

Domino Sugar (8-994)
Statement of Sign.

Statement of Significance

The American Sugar plant is Baltimore's only remaining operating sugar refinery in a city which once ranked second among the nation's refining centers and supported as many as six separate plants. Built in 1921 as a massive complex in the 1000 block of Key Highway, the plant is the second largest refinery in the United States. The Amstar Corporation, which operates the Baltimore plant and 11 other refineries, presently supplies over one quarter of all sugar annually consumed in the United States.

INVENTORY FORM FOR STATE HISTORIC SITES SURVEY

1 NAME

HISTORIC

American Sugar Refining Company

AND/OR COMMON

Domino Sugar Plant

2 LOCATION

STREET & NUMBER

1100 Key Highway East

CITY, TOWN

Baltimore

VICINITY OF

CONGRESSIONAL DISTRICT

STATE

Maryland

COUNTY

3 CLASSIFICATION

CATEGORY

 DISTRICT BUILDING(S) STRUCTURE SITE OBJECT

OWNERSHIP

 PUBLIC PRIVATE BOTH

PUBLIC ACQUISITION

 IN PROCESS BEING CONSIDERED

STATUS

 OCCUPIED UNOCCUPIED WORK IN PROGRESS

ACCESSIBLE

 YES: RESTRICTED YES: UNRESTRICTED NO

PRESENT USE

 AGRICULTURE COMMERCIAL EDUCATIONAL ENTERTAINMENT GOVERNMENT INDUSTRIAL MILITARY MUSEUM PARK PRIVATE RESIDENCE RELIGIOUS SCIENTIFIC TRANSPORTATION OTHER**4 OWNER OF PROPERTY**

NAME

Amstar Corporation

American Sugar Division

Telephone #: 752-6150

STREET & NUMBER

1100 Key Highway East

CITY, TOWN

Baltimore

VICINITY OF

Maryland

STATE, zip code

21230

5 LOCATION OF LEGAL DESCRIPTIONCOURTHOUSE,
REGISTRY OF DEEDS, ETC.

Baltimore City Courthouse

Liber #: JFC-2174

Folio #: 581

STREET & NUMBER

Fayette and Calvert Sts.

CITY, TOWN

STATE

6 REPRESENTATION IN EXISTING SURVEYS

TITLE

None

DATE

 FEDERAL STATE COUNTY LOCALDEPOSITORY FOR
SURVEY RECORDS

CITY, TOWN

STATE

7 DESCRIPTION

B-994

CONDITION		CHECK ONE	CHECK ONE
<input checked="" type="checkbox"/> EXCELLENT	<input type="checkbox"/> DETERIORATED	<input type="checkbox"/> UNALTERED	<input checked="" type="checkbox"/> ORIGINAL SITE
<input type="checkbox"/> GOOD	<input type="checkbox"/> RUINS	<input checked="" type="checkbox"/> ALTERED	<input type="checkbox"/> MOVED DATE _____
<input type="checkbox"/> FAIR	<input type="checkbox"/> UNEXPOSED		

DESCRIBE THE PRESENT AND ORIGINAL (IF KNOWN) PHYSICAL APPEARANCE

Designed by a consulting board to be the most efficient plant possible in 1920 the Amstar facility remains the second largest sugar refinery in the United States. Outside contractors were engaged to design and build both the Boiler Plant and the overall site. The consulting board, composed mainly of American Sugar Company engineers and management, assumed responsibility for layout and design of all process and equipment. The initial plant was designed to permit a 50% increase in capacity if desired.

As built the plant was composed of sixteen structures including offices, warehouses and ancillary buildings. At the east end of the property is the powerhouse with a nearby coal storage tower. North of it with an axis parallel to the bulkhead is the Raw Sugar Shed with its cranes for unloading ships. West of the Powerhouse is the Machine Shop. Southwest of the Raw Sugar Shed are the Wash House and the Filter House. Further west is a U-shaped complex composed of the Pan House, Finishing House and the Domino Storage Building. The plant also had a complete barrel-making plant and a three million gallon molasses storage tank.

Construction of the plant was a difficult engineering problem because more than half of it was built in the water. Hundreds of piles were driven both on land and in the harbor with the average water driven pile penetrating 6 to 22 feet of mud and 8 feet of hard strata and up to 30 feet of water. A total of over 1.2 million linear feet of piling was driven. A mat of heavy timbers and planking was built on these pilings and a reinforced concrete foundation layed on this surface.

Since this plant was constructed at one time and has been virtually unaltered, all 4-process buildings have the same reinforced concrete design. They vary in height since they were designed to house the equipment necessary to that stage of the refining process. Raw sugar passes from the ship or the raw sugar shed to the wash house via bucket conveyors. The wash house, a seven-story steel-frame and brick building with movable casement windows. After passing through mechanical crushers, the raw sugar enters a system of "minglers," large troughs, where it is mixed with syrup from sugar that has already gone through the raw sugar centrifugal machines. The resulting mass of sugar and syrup is called "magma." The magma is then passed into a large mixer and agitated before being discharged into the centrifugal machines directly below. The object of these machines is to separate the syrup from the sugar crystals. Below the centrifugal

(con't.)

