



The City of Seattle

## Landmarks Preservation Board

Mailing Address: PO Box 94649, Seattle WA 98124-4649

Street Address: 600 4th Avenue, 4th Floor

### REPORT ON DESIGNATION

LPB 784/17

Name and Address of Property: **Broad Street Substation – 319 6<sup>th</sup> Avenue N**

Legal Description: DT Denny's Park Addition, Lots 1 through 12, Block 66, and Vacated Alley in Said Block (Vacated Ordinance #78141), less Streets; as recorded in Volume 2, of Plats, page 46, records of King County, Washington.

At the public meeting held on November 1, 2017 the City of Seattle's Landmarks Preservation Board voted to approve designation of the Broad Street Substation at 319 6<sup>th</sup> Avenue North as a Seattle Landmark based upon satisfaction of the following standard for designation of SMC 25.12.350:

- C. *It is associated in a significant way with a significant aspect of the cultural, political, or economic heritage of the community, City, State or nation.*
- D. *It embodies the distinctive visible characteristics of an architectural style, or period, or a method of construction.*

### DESCRIPTION

#### *The Setting and Urban Context*

The property is situated on a full block site in a triangular area of the city roughly defined by Broad Street, Denny Way, Aurora Avenue North/Highway 99, and is two blocks north of the Denny Regrade neighborhood. This area is part of the Cascade neighborhood. Throughout the latter half of the 20<sup>th</sup> century, this area has split by the Battery Street Tunnel and on-grade portions of Aurora Avenue N/Highway 99, while the balance of the Cascade neighborhood has extended throughout South Lake Union on the east of the highway.

The area is currently undergoing dramatic changes in response to SDOT and WSDOT's Alaskan Way Viaduct Replacement Project. The tunnel's north portal will be situated directly east and northeast of the substation property. As of March 2017, the diagonal portion of Broad

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Street has been removed, and the intersection of Taylor and Harrison Streets changed into a traditional square-shaped intersection.

The existing character of the area near the Broad Street Substation includes wide roadways carrying heavy traffic. By 2019, this character likely will be altered by the closure of Broad Street and reconnection of the east-west and north-south street grid along Taylor and Harrison Streets, and on 6<sup>th</sup> Avenue N. The existing fence enclosing the Broad Street Substation Annex will remain, as it includes an artwork installation, which is part of the City's art collection.

The surrounding blocks contain a mix of structures, including hotels, offices, apartments, and condominium buildings, as well as some remaining surface parking lots. Most of the two- to three-story buildings date from the 1950s and early 1960s. Representative of these are two office buildings at 203 and 221 6<sup>th</sup> Avenue N (1959 and 1962, respectively), and the four-story Travelodge Hotel at 200 6<sup>th</sup> Avenue N (1959). Some buildings from this mid-century era have been demolished to allow for construction of larger and taller multi-family residential and hotel developments, such as the nine-story Hyatt Place Hotel at 110 6<sup>th</sup> Avenue N (2008), and the Hyatt House Hotel at 201 5<sup>th</sup> Avenue N (2015). These new hotels and residential buildings have responded to the zoning in the area, SM-85 (Seattle Mixed, with a maximum height of 85'.

Forty years ago, an urban inventory of the Denny Regrade neighborhood, sponsored by Historic Seattle, identified the Crane Tower, at 526 Harrison Street, as "Significant to the city – warrant further evaluation for designation as historic landmark". The survey did not identify the other building components on the subject property as having any significance. It did cite four other buildings in the vicinity as significant to the city. These included two apartment buildings from the early 20<sup>th</sup> century – the 1915 Hermosa Apartments at 2700 4<sup>th</sup> Avenue and 1916 Cedar Apartments at 320 Cedar Street, as well as the Seattle Parks Department Headquarters at Denny Way and Dexter Avenue N, and the former Post-Intelligencer Building at 521 Wall Street (both from 1948). Presently, there are several designated City of Seattle landmarks in the vicinity including the following properties within three blocks of the substation:

- Seattle-First National Bank, 6<sup>th</sup> and Denny, (1950, designated in 2006, presently a drugstore)
- "Seattle, Chief of Suquamish" (1912, in Tillicum Place at 5<sup>th</sup> Avenue, Denny Way and Cedar Street, designated in 1984)
- The Space Needle (1962, designated in 1998)
- The Seattle Monorail on the Seattle Center grounds (1962, designated in 2003)

## *The Site*

The Broad Street Substation property consists of a full block containing slightly over two acres. Largely rectangular in shape, it is angled at the northwest corner and reflects the original alignment of Broad Street. Overall dimensions are approximately 360' along the east property line and 6<sup>th</sup> Avenue N; 232' along the south and Thomas Street; 260' along the west on Taylor Avenue; and 146' along the north and Harrison Street. Broad Street's alignment impacts the shape of the site at the northwest where the property line measures approximately 133' in length. Paved sidewalks of varied widths and perimeter fencing and walls surround the site. Landscaping on the site is very limited, underscoring its utilitarian qualities. A few trees and shrubs are situated in planting beds along the northeast corner site, and others along with ground covers within the narrow setback between the sidewalk of 6<sup>th</sup> Avenue N and east facade the Control Building. This landscaping frames the main entry to this building.

The area on which the substation was built was relatively level, but it was partially excavated for building construction and installation of equipment. As a result, it is presently set several feet below the grades of surrounding sidewalks on the south and portions of the east and west sides. Most of the switchyard is covered with gravel, with exception of vestigial rail lines, which originally extended through the crane tower and onto the site to move the heavy transformers and other equipment, along with paving and equipment pads. These areas originally included a 22' by 70' concrete pad with switchgear near the southeast corner of the site, and another pad below the 22' by 287' switchgear pad near the center of the site.

There are two buildings on the site, both constructed on poured-in-place concrete: the Control Building and the Crane Building. The Control Building is centrally located and placed along the east property line on 6<sup>th</sup> Avenue N. The Crane Building, which includes separate functional areas (Crane Tower Assembling Room, Office, Shop, and Oil Pump Room), is situated along or near the north property line and Harrison Street. Two driveways are provided on the east side of the site – one leading to a loading dock in the east side of Control Building, and one for vehicles leading through a wide metal gate to the small northeast parking lot. Vehicular access to parts of the switchyard is provided through the large doors in the north and south ends of the Crane Tower.

Within the present Broad Street Substation yard, there is an array of electrical distribution equipment and support structures for transmission lines. Among these is a prominent linear, metal-clad structure that extends south from the Crane Building, which covers the switchgear. The switchgear includes the sub-grade service and cable access tunnel for three sections of the switchgear equipment. Raised concrete walkways with pipe railings run along the east and west sides of the switchgear equipment, which is covered with beige-colored metal panels.

