

**United States Department of the Interior  
National Park Service**

For NPS use only

**National Register of Historic Places  
Inventory—Nomination Form**

received OCT 31 1985

date entered

See instructions in *How to Complete National Register Forms*  
Type all entries—complete applicable sections

DEC 2 1985

**1. Name**

historic Portland General Electric Company Station "L" Group  
and/or common Same Number of contributing resources: 6  
Number of non-contributing resources: 4

**2. Location**

street & number 1841 SE Water Street N/A not for publication  
city, town Portland N/A vicinity of  
state Oregon code 41 county Multnomah code 051

**3. Classification**

<b>Category</b>	<b>Ownership</b>	<b>Status</b>	<b>Present Use</b>	
<input type="checkbox"/> district	<input type="checkbox"/> public	<input type="checkbox"/> occupied	<input type="checkbox"/> agriculture	<input type="checkbox"/> museum
<input checked="" type="checkbox"/> building(s)	<input checked="" type="checkbox"/> private	<input checked="" type="checkbox"/> unoccupied	<input type="checkbox"/> commercial	<input type="checkbox"/> park
<input type="checkbox"/> structure	<input type="checkbox"/> both	<input type="checkbox"/> work in progress	<input type="checkbox"/> educational	<input type="checkbox"/> private residence
<input type="checkbox"/> site	<b>Public Acquisition</b>	<b>Accessible</b>	<input type="checkbox"/> entertainment	<input type="checkbox"/> religious
<input type="checkbox"/> object	<u>N/A</u> in process	<input checked="" type="checkbox"/> yes: restricted	<input type="checkbox"/> government	<input type="checkbox"/> scientific
	<u>N/A</u> being considered	<input type="checkbox"/> yes: unrestricted	<input checked="" type="checkbox"/> industrial	<input type="checkbox"/> transportation
		<input type="checkbox"/> no	<input type="checkbox"/> military	<input type="checkbox"/> other:

**4. Owner of Property**

name Portland General Electric Company  
street & number 121 Southwest Salmon Street  
city, town Portland N/A vicinity of state Oregon 97204

**5. Location of Legal Description**

courthouse, registry of deeds, etc. Multnomah County Courthouse  
street & number 319 Southwest Fourth Avenue  
city, town Portland state Oregon 97204

**6. Representation in Existing Surveys**

title Statewide Inventory of Historic Properties has this property been determined eligible?  yes  no  
date 1985  federal  state  county  local  
depository for survey records State Historic Preservation Office, 525 Trade St. SE  
city, town Salem state Oregon 97310

## 7. Description

<b>Condition</b>		<b>Check one</b>	<b>Check one</b>
<input type="checkbox"/> excellent	<input type="checkbox"/> deteriorated	<input type="checkbox"/> unaltered	<input checked="" type="checkbox"/> original site
<input checked="" type="checkbox"/> good	<input type="checkbox"/> ruins	<input checked="" type="checkbox"/> altered	<input type="checkbox"/> moved date <u>    N/A    </u>
<input type="checkbox"/> fair	<input type="checkbox"/> unexposed		

### Describe the present and original (if known) physical appearance

The Station "L" ensemble is a group of six industrial style buildings designed and constructed between 1910-1929 by the Portland General Electric Company. The site is located on the east bank of the Willamette River between the Hawthorne and Ross Island Bridges, immediately south of the Marquam Bridge ramp. The brick and concrete buildings making up the ensemble are all one or two stories in height and were used to house the various generating equipment of the Portland General Electric Company. The overall condition of the buildings is good except for a 1924 boiler room addition.

### Setting

The entire Station "L" site covers an area of approximately 15 acres, delineated by the Willamette River on the west, Southeast Clay Street on the north, the tracks of the Southern Pacific Railroad on the east, and Southeast Caruthers Street on the south. The east ramp of the Marquam Bridge passes overhead on the western boundary of the site, and several of the bridge piers rise from the ground in the northwest corner of the property. The site is flat and approximately 20 feet above the river. It is devoid of trees and shrubs, with the exception of some natural vegetation at the river's edge, primarily blackberries, willow and poplar. More than 25 structures of varying age, materials and use are distributed across the area. Dates of construction range from approximately 1906 to 1975 and the condition of the structures varies.

The primary group of historic buildings on the Station "L" property is collectively entitled the Station "L" Group and is situated on the riverbank just south of the Marquam Bridge ramp on Block A, Tax Lot 23, Stephens Addition to the City of Portland. Five of the buildings in the ensemble are connected and include; the turbine room, KP boiler room, and the Lincoln Substation, all built in 1910; the 1924 HP boiler room extension, and the 1929 powerhouse extension. The sixth building to make up the ensemble is located just to the northeast of the connected buildings and is known as the Stephens Substation, built in 1929.

The Station "L" site, while closely associated with the growth of the electric power industry in Portland and the Portland General Electric Company, is also connected with events and individuals who played significant roles in Portland and the region's earliest settlement, development and growth.

### BUILDING L1 - (contributing)

The Station "L" turbine room (L1) is a rectangular one-story brick and reinforced concrete building constructed in 1910. It shares its east wall with the adjacent boiler room (L2), built in the same year. It also shares its north all with the powerhouse extension (L5), built in 1929.

The turbine room measures 70 x 160 feet with the long side being parallel with the Willamette River. It is approximately 33 feet from the first floor to the bottom of the roof structure, which is a series of deep trusses with sloped-top chords spanning 54 feet east to west, 14 feet on center. Steel channel purlins at 4'10½" on center support corrugated asbestos cement roofing.

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The building has a partial mezzanine on the west side and two basement levels. The lower basement slab is a mat foundation and the walls at both levels are cast-in-place concrete. The south exterior wall above grade, is of unreinforced brick masonry. The east wall, common to the boiler room (L2) is unreinforced brick masonry with embedded steel columns to carry roof and crane loads. The west exterior wall is a concrete frame with portions of the frame infilled with unreinforced brick masonry. A wooden catwalk and structural steel equipment deck are attached to the exterior of the west wall. The north wall was removed when the powerhouse extension was built in 1929.

