

SURFACE WATER REGISTRATION CHECKLIST

(received after July 18, 1990)

CHECK BASIN MAP See NAME ~~has~~ # 2C UNADJUDICATED AREA ? Yes  
RECEIPT # 95627 S W R NUMBER 386  
CHECK ENCLOSURES WEC PRELIMINARY DATA BASE ENTRY WEC  
ACKNOWLEDGEMENT LETTER WEC ENTER ON STREAM INDEX \_\_\_\_\_  
CHECK QUADRANGLE MAP \_\_\_\_\_ CHECK GLO PLATS \_\_\_\_\_  
WATERMASTER CHECKLIST \_\_\_\_\_ PUBLIC NOTICE PUBLICATION SCSV

**FORM REVIEW**

\_\_\_\_\_ blanks filled in  
\_\_\_\_\_ signed  
\_\_\_\_\_ date received stamped

**MAP REVIEW**

source and trib  
 diversion point location  
 conveyances (pipes, ditch, etc.)  
 place of use  
 scale  
 township, range, section  
 north arrow  
 CWRE stamp  
 disclaimer  
 date survey was performed  
 P.O.B. of survey  
 dimensions and capacity of diversion system  
 "beneficial use" type title  
 "permanent-quality" paper

WATER RIGHT RECORD CHECK \_\_\_\_\_ FIELD INSPECTION \_\_\_\_\_  
FINAL FILE REVIEW \_\_\_\_\_ FINAL DATA BASE ENTRY \_\_\_\_\_  
ENTER ON PLAT CARDS \_\_\_\_\_

SWR #

POWER CLAIM #

384/385

PC 25

386

PC 116

387

PC 122

388

PC 24

389

PC 117

# THE NORTHWEST

## PGE's Willamette water rights cause worries

**Electric utility's assertion of century-old claims has cities which drink from the river concerned about their future supply**

*The Associated Press*

EUGENE — Portland General Electric Co. is legally asserting century-old rights to Willamette River water, a move that worries cities and utilities along the waterway.

PGE's claim threatens to override community water claims that were filed many years after PGE first began drawing water from the river in the late 1800s.

Officials at the Eugene Water & Electric Board and at the city of Corvallis are among those concerned that, in times of low water, municipalities might be forced to pay PGE for drinking water.

"They could tell us, 'We'll let you use it, but you've got to reimburse

us,'" said Kimber Johnson, manager of water planning for EWEB, which draws Eugene's drinking water supply from the McKenzie River, a Willamette tributary.

Under Oregon law, water rights extend not only to the main river, but to all upstream tributaries, Johnson said.

"The way the law reads, they could call for that water any time they wanted," he said.

Corvallis Public Works Director Rolland Baxter expressed concerns similar to Johnson's.

"If, through the courts or through legislation, PGE is able to establish their water rights, it could dramatically increase the cost of using Wil-

lamette River water," Baxter said. "The word going around is, they would offer to sell us the water back."

Such fears are exaggerated, PGE spokeswoman Roxanne Bailey said.

"We're not in the business of selling water," Bailey said.

But Bailey acknowledged that, as population in the Willamette Valley grows, water in the Willamette could become a scarce and precious commodity. If PGE were forced to cut back power production, it might require upstream water users to start paying, she said.

"If we have to go elsewhere for power and purchase it at a higher price, there's a possibility of charging for water," Bailey said.

PGE filed papers with the state last fall claiming priority rights to 11,700 cubic feet per second of water

to operate the Sullivan hydropower plant near Oregon City. The water flows through turbines near Willamette Falls, then is returned to the river.

At certain times of the year, 11,700 cfs represents all the water in the river, said Bob Hall, PGE governmental affairs representative.

If the river flow falls below that number, PGE might be entitled to call for restrictions on upriver use of the water.

Hall said PGE filed the claim only because it was required to do so by the 1987 Legislature. The Legislature said anyone or any corporation with water rights established before 1909 had to register their claim by last December or risk losing their rights.

The idea was to straighten out a complex network of water rights extending back before the turn of the century.

PGE's claim rests on the principle that water users are granted access to public waterways based on a first come, first-served basis.

However, water priorities can change through the adjudication process, said Lorna Stickel, chairwoman of the state Water Resources Commission, which issues water rights.

"It has the potential to reorganize or reprioritize how water might be called upon in the Willamette," Stickel said. Some uses, such as municipal drinking water supplies, could be granted a higher priority.

"Whether or not a hydropower plant has the ability to make a call on water like that I think is a big question," Stickel said.

PGE's claims do appear to be valid, however, she said, adding that such cities as Eugene and Corvallis "are right to be concerned about it."

## Child-care a problem at night

For growing ranks of parents who work odd hours a safe, affordable service is hard to find



## FORUM

OPINION &amp; COMMENTARY

## PGE water claims raise alarm

Water districts fear old rights may curtail their use of rivers

By ERIC GORANSON

Metropolitan Portland and Willamette Valley residents sometime in the future could wind up paying their water bills — along with their electric bills — to Portland General Electric Co. That's the fear of dozens of water suppliers, stemming from PGE, Smurfit Newsprint Corp. and others reaffirming late last year their water rights on the Willamette, Sandy, Little Sandy and Clackamas rivers.

Their claims are among 3,900 water-rights applications pending before the Oregon Water Resources Department as water threatens to surpass the spotted owl and salmon as a political football.

Had the applicants not refiled, they face the loss of water rights that predate 1909 and are senior to the claims by most municipal water suppliers.

If PGE's claims are endorsed by the Oregon Water Resources Department, as expected, it would be treated presumptively as vested rights. PGE and the others would have the state enforce these rights against the holders of junior upstream rights.

The endorsements also could remove the Willamette River from any further appropriation during low flows.

There are only about 1,600 cubic-feet-per-second of water left to appropriate on a year-round basis in the Willamette near Wilsonville, said the Water Resources Department. But this does not include PGE's and other pre-1909 claims at Willamette Falls.

The Willamette is one of the major sources being studied to fill future municipal needs of Portland's 720,000 customers and other suppliers.

PGE officials say that water suppliers and customers need not worry.

"We're not about to be a water seller, selling water for premium prices," said Roxanne Bailey, a PGE spokeswoman.

The Portland company needs water for its Willamette Falls hydropower plant. It's a nonconsumptive use, but any drop in revenues from not having water to make electricity will have to be made up by the cities and customers benefiting from PGE's power cutback.

City says it won't turn off the tap for water users but probably would charge suppliers for any water the utility

have to forgo to meet municipal needs.

End-water users would pay their customary purveyors; they, in turn, would pay PGE. But the next step, some water suppliers fear, would be for PGE to become a regulated water supplier in their place.

The water suppliers have united and introduced Senate Bill 1062, which would subordinate PGE's rights to those of the public.

Among those requesting the bill are water districts in Sandy, Estacada, Gladstone, Lake Oswego, Milwaukie, Molalla, Oregon City, Tualatin and the Damascus, Clairmont, Clackamas, Mount Scott, Oak Lodge, South Fork, Tigard and Tualatin Valley.

Portland is not included.

"We don't think PGE ought to get all the river water," said Dennis Klingbile, superintendent of the Damascus Water District, which uses only well water. "The way things are going, we may wind up using surface water, and PGE shouldn't have all the water just because its rights predate 1909."

The PGE claim is the biggest. On the Willamette its rights total 11,700 cfs, thus affecting almost all water users on the river's main stem plus its tributaries above Willamette Falls.

These tributaries include the Molalla, Tualatin, Yamhill, Santiam, Marv's and McKernan rivers.

Cities affected include Eugene, Corvallis, Cottage Grove, Creswell, Salem, Stayton, Albany, Philomath, Independence, Junction City, Newberg, Molalla, Monmouth and Forest Grove, plus the Tualatin Valley and Clairmont water districts.

Affected by PGE's filing for 4,600 cfs on the Clackamas River are West Linn, Estacada, Oregon City and Clairmont Water District. Affected by the Sandy River system filings for 1,600 cfs are Sandy, Portland and Hoodland corridor.

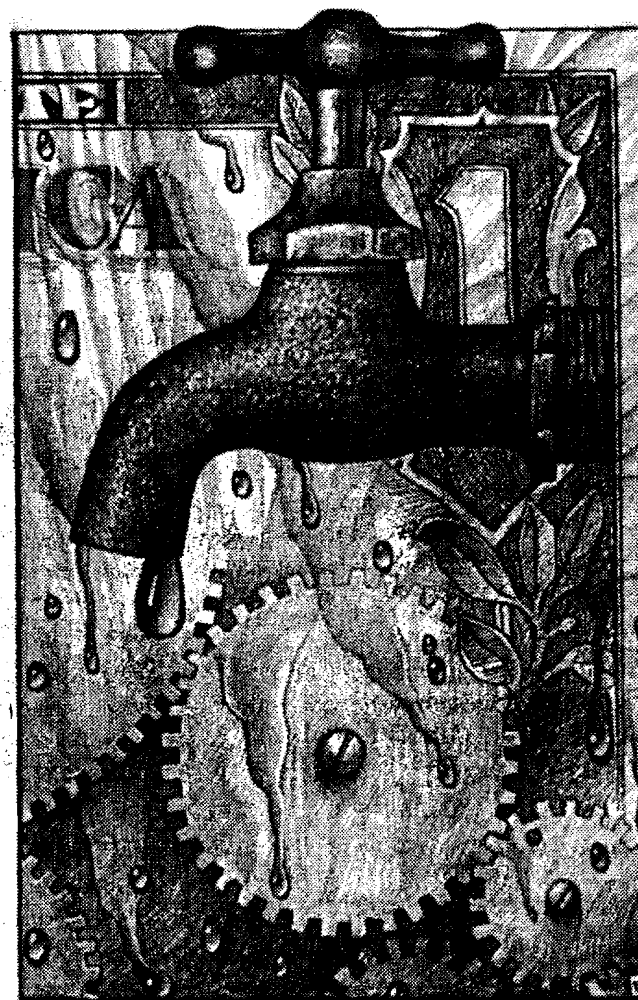
Another bill, HB2110, in effect would give water combatants and the state breathing time to work out a settlement and avoid litigation.

Both PGE and water suppliers hope the House bill will head off a repeat of the current 16-year litigation over water rights on the Klamath River.

Suppliers also want Congress to change Army Corps of Engineers policies regarding stored water behind dams that feed the Willamette. Almost all of the 1.9 million acre-feet of water is allocated for navigation, irrigation, hydro and flood-control uses.

To use that water, irrigators pay \$1.50 an acre-foot, municipalities from \$300 to in excess of \$1,500 an acre-foot. Talks to change the allocations and charges have taken place in Washington, D.C.

Not everyone opposes the idea of having PGE as a water purveyor. One Portland Water Bureau official said it "might



RICHARD MILLHOLLAND/Los Angeles Times

not be a bad idea." He said getting water from the utility might be cheaper than tapping sources such as the Cascade reservoirs.

The efficiency of a private company providing water probably would be greater than Portland or a regional water authority. Having PGE meter readers record water and power uses on the same visit would save time and labor. The Oregon Public Utility Commission could control water rates as it does phone and power rates.

Having a utility sell power and water is not unique. The Eugene Water & Electric Board does both.

What will happen is as uncertain as the weather that supplies our water. Whether the disputing sides can settle without litigation rests with the Legislature. We need both power and water. Hopefully the lawmakers can broker a peaceful compromise.

## High court demands judges, not lobbyists

By ANTHONY LEWIS

In the weeks since Justice Byron White's decision to retire from the Supreme Court, the press has run various stories about whom President Clinton may appoint in his place.

The speculation has proved little about the choice, but it has done one depressing thing, shown how narrowly politicized some people want the process of selection to be.

One story mentions a possible nominee and then says that some interest group is likely to object to him or her. Why? Because the person has strayed, however slightly, from the party line of that group.

An example to hand is Judge Ruth Bader Ginsburg of the U.S. Court of Appeals for the District of Columbia. When her name was mentioned as a Supreme Court possibility, she was said to have angered some women's groups by what she said about the 1973 abortion decision, Roe vs. Wade, in a recent speech.

Judge Ginsburg gave the James Madison Lecture at New York University Law School in March. She used the occasion to explore how appellate judges can best do their work and how they should function as one of the three branches of government in our constitutional system.

She emphasized, first, the need for collegiality — for mutual respect — on a court of many judges. "One must be sensitive," she said, "to the sensibilities and mind-sets of one's colleagues."



LEWIS

Kurds working toward self-reliance may set example

March 22, 1993

JULIE KEIL C/O  
PORTLAND GENERAL ELECTRIC COMPANY  
121 SW SALMON STREET  
PORTLAND OR 97204

Dear MS KEIL,

This will acknowledge that your Surface Water Registration Statement in the name of PORTLAND GENERAL ELECTRIC COMPANY has been received by our office. The fees in the amount of \$11027.50 have been received and our receipt #95627 was given to you. Your registration statement has been numbered SWR-386.

Our office will review your form and map in the near future. If necessary we will schedule a meeting with you that will include a site inspection. If there are problems with your form we are usually able to take care of them during our visit. We will be able to answer any questions you might have about the adjudication process at that time.

Please feel free to contact this office if you have any questions.

Sincerely,



Don Knauer  
Adjudication Specialist

Enclosure

M:\WP51\SWR\CLAIMANT\SWR-0386.001



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3850 Portland Rd NE  
Salem, OR 97310  
(503) 378-3739  
FAX (503) 378-8130

INVOICE DATE	INVOICE NO.	VOUCHER	GROSS	DISCOUNT	NET
12/29/92	RIVER MILL	93864	11,027.50	.00	11,027.50
<b>RECEIVED</b> DEC 30 1992 WATER RESOURCES DEPT. SALEM, OREGON					TOTALS ▲
					11,027.50

PLEASE DETACH BEFORE DEPOSITING.

STATE OF OREGON  
 WATER RESOURCES DEPARTMENT  
 3850 PORTLAND ROAD NE  
 SALEM, OR 97310  
 378-8455/378-8130 (FAX)

RECEIPT # **95627** RECEIVED OVER THE COUNTER

RECEIVED FROM: PGE  
 BY: \_\_\_\_\_

CASH:  CHECK: # 66-158 OTHER: (IDENTIFY)

APPLICATION \_\_\_\_\_  
 PERMIT \_\_\_\_\_  
 TRANSFER \_\_\_\_\_

TOTAL REC'D \$ 11027.50

<b>01-00-0 WRD MISC CASH ACCT</b>		
842.010	ADJUDICATIONS	\$ <u>11027.50</u>
831.087	PUBLICATIONS/MAPS	\$
830.650	PARKING FEES Name/month	\$
_____	OTHER: (IDENTIFY)	\$

**REDUCTION OF EXPENSE**

CASH ACCT. \_\_\_\_\_ \$ \_\_\_\_\_  
 COST CENTER AND OBJECT CLASS \_\_\_\_\_  
 VOUCHER # \_\_\_\_\_

<b>03-00-0 WRD OPERATING ACCT</b>		
<b>MISCELLANEOUS:</b>		
840.001	COPY FEES	\$
850.200	RESEARCH FEES	\$
880.109	MISC REVENUE: (IDENTIFY)	\$
520.000	OTHER (P-6): (IDENTIFY)	\$
<b>WATER RIGHTS:</b>		
842.001	SURFACE WATER	\$
842.003	GROUND WATER	\$
842.005	TRANSFER	\$
<b>WELL CONSTRUCTION</b>		
842.022	WELL DRILL CONSTRUCTOR	\$
842.016	WELL DRILL OPERATOR	\$
	LANDOWNER'S PERMIT	\$

<b>EXAM FEE</b>		<b>RECORD FEE</b>
\$	842.002	\$
\$	842.004	\$
\$	842.006	\$
<b>EXAM FEE</b>		<b>LICENSE FEE</b>
\$	842.023	\$
\$	842.019	\$
	842.024	\$

<b>06-00-0 WELL CONST START FEE</b>		
842.013	WELL CONST START FEE	\$
	MONITORING WELLS	\$
		CARD # _____
		CARD # _____

<b>45-00-0 LOTTERY PROCEEDS</b>		
864.000	LOTTERY PROCEEDS	\$

<b>07-00-0 HYDRO ACTIVITY</b>	<b>LIC NUMBER</b>	
842.011	POWER LICENSE FEE(FW/WRD)	\$
842.115	HYDRO LICENSE FEE(FW/WRD)	\$
_____	HYDRO APPLICATION	\$



Portland General Electric Company

RECEIVED

DEC 30 1992

WATER RESOURCES DEPT.  
SALEM, OREGON

December 30, 1992

Oregon Water Resources Department  
3850 Portland Rd. NE  
Salem, Oregon 97310

Re: Surface Water Registration statements

To Whom It May Concern:

I am delivering with this letter the following six surface water registration statements:

**Clackamas River (River Mill Project)**  
Clackamas River (Cazadero/Faraday Project)  
Oak Grove Fork/Three Lynx Creek (Oak Grove Project)  
Sandy River/Little Sandy River (Bull Run Project)  
Willamette River (Willamette Falls)  
Willamette River (Willamette Falls Locks).

These registration statements are required by ORS 539.240.

Each notebook is accompanied by a rolled mylar map, prepared by a certified water rights examiner and a check for the required filing fee. I have also provided a duplicate copy of each filing, to be date stamped and returned to me for my records.

Very truly yours,

Julie A. Keil



**Portland General Electric Company**

**River Mill  
Hydroelectric Project**

**Water Rights  
Registration Statement  
pursuant to  
ORS 539.240**

**SWR-386**



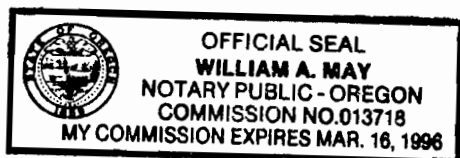
Notarized Statement Signed by Claimant.

STATE OF OREGON            )  
  )    ss.  
County of Multnomah    )

I, Peggy Y. Fowler, having been duly sworn, depose and say that I am the Vice President-Power Production of Portland General Electric Company, the claimant of the existing surface water rights described herein, and that I have read the contents of this claim and to the best of my knowledge all of the matters stated herein are true and correct.

Peggy Y. Fowler

Signed and attested before me this 29 day of December, 1992.



William A. May  
NOTARY PUBLIC for the State of  
Oregon  
My commission expires: 3/16/96

ATTACHMENT A

AFFIDAVIT OF JULIE A. KEIL

DEC 20 1992

WATER RESOURCES DEPT.  
SALMON, OREGON

STATE OF OREGON            )  
                                  )    ss.  
Multnomah County         )

I, Julie A. Keil, being duly sworn, depose and say:

1. I am the Project Manager, Hydro Licensing, of Portland General Electric Company ("PGE"). My job responsibilities include securing state water rights for PGE's federally licensed hydroelectric projects. I also am the custodian of PGE's documents related to hydroelectric licensing. In preparing this registration statement I have reviewed these company records, including historic generation and construction records. I have personal knowledge of the matters set forth in this affidavit.

2. "Attachment A-1" consists of true and correct copies of selected pages from Portland Electric Power Company With Its Predecessor and Subsidiary Companies (December 16, 1860 - December 31, 1935), a history of PGE's predecessor, which was compiled in 1935 by R.R. Robley, Superintendent of Operation, Portland General Electric Company, at the request of the senior management of the company. R.R. Robley was a long-time employee of PGE and its predecessor companies. Mr. Robley prepared the history based on contemporaneous documents and interviews with many of the men who were involved in the original construction of the hydroelectric plants, including

Alf Drill, T.W. Sullivan and O.B. Coldwell. Pertinent portions of pages from this document have been underscored for ease of reference.

3. "Attachment A-2" consists of true and correct copies of selected pages from a document titled History of Portland General Electric Company, a corporate history compiled in 1982 by Arthur H. Greisser, former Superintendent of Production for PGE. Pertinent portions of these pages have been underscored for ease of reference.

4. On December 23, 1908, Portland Water Power and Electric Transmission Company ("PWP&ETC") posted a Notice of Appropriation to use 5000 cfs from the Clackamas River for mineral development, electric power and water power purposes. PWP&ETC filed the notice with Clackamas Count Clerk on January 9, 1909. "Attachment A-3" is a certified copy of the Notice of Appropriation filed in the Clackamas County Records.

5. From 1909 to 1911, PWP&ETC designed and planned the River Mill project. "Attachment A-4" contains a true and correct copy of a letter dated May 10, 1910 concerning contract specifications for the turbines and governors for the River Mill project and a letter confirming initial project operation. These letters are examples of PWP&ETC's planning activities during this period.

6. By early 1911, PWP&ETC began construction of the River Mill dam. Construction took place throughout 1911 and by November 11, 1911, PWP&ETC put the first unit into operation.

The second and third units were also in operation shortly thereafter. "Attachment A-5" contains photographs dated from December 1909 to November 1911 that show construction progress on the River Mill dam.

7. PWP&ETC built five penstocks into the River Mill dam and designed the project to house five power generating units. "Attachment A-6" is a true and correct copy of an original drawing dated April 5, 1911 that depicts the location and space for installation of five power generating stations at the River Mill dam.

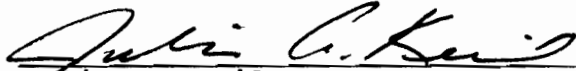
8. On February 29, 1912, PWP&ETC sold the River Mill project and the associated water rights to Portland Railway Light & Power Company ("PRL&P"). "Attachment A-7" is a certified copy from the Clackamas County records of PWP&ETC's assignment to PRL&P.

9. PRL&P brought the fourth River Mill unit on line in December 1927. PRL&P brought the fifth River Mill unit on line on May 15, 1952.

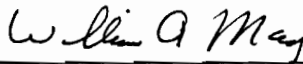
10. The River Mill project currently utilizes up to 4,641 cfs to operate all five units and associated facilities. These units have operated annually since their original installation and continue to operate today. The water usage claimed at River Mill is based upon review of historical river flows correlated to generation records and analysis of flows used for fish ladders and other associated facilities. The

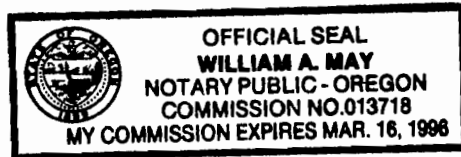
review was done by Harold Csergei, Certified Water Rights Examiner, and PGE hydroelectric engineering staff.

11. Attachment C contains chain of title information for the River Mill Project.

  
Julie A. Keil

Subscribed and sworn to before me this 29 day of December, 1992.

  
Notary Public for Oregon  
My Commission Expires: 3/16/96



**ATTACHMENT A-1**

WATER RESOURCES DEPT.  
S. OREGON

superseded by W. J. Morris.

Thomas Pumfrey was employed on September 1, 1910, as chief engineer, Maintenance of Way, and served until his resignation on September 20, 1911. On March 25, 1912, he was re-employed and his former title restored.

At the directors' meeting of February 13, 1908, S. G. Reed resigned as treasurer and C. N. Huggins was appointed in his place. Mr. Reed resigned as director, June 2, 1908.

F. I. Fuller was elected general manager April, 1909, succeeding F. G. Sykes, resigned.

At the directors' meeting of October 25, 1907, Mr. Huggins was superseded by C. Ford Stevens as secretary who in turn was superseded by G. L. Estabrook at the meeting of February 13, 1908. Upon Mr. Huggins' resignation as Secretary, he was appointed assistant secretary which position he later resigned in favor of R. W. Shepherd who was appointed in his stead on April 7, 1910.

O. B. Coldwell was advanced from operating engineer to general superintendent in 1908, the effective date probably being about the date of the resignation of Mr. Sykes from the board of directors, or June 2nd of that year.

1911-1915. During this period there were several important additions to the corporate property of the Company, both in light and power and in railway.

On February 29, 1912, the Company purchased the property covering <sup>2/29/12</sup>  
the River Mill Development located on the Clackamas River, about a mile  
below Estacada. This development work, later designated as Station "M",  
was being carried on by the Portland Water Power and Electric Transmission

EXHIBIT A-1  
PAGE 1/3

Company, incorporated December 22, 1908 by W. H. Hurlburt, A. B. Crosman and A. L. Dunham with a capitalization of \$1,000,000. The Portland Railway, Light and Power Company secured control of the property late in 1909 after which time the officials of this company took charge of the construction work, though the transfer of property was not made until the date of sale noted above. The construction used for powerhouse and dam was the "Ambursen" hollow type, reinforced concrete dam and powerhouse combined. The dam is 85 feet high with a spillway 405 feet wide. The powerhouse is built to accommodate five generators and transformers on the main floor, the 11,000-volt bus structure and switching equipment on the second floor and the 57,000-volt bus structure and switching equipment on the third or top floor. Water is backed up from the dam to the tailwater of Station G, a distance of 2.85 miles, creating a storage pond of 12,200 acre feet. Each of the five penstocks to supply water to the wheels is 11 feet in diameter and 80 feet long. Three generators were originally installed, each rated at 3300-kw. and generating at 11,000 volts. With each generator a single 3667-kw., three-phase transformer was installed to step voltage from 11,000 up to 57,100 volts. The water wheel of each unit is a 51-inch diameter double-runner wheel made by the Platt Water Wheel Company. The first unit was put into commission on November 11, 1911, the second on December 4, and the third on January 11, 1912. To deliver the energy to Portland a single three-phase circuit of 250,000 circular mill copper operating at 57,100 volts was built on steel towers, from Station M to the railway right-of-way at Morrow Station thence to Station "L" in Portland, with an average span between towers of around 500 feet. The towers were constructed to take two circuits so a second circuit was installed from Station "M" to Morrow, a distance of about one-half mile where provision was made for

EXHIBIT A-1  
PAGE 2/3



emergency connection to the 60-cycle transmission line feeding from Station "G" to Portland.

At the time the property of Portland Water Power and Electric Transmission Company was transferred, the property of the River Mill Company was also transferred. The latter company was incorporated March 1, 1909 by F. B. Pratt, W. H. Hurlburt and A. B. Winfree with a capital of \$2000 to engage in a general timber and lumbering business. The company was formed primarily to supply lumber for the power plant project and the property was dismantled soon after the building program was completed.

