NPS Form 10-900
(Rev. 8-86)

OMB No. 1024-0018

1324

United States Department of the Interior
National Park Service

National Register of Historic Places Registration Form

NATIONAL REGISTER

This form is for use in nominating or requesting determinations of eligibility for individual properties or districts. See Instructions in *Guidelines for Completing National Register Forms* (National Register Bulletin 16). Complete each item by marking "x" in the appropriate box or by entering the requested information. If an item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, styles, materials, and areas of significance, enter only the categories and subcategories listed in the Instructions. For additional space use continuation sheets (Form 10-900-a). Type all entries.

1. Name of Property

historic name: Snoqualmie Falls Hydroelectric Power Plant Historic District

other names/site number: N/A

2. Location

street & number: 0.5 miles north of Snoqualmie, on Hwy. 202 — ☐ not for publication

city, town: Snoqualmie — ☐ vicinity

state: Washington — code: WA — county: King — code: 033 — zip code: 98065

3. Classification

Ownership of Property
- ☒ private
- ☐ public-local
- ☒ public-State
- ☐ public-Federal

Category of Property
- ☐ building(s)
- ☒ district
- ☐ site
- ☐ structure
- ☐ object

Number of Resources within Property

Contributing	Noncontributing	
11	4	buildings
		sites
8	3	structures
		objects
19	7	Total

Name of related multiple property listing: Hydroelectric Plants in Washington State

Number of contributing resources previously listed in the National Register: 6

4. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act of 1966, as amended, I hereby certify that this ☒ nomination ☐ request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60. In my opinion, the property ☒ meets ☐ does not meet the National Register criteria. ☐ See continuation sheet.

Mary M. Thompson — 7/24/92

Signature of certifying official — Date

Washington State Office of Archaeology and Historic Preservation

State or Federal agency and bureau

In my opinion, the property ☐ meets ☐ does not meet the National Register criteria. ☐ See continuation sheet.

Signature of commenting or other official — Date

State or Federal agency and bureau

5. National Park Service Certification

I, hereby, certify that this property is:
- ☒ entered in the National Register. — Carol D Shull — 10-24-92
  - ☐ See continuation sheet.
- ☐ determined eligible for the National Register. ☐ See continuation sheet.
- ☐ determined not eligible for the National Register.
- ☐ removed from the National Register.
- ☐ other, (explain:) ______

Signature of the Keeper — Date of Action

6. Function or Use

Historic Functions (enter categories from instructions)
Industry/Processing/Extraction : energy facility

Current Functions (enter categories from instructions)
same

7. Description

Architectural Classification
(enter categories from instructions)
Other: Industrial Vernacular
Bungalow/Craftsman

Materials (enter categories from instructions)

foundation	concrete wall; wood pier
walls	brick; wood frame; concrete
roof	metal; wood or asphalt shingle
other	see description

Describe present and historic physical appearance.

Snoqualmie Falls Historic District is located at Snoqualmie Falls on the Snoqualmie River between river miles 40 and 41 in eastern King County, Washington. The predominant feature of the district is the linkage of several engineering components into a complete hydroelectric high-head system. These components consist of a dam; intakes on each side of the river where a portion of the river is diverted into an artificial water conveyance system; penstocks; two powerhouses with generating equipment; transmission lines; and ancillary buildings that include residences, work shops, and storage buildings.

The districts includes 26 buildings and structures; 19 of them are contributing to the historic character of the district and are located in three contiguous areas. The first group of buildings and structures date from the original construction period of 1898-1900 and are associated with the development of the original power plant known as Plant 1. This plant, which was listed in the National Register in 1976, contains five turbine and generator units. It occupies an underground cavity which was excavated about 270 feet below the surface of the river and about 300 feet back from the edge of the Falls. Inside the cavity, the generating equipment is housed in a narrow chamber that measures 200 feet long by 40 feet wide by 30 feet high.

The cavity was excavated out of bedrock on a level with the base of the Falls. A vertical shaft (10 x 27 feet) provides access to the cavity for the elevator, penstocks, and power lines. Water drops vertically through two penstocks mounted inside the shaft, flows through the turbines, and rejoins the Snoqualmie River via an underground channel or tailrace. This horizontal shaft for the tailrace measures 12 feet wide and 24 feet deep and extends 650 feet from the floor of the chamber to a point near the base of the Falls at approximately the high water mark of the river. A narrow wooden catwalk is suspended from the roof of the tailrace and runs the entire length of the tunnel.

Originally, the company installed four horizontal impulse-type waterwheel turbines in the chamber. In 1905, after the Snoqualmie Falls and White River Company succeeded the Snoqualmie Falls Power Company, the new operators increased the capacity of the plant by installing a fifth generating unit with a horizontal Francis-type turbine. When installed, the turbine was the largest single-wheel Francis turbine in the world.

The spoil from the cavity forms a bench on the south bank of the river above the Falls, which is the site of five contributing buildings from the same period, including the transformer house, the machine shop, the elevator house, the carpenter shop, and the garage. Above the bench, a railroad parallels the Snoqualmie River. A railroad depot and depot garage complete the arrangement of buildings

☒ See continuation sheet

along the south bank of the river. Two company houses and two garages occupy a shelf in the slope above the railroad.

The second group of buildings and structures is located on the north bank of the river, downstream from Snoqualmie Falls. This group includes a second powerhouse, built in 1910, known as Plant 2, which uses a more conventional water conveyance system. Plant 2 added 9,000 KW of generating capacity. A 40-foot wide concrete intake on the north bank diverts a portion of the river flow into a concrete-lined tunnel, which extends 1,215 feet to a forebay on a bluff jutting into the gorge below Snoqualmie Falls. Here the water plunges in two steel penstocks down the bluff to the power generating equipment inside the Plant 2 building, which is a large concrete structure. The original design of Plant 2 included just one penstock, although three headgates were included in the gatehouse at the top of the bluff to allow for expansion. In 1957-58, Puget Sound Power & Light Company added a second penstock and enlarged the powerhouse to accommodate a second turbine and generating unit.