CONTINUE ON SEPARATE SHEET IF NECESSARY

8 SIGNIFICANCE

PERIOD		AREAS OF SIGNIFICANCE -- CHECK AND JUSTIFY BELOW				
<input type="checkbox"/> PREHISTORIC	<input type="checkbox"/> ARCHEOLOGY-PREHISTORIC	<input type="checkbox"/> COMMUNITY PLANNING	<input type="checkbox"/> LANDSCAPE ARCHITECTURE	<input type="checkbox"/> RELIGION		
<input type="checkbox"/> 1400-1499	<input type="checkbox"/> ARCHEOLOGY-HISTORIC	<input type="checkbox"/> CONSERVATION	<input type="checkbox"/> LAW	<input type="checkbox"/> SCIENCE		
<input type="checkbox"/> 1500-1599	<input type="checkbox"/> AGRICULTURE	<input type="checkbox"/> ECONOMICS	<input type="checkbox"/> LITERATURE	<input type="checkbox"/> SCULPTURE		
<input type="checkbox"/> 1600-1699	<input type="checkbox"/> ARCHITECTURE	<input type="checkbox"/> EDUCATION	<input type="checkbox"/> MILITARY	<input type="checkbox"/> SOCIAL/HUMANITARIAN		
<input type="checkbox"/> 1700-1799	<input type="checkbox"/> ART	<input type="checkbox"/> ENGINEERING	<input type="checkbox"/> MUSIC	<input type="checkbox"/> THEATER		
<input type="checkbox"/> 1800-1899	<input type="checkbox"/> COMMERCE	<input type="checkbox"/> EXPLORATION/SETTLEMENT	<input type="checkbox"/> PHILOSOPHY	<input type="checkbox"/> TRANSPORTATION		
<input checked="" type="checkbox"/> 1900-	<input type="checkbox"/> COMMUNICATIONS	<input checked="" type="checkbox"/> INDUSTRY	<input type="checkbox"/> POLITICS/GOVERNMENT	<input type="checkbox"/> OTHER (SPECIFY)		
		<input type="checkbox"/> INVENTION				

SPECIFIC DATES

BUILDER/ARCHITECT

STATEMENT OF SIGNIFICANCE

The American Sugar Plant is Baltimore's only remaining operating sugar refinery in a city which once ranked second among the nation's refining centers and supported as many as six separate plants. Built in 1921 as a massive complex in the 1000 block of Key Highway, the plant is the second largest refinery in the United States. The Amstar Corporation, which operates the Baltimore plant and 11 other refineries, presently supplies over one quarter of all sugar annually consumed in the United States.

Historical Significance

Immediately prior to the Civil War, the sugar refining industry in Baltimore greatly expanded. Since colonial times, the city supported several small refineries which supplied local demand; but in the 1850's the introduction of the vacuum pan process, and other developments in refining, greatly improved the methods of manufacturing and increased production. Baltimore's excellent harbor and proximity to the crude sugar sources, particularly in the West Indies, combined with a well developed rail transportation system, encouraged many new refineries to begin production in the city. By the late 1860's, six large companies--The Baltimore; Calvert; Canton, Chesapeake; Maryland; and Merchants--all had refineries in the city. In 1871 The Baltimore Sun described "the refining of sugar as most important to the general trade of the city," noting the large numbers of workers employed, the huge amounts of imported raw sugar and the capital invested.

In 1873, however, the Baltimore sugar refining industry collapsed. Stirling, Ahrens and Company, owners of four of the city's refineries and largest importers of molasses and sugar in the United States, declared bankruptcy. Although several businesses made efforts to revive the industry, from 1875 to 1920 only one refinery operated in Baltimore. This was the Curtis Bay Sugar Refinery, established in 1891 at the foot of Aspen Street on the waterfront.

Revival of the sugar industry in Baltimore occurred in 1921 when the American Sugar Refining Company built a massive plant in the Locust Point area of the city. This plant, commonly known as "Domino Sugar," took over two years to build, contains 15 buildings and covers over 20 acres--with over one quarter waterfront. In addition to

-cont'd

9 MAJOR BIBLIOGRAPHICAL REFERENCES

Query Vertical Files, Enoch Pratt Free Library
"Baltimore AMSTAR Refinery, Construction Completion
Report"(private, 1922)

CONTINUE ON SEPARATE SHEET IF NECESSARY

10 GEOGRAPHICAL DATA

ACREAGE OF NOMINATED PROPERTY _____

VERBAL BOUNDARY DESCRIPTION

LIST ALL STATES AND COUNTIES FOR PROPERTIES OVERLAPPING STATE OR COUNTY BOUNDARIES.

STATE _____ COUNTY _____

STATE _____ COUNTY _____

11 FORM PREPARED BY

NAME / TITLE
Linda Daur, Dennis Zembala

ORGANIZATION
Baltimore Industrial Museum

DATE
Sept 1980

STREET & NUMBER
217 N. Charles Street

TELEPHONE
301-396-1931

CITY OR TOWN
Baltimore, Md. 21201

STATE

The Maryland Historic Sites Inventory was officially created by an Act of the Maryland Legislature, to be found in the Annotated Code of Maryland, Article 41, Section 181 KA, 1974 Supplement.

The Survey and Inventory are being prepared for information and record purposes only and do not constitute any infringement of individual property rights.

RETURN TO: Maryland Historical Trust
The Shaw House, 21 State Circle
Annapolis, Maryland 21401
(301) 267-1438

American Sugar Refining Company
Baltimore City, Maryland
B-994

7. Description (continues) - Page 2

machines are the "pre-melters," where the sugar is dissolved by adding hot water. The sugar then passes to large receivers known as "melter blowups," where it is boiled to the proper consistency. From here it passes to the filter house.

The filter house is a ten-story steel-frame and brick building containing multi-story spaces for the large filters necessary to purify the melted "liquor." In 1920 this plant was one of the first to use pressure filters which greatly reduced filtering time and labor costs. Previously gravity filters made up of many layers had to be removed and cleaned by hand after each filtration. After the liquor has gone through these presses, it passes into the "char-filters," large cylindrical cast-iron vessels ten feet in diameter and twenty-three feet high. These are full of "bone char," burned animal bones ground and grated as to size. In the char filters the soluble impurities, both organic and inorganic, which discolor the liquor, are removed.