In the story of the period immediately preceding this one, mention is made of the construction of Steam Station "L" and of a 2000-kw., 2300-volt generator put into commission on December 9, 1910. The second steam turbo unit, also 2000-kw. capacity, but operating at 11,000 volts, was put into commission at this plant on January 7, 1911 and the third unit, a 2000-kw., 600-volt direct-current generator direct connected to a 2500-hp. Hamilton cross compound Corliss engine was put into commission in June, 1911. The 11,000-volt and 23,000-volt bus structures were housed on the operating floor and balcony of the steam plant but a two-story reinforced concrete substation was erected in close proximity to the plant to house the high-tension bus and switching equipment and three 3667-kva, three-phase transformers to receive energy from the transmission line from Station "M".

With the completion of Station "L" and Station "M", the 11,000-volt line feeding between Knott Substation and Jefferson Substation was cut through Station "L" and two new similar lines were built, one from Station "L" to Knott Substation and the other from Station "L" to Jefferson Substation. An 11,000-volt line was also built along the river front on the railway right-of-way between Station "L" and Sellwood Substation. In

**ATTACHMENT A-2**

1992

WORKS DEPT.  
SEASIDE, OREGON

## CHAPTER V

# CLACKAMAS RIVER BASIN DEVELOPMENT

A period of significant Company growth occurred in the decade from 1902 to 1912. This was evidenced both in electric service load growth and in exploitation of generation resources to meet the needs of an expanding population. As electric requirements increased at a rapid rate, low-cost hydroelectric generation became ever more attractive for bulk power supply.

The potential for power development on the Clackamas River was recognized at the turn of the century. Power sites were in relatively close proximity to Portland and to projected electric interurban lines. Thus, surveys were started in June 1901 on the John Zobrist donation land claim, and in 1902 property acquisition began for a hydroelectric generating project then named Cazadero (later, Station G, and now, Faraday). In 1908, lands were purchased for a power site a short distance west of Estacada for the River Mill hydroelectric development.

Investments and payrolls for power site investigation, as well as plant and railroad construction and operation, contributed to the stable economy and growth of the Estacada area. The Company built a hotel and picnic park, and excursion trains on an electrified railroad brought crowds of Portlanders to Estacada on weekends for summer enjoyment. The public recreational facility was further enhanced by completion of River Mill dam in 1911, creating Estacada Lake and slack water to the Faraday powerhouse. With excellent hotel meals at reasonable prices as an additional draw, as many as seven extra trains were scheduled on Sundays for the pleasure seekers. The interurban lines were advertised as "The Trout Route", in angler's guides issued by the Company to the public.

A railroad from Portland through Gresham and Boring to Estacada, terminating at Cazadero, had been completed in 1903 by the Oregon Water Power & Railway Company, a predecessor company of PGE. The railroad was built primarily for hauling workmen, equipment and supplies for the construction of the Cazadero hydroelectric plant.

The decision to construct a railroad was made after estimating the cost of an alternative horse and heavy-wagon transportation system. The latter would have required planking a 22-mile roadway from S.P.R.R. Co.'s Clackamas station and upgrading the bridges all along the route.

Benefits from some investor-owned electric interurban railway lines in that period of undependable automobiles and muddy or dusty dirt roads were realized at Estacada and along the route from Portland. According to the *Street Railway Journal* of October 29, 1904: "Estacada is a town of 300 or 400 people . . . where six months ago there was nothing but a small farm and standing timber . . . The Hotel Estacada . . . is owned by the O.W.P. & R.R. Co. and has been constructed with a view of providing accommodations for those desiring short and inexpensive outings. . . . As a special inducement for Sunday traffic, a rate of 50 cents is given for the round trip from Portland to Estacada, instead of the week-day fare of \$1.35. A rate of \$1.50 is offered for the round-trip including dinner at the hotel". The original plat for the "Town of Estacada" was filed in Oregon City on January 9, 1904. In 1905 Estacada was incorporated as a city.

The ultimate projected usage of the interurban railroad to Cazadero, according to the *Street Railway Journal*, was for "tapping of the large and excellent yellow fir region on the Upper Clackamas River. By reason of natural obstructions in the river channel below Cazadero, it has been impossible to float logs down the stream to the Willamette; and as the country is too steep and rugged for logging roads . . . this large timber section . . . has lain dormant for years. This country is settled largely by the pioneers of Oregon who crossed the mountains

(on the Barlow Toll Road) and settled in this section some 50 years ago. Without transportation facilities and a 25 to 30 mile wagon haul, the advancement of these sturdy settlers has been slow as compared to that noticed in other parts of the West".

Anticipating a delay of some years in harvesting timber in the upper Clackamas River basin, the company conducted an aggressive campaign to develop freight business along the line. As the 1904 *Street Railway Journal* article noted: "Portland burns wood almost exclusively for fuel, and uses from 200,000 to 300,000 cords annually". For the calendar year 1904, more than 100,000 cords were hauled by the Estacada line. A flatcar could carry 16 cords, and the freight rate for the full trip was 85 cents per cord. At the time, there were 37 sawmills along the railway or tributary to it. Farmers also benefited. They were able to raise potatoes and other valuable cash crops for shipment to market, instead of having to raise hay and grain for fattening hogs and cattle, and then face the drive "on the hoof" the long distance to Portland.

At the beginning, practically the only town on the Cazadero interurban line was Gresham, with a population of about 150. The railroad management anticipated the need for only one combination freight and passenger train each day. However, within a year, seven passenger trains were required every weekday, and a freight train every night. On Sundays, the passenger schedules increased from 50 to 100 percent during the fishing and picnicking season.

Three wood-burning steam locomotives were first operated on the railroad section from Boring to Estacada. In 1907, the line was electrified upon completion of the Faraday hydroelectric development, providing direct current for the trolley wires at the terminal at Cazadero and through a substation constructed at Eagle Creek. E. L. (Roy) Meyers, the first station agent at Estacada, was later a longtime lobbyist for Portland General Electric and its predecessor companies. Until 1967, he resided at Eagle Creek on the pioneer Philip Foster donation land claim.

In 1843, Philip Foster, in partnership with Francis W. Pettygrove, operated a store in Oregon City. Soon afterwards, Foster located a homestead at Eagle Creek. In June 1844, he moved into a newly built log house on those fertile farm lands. The following year, Samuel K. Barlow reached the Foster place in the course of his attempts to locate a trail to Oregon City for a pioneer covered wagon train.<sup>10</sup>

In 1846, Foster and Barlow formed a partnership to construct an 80-mile-long toll road from Maupin, south of Mt. Hood, to Foster's farm, where fresh fruit and vegetables could be obtained by the pioneer migrants. A toll gate was built near Zig Zag where, by action of the Provisional Legislature, a charge of \$5 per wagon and 10 cents for each loose animal was authorized for collection. The toll road was not a financial success, but it apparently operated until 1919, when it was deeded to the State of Oregon.

Prior to 1922, the Clackamas River basin east of Estacada was a 650-square-mile area of timbered wilderness, with no roads and few trails. Steep cliffs ran to the edge of the river at many places, forcing trails to climb up and down the side of the canyon and making a trip to the upper country an arduous task. There was only one homestead in the area. A U.S. Forest Service ranger station at Oak Grove, built about 1908, was for many years manned only in the summer fire season because of its isolated location. All supplies and equipment were transported into the area by pack train until 1923, when the Company — in preparation for the Oak Grove hydroelectric project construction — built a wagon road, immediately followed by a railroad into the area.

### River Mill Development (Formerly Station M)

Property acquisitions for the River Mill hydroelectric development were started in 1908. In 1909, preliminary surveys and designs were made by the Portland Water Power & Electric Transmission Company which was incorporated December 22, 1908, by the former major property owner of record, W. H. Hurlburt. Late in 1908, the Portland Railway, Light & Power Company secured control of the property, immediately assuming responsibility for the project. Sellers and Rippey, consulting engineers of Philadelphia, were engaged to assist with design and construction.

The January 4, 1913 issue of the *Journal of Electricity, Power and Gas* noted that the project was unusual from the start: "... for the rapidity of its construction, considering the exceedingly substantial manner in which it is built, and for the fact it employs the first Ambursen type of dam for power plant work on the Pacific Coast. All available power in the river below the Cazadero plant is here developed under a head of 83 feet".

Construction contractor was the Puget Sound Bridge and Dredging Company, which started the work on June 1, 1910, and completed it November 15, 1911. The P.R.L.&P. Co. procured and installed the mechanical and electrical equipment. Turbines, penstocks, draft tubes, gates and other hydraulic necessities were ordered on June 29, 1910. Generators, transformers and other electrical equipment were not on order until December 10. Nevertheless, the first unit went into service 11 months later, on November 11, 1911, the second in 2 weeks, and the third just 1 month later. Under the most favorable head conditions (in January 1924), peak capability of the three generating units was 13,800 kW.

As the River Mill powerhouse was designed for five main generating units, the original construction included five sets of intake racks and gates and draft tubes. Penstock sections for the fourth and fifth units were initially installed extending to the powerhouse wall. The fourth generating unit, rated at 4150 kW, was added in December 1927 — increasing the plant output to a maximum peak capability of between 18,000 and 19,000 kW, depending on head and river discharge conditions. With this additional capacity, the plant investment averaged less than \$117 per kW of maximum output. On May 19, 1952, the fifth unit, rated at 5000 kW, was operating in commercial service, raising the plant's peak capability to 23,000 kW.

A significant improvement made at River Mill in 1954 was the modernization of control of the generating units, making the plant semiautomatic. The original governors on the No. 1, 2 and 3 turbines were replaced with Pelton Water Wheel Company "hydraulic controllers". The governors on the other two units were to provide for similar electrical control of each generating unit, in the event of excessive temperatures or speed or other malfunction. This installation, with a book value of \$167,961, permitted safe plant operation with one operator for each of two shifts per day instead of the formerly-required two operators round the clock 7 days per week.

In 1966, spillway capacity of the River Mill dam was increased 50 percent (to 150,000 cfs) to match that of the North Fork spillway. The December 1964 flood had pointed to the need for provision to pass floods of greater magnitude. Due to the excellence of the construction methods and materials originally used in the dam, the reinforced concrete and the strength of the sections were found to be adequate to withstand the additional pressure of an even greater flood. Because of higher flood elevations, abutments and wing walls were topped with 8 feet of concrete and a compacted-earth dike was built across the lowlands at the south end of the dam. On the upstream side, powerhouse walls were reinforced and openings were closed up to maximum flood elevation. The entire job was accomplished at a book cost of \$161,719 — far less than the cost of a new gated, concrete, side spillway had such an addition been needed to pass an extra 50,000 cfs of flood water without raising the forebay water level.

**ATTACHMENT A-3**

RECEIVED

DEC 30 1992

WATER RESOURCES DEPT.  
SALEM, OREGON

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NOTICE OF APPROPRIATION

OF WATERS OF THE CLACKAMAS RIVER IN CLACKAMAS COUNTY STATE OF OREGON.

NOTICE IS HEREBY GIVEN, that THE PORTLAND WATER POWER AND ELECTRIC TRANSMISSION COMPANY, a corporation organized under the laws of the State of Oregon, is the owner of and has title to certain lands in Clackamas County, State of Oregon, lying and bordering on the Clackamas River, to-wit;

Lots one (1) and two (2) in Section Twenty (20) Township three (3) South of Range four (4) east of the willamette Meridian, containing forty-nine and fifteen hundredths (49.15) acres;

That said corporation intends to and does hereby appropriate, of the waters of the Clackamas River, a running stream of and in the State of Oregon, two hundred thousand (200,000) cubic inches of water by Miner's measurement under a six inch pressure, being in volume a continuous flow of five Thousand (5,000) cubic feet of water per second; the said water is to be diverted and conducted by means of Pipe lines, a flume, canal and ditch, or by any of said means; and the name of the ditch, canal, flume and pipe lines shall be and is the Hurlburt Ditch.

The name of the owner of said ditch, canal, flume and pipe lines is THE PORTLAND WATER POWER AND ELECTRIC TRANSMISSION COMPANY, a corporation organized under the laws of the State of Oregon, by which corporation this appropriation is made.

The point at which the head-gate is proposed to be constructed and the point of diversion is situated on the right bank of the Clackamas River, at which point this notice is located, and which point is located from the northwest corner of the William N. Wade, Donation Land Claim, Claim No. 39, in Clackamas County, Oregon, as follows, to-wit:

Commencing at the Northwest corner of the William N. Wade, Donation Land Claim No. 39 in Clackamas County, Oregon, running thence south 20° east eight (8) chains; thence south 34°49' east fourteen (14) chains to a point on the right bank of the Clackamas River, which is the point of diversion.

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At the point above defined, or as near to said point as may be convenient, the above named owner of said canal, ditch, flume and pipe lines, the undersigned, proposes to construct a dam across the channel of the Clackamas River for the purpose of raising the head of water of said river at said point, and for the purpose of using the canal of said river above said point as a Reservoir for storing the water of said river; and said Reservoir will be located in Section twenty (20), twenty-nine (29) twenty eight (28) and Thirty-three (33) in Township three (3) south of range four (4) east of Willamette Meridian in Clackamas County, Oregon.

Said dam will be of such height as may be found necessary or advantageous.

The general course of said canal, ditch, flume and pipe lines will be a



NOTICE IS HEREBY GIVEN, that THE PORTLAND WATER POWER AND ELECTRIC TRANSMISSION COMPANY, a corporation organized under the laws of the State of Oregon, is the owner of and has title to certain lands in Clackamas County, State of Oregon, lying and bordering on the Clackamas River, to-wit;

Lots one (1) and two (2) in Section Twenty (20) Township three (3) South of Range four (4) east of the Willamette Meridian, containing forty-nine and fifteen hundredths (49.15) acres;

That said corporation intends to and does hereby appropriate, of the waters of the Clackamas River, a running stream of and in the State of Oregon, two hundred thousand (200,000) cubic inches of water by Miner's measurement under a six inch pressure, being in volume a continuous flow of five Thousand (5,000) cubic feet of water per second; the said water is to be diverted and conducted by means of Pipe lines, a flume, canal and ditch, or by any of said means; and the name of the ditch, canal, flume and pipe lines shall be and is the Hurlburt Ditch.

The name of the owner of said ditch, canal, flume and pipe lines is THE PORTLAND WATER POWER AND ELECTRIC TRANSMISSION COMPANY, a corporation organized under the laws of the State of Oregon, by which corporation this appropriation is made.

The point at which the head-gate is proposed to be constructed and the point of diversion is situated on the right bank of the Clackamas River, at which point this notice is located, and which point is located from the northwest corner of the William N. Wade, Donation Land Claim, Claim No. 39, in Clackamas County, Oregon, as follows, to-wit:

Commencing at the Northwest corner of the William N. Wade, Donation Land Claim No. 39 in Clackamas County, Oregon, running thence south 20° east eight (8) chains; thence south 34°49' east fourteen (14) chains to a point on the right bank of the Clackamas River, which is the point of diversion.

At the point above defined, or as near to said point as may be convenient, the above named owner of said canal, ditch, flume and pipe lines, the undersigned, proposes to construct a dam across the channel of the Clackamas River for the purpose of raising the head of water of said river at said point, and for the purpose of using the canal of said river above said point as a Reservoir for storing the water of said river; and said Reservoir will be located in Section twenty (20), twenty-nine (29) twenty eight (28) and Thirty-three (33) in Township three (3) south of range four (4) east of Willamette Meridian in Clackamas County, Oregon.

Said dam will be of such height as may be found necessary or advantageous.

The general course of said canal, ditch, flume and pipe lines will be a general Northwesterly direction from said point of diversion, nearly parallel with the course of the Clackamas River, to the most convenient and advantageous point, to be hereafter fixed, on the lands of the said appropriator, the undersigned, described as follows:

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Lots One (1) and Two (2) in Section twenty (20) Township three (3) South of Range four (4) east of Willamette Meridian, in Clackamas County, Oregon.

The size or dimensions of the ditch, canal, flume or pipe line, and the width and depth, shall be as follows:

Where pipe lines are used, seven (7) circular pipes, each eight (8) feet in diameter; where a flume is used, the flume shall be fifty (50) feet wide on the top, fifty (50) feet wide on the bottom, and thirty (30) feet deep;

wherever a ditch or canal <sup>may be used; the ditch or canal</sup> shall be, eighty (80) feet wide on the top, thirty-five (35) feet wide at the bottom, and fifteen (15) feet deep.

A flume, a canal, a ditch and pipe lines will be used, as may be found most advantageous, and if found advantageous, the water may be conducted from the point of diversion to the point where the same is returned to said river, by a canal or ditch for a portion of the distance, by a flume for a portion of the distance, and by pipe lines for a portion of the distance.

There will be but one reservoir, situated as above set forth.

The water so to be diverted will be used on the lands of the appropriator above described for the purpose of developing the mineral resources of the state and of generating and furnishing electrical power for all purposes, and also for the purpose of generating water power; said water power and said electrical power, when so generated, and either or both of said powers, to be used to operate flour mills, grist mills, saw mills, woolen mills, paper mills, pulp mills, and mills of every kind and for any purpose, and manufactories of every kind and for every purpose, and packing houses of every kind, and to generate and furnish electrical power for lighting purposes, for operating railroads, street railroads, tram roads and cable roads, and to generate and furnish electrical power for all other purposes for which electrical power is now adapted or used or for which the same may hereafter be adapted or used; and also for the purpose of furnishing electrical power for lighting mills and factories, packing houses and mechanical plants of all kinds owned or to be owned by the undersigned and operated or conducted by the undersigned, and also for furnishing light for mills, factories and packing houses or other enterprises owned or conducted by persons, firms and corporations other than the undersigned; and also for the purpose of furnishing light for lighting streets and public places in cities and towns in the neighborhood of said point of diversion, and also for the purpose of lighting residences, warehouses, stores and other places and buildings situated either upon lands of the appropriator or on other lands and owned or conducted by the appropriator.

advantageous, and if found advantageous, the water may be so diverted from the point of diversion to the point where the same is returned to said river, by a canal or ditch for a portion of the distance, by a flume for a portion of the distance, and by pipe lines for a portion of the distance.

There will be but one reservoir, situated as above set forth.

The water so to be diverted will be used on the lands of the appropriator above described for the purpose of developing the mineral resources of the state and of generating and furnishing electrical power for all purposes, and also for the purpose of generating water power; said water power and said electrical power, when so generated, and either or both of said powers, to be used to operate flour mills, grist mills, saw mills, woolen mills, paper mills, pulp mills, and mills of every kind and for any purpose, and manufactories of every kind and for every purpose, and packing houses of every kind, and to generate and furnish electrical power for lighting purposes, for operating railroads, street railroads, tram roads and cable roads, and to generate and furnish electrical power for all other purposes for which electrical power is now adapted or used or for which the same may hereafter be adapted or used; and also for the purpose of furnishing electrical power for lighting mills and factories, packing houses and mechanical plants of all kinds owned or to be owned by the undersigned and operated or conducted by the undersigned, and also for furnishing light for mills, factories and packing houses or other enterprises owned or conducted by persons, firms and corporations other than the undersigned; and also for the purpose of furnishing light for lighting streets and public places in cities and towns in the neighborhood of said point of diversion, and also for the purpose of lighting residences, warehouses, stores and other places and buildings situated either upon lands of the appropriator or on other lands and owned by or conducted by the appropriator or by persons, firms and corporations other than the undersigned.

The waters hereby diverted, after having been used for the purpose for which the same are appropriated, will be returned to the Clackamas River on the lands of the undersigned.

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in its corporate name by its President and attested by its Secretary, in pursuance of a resolution of its Board of Directors duly adopted, on the 23d. day of December A. D. 1908,

Executed in the presence of:  
Margaret White.

THE PORTLAND WATER POWER AND  
ELECTRIC TRANSMISSION COMPANY,

By. W. H. Hurlburt, President.  
Attest Wirt Minor, Secretary.

Filed and Recorded January 2nd 1908 at 4:35 P. M.

C. E. Ramsby, County Recorder,  
Deputy.



State of Oregon, )  
                          ) SS.  
County of Clackamas. )

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PAGE 513

Wa, J. W. Reed and George Thim, the undersigned, being severally duly sworn, do say and each for himself does say:

On the 9th day of January, 1909, we and each of us were present with W. H. Hurlburt at a point on the right bank of the Clackamas River in the William N. Wade Donation Land Claim, No. 39, defined as commencing at the northwest corner of the William N. Wade Donation Land Claim, No. 39, in Clackamas County, State of Oregon; thence south 20° east eight (8) chains, thence south 34° 45' east fourteen (14) chains, the same being the point of diversion, and at said time and place the said W. H. Hurlburt, in the presence of us and of each of us, did post a notice of appropriation of water of the Clackamas River in Clackamas County, State of Oregon, and that the within and annexed notice is similar in all respects to the notice so posted and is a duplicate thereof; and that the place where the same was posted is a conspicuous place.

J. W. Reed  
George Thim

Subscribed and sworn to before me this 9th day of January, 1909.

(Seal of Notary)

L. E. Belfile,  
Notary Public for Oregon.

State of Oregon, )  
                          ) SS.  
Clackamas County. )

I, W. H. Hurlburt, being first duly sworn, say that on the 9th day of January, 1909, I posted at a point on the right bank of the Clackamas River, located from the northwest corner of the William N. Wade Donation Land Claim as follows: Commencing at the northwest corner of the William N. Wade Donation Land Claim, No. 39, in Clackamas County, State of Oregon, thence south 20° east eight (8) chains, thence south 34° 45' east fourteen (14) chains, the same being the point

A. D. 1908,

Executed in the presence of:

Margaret White.

THE PORTLAND WATER POWER AND  
ELECTRIC TRANSMISSION COMPANY,

By. W. H. Hurlburt, President.

Attest Wirt Minor, Secretary.

Filed and Recorded January 2nd 1908 at 4:35 P. M.

C. E. Ramsby, County Recorder,

By ; Deputy.

State of Oregon, )  
 ) SS.  
County of Clackamas. )

We, J. W. Reed and George Thim, the undersigned, being severally duly sworn, do say and each for himself does say:

On the 9th day of January, 1909, we and each of us were present with W. H. Hurlburt at a point on the right bank of the Clackamas River in the William N. Wade Donation Land Claim, No. 39, defined as commencing at the northwest corner of the William N. Wade Donation Land Claim, No. 39, in Clackamas County, State of Oregon; thence south 20° east eight (8) chains, thence south 34° 45' east fourteen (14) chains, the same being the point of diversion, and at said time and place the said W. H. Hurlburt, in the presence of us and of each of us, did post a notice of appropriation of water of the Clackamas River in Clackamas County, State of Oregon, and that the within and annexed notice is similar in all respects to the notice so posted and is a duplicate thereof; and that the place where the same was posted is a conspicuous place.

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J. W. Reed

George Thim

Subscribed and sworn to before me this 9th day of January, 1909.

(Seal of Notary)

L. E. Belfile.

Notary Public for Oregon.

State of Oregon, )  
 ) SS.  
Clackamas County. )

I, W. H. Hurlburt, being first duly sworn, say that on the 9th day of January, 1909, I posted at a point on the right bank of the Clackamas River, located from the northwest corner of the William N. Wade Donation Land Claim as follows: Commencing at the northwest corner of the William N. Wade Donation Land Claim, No. 39, in Clackamas County, State of Oregon, thence south 20° east eight (8) chains, thence south 34° 45' east fourteen (14) chains, the same being the point of diversion, a notice of appropriation of water of the Clackamas River in Clackamas County, State of Oregon, of which notice, so posted, the within and annexed is a duplicate and is in all respects similar to the notice so posted.

STATE OF OREGON }  
COUNTY OF CLACKAMAS } ss.

I, JOHN KAUFFMAN, County Clerk of the State of Oregon for the County of Clackamas, do hereby certify that the foregoing copy of Water Ditches  
W. F. Lums BK. 2 PGS. 2-4 has been by me compared with the original, and that it is a correct transcript therefrom, and the whole of such original, as the name appears on file and of record in my office and in my care and custody.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed my official seal this 3 day of Sept., 1922

By: J. Kauffman JOHN KAUFFMAN, Clerk  
J. Bugh Deputy



that I posted the same in the presence of J. W. Reed and George Tim at the point above defined, and that I posted the same for The Portland Water Power and Electric Transmission Company, and at its instance and request; and that said notice was posted in a conspicuous place.

W. H. Hurlburt,

Subscribed and sworn to before me this 11th day of January, 1909.

(Seal of Notary)

A. B. Winfree,

Notary Public for Oregon.

NOTICE OF APPROPRIATION  
OF WATER OF THE CLACKAMAS RIVER IN CLACKAMAS COUNTY  
STATE OF OREGON.

NOTICE IS HEREBY GIVEN, that THE PORTLAND WATER POWER AND ELECTRIC TRANSMISSION COMPANY, a corporation organized under the laws of the State of Oregon, is the owner of and has title to certain lands in Clackamas County, State of Oregon, lying and bordering on the Clackamas River, to-wit:

Lots one (1) and two (2) in Section twenty (20), Township three (3) south of Range four (4) east of the Willamette Meridian, containing forty-nine and fifteen hundredths (49.15) acres;

That said corporation intends to and does hereby appropriate, of the waters of the Clackamas River, a running stream of and in the State of Oregon, two hundred thousand (200,000) cubic inches of water by miners' measurement under a six inch pressure, being in volume a continuous flow of five thousand (5,000) cubic feet of water per second; the said water is to be diverted and conducted by means of pipe lines, a flume, canal and ditch, or by any of said means; and the name of the ditch, canal, flume and pipe lines shall be and is the HURLBURT DITCH. The name of the owner of said ditch, canal, flume and pipe lines is THE PORTLAND WATER POWER AND ELECTRIC TRANSMISSION COMPANY, a corporation organized under the laws of the State of Oregon, by which corporation this appropriation is made.

The point at which the head-gate is proposed to be constructed and the point of diversion is situated on the right bank of the Clackamas River, at which point this notice is located, and which point is located from the Northwest corner of the William N. Wade Donation Land Claim, Claim No. 39, in Clackamas County, Oregon, as follows, to-wit:

Commencing at the Northwest corner of the William N. Wade Donation Land Claim,

... to the ... Clackamas County, Oregon, ... South 20° east eight (8)

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NOTICE OF APPROPRIATION  
OF WATER OF THE CLACKAMAS RIVER IN CLACKAMAS COUNTY  
STATE OF OREGON.

