

**National Register of Historic Places
Registration Form: Lake Washington Ship
Canal Bridge**

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

**National Register of Historic Places
Registration Form**

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

1. Name of Property

historic name: Lake Washington Ship Canal Bridge

other names/site number: Bridge Number 5/570

2. Location

street and number: Interstate 5 through downtown Seattle and over Lake Washington Ship Canal N/A not for publication

city or town: Seattle

vicinity

state: Washington

county: King County

zip code:

3. State/Federal/Tribal Agency Certification

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

Signature of certifying official/Title

Date

State or Federal agency or Tribal Government

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

Signature of certifying official/Title

Date

State or Federal agency or Tribal Government

4. National Park Service Certification

I hereby certify that the property is:

Signature of the Keeper

Date of Action

- entered in the National Register.
 See continuation sheet.
- determined eligible for the National Register.
 See continuation sheet.
- determined not eligible for the National Register.
- removed from the National Register.
- other. (explain:)

5. Classification

Ownership of Property
(Check as many boxes as apply)

- private
- public-local
- public-State
- public-Federal

Category of Property
(Check only one box)

- building(s)
- district
- site
- structure
- object

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

Contributing	Noncontributing	
		buildings
		sites
1		structures
		objects
1	0	Total

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

Bridges and Tunnels Built in Washington State,
1951-1960

**Number of contributing resources previously listed
in the National Register**
N/A

6. Function or Use

Historic Functions
(Enter categories from instructions)

Transportation

Historic Subfunctions
(Enter subcategories from instructions)

Road-Related

Current Functions
(Enter categories from instructions)

Transportation

Current Subfunctions
(Enter subcategories from instructions)

Road-Related

7. Description

Architectural Classification
(Enter categories from instructions)

No Style

Materials
(Enter categories from instructions)

Foundation Concrete
Other Steel

Narrative Description

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

8. Statement of Significance

Applicable National Register Criteria

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

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

Criteria Considerations

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

Property is

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

Areas of Significance

(Enter categories from instructions)

Engineering
Transportation

Period of Significance

1958 - 1960

Significant Dates

1961
1958

Significant Person

(Complete if criterion B is marked above)

N/A

Cultural Affiliation

Architect/Builder

WA State Department of Highways, Designer
Scheurmann and Johnson, Builder
Allied Structural Steel Company, Builder

9. Major Bibliographical References

Bibliography

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

Previous documentation on file (NPS:)

- preliminary determination of individual listing (36 CFR 67) has been requested.
previously listed in the National Register
previously determined eligible by the National Register
designated a National Historic Landmark
recorded by Historic American Buildings Survey
recorded by Historic American Engineering Record
See continuation sheet for additional HABS/HAER documentation.

Primary location of additional data:

- X State Historic Preservation Office
X Other State Agency (Repository Name: WSDOT)

10. Geographical Data

Acreage of Property: 1.00

UTM References

(Place additional UTM references on a continuation sheet.)

Table with 4 columns: Reference Number, Zone, Easting, Northing. Contains two rows of UTM coordinates.

See continuation sheet

Verbal Boundary Description

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

Boundary Justification

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

11. Form Prepared By

name/title: Oscar R. "Bob" George, Bridge Engineer

organization: Washington State Department of Transportation / Environmental Affairs Office

date: 6/30/2001

street & number: PO Box 47332

telephone: (360) 570-6639

city or town: Olympia

state: Washington

zip code: 98504-7332

Additional Documentation

Submit the following items with the completed form:

Continuation Sheets**Maps**

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

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

Photographs

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

Additional items

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

Property Owner

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

name: Washington State Department Of Transportation

street & number: PO Box 47300

telephone: 360-705-7000

city or town: Olympia

state: Washington

zip code: 98504-7300

Paperwork Reduction Act Statement: This information is being collected for applications to the National Register of Historic Places to nominate properties for listing or determine eligibility for listing, to list properties, and to amend existing listings. Response to this request is required to obtain a benefit in accordance with the National Historic Preservation Act, as amended (16 U.S.C. 470 *et seq.*).

Estimated Burden Statement: Public reporting burden for this form is estimated to average 18.1 hours per response including time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding this burden estimate or any aspect of this form to the Chief, Administrative Program Center, National Park Service, 1849 C Street NW, Washington DC 20240; and the Office of Management and Budget, Paperwork Reductions Projects (1024-0018), Washington, DC 20503.

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Section number 7. Narrative Description

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The Lake Washington Ship Canal Bridge carries twelve lanes of traffic on north-south Interstate 5 through downtown Seattle and high over the busy Lake Washington Ship Canal. The 4,429-foot bridge spans the long gap created by the canal between Seattle's North Capitol Hill District to the south and the University District to the north. As the bridge crosses the canal, it has a 2,294 feet double-deck configuration. The upper deck carries four lanes of traffic in each direction, while four lanes carried on the lower deck are reversible lanes directed either northbound or southbound to handle peak directional traffic.

The bridge is best described in three separate sections as a south approach, a "main crossing" and a north approach. The south approach, beginning just south of Seneca Street, has three elevated sections: the first carrying four northbound lanes towards the canal, the second carrying four southbound lanes away from the canal, and the third carrying four central reversible lanes down towards the lower deck of the main crossing. Starting at the south end, eight reinforced concrete slab spans varying in length from 28 feet to 36 feet carry the separated north and southbound lanes. The lanes continue to the north on separate converging bridges, each carried by nine reinforced concrete box girder spans with alternating span lengths of 90 and 120 feet, ending at the south end of the main crossing of the bridge. In the seventh span, the lanes are joined together on a single full-width roadway. The reversible lanes, starting at the south end, are supported on sub-grade material until they reach a location at the north end of the third box girder spans carrying the northbound and southbound lanes. From this point, the reversible lanes are carried north on six reinforced concrete box girder spans, supported on struts extending between the pier columns of the adjacent northbound and southbound spans, to their junction with the south end of the main crossing.

The southerly concrete slab span is carried on an end wall pier supported on a concrete spread footing. Intermediate supports for the slab spans are three rectangular column piers, with each column founded on an individual spread footing. Pier supports for the concrete box girder spans are two or three square concrete columns, with a common cap. The columns taper out in both directions, and the column corners are inset for architectural effect. Each column is supported on an individual concrete spread footing founded on multiple concrete piles.

The "main crossing" section of the bridge consists of three simply supported and three continuous riveted steel Warren truss spans. These spans function as a deck truss for the northbound and southbound lanes, and as a through truss for the reversible lanes. This section of the bridge has a main 552-foot span, flanked by and continuous with a 347 foot 8 inch anchor span at each end; two southerly spans, 348 feet 4 inches long and 349 feet 3 ½ inches long; and one 348 feet 7 ½ inch long northerly span. The lower chord of the main span has a parabolic shape. Depth of the main span truss varies from about 40 feet 6 inches at the centerline of span, where it provides 135 feet of vertical clearance to the channel below, to 70 feet 6 inches at the piers. The lower chords of the flanking spans rise in a parabolic curve from the pier to resume a 40 foot-6 inch depth at the end of the span. The two southerly spans and the northerly span have a constant 40 foot 6 inch depth. The main span truss is divided into sixteen 34 foot 6 inch panels. Each of the other truss spans are divided into ten 34 foot 6 inch panels. All trusses are 68 feet 6 inches wide.

All truss chord and web members are box shape, and constructed from steel plates and rolled steel angle or channel sections, riveted together. K-bracing within each panel at the upper and lower chords, provide lateral stability to the trusses. At each panel point, a 7-foot deep steel "I" section floor beam, built from a web plate and double-angle flanges with cover plates, extends between the lower portions of the outer trusses. The floorbeams support seven equally spaced longitudinal stringers in each adjacent panel. This floor system supports a 60-foot wide reinforced concrete slab roadway, carrying reversible-lane traffic through the truss. A second floorbeam spans transversely between the outer trusses at each panel point. This floorbeam is similar in configuration to the lower floorbeam in the area between the trusses except that it is about 9 feet deep. Also, the upper floorbeam cantilevers out an additional 23 feet 9 inches from each truss for an out-to-out length of 116 feet. The upper floorbeams support thirteen longitudinal stringers in each adjacent panel (seven between the exterior

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truss sections and three on each cantilever). Floorbeams and stringers support the 112-foot wide reinforced concrete slab roadway carrying the northbound and southbound traffic lanes on the bridge. Floorbeams and stringers for both the upper and lower decks have stud shear connectors welded to their top flanges and act compositely with the roadway slabs in carrying traffic loads.

Supports for each of the truss spans are two column piers, varying in height from 90 to 139 feet from the pier top to the base of the footing or seal. Each column is square with recessed corners and tapers out in each direction from its top dimension. A 5-foot wide, variable depth concrete strut connects the tops of the columns. The bottom of the strut has an arched shape for architectural effect. Each column rests on an individual concrete spread footing.

The north approach section of the bridge ends at the north end of the northerly truss span. Starting at this location, the northbound and southbound lanes extend on a single structure for two reinforced concrete box girder spans about 100 feet and 130 feet in length. The northbound and southbound lanes then diverge and are carried on separate bridges. Seven additional reinforced box girder spans, 75 feet to 100 feet long, carry the southbound lanes, while nine similar spans carry the northbound lanes until they once again become at-grade roadways. Three reinforced concrete box girder spans (span lengths of 100 feet, 130 feet, and 100 feet) carry the reversible lanes north to grade, while a ramp, carried by four additional concrete box girder spans curves to the east and lands on East 42nd Street.

Pier supports for the concrete box girder spans are two square concrete columns with a common cap. The columns taper out in both directions and column corners are inset for architectural effect. Each column is supported on an individual concrete spread footing. Ramp piers are supported on concrete columns resting on concrete spread footings.

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Section number 8. Narrative Statement of Significance

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Begun in 1958, the Lake Washington Ship Canal Bridge is eligible for listing in the National Register of Historic Places under Criterion A for its association with bridge building in Washington in the 1950s as per the "Bridges and Tunnels Built in Washington State, 1951-1960" MPD. The bridge is also eligible under Criterion C for its type, period, materials, and method of construction. It is also noteworthy for its association with the historic Seattle freeway construction project, as well as the long history of the Ship Canal. For its exceptional engineering and role in local transportation development, the Ship Canal Bridge meets the threshold established by Criteria Consideration G for properties not yet 50 years of age.

The significant engineering features of the bridge are its double-deck spans, including nine reinforced concrete box girder spans, and five steel truss spans, providing an innovative approach to handling peak traffic loads with reversible lanes. The steel truss spans are the only steel double-deck bridge spans in Washington. The double-deck concrete box girder spans were preceded by the construction of the mile and one-half long double-deck concrete segment of the Alaskan Way Viaduct, constructed between 1950 and 1958. However, the configuration of the spans on the two bridges is quite different.

When constructed in 1958 to 1961, the 552-foot long main span was the longest steel deck truss span in Washington. This record stood until 1992, when the span was exceeded by the 600-foot deck truss span on the Hoffstadt Creek Bridge on State Route 504, the Highway leading to Mount St. Helens' National Volcanic Monument.

Floorbeams and stringers carrying the upper and lower decks have stud shear connectors welded to their upper flanges. The steel components act compositely with the roadway slab in carrying traffic loads. This was one of the first uses of shear connectors in the state.

The construction of the Lake Washington Ship Canal Bridge constituted the largest project on the historic Seattle Freeway, eventually to become Interstate 5. The long awaited freeway project began in 1958 with award of a contract for the construction of piers for this bridge.

This is the sixth and largest bridge to cross the historic Ship Canal.

Historic Context:

Seattle Pioneer Judge Thomas Mercer is credited with suggesting, at a Fourth of July picnic in 1854, the building of a canal between the fresh waters of Lake Washington and the saltwater of Puget Sound.(1) Mercer proposed the names for Union Bay and Lake Union, envisioning their eventual connection as a canal.(2)

Six years later Harvey L. Pike dug a shallow ditch at the current Montlake Cut to allow passage of logs from Lake Washington to the lower end of Portage Bay. This ditch was widened and deepened by the Lake Washington Improvement Company, under the direction of Judge Thomas Burke, in 1883. Then in 1867 the U. S. Navy endorsed the proposal for a canal to link Puget Sound and Lake Washington to provide their ships with a fresh water haven. At this time the only route from Elliott Bay to Lake Washington was via the Black River Slough and the Duwamish River, suitable only for shallow-draft boats and barges.

While the Navy continued to urge construction of a canal, delays in the project led the Navy to establish its shipyard near Bremerton, rather than on Lake Washington. The U. S. Army Corps of Engineers joined those in support of the canal in 1891.(1)

In 1895 former Territorial Governor Eugene Semple urged a controversial southern route through Beacon Hill for the canal, but supporters of the northern route quashed those efforts. In 1900, the Washington State Legislature endorsed the northern

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route, and by 1906, the Federal Government had begun deepening the channel leading from Shilshole Bay to the Ballard wharves. Developer James A. Moore received Congressional approval to organize a private company to begin work on the canal. As new commander of the U.S. Army Corps of Engineers in 1906, General Hiram M. Chittenden urged completion of the canal, even though he did not think highly of developer Moore's efforts. Chittenden continued his advocacy after his retirement in 1908 and helped convince Congress to appropriate the \$2,275,000 needed for construction of locks for the canal, which they did on June 25, 1910. Construction began on November 10, 1911, and continued until October 21, 1916, when a temporary dam at the Montlake cut was breached, uniting Lakes Washington and Union and lowering the level of Lake Washington by nine feet. The "Government Locks" and waterway were opened for boat traffic on May 8, 1917. The project cost had grown to more than \$3 million. On July 4, 1917, a ceremonial flotilla, led by Admiral Perry's polar flagship Roosevelt passed through the canal.(1)

Unfortunately, when the locks and canal opened in 1917, Hiram Chittenden had been confined to a wheelchair by a stroke. (He died later that year.) In 1956, the Corps of Engineers renamed the Ballard locks to honor his memory. The locks and canal have since been designated as a National Historic District.(1)

With the opening of Lake Union and Lake Washington via the canal, Seattle has become a focal point for commercial ships and pleasure craft in the interlocking system of protected waterways formed by Puget Sound. The development of the extensive shorelines of Lake Washington and Lake Union would fuel Seattle's economy for decades.