The third area of the district, which links the first two spatially, includes Snoqualmie Falls, a low wood and concrete dam across the river above the Falls dating from the original construction of Plant 1 in 1898, and an intake for the water conveyance system to Plant 2. The physical arrangement of the two plants on either side of the river, both utilizing the precipitous elevation drop in the river associated with the Falls, comprises a unified system and a coherent district.

In addition to the buildings and structures noted above, the residences, storage buildings and garages are also integral to the system. The remote location of the plant necessitated such buildings for operating staff. Today, fewer buildings are in use but several still continue to house key personnel and storage.

The presence of the railroad and depot in proximity to the hydroelectric facility also fits into the historical context. While the railroad and depot predate the hydroelectric development by nearly a decade, the depot was used by the Snoqualmie Falls Power Company when bringing heavy equipment to the construction site. Later, the depot served tourists who came to the Falls on one-day excursion trips. (Please note: exact date of depot construction has not been verified.)

An important historical aspect of the project is that it was capital intensive and utilized the most advanced technology of the day. Both the original plant and the second plant include several design elements that reflect a history of periodic upgrading of equipment. Many of these past changes are consistent with the evolutionary aspects of the facility.

The buildings and the physical setting have undergone some changes since the period of significance (1898-1910). Originally, the transformer house and the machine shop were topped by decorative cornices with alternating colors of white and pink, with grey roofs; later, everything was painted a monochromatic grey. Four cottages and a guest house once formed a row above the railroad; three of these were removed and two were expanded into the present residences. The area around Plant 1 was landscaped with planted flower beds, trimmed hedges, and a wide expanse of lawn extending into the woods above the railroad; most of this area is now covered by brush and surface parking. Plant 2 underwent significant expansion in 1957 and 1958; the building was doubled in size to accommodate a second turbine and generating unit, but the exterior design of the addition matched the original portion of the building. A second penstock was added between the gatehouse and Plant 2.

A few other buildings above the railroad were removed. All of these were located outside the boundaries of the historic district. A large dormitory for construction workers once stood about 400 feet northwest of the cottages. A horse barn was situated southeast of the cottages and two additional cottages stood on the north side of the river. Several other cottages occupied an area north of Plant 2. Nothing remains of the horse barn or the two cottage. Only one of the other cottages in the area north of Plant 2 remains. A root cellar marks the dormitory site.

Although Snoqualmie Falls remains the dominant feature, the setting has changed over the years. As early as the 1870s, Snoqualmie Falls drew significant numbers of tourists. However, the completion of the hydroelectric project introduced an engineering aspect to the scene that enhanced the trip for many visitors to the Falls in the early 20th century. When Plant 1 was built in 1898, the north bank of the river was covered by forest and there was no automobile access to the site. Construction of Plant 2 in 1910 resulted in considerable thinning of the forest on the north bank. By the 1920s, an inn had been constructed at the crest of the Falls, across the river from Plant 1, to accommodate the increasing number of tourists. Since the 1960s, additional tourist facilities just outside the district on the north-- including an observation deck, a picnic area and cafe-gift shop-- have been developed on the bluff overlooking the Falls. The base of the Falls remains a popular place for anglers just as it was at the turn of the century.

All of the buildings and structures in the district are still in use and in good condition. Functions of some of the buildings have changed. The transformer house no longer contains the transformers, which were moved to an adjacent step-up station in the 1970s. The carpenter shop and train depot are used mainly for storage. Much of the equipment in the hydroelectric project has been automated, making the gatehouse outmoded and resulting in a general reduction of staff and maintenance activity around the hydroelectric project.

Contributing elements in the district include those buildings and structures constructed during the period of significance which retain basic integrity of form and fabric. Those elements associated with the original construction of Plant 1 in 1898 are already listed in the National Register (including the underground cavity, tailrace, penstocks, elevator shaft, elevator house, transformer house, and machine shop). An inventory of contributing buildings and structures in the district follows, identified by map number:

1. Dam: Located near the crest of the Falls, the dam is a gravity dam, the head of which can be raised 4.5 feet by manually installing flashboards along the front surface. The dam is 217 feet long, with hydraulically operated metal gates on either side. The dam rests on a natural rock ledge into which steel rails were driven, extending upward into the concrete body of the dam. In 1919, the addition of a downstream spillway section modified the original design of the dam.

2. Intake 1 and penstocks: The intake for the original plant is located about 150 feet above the dam on the south side of the river. It is a rectangular chamber recessed about 20 feet into the river bank and extending 60 along the river, divided into two bays by a center wall of concrete masonry six feet thick and 25 feet high. The floor of the intake is on submerged bedrock about five feet above the level of the river bed. The perimeter of the intake is formed with log cribbing made of sawed cedar timbers. The retaining wall or bulkhead extends for about 450 feet along the southwest bank of the river, 150 feet from the dam to the intake and 300 feet further upstream. The area behind the bulkhead is filled with rock from the excavation of the cavity and graded to form a staging area. The intake has two sets of trashracks. Behind the trashracks are two 8.5 foot wide headgates which can be lowered over the openings of the two penstocks. The penstocks are 7.5 foot diameter steel pipes which descend vertically 270 feet to the underground cavity. through the shaft. At the base of the shaft the penstocks make a right angle turn and feed into the plant.

3. Underground Cavity (For basic description, see above): The original penstocks empty into a horizontal cylindrical receiver which runs 150 feet down the length of the cavity. The receiver is 10 feet in diameter for half its length then tapers to 7.5 feet for the second half. The receiver has five outlets: four feed turbines that drive the generators and the fifth which divides to supply water to two exciters. The turbine unit has six waterwheel encased in sheet steel housings with three wheels in each housing and two housings for each generating units. The turbines connect directly to four generators by a horizontal shaft of 9 inch diameter forged steel. The shaft for each unit is 24 feet, 5 inches long and is supported by a heavy flange coupling secured to the generator shaft and bolted to sole plates embedded in the concrete foundation. These four generating units have a unique design, the field poles being stationary and the current generated in the rotor and drawn off by collector rings to produce three-phase power. The second penstock feeds directly into the turbine for Unit 5,

added in 1905. Unit 5 is a conventional horizontal three phase generator, which produces about the same amount of current as Units 1-4 combined.