To the west of the Crane Tower is a riveted and welded steel lattice-type tower, approximately 62' tall, with a 10'-square base that is braced by a horizontal crosspiece – a truss frame – extending from the upper west facade of the building. This yellow colored steel support structure, identified in drawings as a dead-end tower, carries the 115kV dead-end distribution cable, part of the substation's high voltage and operating equipment. Cables also extend below grade around this tower and other electrical equipment, while others are supported on truss-like steel frames within the switchyard known as overhead busses. (One electrical engineer has

described a typical switchyard as having as much going on below-grade, in terms of electrical distribution, as above-grade.)

Original perimeters featured a low cast-in-place concrete wall topped with metal poles and chain link panels along portions of the north, south, and west, along with tall concrete walls that extended north and south from the Control Building and at the northwest corner. Security fencing has been placed around the site where it was otherwise open along perimeter sidewalks. In 1982, wall sections were built with concrete blocks and concrete along the south and east sides, cast to create a checkered pattern. Seattle artist Carolyn Law was commissioned through the City of Seattle's Public Art Program to revise the fencing in the 1984. Law's design resulted in additional coated chain link fence panels, set in areas to create a moiré pattern, which are supported by a tubular steel framing system set upon the earlier concrete and block walls. The same type of decorative fencing also encloses parts of the nearby, off-site Annex property on the block to the east.

### ***The Control Building***

The Control Building is an 8,966 gross square foot, rectangular structure with overall dimensions of 61'-4" by 73'-7". (Building areas are derived from King County Property Records.) It contains two equally sized stories, with a basement and main floor. Constructed with cast-in-place concrete, it has a flat roof and an overall height, from grade to rooftop, of approximately 19', topped by a 1'-6" flat parapet. Property records site the floor heights within the building as 8' at the basement and 10' at the main floor.

Some features of the east facade of the Control Building express its Moderne design style, while its secondary facades and interior are largely utilitarian. The exterior is characterized by simple massing and flat roof, smooth concrete walls and the curved recess and fluting at the main entry on the east facade. In addition, the perimeter concrete walls are detailed into 3'-4" tall horizontal bands, separated by deep reveals that emphasize the building's horizontal proportions and its sense of solidity, while also serving as control joints. The topmost horizontal band is shorter, 1'-6" in height, defining the flat parapet.

The building's current exterior finish – painted concrete – provides a level of refinement to it in contrast to the present unfinished concrete of other buildings on the site. The 1949 specifications for the substation called for the buildings to receive primer and two finish coats. Historic photos appear to indicate that the concrete walls of the Crane Building were left unfinished, and one photo from late 2005 shows it as such.

The primary east facade of the Control Building faces onto 6<sup>th</sup> Avenue N. The main entry, situated in the northern part of the wall, is emphasized by a wide set of stairs that rise approximately 7' and lead to a small landing. The stair is fitted with aluminum standards supporting aluminum pipe rails that curve outward at the top to envelop the walls. Curved and fluted pilasters create a deep recess, which contains paired entry doors. Above these robust elements the wall is flat and smooth, bearing signage in large letters reading, "City Light" and "Broad Street Substation" in a lower row. A multi-paned transom window is provided above the above 7'-tall entry doors. The painted steel doors, which are set into steel jambs in the 10'-tall by 8'-wide opening, are detailed with recessed panels, three aligned squares on each one.

A loading dock fitted with an exterior pumper and metal door is provided in the east facade to the south of the entry, along with a non-original secondary entry with flush door accessed by a metal stair.

The east facade is the public face of the building, with main entry serving as its strongest stylistic element. It contrasts to the three secondary facades, which face onto the switchyard, and are more utilitarian and evidence changes in response to functional needs. The north facade retains an original single clerestory window at the first floor along with a small window at the basement, while other original larger windows have been removed and their openings infilled. The south facade is simple and unadorned, with few features except for attached electrical equipment. The west facade also retains an original clerestory window in the northern section of the wall, along with a single louvered exhaust and a large, 18' by 8'-2" window opening in the southern section.

Small, flat roofed, reinforced concrete marquees were shown on original elevation drawings, to be placed above the steel panel-type exterior doors and transoms on both the north and west facades. The design was revised, however, to provide welded steel frames with corrugated roofing panels in a shed configuration. An original access ladder fitted on the building's north facade, which was made up only by horizontal steel pipe sections attached to the wall, has been replaced with a safer, conventional wall-mounted ladder. A concrete stair and landing are situated on the north, while on the west a ramp leads to the raised concrete walkway that runs between the Control Building and the linear switchgear.

The interior of the Control Building appears utilitarian. The basement houses a battery storage room and a heat exchanger room in the basement, separated by a pumice block wall. Each of these rooms is accessed by an intervening door between them and a single interior stair, in addition to an exterior stair on the south side. Window openings into the basement are limited to several on the north facade, which are set in single and grouped arrangements and aligned with those in the room above. On the west side, an opening leads directly into the tunnel below near the switchgear structure.

The main (first) floor contains an entry hall at the northeast corner, accessed by the main entry, along with several service spaces and the stair to the basement. The southern half of the main floor was designed as a Rectifier Room with switch panels and foundations for three rectifiers, and it is positioned directly above the Heat Exchanger Room in the floor below. This space is presently accessible via a slight ramp. The Control Room and Relay Room share the northern half of the main floor. These spaces, along with the Entry Hall, still function as originally designed. The Control Room is sized for two operators, and it has more finished than the other spaces, with its ceiling furred and clad with acoustical tiles. Floors and walls are painted concrete. Windows in the north, south, and west walls provide illumination and visual access to the surrounding yards, along with perimeter doors on the north and west elevations.

### ***The Crane Building***

This original 14,836 square foot, cast-in-place reinforced concrete building is made up of several distinct sections: the Crane Tower, Office, Shop, and Oil Pump Room.

## Crane Tower

The Crane Tower (also known originally an “Untanking Tower” and an “Assembling Room” and currently as a Crane Bay), a 60’ by 46’ structure, is the most prominent one on the site due to its size, scale and placement near the north property line in close proximity to Harrison Street. This single-volume, 11,040 gross square foot, 66’-tall structure to the west of the Office, Shop and Oil Pump Room was designed originally to allow for the on-site repairs of heavy electrical equipment, such as transformers, and it contains an upper and lower crane on crane ways, which are supported by concrete pilasters.

Exterior facades of the Crane Tower feature joint lines set on 8’ to 8’-7” centers that create an overall grid pattern on the wall surfaces, and windows of various sizes that provide ample natural illumination to the interior. These include 4’-10” square windows, set into the uppermost 8’-band, with placed five on the east facade, and three each on the north and south facades. (Rack and pinion operators within the building move these pivoting windows.) In addition, there are two tall, 20’ by 7’-2” rectangular shaped window assemblies on the east and the west facades. These tall windows are made up by corrugated wire glass set into steel frames.