Advanced planning for a Seattle Freeway (known today as I-5) began with topographic studies in 1931, although studies had been made well before that time. In September 1946, the Traffic Engineering Division of the city of Seattle prepared a plan for a north-south freeway through the city. Planning became more serious in 1947 when an origin and destination study was conducted by the State Highway Department in cooperation with the city of Seattle and the U. S. Bureau of Public Roads. Preliminary design work began in 1950 by the State Department of Highways assisted by the Seattle Engineering Department. As the work went on, it was concluded that this would be a costly proposition, well beyond what could be handled with available highway funds.(3)

The concept of a toll road emerged as a way of financing the project. A study by the Washington State Council for Highway Research found the plan for a toll road was feasible. As a result of this report in 1953, the Washington State Legislature enacted laws authorizing the Washington Toll Bridge Authority to study the financial and engineering feasibility of building and operating a toll road between Tacoma, Seattle and Everett. The Toll Authority hired the New York traffic engineering firm, Coverdale and Colpitts, to conduct the study. Their recommendation was to finance the cost of the road through a \$227 million bond issue until the road was underway and earning money. In the meantime, the 1955 Legislature authorized construction of the toll road. The next step was to determine if enough traffic would use the road to support its cost. Coverdale and Colpitts submitted a report in April 1955, indicating the toll road was feasible, but they recommended a \$5 million guarantee from the motor vehicle fund to ensure salability of the bonds. Potential bond buyers wanted the toll road law tested in the courts. After hearing the case, the Thurston County Superior Court held up the law to be constitutional and it was appealed to the State Supreme Court for a final determination. Then on December 4, 1955 the Supreme Court ruled that the 1955 Toll Road Act was unconstitutional. Shortly after the ruling, the Washington Toll Bridge Authority adopted a formal resolution, turning the responsibility for building the new road, as a free facility, over to the State Highway Commission.(4)

By this time, Seattle was suffering from acute traffic congestion. Traffic entering the city from the south spread itself out into a number of four-to-six-lane streets leading to downtown Seattle. All went through the industrial area, mixing with heavy truck traffic and heavy peak hour automobile and bus traffic. Traffic signals further impeded free traffic flow. With the principal streets through Seattle carrying heavy volumes, traffic speeds during peak hours slowed to eight to ten miles per hour.(5)

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Enactment of the Federal Aid Highway Act of 1956 renewed hope for the freeway project. Under the provisions of the act, the freeway could be built as a free facility using federal funds plus state matching funds as a part of the National Interstate Highway Program. The State Department of Highways moved quickly to start the project.

In early 1958, the Department of Highways' Bridge Division began design of the bridge. The first contract on the Seattle Freeway project was awarded on August 5, 1958, to Scheumann and Johnson of Seattle, for construction of the seven piers supporting the truss spans for the Ship Canal Bridge for about \$964,000. This was followed on January 20, 1959 with the award of the contract for construction of the six steel truss spans to Allied Structural Steel Company of Chicago, Illinois, for about \$6,944,000. Structural steel for this project was fabricated in three locations under the overall coordination of the prime contractor. The fabricators were Midland Structural Steel Company of Hammond, Indiana, Clinton Bridge and Iron Works of Clinton, Iowa, and Isaacson Iron Works of Seattle.(6)

Following construction of the piers supporting the steel truss spans, erection of the more than 11,000 tons of steel for the spans began on May 10, 1960. The prime contractor had sub-contracted the steel erection to the Industrial Construction Company of Minneapolis, Minnesota. All the steel, except the stringers, was shipped to Seattle by rail. Materials to be erected over land were then moved by truck to the bridge site. Material erected over water was yarded at the Foss Launch and Tug Company site on Lake Union, and moved to the bridge site on barges. Two 125-ton cranes on shore unloaded trucks and placed falsework and steel whenever possible. All steel beyond the limits of the cranes was hoisted into position from travelers operating on top of the upper deck. The three simply supported truss spans and the anchor spans for the three-span continuous unit were erected on falsework. The 552-foot main span was erected using cantilever construction. The center section of the three-span continuous unit was jacked into position and closed on January 14, 1961.(6)

On February 18, a contract for construction of the north approach structures had been awarded to MacRae Brothers from Seattle for just under \$1,840,000. This was followed by award of a contract to S. S. Mullen from Seattle for construction of the south approach structures for just under \$2,480,000. The multiple contracts proceeded at full speed until completion of the bridge in the fall of 1961. The total cost of the four contracts on the bridge was just over \$12.2 million.

George H. Andrews, the State Highway Department's Urban Bridge Engineer, was in overall charge of the construction project. (Andrews was later to become Director of the State Department of Highways.) Ed Wilkerson was the state's resident engineer.(6)

The new bridge was completed for more than a year before it was opened to traffic in December 1962. Delays caused by labor strikes, relocation of utility lines, and a controversial proposal for covering and developing areas above the downtown freeway, had put construction of adjacent parts of the Seattle freeway far behind schedule. Historian Paul Dorpat summed it up by saying, "Consequently, the bridge stood silently towering above the channel and the neighborhoods, all finished and freshly painted but with nothing to do."(7) During planning for the 1962 Seattle World's Fair, the World's Fair Commission, the State Department of Highways, and Seattle City Transit found a job for the "unemployed" bridge—they proposed to use it as a parking lot for up to 2500 cars. Because the bridge was more than two miles from the site of the fair, Seattle City Transit made plans to operate a shuttle between the bridge and the fairgrounds. The plan for this \$12.2 million parking lot was abandoned when it was determined that a flurry of new private parking areas, provided closer to the fairgrounds, would be sufficient to handle the anticipated crowds.(7,8)

The multi-million dollar Seattle Freeway project was the largest transportation project in the state's history, presenting unprecedented problems and unique solutions. Contributing to the growth and economic success of the city of Seattle that was yet to come, the project began with the Lake Washington Ship Canal Bridge.

Engineering Context:

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The double-deck configuration of the Lake Washington Ship Canal Bridge enables twelve lanes to pass through a relatively narrow transportation corridor in the heart of Seattle, with four lanes used in a reversible mode to flow in the direction of peak traffic. Use of a steel deck truss superstructure over the canal, not only handily accommodated the lower deck but also allowed the use of longer spans and fewer tall piers (canal piers reached a height of almost 140 feet).

The design also provides an appearance complementing the historic Aurora Avenue (George Washington Memorial) Bridge (listed in the National Register) that crosses the Ship Canal a mile and one-half to the west.

The composite design of the floor system for the upper and lower decks on this bridge was an early use of this concept in the state. Composite design was to become a standard on steel girder superstructures in the future.

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Section number 9. Major Bibliographical References

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- (1) Walt Crowley, "Lake Washington Ship Canal- A Snapshot History," HistoryLink.org web page, July 1999.
 - (2) Kay Conger, "Seattle Freeway Bridge to be Sixth Canal Crossing," Washington State Department of Highways, Highway News, Volume 7, Number 6, January-February 1958, pp. 11-13.
 - (3) Unauthored article, "The Seattle Freeway," Washington State Department of Highways, Highway News, Volume 9, Number 8, September-October 1961.
 - (4) Unauthored article, "Tacoma-Seattle-Everett Road – Free Instead of Toll," State Department of Highways, Highway News, December 1958, pp.12, 13, 29.
 - (5) Unauthored article, "Director Discusses Seattle Freeway, Needs of Heavy Traffic," State Department of Highways, Highway News, March-April 1958, pp. 14-17.
 - (6) George H. Andrews, Urban Bridge Engineer, Washington State Highway Department, "Steel Bridge-May to January," Pacific Builder & Engineer, June 1961, pp. 86-87.
 - (7) Paul Dorpat and Genevieve McCoy, Building Washington- A History of Washington State Public Works, Tartu Publications, Seattle, 1998, p. 131.
 - (8) Kay Conger, "13-Million-Dollar Parking Lot," Washington State Department of Highways, Highway News, Volume 9, Number 8, September-October 1961, p. 4.

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Section number 10. Geographical Data

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Verbal Boundary Description

Longitudinal Boundaries: Extends to the pavement seats of the three ramps at either end of the bridge, and to the pavement seat of the reversible lanes ramp at the north end of the structure.

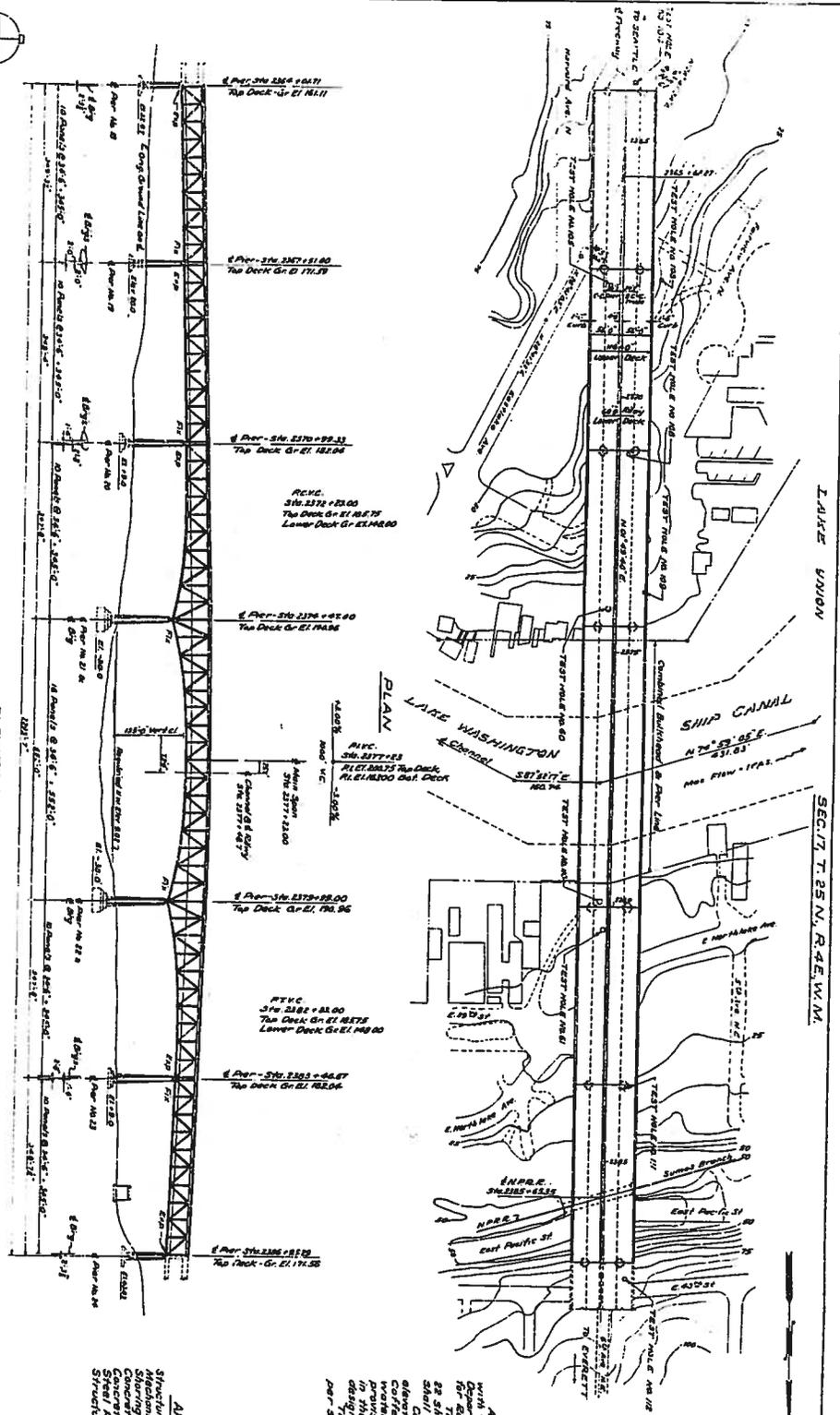
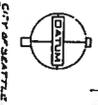
Lateral Boundaries: Extend to the edges of the structure.

Verbal Boundary Justification

The boundaries include all contributing elements and non-contributing elements of the structure.

DATE	10/15/56
BY	J. H. ...
CHECKED	...
APPROVED	...

DATE	10/15/56
BY	J. H. ...
CHECKED	...
APPROVED	...



LAKE WASHINGTON
SHIP CANAL
SEATTLE
LAKE WASHINGTON
SHIP CANAL
SEATTLE

GENERAL NOTES

All material and work shall be in accordance with the requirements of the State of Washington for the construction of bridges. The contractor shall be responsible for the design and construction of the bridge. The contractor shall be responsible for the design and construction of the bridge. The contractor shall be responsible for the design and construction of the bridge.

APPROXIMATE QUANTITIES

Structural Reinforcing Steel	34,000	Cu Yds
Structural Carbon Steel	1,750	ump Stm
Concrete	18,500	Cu Yds
Gravel	18,500	Cu Yds
Other	4,000	Cu Yds

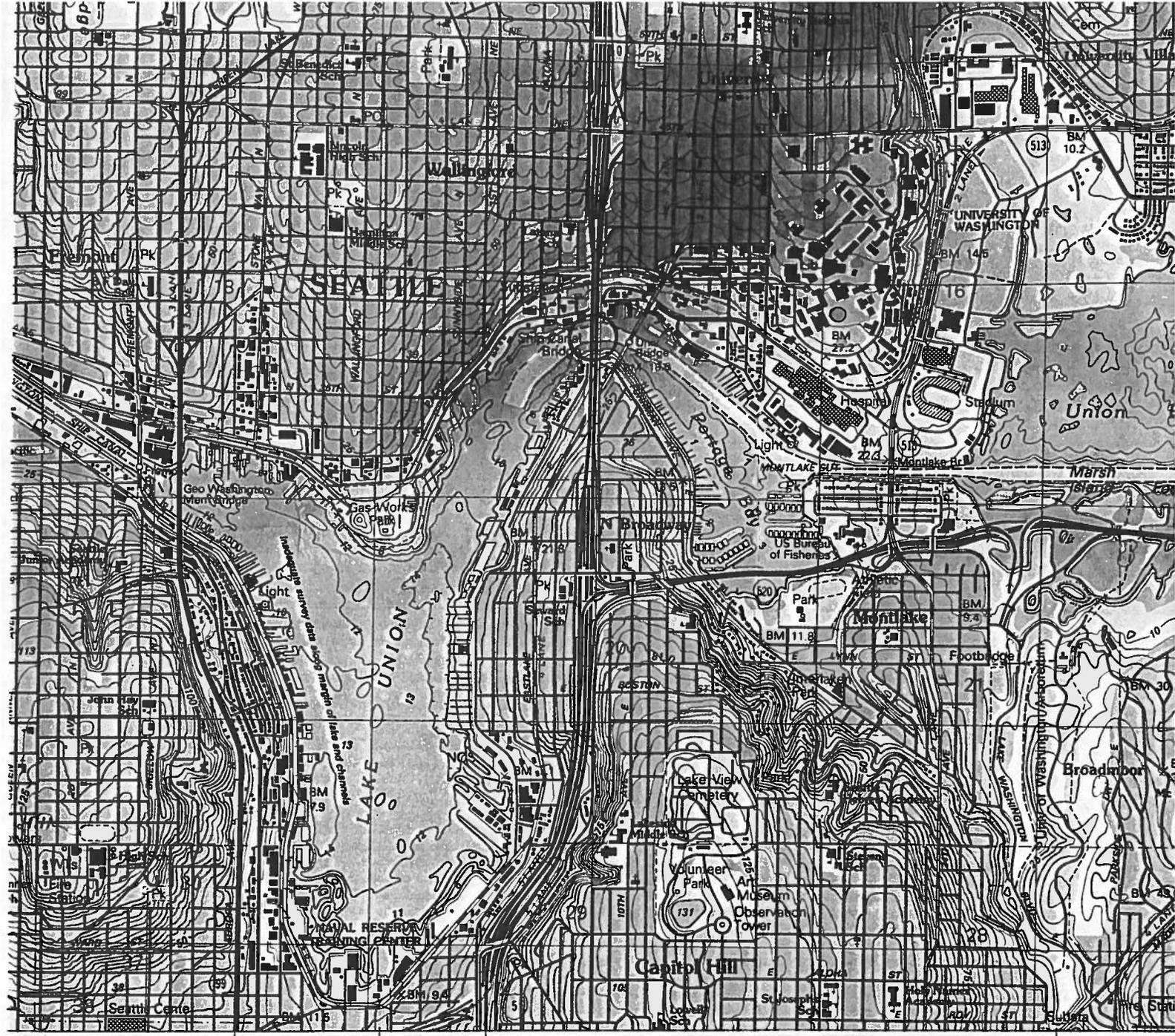
LOADING M 20-516

PRIMARY STATE HIGHWAY NO. 1
SEATTLE FREEWAY
LAKE WASHINGTON SHIP CANAL BRIDGE
PIERS NOS 18 TO 21 INCLUSIVE

LAYOUT



J. H. ...
Professional Engineer
No. 12345
City of Seattle, Washington



HYDROGRAPHIC SURVEY INFORMATION

SURVEY NUMBER	SURVEY DATE	SURVEY SCALE	SURVEY LINE SPACING (NAUT. MILES)
H-2608	1902	1:10,000	02-14
H-2609	1902	1:10,000	06-25
H-5709	1934-35	1:20,000	05-25
H-5710	1938	1:10,000	10-10
H-5711	1935	1:10,000	02-12
H-5724	1935	1:10,000	02-06
H-5846	1935	1:5,000	01-07
H-7076	1946	1:1,200	10-02
H-9167	1970	1:5,000	02-05
H-9742	1978	1:10,000	03-10
H-9747	1978	1:5,000	01-03