4. Tailrace or tunnel: The tailrace measures 12 feet wide and 24 feet deep and extends 650 feet from the floor of the chamber to a point near the base of the Falls at approximately the high water mark of the river. A narrow wooden catwalk is suspended from the roof of the tailrace and runs the entire length of the tunnel.

5. Elevator house. An elevator house built in 1898 and faced in corrugated metal siding, provides access to the shaft. The house was modified in the 1940s when its roof was raised to accommodate an electric elevator.

7. Transformer House: The transformer house was constructed in 1898 at the time of the underground cavity. It was the first building constructed specifically to house electrical transformers. In 1903, the structure was expanded to accommodate additional equipment but no further modifications have been made since then.

The two story brick building rests on a concrete foundation, with the upper walls recessed form the foundation the width of one brick. The brick is laid in English bond. The walls are divided into four bays on the north and south elevations, and three bays on the east and west elevations. Each bay contains a recessed panel with corbelled brick at the top. A smooth concrete band above the bays is capped by with a corbelled brick dentilated cornice. The north and south sides of the building feature openings in the concrete band to accommodate electrical lines leading to the transformer station. Each of the bays on the north and south elevations contains a rectangular six-over-six double hung wood sash window with a round window above. Both windows have decorative brick surrounds. The round windows are divided into eight lights that radiate from a small central pane. The bays on the west elevation of the building contain decorative brick panels while the east bays are plain.

The arched opening in the center bay on the east side contains a wood board and batten door and an arched transom that has been filled with plywood. On the west side, the arched opening has been bricked in and replaced with a smaller board and batten door. Round windows are located above each entrance. The doors have vertical tongue and groove boards on the interior and a decorative batten pattern on the exterior side.

The standing seam metal hip roof contains a hidden gutter system with two down spouts on each of the north and south elevations.

The interior was gutted by fire in 1903 and reconstructed. It features painted brick walls, concrete floor, and wood ceiling. The brick walls repeat the pilaster pattern on the outside of the building. The transformers that lined the outer bays have been removed. A steel framework supports concrete platforms along the north and south interior walls which formerly supported transformer equipment.

8. Machine Shop: Built in 1898, the machine shop is a one story brick building resting on a concrete foundation. Nine arched bays are located on the north and south sides, and three arched brick bays are located on the west side. The west brick wall rises to a stepped parapet with a concrete cap; the east wall, which is recessed, rises to a gabled parapet with a corbeled brick top.

Recessed arches on the north side of the building have rectangular one-over-one, wood double hung windows with arched wood windows surmounted by arched wood windows. The south side is similar except that there are several arches in-filled with brick and the one-over-one double hung windows are smaller. A wooden double door with arched transom, characterizes the central arch. Two rectangular one-over-one windows, with an arched window over the top, are on the west side. There is a round hinged window in the stepped gable end with decorative brick patterns around the opening. The east side has two square 12-pane wood window on the outer edges of the recessed panel, and a rectangular six-over-six double hung wood window in the brick gable end. An original standing seam metal roof with three skylights on the north side caps the building.

Originally the building included separate rooms for the machine shop, carpenter shop, and blacksmith shop. In 1911, the shop was extended with an 36 foot addition on the east end, changing the stepped parapet wall to a gable end.

9. Carpenter Shop: Built before 1900, the carpenter shop is a one-story wood frame building, clad in corrugated metal siding, which lies on a wood pier foundation and is situated on an incline. The shallow gable roof is composed of metal and has exposed rafter tails. The southwest side has a single entry and six-light, fixed pane windows and a small four-light window in the gable. There are seven six-light fixed pane windows in the northeast side and two in the southeast side. The doors are wood and are covered with corrugated metal siding.

The interior of the building has open wood frame walls and roof trusses. These are some interior partitions with beaded wood siding. Wood planks cover the floor.

10. Garage: Built before 1900, the garage is a single story wood frame building that rests on a wood pier foundation. The building is covered with drop lap siding. An asphalt shingle hip roof covers the building. The southwest facade of the building is divided into thirds with two wood hinged garage doors on each of the two outer thirds. The northwest and southeast sides of the garage have four-

paned fixed wood windows. A wood rack for servicing vehicles is located on the northwest side of the building.

The interior of the building is open wood frame and open wood trusses in the ceiling. The floor is wood plank. The building is in good condition.

11. Train Depot/railroad: (Please note: the exact date of construction of the depot has not been verified.) The train depot is a one story wood frame building sitting on a concrete foundation. It has a steeply pitched gable roof tied into a flared pent roof surrounding the building. The hip roof is supported by wood braces. The roof is covered with asphalt shingles. The walls are sided in shingles below and vertical beaded board siding above. The gabled ends are covered with wood shingles. A wood deck wraps around three sides of the building under the hip roof. There is a single wood panelled door on the southeast side; a set of double wood panelled doors on the northeast side; and double vertical tongue and groove wood doors, with decorative battens, on the southwest, or track side, of the depot. There are four-by-four sliding wood windows and round windows with decorative tracery-like muntins located in each of the gable ends.

The interior of the building has beaded wood walls and ceiling and a wood plank floor. The railroad tracks are still located along the southwest side of the building.

13. Superintendent's House: Built about 1910, the Superintendent's house is a two-story wood frame building with a half-daylight basement on a steep slope. The first floor is accessible from the north by an exterior wood stairway on the lower level. The walls on the upper two floors are covered with tongue and groove horizontal wood siding, while the basement level is covered with wood shingles. A drip board separates the basement from the first floor. The structure has an asphalt shingle gable roof with exposed rafter tails. It sits on a concrete foundation.

An original wood frame porch extends approximately two-thirds of the east elevation. The exterior walls are faced in vertical beaded board walls. Alternating hinged and fixed nine-pane wood windows are located on three elevations. The north elevation features two-over-two double hung wood windows.

