NPS Form 10-900
(Oct. 1990)

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NAT. REGISTER OF HISTORIC PLACES
NATIONAL PARK SERVICE

United States Department of the Interior
National Park Service

National Register of Historic Places Registration Form

This form is for use in nominating or requesting determinations for individual properties and districts. See instructions in *How to Complete the National Register of Historic Places Registration For* (National Register Bulletin 16A). Complete each item by marking "x" in the appropriate box or by entering the information requested. If an item does not apply to the property being documented, enter "N/A" for 'not applicable." For functions, architectural classification, materials, and areas of significance, enter only categories and subcategories from the instruction. Place additional entries and narrative items on continuation sheets (NPS Form 10-900a). Use a typewriter, word processor, or computer, to complete all items.

1. Name of Property

historic name: The Hudson and Manhattan Railroad Powerhouse

other names/site number: Washington Street Powerhouse

2. Location

street and number: 60-84 Bay Street; 344-56 Washington Boulevard — N/A not for publication

city or town: Jersey City — N/A vicinity

state: New Jersey — county: Hudson County — zip code: 07302

3. State/Federal/Tribal Agency Certification

As the designated authority under the National Historic Preservation Act, as amended, I hereby certify that this [X] nomination [ ] request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60. In my opinion, the property [ ] meets [ ] does not meet the National Register criteria. I recommend that this property be considered significant [X] nationally [ ] statewide [ ] locally. ([ ] See continuation sheet for additional comments.)

Signature of certifying official/Title — Date

Assistant Commissioner, Natural and Historic Resources/DSHPO

State or Federal agency and bureau — American Indian Tribe

In my opinion, the property [ ] meets [ ] does not meet the National Register criteria. ([ ] See continuation sheet for additional comments.)

Signature of certifying official/Title — Date

State or Federal agency and bureau — American Indian Tribe

4. National Park Service Certification

I hereby certify that the property is: — Signature of the Keeper — Date of Action

[✓] entered in the National Register. — Patrick Andrus — 11/23/2001
  [ ] See continuation sheet.

[ ] determined eligible for the National Register.
  [ ] See continuation sheet.

[ ] determined not eligible for the National Register.

[ ] removed from the National Register.

[ ] other. (explain:)

5. Classification

Ownership of Property
(Check as many boxes as apply)

- [ ] private
- [X] public-local
- [X] public-State
- [ ] public-Federal

Category of Property
(Check only one box)

- [X] building(s)
- [ ] district
- [ ] site
- [ ] structure
- [ ] object

Number of Resources within Property
(Do not include previously listed resources in the count.)

Contributing	Noncontributing	
1	1	buildings
		sites
		structures
1	1	objects
2	2	Total

Name of related multiple property listing
(Enter "N/A" if property is not part of a multiple property listing.)

N/A

Number of contributing resources previously listed in the National Register

N/A

6. Function or Use

Historic Functions
(Enter categories from instructions)

Industry/Processing/Extraction

Current Functions
(Enter categories from instructions)

Industry/Processing/Extraction
Vacant/Not In Use

Historic Subfunctions
(Enter subcategories from instructions)

Energy Facility

Current Subfunctions
(Enter subcategories from instructions)

7. Description

Architectural Classification
(Enter categories from instructions)

Late 19th And 20th Century Revivals
Other

Materials
(Enter categories from instructions)

Foundation	Concrete
Walls	Brick
Roof	Concrete
Other	Ceramic Tile
	Steel
	Terra Cotta

Narrative Description
(Describe the historic and current condition of the property on one or more continuation sheets.)

8. Statement of Significance

Applicable National Register Criteria

(Mark "x" in one or more boxes for the criteria qualifying the property for National Register listing.)

- [X] **A** Property is associated with events that have made a significant contribution to the broad patterns of our history.
- [X] **B** Property is associated with the lives of persons significant in our past.
- [X] **C** Property embodies the distinctive characteristics of a type, period, or method of construction or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components lack individual distinction.
- [ ] **D** Property has yielded, or is likely to yield, information important in prehistory or history.

Criteria Considerations

(Mark "x" in all the boxes that apply.)

Property is

- [ ] **A** owned by religious institution or used for religious purposes..
- [ ] **B** removed from its original location.
- [ ] **C** a birthplace or grave.
- [ ] **D** a cemetery.
- [ ] **E** a reconstructed building, object, or structure.
- [ ] **F** a commemorative property.
- [ ] **G** less than 50 years of age or achieved significance within the past 50 years.

Areas of Significance

(Enter categories from instructions)

Architecture
Engineering
Transportation

Period of Significance

1906-1929

Significant Dates

1906
1908
1929

Significant Person

(Complete if criterion B is marked above)

McAdoo, William Gibbs

Cultural Affiliation

Architect/Builder

Hazelton, Hugh/engineer
Oakman, Johh/architect
Stillwell, L.B./engineer
Van Vleck, John/engineer

9. Major Bibliographical References

Bibliography

(Cite the books, articles, and other sources used in preparing this form on one or more continuation sheets.)

Previous documentation on file (NPS:)

- ☐ preliminary determination of individual listing (36 CFR 67) has been requested.
- ☐ previously listed in the National Register
- ☐ previously determined eligible by the National Register
- ☐ designated a National Historic Landmark
- ☐ recorded by Historic American Buildings Survey
- ☐ recorded by Historic American Engineering Record

☐ See continuation sheet for additional HABS/HAER documentation.

Primary location of additional data:

- ☐ State Historic Preservation Office
- ☐
- ☐
- ☐
- ☐
- ☒ Other (Repository Name: The Jersey City Public Library)

10. Geographical Data

Acreage of Property: 1.75

UTM References

(Place additional UTM references on a continuation sheet.)

	Zone	Easting	Northing
1	18	581400	4507970
2			
3			
4			

☐ See continuation sheet

Verbal Boundary Description

(Describe the boundaries of the property on a continuation sheet.)

Boundary Justification

(Explain why the boundaries were selected on a continuation sheet.)

11. Form Prepared By

name/title: John K. Gomez, President
organization: Jersey City Landmarks conservancy
date: 12/1/1999
street & number: P.O. Box 68
telephone: (201) 420-1885
city or town: Jersey city
state: New Jersey
zip code: 07303-0068

Additional Documentation

Submit the following items with the completed form:

Continuation Sheets

Maps

A **USGS map** (7.5 or 15 minute series) indicating the property's location.

A **Sketch map** for historic districts and properties having large acreage or numerous resources.

Photographs

Representative **black and white photographs** of the property

Additional items

(Check with the SHPO or FPO for any additional items)

Property Owner

(Complete this item at the request of the SHPO or FPO.)

name: City of Jersey City
street & number: 280 Grove Street
telephone: (201) 547-4900
city or town: Jersey City
state: New Jersey
zip code: 07302-

NARRATIVE DESCRIPTION

The Hudson & Manhattan Railroad Powerhouse, an enormous turn-of-the-century (1906) industrial brick and steel building, stands majestically on the bustling waterfront of Jersey City, New Jersey (Photos 1-3; 5-6; Historical View/Figure 1). Almost two square acres in size, roughly 200 feet wide by 200 feet long, and nine stories tall (not including its magnificent smokestacks which rise 150 feet above the sidewalk), the Powerhouse is bounded by Washington Boulevard, First Street, Bay Street and Greene Street, and exists within the Warehouse District, an historically significant area adorned with mid-nineteenth and early twentieth century industrial structures. The Powerhouse, with its impending Industrial Romanesque Revival style of architecture, stands in startling contrast to the sprawling residential/commercial development that is making Jersey City's waterfront so economically valuable and sought-after. Abandoned for exactly seventy years, the coal-fired Powerhouse, enveloped in dark, brooding brick and shaped by brilliant cliffs of interior steel, is physically intact; for a structure that has been neglected for so long, it miraculously retains its historic integrity. Very little exterior alterations have occurred; the most sizeable, noticeable exterior alteration consists of the dismantling of one of four smokestacks due to structural damage (Photo 4). Unfortunately, most of the interior electrical machinery, including massive turbines and boilers, have long been removed and presumably discarded. Otherwise key architectural and engineering details remain with minimal alteration, damage or deterioration.

The vast foundation of the Powerhouse is just one of its engineering highlights, as described in the local newspaper of that era, *The Evening Journal*:

> *Great oblong pillars of cement set on a bed of rock anywhere from 35 to 45 feet below tidewater level are part of the foundations. It was an engineering feat of no small importance to erect these pillars and their composition is of such a nature as to make them, like wood under water, practically everlasting (Evening Journal, October 6, 1906, pg. 3)...The foundations for the permanent power house at Washington and First streets, Jersey City, was constructed and required 23,000 cubic yards of excavation, 11,000 cubic yards of special backfill and 7,800 cubic yards of concrete (Evening Journal, Feb. 12, 1907, pg. 1).*

The Powerhouse, a rare large-scale example of Industrial Romanesque Revival architecture, is sheathed in thick, deep-red brick, an important, original architectural element that greatly contributes to the building's industrial appearance. The exterior brick walls are battered at the building's base on all four sides; deeply recessed base windows, enclosed by massive iron gates, or

(Description continued)

grating, slant inward with the sloping walls. Five-story arched windows are sweepingly soldiered ten across on the Southern wall (Historical View/Figure 14) which, due to the structure's irregular frontal shape, juts further out than the Northern wall (Historical View/Figure 16) which itself holds nine arched windows; other arched windows are also featured on the Western (Historical View/Figure 15) and Eastern (Historical View/Figure 13) walls, although not as numerously or symmetrically. Magisterially beveled corners are formed where the flat Southern and Northern walls meet the irregular Eastern wall. The corbeled cornice, which wings outward at the roof, is a spectacular tapestry of brickwork. Terra cotta diamond blocks cap the entire perimeter of the structure's parapet. In addition, the window sills of the tall arched windows are gilded with vertical terra cotta brick, and glazed terra cotta tablets sit on the sills of the base windows. The large Coal Tower (Photos 7-8), projecting ten feet over the roof at the Eastern front, and which once held the coal distributing apparatus (Historical View/Figure 11), is situated between two roof clerestory monitors/coal bins; three narrow arched windows stretch up its facade from base to top, and the same terra cotta roof trimming graces its curved roof. Other distinctive exterior fenestration include two enormous (1,300 square feet) bay windows, facing East and West, for the most dramatic and necessary natural light; single and paired vertical windows which sit above the soldiered arched windows; ornamental iron window framework throughout; and original fireproof, wire-mesh window panes.

The Powerhouse possesses a vast flat roof of reinforced concrete, framed by an original iron balustrade, which once provided unobstructed views of the ferry-filled Hudson River as well as of the acres of railroads below (Photos 10-11). Reinforced concrete slabs sit on steel purlins which in turn are supported by trusses; these same trusses also support roof monitor columns and roof trusses. Thousands of fine ceramic block tiles cover the concrete roof. Two 12-foot high, 30-foot wide, 160-foot long clerestory coal sheds/roof monitors, which are situated on the structure's Southern roof (Photo 9; Historical View/Figure 17), and which also act as light and ventilation sources, stretch across the roof from East to West; a third roof monitor over the Northern section (Photo 12; Historical View/Figure 18) strictly acts as a source of light and ventilation. Three (originally four) brick-lined, steelplate-covered chimneys, or smokestacks, which rise majestically out of the Center and Southern clerestories, have an internal diameter of 11 feet and are crowned with catwalks; they soar 150 feet above the ground and 50 feet above the roof. Their method of construction was considered an engineering advancement: instead of reaching down into the interior and touching the ground level, as was the normal engineering practice of powerhouse construction, they sat on powerful steel columns right below roof level in order to provide

(Description continued)

maximum interior space for the massive boilers. Each smokestack was held in place by sixteen gigantic 2 1/2 feet x 32 inch bolts (Historical View/Figure 21).

Based on the most recent, extensive structural study of the Powerhouse, which was commissioned in 1984 by the Port Authority of New York & New Jersey, and based on current (1999) observations, the appearance and integrity of the exterior is as follows:

The outer brick facing is in fair condition, except at the wide Eastern front and along the building's brick baseline on all four fronts where deterioration and alterations have occurred. The most prominent deterioration in these areas consists of widespread cracking and loss of pointing. Also evident is severe water staining on all four fronts due to the poor condition of the roof. The Coal Tower has sustained considerable deterioration: vertical cracks fork across its Southern and Northern beveled faces, from the battered base to the curved roof (Photo 7). However, these cracks, although one inch wide in some places, do not appear on the interior Coal Tower walls. Additionally, a severe fissure has formed at the Northeastern top of the Coal Tower (Photo 8); it travels from the terra cotta trimming to the top of a slim arched window a few feet below. Large cracks on the Coal Tower's top Southern and Western sides appear on the interior walls (Ammann & Whitney, pgs. 15-16). The original exterior metal window frames have experienced some corrosion, alterations, and weed/grass growth; however, most remain physically sound. A large amount of glass window panes have been shattered on all four fronts; still, a surprising amount of original glass panes, particularly those located at the tops of the window frames, are intact (Ammann & Whitney, pg. 14). Ground level, or base, windows retain their massive iron grating, except for a few that have been covered in metal sheets or concrete walls; some of the base window terra cotta tablets are smashed or missing. All ground level doorways, except the Southwestern entrance used by PATH engineers for access to their sub-station (Photo 4), have been either locked shut or haphazardly covered with concrete. The main Eastern doorway, which was probably used for freight trains, is fitted with a rolling garage door (Ammann & Whitney, pg. 14). All except one of the nine five-story arched windows on the Northern front have been completely covered in dark metal sheets; two on the Southeastern corner have been entirely stripped of metal framing. The small single and paired windows above the tall arched windows have suffered little or no damage (Ammann & Whitney, pgs. 14-15).

The roof has suffered great deterioration within the three clerestory roof monitors/coal bin vicinities. Reinforced concrete roof slabs have cracked and fallen into the coal bins and bunkers below; rebars are extensively exposed. However, the main roof slabs are not as dangerously weathered; they reveal hairline cracks, holes, water damage and leaching, particularly in the

(Description continued)

Southwest and Northeast corners. Water leakage from these dislodged roof slabs has corroded the steel support framework directly below. Clerestory roof columns are corroded, particularly in the vertical members and gusset plates. Clerestory roof monitors/coal bins have been striped of original window panes and copper trimming (Photo 10). Most of the glazed ceramic tiling over the concrete slabs have remained remarkably intact (Photos 9-11). Grass and weeds grow profusely on the entire roof (Ammann & Whitney, pgs. 17-18). The three remaining smokestacks are in good condition (as previously mentioned, the missing Southwestern smokestack had been dismantled at an undetermined date due to structural damage). The gigantic 2 1/2 feet hold down bolts are intact. No tilting or cracks are evident in the smokestacks. Some smokestack catwalk planks are missing (Ammann & Whitney, pg. 20).

Considering the immensity of the Powerhouse, it has suffered little exterior additions, alterations or subtractions. The original coal conveyor bridge and coal house (Historical View/Figure 2; 11) that connected to the base of the Coal Tower are long demolished; cement fills in the area where it met the Tower. A fenced-in Port Authority Trans-Hudson (PATH) transformer yard, which is part of the corporation's subway sub-station, sits in front of the entire Western front of the structure, on Washington Boulevard, where it is visible to vehicular traffic and passersby (Photos 4-5). While the large transformers do not impede upon the actual Western wall of the structure, a small set of one-story concrete buildings, which sits in the Southernmost portion of the yard, and which is also part of PATH's sub-station, are directly attached to the Western wall. Note: a newly-constructed light rail system runs along the Northern front of the Powerhouse, about fifteen feet from its base.

The 1984 structural study found the exterior of the Powerhouse to be sound; in fact the study went on to recommend its redevelopment.

The exterior of the fire-proof Powerhouse gives the illusion that the structure is one whole form, but an inspection of the interior reveals that it is, in fact, divided by a massive 2-foot-thick yellow brick dividing wall into two main buildings: the South side (coal distribution/boilers/chimneys/steam production) and the North side (electrical generating area/sub-station No. 2). The South side and North side are accessible to each other via doorways at ground level as well as at second floor mezzanine walkways that levitate against each bay window; the floors of these walkways are constructed of concrete with steel plates.

(Description continued)

The North side, or Generator Room (Photo 13), an enormous, cathedral-like space, which is naturally illuminated by two large Eastern and Western bay windows, by nine North side arched windows, and by an enormous roof clerestory, is the centerpiece of the building where vast amounts of electrical current were created around the clock and transmitted outwardly to tunnels, stations and terminals (Historical View/Figure 3). An alternating current of 11,000 volts was transmitted from the Powerhouse to (3) "sub-stations": sub-station No. 1., Christopher and Greenwich Streets, New York, NY; sub-station No. 2., Washington and First Streets within the Powerhouse itself (North Side); and sub-station No. 3., Hudson Terminal Building, Cortlandt and Church Streets, New York, NY. In darkened areas, and during evening hours of operation, the interior spaces were illuminated by Cooper Hewitt mercury vapor lamps. Beautiful yellow brick was used throughout the Generator Room; its purpose was mainly for maximum illumination, since the bright color helped to reflect the large amount of natural light pouring in from the large window areas. At the base of the yellow brick walls were fine white enameled tiles. The Generator Room, composed of three mezzanine floors that overlooked an awesome atrium (Historical View/Figure 10), contained the following: 1.) An ornate Operating Gallery (Historical View/Figure 3) on the second mezzanine floor overlooking the atrium, or generating floor, exactly 27 1/2 feet above the first floor. This area, located directly above substation No. 2, housed advanced electrical instruments (Photo 15) and gauges in a beautiful copper and glass enclosure that stretched almost the entire length of the North Side (Photo 14; Historical View/Figure 7); it also led to the two mezzanine walkways connecting to the interior's South side. 2.) A third mezzanine floor, 19 feet above the second mezzanine floor, which provides access to the travelling gantry as well as a small Northeastern service elevator and porcelain and marble bathrooms. 3.) Substation No. 2 (directly under the Operating Gallery) on the first floor, 17 feet above the ground floor, which contained four colossal 1500 kw rotary converters with twelve 550 kw, 11,000 volt step-down transformers (Historical View/Figure 6). In addition, the main switchboard in this sub-station contained a panel for operating remote control rail switches within the tunnel system itself. This same panel also enabled the operators to control the current flow in the tunnels' third rails. Emergency alarm boxes, which were located throughout the tunnels so as to locate possible trouble spots, were kept track of via this sub-station area. 4.) An intricate "high potential wiring system" consisting of ground floor, or basement-level, busbars, oil circuit breakers, and feeder and alternator switches, all located on a Bench Board, or Control Board. Also within this area was a large Eastern access door that was large enough for a freight car to enter/exit. 5.) A sweeping atrium with four turbo-alternators capable of generating 36,000 kw; these led to four enormous vertical shaft five-stage turbines, provided by

(Description continued)

General Electric, which were aligned and staged on thick concrete bases and accessible via catwalk platforms (Historical Views/Figures 3-4; 23). The alternators delivered three-phase, 25-cycle alternating current at 11,000 volts; vast condensers, circulating pumps, vacuum pumps and feed water heaters were intricately connected to this system (Historical View/Figure 5). Condensing water was derived from, and thereafter discharged into, the Hudson River via two 1,777 foot long underground tunnels, which were constructed of the same shields and lining as the tunnels themselves (Historical View/Figure 12). Below the turbine bases was a basement level that sank six feet. An "Annunciator System" was in place at each end of the Generator Room, thereby permitting a complete view from any angle of the room. This was essentially the communications system between the Operating Gallery and the generating floor; a number code was illuminated and sounded on the Annunciator, thereby indicating the type of operating instruction required. 6.) A 61-foot wide electric crane that hovered above the atrium floor and above the four turbines; fifty-ton and ten-ton hoists with hooks traveled with the crane across the entire atrium as it lifted heavy equipment (Photo 13).