NOS CHART 18446 1:25,000 1978 NOS CHART 18447 1:10,000 1981

Re Washington Ship Canal Bridge
 N: 10 550977E 5277714N
 N: 10 550977E 5277846N

**Bridges, Trestles, and Aqueducts:
University Bridge, Fremont Bridge, Ballard
Bridge**

25N 4E 17

K1 223

NAER INVENTORY										U.S. Department of the Interior Heritage Conservation and Recreation Service									
1. SITE I.D. NO																			
2 INDUSTRIAL CLASSIFICATION Bridges, Trestles, and Aqueducts										3 PRIORITY 1		4. DANGER OF DEMOLITION? (SPECIFY THREAT) <input type="checkbox"/> YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> UNKNOWN							
MOVE: bascule										5 DATE 1915-1919		6. GOVT SOURCE OF THREAT OWNER ADMIN							
												7 OWNER/ADMIN City of Seattle							
8 NAME(S) OF STRUCTURE h. University Bridge c. Fremont Bridge a, b. Ballard Bridge										9 OWNER'S ADDRESS Engineering Department Seattle Municipal Building, Room 704 Seattle, WA 98104									
10. STATE WA COUNTY 033 King										CITY/VICINITY Seattle		CONG DIST 03		10. STATE WA COUNTY 033 King					
11. SITE ADDRESS (STREET & NO.) Crossing: Lake Washington Ship Canal h. 10 551150 5277780 c. 10 548920 5277150										12 EXISTING SURVEYS <input type="checkbox"/> NR <input type="checkbox"/> NHL <input type="checkbox"/> HABS <input type="checkbox"/> HAER-I <input type="checkbox"/> HAER <input type="checkbox"/> NPS <input type="checkbox"/> CL6 <input type="checkbox"/> CONF <input type="checkbox"/> STATE <input type="checkbox"/> COUNTY <input type="checkbox"/> LOCAL <input type="checkbox"/> OTHER				13 SPECIAL FEATURES (DESCRIBE BELOW) <input type="checkbox"/> INTERIOR INTACT <input type="checkbox"/> EXTERIOR INTACT <input type="checkbox"/> ENVIRONS INTACT					
14 UTM ZONE EASTING NORTHING SIGN 10 546930 5278820										SCALE <input checked="" type="checkbox"/> 1:24 <input type="checkbox"/> 1:625		QUAD NAME Seattle North, Washington							
14 UTM ZONE EASTING NORTHING SIGN 10 546930 5278820										SCALE <input checked="" type="checkbox"/> 1:24 <input type="checkbox"/> 1:625		QUAD NAME Seattle North, Washington							
15 CONDITION 70 <input type="checkbox"/> EXCELLENT 71 <input type="checkbox"/> GOOD 72 <input type="checkbox"/> FAIR 73 <input type="checkbox"/> DETERIORATED 74 <input type="checkbox"/> RUINS 75 <input type="checkbox"/> UNEXPOSED 76 <input type="checkbox"/> ALTERED 77 <input type="checkbox"/> DESTROYED 85 <input type="checkbox"/> DEMOLISHED																			
16 INVENTORIED BY Lisa Soderberg										AFFILIATION HAER/Washington State Bridge Inventory				DATE September 1980					
17. DESCRIPTION AND BACKGROUND HISTORY, INCLUDING CONSTRUCTION DATE(S), HISTORICAL DATE(S), PHYSICAL DIMENSIONS, MATERIALS, EXTANT EQUIPMENT, AND IMPORTANT BUILDERS, ENGINEERS, ETC. The construction of several moveable spans was incorporated into the design of Seattle's Lake Washington Ship Canal. Between 1915 and 1919, three double-leaf trunnion bascule bridges of the transverse cross-girder type were constructed to span the waterway at Fremont Avenue, at 15th Avenue Northwest, and at Eastlake Avenue. The bridges, which are the earliest examples within the State of a double-leaf bascule bridge, were designed by the City of Seattle under the direction of A.H. Dimock, City Engineer. They were erected under the supervision of F.A. Rapp. The bascule bridge design was selected over a fixed span and vertical lift design. The fixed span design was eliminated immediately because it necessitated the construction of extremely long approaches. In a letter to the city council, the city engineer wrote that a vertical lift bridge would require 200 foot towers in order to provide the necessary vertical clearance of 150 feet. "Such towers ... of steel are far from pleasing ornaments to any waterfront." (CONT OVER)																			
18 ORIGINAL USE vehicular										PRESENT USE vehicular				ADAPTIVE USE					
19 REFERENCES - HISTORICAL REFERENCES, PERSONAL CONTACTS, AND/OR OTHER City Engineering Department files. "Three Double-Leaf Bascule Bridges at Seattle, Washington," <u>Engineering News-Record</u> , Vol. 84, pp. 718-722. "Service Performance of Grid Deck on University Bridge, Seattle," <u>Engineering News-Record</u> , 20 September 1934, p. 376. (CONT OVER)																			
20 URBAN AREA 50,000 POP OR MORE? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO										21 <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		22 PUBLIC ACCESSIBILITY <input type="checkbox"/> YES, LIMITED <input checked="" type="checkbox"/> YES, UNLIMITED <input type="checkbox"/> NO <input type="checkbox"/> UNKNOWN				23 EDITOR INDEXER			
24 LOCATED IN AN HISTORIC DISTRICT? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO										NAME				DISTRICT I.D. NO					

Description (continued)

In 1933, an open mesh deck was installed to reduce the floor weight which permitted the widening of the roadway. The decking was designed and built by the Irving Iron Works of Long Island City, New York. Shop-welded cantilever girders were extended from the steel span to support the two additional traffic lanes.

The 502 foot bridge at Fremont Avenue was completed in 1917, and provided the primary entranceway to the community of Fremont. The steel for the 242 foot bascule span was fabricated by the Pacific Coast Steel Company. The United States Steel Products Company was the contractor for the superstructure. The substructure was built by the Pacific States Construction Company. In contrast to the University Bridge, permanent concrete approaches were built initially at Fremont Avenue by the West Coast Construction Company. The Fremont Avenue Bridge was equipped with four 100 horsepower motors. The total cost of the bridge was \$410,000. In 1928, the original wood block paving was removed and replaced with open, steel pavement. At this time, new operating motors with hydraulic variable speed transmission were also added. These motors were considered to be a "new venture in moveable bridge machinery."

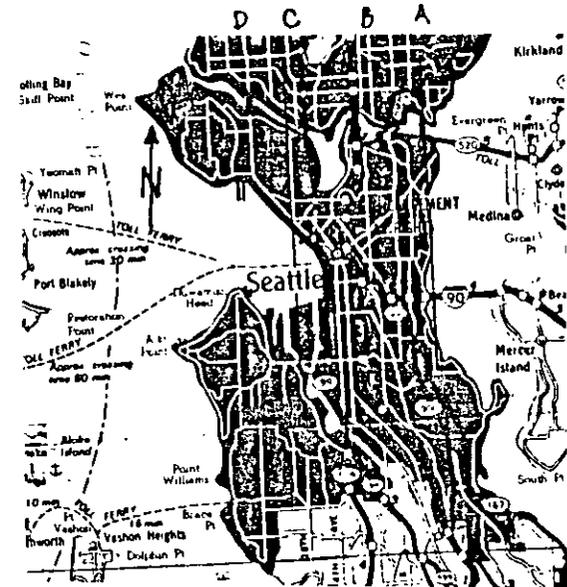
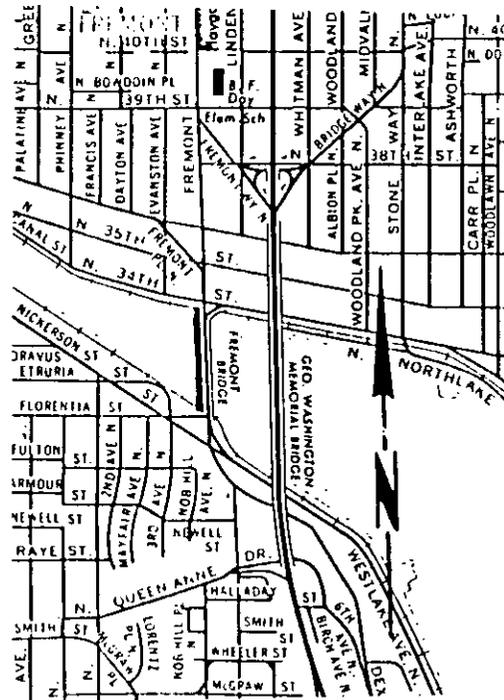
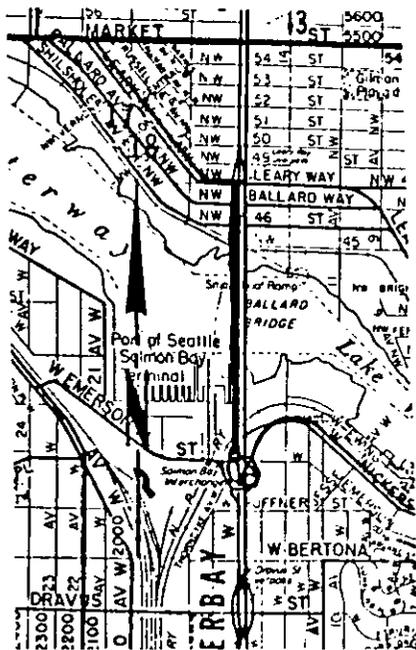
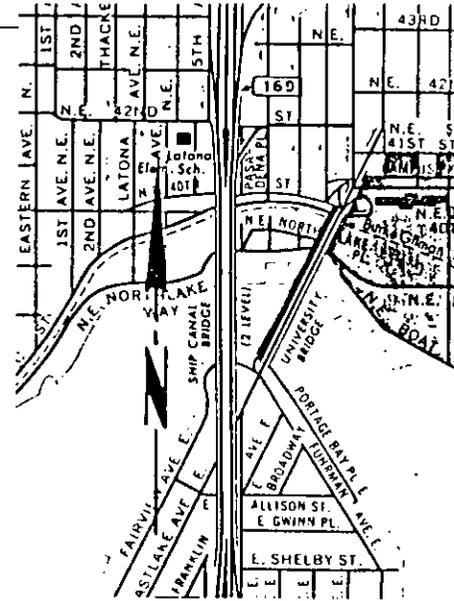
In 1917, the 15th Avenue N.W. Bridge was also completed, firmly linking Seattle and Ballard. The 295 foot structure which consisted of a 218 foot bascule span cost \$479,000. The steel was fabricated by the Dyer Brothers of San Francisco. Hans Pederson was the contractor for both the substructure and superstructure, and J. Charles Rathburn was the city's superintendent for the construction of the bridge. In 1941, the temporary approaches were replaced by permanent approach spans. The four towers were replaced by a single tower in 1969.

The design engineers in Seattle articulated the importance of aesthetics in city bridge design. On April 20, 1914 the city engineer wrote a letter to the city council: "of late years, it is recognized that it may be possible to secure graceful and pleasing lines, even in steel structures, without spending any large additional amount of money. It is fortunately possible owing to the height at which our bridges will be built above the water level to secure equal mechanical efficiency with a well balanced and pleasing effect." D.R. Huntington, City Architect, was responsible for the architectural treatment of the piers of the three bascule bridges. The massive, concrete piers of the University Bridge and the handsome towers on the Fremont Bridge provide an appropriate architectural frame for the passageway between Puget Sound and Lake Washington. However, the architectural treatment of these three bascule bridges do not equal the monumental stature of the cross-girder bascule bridge built across the canal at Montlake Avenue in 1924.

References (continued)

F.A. Rapp, "Heavy Foundation Work for Bascule Bridge at Seattle," Engineering News Record, 15 April 1920, pp. 774-776.
Letter from City Engineer to City Council, April 20, 1914.

25. Sketch Map of Location



- A  Montlake Avenue Bridge
- B  University Bridge
- C  Fremont Bridge
- D  Ballard Bridge

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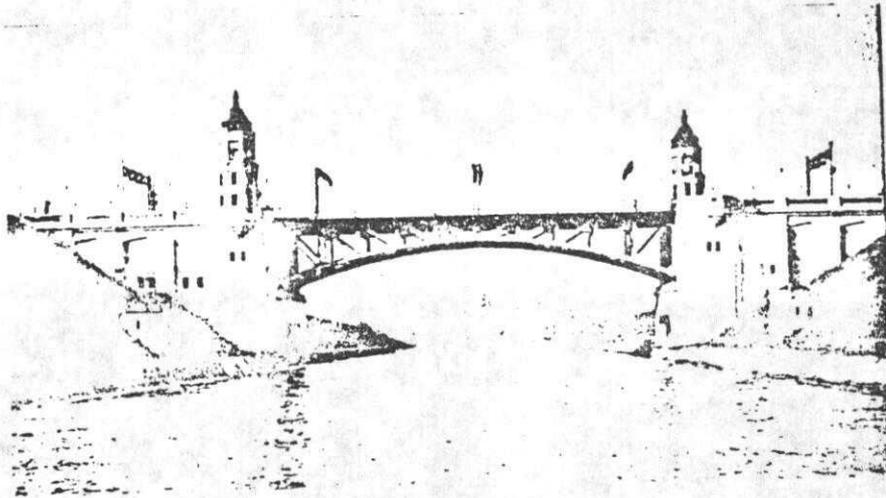
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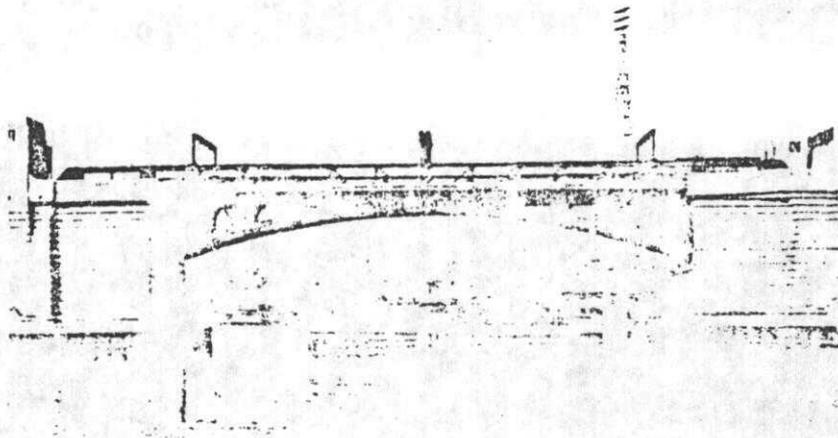
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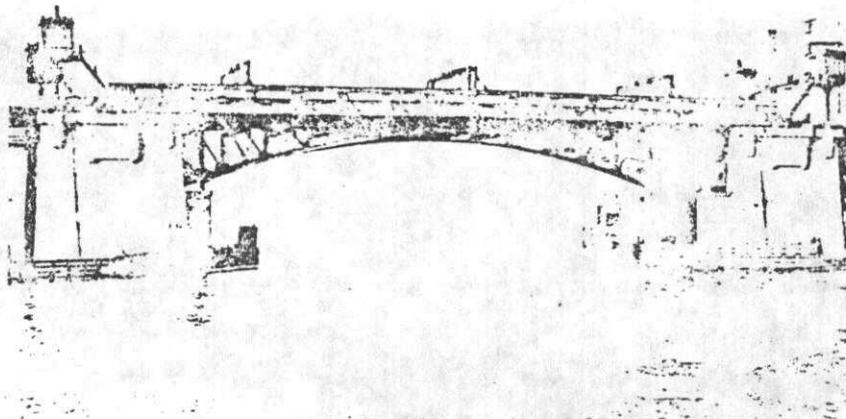
CANAL BRIDGES