Several additions have effected the integrity of the structure. The building was expanded to the south with a new gable roof. A second story was added to the west end, while the lower level was altered with large picture windows to allow more light.

The interior was completely remodelled. The few original elements include some of the plaster walls and ceilings, and some of the simple trim around the windows.

16. Assistant Superintendent's House: Built about 1898, this house is a one-and-one-half story wood frame structure with an attached two car garage. The house features wood lap siding and a gable roof. Tongue and groove, horizontal wood siding covers the walls. The house sits on a concrete foundation and is covered by a pyramidal hip roof with asphalt shingles. There is a wood frame entryway on the north side of the first level and an enclosed wood frame entryway on the west side of the second level.

A major addition on the north side built in the late 1940s greatly altered the house. However, the exterior materials and roofline were retained so that the addition is not as obvious.

Fenestration includes original, wood, one-over-one double hung windows; six-pane, fixed windows; and wood doors with metal storm doors. The garage has two wood overhead doors.

Very little of the original interior fabric remains, except for some plaster walls and ceilings and some window trim. Newer materials were added when some of the rooms were reconfigured.

20. Intake 2: Built in 1910 and located about 200 feet upstream from the Falls, Intake 2 consists of two 40-foot wide bays, lined by concrete, with a concrete wall dividing them. Each bay has four trashracks. The gates are operated locally by electric motors through gearing, rack, and pinions. Automatic rakers were added in 1957.

23. Tunnel portals: The tunnel was built in 1910, and leads from Intake 2 to the forebay. The tunnel is 12 feet in diameter, lined by concrete and extends beneath Salish Lodge so that a portion of it leaves the district boundaries.

24. Forebay: The forebay is an open channel approximately 200 feet long which connects the tunnel with the headgates for the two penstocks that lead to Plant 2. The forebay is cut into bedrock down the length of a bluff overlooking the gorge. At the top of forebay is a small concrete drain valve house set into the rock. This structure has a metal door and a flat inset concrete roof. The total length of the tunnel and forebay from Intake 2 to the penstocks is 1,215 feet.

25. Gatehouse: The gatehouse is a single story concrete structure sitting over concrete gates at the top of the penstocks. The concrete walls are recessed into four bays on the northwest and southeast sides of the building. There is a concrete cornice above the panels and a built-up asphalt roof with a concrete parapet capping the building. The recessed areas have six-over-six double hung windows, while the plain concrete ends have nine-over-nine double hung windows. There are double metal doors at the entrance bay, surmounted by two six-pane fixed windows over the top.

The interior is all concrete with metal grates in the floor to allow access to the gates. The interior houses the mechanized gears operating the gates.

26. Penstocks: Two penstocks convey water down a steep incline 580 feet to Plant 2. The original penstock (c. 1910) is an eight-foot diameter steel pipe, while the subsequent penstock, added in 1957-58, starts as two seven-foot diameter pipes and combines into one 10-foot diameter pipe 75 below the forebay house.

27. Plant 2: Built in 1910 and expanded between 1957 and 1958, Plant 2 is a flat-roofed rectangular concrete building, measuring 46 feet by 120 feet. The plant, which is approximately three stories tall with basement, rests on a concrete wall foundation built into the river bank. The portion above ground level is not divided internally by floors.

The walls are decorated by a plain cornice about one foot below the roofline, and are articulated by a series of recessed panels with high windows. An simple cornice separates a false attic from the lower walls. The attic windows consist of two six-light awning windows in each panel; the lower windows consist of eight nine-light fixed pane windows in each panel with large screens over them. The middle panel at each end of the building contains a shortened window above a tall vehicle entry. The vehicle entry on the south side has two five-panel wood doors. The vehicle entry on the north side contains a metal overhead door. In addition, the right panel on the north side has a shortened window, with a single person entry door underneath.

The main output step-up transformer is located between the powerhouse and the toe of the hill, along with a walkway enclosed by a chain link fence which is used by visitors to descend to the base of the Falls. The flat, built-up roof is surrounded by a concrete parapet with a central gutter system and a metal downspout.

Inside Plant 2 are two units. Unit 1, installed in 1910, is a dual discharge horizontal Francis-type turbine rated at 10,000 horsepower and equipped with a Woodward-type LHR hydraulic governor. The horizontal shaft generator for Unit 1 has a solid-state exciter connected directly to the main field windings with a voltage regulator incorporated into the unit. Unit 2, added in 1957 and 1958, is a vertical Francis-type turbine rated at 28,000 horsepower. It also utilizes a Woodward-type LHR hydraulic governor. It has a modern, vertical shaft generator, with a solid-state regulator unit which feeds a directly connected main exciter. Together these units produce more than double the capacity of the five older units in Plant 1. Power generated by the two units is raised from 6,900 volts to 115,000 volts by a single, three-phase transformer and conveyed by transmission lines one-half mile to the Snoqualmie Falls switching station.

29. Storage Shed: The storage shed is located directly south of Plant 2. It has corrugated metal siding, a gable roof, and a concrete pad foundation. It has six-light fixed pane windows on the south side and a metal door with a light mounted in the gable on the west side.

Noncontributing elements are those buildings and structures built outside the period of significance. These include:

6. Step-Up Station (1970s)
12. Depot Garage (replaced historic garage at unknown date) *
14. Superintendent's Garage (post-1949)
15. Greenhouse (post-1949)
17. Assistant Superintendent's Storage (post-1949)
19. Footbridge (1932)
28. Carport (1957-58)

Outside the boundaries are other noncontributing elements which post-date the period of significance including the control house (21) and switching station (22), both from 1957-58, and the various tourist amenities developed between the 1960s and the 1980s, including the observation platform (38), Snoqualmie Falls Park picnic shelters (39), cafe/gift shop (35), and Salish Lodge (42). Also outside the boundaries is one historic structure--the machinist's residence, from about 1910. It is excluded from the district boundaries because it is visually and physically separated from the district by a wooded slope.