The South side, or Boiler Room, was the denser, heavier side of the building; it was constructed of intricate, thick cliffs of steel beams due to the amount of weight it had to contain, including the four smokestacks, two roof clerestories/coal bins, coal bunkers, boilers and the Coal Tower (Photos 18-21. The Boiler Room was illuminated mostly by natural light which poured in from ten Southern front arched windows, four Eastern front arched windows, four Western front arched windows, and from the two roof clerestories/coal bins. The Boiler Room contained the following: 1.) On the first floor, or "firing" floor, sixteen giant boilers of 900 boiler horse power and 9000 square feet of heating surface each (Historical View/Figure 9), designed by the Babcock & Wilcox Company of Bayonne, New Jersey, were considered to be the biggest boilers ever designed for a powerhouse (Evening Journal, Dec. 10, 1906, pg. 3). They sat in rows of four, back to back, within steel-lined brick enclosures supported by the structure's steel beams. The boilers were equipped with sophisticated CO2 recorders, pyrometers, water meters, and coal-weighing scales. Rear fuel economizers connected to steel-plate smoke uptakes and chimneys. Great steam line pipes led from the boilers to the dividing wall and sank into the basement level; they also snaked through two circular holes on the East and West ends of the dividing wall (Historical Views/Figures 3-4); from there steam was led to the turbines in the Generator Room. 2.) A second floor, 25 feet above the Boiler Room, possibly an operations control area. 3.) 23 feet above the second floor, and 60 feet above the basement floor, was the third floor where three immense coal bunkers, collectively capable of sustaining 4000 tons of coal, were suspended (Photo 20). Coal, or No. 3 buckwheat

(Description continued)

anthracite, was delivered via railcars to a small brick coal-unloading house on the East side (Greene Street) of the Powerhouse; from there the coal was delivered to the Coal Tower via a sloping coal belt conveyor bridge; it then was weighed in the Coal Tower hoppers, poured into skip hoists, spread across distributing belt conveyors on the roof, and dropped into the coal bunkers where it was gravitationally fed to the boilers. Ash hoppers rested under the boilers to capture coal ash, which was then taken in steel ash cars on rail tracks to ash storage bins and eventually to outside railroad cars (Historical Views/Figures 2; 8; 11).

The steel frame of the Powerhouse is an intricate configuration of solid steel consisting of riveted colossal columns and girders enclosed within 28-inch thick brick walls. Twelve lines of columns run North to South; fourteen lines run East to West (Historical View/Figure 22). Steel sections are composed of complex angles, channels and plates; some of these sections have ornamental skirts at the base (Photos 18-19; 21; Historical View/Figure 19). The interior floors are constructed of 4-foot thick reinforced concrete and iron and steel plates. The gigantic travelling crane, or gantry, in the Generator Room rests on rails supported by 5-foot deep girders that stretch across the entire atrium, from East to West (Photo 13). Four spiraling wrought iron stairwells, adorned with ornamental banisters, marble steps, and glazed white tiling, shoot upward from the ground floor to the roof (Photo 16; Historical View/Figure 23). The concrete roof slabs rest on steel purlins braced by trusses, which also support the main roof monitor's columns and roof trusses (Historical View/Figure 20).

Based on the aforementioned structural study of the Powerhouse, which was, as previously mentioned, commissioned in 1984 by the Port Authority of New York & New Jersey, and based on current (1999) observations, the appearance and integrity of the interior is as follows:

The steel framing of the Powerhouse has suffered widespread corrosion directly due to water leakage from the partially exposed roof; however, because of the amount and density of steel framing throughout, this corrosion has not overwhelmingly threatened the building. Steelwork situated in the upper and lower areas of the building has been subject to the most deterioration, particularly on the South side; some sections of girders and beams have suffered 75% section loss. The dismantling of the Southwestern smokestack has, as previously mentioned, greatly permitted precipitation to enter the structure, thereby heavily corroding steel rivet heads, columns, beams, girders, stiffeners, and gusset plates. There is also some evidence of beam-removal attempts, although none have seemed successful. Column bases located in the basement of the North side were deemed to be in good condition despite some rivet head corrosion. Girders, columns, and

(Description continued)

trusses throughout were found to show minimal levels of stress (Ammann & Whitney, pgs. 18-20; 29; 33-34).

On the North side (Generator Room), the four turbines in the basement have been removed; only their colossal concrete bases remain (Photo 13). On the first floor, the four arcing converters are gone, yet a few original electrical panels and switchboards, which stand in the shadows of the Northern wall, still exist (Photo 15). On the second mezzanine floor, the ornate copper-clad Operating Gallery observation window is intact, although its window frames and glass panes have been vandalized (Photo 14). Behind this observation window there stand remnants of original electrical panels and switchboards. The giant cranes, hoists and hooks of the astounding travelling gantry are still in place.

On the South side (Boiler Room), adjacent to the inner Western wall, the Port Authority Trans-Hudson Corporation (PATH) has erected a one-story, concrete-enclosed sub-station for their subway system; compressors and switches are located here. The sub-station, like the transformer yard outside, stretches virtually the entire width of the building. Original steel beams are visible upon entering the main entrance to this PATH sub-station, which exists at the original Southwestern entrance doorway (Photo 17); however, this entrance is now covered with modern steel doors (Photo 4). The PATH sub-station has several latched doors that lead to the basement levels of both the North and South sides of the building. This sub-station, while accessible to the interior of the Powerhouse, is a separated and secluded structure nonetheless; it merely uses the Powerhouse superstructure as a protective shell as well as for access to underground subway tunnels.

In addition, all boilers, pipes, and other steam-generating equipment have been removed from the South side. Virtually no traces of this machinery remain except the visible damage inflicted upon the concrete floors when the machinery was removed (Ammann & Whitney, pg. 31).

On the North side (Generator Room), the inner brick facing is intact; there are no visible cracks, fissures or deterioration. The great dividing wall between the North and South sides is sound, stable, without any visible cracks; two wide circular holes on the upper West and East ends where thick steam pipes ran through still exist (Photo 13). A number of ground-level open pits, some of which are as deep as twenty feet, are located near the Eastern wall; these pits once led to the inlet and outlet tunnels underground (Historical View/Figure 12) where Hudson River condensing water had been brought in and later expelled [Note: it is not known whether the two intake tunnels that led out of the building, under the earth and into the Hudson River remain intact]. The condition of the three Generator Room mezzanine levels located at the North end is fair: the 4 foot-thick

(Description continued)

concrete slabs on the first floor are partially torn due to equipment removal; and the second and third floor concrete slabs are intact save for a few small holes. Debris, consisting of capsized doors, broken concrete, and assorted PATH equipment supplies and garbage, is profusely scattered throughout. Most steel floor plating has been removed, particularly those plates situated on the mezzanine walkways that levitate above the atrium. A small freight elevator shaft located in the Northeast area near a stairwell, although inoperable, is in good condition. Bathrooms, located on each floor near the freight elevator, have been vandalized and stripped of porcelain and marble fixtures; they have also suffered heavy water damage and corrosion (Ammann & Whitney, pgs. 21-22; 24).

On the South side (Boiler Room) more wall/floor damage and deterioration is apparent due to the widespread rough removal of equipment as well as due to the extensive deterioration of the Central and Southern roof areas. Whole concrete slab sections on all three floors have been destroyed during equipment removal. On the first and second floors, near the Eastern face and Coal Tower, smaller rooms are water-damaged. The basement floor is unpaved and heavily heaped with debris (Ammann & Whitney, pgs. 4; 5; 23; 26).

All four stairwells have corroded considerably due to their proximity to open windows and are partially or entirely unusable; they've also been victim to vandals. Marble steps and platforms have been stolen or smashed; wrought iron railings, treads and risers have rusted and weakened. Inner brick facing within these vicinities is intact; however, the glazed wall tiling has been stripped or damaged. The Northeast stairwell is the only usable stairwell; it leads from the basement to the third floor where, by crossing the mezzanine to the Northwest stairwell one may gain access to the roof. All other stairwells are deemed unsafe (Ammann & Whitney, pg. 8; 19; 23).

The lack of extensive outer brick wall cracking, and the absence of vertical/horizontal displacement among concrete floors and steel frames, indicate that the vast foundation of the Powerhouse is astoundingly sound.

Overall, the 1984 structural study found the interior of the Powerhouse to be structurally sound, especially for a building so prominently located in a harsh environmental area (Ammann & Whitney, pgs. 30-31).

STATEMENT OF SIGNIFICANCE

The Powerhouse qualifies for the National Register for Historic Places based on the following criterion: Criterion A; Criterion B; and Criterion C. The Powerhouse's Areas of Significance consist of the following: Architecture; Engineering; and Transportation. From 1908 until 1929 the coal-powered, steam-generating Powerhouse energized the Hudson & Manhattan Railroad Company's "Hudson Tunnels," a new rapid transit system that physically connected, for the first time, New Jersey with New York (Carleton, pg. 126). The Powerhouse, designed by John Oakman of the architectural firm of Robins & Oakman, and engineered by the firm of L.B. Stillwell, illuminated this entire subway system (now part of the Port Authority Trans-Hudson Corporation), whose fabled origins stretch back to 1874, and which was deemed to be one of the greatest large-scale engineering feats of that era (the American Society of Civil Engineers designated the Hudson Tunnels a National Civil Engineering Landmark on October 31, 1978). The Powerhouse provided constant power to the Hudson & Manhattan Railroad's numerous tunnel lines, trolleys, stations and terminals on both sides of the Hudson River, including the Hudson Terminal in New York City, at that time the world's largest office and train terminal complex. William G. McAdoo, a visionary lawyer who emerged from the South virtually penniless, and who would go on to become the Secretary of the Treasury under President Woodrow Wilson, was able to convince a group of famous financiers to invest in what was deemed a necessary (and of course lucrative) form of transportation.

The Powerhouse was perceived by William G. McAdoo as his remarkable system's New Jersey centerpiece, as if it were one of the ornamental train/ferry depots that dotted the Hudson County waterfront; its architectural beauty and engineering majesty, quite unheard of for a powerhouse, mirrored and celebrated the miraculous system that ran beneath city streets, bedrock, clay, and water, as well as above street level in some areas of Jersey City, Harrison and Newark.

The citizens of Jersey City regarded the Powerhouse as highly as other "City Beautiful" monuments being built on their land during the same period: the Hudson County Court House, the new High School, the United States Post Office, the City Hospital, and All Saint's Church, among many others. Yet the Powerhouse, although on the same ornamental scale, was intentionally different; it unapologetically lacked rows of thick Corinthian columns, winged flagstones, or colossal statuary. Facing the Hudson River, it made its own architectural statement. Its irregular shape and large soldiered windows suggested that of a church. Its crowned smokestacks were its spires; its curved tower its steeple.

The Powerhouse would never have been conceived and constructed (nor, for that matter, would the Hudson & Manhattan Railroad Company and its mass transit system) if it weren't for

(Significance continued)

events that transpired in the late 19th century and early 20th century. In the mid 1860's political and business officials in New York and New Jersey, two extremely populated industrial areas, were calling for a "subaqueous" or underwater rail tunnel under the wide Hudson River, whose waters were increasingly congested with sluggish ferryboats (Fitzherbert, pg. 1; Carleton, pg. 7). A more convenient, quicker means of transportation was necessary for further economic and physical growth. Wealthy businessmen and institutions with regional interests in mind were more than willing to finance such an engineering endeavor, which was already proven possible by two successful tunnels under England's famed Thames River. As luck would have it, a man named DeWitt Clinton Haskins, who had had considerable experience building railroads and tunnels on the West coast, arrived in New York with a sensational dream: to connect New York to New Jersey using a vast compressed-air tunnel under the mile-wide Hudson River (White, pgs. 17-18). Haskins must have been surprised at how easily investors accepted his proposal and dug deeply into their pockets. Despite some doubts, this complete stranger to the area was able to raise an astounding $10,000,000 with which he promptly formed the Hudson Tunnel Railroad Company (Fitzherbert, pg. 1).

Shortly thereafter, in November, 1874, an adventurous team of "sandhogs" started the sinking of the planned system's shaft at the foot of 15th Street in Jersey City. But Haskins's endeavor was suddenly stopped by the powerful Lackawanna Railroad, which obtained an injunction against him with the absurd argument that a river tunnel would seriously cripple the railroad and ferry industries (White, pg. 18). Five years later, in September of 1879, the digging resumed. The shaft was sunk an amazing sixty feet below the sandy surface, but not without difficulties. Haskins relied on air pressure alone to keep the river's mighty silt at bay until masons could construct a brick shield lining, but an awful accident occurred before Haskins could realize his massive mistake: on July 21, 1880, the river suddenly crashed through the bored tunnel, instantly drowning twenty workers. Despite this tragedy, the digging went on for two more years until 1882 when Haskins's investors withdrew. After several brief episodes of renewed financing and consequent withdrawals, Haskins abandoned his 2000-foot tunnel. In 1890, several English businessmen sent a famous English civil engineer, Sir Benjamin Baker, to look into the possibility of continuing the work. After Baker informed them that he would like to resume digging, but this time with the same shields used to reinforce the Thames River tunnels, the businessmen promptly commissioned the renowned English contractor, Pearson & Sons, and teams of sandhogs. Excellent progress was made; however, only 1600 feet needed to be finished in the "North" tube when a

(Significance continued)

financial crisis suddenly crippled the English investors. Work ceased once again, and the tunnel flooded (White, pgs. 18-20).

In 1892, William G. McAdoo, a young Southern lawyer, moved to New York with his own lofty idea of building an electric rail tunnel under the Hudson River (his only rail experience included the semi-electrification of the Knoxville, Tennessee Railroad). By sheer chance McAdoo became acquainted with another lawyer, John Dos Passos (note: it is not known if he was related to John Dos Passos, the writer) who just happened to be president of DeWitt Haskins's defunct Hudson Tunnel Railroad Company. After hearing McAdoo's prodigious idea, Dos Passos introduced him to Charles Jacobs, of the renowned engineering firm of Jacobs & Davies, who had come to America with Pearson & Sons to work on the first tunnel with Haskins. Jacobs had the abandoned tunnel at the foot of 15th Street drained of sea water and informed McAdoo that the tunnel was in excellent condition. McAdoo, forming and presiding over a new company, the New York and New Jersey Tunnel Company, which would soon join with other interested companies to become the singular Hudson & Manhattan Railroad Company, was able to raise sufficient funds to complete the tunnel. Finally, after more than a decade, work resumed in 1902. As soon as the North tube was "holed" through on March 11, 1904, McAdoo was summoned from his office by Chief Engineer Jacobs; they hurried through the tunnel and emerged from the shaft near Christopher Street. On September 24, 1905, the South tube was completed (Fitzherbert, pg. 2). Interest in the "McAdoo Tunnel," or "Hudson Tubes," as they were sometimes called, swelled throughout the region, particularly in Jersey City, which banked on the tunnels' financial rewards. While other excavations on the tunnel line proceeded (along a long stretch of Sixth Avenue in Manhattan; from Exchange Place in Jersey City to the rising Hudson Terminals at Cortlandt Street; and from Grove Street to Newark), McAdoo fueled the Hudson & Manhattan Railroad Company with new, powerful investors: Pliny Fisk, Cornelius Vanderbilt, and J.P.Morgan, among others (Fitzherbert, pg. 2; Carleton, pg. 8). Soon the company had $70,000,000 to bring McAdoo's vision to fruition—"unlimited money," as the *Evening Journal* wrote (Evening Journal, Oct. 19, 1906, pg. 10).

It was at this opulent point in time that the Hudson & Manhattan Railroad Company hired the new architectural firm of Robins & Oakman to design several of the system's sub-stations, as well as the necessary powerhouse. The architects, of 27 East Twenty-second Street, New York, had previously designed simple, yet elegant, commissions, particularly brick and brownstone mansions in Manhattan and Massachusetts. This was the limited, though respectful scope of their work. But the firm's greatest architectural challenge was generously handed to them when they were commissioned to design the Hudson & Manhattan Railroad Company's powerhouse, in Jersey City,

(Significance continued)

New Jersey, along a busy bed of railroad and ferry depots. The proposed powerhouse was not to be a simple, quiet three-story brownstone mansion for a few top-hatted residents: it had to be vast, reaching, powerful, large, immense, beautiful, stunning; it had to be mighty enough to fuel and illuminate an entire subway system, including the gargantuan New York Terminal complex which when finished would be the world's largest office/subway complex (it was demolished in the late sixties to make way for the World Trade Center). As K.B. Conger, Secretary of the Hudson & Manhattan Railroad Company, shouted to a reporter: "You can now realize how necessary it is for us to have that big power station over in Jersey City. We will depend upon Jersey City to furnish the motive power for the big enterprises which the Hudson Companies are now hustling to put in operation at the earliest possible date (Evening Journal, Nov 21, 1906, pg. 1)."

The architect, John Oakman, formerly of the architectural firm of Carrere & Hastings, perhaps recognized this as an opportunity by which to explore certain elements of classical architecture. But this was a powerhouse, an industrial building, not a civic center. No great slabs of sparkling granite from the famed quarries of nearby Pompton would be cut; no cylindrical mounds of smoked marble from the mountains of Vermont would find their way here. Bright sculpted boulders would have to be shunned, replaced by simple brick and steel: two key elements in industrial architecture. Of course this shunning of sorts helped to heighten the architectural and engineering challenge. Instead Oakman would create classical architectural shapes (Romanesque windows, Greek crosses, pillared arcades) brick by brick: each one mathematically arranged, perfectly stacked, precisely positioned, on a scale rarely seen before. The Powerhouse's erection and electrical machinery carried a total cost of four million dollars. As the *Evening Journal* wrote:

> *The power house when completed and fitted with all its equipments will be a place well worth the scrutiny of all who are interested in electrical power transmitting appliances. Dynamos of colossal size are to be installed and the driving wheels will be the largest of their kind in the United States. The leather belting will be in proportion. The house will be a veritable show place because of its great size and the vast amount of the latest improved electrical machinery it will contain. As far as human ingenuity can devise the plant will be such as to reduce to a minimum any chance of a general breakdown (Evening Journal, Oct. 6, 1906, pg. 3).*

Also hired was the renowned engineering firm of L.B. Stillwell. John Van Vleck, who worked in Stillwell's office, designed the steel framework of the Powerhouse; Hugh Hazelton, of

(Significance continued)

the same firm, designed the electrical machinery (Electric Railway Journal, pg. 392). Of course the *Evening Journal*, a trusted champion of Jersey City's architectural development, highly praised the Powerhouse throughout its phenomenal erection, sharing its impressive engineering qualities:

> *The power house which is being erected for the Hudson Companies on the block bounded by Washington, Greene, Bay and First streets will not only be the biggest structure of its kind in New Jersey, but will in addition possess features not found in any other power house in the country...*
> *Aside from the engineering features, there are other things about this structure that will interest even the layman. To begin with, it will be a power house "de luxe," so to speak, for it will be provided with porcelain enameled lavatories and bath tubs, also shower baths, for the comfort of the workmen. The interior walls will be covered with white tile.*
> *Having started to reverse the usual order of things by taking people under the river instead of over it, the Hudson Companies will also turn things upside down at the power house, at least so far as the coal supply is concerned. The coal bins, instead of being in the basement or cellar, will be on the roof, 90 feet from the ground, and the coal will be fed automatically, by a gravity system, to the furnaces. The coal will be brought in freight cars to the door of the building and will be dumped so that it can be picked up by belt conveyors and carried to the bunkers on the upper floor. From there it will be fed automatically to the furnaces, so that at no stage of the proceedings will it be touched by the hand of man. It will be a power house without coal heavers.*
> *The building will be as thoroughly fireproof as it is possible to make it. The facade will be constructed of selected red brick, and all doors and window frames will be of metal. No combustible material will be used in the construction. The immense skylight, which will run the full length of the building, thus giving an abundance of light, will be of copper-covered metal work. Every window in the structure will be fitted with fireproof wire glass.*
> *The boiler house is designed to accommodate 16 water-tube safety boilers, each having 9,000 square feet of effective heating surface, or 900 horsepower, as customarily rated. These boilers will be larger than any that have heretofore been used in this country. The boiler settings will be encased in steel, and all door*

(Significance continued)

> *openings into these casings will be made air tight by the employment of details of construction that are quite new to American engineering practice. The boilers will be supplied with superheating apparatus, and all piping and valves will be specially constructed for use in connection with superheated steam.*
> *For each 6,000 kilowatts of generating capacity four boilers will be provided, and for each set of four boilers one chimney will be provided, by which the design of the plant will be developed on what is called the unit, or sectional, basis. The chimneys are to be constructed of heavy steel plate lined with brick. The lining will be eight inches thick and will be erected in self-supporting sections, by which plan any section of the lining can be renewed or repaired without disturbing the other sections. The inside diameter of each chimney will be 10 feet 6 inches. The chimneys will rise to a point 175 feet above the sidewalk. The chimneys will also present a novelty in form of construction, for instead of running to the ground level they will be supported upon steel columns. This will permit of the space under the chimneys being utilized for other purposes.*
> *The turbo-generators will be operated condensing, with water taken from the Hudson River. These turbo-generators will be of the vertical shaft type, representing the latest improvements in turbine construction. In short, the plant will incorporate all that is best in the engineering art for the attainment of maximum reliability along with economy of production.*
> *The steelwork included in the building will be of special construction, due to the increased size of boiler employed, along with their superimposed economizers, which necessitated spans of more than ordinary length. Four thousand tons of steel will be used in the construction of the building...(Evening Journal, Dec. 3, 1906, pg. 16)*