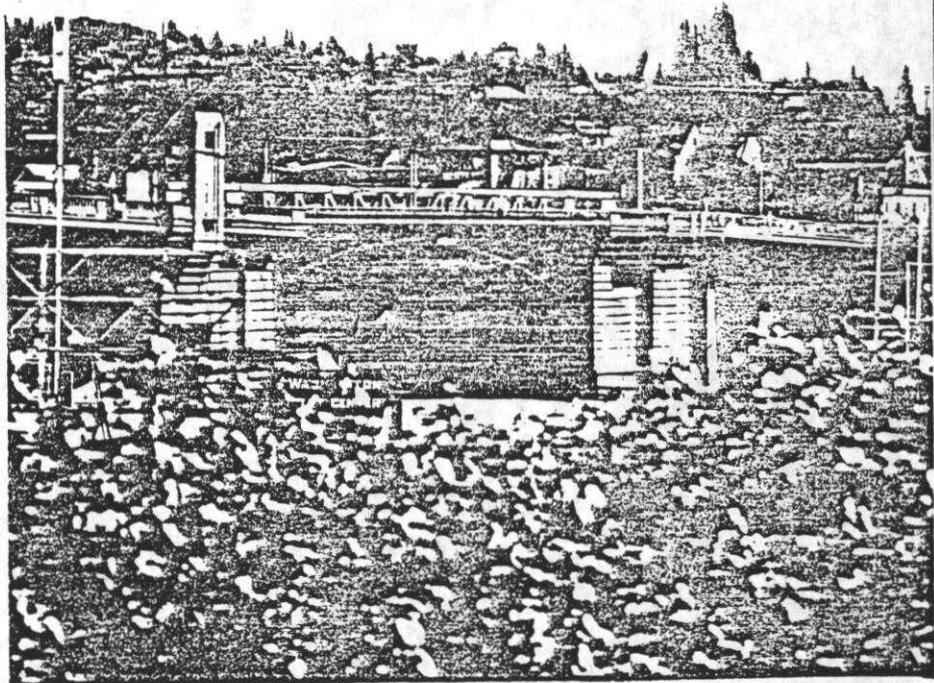
Montlake Bridge



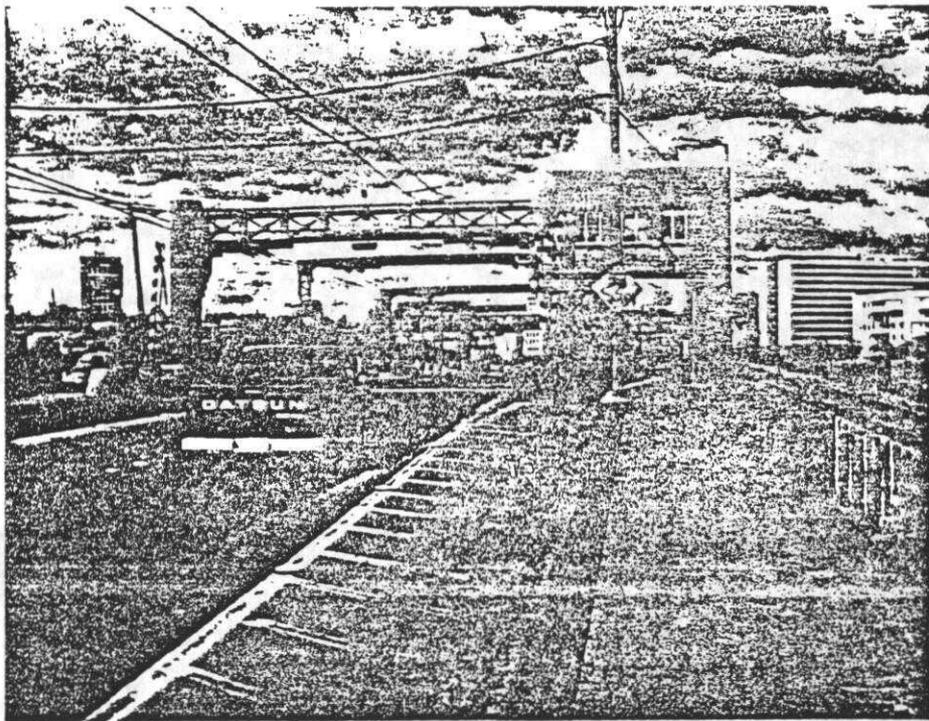
University Bridge



Ballard Bridge



University Bridge,
side elevation, looking northwest



University Bridge,
looking northeast

**Historic Property Inventory Forms:
Port of Tacoma and Port of Olympia
Historic Properties**

Historic Name: Fire Station No. 15

Address: 3510 East Eleventh Street

City: Tacoma

County: Pierce

[Download nomination form](#)

Historic Use: Government

Style: Spanish - Spanish Colonial Revival

Built: 1929

Architect: Nicholson, Morton J.

Builder: Walesby Construction Co.

Smithsonian Number: 45PI00650

Date Listed: 5/2/1986

Listing Status: WHR/NR

Classification: BLDG(S)

Resource Count: 1

Area of Significance: Architecture

Level of Significance: Local

Listing Criteria: A, C

Statement of Significance

Photos



HISTORIC PROPERTY INVENTORY FORM

P1 650

State of Washington
Office of Archaeology and Historic Preservation
111 W. 21st Ave. KL-11
Olympia, WA 98504
(206) 753-5010

IDENTIFICATION SECTION

Site No.: _____
Site Name: Historic Fire Station No. 15
Common _____
Field Recorder: Mark L. Brack
Date Recorded: July 16, 1985
Owner's Name: City of Tacoma
Street: 747 Market Street
City/Town: Tacoma
County: Pierce
Zip Code: 98402

LOCATION SECTION

Street Number: 3510 E. 11th Street
City/Town: Tacoma Zip Code: 98421
County: Pierce Twp: N/a Range: _____ Sect: _____ 1/4 Sect: _____
Tax No./Parcel No.: 227 520-043-0
UTM References: Zone: 10 Easting: 545 660 Northing: 5235720
Tacoma North, WA

Acreeage: less than one
Legal Boundary Description: Ashton's Replat of Tacoma Tidelands, Block 10 Lots 1 - 3.

Status: National Register
 State Register
 Survey/Inventory
 Determined Eligible
 Other (NHL, HABS, HAER) Indicate

Classification: _____ Date: _____
District: _____
Site: previously
Building: surveyed 1980
Structure: _____
Object: _____

PHOTOGRAPHY

Photography Neg. No.: Roll 1, Neg. #2
(Roll No. + Frame No.)
View: NW and SW elevations, facing east
Date: August 1985

DESCRIPTION SECTION

Materials & Features/Structural Types:

Roof Material: Wood Shingle
 Asbestos/Asphalt Shingle
 Slate
 Tar
 Metal (specify) _____
 Other (specify) _____

Roof Type: Gable
 Flat
 Monitor
 Gambrel
 Shed

Hip
 Pyramid
 Sawtooth
 Other (specify) _____

Foundation: Log
 Post & Pier
 Stone
 Concrete
 Block
 Poured
 Brick
 Other (specify) _____

Style/Form: (Check one or more of the following)

Pioneer/Homestead
 Greek Revival
 Gothic Revival
 Italianate
 Second Empire
 Stick/Eastlake
 Queen Anne
 Shingle Style
 Richardsonian Romanesque
 Chicago School/
Sullivaneseque
 Beau Arts Classicism
 Princess Anne
 Neo-Colonial

Dutch Colonial
 Spanish Colonial
 English Revival
 Bungalow
 Craftsman
 American Foursquare/
Classic Box
 Prairie Style
 Art Deco/Moderne
 Commercial Vernacular
 Vernacular
 Other (specify) Spanish Period Revival

Cladding (Exterior Wall Surfaces):

Log
 Horizontal Wood Siding
 Wood Shingle
 Asbestos/Asphalt Shingle
 Brick Masonry
 Stone Masonry
 Stucco
 Terra Cotta
 Carrara Glass
 Vinyl/Aluminum Siding
 Other (specify) _____

Rustic/Novelty
 Clapboard
 Split Shakes
 Re-sawn
 Machine Shingle

Height/No. of Stories: One
 One and one-half
 Two
 Two and one-half
 Three
 Other (specify) _____

Integrity: (include detailed description in 'Additional Description' section)

Intact Slight Moderate Excessive
Additions to house plan:
Changes to windows:
Changes to roof shape:
Changes to interior plan:
Other (specify):

NARRATIVE SECTION

Areas of Significance/Study Unit Themes: (check one or more of the following)

<input type="checkbox"/> Agriculture	<input type="checkbox"/> Conservation	<input type="checkbox"/> Military	<input type="checkbox"/>
<input checked="" type="checkbox"/> Architecture/Landscape Architecture	<input type="checkbox"/> Education	<input type="checkbox"/> Politics/Government/Law	<input checked="" type="checkbox"/>
<input type="checkbox"/> Arts	<input type="checkbox"/> Entertainment/Recreation	<input type="checkbox"/> Religion	<input type="checkbox"/>
<input type="checkbox"/> Commerce	<input type="checkbox"/> Ethnic Heritage (specify) _____	<input type="checkbox"/> Science & Engineering	<input type="checkbox"/>
<input type="checkbox"/> Communications	<input type="checkbox"/> Health/Medicine	<input type="checkbox"/> Social Movements/Organizations	<input type="checkbox"/>
<input type="checkbox"/> Community Planning/Development	<input type="checkbox"/> Manufacturing/Industry	<input type="checkbox"/> Transportation	<input type="checkbox"/>
		<input type="checkbox"/> Other (Specify) _____	<input type="checkbox"/>

Statement of Significance: (Reference names, dates, events, areas of significance/study

unit themes) 1928 - 1929 (Period of significance: 1928 - 1935)

Date of Construction:

Architect/Builder:

Historical Significance:

Morton J. Nicholson, Architect - Walesby Construction Company, Contractor

Fire Station No. 15 is significant for its association with the development of Tacoma's port/industrial area and the growth of the city's vital municipal services. The building is also an important local example of the innovations in fire station design that followed the motorization of firefighting equipment. Station No. 15 was erected in a newly annexed tideflat section of the city, and it shared the fireboat's responsibilities for answering calls along the waterfront. Its jurisdiction also included the industrial zones further removed from the water and a residential district in northeast Tacoma. The introduction of motorized equipment allowed stations to be reduced in height to one story, as firemen no longer required separation from the station's horses. Consequently, fire stations developed an even greater domestic appearance. Zurier describes these buildings as "bungalow" stations. Station No. 15 utilized an enlarged version of the floor plan of Nos. 10 and 14 yet stylistically it is articulated quite differently. The station's Hispanic design reflects popular Period Revival tendencies of the 1920's, which were shared by fire stations across the country. It is the only fire station in the city to display such Hispanic-inspired details. Like the Fireboat Station, its picturesque quality is very different from the utilitarian industrial character of the surrounding area. The growth of the city and the general economic prosperity which preceded the Depression

Additional Description of Physical Appearance & Significant Architectural Features:

(Architectural significance; can include interior & site features; address integrity

issues specifically) Fire Station No. 15 is located in a port/industrial area characterized by warehouses, factories and undeveloped land. The simple Spanish-inspired detailing of the building is typical of Period Revival structures of this era. The station was constructed of hollow tile, with a finish coat of rough textured stucco. Projecting from the northwest facade is the two bay apparatus room, which is covered by a gable roof perpendicular to the primary roofline. The main pedestrian entrance to the building is through a small porch recessed behind the arcade on the west corner of the building. The corner pier of this arcade has a small buttress. The dormitory wing is located at the rear of the main gabled section. It has a flat roof behind a tiled parapet wall. The hose tower is also on the rear of the station and is articulated with arched louvered vents, a pyramidal roof and exposed beams in imitation of Hispanic vigas. Windows are 1/1 and 3/1 double-hung wood sash. A band of five 1/1 windows illuminates the station's dayroom. The interior is in an excellent state of preservation. Original features include: a tiled bathroom with marble stall partitions, plywood lockers in the dormitories, and a dining nook with Craftsman style furniture. The

Major Bibliographic References: (Include books, periodicals, manuscripts, newspapers,

legal documents, maps, photos, oral sources, etc.)

Tacoma Daily Ledger, March 14, 1928, p. 1; December 28, 1929, p. 12.

Tacoma Fire Department Annual Report, 1929 (available at Northwest Room, Tacoma Public Library)

Tacoma Fire Department Records (901 South Fawcett Avenue, Tacoma, Washington)

Tacoma News Tribune, March 14, 1928, p. 1.

(cont'd)

HISTORIC PROPERTY INVENTORY FORM

(Continuation Sheet)

State of Washington
Office of Archaeology and Historic Preservation
111 W. 21st Ave. KL-11
Olympia, WA 98504
(206) 753-5010

Site No.: _____

Site Name:

Historic
Common

Fire Station No. 15

Additional Photographs: (include roll no. & frame no.; date; & view)

Significance (cont'd)

prompted voters to approve a bond issue in 1928 that included funds for four new stations, the fire alarm station and the fireboat. Fire Station No. 15 exemplifies the growth of the city and its services, and it continues to reflect the important legacy of the Tacoma Fire Department.

Description (cont'd)

most notable alterations include: the remodeling of kitchen cabinetry and the replacement of the original segmentally-arched wooden apparatus doors with flat-arch metal and glass roll-up doors.