The north facade of the Crane Tower faces toward Broad and Harrison Streets. Because of the angle of the streets and shape of the substation property, the building footprint meets the angled property line at the northwest corner along Broad Street, while being setback 28’ from Harrison Street. This primary facade features a large opening, 24’-6” in width and 21’-6” in height, with sectional vertical lift steel doors set within a 10” cast concrete surround, which extends to a height of 32’. The surround projects outward at an angle as it rises from the grade, extending forward from the wall plane by 3’-6” at its head. Within it and above the door there are large bronze letters reading “CITY LIGHT” and “Broad Street Substation.”

The west facade of the Crane Tower features a decorative element in the cast concrete wall approximately 9’ from the south end/edge. Cited in original drawings as “rustication,” it consists of seven, 8’-square panels, which aligned vertically. (See drawings at the end of the report.) Attached at the center of one of the uppermost squares is a crosspiece support for the nearby dead end lattice type tower. Both the decorative detail and the angled entry door surround are characteristics of the Moderne style.

The Crane Tower interior is a single volume, which appears largely utilitarian in character. Deep concrete beams and pilasters support two crane ways for cranes of 100 and 50 ton capacities. In addition, there is a concrete walkway with pipe railing that runs along the building’s upper perimeter walls. It is accessed by a wall-mounted steel ladder on the north wall. A single hooded opening in the east wall contains a 10’ by 14’ steel rolling door that leads into the adjacent shop area. An original rail line remains in the floor slab. This track originally allowed for the movement of equipment into the building and through another tall, two-leaf, vertical lift steel two leaf door in an opening on the south wall, which leads directly to the switchyard.

### Office, Shop and Oil Pump Room

Situated along the east side and slightly in front of the Crane Tower is the one and two-story structure containing the Office, Shop, and Oil Pump Room. In contrast with the Crane Tower, these are far lower in scale. The Office and Shop area make up 3,496 gross square feet, and an approximate 38' by 46'-6", which contains a mezzanine as well as multi-level workshop and separate office, service, and storage areas. To the east of it is the small, 15' by 20' Oil Pump Room. To the south is the covered switchgear equipment.

The Shop, Office, and Oil Pump Room are of varied heights. On the west, abutting the Crane Tower, there is the single-story Office, which currently serves as a lunchroom. It features overall dimensions of 13'-8" by 28'-7" and a curved northwest wall, made up by an 8' radius, that is setback 8" from the taller two-story Shop. Wall-mounted metal lettering identifies the original address, 565 Harrison Street (cited as 501 on the original drawings). The main entry door is set within a deep recessed in the west wall, and consists of a metal panel type with nearly flush stiles and rails. This northwest wall contains a large bank of windows.

The taller, rectangular mass to the east of the Office is the Shop space. A tall 17' volume, it is fitted with a mezzanine against its east wall. This mass expresses the primary workshop function its scale is emphasized by a large, centrally located, 12'-7" by 21'-10" tripartite window assembly in the primary north facade. Originally filled with multi-paned industrial steel sash windows, it presently holds aluminum framed windows with double-glazing, which were designed and installed in 2012 to emulate the original multi-light window pattern. The large windows are separated by concrete mullions, which create narrow tall windows on the sides of a wider center window.

The east facade of the Shop contains two horizontal bands of windows, set at the mezzanine level, which were also replaced in 2012, along with a smaller single window and a glazed steel panel-type door at the grade level. This door and a similar, adjacent entry door to the Oil Pump Room are sheltered by a semi-circular shaped, flat-roof, cast concrete marquee a radius of 8'-6". The position and shape of this marquee seems to reflect the stepped roofline and curvilinear wall on the west side of the building.

The Oil Pump Room is situated on the east end of the Crane Building. Originally designed to house oil, this small concrete room of 300 square feet has overall dimensions of approximately 14'-7" by 23'-4". Its primary north facade features a 5'-diameter circular opening, which originally held a multi-paned steel window. The opening was recently infilled with a solid panel featuring the City of Seattle logo. The east facade of this structure has few stylistic features. From a vantage point in the nearby service yard, two original wall-mounted metal access stairs are visible. These stairs – made of flat stock and featuring half-round upper railings – rise from grade to the Oil Pump Room roof and from there to the roof of the Shop area. Sheet metal coping along the top of the shallow parapet wall is also visible.

The south facade of the Shop is partially obscured by the switchgear enclosure, while the south facade of the Oil Pump Room is visible. This facade contains a large, rectangular window and steel panel entry door with upper glazing.

Originally designed as a workshop, The Shop presently contains office and drawing areas, along with the original, tool storage areas, and toilet room spaces below the mezzanine. Finishes within the Shop and Oil Pump Room are utilitarian, with painted concrete walls and ceiling, and concrete floor slabs. Light fixtures are not original, with exception of a “schoolhouse” ceiling fixture in the Oil Pump Room. Within the taller interior space of the Shop there are steps along the south wall leading down to where the floor slab drops 4.5’ below grade to a lower landing. An exit door off the landing in the south wall leads to walkways and the cable-way, the long bank of switchgears structure that extends into the yard to the south. The metal-clad 13kV switchgear equipment is a long, 27’ by 72’ and 10’ tall element in the switchyard.

The entry to the Oil Pump Room opens onto an upper landing of an interior steel stair, which leads down 7’-6” to the below-grade floor level. Oil tanks were originally placed below, covered by grated opening. The room presently contains large steel pipes. It no longer functions as an oil pumping facility and serves as a storage space.

The placement of the Oil Pump Room, Shop and Office mass appears to overlap that of the Crane Tower in a sculptural composition. Set on the north property line, along the sidewalk and in front of the tower, the two smaller sections act to mediate the tower scale. Moderne style design features of this assembly are evident in this stepped massing, flat roof and circular window; curved wall and marquee and railing details; and the smooth finished concrete walls, which feature deep cast joint lines that create the gridded surface pattern.

### *Changes through Time*

Beginning in the 1950s new equipment was added and functional modifications were made to the new Broad Street Substation. Two 1,500 kilowatt rectifier units were installed in 1951, which went into service the following year. These rectifiers converted conventional alternating current (AC) to the direct current (DC) used to power Seattle Transit System’s electric trolley buses. Other modernization efforts were soon undertaken to supply DC to the Transit System with higher efficiency and reduced conversion costs. Such efforts continued until the trolleys were replaced by diesel-fueled busses in 1963. (The rectifiers were removed in ca. 1970.) City Light documents dating from 1955 also indicate that an additional network was proposed for the Broad Street Substation in late 1955, with a third receiving bank of transformers.

A low-bid citation in January 1957 refers to “a \$77,969 contract for expansion of facilities” at the Broad Street Substation, but specifics are not included in the article. At the end of 1957, an underground high-voltage distribution system went into operation in the downtown, including a new transformer bank at the Broad Street facility. Part of the downtown load, previously supplied by the Union Street and Central Substations, was transferred to the Broad Street facility. Pacific Telephone & Telegraph equipment installed to support the shift to seven-digit dialing was the first load added to the new network.