In early 1908 the Hudson & Manhattan Railroad tested the tunnels by loading train cars with sandbags to simulate the weight of passenger-filled cars. Reporters were also whisked through the tunnels for promotional purposes, and the day before the official opening the *Evening Journal* printed a special "Tunnel Edition" to commemorate what was already deemed an historic day in Jersey City. Finally, on Tuesday, February 25, 1908, a crowd of invited dignitaries and reporters, including New Jersey Governor John Franklin Fort and New York Governor Charles E. Hughes, gathered in the darkened 19th Street station, in Manhattan, for a first-run to the Hoboken terminal in New Jersey. Among the crowd was a central telegraph operator, who signaled President Theodore Roosevelt at

(Significance continued)

his desk in the White House, who in turn sent a signal to the Powerhouse, thereby igniting the entire system and setting off jubilant shouts and cheers (Fitzherbert, pgs. 2-3). The *New York Times* commented:

> *The opening marked the realization of a dream which has occupied the minds of engineers for nearly half a century. It is conceded to be one of the greatest engineering feats that has ever been accomplished, greater perhaps than the Panama Canal will be when completed, considering the obstacles which had to be overcome (New York Times, Feb. 26, 1908, pg. 1).*

Although not present for the opening ceremonies, President Theodore Roosevelt sent a letter to be read aloud:

> *My Dear Mr. McAdoo: Now that a beginning is to be made in opening for operation the Hudson tunnel system I write to express my regret that I cannot be present in person and my high appreciation of what you have accomplished. The tunnelling of the Hudson River is indeed a notable achievement–one of those achievements of which all Americans should be proud. The tunnel itself and the great buildings constructed in connection therewith represent the work of extraordinary magnitude, represent extraordinary difficulties successfully overcome, while the difficulty and magnitude are even surpassed by the usefulness of the achievement. The whole system is practically below tidal water, and this makes it the greatest subaqueous tunnel in the world. It is a bigger undertaking than any Alpine tunnel which has yet been constructed, and the successful completion represents moving New Jersey bodily three miles nearer to New York in point of time, and immensely increases the case of access from one state to the other. All the engineers and business men who have taken part in bringing this great achievement to a successful conclusion are to be congratulated. It is the kind of business achievement which is in the highest degree creditable to the American people, and for which the American people should feel and publicly acknowledge their hearty gratitude.*
> *Sincerely yours, Theodore Roosevelt (New York Times, Feb. 26, 1908, pgs. 1-2).*

The Hudson & Manhattan Railroad's Hudson Tunnels were predicted to be financially rewarding to Northern and even Central New Jersey—and Hudson County's waterfront

(Significance continued)

municipalities, particularly Jersey City and Hoboken, were the main beneficiaries of this prediction. Merchants in both Hudson County and Manhattan took out extensive newspaper advertisements, hailing the convenience that the new system would bring shoppers. The Hudson County real estate market bloomed:

> *The island of Manhattan will be linked to the rest of the continent by the greatest system of subaqueous tunnels in the world. The method of travel will be revolutionized, for then the ferryboat will cease to be the only means of communication between New York and Jersey City. The importance of this to Jersey City can hardly be told in type, for the linking of Jersey City to the metropolis of the Western hemisphere by means of the river tunnels will practically make this city a part of the big city across the river. Even the most optimistic will be at a loss to figure the tremendous advantage this will be to Jersey City. What its effect will be upon Jersey City real estate can in a measure be estimated by what already has taken place, for no one familiar with the real estate conditions here will dispute the fact that the steady rise in real estate values during the past year or two has been due to the tunnels. (Evening Journal, March 23, 1907, pg. 14).*

And:

> *Jersey City, the gateway to the Western world, enters the real estate arena...Is it any wonder that land in Jersey City is in demand or that the opening of the McAdoo tunnels under the Hudson River will bring to this municipality thousands of homeseekers and hundreds of manufacturing corporations and perfect the era of prosperity that has been increasing with every passing cycle of time? (Evening Journal, April 3, 1907, pg. 16)*

Sadly, the Powerhouse was shut down and abandoned in 1929 (precise reasons for this have not been determined as of this writing). Electricity was eventually purchased from outside sources and sent to the system's sub-stations (Carleton, pg. 126). The Hudson & Manhattan Railroad Company continued to operate and maintain the Hudson Tunnels until 1962 when it filed for bankruptcy and was taken over by the Port Authority of New York &

(Significance continued)

New Jersey, which then created the Port Authority Trans-Hudson Corporation (PATH) to run the newly-acquired subway system. Since this acquisition, the expensive, state-of-the-art electrical machinery inside the Powerhouse has been dismantled and sold as scrap (Gray, NY Times, Nov. 18, 1990, pg. 6). The exterior PATH transformer yard was probably added in the early sixties when the system was taken over.

Although abandoned and neglected for precisely seventy years, the Powerhouse is still virtually the same bold industrial building that rose on the Left Bank of the Hudson River. Its unique design and architectural elements, particularly its splendid, intricate brickwork, are highly regarded by architects and historians. Christopher Gray, the architectural history columnist of the New York Times, captured its essence perfectly when he wrote that the Powerhouse is a "masterpiece of brickwork...it is like some ancient, partly ruined cathedral." (Gray, NY Times, Nov. 18, 1990, pg. 6).

NARRATIVE DESCRIPTION BIBLIOGRAPHY

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The Evening Journal (Microfilm): "Rushing Work On River Tunnels," Oct. 6, 1906; "Bayonne Firm Will Supply Record Boilers," Dec. 10, 1906; "Tunnel Station Here Almost Ready," Feb. 12, 1907.

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Carleton, Paul. The Hudson & Manhattan Railroad Revisited. Dunnellon, Florida: D. Carleton Railbooks, 1990.

The Evening Journal (Microfilm): "The Present Tunnels Are Only the Beginning," Oct. 19, 1906; "McAdoo Tunnel and the World's Biggest Office Building To Be Operated Entirely From the Immense Power Plant To Be Located Here," Nov. 21, 1906; "Jersey City Power House For Hudson Tunnels Company," Dec. 3, 1906; "New Warehouse For Machinery Centre Here," March 23, 1907; "Real Estate," April 3, 1907.

Fitzherbert, Anthony. "The Public Be Pleased: William G. McAdoo and the Hudson Tubes." Electric Railroaders Association: June, 1964 (derived from www.nycsubway.org).

Gray, Christopher. "The Hudson Tubes Powerhouse: A Majestic, Aging Giant." The New York Times: November 18, 1990.

Hazelton, Hugh. "Power Station of the Hudson & Manhattan Railroad." Electric Railway Journal: March 5, 1910.

The New York Times (Microfilm): "Trolley Tunnel Open To Jersey," Feb 26, 1908.

White, Edward and Muriel. Famous Subways and Tunnels of the World. New York: Random House, Inc., 1953.

VERBAL BOUNDARY DESCRIPTION:

The property being nominated is comprised of Lots H7. and H.6 in Block 76 as shown on the City of Jersey City Tax Map, Hudson County, New Jersey. These two properties, taken together, are bounded on the north by First Street, on the west by Washington Boulevard, on the south by Bay Street and on the east and northeast by Lot PL.1 (0.4559 acres; owned by Cali Harborside Associates., 11 Commerce Drive, Cranford, NJ 07016) as shown in the Hudson County Register of Deeds, Book 5062, Page 316, dated 10/28 /96.

Lot H.6 is owned by the Port Authority of New York & New Jersey (One World Trade Center, New York, NY 10048). The following metes and bounds for this property are from a deed dated 12/31/61, Book 2893, Page 488, Hudson County Register of Deeds:

All those certain lots, tracts or parcels of land and premises, and the buildings and improvements thereon, situate, lying and being in the City of Jersey City, County of Hudson, and State of New Jersey, bounded and described as follows:

Beginning at the point of intersection of the northerly side of Bay Street with the easterly side of Washington Street thence (1) easterly along the northerly side of Bay Street a distance of one hundred twenty-two (122) feet to a line of lands heretofore conveyed by Hudson and Manhattan Railroad Company to Investment Associates of New Jersey, Inc.; thence (2) northerly along the westerly boundary of the lands of Investment Associates of New Jersey, Inc., a distance of one hundred twenty-three and fifty-eight one hundredths feet (123.58) feet to a point; thence (3) easterly along the northerly boundary of the lands of Investment Associates of New Jersey, Inc., a distance of two hundred twenty-eight and sixty-five one hundredths (228.65) feet to the lands now or formerly of Pennsylvania Railroad Company; thence (4) in a generally northwesterly direction along the line of lands of Pennsylvania Railroad Company a distance of two hundred one and twenty-five one hundredths (201.25) feet more or less to a point on the southerly side of First Street which point is distant one hundred fifty (150) feet more or less from the westerly side of Greene street; thence (5) westerly along the southerly side of First Street a distance of two hundred fifty-two and twenty-two one-hundredths (252.22) feet to the intersection of said southerly side of First Street with the Easterly side of Washington Street; thence (6) southerly along the easterly side of Washington Street a distance of two-hundred twelve and fifty one hundredths (212.50) feet to the point or place of beginning.

Lot H7. is owned by the City of Jersey City (280 Grove St, Jersey City, NJ 07302). The following metes and bounds for this property are from a deed dated 1/6/55, Book 2624, Page 370, Hudson County Register of Deeds:

(Verbal Boundary Description continued)

Beginning at a point on the northerly side of Bay Street one hundred twenty-two (122) feet east of the easterly side of Washington Street; thence easterly along the northerly side of Bay Street a distance of two hundred eighty and thirty-six one-hundredths (280.36) feet to the westerly side of Greene Street; thence northerly along the westerly side of Greene Street, which side makes an interior angle of ninety (90) degrees, seventeen (17) minutes with the northerly side of Bay Street, a distance of seventy-three and forty-one one hundredths (73.41) feet; thence northwesterly along a line making an interior angle of one hundred thirty-three (133) degrees, thirty-nine (39) minutes with the westerly side of Greene Street, a distance of seventy-two and thirty-two one hundredths (72.32) feet; thence westerly along a line parallel to the northerly line of Bay Street and making an interior angle of one hundred thirty-six (136) degrees, four (4) minutes with the last described line, a distance of two hundred twenty-eight and sixty-five one hundredths (228.65) feet; thence southerly along a line making an interior angle of ninety (90) degrees with the last described line a distance of one hundred twenty-three and fifty-eight one hundredths (123.58) feet to the northerly side of Bay Street at the point or place of beginning, containing thirty-three thousand three hundred seventy-three (33,373) square feet of land.

Being known as Lot H-7 in City Block 76 on the Tax Duplicate of the City of Jersey City.

BOUNDARY JUSTIFICATION STATEMENT:

The boundaries of the entire area being nominated, comprised of Block 76 (Lots H7. and H.6), and with a total acreage of 1.755, have been determined by the above mentioned metes and bounds; they are also clearly illustrated on the City of Jersey City Tax Map, Block 76.

PHOTOGRAPHS

The following is the same for photographs 1-3; 5-12; 15-21

1: The Hudson & Manhattan Railroad Powerhouse
2: Hudson County, New Jersey
3: Leon Yost, Photographer
4: 1999
5: Negatives held by: Leon Yost, 223 York Street, Jersey City, NJ 07302
6: Exterior of Eastern Facade, looking West
7: Photo # 1 of 21

6: Exterior of Southern and Eastern Facades, looking Northwest
7: Photo # 2 of 21

6: Exterior of Southern Facade, looking North
7: Photo # 3 of 21

6: Exterior of Western and Northern Facades, showing PATH Transformer Yard attached to Western Wall, looking East
7: Photo # 5 of 21

6: Exterior of Northern and Western Facades, looking South
7: Photo # 6 of 21

6: Exterior of Eastern Facade, showing Coal Tower and Romanesque windows, looking Southwest
7: Photo # 7 of 21

6: Exterior of Eastern Facade, showing Coal Tower detail, looking West
7: Photo # 8 of 21

6: Exterior of Roof between Center and South Clerestories, showing smokestacks, looking West
7: Photo # 9 of 21

(Photographs continued)

6: Exterior of Roof, showing North Clerestory, parapet, balustrade, and ceramic tiles, looking East
7: Photo # 10 of 21

6: Exterior of Roof, Northeast corner, showing balustrade, ceramic tiles and framed view of Empire State Building, looking Northeast
7: Photo # 11 of 21

6: Interior of North Clerestory, with West Bay window partially visible below netting, looking West
7: Photo # 12 of 21

6: Interior of Generator Room, showing Control Panels, looking North
7: Photo # 15 of 21

6: Interior of Northwestern Stairwell, showing wrought-iron banisters and Romanesque window, looking North
7: Photo # 16 of 21

6: Interior of PATH Compressor Room, Southwest corner, with original steel beams visible, looking North
7: Photo # 17 of 21

6: Interior of Boiler Room, showing steel structure, Romanesque windows, and PATH Compressor Room cinderblock building, looking Southwest
7: Photo # 18 of 21

6: Interior of Boiler Room, showing steel structure and Romanesque windows, looking South
7: Photo # 19 of 21

6: Interior of Boiler Room, showing steel structure and coal bunkers, looking straight up
7: Photo # 20 of 21

6: Interior of Boiler Room, showing steel structure, looking Northeast
7: Photo # 21 of 21

(Photographs continued)

The following is the same for photographs 4; 13-14

1: The Hudson & Manhattan Railroad Powerhouse
2: Hudson County, New Jersey
3: John Bartelstone, Photographer
4: 1999
5: Negatives held by: John Bartelstone, 310 West 99th Street, New York, NY 10025
6: Exterior of Southern and Western Facades, showing PATH Transformer Yard attached to Western Wall, looking Northeast
7: Photo # 4 of 21

6: Interior of Generator Room, showing Traveling Crane, looking West
7: Photo # 13 of 21

6: Interior of Generator Room, showing Operating Gallery, looking West
7: Photo # 14 of 21

HISTORICAL VIEWS/FIGURES

The following is the same for Historical Views/Figures 1-12

1. Electric Railway Journal, March 5, 1910
2. View of Eastern and Northern Front
3. Historical View/Figure # 1 of 24

2. View of Eastern and Southern Front, showing Ground Coal Conveyor Belt and Coal House
3. Historical View/Figure # 2 of 24

2. View of Generator Room, showing Operating Gallery
3. Historical View/Figure # 3 of 24

2. View of Generator Room, showing Turbines and Dividing Wall
3. Historical View/Figure # 4 of 24

2. View of Base of Turbines, showing Indicators and Signal System
3. Historical View/Figure # 5 of 24

2. View of Sub-station # 2 under Operating Gallery, showing Converters
3. Historical View/Figure # 6 of 24

2. View of Control Panels in Operating Gallery
3. Historical View/Figure # 7 of 24

2. View of Roof Coal Conveyor Belt, showing Clerestory Walkway and Windows
3. Historical View/Figure # 8 of 24

2. View of Boilers, showing Romanesque Window
3. Historical View/Figure # 9 of 24

2. View of Engineering Plan, showing Eastern Front and Mechanical/Electrical Machinery
3. Historical View/Figure # 10 of 24

(Historical Views/Figures continued)

2. View of Engineering Plan, showing Coal/Ash Conveyor System
3. Historical View/Figure # 11 of 24

2. View of Intake Tunnel, Shaft and Conduit
3. Historical View/Figure # 12 of 24

The following is the same for Historical Views/Figures 13-23

1. Ammann & Whitney, Structural Integrity Study, 1984
2. Figure of East Elevation, showing Fenestration, Roof Clerestories and Smokestacks
3. Historical View/Figure # 13 of 24

2. Figure of South Elevation
3. Historical View/Figure # 14 of 24

2. Figure of West Elevation
3. Historical View/Figure # 15 of 24

2. Figure of North Elevation
3. Historical View/Figure # 16 of 24

2. Figure of Center and South Clerestories, showing framing details
3. Historical View/Figure # 17 of 24

2. Figure of North Clerestory, showing Roof Truss configuration
3. Historical View/Figure # 18 of 24

2. Figure of Cross Brace details
3. Historical View/Figure # 19 of 24

2. Figure of Lower Roof Truss details
3. Historical View/Figure # 20 of 24

(Historical Views/Figures continued)

2. Figure of Smokestack Hold-down details
3. Historical View/Figure # 21 of 24

2. Figure of North Side Framing details
3. Historical View/Figure # 22 of 24

2. Figure of Ground Floor layout
3. Historical View/Figure # 23 of 24

The following is the same for Historical View/Figure 24

1. Catalogue of 22nd Annual Exhibition of the Architectural League of New York, 1907
2. View of Eastern and Southern Fronts, showing smokestacks, piers and boats
3. Historical View/Figure # 24 of 24

Port Authority of New York and New Jersey
One world Trade Center
(212)435-8800; (201)216-6247
New York, NY 10048

Hudson Co. Vol. I

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SCALE OF FEET

See Volume Two Hudson County

14

WASHINGTON BLVD.

PORT AUTHORITY TRANS-HUDSON CORP. ELECTRICAL SWITCHING STA. ASSOC. RISK

SUB STA. (FROM) CONC. FL.

TRANSFORMER YARD

PROPERTY OF JERSEY CITY

HUDSON & MANHATTAN RAILROAD COMPANY POWERHOUSE

ST. CLOSED

BAY ST.

FIRST ST.

NOT OPEN

NO WATCHMAN

LOT # H7.

