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Historical Assessment of Aerovox-PCB Related Facility New Bedford, Massachusetts

prepared for
EPA Region 1



SDMS DocID 25742



**New Bedford
Harbor**

MF*17

Admin. Rec.

17.4

Historical Assessment of Aerovox-PCB Related Facility New Bedford, Massachusetts

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U.S. ENVIRONMENTAL PROTECTION AGENCY
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INTRODUCTION

Aerovox Corporation is a company in New Bedford, Massachusetts that has been engaged in the manufacture of electrical capacitors, a process that for many years involved the use of polychlorinated biphenyls (PCBs).

EPA Region I Enforcement Division has discovered significant PCB contamination in several water bodies near the New Bedford area, e.g., upper and lower New Bedford Harbor, Clark's Cove and Buzzard's Bay. The PCBs may have migrated from disposal areas at the plant site, been introduced at various municipal sewer system overflow outfalls, and/or been improperly treated and then released from the New Bedford Sewage Treatment Plant.

The production of PCBs has been banned completely in the U.S. since 1979, therefore, the contamination of the waters due to manufacturing operations around New Bedford primarily occurred prior to 1979.

Enforcement officials in EPA Region I requested that the Environmental Photographic Interpretation Center (EPIC) do a historical study of Aerovox Corporation as part of their continuing effort to assess PCB contamination in the New Bedford area.

BACKGROUND

This report uses four different sources of historical information about Aerovox Corporation and its surroundings: aerial photographs, U.S.G.S. topographic maps, Sanborn Map Company Fire Insurance Maps and maps of the city sewer system.*

Aerial Photographs

Historic aerial photographs of Aerovox Corporation were available for the years 1951, 1962 and 1974. While only one print is shown in this report for each year, pairs of photographs were available to the analyst, allowing stereoscopic (3-D) viewing of the site. This is a tremendous aid in interpretation because the apparent height and depth of objects provided by 3-D viewing renders the scene much more familiar and understandable.

The value of aerial imagery to a historical study of this kind cannot be overestimated. More than any map, written record or personal memory, a photograph stands as a completely accurate record of what was found at a site at a given time in the past. The usefulness of this record is limited only by the clarity of the photograph and the ability of the analyst to label what he or she sees on the photograph correctly.

Because the analyst is sometimes unsure of what he or she sees on the photograph, the terms possible and probable are used to indicate the degree of certainty that the analyst feels about a given label.

Because photographs are such an accurate record of conditions at a given time, in this report, descriptions of the site taken from the aerial photographs will be written in present tense, as though the analyst were actually viewing the site on that day in the past.

U.S.G.S. Topographic Maps

The U.S.G.S. 7 1/2-minute topographic map of New Bedford North, Massachusetts was used extensively by the analyst in preparing this report, and it serves as the base map for the Location Diagram on page 4.

Sanborn Map Company Fire Insurance Maps

During the past century, Sanborn Map Company has published maps and atlases of more than 12,000 U.S. towns and cities. These are large-scale, highly detailed maps of commercial, industrial and residential buildings. They were designed to provide accurate, current and detailed information to fire insurance companies about the buildings they were insuring.

Six of these maps, acquired from the Library of Congress, are used in this report. They provide an accurate description of the layout of the buildings in question and help to establish the ownership or control of certain buildings by certain firms at various times in the past.

Although the maps were revised periodically, the exact dates of the revisions are not known. This report contains three sets of maps: one set dated 1924, a second set revised sometime between 1924 and 1950 and a third set revised between 1950 and 1975.

New Bedford Municipal Sewer System Map

This map was provided by the New Bedford City Engineer's Office, and it represents part of the municipal sewer system, after 1971.