In the early 1960s the Broad Street Substation served as the main power source for the Century 21 Exhibition, with power provided through new underground tunnels. Publications from the era extolled the reliability of the city’s power system for exhibits at the Worlds Fair (Seattle City Light, “City Light ....and Century 21,” ca. 1962).



As part of a “clean up program” for the Fair, an ornamental concrete masonry unit screen wall was approved for the substation by the Seattle Arts Commission. The six foot-tall, 589’-long fence around the substation replaced the original woven wire fence at a cost of approximately \$10,000. Changes were made to the 26 kV switchgear equipment, and concrete encased duct work was added to the substation in ca. 1963, including extensions of the system underground as far as Republic Street, Dexter, and 3<sup>rd</sup> Avenues. City Light requested \$700,000 for equipment at the Broad Street Substation as part of the city’s budget for 1962-1967, and in the 1960s, underground high-voltage cables were installed to connect the Beacon Hill Terminus, with the recently constructed East Pine and existing Broad Street Substations.

In 1984-1985, new fencing designed with a decorative pattern by Seattle artist Carolyn Law was installed on the property and around the nearby substation Annex site on the block to the west.

Permit records available from SDCI microfiche files and drawings from SCL files cite some other changes to the Broad Street Substation in the last decades of the 20<sup>th</sup> century:

June 1969	“Yard Wall Railing”
October 31, 1977	“Interior alterations to existing substation per plans”
January 29, 1982	“Concrete Block Yard Wall”
October 4, 1984	“Install hear exchanger”
June 3, 1983	“Electrical permit for tenant improvement”
July 20, 1984	“Fence at perimeter per plans”
August 28, 1995	“Electrical permit for install of heat & AC circuits & sign circuits on roof”

SCL records cite a project in 2005, “Broad Street Restoration and Facilities Improvement Project,” the scope of which remains unknown. While the Control Building exterior was not painted in 2001, on-site personnel have noted that in ca 2012 its exterior was repainted.

Presently, the substation borders a portion of Broad Street, which has been slated for closure due to the Alaskan Way Viaduct Project by WSDOT. City Light proposes to install new equipment at the substation, known as a series or line inductor. (An inductor is an electrical component, usually a wire coil, which resists changes in electric current passing through it, acting somewhat like a valve in a pipe. When a current flows through it, energy is stored temporarily in a field in the coil. Series inductors are used to control and balance electrical loads traveling through the regional grid. The new inductor will help balance the regional transmission system by controlling electrical impedance on particular lines to prevent overloading ... expansion of the site and the existing security wall and fence will accommodate the new inductor.

## SIGNIFICANCE

### *Development of the Surrounding Neighborhood*

The Broad Street Substation is located on a full block in an area of the city defined by the Seattle Center Grounds on the west, and transportation systems, including Mercer Street on the north and Aurora Avenue N/Highway 99, on the east. The site is two blocks north of Denny Way, a major arterial that extends nearly from the city's waterfront up through Capitol Hill and the Central Area. In parts of the city, such as this one, the street defines a shift in the urban grid, which extends from the curve of the Elliott Bay Harbor. The present grid and streets (including Denny Way), tends to define the area, which makes up the westernmost portion of the Cascade neighborhood. The lower Queen Anne Hill neighborhood is situated to the north and west.

The surrounding area has been shaped consistently over time by major infrastructure projects. Historically, it was part of the multi-phase regrading of Denny Hill. The concept for this effort emerged in 1898 as a vision to make Seattle's steep hills and streets more level and encourage development. The first phase, which dramatically lowered the area along 1<sup>st</sup> Avenue from Pine Street to Denny Way, was completed in January 1899. Directed by Seattle's visionary City Engineer, Reginald Heber (R.H.) Thomson (1856-1949), the regrade was intended to encourage development through the construction of straight, level roads and water systems in the city.

The second phase of the regrading of Denny Hill occurred between 1903 and 1911, and it addressed the area between 2<sup>nd</sup> and 5<sup>th</sup> Avenues, from Pike to Cedar Streets, flattening and leveling as much as 80' of the original Denny Hill. In 1910, the City's Municipal Council Plans Commission hired planner Virgil Bogue to produce a comprehensive "civic vision" for the regraded area. Bogue, who had worked with the Olmsted Brothers, produced a grand Beaux-Arts scheme with radiating plazas lined by Neo Classical style buildings. This plan proposed a new civic area in the Regrade, but Seattle voters soundly rejected it in 1912, voting against it two to one. The third and final phase of regrading Denny Hill occurred between 1928 and 1930. It reduced the hill's eastern slope, comprised of the area between 5<sup>th</sup> and Westlake Avenues and Virginia and Harrison Streets, including the subject property. The area that surrounds the Broad Street Substation was included in this last phase of the regrade project.

During the Great Depression and the immediate post-war period, development in the leveled area grew very slowly, with isolated apartments and commercial buildings, while the majority remained vacant. Light manufacturing, printing businesses, auto dealerships, warehouses, film exchanges, service garages, and gas stations were drawn to the area by relatively cheap land prices and its close proximity to the downtown.

Early zoning in the city's first land use regulations in 1923 called for multi-family residences in what was cited as the Second Residence zone, which included the Broad Street substation site. Despite this, the area remained largely undeveloped until the 1960s. Construction patterns illustrated in figure-ground maps from 1912-1920 show a pattern of modest growth

and the presence of small, residential and commercial structures, while construction in ca. 1940-1960 and ca. 2000 indicates larger buildings.

The identification of the surroundings as a part of a distinct neighborhood became more tenuous after the early 1950s, when the Battery Street Tunnel and Aurora Avenue N (formerly 7<sup>th</sup> Avenue N, one block east of the subject property), were transformed in response to the construction of Highway 99. The highway was extended through the city along the Alaska Way Viaduct in the late 1940s, replacing 4<sup>th</sup> Avenue as the urban route through the city center. In 1952, the Battery Street tunnel was built beneath the Denny Regrade and southern portion of the South Lake Union area to connect Aurora Avenue N to the new viaduct for Highway 99 that ran along the city's central waterfront. The area north of Thomas Street was bisected into east and west halves, with only Mercer Street extended via underpasses to provide access eastward below Aurora Avenue N into South Lake Union. Construction of Highway 99 essentially divided the historic neighborhood into separate east and west parts. Broad Street was also reconfigured, with an underpass below in 1962.