LOT # H.6

BLOCK 76

77

76

15

GREENE NOT OPEN

NOT OPEN

NOT OPEN

12

13

Hudson County

TWO

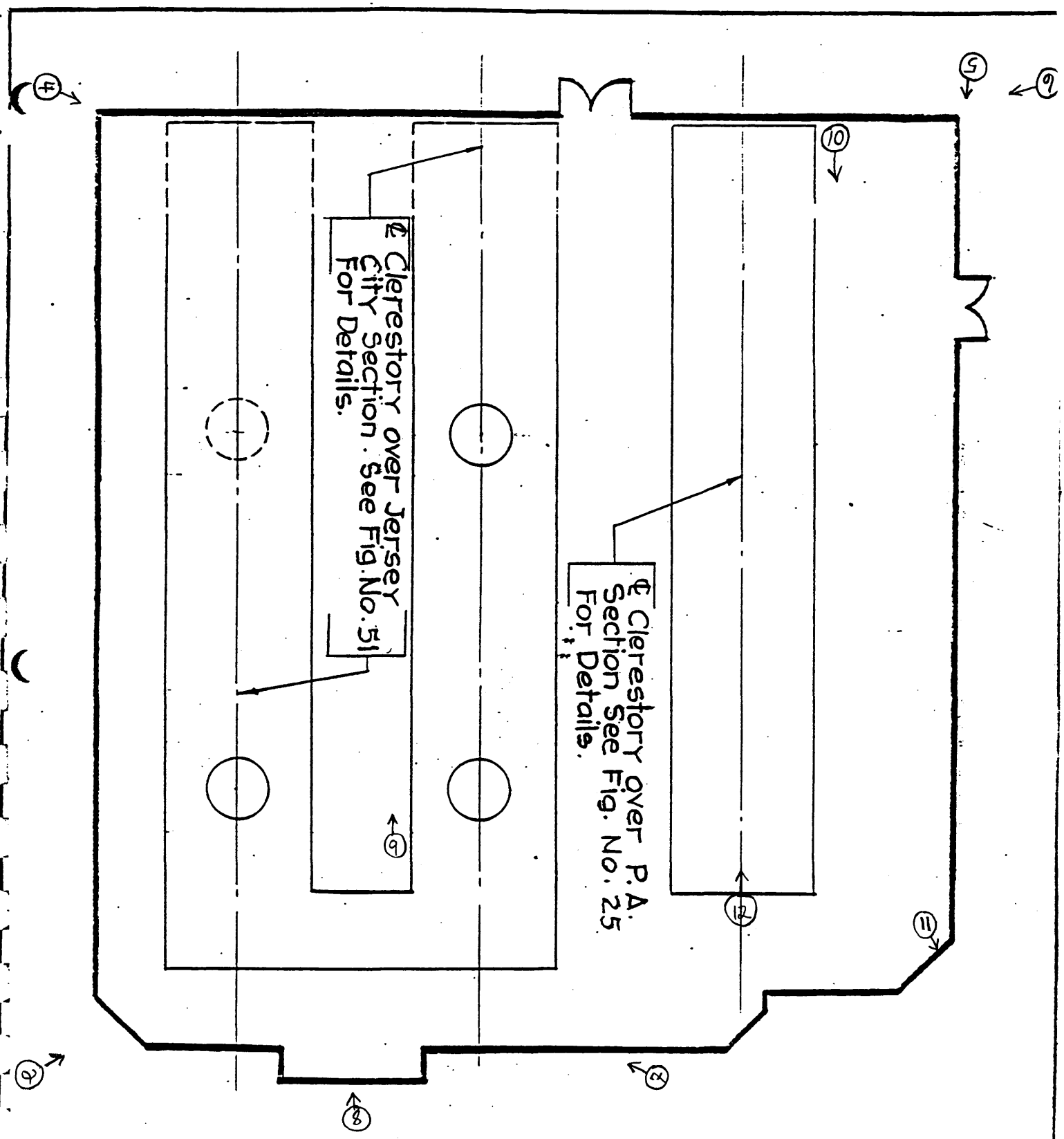
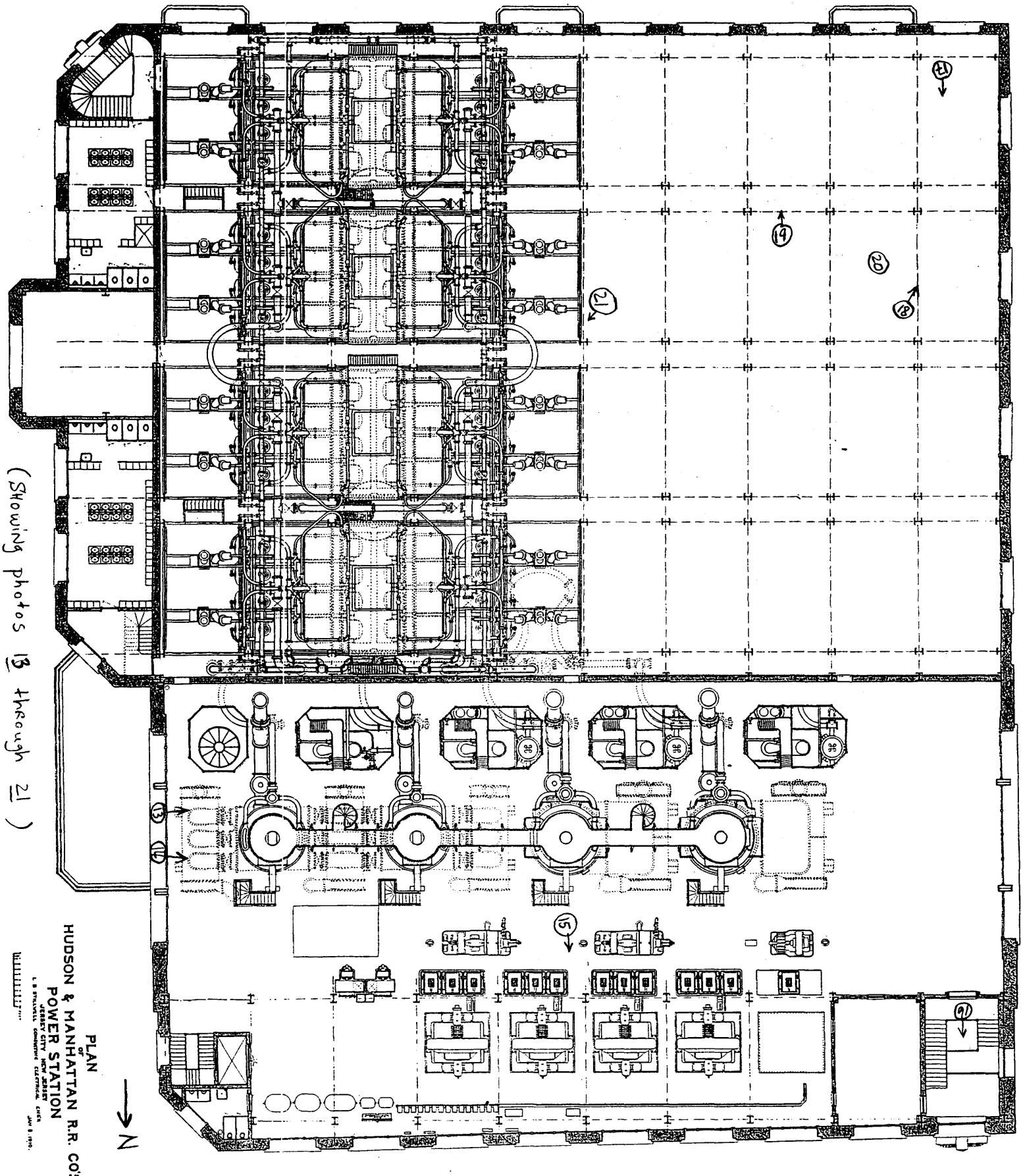


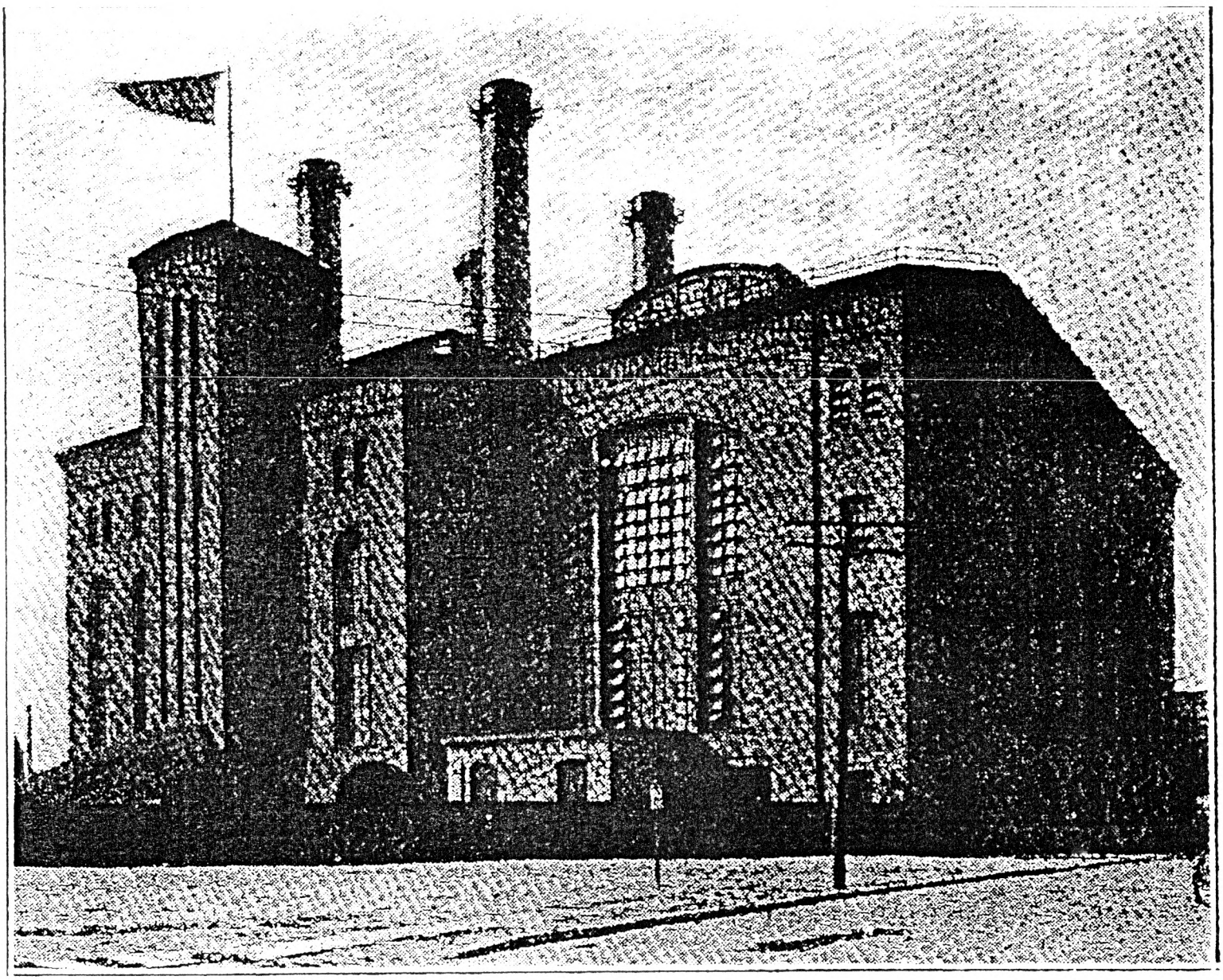
FIG. NO. 49

STRUCTURAL INTEGRITY INSPECTION AMMANN & WHITNEY 1984



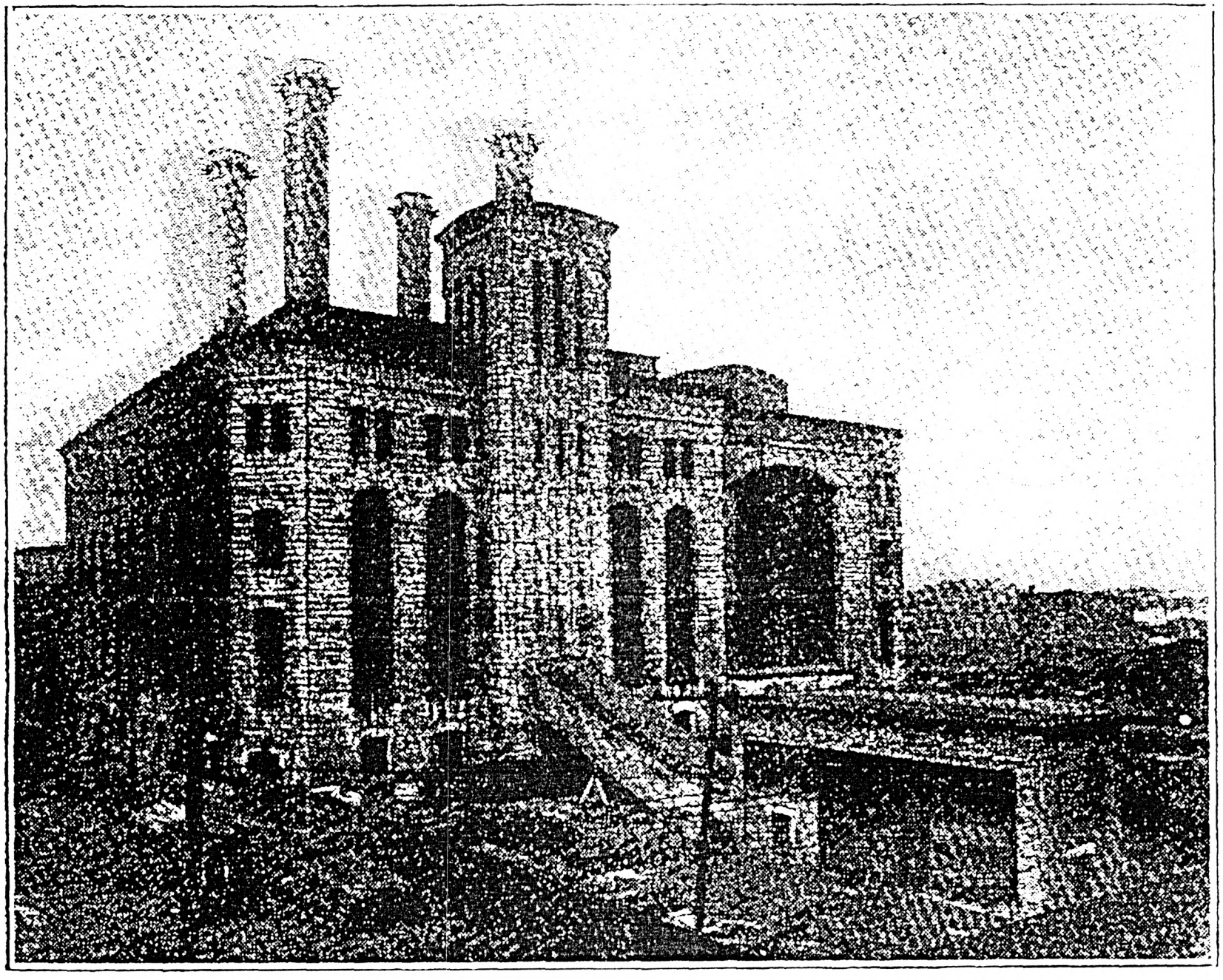
(showing photos 13 through 21)

ELECTRIC RAILWAY JOURNAL MARCH 5, 1910



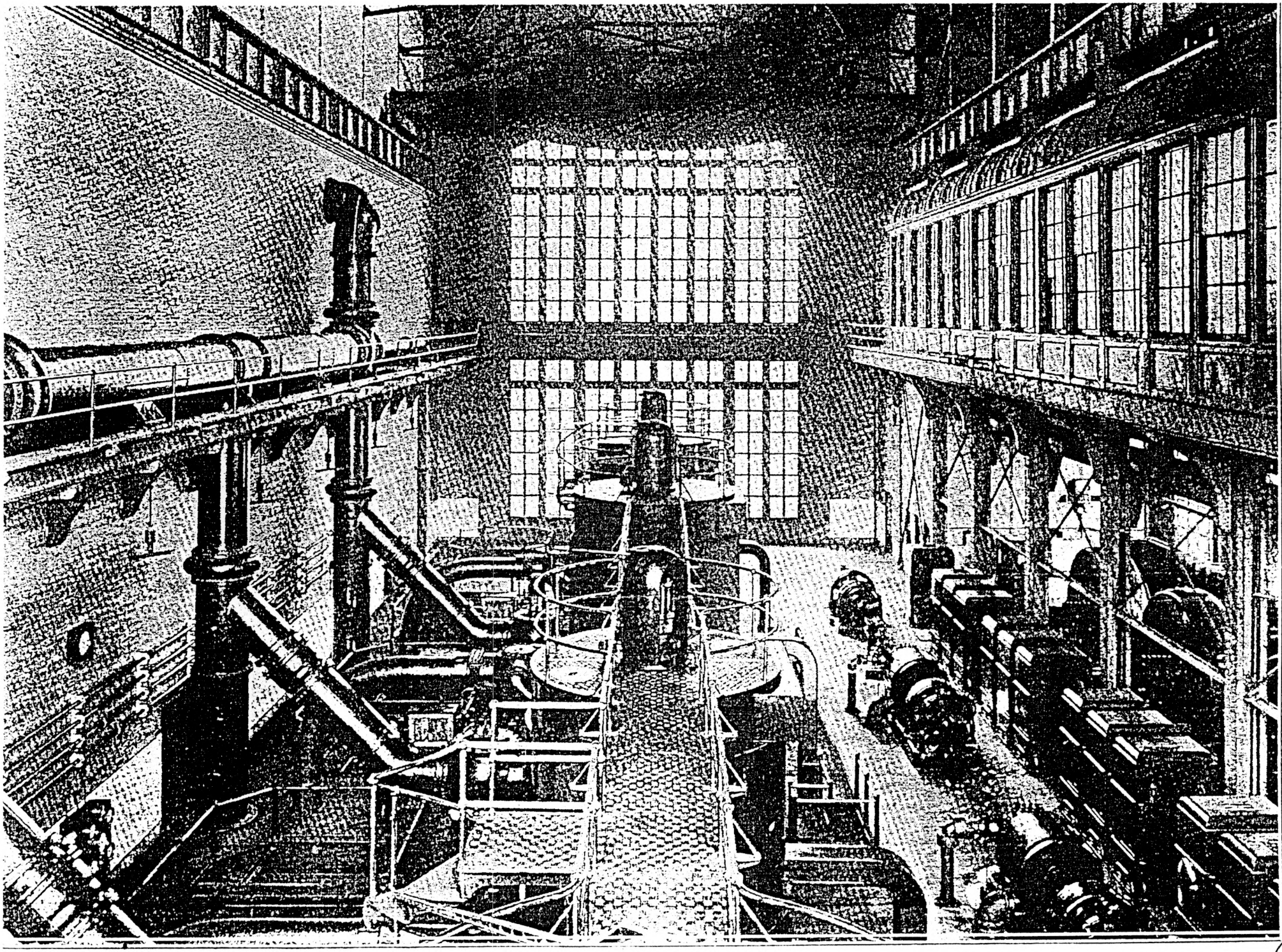
Hudson & Manhattan Railroad Power Station—Eastern and Northern Front

ELECTRIC RAILWAY JOURNAL MARCH 5, 1910



ELECTRIC RAILWAY JOURNAL MARCH 5, 1910

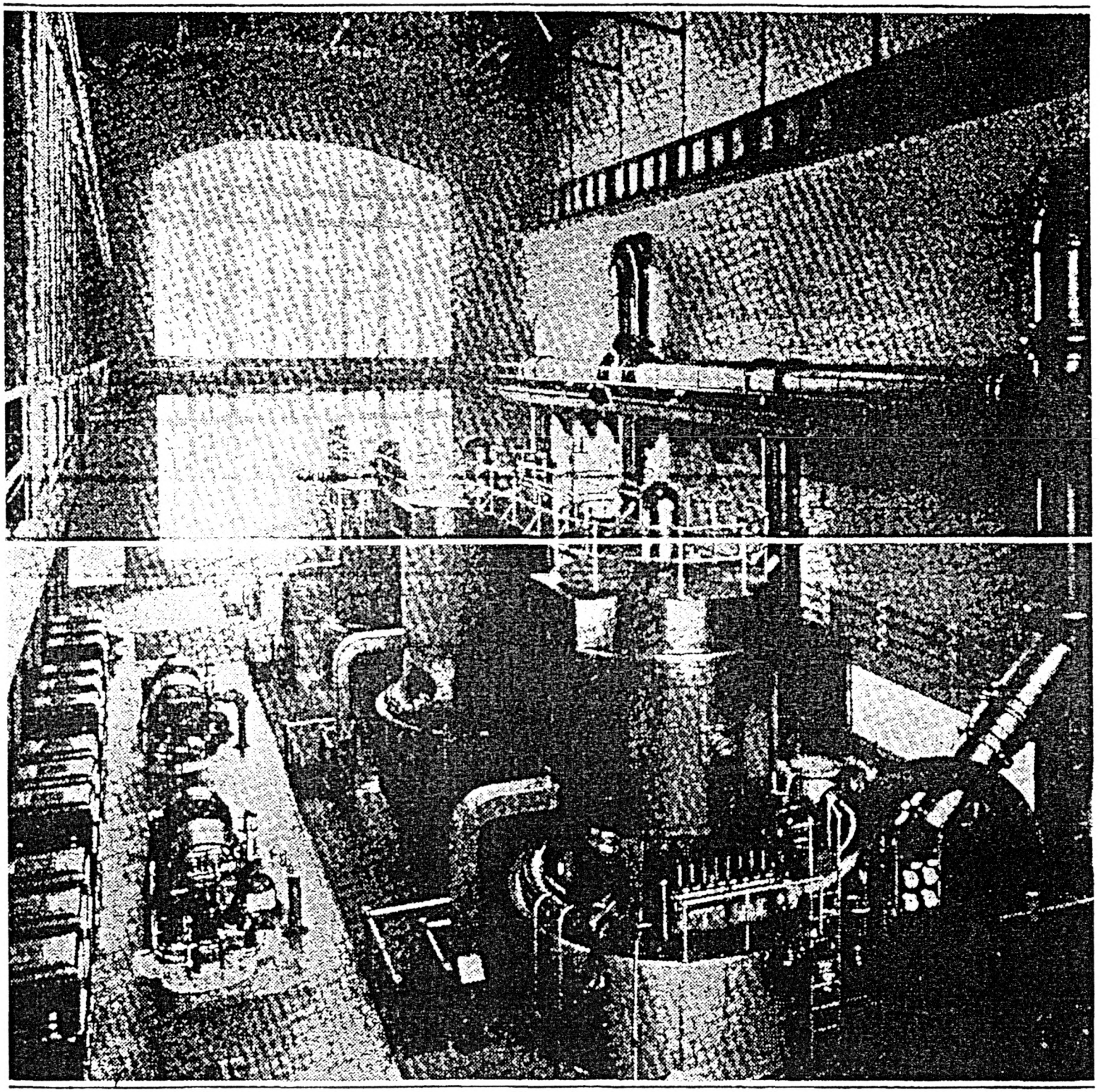
Hudson & Manhattan Railroad Power Station—Eastern and Southern Front



Hudson & Manhattan Railroad Power Station—Generator Room, Looking Toward Switchboard Gallery