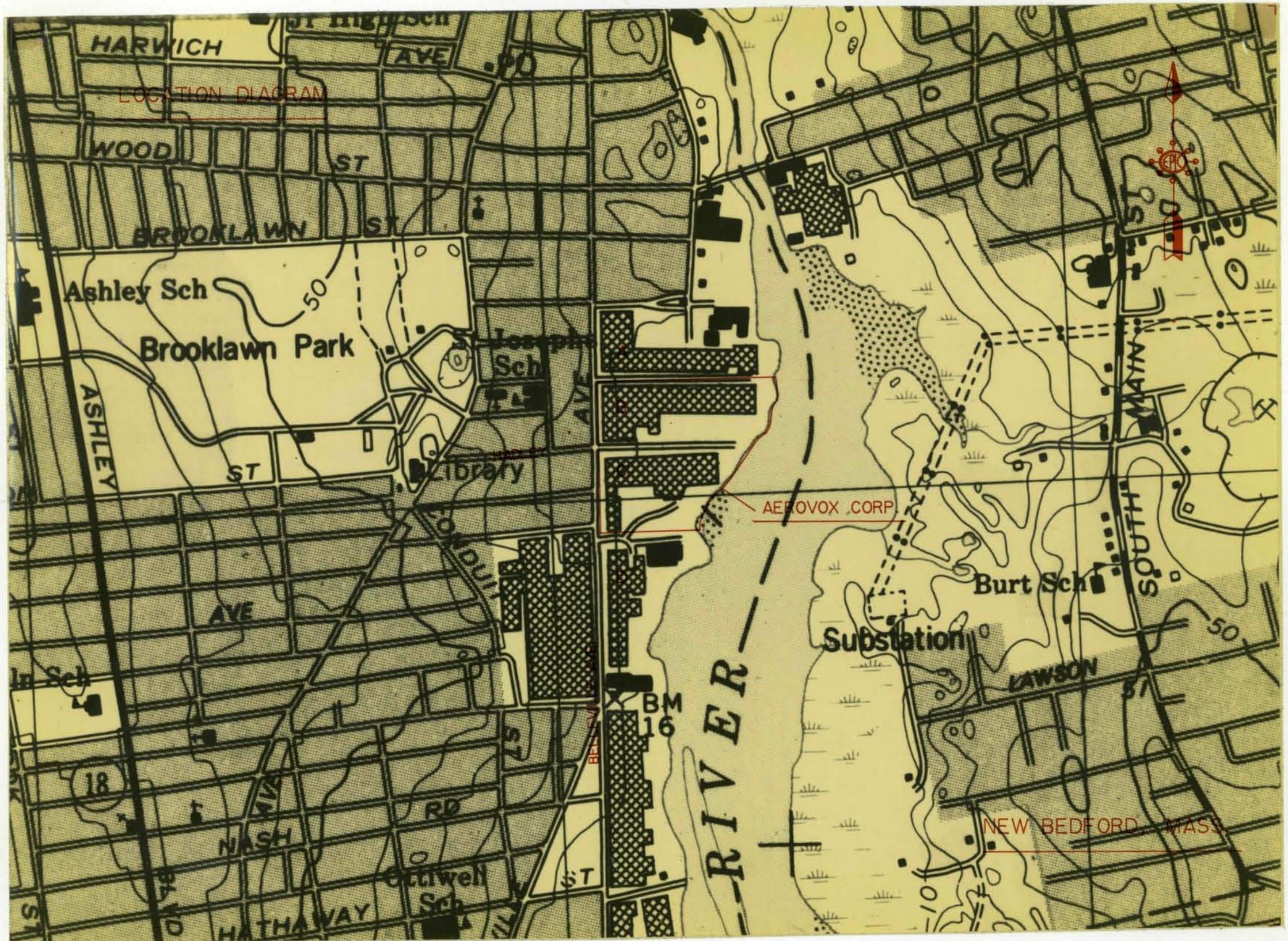
*For a detailed description of the original film and maps used, see the Reference section at the end of this report.

GENERAL SITE DESCRIPTION

Aerovox Corporation is located on the west bank of the Acushnet River in New Bedford, Massachusetts.

Building B on the Location Diagram (p. 4) was acquired by Aerovox Corporation prior to 1937 (see Sanborn map, page 6). Building C on the Location Diagram was acquired by Aerovox Corporation between 1950 and 1975 (see Sanborn map, page 10). In this report, the term "site" will refer to Buildings B and C and the lots they occupy.

The site is bounded by the Acushnet Process Company on the north (Building A on the Location Diagram) and by the Nonquitt Mill on the south (Building D on the Location Diagram). The site is bounded on the east by the Acushnet River and on the west by a residential area.



LOCATION DIAGRAM

AEROVOX CORP

NEW BEDFORD MASS

RIVER

HARWICH

WOOD

BROOKLAWN

Ashley Sch

Brooklawn Park

ASHLEY

Joseph Sch

Library

CONDUIT

ASHLEY

Sch

18

NASH

Octwell Sch

ST

BM 16

Substation

Burt Sch

LAWSON

SOUTH



SANBORN MAPS (1924 - 1975)

Although no aerial photographs of Aerovox Corporation are available for the period 1924 to 1950, Sanborn maps are available for this period.*

The first set of maps (pp. 6 - 7) depict the area as it was in 1924. The lot later occupied by Building A (as depicted on the Location Diagram) is vacant. Building B is owned by Manomet Mills, and Buildings C and D are owned by Nonquitt Spinning Company.

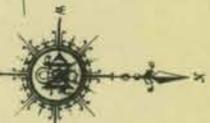
The second set of maps (pp. 8 - 9) is a revised version of the 1924 base maps. The revisions occurred at an unspecified time between 1924 and 1950. Building A is owned by Acushnet Process Company. Building B is now owned by Aerovox Corporation. Buildings C and D still belong to Nonquitt Mills. Buildings A, B and D do not change ownership again through the date of the most recent Sanborn map (1975).

The third set of maps (pp. 10 - 11) reflects a second set of revisions that occurred sometime between 1950 and 1975. Building C is now owned by Aerovox Corporation.

These maps confirm that Building B was controlled by Aerovox Corporation between 1951 and 1974, the dates of the aerial photos presented later in this report. Building C was controlled by Aerovox Corporation for at least a portion of this period.**

*Please note that the six maps are of different scales, and that photo-reduction has rendered the original bar scales on the maps inaccurate.

**A title search conducted in March 1982 by officials in Region I Enforcement Division revealed that Building C was controlled by Aerovox Corp. from 1952 to 1966.