The next important step of the refining process is the boiling crystallization of the sugar which takes place in the pan house. The pan house, the third of the process buildings, is nine stories of the same type of construction of the buildings previously described. It contains large vacuum pans in which the sugar is boiled at a low temperature in order to prevent the destruction of its crystals. After the sugar has been crystallized, which may take up to eight or nine hours, it is dropped from the pans into large centrifugal machines which separate the crystals from the syrup. Sugar from these machines is taken by another set of bucket conveyors to the finishing house.

Large rotary dryers are contained in the finishing house, a nine-story steel frame and brick structure. At this point the sugar contains 2-3% of moisture. The dryers are revolving drums in which the sugar is tumbled while a current of hot air passes through. Below are another set of drums similar in design in which the heated sugar is cooled as it tumbles. The finished sugar is then passed over a set of inclined, vibrating screens, where it is grated into coarse, fine extra-fine. It is then taken by conveyor to storage bins before being packed.

The large "Domino Building" west of the finishing house is ten-stories of reinforced concrete construction. It contains the packaging machinery and storage facilities for the plant. Several other structures are important to the operation of the site, including a large boiler house, southeast of the wash house. This is also a steel-frame brick structure eight-stories high. It originally contained five vertical boilers with mechanical coal-handling facilities. West of this powerhouse is the engine house and machine shop building, a three story steel-frame and brick structure. This building housed the steam engines and generators which powered the plant. These consisted of

(con't.)

American Sugar Refining Company
Baltimore City, Maryland
B-994

7. Description (continues) - Page 3

three 1250 kilowatts direct-current generators, each connected to and driven by two twin, four-valve, non-condensing reciprocating engines, 25½" x 32" with a speed of 135 r.p.m. and developing 1880 horsepower per set.

Additional buildings include a large cooperage to the southwest which produced barrels for storing the sugar. The power plant and processing buildings were constructed of steel-frame and brick because the heavy concentration of machinery they contained made the more standard reinforced concrete construction impractical. Only the "Domino Building," a barrel-filling station and an office structure are of concrete construction. The cooperage is of standard mill construction, with heavy timber floors and brick bearing walls.

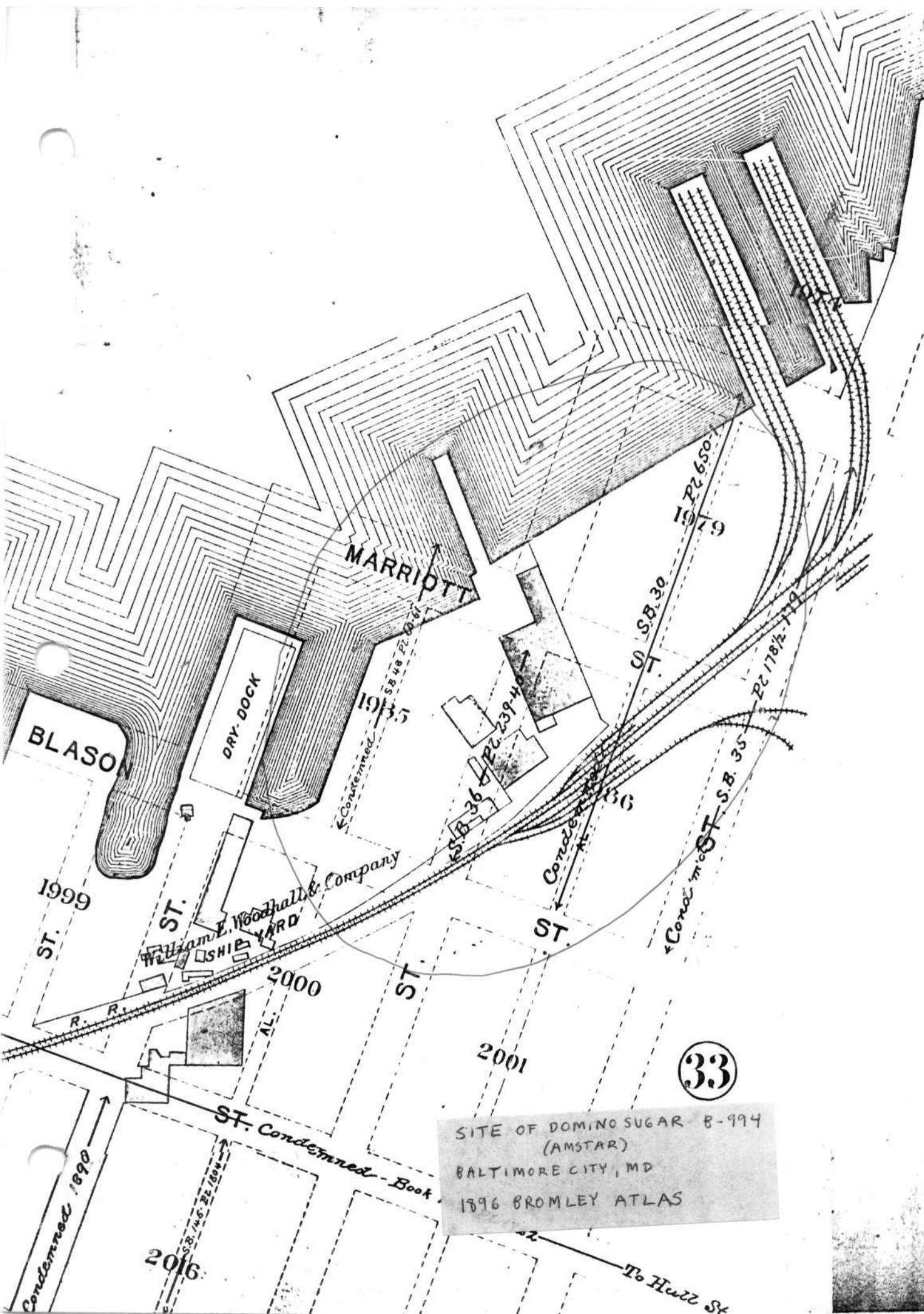
Unlike earlier manufacturing sites which grew organically over a number of years, the American Sugar Plant was the product of sophisticated engineering planning and construction. Although there have been some additions over the years, the plant remains essentially the same as when it was constructed in 1920. At that time it was a monument of state-of-the-art modern industrial design.

cont'd American Sugar (B-994)
Hist. Sign. p. 2

(3.2)

several warehouses, the plant contains a power house, wash house where the raw sugar is cleaned, pan house where sugar liquids are boiled, finishing house and packing house. The complex also includes its own railroad terminals and three docks to facilitate the transport of raw and finished sugar. Few structural changes have been made to the plant since it began operation in April of 1922.