Development of the nearby municipal bus maintenance site on blocks to the north of the Broad Street Substation, and construction of substation in 1951, resulted in closure of several streets north of Thomas Street, which impacted pedestrian and vehicular traffic and the post-war development of the area. Other public structures in the area included the Civic Auditorium, Armory, and Memorial Stadium, which were located several blocks to the northwest on Mercer Street. In the early 1960s, the Auditorium, Armory, and a former public school, playground, and fire station were aggregated and redeveloped as part of the fair grounds for the Century 21 Exposition. In response to the World's Fair, many parking lots, motels and other low-scale tourist-related facilities were built, particularly in the areas south of Denny Way. In the succeeding decades, vehicle traffic on Denny Way and nearby Broad and Mercer Streets continued to grow, and the Regrade/Belltown area became increasingly attractive for dense residential development.

Construction by institutions in the last decade has also impacted the character of the surrounding neighborhood. Walls and fences that had acted as a barrier around the Seattle Center grounds were removed in the 1990s, and the Museum of Pop Culture was built at 325 5<sup>th</sup> Avenue N, one block west of the substation, in 2000. The Gates Foundation acquired the parking lot property on the block directly north of the substation, and created its multi-building campus in 2011. This area of the city will see considerable changes in the near future with the completion of the new SR 99 Tunnel and revisions to extend Harrison and Thomas Streets eastward and reassembly of the ground plane to the South Lake Union area.

### ***Historic Overview of Seattle City Light***

[Note: the history of Seattle City Light and the development of municipal, publicly-owned utilities is a rich subject, which is described in detail in many publications as well as in another report, the "National Register of Historic Places Nomination, Skagit River and Newhalem Creek Hydroelectric Projects, Whatcom County, Washington." This subject was addressed also in a historic survey sponsored by the City of Seattle Department of Neighborhoods. The survey, by Cathy Wickwire, is summarized in the "Survey Report: Comprehensive Inventory of City-Owned Historic Resources, Seattle,

Washington,” May 20, 2001.” Much of the following overview has been derived from these reports.]

Seattle’s 1869 charter authorized the municipal government to provide street lighting, and its first coal gas-powered streetlights were lit on December 31, 1873. The first electric light bulb arrived eight years later in 1881, but only as an artifact. Their use had to wait another five years until representatives from the Edison Electric Light Company demonstrated illumination by light bulb in the city. Conditions quickly changed, however, as electricity came into common use in the late 19<sup>th</sup> century. In 1886, the Seattle Electric Light Company acquired a permit for street lighting, and several years later Seattle became the fourth city in the world to establish an electric “street railway” system. Newly developed alternating current also enabled the transmission of power over long distances. This technology and numerous inventions and patents led to the manufacture of electric cars, appliances, telegraphs, and “wireless telegraphy” around the turn of the century. Such inventions – particularly domestic appliances, the telegraph and telephone, and electric motors – were quickly embraced by the marketplace.

By the early 1890, there were four electric light companies, two light and power transmission machinery firms, and an electric railway machinery and supply company listed in the local *Polk Directory*. These included Edison General Electric. Two of the local firms merged to form the Union Electric Company in Seattle, which soon dominated the local market, while many small operators established local steam plants, some located in downtown building basements. Many mergers and reorganizations followed, and by 1900 Stone & Webster, in conjunction with prominent Seattle resident Jacob Furth, consolidated operations of virtually all the existing lighting, traction, and related subsidiary businesses in Seattle (nearly 20 locally-based utility companies) as the Seattle Electric Company. In 1902, this company acquired a 50-year franchise to operate a private electric utility system within the City of Seattle. The Seattle Electric Company, predecessor of Puget Sound Power & Light, also obtained a franchise from the city for the street railway system, gaining the firm exclusive rights to operate the system. Despite opposition and concerns about private utility monopolies and Seattle Electric Company, the consolidated system was improved and extended under the new management.

However, populist political sentiment and support for a municipal utility system was growing. In 1902, Seattle residents approved a \$590,000 bond issue to develop a hydroelectric facility on the Cedar River, inaugurating public power. In 1905, under the direction of James Delmage (J. D.) Ross (1872–1939) and City Engineer R.H. Thomson, Seattle built its first Cedar River plant, some 30 miles southeast of the city, and began to generate power from the first municipally-owned hydroelectric project in the country. The downtown distribution station was located near Yesler Way and 7<sup>th</sup> Avenue.

On April 1, 1910, a City Charter amendment created a separate Light and Power Department, led by J. D. Ross, beginning in 1911. The benefits of hydro power (electricity from the energy of falling water) over steam power production were apparent to customers who received low rates from the new department. By the end of that year, the City’s two-year-old project of installing ornamental street lighting was completed, with the illumination of downtown and neighborhood streets throughout Seattle. The Lighting Department offered Seattle residents, businesses, and industries low electric rates, and its competition with Seattle Electric Company

resulted in its low rates as well. However, until 1914, the City had only one plant and transmission line. As a result, it continued to struggle with service interruptions.

The Lighting Department constructed a Hydro House on the southeast edge of Lake Union in 1912 and the adjacent Lake Union Steam Plant incrementally in 1914, 1918, and 1921 as auxiliary facilities. It also completed a masonry dam on the Cedar River in 1914, and continued to search for another hydropower site. When the privately-owned Puget Sound Traction, Light & Power attempted to block the City of Seattle from developing such a site, the federal government revoked the private utility's access to the Skagit River in late 1917, allowing instead development of its hydro power by Seattle by 1924. The North Substation, at 8<sup>th</sup> Avenue NE and NE 75<sup>th</sup> Street, which opened in September 1924, was built to receive power from the Gorge Plant on the Skagit River. The South Receiving Substation was subsequently added to the system in 1937.

In the early years, the City of Seattle Lighting Department and Seattle Electric Company had a controlled connection between their systems, and at times they would share power distribution. This cooperation ended in 1912 when Stone & Webster merged its Seattle Electric Company with the Seattle-Tacoma Power Company (Snoqualmie Falls), Pacific Coast Power Company, Puget Sound Power Company, and Whatcom County Railway and Light Company. The new corporation – Puget Sound Traction, Light & Power – soon established regional electrical service throughout western Washington. Within the city limits, the relationship between the public and private power entities became one of bitter rivalry while consumers continued to benefit from low rates.

Both utilities promoted consumption of electrical power through displays and direct sales of appliances, as well as print and radio advertisements, and billboards. “By 1930, more Seattle residents cooked on electric ranges than did residents in any other large city in the nation. They consumed twice the electricity for half the average cost. Across the United States, seven homes in 10 had electricity, but in Seattle, virtually every home was connected”. Meanwhile, the battle over the public versus private provision and control of electric power in Seattle continued. In 1934, the Stone & Webster “cartel” was broken up by the federal government, and Puget Sound Power & Light was reorganized under a local board of directors. By this late date, Seattle's hydroelectric sites outside the city were assured. However, delays in resolving the conflict between public and private utilities extended throughout the Great Depression and World War II, to be finalized in the post-war period.