NOTICE IS HEREBY GIVEN, that THE PORTLAND WATER POWER AND ELECTRIC TRANSMISSION COMPANY, a corporation organized under the laws of the State of Oregon, is the owner of and has title to certain lands in Clackamas County, State of Oregon, lying and bordering on the Clackamas River, to-wit:

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That said corporation intends to and does hereby appropriate, of the waters of the Clackamas River, a running stream of and in the State of Oregon, two hundred thousand (200,000) cubic inches of water by miners' measurement under a six inch pressure, being in volume a continuous flow of five thousand (5,000) cubic feet of water per second; the said water is to be diverted and conducted by means of pipe lines, a flume, canal and ditch, or by any of said means; and the name of the ditch, canal, flume and pipe lines shall be and is the HURLBURT DITCH. The name of the owner of said ditch, canal, flume and pipe lines is THE PORTLAND WATER POWER AND ELECTRIC TRANSMISSION COMPANY, a corporation organized under the laws of the State of Oregon, by which corporation this appropriation is made.

The point at which the head-gate is proposed to be constructed and the point of diversion is situated on the right bank of the Clackamas River, at which point this notice is located, and which point is located from the Northwest corner of the William N. Wade Donation Land Claim, Claim No. 39, in Clackamas County, Oregon, as follows, to-wit:

Commencing at the Northwest corner of the William N. Wade Donation Land Claim, Claim No. 39 in Clackamas County, Oregon, running thence South 20° east eight (8) chains; thence south 34° 45' east fourteen (14) chains to a point on the right bank of the Clackamas River, which is the point of diversion.

At the point above defined, or as near to said point as may be convenient, the above named owner of said canal, ditch, flume and pipe lines, the undersigned, proposes to construct a dam across the channel of the Clackamas River for the purpose of raising the head of water of said river at said point, and for the purpose of using the channel of said river above said point as a reservoir for storing the water of said river, and said reservoir will be located in the



twenty (20), twenty-nine (29), twenty-eight (28) and thirty-three (33) in Township three (3) south of range four (4) east of Willamette Meridian in Clackamas County, Oregon. Said dam will be of such height as may be found necessary or advantageous.

The general course of said canal, ditch, flume and pipe lines will be in a general northwesterly direction from said point of diversion, nearly parallel with the course of the Clackamas River, to the most convenient and advantageous point, to be hereafter fixed, on the lands of the said appropriator, the undersigned, described as follows:

Lots one (1) and two (2) in Section twenty (20), Township three (3) south of Range four (4) east of Willamette Meridian in Clackamas County, Oregon.

The size or dimensions of the ditch, canal, flume or pipe line, and the width and depth, shall be as follows: Where pipe lines are used, seven (7) circular pipes, each eight (8) feet in diameter; where a flume is used, the flume shall be fifty (50) feet wide on the top, fifty (50) feet wide on the bottom, and thirty (30) feet deep; wherever a ditch or canal may be used, the ditch or canal shall be eighty (80) feet wide on the top, thirty-five (35) feet wide at the bottom, and fifteen (15) feet deep. A flume, a canal, a ditch and pipe lines will be used, as may be found most advantageous, and if found advantageous, the water may be conducted from the point of diversion to the point where the same is returned to said river, by a canal or ditch for a portion of the distance, by a flume for a portion of the distance, and by pipe lines for a portion of the distance. There will be but one reservoir, situated as above set forth.

The water so to be diverted will be used on the lands of the appropriator above described for the purpose of developing the mineral resources of the state and of generating and furnishing electrical power for all purposes, and also for the purposes of generating water power; said water power and said electrical power, when so generated, and either or both of said powers, to be used to operate flour mills, grist mills, saw mills, woolen mills, paper mills, pulp mills, and mills of every kind and for any purpose, and manufactories of every kind and for every purpose, and packing houses of every kind, and to generate and furnish electrical power for lighting purposes, for operating railroads, street railroads, tram roads and cable roads, and to generate and furnish electrical power for all other purposes for which electrical power is now adapted or used or for which the same may hereafter be adapted or used; and also

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with the course of the Clackamas River, to the most convenient and advantageous point, to be hereafter fixed, on the lands of the said appropriator, the undersigned, described as follows:

Lots one (1) and two (2) in Section twenty (20), Township three (3) south of Range four (4) east of Willamette Meridian in Clackamas County, Oregon.

The size or dimensions of the ditch, canal, flume or pipe line, and the width and depth, shall be as follows: Where pipe lines are used, seven (7) circular pipes, each eight (8) feet in diameter; where a flume is used, the flume shall be fifty (50) feet wide on the top, fifty (50) feet wide on the bottom, and thirty (30) feet deep; wherever a ditch or canal may be used, the ditch or canal shall be eighty (80) feet wide on the top, thirty-five (35) feet wide at the bottom, and fifteen (15) feet deep. A flume, a canal, a ditch and pipe lines will be used, as may be found most advantageous, and if found advantageous, the water may be conducted from the point of diversion to the point where the same is returned to said river, by a canal or ditch for a portion of the distance, by a flume for a portion of the distance, and by pipe lines for a portion of the distance. There will be but one reservoir, situated as above set forth.

The water so to be diverted will be used on the lands of the appropriator above described for the purpose of developing the mineral resources of the state and of generating and furnishing electrical power for all purposes, and also for the purposes of generating water power; said water power and said electrical power, when so generated, and either or both of said powers, to be used to operate flour mills, grist mills, saw mills, woolen mills, paper mills, pulp mills, and mills of every kind and for any purpose, and manufactories of every kind and for every purpose, and packing houses of every kind, and to generate and furnish electrical power for lighting purposes, for operating railroads, street railroads, tram roads and cable roads, and to generate and furnish electrical power for all other purposes for which electrical power is now adapted or used or for which the same may hereafter be adapted or used; and also for the purpose of furnishing electrical power for lighting mills and factories, packing houses and mechanical plants of all kinds owned or to be owned by the undersigned and operated or conducted by the undersigned, and also for furnishing light for mills, factories and packing houses or other manufactories owned or conducted by persons, firms and corporations other than the undersigned; and also for the purpose of furnishing light for lighting streets and public places.

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in cities and towns in the neighborhood of said point of diversion, and also for the purpose of lighting residences, warehouses, stores and other places and buildings situated either upon the lands of the appropriator or upon other lands and owned or conducted by the appropriator or by persons, firms and corporations other than the undersigned.

The waters hereby diverted, after having been used for the purposes for which the same are appropriated, will be returned to the Clackamas River, on the lands of the undersigned.

IN WITNESS WHEREOF, the undersigned has caused these presents to be executed in its corporate name by its President and attested by its Secretary, in pursuance of a resolution of its Board of Directors duly adopted, on the 23rd day of December, A. D. 1908.

Executed in presence of: )

Margaret White )

W. A. Johnson )

THE PORTLAND WATER POWER AND

ELECTRIC TRANSMISSION COMPANY,

By, W. H. Hurlburt, President.

Attest: Wirt Minor, Secretary.

(Seal of P.W.P. & E.T. Co.)

Filed and Recorded January 12th, 1909 at 4:05 P. M.

C. E. Ramsby, County Recorder

By, *W. Buschegger* Deputy

#### Notice of Location of Water Right.

Notice is hereby given, That A. B. Frame, a citizen of the United States and a resident of the State of Oregon, over twenty-one years of age, has this day located and appropriated 25,000 miner's inches of water under a six inch pressure Miner's measure, of the Big Sandy River, Clackamas County, Oregon.

A point of appropriation and proposed diversion is more definitely located and described as being on the North Bank of the Big Sandy River at a point near where the North and Southeast section line of Section thirty-one (31), Township two (2), South of Range seven (7) East W. M., crosses said Sandy River.

The diversion of said appropriation of the said 25,000 miner's inches of water will be made at this point and conducted along the North bank of said Sandy River by means of a ditch or canal to and upon the West half of the Northwest quarter of Section thirteen (13), Township two (2) South of Range five (5) East W. M.

County or elsewhere if desired.

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STATE OF OREGON }  
COUNTY OF CLACKAMAS } ss.

I, JOHN KAUFFMAN, County Clerk of the State of Oregon for the County of Clackamas, do hereby certify that the foregoing copy of water ditches & Flumes Pl. 2 Pgs. 5-7 has been by me compared with the original, and that it is a correct transcript therefrom, and the whole of such original, as the name appears on file and of record in my office and in my care and custody.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed my official seal this 3 day of Sept., 1997

JOHN KAUFFMAN, Clerk  
By: [Signature] Deputy



**ATTACHMENT A-4**

is desired. Bidders must carefully examine the specifications and drawings which accompany same, before submitting proposals and the receipt of a bid from any party will be considered an acceptance of said plans and specifications on his part and will constitute evidence that in his judgment they provide for satisfactorily meeting the requirements of the work.

**PROPOSALS:**

Proposals must be strictly in the form indicated in the invitations for proposals. If any bidder desires to submit an alternative proposition, this shall be separate from, and in addition to, the proposal for work in strict accordance with these specifications. Plans and specifications must be returned with proposals.

Company reserves the right to accept any or to reject any or all of the proposals received.

**DRAWINGS:**

The drawings herein referred to are all general and detail drawings which may be furnished by Engineers for the execution of the work herein specified, or which may be furnished by Contractor under any requirement of these specifications and approved by Engineers.

Contractor shall submit to Engineers for approval all drawings which he may make at any time in connection with the work herein specified and upon receiving such approval shall immediately furnish Engineers with three blue-print copies of each drawing without charge. Engineers or Company shall have the privilege at any time of securing from Contractor additional blue prints of all drawings required, by paying the actual cost of preparing such prints. Contractor will be furnished with two sets of blue prints of such drawings as Engineers may pre-

parts for the work and may secure additional prints, if required, by paying the cost of preparing same.

Drawings and specifications furnished by Engineers are property of Engineers and shall be carefully used and returned to Engineers upon completion of the work, unless otherwise arranged with Engineers.

The finally approved drawings for the work herein specified are intended to co-operate with and form a part of these specifications. In case any discrepancies appear, they shall be referred to Engineers for adjustment, but in general the plans shall be followed for sizes and disposition of parts and the specifications for general methods, quality of materials and workmanship.

Figured dimensions on drawings shall always be used in preference to scale measurements, and detail drawings shall govern in preference to general drawings for the same part of the work.

Contractor shall verify all dimensions on plans which relate to any part of his work, and if a contract is made to include installation of apparatus, shall verify all measurements at the building which in any way affect his work.

MEANING AND INTENTION:

Acceptance of these specifications by Contractor will be considered evidence that he has read and understood the meaning of each clause and that he agrees to comply with all their requirements.

The work herein specified is to be executed in all its parts in a thoroughly substantial and workmanlike manner in full accordance with the intent of the approved plans and these specifications and everything necessary for the completion of

the work and its successful operation is to be furnished and done by Contractor in proper manner, even though not particularly specified or shown on plans, unless any parts of such work are definitely excepted by these specifications, and all such work shall be done as thoroughly as though set forth in detail herein. It is understood that smaller details and accessories of apparatus are not generally shown on plans or specifically described, but that all such parts as are required for a workmanlike and complete job and for proper operation, are to be furnished by Contractor.

It shall be the duty of Contractor to bring to the attention of Engineers without delay any omissions or errors which he may discover upon the plans or in the specifications, and Contractor shall not take advantage of any errors, omissions or discrepancies which may exist on drawings or in specifications, but shall furnish and perform all things fairly to be inferred as essential to the work, whether shown or mentioned or not. Any disputes which may arise concerning the meaning or intention of the plans or specifications, correctness of work, suitability of materials and workmanship, shall be referred to Engineers for settlement and their decision shall be final and conclusive.

Engineers shall have authority at any time prior to final acceptance of the work, or prior to the expiration of any guarantees which Contractor may make, to condemn and reject any work or material not in accordance with the requirements of plans and specifications, and Contractor must remove and replace all such work and material upon proper notice. If Contractor does not replace such defective and unsafe work promptly, Engineers shall have full power to have such work done at the expense of Contractor.

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The entire work, including designs, material, workmanship and rate of progress must be made satisfactory to Engineers.

SUB-CONTRACTORS:

Under no circumstances shall any sub-contract operate to relieve Contractor of his liabilities and obligations for the execution of the work in full accordance with his Contract and these specifications, nor shall sub-contracts or assignments be made without the approval of Engineers. The materials to be used in the construction of the apparatus herein specified must be furnished by manufacturers of established reputation having proper facilities for the production and manipulation of the materials at all stages of manufacture. Contractor must submit to Engineers list of the manufacturers from whom he proposes to obtain all materials and a list showing by whom any parts of the work which he proposes to sub-let are to be performed and must secure the approval of Engineers thereto, but all the work sublet shall be subject to all the provisions of the contract and specifications and Contractor shall be held entirely responsible for all the work and acts of his sub-contractors.

INSPECTION:

Engineers and Inspectors shall be provided by Contractor with every facility for safely examining all parts of the work at all stages of its progress, wherever such work may be in progress, and Contractor shall furnish any desired information concerning the production, fabrication, assembly and erection of the work, and, upon request, shall satisfy Engineers or Inspectors when and where any work or tests are to be performed.

If, in the Engineers' judgment, the character of the work requires at any time the location of resident Inspectors

at Contractor's plant or at any plants of sub-contractors, Contractor shall furnish such Inspectors with sufficient office facilities to enable them to safely keep drawings and records, and to conduct necessary correspondence, and with ordinary and usual conveniences. Contractor will not be required to defray any of Inspector's personal expenses.

Any workman employed in any manner in the execution of the work herein specified who shall wilfully violate any of the requirements of the specifications or contract, or act in a disorderly manner, or who shall refuse to comply with reasonable requests to carry out his part of the work in a satisfactory manner, or who may be considered incompetent, shall, upon proper representation of Engineers or Inspector, be dismissed from the work and not at any future time be re-employed thereon.

Acceptance or approval by Engineers or Inspectors of any material or work or payment therefor shall not affect or relieve Contractor from his obligations and responsibility for the execution of the work nor from any guarantee which may be incorporated in the contract.

MATERIAL AND WORK:

In every case where the quality of the material or workmanship is not hereinafter specifically mentioned or shown on plans, it shall be the best of its respective kind, and all work and materials shall be subject at all times to the inspection of Engineers. All labor must be performed by skilled workmen in the best manner.

Contractor shall provide all tools, implements, fixtures and devices of every character required for the proper execution of the work, and all such devices shall be of such

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lay out his work and be responsible for any mistakes he may make and for any injury or loss to others resulting from them. He shall keep a competent superintendent or foreman in direct charge of the work at all stages of its progress and shall have copies of the drawings and specifications constantly accessible where work is being performed.

Contractor shall be responsible for the safety and protection of all the materials and apparatus in transit and upon property of Company until after their final and formal acceptance, even though payments may have been made on account of such work. He shall plan the work of erection so as to harmonize with other work which may be in progress. He shall provide all necessary scaffolding, supports and devices for handling his work except such apparatus as the Company herein specifically agrees to provide and shall meet all the conditions as they exist, assuming all risks and building all necessary temporary work in a safe and substantial manner, and shall be entirely responsible for any accidents and damages which may result, and for all loss of life or injury to persons or property caused by the acts or omissions of himself or employees.

Contractor shall co-operate with and assist other Contractors and mechanics who may be engaged upon work in progress in conjunction with the work herein specified, to the end that the work as a whole shall be a finished and complete one of its kind as though entirely executed under a single contract. He shall arrange his work and dispose of his materials in such manner as to interfere to the least possible degree with the work and facilities of the co-operating Contractors and of the Company, and shall adjust his work to properly join that of co-operating Contractors and shall perform same in proper sequence

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in relation to work of other Contractors and as may be directed by Engineers.

Contractor shall take proper precautions to avoid damage to buildings or apparatus and must make good any injury which he may cause, in a neat and workmanlike manner to the satisfaction of Engineers. No alterations or cutting in buildings will be permitted, except as shown on plans or authorized in writing by Engineers or Company. Upon completion of work of erection, installation and test, or from time to time if so desired, Contractor shall remove all refuse, rubbish and surplus materials which are not required for the work and shall finally leave all portions of his work and of the premises in clean and neat condition.

MODIFICATIONS:

The Company reserves the right, at any time during the progress of the work, to modify the plans and specifications in any particular, and the Engineers shall be at liberty to make any alterations, additions or omission of work or materials herein specified or shown on drawings, and all such modifications shall be effected by Contractor without in any manner violating or vitiating the contract.

It is agreed that if changes are made Contractor shall submit a written estimate of their value, whether the contract price is thereby increased or decreased, and if the estimate is considered proper for the work covered thereby, it shall be accepted in writing by the Company or Engineers. If Company and Contractor cannot agree upon a proper value for the work, under the advice of Engineers, the matter shall be referred to arbitration, as herein provided.

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If in Contractor's judgment any proposed changes interfere with fulfilling the requirements of the specifications or guarantees, Contractor shall so indicate in writing to Engineers, and if Contractor's claims are sustained by Engineers, he shall, if so ordered in writing, proceed with the work upon the understanding that he is relieved of responsibility for the portions of the work affected by the ordered change or changes.

Should modifications be made which will affect the amount of work contemplated by the original specifications and contract, no claim shall be made for damage resulting from loss of anticipated profits upon such work, but should changes be made on work in actual progress, Engineers shall determine and certify the loss to Contractor resulting from such changes, and their decision shall be binding upon Company and Contractor. It is distinctly understood and agreed that Company shall pay for no extra work or material unless ordered by Company or Engineers in writing.

DELAY OR ABANDONMENT:

If the work herein specified shall be abandoned; if the conditions as to rate of progress are not fulfilled; if the work or any part thereof is unnecessarily or unreasonably delayed; if Contractor is wilfully violating any part of the conditions and covenants of the contract, or is not fulfilling contract in good faith; if Contractor shall fail, refuse or neglect to prosecute the work at a rate to indicate its completion within the required time, or in accordance with the requirements of plans, specifications and contract, Company, or Engineers acting for Company, shall have power to notify Contractor to discontinue all work or any such part as Company may designate, and shall

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have the right to secure from other parties all or any part of the materials and work left uncompleted by the said Contractor and to pay for such materials and work out of any balance of original contract price then remaining unpaid to Contractor, if sufficient, and if insufficient, to collect the difference from Contractor or his bondsmen in such manner as Company may choose, and Contractor shall be liable to Company for all damages caused by reason of Contractor not completing the work.

In lieu of the exercise by Company of the power hereinbefore given, in case of Contractor's default to provide the labor, materials and work herein specified, in accordance with the requirements of contract, Company shall have the right and option, instead thereof, to annul and cancel the contract and re-let the work or any part thereof, and Contractor shall not be entitled to any claim for damages on account of such annulment nor shall such annulment affect the right of Company to recover damages which may arise from such failure on the part of Contractor to fulfill the terms of the contract.

Contractor shall not be entitled to any claims for damages for any hindrance or delay from any cause in the progress of the work. If delay in the execution of the contract is caused by any act or neglect of Company, or any cause known as acts of Providence, a sufficient extension of time as certified by Engineers shall be granted to allow for such delay, provided Contractor makes immediate application for such extension in writing, fully setting forth the cause of the delay. Contractor shall not interfere with work of other Contractors or Company nor hinder nor delay their work.

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Contractor shall make at his own expense, and in the presence of Engineers or Inspectors, all tests which at any time may be required to demonstrate that the work is being, or has been, executed in full accordance with the requirements of the plans and specifications and that all guarantees have been satisfactorily fulfilled.

Upon the completion of the entire work, formal acceptance shall be given by the Company or authorized representative within thirty (30) days after the work has been found satisfactory under the provisions of the plans, specifications and guarantees.

PATENTS:

It is understood that Contractor insures Company against all loss or expense incident to patent litigation on account of tools, implements, methods or devices furnished hereunder or used in the execution of the work herein specified, and that Contractor will at his own expense defend all suits which may be instituted against Company for the real or alleged infringement of any patent or patents and guarantees that the Company shall not be disturbed at any time in the use of materials, apparatus or work furnished under these specifications, by reason of patent litigation.

RULES, REGULATIONS, PERMITS, ETC.:

Contractor must conform to, and will be held responsible for, any violation of, all State and Municipal and Corporation laws, ordinances and regulations in any manner affecting the execution of this work and shall give to proper authorities all necessary notices and obtain all requisite permits and pay all fees therefor. Contractor shall be liable for all penalties for violation of laws and for all damage, injury or loss of

life or property which may occur by reason of his negligence or that of his representatives.

ARBITRATION:

In the event of any disagreement or dispute arising between Contractor and Company or Engineers upon any matter for decision and settlement of which no specific provision is made in the specifications or contract, they shall submit the matter to arbitration, Company selecting one arbitrator and Contractor one, and these two shall select a third. The decision of a majority of these arbitrators, expressed in writing to both parties, shall be binding upon both, and the expenses of such arbitration shall be borne by the party against whom decision is rendered, or in the event of a compromise decision, shall be borne by both parties in proportion to be agreed upon by the arbitrator.

PAYMENTS:

All payments shall be made at the times and in the manner prescribed in the contract but no payments shall be construed as an acceptance of the work or any part of it but Contractor shall be liable for all the work and for the conditions of the contract until the entire work and all extra work is completed and formally accepted. Final payment on contract shall not be made until all accounts for omissions and extra work have been rendered, accepted and specifically included in the final settlement under the contract.

As a condition precedent to final settlement, Contractor shall, if so requested, furnish Company with satisfactory evidence that all persons who have furnished materials or who have been employed upon the work herein specified in any capacity have been fully paid and settled with for such materials or



from payments due Contractor such an amount as may appear necessary to satisfy all lawful claims until satisfactory evidence is furnished that such claims have been fully discharged.

LIENS:

It is understood that Contractor will not at any time suffer or permit any lien, attachment or other incumbrance under any law of the State or otherwise, by Contractor, any subcontractor or by any person or persons whomsoever to be placed upon any building or premises in or upon which any work is done or materials are furnished under these specifications, for such work or materials, or by reason of any other claims or demand against Contractor, and that no such claim or lien shall be filed.

DRAWINGS:

For the information of bidders with respect to space available and general requirements for the design and installation of apparatus, blue prints of the following plans accompany these specifications:

C.R.-203 - Plan of power house showing general arrangement of turbines with respect to electrical apparatus;

C.R. -209 -Cross-section of power house and dam showing arrangement of turbines with relation to feeder and discharge pipes.

These plans serve to illustrate the space available for turbines and general type of turbine which so far has been most favorably considered and arrangement of intake and discharge pipes which are preferred. The over-all length of plant as shown is limited by the local conditions at the site but the spacing between units and width of plant is open to modifica-

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is necessary on account of the restricted space available at this site but alternative arrangements will be given due consideration. There are no existing structures which limit the design of the hydraulic apparatus and it is expected that either a hollow or solid dam will be arranged so as to be adapted to the conditions imposed by this apparatus. The general arrangement of intake and discharge will be similar whether the final decision calls for a hollow or solid dam. The apparatus will be delivered by rail to Portland, thence by electric railway to the site of construction, where a suitable crane or other lowering device will be provided in order that the material may be delivered directly to the station floor level or loading platform level immediately outside the building. At this point a car will be available for transferring any materials inside the building and an electric crane will be available for erecting the apparatus in place.

Proposals must be accompanied by scale drawings showing arrangement of proposed apparatus in the power house, with principal dimensions and cross-sections of the turbines showing their construction in detail and the arrangement of gate operating mechanism.

Immediately after the contract for turbines is awarded, Contractor shall prepare a complete set of working drawings of all parts of the apparatus, showing the arrangement and full details to conform to the requirements of the installation and of these specifications. Blue prints of all such drawings and drawings of governors shall be submitted to Engineers for approval, but no approval by Engineers or Company shall relieve Contractor from responsibility for any errors or discrepancies which may appear on the drawings.

As soon as the drawings have been approved, Contractor shall furnish Engineers with one set and Company with two sets of blue prints of all general, detail and shop drawings, includ-

ing those of pumps and governors, and the approved drawings are those to which preference herein is made. Should changes in the design or details of any part of the machinery at any time be authorized by Engineers, Contractor shall promptly prepare new blue prints of such parts and forward to Engineers and Company. All drawings must indicate the materials to be used for all parts of the machinery and all surfaces which require finish to meet the requirements of the work. No alterations to the finally approved drawings, nor to the specifications, shall be made at any time without the written approval of Engineers.

**APPARATUS REQUIRED:**

These specifications shall govern the manufacture, delivery and installation in the proposed Estacada plant of the Portland Railway, Light & Power Company, on the Clackamas River at Estacada, Oregon, of the following apparatus:

A - Three complete horizontal main turbines for connection to 3300 K.W., 60 cycle, 11,000-volt alternators.

Each turbine shall be capable of developing 8,000 effective H.P. at generator coupling, running at normal speed of 240 revolutions per minute under a total head of 81 feet. These turbines shall be provided with bed plate, feeder elbow, drain pipes with gate valves, draft tube or cast-iron flange for embedding in concrete, complete flange coupling and coupling belts, gates and operating mechanism for connection to oil pressure governor, auxiliary hand-control approved tachometer, combination head and tail water pressure indicator, foundation bolts and all appurtenances requisite to make a complete turbine installation; also two spare gates and connecting levers and links.

B - One complete horizontal exciter turbine for direct connection to 75 K.W. 250-volt D.C. exciter. Turbine shall be capable of developing 150 effective H.P. at generator coupling when operating at a normal speed of 600 revolutions per minute under total head of 81 feet.

One horizontal exciter turbine. This turbine shall be provided with bed plate, feeder pipe, drain pipes with gate valves, draft tube or connecting flange, complete flange coupling and coupling belts, gates and operating mechanism for connection to oil pressure governor, auxiliary hand-control, approved tachometer, combination head and tail water indicator and all other appurtenances necessary to make a complete turbine installation.

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speed of main turbine units complete with all necessary oil pumps, tanks, piping, valves, pressure gauges, pulleys, counter-shafts, bearings, gears, base plates, foundation bolts, meters, belts and all other appurtenances required for successful installation and operation, together with an ample supply of oil of proper quality for use in governor pressure systems; also one spare set of governor and pump valves.