Amstar Corporation, which now owns the American Sugar Refining Company, supplies 60% of the sugar sold in bulk or liquid form to industrial sugar users and over one-quarter of all sugar consumed annually in the United States. Their Locust Point plant--the second largest in the country--employs approximately 850 persons.



MARRIOTT

DRY DOCK

BLASON

William E. Woodhall & Company
SHIP YARD

1999
ST.

ST.

2000

ST.

2001

ST.

33

ST. Condemned - Book

SITE OF DOMINO SUGAR B-994
(AMSTAR)
BALTIMORE CITY, MD
1896 BROMLEY ATLAS

Condemned 1890

2016

To Hull St

1935
K Condemned

1936
K Condemned

1936
K Condemned

1979
PC 650

ST. S.B. 30

ST. S.B. 35
PC 178 1/2

SB. 146 PC 180

SB 48 PC 105

SB 36 PC 239-4

SB 36 PC 239-4

PC 178 1/2

ST. S.B. 35

R. R.

AL.

ST.

ST. 22nd St

1 SITE ID NO 8-994

HAER INVENTORY

Historic American Engineering Record
Department of the Interior, Washington, D.C. 20240

2 INDUSTRIAL CLASSIFICATION Manufacturing		3 PRIORITY	4 DANGER OF DEMOLITION (SPECIFY THREAT) <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> UNKNOWN	
5 DATE 1921		6 GOVT SOURCE OF THREAT OWNER ADMIN		
		7 OWNER ADMIN AMERICAN SUGAR DIVISION		

8 NAME(S) OF STRUCTURE DOMINO SUGAR AMSTAR CORPORATION		9 OWNER'S ADDRESS 1100 KEY HIGHWAY EAST		
--	--	--	--	--

10 STATE COUNTY	COUNTY NAME	CITY VICINITY	CONG DIST	STATE COUNTY	COUNTY NAME	CITY VICINITY	CONG DIST
		BALTIMORE		MD		BALTIMORE	3

11 SITE ADDRESS (STREET & NO.) 1100 Key HIGHWAY EAST		12 EXISTING SURVEYS <input type="checkbox"/> NR <input type="checkbox"/> NHL <input type="checkbox"/> HABS <input type="checkbox"/> HAER-1 <input type="checkbox"/> HAER <input type="checkbox"/> NPS <input type="checkbox"/> CLS <input type="checkbox"/> CONF <input type="checkbox"/> STATE <input type="checkbox"/> COUNTY <input type="checkbox"/> LOCAL <input type="checkbox"/> OTHER	
		13 SPECIAL FEATURES: DESCRIBE BELOW <input type="checkbox"/> INTERIOR INTACT <input type="checkbox"/> EXTERIOR INTACT <input type="checkbox"/> ENVIRONS INTACT	

14 UTM ZONE	EASTING	NORTHING	SCALE	QUAD NAME
18	361585	4348320	1:24	BALTIMORE EAST
UTM ZONE	EASTING	NORTHING	SCALE	QUAD NAME
			1:24	

15 CONDITION	70 EXCELLENT	71 GOOD	72 FAIR	73 DETERIORATED	74 RUINS	75 UNEXPOSED	76 ALTERED	82 DESTROYED	85 DEMOLISHED
--------------	--------------	---------	---------	-----------------	----------	--------------	------------	--------------	---------------

16 INVENTORIED BY	AFFILIATION	DATE
Linda Daur, Dennis Zembala	Balto. Museum of Industry	Sept. 1981

17 DESCRIPTION AND BACKGROUND HISTORY, INCLUDING CONSTRUCTION DATE(S), HISTORICAL DATE(S), PHYSICAL DIMENSIONS, MATERIALS, EXTANT EQUIPMENT, AND IMPORTANT BUILDERS, ENGINEERS, ETC

The American Sugar Plant is Baltimore's only remaining operating sugar refinery in a city which once ranked second among the nation's refining centers and supported as many as six separate plants. Built in 1921 as a massive complex in the 1000 block of Key Highway, the plant is the second largest refinery in the United States. The Amstar Corporation, which operates the Baltimore plant and all other refineries,

(CONT OVER)