In the two decades following 1920, the increased number of residential accounts held by the Light Department reached nearly 40 percent, while the population increased less than 17 percent. In September 1936, the construction Skagit River Diablo Power Plant was finished with the completion of the Power House. This project resulted in an increased power output at the Gorge Powerhouse with the addition of 33,000 kW to its capacity. By this time the City's power generation had increased from 59 million kilowatts in 1917, to over 384 kW. This was followed by the construction of the Ross Power Plant, built in part with WPA funds. The Ross Dam was the third and largest dam on the river, and its completion in 1949 realized the original design vision of City Light's Skagit River Hydroelectric Project.

By 1940, Seattle was said to be "...the best lighted city, not only in America, but in the world. It is the world's most modernized city electrically, and the largest user of electric ranges of any city in this or any other country". To take advantage of the low-cost power, Seattle also converted its electric streetcar system to electric trolley buses in the 1940s. The Lighting Department even supplied 3,568 electric ranges and water heaters to the Seattle Housing Authority's Yesler Housing Project in ca. 1940.

In 1943, the Seattle City Council resolved to buy Puget Sound Power & Light (PSP&L) properties when the company's urban franchise expired in 1952. Seattle voters narrowly approved a proposition in November 1950, supporting municipal acquisition of private power assets within city limits and thereby unifying service under the Department of Lighting. In March 1951, the City agreed on a price for all Puget Sound Power & Light's Seattle properties, including its distribution system, but excluding the hydro plants. Under this agreement, Seattle acquired three transmission substations and ten distribution substations. Because of deferred maintenance, much of the old system was gradually dismantled and some replaced.

The early 1950s was a period of rapid growth for the City of Seattle and its electrical utility. After the end of the war, the Lighting Department had plans prepared for additional transmission lines, substations and equipment in anticipation of rising demands by new customers. These included the new Broad Street Substation, which would be connected by new 115,000-volt transmission lines to another new substation in Bothell, as well as to the older North Substation. The Bothell Substation was built to receive electricity from the existing Skagit River dams as well as the Ross Dam, which was then under construction. The Bothell Substation would transmit electricity at a lower voltage to the receiving stations in the city.

In 1951, Seattle completed a project at its Gorge Plant, with an additional 48,000-kilowatt generator, and from 1952 to 1954 installed three 90,000-kilowatt generators at Ross Dam. The Yesler Substation was retired on February 7, 1951, though the building on Yesler, between 6<sup>th</sup> and 7<sup>th</sup> Avenues, continued to serve as headquarters of the operating division. The Broad Street Substation and Bothell Substation were completed and put into service, with the subject station energized on November 8, 1951.

The Duwamish Receiving Substation went into service October 28, 1955 to supply power to the south end of the city, and north of the city a substation was constructed in Shoreline. Between 1951 and 1955, equipment was also added at existing facilities and seven new rectifier substations were constructed.

By 1956, the department also had customer offices in Ballard, University District, Lake City, West Seattle, Burien, and White Center, and a new downtown headquarters on 3<sup>rd</sup> Avenue. In 1953 it was one of many utilities to initiate the "Live Better Electrically Program" to increase residential use of electricity

After Seattle assumed ownership of all electrical facilities in the city, it consolidated maintenance and built a new service center at 1300 N 97<sup>th</sup> Street (1956-58). In addition, seven receiving substations were built in the 1960s and early 1970s: Viewland-Hoffman, University, East Pine, Union, Massachusetts, Delridge and Creston-Nelson. In the 1960s City Light built

the Boundary Dam and powerhouse on the Pend Oreille River in northeast Washington, which joined its Cedar Falls, the Skagit River's Gorge, Diablo and Ross dams and powerhouses. These were later joined by new facilities on the Tolt River in 1995.

The utility continued to promote consumption, selling electrical appliances through showrooms with free repairs. As environmental concerns increased, it adjusted its policies, and in August 1973 began promoting conservation rather than consumption. In August 1978, it was renamed Seattle City Light. "A major drought hit the area in 1977, which was followed by additional droughts in the 1980s. Along with unprecedented demand from customers and increased environmental concern from residents, City Light redoubled its conservation efforts, launching a series of conservation programs that offered free home energy checks, financial incentives for weatherization, and installation of energy saving measures".

As of 2011, SCL is currently the nation's tenth largest publicly-owned power system, and is responsible for all electrical and streetlight services and residential and commercial / industrial conservation within the city. It provides low-cost power to nearly 700,000 people in a 130 square mile area made up of Seattle and the neighboring municipalities of Burien, Lake Forest Park, Normandy Park, Renton, SeaTac, Shoreline, Tukwila, and parts of unincorporated King County.

### ***Summary of Seattle City Light's Current Generation and Substation Facilities***

Development by SCL has resulted in construction of its current six generation plants and fourteen major substations (as of 2017):

#### Generation Plants

1. Cedar Falls Power House	Built 1904	2 generators, on line 1921
2. Gorge Power House	Built 1924	4 generators, online 1924 (2), 1929, & 1951
3. Diablo Power House	Built 1936	2 generators, online 1936 & 1937
4. Ross Power House	Built 1952-56	4 generators, online 1952, 1953, 1954, 1956
5. Boundary Power House	Built 1967	6 generators, online 1967, 1968 (3), 1986 (2)
6. South Folk Tolt Power House	Built 1995	1 generator, 1995

### Major Substations

Seattle City Light records, as of 2017, indicate the following buildings which include two designed by Architect Ivan M. Palmaw (including the Broad Street Substation). The other substation buildings dating from the 1950s were designed by in-house architects or engineers.

<u>Name</u>	<u>Built</u>	<u>Notes</u>
1. Canal	1924	Designed/built by Puget Sound Power and Light (aka Puget Power); purchased by SCL in 1951
2. North	1924	Built by City Light, oldest substation in the system. Spanish-Mission Revival style (Source: DON Historic Sites Inventory form, 2000.)
3. South	1937	Art Moderne, concrete building; federally funded, with style typical for PWA and WPA buildings
4. Bothell	1951	Moderne (Palmaw), concrete Control Building; outside City Limits
5. Broad	1951	Moderne (Palmaw), concrete buildings (both)
6. Shoreline	1954	Moderne, concrete Control Building; outside City Limits
7. Duwamish	1955	Moderne, concrete Control Building; outside City Limits
8. East Pine	1967	Unique design (Bassetti), brick and concrete building
9. University	1968	Concrete building
10. Massachusetts	1969	Appears to have a concrete building
11. Delridge	1971	Appears to have a concrete or metal building.
12. Union	1973	Concrete building
13. Viewland-Hoffman	1977	Concrete building; designed in-house
14. Creston-Nelson	1981	Concrete building

### ***The Original Designer and Contractor***

#### Architect Ivan M. Palmaw

Ivan Michael Palmaw (1896–1979) was the original designer of the Broad Street Substation buildings and perimeter yard walls. Stamps and title blocks on original drawings cite the structural engineer, Powell & Woelber, Consulting Engineers, and mechanical engineers, Ben B. Lezin & James B. Notkin.