D - One combination oil pressure governor unit with self-contained pump, tank, bolts, control motor and ample supply of oil of proper quality for use in governor pressure system, and all appurtenances for control of exciter turbine.

E - One central meter-driven oil pumping plant complete with tanks, valves and connecting pipe, all arranged and of ample capacity to operate exciter and any one of the main turbine governors, and so inter-connected that any main turbine pump may be utilized temporarily to replace this central pumping system.

F - One complete penstock drain header equipped with all requisite gate valves and arranged to discharge into the tail race and connect to all feeder elbows for removal of any leakage when head gates are closed. Connection shall also be furnished to sump-well for removal of any ordinary seepage which may collect therein and for draining penstocks into the sump-well during times of high tail water. It is intended also to use this header drain for filling penstocks when necessary and the need for any requirements imposed thereby must be borne in mind in working up details of design.

G - Two extra feeder elbows and draft tubes or connecting rings similar to those furnished on the three main turbine units, caps for covering the ends of these feeder elbows and draft tubes shall be furnished and installed in place with the elbows and draft tubes, drain pipes and valves for connection to main drain header shall also be included.

SCOPE OF WORK:

Contractor shall completely design, construct, deliver and install the apparatus as above specified.

Contractor shall submit installation plans for approval as promptly as possible, and shall give full information to permit preparation of foundation and floor system to suit installation requirements.

The sizes, types and makes of all governors and all pumps must be specified in each bid, and if possible assembly blue prints of same shall be submitted in order to permit consideration of the space and operating requirements of each

~~Type of governor.~~ Contractor shall be entirely responsible for selecting the proper sizes and styles of governors and pumps to suit the requirements of each turbine.

Contractor shall furnish all bolts, screws, nuts, washers, packings, lubricating devices, belts, pipes, mechanical brakes and combination pressure and vacuum gauges, etc., required for the proper installation and operation of the turbines and governors.

Company will furnish penstocks and flanges ready to be drilled by Contractor to suit feeder elbows when installed. Company will also furnish concrete foundations surrounding draft tubes and feeder elbows and suitable passageway or tunnel for governor oil pipes and will concrete in the drain header when installed in place. The type of turbine with cast-iron volute case and outside operated wicket gates in general is preferred, but Contractor may submit alternative proposals on other types of turbines at the same speed and may, if he prefers, also submit alternative proposals on other speeds, provided complete and detailed information is furnished in each case to permit adequate comparison being made of the various designs or proposals submitted.

**CONDITIONS OF MANUFACTURE:**

Contractor is expected to do all the work necessary to make patterns and castings in his own establishment, and to do all the machine work, fitting and assembling of parts in his own shops and not to submit any portion of the work except governors and standard commercial parts, and then only to manufacturers acceptable to Engineers.

**GUARANTEES:**

Contractor shall guarantee and be responsible for:

- (b) The strength of said materials under the requirements of these specifications.
- (c) The strength of all parts operated under the conditions herein specified.
- (d) The strength of all parts with a temporary increase of speed to that due to full gate opening under 35 feet head when generator is not connected to turbine.
- (e) Rigid adherence to the sizes and dimensions of parts as shown on approved drawings, unless deviations are specially authorized in writing by Engineers.
- (f) The perfect and efficient operation of the apparatus without objectionable noises.
- (g) The satisfactory operation of apparatus without breakage, damage or undue deterioration of any of its parts for a period of one year after its commercial test and formal acceptance, provided such damage does not result from improper handling of the machinery after its formal acceptance by Company.
- (h) The delivery by each turbine to generator coupling of its specified power with 81 feet total head available, in excess of the power required by the governor and pump.
- (i) Efficiencies of turbine which shall be named in proposal and which shall be based upon the power delivered to dynamo and an operating head equal to the difference in elevation between the upper and lower water levels.
- (j) Performance and regulation of governors at least equal to that named in proposal and as required for the satisfactory operation of 60 cycle alternators in parallel or independently.

**DETAILS OF TURBINE AND GOVERNOR DESIGN AND MANUFACTURE:**

**DESIGN:**

The drawings accompanying these specifications are intended to show the space available and the proposed general conditions of the installation and not to limit bidders to the style of turbine but the maximum possible floor space between units and between units and walls shall be provided.

Any type of wheel may be offered providing the design is such as to meet installation requirements and to eliminate unbalanced end thrust.

All parts are to be rigidly supported so that no deflection will occur during operation tending to destroy alignment, and parts in contact with rotating parts must be carried rigidly upon foundations and not be dependent upon plate steel or other flexible parts for support.

Proper provision for expansion and contraction shall be made on all work.

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Contractor shall furnish, install and properly adjust a satisfactory form of bed plate for the support of each turbine designed in such manner as to preserve correct alignment of its bearings and other rotating parts. This support shall be designed to suit the type of construction adopted and to provide for any necessary adjustments to secure correct alignment, and shall be properly braced to secure rigidity. It shall also be designed to provide for proper finish for concrete floor of station.

The upper surfaces shall be finished as required and proper provision shall be made for foundation bolts for turbine and, if necessary, for governor and other appurtenances.

All drain pipes, anchor and foundation bolts for setting turbine shall be furnished and placed by Contractor. Floor plates for covering any valve or other pockets shall be furnished and placed by Contractor.

#### CASING:

Wheel casing may be of cast-iron or plate steel, but shall be of such design as to provide rigid support for all parts attached to it and have suitable surfaces for concrete floor to finish against. The dimensions of the volute casing shall be such that the maximum velocity shall not exceed 12 feet per second.

The casing heads shall be provided with openings which will permit removal of the shaft and runners without removal of coupling from shaft.

All flanges shall be faced true on their contact surfaces, doveled in place and finished on their outer edges either by machining or chipping, as required, so as to render them flush with each other.

All other joints where unmachined castings meet, which are exposed to view, shall be dressed in a similar manner so as to be flush with each other.

Suitable drain pipes connected for discharge into draft tubes shall be provided to prevent accumulation of water pressure between casing heads and head of runners.

Draft chest and draft tube connection shall be furnished of cast-iron or heavy plate-steel with provision for satisfactory connection to concrete draft tubes furnished by Company.

Alternative bids are asked for riveted plate-steel draft tubes for connection to draft chest to be connected in place by Company. All steel-plate work shall be riveted, caulked and painted to the satisfaction of Engineers and shall be tested and proven absolutely water tight under extreme working conditions.

Plate-steel draft tubes shall be stiffened by angle irons to permit shipment and handling during erection.

Contractor shall indicate the dimensions of draft tubes required, but they shall be such that the maximum velocity at discharge shall not exceed 8 feet per second.

Both casings and draft chests shall be provided with a sufficient number of eye belts attached to lugs projecting from the outside and arranged for smooth water passage so that any parts can be readily removed by means of the crane and sufficient number of hinged manholes of large size shall be provided to facilitate access to all internal parts for inspection, cleaning and repairs.

The sub-division of parts shall be such as to facilitate the assembly and dismantling of the machines at any time by the removal of parts which can be conveniently handled, and attention is especially drawn to the limited space available in this station.

Company will furnish and install penstocks for main and exciter units to a point under the floor near the turbine where blank flanges will be provided for turbine elbow connection.

Contractor shall provide the feeder elbows for all turbines with connecting flange, drill holes in penstock flange to match those in feeder elbow and install all the necessary bolts, gaskets, etc.

Contractor shall also furnish drain pipe with approved type of gate valve and header, as shown on drawing for connection of feeder elbows and for draining into the tail race.

Connection shall be made to exciter feeder elbow by means of similar pipe and gate valve. The necessary gate valve and pipe shall be also provided, as shown, for connection of this header to sump-wall. It is the intention to provide all connections and complete header, even though all the units are not installed at this time.

Separate price is asked for on feeder elbows and draft tubes for turbines which are not installed at the present time.

These extra feeder elbows and draft tubes shall be provided with belted covers and shall be tested in the shops to a pressure of 80% in excess of that which they will be called upon to carry after installation.

**BEARINGS:**

At least two self-aligning, self-oiling, babbitted, adjustable bearings of approved design shall be included in each turbine design and all bearings shall be so supported as to remain in perfect alignment and shall have liberal oil reservoirs.

Thrust bearing of approved design, to limit end motion of shaft and resist all possible unbalanced end thrust, shall be provided and shall run cool under all conditions of operation.

Bearings must be so designed as to permit their removal and the substitution of new bearings, in case of necessity without removing the shaft and any bearings inside casing shall be properly protected from the water.

Bearings are to be babbitted, peined, bored, scraped and grooved for oil with provision for water cooling if necessary. The length of bearings should be at least equal to two and one-half times the diameter of the shaft.

Provision shall be made for future connection of supply and discharge pipes for circulating oil pressure system. Necessary gauge glasses shall be provided for indicating the level of oil in oil reservoir.

**SHAFTS:**

The main shafts of turbines shall be of mild open-hearth steel or of nickel-steel and shall have the following physical characteristics:

	Mild O.H. Steel	Nickel Steel
Ultimate tensile strength not less than	58,000 lbs.	60,000 lbs.
Elastic limit,	29,000 "	40,000 "
Elongation,	25%	25%
Contraction,	35%	35%

as measured on specimens 1/2" diameter and 2" gauged length, or as may be approved by Engineers. Each shaft shall be turned all over and polished for journals and shall be provided at one end with one-half flanged coupling fitted and keyed to shaft or forged on end of the shaft.



coupling, which shall be made to suit generator shaft and fitted thereto by Contractor.

After erection of the apparatus, Contractor shall ream belt holes through both halves of the coupling and shall furnish and carefully fit to place finished coupling belts with hexagon heads and nuts.

The shaft shall be of liberal dimensions for all possible torsional and bending strains and shall be supported by properly designed bearings, the arrangement of which will depend upon the design adopted.

All shafts shall revolve in their bearings freely but without play.

One-piece removable bronze bushings shall be provided on each main shaft where it passes through stuffing box.

Such provision as may be necessary shall be made for thrust bearings and the attachment of brake, governor, pump and tachometer pulleys.

#### RUNNERS:

Runners shall each be cast in one piece of bronze consisting of approximately 88 parts copper, 10 parts tin and 2 parts zinc, or other composition acceptable to Engineers.

Alternative proposals on cast-iron runners and on runners with inserted steel buckets are called for.

Runners shall be attached to shaft in an acceptable manner, balanced separately and then balanced again after assembly on the shaft.

#### GATES AND MECHANISM:

The speed gates may be of such type as to enable Contractor to secure the guaranteed efficiencies, provided they operate freely and do not impose unnecessarily severe requirements on the governor and are durable and reliable in operation.

They shall be of the same quality of bronze as specified for runners or of cast-steel, and such other working parts of the gate operating mechanism as are subject to the action of water shall be of bronze.

The design shall be such that in the event of breakage of governor connection or failure of governor hydraulic pressure, the balance of the gates will cause them to close at a rate which will not endanger the penstock or wheel casing, and thus prevent the turbine attaining abnormal speed. Contractor shall furnish suitable hand-operating mechanism for gates for emergency use, so proportioned that one man may open or close the gates.

The gates and stems are to be so designed that any two gates will withstand the entire governor pull when brought upon an obstruction lodged between them. The gate gearing shall be provided with a breaking piece of pre-determined strength which may be the gate operating links or the link pins, and which shall fail before any other part of the mechanism gives away.

Deflection and lost motion are to be avoided in the mechanism and the number of gears reduced to a minimum. The gates shall be finished so as to fit accurately against each other when closed and have minimum clearances on the ends.

Two spare gates with levers and connecting mechanism shall be furnished and shall be all machined ready for installation.

The design shall be such that the main shaft shall not pass through the stuffing boxes packed with fibrous packing against the working head and no water shall be permitted to enter the oil-lubricated bearings.

All stuffing boxes required for any part of the turbines shall be accessible for the removal of packings without dismantling any part of the machinery. Bushings and followers shall be phosphor bronze, finished all over and bared slightly larger than the shaft or rod which passes through them.

Stuffing boxes should be provided with drains to carry off all leakage and individual gate stem stuffing boxes shall be provided with necessary lubrication.

#### BRAKE:

Contractor shall furnish hand-operated mechanical brake on each turbine, so designed that it will permit stopping the turbine promptly when gates are closed, and arranged to automatically release itself when the hand-control is removed.

#### MANHOLE AND COVERS:

Hinged manholes of large size shall be provided in casing and draft chest and arranged to swing about a vertical axis.

Manhole and handhole covers shall be secured by studs with bronze nuts and shall be provided with slotted holes to clear the bolts.

Two jack screws shall also be provided on each manhole cover to break the joint.

#### GOVERNOR DETAILS:

Governors shall develop sufficient energy to move the speed gates freely under all operating conditions. A hand-operating gear shall be so arranged that the hand wheel shall not rotate when the governor is operating automatically but provision shall be made so that it may be thrown in instantly for hand-control. Each governor shall be provided with a 250-volt D.C. motor with push button switch on the switchboard and connections thereto in order that each turbine may be started or stepped and the speed varied from the switchboard.

Indicator shall be provided on the governor to show the percentage of gate opening.

The entire control system, including lead-covered cables, shall be installed by Contractor.

Governors shall be so designed and constructed that turbine gates will close in the event of fly-ball belt breaking before excessive speed is obtained.

#### GOVERNOR ADJUSTMENT:

Governors shall be designed to be dead beat and shall not race, and a satisfactory parallel operation of alternators must be ensured.

The governors shall be adjustable so as to perform the complete operation of closing or opening the speed gates within two seconds, or as much slower as may be desired.

The design shall be such that the mechanism may be set to prevent the governors automatically closing the gates entirely, if so desired. The rate of closing shall automatically decrease as the gates approach the closed position to avoid

~~Governor shall be adjustable and have provision for compensating for wear of working parts.~~

Contractor shall specify the degree of regulation secured and as called for in the proposal with the operating conditions as shown to exist on the plan submitted herewith.

#### GOVERNOR PUMPS:

Independent-driven oil pumps shall be provided with each governor on main units and they shall be of a design which has proven reliable and durable and be provided with all oil tanks, pipes, valves, belts and appurtenances.

Piping shall be as short as consistent with conditions of installation and thoroughly cleaned before erection. All parts subject to pressure shall be tested in the shops and after installation and proven absolutely tight under the maximum pressure which may exist in operation.

The exister pump and tanks shall be complete in all respects as required.

#### CENTRAL PUMPING SYSTEM:

The reserve meter-driven pumping plant shall be provided with pressure tank and piping connections to all governors and pumps and in all working parts shall be a duplicate of the separate pumps installed for each main unit.

The operating meter shall be of ample capacity, 250-volt D.C., medium speed.

Piping connections to all governors and pumps shall be provided and the design and location of all tanks and pipes shall be such as to permit satisfactory temporary operation of any governor from the central pumping plant, when necessary.

The plans show in general the proposed arrangement of head works, penstock and draft tube and indicate the conditions influencing the design of turbines and adjustment of governors.

One complete reserve set of governors and pump valves shall be furnished for the main units and shipment shall be made with the original shipment.

Provision shall be made for the adjustment of governors to meet the requirements of the situation by experienced representatives of the governor manufacturer but Contractor shall be entirely responsible to Company for securing specified results and complete and satisfactory operative installation.

#### PIPING:

Contractor shall provide drain and equalizing pipes for draining spaces between casing head and runner head; also drain pipes for stuffing boxes, feeder elbow and casing, together with all requisite governor and pump piping required for individual governors and central meter-operated pump.

The valves on all but the main drain header shall be arranged for convenient operation from the station floor and shall be accessible for inspection and repairs.

All water piping shall have standard threads cut with standard pipe taps and dies, and pump and governor oil piping shall be of brass or wrought iron thoroughly cleaned and tested and provided with joints adapted to the pressure required.

JOINTS AND PACKING:  
Contractor shall furnish all belts and packing required for joints for piping, stuffing boxes, for assembly of casing, or other parts of the apparatus and same shall be proven perfectly tight under water or oil pressure as required in operation.

LUBRICATION:

Main shaft bearings shall be provided with oil rings and ample oil reservoirs for lubrication and all other parts requiring lubrication shall be provided with necessary oil cups or reservoirs, grease cups or lubricators, and any attachment or provision for this purpose shall be accessible for inspection and adjustment during the operation of the machinery.

TACHOMETER:

Each turbine shall be provided with an approved make of tachometer with suitable support and attachment for satisfactory operation. The capacity shall be beyond the runaway speed of the turbines.

GAUGES:

Necessary pressure and vacuum gauges shall be supplied on each governor, pump and tank. Each turbine shall be provided with a 10-inch iron body, brass mounted, combined pressure and vacuum gauge connected to the turbine casing and draft chest so as to indicate the pressure and vacuum existing therein.

The gauge markings shall be in feet so as to indicate by means of a black hand the feet head in the casing and by means of a red hand the feet vacuum in the draft chest.

The vacuum side of the gauge shall be designed to withstand and properly record the maximum pressure due to rise of tail water.

The scale shall run from 0 to 100 feet.

Gauges shall be mounted in a conspicuous position adjacent to the wheel casing.

BOLTS AND NUTS:

All screws, bolts and nuts shall be United States Standard as to diameter, number of threads and shape of thread. The size of heads and nuts shall be the same on any bolt and shall also be standard and the correct thickness preserved.

All bolts for turbine exposed to water shall be of mild steel with bronze nuts, unless otherwise agreed by Engineers.

All studs and screws shall be screwed in for a length equal to 1½ times their diameter.

Eyebolts or similar devices, as required for convenient handling during erection or dismantling of machinery, shall be furnished and means for their attachment provided on all heavy parts.

Jack screws shall be provided wherever necessary to break joints, and all jack screws used in this work shall be steel and case hardened.

The axes of all bolt holes shall be at right angles to the surface of contact, unless otherwise shown on drawings.

and correct position, dowel pins provided with hexagen nuts for backing them out shall be provided.

All belts, excepting those requiring subsequent adjustment, shall be made to finish flush with their nuts after erection, no portion of thread being permitted to project beyond nut.

All large nuts shall be pinned with bronze cotter pins and the end of bolt shall be turned to a smaller diameter than rest of thread beyond the outside face of nut.

#### GEARS:

All gearing required shall be cut from the solid and of approved shapes. Beveled gears are to be avoided and all pinions of 12 teeth or less shall be of steel.

#### TOOLS:

Contractor shall furnish two complete equipments of special size or shaped tools required for turbines, governors or pumps. Each set shall be mounted upon a neatly arranged hard-wood board properly painted and finished for hanging on the power house wall.

#### WORKMANSHIP:

All parts of turbines, governors and pumps subject to wear must be made so accurately to drawing dimensions or to gauges as to enable Company to purchase spare parts, or parts for repairs, at any future time, from the drawings, and to install them in place without excessive fitting. Similar parts of apparatus shall be inter-changeable. All revolving parts shall be balanced and must run at maximum runaway speed without undue vibration.

All surfaces of contact of working parts shall be finished.

All keys shall be finished all over and properly fitted.

All flanges shall be faced true on their contact surfaces and finished on their outer edges, either by machining or chipping, as required, so as to render them flush with each other.

All other joints where unmachined castings meet, which are exposed to view, shall be dressed in a similar manner so as to be flush with each other.

All rods shall be finished except those or parts of those otherwise specified or called for by approved drawings.

Where bolt heads or nuts are to rest upon rough castings or forgings, as on flanges, the surfaces may be made parallel by spot facing or by turning or planing the entire surface, but all heads or nuts must rest upon even surfaces and themselves be faced true.

All castings must be sound and free from defects and all finished surfaces shall be free from flaws, blowholes and shrinkage defects and the surfaces perfect in every respect.

All surfaces with which lubricating oil will come in contact must be thoroughly cleaned of all scale, sand and dirt, either by machining or otherwise dressing down to clean metal.

All steel plate shall be riveted and caulked to satisfaction of Engineers, and shall be tested and proven absolutely water tight under working conditions.

TESTING:

Tensile tests shall be made to demonstrate the satisfactory quality of the material used in shafts and castings. Castings and feeder elbows and feeder elbow covers and draft tube covers shall be given satisfactory shop tests to demonstrate their ability to withstand a pressure 50% in excess of the maximum which they will be called upon to resist after installation.

ASSEMBLY:

Attention is specially drawn to the method of entrance and the limited space which exists in this station for moving and handling parts of the apparatus.

All assembly and tests of the machinery which may be required to demonstrate accuracy of workmanship and satisfactory operation shall be made by Contractor in his shops before shipment of apparatus.

When the shaft and runners are assembled in place with the casing in correct alignment, the runners shall have uniform clearance at all points of the circumference and the bearings shall be raised so as to make the face of the shaft coupling truly vertical without distributing the relative adjustment and clearance of the other parts.

OPERATION:

Turbines shall operate without vibration or noise, overheating or leakage.

The direction of rotation of main turbine units shall be counter-clockwise, and that of the exciter unit shall be clockwise, as viewed from the generator end.

PAINTING:

Before painting is applied to any material, all surfaces shall be thoroughly cleaned and loose scale, dirt, grease and rust removed. Paint shall be of the best grade for the purpose and satisfactory to Engineers. Two full coats of paint shall be applied to all unfinished parts before shipment and all finished surfaces shall receive a heavy coat of Vacuum Flushing Oil or other satisfactory protective coating. No paint shall be applied to any surface until the preceding coat is dry. No paint shall be applied out of doors during wet or freezing weather, nor to any surface which is not thoroughly dry and clean. No paint shall be thinned with turpentine or benzine.

Care must be taken in loading material to prevent paint being rubbed or scraped off and no parts shall be handled un-

After erection of machinery in the power house, all surfaces, the paint covering of which has been damaged in transportation or handling, shall be re-painted and finally the entire exposed surface of apparatus painted with a finishing coat of paint of color approved by Company, which shall be applied in a neat and workmanlike manner. All finished surfaces shall be cleaned and free from rust before acceptance.

DELIVERY:

Contractor shall deliver all of the apparatus herein specified in the power house at Estacada, paying all transportation charges.

All materials shall be carefully loaded for shipment and properly protected during transit, and Contractor shall be responsible for any injury occurring during transportation and for the safe delivery of all the work specified.

Before shipment all parts shall be plainly marked in such manner as to establish the relation of adjacent pieces. All parts shall be marked to indicate their use and all boxes and packages containing any of the parts shall be plainly marked to indicate the contents.

ERECTION:

The apparatus shall be erected by Contractor under the supervision of Company's Superintendent and any disputes which may arise concerning methods of work shall be referred to Engineers for settlement. Company shall furnish all skilled or unskilled labor required for the erection of machinery by Contractor, except the services of Contractor's Superintendent.

All bolts, nuts, washers, wedges, shims, keys, type metal, etc., which may be necessary to properly level, align and secure machinery in place in the power house shall be furnished,

fitted and put in place by Contractor

All parts intended to be plumb and level must be proven exactly so and all bearings must be absolutely in line and leveled to correct position. Any scraping necessary to bring parts to proper bearing after erection shall be done by Contractor in a thoroughly workmanlike manner. Contractor may have use of Company's electric traveling cranes in station for installation of apparatus. Company will furnish necessary equipment for lowering apparatus into the building.

POWER HOUSE TESTS:

After the installation of each turbine by Contractor, and the erection and connection of alternator to same and the completion of all accessories necessary to the operation of the unit which are to be installed by Company, Contractor shall at his own expense and upon his own responsibility operate each turbine for a period of ten days as a test under the conditions of commercial service.

Such tests shall be conducted as directed by Superintendent who will arrange for placing loads on the generators to determine the strength and efficiency of the turbines under operating conditions. The tests must demonstrate that the apparatus is properly installed and adjusted correctly and that all guarantees have been met by Contractor (except hydraulic efficiency), and any defects which develop in any part of the machinery must be immediately corrected and the test continued until the machinery is proven to be in a satisfactory working order, even though the test should thereby be extended beyond the time specified, the intent being that Contractor shall operate the machinery for a period of ten days after it has been placed in condition for successful commercial service.

EXHIBIT A-4  
PAGE 30/32



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Company reserves the right to make tests to determine the hydraulic efficiency of turbines and regulation of governors during the test for acceptance or at any other time that may best suit the conditions of operation at the Station. Contractor will be notified whenever such tests are to be made and may be present or be represented at the tests if he so desires.

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PAGE 31/32

November 20, 1911

OPERATION FIRST UNIT - RIVER MILL

PES-57

Yates,

Iron Works Company,

Dayton, Ohio.

Due to stress of other matters, I have neglected to  
inform you about the first unit put into service at the Es-  
plant. It went into commission on November 11th about  
and has since that time been carrying its load quite sat-  
isfyingly. It operates very satisfactorily, running quietly  
without any vibration to speak of. All of the little de-  
tails about which we had so much correspondence and on which  
a very considerable amount of time seem to have been  
expended in care of. I have never seen a unit start off with  
any fuss and believe there is little to be desired. We,  
however, have made no tests as to efficiency, but have no  
doubt will secure all that has been guaranteed when we  
begin to make the tests.

I wish you would let me know what has become of the  
Holyoke which we were going to have carried out on  
the runners. We are very much in need of the third  
and I would not care to have this test in any way hold  
up shipment of same. Write me when you have time and  
I will reply fully.

Very truly yours,

Gen. Supt. Light and Power Dept.

110 11 1002

DEPT.  
S. L. ...

SPECIFICATIONS

FOR

TURBINES AND GOVERNORS

PORTLAND RAILWAY, LIGHT & POWER COMPANY

ESTACADA, OREGON

.....

May 10, 1910.

.....

EXHIBIT A-4  
PAGE 1/32



TERMS EMPLOYED:

Wherever the word "Contractor" is used herein or in any contract based upon these specifications, it refers to the party or parties contracting to perform the work herein specified or the local representative of such party or parties.

Wherever the word "Company" is used herein, or in any contract based upon these specifications, reference is made to the PORTLAND RAILWAY, LIGHT & POWER COMPANY, PORTLAND, OREGON.

Whenever the word "Engineers" is used herein, or in any contract which may be based upon these specifications, it refers to the Engineers of Portland Railway, Light & Power Company.

Whenever the word "Inspector" is used herein, or in any contract which may be based upon these specifications, it refers to the Inspector or Inspectors duly delegated by Engineers or Company to perform the functions of Inspector, unless otherwise specifically mentioned.