(* The exact date of the depot garage has not been verified.)

8. Statement of Significance

Certifying official has considered the significance of this property in relation to other properties:
[X] nationally [ ] statewide [ ] locally

Applicable National Register Criteria [X] A [ ] B [X] C [ ] D

Criteria Considerations (Exceptions) [ ] A [ ] B [ ] C [ ] D [ ] E [ ] F [ ] G

Areas of Significance (enter categories from instructions)
Engineering
Industry

Period of Significance
1898-1910

Significant Dates
1898,1910

Cultural Affiliation
N/A

Significant Person
N/A

Architect/Builder
Baker, Charles; Stone and Webster (See text)

State significance of property, and justify criteria, criteria considerations, and areas and periods of significance noted above.

The Snoqualmie Falls Hydroelectric Power Plant Historic District is significantly associated with the development of hydroelectric power in the Northwest. Constructed in 1898, the plant was the first hydroelectric project in the region to utilize a natural waterfall and the first in the world to have a completely underground electric generating station. It also proved the potential for other hydroelectric projects in the Cascade Range to provide commercial service for cities located miles away. The plant reflects significant engineering accomplishments, utilizing a high waterfall and housing a power plant in a constructed cavity behind the base of the falls. The project was built in several phases between 1898 and 1910 (at which time a second power plant was added). All of the original utilitarian structures, many reflecting a restrained classicism, still stand and are in use, although modified and upgraded in the ensuing years. As an outstanding and well preserved example of a high-head hydroelectric complex, the historic district meets the registration requirements established in the Hydroelectric Power Plants in Washington State Multiple Property Documentation Form.

Historical Background: The Snoqualmie Falls Hydroelectric Project was constructed at the end of the 19th century to supply the growing demand for electrical power in Seattle and Tacoma. In 1885, the Mitchell and Spalding Company, local agents for the Edison Electric Light Company, secured a 25-year franchise from the City of Seattle to develop an electric utility service using Edison's incandescent light bulb and electrical equipment. Under the direction of the Seattle Electric Light Company, this became the first central station system for incandescent lighting west of the Rockies and subsequently expanded rapidly to meet growing urban demands for power.

In addition to Mitchell and Spalding's development of central station electricity in Seattle and other cities in western Washington (including Bellingham and Tacoma), numerous small systems developed in less populous areas to meet the power demands of lumber mills, coal mines, and food processing plants in the region. Many of these small systems were organized as independent electric utilities. Consequently, the owners of these systems faced the problems of unregulated competition, high initial investment, and the difficulties of expansion to produce additional electricity for an increasing demand.

Seattle's hilly topography was a stimulus to replace its inefficient and expensive system of horse-drawn streetcars with electrified streetcars. Interest in this conversion began shortly after the introduction of

[X] See continuation sheet

incandescent lighting by the Seattle Electric Lighting Company in 1886, and the first electrified streetcar service began operation in 1889.

The advantages of serving both electric lighting and streetcar power demands in a combined system became obvious immediately. Relatively quickly, a large number of isolated companies and systems developed to serve lighting, power, and traction loads in limited areas of both Tacoma and Seattle (with at least 12 in Seattle alone). Real estate developers organizers many of these companies, hoping to use the attraction of electrical power and streetcar transportation as an inducement for people to purchase property. Because of their small size and the large capital required to establish these systems, most of them went bankrupt in the financial panic of 1893.

One person involved in the development of electrified transportation in Seattle during this period was Charles H. Baker, a civil engineer who had previously been employed by the Seattle, Lake Shore, and Eastern Railroad (incorporated 1885). In the late 1880s, the railroad expanded its operations northward from Seattle to the Canadian border and eastward around Lake Washington to Fall City, Snoqualmie, and North Bend. The railroad constructed a depot at the Falls in 1889 as part of its plan to build a line over Snoqualmie Pass. This area had boomed following the completion of the transcontinental railroad in the early 1880s, which stimulated the growth of the lumbering, mining, and hops industries in the Snoqualmie Valley. But construction of the Seattle, Lake Shore, and Eastern line ended at Sallal Prairie in 1889 when the company's funds ran out. The Northern Pacific Railroad subsequently purchased the line to preempt its acquisition by rival Great Northern Railroad.

After working for three years as an engineer for the Seattle, Lake Shore, and Eastern, Baker opened his own engineering consulting firm in Seattle where, in 1891, he contracted to build David Denny's Third Street and Suburban Electric Railroad. This venture was almost completed in 1893 when Denny and his associates were ruined by the financial panic, leaving Baker with $60,000 in unpaid judgments against him.

While working for the railroad, Baker had become familiar with the Snoqualmie Valley. He believed that the 268-foot-high Snoqualmie Falls, a local attraction for tourists and anglers, could be a source of hydroelectric power. Although the Falls was over 30 miles from Seattle and Tacoma, the construction of the Niagara Falls power plant in upstate New York (completed in 1895) set a precedent that demonstrated the feasibility of locating the generating plant at a site removed from urban and industrial areas.

Baker also realized that consolidation of the main streetcar lines, bankrupt by the panic of 1893, could produce the electrical load and revenue needed to make construction of a power plant at Snoqualmie Falls economically feasible. In 1897, he obtained an option to buy the necessary property at Snoqualmie Falls and all but one of the streetcar lines in Seattle. The remaining line was owned by a group that included the General Electric Company and Sidney Z. Mitchell of Mitchell and Spalding.

Despite his failure to acquire all of Seattle's streetcar lines, Baker proceeded with his plans to develop the Snoqualmie Falls power plant. He presented the proposal to his father, William Taylor Baker, the president of the Chicago Board of Trade and of the Columbian World Exposition, who organized financial backing for the project. The Bakers agreed to form the Snoqualmie Falls Power Company as equal partners and decided to keep their agreement secret. The titles to the real estate, water rights, and equipment were put in the senior Baker's name in order to protect them from outstanding judgments against his son.