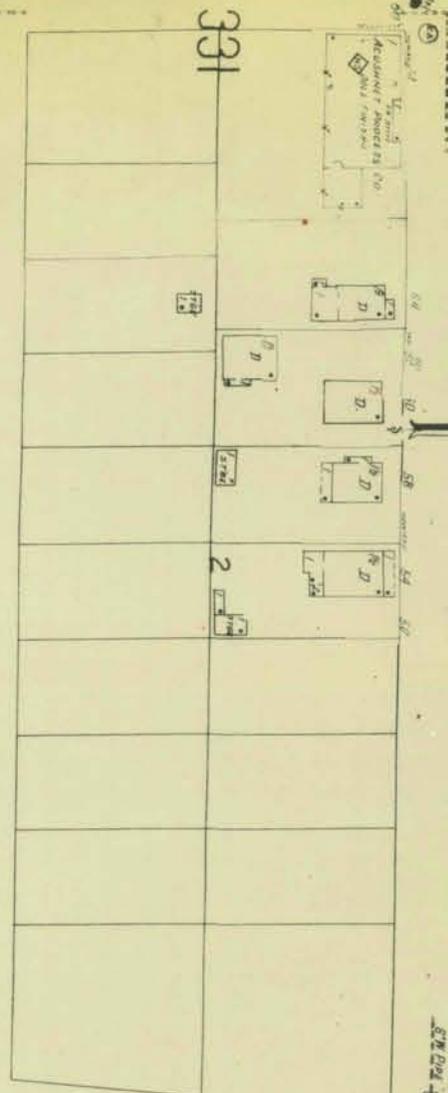
HOWARD AV.

332

GOTTER ST

1924-1950

MASS 087
NEW BEDFORD, MASS VOL 3
330
(110)



PERRY

RIVER RD

HOWARD AV

NEW ENGLAND OVERALL
AND SUPPLY CO
LAUNDRY
PRESS MILL

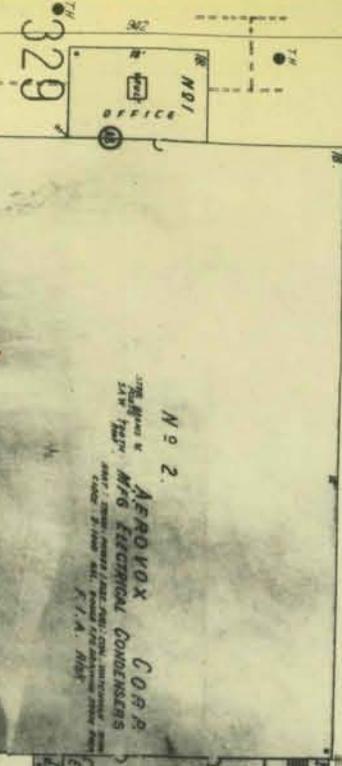
RIELEVILLE AV

ACUSHNET RUBBER PROCESSING CO.
MACHINE ROOM WITH CLASH POWER ETC.