Whenever the words "Approved" or "Approval" occur in these specifications they refer to the approval of the Engineers.

QUALIFICATIONS OF BIDDERS:

Proposals for the work herein specified will only be considered from bidders known to be responsible parties, regularly and practically engaged in performing work similar to that covered by these specifications and having suitable facilities for the execution of such work. If required by the Engineers, Bidders shall submit with their proposals certified check or its equivalent, made payable to Company, in an amount equal to two (2) per cent. of the amount of the bid as a guarantee that the bidder who is awarded the contract will sign the contract. Contractor will be required to give satisfactory

EXHIBIT A-4  
PAGE 3/32

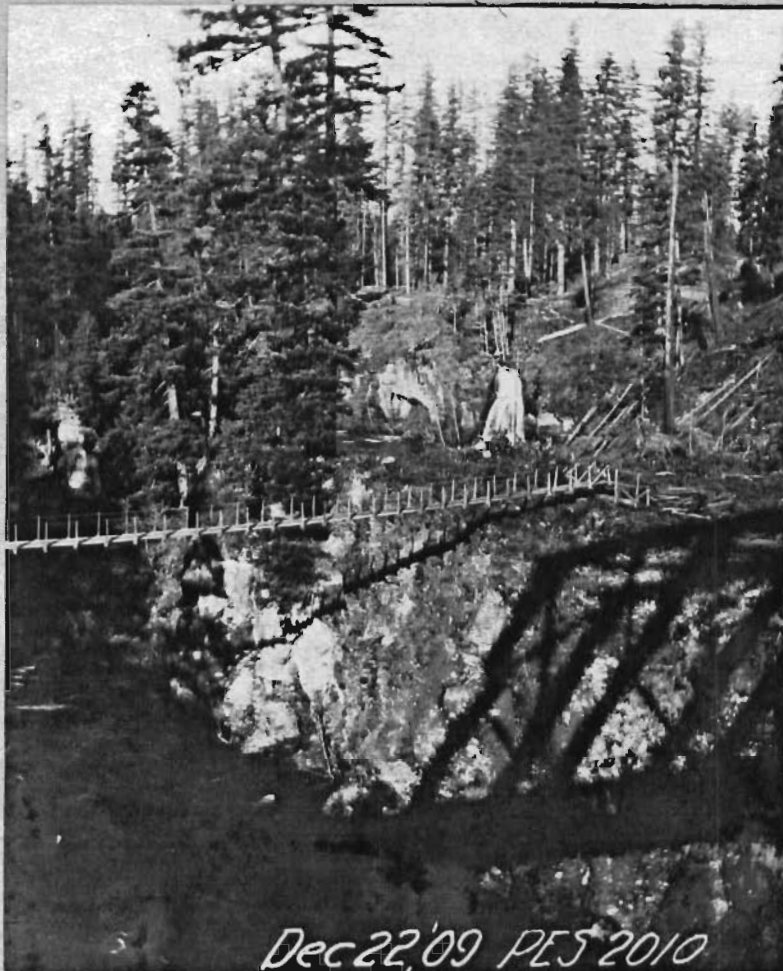
**ATTACHMENT A-5**

River Mill - Suspension Bridge.

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*Dec 22 '09 PES 2010*

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EXHIBIT A-5  
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River Mill - Left Channel from Bridge.



57M. 8-12-10

~~E 301-M 57~~

~~12-1~~  
13-10

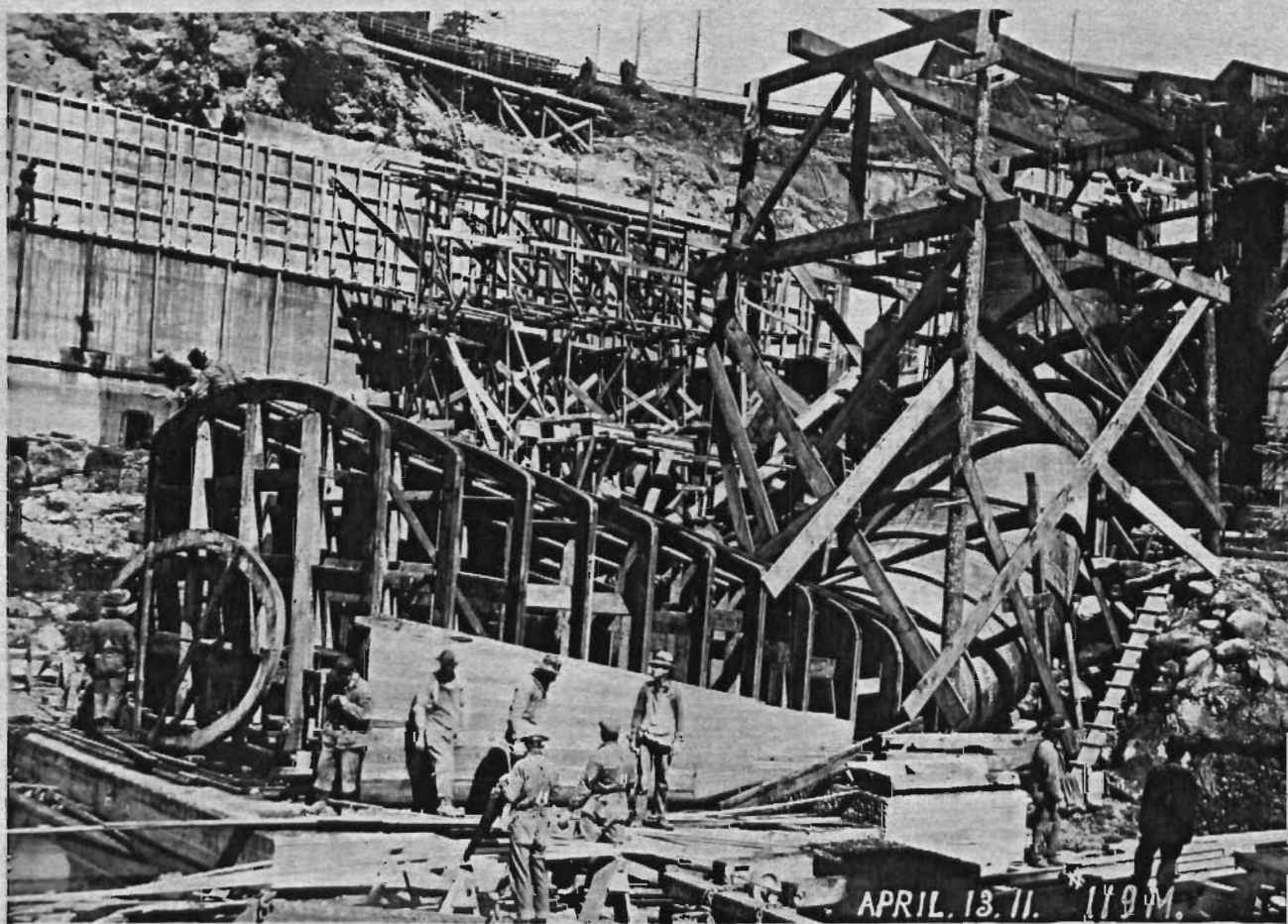
EXHIBIT A-5  
PAGE 2/10





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River Mill - Penstock-Power House



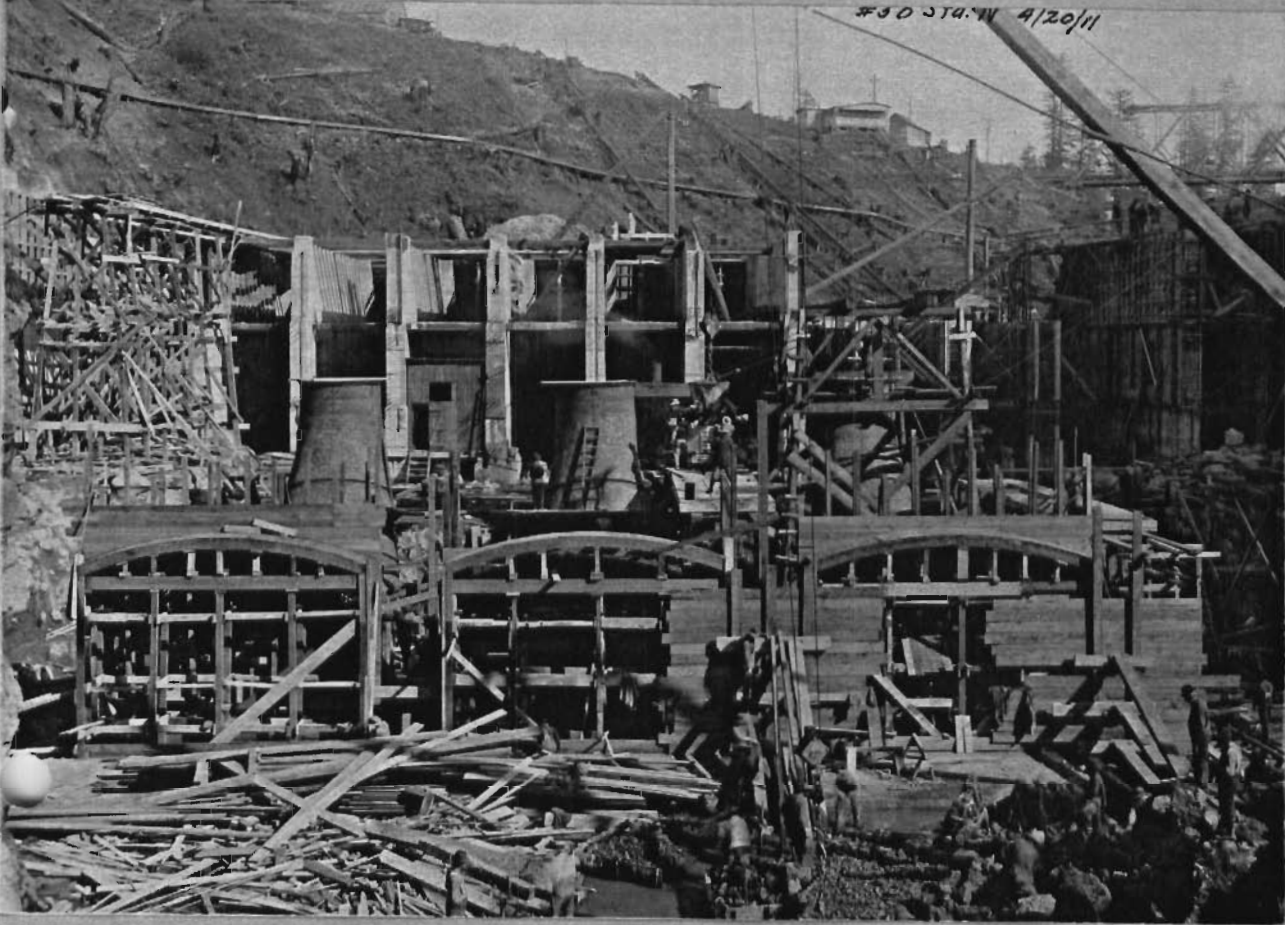
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EXHIBIT A-5  
PAGE 4/10

DRAFT TUBES

River Mill - Penstocks-Tail Race.

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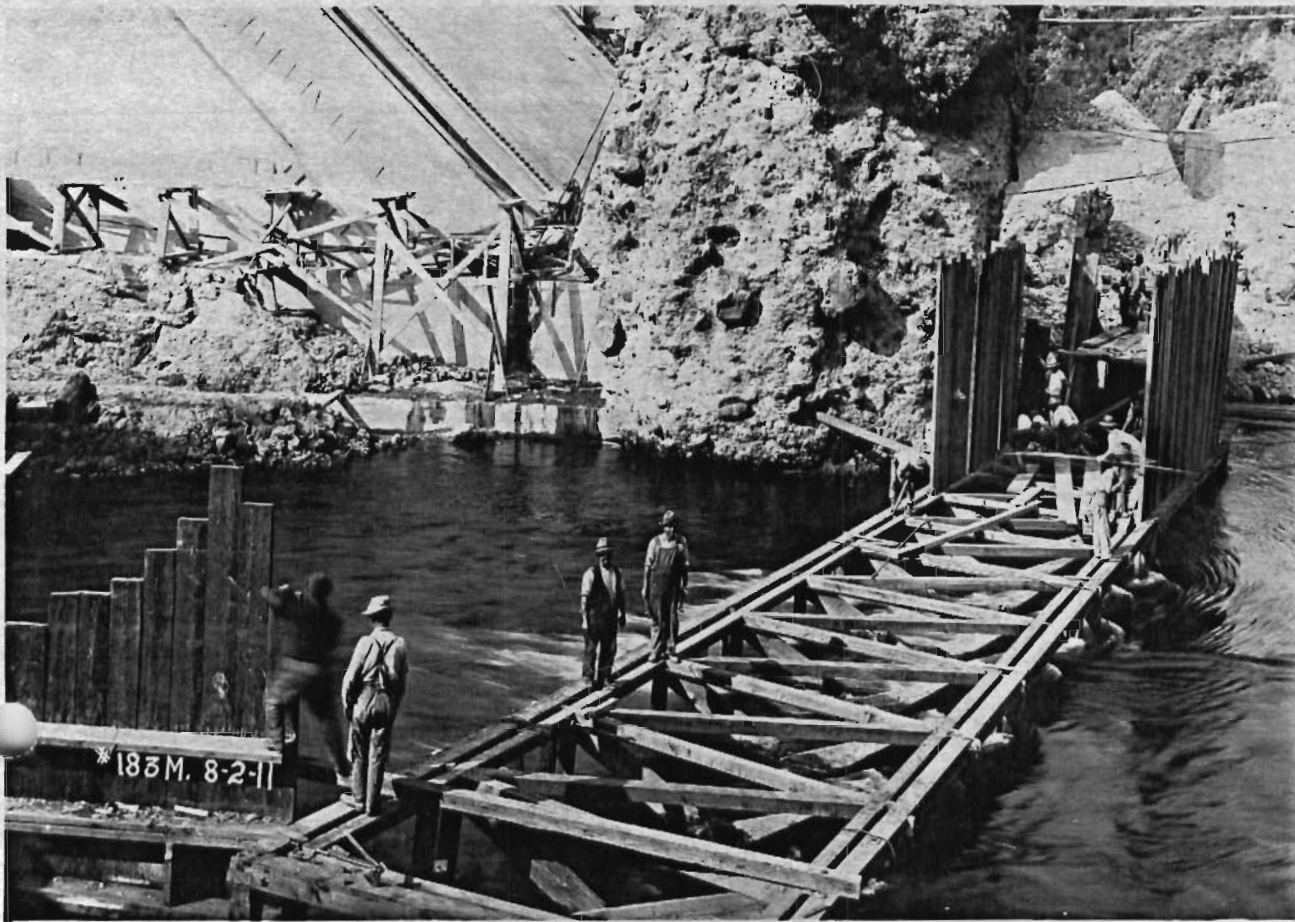
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E 301-M 122

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EXHIBIT A-5  
PAGE 5110

River Mill - Cofferdam across Left Channel of  
River from Buttress 10 to 15.

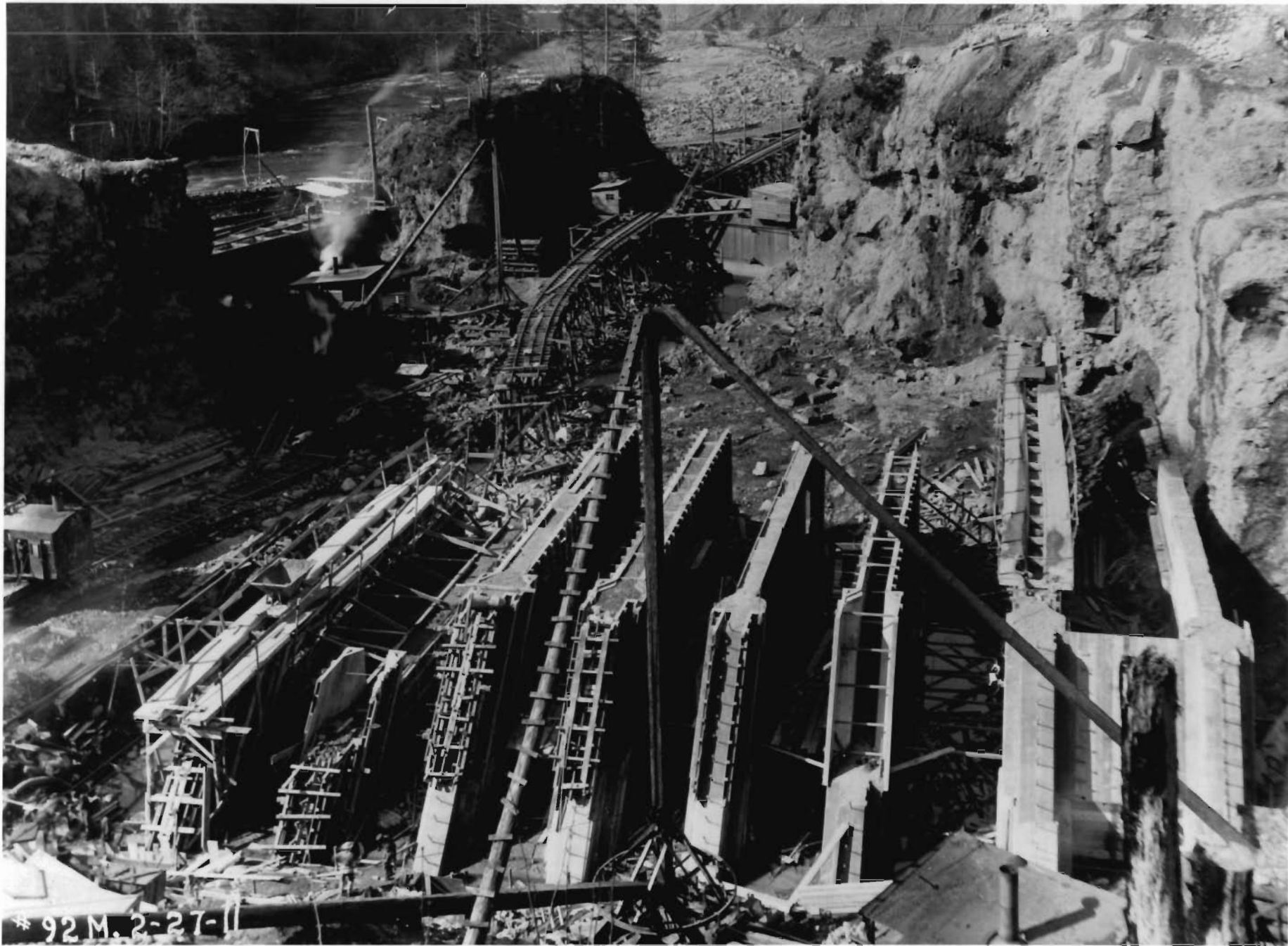


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EXHIBIT A-5  
PAGE 6/10



# 92 M. 2-27-11

EXHIBIT A-5  
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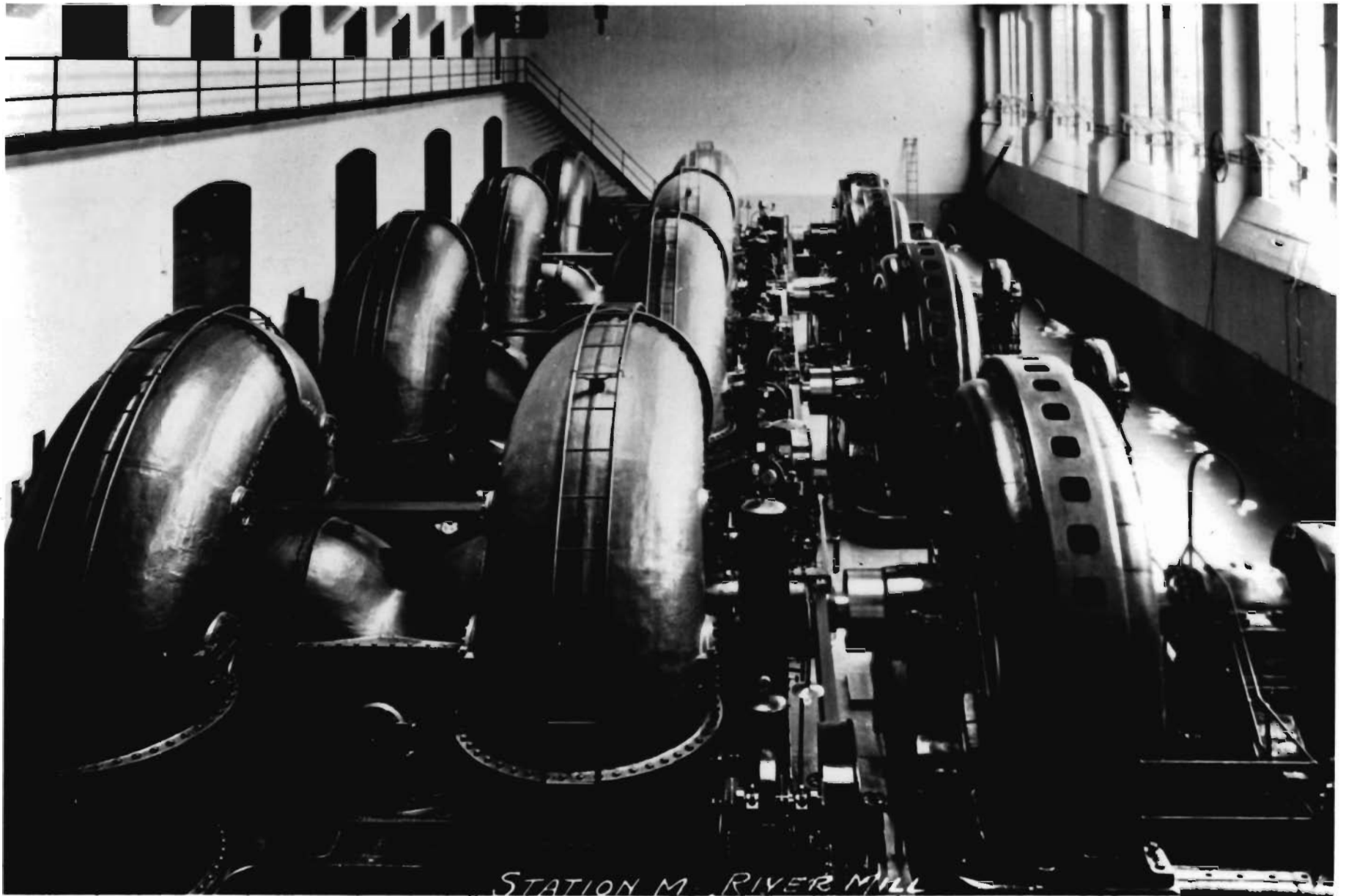


EXHIBIT A-5  
PAGE 8/10



**STATION "M"- 1912**

EXHIBIT A-5  
PAGE 9/10



*STATION M RIVER MILL*

**STATION "M"- 1930.**

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PAGE 10/10



**ATTACHMENT A-6**

**ATTACHMENT A-7**

Pg. 610 VOL. 127

This Indenture, Made and executed this twenty ninth day of February, A. D. one thousand nine hundred and twelve (1912) between The Portland Water Power and Electric Transmission Company, ( a corporation duly incorporated, organized and existing under the laws of the State of Oregon, and having its principal office at the City of Portland, in the County of Multnomah, State of Oregon, hereinafter called "said Transmission Company") party of the first part, and Portland Railway Light and Power Company, (a corporation duly incorporated, organized and existing under the laws of the State of Oregon and having its principal office at said City of Portland,) party of the second part,

Witnesseth, That said Transmission Company for and in consideration of diverse good and valuable causes and considerations it hereunto moving and the further consideration of one dollar (\$1.00) lawful money of the United States to it in hand paid by said Portland Railway Light and Power Company, (the receipt whereof is hereby acknowledged) does hereby grant, bargain, sell and convey unto said Portland, Railway Light and Power Company, its successors and assigns all the property of said Transmission Company, real, personal and mixed of every kind, name, and nature, and wheresoever situated or in or to which it has any estate, right, title, interest claim or demand, as well in law as in equity, and all its business, franchises and property as a whole;

And including all riparian rights, water rights, and water powers and water rights to use water appurtenant or appertaining to any or to all of said real property of said Transmission Company, and all basins, docks, wharves, buildings, structures, stations, water plants, power plants, bulkheads, breakwaters, cribs, cribwork, dams, flumes, ditches, sluices, canals and reservoirs, all and singular the same being now owned by said Transmission Company;

And also including all the rights, privileges, easements, tenements, hereditaments, improvements and appurtenances belonging <sup>to</sup> or used by said Transmission Company or in anywise appertaining to said property, real, personal or mixed, and any thereof, and all its estates, rights, titles, interests, claims, and demands (as well in law as in equity) therein or thereto and also the reversion and reversions and remainder and remainders and the rents, issues and profits thereof.

And also including all its electric light and power business, plants, stations, sub-stations appurtenances, poles, pole lines, wires, and lines of wire, cables, conduits, sub-ways, electric generators, motors, dynamos, electric machines, switchboards, equipments, meters, electric lamps (arc as well as incandescent) insulators, boilers, engines, pumps, water wheels, and their appliances, canals, flumes, pipes, mains, service pipes, and all other machinery, apparatus, appliances and appurtenances belonging or appertaining to its said electric light and power business, plants, stations, and sub-stations, and all its other machinery, apparatus, appliances, and appurtenances used or to be used in generating, distributing, using, selling, furnishing and supplying electricity or electric current to the State of Oregon and to cities, towns, counties and their inhabitants, and to other corporations, persons and individuals in the State of Oregon for light, heat, power and other purposes, and all its other electric apparatus, materials, supplies, stores, goods, wares, and merchandise.