Recent research, including discoveries by City Light, indicates that Palmaw was one of the many architects practicing in the mid-20<sup>th</sup> century in the Seattle area whose early careers were impacted by the economic straits of the 1930s. Palmaw’s application for a Washington State architectural license notes that he was born in St. Petersburg, Russia, and completed two years of study at the University of St. Petersburg before finishing military engineering school and becoming a major in the Russian Imperial Engineering Corps. After serving in World War I with the Imperial Russian Army, he was forced to leave the country during the Russian Revolution and joined his uncle, exiled former imperial architect of Russia, in Shanghai in 1920. Several years later he reportedly chose to study architecture with Carl Gould.

In 1926, Palmaw immigrated to the United States, where he entered the University of Washington’s architecture program. He graduated with a Bachelor of Architecture degree in



1929 and began working for a Seattle architect, Roy D. Rogers. According to his State of Washington license application, by 1931 Palmaw had worked on a palace, two hotels, a club house, an office building, six apartment houses, 26 residences, a barracks, and a transformer station. Palmaw noted that he was fully responsible for one apartment house and 17 residences, including architectural design, working drawings, and details, and structural, heating and venting, wiring and plumbing systems. His recent work at that time, completed at Rogers' office, included several houses in Seattle – the Thomas Balmer residence (3500 46<sup>th</sup> Avenue NE, 1930), Frank Burnett residence (2564 Constance Drive W, 1931), and the Horner residence (in Windermere, 1931).

After leaving Rogers' office in 1937, Palmaw worked as a sole practitioner and also in partnership with architects Frank Baker and George Stewart. He designed St. Nicholas Russian Orthodox Cathedral at 1714 13<sup>th</sup> Avenue (1932-1937), St. Spiridon Orthodox Cathedral in the Cascade neighborhood (1936-1938), and the Renton Fire Station (1939-1942, present the Renton History Museum).

Together the partnership of Palmaw and Stewart were responsible for other projects for the Seattle Lighting Department, including a housing project near the Ruby Dam in 1937 (of which two houses remain); Ross Lodge (designed by Stewart), and House No. 6 (attributed to Stewart with Palmaw as assistant). In late 1938 Stewart was appointed as Associate Architect for the Bonneville Power Administration in Portland. By 1940 Palmaw was working as a sole practitioner. He went on to design City Light's Columbia and Magnolia Substations in 1941, First Hill Substation in 1947, and Bothell Substation in 1949.

From 1957 until his retirement in 1969, Palmaw worked for architect Harry Powell & Associates on Mercer Island, where he resided. He does not appear to have been a member of the American Institute of Architects, as he is not listed in the *AIA Directory* of 1956 or 1962. Ivan Palmaw died in Seattle at age 83, in 1979.

#### General Contractor S.S. Mullen, Inc.

A 1949 newspaper article identifies general contractor S.S. Mullen, Inc. as the apparent low bidder for construction of the Broad Street Substation. The firm, owned by Stewart Smith Mullen, Jr. (1923–2014), began as a building contractor in Washington State and later evolved to work in construction of infrastructure and transportation projects as well, such as air fields, bridges, dams, and utilities.

#### *The Moderne Style*

Moderne design was initially popularized in the 1930s, and is often associated with the Art Deco style. Both are characterized by simplified classical decorative elements, combined with expressed rational structural systems, and they both represented a 20<sup>th</sup> century rejection of historicism and the movement towards Modernism. While somewhat similar, Art Deco and Moderne styles differ in use of ornament and materials, and in proportions and massing. The former buildings are more often based on vertical orientation, featuring stepped massing, and the use of material such as stone and terra cotta, with treated surfaces, inlays, castings, and polychrome glazes, and ornamental fluting, horizontal bands, chevrons, or zigzags.

Moderne style buildings, in contrast to Art Deco buildings, emphasize horizontality and solidity. Their simple shapes, and rounded or curved surfaces project a muscularity and sense of permanence. They are treated with minimal or no ornament, except for string courses and other horizontal trim elements. They typically feature smooth finishes, flat roofs, pipe railings, round windows and corner window glazing, and sometimes use innovative materials such as glass block and aluminum.

Aesthetic movements, such as French Cubism, Dutch de Stijl, and Italian Futurism had contributed to the emergence of Art Deco and Moderne styles throughout the world. [But with] the onset of the Great Depression, designers in the U.S. turned away from the exclusivity and luxury associated with the style in search of a more universal idiom: “what [American designers] created, largely in reaction to deco, was a new machine art: honest, simple and functionally expressive – values basic alike to the house, the school, the streamlined train, the cigarette lighter, the toaster, the saucepan, or grand piano”.

Moderne style design was popularized at American expositions, such as at the 1933-1934 Chicago Century of Progress and the 1939 World of Tomorrow New York’s Fair, where smooth, sleek, objects, such as in the Chrysler “Airflow” car and the bullet-like K4S Pennsylvania and the Missouri Pacific Railroad locomotives, were exhibited within Moderne style buildings. Architectural historian David Gebhard coined the term “Streamline Moderne” in 1969, citing the influence of the Depression as helping to bring about the style and its variants – Streamline Moderne, Depression Modern, and Stripped Classicism. This period has been described as restless, filled with angst and worry, and some these sensibilities carried through the World War II and Cold War eras.

In Seattle, as elsewhere, many design practitioners who had previously worked with revival styles began designing Art Deco and Moderne style buildings in the 1930s and 1940s. In addition to City Light facilities the Moderne style is embodied in some industrial buildings in south Seattle, along East Marginal Way, in the Interbay area on Elliott Avenue, and south Queen Anne Hill. Other commercial and institutional examples include:

- The Nakamura Federal Courthouse (1932), 700 Stewart Street
- Seattle Art Museum in Volunteer Park (1932), 1400 E Prospect Street
- Fire Station No. 41 (1934, a federal WPA program), 2416 34<sup>th</sup> Avenue W
- Coca-Cola Bottling Plant / Seattle University (1939), 911 14<sup>th</sup> Avenue E
- The original downtown Woolworth’s / Ross store (1940, designed from a company prototype)
- Puget Sound News Building (1948), 621 2<sup>nd</sup> Avenue N
- Canada Dry Bottling Plant / Seattle University Bookstore (1948, modified), 831 12<sup>th</sup> Avenue

The buildings of Broad Street Substation embody some features of the Moderne style, and they share formal characteristics with other major substations constructed by Seattle City Light, including the Bothell (1951), Shoreline (1954), and Duwamish (1955), which are located outside of the city limits, and the earlier South Substation (1937), which is within the city. In

the 1930s through the mid-1950s, the Moderne style was adapted by City Light and other utilities for control and service centers, generation and transmission facilities, and substations, including major, distribution/receiving, rectifier and customer substations. Other structures and buildings that represent this style include City Light's Diablo Powerhouse and Dam (1930 and 1936); Rectifier Substations – University (1941, 1952), Avalon (1951), South and North (1952 and 1954), Leary (1954), Olympic (1954), and Roxbury (1956); and the Magnolia Substation (1944); in addition to former Columbia Substation(1942) on 39<sup>th</sup> Avenue S, which was adapted as an office building, and the former First Hill Substation (1949, demolished 1996). All of these buildings represent a mid-20<sup>th</sup> century movement away from revival style used in many earlier power generation facilities.