GRAHAM

BUILDING A

BLACK MILLING
PRESS MILL



BUILDING B

N. 4
STEEL BRIDGE W. PARTS

HADLEY

316



Scale of Feet

50

50

50

100

50

50

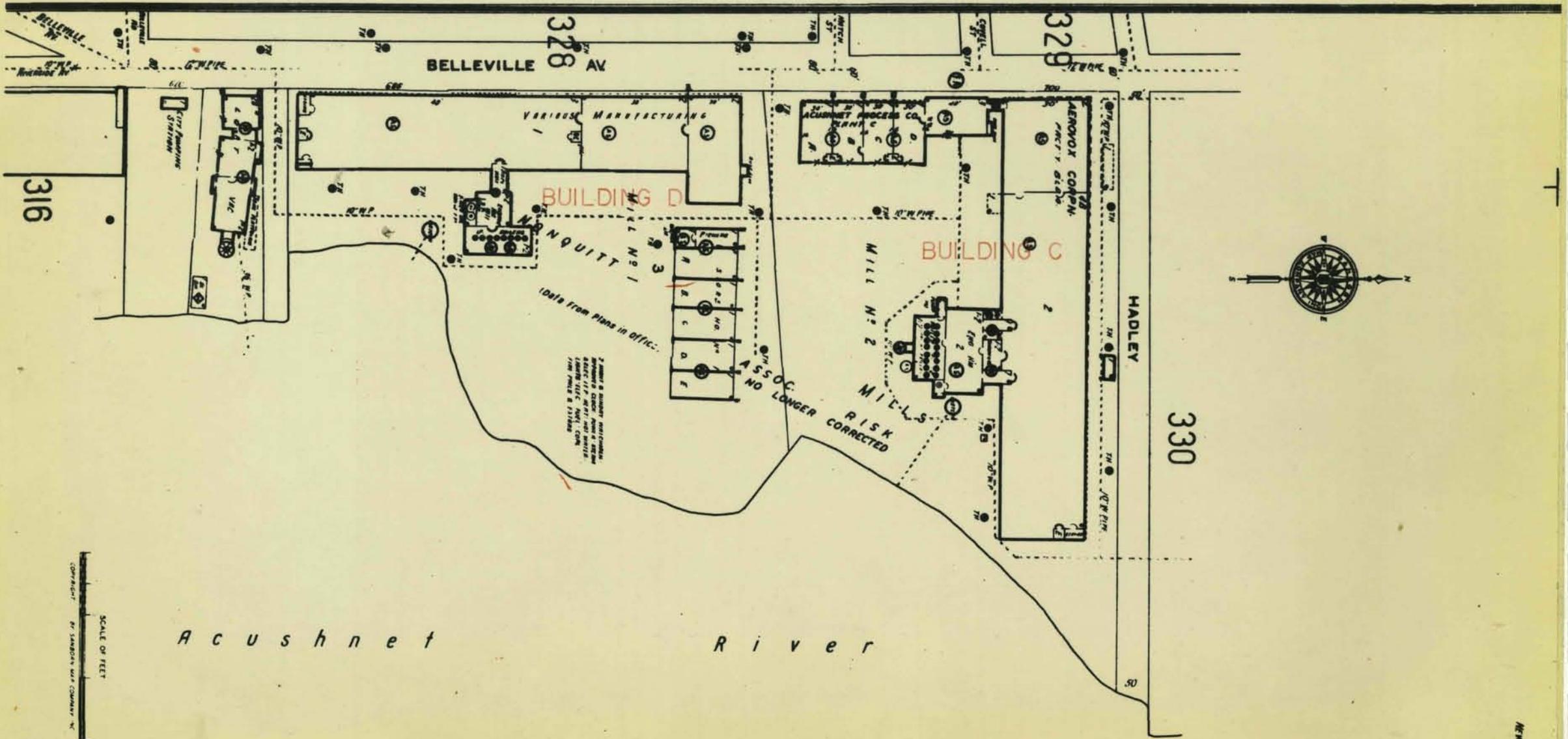
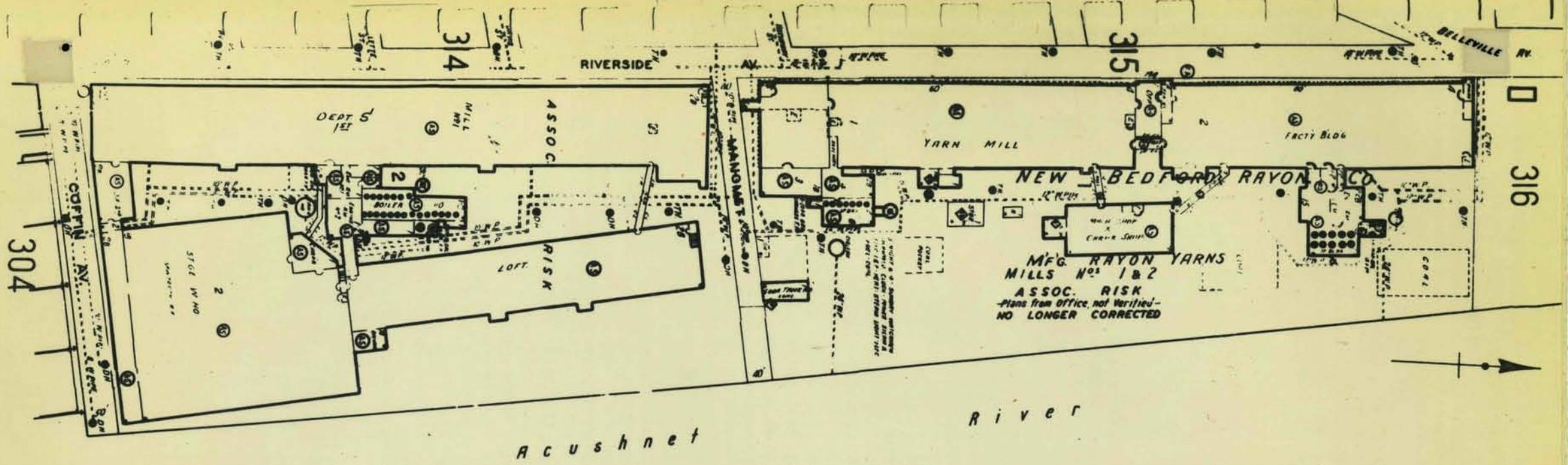
50

329

331

acushnet

River

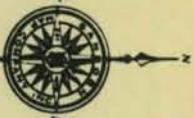


SCALE OF FEET
 COPYRIGHT BY SANDOZ USA COMPANY INC.

1950-1975

NEW BEDFORD MILLS
 316

330



HOWARD AV.

332

1

HOWARD AV.

1950-1975

RIVER RD.

PARKING

SCOPNE INDUSTRIAL LAUNDRY

LAUNDRY

RIVER

Acushnet

ACUSHNET RUBBER PROCESSING CO.

ASSOC. NO LONGER CORRECTED RISK

GRAHAM

GEN. WARE

7TH

8TH

8'

BUILDING A

BUILDING B

Nº 2.

