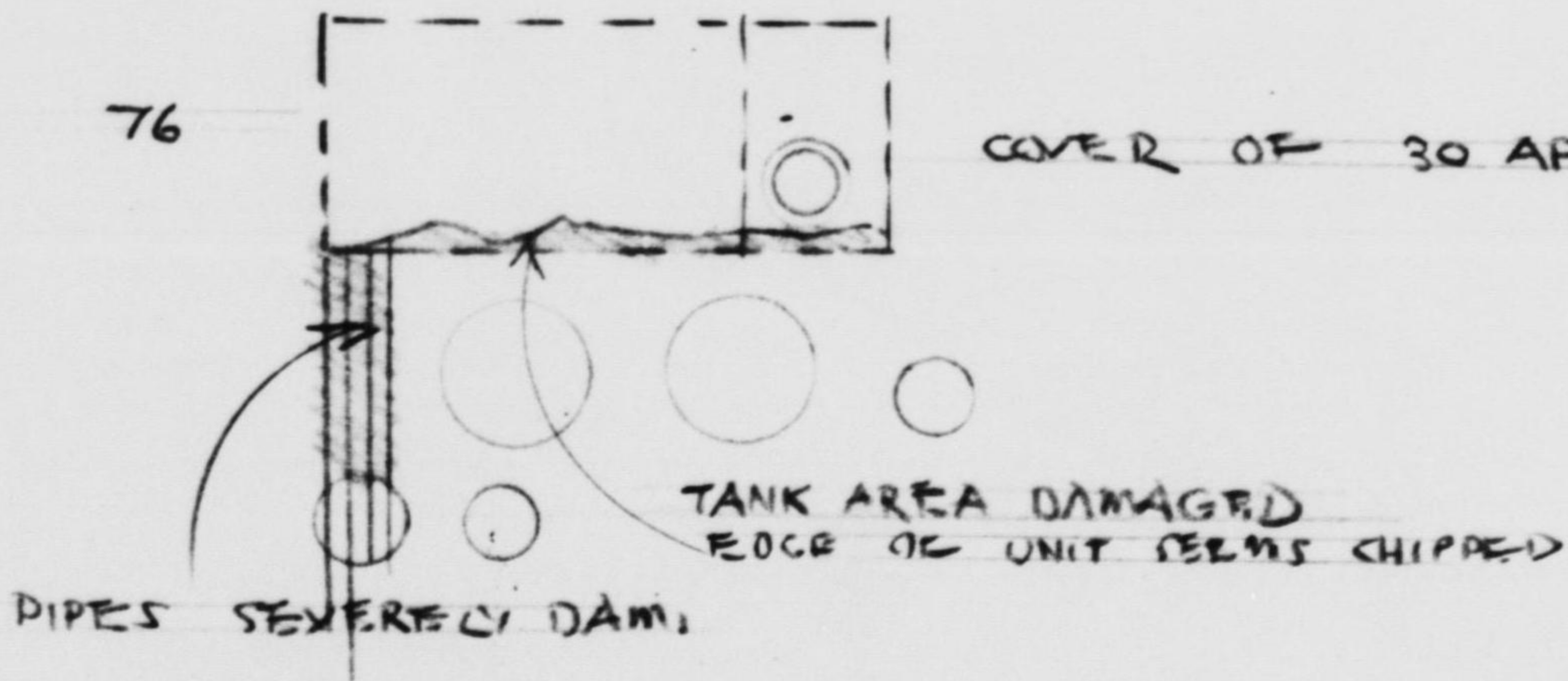
SKETCH No. 3

COVER OF 13 DEC 44



76

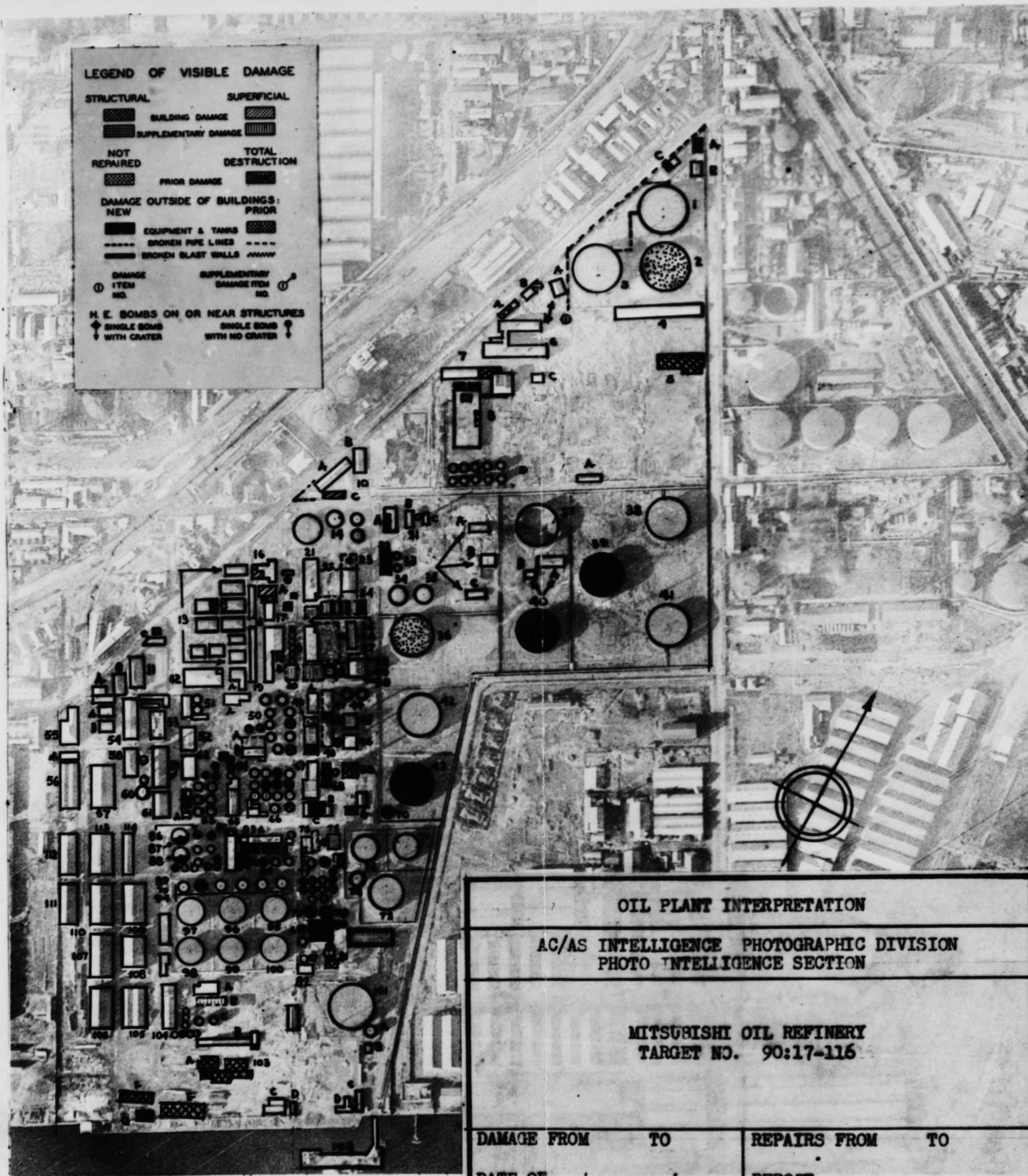
COVER OF 30 APR 45



PIPES SEVERELY DAMAGED

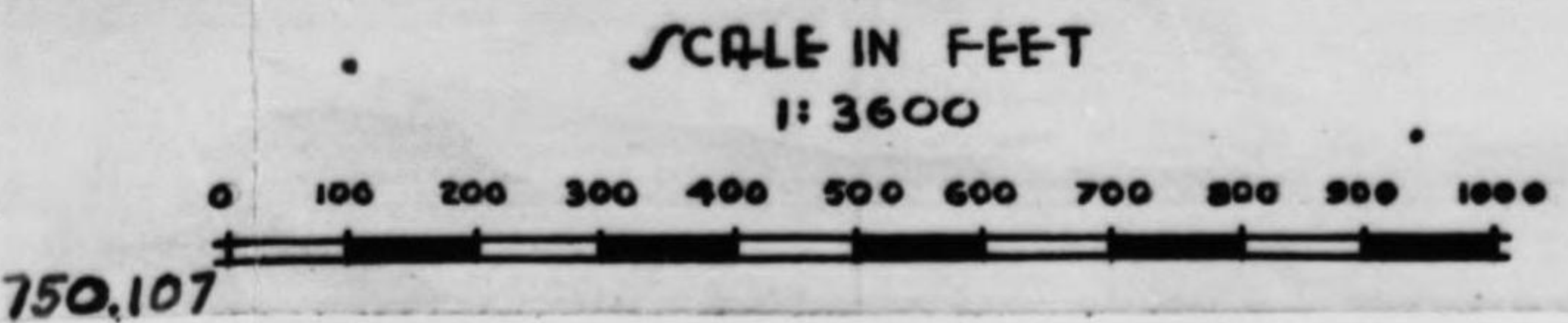
TANK AREA DAMAGED
EDGE OF UNIT SEEMS CHIPPED

1. Crude Oil Storage Tank
2. " " " "
3. " " " "
4. Warehouse
5. " " " "
6. Unidentified
7. " " " "
8. " " " "
9. 10 Storage Tanks
10. Warehouse
11. Workers Building
12. Office Type Building
13. Workers Residences
14. 4 Storage Tanks
15. Warehouse
16. Unidentified
17. Unidentified
- 18a. Possible Processing Building
- 18b. Probable Butane Tanks
19. Warehouse
20. Unidentified
- 21.) Iso-octane Unit
- 22.) " " " "
23. Furnace
24. Accumulators and Horizontal Tanks
- 25.) Iso-octane Unit
- 26.) " " " "
27. Possible Processing Building
28. Accumulators and Horizontal Tanks
29. Intermediate Tank
30. Furnace
31. Boiler and Power House
32. 3 Horizontal Tanks
33. Storage Tank
34. Storage Tank
35. Storage Tank
36. Storage Tank
37. Storage Tank
38. Storage Tank
39. Storage Tank
40. Storage Tank
41. Storage Tank
42. Storage Tank
43. Storage Tank
44. Unidentified
45. Furnace
46. Furnace
- 47.) Cracking Unit
- 48.) " " " "
- 49.) " " " "
50. Intermediate Tanks
51. Storage Tanks
52. Research Laboratory
53. Offices
55. Probable Shipping Offices



CONFIDENTIAL

OIL PLANT INTERPRETATION			
AC/AS INTELLIGENCE PHOTOGRAPHIC DIVISION PHOTO INTELLIGENCE SECTION			
MITSUBISHI OIL REFINERY TARGET NO. 90:17-116			
DAMAGE FROM	TO	REPAIRS FROM	TO
DATE OF ATTACK	13/14 APRIL '45	REPORT NUMBER	D/P 32