ELECTRIC RAILWAY JOURNAL MARCH 5, 1910

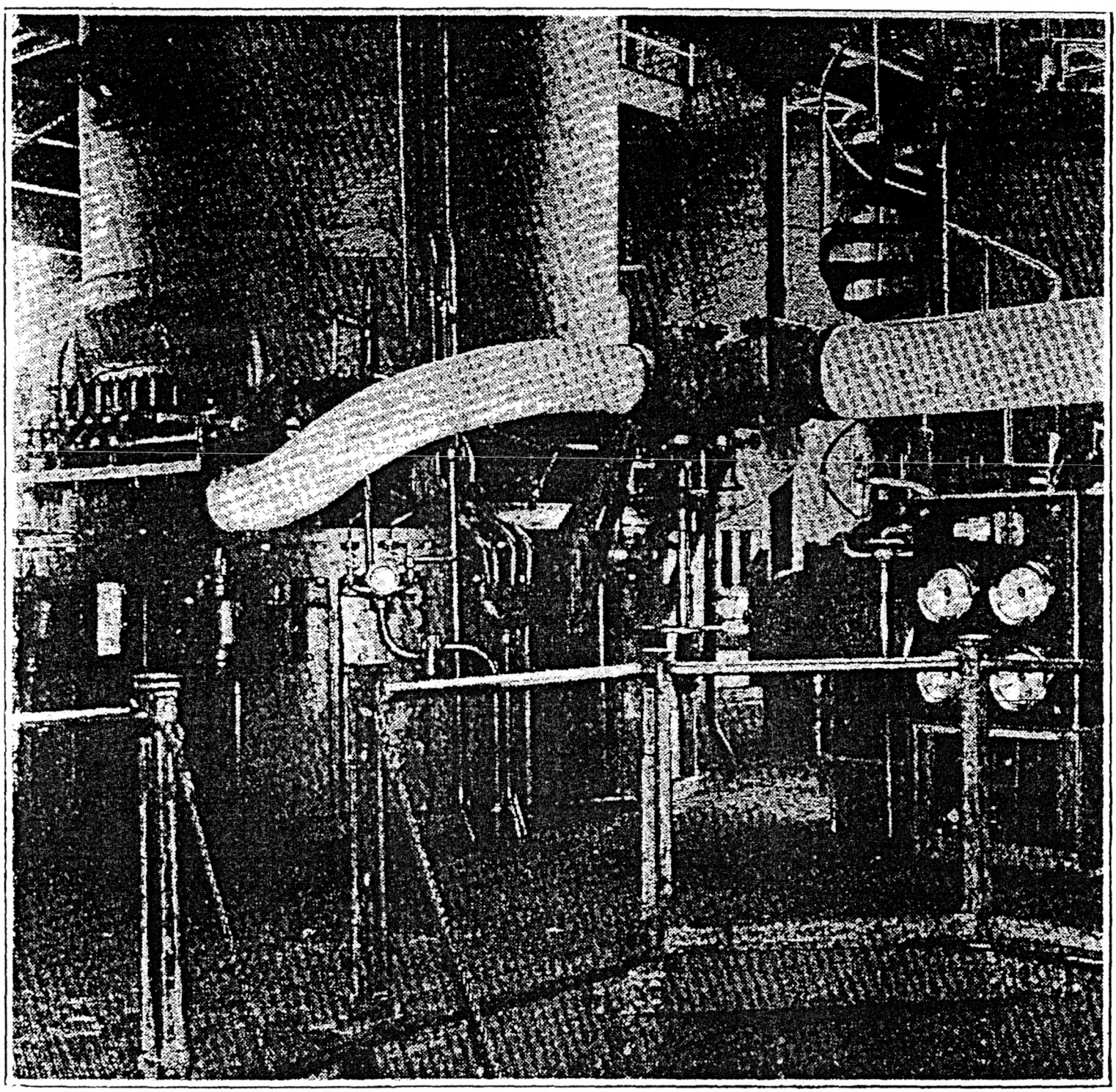
(3)



Hudson & Manhattan Railroad Power Station—Generator Room, Looking Toward Boiler Room

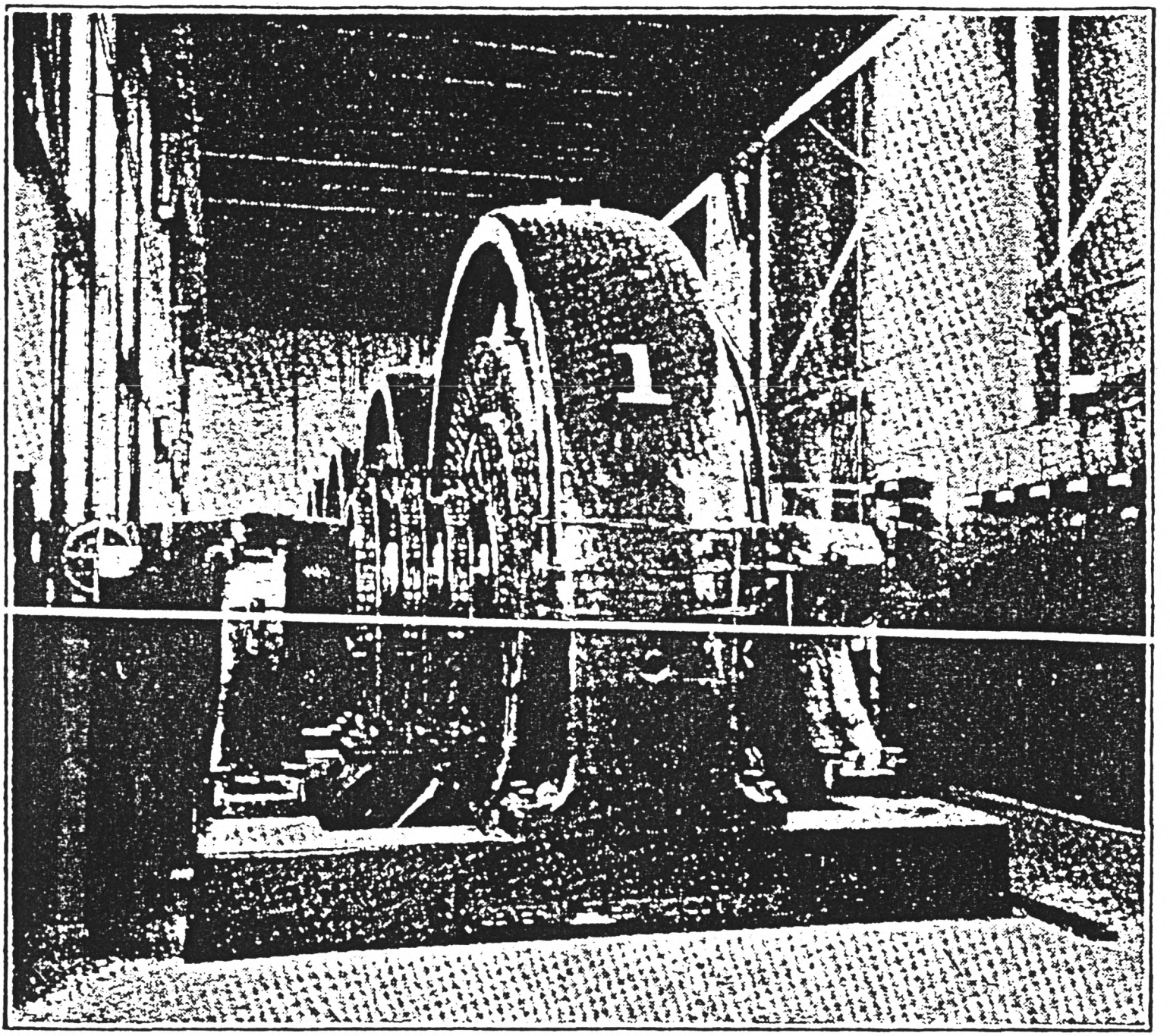
ELECTRIC RAILWAY JOURNAL MARCH 5 1910

(4



Hudson & Manhattan Railroad Power Station—Indicators for Signal System and Base of Turbines

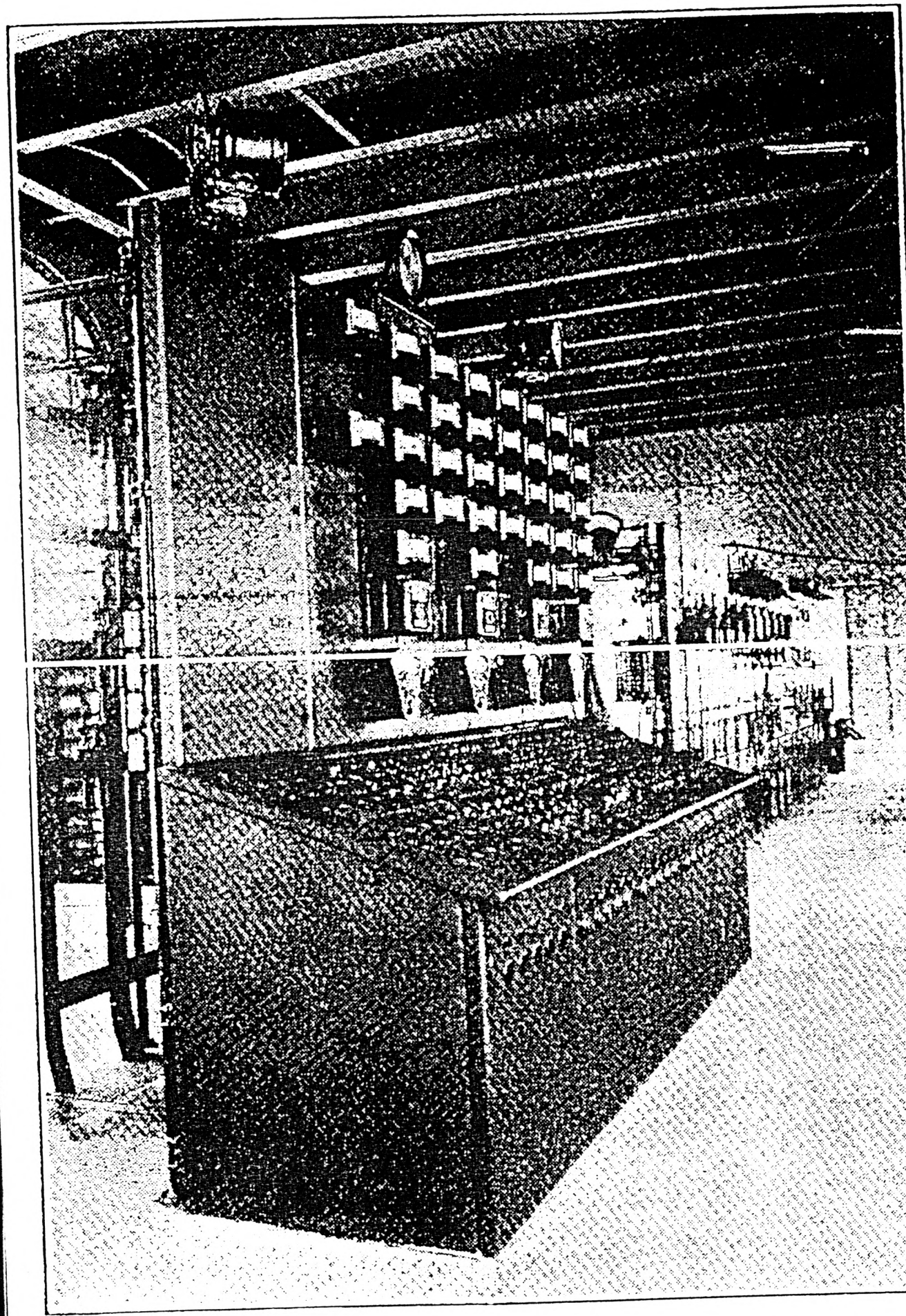
ELECTRIC RAILWAY JOURNAL MARCH 5, 1910



Hudson & Manhattan Railroad Power Station—View in Substation

ELECTRIC RAILWAY JOURNAL - MARCH 5, 1910

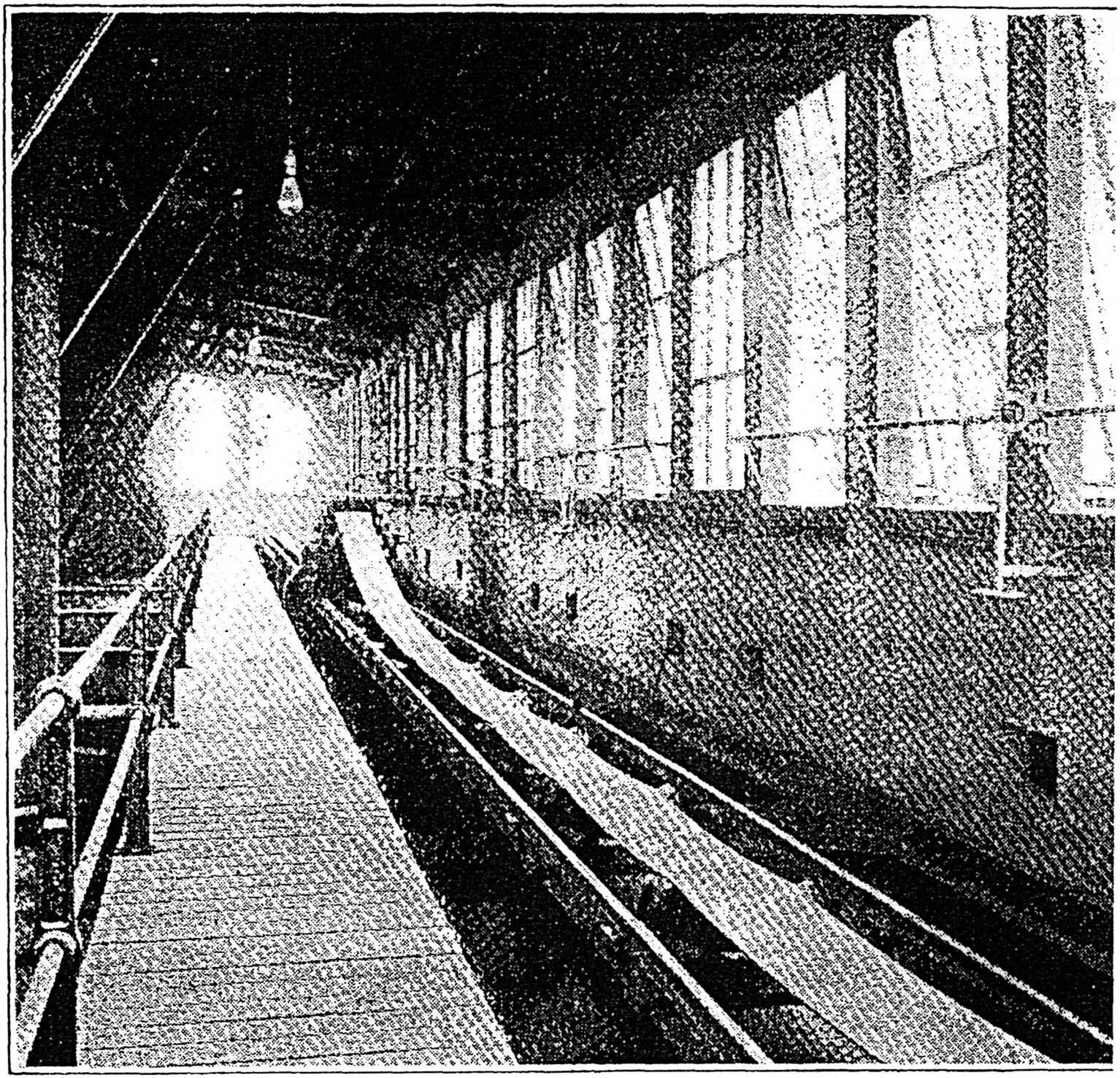
(6)



ELECTRIC RAILWAY JOURNAL MARCH 5, 1910

Hudson & Manhattan Railroad Power Station
—Remote Control Panel

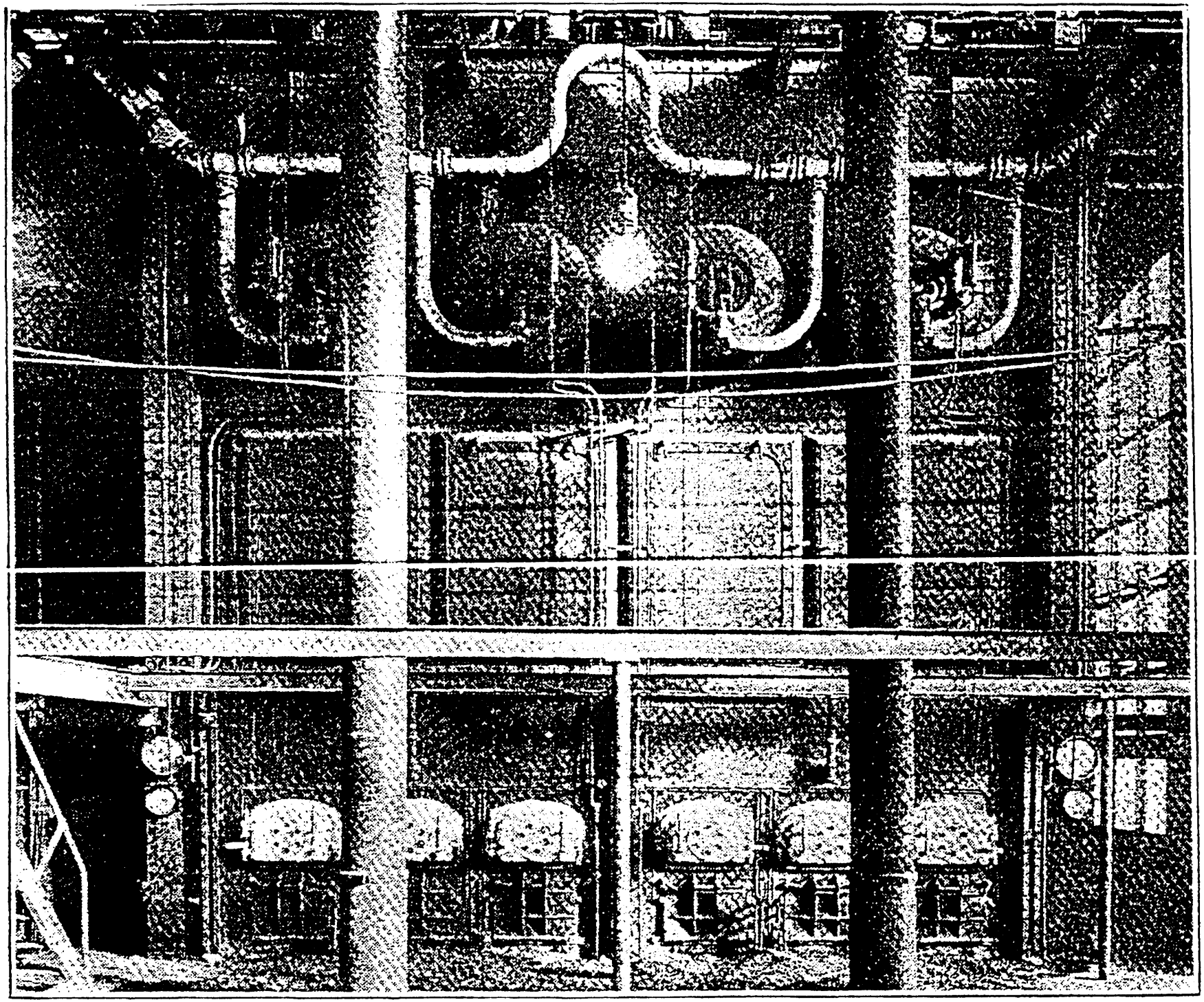
(7)