AEROVOX CORP.
MFG ELECTRICAL CONDENSERS
ASSOC. NO LONGER CORRECTED RISK

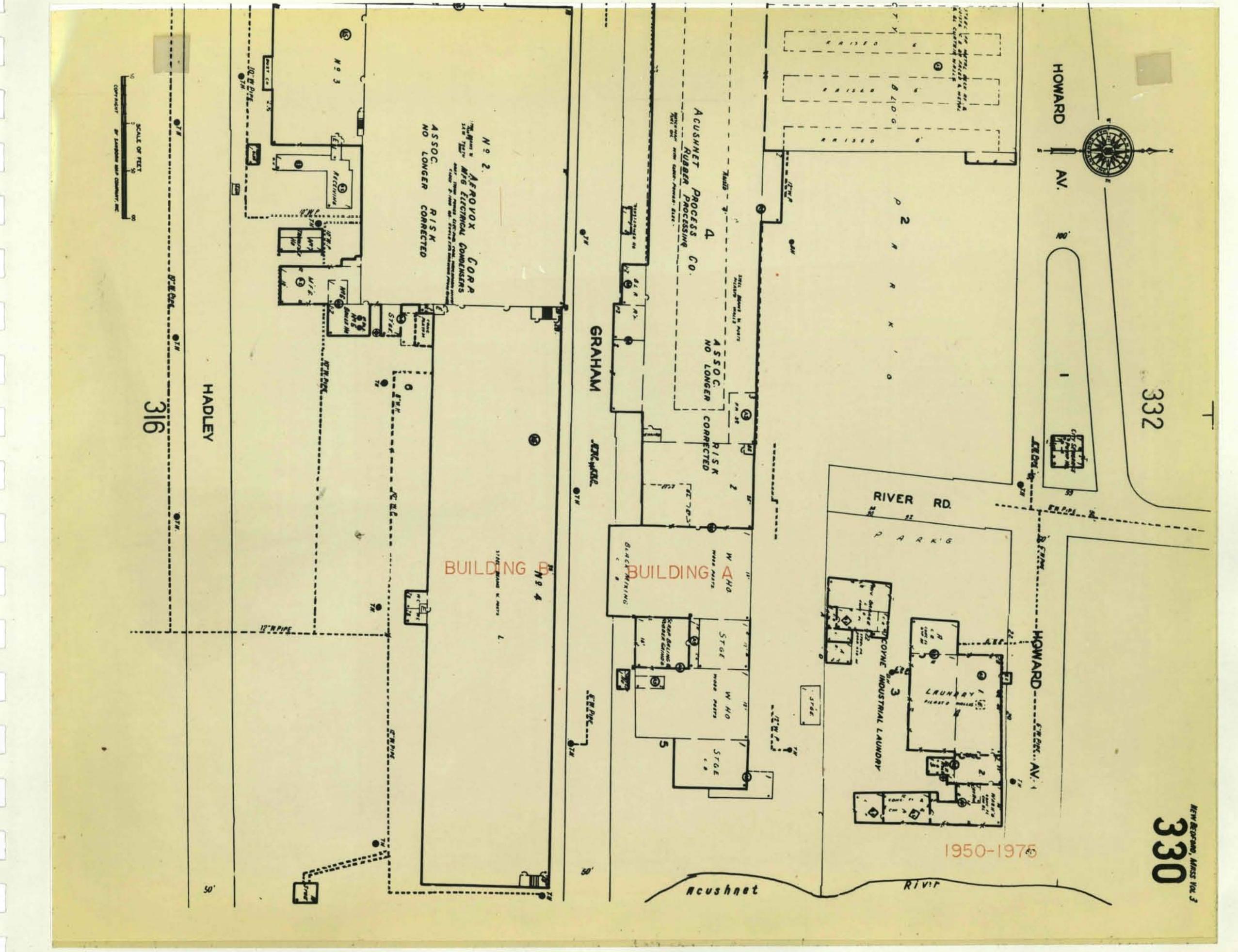
Nº 3

HADLEY

316

SCALE OF FEET
0 10 20 30 40 50
COPYRIGHT © 1975 LANDMARK SURVEYING CO.

50'





AEROVOX

SEPTEMBER 28, 1951

APPROX. SCALE 1:2,000

Analysis of Photograph Taken September 28, 1951

Building B is owned by Aerovox Corporation by 1951 (see Sanborn map, p. 8).

Drums and Refuse

Area E₁* is a paved lot containing neat rows of objects. Some dumping of refuse may have occurred along the southern edge of this Area.

Area E₂ appears to be an unpaved waste disposal area. It contains numerous objects, some of which are possibly drums and/or capacitors.

Area E₃ contains piled refuse.

Waste Burial

Area E₂ exhibits a rocky dike along its eastern edge, which may have been constructed in preparation for filling.

Airborne Emissions

S₁ and S₂ on the photo indicate smokestacks. They are present on this and all following photos.

F₁, and F₃ through F₅, indicate roof vents that may release airborne material from inside the buildings.

Area F₂ indicates the light tone of portions of the roof at the west end of Building B. This tone may be caused by settling particulates from the stack at S₁.

The roof of Building B is also discolored in Area F₆, but no obvious sources of airborne material are seen in the immediate vicinity.

Drainage

The general drainage in the area of Aerovox Corporation flows from west to east, toward the Acushnet River. Aerovox Corporation is located on a relatively flat bank of the river. The level of water in the river is affected by tidal fluctuations in Buzzard's Bay (to the south), and large mud flats appear along the shoreline at low tide. Portions of these tidal flats are visible on this photo as a light-toned band along the shore. A number of drainage channels are cut into these flats.

T₁ and T₂ are trenches which emanate from Building B. T₁ is lined. The channel cut into the river bed offshore from T₁ is particularly well-defined.

T₃ is a rectangular, lined feature that is a possible liquid containment area or lined trench.

T₄ appears to be the point at which an underground pipeline empties into the harbor.

T₅ indicates two ditches which cut across the lot of Building C and converge just offshore. This channel in the river bed is also very well-defined.