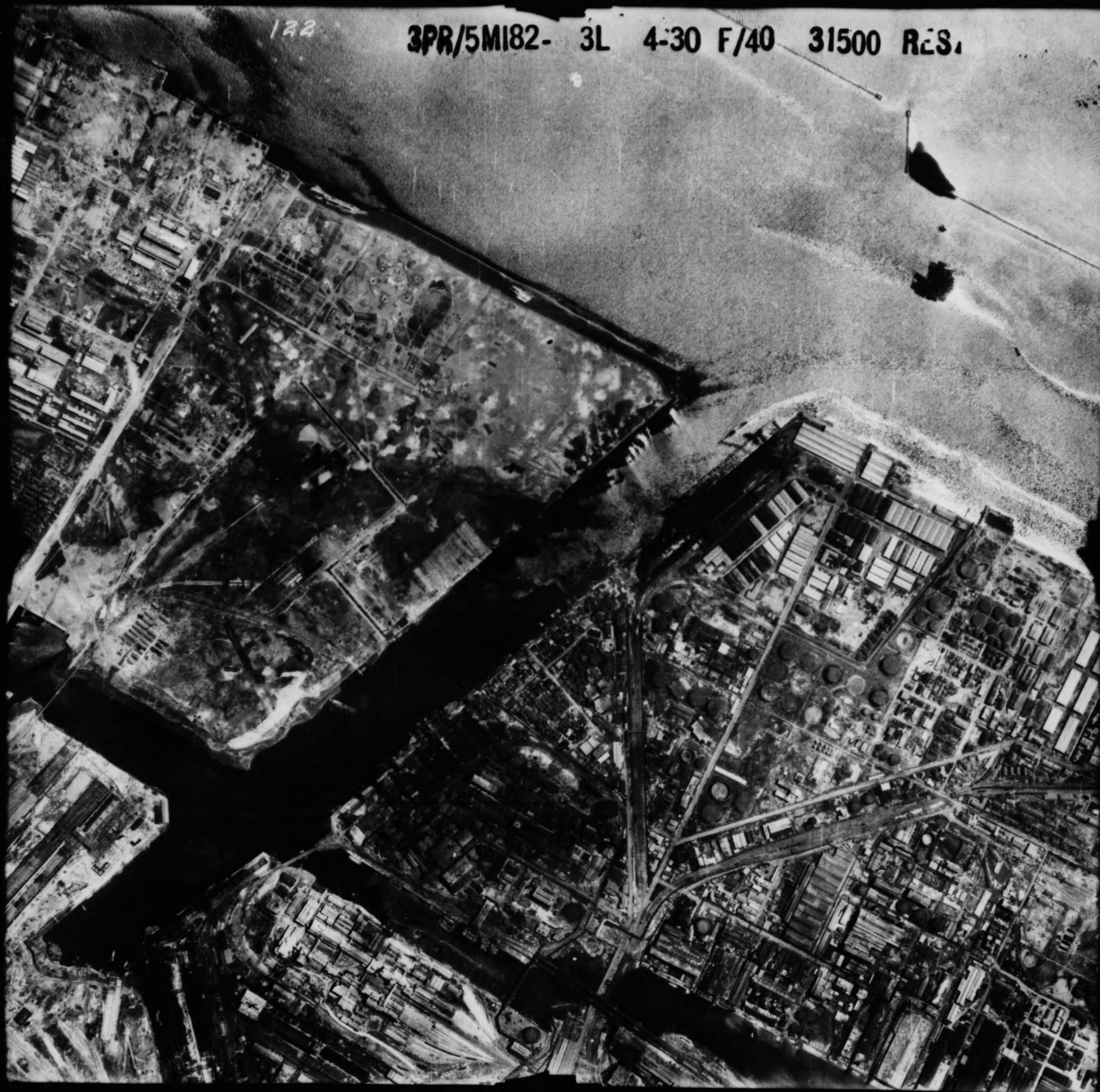


54. Personnel Building
56. Warehouse
57. Warehouse
58. Possible Offices
59. Boiler House
60. Storage Tank
61. Possible Pump House
62. Chemical Laboratory
63. Intermediate Tanks
- 64.) Possible Treating Plant
- 65.) " " " "
66. Gasoline Intermediate Storage Tanks
- 67.) Primary Distillation Unit
- 68.) " " " "
69. Furnace
70. Storage Tank
71. Storage Tank
72. Storage Tank
73. Storage Tank
74. Storage Tank
75. Furnace
76. Vacuum Distillation Unit
77. Storage Tanks
78. Storage Tank
79. Storage Tank
80. Pressure Distillate Re-run Unit
81. Asphalt Loading Unit
82. Storage Tanks
- 83a. Pump House (Possible Association with Gasoline Treating)
- 83b. Horizontal Tanks (Possible Association with Gasoline Treating)
84. Storage Tanks
85. Pump House
86. Storage Tanks
87. Storage Tanks
88. Storage Tank
89. Storage Tank
90. Storage Tank
91. Storage Tank
92. Storage Tank
93. Storage Tank
94. Storage Tank
95. Storage Tank
96. Storage Tank
97. Storage Tank
98. Storage Tank
99. Storage Tank
100. Storage Tank
101. Storage Tank
102. Oil Bunkering Pier
103. Open Storage Area
104. Warehouse
105. Warehouse
106. Warehouse
107. Warehouse
108. Warehouse