Bib. References (cont'd)

Talbot, Clyde and Decker, Ralph, 100 Years of Firefighting in the City of Destiny, Tacoma: Pyro Press, 1981.
Zurier, Rebecca, The American Firehouse, An Architectural and Social History, New York: Abbeville Press, 1982.
Original 1928 blueprints (available at the City of Tacoma's Building Division)

17°30' Fire Station No. 14
Tacoma, Washington
UTM References:
Zone 10 Easting 537890
Northing 5236860

Engine House No. 13
Tacoma, Washington
UTM References:
Zone 10 Easting 538770
Northing 5235130

Fire Alarm Station
Tacoma, Washington
UTM References:
Zone 10 Easting 542020
Northing 5233940

Engine House No. 9
Tacoma, Washington
JTM References:
Zone 10 Easting 539940
Northing 5233550

Fire Station No. 1
Tacoma, Washington
UTM References:
Zone 10 Easting 542030
Northing 5233880

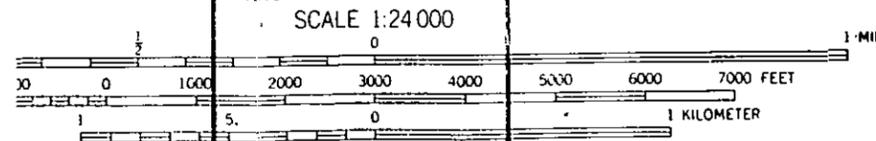
Fire Station No. 5
Tacoma, Washington
UTM References:
Zone 10 Easting 541220
Northing 5232950

Fire Station No. 15
Tacoma, Washington
UTM References:
Zone 10 Easting 545660
Northing 5235720

Mapped, edited, and published by the Geological Survey
Control by USGS and NOS/NOAA
Topography by photogrammetric methods from aerial
photographs taken 1957. Field checked 1961
Selected hydrographic data compiled from NOS charts
6407 and 6460 (1958). This information is not intended
for navigational purposes

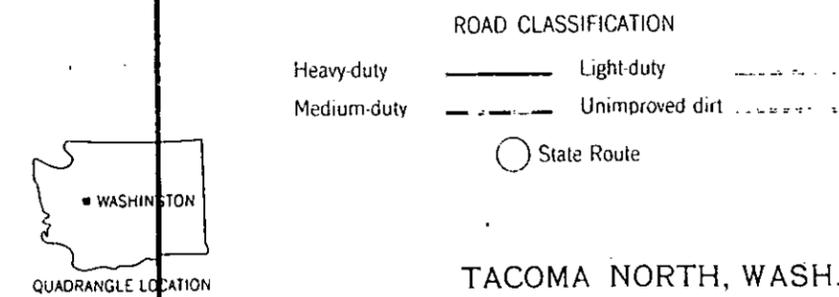
Polyconic projection. 10,000-foot grid ticks based on Washington
coordinate system, south and north zones. 1000-meter Universal
Transverse Mercator grid ticks, zone 10, shown in blue
1927 North American Datum. To place on the predicted
North American Datum 1983 move the projection lines
22 meters north and 82 meters east as shown by

UTM GRID AND 1981 MAGNETIC NORTH
DECLINATION AT CENTER OF SHEET



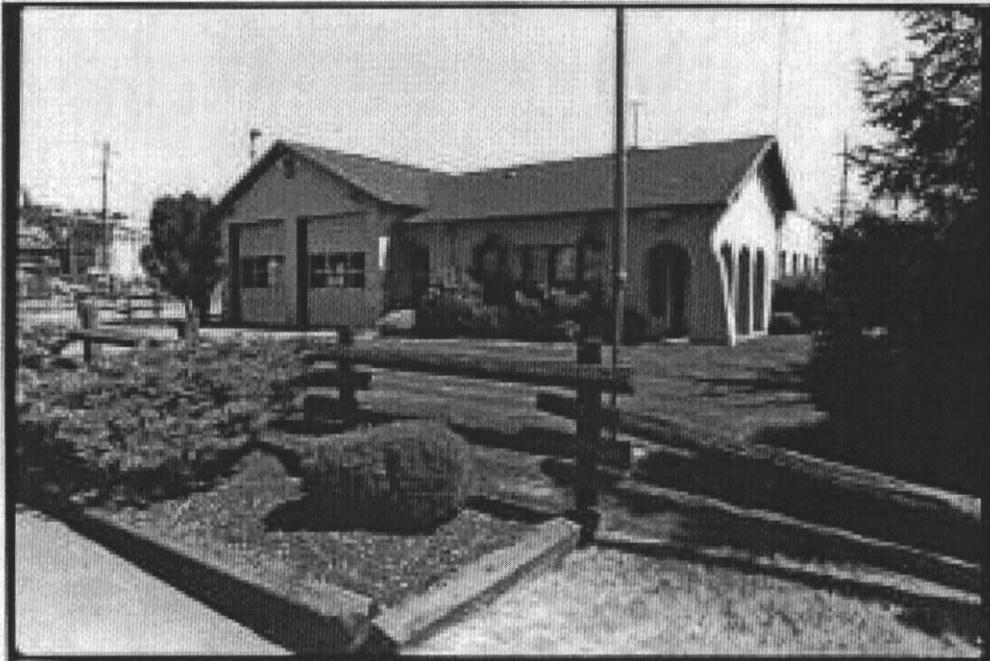
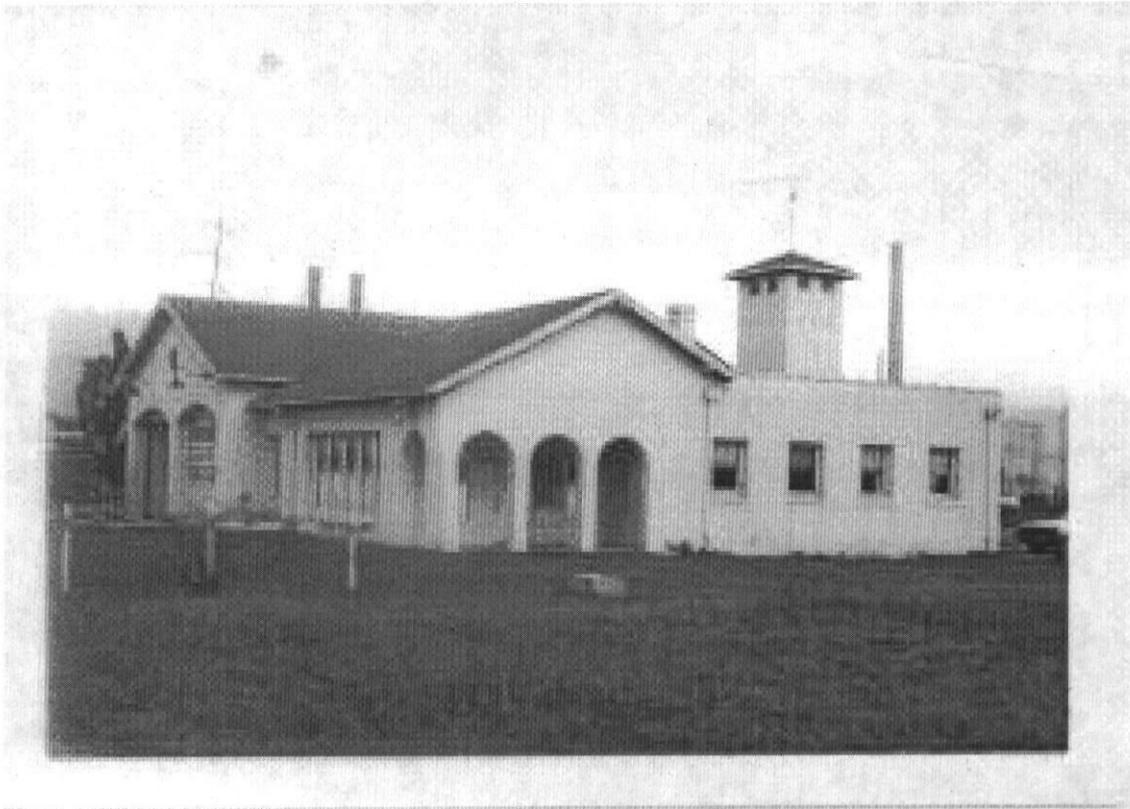
CONTOUR INTERVAL 20 FEET
DOTTED LINES REPRESENT 10 FOOT CONTOURS
NATIONAL GEODETIC VERTICAL DATUM OF 1929
DEPTH CURVES AND SOUNDINGS IN FEET—DATUM IS MEAN LOWER LOW WATER
THE RELATIONSHIP BETWEEN THE TWO DATUMS IS VARIABLE
SHORELINE SHOWN REPRESENTS THE APPROXIMATE LINE OF MEAN HIGH WATER
THE MEAN RANGE OF TIDE IS APPROXIMATELY 8 FEET

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U.S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092



TACOMA NORTH, WASH.
N4715—W12222.5/7.5

Revisions shown in purple and woodland compiled from
aerial photographs taken 1978 and other sources.

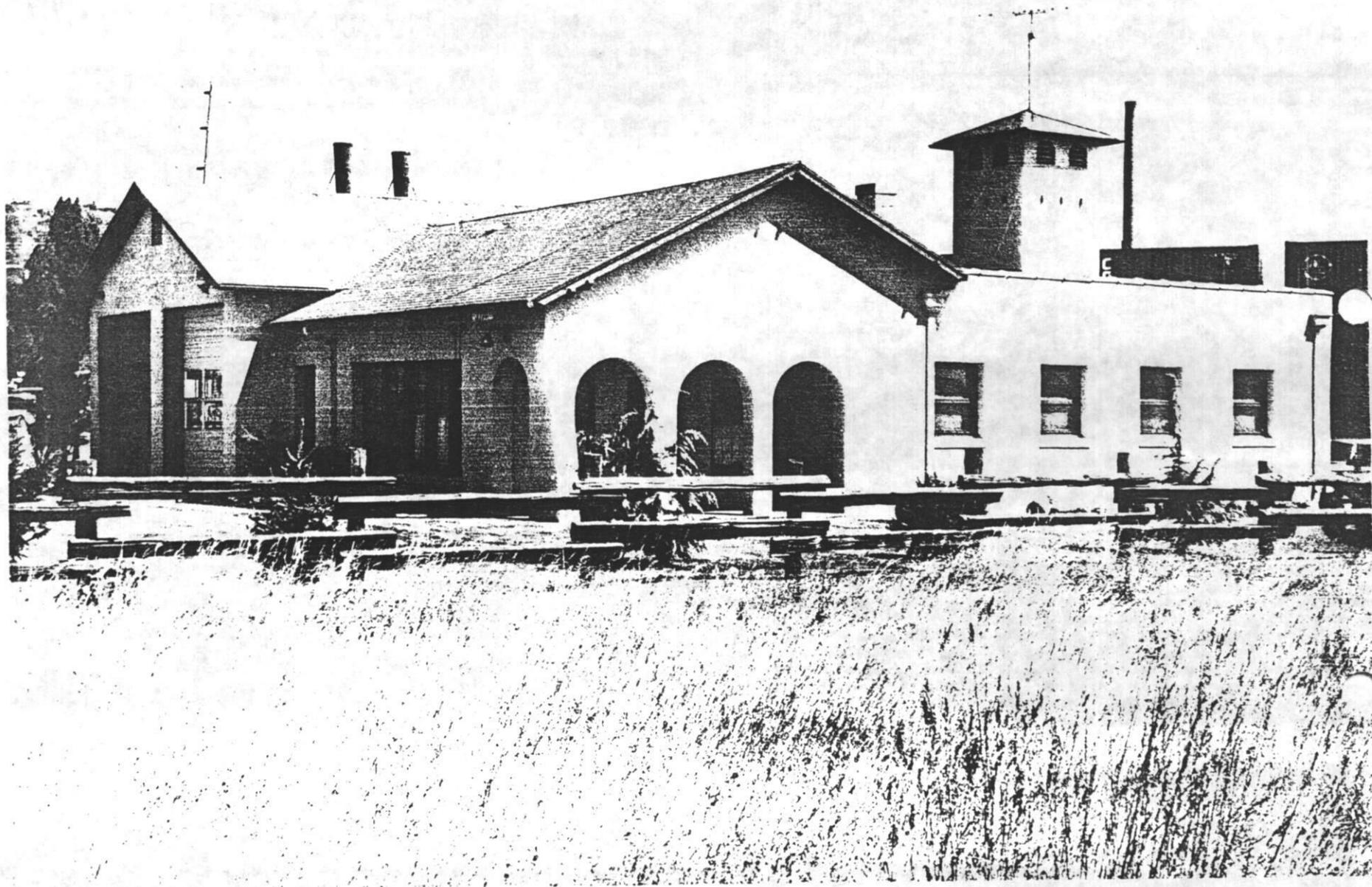


Fire Station No. 15
3500 4th Street

Call # 30
15

FIRE STATION NO 15.

TACOMA, WA





Historic Property Inventory Report

Location

Field Site No. Gharbor

DAHP No.

Historic Name: Concrete Technology Corporation Plant

Common Name: Concrete Technology Corporation Plant

Property Address: 1123 Port of Tacoma Rd, Tacoma, WA 98421

Comments:

Tax No./Parcel No. 6965000202, 8888877420

Plat/Block/Lot

Acreage

Supplemental Map(s)

Township/Range/EW	Section	1/4 Sec	1/4 1/4 Sec	County	Quadrangle
T21R03E	34			Pierce	TACOMA NORTH

Coordinate Reference

Easting: 1168082

Northing: 711115

Projection: Washington State Plane South

Datum: HARN (feet)



Historic Property Inventory Report

Identification

Survey Name: SR 520 Pontoon Construction Project Date Recorded: 03/09/2009
Field Recorder: Hetzel, Christopher
Owner's Name: Concrete Technology Corporation
Owner Address: P.O. Box 2259
City: Tacoma State: WA Zip: 98401-2259
Classification: Building
Resource Status: Survey/Inventory Comments: Eligible
Within a District? No
Contributing?
National Register:
Local District:
National Register District/Thematic Nomination Name:
Eligibility Status: Determined Eligible - SHPO
Determination Date: 6/3/2009
Determination Comments: 122107-37-FHWA determined on 6/3/2009

Description

Historic Use: Commerce/Trade - Professional Current Use: Commerce/Trade - Professional
Plan: Rectangle Stories: 2 Structural System: Platform Frame
Changes to Plan: Intact Changes to Interior: Unknown
Changes to Original Cladding: Intact Changes to Windows: Slight
Changes to Other:
Other (specify):
Style: Modern Cladding: Veneer Roof Type: Flat with Eaves Roof Material: Unknown
Veneer - Stucco
Foundation: Concrete - Poured Form/Type: Commercial

Narrative

Study Unit	Other
Manufacturing/Industry	
Architecture/Landscape Architecture	
Date of Construction: 1956 Built Date	Builder:
	Engineer: Anderson, Arthur and Thomas



Historic Property Inventory Report

Architect: Price, Robert B.

Property appears to meet criteria for the National Register of Historic Places: Yes

Property is located in a potential historic district (National and/or local): Yes - Local

Property potentially contributes to a historic district (National and/or local): Yes

Statement of Significance: The two-story administration building at 1123 Port of Tacoma Road was evaluated at a reconnaissance level in a cultural resources survey completed for the SR520 Pontoon Construction Project in the City of Tacoma, Pierce County, Washington. The building is one of several structures that comprise the facilities of the Concrete Technology Corporation at the Port of Tacoma. It was constructed circa 1956, based on its appearance in aerial photographs in the collections of the Tacoma Public Library, and was designed by Robert B. Price, a well-known Tacoma architect. The integrity of the building is fair due to possible alterations to the existing fenestration, including the full-height mirror-glass curtain wall at the south elevation.