Standing Liquid and Ground Staining

There are no obvious signs of standing liquid or ground staining on the 1951 photo.

Subsurface Pipelines

The locations of some subsurface pipelines at the site are shown both on the Sanborn maps (pp. 6 - 11) and on the Municipal Sewer System map (p. 19).

*Photo areas of a similar nature will be assigned the same letter label on the basis of the earliest type of activities seen in that Area.

April 10, 1962

Buildings

Between 1951 and 1962, two new sections were added to Building A (see Photo Areas G and H). Also, one small building was removed from the lot of Building B (Photo Area I).

Drums, Refuse and Mounded Material

Area E₁ is a fenced, partially paved yard containing a cluster of probable drums and other refuse.

Area E₂ is almost completely obscured by shadow. One mound of possible refuse is visible.

Area E₃ is obscured by shadow.

Waste Burial

A filled area behind a rocky dike (Photo Area J) is new since 1951. It is impossible to determine if refuse or "sanitary" fill materials were used.

Although most of Area E₂ is obscured by shadow, some filling appears to have occurred behind the rocky dike since 1951.

Airborne Emissions

Areas F₁, and F₃ through F₅, now reveal discoloration on the roofs of Buildings A and B, probably indicating emissions from vents.

Area F₂ is still light-toned, possibly due to settling particulates from smokestack S₁.

Area F₆ is still discolored.

Drainage

T₁ and T₂ are still visible in 1962. Plumes appear in the water where both of these trenches enter the river.

T₃, T₄ and T₅ are still visible. There is a discolored plume where T₅ empties into the river.

A large plume appears at T₆, offshore from Building D.

Standing Liquid and Ground Staining

There is still no standing liquid visible at the site.

An area of possible ground staining can be seen in Area J.



AEROVOX

FEBRUARY 27, 1974

APPROX SCALE 1:3,800

Buildings

A building has appeared in Area E₁ since 1962.

Drums and Refuse

Area E₂ contains mounded material, probable drums, and possible refuse. Additional filling has occurred since 1962.

Area E₃ is now a parking lot.

Airborne Emissions

Discoloration of Building B's roof is still visible at Areas F₃ and F₆.

The light tone of the roof in Area F₂ is now very uniform. It is impossible to tell whether this is due to continued ash deposits from S₁ or to a new roof surface.

Drainage

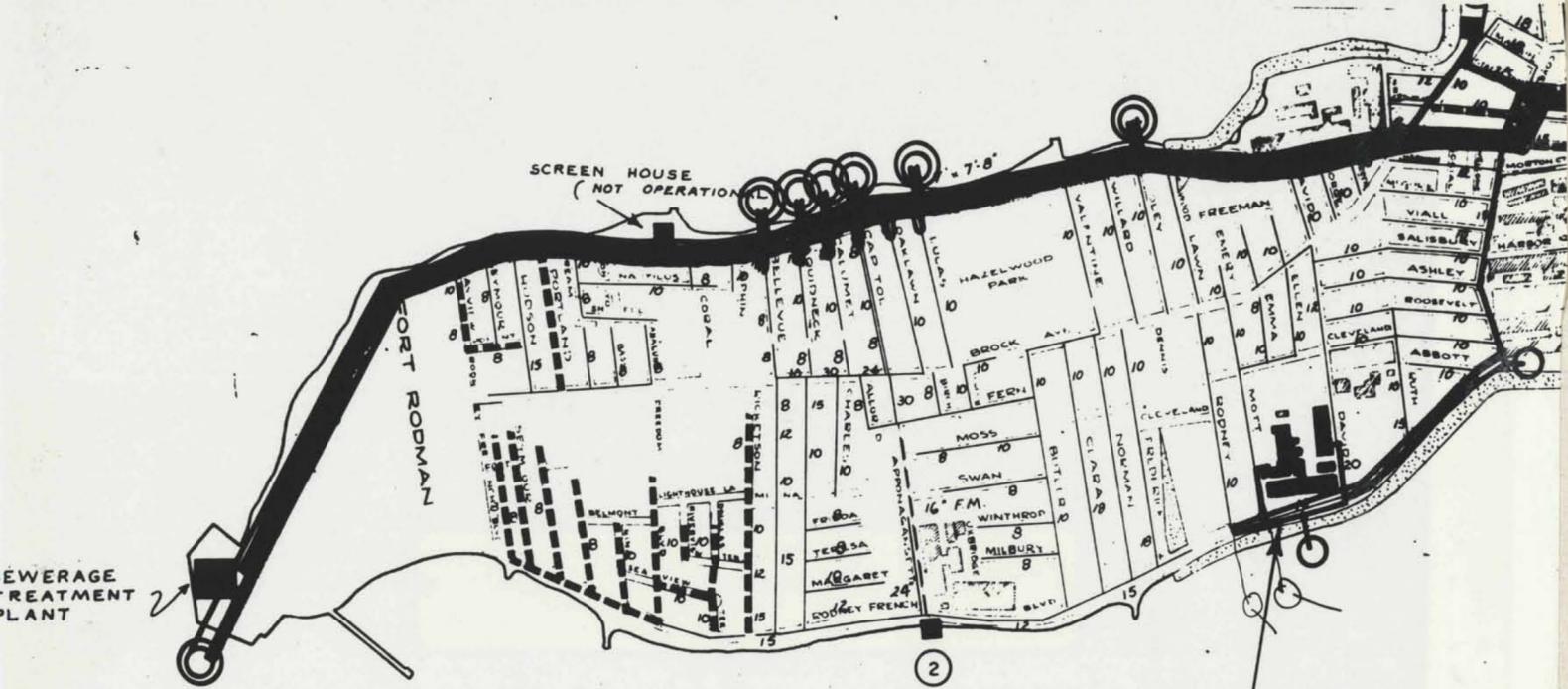
Both the lined trench and a natural channel are visible at T₁.

T₂, T₃ and T₄ are still visible.

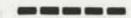
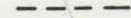
At T₅, the long trench across the lot of Building C is no longer visible. An eroded cut still appears there in the bank of the river, but there are no signs of discharge into the river at this cut.

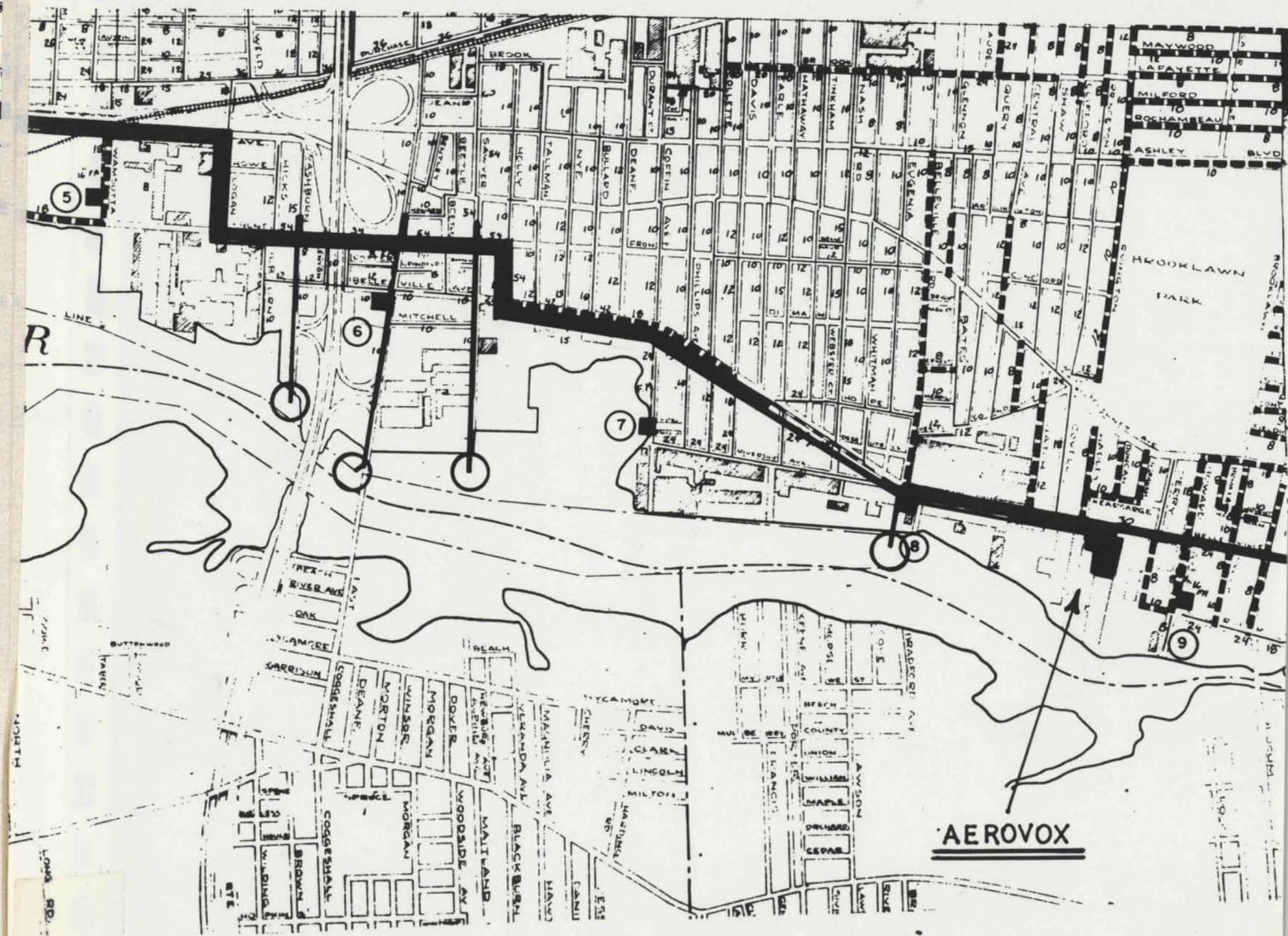
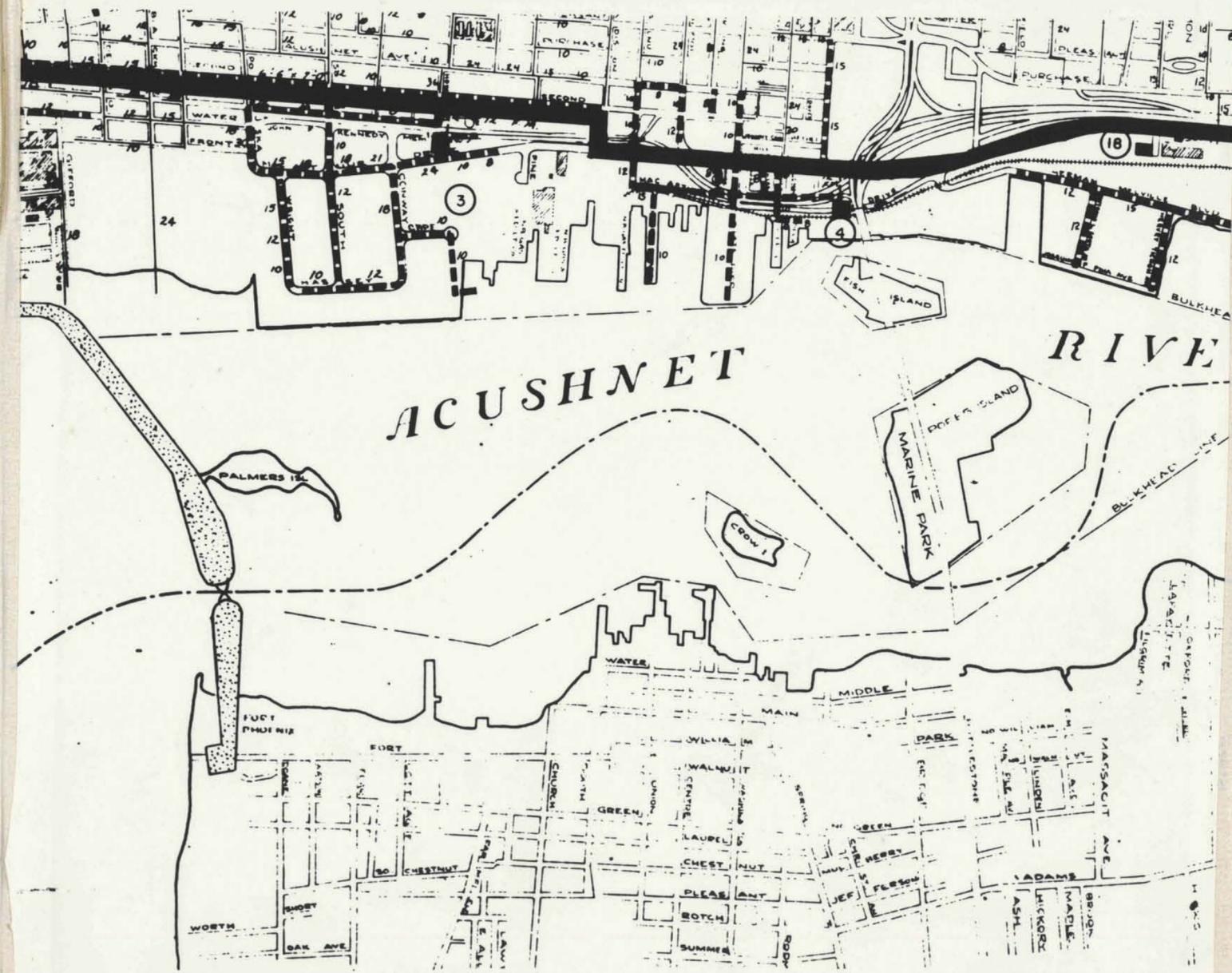
Standing Liquid and Ground Staining