Hudson & Manhattan Railroad Power Station—Distributing Conveyor and Coal Pockets

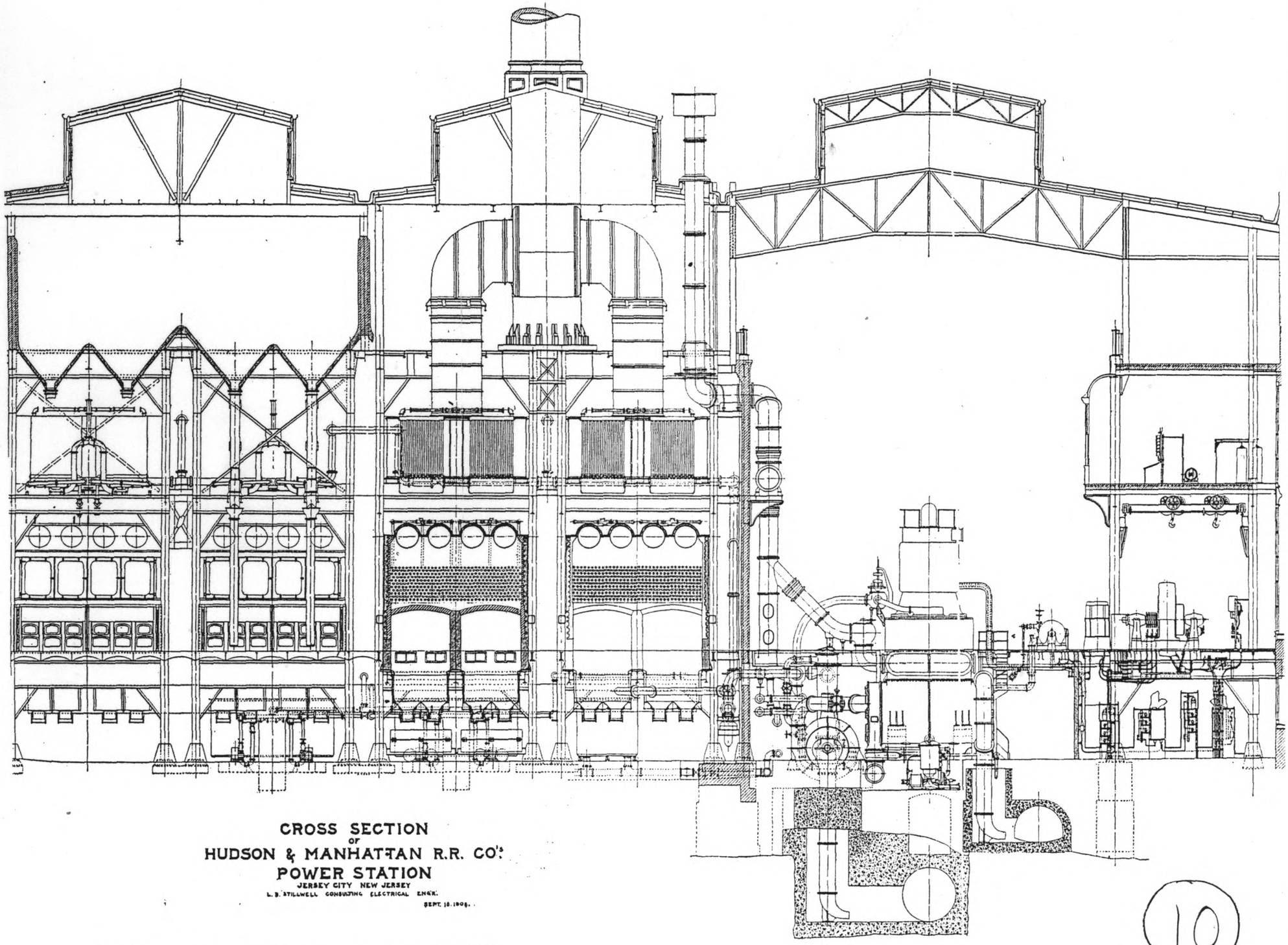
ELECTRIC RAILWAY JOURNAL MARCH 5, 1910

(8)



Hudson & Manhattan Railroad Power Station—Boiler Fronts

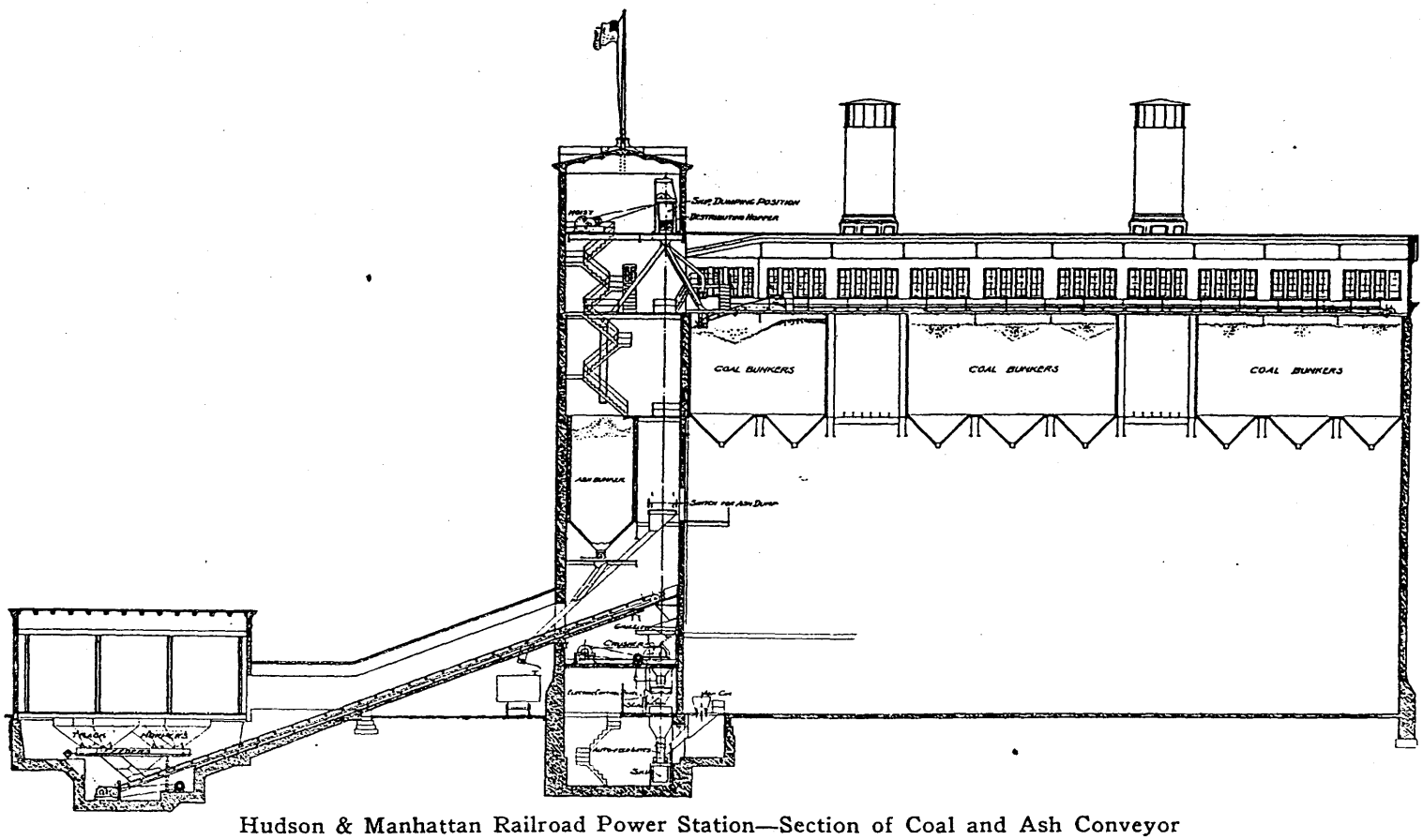
ELECTRIC RAILWAY JOURNAL MARCH 5, 1910



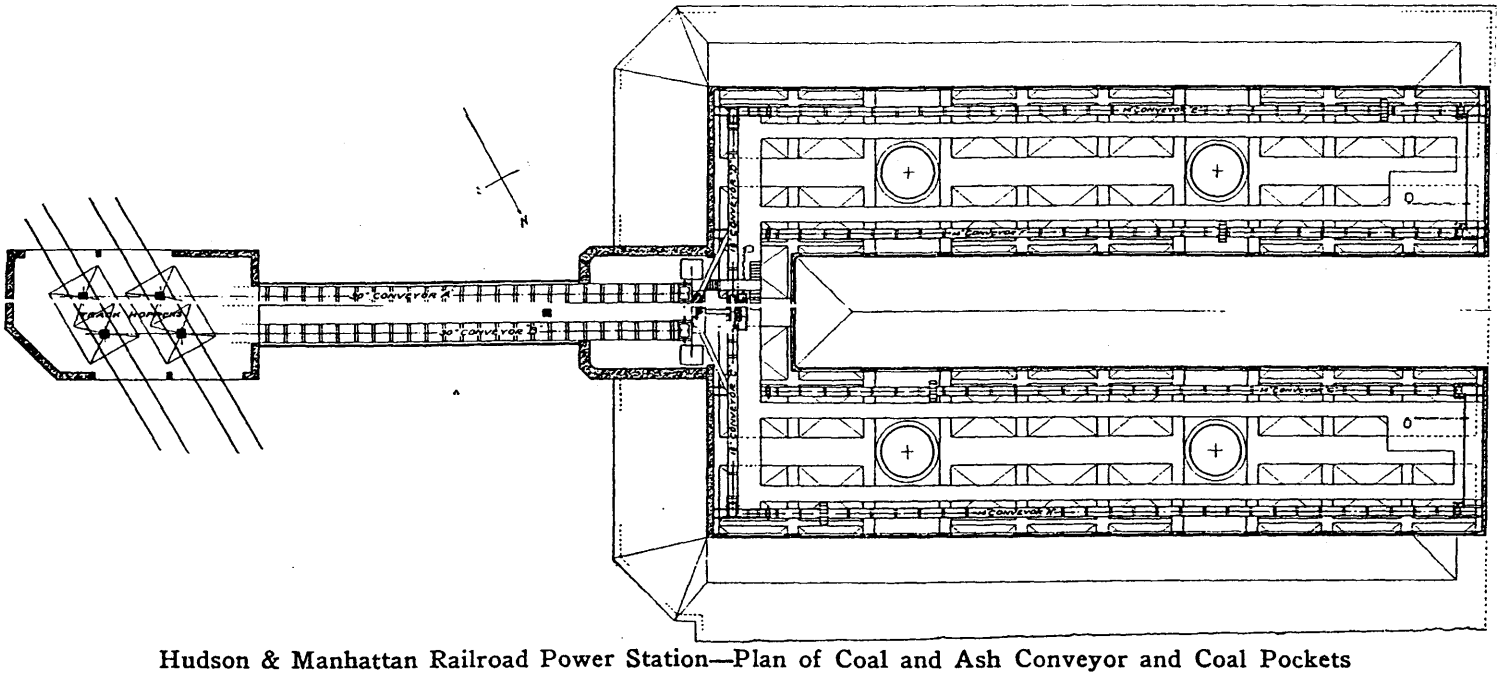
CROSS SECTION
OF
HUDSON & MANHATTAN R.R. CO's
POWER STATION
JERSEY CITY NEW JERSEY
L. B. STILLWELL CONSULTING ELECTRICAL ENGR.
SEPT. 10. 1906.

10

ELECTRIC RAILWAY JOURNAL MARCH 5, 1910

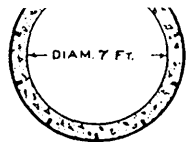


Hudson & Manhattan Railroad Power Station—Section of Coal and Ash Conveyor

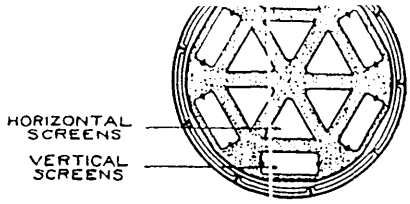


Hudson & Manhattan Railroad Power Station—Plan of Coal and Ash Conveyor and Coal Pockets

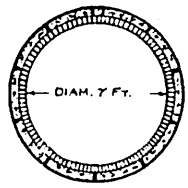
ELECTRIC RAILWAY JOURNAL MARCH 5, 1910



SECTION C-C



TOP PLAN



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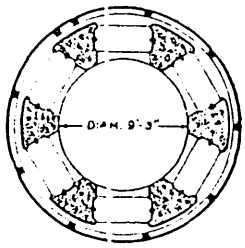

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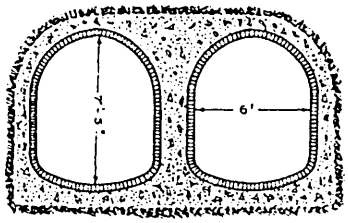
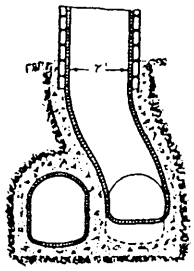
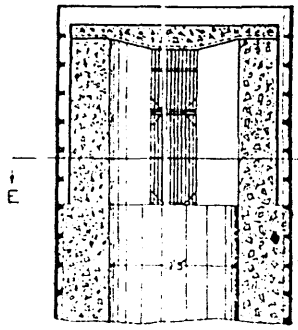
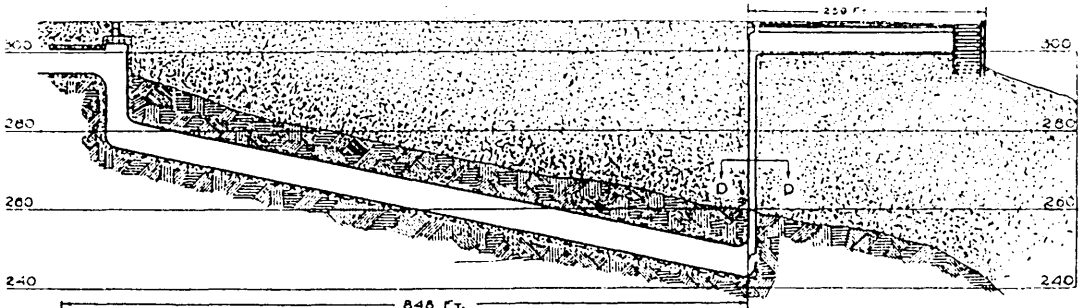


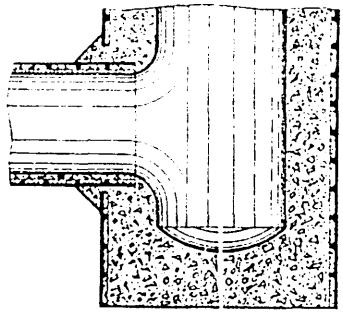
SECTION A-A



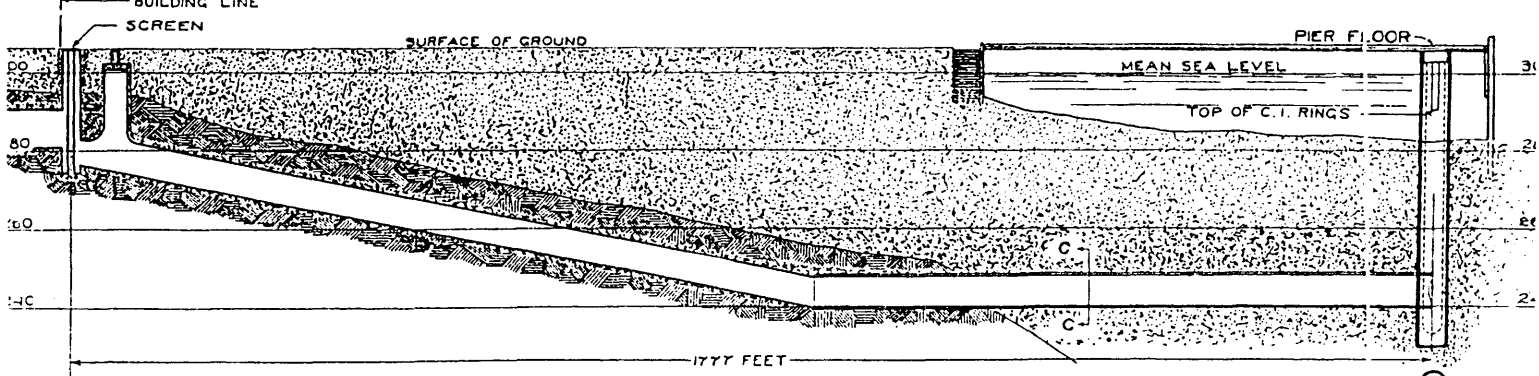
SECTION B-B

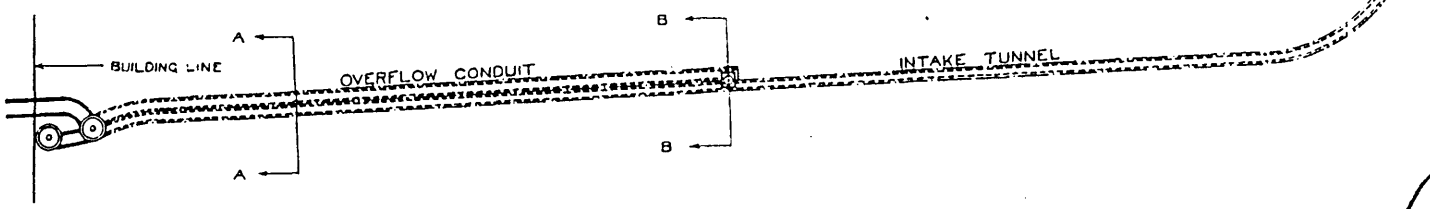






INTAKE SHAFT





Hudson & Manhattan Railroad Power Station—Intake Tunnel and Overflow Conduit

ELECTRIC RAILWAY JOURNAL MARCH 5, 1910

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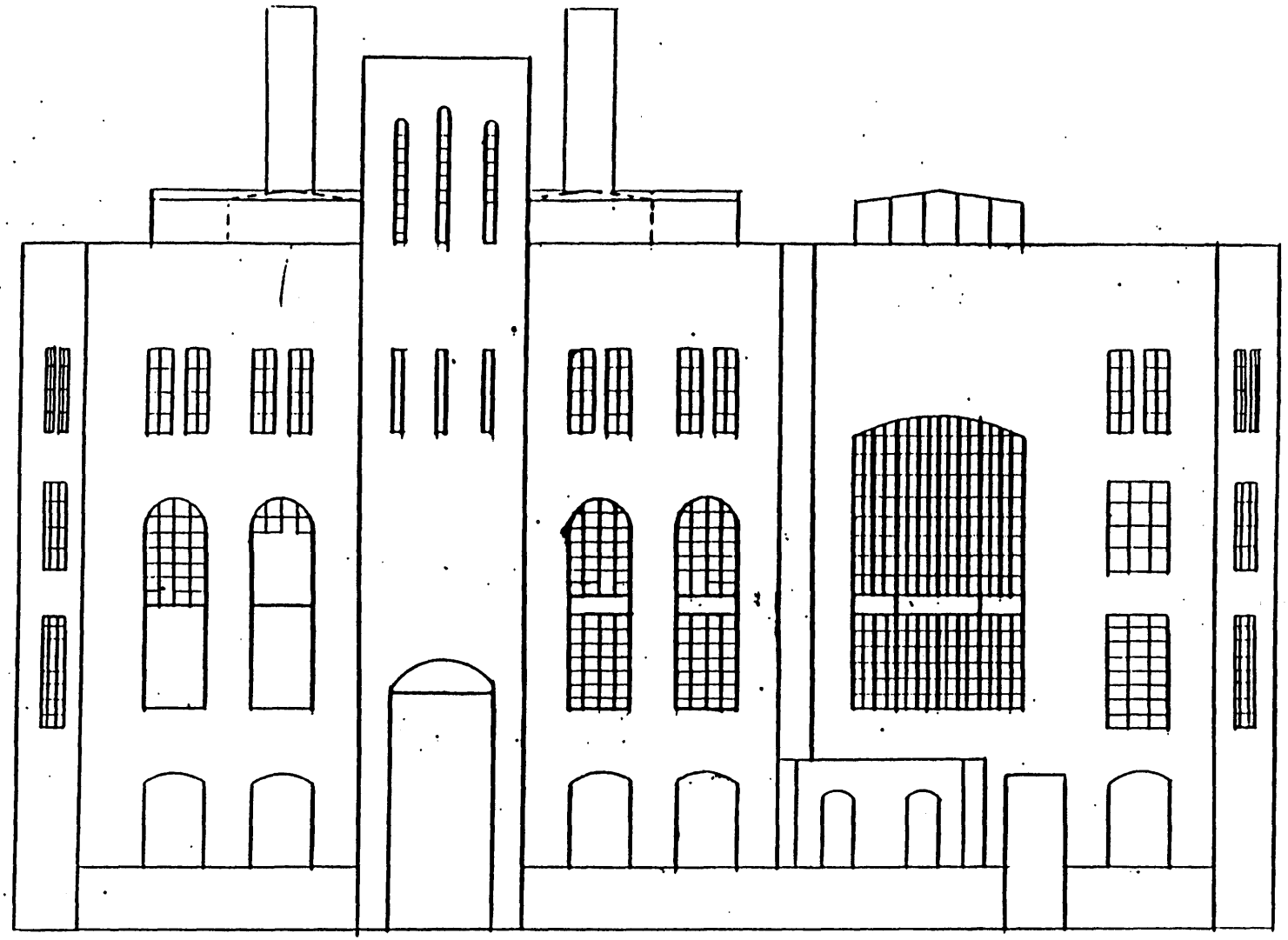
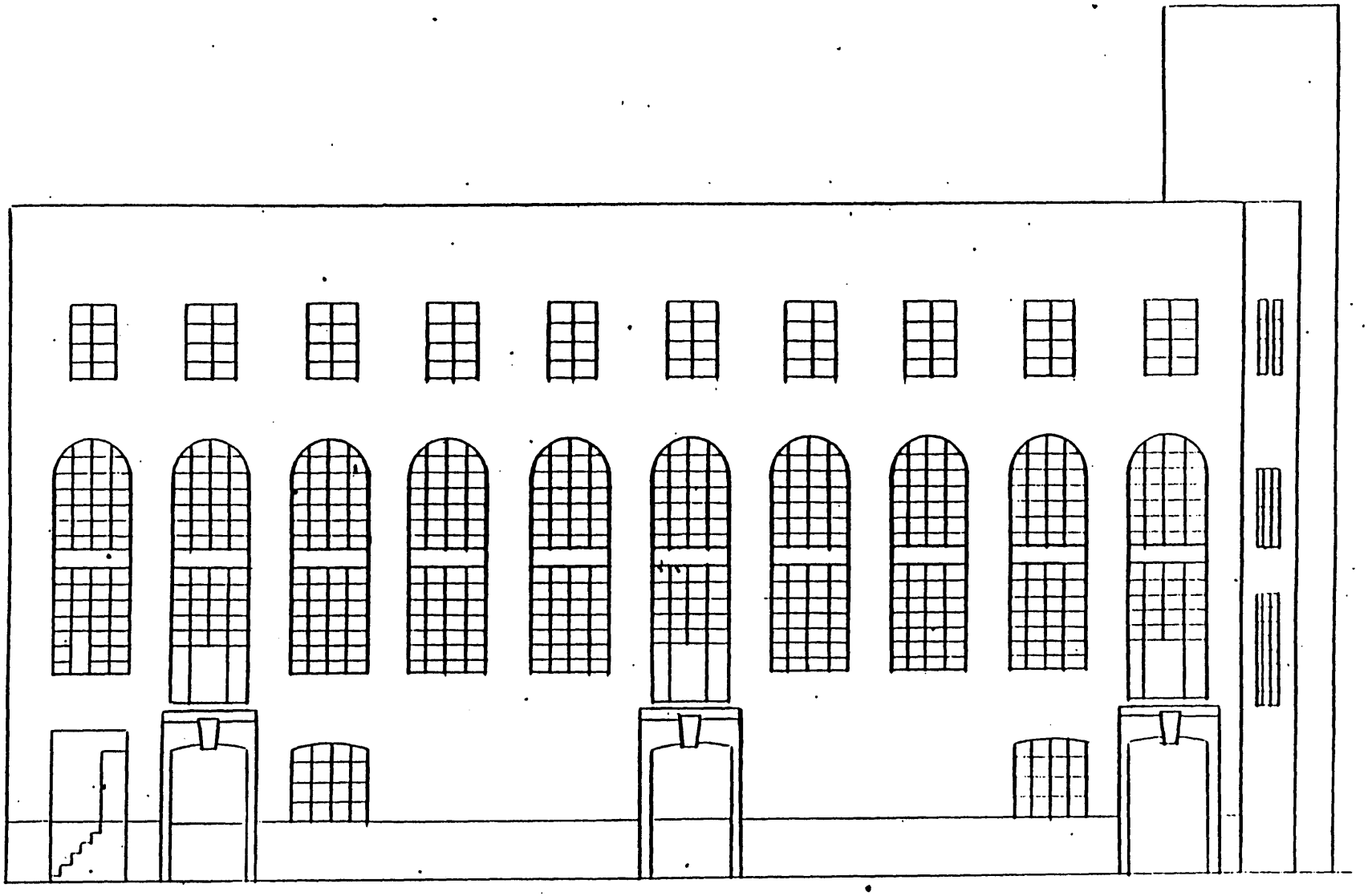