109. Can Manufacturing Plant
110. Warehouse
111. Warehouse
112. Warehouse
113. Drum Manufacturing Plant
114. Tank Car Loading Rack Building

750,107

122

3PR/5MI82- 3L 4:30 F/40 31500 RES.



END STR 1 R 123



3PR/5MI82- 3L 4-30 F/40 31500 R&S

3PR/5MI82- 3L 4-30 F/40 31500 R&S



3PR/5MI82- 3L 4-30 F/40 31500 REST

3PR/5MI82- 3L 4-30 F/40 31500 REST

3PR/5MI82- 3R 4-30 F/40 31500 REST



16734

120

120 3PM/5MI82 30 F/40 31500 REST



16734

1234567890
3PR5M102-3R: 123-XY10.0. 4:30: 1252K-40° 31500- 3609N 13918E
3530N 13944E
RESTRICTED

7566 EASTMAN TOPOGRAPHIC SAFETY



16734

122 3PR/5MI82- 3R 4-30 F/40 31500 R-37



16734

1 TSPM 3 A 21

16734

8956 EASTMAN REGULAR SAFETY

8957 EASTMAN REGULAR SAFETY

8958 EASTMAN REGULAR SAFETY

8959 EASTMAN REGULAR SAFETY

3PR5M182-2:80-XXI B.C. - 4:30:1252K-24": 31,500-3604N13918E/3530N13944E

RESTRICTED



16734

GULAR SAFETY

8965 EASTMAN REGULAR SAFETY

8966 EASTMAN REGULAR SAFETY

8967 EASTMAN REGULAR SAFETY

8968 EASTMAN REGULAR SAFETY

3PR/5M182 2V XX1BC 4-30 F/24 31500 REST



16734

8960 EASTMAN REGULAR SAFETY

8961 EASTMAN REGULAR SAFETY

8962 EASTMAN REGULAR SAFETY

8963 EASTMAN REGULAR SAFETY

8964 EASTMAN

79

XX18C 4-30 1/24 31500 100'