Major equipment in the building includes an overhead crane, a large turbine generator at the south end of the building, electrical switch gear at the mezzanine and first floor levels, a small wooden control building and a maze of piping and miscellaneous equipment in the basement. The turbine room housed the large dynamos and generators which produced electricity from the steam generated in the boiler room (L2). Structural reports find the building to be in good condition.

BUILDING L2 - (contributing)

The Station "L" LP boiler room (L2) is a rectangular one-story brick and reinforced concrete building constructed in 1910. It shares its west wall with the adjacent turbine room (L1) built in the same year.

The boiler room measures 60 x 160 feet and is approximately 31¼' high from the first floor to the bottom of the roof structure. A light monitor runs the full length of the building at mid-span. It has trusses and purlins identical in configuration with those in the turbine room.

The building has one basement level. Like the turbine room, the walls are of cast-in-place concrete. The north and south exterior walls above grade are cast-in-place concrete to the bottom of the roof structure with unreinforced brick masonry above. The west wall, common to the turbine room (L1) is unreinforced masonry with embedded steel columns. The east exterior wall is a concrete frame, common to the HP boiler room (L4). Columns are laced steel sections. The floors of both the turbine and boiler rooms (L1, L2) are steel beams and joists with infill arched slabs between joists. Two major stacks, one masonry, one structural steel, penetrate the building at the west wall.

Major equipment in the building includes furnaces, boiler, various types of conveyors, major duct work and catwalks. Structurally, the boiler room is in fair condition.

BUILDING L3 - (contributing)

The old Lincoln Substation (L3) is a square two-story cast-in-place concrete structure built in 1910-11, in conjunction with the construction of the LP boiler room and turbine room. It measures 40 x 65 feet and is approximately 40 feet tall. At the first floor, a mezzanine runs the full length of the west wall. The foundation system is not known, but condition of the building indicates it is

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probably supported on timber pilings. All walls, beams and slabs, including the flat roof structure are cast-in-place concrete. The building contained the high tension bus and switching equipment for buildings L1 and L2 and three transformers which recieved energy for Station "M" on the upper Clackamas River.

Major equipment in the building includes many concrete racks which formerly were used for electrical equipment on both floors and electrical panels on the first floor. The building is in good condition.

BUILDING L4 - (contributing)

The HP boiler room addition (L4) is a rectangular, one-story building with flat roof conctructed of concrete and unreinforced brick. The boiler room was built in 1924 to house additional steam generating equipment and is located between the LP boiler room on the west and the Lincoln Substation on the southeast.

The HP boiler room, which has a full basement, measures 80 x 135 feet and is approximately 25 feet high from the first floor to the bottom of the roof structure. The basement slab is a mat, foundation and walls are a combination of cast-in-place concrete and unreinforced brick masonry.

The south exterior wall above-grade is a concrete frame with unreinforcd brick masonry infill. The top 10-15 feet of the wall is a light gauge steel frame with corrugated asbestos cement siding. The west wall adjacent to the LP boiler room (L2), is a light gauge steel frame with corrugated asbestos cement siding. The south one-third of the east wall is a concrete bearing wall, common with the old Lincoln Substation building. The remainder of the east and north walls are constructed of wood studs with corrugated metal siding. Columns are laced steel sections. There are few permanent floors in the building, and most of the floor structure consists of catwalks or timber planing for access to the boilers and other equipment. The south one-third of the roof, reconstructed in 1959, is constructed of strucutral steel trusses, open-web steel joists, steel roof deck. The balance of the roof structure is timber king-pin trusses, wood purlins and corrugated cement, asbestos or metal roof deck. A light monitor runs the full length of the building at mid-span.

Major equipment in the building includes boilers 13 and 14 and the conveyors, catwalks and other equipment necessary to service these boilers. The building is structurally unsound and in very poor condition.

BUILDING L5 - (contributing)

The powerhouse extension (L5) is a flat-roofed, one-story concrete building constructed in 1929. It shares its south wall with the adjacent turbine room (L1).

The building measures 71 x 100 feet and 39 feet from the first floor to the bottom of the roof structure. It has two mezzanine levels on the west wall and two basement levels. The basement slab is a mat foundation designed to resist hydraulic uplift and to distribute load equally to the bulding's support piling.

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The building is constructed of cast-in-place concrete, except for the roof structure, which is a series of deep structural steel trusses with sloped top chords spanning east to west, 17'9" on center. The supporting steel purlins are 5'6 $\frac{1}{4}$ " on center and the building has a concrete roof slab. All exterior walls are cast-in-place concrete. A light monitor runs almost the full length of the building at mid-span. A concrete catwalk attached to the exterior of the west wall connects with the adjacent dock just west and south of this building.

This buildings retains its original steel frame industrial-type windows. The west side of the building is divided into five bays; the north side into four bays. Each bay contains seven rows of windows, each divided only by a thin, narrow metal muntins. On the west side each window strip is divided into five panes of glass; on the north it is four panes. Each strip of windows could be opened to provide ventilation to the interior of the building. The concrete forms for the building were of boards, which produced in rough-surfaced walls, remedied by applying a smooth concrete finish to the exterior walls. Structurally the building is in very good condition.

BUILDING L6 - (contributing)

This building is known as the Stephens Substation (L6). Standing separate from the rest of Station "L", it is located east of the HP boiler room and old Lincoln Substation buildings. Built in 1929 of concrete, it is two stories in height and measures 50 x 60 feet. The Stephens Substation was erected to house the switching and control equipment for the new generating unit (powerhouse extension L5) and also for a tie line between this substation and the old Lincoln Substation (L3).

Other structures on the site include:

BUILDING L7 - (non-contributing)

Building L7 is a 1940 one-story, wood framed with metal exterior storage buildin now used as a machine shop. The building is in poor condition.

BUILDING L8 - (non-contributing)

Building L8 houses boiler #16. Building L8 is wood framed and covered in metal. The building is in poor condition.