And also including all its railroad, railway and street railway business, and all its lines of railroad, railway, street railway, and plants whether constructed, in process of construction or both, and including all rails, tracks, side tracks, turn-outs, switches, and their appurtenances, and all pole lines, lines of wire, electrical equipment, rolling stock and cars and their appliances and apparatus, car barns, power houses, buildings, structures, bridges, boilers, engines and all other machinery, apparatus, appliances, and appurtenances (including electric plants, stations, sub-stations, generators, apparatus and appliances) belonging or appertaining and to its said railroad railway and street railway business, lines and plants, and all its other machinery, apparatus, appliances, and appurtenances used, or to be used, in

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SALEM, OREGON

EXHIBIT 4-7  
PAGE 1/13

connection with or in operating its said lines of railroad, railway, street railway, and cars, in the State of Oregon, and carrying and transporting passengers and freight thereon, and in operating its said plants and all its other railroad, railway and street railway apparatus, materials, supplies, stores, goods, wares and merchandise.

And also including all easements, ways, rights of way, consents, rights, privileges, licenses, immunities, franchises, ordinances, and orders or decrees of Court now owned by said Transmission Company, or in or to which it has any right, title, interest, claim or demand or used in connection with, or for conducting or operating its said businesses, plants, works, stations, sub-stations, lines of railroad, railways, street railways, or any thereof; and also for supplying electricity, electric current to the State of Oregon and to cities, towns, counties, and their inhabitants, and to other corporations, persons, and individuals in said State of Oregon; and also for carrying and transporting passengers, commodities, and express matter on or over its said lines of railroad, railway, or street railway for hire and collecting charges, fares, tolls, freight, and compensation therefor.

And also including all its saw-mill business, mill, works, plant, machinery, apparatus, appliances, boilers, engines, pumps and all other machinery, apparatus and appliances belonging to its saw-mill business, mill, works and plant, and all its other machinery including logging engines, ~~tackles~~, tackle, wire ropes, cables, apparatus, appliances, and appurtenances used or to be used in supplying lumber and lumber material to cities, towns, counties and their inhabitants, and to other corporations, persons and individuals in the State of Oregon, and elsewhere, for any and all purposes for which lumber and lumber material is, or may be used and all its other mill apparatus, materials, supplies, stores, goods, wares and merchandise.

And also including all leases and leasehold interest in property and all agreements, contracts and contract rights of every name, kind and nature, and all securities and stocks in, and bonds of other corporations, and all moneys, and all choses in action, judgments and rights and all bills receivable, accounts receivable, book accounts, debts, dues, claims and demands of said Transmission Company now due, owing, or coming to said Transmission Company:

And also including all revenues, earnings, rents, issues and profits of all properties, franchises, rights, and privileges now owned by said Transmission Company and conveyed by this Indenture;

The real property now owned by said Transmission Company and hereby conveyed consists of certain tracts or parcels of real property lying and being situate in the County of Clackamas, State of Oregon, and includes the following described real properties situated in said County of Clackamas, State of Oregon, to-wit:

FIRST: A tract of land particularly described as follows: Beginning at a stone at the quarter section corner between sections twenty and twenty nine (20 and 29) in township three (3) south of range four (4) east, Willamette Meridian, thence on the line between said sections twenty and twenty nine (20 and 29), south eighty nine degrees thirty three minutes (89°33') west seven hundred thirty one and six tenths (731.6) feet to an iron pipe marked P. R. L. & P. Co., #1; thence north eighteen degrees two minutes (18°2') west three hundred forty one (341) feet to an iron pipe marked P.R.L. & P. Co., #2; thence north eight degrees nineteen minutes (8°19') east two hundred ninety nine and four tenths (299.4) feet to an iron pipe marked P.R. L. & P. Co. #3; thence north three degrees nineteen minutes (3°19') east three hundred eight (380) feet to an iron pipe marked P.R.L. & P. Co. #4; thence north twenty eight degrees twenty three minutes (28°23') east two hundred (200) feet to an iron pipe marked P.R.L. & P. Co., #5; thence north six degrees forty one minutes (6°41') east three hundred fifty five and three tenths (355.3) feet to an iron pipe marked P.R.L. & P. Co., #6; thence north eleven degrees eighteen minutes (11°18') west three hundred twenty and two tenths (320.2) feet to an iron pipe marked P.R.L. & P. Co., #7; thence north thirty degrees forty three minutes (30°43') west

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one hundred sixty two and one tenth (166.1) feet to an iron pipe marked P.R.L. & P.Co., #8; thence north forty nine degrees forty six minutes (49°46') west three hundred twenty and four tenths (320.4) feet to an iron pipe marked P.R.L. & P.Co., #9; thence north fifty seven degrees sixteen minutes (57°16') west one hundred sixty (160) feet to an iron pipe marked P.R.L. & P.Co., #10; thence north forty six degrees forty five minutes (46°45') west two hundred eighty five and four tenths (285.4) feet to an iron pipe marked P.R.L. & P.Co., #11; thence north thirty seven degrees ten minutes (37°10') west one hundred forty and four tenths (140.4) feet to an iron pipe marked P.R.L. & P.Co., #12; thence north sixty eight degrees twelve minutes (68°12') west one hundred ninety four and nine tenths (194.9) feet to an iron pipe marked P.R.L. & P.Co., #13; thence north forty three degrees thirty five minutes (43°35') west one hundred eighty and three tenths (180.3) feet to an iron pipe marked P.R.L. & P.Co., #14; thence north six degrees fifteen minutes (6°15') west one hundred seventy five and three tenths (175.3) feet to an iron pipe marked P.R.L. & P.Co., #15; thence north thirty two degrees no minutes (32°00') east eighty nine and two tenths (89.2) feet to an iron pipe marked P.R.L. & P.Co., #16; thence north forty six degrees fifty minutes (46°50') west two hundred thirty two and four tenths (232.4) feet to an iron pipe marked P.R.L. & P.Co., #19; on the line between the corner common to sections seventeen (17), eighteen (18), nineteen (19) and twenty (20), and the corner common to sections nineteen (19), twenty (20), twenty nine (29) and thirty (30), thence south fifty nine degrees fifty nine minutes (59°59') west thirty two hundred nineteen and sixty three hundredths (3219.63) feet to an iron pipe marked 29; thence west eight hundred fifty two (852) feet, more or less, to the line between the husband's half and the wife's of the Frederick Helms, Donation Land Claim No. 60; thence on said dividing line of said D.L.C. north forty one degrees thirty one minutes (41°31') west seventy two (72) feet more or less to the northwesterly boundary line of said D.L.C.; thence on the said northwesterly boundary line south forty eight (48) degrees forty five (45) minutes west seventy two (72) feet, more or less to a point, thence west fourteen hundred sixty seven (1467) feet, more or less, to an iron pipe marked 35 on the line between sections nineteen (19) and twenty four (24), township three (3) south range three (3) and four (4) east, Willamette Meridian, south No. degrees six minutes (0°06') west three hundred sixty three and fifty four hundredths (363.54) feet from the quarter section corner; thence on said range line, north no degrees six minutes (0°06') east ninety two and twenty five hundredths (92.25) feet to an iron pipe marked 37; thence west eight hundred forty and six hundredths (840.06) feet to an iron pipe on the center of the county road leading from Oregon City to Springwater; said pipe being witnessed by an iron pipe marked P.R.L. & P.Co., #42, on the easterly side line of said road, east thirty four and seventy one hundredths (34.71) feet therefrom; thence on center line of county road north thirty degrees twelve minutes (30°12') west three hundred forty seven and eleven hundredths (347.11) feet to a point, said point being witnessed by an iron pipe marked P.R.L. & P.Co., #43, on the easterly side line of said road, east thirty four and seventy one hundredths (34.71) feet from said point, thence east nineteen hundred seventy nine and ninety two hundredths (1979.92) feet to an iron pipe marked P.R.L. & P.Co., #49 on the line between sections nineteen (19) and twenty four (24), township three (3) south ranges three (3) and four (4) east; north no degrees four minutes (0°04') east twenty eight and seventy one hundredths (28.71) feet to the quarter section corner; thence on said range line, north no degrees four minutes (0°04') east twenty five hundred ninety eight and thirty seven hundredths (2598.37) feet to a stone at the north west corner of said section nineteen (19); thence north forty four degrees forty seven minutes (44°47') west thirty seven hundred twenty two and ninety five hundredths (3722.95) feet to a stone at the center of section thirteen (13), township three (3) south range three (3) east; thence on the east and west center line of said section thirteen (13), south eight degrees forty three minutes (8°43') east thirteen hundred twenty four and sixty two hundredths (1324.62) feet to an iron pipe marked P.R.L. & P.Co., #72 at the south east corner of lot six (6); thence on the

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line between lot six (6) and lot seven (7), north no degree twenty minutes ( $0^{\circ}20'$ ) east five hundred forty five (545) feet to an iron pipe marked P.R.L. & P.Co., #76; thence following the meanders of the Clackamas River on the left bank up stream, south fifty nine degrees thirty four minutes ( $59^{\circ}34'$ ) east two hundred twenty four and five hundredths (224.05) feet; thence south sixty eight degrees eighteen minutes ( $68^{\circ}18'$ ) east two hundred thirty three and seventy five hundredths (233.75) feet; thence south seventy one degrees fourteen minutes ( $71^{\circ}14'$ ) east three hundred forty two and seven tenths (342.7) feet; thence south fifty seven degrees fourteen minutes ( $57^{\circ}14'$ ) east one hundred six and eighty five hundredths (106.85) feet; thence south sixty one degrees ten minutes ( $61^{\circ}10'$ ) east three hundred thirty five and thirty five hundredths (335.35) feet; thence south fifty nine degrees twenty minutes ( $59^{\circ}20'$ ) east two hundred thirty five and one tenth (235.1) feet to a stone at the meander corner on the line between sections thirteen (13) and eighteen (18) township three (3) south range three (3) and four (4) east; thence on said range line north no degrees fifteen minutes ( $0^{\circ}15'$ ) east three hundred thirty five and three tenths (335.3) feet to the meander corner point for the right bank, said point being south no degrees fifteen minutes ( $0^{\circ}15'$ ) west seventy one and six tenths (71.6) feet from a stone at the witness corner to the said meander corner point; thence south sixty two degrees fifty three minutes ( $62^{\circ}53'$ ) east eleven hundred fifteen and eighty six hundredths (1115.86) feet to an iron pipe marked P.R.L. & P.Co., #78; thence north seventy seven degrees five minutes ( $77^{\circ}05'$ ) east thirteen hundred twenty (1320) feet to an iron pipe marked P.R.L. & P.Co., #82; thence south eighty three degrees seventeen minutes ( $83^{\circ}17'$ ) east nine hundred twenty three (923) feet to an iron pipe marked P.R.L. & P.Co., #84; thence south twelve degrees ( $12^{\circ}$ ) thirty five minutes ( $35'$ ) east six hundred eighty six (686) feet to an iron pipe marked P.R.L. & P.Co., #86; thence south twenty six degrees and thirteen minutes ( $26^{\circ}13'$ ) west seventeen hundred fifty five (1755) feet to an iron pipe marked P.R.L. & P.Co., #90; thence south eighty six degrees fifty five minutes ( $86^{\circ}55'$ ) east twenty six hundred fifteen and eight tenths (2615.8) feet to a stone at the northwest corner of the Wm. H. Wade donation land claim #39; thence on the northerly line of said D.L.C. north sixty nine degrees twenty one minutes ( $69^{\circ}21'$ ) east fourteen hundred forty seven and two tenths (1447.2) feet to an iron pipe marked P.R.L. & P.Co., #108; thence south seven degrees ten minutes ( $7^{\circ}10'$ ) east twelve hundred eighty two and forty three hundredths (1282.43) feet to an iron pipe marked P.R.L. & P.Co., #105; thence north seventy degrees no minutes ( $70^{\circ}00'$ ) east six hundred ninety four and seven tenths (694.7) feet to an iron pipe marked P.R.L. & P.Co., #107 on the westerly side line of the right of way of the Portland Railway Light and Power Company's railway; thence on said right of way line south seven degrees six minutes ( $7^{\circ}06'$ ) east thirty hundred fifty one and one tenth (3051.1) feet to an iron pipe marked P.R.L. & P.Co., #115 opposite station 1770+33.5 said station being the beginning of a one degree twenty four minute ( $1^{\circ}24'$ ) curve to the left; thence continuing on said line of said right of way on the said curve to the left four hundred sixteen and twenty two hundredths (416.22) feet to an iron pipe marked P.R.L. & P.Co., #116 at the intersection of said right of way line with the south boundary line of the Wm. H. Wade donation land claim #39; thence parallel with, and fifty (50) feet distant from the center line of the track as it is now located on a curve to the left having a radius of forty one hundred forty two and sixty six hundredths (4142.66) feet, a distance of seven hundred forty nine and six hundredths (749.06) feet to an iron pipe marked P.R.L. & P.Co., #118, opposite station 1781+84.5, said station being the beginning of a three degree ( $3^{\circ}$ ) curve to the left; thence parallel with and fifty (50) feet distant from the center line of the track on a curve to the left having a radius of nineteen hundred sixty and eight hundredths (1960.08) feet, a distance of nine hundred ten and fifty two hundredths (910.52) feet to an iron pipe marked P.R.L. & P.Co., #121 on the line between sections twenty (20) and twenty nine (29) township three (3) south range four (4) east; thence on said section line south eighty nine degrees and one minute ( $89^{\circ}01'$ ) west seven hundred forty five and two tenths (745.2) feet to the place of beginning

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ing, containing seven hundred eighty and forty eight hundredths (780.48) acres, more or less, all being in sections thirteen (13) and twenty four (24) township three (3) south range three (3) east and sections seventeen (17), eighteen (18), nineteen (19) and twenty (20) township three (3) south range four (4) east, Willamette Meridian.

Second: All of the rights of the Transmission Company to appropriate, take and use two hundred thousand (200,000) cubic inches of the waters of the Clackamas River by Miner's Measurement under a six (6) inch pressure, being in volume a continuous flow of five thousand (5000) cubic feet of water per second, acquired by virtue of that certain notice of appropriation of the water of the Clackamas River in Clackamas County, State of Oregon, made pursuant to a resolution of the board of Directors of the Transmission Company duly adopted on the twenty third day of December, 1908 and posted at the point of intended diversion on the ninth day of January, 1909, and which notice of appropriation was duly filed for record and recorded on the twelfth day of January, 1909, on page 4 in book number 2 of the record of water Ditches and Flumes of said Clackamas County, to which record reference is hereby had.

Third: The right to raise the waters of the Clackamas River in the natural channel of said river as said river now flows through the west half of the south east quarter of section twenty eight (28) and the north half of the southwest quarter of section twenty eight (28) in township three (3) south of range four (4) east of the Willamette Meridian, provided, however, that the waters of said river at mean low water stage shall not by the dam constructed by the grantor upon the lands conveyed by this deed be raised more than thirty two (32) feet in the channel of said river where the channel of said river crosses the north line of the said lands described in this paragraph. Intending hereby to convey unto the Railway Company, its successors and assigns, the right, privilege, and easement conveyed by Thomas J. Mathews et al, to the Transmission Company by deed dated November eleventh, 1909, and recorded December twenty third, 1909, on page 384 in book 111 of the record of deeds for said Clackamas County, to which record reference is hereby had.

Fourth: The right to raise the waters of the Clackamas River in the natural channel of said river as said river now flows through the east end of the following described lands situated in Clackamas County, Oregon, to wit: The south east quarter of the south west quarter of section twenty eight (28) in township three (3) south of range four (4) east of the Willamette Meridian. Intending hereby to convey unto the Railway Company, its successors and assigns, all rights acquired by the Transmission Company by virtue of that certain deed made by Oliver S. Mathews and Addie M. Mathews, his wife, to the Transmission Company dated October twenty eighth, 1909, and recorded November fifth, 1909, on page 563 in book number 110 of the record of deeds for said Clackamas County, to which record reference is hereby had.

Fifth: That certain right, privilege and easement to raise the waters of said Clackamas River in the natural channel of said river as said river now flows through the north end of the following described lands in Clackamas County, Oregon, Lot four (4) of section twenty nine (29) township three (3) south of range four (4) east of the Willamette Meridian, to a point and height and not exceeding a point twenty (20) feet above a stake set on the south side of said river, which stake is distant forty (40) feet north of a stone marked with a cross on top, said stone being in place on the top of the bank of said river and on the division line between lots four (4) and five (5) of said section twenty nine (29) township three (3) south of range four (4) east of the Willamette Meridian, and said stone marked and in place being distant one thousand two hundred and forty seven and five tenths (1247.5) feet north of the south east corner of Lot five (5) and of the south west corner of lot four (4) in section twenty nine (29) township three (3) south of range four (4) east of the Willamette Meridian, all distance above mentioned being measured along the division line between said lots four (4) and five (5) in said township and range, which right, privilege and easement was conveyed by Oliver H. Schock

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and Margaret A. Schock, his wife, unto said Transmission Company by deed of date June thirteenth 1910, and recorded July eleventh, 1910, in book 115, on page 610 record of deeds of said Clackamas County, Oregon, to which record reference is hereby had.

Sixth: The right to raise by the dam now constructed by the Transmission Company on the real property described in part first of this conveyance, the waters of the Clackamas River in the natural channel of said river as said river now flows through Lot five (5) in section twenty nine (29) township three (3) south of range four (4) east of the Willamette Meridian, provided that at mean low water stage of said river the surface of the waters of said river on the said Lot five (5) may be raised to a point and to the height, and not exceeding the height of a point on the south side of said river; which point and height is designated by a stake placed on the south bank of said river distant forty (40) feet north of a stone marked with a cross on top; said stone being in place on top of the bank of said river and on the division line between lots four and five of said section twenty nine (29) township three (3) south of range four (4) east of the Willamette Meridian, and said stone marked and a place being distant twelve hundred forty seven and five tenths (1247.5) feet north of the south east corner of lot five (5) and of the south west corner of lot four (4) in section twenty nine (29) township three (3) south of range four (4) east of the Willamette Meridian. All distances mentioned in this paragraph being measured along the division line between said lots four and five (4 and 5) in said township and range. Intending hereby to convey unto the Railway Company, its successors and assigns, the right, privilege and easement conveyed by B. F. Bullard and Clara E. Bullard, his wife, and A. N. Johnson to the Transmission Company, by deed dated April second, 1910, and recorded April thteenth, 1910, on page 454 of book 113 of the record of deeds for said Clackamas County, to which record reference is hereby had.

Seventh: A tract of land in Clackamas County, Oregon, particularly described as follows: Beginning at a stone at the northwest corner of the Franklin Pierce donation land claim number 38 in section twenty (20) township three (3) south range four (4) east Willamette Meridian; thence on the south line of the Wm. H. Wade donation land claim number 39, north eighty four degrees forty minutes ( $84^{\circ}40'$ ) west seven hundred twenty four and eighty eight hundredths (724.88) feet to an iron pipe marked #A3 at the intersection of the said donation land claim line with the easterly side line of the right of way of the Portland Railway light and Power Company's railway, said pipe being at right angles to and fifty (50.0) feet distant from the center line of said railway track as it is now located and constructed; thence in a southerly direction parallel with and fifty (50.0) feet distant from center line of track on a curve to the left having a radius of 4042.65 feet, a distance of six hundred ninety eight and twelve hundredths (698.12) feet to an iron pipe marked #A4, opposite station 1781+84.5, said station being the termination of a three degree ( $3^{\circ}$ ) curve to the left, thence parallel with and fifty (50.0) feet distant from the center line of the track on a curve to the left having a radius of 1660.08 feet a distance of one thousand eleven and sixty three hundredths (1011.63) feet to an iron pipe marked #A8 on the north line of Third Street of the Town of Estacada, if produced westerly; thence on the north line of said Third Street, produced, south eighty eight degrees thirty minutes ( $88^{\circ}30'$ ) east three hundred fifty and four tenths (350.4) feet to an iron pipe marked #A9 at the intersection of the north line of Third Street, with the west line of Wade Street; thence on the west line of Wade Street, north one degree thirty minutes ( $1^{\circ}30'$ ) east one thousand three hundred thirty nine (1339.0) feet to an iron pipe marked #A13 at the intersection of said line of Wade Street with the line between donation land claim number 30 and donation land claim number 39; thence on said donation land claim line north eighty four degrees fifty six minutes ( $84^{\circ}56'$ ) west five hundred thirteen and nine tenths feet to the place of beginning, containing twenty eight and seventy five hundredths (28.75) acres, more or less, being in sections twenty (20) and twenty nine (29) township three (3) south range four (4) east

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Also, A portion of the Z. C. Norton donation land claim number 46, in section thirteen (13), township three (3) south range three (3) east, particularly described as follows:

Beginning at the iron pipe marked #A43 at the intersection of the south line of said donation land claim with the easterly side line of County road leading from Oregon City to Springwater; thence on said line of said donation land claim south eighty nine degrees thirty one minutes (89°31') east five hundred twenty two and eight tenths feet to a stone at the south east corner of said donation land claim; thence on the east line of said donation land claim north No degrees fifty seven minutes (0°57') east one thousand four hundred nineteen (1419.0) feet to an iron pipe; thence north eighty nine degrees thirty minutes (89°30') west one thousand thirty three and four tenths (1033.4) feet to an iron pipe marked #A38 on the easterly side line of above named road; thence on the easterly side line of said road, south nineteen degrees forty two minutes (19°42') east seventy nine and three tenths (79.3) feet to an iron pipe marked #A39; thence south nineteen degrees two minutes (19°02') east one thousand four hundred twenty seven (1427.0) feet to the place of beginning, containing twenty five and thirty six hundredths (25.36) acres, more or less, all in section thirteen (13) township three (3) south range three (3) east Willamette Meridian.

Also: Beginning at an iron pipe marked #A21 at the north west corner of lot ten (10) in section thirteen (13) township three south range three (3) east; thence north two hundred twenty nine and two tenths (229.02) feet to an iron pipe marked #A22; thence north thirty eight degrees thirty minutes (38°30') west five hundred eighty three and seventy eight hundredths (583.78) feet to an iron pipe marked #A24 on the south line of the Z. C. Norton donation land claim number 46; thence on said line of said donation land claim north eighty nine degrees thirty one minutes (89°31') west one hundred thirty five and seventy five hundredths (135.75) feet to a point on the center line of the county road leading from Oregon City to Springwater, said point being witnessed by an iron pipe marked #A42 on the easterly side line of said road south eighty nine degrees thirty one minutes (89°31') east thirty two (32.0) feet from said point; thence on center line of said road south nineteen degrees two minutes (19°02') east one thousand forty seven and thirty two hundredths (1047.32) feet to a stone; thence south twenty one degrees thirty two minutes (21°32') east four hundred eighteen and fifteen hundredths (418.15) feet to intersection with the line between lot nine (9) and lot ten (10); thence on line between said lots, north no degrees twenty minutes (0°20') east six hundred ninety one and sixty five hundredths (691.65) feet to the place of beginning, containing six and twenty three hundredths (6.23) acres, more or less, all being in section thirteen (13) township three (3) south range three (3) east, Willamette Meridian.

Also, Beginning at the intersection of the center line of the county road leading from Oregon City to Springwater with the easterly line of the Asa Stone donation land claim number 49 in section thirteen (13) township three (3) south range three (3) east, said intersection point being witnessed by an iron pipe marked #A51 in the easterly line of said donation land claim south thirty eight degrees forty five minutes (38°45') east one hundred one and forty five hundredths (101.45) feet from said point; thence on center line of county road south twenty one degrees thirty two minutes (21°32') east one thousand four hundred ninety five and seven tenths (1495.7) feet to a point, said point being witnessed by an iron pipe marked #A55 on the easterly side line of said road, north fifty seven degrees forty three (57°43') east thirty and fifty five hundredths (30.55) feet from said point; thence north fifty seven degrees forty three minutes (57°43') east four hundred forty five and two tenths (445.2) feet to an iron pipe marked #A57 in the easterly line of said donation land claim; thence on easterly line of said donation land claim north thirty eight degrees forty five (38°45') west one thousand four hundred seventy nine and sixty five hundredths (1479.65) feet to the place of beginning, containing seven and fifty one hundredths (7.51) acres, more or less, all in section thirteen (13) being a portion

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of Asa Stone donation land claim number 49.

Also beginning at an iron pipe marked P.R.L. & P.Co. #49 on the line between sections nineteen (19) and twenty-four (24) township three (3) south range three (3) and four (4) east Willamette Meridian north No degrees four minutes (0°04') twenty eight and seventy one hundredths (28.71) feet from the  $\frac{1}{4}$  section corner; thence on said range line, north no degrees four minutes (0°04') east two thousand five hundred ninety eight and thirty seven hundredths (2698.37) feet to a stone at the northwest corner of said section nineteen (19); thence north forty four degrees forty seven minutes (44°47') west two thousand seven hundred twenty two and ninety five hundredths (2722.95) feet to a stone at the center of section thirteen (13), township three (3) south range three (3) east Willamette Meridian; thence on the east and west center line of said section thirteen (13) north eighty nine degrees forty three minutes (89°43') west one thousand three hundred forty nine and thirty five hundredths (1349.35) feet to an iron pipe marked #A21 at the northwest corner of Lot ten (10); thence on a line between lot nine (9) and <sup>Lot</sup> ten (10) thence south no degrees twenty minutes (0°20') west nine hundred seventy and thirty five hundredths (970.35) feet to an iron pipe marked #A49 at the intersection of said line with the easterly line of the Asa Stone Donation land claim, number 49; thence on said line of said donation land claim south thirty eight degrees forty five minutes (38°45') east four thousand one hundred seventy two and six tenths (4172.6) feet to a stone at the south east corner of said donation land claim; thence on southerly line of said donation land claim south fifty three degrees twenty six minutes (53°26') west forty six and nine tenths (46.9) feet to a stone at the north west corner of the Orlando Bidwell donation land claim No. 52; thence on a line between the aforesaid donation land claim's south fifty degrees forty nine (50°49') west one thousand fifty and fifteen hundredths (1050.15) feet to a point on the center line of county road leading from Oregon City to Springwater; said point being witnessed by an iron pipe marked #A67 in the easterly side line of said road, north fifty degrees forty nine minutes (50°49') east thirty one and eighty four hundredths (31.84) feet from said point; thence on center line of said road south twenty five degrees fifty minutes (25°50') east fifty two and fifty five hundredths (52.55) feet to a stone; thence south thirty degrees twelve minutes (30°12') east three hundred sixteen and eighty six hundredths (316.86) feet to a point; said point being witnessed by an iron pipe marked P.R.L. & P.Co. #43 on the easterly side line of said road, east thirty four and seventy one hundredths (34.71) feet from said point; thence east two thousand fourteen and sixty three hundredths (2014.63) feet to the place of beginning, containing two hundred fifty one and fifty three hundredths (251.53) acres, more or less, being in sections thirteen (13) and twenty-four (24) township three (3) south range three (3) east.