No obvious signs of standing liquid or ground staining appear on the 1974 photograph.



LEGEND

-  MAIN INTERCEPTOR
-  COMBINED SEWER
-  SEPARATE SANITARY SEWER
-  FORCE MAIN
-  WASTEWATER DIVISION PUMP STATION



MUNICIPAL SEWER SYSTEM MAP

The main interceptor line provides a direct connection between Aerovox Corporation and the New Bedford Municipal Sewage Treatment Plant.

The combined sewage/storm sewer overflow outfalls are also shown on this map, running from the main line to the Acushnet River and Clark's Cove. When the sewer system is filled to maximum capacity, untreated wastewater is released through these lines.

REFERENCE SECTION

AERIAL PHOTOGRAPHY

<u>Date</u>	<u>Source</u>	<u>Approximate Original Scale</u>	<u>EPIC Frame Number</u>
September 28, 1951	National Oceanographic Survey	1:10,000	3071
April 10, 1962	National Oceanographic Survey	1:15,000	3066
February 27, 1974	United States Geological Survey	1:24,000	2629

U.S.G.S. TOPOGRAPHIC MAPS

<u>Date</u>	<u>Name</u>	<u>Original Scale</u>
1979 edition	7 1/2-minute topographic map New Bedford North, Massachusetts	1:25,000

SANBORN MAP COMPANY FIRE INSURANCE MAPS

<u>Date</u>	<u>Location</u>	<u>Volume</u>	<u>Plate</u>
1924	New Bedford, Massachusetts	3	316
1924	New Bedford, Massachusetts	3	330
1924-1950 revised	New Bedford, Massachusetts	3	316
1924-1950-revised	New Bedford, Massachusetts	3	330
1950-1975 revised	New Bedford, Massachusetts	3	316
1950-1975 revised	New Bedford, Massachusetts	3	330