EAST ELEVATION

13

STRUCTURAL INTEGRITY INSPECTION, AMMANN & WHITNEY 1984

FIGURE 5

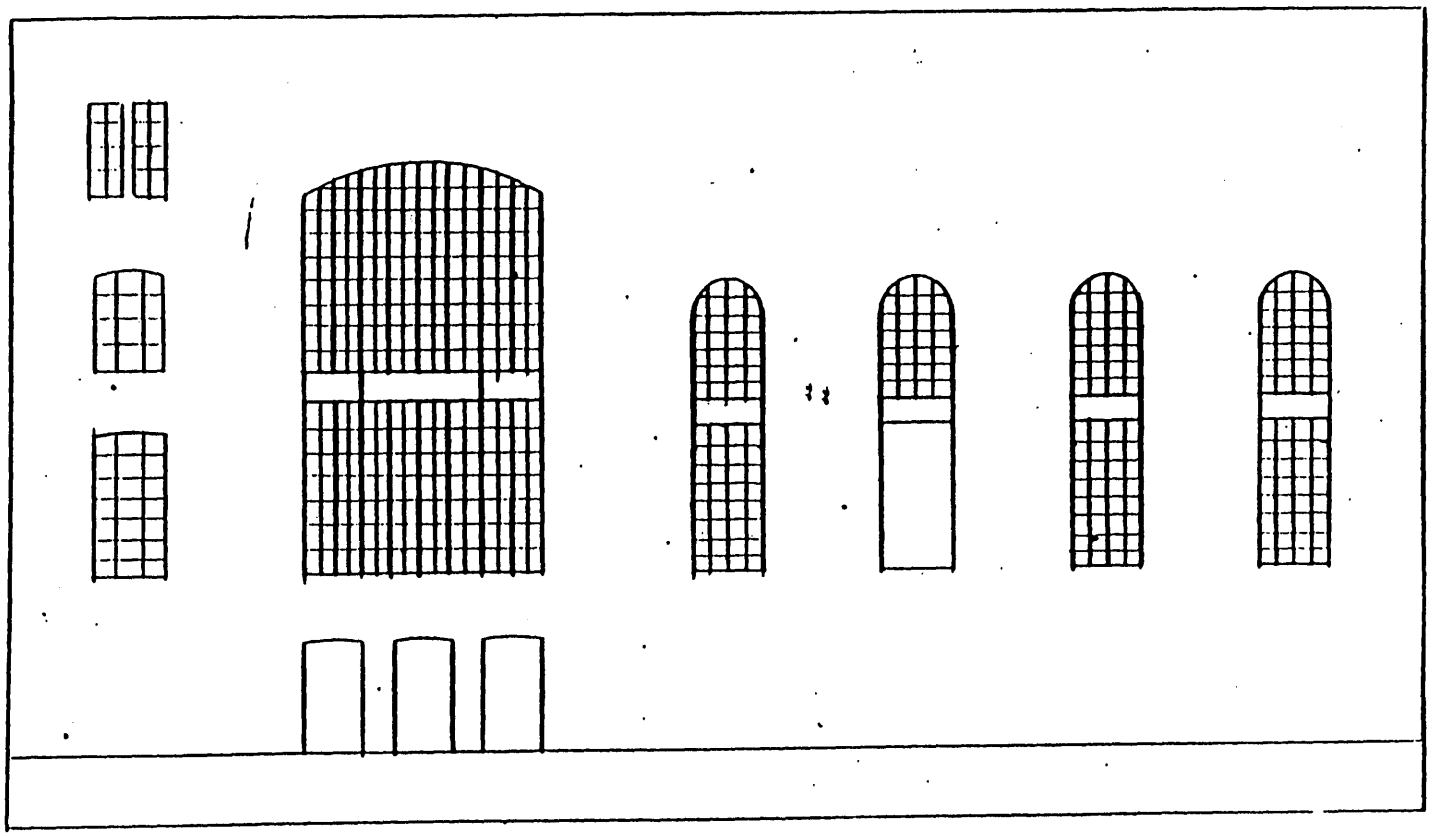


SOUTH ELEVATION

STRUCTURAL INTEGRITY INSPECTION AMMANN & WHITNEY 1984

14

FIGURE 4

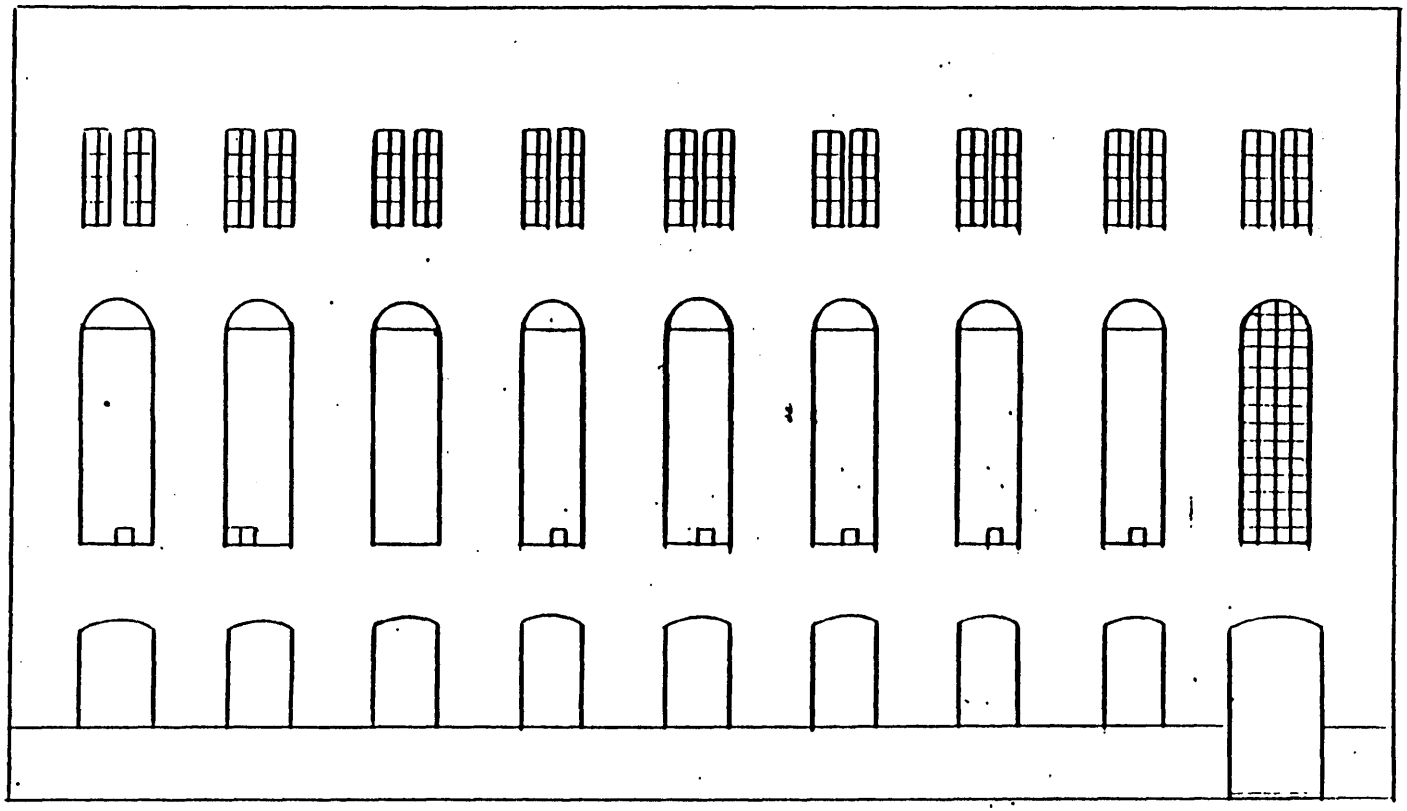


15

WEST ELEVATION

STRUCTURAL INTEGRITY INSPECTION · AMMANN & WHITNEY 1984

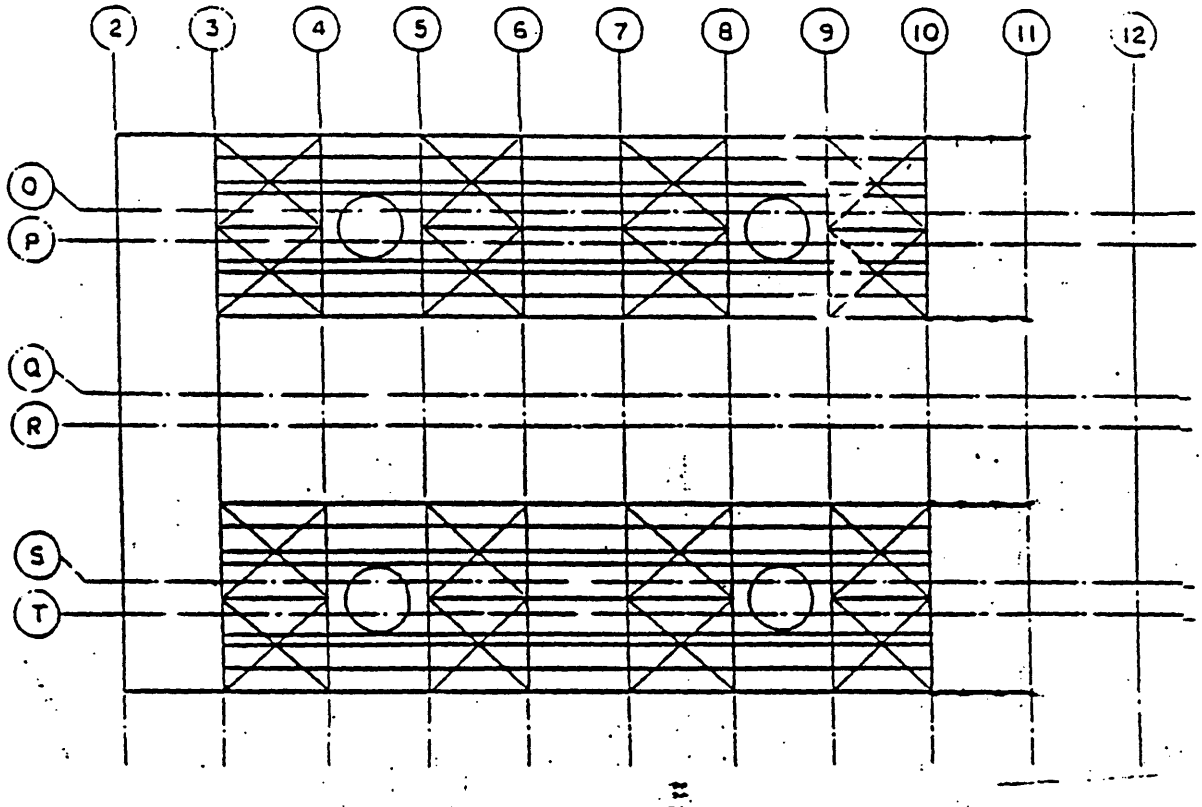
FIGURE 6



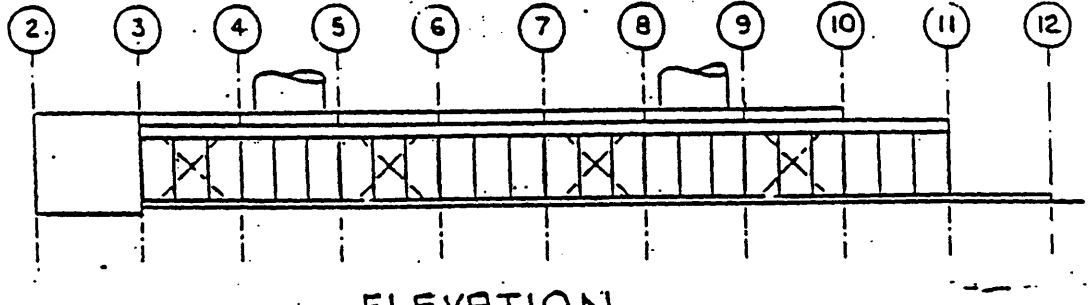
NORTH ELEVATION

STRUCTURAL INTEGRITY INSPECTION AMMANN & WHITNEY 1984

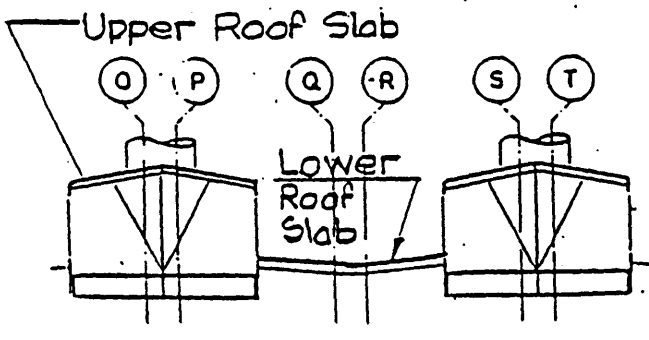
FIGURE 3



UPPER LEVEL
CLERESTORY FRAMING PLAN



ELEVATION

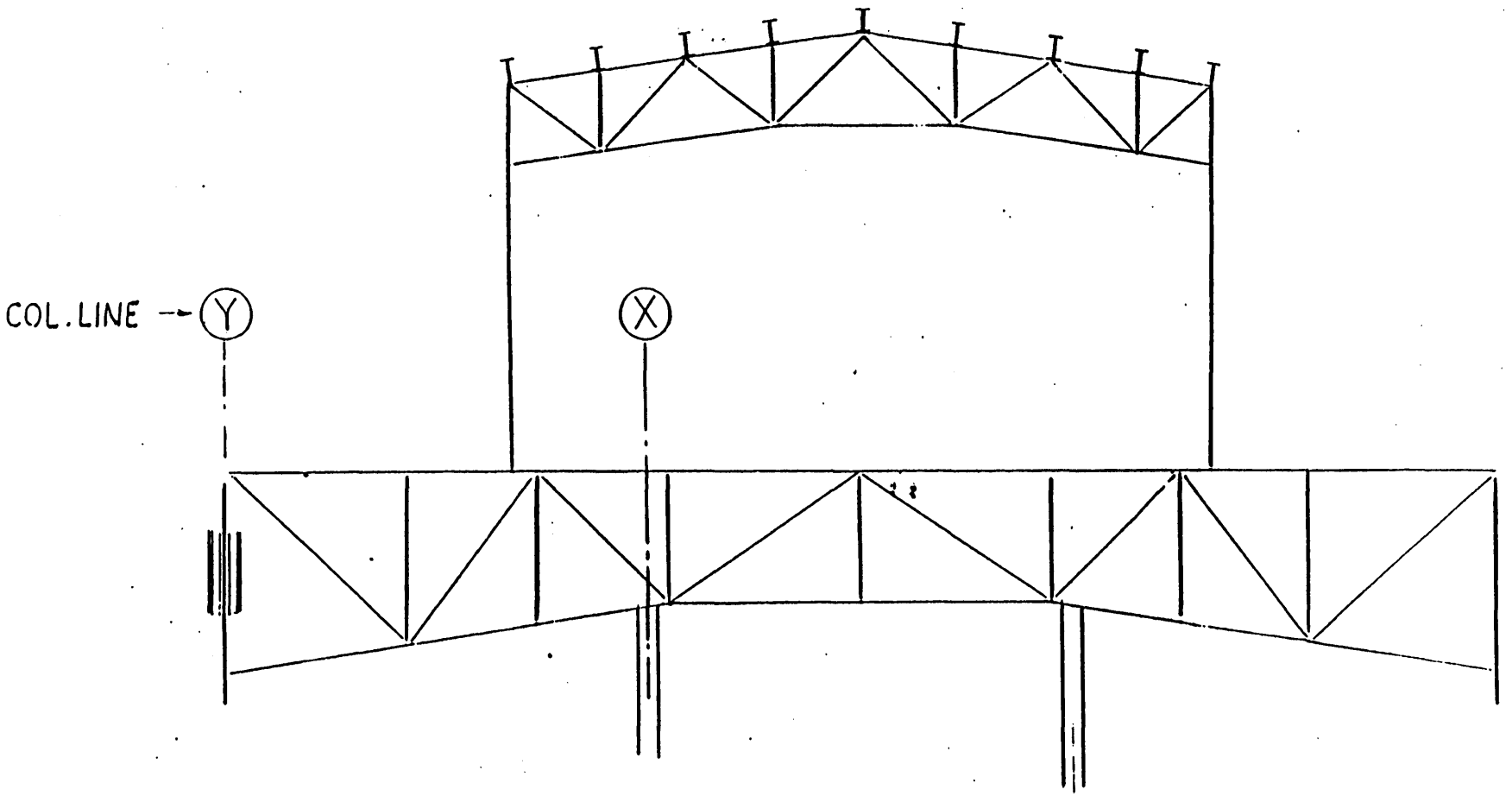


TYPICAL SECTION

DETAILS OF CLERESTORY OVER JERSEY CITY SECTION

STRUCTURAL INTEGRITY INSPECTION
AMMAN & WHITNEY 1984

FIG. NO. 51



ROOF TRUSS CONFIGURATION
AT EAST WALL LINE

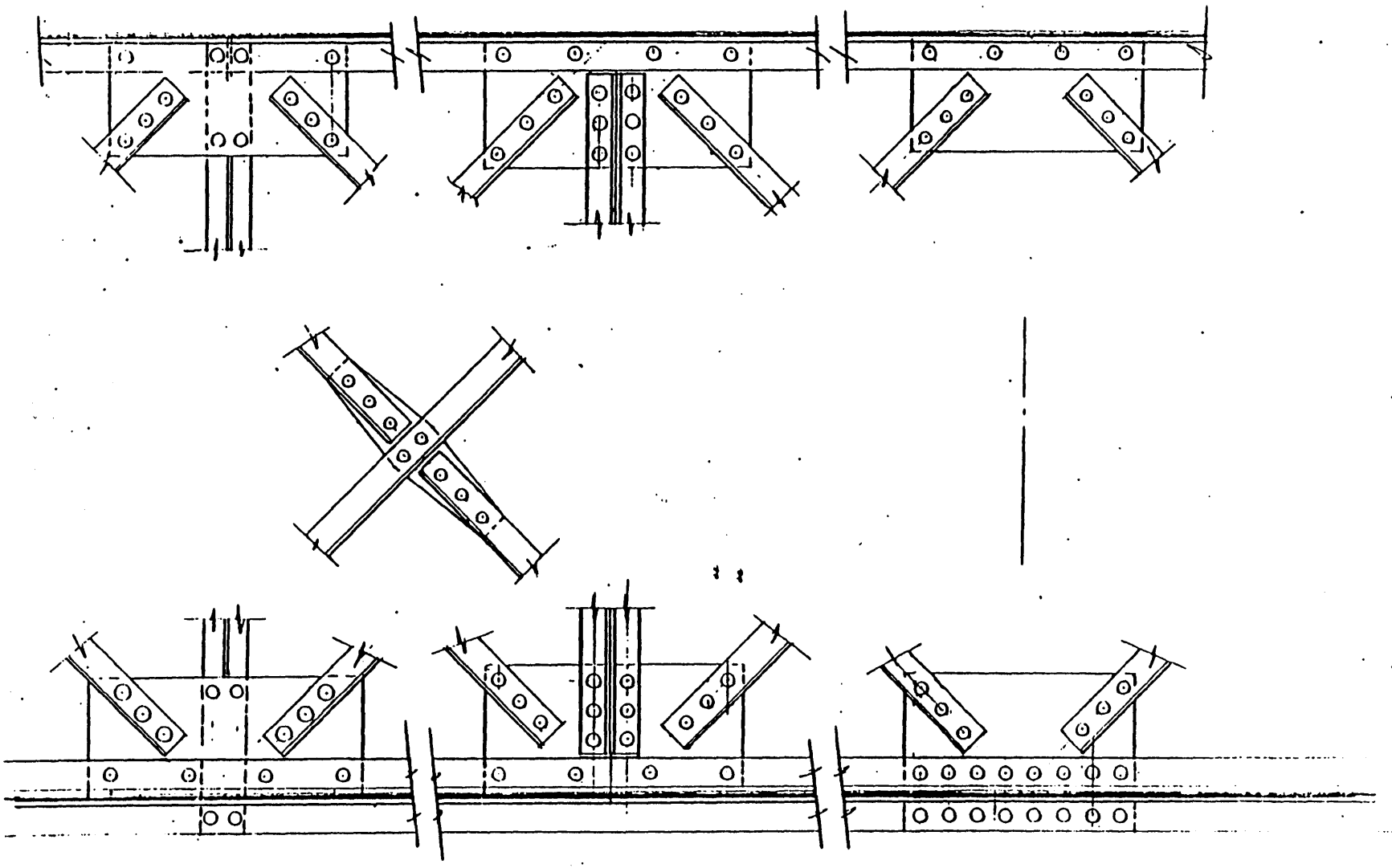
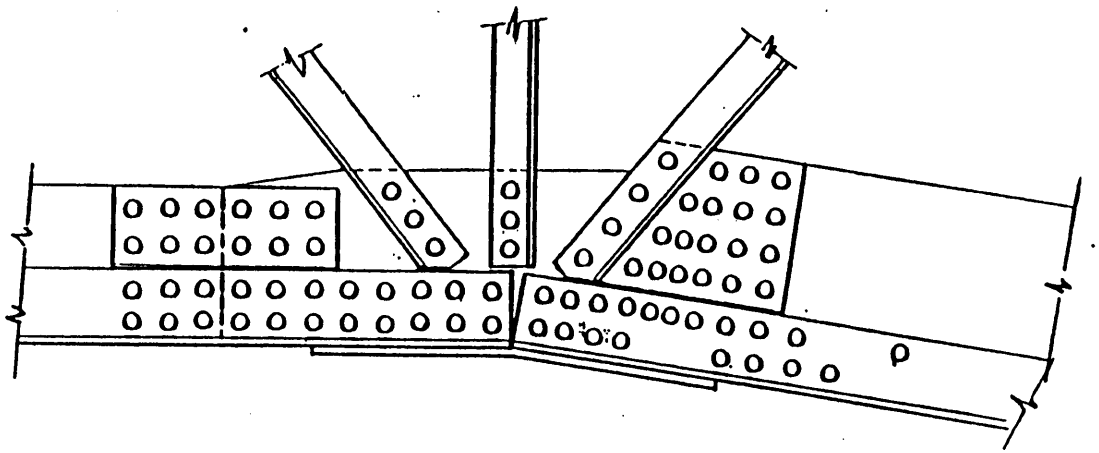


FIGURE 11