Also: Beginning at an iron pipe marked 56 on the line between sections nineteen (19) and twenty four (24) township three (3) south range three (3) and four (4) east, south no degrees six minutes (0°06') west three hundred sixty three and fifty four hundredths (363.54) feet from the quarter section corner; thence on said range line south No degrees six minutes (0°06') west one thousand two hundred eighty eight and ninety six hundredths (1288.96) feet to a stone at the northwest corner of the Frederick Helms donation land claim number 60; thence on the northwesterly boundary line of the said donation land claim north forty eight degrees forty five minutes (48°45') east one thousand nine hundred fifty four and eighty six hundredths (1954.86) feet, more or less, to a point; thence west one thousand four hundred sixty seven and five tenths (1467.5) feet, more or less, to the place of beginning, containing twenty one and seventy two hundredths (21.72) acres, more or less, being in section nineteen (19), township three (3) south range four (4) east.

Also: Beginning at an iron pipe marked P.R.L. & P.Co. #1 on the line between sections twenty (20) and twenty nine (29), south eighty nine degrees thirty three (89°33') west seven hundred thirty one and six tenths (731.6) feet from the quarter section corner between said sections

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twenty (20) and twenty nine (29) in township three (3) south range four (4) east; thence north eighteen degrees two minutes (18°02') west three hundred forty one (341.0) feet to an iron pipe marked P.R.L. & P.Co. #2; thence north eight degrees nineteen minutes (8°19') east two hundred ninety nine and four tenths (299.4) feet to an iron pipe marked P.R.L. & P.Co. #3; thence north three degrees nineteen minutes (3°19') east three hundred eighty (380.0) feet to an iron pipe marked P.R.L. & P.Co. #4; thence north twenty eight degrees twenty three minutes (28°23') east two hundred (200.0) feet to an iron pipe marked P.R.L. & P.Co. #5; thence north six degrees forty one minutes (6°41') east three hundred fifty five and three tenths (355.3) feet to an iron pipe marked P.R.L. & P.Co. #6; thence north eleven degrees eighteen minutes (11°18') west three hundred twenty and two tenths (320.2) feet to an iron pipe marked P.R.L. & P.Co. #7; thence north thirty degrees forty three minutes (30°43') west one hundred sixty five and one tenth (165.1) feet to an iron pipe marked P.R.L. & P.Co. #8; thence north forty nine degrees forty six minutes (49°46') west three hundred twenty and four tenths (320.4) feet to an iron pipe marked P.R.L. & P.Co. #9; thence north fifty seven degrees sixteen minutes (57°16') west one hundred sixty (160) feet to an iron pipe marked P.R.L. & P.Co. #10; thence north forty six degrees forty five minutes (46°45') west two hundred eighty five and four tenths (285.4) feet to an iron pipe marked P.R.L. & P.Co. #11; thence north thirty seven degrees ten minutes (37°10') west one hundred forty (140) feet to an iron pipe marked P.R.L. & P.Co. #12; thence north sixty eight degrees twelve minutes (68°12') west one hundred ninety four and nine tenths (194.9) feet to an iron pipe marked P.R.L. & P.Co. #13; thence north forty three degrees thirty five minutes (43°35') west one hundred eighty and three tenths (180.3) feet to an iron pipe marked P.R.L. & P.Co. #14; thence north six degrees fifteen minutes (6°15') west one hundred seventy five and three tenths (175.3) feet to an iron pipe marked P.R.L. & P.Co. #15; thence north thirty two degrees no minutes (32°00') east eighty nine and two tenths (89.2) feet to an iron pipe marked P.R.L. & P.Co. #16; thence north forty six degrees fifty minutes (46°50') west one thousand two hundred thirty two and four tenths (1232.4) feet to an iron pipe marked P.R.L. & P.Co. #19 on the line between the corner common to sections seventeen (17), eighteen (18), nineteen (19) and twenty (20) and the corner common to sections nineteen (19), twenty (20), twenty nine (29) and thirty (30); thence south fifty nine degrees fifty nine minutes (59°59') west three thousand two hundred nineteen and sixty three hundredths (3219.63) feet to an iron pipe marked 29; thence west eight hundred fifty two (852.0) feet, more or less, to the line between the husband's half and the wife's half of the Frederick Helma donation land claim number 80; thence following said line dividing said donation land claim south forty one degrees thirty one minutes (41°31') east six thousand four hundred seventy eight (6478.0) feet, more or less, to the southerly line of said donation land claim; thence on southerly line of said donation land claim north forty six degrees thirty nine minutes (46°39') east one thousand two hundred seventy (1270.0) feet, more or less, to a stone at the re-entrant corner on south boundary of said donation land claim; thence on donation land claim south forty one degrees forty nine minutes (41°49') east six hundred fifty four and seventy five hundredths (654.75) feet more or less, to a stone at corner of said donation land claim; thence on donation land claim line north forty six degrees twelve minutes (46°12') east one thousand six hundred forty four and twenty three hundredths (1644.23) feet, more or less, to the most easterly corner of said donation land claim thence on donation land claim line north forty six degrees six minutes (46°06') west one thousand nine hundred thirteen and sixty five hundredths (1913.65) feet, more or less, to intersection with line between sections twenty (20) and twenty nine (29); thence on said section line north eighty nine degrees thirty three minutes (89°33') east two hundred ninety five and one tenth (295.1) feet, more or less to the place of beginning, containing four hundred seventy three and thirty seven hundredths (473.37) acres, more or less, all being in sections nineteen (19), twenty (20), twenty nine (29), and thirty (30) township three (3) south range four (4) east, Williams & Metairie.

EXHIBIT A-7  
PAGE 913

Except following described tract sold to W. F. Cary: -

\* Beginning at a stone which marks the northwest corner of the Franklin Pierce donation land claim number 38 in sections twenty (20) and twenty nine (29) township three (3) south range four (4) east Clackamas County, Oregon, thence north eighty four degrees forty minutes ( $84^{\circ}40'$ ) west seven hundred twenty four and eighty eight hundredths (724.88) feet to an iron pipe marked "A2" said iron pipe being set in the easterly side line of the right of way of the Portland Railway Light and Power Company, thence in a southwesterly direction tracing the easterly side line of said right of way following the arc of a curve, having a radius of 4,042.66 feet a distance of six hundred ninety eight and twelve hundredths (698.12) feet to an iron pipe marked "A4" thence continuing on the above named easterly side line of said right of way following the arc of a curve, having a radius of 1,860.08 feet, a distance of one thousand eleven and sixty three hundredths (1011.63) feet to an iron pipe marked "A8"; thence south eighty eight degrees thirty minutes ( $88^{\circ}30'$ ) east three hundred fifty and four tenths (350.4) feet to an iron pipe marked "A9", said iron pipe being situated in the westerly side line of Wade Street in Estacada; thence north one degree thirty minutes ( $1^{\circ}30'$ ) east tracing the westerly side line of said Wade Street a distance of one thousand three hundred thirty nine (1339) feet to an iron pipe marked "A13"; thence north eighty four degrees fifty six minutes ( $84^{\circ}56'$ ) west five hundred thirteen and nine tenths (513.9) feet to the place of beginning, excepting and reserving therefrom a strip of land twenty five (25) feet in width lying between the easterly side line of said right of way and a line drawn twenty five (25) feet <sup>distant</sup> easterly therefrom and parallel therewith over and across said tract of land above mentioned.

EXHIBIT A-7

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Eight: A strip of land in Clackamas County, Oregon, particularly described as follows: Beginning at the intersection of the south line of the Wm. H. Wade donation land claim number 39, in section twenty (20), township three south range four (4) east, Willamette Meridian, with the center line of the Portland Railway Light and Power Company's railway track, as it is now located and constructed said intersection being a station 1774+61.0; thence on said line of said donation land claim north eighty four degrees forty minutes ( $84^{\circ}40'$ ) west fifty two and seventy two hundredths (52.72) feet to an iron pipe marked P.R.L. & P.Co. #116; thence in a southerly direction parallel with and fifty (50.0) feet distant from center line of track on a curve to the left having a radius of 4142.66 feet, a distance of seven hundred forty nine and six tenths (749.06) feet to an iron pipe marked P.R.L. & P.Co. #118; opposite station 1781+84.5 said station being the termination of a three degree ( $3^{\circ}$ ) curve to the left; thence parallel with and fifty (50.0) feet distant from center line of track; on a curve to the left having a radius of 1980.08 feet a distance of nine hundred ten and fifty two hundredths (910.52) feet to an iron pipe marked P.R.L. & P.Co. #121 on line between sections twenty (20) and twenty nine (29); thence on said section line, north eighty nine degrees one minute ( $89^{\circ}01'$ ) east seventy six and two tenths (76.2) feet to the west line of the Franklin Pierce donation land claim number 38; thence on said line of the said donation land claim no degrees fifty one minutes ( $0^{\circ}51'$ ) west to an iron pipe marked #A7 at a point which is fifty (50.0) feet distant from and at right angles to the center line of track; thence in a northwesterly direction parallel with and fifty (50.0) feet distant from center line of track on a curve to the right, having a radius of 1860.08 feet, a distance of eight hundred seventy six and thirty one hundredths (876.31) feet to an iron pipe marked #A4 opposite station 1781+84.5; thence parallel with and fifty (50.0) feet distant from center line of track, on a curve to the right having a radius of 4042.66 feet, a distance of six hundred ninety eight and twelve hundredths (698.12) feet to an iron pipe marked #A2 on the south line of the Wm. H. Wade donation land claim number 39; thence on said line of said donation land claim north eighty four degrees forty minutes ( $84^{\circ}40'$ ) west fifty two and seventy two hundredths (52.72) feet to the place of beginning, containing three and seventy five hundredths ( $3\frac{75}{100}$ ) acres, more or less, all in section twenty (20), township

three (3) south range four (4) east, Willamette Meridian.

Said Portland Railway, Light and Power Company for itself, its successors and assigns hereby covenanting and agreeing to do, keep, and perform each and all of the covenants, agreements, conditions, and stipulations which are provided, stipulated or agreed shall be observed, done, kept or performed by the respective grantees, their successors and assigns, in each or all of the respective ordinances, orders of courts, franchises, licenses, grants, rights, privileges, rights of way, and easements conveyed or assigned by this indenture.

It is the intention of this indenture to describe herein and to convey to said Portland Railway, Light and Power Company, its successors and assigns, all property, real personal and mixed, including franchises, licenses, rights and privileges of every kind, name and nature and wherever situated now owned, held or possessed by said Transmission Company or in or to which it now has any estate, right, title, interest, claim or demand, or to which it is entitled, and including all equitable rights as well as legal rights, and all and singular the same are by this indenture conveyed, to, held, owned possessed and enjoyed by said Portland Railway Light and Power Company, its successors and assigns, as fully and completely, in all respects and to all intents and purposes, as though the same and each and every part, portion, parcel and item thereof were in this indenture and in the particular description or descriptions, of the property or properties contained in this indenture, specifically and particularly enumerated and described; and no words of particular descriptions of property contained in this indenture shall in anywise limit, curtail, or detract from or be deemed, held or construed to limit, curtail or detract from the effect of the words of general description of property contained in this indenture.

To have and to hold all and singular the foregoing mentioned and described property and all property conveyed by this indenture, together with all and singular the tenements, hereditaments, appurtenances, rights, privileges, licenses, franchises, and immunities connected therewith or in anywise appurtenant or belonging thereto, and the rents, issues, and profits thereof, and all estate, rights, titles, interests, claims, and demands of said Transmission Company therein and thereto, as well in law as in equity, unto said Portland Railway, Light and Power Company, its successors and assigns forever.

And said Transmission Company for itself and its successors does hereby covenant to and with said Portland Railway Light and Power Company, its successors and assigns, that upon reasonable request the said Transmission Company and its successors shall execute and deliver to said Portland Railway Light and Power Company its successors and assigns, all and any such other deeds, conveyances, instruments, and assurances, and do such other acts as may be necessary or proper to vest in said Portland Railway Light and Power Company, its successors and assigns, all estate and titles of said Transmission Company, of, in or to any and all of the property of said Transmission Company now owned by it and which it has now any estate, right, title, interest, claim or demand.

In Witness Whereof, said Transmission Company has caused this indenture to be executed for and on its behalf and as its act and deed in its corporate name by Franklin T. Griffith its Vice President and its corporate seal to be hereunto affixed and attested by C. H. Huggins, its secretary, this the 17th day and year first in this indenture written.

Executed in presence of us as

Witnesses Thereto:

Geo. J. Kelly

Clarence L. Eaton

The Portland Water Power and Electric  
Transmission Company.

By Franklin T. Griffith, Vice President

Attest: C. H. Huggins, Secretary

(Seal of T.P.W.P. & E.T.Co.)

State of Oregon )  
County of Multnomah ) 1913

EXHIBIT A-7  
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On this twenty ninth day of February, 1912, before me, a Notary Public in and for the State of Oregon, appeared Franklin T. Griffith and C. N. Huggins, to me personally known, who being duly sworn, do say: That he, the said Franklin T. Griffith, is the Vice President and he, the said C. N. Huggins, is the secretary of The Portland Water Power and Electric Transmission Company, the corporation which executed the foregoing instrument, and that the seal affixed to said instrument was signed and sealed in behalf of said corporation by authority of its Board of Directors, and said Franklin T. Griffith and said C. N. Huggins, each acknowledged said instrument to be the free act and deed of said corporation.

In Testimony Whereof, I have hereunto set my hand and affixed my official seal this the day and year first in this, my certificate, written.

(Seal of Notary)

Geo. J. Kelly  
Notary Public in and for Oregon.

Filed and recorded March 2nd, 1912, at 9.05 A. M.

*D. E. Williams*

County Recorder.

Know all men by these presents, that John Arquette and Maud Arquette, his wife, County of Clackamas State of Oregon, in consideration of Ten Dollars to them paid by Harvey Marshall County of Clackamas State of Oregon, have bargained and sold, and by these presents do grant, bargain, sell and convey unto said Harvey Marshall his heirs and assigns, all the following bounded and described real property, situated in the County of Clackamas and State of Oregon:

East one-half (E. 1/2) of the North East quarter (N.E. 1/4) of the South West quarter (S.W. 1/4) of Section Twenty in Township Four South of Range Four East of the Willamette Meridian, containing Twenty acres, together with all and singular the tenements, hereditaments and appurtenances thereto belonging or in anywise appertaining, and also all their estate, right, title and interest in and to the same, including dower and claim of dower.

To have and to hold the above described and granted premises unto the said Harvey Marshall his heirs and assigns forever. And John Arquette and Maud Arquette, his wife grantors above named do covenant to and with Harvey Marshall the above named grantee his heirs and assigns that they are lawfully seized in fee simple of the above granted premises, that the above granted premises are free from all incumbrances, and that they will and their heirs, executors and administrators, shall warrant and forever defend the above granted premises, and every part and parcel thereof, against the lawful claims and demands of all persons whomsoever.

In Witness Whereof, We the grantors above named, have hereunto set our hands and seals this 1<sup>st</sup> day of November, 1911.

Signed, sealed and delivered in the presence of us as Witnesses:

L. S. La Hatt  
Claude W. Devore  
State of Oregon  
County of Clackamas } ss

EXHIBIT A-7  
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John Arquette  
Maud Arquette



Be it remembered, that on this 1<sup>st</sup> day of November, A. D. 1911, before me, the undersigned, a Notary Public in and for said County and State, personally appeared the within named John Arquette and Maud Arquette, his wife, who are known to me to be the identical persons described in and who executed the within instrument, and acknowledged to me that they executed the same freely and voluntarily.

In Testimony Whereof, I have hereunto set my hand and notarial seal the day and year last above written.

(Seal of Notary)

Claude W. Devore

STATE OF OREGON }  
COUNTY OF CLACKAMAS } ss.

I, JOHN KAUFFMAN, County Clerk of the State of Oregon for the County of Clackamas, do hereby certify that the foregoing copy of VOL. 127  
PGS. 1610-1621  
has been by me compared with the original, and that it is a correct transcript therefrom, and the whole of such original, as the name appears on file and of record in my office and in my care and custody

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed my official seal this 3 day of Sept. 1992

By: [Signature]  
JOHN KAUFFMAN, Clerk  
Deputy



EXHIBIT A-7  
PAGE 13/13

**ATTACHMENT B**

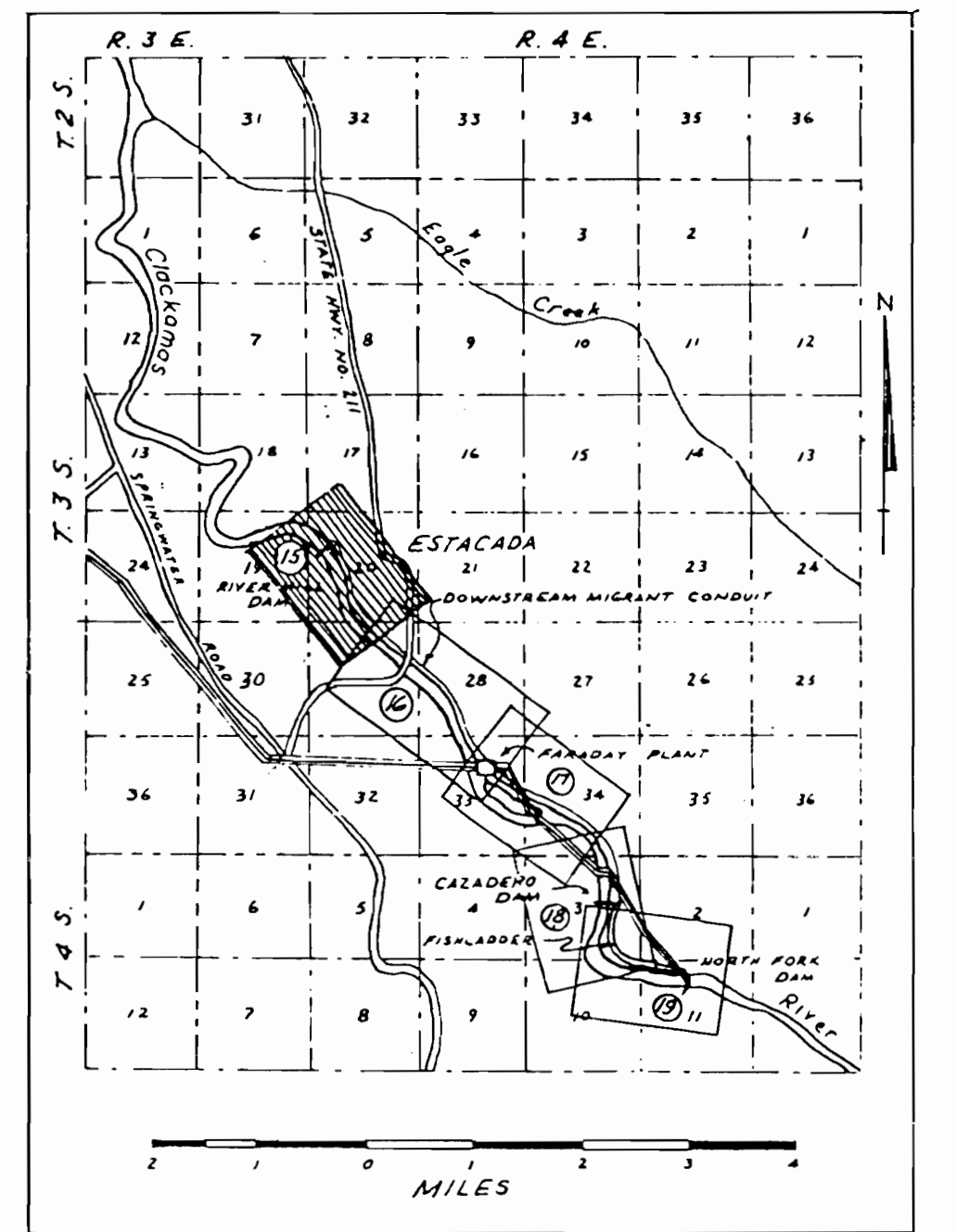
**[Map Prepared by Certified Water Rights Examiner]**



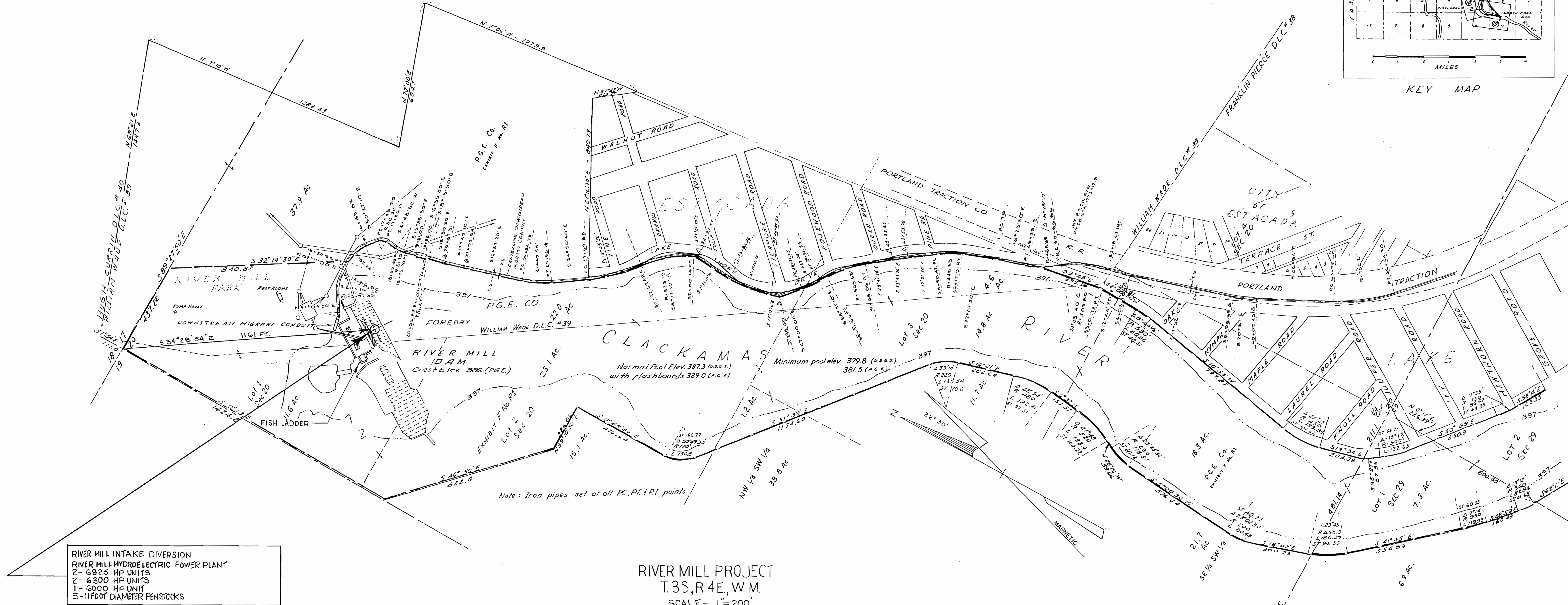
River Mill

WR Map C-20443

Exhibit	L	Sht 10
Exhibit	L	Sht 11
Exhibit	L	Sht 12



KEY MAP

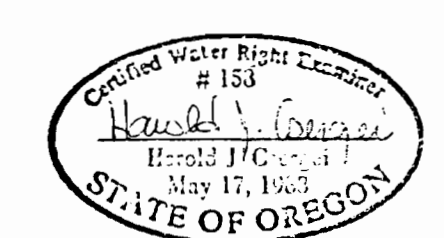


RIVER MILL INTAKE DIVERSION  
 RIVER MILL HYDROELECTRIC POWER PLANT  
 2- 6825 HP UNITS  
 2- 6300 HP UNITS  
 1- 6000 HP UNIT  
 5- 11 FOOT DIAMETER PENSTOCKS

RIVER MILL PROJECT  
 T.3S, R.4E, W.M.  
 SCALE- 1"=200'

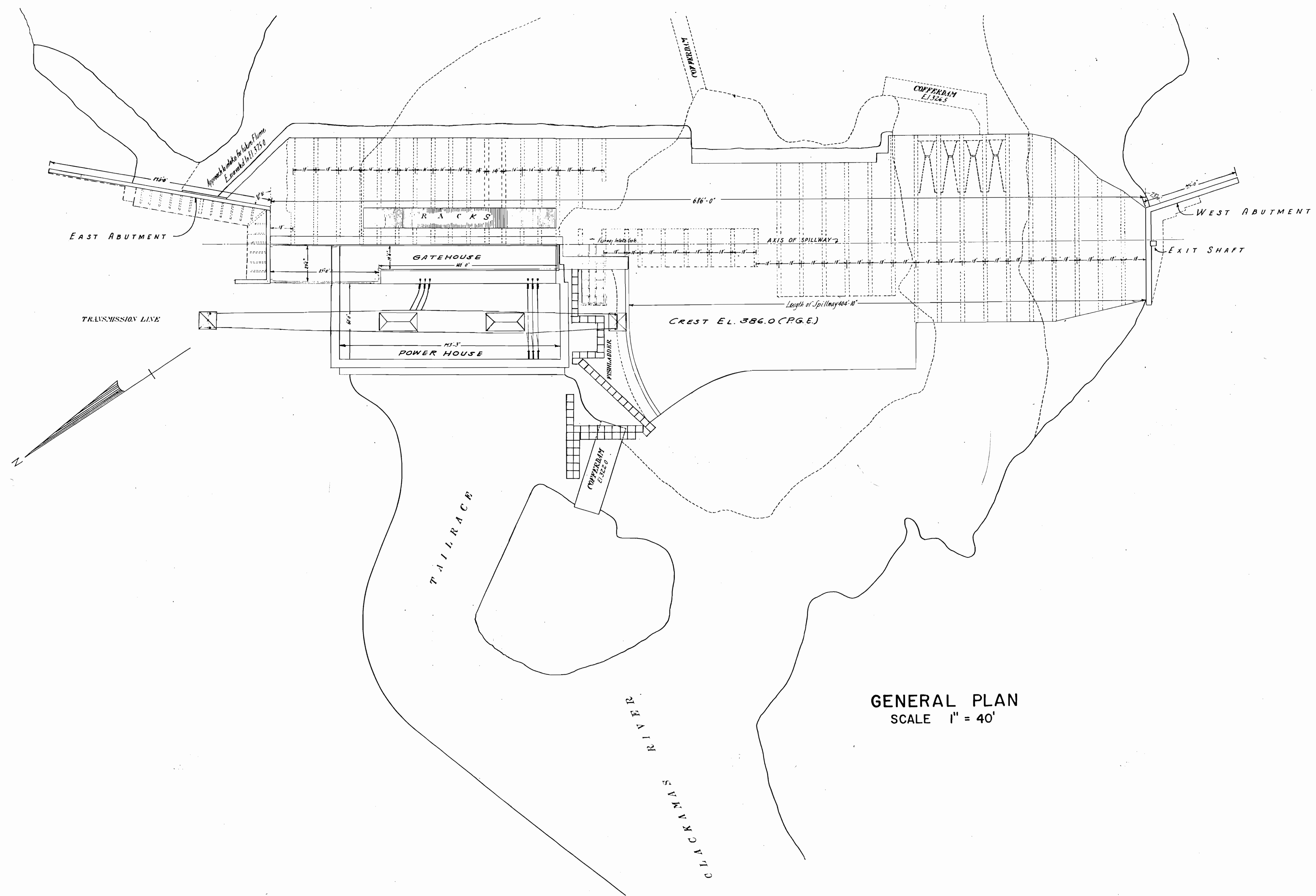
- REFERENCE DRAWINGS  
 FERC RIVER MILL PROJECT LICENSE DRAWINGS  
 EXHIBIT L, SHT 1 OF 9  
 EXHIBIT L, SHT 2 OF 9  
 EXHIBIT L, SHT 5 OF 9  
 EXHIBIT L, SHT 9A OF 9

THE PURPOSE OF THIS MAP IS TO IDENTIFY THE LOCATION OF WATER RIGHTS. IT IS NOT INTENDED TO PROVIDE INFORMATION RELATIVE TO THE LOCATION OF PROPERTY OWNERSHIP BOUNDARY LINES.