The Concrete Technology Corporation is recognized as being historically significant for having pioneered the development of the pre-stressed concrete industry in the United States. After serving in World War II, where he directed testing of a prototype of the United State's first pre-stressed concrete bridge (the Walnut Lane Bridge in Philadelphia), Arthur R. Anderson and his brother Thomas Anderson moved back to Tacoma and founded Concrete Technology Corporation and ABAM Engineers. The brothers, both engineers with degrees from the Massachusetts Institute of Technology, established the company's initial production facility in 1951 at the Port of Tacoma. Pre-stressed concrete was a new technology in the United States, and the Andersons' Tacoma facility was the first pre-stressing factory plant in the country. According to the company's website, the modest four-employee company was the culmination of a yearlong investigation by the Andersons throughout Europe to see the few pre-stressed concrete structures in existence at that time.

The Andersons developed and promoted the technology of pre-stressed elements for construction throughout the 1950s and 1960s. The company invented and marketed the Anderson Post-tensioning System, developed a family of bridge I-girders that was adopted by the Washington State Department of Transportation as a construction standard, and devised new methods for producing long hollow concrete members and segmental bridge construction, among other innovations. The Concrete Technology Corporation's success led to growth in sales and demand, and the company's involvement in many significant, large capital improvement projects in the Pacific Northwest and across the country. This success resulted in the expansion of the company's facilities at the Port of Tacoma. The original production facility, which is now the research and development laboratory, was constructed in 1951. The company's expansion in the 1950s included the construction of two office and administration buildings circa 1956 and completion of the main Structural Plant between 1956 and 1960. Tacoma architect Robert B. Price is credited with the design of the administration buildings and the Structural Plant, along with Thomas and Arthur Anderson who provided the engineering. Robert B. Price is recognized as one of the most prolific architects in the Tacoma area from the 1950s to the 1970s. His work spanned a variety of building types, from single-family homes to banks and public buildings, but he is probably best known for his specialization in his design of schools throughout the Puget Sound region. During his career, Price received 59 national, regional and local awards for design excellence. Among his award winning projects was the Tacoma Fire Station No. 17 (1955); the Joe Long Jr. House on American Lake (1956); Hoyt Elementary School in Tacoma (1958); and his own architectural Tacoma office (1963). Many of Price's other projects were featured in a variety of magazines including *Sunset*, *House and Garden* and *Architectural Record*.

The Concrete Technology Corporation added a second major production building to its Port of Tacoma facility in 1967 to accommodate the rising demand for precast building elements. Production expansion in the 1970s included facilities for semi-automated casting of hollow-core slabs, and the construction of the existing 150' x 500' graving dock for the construction of floating concrete structures.

Historic Property Inventory Report

Thousands of bridges, buildings, piers, tanks, floats and other structures throughout the Pacific Northwest and Alaska have been constructed with Concrete Technology Corporation products, in addition to other projects throughout the United States. The company manufactured structural members for the original Seattle monorail, the Disney World monorail, the Interstate-90 lid, Freeway Park in Seattle, and most freeway overpasses in the region. The facility was also involved in casting beams for Safeco Field and Husky Stadium. It now focuses on beams and pilings.

The property has been evaluated according to the eligibility criteria for listing in the National Register of Historic Places (NRHP). The property appears eligible for listing in the NRHP under Criteria A and C at the local level of significance. Under NRHP Criterion A, the administration building is considered historically significant for its association with the Concrete Technology Corporation and its pioneering role in the development of the pre-stressed concrete industry in the United States. Under NRHP Criterion C, the building embodies the characteristics and method of construction of the Modern style in 1950s, and is a commercially designed building associated with Robert B. Price, who is considered a well-known master architect in the Tacoma area, and engineers Arthur and Thomas Anderson. The administration building strongly exhibits its style and, except for alterations to the fenestration, the building remains essentially unaltered and retains good integrity.

Based on our review, the property has fair integrity and appears eligible for individual listing in the National Register of Historic Places, or as a contributor to an eligible historic district associated with the Concrete Technology Corporation.

Description of Physical Appearance:

The property contains a two-story administration building, constructed circa 1956 for the Concrete Technology Corporation at the Port of Tacoma. It is one of four extant structures that make up the company's industrial facility from the 1950s. The other structures are grouped to the east and northeast of the building. The administration building and structures of the adjacent research and development laboratory are located within a rectangular area of land, defined by a mature hedgerow. The entire area between the buildings has been paved with concrete.

The administration building is oriented to the north-south, with a secondary elevation facing south towards Port of Tacoma Road. It has an irregular rectangular-shaped plan and wood-frame construction on a poured concrete foundation. The building was originally designed in the Moderne style. It has a flat roof characterized by wide boxed overhangs. The exterior walls are clad with stucco. A smooth mullioned, mirrored glass curtain wall is present at the western half of the street-facing side elevation. The eastern half of this elevation is clad with pebble-textured stucco. A one-story flat-roofed entryway is present at the building's southeast corner. It is supported by thin posts and has a rear wall clad in ceramic tile. The building's front entrance, which is located in the entryway at a right angle to the street, has a pair of single-light glass doors in a metal frame. The entry also features wide, flat concrete posts that double as brise-soleil for this recessed portion of the side elevation.

The building's east and west elevations are each five bays wide with large plate glass windows on both the first and second stories. Nearly all of the bays are inset from the elevation and delineated by two-story high, engaged buttresses that end at the roof's overhanging eaves. The northernmost bay on the east elevation is not recessed and features a narrow ribbon of reflecting glass clerestory windows above an unadorned, stucco clad exterior wall. A freestanding abstract sculpted pillar of exposed concrete is present to the southeast of the entryway, marking the entrance to the facility. It features four vertical columns set within a water feature. Mature bush and tree specimens are present in front of the street facing elevation. The mirror-glass window bank at the street facing elevation appears to be a later alteration.



Historic Property Inventory Report

Major
Bibliographic
References:

Concrete Technology Corporation Website. <http://www.concretetech.com/history.htm>.

Docomomo-WEWA. "Price, Robert B." http://www.docomomo-wewa.org/architects_detail.php?id=73. 2009.

Beers, Carole. "Arthur R. Anderson, 85, Pioneer In Concrete Construction Methods." The Seattle Times, 5 July 1995.

Pierce County Tax Assessor Online Records

Tacoma Public Library Image Archives—Port of Tacoma Aerial Photographs

Sanborn Fire Insurance Maps

Washington State Digital Archives

Wilhelm, Steve. "Pioneer firm, Concrete Technology, stretches technology of strong girders." Puget Sound Business Journal, 6 June 2008.

Photos



South and East Elevations, Looking North



South and East Elevations, Looking North



Historic Property Inventory Report

Identification

Survey Name: SR 520 Pontoon Construction Project Date Recorded: 03/09/2009
Field Recorder: Hetzel, Christopher
Owner's Name: Concrete Technology Corporation
Owner Address: P.O. Box 2259
City: Tacoma State: WA Zip: 98401-2259
Classification: Building
Resource Status: Survey/Inventory Comments: Eligible
Within a District? No
Contributing?
National Register:
Local District:
National Register District/Thematic Nomination Name:
Eligibility Status: Not Determined - SHPO
Determination Date: 1/1/0001
Determination Comments:

Description

Historic Use: Industry/Processing/Extraction - Manufacturing Facility Current Use: Industry/Processing/Extraction - Manufacturing Facility
Plan: Rectangle Stories: 2 Structural System: Unknown
Changes to Plan: Intact Changes to Interior: Unknown
Changes to Original Cladding: Intact Changes to Windows: Intact
Changes to Other:
Other (specify):
Style: Vernacular Cladding: Veneer - Stucco Roof Type: Gable Roof Material: Asphalt / Composition - Shingle
Modern - International Style
Foundation: Concrete - Poured Form/Type: Industrial

Narrative

Study Unit Manufacturing/Industry
Architecture/Landscape Architecture
Date of Construction: Builder:

1951 Built Date

Engineer: Anderson, Arthur and Thomas

Architect:

Property appears to meet criteria for the National Register of Historic Places: Yes

Property is located in a potential historic district (National and/or local): Yes - Local

Property potentially contributes to a historic district (National and/or local): Yes

Statement of Significance: The two-story laboratory building at 1123 Port of Tacoma Road was evaluated at a reconnaissance level in a cultural resources survey completed for the SR520 Pontoon Construction Project in the City of Tacoma, Pierce County, Washington. The building is one of several structures that comprise the facilities of the Concrete Technology Corporation at the Port of Tacoma. It was constructed in 1951, based on historical information and its appearance in aerial photographs in the collections of the Tacoma Public Library. The building appears to be essentially unaltered.

The Concrete Technology Corporation is recognized as being historically significant for having pioneered the development of the pre-stressed concrete industry in the United States. After serving in World War II, where he directed testing of a prototype of the United State's first pre-stressed concrete bridge (the Walnut Lane Bridge in Philadelphia), Arthur R. Anderson and his brother Thomas Anderson moved back to Tacoma and founded Concrete Technology Corporation and ABAM Engineers. The brothers, both engineers with degrees from the Massachusetts Institute of Technology, established the company's initial production facility in 1951 at the Port of Tacoma. The initial production facility appears to have consisted of what are now the laboratory building and an adjacent one-story building immediately to the north. Pre-stressed concrete was a new technology in the United States, and the Andersons' Tacoma facility was the first pre-stressing factory plant in the country. According to the company's website, the modest four-employee company was the culmination of a yearlong investigation by the Andersons throughout Europe to see the few pre-stressed concrete structures in existence at that time.

The Andersons developed and promoted the technology of pre-stressed elements for construction throughout the 1950s and 1960s. The company invented and marketed the Anderson Post-tensioning System, developed a family of bridge I-girders that was adopted by the Washington State Department of Transportation as a construction standard, and devised new methods for producing long hollow concrete members and segmental bridge construction, among other innovations. The Concrete Technology Corporation's success led to growth in sales and demand, and the company's involvement in many significant, large capital improvement projects in the Pacific Northwest and across the country. This success resulted in the expansion of the company's facilities at the Port of Tacoma. The original production facility, which is now the research and development laboratory, was constructed in 1951. The company's expansion in the 1950s included the construction of two office and administration buildings circa 1956 and completion of the main Structural Plant between 1956 and 1960. The Concrete Technology Corporation added a second major production building to its Port of Tacoma facility in 1967 to accommodate the rising demand for precast building elements. Production expansion in the 1970s included facilities for semi-automated casting of hollow-core slabs, and the construction of the existing 150' x 500' graving dock for the construction of floating concrete structures.

Thousands of bridges, buildings, piers, tanks, floats and other structures throughout the Pacific Northwest and Alaska have been constructed with Concrete Technology Corporation products, in addition to other projects throughout the United States. The company manufactured structural members for the original Seattle monorail, the Disney World monorail, the Interstate-90 lid, Freeway Park in Seattle, and most freeway overpasses in the region. The facility was also involved in casting beams for Safeco Field and Husky Stadium. It now focuses on beams and pilings.

Historic Property Inventory Report

The property has been evaluated according to the eligibility criteria for listing in the National Register of Historic Places (NRHP). The property appears eligible for listing in the NRHP under Criteria A and C at the local level of significance, and possibly at the state or national levels as well. Under NRHP Criterion A, the laboratory building is considered historically significant for its association with the Concrete Technology Corporation and its pioneering role in the development of the pre-stressed concrete industry in the United States. Under NRHP Criterion C, the building embodies the characteristics and method of construction of a pre-stressed concrete industrial plant from the early 1950s and is recognized as being the first of its kind in the United States. The laboratory building strongly exhibits its style and associations, and remains essentially unaltered with good integrity.

Based on our review, the property has good integrity and appears eligible for individual listing in the National Register of Historic Places, or as a contributor to an eligible historic district associated with the Concrete Technology Corporation.

Description of Physical Appearance:

The property contains a two-story industrial building, constructed in 1951 for the Concrete Technology Corporation at the Port of Tacoma. It functions as the part of the company's research and design laboratory, and is one of four extant structures that make up the company's industrial facility from the 1950s. The other structures are located to the west and northeast of the building, with a smaller one-story structure situated immediately to the north. The laboratory building and two other structures are located within a rectangular area of land, defined by a mature hedgerow. The entire area between the buildings has been paved with concrete.

The laboratory building is oriented to the east-west situated parallel to the north side of Port of Tacoma Road. It has a rectangular-shaped plan and consists of wood-frame construction on a poured concrete foundation. The building was originally designed in a modernist style exhibiting International style influences in an industrial form. The roof is a low-pitched (nearly flat) side-gable roof clad with composition asphalt shingles and featuring exposed structural beams in the gable ends. The exterior walls are finished with smooth stucco. The building's north and south elevations are similarly designed. Each elevation is seven bays wide with large banks of ribbon windows on the second story of each bay. The banks of windows each consist of two stacked rows of clerestory windows with eight openings in each row. The openings contain single-pane fixed sash windows set in from the exterior wall with no visible window frame. A narrow band course separates the first story from the second, and a narrow, two-story, reverse-angled, engaged buttress ending at the roof's overhanging eaves defines each bay. The north elevation is further articulated by large vehicular freight door openings in two of the center bays and a second-story pedestrian entrance, accessed by a flight of steps, at the building's northwest corner. Additional door openings are located on the building's east and west elevations. The secondary elevations are further characterized by a small shed-roofed one-story addition at the east elevation, and four twelve-light fixed industrial sash windows at the west elevation—three on the second story and one on the first.

Major Bibliographic References:

Concrete Technology Corporation Website. <http://www.concretetech.com/history.htm>.

Docomomo-WEWA. "Price, Robert B." http://www.docomomo-wewa.org/architects_detail.php?id=73. 2009.

Beers, Carole. "Arthur R. Anderson, 85, Pioneer In Concrete Construction Methods." *The Seattle Times*, 5 July 1995.

Pierce County Tax Assessor Online Records

Tacoma Public Library Image Archives—Port of Tacoma Aerial Photographs

Sanborn Fire Insurance Maps

Washington State Digital Archives

Wilhelm, Steve. "Pioneer firm, Concrete Technology, stretches technology of strong girders." *Puget Sound Business Journal*, 6 June 2008.

Photos



West and South Elevations, Looking East



Historic Property Inventory Report

Identification

Survey Name: SR 520 Pontoon Construction Project Date Recorded: 03/09/2009
Field Recorder: Hetzel, Christopher
Owner's Name: Concrete Technology Corporation
Owner Address: P.O. Box 2259
City: Tacoma State: WA Zip: 98401-2259
Classification: Building
Resource Status: Comments:
Survey/Inventory Eligible
Within a District?
Contributing?
National Register:
Local District:
National Register District/Thematic Nomination Name:
Eligibility Status: Not Determined - SHPO
Determination Date: 1/1/0001
Determination Comments:

Description

Historic Use: Industry/Processing/Extraction - Manufacturing Facility Current Use: Industry/Processing/Extraction - Manufacturing Facility
Plan: Irregular Stories: 1 Structural System: Platform Frame
Changes to Plan: Slight Changes to Interior: Unknown
Changes to Original Cladding: Intact Changes to Windows: Intact
Changes to Other:
Other (specify):
Style: Cladding: Roof Type: Roof Material:
Modern Veneer - Stucco Gable Asphalt / Composition
Foundation: Form/Type:
Concrete - Poured Industrial

Narrative

Study Unit	Other
Manufacturing/Industry	
Architecture/Landscape Architecture	
Date of Construction: 1951 Built Date	Builder:
	Engineer: Anderson, Arthur and Thomas

Architect:

Property appears to meet criteria for the National Register of Historic Places: Yes

Property is located in a potential historic district (National and/or local): Yes - Local

Property potentially contributes to a historic district (National and/or local): Yes

Statement of Significance: The one-story research building at 1123 Port of Tacoma Road was evaluated at a reconnaissance level in a cultural resources survey completed for the SR520 Pontoon Construction Project in the City of Tacoma, Pierce County, Washington. The building is one of several structures that comprise the facilities of the Concrete Technology Corporation at the Port of Tacoma. It was constructed in 1951, based on historical information and its appearance in aerial photographs in the collections of the Tacoma Public Library. The building appears to be essentially unaltered.