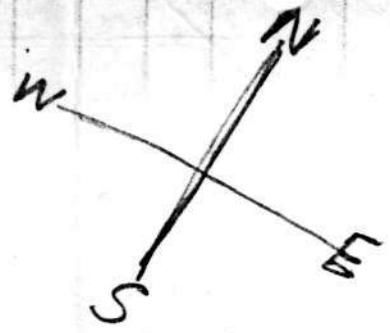
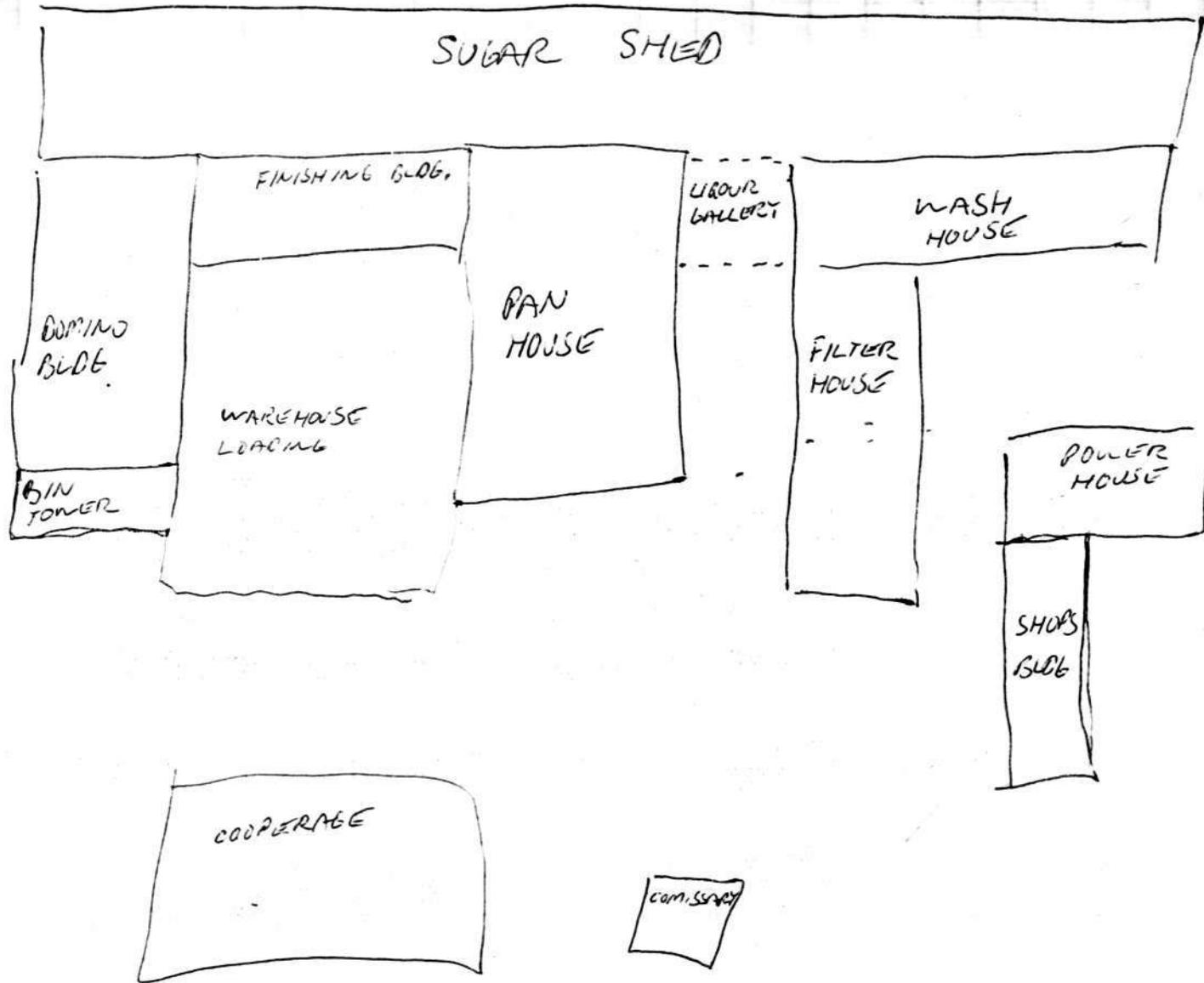
18 ORIGINAL USE	PRESENT USE	ADAPTIVE USE
Manufacturing (Sugar Refining)	Sugar refining	

19 REFERENCES—HISTORICAL REFERENCES, PERSONAL CONTACTS, AND/OR OTHER
Inventory + vertical files, Mrs. Room, Enoch Pratt Central Library "Baltimore AMSTAR Refinery, Construction Completion Report" (private, 1922).

(CONT OVER)

20 URBAN AREA 50,000 POP OR MORE? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	21 NPS REGION	22 PUBLIC ACCESSIBILITY <input type="checkbox"/> YES LIMITED <input type="checkbox"/> YES UNLIMITED <input type="checkbox"/> NO <input type="checkbox"/> UNKNOWN	23 EDITOR INDEXER
--	---------------	--	-------------------

24 LOCATED IN AN HISTORIC DISTRICT? <input type="checkbox"/> YES <input type="checkbox"/> NO	DISTRICT ID NO
---	----------------