Construction of Snoqualmie Falls Hydroelectric Project: The construction of the Snoqualmie Falls power plant began in April 1898 under the sole direction of Charles Baker. None of the work was contracted out, and laborers worked three shifts around the clock. The Seattle and International Railway delivered all the machinery and supplies to the site. For delivering heavy materials during construction, a trestle was built over the sidetrack to the cavity shaft; a traversing hoist then raised the material from the railroad cars to the works.

Because of problems associated with exposing generating machinery to constant mist and seasonal freezing weather, Baker decided to place the generating plant in a cavity hollowed out 270 feet beneath the Snoqualmie River and 300 feet upriver from the lip of the Falls, rather than constructing a plant at the base of the Falls. This internal location would ensure a dry generating plant with a constant temperature regardless of external weather conditions.

Workers used compressed air drills to bore intersecting vertical and horizontal shafts through the basaltic rock and to excavate the internal cavity. The vertical shaft provided access to the cavity for the elevator, penstock, and power lines. The horizontal shaft became the tunnel for the tailrace and catwalk that led from the cavity to the high water mark at the base of the Falls. The excavation of the vertical shaft required construction of a cofferdam to prevent flooding in the event of high water in the river.

Despite the dangers involved, including the use of dynamite to excavate the cavity under the Falls, no one was injured in building the powerhouse. Workers removed most of the spoil from the excavation through the vertical shaft with a Lidgerwood hoist. They dumped the fill behind a timber crib on the south side of the river bed, thus forming a base along the river for the location of the transformer house, office, and machine shop.

The cavity measured 200 feet long, 40 feet wide, and 30 feet high, and housed the generating and control equipment and control room of Plant 1. Workers lowered this equipment into the cavity without the benefit of a crane, which was not available at the site until 1901. The crane was housed in the oil house until it was replaced by an elevator powered by a water-driven turbine. The installation of an electrically powered elevator in the late 1940s necessitated a modification of the elevator house by raising its roof.

About 150 feet downriver from the Plant 1 intake, workers built a 217 foot submerged concrete gravity dam to raise the low water elevation by six feet at the intake. The dam rested on the bottom of the river on a natural rock ledge about three feet high and was constructed during low water, with portions of the river laid bare by cofferdams. The river bed was cleaned of loose rock and roughened by explosive blasts. Workers drove steel rails into holes two feet deep in the river bed, which extended upward into the concrete body of the dam. Old railway cables were also embedded in the concrete to strengthen the construction.

The Snoqualmie Falls power plant employed new technology that developed rapidly at the end of the 19th century to meet the challenges presented by particularities of western water sources. The rapidity of technological change in the period was exemplified by the fact that when a fifth generator was installed in the cavity in 1905, it produced as much power as the first four generators combined. Although aware of the rapidity of technological change, Baker believed that the Snoqualmie Falls plant would not become obsolete. Baker wrote that "in more or less changed form as future science may suggest it will stand for centuries" (Baker 1908: 266).

The placement of the generators within the cavity below Snoqualmie Falls meant that the availability of a high head flow did not require an elaborate water conveyance system of dams, flumes, pipelines, or canals. Instead, at Plant 1 the downward flow of water through the 270 foot penstocks produced the volume necessary to generate power. Scientific American claimed that the "natural advantages" of the location "are not excelled anywhere"; the project, they wrote, is "one absolutely unique in the annals of like undertakings" (Brown 1902: 137).

The original four generating units were also unique in two respects: the massive nozzles which directed the water toward the waterwheels were geared together outside each turbine's metal housing, and the generating units utilized stationary field poles, with the current being generated in the rotor and drawn off by massive collector rings to produce three-phase power. The power was transmitted using Westinghouse alternating current equipment, Initially, the plant transmitted current at 32,000 volts from the Falls to Seattle, Tacoma, Everett and several intervening towns. By 1902, the owners of the plant raised the voltage to 50,000 volts.

In addition to the plant itself, the facility also included housing for officers and visitors and a dormitory for employees. Scientific American reported that a "busy community has grown up beside the cataract (Brown 1902:137).

Yet despite the size and complexity of the project, the facility was brought on-line in short time and with relatively low cost. Plant 1 began generating current in 1898 and first supplied commercial power to Seattle and Tacoma in 1899. The construction cost totalled about 40 percent of the investment of the Niagara Falls plant. Baker boasted that "there is probably no other plant in this country of the same capacity so cheaply and at the same time so well built as our Snoqualmie plant" (Baker 1908: 204).

Stone and Webster Take Over the Project: In addition to supervising construction of the power plant and administering the company, Baker also acted as the chief publicist for the project. He wrote numerous articles hoping to win public attention and to silence critics who attempted to discredit his project as dangerous and not feasible.

In 1901, Baker formed the Seattle Cataract and Tacoma Cataract Companies to sell the power produced by his power plant. The plant supplied most of the electrical needs of the 120,000 people living in Seattle and Tacoma. It also served small communities near switching stations along the main transmission line. Among other uses, the electricity powered street railway systems, flour mills, car shops, iron works, elevators, machine shops, smelters, and coal mines.

Despite the demand, the power company failed to make a profit. Baker was unsuccessful in completely consolidating the competitive and unregulated Seattle streetcar market. In addition, he faced continued criticism from Sidney Mitchell and other rivals who believed that the power supply from the Falls was unreliable.

The Seattle Electric Company, formed in 1900 by the consulting engineering firm of Charles Stone and Edwin Webster, proved to be the chief rival of Baker's Snoqualmie Falls Power Company. In 1898, Stone and Webster had been requested by Mitchell and others to reorganize the Seattle utilities and traction systems. A number of small competing companies were frequently in financial straits and used poorly maintained equipment.

In conjunction with Jacob Furth, Stone and Webster formed the Seattle Electric Company. Under Furth's presidency, the Company consolidated the operations of virtually all of the existing lighting, traction, and related subsidiary businesses in Seattle. Eventually, Furth acquired the Snoqualmie Falls Power Company, with Stone and Webster recapitalizing the venture and offering technical advice.