STRUCTURE L9 - (non-contributing)

Minor electrical equipment building associated with Stephens Substation. Scheduled for removal.

BUILDING L10 - (non-contributing)

One-story wood framed metal shed.

# 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 checked="" type="checkbox"/> architecture	<input type="checkbox"/> education	<input type="checkbox"/> military	<input type="checkbox"/> social/
<input type="checkbox"/> 1700-1799	<input type="checkbox"/> art	<input type="checkbox"/> engineering	<input type="checkbox"/> music	<input type="checkbox"/> humanitarian
<input checked="" type="checkbox"/> 1800-1899	<input type="checkbox"/> commerce	<input type="checkbox"/> exploration/settlement	<input type="checkbox"/> philosophy	<input type="checkbox"/> theater
<input checked="" type="checkbox"/> 1900-	<input type="checkbox"/> communications	<input checked="" type="checkbox"/> industry	<input type="checkbox"/> politics/government	<input type="checkbox"/> transportation
		<input type="checkbox"/> invention		<input type="checkbox"/> other (specify)

**Specific dates** 1910-1929 **Builder/Architect** Portland General Electric Company

**Statement of Significance (in one paragraph)**

Significance

The Portland General Electric Company Station "L" Group, located at 1841 SE Water Avenue, Portland, Oregon, is a collection of industrial structures designed and built by the Portland General Electric Company between 1910 and 1929. Within the four-acre parcel are found six contributing resources and three non-contributing resources.

Apart from the separately sited Stephens Substation (1929), five significant components of the group abut or interconnect and are located adjacent to the Willamette River. Constructed either in brick or in various types of reinforced concrete, the buildings once housed a major electrical generating plant which ceased operation in 1975.

The ensemble meets criterion "a" for its association with the growth of the electric power industry in Portland. Growing rapidly for a period spanning twenty years, Station "L" has delivered electrical service in Portland for the most continuous length of time.

Of all the buildings acquired or constructed by Portland General Electric to satisfy increasing electric demand, only Station "L" remains substantially intact. Thus, the group meets criterion "c" as the best remaining example of its industrial type in Portland, and as the last relatively complete major wood-fired steam-powered generating station in the Pacific Northwest. It is additionally significant because the various component parts are clearly delineated and thus, illustrate the entire development of the complex.

Site Development

Original development of the Station "L" site began 140 years ago, when James B. Stephens obtained a square mile of land on the east bank of the Willamette River, bounded roughly by present-day Southeast Market and Lincoln Streets, Southeast Union Avenue, and the Willamette River. Stephens, a barrel maker by trade, made the overland trip to the Oregon country in 1844 with his wife and three children. After a year in Oregon City, he purchased his property for \$200 from Dr. John McLoughlin, "Father of Oregon," Chief Factor for the Hudson's Bay Company and administrator of the estate of a Frenchman, whose estate included the land.

The southern edge of the property marked the beginning of a wide slough, later known as Stephens' Slough, which ran in a southeasterly direction to an area near present-day Eleventh and Taggart Streets. The slough was gradually filled in, especially after the 1890s, but in 1845 Stephens constructed a log cabin nearby and

# 9. Major Bibliographical References

See continuation sheet

# 10. Geographical Data

Acreeage of nominated property 4.7 acres  
Quadrangle name Portland, Oregon-Washington

Quadrangle scale 1:24000

### UTM References

A 

1	0
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5	2	6	1	6	0
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5	0	3	9	3	2	0
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B 

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C 

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### Verbal boundary description and justification

See continuation sheet

### List all states and counties for properties overlapping state or county boundaries

state N/A code county code

state N/A code county code

# 11. Form Prepared By

name/title N/A

organization Heritage Investment Corporation date April, 1985

street & number 123 Northwest Second Avenue telephone (503) 228-0272

city or town Portland state Oregon 97209

# 12. State Historic Preservation Officer Certification

The evaluated significance of this property within the state is:

national  state  local

As the designated State Historic Preservation Officer for the National Historic Preservation Act of 1966 (Public Law 89-665), I hereby nominate this property for inclusion in the National Register and certify that it has been evaluated according to the criteria and procedures set forth by the National Park Service.

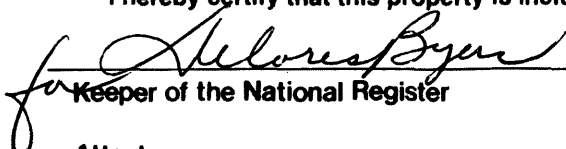
State Historic Preservation Officer signature 

title Deputy State Historic Preservation Officer date October 25, 1985

### For NPS use only

I hereby certify that this property is included in the National Register

Entered in the National Register date 12-2-85

  
Keeper of the National Register

Attest: \_\_\_\_\_ date \_\_\_\_\_

Chief of Registration

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lived there with his family, making and selling barrels. He also began a ferry service, rowing passengers in a flat boat from a landing at east Oak to west Stark Street. In 1850 this boat was replaced with a larger one, on a cable propelled by horses on a treadmill. In that same year he laid out the townsite of East Portland, filing the plat map in 1861, which was the basis of the city's incorporation in 1870. Stephens also had the distinction of paying the first taxes into the Multnomah County treasury when, in 1855, he purchased his ferry operator's license for \$10.

It is believed that in 1862 Stephens replaced his log cabin with a more substantial house. His new home was painted white, two stories in height and crowned with a belvedere, resting on a high brick foundation near the river's edge. It was easily seen from the west side of the river and remained a prominent feature on the east bank of the Willamette until 1902 when it was moved 12 blocks east to its present location at SE Twelfth and Stephens Streets. In 1978 it was designated the city's oldest house by the Portland Historical Landmarks Commission.