CROSS BRACE DETAILS

STRUCTURAL INTEGRITY INSPECTION
AYMANN & WHITNEY 1984



DETAIL (A / 29) REF. FIG. 25

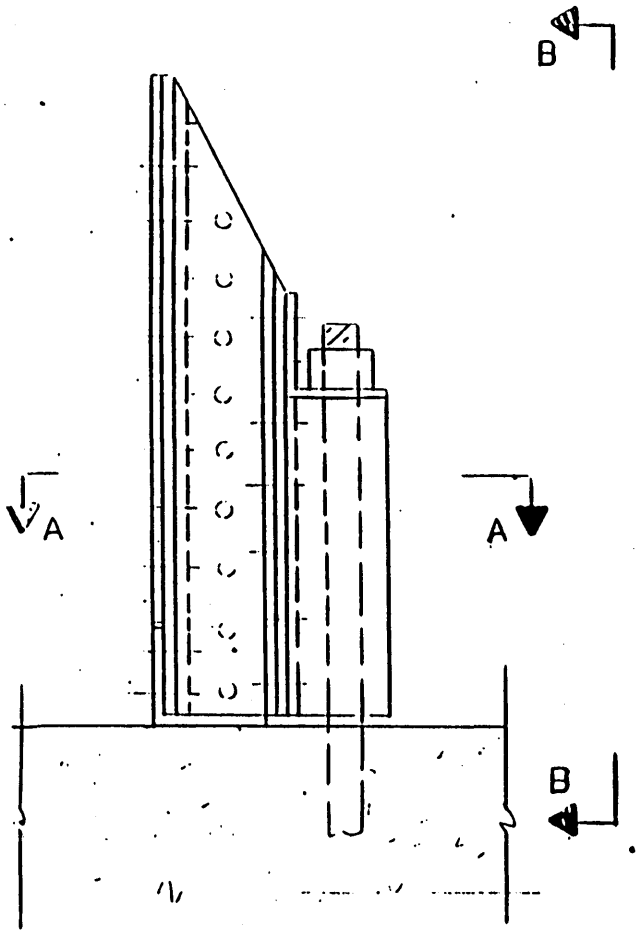
FIGURE 20

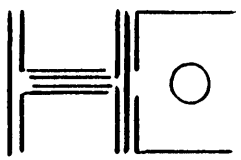
LOWER ROOF TRUSS DETAILS

20

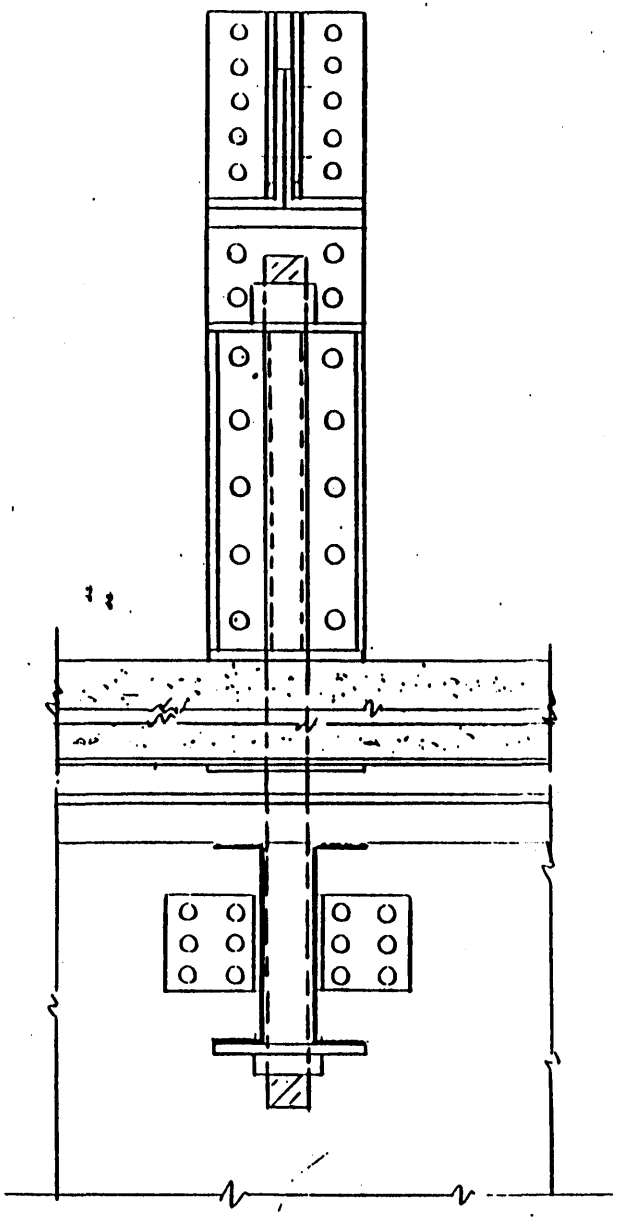
STRUCTURAL INTEGRITY INSPECTION
AMMANN & WHITNEY 1984

STRUCTURAL INTEGRITY INSPECTION
AMMAN & WHITNEY 1984





SECTION A-A



SECTION B-B

21

HOLD-DOWN DETAIL FOR STACK

FIGURE 21

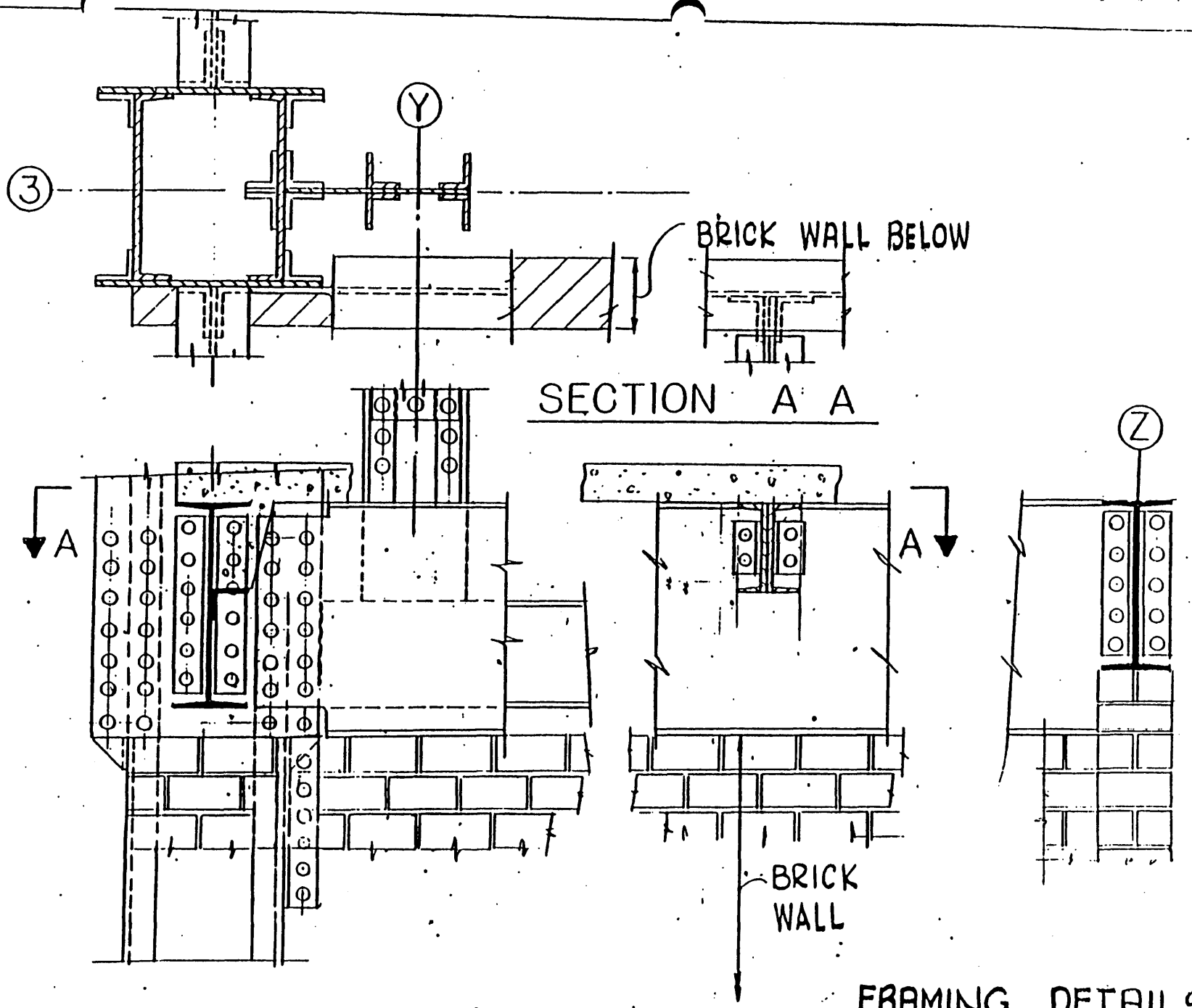


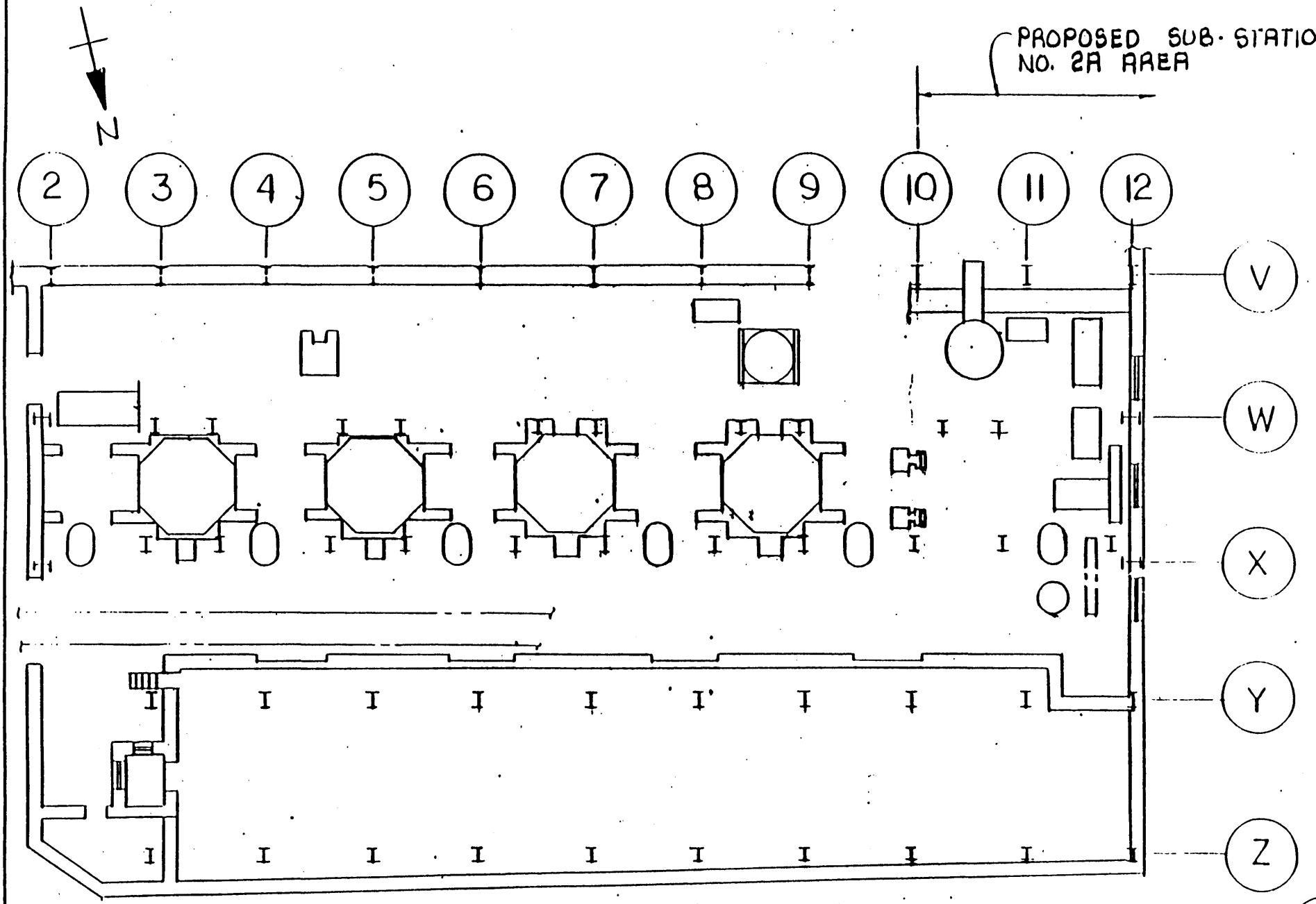
FIGURE 45

STRUCTURAL INTEGRITY INSPECTION
AMMANN & WHITNEY 1984

FRAMING DETAILS

PORT AUTHORITY SECTION

22



CONVERTER FLOOR PLAN

PORT AUTHORITY SECTION

STRUCTURAL INTEGRITY INSPECTION

AHMANN & WHITNEY 1989

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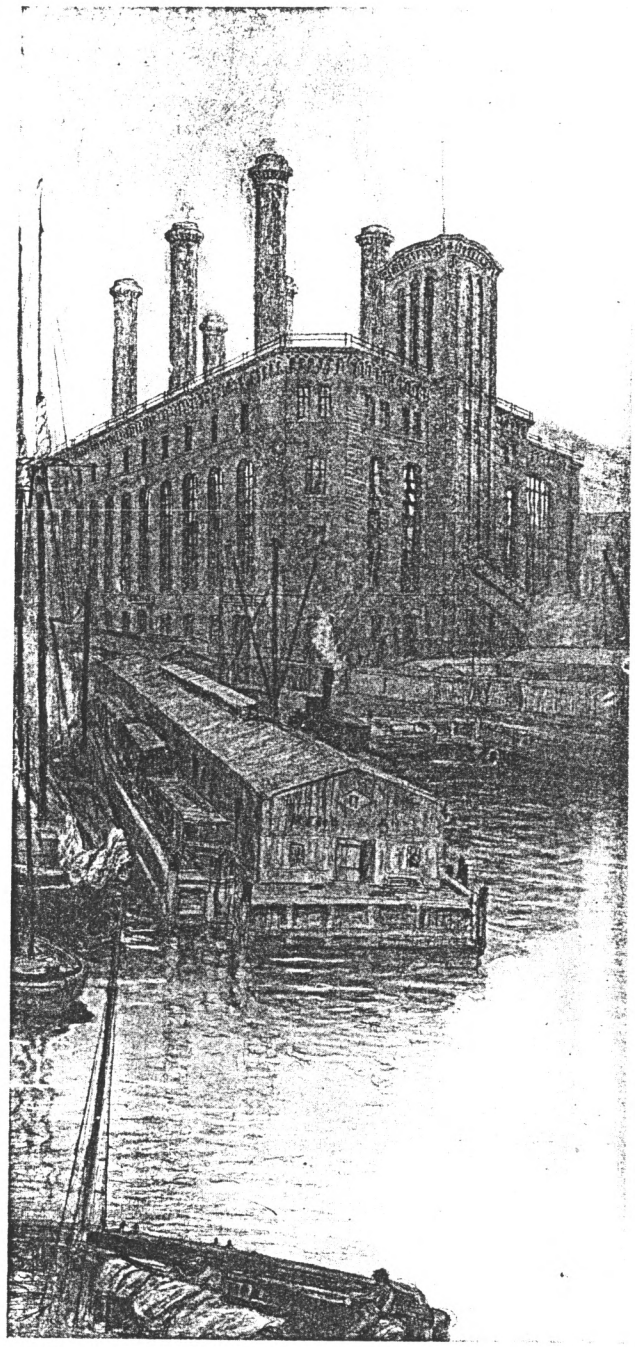
FIG. 9



POWER STATION
ROBINS & OAKMAN, Architects, New York