The Concrete Technology Corporation is recognized as being historically significant for having pioneered the development of the pre-stressed concrete industry in the United States. After serving in World War II, where he directed testing of a prototype of the United States' first pre-stressed concrete bridge (the Walnut Lane Bridge in Philadelphia), Arthur R. Anderson and his brother Thomas Anderson moved back to Tacoma and founded Concrete Technology Corporation and ABAM Engineers. The brothers, both engineers with degrees from the Massachusetts Institute of Technology, established the company's initial production facility in 1951 at the Port of Tacoma. The initial production facility appears to have consisted of what are now the research building and an adjacent two-story building immediately to the south. Pre-stressed concrete was a new technology in the United States, and the Andersons' Tacoma facility was the first pre-stressing factory plant in the country. According to the company's website, the modest four-employee company was the culmination of a yearlong investigation by the Andersons throughout Europe to see the few pre-stressed concrete structures in existence at that time.

The Andersons developed and promoted the technology of pre-stressed elements for construction throughout the 1950s and 1960s. The company invented and marketed the Anderson Post-tensioning System, developed a family of bridge I-girders that was adopted by the Washington State Department of Transportation as a construction standard, and devised new methods for producing long hollow concrete members and segmental bridge construction, among other innovations. The Concrete Technology Corporation's success led to growth in sales and demand, and the company's involvement in many significant, large capital improvement projects in the Pacific Northwest and across the country. This success resulted in the expansion of the company's facilities at the Port of Tacoma. The original production facility, which is now the research and development laboratory, was constructed in 1951. The company's expansion in the 1950s included the construction of two office and administration buildings circa 1956 and completion of the main Structural Plant between 1956 and 1960. The Concrete Technology Corporation added a second major production building to its Port of Tacoma facility in 1967 to accommodate the rising demand for precast building elements. Production expansion in the 1970s included facilities for semi-automated casting of hollow-core slabs, and the construction of the existing 150' x 500' graving dock for the construction of floating concrete structures.

Thousands of bridges, buildings, piers, tanks, floats and other structures throughout the Pacific Northwest and Alaska have been constructed with Concrete Technology Corporation products, in addition to other projects throughout the United States. The company manufactured structural members for the original Seattle monorail, the Disney World monorail, the Interstate-90 lid, Freeway Park in Seattle, and most freeway overpasses in the region. The facility was also involved in casting beams for Safeco Field and Husky Stadium. It now focuses on beams and pilings.

Historic Property Inventory Report

The property has been evaluated according to the eligibility criteria for listing in the National Register of Historic Places (NRHP). The property appears eligible for listing in the NRHP under Criteria A and C at the local level of significance, and possibly at the state or national levels as well. Under NRHP Criterion A, the research building is considered historically significant for its association with the Concrete Technology Corporation and its pioneering role in the development of the pre-stressed concrete industry in the United States. Under NRHP Criterion C, the building embodies the characteristics and method of construction of a pre-stressed concrete industrial plant from the early 1950s and is recognized as being the first of its kind in the United States. The research building strongly exhibits its style and associations, and remains essentially unaltered with good integrity.

Based on our review, the property has good integrity and appears eligible for listing in the National Register of Historic Places as a contributor to an eligible historic district associated with the Concrete Technology Corporation.

Description of Physical Appearance:

The property contains a one-story industrial building, constructed in 1951 for the Concrete Technology Corporation at the Port of Tacoma. It functions as the part of the company's research and design laboratory, and is one of four extant structures that make up the company's industrial facility from the 1950s. The other structures are located to the west and northeast of the building, with a two-story industrial building situated immediately to the south. The research building and two other structures are located within a rectangular area of land, defined by a mature hedgerow. The entire area between the buildings has been paved with concrete.

The research building is oriented to the east-west situated parallel to the north side of Port of Tacoma Road. It has two sections, consisting of what could be defined as two attached buildings. Situated to the south, one has a rectangular-shaped plan and consists of wood-frame construction on a poured concrete foundation. It exhibits a modernist style similar to that of the adjacent two-story industrial building, with International style influences. The roof is a low-pitched (nearly flat) side-gable roof clad with composition roofing and featuring open eaves with wide fascia. The exterior walls are finished with smooth stucco. The building's south elevation is four bays wide. Horizontal, eight-light industrial sash windows with a wood sill punctuate all but one of the bays. The elevation's westernmost bay contains a larger multiple-light fixed window. Reverse-angled, engaged buttresses ending at the roof's overhanging eaves defines each bay. The structure's east and west elevations are each punctuated by three-regularly space multiple-light windows with wood sills.

Attached to the building's north elevation is the large secondary structure. The structure has a wide rectangular plan. It has a flat roof punctuated by several mechanical units and metal ductwork. The north and south elevations are each six bays wide. Vertical pilasters define each bay. Except for a single door opening on the north elevation, the north and south elevations are otherwise unadorned. The building's east and west elevations each contain a row of clerestory windows. There are six windows on the west elevation and four on the east. The east elevation also contains freight door openings at the section's southeast corner.

Major Bibliographic References:

Concrete Technology Corporation Website. <http://www.concretetech.com/history.htm>.

Docomomo-WEWA. "Price, Robert B." http://www.docomomo-wewa.org/architects_detail.php?id=73. 2009.

Beers, Carole. "Arthur R. Anderson, 85, Pioneer In Concrete Construction Methods." *The Seattle Times*, 5 July 1995.

Pierce County Tax Assessor Online Records

Tacoma Public Library Image Archives—Port of Tacoma Aerial Photographs

Sanborn Fire Insurance Maps

Washington State Digital Archives

Wilhelm, Steve. "Pioneer firm, Concrete Technology, stretches technology of strong girders." *Puget Sound Business Journal*, 6 June 2008.

Photos



West and South Elevations, Looking East



Historic Property Inventory Report

Identification

Survey Name: SR 520 Pontoon Construction Project Date Recorded: 03/09/2009
Field Recorder: Hetzel, Christopher
Owner's Name: Concrete Technology Corporation
Owner Address: P.O. Box 2259
City: Tacoma State: WA Zip: 98401-2259
Classification: Building
Resource Status: Comments:
Survey/Inventory Eligible
Within a District?
Contributing?
National Register:
Local District:
National Register District/Thematic Nomination Name:
Eligibility Status: Not Determined - SHPO
Determination Date: 1/1/0001
Determination Comments:

Description

Historic Use: Industry/Processing/Extraction - Manufacturing Facility Current Use: Industry/Processing/Extraction - Manufacturing Facility
Plan: Irregular Stories: 3 Structural System: Concrete - Poured
Changes to Plan: Slight Changes to Interior: Unknown
Changes to Original Cladding: Intact Changes to Windows: Moderate
Changes to Other:
Other (specify):
Style: Cladding: Roof Type: Roof Material:
Modern - International Style Concrete - Poured Other Other
Foundation: Form/Type:
Concrete - Poured Industrial

Narrative

Study Unit Other
Manufacturing/Industry
Architecture/Landscape Architecture
Date of Construction: 1956 Built Date Builder:



Historic Property Inventory Report

Engineer: Anderson, Arthur and Thomas

Architect: Price, Robert B.

Property appears to meet criteria for the National Register of Historic Places: Yes

Property is located in a potential historic district (National and/or local): Yes - Local

Property potentially contributes to a historic district (National and/or local): Yes

Statement of Significance: The Structural Plant at 1123 Port of Tacoma Road was evaluated at a reconnaissance level in a cultural resources survey completed for the SR520 Pontoon Construction Project in the City of Tacoma, Pierce County, Washington. The plant is one of several structures that comprise the facilities of the Concrete Technology Corporation at the Port of Tacoma. It was constructed in 1956-1960, based on historical information and its appearance in aerial photographs in the collections of the Tacoma Public Library. Some of the plant's fenestration has been modified and several small additions added, but overall it appears to have good integrity.

The Concrete Technology Corporation is recognized as being historically significant for having pioneered the development of the pre-stressed concrete industry in the United States. After serving in World War II, where he directed testing of a prototype of the United States' first pre-stressed concrete bridge (the Walnut Lane Bridge in Philadelphia), Arthur R. Anderson and his brother Thomas Anderson moved back to Tacoma and founded Concrete Technology Corporation and ABAM Engineers. The brothers, both engineers with degrees from the Massachusetts Institute of Technology, established the company's initial production facility in 1951 at the Port of Tacoma. The initial production facility appears to have consisted of what are now two buildings associated with the company's research and development laboratory located to the southwest of the Structural Plant. Pre-stressed concrete was a new technology in the United States, and the Andersons' Tacoma facility was the first pre-stressing factory plant in the country. According to the company's website, the modest four-employee company was the culmination of a yearlong investigation by the Andersons throughout Europe to see the few pre-stressed concrete structures in existence at that time.

The Andersons developed and promoted the technology of pre-stressed elements for construction throughout the 1950s and 1960s. The company invented and marketed the Anderson Post-tensioning System, developed a family of bridge I-girders that was adopted by the Washington State Department of Transportation as a construction standard, and devised new methods for producing long hollow concrete members and segmental bridge construction, among other innovations. The Concrete Technology Corporation's success led to growth in sales and demand, and the company's involvement in many significant, large capital improvement projects in the Pacific Northwest and across the country. This success resulted in the expansion of the company's facilities at the Port of Tacoma. The original production facility, which is now the research and development laboratory, was constructed in 1951. The company's expansion in the 1950s included the construction of two office and administration buildings circa 1956 and completion of the Structural Plant between 1956 and 1960. Tacoma architect Robert B. Price is credited with the design of the administration buildings and the Structural Plant, along with Thomas and Arthur Anderson who provided the engineering. Robert B. Price is recognized as one of the most prolific architects in the Tacoma area from the 1950s to the 1970s. His work spanned a variety of building types, from single-family homes to banks and public buildings, but he is probably best known for his specialization in his design of schools throughout the Puget Sound region. During his career, Price received 59 national, regional and local awards for design excellence. Among his award winning projects was the Tacoma Fire Station No. 17 (1955); the Joe Long Jr. House on American Lake (1956); Hoyt Elementary School in Tacoma (1958); and his own architectural Tacoma office (1963). Many of Price's other projects were featured in a variety of magazines including Sunset, House and Garden and Architectural Record.

Historic Property Inventory Report

Thousands of bridges, buildings, piers, tanks, floats and other structures throughout the Pacific Northwest and Alaska have been constructed with Concrete Technology Corporation products, in addition to other projects throughout the United States. The company manufactured structural members for the original Seattle monorail, the Disney World monorail, the Interstate-90 lid, Freeway Park in Seattle, and most freeway overpasses in the region. The facility was also involved in casting beams for Safeco Field and Husky Stadium. It now focuses on beams and pilings.

The property has been evaluated according to the eligibility criteria for listing in the National Register of Historic Places (NRHP). The property appears eligible for listing in the NRHP under Criteria A and C at the local level of significance, and possibly at the state or national levels as well. Under NRHP Criterion A, the Structural Plant is considered historically significant for its association with the Concrete Technology Corporation and its pioneering role in the development of the pre-stressed concrete industry in the United States. Under NRHP Criterion C, the building embodies the characteristics and method of construction of a pre-stressed concrete industrial plant from the late 1950s and is an industrial design associated with Robert B. Price, who is considered a well-known master architect in the Tacoma area, and engineers Arthur and Thomas Anderson. The Structural Plant strongly exhibits its style and associations, and remains largely unaltered with good integrity.

Based on our review, the property has good integrity and appears eligible for individual listing in the National Register of Historic Places, or as a contributor to an eligible historic district associated with the Concrete Technology Corporation.

Description of Physical Appearance:

The property contains a two to three-story industrial plant, constructed in 1956-1960 for the Concrete Technology Corporation at the Port of Tacoma. It functions as the main structural plant for the construction of pre-stressed concrete products, and is one of four extant structures that make up the company's industrial facility from the 1950s. The other structures are located to the southwest of the plant. The entire area between the buildings has been paved with concrete.

The structural plant is oriented to the north-south situated perpendicular to the north side of Port of Tacoma Road and south of the Blair Waterway. Much of the plant is contained within a three-part central massing that has an irregular rectangular plan and poured concrete construction. The three sections stand parallel to each other on a north-south axis. The westernmost section is two-stories tall and contains enclosed office and warehouse space. It has a unique roof comprised of a series of cast concrete barrel vaults set side by side in a north-south configuration. The section's south elevation, and a portion of its west elevation, was originally designed with International style elements and feature courses of ribbon windows on the first and second stories. The structural plant's main entrance is located in the center of the first story of the south elevation.

The central massing's center section is three-stories tall and has a similarly designed barrel vaulted roof. The roof shelters a full-height production area that is completely open on the north and south elevations. The section's eastern elevation is characterized by a band of clerestory windows in the ends of the roof's barrel vaults. Extending north and south of the central section are large concrete structural beams and support columns that form craneways in and out of the plant. The craneways extend from the plant north into the Blair Waterway and south to Port of Tacoma Road.

The plant's easternmost section is two-stories tall and continues the roof configuration and overall design of the other two sections. It consists of an enclosed warehouse area. There is an exterior freight entrance in the center of the section's south elevation.

In addition to the three-part central massing and craneways, the structural plant contains an integrated concrete production facility at its northeast corner and several smaller one-story additions along the east and west elevations. The concrete production facility is characterized by pairs of engaged, free-standing concrete silos, metal storage tanks set on steel frame bases, conveyors, and a two-story metal support structure.



Historic Property Inventory Report

Major
Bibliographic
References:

Concrete Technology Corporation Website. <http://www.concretetech.com/history.htm>.

Docomomo-WEWA. "Price, Robert B." http://www.docomomo-wewa.org/architects_detail.php?id=73. 2009.

Beers, Carole. "Arthur R. Anderson, 85, Pioneer In Concrete Construction Methods." *The Seattle Times*, 5 July 1995.

Pierce County Tax Assessor Online Records

Tacoma Public Library Image Archives—Port of Tacoma Aerial Photographs

Sanborn Fire Insurance Maps

Washington State Digital Archives

Wilhelm, Steve. "Pioneer firm, Concrete Technology, stretches technology of strong girders." *Puget Sound Business Journal*, 6 June 2008.

Photos



Structural Plant, Looking East



South Elevation, Looking East



South Elevation, Looking Northeast



South Elevation, Looking Northeast





Historic Property Inventory Report

West and South Elevations, Looking Northeast

**Historic Property
Inventory Report for**

Port of Olympia Rail Line

at Olympia, WA 98501

LOCATION SECTION

Field Site No.:

OAHP No.:

Historic Name: Port of Olympia Rail Line

Common Name: Port of Olympia Rail Line

Property Address: Olympia, WA 98501

Comments:

County Thurston Township/Range/EW Section T18R14W 1/4 Sec 14 1/4 1/4 Sec 14 Quadrangle TUMWATER

UTM Reference
Zone: 10 Spatial Type: Point Acquisition Code: Unknown
Sequence: 1 Easting: 507498 Northing: 5210865

Tax No./Parcel No.