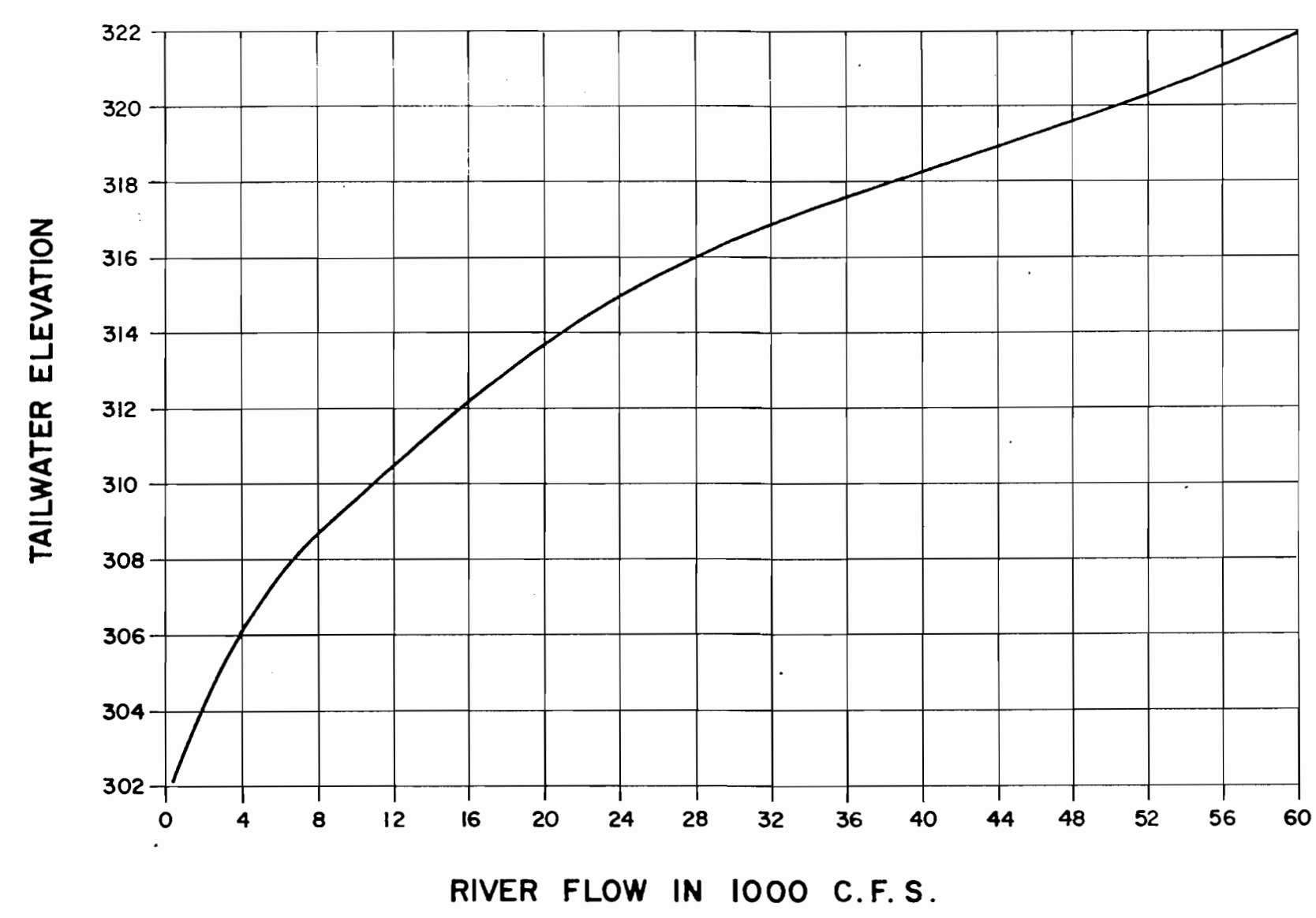


THIS FINAL PROOF SURVEY WAS PERFORMED DURING THE PERIOD OCTOBER-DECEMBER, 1992.

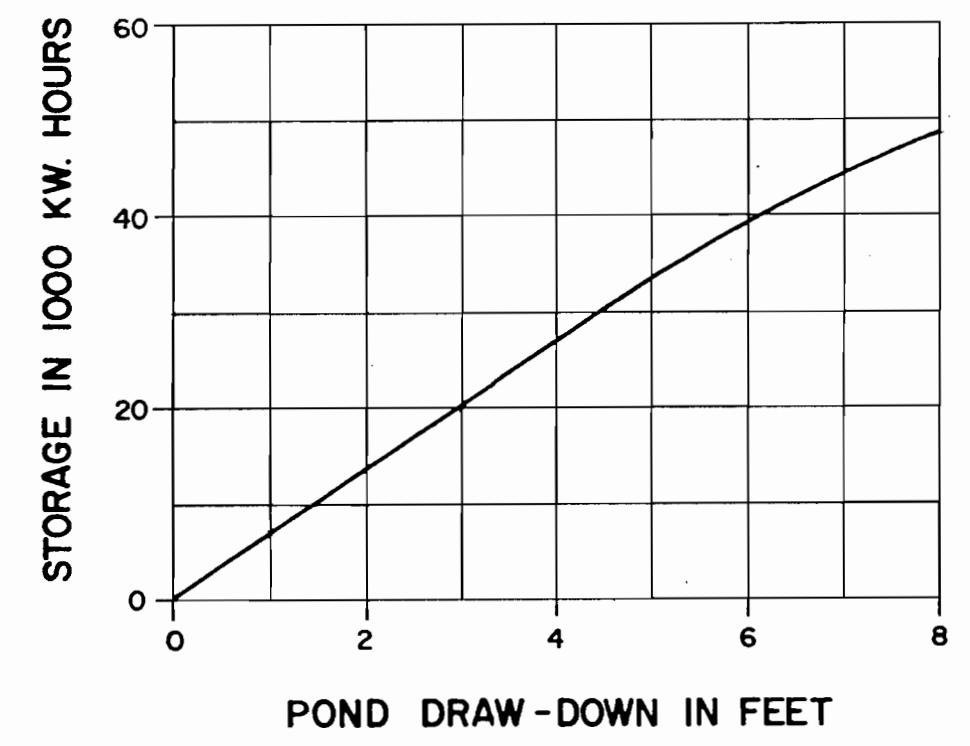
REV.	DATE	DESCRIPTION	BY	CHK	ENGR	SURV	MGR
REVISIONS							
PORTLAND GENERAL ELECTRIC CO. PORTLAND, OREGON							
RIVER MILL PROJECT PRE 1909 VESTED WATER RIGHTS FINAL PROOF SURVEY							
APPROVALS				SCALE: 1" = 200'			
DESIGNER				DRAWN BY HJC			
DESIGN ENGR				CHECKED BY			
ENGR SURV				DATE 12/28/92			
ENGR MANAGER				C-20443			



RIVER MILL DAM  
TAILWATER RATING CURVE



RIVER MILL DAM  
STORAGE CURVE



U.S.G.S. BM X 429 ELEV. 479.40 ( U.S.G.S. )  
ELEV. 481.17 ( P.G.E. CO. )  
VERTICAL CONTROL ON P.G.E. CO. DATUM.

THIS DRAWING AS REVISED NOVEMBER 24, 1964  
IS A PART OF THE APPLICATION  
FOR AMENDMENT OF LICENSE DATED JULY 31, 1963  
PORTLAND GENERAL ELECTRIC COMPANY  
By *William P. ...*  
VICE PRESIDENT

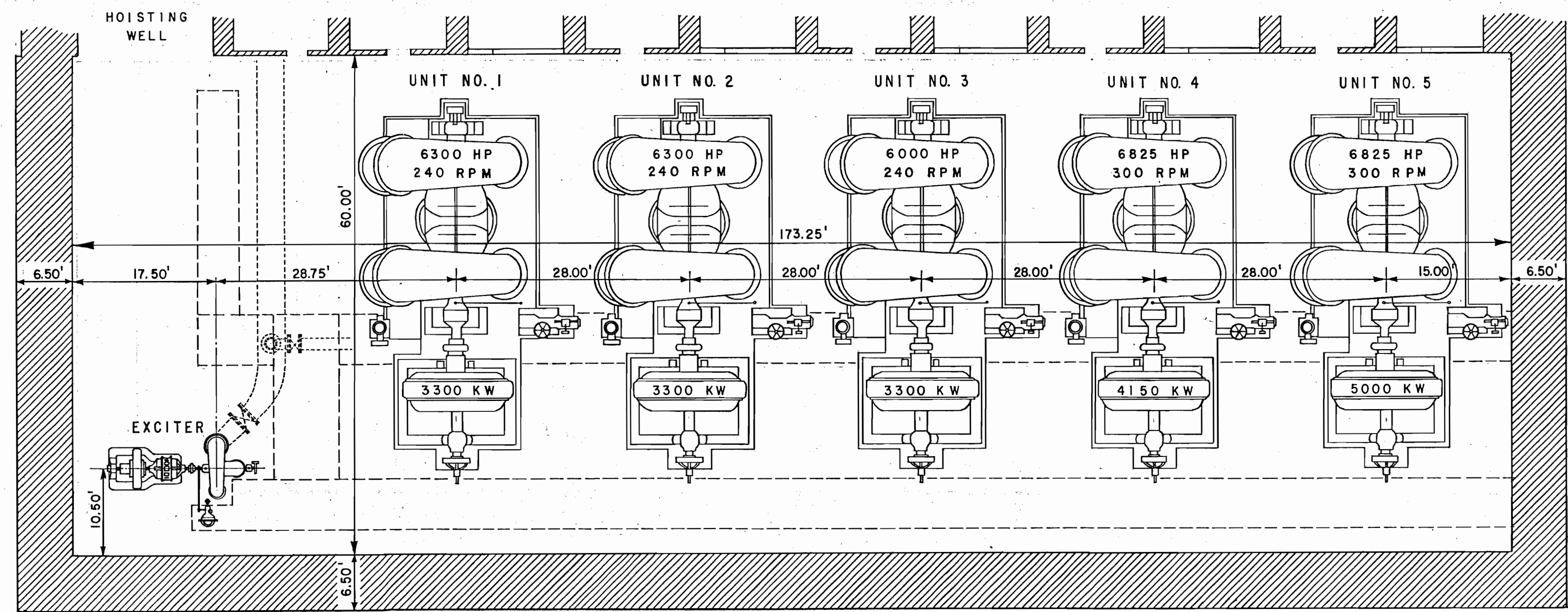


*W. E. Enns*  
W. E. ENNS

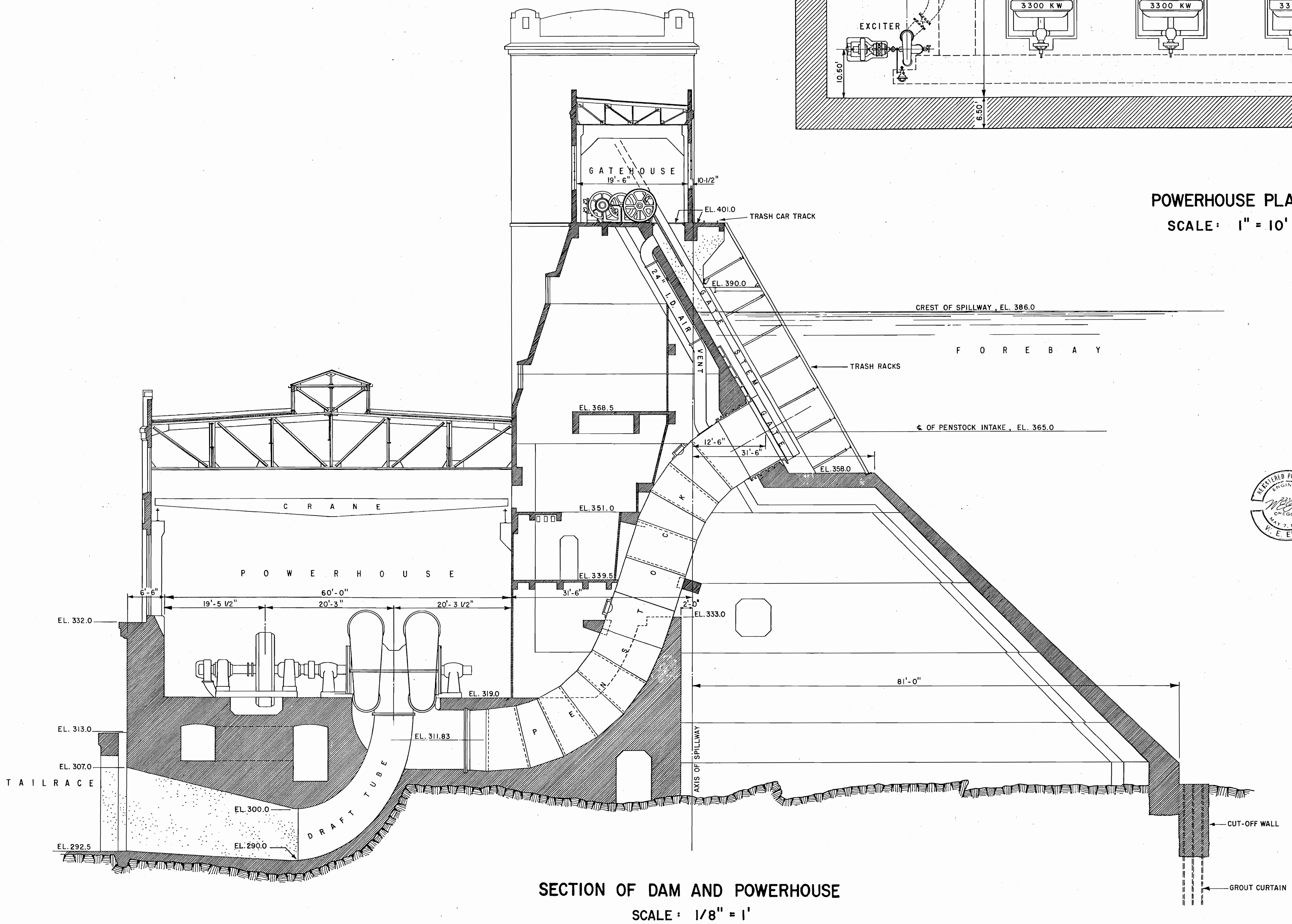
I CERTIFY THAT I SUPERVISED THE PREPARATION OF THE EXHIBIT DRAWINGS, AND THAT THEY ACCURATELY SHOW THE PRINCIPAL STRUCTURES AND APPURTENANT WORKS AS OBTAINED FROM THE RECORDS OF DESIGN AND CONSTRUCTION DRAWINGS IN THE PORTLAND GENERAL ELECTRIC COMPANY FILES.

EXHIBIT L SHEET 10 (REVISED)

PROJECT NO. 2195 OREGON  
PORTLAND GENERAL ELECTRIC COMPANY  
NORTH FORK HYDRO-ELECTRIC PROJECT  
GENERAL PLAN  
RIVER MILL DEVELOPMENT



**POWERHOUSE PLAN**  
SCALE: 1" = 10'



**SECTION OF DAM AND POWERHOUSE**  
SCALE: 1/8" = 1'



I CERTIFY THAT I SUPERVISED THE PREPARATION OF THE EXHIBIT DRAWINGS, AND THAT THEY ACCURATELY SHOW THE PRINCIPAL STRUCTURES AND APPURTENANT WORKS AS OBTAINED FROM THE RECORDS OF DESIGN AND CONSTRUCTION DRAWINGS IN THE PORTLAND GENERAL ELECTRIC COMPANY FILES.

*W. E. Enns*  
W. E. ENNS

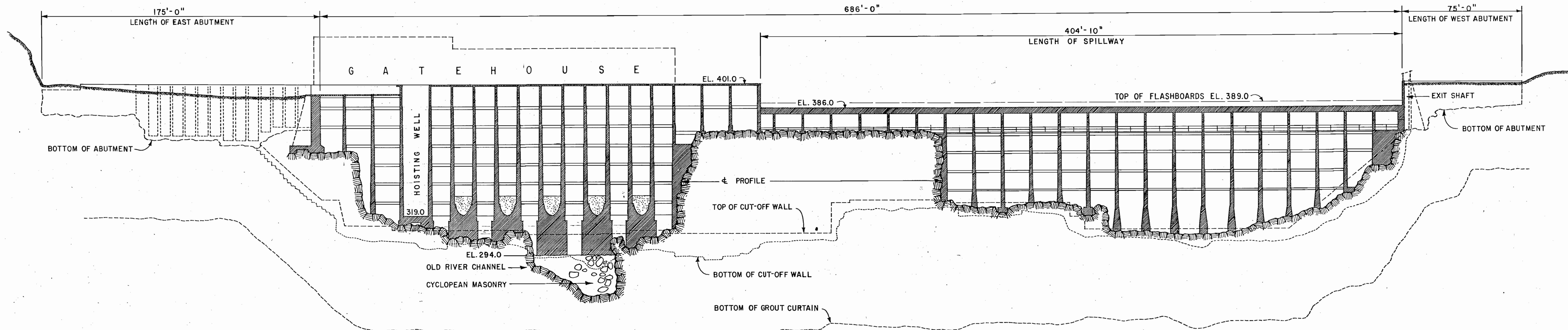
THIS DRAWING AS REVISED NOVEMBER 24, 1964 IS A PART OF THE APPLICATION FOR AMENDMENT OF LICENSE DATED JULY 31, 1963

PORTLAND GENERAL ELECTRIC COMPANY  
BY *William A. Peterson*  
VICE PRESIDENT

EXHIBIT L SHEET II (REVISED)

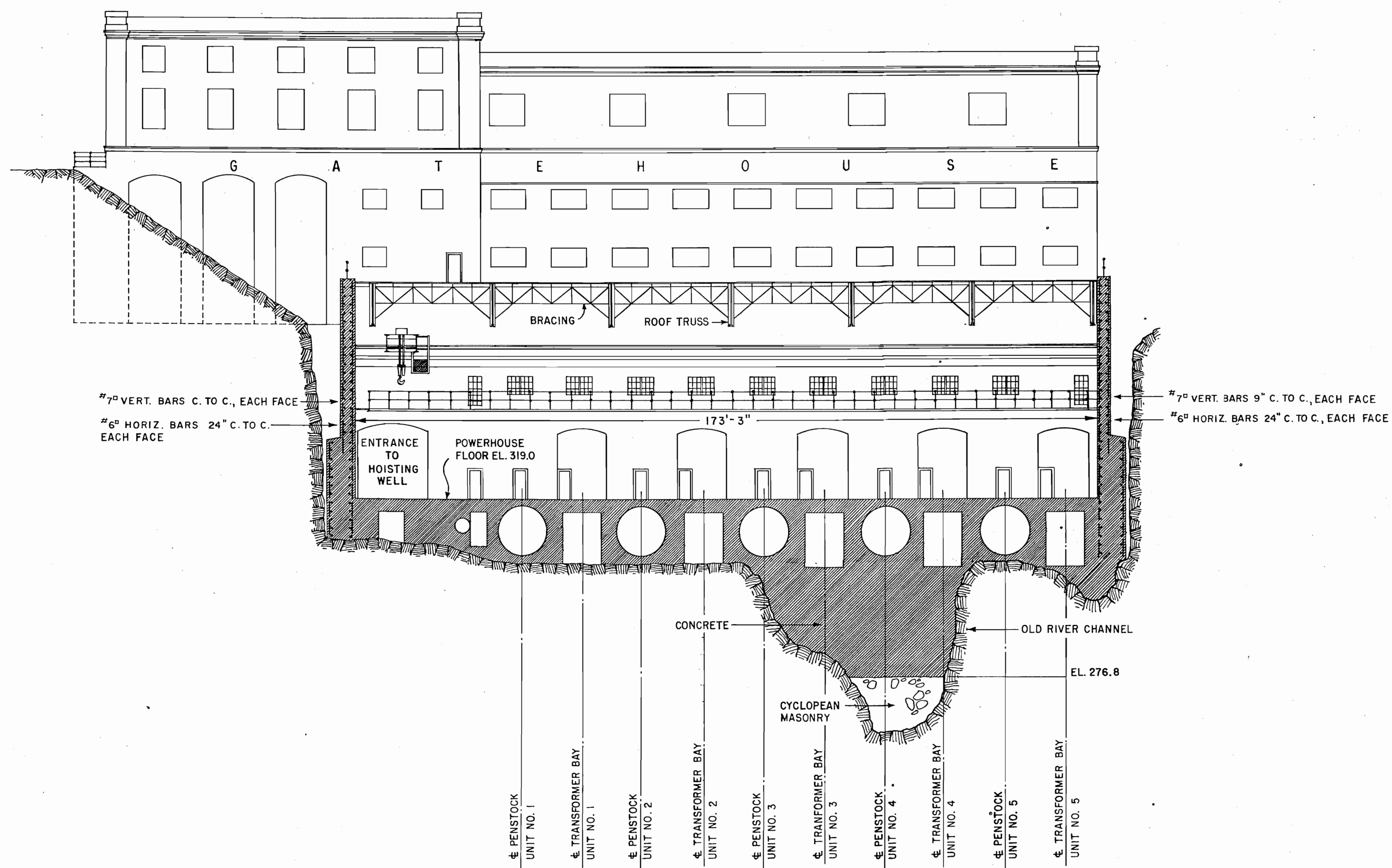
**PROJECT NO. 2195 OREGON**  
PORTLAND GENERAL ELECTRIC COMPANY  
NORTH FORK HYDRO-ELECTRIC PROJECT  
**POWERHOUSE PLAN AND SECTION**  
RIVER MILL DEVELOPMENT

U.S.G.S. BM X 429 ELEV. 479.40 ( U.S.G.S. )  
ELEV. 481.17 ( P.G.E. CO. )  
VERTICAL CONTROL ON P.G.E. CO. DATUM.



MAXIMUM LONGITUDINAL SECTION OF DAM

SCALE: 1" = 30'



POWERHOUSE LONGITUDINAL SECTION

SCALE: 1/16" = 1'

U.S.G.S. BM X429 ELEV. 479.40 (U.S.G.S.)  
ELEV. 481.17 (P.G.E. CO.)  
VERTICAL CONTROL ON P.G.E. CO. DATUM



I CERTIFY THAT I SUPERVISED THE PREPARATION OF THE EXHIBIT DRAWINGS, AND THAT THEY ACCURATELY SHOW THE PRINCIPAL STRUCTURES AND APPURTENANT WORKS AS OBTAINED FROM THE RECORDS OF DESIGN AND CONSTRUCTION DRAWINGS IN THE PORTLAND GENERAL ELECTRIC COMPANY FILES.

*W. E. Enns*  
W. E. ENNS

THIS DRAWING IS ADDED AS PART OF THE APPLICATION FOR AMENDMENT OF LICENSE DATED JULY 31, 1963 PORTLAND GENERAL ELECTRIC COMPANY

*William J. ...*  
VICE PRESIDENT

EXHIBIT L SHEET 12 (NEW)

**PROJECT NO. 2195 OREGON**  
PORTLAND GENERAL ELECTRIC COMPANY  
NORTH FORK HYDRO-ELECTRIC PROJECT  
DAM AND POWERHOUSE SECTIONS  
RIVER MILL DEVELOPMENT

ATTACHMENT C  
CHAIN OF TITLE

DEC 30 1992  
WATER RIGHTS DIVISION  
SHELLY CARSON

<u>Date</u>	<u>Action</u>
12/23/08	Portland Water Power & Electric Transmission Company (PWP&ETC) posts Notice of Appropriation.
02/29/12	PWP&ETC sells its interest in the appropriation and the River Mill project to Portland Railway Light & Power Company ("PRL&P").
04/26/24	PRL&P name changed to Portland Electric Power Company ("PEPCo").
03/30/30	PEPCo name changed to Pacific Northwest Public Service Company.
03/15/33	Pacific Northwest Public Service Company name changed back to PEPCo.
11/15/48	PEPCo transfers water rights to Portland General Electric Company ("PGE") as part of an asset distribution plan.