In 1903, a fire caused by high tension line problems destroyed the transformer house, burned the timber lining of the elevator shaft, damaged all but one of the generators in the cavity, and put the plant out of operations for 36 hours. Baker believed that the fire was incendiary.

When Baker's father died in 1903, the secret partnership agreement between William Baker and his son went legally unrecognized and Charles Baker was denied any interest in the Snoqualmie Falls Power Company. The courts liquidated the company's assets and the Snoqualmie Falls Power Company was succeeded by the Snoqualmie Falls and White River Power Company.

In 1905, the operators of the new company increased the capacity of the plant by adding a fifth generator which, when installed, was the largest single wheel Francis turbine in the world.

In 1910, Stone and Webster constructed Plant 2 one-quarter mile downriver from the Falls. By contrast with the first plant, Plant 2 required a more complicated system to produce a high head. An intake diverted water into a 1,215 foot tunnel to an open forebay. It then entered an eight-foot diameter penstock below the gatehouse and flowed 515 feet to the powerhouse below.

In 1912, the Stone and Webster Managerial Association acquired the company, which was incorporated as the Puget Sound Traction, Light, and Power Company, forerunner to the present-day Puget Power.

Later Improvements to the Plant: Increased automation at the plant resulted in a smaller work force, and a decreased demand for on-site housing. The workers' dormitory was removed by 1949 and several houses and cottages were removed as a result of the automation of the plant in the 1950s. In 1957-58, new construction included the building of the control house and the enlargement of Plant 2.

After the construction of the power plant at the turn of the century, the 27 acres of land covering the works, the brink of the Falls, and both banks of the river were landscaped as a park with lawns, walks, flower beds, and an observation platform. In the early 1900s, the Falls and power plant could be reached from Seattle in four hours by either train or automobile. By the 1920s, Snoqualmie Falls Lodge had been constructed just outside the district boundaries to house tourist. New tourist facilities, built between 1967 and 1968, included a landscaped picnic area, observation deck, restrooms, cafe and gift shop. In 1986, the historic lodge was dramatically remodelled and enlarged to its present state. Because the historic tourist facilities and landscaping are almost totally altered or destroyed, none of the present tourist facilities is included in the boundaries of the district.

In 1975, the Snoqualmie Falls Cavity Generating Plant was listed in the National Register. The listed property included the underground cavity, tailrace, transformer house, and machine shop, as well as features directly related to Intake 1 and the elevator house. The historic district includes an additional 12 buildings and structures also associated with the historic development of the plant.

9. Major Bibliographical References

Wing, Robert C., A Century of Service: The Puget Power Story, Puget Sound Power & Light Company, Bellevue, Washington, 1987.

Young, Lewis F., "History of the Cavity Generating Station of the Puget Sound Power and Light Company, Snoqualmie Falls.", Monograph in the Puget Sound and Light Company library, n.d.

☐ See continuation sheet

Previous documentation on file (NPS):

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

Primary location of additional data:

- ☐ State historic preservation office
- ☐ Other State agency
- ☐ Federal agency
- ☐ Local government
- ☐ University
- ☐ Other

Specify repository: ____

10. Geographical Data

Acreage of property 25 acres

UTM References

	Zone	Easting	Northing
A	10	587200	5266140
B	10	587320	5266160
C	10	587810	5265540
D	10	587880	5265640

☐ See continuation sheet

Verbal Boundary Description

See continuation sheet.