The Broad Street Substation buildings clearly represent mid-20<sup>th</sup> century poured-in-place concrete construction technology with smooth and unfinished perimeter walls and flat roofs. Largely devoid of decorative elements, they rely instead on massing and geometric aspects of their plans for expression, including curvilinear walls and projecting canopies, along with the proportional devices of window and door openings. The structures provided fire and explosion resistance, and a sense of permanence and mass. Consistent with Moderne style designs, the buildings seem to emerge from aesthetics of social realism, to emphasize the strength of industry and robust productivity. The unadorned and smooth-finished concrete and industrial steel sash windows were typically used with industrial applications where the buildings literally and figuratively represented power and durability

### *Typical Substation Functions*

The function of an electrical substation is to transform from high voltage to low voltage or the reverse, provide switching and control to manage the system (“grid”) power flow, and to switch, regulate and distribute the output power feeders at the desired voltage(s). “A substation serves the start or end-point of a transmission line, and is part of an overall generation and transmission system. All substations include switching mechanisms or circuit breakers that allow line elements to be energized or switched off for maintenance, or automatically, as the result of a fault. Substations are typically arrayed around a switchyard, a steel superstructure and buss-construct framing a series of large metal box-like transformers at ground level... Beyond their primary electrical role ... substations often house additional functions that include a wide array of specialized buildings ...[ranging from] a small manufactured control house all the way to a large, multiple structure installations that service multiple lines in association with maintenance and administration uses”.

A typical switchyard layout is essentially an arrangement of switchgear components in an ordered pattern governed by their function and rules of spatial separation. Some redundancy is typical to assure consistent delivery of power. Incoming supply may be on high-voltage overhead or underground transmission, but are often introduced to the substation as wires supported by metal or steel support structures. These supports, once made of wood, may be tubular steel or lattice types (made up by trusses in rectangular or tall, pyramidal-shaped support structures), or of reinforced concrete, set singly or in assemblies. From the supply transmission lines, the power is then switched and transformed to be distributed at the desired voltages. Conductors may be bare or insulated. Switchyards contain disconnect switches or circuit breakers to interrupt the current, along with transformers and other equipment to

manage, control, and protect the power system. Once past the switchgear, the power is carried by outgoing feeders, or transmission lines, typically of a lower voltage. Indoor and outdoor substations may utilize gas-insulated switchgear at high voltages, or metal-enclosed switchgear at lower voltages, in order to minimize the space necessary for the substation and the associated electrical equipment.

A review of the Broad Street Substation switchyard installation suggests that it shares many of the same components with typical substations, along with variations in the arrangement and specific equipment types. All present day substation facilities are secured by perimeter fences or walls and grades are finished with gravel to minimize maintenance. Concrete support slabs are common within the yards. Basic control buildings have similar functions, and are often situated on grade, while some structures that enclose operational spaces may be set partially below grade. The yards are otherwise open and contain the functioning equipment with power lines connecting transmission towers to transformers, insulators and generators. Typical switchyard equipment includes power transformers, grounding transformers, synchronous condensers, oil circuit breakers, lightning arrestors, buses; disconnect switches, potential transformers, coupling capacitors. The sole variation with the Broad Street Substation, when compared to other installations, is the presence of the Crane Tower.

### ***Construction and Use of the Broad Street Substation***

The Broad Street Substation was constructed in 1949-1951 during a period of post-war growth in the city and the region. The city's population stood at 368,303 in 1940, but it rose by 27% to 467,591 in 1950, and by an additional 19%, to 557,097 in 1960. This population growth was accompanied by an even greater rise in demand for electric power resulting from residential, commercial, and industrial building needs, and the use of new electrical devices and equipment. The City responded to the rapid expansion of its customer base by increasing available power for sale, and building and maintaining its infrastructure and services for individual customers.

In June 1948, a *Seattle Times* article noted that “proposed establishment by City Light of a major substation building at Sixth Avenue North and Harrison Street today was taken under advisement for a week by the City Council’s utilities committee”. By January 1949, a condemnation hearing was scheduled for the full-block property, which City Light wanted for the proposed new \$1,000,000 substation. Clise Realty owned two of the six parcels of land that made up the block, having acquired them from King County at a tax title sale for \$7,650 and \$6,750. While the city had offered the Clise Real Estate Company \$30,000 for the combined property, it wanted \$40,000. (It is unclear whether the figures are per parcel or for both.) Condemnation verdicts in King County Superior Court set a total price of \$167,200 for the full block, including affirming the \$30,000 amount for Clise.

A small wood-frame house and outbuilding are visible in a 1939 aerial photo of the property, though Historic Kroll maps and county tax records indicate that the site was largely vacant when it was acquired by condemnation. (The pre-existing buildings were subsequently demolished for the new substation.)

Bids were opened for the substation project on September 28, 1949. At that time, the project was described as “long planned by City Light”. Construction was completed in late 1951, along with the Bothell Substation around the same time. Both facilities make up part of the utility’s long-range program to bring more electric power to Seattle. The Bothell facility received power from the Skagit River development at 230,000 volts and stepped it down to 115,000 volts for transmission to other substations in the city, including the Broad Street Substation.

The Broad Street Substation was cited as a \$2,500,000 project when it was energized on November 8, 1951. Together, the Bothell and Broad Street facilities raised the receiving capacity by up to 125,000 kilowatts to serve the area south of the Lake Washington Ship Canal and north of the downtown central business district. The Canal Substation, built near Ross Park in the Fremont/Ballard area, and originally a Puget Power facility, was acquired by the city in 1952 and then connected into the Broad Street Substation. Other power generating sources came on line to take advantage of the distribution network’s improvements within Seattle. Mercury arc rectifiers, which were associated with the City’s trackless trolley system, were installed at the substation to replace older rotary equipment, and control operations of the facility were partially automated. In late October 1956, a new transformer was added to double the capacity of the substation.

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**The features of the Landmark to be preserved include:** *the exteriors of the Control and Crane Buildings; the switchyard “dead-end” tower directly west of the Crane Building and the trussed armature that connects this tower to the west face of the building.*

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