Plat/Block/Lot

Supplemental Map(s)

Acreage
linear

IDENTIFICATION SECTION

Survey Name: Port of Olympia Intermodal

Field Recorder: Pam Trautman

Date Recorded: 2/8/2008

Owner's Name: Port of Olympia Owner Address: 915 Washington Street NE

City/State/Zip: Olympia, WA 98501

Classification: Object

Resource Status
Survey/Inventory

Comments

Within a District? No

Contributing?

National Register Nomination:

Local District:

National Register District/Thematic Nomination Name:

DESCRIPTION SECTION

Historic Use: Transportation - Rail-Related

Current Use: Transportation - Rail-Related

Plan: Other

No. of Stories:

Structural System:

Changes to plan: Extensive

Changes to interior:

Style

Changes to original cladding:

Changes to other:

Changes to windows:

Other (specify):



View of Port of Olympia Rails adjacent to the Port of Olympia Office, view facing NW. taken 2/8/2008

Photography Neg. No (Roll No./Frame No.):

Comments:

Form/Type

Cladding	Foundation	Roof Material	Roof Type
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NARRATIVE SECTION

Date Of Construction: 1929

Architect:

Builder:

Engineer:

Study Unit	Other
<u>Transportation</u>	
<u>Commerce</u>	
<u>Community Planning/Development</u>	

Property appears to meet criteria for the National Register of Historic Places: No

Property is located in a potential historic district (National and/or local): No

Property potentially contributes to a historic district (National and/or local):

**Statement of
Significance**

As the fledgling Washington territory expanded, competition between cities was intense to establish a rail terminal, but Tacoma won out over Olympia in 1873, even though Olympia had the best claim as state capital and the Northern Pacific had purchased land in Olympia via an agent. The agent died just before the terminal decision was to be made. It would have taken too long to straighten out the legalities of property ownership and the decision went to Tacoma (Miller 1921). Olympia was bypassed all together for the time being and passengers had to disembark from the train in Tenino and take a wagon to Olympia (Stevenson and Fowler). Fears of economic loss and suggestions that the capital should actually be moved to a more accessible location drove the citizens of Olympia to take matters into their own hands (Miller 1921).

In 1878 the citizens of Olympia constructed a narrow gauge spur line from the main line in Tenino. Nearly every citizen in the cash-strapped Olympia subscribed to the initial fund by contributing cash, land, materials and labor. Money was raised in part by exchanging land for stock. Once Congress passed a bill allowing the county to issue bonds, construction could begin (Miller 1921).

Dubbed the "Tenino Cannonball" because of the way the train pitched and rolled down the roller coaster road bed on homemade cars (Dwellely 1987, Newell 1985), this narrow gauge line was purchased by the Port Townsend Southern Railway (PT&S) in 1890. The line came into town from the south onto a trestle on the west side of the Deschutes waterway and under the 4th Avenue Bridge to terminate at a depot on West Bay Drive. Olympia was able to fend off attempts by other cities to wrest away the capital and thus become successful as a major lumber export and milling center for years to follow (Dwellely 1987). The PT&S became a subsidiary of the Northern Pacific Railroad in 1902 (Hannum 2006), but the railroad is now abandoned (Robins & Martin 2007).

By 1891 the Northern Pacific had constructed its own branch line on another route from Tacoma to Grays Harbor, with a spur to Olympia (Newell 1950). However, this proved inadequate because the Northern Pacific Railroad did not actively support the development of the Olympia waterfront (Hannum 2006).

In 1909-1911, much of the today's downtown area north of Olympia Avenue and the Deschutes Parkway were filled from intensive dredging of the bay (Stevenson 1982). This dynamic dredging operation—called the Carlyon Fill after its originator, P.H. Carlyon—extended the original Olympia area nearly a mile to the north from Olympia Avenue, creating 29 new city blocks from over 2 million cubic yards of fill (Stevenson and Fowler 1997).

In response to newly created development on the waterfront, the Olympia Terminal Railway Company was created and incorporated by Carlyon with plans to connect rail service with the Northern Pacific's Point Defiance line. Once the line was completed between the waterfront and East Olympia, ownership was deeded on the very last day of 1915 to a subsidiary of the Union Pacific Railroad—the Oregon Washington Railroad and Navigation Company. This transaction was the death knell to the PT&S which soon abandoned all of its line south of Capitol Lake (Hannum 2006).

In 1916, the Northern Pacific completed its Point Defiance line. After that the Northern Pacific and the Union Pacific's Oregon Washington Railway and Navigation company both maintained mainline service to the East Olympia depot (Dwellely 1987).

A vote of the citizens of Thurston County later established the Port of Olympia on November 7, 1922, capitalizing on Legislation in 1911 to allow the formation of port districts. The

first vessel shipped out in 1925.

Once the Port of Olympia was established, industrial development continued including the placement of railroad tracks extending from downtown Olympia the length of the fill. Railroad beltlines were included in the list of improvements for the Port fill. More tracks were installed later, and the alignment has been altered many times over the years. Tracks were extended further north in 1943 and a locomotive boom crane was acquired. Once this was accomplished, the Port installed additional tracks, terminal and connections to the Union Pacific Railroad in 1945 to facilitate increased shipments for the war effort (Stevenson and Fowler 1997). The alignment has been altered numerous times over the years to meet the needs of the Port of Olympia. Tthe railroad segments within the APE are not eligible for listing in the NRHP.

**Description of
Physical
Appearance**

The tracks are currently wooden creosote-treated railroad ties and the rails are now considered substandard in this area compared to the rest of the track on the Port Marine Terminal. They have been consistently repaired and upgraded over the years, and the alignment altered to meet the needs of the Port of Olympia. The rails are in good condition.

**Major
Bibliographic
References**

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Newell, Gordon

1950, So Fair A Dwelling Place: A History of Olympia and Thurston County, Washington. The Olympia News Publishing Company, Olympia.

Robbins, Jeff, and Dan Martin

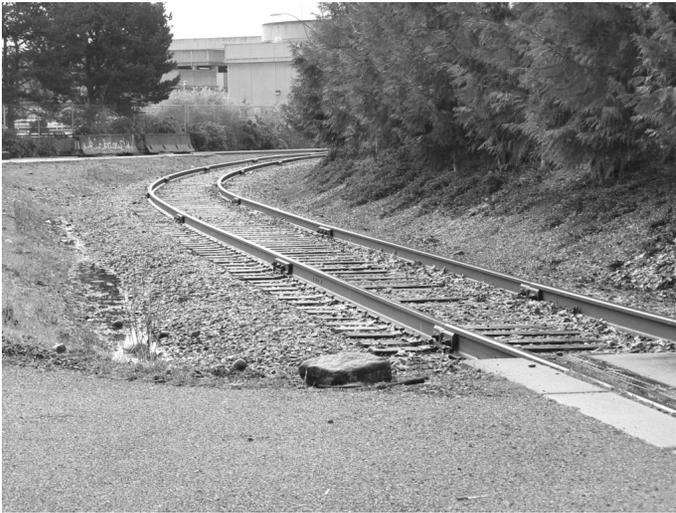
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Stevenson, S., and C. R. Fowler

1997, The Port of Olympia: A 75 Year History. Researched and written by Shanna Stevenson and Chuck Fowler. Published by the Port of Olympia.



View of Port of Olympia RAILS as they exit the Port complex, view facing SE.

taken 2/8/2008

Photography Neg. No (Roll No./Frame No.):

Comments:



View of Port of Olympia RAILS as they enter the Port complex, view facing NW.

taken 2/8/2008

Photography Neg. No (Roll No./Frame No.):

Comments:

View of

Photography Neg. No (Roll No./Frame No.):

Comments:

taken

View of

Photography Neg. No (Roll No./Frame No.):

Comments:

taken

**Historic Property
Inventory Report for**

Port of Olympia Office

at 915 NE Washington St, Olympia, WA 98501

LOCATION SECTION

Field Site No.:

OAHP No.:

Historic Name: Port of Olympia Office

Common Name: (#34-640)

Property Address: 915 NE Washington St, Olympia, WA 98501

Comments:

County Thurston Township/Range/EW T18R02W Section 14 1/4 Sec NW 1/4 1/4 Sec QUADRANGLE TUMWATER

UTM Reference
Zone: 10 Spatial Type: Point Acquisition Code: Unknown
Sequence: 1 Easting: 507500 Northing: 5209740

Tax No./Parcel No.
91001400000

Plat/Block/Lot
FCT Ptn NICA Lot 1

Supplemental Map(s)

Acreage

IDENTIFICATION SECTION

Survey Name: Port of Olympia Intermodal

Field Recorder: Pam Trautman

Date Recorded: 12/6/2007

Owner's Name: Port of Olympia Owner Address: 915 Washington Street NE

City/State/Zip: Olympia, WA 98501

Classification: Building

Resource Status
Survey/Inventory

Comments

Within a District? No

Contributing?

National Register Nomination:

Local District:

National Register District/Thematic Nomination Name:

DESCRIPTION SECTION

Historic Use: Commerce/Trade - Business

Current Use: Commerce/Trade - Professional

Plan: Square

No. of Stories: 2

Structural System: Concrete - Block

Changes to plan: Moderate

Changes to interior: Extensive

Style

Form/Type

Changes to original cladding: Intact

Changes to other:

Art Deco - Zig Zag

Changes to windows: Slight

Other (specify):



View of Port of Olympia General Office Building, front taken 12/6/2007
façade.

Photography Neg. No (Roll No./Frame No.):

Comments:

**Historic Property
Inventory Report for**

Port of Olympia Office

at 915 NE Washington St, Olympia, WA 98501

Cladding <u>Concrete - Block</u>	Foundation <u>Concrete - Block</u>	Roof Material <u>Asphalt / Compostion - Rolled</u>	Roof Type <u>Hip</u>
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NARRATIVE SECTION

Study Unit	Other
<u>Architecture/Landscape Architecture</u>	
<u>Commerce</u>	
<u>Transportation</u>	

Date Of Construction:

Architect: Wohleb, Joseph

Builder:

Engineer:

Property appears to meet criteria for the National Register of Historic Places: Yes

Property is located in a potential historic district (National and/or local): No

Property potentially contributes to a historic district (National and/or local):

**Statement of
Significance**

Exports were shipped from Olympia as early as 1848. The principal exports were salmon, logs, and firewood. As shipping increased over the years, the need for a deep water port became acute. Dredging of the shallow harbor took place during 1909-1911 to accommodate that need. The dredging spoils were used to create much of the today's downtown area north of Olympia Avenue and the Deschutes Parkway (Stevenson 1982). This dynamic dredging operation—called the Carlyon Fill after its originator, P.H. Carlyon—extended the original Olympia commercial area nearly a mile to the north from Olympia Avenue (Stevenson 1982), creating 29 new city blocks from over 2 million cubic yards of fill.

A vote by the citizens of Thurston County later established the Port of Olympia on November 7, 1922, capitalizing on legislation in 1911 to allow the formation of port districts. The first vessel shipped out from the new Port of Olympia in 1925. Shipping from 1928 to 1930 totaled 298 million board feet of lumber. During WWII, The Port warehoused and shipped an assortment of materials for the war effort. The 1950s signified another lumber export boom period. Demand from Japan for raw logs influenced exports during the 1960s. Port expansion includes a marina, the airdustrial center and the airport (Stevenson 1982 and 1985).

The Port of Olympia Office Building was one of the many at the Port designed by Olympia Architect Joseph Wohleb between 1927 and 1949. He designed at least 12 structures for the Port including transit sheds, one of the docks and a cold storage building, since demolished. The Port of Olympia Office Building is the only remaining example of Joseph Wohleb's work at the Port (Maddox 1985). However, another building, the KGY Radio station located at 1240 North Washington Street was later designed by Robert Wohleb and Associates and constructed by Philips Construction in 1960 (Stevenson 1982 and 2003).

The Port of Olympia Office Building was constructed in 1947 and utilized by the Washington Veneer Company, which was then owned by the Weyerhaeuser Company. One year after completion of the building, Weyerhaeuser sold its interest in Washington Veneer to the Georgia-Pacific Corporation. Georgia-Pacific soon constructed new headquarters on Capitol Way and moved there in 1952 (Christie 2006). The building was then used for other purposes, such as a doctor's office for mill employees, until the Port remodeled it as their headquarters in 1966 (Eric Egge, Port of Olympia, personal communication 2007).

The Port Office Building was inventoried in 1985 and at that time determined not eligible for inclusion in the NRHP (Stevenson 1985) likely because it had not reached the 50 year threshold. It is not listed on the Olympia Heritage Register Properties Listing Through 2007 (City of Olympia 2007). However, this building mostly retains its original exterior finishes and is in good physical condition. It has been somewhat altered from its original design by replacing the wood windows with the vinyl units. Although designed by famed architect, Joseph Wohleb, finer examples of his work are present in southern Puget Sound. Nevertheless, the building's historic significance lies in being the only remaining example of Wholeb's 12 original designs for the Port of Olympia property. As the sole Wohleb structure and as the original administrative building associated with the historic port district, the Port Office building meets the criteria for the listing NRHP under Criteria A and B.

**Description of
Physical
Appearance**

This rectangular two-story structure was constructed in the Art Moderne style of painted concrete blocks and remains much the same as it was when originally inventoried in 1985 by Stevenson: "Its shallow hip roof is covered with composition shingles and surrounded by a flat parapet painted a contrasting color. The walls are topped by a tiered concrete cornice below the parapet band, and between stories is a scalloped belt course. Across the front of the parapet on the front (east) walls are Modern-style letters reading 'PORT OF OLYMPIA – GENERAL OFFICE.' Centered on the façade is a one-story, flat-roofed porch with glass-in walls; the porch shelters the main entry door with its glass block sidelights. Fenestration is a single, paired and tripartite double-hung sash with narrow horizontal mullions and projecting concrete sills. A two-story extension to the south has similar fenestration and a side-entry door. The building is maintained in good condition."

The building today continues to be used by the Port of Olympia as an office building. The interior was remodeled in 1966 when the Port moved in (Eric Egge, Port of Olympia, personal communication). The exterior of the building is close to original, except the windows have been replaced with vinyl units. The building is maintained and in good condition.

**Major
Bibliographic
References**

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2003, Historic Property Inventory Form for KGY Radio Station, on file at the DAHP, Olympia.

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2007, City of Olympia Heritage Register Properties Listing Through 2007. Available online at <http://www.olympiawa.gov>. Assessed February 2008.

Additional Photos for: Port of Olympia Office

at 915 NE Washington St, Olympia, WA 98501



View of Port of Olympia General Office Building, close up front entrance. **taken** 12/6/2007

Photography Neg. No (Roll No./Frame No.):

Comments:



View of Port of Olympia General Office Building, view facing northeast. **taken** 12/6/2007

Photography Neg. No (Roll No./Frame No.):

Comments:



View of Port of Olympia General Office Building, view facing northwest. **taken** 12/6/2007

Photography Neg. No (Roll No./Frame No.):

Comments:



View of Port of Olympia General Office Building, view facing southwest. **taken** 12/6/2007

Photography Neg. No (Roll No./Frame No.):

Comments: