NPS Form 10-900
(Oct. 1990)

OMB No. 10024-0018

United States Department of the Interior
National Park Service

National Register of Historic Places Registration Form

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

1. Name of Property

historic name Hull, Ralph, Lumber Company Mill Complex

other names/site number Hull-Oakes Lumber Company Mill

2. Location

street & number 23837 Dawson Road N/A not for publication

city or town Monroe ☒ vicinity

state Oregon code OR county Benton code 003 zip code 97456

3. State/Federal Agency Certification

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

Signature of certifying official/Title Deputy SHPO Date June 28, 1996

Oregon State Historic Preservation Office
State of Federal agency and bureau

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

Signature of certifying official/Title Date

State or Federal agency and bureau

4. National Park Service Certification

I hereby certify that the property is:

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

Signature of the Keeper Date of Action

8/2/96

Hull, Ralph, Lumber Company Mill Complex
Name of Property

Benton County, Oregon
County and State

5. Classification

Ownership of Property
(Check as many boxes as apply)

- [X] private
- [ ] public-local
- [ ] public-State
- [ ] public-Federal

Category of Property
(Check only one box)

- [ ] building(s)
- [X] district
- [ ] site
- [ ] structure
- [ ] object

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

Contributing	Noncontributing	
6		buildings
		sites
2	6	structures
		objects
8	6	Total

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

N/A

Number of contributing resources previously listed in the National Register

N/A

6. Function or Use

Historic Functions
(Enter categories from instructions)

Industry

Current Functions
(Enter categories from instructions)

Industry/manufacturing facility/sawmill

7. Description

Architectural Classification
(Enter categories from instructions)

Industrial vernacular

Materials
(Enter categories from instructions)

foundation concrete, wood

walls wood (ship lap, laminated plank)
sheet metal

roof wood (shingle), sheet metal

other

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

8. Statement of Significance

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

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

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

Property is:

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

Areas of Significance
(Enter categories from instructions)

Industry
Engineering

Period of Significance

1938-1946

Significant Dates

1938

Significant Person
(Complete if Criterion B is marked above)

N/A

Cultural Affiliation

N/A

Architect/Builder

Ralph Hull

Narrative Statement of Significance
(Explain the significance of the property on one or more continuation sheets.)

9. Major Bibliographical References

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

Previous documentation on file (NPS):

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

Primary location of additional data:

- [X] State Historic Preservation Office
- [ ] Other State agency
- [ ] Federal agency
- [ ] Local government
- [X] University
- [ ] Other

Name of repository:

Oregon State University

Hull, Ralph, Lumber Company Mill Complex
Name of Property

Benton County, Oregon
County and State

10. Geographical Data

Acreage of Property 28.48

Glenbrook, Oregon 1:24000

UTM References
(Place additional UTM references on a continuation sheet.)

	Zone	Easting	Northing
1	10	467580	4911970
2	10	467580	4911500
3	10	467070	4911500
4	10	467070	4911970

☐ See continuation sheet

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

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

11. Form Prepared By

name/title George B. Wisner

organization N/A date November 30, 1995

street & number 25124 Alpine Road telephone 541/424-3120

city or town Monroe state OR zip code 97456

Additional Documentation

Submit the following items with the completed form:

Continuation Sheets

Maps

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

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

Photographs

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

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

Property Owner

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

name Hull-Oakes Lumber Company; Ralph Hull and Donald Oakes, principals

street & number PO Box 40 telephone 541/424-3112

city or town Monroe state OR zip code 97456

HULL, RALPH, LUMBER COMPANY MILL COMPLEX (1938)
(Hull-Oakes Lumber Company Mill)
23837 Dawson Road
Monroe vicinity, Benton County

COMMENTS OF THE STATE HISTORIC PRESERVATION OFFICE

The operational center of the Ralph Hull Lumber Company overspreads just under 28 and a half acres on the east slope of foothills of the Coast Range about three miles west of Bellfountain in rural Benton County, Oregon. The site of the verancular industrial plant developed by Ralph Hull in 1938 and 1939 is a location on the Southern Pacific railhead known as Dawson Station. Even though an earlier sawmill had occupied the site since 1919, industrial-capacity electrical service did not extend to this rural location before 1949.

Traditionally, the mill complex has been operated with steam engines and lumber-manufacturing machinery characteristic of the early 20th century. Electrical power was gradually introduced in beginning in the Post War era, but even today the mill is 50 percent powered by steam engine. Since 1955, when Hull formed a partnership with Chester Oakes, the mill has operated under three different corporate configurations. It is commonly known today as the Hull-Oakes Lumber Company. The railhead is presently leased to the Willamette and Pacific Railroad.

The title of the nomination adheres to company's corporate make-up during the historic period of significance, which ends shortly after the close of the Second World War. Throughout that time, the plant operated as the Ralph Hull Lumber Company mill. It is considered by those in the industry, such as the Western Wood Products Association headquartered in Portland, Oregon, to be one of the last commercially-viable steam-powered sawmills in the country -- possibly *the* last such sawmill.

The mill's output traditionally consisted of dimension lumber and specialty products involving the cutting in one pass of large dimension logs up to 85 feet in length. Such custom milled products include bridge stringers, beams for gold dredges, pier supports and other heavy timber framing elements. In recent years, the mill supplied deck support planks for the restoration of the United States frigate, *Constitution*, which under the command of Captain Isaac Hull delivered a celebrated naval victory during the War of 1812. The historic period of significance has been drawn to 1946 in part to reflect the mill's contribution to the War effort during the Second World War, when double shifts were operated to supply the demand for large-dimension and long-length timbers used in government construction projects. But 1946 is chosen as the pivotal date chiefly because it was in that year that corporate interests other than that of the company founder commenced to be involved. When Hull's brother, Homer, purchased the company after the war, Ralph stayed on to manage the mill. In 1949, he left for a new venture in the woods of northern California and did not resume his owner/manager role at the mill until the partnership was formed with Oakes in 1955.

The application provides a sound context for evaluation and a detailed discussion of the mill's manufacturing process, including the provenance of its machinery. The buildings, typically, are wood frame constructions of one and two stories on reinforced concrete foundations and concrete pads, in part open-sided, roofed and semi-enclosed with metal. Eight features of the 28-acre nominated area are counted as separately contributing because they represent the plant as it was operated during the historic period of significance. Because Ralph Hull's development of 1938-1939 incorporated parts and equipment of the predecessor mill, the origin of some of the buildings and structures reaches back to 1919 or 1920. The contributing features are as follows.

Map No.

1. Main sawmill building (1938, remodeled 1950s)
2. Log pond fed by a tributary of Oliver Creek (1919) - counted as a structure
3. Boiler and fuel storage house (c. 1920)
4. Planer building (c. 1920) and lumber-storage shed attachment (1941)
5. Company office (night watchman's bungalow, c. 1941; modified by additions, 1950s)
6. Old company office and depot building (l920s)
7. Truck maintenance garage (1941)
8. Railroad spurs from the main line pioneered by the Corvallis and Alsea River Railway (1909-1910) and ultimately taken over by the Southern Pacific Railroad (1915 onward). Construction the lumber company spurs is believed to predate 1938 - counted as a collective structure

The six non-contributing features post-dating the period of significance are the following.

9. Wigwam-style refuse burner (1950s), not in use since c. 1970 in conformance state-enforced air quality standards prompted by the Air Quality Act of 1967.
10. Wood chip storage bin (c. 1960)
11. Water reservoir (1960)
12. Water reservoir (1967)
13. Debarking shed and conveyor (1970)
14. Concrete tunnel (1950s) diverting log pond outflow from main supports of sawmill to Oliver Creek

The historic mill complex developed and operated by Ralph Hull in the period 1938 to 1946 meets National Register Criterion C in the areas of industry and engineering as a rare, working representative of lumber manufacturing equipment and methods characteristic of the era of steam power. Once the state's leading extractive industry, lumber manufacture in Oregon has experienced profound change in recent years preciptated by the depletion of reserves of old-growth timber and the application of labor-saving computer and laser technologies. A steam-powered operation of such integrity as that presently sustained by the Hull-Oakes Lumber Company is anachronistic at the same time it fulfills a specialized market niche. The *ad hoc* historic context advisory committee of the Oregon State Historic Preservation Office identified the lumber and fishing industries as having paramount priority for context development due to the accelerated rate of decline in resources relating to them. This nomination fulfills a need for documentation and registration of a resource so exceptional as to have statewide significance and potential for national distinction as well. The mill complex meets Criterion A as a signficant contributor to the base economy of southern Benton County. The mill was a stabilizing influence on local economy during the Depression and War years which were concurrent with the historic period.

Nomination Processing Summary

During its meeting of February 15, 1996, the Oregon State Advisory Committee on Historic Preservation unanimously approved the Ralph Hull Lumber Company Mill Complex for nomination to the National Register of Historic Places. However, it had not been recognized at the time that the boundary description excluded rail and road rights of way which transect the property. In subsequent consultation with reviewers of the National Register, staff of the State Historic Preservation Office confirmed that excluding area that virtually splits a nominated area in half would not meet National Register standards for historic districts.

To correct the situation, the boundary description was amended to include not only the holdings of the Hull-Oakes Lumber Company (26.90 acres) but, in addition, about 650 lineal feet of 40-foot right of way of the Southern Pacific Transportation Company and an equivalent length of Benton County road right of way which transect the holdings of the lumber company. Including adjacent rail and road rights of way, the revised nomination proposal became an area of 28.48 acres.

To ensure that Benton County and the Southern Pacific Transportation Company, as affected property owners, had an opportunity to comment pursuant to 36 CFR 60, public review of the proposal was continued to May 16, 1996 with due notification to the parties. Comments supporting the nomination as initially proposed had been received in March from Benton County and the leasee, Willamette & Pacific Railroad, Inc. No additional comments on the boundary change were received from these parties. The Southern Pacific Transportation Company commented on March 21, 1996 that it had no objection to the nomination "provided...the designation does not include the railroad track or SPT owned property." The State Historic Preservation Office responded to clarify the proposal, which was to include the terminal section of Southern Pacific Transporation Company railroad with associated right of way. No further written comments were received pursuant to 36 CFR 60.6.

During its meeting of May 16, 1996, the State Advisory Committee on Historic Preservation affirmed its unanimous approval of the nomination, now to include the road and rail rights of way bordered by holdings of the Hull-Oakes Lumber Company described in Section 10. Correspondence documenting these procedures accompany this application.

Overview

Constructed in the winter of 1938-39 after a fire destroyed most of a sawmill that had previously been on the same site since 1919, the Ralph Hull Lumber Co. (now known as the Hull-Oakes Lumber Co.) was built specifically as a sawmill. Today, the complex of buildings continues to serve the same purpose. Since it was built for industrial use, the complex is purely functional and utilitarian and can't be described in terms of any specific architectural style. Benton County lumberman Ralph Hull built the sawmill during 1938 and 1939 in the vernacular tradition, without benefit of formal architectural plans and reflecting what he believed to be the most efficient design for its purpose.

His sawmill is unique: It is considered by the Western Wood Products Association, a lumber industry group based in Portland, Ore., to be one of the last steam-powered commercial sawmills in the nation (Portland *Oregonian* Dec. 19, 1990). It operates with primary lumber-cutting machinery dating to the early twentieth century. As such, the sawmill exemplifies an industry more typical of those operated during the late 1800s and early 1900s before electricity and modern technology such as computers and lasers began to dominate the so-called "modern" sawmilling enterprise.

When Ralph Hull built the sawmill, he operated it as the Ralph Hull Lumber Co. throughout World War II. It was named the Hull Lumber Co. Inc. in late 1946 when Ralph's brother, Homer, purchased the mill. It operated under that name until 1955 when Ralph Hull and Chester Oakes formed a corporation called the Hull-Oakes Lumber Co. Hull and Oakes each owned 50 percent of the stock in the corporation. The mill operated under that name until Dec. 31, 1986 when the first Hull-Oakes Lumber Co. corporation was dissolved and operated as Ralph Hull, D.B.A.(Doing Business As) Hull Oakes Lumber Co. That company operated until Oct. 2, 1989 when a second Hull-Oakes Lumber Co. was formed with Ralph Hull as president, together with six employees. For purposes of this documentation, the plant is referred to throughout as the Ralph Hull Lumber Co. The name preferred for registration is the Hull-Oakes Lumber Co.

The sawmill and related buildings, structures, lumber storage yards, log-storage and handling pond cover about 26.90 acres. They occupy tax lots 601, 700, 800 and 801 on the north and south sides of Dawson Road at a spot historically known as Dawson Station. The location is an unincorporated

"community" and Southern Pacific Railroad railhead. The Willamette and Pacific Railroad in Albany, Ore., has leased the railhead since February, 1993. Dawson Station and the Ralph Hull Lumber Co. sawmill are about three miles west of the southern Benton County town of Bellfountain, T. 14S., R. 6W., sections 9, 10, 15 & 16.