Stephens, known affectionately as "Uncle Jimmie" by early East Portland residents, was a generous man. He was known to have taken recent arrival to the area into his home for weeks at a time until they could become settled. He eventually acquired almost 2,000 acres of land in East Portland, much of which he gave away or sold at low prices to newcomers. He donated seven acres for the State's first insane asylum, at Tenth and Hawthorne, as well as the property for Lone Fir Cemetery. In the early 1860s, in partnership with his son-in-law, he opened the East Portland Savings and Loan Bank. The bank eventually failed and, as a result, Stephens lost much of his land. He died in 1899, leaving a small estate.

Railway Development

In addition to its association with the early settlement of Portland, the Station "L" property carried the first railroad in the Willamette Valley. The first rails of the Oregon Central Railway (east side) were laid in place on October 26, 1869. The Oregonian reported that, "There were no ceremonies other than the firing of the cannon; the road was begun in a business way (coats off and sleeves rolled up)." The rails were delivered to a temporary dock "built near Mr. Stephens' place" on the east bank of the Willamette River.

The steamer Moses Taylor delivered the rails to the wharf. A span of track was laid from the wharf to a turntable, at which point the materials unloaded from the steamboat were put on a car which moved to the construction site. The casual ceremony was followed two days later by a more formal dedication. Several hundred witnesses gathered once again on the east bank of the river to hear speeches by U. S. Senator George H. Williams and attorney John H. Mitchell. The honor of driving the first spike was given to J. L. Parrish, one of Oregon's early settlers who had arrived in May, 1840. The event was accompanied by music from a military band and the firing of a cannon.

In mid-1870 Ben Holladay had incorporated the Oregon and California Railroad Company and purchased the Oregon Central Railroad Companies (east and west sides).



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In 1876 Holladay was bought out by Henry Villard, who, by May, 1884, had extended the O&C lines as far south as Ashland. In July, 1887, the O&C properties were leased to the Southern Pacific Railroad Company, in whose control they have remained for almost 100 years.

Similar to present-day speculation occurring in connection with development of the light-rail right-of-way, land prices adjacent to the railroad tracks in East Portland began to escalate as soon as construction was announced. In spite of the fact that much of the property bordering the river was annually flooded, the Oregonian commented that, "A purchaser has been offered lately almost as much for a lot as he gave (a year ago) for the block. . ." This speculation, of course, reflected the increased population and building taking place in East Portland as a result of the railroad construction. In September, 1870, citizens in the area met, discussed, and adopted a city charter, which established the boundaries of their new city, specified officers, their powers and responsibilities, and outlined the services to be provided the residents. The new city of East Portland had a population of approximately 900 people distributed over 4¼ square miles.

Development of Electrical Use

As construction of the railroad had led to growth and expansion of East Portland in the 1870s, so the opening of the Morrison Street Bridge in 1884--the first to span the Willamette River--led to an even greater building boom. With the new bridge in place, the east and west sides of the river could be connected with street railway lines, which had previously operated on the separate sides of the river.

Horse- and mule-drawn streetcars first appeared in Portland in 1872. By 1888-89 the street railways began converting from horse and steam power to electricity. The electricity for this conversion was provided by the Willamette Falls Electric Company in Oregon City, which had been incorporated in November, 1888. In June, 1889, this company produced the first long distance transmission of electric energy for commercial purposes in the United States, by dispatching an electric current from Oregon City to Portland, a distance of 13 miles.

City residents had first become acquainted with the new energy source some ten years earlier when the steamship State of California arrived for a visit. Six incandescent light bulbs on the ship were lit by electricity produced by a small steam engine. Afterwards some local residents reproduced the effect in small, isolated experiments, but it was not until March, 1885, that Portland entered into its first contract for illumination of city streets with electricity. The contract was awarded to the U. S. Electric Light and Power Company, which had been incorporated just one year before in 1884. That company was in turn acquired in November, 1888, by Willamette Falls Electric Company.

In March, 1890, the Willamette Falls Electric Company opened its first substation in Portland at the foot of Montgomery Street. Electricity transmitted from Oregon City was provided to the first electrified streetcar line, which ran between Portland and Fulton (near present day John's Landing). Once conversion to the new power source had begun, demands far exceeded the ability of the Willamette Falls

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Electric Company to provide increased electricity. In order to acquire the capital necessary to expand service, the president of the Willamette Falls Electric Company, P. F. Morey, in partnership with Fred Holman and Henry Failing, formed the Portland General Electric Company in August, 1892. New capital came from outside the Portland area from financial institutions in New England. The purpose of the newly formed company was, "to engage in a general light and power business." One of PGE's first actions was to acquire the Willamette Falls Electric Company, which it accomplished on September 1, 1892.

From the 1880s through the 1890s, the Portland metropolitan area began an unprecedented period of growth. In 1891 the cities of St. Johns, East Portland and Albina were consolidated with the City of Portland, with Sellwood and Linton following in 1893 and 1915, respectively. Portland's population was 50,560 in 1881; by 1915 it had increased to 232,500. In the same time period the city's boundaries were expanded from just under 26 square miles to 66 square miles. By 1916, the city contained 192 miles of city streetcar lines, which extended from Sellwood to North Portland, Mt. Tabor to the West Hills. In addition, over 75 miles of electric inter-urban trackage extended to Estacada, Oregon City, Lake Oswego and the Tualatin Valley. The company had to build substations and thermal generations power plants in order to increase its output of electricity. In addition to providing power for transportation needs, demand steadily increased for electricity for business and domestic needs.

With the infusion of capital from east coast interests in 1892, PGE began a program of acquisition and building in order to satisfy the increasing demand for electricity. Of all the buildings acquired or constructed by PGE in these early years, Buildings A through M, only those at Station "L" remain. PGE's purchase of the Willamette Falls Electric Company (1892) included its substation at the foot of Montgomery Street; this was designated as "Station A." Station "B", a hydro-generation plant on the west side of Oregon City was added in 1893. Station "C", PGE's first steam-generated plant, was constructed in 1901 at Front and Sherlock streets. Located to take advantage of fuel provided by the wood waste from the nearby Eastern and Western Lumber Company, it was dismantled in 1912. Steam Station "D", at 18th and Mill, had provided power for the short-lived Portland Cable Railway Company. PGE leased it in 1904, and abandoned it a year later.