Amstar B-994
 Baltimore City, Md

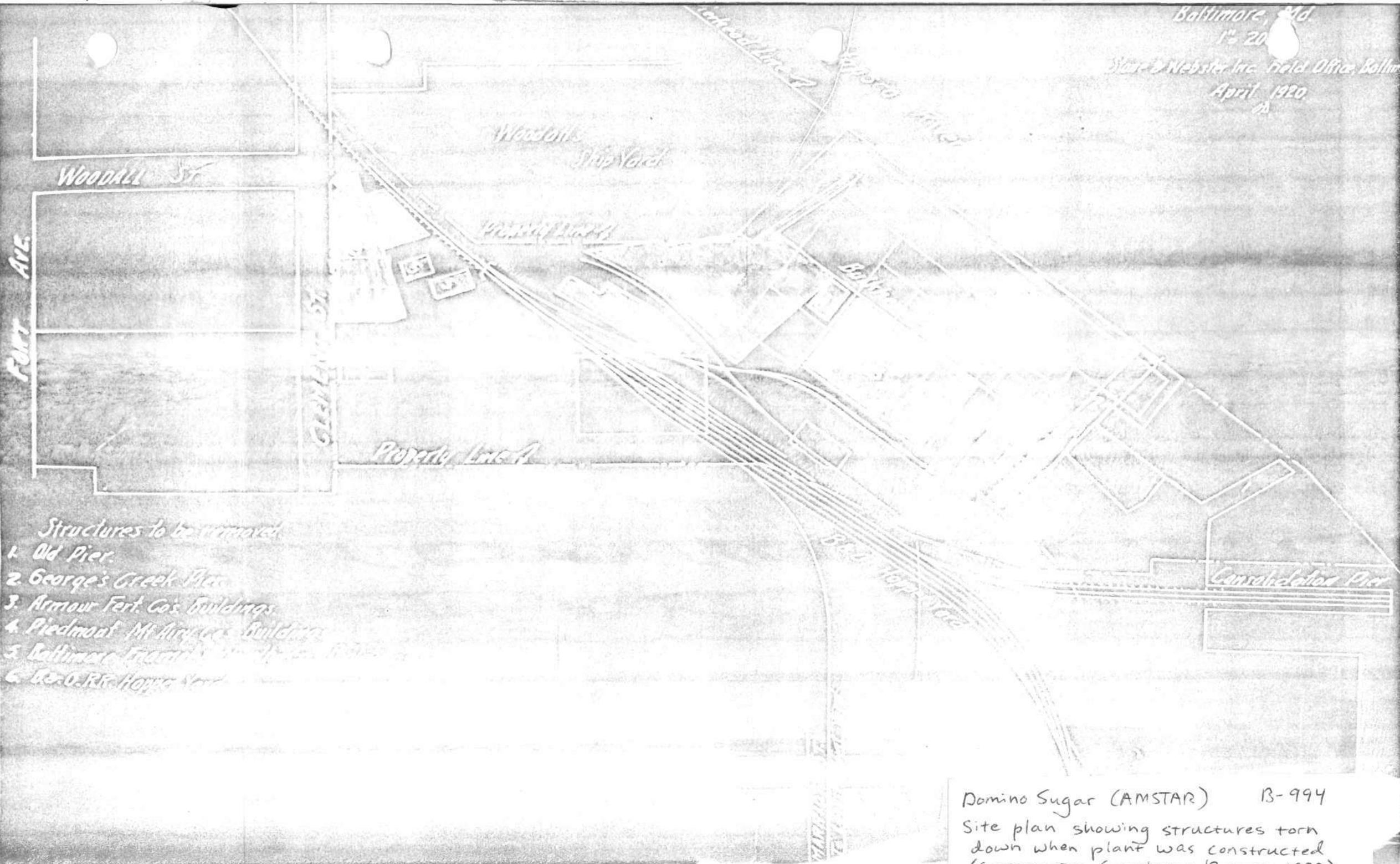
Site in 1922

Baltimore, Md

1" = 20'

State-Webster Inc. Field Office, Baltimore

April 1920



Structures to be removed

1. Old Pier
2. George's Creek Pier
3. Armour Fert. Cos. Buildings
4. Piedmont Mt. Airy Cos. Buildings
5. Baltimore Terminal
6. B. & O. RR. Hoop Yard

Domino Sugar (AMSTAR) B-994
 Site plan showing structures torn down when plant was constructed (Construction Completion Report, 1922)



BALTIMORE

Domino Sugar (AMSTAR) B-994
Baltimore City, Md

U.S.G.S. 18° 61585 43 48320

D.L.E. SCH

Lazaretto Point



Domino Sugar (Amstar) B-991
Baltimore City MD
Peter Liebhold 5/83

Historic View - Looking South east
at site



o Sugar (AMSTAR) B-994
ore City MD
Liebhold 5/83

~~the~~ Looking South

B-994

Domino Sugar (AMSTAR)

Baltimore City, MD

Peter Liebhold 5/83

Looking South



Dominio Sugar (Amstar) B-994
Baltimore City, MD
Peter Liebhold 5/83

Looking South at Wash House



Domino Sugar (Amstar) B-994
Baltimore City, MD
Peter Liebhold 5/83

Looking S.W. at Old Sugar Shed
Finishing Bldg + Domino Bldg.



NO Smoking Beyond the Plant
in Designated Areas Only
NO IN-CAR CELLPHONE
IN THE BELT AREA
Speed Limit 5 MPH

Coke

Amino Sugar (Amstar) B-994

Baltimore City MD

Peter Liebhold 5/83.

Looking N.E. from front gate



Domino Sugar (Amstar) B-994

Baltimore City MD

Peter Liebhold 5/83

Looking West at Domino Building



Dominio Sugar (Amstar) B-994
Baltimore City, MD

Peter Liebhold 5/83

Looking N.W. AT Office



DOOR WAY

CAUTION
FORKLIIFT
CROSSING
SLOW DOWN

CONRAIL

CR
884849

Domino Sugar (Amstar) B-984
Baltimore City MD
Peter Liebhold 5/83

Looking South at Cooperage Bldg.



Domino Sugar (Amstar) B-994
Baltimore City MD
Peter Liebhold 5/83

Looking West at Cooperage Bldg



Domino Sugar (Amstar) B-994
Baltimore City MD
Peter Liebhold 5/03

Looking North at Shops Building



NO PARKING
ANY TIME
ANY DAY

NO PARKING
ANY TIME
ANY DAY

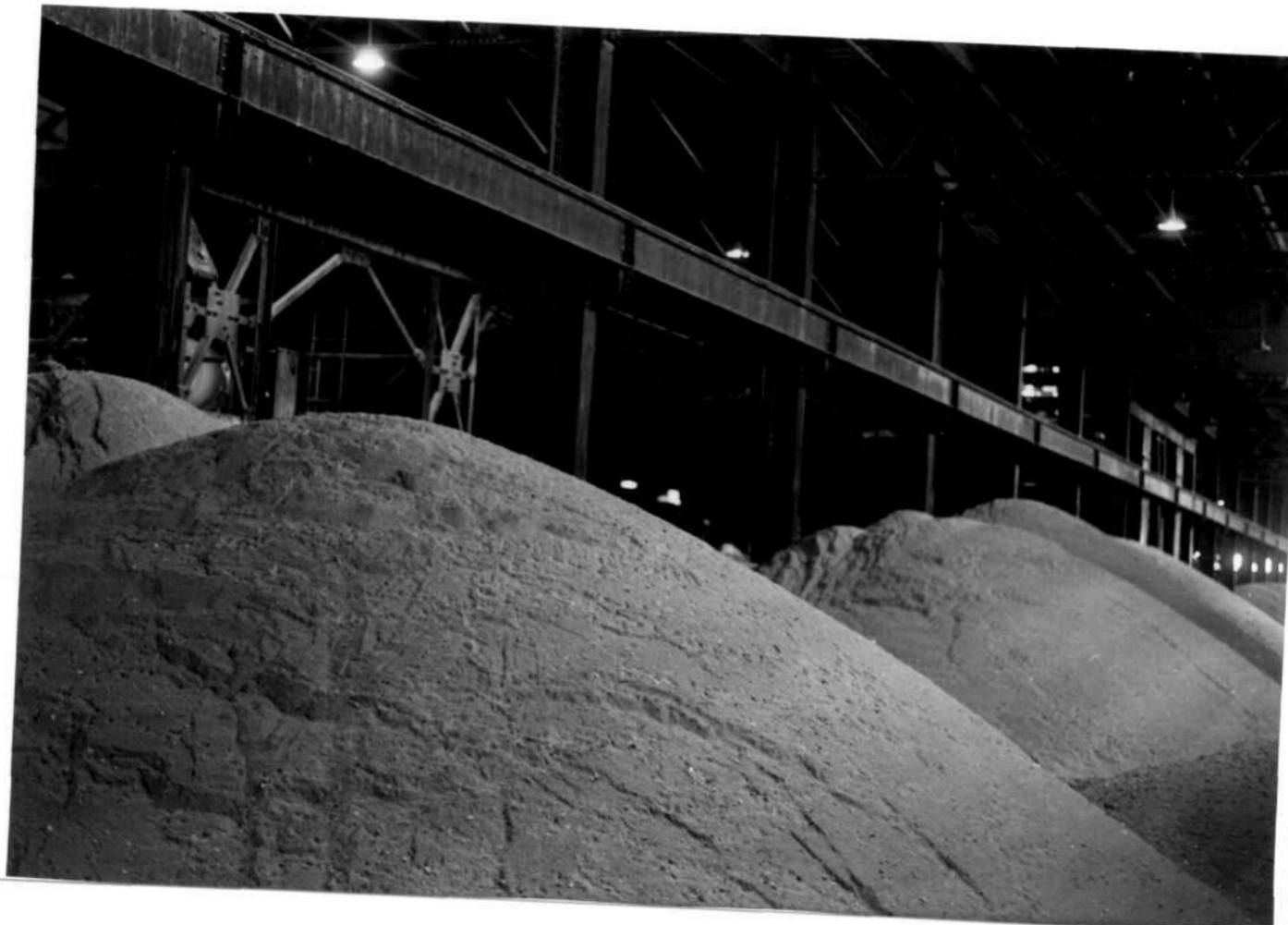
Domino Sugar (Amstar) B-994
Baltimore City, MD
Peter Liebhold 5/83