Today, the mill complex consists of the main sawmill building, a lumber planing shed, a building housing two boilers fired by under-the-floor brick Dutch ovens supplied mainly by planer shaving and sawdust fuel from the lumber-cutting process, a shed for de-barking logs, and an idle wigwam-style refuse burner previously used for disposing of unused sawmill wastes. It also includes a mill pond, business office housed in a former rental home on the site, lumber-storage sheds, former business office currently used as a lunchroom, truck and large-equipment maintenance shed, several small outbuildings and two water-storage reservoirs holding a total of 620,000 gallons. Segments of 40-foot-wide county access road and Southern Pacific Railroad rights of way are included for a length of approximately 650 feet. Three company-owned railroad spurs, totaling about 1,200 linear feet, more or less, are included in the nomination. The buildings are primarily of wood frame and some non-combustible construction, one and two stories in height, with metal siding and wood-and-metal-covered roofs. Walls are part open sided. Portions of the wood frame, posts and beams and siding are clad with corrugated metal. Some mill building floors originally were earth, but have gradually been converted to concrete, wood and steel. The following is a description of each building and principal structure:

Contributing Features

1. **Main sawmill** – Although irregular in shape, the main sawmill is roughly 250 feet x 100 feet. According to Hull, the main mill originally contained about 50,000 board feet of lumber, and was built without benefit of formal plans. The mill's main and auxilliary steam engines, carriage-drive engine, assorted shafts, gears, some conveyors, and pulleys that include one approximate 5-foot diameter wooden pulley and other running gear occupy what amounts to a basement area under the building. A millwright built the wooden pulley in one day using a hand saw, according to Hull. It was bolted onto a steel hub and has been in operation at the mill since 1939. A companion wooden wheel, 7 feet in diameter, also was built by plant millwright Bill Reeser to operate a conveyor

to the company's refuse burner. It is no longer used but remains in storage at the mill. Much of the under-the-floor maze is surrounded by concrete footings, channels and conveyors.

The two-story building itself is built atop a reinforced concrete foundation and a variety of concrete pads to which various items of machinery are tied. For the most part, it is of a standard post and beam construction with V- shaped, and lateral carrying trusses for an upper framing above a barn-board plank floor. The building is approximately 40 feet tall at its highest point. Its 30-degree pitch gable roof has overhanging eaves; the wood-frame building and roof are clad with corrugated sheet metal. Where wood siding is left visible, it is vertical boards and battens. Because much of the mill is open-sided, there are few windows in it. However, there are two twin-panel six-pane casement windows providing light to a saw-filing room on the building's northwest side. The saw-filing room is directly north of the main lumber-cutting saw, or head-rig. It was built in about 1953 when the building was modified to accommodate the installation of a band saw to replace twin circular saws that had been the mill's primary lumber-cutting saws.

The positioning of the saw-filing shop, just west of the north/south axis of the sawmill, was necessary to give quick access to saw blades for sharpening. There are also five panels of six panes each mounted in a row near the top of a sliding barn door that is an equipment entry to the saw shop. And there is one four-pane panel that's mounted as a non-opening window on the north side. The panes are tied together by standard mintons. This part of the mill was built in 1938, but was reconstructed and remodeled in the early 1950s to accommodate new equipment. A lumber-sorting chain-type steel conveyor extends about 125 feet to the south from the south-east end of the main mill. The sorter is about 30 feet wide and covered by a post-and-beam supported, metal-clad gabled roof with overhanging eaves. As Hull explained the building process:

> There weren't many alternatives at that time. We poured concrete footings and put up 12x12 posts and 12x12 caps on top of the posts with a 12-inch joist on top of those and that was the mill floor. And we had to build the concrete base for the steam engine that ran the mill. . .which is about 8 feet above ground level. The platform for the engine is beneath the center of the mill. . .No, we didn't have any elaborate plans to build the mill, we just

> built it. . .had a good sawmill person named Hubert K. McBee. . .sawmill people just go ahead and build 'em. They know what's needed and what corners to cut, and that's how we did it. . . originally, we probably used a couple of [railroad] car loads of lumber . . .and in those days a car load was about 25,000 board feet (Hull 1992).

2. **Log Pond** – The log pond, to the west of the sawmill, is about 650 feet long, 150 feet wide and 15 feet deep. It is partially surrounded by concrete and provides working storage for incoming logs. It was built in about 1919 to support previous sawmill operations. The pond originally was built to different dimensions and was later upgraded to its present dimensions.

3. **Boiler and fuel storage house** – A two-story boiler house and fuel bin sits about 70 feet south of the main sawmill, connected by a steel conveyor mounted on concrete pads. The most prominent features of the structure are two 120-foot-tall metal smokestacks that carry away the smoke produced by the combustion of sawdust and planer shavings in the boiler fireboxes below. A planer-shavings cyclone is attached to the top of the building, which also houses a fractionator to break down planer shavings for use in the boiler furnaces. Surplus shavings and sawdust are sold for use in cladboard. The fuel storage bin is constructed of laminated 2-inch by 6-inch boards and 2-inch by 8-inch boards. The sides of the bin are reinforced with bolted beams. The attached boiler house measures roughly 60 feet by 35 feet. Construction materials include concrete, brick and posts, corrugated sheet metal siding and roof. There are no windows in this building.

This structure was part of a previous mill on the site, and was built in about 1920 to house two boilers used to provide steam power for that earlier sawmill operated by W.J. Miller. The inside is a maze of piping and brick used to construct two under-the-building Dutch ovens used to fire the PSMD-brand riveted-steel boilers. The boilers themselves are wrapped in brick. One boiler dates to 1911, and was installed about 1920; the second boiler came from the Freres sawmill near Mill City, Ore. It dates to about 1915, and was installed at the Hull-Oakes sawmill Circa 1980. It replaced an older boiler that was considered to be obsolete, worn-out and unusable. The third boiler remains in the boiler house for water storage.

All of the boilers are constructed of 285C pressure-vessel-quality steel plate; the two actively-used boilers are fired with sawdust and planer shavings. They are called 72 by 18 boilers, which means they are six feet in diameter with heating tubes inside that are 18 feet long. They are known as two-step horizontal return tube boilers. That is because fire from double Dutch ovens that heat the belly of the boilers to temperatures approaching 2,000 degrees Fahrenheit also returns through the metal tubes to further heat the water in the boilers. The boilers are suspended from ceiling rods. They consist of cylindrical shells with flat-ended enclosures into which the .125-inch-thick metal heating tubes are inserted. The arrangement provides the 150-pounds per square inch of steam pressure needed to operate the sawmill's steam engines. The actual history of the boilers is not known. But firetube boilers such as those in the sawmill have been an industry standard for years because of their comparatively low cost of installation, large water capacity and ability to absorb sudden demand fluctuations that are common to sawmills where power required to operate saws varies throughout each working day.

4a. Planer building – A one-story, wood-frame planer building sits about 200 feet southeast of the main sawmill. The building was built in about 1920. It is about 100 feet long, 50 feet wide, and 24 feet high; the building is typical post and timber construction. Its 30-degree roofline has overhanging eaves. It has a corrugated metal roof.

4b. Lumber-storage building – An open-sided wood-frame lumber storage building is attached to the east end of the planing shed. The shed was built in 1941. It measures about 162 feet by 60 feet. It is about 34 feet high, and has "A" frame roof trusses and a lean-to storage shed attached to its south side. The building's 30-degree roofline has overhanging eaves. It has a corrugated metal roof. The building sits on timber posts atop concrete foundation piers. Lumber also is stored on large expanses of concrete and gravel lots around this building.

5. Company office – The company's present office, a former one-story house built in the early 1940s for the mill's night watchman, is about 175 feet northeast of the main sawmill, and on the north side of Dawson Road. It is built as a bungalow, wood-frame style, residence. It was modified with an addition constructed on the east side of the building sometime during the 1950s to further accommodate the use of

the building as an office. It sits on a concrete foundation. The ship-lap, drop-sided office itself measures about 35 feet by 20 feet. It has a concrete and steel vault on its south end. The vault measures about 18 feet x 10 feet, and is about eight feet high. The main office structure measures 35 feet by 20 feet. Its 30-degree roofline has overhanging eaves. It has a wood-shingled roof, and is typical of the vernacular-tradition house of the period. About 12 homes were built at Dawson during the 1920s and 1930s. Because the homes were built by individuals, some trading lumber for wages, the collection of buildings was not considered in the strictest sense to be a "company town" built and operated by a major employer. But everyone who lived in those buildings worked at Dawson-area sawmills or in the woods around them. The office was built for the night watchman in the early 1940s. On the south side of the office, there is one 6-over-1 double-hung sash window, measuring 16 inches by 28 inches; and one 6-over-1 double-hung sash window measuring 34 inches by 50 inches. There also is one 6-over-1 double-hung sash window on the east side of the building; and one single-pane fixed window measuring 72 inches by 40 inches. There is a concrete deck on the north end of the house, which forms a pad for the two-vehicle carport adjacent to Oliver Creek. The carport is attached to the office. Steel beams and posts support the carport roof. There is one 6-over-1 double-hung sash window on the west side of the building. It measures 35 inches by 52 inches. There also is a 12-pane fixed window on the same side. The panes are connected with standard mintons. The windows also are surrounded by plain trim. A small front porch on the west side of the building covers the front entry way and plain entry door.

6. **Former office** – The former company office sits on the north side of Dawson Road about 60 feet north of the main sawmill. It was built in the late 1920s as an office and combination storage area and depot for a rail line serving the W.J. Miller Lumber Co. and the Corvallis Logging Co. The former office is a one-story ship-lap-sided structure, with vertical wainscotting, and a small front porch. Its 30-degree pitch roof has overhanging eaves. There is a small concrete loading and storage dock on the north end of the building, but the rest of the former office has no concrete foundation. It has a corrugated metal roof. There are three 1-over-1 double-hung sash windows on the east side of the building. They measure approximately 50 inches by 27 inches. There are two 1-over-1 double hung sash windows on the south end of the former office. They also measure 50 inches by 27

7. Truck maintenance garage – A 30-foot-tall truck and lumber carrier maintenance garage sits about 150 feet north of the main sawmill, and to the north of Dawson Road. It was built in 1941. The 35-degree roofline of this post and timber building has overhanging eaves and a corrugated metal roof. Its sides are vertical boards and battens. The garage originally was built on a cedar log foundation. There's a brick chimney on the east end of the building, about 12 feet from the south end of the garage. There are two pairs of six-pane casement windows on the east side of the building, and two pairs of six-pane casement windows on the north end. The building has a wood and concrete floor, and a flared corrugated metal roof extension on the west side.

8. Railroad spurs – Three railroad spurs totaling about 1,200 linear feet, more or less, are a collective contributing feature of this nomination. They are spurs off a Southern Pacific Railroad main line that entered the area in 1909-10, and are owned by the Hull-Oakes Lumber Co. Construction dates for the spurs are not exactly known, but they are directly associated with Hull's sawmill and an integral part of the company's product-transportation network. The Southern Pacific main line has been leased since February, 1993 by the Willamette and Pacific Railroad in Albany. The main line was built in 1909-10 by the Corvallis and Alsea River Railway. The Portland, Eugene and Eastern Railway bought it in 1911; the Southern Pacific Railroad bought the line in 1915 (Austin and Dill 1987: 181).The railroad initially was installed as part of a grand scheme to provide transportation from the Willamette Valley to the Oregon Coast. The line from Dawson was never completed to the coast. Other, privately owned, logging railroads also existed in the immediate area.

Non-contributing features

9. Wigwam burner – An all-metal wigwam-style refuse burner sits about 200 feet southwest of the main sawmill, and directly adjacent to the south side of the mill pond. This wire-mesh-capped structure was built during the 1950s to meet the then new state Department of Environmental Quality air quality standards for refuse burning at sawmills. The state outlawed such structures in about 1970 as air quality control standards became more strict. The structure is about 50 feet tall and topped with a wire screen cap that is 8 feet tall; it is, 57 feet in diameter at its base.

10. **Wood chip storage bin** – A two-story wood-chip bin of wood-frame construction and clad in corrugated metal siding, was built in 1960 about 33 feet northwest of the boiler house. It sits on wooden posts laid atop concrete or wood pads, and also houses the company's wood chipper machine.

11. **Water reservoir** – Built in 1960, this metal roofed concrete reservoir holds approximately 120,000 gallons of water. The reservoir supplies boiler feed water for the mill's steam power. It is connected to the mill by an underground piping system.

12. **Water reservoir** - Built in 1967, this metal roofed concrete reservoir holds approximately 500,000 gallons of water. It was built primarily for fire supression. It is connected to the mill by an underground piping system.

13. **De-barking shed and conveyor** – A two-story de-barking machine house sits on the north side of the log pond to the west of the main sawmill building and is connected to the main mill through a system of conveyors.at the extreme northwest end of the main sawmill building. It rests on posts and concrete foundation or concrete piers, and was built in 1970. The 72-inch Salem Brunette log de-barker was installed in 1970. An all-steel out-feed conveyor leads from this board-and-batten building east toward the main sawmill. It is built on a concrete foundation. Its supports are primarily steel beams on concrete pads or piers.

14. **Tunnel** – One underground structure deserves mention: A concrete tunnel. The tunnel begins at the discharge of the log pond, which is fed by a tributary of Oliver Creek; it goes along the northern side of the sawmill to Oliver Creek, thence down Oliver Creek and under the planing mill to divert and enclose the pond discharge away from the main sawmill supports. The tunnel was built in the mid-1950s. That tunnel is about 12 feet tall and 12 feet wide at its largest part. It is several hundred feet long. As Ralph Hull put it:

> When we first got here in 1938 the only kind of footings under the wooden docks were of wood. Sometime later, we started doing away with the wooden dock, filling in the ground and surfacing it with gravel or concrete. Somewhere around, I'm guessing now, some where around 1955 or so, I think we decided to divert the outflow from the log pond into thisconcrete tunnel to keep the water away from

underneath the dock for quite a ways. I was told we could fill in that area, fill in over the creek with fill material and build the dock. Basically, where the creek ran is all filled over with five or 10 feet of fill (Hull 1992).

General Operation

Today, the sawmill is about half powered by steam; electricity supplies the other half, being gradually introduced since the early 1950s to replace a total of four steam engines once used to power machinery in the Ralph Hull Lumber Co. sawmill. Industrial-strength electricity did not arrive in Dawson until 1949. When Hull saw his electricity costs jump dramatically, he declined to convert the mill to total electric operation, preferring to stay with the more economical steam power.

A 1906 "Regal" model two-cylinder steam engine made by the Ames Iron Works, Oswego, N.Y. powers the sawmill's main saw or "head rig" drive, and the "edger" saw drives; the edger saws produce boards with parallel sides. The twin-cylinder steam engine was installed in 1954-55. It came from a sawmill in Lorane, Ore., where it had operated for about 40 years before being moved to the Hull sawmill to replace a one-cylinder Houston, Stanwood and Gamble brand steam engine that Hull had purchased as used machinery from the Horton Lumber Co. near Triangle Lake, Ore.

In addition to the mill's primary steam engine, a similar sized "steam engine" consisting of two under-the-floor, diagonally-mounted steam-powered cylinders and directly connected to a drum system provides a "fast acting" throw for movement of the sawmill's carriage back and forth on its east-west movement line. Additional steam-powered cylinders called "pots" operate the carriage's log-turning mechanisms. The company's central steam plant provides steam for all the steam-powered equipment.

Electricity powers everything else at the Hull-Oakes sawmill, a mill that once used four primary steam engines and four or five secondary steam engines to drive various pieces of mill machinery. An AC/DC industrial electric motor and related equipment were installed underneath the mill in 1966. The equipment was installed to convert the remainder of the mill to electricity. The conversion never occurred; the equipment has never been used.

Besides dimension lumber, the sawmill continues with the speciality for which it was built – cutting large-diameter logs up to 85 feet long in one pass to produce large-dimension timbers. These speciality products have gone around the continent: bridge stringers to Nova Scotia, Canada; beams for gold dredges in Alaska; pier supports in Tacoma and Seattle; dredging materials to the U.S. Army Corps of Engineers after Washington's Mount St. Helens erupted in 1980; and a 110-foot-long beam to Memphis, Tenn. for the "World's longest loveseat." The mill also cut special deck-support planks (ship decking) for a proposed 1994 restoration of America's most famous historic fighting ship, the *U.S.S. Constitution* – "Old Ironsides." As a point of interest, Isaac Hull once captained the 44-gun frigate that won fame during the War of 1812.

During World War II, the Ralph Hull Lumber Co. sawmill cut large-dimension and long-length timbers for U.S. government warehouses in California. It also operated two shifts during the war to accommodate government demands for lumber, some of it going to the U.S. Army Corps of Engineers.

The Manufacturing Process

The sawmilling process at the Ralph Hull Lumber Co. (Hull-Oakes Lumber Co., Inc.) sawmill hasn't changed much over the years, primarily undergoing machinery changes and refinements where Hull thought practical. For the most part, it follows a process that is traditional in the sawmilling business and is used through today. But Hull's use of steam power makes the mill more compatible with earlier-generation mills than with today's modern mills that rely more on electricity, computers and laser technology to complete the lumber-making proces. Modern sawmills begin operation with the flick of an electricity switch; Hull's mill requires a longer start-up time and more labor-intensive operation.

Beginning at midnight each workday, a fireman begins the process of starting fires in the two Dutch ovens underneath the boiler house at the Hull-Oakes Lumber Co. They heat water in the boilers to produce the 150-pounds-per-square-inch of pressure needed to operate the mill's steam engines. The engines begin work about 7 a.m., approximately five hours after the fireboxes are lit at about 2 a.m.

When log trucks arrive, drivers dump their logs into the log pond for storage in preparation to begin the assembly-line lumber-cutting process. A person called a "pond monkey" uses a motorized boat called a "log bronc" to push or herd logs around the pond, sorting them by size to be picked up by a "side lift." The "side lift" is an endless chain that picks up logs on metal "chairs" that carry the logs up a metal beam incline to drop them into a metal conveyor. The logs are then fed into a "ring debarker." With this device, logs enter a 72-inch fast rotating ring equipped with air-activated arms with replacable tips that actually rub the bark off the logs.

A large machine-operated chain saw then "bucks" the logs into desired lengths - from 24 feet long up to 44 feet and 46 feet being common lengths. A large chain conveyor moves "bucked" logs toward the main sawmill. Meanwhile, bark peeled from the logs goes into a conveyor and goes to the "hog" machine. This machine breaks the bark into small pieces that are sold as "hog fuel" to paper mills to fuel their operations. In the past, this "hog fuel" was sold for use in residential and commercial furnaces throughout the region. During the years of The Great Depression, the Corvallis Lumber Co. sawmill was closed and this mill had the contract to furnish all the "hog fuel" for Oregon Agricultural College - now called Oregon State University - in Corvallis. Some of the material also is presently sold for landscaping.

Logs that have been "barked" and "bucked" to desired lengths are shuttled by an endless-chain conveyor "infeed" to the sawmill's main lumber cutting saw, or "head rig." That "head rig" is a right-hand 9-foot-long column, single-cutting, bandsaw with upper and lower arbors containing Timken roller bearings. It was built by Filer and Stowell Co., of Milwaukee, Wis. It was purchased and installed in 1955 at a cost of $26,883. It replaced the company's double circular saw, inserted tooth, "head rig" arrangement. In the circular saw scheme at this mill, a large-diameter circular saw was mounted below and offset from an overhead circular saw of a similar diameter. The saws generally had replacable teeth that could be rapidly replaced if necessary. They were held in place by rings or circles. Frequently, a bark chipper was mounted in front of the upper saw to cut bark and some sap wood away from logs, allowing larger logs to be sawed. Under normal operations, the lower saw would cut most timber. The top saw would kick in when a log too large for the lower saw came toward it. This system followed patenting of the circular saw in 1777; by 1860, such double circular saw head

rigs were common in Pacific Northwest sawmills. They were gradually replaced with band saws, which were invented in England in 1808. Band saws were preferred because they could cut larger-diameter logs, had a narrower "kerf" (width of a cut made by a saw) and greater accuracy in sawing.

After leaving the conveyor following bucking, a log falls onto a "stop-end-loader." Hydraulic arms move the logs onto a floor of transfer chains that carry the logs to the sawmill carriage site. A "sawyer" responsible for cutting the logs sends incoming logs by a machine consisting of metal pushing arms and a mechanical log loader onto the sawmill "carriage." The "carriage" at Hull-Oakes is a steel-track-mounted shuttling device that carries the log through the "head rig" band saw. A "ratchet setter" rides the carriage, "dogging" or locking into place the logs as they are turned for cutting. Because sawmill noise is so loud, the sawyer communicates with the "ratchet setter" through a series of elaborate hand signals; the "ratchet setter" sets the desired cuts for the logs with a "trout set works." That's a brass dial on the carriage used to lock the logs into place for the subsequent cuts. In modern sawmills, this process is aided by computers and lasers; this process is operated mechanically at the Hull sawmill, assisted with steam and air pressure. As Hull described the original carriage and its modification history:

> The carriage frame consisted of two Douglas-fir timbers 1-10x15 and 1-10x20, both 45-feet long and were furnished by our neighbor sawmill, I.P. Miller Lumber Co. located on the upper [west] end of the same log pond [that Hull uses]. The carriage track was made of selected straight ordinary railroad rails and the carriage tracks had flat babbitt bearings with the bottom bearing half there of [sic.] carrying waste materials for lubrication. The wheels were single flange cast chilled, or 'hard iron.' There were four 72-inch screw type heavy head blocks equipped with replacable face plates. The setter on the carriage set his own dogs. The carriage set works were first powered with about 1.5-inch diameter manilla hemp rope that ran in grooved pulleys and required a highly skilled worker to splice it. Originally a worker from the Brownsville Woolen Mills spliced the rope. After a few years the rope and grooved pulleys were discarded and replaced with 4-inch flat

> transmission belt and flat pulleys. Subsequently the flat belts and pulleys on the carriage set works were replaced with a 'shot gun'-type [fast moving] air cylinder and an 85-foot-long piston that provided a constant supply of air to run an Eimco air-powered motor which activated the carriage set works. In June, 1967, an offset carriage with pantograph was purchased from Lulay Brothers, a sawmill at Scio, Oregon. It was installed in 1968. This carriage had a vee rail, together with axles and bearings that provided a 3/8-inch off-set on the carriage on its return travel, protecting the bandsaw from dragging on the log or remaining lumber cant [a log slabbed on one or more sides] (Hull, personal communication 1994).

Live rolls take the newly-cut lumber to the "edger" saws, a short distance down the roll case where it is transferred to the edger feed table. The edger saws are a bank of five movable circular saws that gives parallel edges to the planks and turns them into dimension lumber. Lumber leaving the edger saws goes by another series of endless chains and live rolls to the "trim saws." These saws trim the lumber to length and cut out defects. Dimension lumber also can go to another endless chain called a "camel back" that contains a "hump" to help sort and redirect some dimension lumber toward a "resaw" machine that produces a finer-grade of dimension lumber. Once completely cut, dimension lumber goes to the "green chain." It is a sorting chain conveyor where lumber is graded and then moved by "straddle carrier" truck to a nearby yard for storage.

Orders for finished lumber go to a special knife-blade planer for precise finishing and storage in finished-lumber piles. Finished lumber leaves the plant by truck or rail. The planer, and the building in which it is housed, pre-date the Hull-Oakes mill. They were part of the W.J. Miller mill. That mill was on the same spot as the Hull-Oakes mill from 1919 until it burned in the spring of 1936. The planer, planing shed and boiler shed and boilers were the only primary mill equipment and building survivors of that fire. The boiler fuel bin had to be replaced after the fire. The planer was made by the Stetson-Ross Machine Works in Seattle, Wash. Company records show this so-called "Cadillac of planers" first shaved boards in 1914 for the Hoquiam Sash and Door Co. in Hoquiam, Wash. Miller had the machine in his plant prior to 1930.

Cutting large-dimension timbers, primarily from large old-growth Douglas fir, has been a trademark of Hull's sawmill. It is a speciality that has been a unique survival strategy for Hull when dimension-lumber markets are flat, when he experiences short-term lumber-price fluctuations or when the company loses money selling dimension lumber at less than the costs it paid for the raw timber. When large-dimension timbers are ordered, rough-cut timbers from the "head rig" go to a special timber saw rather than to the dimension-lumber saws. The mill's large-timber saw is a 60-inch diameter single-arbor circular saw that cuts timbers to specific lengths that range from 6 inches by 6 inches, to 24 inches by 24 inches, sometimes larger. Such large timbers were commonly cut in the 1920s and 1930s by west-coast sawmills for markets in the Orient. Prior to World War II, they were referred to in the industry as "Jap squares."

General history of primary processing equipment:

Ring debarker	Purchased	Installed 1970.
Sawmill carriage	Purchased	Installed 1938.
Band mill "Head rig"	Purchased	Installed 1955.
Boilers	Purchased	Used before 1920.
Main steam engine	Purchased	Built 1906; used before 1920; installed at Hull's mill, 1954-55.
Carriage steam engine	Purchased	Installed 1972, purchased from Bohemia sawmill at Row River east of Cottage Grove.
Stetson-Ross planer	Purchased	Used 1914; Installed W.J. Miller, before 1930; continued with Hull.

Edger saw	Purchased	Installed 1960s
Resaw	Purchased	Installed 1974, and came from the Rex Clemens sawmill in Philomath; converted from left-hand to right-hand feed for use at Hull-Oakes; replaced a 55-inch resaw purchased from Carlisle Lumber Co. at Onalaska near Chehalis, Wash.; remains at mill, but not in use.

Steam Power Important

Steam power helps makes this sawmill historically significant. Probably the most unique, and longest-operating steam machine at the sawmill, is the primary steam engine.

Although the mill's present primary steam engine has only been at the Ralph Hull Lumber Co. since 1954-55, it saw almost 40 years of continuous service in another sawmill before that. It is an anachronism in the computer and laser-filled modern electricity-centered sawmill industry. As such, it provides an historic sense of place in the nation's social and industrial development.

When Hull first started the sawmill in 1939, it was 100 percent operated by steam. But it had a different primary steam engine then, and one purchased with Hull's usual eye to bargain hunting. As Hull described it:

> The core of the mill [in 1939] came out of another old mill.. .When you start the way we did, you don't buy new machinery, I can tell you that. You buy second hand machinery and you buy that for a fraction of what the new machinery would cost. As

> far as that goes, our main engine was a single cylinder engine with a large bore. . .around 20 inches, which is quite large and it had a really heavy flywheel. It came out of a mill over toward Triangle Lake, at the Horton Lumber company. . . that mill burned . . .and when it burned, the engine was sitting in their steam mill. It seemed that flywheel was 12 or 15 feet in diameter and I guess when that mill burned the fire got hot enough to kind of flatten the cast iron in that wheel, it kind of had a flat spot on it, but it never bothered us.
> It was an HS & G engine, Houston, Stanwood and Gamble. It wasn't the best engine in the world . . .not steam efficient. . .we loaded it on a logging truck, and I remember the crankshaft stuck up in the air, it was over width and probably over weight [to legally haul on existing roads], but we did it anyway (Hull 1992).

Although the main engine is frequently the most talked-about steam engine at steam-powered sawmills, several engines often operated simultaneously to run various pieces of equipment scattered around the mill yards. Hull's mill was no exception: millworkers once did their jobs amid the rumble and vibration of four primary steam engines and four or five secondary steam engines. That inventory included a horizontal one-cylinder "Vim" model steam engine made by the Ames Iron Works. That engine, which drove two conveyors sits adjacent to the main mill building, but is not in use. the others have been scrapped or sold to other mills, a typical fate of mill machinery.

> The whole sawmill ran on steam engines. There was the one steam engine that ran most of the mill. It ran the head rig and a lot of other things. The smaller steam engine ran a couple of conveyors. We had another steam engine that ran the planer. There was another steam engine that unloaded logs at the log dump. And then the pond saw [to buck large logs] ran with steam at one point (Hull 1992).

Now, there's only one primary steam engine at the plant, and two auxiliary "steam engines.". The following is a full description of the primary steam engine at the Hull sawmill, an engine that helped cut boards at a sawmill in Lorane, Ore. for about 40 years before Hull bought it.

Steam engine: A twin-cylinder "Regal" model steam engine made in 1906 by the Ames Iron Works of Oswego, N.Y. The company began in 1840 as Talcott & Underhill Co., manufacturing winches for the Great Lakes shipping trade. In 1854, Henry M. Ames purchased the company and called it the Ames Iron Works; The company incorporated under that name in 1901, manufacturing "a wide variety of portable, traction and stationary steam engines" (Exhibit label on an Ames Iron Works steam engine at the Henry Ford Museum and Greenfield Village Research Center, Dearborn, Michigan). Leonard Ames, A.L. Merriman, Leonard Ames Jr., and F.W. Merriam, also were listed as proprietors. The company was sold in 1919 to the Pierce-Butler Radiator Co., and continued to operate as the Ames Iron Works until 1962 when its buildings were dismantled and engine and boiler fabrication business discontinued (Terry Prior, director/curator of the Oswego county Historical Society, Oswego, N.Y., personal communication, Dec. 8, 1994).

A 1906 Ames Iron Works catalog gives the following specifications for the engine: 16-inch diameter pistons; 18-inch stroke; 220 hp per piston at 160 revolutions per minute; 96-inch diameter pulley; 26-inch pulley face [across which stretches a solid belt made from 200 cow hides to drive mill machinery]; engine is 12 feet, 11.5 inches long, 10 feet, five inches wide, weighing 15,750 pounds. It has an eight inch diameter main shaft, with a 13-inch-long main bearing. The catalog also describes the engine as being a balanced slide-valve type, consisting of a flat casting working between seat and pressure plate, locomotive guides, forged-steel connecting-rod fitted with cast-iron crank pin boxes lined with genuine babbitt. Babbitt is an alloy for lining bearings and consists of tin, copper and antimony. It was named after American inventor Isaac Babbitt. The engine also includes a spring-loaded pendulum-type governor to automatically shut down the engine if its speed increases beyond a certain pre-determined point. It includes oil cups, a centrifugal oiler for each crank shaft pin, sight feed lubricator for each engine and cylinder drip cocks operated by a single lever for each cylinder. Foundation mounting

bolts are six-to-seven feet long, and mounted in concrete. This engine was installed at the Ralph Hull sawmill in 1954-55. It had operated for about 40 years in the J.H. Chambers Mill in Lorane, Ore. before Hull moved it to Dawson.

Application Criteria

When Ralph Hull built the sawmill, he operated it as the Ralph Hull Lumber Co. throughout World War II. It was named the Hull Lumber Co. Inc. in late 1946 when Ralph's brother, Homer, purchased the mill. It operated under that name until 1955 when Ralph Hull and Chester Oakes formed a corporation called the Hull-Oakes Lumber Co. Hull and Oakes each owned 50 percent of the stock in the corporation. The mill operated under that name until Dec. 31, 1986 when the first Hull-Oakes Lumber co. corporation was dissolved and operated as Ralph Hull, D.B.A. (Doing Business As) Hull Oakes Lumber Co. That company operated until Oct. 2, 1989 when a second Hull-Oakes Lumber Co. was formed with Ralph Hull as president, together with six employees. For purposes of this documentation, the plant is referred to throughout by its historic name, the Ralph Hull Lumber Co. The name preferred for registration is the Hull-Oakes Lumber Co.

The following criteria are being used to define the significance of the Ralph Hull Lumber Co. sawmill:

A. *The property is associated with events that have made a significant contribution to the broad patterns of our history*. The Ralph Hull Lumber Co. is associated with an an activity – sawmilling – that has made a significant contribution to the broad pattern of national, regional and Benton County history.

C. *The Property embodies the distinctive characteristics of a type, period, or method of construction . . .that represent(s) a significant and distinguishable entity whose components may lack individual distinction*. The Ralph Hull Lumber Co. embodies the distinctive characteristics of the last of a type of sawmill – steam powered – associated with a major blue-collar industry considered to be the most important extractive industry in the Pacific Northwest. It also has been an industry of primary importance over the years in south Benton County.

A Discussion of the Mill's Broader Significance

Steam engineering as a sawmill-powering process was gradually replaced industry-wide by electricity. The evolution has culminated in the late twentieth century with the introduction of computers, lasers and other space-age tools used to more efficiently turn logs into lumber. The change also occurred, in part, because there are few of the large logs left to cut. This left many sawmills with massive and inefficient machinery that the resource could no longer support, forcing many sawmills to adopt new technology to shave labor costs and more efficiently cut smaller-diameter logs or close their doors. The evolution from steam-powered saws to electric-powered and laser-guided ones occurred in an industry that little more than 200 years ago relied in individual sawmills on pit saws. These devices pivoted on the strength of two men cutting dimension lumber by muscling a whipsaw through a log balanced atop a platform.

The Ralph Hull Lumber Co. sawmill stands as an isolated example of one phase of the industry's evolution. It also is on ground that has harbored sawmills since 1914. The mill operated double shifts during the World War II years to meet government contracts for lumber. And it has produced specialty products for government and heavy-construction use throughout its history – a large amount of that production during its primary period of significance from 1938 to 1946.

Although there are many other sawmills in Benton County, the Pacific Northwest, and throughout the United States, the Ralph Hull Lumber Mill (Hull-Oakes Lumber Co.) is distinctive nationally as the rare surviving commercially-operating sawmill powered by steam. As such, the mill produces custom cut large timbers from long and large-diameter logs that more modern mills designed to handle smaller timber are not built to process. The mill has contributed to national historical preservation through its

special operation for custom cutting large timbers used in the restoration of the famous American warship *U.S.S. Constitution* that few other sawmills would be able to readily produce. Under the direction of its founder, the mill is a working museum providing the public with frequent educational tours. Visitors can observe a complete manufacturing process that uses industrial machinery once common but now rarely seen in operation in the timber industry.

The uniqueness of this industrial site might be compared to the last-of-its-kind steam-powered cog railway on New Hampshire's Mount Washington. That railway was declared a National Historic Mechanical and Civil Engineering Landmark in 1976 to recognize it as an important historical industrial monument (Starbuck 1994: 102). The fact that the railway is alone among other existing cog railways in being steam powered contributed to that nomination. It, too, remains in operation and provides a working museum of an obsolete phase of America's industrial heritage. The Ralph Hull Lumber Co. is an equally significant reflection of that heritage, particularly so in the Pacific Northwest where timber extraction has been the region's historical economic kingpin.

Context For Evaluation

No single industry can be examined in a vacuum. Therefore, no picture of the Ralph Hull Lumber Co. sawmill is complete without examining it in the developmental context of the sawmill industry. The sawmill industry has been evolving since its beginnings in America's colonial period. Some authorities put the nation's first commercial sawmills in 1625 at Jamestown, Va., and in 1631 at Berwick, Maine (Brown 1947: 1). Historian Thomas R. Cox said that a water-powered sawmill was introduced in the autumn of 1611 near the site of Richmond, Va. (Cox et. al 1985: 14). But most researchers agree with W.B. Greeley that colonial sawmills often were regarded as a "village institution, like the blacksmith shop" that helped supply a growing demand for lumber. Early mills often were regarded as "civilization's pioneer machine" that operated before other business such as saloons, general stores and schools while enabling settlers to abandon the crude comforts of dirt-floored homes for the more refined pleasures of a wood-floored frame house (Cox et. al 1985: 65).

Sawmills turned out so much lumber that, by 1855, frame houses outnumbered log houses in New York state by eight to one, with one sawmill for about every 700 people(Cox et. al 1985: 65). The hunger for lumber also saw per capita lumber consumption go from less than 100 board feet before 1840 to 506 board feet by 1906, and overall production of lumber go from 300 million board feet in 1799 to 45 billion board feet in 1909 (Van Tassel 1940: 1;Brown 1947: 3). As it moved west, sawmilling activity eventually centered in the Pacific Northwest where the country's last and largest commercial timber stands remain.

Steam-powered sawmilling rapidly replaced hand and water-powered sawmills. In 1869, for example, steam powered 51 percent of the nation's sawmills, with water wheels and turbines accounting for the other 49 percent; by 1909, steam accounted for 90 percent of the power in America's sawmills. It is no wonder that its invention as a practical device in 1712 by British ironmonger Thomas Newcomen has been described as one of the "outstanding triumphs" of human ingeunity comparable in importance to Gutenberg's printing press and the weight-driven clock. It was, in short, a machine credited with launching the Industrial Revolution (Buchanan and Watkins 1976: 3).

Steam power was equally important to sawmill development in the Pacific Northwest, where "no economic activity is today more closely identified in the popular mind with the Pacific Northwest than logging and sawmilling" (Schwantes 1989: 175).

Historians differ but slightly on when Oregon's first sawmill was built. Most agree that it was built in about 1827-28 when George Simpson, field governor of the Hudson's Bay Co. in North America, ordered company factor John McLoughlin to build one to better use the country's natural resources and head off American competititon in the field of lumbering (Ficken 1987: 13) Oregon's first tax roll in 1844 listed two sawmills: McLoughlin's mill at Ft. Vancouver; and one operated by Methodist missionaries at Oregon City, founded in 1842, and called the Island Mill Company (Ficken 1987: 19).

By the early twentieth century, large, medium and small-sized steam-powered sawmills dotted this region's tree-studded landscape. Census reports show two steam powered sawmills in Oregon and Washington in 1850. That number jumped to 77 by 1880. With the coming of the Transcontinental Railroad in 1883, the industry exploded: Western lumber got a trail east.

Sawmills fueled the growth and prospered through it, by cutting railroad ties to build that new highway. Steam power turned their saws in rapidly increasing numbers. In 1869, steam accounted for 51 percent of the power used in the Pacific Northwest's lumber industry; by 1904, steam drove more than 90 percent of the region's sawmills.

In 1933 – one year before Ralph Hull started his first sawmill venture in south Benton County – Oregon had 332 sawmills in 170 communities cutting 19.7 million board feet of lumber daily. At least one sawmill operated in Corvallis by 1850; a dozen existed in Benton County by 1860, producing an estimated 5.4 million board feet of lumber that year. By 1937, Benton County had 40 mills – most of them run completely, or in part, by steam power. Steam whistles at steam-powered sawmills were commonly heard throughout the woods of Oregon, and in Benton County.

By comparison, the *Corvallis Gazette-Times* reported on Feb. 4, 1994, that 199 sawmills remain in Oregon. An additional 178 have shut down since 1980. There are only 521 sawmills left operating in Oregon, California, Washington, and Idaho, with six left operating in Benton County. Ralph Hull's sawmill is the only steam-powered sawmill now operating in Benton County; it also is believed to be the last one commercially operating in the United States.

Daily Operations and Hazardous Working Conditions

Steam powered sawmills also have historically been considered to be dangerous places to work. Father Andrew Mason Prouty, who studied steam-powered logging and sawmills for his master's and doctorate degrees, labeled the industry "More dangerous than war." In his 1973 master's thesis from the University of Washington, Prouty also described the steam-powered sawmill as:

> An organized chaos, a screeching bedlam of pounding machinery on a vibrating deck, where saws turned like streaks of circular lightning – the mill was an exciting place to work, an easy place to get killed (Prouty 1973:149-150).

That description fits the Ralph Hull Lumber Co. mill today. As Hull said in understatement:

> Oh, a few people have been hurt. And the steam engines have run away a few times, but they were shut down before anything too serious happened (Ralph Hull, personal communication, April 6, 1992).

But Virgil Hall, who helped Hull set up his mill, vividly remembers the death of one sawmill worker there who got caught in whirling machinery shafts under the mill's floor and died as a result of his injuries.

Operating a steam-powered sawmill also is tricky. They require skills that are disappearing as old-timers leave the industry and modern computerized machinery replaces more labor-intensive machines such as steam engines that require more than a flip of an electrical switch to put them into operation. As Hull put it:

> You have to know something about steam, though. We didn't ordinarily make parts for steam engines if one broke down. We would have a machine shop do it. Today, you speak of technology changes. Well, I wouldn't call steam a technology. I always looked at it as engineering – steam engineering. Technology, in my way of thinking, is reserved for electrical things. . .most of the real good steam men learned about it on the job. . .they know what works to best advantage (Hull 1992).

A good steam man, for example, listens closely to a steam engine, like a doctor listens to a human heart to see if it functions properly. Slight changes in sounds – steam escaping through pipes, unusual metallic knocks or clogging of speed-regulator governor mechanisms in the engine – can signal problems that need correction.

Retired Hull millwright Ralph Kundert said proper maintenance of steam engines involves about 90 percent "earwork. . .just listening so you can tell when to adjust this or readjust that (Kundert 1994). Kundert also talked of walking by the engine frequently and letting the machine's moving piston rod slide through his hand so he could feel for loose rods, wearing bearings or interior grating that might indicate something was loose inside the engine.

Operating the boilers to fire the engines also is tricky, according to Hull fireman Jerry King. King has been firing the boilers for 18 years at the sawmill and "No two people fire the boiler the same way" (King: 1985) He throws shovels of sawdust onto the fires under the boilers for several hours before the steam pressure rises to 145 pounds per square inch. Then, King said, "I give it a kick in the backsides" (King 1985). By that, he meant he throws open the firebox doors shortly before the sawmill's crews get on their jobs at 7 a.m., forcing air into the system and sending a blast of steam up the smokestacks. The combination kicks up the pressure quickly, and boiler room heat quickly produces a sweat on the fireman. Men seek the job in winter; consider it hell in summer.

A Volatile Industry

Hundreds of men such as Kundert and King toiled for years under such circumstances while watching the mercurial rise and fall of the lumber industry. Typical of its boom-and-bust history, the lumber industry fell on the rocks during the Great Depression. It went bust again in the 1970s and 1980s as timber supplies dried up and courts began restricting use of federal timber, in part, to placate environmentalists seeking to save the spotted owl that was on the federal list of endangered species.

Many sawmills folded; as supplies of large-diameter timber dwindled, other mill owners retooled to serve foreign markets and cut smaller-dimension second growth and third growth timber. From the 1930s onward, electricity rapidly replaced most steam sawmills; by the 1980s, computers and lasers became the new state-of-the-art for refining timber cutting, getting the most out of smaller timber, and maximizing company profits, in part, by reducing the labor force in the sawmill industry. In 1979, for example, a total of 81,400 people worked in the Pacific Northwest lumber and plywood industry; in 1990, there were fewer than 70,000 people employed in that industry (Koberstein 1990: 20). And machines now turn logs once turned by people in labor-dependent steam-powered sawmills. Sawmills continue to close; and sawmill workers continue to become unemployed.

A Guiding Philosophy

But Ralph Hull and his steam-powered sawmill have continued operating despite depression and continued environmental upheaval in the industry which, in the 1930s, employed more than 77,000 men in Oregon and Washington. Historians estimated that 63 percent of the residents of Oregon and Washington depended on the forest products industry for a living in 1910. Despite a growing trend to replace people in the labor-intensive steam-powered sawmills with more efficient and cheaper machines and advanced laser technology, Hull has operated on a continuing theme aimed at keeping people in southern Benton County working:

> It has always been our operating philosophy – to cut a little bit of lumber every day no matter what. That way, we didn't have to shut down. Besides, it takes time and costs money to shut down this plant and restart it. And I always figured the value of keeping a crew satisfied and happy was worth something" (Ralph Hull, personal communication, April 6, 1992).

His outdated machinery has proven economical for the specialty niche he has carved for himself in the timber industry – turning large trees into large-dimension timbers. His sawmill has weathered several economic and environmental storms, and is now regarded as the only sawmill in the United States left operating with a large amount of early twentieth century machinery. He keeps about 80 people employed in the mill and its associated timber-cutting operations. The mill is capable of producing up to 85,000 board feet of timber daily.

The integrity of the site has been maintained and is evident in the location, setting, structure, machinery, and workmanship. As such, the uniqueness of his machinery and the sawmill's operation offers a valuable source of historical and technological information pertaining to the sawmilling industry in this country. The Ralph Hull Lumber Company is a significant representative of a pioneer industry in the Pacific Northwest that continues to use pioneering machinery. That machinery once was commonplace throughout the

industry, and now is nearly extinct. Electricity, lasers and computers have replaced the greasy, noisy and often finicky and dangerous aspects associated with steam engineering. Hull's steam-driven sawmill embodies machinery once on the forefront of a great technological revolution – the "Industrial Revolution" launched when English blacksmith Thomas Newcomen developed the first practical steam engine.

Even Hull's mill is threatened, as the large timber necessary to make it operate profitably diminishes, and steel or laminated beams become economically viable alternatives to Hull's large wood beams cut from old-growth trees. When his sawmill passes, so will the age that it represents. Because little attention has been paid to steam-powered sawmills, knowledge of the industry's specialized machinery and practices will die with their often-colorful practitioners.

For that reason, Hull and his sawmill provide one of the last chances to view this steam sawmilling era – and on a site that has harbored four sawmills and kept south Benton County lumber and timber workers employed since 1914.

Hull's Life in the Sawmill Business

Just as industry must be examined in its regional and national contexts, no study of the Ralph Hull Lumber Co. can be complete without providing some insight into its founder – Ralph Hull. Hull was born April 13, 1912 to William Monroe Hull, and Ethel M. Tompkins. His father was born in 1879 in Klickitat County, Wash., near Goldendale. The family later came to South Benton County and settled in the Beaver Creek area north of Bellfountain. His mother's parents homesteaded land in the vicinity of Green Peak, which is visible from Hull's sawmill. Hull's father and mother married in 1911, and built a home in the Hell's Canyon area off Reese Creek Road just west of Bellfountain off Dawson Road. Hull was reared in Hell's Canyon and around Bellfountain, where his family moved in 1919.

Hull became interested in lumbering during the early years of the Great Depression, making a deal for his first sawmill in 1934. As he described it:

> Well, it was just an opportunity that came up. You know, over half the sawmills in Benton and Lane counties were closed down because of market

> conditions related to The Depression. This deal of mine all started at a social function in the Bellfountain School gymnasium. I made a deal with Merle Gragg, who had a sawmill three miles north of Bellfountain. It was a steam sawmill, closed by the Depression. You might say our principal assets that fall were youth, a 1931 Ford truck, about $600 in the bank and some credit at the Monroe State Bank. I agreed to lease his mill . . . The six-month agreement was written on the back of a $5 check (Ralph Hull, personal communication, April 6, 1992).

In 1935, that lease expired, and Hull leased an all-electric sawmill in nearby Monroe. After operating this mill for three or four months, fire overpowered a Sunday watchmen and the mill burned to the ground. In the fall of 1935, with the help of a prominent Benton County resident and local "steam man" Hubert K. McBee, Hull built a steam-powered sawmill four miles north of Bellfountain. It burned to the ground in May, 1938. So Hull made a deal to buy the former W.J. Miller mill site in Dawson. Miller's mill had burned down in 1936, a mill he had built in 1922. Miller had leased a mill on the same site in 1919 from Fred Malcolm. Malcolm had operated a sawmill there since 1914.

The I.P. Miller Lumber Co. operated a sawmill just to the west of the Hull-Oakes site. That company shared the log pond with Hull for about 40 years. Hull had built his mill on the footprint of the W.J. Miller sawmill previously on the site. Because there was no rural electricity to Dawson at the time, Hull had to build a steam-operated sawmill. The Mountain States Electric Co. first put an industrial strength electric line to Dawson in 1949, according to company records kept by Pacific Power & Electric Co. that later bought out the Mountain States firm.

The I.P. Miller sawmill began operating in 1936. It continued until the 1970s, when Miller sold to Weyerhauser.

Hull operated the sawmill through World War II, also gathering several thousand acres of timberland in southern Benton County. In 1945, Hull's brother, Homer, left military service, and a year later Hull sold the sawmill and timberlands to Homer. The Mill was renamed Hull Lumber Co., Inc. Through a management agreement, he continued to operate the mill until 1949, when he left for the redwood country of

He bought a sawmill and redwood timberlands there in 1951 from A.K. Wilson. He lost a considerable amount of money on that venture, well over $1 million. He returned to Oregon, and drove log truck for his brother. Then, in 1955, he and Chester Oakes, as equal partners, formed Hull-Oakes Lumber Co to buy the mill and some timberlands back from Homer Hull. Hull and Oakes remained co-owners until 1963, when Hull bought out Chester Oakes' half the business.

In 1989, Hull took another unique step in the lumber trade by giving select workers 49 percent control of the business. He called it a first step in turning the company over to a new generation of owners, the workers who toiled on his behalf for years. He also changed the company's name to the Hull-Oakes Lumber Co., with Ralph Hull as president. For $2 million, he sold 49 percent interest in the company to Donald Oakes, Wayne Giesy, Ralph Kundert, Arlene Lee, Phil Kundert, and Todd Nystrom (*Corvallis Gazette-Times*, Jan. 25, 1990).

Hull hoped that this move would assure the sawmill would continue and that new blood in the business would help preserve sawmill jobs. His move was a first step in what he sees as eventual transfer of ownership of the 80-worker company to a new generation of owners, many of them family members.

Although getting large timbers is becoming increasingly difficult, Hull does not want to convert his mill to electricity – because of the expense involved, and because he likes the feel of steam engineering, as he calls it.

> Steam is just more reliable. But you got to know about steam. It isn't a technology like computers or other things operated with electricity. It's engineering. And if something goes wrong you need a good steam man to know what's wrong. It's a disappearing craft . . . And the younger men are getting trained. We get along all right (Ralph Hull, personal communication, April 6, 1992).

Hull is extremely proud of his mill. He and his employees conduct about 100 mill tours each year, giving visitors a unique view of a largely by-gone operation – steam sawmilling.

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Verbal Boundary Description

The nominated area is in sections 9, 10, 15 & 16, Township 14 South, Range 6 West of the Willamette Meridian, in Benton County, Oregon. It is identified as being in tax lots 601, 700, 800 and 801 at said location and is more particularly described as follows:

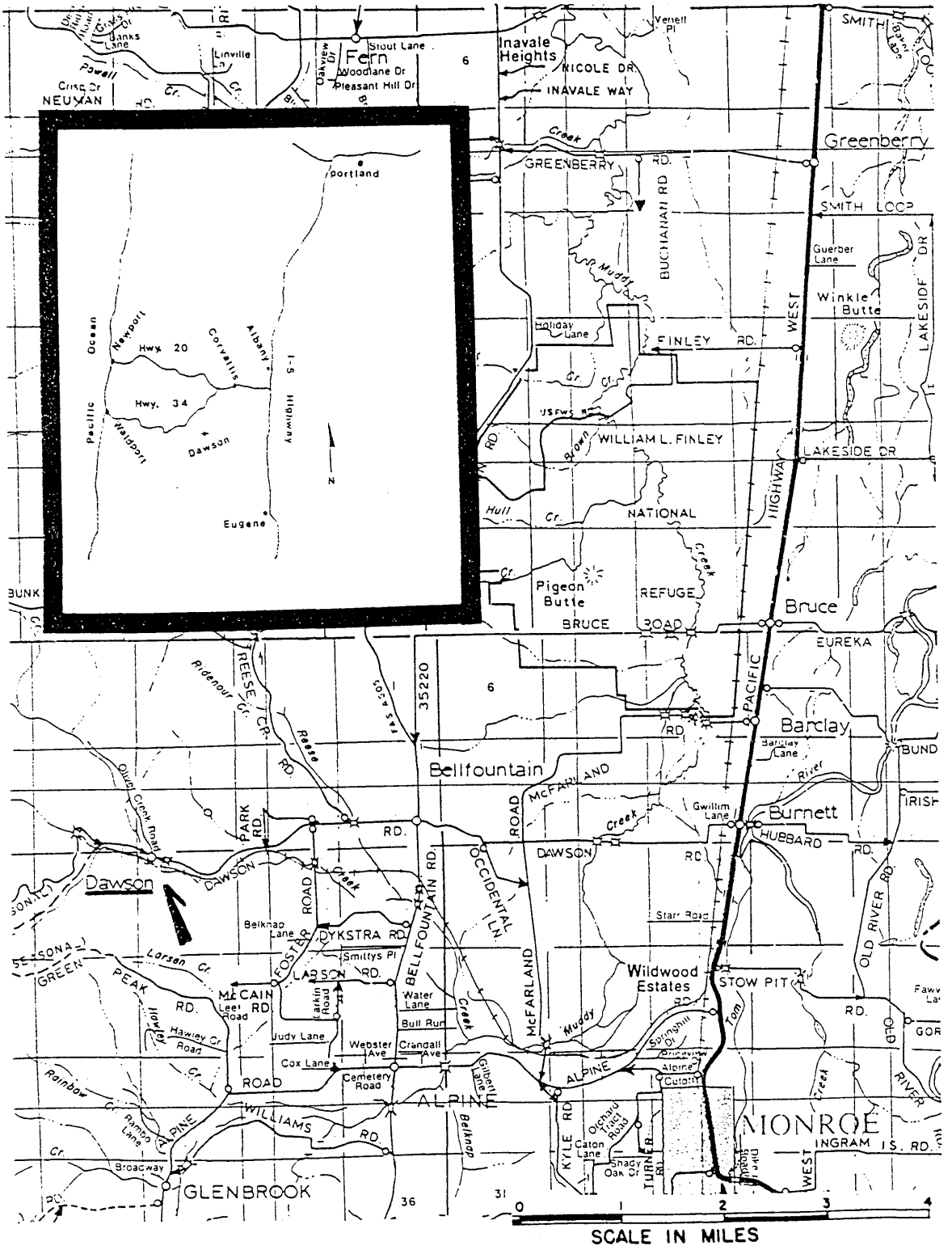
Parcel I - The mill: Beginning at a 1 inch bolt on the North line of the mill property, which bolt is 24.41 chains North 0 degrees 03 minutes West along the claim line and 26.41 chains East from the South-west corner of James McCoy D.L.C. No. 60, Township 14 South, Range 6 West of the Willamette Meridian in Benton County, Oregon; and running thence along the boundry lines of said mill property North 84 degrees 02 minutes East 6.901 chains to a 1-1/4 inch by 1-1/2 inch iron bar; thence South 25 degrees 58-1/2 minutes East 10.458 chains to a 3/4 inch bolt 20 feet South at right angles to the center line of the Southern Pacific Company's railroad; thence along the South line of said railroad right-of-way in a Southeasterly direction, which straight line is South 65 degrees 48 minutes East 4.459 chains to a 3/4 inch iron rod; thence South 18 degrees 45 minutes West 9.05 chains to a 1 inch by 2-1/2 inch iron bar; thence South 78 degrees 29 minutes West 2.074 chains to a 1-1/2 inch pipe; thence North 58 degrees 26 minutes West 15.172 chains to a 1 inch bolt; thence North 11 degrees 32-1/2 minutes East 11.794 chains to the place of beginning, containing 21.45 acres; the Southern Pacific Company's railroad right-of-way which is 40 feet wide and extends in a Southeasterly direction through the Above described property and contains .79 of an acre, more or less; SUBJECT to Corvallis Logging Company railroad right-of-way; EXCEPTING THEREFROM that portion thereof lying East of Oliver Creek and North of the County road lying East of Oliver Creek and North of the County Road together with a right-of-way 40 feet in width for road purposes from the South line of the above described excepted portion Southerly to the County Road, the said right-of-way to be parallel with and adjacent to the East side of a Truck Garage as the same is now located upon said premises. The nomination includes approximately 650 linear feet of the County Road, which is on a 40-foot-wide right-of-way, more or less, and also contains approximately .79 of an acre.

EXCEPTING THEREFROM that portion thereof lying North of the County Road, West of Oliver Creek, and East of a line running in a Northerly and Southerly direction 30 feet West of and parallel to the West wall of the building known as the machine shop adjacent to the home site occupied by Homer G. Hull.

Parcel II - The lumber yard: Beginning at a 1 inch by 2-1/2 inch iron bar at the most Easterly Southeast corner of the premises intended to be described in the paragraph next above; thence South 71 degrees 15 minutes East 300 feet at right angles to the most Easterly line of the above described premises; thence North 18 degrees 45 minutes East to the center of Oliver Creek; thence down the center of Oliver Creek 410 feet; thence North 18 degrees 45 minutes East to the South line of the Southern Pacific Company's railroad right-of-way; thence Northwesterly along the South line of the premises described in the paragraph next above; thence South 18 degrees 45 minutes West along the Easterly line of the above described premises to the point of beginning.

Boundary Justification

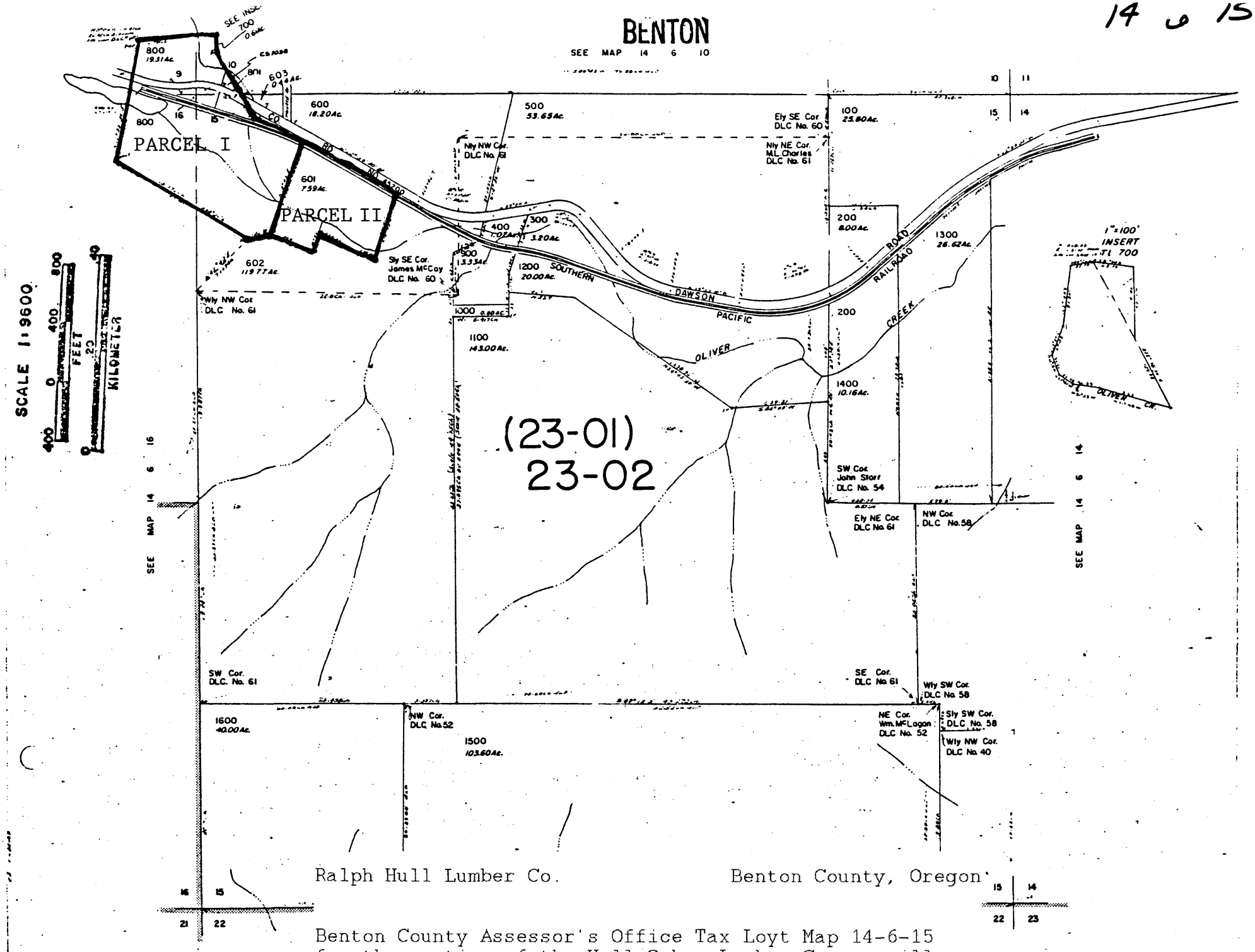
The nominated area of 28.48 acres encompasses the core operations of the historic Ralph Hull Lumber Company Mill. The boundary is based on the company's Tax Lot holdings and includes features north and south of Dawson Road that were integral to the manufacturing process in the historic period 1938-1946. While as many as six structures have been identified as non-contributing because their origin post-dates 1946, several of the features, most notably the wigwam-style waste burner of c.1950, are of emerging historical interest. Where the company's holdings expand to the north side of Dawson Road, approximately 650 feet of Benton County road right of way and an equivalent length of Southern Pacific Railroad terminal right of way are embraced in the nominated area. The resulting boundary thus encompasses the immediate functional setting of the company's primary sawmill operation. Idle buildings of the Miller sawmill standing westerly of the log pond, which was shared by the respective operations, are not a part of this nomination.



Ralph Hull Lumber Co. Benton County, Oregon

This Benton County road map shows a detailed view of Dawson and its surroundings in relation to towns such as Monroe and Alpine. The hand-traced inset is taken from an Oregon highway map showing Dawson and the Hull-Oakes Lumber Co. sawmill in a general regional context in relation to the Oregon Coast and major cities along the Interstate-5 highway.

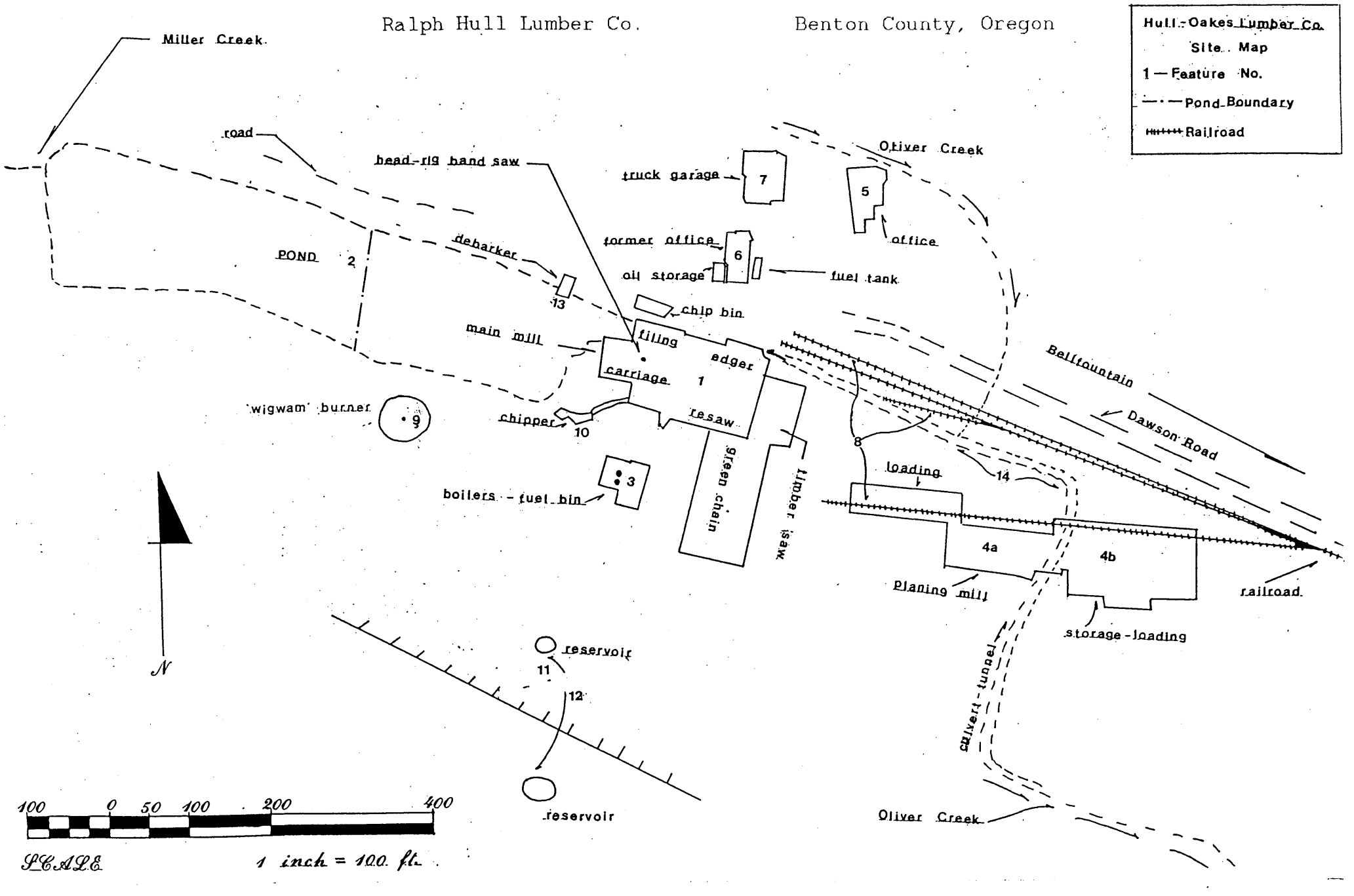
14 6 15



Ralph Hull Lumber Co. Benton County, Oregon

Benton County Assessor's Office Tax Loyt Map 14-6-15 for the portion of the Hull-Oakes Lumber Co. sawmill being considered for this nomination.

14 6 15



This map shows primary building and structure cluster at present Hull-Oakes Lumber Co. Open lumber-storage yard extends to right. Area east of designated pond boundary is being considered for this nomination.

Hull-Oakes cutline data

1.

Ralph Hull Lumber Co. (Hull-Oakes Lumber Co.)
Benton County, Oregon
Ralph Hull Collection
Photographers: Air Graphics, Inc., Milwaukie, Ore.
Negative at Hull-Oakes Lumber Co.
23837 Dawson Road
Monroe, Ore. 97456
June, 1980
1980 aerial view of Hull-Oakes Lumber Co., looking west (left) to east.
1 of 78 photos

2.

Ralph Hull Lumber Co. (Hull-Oakes Lumber Co.)
Benton County, Oregon
John Bragg Photo
24004 Cardwell Hill Road
Wren, Ore. 97370
Negative owned by John Bragg
May, 1993
View of Hull-Oakes Lumber Co., looking east to west and showing general setting.
2 of 78 photos

3.

Ralph Hull Lumber Co. (Hull-Oakes Lumber Co.)
Benton County, Oregon
John Bragg Photo
24004 Cardwell Hill Road
Wren, Ore. 97370
Negative owned by John Bragg
May, 1993
Close-up view of Hull-Oakes Lumber Co. as shown from east to west.
3 of 78 photos

4.

Ralph Hull Lumber Co. (Hull-Oakes Lumber Co.)
Benton County, Oregon
John Bragg Photo
24004 Cardwell Hill Road
Wren, Ore. 97370
Negative owned by John Bragg
May, 1993
View of Hull-Oakes Lumber Co. sawmill and lumber-storage yard as seen from east to west.
4 of 78 photos

5.

Ralph Hull Lumber Co. (Hull-Oakes Lumber Co.)
Benton County, Oregon
George Wisner Photo
25124 Alpine Road
Monroe, Ore. 97456
Negative owned by George Wisner
January, 1994
Hull-Oakes Lumber Co. main sawmill, north elevation.
5 of 78 photos

6.

Ralph Hull Lumber Co. (Hull-Oakes Lumber Co.)
Benton County, Oregon
George Wisner Photo
25124 Alpine Road
Monroe, Ore. 97456
Negative owned by George Wisner
January, 1994
West end of main sawmill at Hull-Oakes Lumber Co. showing north elevation of de-barking shed, conveyor and entry to sawmill carriage.
6 of 78 photos

7.

Ralph Hull Lumber Co. (Hull-Oakes Lumber Co.)
Benton County, Oregon
George Wisner Photo
25124 Alpine Road
Monroe, Ore. 97456
Negative owned by George Wisner
January, 1994
South elevation of Hull-Oakes Lumber Co. main sawmill and west elevation of sawmill "green chain" for handling fresh-cut lumber.
7 of 78 photos

8.

Ralph Hull Lumber Co. (Hull-Oakes Lumber Co.)
Benton County, Oregon
John Bragg Photo
24004 Cardwell Hill Road
Wren, Ore. 97370
Negative owned by John Bragg
May, 1993
View of Hull-Oakes Lumber Co. planing shed and lumber-storage buildings looking from northwest to southeast.
8 of 78 photos

9.

Ralph Hull Lumber Co. (Hull-Oakes Lumber Co.)
Benton County, Oregon
John Bragg Photo
24004 Cardwell Hill Road
Wren, Ore. 97370
Negative owned by John Bragg
May, 1993
Close-up of east elevation of lumber storage and planing shed at Hull-Oakes Lumber Co.
9 of 78 photos

10.

Ralph Hull Lumber Co. (Hull-Oakes Lumber Co.)
Benton County, Oregon
John Bragg Photo
24004 Cardwell Hill Road
Wren, Ore. 97370
Negative owned by John Bragg
May, 1993
View of south side of planing mill at Hull-Oakes Lumber Co.
10 of 78 photos

11.

Ralph Hull Lumber Co. (Hull-Oakes Lumber Co.)
Benton County, Oregon
Ralph Hull Collection
Photographer unknown
Negative at Hull-Oakes Lumber Co.
23837 Dawson Road
Monroe, Ore. 97456
Circa 1942
View of steam-operated log hoist to put in-coming logs into Hull-Oakes Lumber Co. log pond, looking east to west.
11 of 78 photos

12.

Ralph Hull Lumber Co. (Hull-Oakes Lumber Co.)
Benton County, Oregon
John Bragg Photo
Negative owned by John Bragg
24004 Cardwell Hill Road
Wren, Ore. 97370
May, 1993
"A" frame for off-loading logs to log pond at Hull-Oakes Lumber Co., looking east to west.
12 of 78 photos

13.

Ralph Hull Lumber Co. (Hull-Oakes Lumber Co.)
Benton County, Oregon
John Bragg Photo
Negative owned by John Bragg
24004 Cardwell Hill Road
Wren, Ore. 97370
May, 1993
In-feed conveyor to debarking machine at Hull-Oakes Lumber Co., looking east to west.
13 of 78 photos

14.

Ralph Hull Lumber Co. (Hull-Oakes Lumber Co.)
Benton County, Oregon
John Bragg Photo
24004 Cardwell Hill Road
Wren, Ore. 97370
Negative owned by John Bragg
May, 1993
Looking from south to north at debarking shed on log pond at the Hull-Oakes Lumber Co.
14 of 78 photos

15.

Ralph Hull Lumber Co. (Hull-Oakes Lumber Co.)
Benton County, Oregon
John Bragg Photo
24004 Cardwell Hill Road
Wren, Ore. 97370
Negative owned by John Bragg
May, 1993
North elevation of boiler house at Hull-Oakes Lumber Co.
15 of 78 photos

16.

Ralph Hull Lumber Co. (Hull-Oakes Lumber Co.)
Benton County, Oregon
John Bragg Photo
24004 Cardwell Hill Road
Wren, Ore. 97370
Negative owned by John Bragg
May, 1993
West elevation of boiler house at Hull-Oakes Lumber Co.
16 of 78 photos

17.

Ralph Hull Lumber Co. (Hull-Oakes Lumber Co.)
Benton County, Oregon
John Bragg Photo
24004 Cardwell Hill Road
Wren, Ore. 97370
Negative owned by John Bragg
May, 1993
East and north elevations of boiler house at Hull-Oakes Lumber Co.
17 of 78 photos

18.

Ralph Hull Lumber Co. (Hull-Oakes Lumber Co.)
Benton County, Oregon
John Bragg Photo
24004 Cardwell Hill Road
Wren, Ore. 97370
Negative owned by John Bragg
May, 1993
East elevation of boiler house at Hull-Oakes Lumber Co.
18 of 78 photos

19.

Ralph Hull Lumber Co. (Hull-Oakes Lumber Co.)
Benton County, Oregon
John Bragg Photo
24004 Cardwell Hill Road
Wren, Ore. 97370
Negative owned by John Bragg
May, 1993
North and west elevations of boiler house at Hull-Oakes Lumber Co.
19 of 78 photos

20.

Ralph Hull Lumber Co. (Hull-Oakes Lumber Co.)
Benton County, Oregon
John Bragg Photo
24004 Cardwell Hill Road
Wren, Ore. 97370
Negative owned by John Bragg
May, 1993
East and north elevations of boiler house at Hull-Oakes Lumber Co., showing bark chipping shed and former refuse burner in background.
20 of 78 photos

21.

Ralph Hull Lumber Co. (Hull-Oakes Lumber Co.)
Benton County, Oregon
John Bragg Photo
24004 Cardwell Hill Road
Wren, Ore. 97370
Negative owned by John Bragg
May, 1993
Interior of boiler house at Hull-Oakes Lumber Co. showing east-facing boilers.
21 of 78 photos

22.

Ralph Hull Lumber Co. (Hull-Oakes Lumber Co.)
Benton County, Oregon
John Bragg Photo
24004 Cardwell Hill Road
Wren, Ore. 97370
Negative owned by John Bragg
May, 1993
Basement view of boiler house at Hull-Oakes Lumber Co. showing firebox doors.
22 of 78 photos

23.

Ralph Hull Lumber Co. (Hull-Oakes Lumber Co.)
Benton County, Oregon
John Bragg Photo
24004 Cardwell Hill Road
Wren, Ore. 97370
Negative owned by John Bragg
November, 1994
Fireman Jerry King pours fuel oil to fire the boilers at the Hull-Oakes Lumber Co.
23 of 78 photos

24.

Ralph Hull Lumber Co. (Hull-Oakes Lumber Co.)
Benton County, Oregon
John Bragg Photo
24004 Cardwell Hill Road
Wren, Ore. 97370
Negative owned by John Bragg
November, 1994
Fireman Jerry King torches the fire in fireboxes in the basement area of the boiler house at the Hull-Oakes Lumber Co.
24 of 78 photos

25.

Ralph Hull Lumber Co. (Hull-Oakes Lumber Co.)
Benton County, Oregon
John Bragg Photo
24004 Cardwell Hill Road
Wren, Ore. 97370
Negative owned by John Bragg
November, 1994
Fireman Jerry King shovels sawdust fuel into the fireboxes beneath the Hull-Oakes Lumber Co. boiler house.
25 of 78 photos

26.

Ralph Hull Lumber Co. (Hull-Oakes Lumber Co.)
Benton County, Oregon
John Bragg Photo
24004 Cardwell Hill Road
Wren, Ore. 97370
Negative owned by John Bragg
November, 1994
Close-up of piping and gauges associated with the boilers at the Hull-Oakes Lumber Co.
26 of 78 photos

27.

Ralph Hull Lumber Co. (Hull-Oakes Lumber Co.)
Benton County, Oregon
John Bragg Photo
24004 Cardwell Hill Road
Wren, Ore. 97370
Negative owned by John Bragg
May, 1993
East elevation of the debarking shed at the Hull-Oakes Lumber Co., showing outflow conveyor.
27 of 78 photos

28.

Ralph Hull Lumber Co. (Hull-Oakes Lumber Co.)
Benton County, Oregon
John Bragg Photo
24004 Cardwell Hill Road
Wren, Ore. 97370
Negative owned by John Bragg
May, 1993
Close-up of debarking mechanism at the Hull-Oakes Lumber Co.
28 of 78 photos

29.

Ralph Hull Lumber Co. (Hull-Oakes Lumber Co.)
Benton County, Oregon
John Bragg Photo
24004 Cardwell Hill Road
Wren, Ore. 97370
Negative owned by John Bragg
May, 1993
Chain conveyor to main sawmill carriage at the Hull-Oakes Lumber Co., north elevation.
29 of 78 photos

30.

Ralph Hull Lumber Co. (Hull-Oakes Lumber Co.)
Benton County, Oregon
John Bragg Photo
24004 Cardwell Hill Road
Wren, Ore. 97370
Negative owned by John Bragg
May, 1993
View showing log carriage "dogs" and other carriage operating controls at the Hull-Oakes Lumber Co.
30 of 78 photos

31.

Ralph Hull Lumber Co. (Hull-Oakes Lumber Co.)
Benton County, Oregon
John Bragg Photo
24004 Cardwell Hill Road
Wren, Ore. 97370
Negative owned by John Bragg
May, 1993
View of carriage controls at the Hull-Oakes Lumber Co.
31 of 78 photos

32.

Ralph Hull Lumber Co. (Hull-Oakes Lumber Co.)
Benton County, Oregon
John Bragg Photo
24004 Cardwell Hill Road
Wren, Ore. 97370
Negative owned by John Bragg
May, 1993
Close-up of "dial" used to size lumber at the Hull-Oakes Lumber Co. The "dial" is on the sawmill's carriage.
32 of 78 photos

33.

Ralph Hull Lumber Co. (Hull-Oakes Lumber Co.)
Benton County, Oregon
John Bragg Photo
24004 Cardwell Hill Road
Wren, Ore. 97370
Negative owned by John Bragg
May, 1993
Interior of Hull-Oakes Lumber Co. main sawmill, showing east-end of carriage and head-rig bandsaw used to making primary lumber cuts.
33 of 78 photos

34.

Ralph Hull Lumber Co. (Hull-Oakes Lumber Co.)
Benton County, Oregon
John Bragg Photo
24004 Cardwell Hill Road
Wren, Ore. 97370
Negative owned by John Bragg
May, 1993
Control seat for the head-rig bandsaw at the Hull-Oakes Lumber Co., just north of sawmill carriage and west of bandsaw.
34 of 78 photos

35.

Ralph Hull Lumber Co. (Hull-Oakes Lumber Co.)
Benton County, Oregon
John Bragg Photo
24004 Cardwell Hill Road
Wren, Ore. 97370
Negative owned by John Bragg
May, 1993
Close-up of head-rig bandsaw at the Hull-Oakes Lumber Co.
35 of 78 photos

36.

Ralph Hull Lumber Co. (Hull-Oakes Lumber Co.)
Benton County, Oregon
John Bragg Photo
24004 Cardwell Hill Road
Wren, Ore. 97370
Negative owned by John Bragg
November, 1994
View of headrig bandsaw being sharpened in saw-filing room at Hull-Oakes Lumber Co. The saw-filing room is just north of the bandsaw and carriage in the main sawmill.
36 of 78 photos

37.

Ralph Hull Lumber Co. (Hull-Oakes Lumber Co.)
Benton County, Oregon
John Bragg Photo
24004 Cardwell Hill Road
Wren, Ore. 97370
Negative owned by John Bragg
November, 1994
Close-up of nomenclature plate on the head-rig bandsaw at the Hull-Oakes Lumber Co.
37 of 78 photos

38.

Ralph Hull Lumber Co. (Hull-Oakes Lumber Co.)
Benton County, Oregon
John Bragg Photo
24004 Cardwell Hill Road
Wren, Ore. 97370
Negative owned by John Bragg
November, 1995
Bandsaw used as a resaw at the Hull-Oakes Lumber Co., and part of the main sawmill.
38 of 78 photos

39.

Ralph Hull Lumber Co. (Hull-Oakes Lumber Co.)
Benton County, Oregon
John Bragg Photo
24004 Cardwell Hill Road
Wren, Ore. 97370
Negative owned by John Bragg
November, 1995
View of edger in the main sawmill at the Hull-Oakes Lumber Co.
39 of 78 photos

40.

Ralph Hull Lumber Co. (Hull-Oakes Lumber Co.)
Benton County, Oregon
John Bragg Photo
24004 Cardwell Hill Road
Wren, Ore. 97370
November, 1995
View of large-timber saw at the Hull-Oakes Lumber Co. main sawmill.
40 of 78 photos

41.

Ralph Hull Lumber Co. (Hull-Oakes Lumber Co.)
Benton County, Oregon
John Bragg Photo
24004 Cardwell Hill Road
Wren, Ore. 97370
Negative owned by John Bragg
May, 1993
View of steam engine and setting under main sawmill at the Hull-Oakes Lumber Co.
41 of 78 photos

42.

Ralph Hull Lumber Co. (Hull-Oakes Lumber Co.)
Benton County, Oregon
John Bragg Photo
24004 Cardwell Hill Road
Wren, Ore. 97370
Negative owned by John Bragg
November, 1994
View of operating steam engine at Hull-Oakes Lumber Co., with employee oiling the machinery and providing scale.
42 of 78 photos

43.

Ralph Hull Lumber Co. (Hull-Oakes Lumber Co.)
Benton County, Oregon
John Bragg Photo
24004 Cardwell Hill Road
Wren, Ore. 97370
Negative owned by John Bragg
November, 1994
Employee oiling mechanisms on steam engine at the Hull-Oakes Lumber Co.
43 of 78 photos

44.

Ralph Hull Lumber Co. (Hull-Oakes Lumber Co.)
Benton County, Oregon
John Bragg Photo
24004 Cardwell Hill Road
Wren, Ore. 97370
Negative owned by John Bragg
May, 1993
View of cylinder of steam engine at the Hull-Oakes Lumber Co.
44 of 78 photos

45.

Ralph Hull Lumber Co. (Hull-Oakes Lumber Co.)
Benton County, Oregon
John Bragg Photo
24004 Cardwell Hill Road
Wren, Ore. 97370
Negative owned by John Bragg
May, 1993
View of wheel on steam engine under the Hull-Oakes Lumber Co.
45 of 78 photos

46.

Ralph Hull Lumber Co. (Hull-Oakes Lumber Co.)
Benton County, Oregon
John Bragg Photo
24004 Cardwell Hill Road
Wren, Ore. 97370
Negative owned by John Bragg
May, 1993
View of governor on steam engine at the Hull-Oakes Lumber Co.
46 of 78 photos

47.

Ralph Hull Lumber Co. (Hull-Oakes Lumber Co.)
Benton County, Oregon
John Bragg Photo
24004 Cardwell Hill Road
Wren, Ore. 97370
Negative owned by John Bragg
May, 1993
Close-up of governor on steam engine at the Hull-Oakes Lumber Co.
47 of 78 photos

48.

Ralph Hull Lumber Co. (Hull-Oakes Lumber Co.)
Benton County, Oregon
John Bragg Photo
24004 Cardwell Hill Road
Wren, Ore. 97370
Negative owned by John Bragg
June, 1995
View of steam whistle mounted on auxiliary "steam engine" for carriage at the Hull-Oakes Lumber Co.
48 of 78 photos

49.

Ralph Hull Lumber Co. (Hull-Oakes Lumber Co.)
Benton County, Oregon
John Bragg Photo
24004 Cardwell Hill Road
Wren, Ore. 97370
Negative owned by John Bragg
June, 1995
Wooden drive wheel at the Hull-Oakes Lumber Co. The wheel has been in operation at the mill since 1939.
49 of 78 photos

50.

Ralph Hull Lumber Co. (Hull-Oakes Lumber Co.)
Benton County, Oregon
John Bragg Photo
24004 Cardwell Hill Road
Wren, Ore. 97370
Negative owned by John Bragg
May, 1993
View of typical belting and gears on machinery at the Hull-Oakes Lumber Co.
50 of 78 photos

51.

Ralph Hull Lumber Co. (Hull-Oakes Lumber Co.)
Benton County, Oregon
John Bragg Photo
24004 Cardwell Hill Road
Wren, Ore. 97370
Negative owned by John Bragg
May, 1993
View of typical gearing and chain drives at the Hull-Oakes Lumber Co.
51 of 78 photos

52.

Ralph Hull Lumber Co. (Hull-Oakes Lumber Co.)
Benton County, Oregon
John Bragg Photo
24004 Cardwell Hill Road
Wren, Ore. 97370
Negative owned by John Bragg
May, 1993
View of AC/DC electric power system set up under the Hull-Oakes Lumber Co. but never connected to operate the mill completely with electricity.
52 of 78 photos

53.

Ralph Hull Lumber Co. (Hull-Oakes Lumber Co.)
Benton County, Oregon
John Bragg Photo
24004 Cardwell Hill Road
Wren, Ore. 97370
Negative owned by John Bragg
May, 1993
View of the "wigwam" style refuse burner at the Hull-Oakes Lumber Co., looking southwest from the sawmill carriage infeed.
53 of 78 photos

54.

Ralph Hull Lumber Co. (Hull-Oakes Lumber Co.)
Benton County, Oregon
John Bragg Photo
24004 Cardwell Hill Road
Wren, Ore. 97370
Negative owned by John Bragg
May, 1993
View of "wigwam" style refuse burner at the Hull-Oakes Lumber Co., also showing log pond and west elevation of sawmill boiler house.
54 of 78 photos

55.

Ralph Hull Lumber Co. (Hull-Oakes Lumber Co.)
Benton County, Oregon
John Bragg Photo
24004 Cardwell Hill Road
Wren, Ore. 97370
Negative owned by John Bragg
May, 1993
Close-up of "wigwam" style refuse burner at the Hull-Oakes Lumber Co.
55 of 78 photos

56.

Ralph Hull Lumber Co. (Hull-Oakes Lumber Co.)
Benton County, Oregon
George Wisner Photo
25124 Alpine Road
Monroe, Ore. 97456
Negative owned by George Wisner
March, 1994
Southwest elevation of business office at Hull-Oakes Lumber Co.
56 of 78 photos

57.

Ralph Hull Lumber Co. (Hull-Oakes Lumber Co.)
Benton County, Oregon
George Wisner Photo
25124 Alpine Road
Monroe, Ore. 97456
Negative owned by George Wisner
March, 1994
West elevation and entry to business office of Hull-Oakes Lumber Co.
57 of 78 photos

58.

Ralph Hull Lumber Co. (Hull-Oakes Lumber Co.)
Benton County, Oregon
George Wisner Photo
25124 Alpine Road
Monroe, Ore. 97456
Negative owned by George Wisner
March, 1994
South elevation of business office at Hull-Oakes Lumber Co.
58 of 78 photos

59.

Ralph Hull Lumber Co. (Hull-Oakes Lumber Co.)
Benton County, Oregon
George Wisner Photo
25124 Alpine Road
Monroe, Ore. 97456
Negative owned by George Wisner
March, 1994
Southeast elevation of business office of Hull-Oakes Lumber Co.
59 of 78 photos

60.

Ralph Hull Lumber Co. (Hull-Oakes Lumber Co.)
Benton County, Oregon
George Wisner Photo
25124 Alpine Road
Monroe, Ore. 97456
Negative owned by George Wisner
March, 1994
Northeast elevation of business office of Hull-Oakes Lumber Co.
60 of 78 photos

61.

Ralph Hull Lumber Co. (Hull-Oakes Lumber Co.)
Benton County, Oregon
George Wisner Photo
25124 Alpine Road
Monroe, Ore. 97456
Negative owned by George Wisner
March, 1994
Northwest elevation of business office at Hull-Oakes Lumber Co.
61 of 78 photos

62.

Ralph Hull Lumber Co. (Hull-Oakes Lumber Co.)
Benton County, Oregon
Ralph Hull Collection
Photographer: Ralph Hull
Negative at Hull-Oakes Lumber Co.
23837 Dawson Road
Monroe, Ore. 97456
Circa 1939
View of former business office at Hull-Oakes Lumber Co., with large timber and Margaret Hull in front.
62 of 78 photos

63.

Ralph Hull Lumber Co. (Hull-Oakes Lumber Co.)
Benton County, Oregon
George Wisner Photo
25124 Alpine Road
Monroe, Ore. 97456
Negative owned by George Wisner
March, 1994
Southeast elevation of former business office at Hull-Oakes Lumber Co.
63 of 78 photos

64.

Ralph Hull Lumber Co. (Hull-Oakes Lumber Co.)
Benton County, Oregon
George Wisner Photo
25124 Alpine Road
Monroe, Ore. 97456
Negative owned by George Wisner
March, 1994
Southwest elevation of former business office at Hull-Oakes Lumber Co.
64 of 78 photos

65.

Ralph Hull Lumber Co. (Hull-Oakes Lumber Co.)
Benton County, Oregon
George Wisner Photo
25124 Alpine Road
Monroe, Ore. 97456
Negative owned by George Wisner
March, 1994
Southeast elevation of former business office at Hull-Oakes Lumber Co., showing fuel-storage.
65 of 78 photos

66.

Ralph Hull Lumber Co. (Hull-Oakes Lumber Co.)
Benton County, Oregon
George Wisner Photo
25124 Alpine Road
Monroe, Ore. 97456
Negative owned by George Wisner
March, 1994
North elevation of former business office at Hull-Oakes Lumber Co.
66 of 78 photos

67.

Ralph Hull Lumber Co. (Hull-Oakes Lumber Co.)
Benton County, Oregon
George Wisner Photo
25124 Alpine Road
Monroe, Ore. 97456
Negative owned by George Wisner
March, 1994
South elevation of truck maintenance garage at Hull-Oakes Lumber Co.
67 of 78 photos

68.

Ralph Hull Lumber Co. (Hull-Oakes Lumber Co.)
Benton County, Oregon
George Wisner Photo
25124 Alpine Road
Monroe, Ore. 97456
Negative owned by George Wisner
March, 1994
East elevation of truck maintenance garage at Hull-Oakes Lumber Co.
68 of 78 photos

69.

Ralph Hull Lumber Co. (Hull-Oakes Lumber Co.)
Benton County, Oregon
George Wisner Photo
25124 Alpine Road
Monroe, Ore. 97456
Negative owned by George Wisner
March, 1994
West elevation of truck maintenance garage at Hull-Oakes Lumber Co.
69 of 78 photos

70.

Ralph Hull Lumber Co. (Hull-Oakes Lumber Co.)
Benton County, Oregon
George Wisner Photo
25124 Alpine Road
Monroe, Ore. 97456
Negative owned by George Wisner
March, 1994
Northwest elevation of truck maintenance garage at Hull-Oakes Lumber Co.
70 of 78 photos

71.

Ralph Hull Lumber Co. (Hull-Oakes Lumber Co.)
Benton County, Oregon
Ralph Hull Collection
Photographer unknown
Negative at Hull-Oakes Lumber Co.
23837 Dawson Road
Monroe, Ore. 97456
Circa 1938
Starting reconstruction of Ralph Hull Lumber Co. sawmill following 1936 fire that destroyed the W.J. Miller sawmill on the same site.
71 of 78 photos

72.

Ralph Hull Lumber Co. (Hull-Oakes Lumber Co.)
Benton County, Oregon
Ralph Hull Collection
Photographer unknown
Negative at Hull-Oakes Lumber Co.
23837 Dawson Road
Monroe, Ore. 97456
Circa 1938
Starting construction of main floor and supports for the Ralph Hull Lumber Co. sawmill.
72 of 78 photos

73.

Ralph Hull Lumber Co. (Hull-Oakes Lumber Co.)
Benton County, Oregon
Ralph Hull Collection
Photographer unknown
Negative at Hull-Oakes Lumber Co.
23837 Dawson Road
Monroe, Ore. 97456
Circa 1954
Concrete tunnel diverting Oliver Creek away from Hull-Oakes Lumber Co., shown under construction in 1954.
73 of 78 photos

74.

Ralph Hull Lumber Co. (Hull-Oakes Lumber Co.)
Benton County, Oregon
Ralph Hull Collection
Photographer unknown
Negative at Hull-Oakes Lumber Co.
23837 Dawson Road
Monroe, Ore. 97456
Circa 1970
Frame for log debarker under construction. View is looking west from main sawmill.
74 of 78 photos

75.

Ralph Hull Lumber Co. (Hull-Oakes Lumber Co.)
Benton County, Oregon
Ralph Hull Collection
Photographer unknown
Negative at Hull-Oakes Lumber Co.
23837 Dawson Road
Monroe, Ore. 97456
Circa 1959
Two forklifts carry a stack of long timbers at the Hull-Oakes Lumber Co. Sawmill are no longer built to cut such long timbers.
75 of 78 photos

76.

Ralph Hull Lumber Co. (Hull-Oakes Lumber Co.)
Benton County, Oregon
Ralph Hull Collection
Photographer unknown
Negative at Hull-Oakes Lumber Co.
23837 Dawson Road
Monroe, Ore. 97456
Circa 1948
Largest timbers being pulled by straddle carrier from the Hull-Oakes Lumber Co.
76 of 78 photos

77.

Ralph Hull Lumber Co. (Hull-Oakes Lumber Co.)
Benton County, Oregon
Ralph Hull Collection
Photographer unknown
Negative at Hull-Oakes Lumber Co.
23837 Dawson Road
Monroe, Ore. 97456
Circa 1939
A young Ralph Hull sitting on porch of his Dawson home.
77 of 78 photographs

78.

Ralph Hull Lumber Co. (Hull-Oakes Lumber Co.)
Benton County, Oregon
John Bragg Photo
24004 Cardwell Hill Road
Wren, Ore. 97370
Negative owned by John Bragg
November, 1995
Ralph Hull at the Hull-Oakes Lumber Co.
78 of 78 photos