Among the features of the Lewis and Clark Exposition in 1905 was the illumination of the pathways, park, and the delienation of the Exposition buildings by thousands of electric light bulbs. To meet this need, PGE constructed Station "E", just west of Station "C". This plant also provided power for the increased number of trolleys which traveled to the Expo grounds. Other substations were located on Northeast Knott Street, Southwest Jefferson Street, and the Lents, Sellwood, Piedmont and Mt. Tabor neighborhoods. In 1906, PGE had expanded its holdings outside the City of Portland. The company obtained numerous independently owned and operated power companies throughout the northern Willamette Valley, including Silverton, Newberg, Sheridan and Salem.

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Fifteen years after its incorporation, PGE was once again unable to raise enough capital locally to finance its growth. As in 1892, east coast investors again provided assistance, but this time they controlled a majority of the company's stock. In the midst of the economic expansion which followed the close of the Lewis and Clark Exposition, PGE in December, 1907, became a subsidiary of a holding company, the Portland Railway Light and Power Company (PRL&PCO). This new firm controlled all city and inter-urban railway lines, as well as most of the electric power provided to business and industry. The three subsidiary arms of PRL&P were the Portland Railway Company, which operated the city streetcar lines; the Oregon Water, Power and Electric Company, which dealt with the inter-urban car lines; and Portland General Electric, which continued to supply power for transportation, lighting and other needs. Under PRL&P, PGE continued to increase its generation of electricity with the established formula of merger, new construction, system improvement and modernization.

In 1906, prior to its merger with PRL&P Company, PGE signed an agreement to purchase any excess power produced by a small steam-powered station on the east side of the Willamette River, at the foot of Lincoln Street. Constructed in 1892, the plant provided power for the cars of the City and Suburban Railway Company, a locally established concern, which under another name was acquired by PRL&P Company in 1907. Later, in 1906, PGE assumed complete operation of the plant, now known as Station "F", and utilized the power until 1911, when the equipment in the newly-completed Station "L" was on line.

Under PRL&P's management, PGE's electrical generation increased an average of 20% per year after 1908. Construction of hydroelectric plants on the upper Clackamas River was being planned, but it was recognized that this source had to be supplemented by steam-generation plants. The company needed a supply of energy close to downtown Portland. Property adjacent to Station "F"--near the former site of the Stephens' house, in an area crisscrossed with tracks from local, inter-urban and inter-state trail lines--was chosen. The site was in close proximity to the Inman-Poulsen Lumber Company, which could provide a steady supply of wood waste for the new operation. Construction of the new steam plant progressed rapidly and the first of the Station "L" buildings were completed in late 1910. On December 12, 1910 a new 2,000 KW turbine generator began operation; this was followed one month later by the installation and start up of a second unit. In June, 1911, a 2,500 HP, Corliss steam engine was added. At the same time, Lincoln Substation was erected to house the high tension buss and switching equipment for Station "L". In addition, it contained three transformer which received energy from the transmission line from Station "M" on the Clackamas River.

Station "L" and the Inman-Poulsen Mill completed a mutually beneficial agreement: the mill would supply the fuel needs of the steam-generation plant, and in turn, Station "L" would provide the mill with the electricity for its operation. Although modified over time, the exchange remained in effect for 45 years, until the lumber company ceased operation in 1954. As described by R. H. Robley, in 1935:

The powerhouse proper consisted of a boiler room 58 feet by 156 feet, and an engine room and generator room, 67 by 156 feet. Both were of reinforced

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concrete and brick with a thick curtain wall between the two main divisions of the plant. The (concrete) smokestack. . . is 12 feet in diameter and 120 feet high. The boiler installation was eight 400 HP boilers, designed for 200 pounds of pressure. The boilers were set in pairs, each pair being provided with a "dutch oven" furnace on one end. . . and the other end of each boiler fitted with a furnace design for oil burning.

Because of economic and seasonal fluctuations in operations at the Inman-Poulsen Company, oil was used as a substitute fuel when necessary. It arrived either via the nearby railroad, or by barge from the Willamette River. At first the "hog fuel" was delivered "by electric motorcar on an elevated railway" from either a mill or electric company storage house. In time, however, the fuel was transported by a system of conveyor belts directly from an enormous storage pile between the mill and Station "L". This pile of wood waste and later, sawdust, became as much of a visual landmark on the east river bank as the Stephens House had been in the previous century. Two women skied down it as a publicity stunt prior to the trails at Mount Hood for the 1936 winter Olympics. The supply of wood waste produced by Inman-Poulsen was supplemented by material from other sources. It arrived on barges which were moored at the dock adjacent to the turbine room.

Over the years the steam plant at Station "L" continued to increase in capacity. Supplementary boilers and generators were attached to the older plant in 1924 to house this additional equipment. This addition tied Station "L" with the Lincoln Substation. The electricity generated by Station "L" significantly increased the company's total output. In 1911 gross power production was 75% over 198. By the end of 1912 the increase was an additional 11%. With competition from another company, the Northwestern Electric Company, additional generation was not needed until 1921, and growth in steam power was not required until 1930.

PGE had been providing electricity for the city's streetcar lines since the early 1890s. For many years the bulk of the income of its parent company, Portland Railway, Light & Power Company had come from providing electric power to the city's 28 car lines. In 1908, for example, income produced from service to public transportation systems was three times the gross income rendered by provision of electric power and light for other uses. After 1925, the peak year for power consumption by the rail lines, the use of electricity began to shift to more non-transportation related uses. To fight this trend, the utility operated recreational parks outside the city limits; including the Oaks Amusement Park, and the Vaughn Street baseball grounds. Travel was also promoted to nearby weekend vacation spots.

In the mid-1920s the Portland Railway Light and Power Company underwent some internal reorganization. In April, 1924, the stockholders of PRL&P Company voted to change the company name to the Portland Electric Power Company (PEPCO). It was felt that the change in the company's name would more closely reflect the services it was now providing.

By 1929 demand for additional power generation had again increased, and a new boiler and generator were added at Station "L". This necessitated the addition of

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a reinforced concrete building onto the north end of the 1910 turbine room. At the same time Stephens Substation was erected nearby to contain the control and switching equipment for the new generating unit.

During the Great Depression businesses gradually curtailed or eased operations and the demand for electrical energy decreased accordingly. The years 1931 through 1933 saw the greatest reduction in output, but in 1936 demand once again increased. In the meantime PGE had inaugurated an aggressive campaign to promote the increased use of electricity by individual consumers. Labor-saving home appliances such as ranges, refrigerators and water heaters, were becoming common necessities rather than rare luxuries.

In 1937 a new oil-fired boiler was put in place at Station "L". It was to be one of the final pieces of equipment added to the complex. In July, 1938, power from the Bonneville Power Authority became available for purchase, and from this point forward PGE became more of a purchaser than producer of electric power. With the exception of the years between 1938 and 1942, growth and system requirements, until 1952, were accommodated by purchasing power. According to PGE historian, Arthur Greisser, "In 1943 annual power purchases exceeded net annual generation by the company's plants."

The period of shortages and rationing, which had been in effect during the years of the Depression and World War II, ended in 1946. By this time, additional federal hydroelectric projects had been completed or were underway. In comparison with the power it could purchase from BPA, generating electricity at its own steam plant at Station "L" was very costly for PGE.

Additionally, the inexpensive hog fuel, which had been available from the Inman-Poulsen Company, now had value as a source of wood chips for paper making. The mill itself had become a marginal operation with the depletion of old growth timber, which had made it the "world's largest sawmill" in the first fifteen years of this century. In May, 1954, the company, its mill and timber holdings, were sold to the Georgia-Pacific Company. The mill, which 40 years earlier had operated 24 hours a day, closed shortly before the transaction. PGE purchased 10 acres of the former mill property; in 1964 the Lone Star Cement Company acquired 4 acres for its plant, and numerous other businesses have their operations on the remaining 21 acres.

With the closure of the Inman-Poulsen Company and the absence of wood waste for fuel, the boilers at Station "L" were converted to utilize oil or natural gas in 1956-57. Although PGE purchased most of its power from BPA, demand for electricity was still greater than the amount BPA could supply. Coupled with seasonal requests for electricity in the winter months, the boilers at Station "L" were still occasionally called into service. However, late in 1964 the plant was reduced from its "spinning reserve basis" to "cold standby." During power shortages in 1973, Station "L" operated for approximately 60 days on natural gas. In December, 1975, the generating equipment was retired and put up for sale.

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This marked the end of Station "L"s 65-year history of providing electricity to city residents. It had generated the power which ran the city's streetcar lines in the expansion-era years between the 1890s and the close of World War I. It had consistently provided heat, light and power to residential and business customers for almost seven decades. The number of buildings and amount of equipment had increased and improved as demand for electricity grew. Under the guidance of its skilled operators, and even during tumultuous periods of internal company reorganization, Station "L" always produced the power demanded of it. Of all of PGE's thermal generation plants, Station "L" was the one operated for the longest period of time. As such, it played a significant part in the growth and expansion of the city, as well as of the company which owned it.

Industrial historian and author Lewis L. McArthur, was asked to comment on the significance of the Station "L" Group and his remarks are as follows:

Station 'L' is an interesting and presently outstanding example of an early thermal generating plant in Oregon. It illustrates building techniques used from the earliest day of commercial electricity up to the end of World War II. By that time the Bonneville Power Administration was supplying hydro-power for the excess energy requirements for the region and little or no additional private generating capacity was required. In the late 1950s when demand did require additional private facilities, the only economic plants were megawatt nuclear and coal-fired. All of the early plants have been phased out and most of the buildings razed. Station 'L' has not operated for a number of years and most of the generating and switching equipment has been removed but the structures are still basically intact.

The plant is located adjacent to the Willamette River for several reasons. While the basic fuel supply was 'hog fuel' or coarse wood chips from the Inman-Poulsen lumber mill, additional supplies were also received by barge from other sources. A great deal of good boiler water was required, readily drawn from the river, and there was no public concern about thermal pollution caused by the hot waste water. Of course, the central location made for an economical distribution system and little 'line loss.'

The original 1910 building shows the lower quality reinforced concrete often typical of the period. In a number of areas, the steel reinforcing bars have less than two diameters of cover, long considered a minimum and now completely inadequate for many conditions. There is considerable spalling of concrete, particularly on the river side where the reinforcing is exposed on the columns and rusting shows extensive exfoliation. However, other parts of the structure exemplify the then best current practice. The brick work is nicely detailed, uniform and straight. The steel roof framing consists of simple and efficient trusses of commonly available rolled shapes. The interior columns show three early types; the laced column where two channels form a box held together by rivetted, crossed flat bars in 'X' pattern; the heavy box column where two larger channels form a square tube held together by continuous rivetted plates on either side, and, lastly, rolled steel 'H' columns, both 6

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and 8 inches deep. The roofing is currently corrugated cement asbestos, probably the old Johns-Manville 'Transite.' This had not been developed by 1910 and apparently the original cover was galvanized corrugate steel. Galvanized steel would not have lasted well around a boiler fired with wood chips. A guess is that the roofing was replaced about the time the 1929 extension was built.

The interior has other interesting features, especially the method of framing the floors where there are large areas of both brick and concrete supported by steel 'I' beams with a smooth concrete slab on the upper surface. The beams are usually about 24 inches on center and the undersides are both flat and arched. There is no fire-proofing of the structural frame. The remains of the generator bases remain. They are massive, even for the time they were built, for the soil bearing was not good so close to the river. Presumably they cap over wood piles. Details are obscure because foundations extend well below the adjoining river surface and in times of high water, wood posts have been jammed between floors to prevent localized rising.

There was considerable incidental construction in the period during and after World War I, but the most interesting is the 1929 addition. This is a splendid illustration of the improvements in design and technique in twenty years. Company records indicate that all work was done by company personnel and no general contractor was involved. The reinforced concrete structure was all poured in place and the form work was outstanding. It was obviously made of the 'shiplap' typical of the period, but the workmanship is superior for there are few form irregularities. The concrete placement also shows few patched voids. The steel roof framing is comparable to the older building but the steel sash, steel roll-up door with pass door, and the gear operated clerestory ventilating system all illustrate post World War in technology. Most generating machinery has been removed and this actually gives a clearer view of the concrete frame construction in the basement levels. These lower levels are varied and complex for they originally were filled with water and steam lines along with bus bars, transformers and switching equipment.

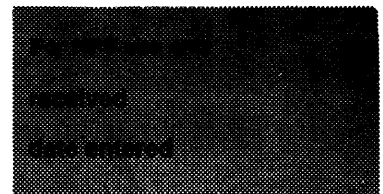
The Stephens Substation building is more prosaic on the exterior but the interior is compartmented by the housings for transformers, switches and metering gear. Again, all electrical equipment has been removed but it still is a fine example of the complexity necessary in the early days.

The sawdust conveyor system is gone and there are nothing but pictures to recall the huge pile that was popularly called 'Mount Dennis' after one of the company executives. The remaining buildings cover the entire span and are typical of the moderate sized, wood-fired, electrical generating station. I feel this complex is outstanding because it is the last relatively complete major wood-fired, steam powered, generating station, and construction techniques and materials span the life of such plants in the Pacific Northwest.

Lewis L. McArthur  
June 6, 1985

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Conversation with Harry E. Randall, PGE employee, Station "L", February, 1985.

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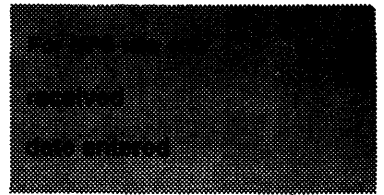
- 7/28/1869
- 10/26/1869
- 10/29/1869
- 9/5/1870
- 5/29/1876
- 6/8/1892
- 6/21/1892
- 11/27/1896
- 11/28/1896
- 12/8/1910
- 1/17/1918
- 4/28/1920
- 10/30/1929
- 6/30/1935
- 3/26/1938
- 4/10/1946
- 4/11/1946
- 5/27/1954



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5/15/1915  
4/27/1920  
6/24/1924  
10/29/1929  
1/1/1929  
3/29/1939  
5/30/1954  
8/28/1965

Portland Evening Telegram

2/18/1916  
10/22/1921  
10/30/1929

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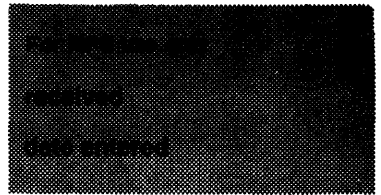
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The nominated parcel for the Station "L" Group of the Portland General Electric Company is comprised of a parcel of land situated in the Southeast quarter of Section 3, Township 1 South, Range 1 East of the Willamette Meridian, County of Multnomah, South of Oregon, said parcel being more particularly described as follows:

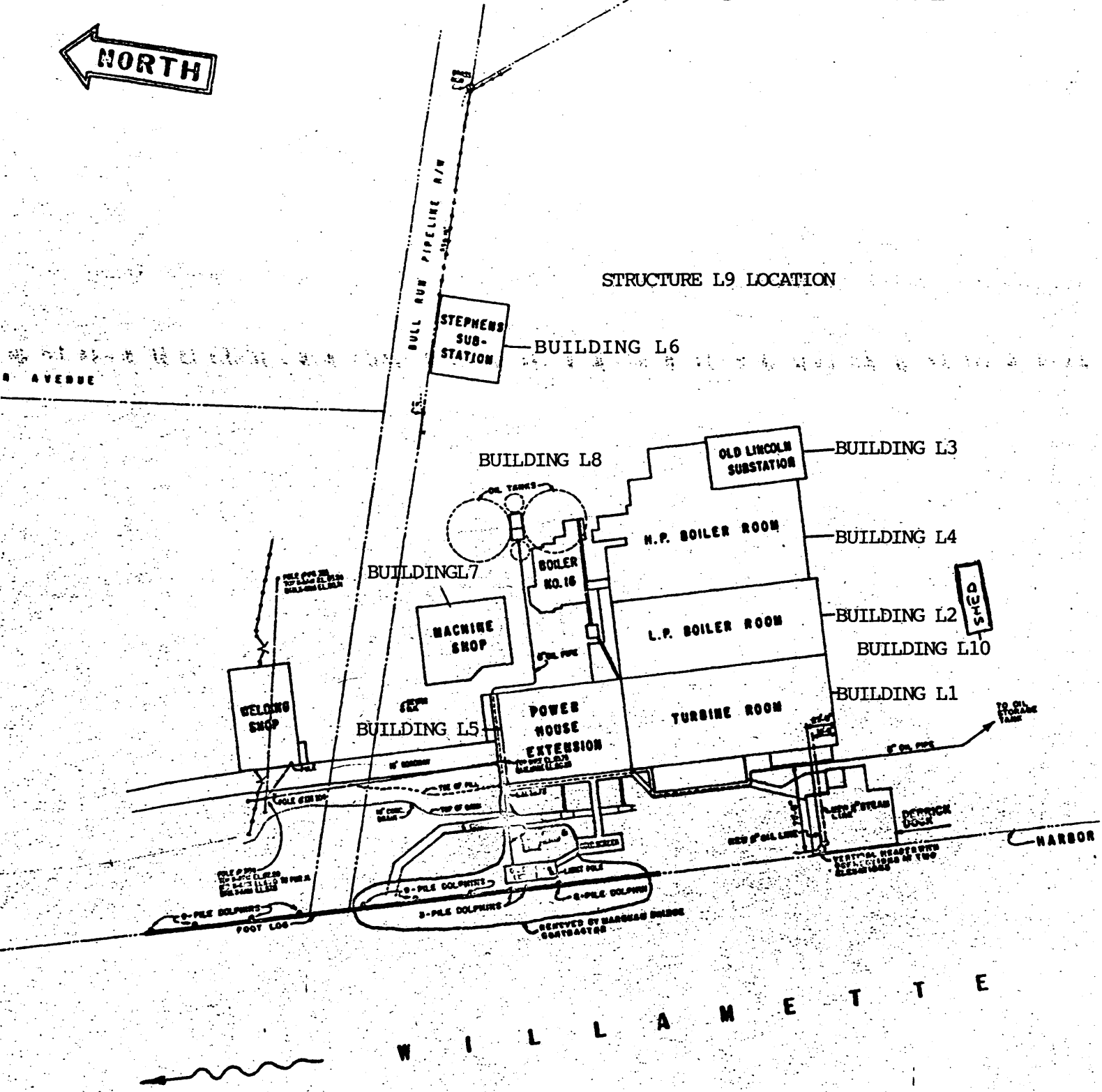
Commencing at the point of intersection of the east right-of-way line of SE 3rd Avenue and the south right-of-way line of SE Stephens Street; THENCE, West, along the westerly extension of the south line of said SE Stephens Street, 633 feet to the true point of beginning of the parcel of land herein to be described; THENCE, South, at right angles to said SE Stephens Street, 460 feet, more or less, to a point on the north right-of-way of SE Lincoln Street as extended westerly; THENCE, West, 390 feet along said westerly extension, 390 feet, more or less, to a point on the easterly harbor line of the Willamette River; THENCE, N. 15°04'07" W., along said harbor line, 476.38 feet to a point on the south line of SE Stephens Street as extended westerly; THENCE, East, 505 feet, more or less, to the point of beginning.

The above-described parcel contains 4.7 acres, more or less.

# PGE STATION L ENSEMBLE



STRUCTURE L9 LOCATION



W I L L A M E T T E

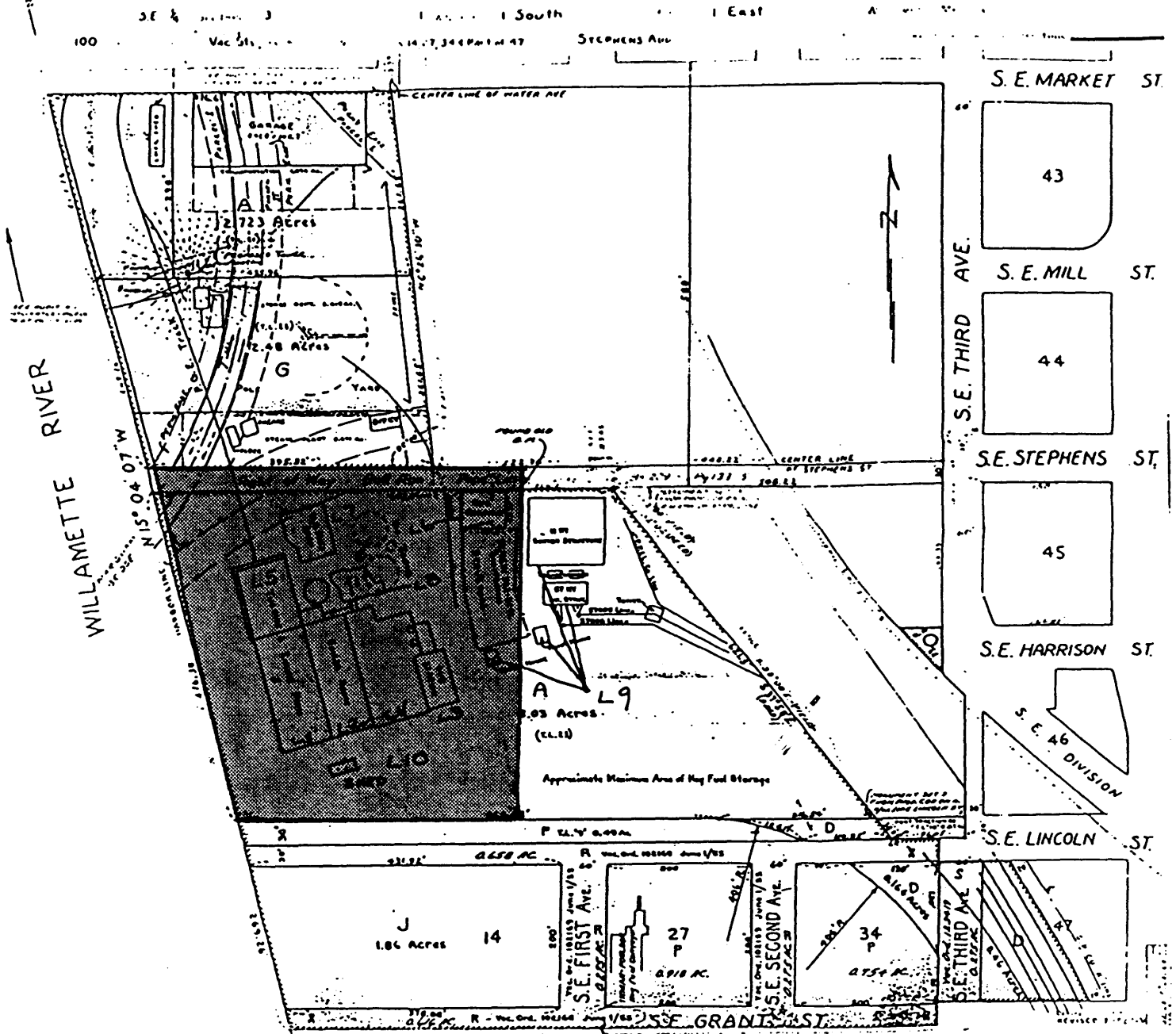
# PORTLAND GENERAL ELECTRIC COMPANY

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PROPERTY PLAT

PORTLAND

MULTNOMAH



## PGE STATION L ENSEMBLE