Looking N.W



Domino Sugar (Amstar) B-994
Baltimore City MD
Peter Liebhold 5/03

Interior Cooperage Bldg. Southside

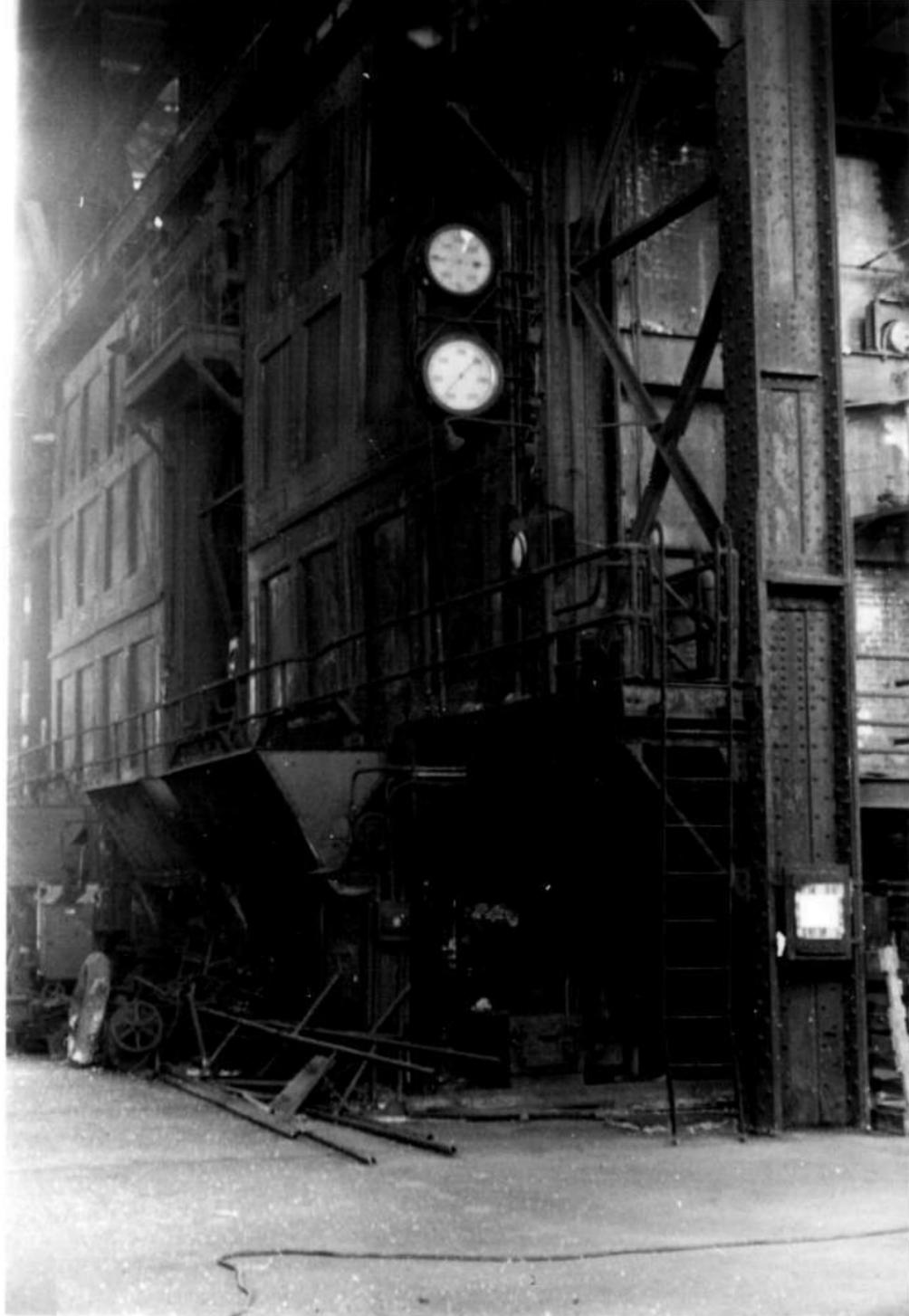


Domino Sugar (Amstar) B-994

Baltimore City, MD

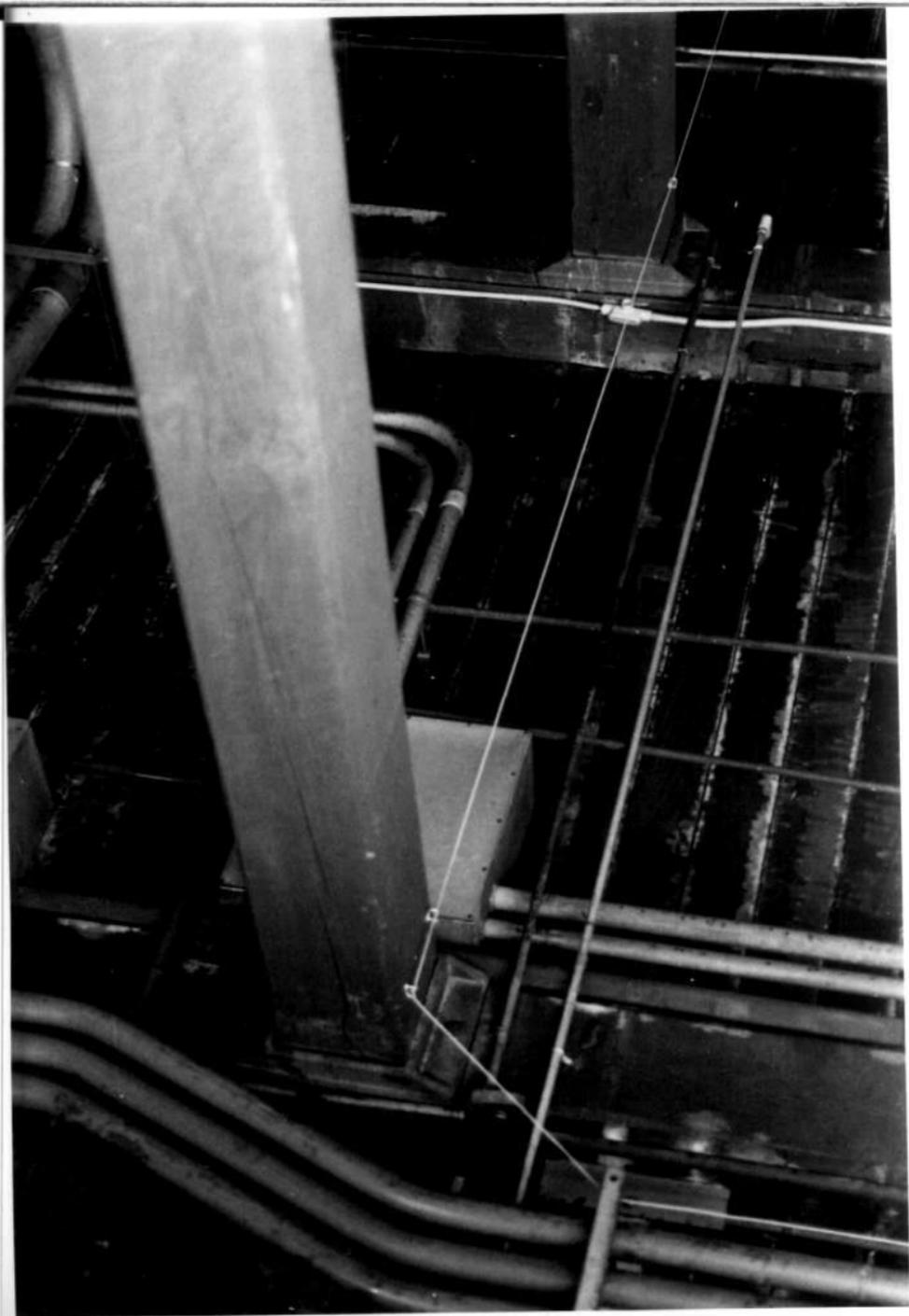
Peter Liebhold 5/83

Interior Old Sugar Shed



Dominio Sugar (Amstar) B-994
Baltimore City MD
Peter Liebhold 5/83

Interior Old Power House



Domino Sugar (Amstar) B-994
Baltimore City MD
Peter Liebhold 5/83

Column Detail Cooperage Bldg North Side

B-994

Domino Sugar (Amstar)
Baltimore City, MD
Peter Liebhold 5/83

Column Detail
Cooperage Building, North side



Domino Sugar (Amstar) B-994
Baltimore City, MD
Peter Liebhold 5/83

Looking S.E. at Power House