☒ See continuation sheet

Boundary Justification

See continuation sheet

☒ See continuation sheet

11. Form Prepared By

Name/title: Theodore Catton, Historian, and Gail Thompson, Program Manager

organization: Historical Research Associates, Inc. date: November 21, 1991

street & number: 119 Pine Street, Suite 301 telephone: (206) 343-0226

city or town: Seattle state: Washington zip code: 98101

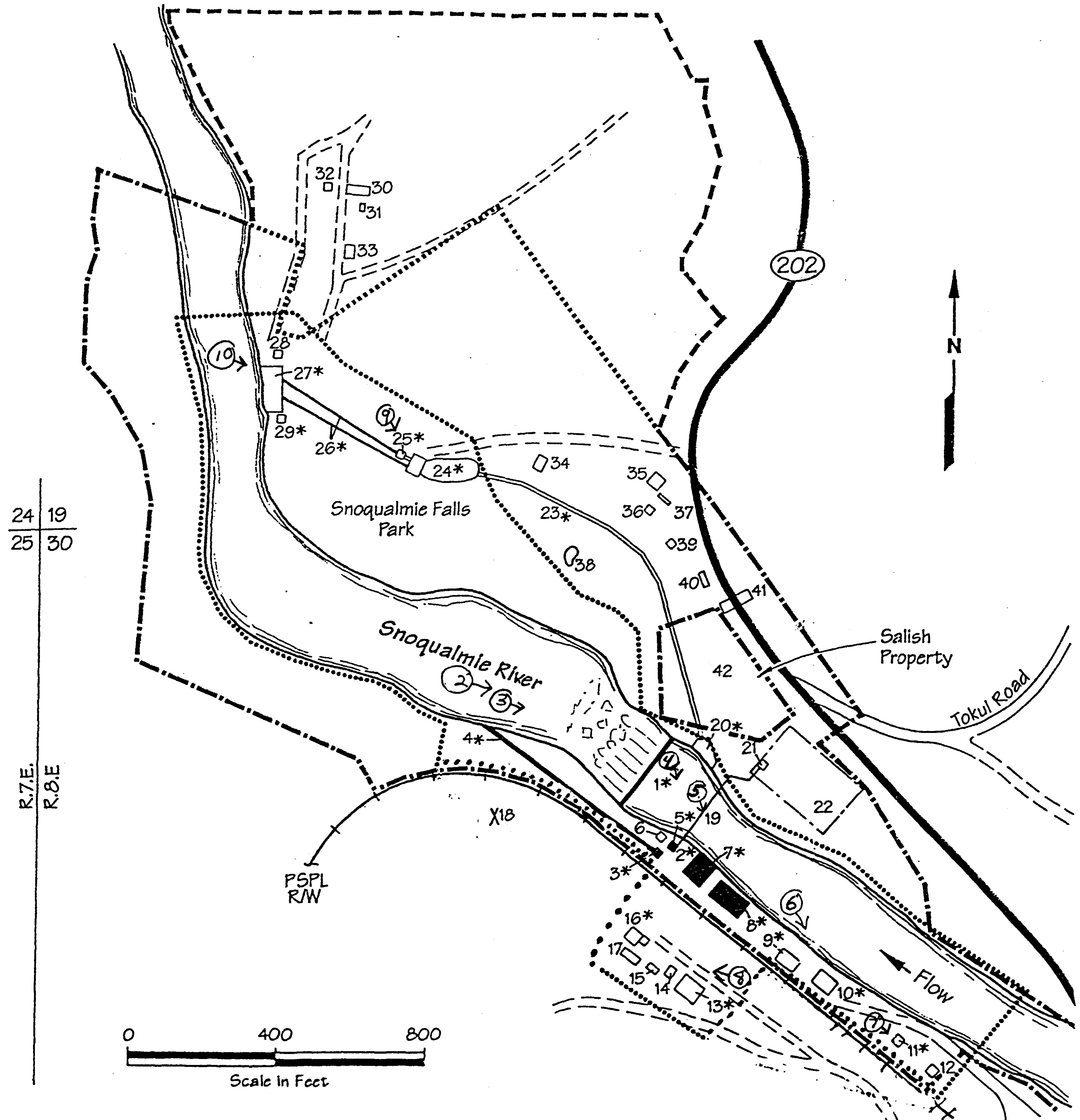
<u>Verbal Boundary Description:</u> The boundary of the Snoqualmie Falls Hydroelectric Power Plant Historic District is generally described thusly: Beginning at the south bank of the Snoqualmie River immediately east of the Snoqualmie Falls Depot Garage, proceed southwesterly along the Snoqualmie Falls Hydroelectric Project FERC Boundary to the railroad tracks; then proceed westerly along the FERC project boundary, following the railroad tracks, to a point parallel to the southeastern corner of the Carpenter Shop; then proceed southwesterly approximately 250 feet; then proceed northwesterly approximately 400 feet along the rear of the superintendent's and assistant superintendent's houses; then proceed northeasterly to the project boundary line (railroad tracks); then follow the project boundary line along the railroad tracks approximately 600 feet; then proceed northerly to the south bank of the Snoqualmie River and follow the shoreline in a northwestern route to a point parallel to the Plant Two carport on the opposite bank; then proceed east approximately 350 feet across the river and north of the carport; then proceed southeasterly uphill to the forebay; then follow the treeline in a southeasterly direction until reaching the north bank of the river at the Falls; then follow the river bank to a point on the north bank opposite the point of beginning; then turn south and cross the river to the point of beginning. The boundary is illustrated on the enclosed sketch map drawn to the scale of 1 1/4 inches equals 400 feet.

<u>Boundary Justification:</u> The boundary of the historic district includes all contributing buildings and structures within the Snoqualmie Falls Hydroelectric Project boundaries. The nomination boundaries have been further delineated to exclude as many non-contributing and nonhistoric features as possible. The district includes three discrete but inter-related areas as discussed in section 7. These are (1) the area around Plant 1 including tailrace, intake and penstocks, transformer house, machine shop, elevator house, carpenter shop, railroad depot, superintendent's and assistant superintendent's houses; (2) the area around Plant 2 including forebay, penstocks, and shed; and (3) the area around the Falls itself including dam and intake 2.

The district boundaries exclude the switching station and control house which are later developments. The boundaries also exclude Salish Lodge and the various tourist improvements in Snoqualmie Falls Park. While the lodge and switching station are visible from the district, these features do not relate to the historic period. The park is not visible from the district. The north river bank forms a natural boundary between these features and the district.

The two portals for the tunnel are included in the boundaries, although the tunnel itself runs beneath Snoqualmie Falls Park and is therefore excluded from the boundaries.

The residences above Plant 1 are included in the district because of their historical integrity and their visual continuity with the industrial buildings in the district. The machinist residence and garage associated with Plant 2 are separated from the district (and hidden from view) by a wooded slope and possess less integrity. Because of their lack of physical continuity and integrity, they are excluded from the boundaries.



Buildings and Structures

1. Dam
2. Intake 1 and Penstock
3. Plant 1 Underground Cavity
4. Tunnel (Tailrace)
5. Elevator House
6. Step-up Station
7. Transformer House
8. Machine shop
9. Carpenter Shop
10. Garage
11. Train Depot/Railroad
12. Depot Garage
13. Superintendent's House
14. Superintendent's Garage
15. Greenhouse
16. Asst. Superintendent's House
17. Asst. Superintendent's Storage
18. Root Cellar/Dormitory Site
19. Footbridge
20. Intake 2
21. Control House
22. Switching Station (excluded from Project)
23. Tunnel (Portals contribute)
24. Forebay
25. Gatehouse
26. Penstocks
27. Plant 2
28. Carport
29. Shed
30. Machinist's House
31. Shed
32. New Garage
33. Old Garage
34. Forebay Garage
35. Cafe/Gift Shop
36. Restrooms
37. Information Kiosk
38. Observation Platform
39. Picnic Shelter/Area
40. Sign
41. Footbridge/Overpass
42. Salish Lodge

LEGEND:

- U.S. Highway
- Roads (Dashed-Gravel)
- Historic District Boundary
- Existing Project Boundary
- Proposed Project Boundary
- Existing/Proposed Project Boundary
- 8 Buildings and Structures Already Listed on NRHP
- 1* Contributing Buildings and Structures
- 28 Noncontributing Buildings + Structures
- (1) photo view

PUGET SOUND POWER & LIGHT COMPANY
APPLICATION FOR NEW LICENSE
SNOQUALMIE FALLS HYDROELECTRIC PROJECT
FERC PROJECT NO. 2493

SNOQUALMIE FALLS HISTORIC DISTRICT

FIGURE 4.0-1