Historic Context Evaluation of Otter Tail Power Company's Hydroelectric Plants at Fergus Falls, Otter Tail County, Minnesota

Submitted to the City of Fergus Falls
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Conducted in Association with the Proposed
Tower Road Bridge and Street Project
(SP 126-125-03 and SP 56-601-48)
SHPO Review 2008-1739

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OT-BUS-003 Pisgah Dam and Hydroelectric Plant
Location: 430 Tower Road S.
County: Otter Tail
City/Twp: Fergus Falls, Buse Twp
TRS: 132N 43W, NW1/4 of NW1/4 Sec 04; 132N 43W, NE1/4 of NE1/4 Sec 05
Built: 1918
Designer: Vernon A. Wright
Builder: M. A. O'Brien
Recommended: Eligible for the National Register

■ INTRODUCTION

Pisgah Dam and Hydroelectric Plant was built in 1918. The plant is still in operation and uses its original turbine and generator. In general the property retains good historic integrity (i.e., a low level of alteration).

Pisgah has a 25' head (the vertical distance from the reservoir to the turbine blades). By capacity Pisgah is the fourth-largest of five Otter Tail Power Company (OTP) hydroelectric plants on the Otter Tail River in and near Fergus Falls.

Pisgah dam and plant were designed by Vernon A. Wright, an MIT-trained architect. Wright was the impetus behind the founding of Otter Tail Power Company in 1907, was the company's first engineering expert, and was its first and longtime president. Members of the Wright family were principal stockholders and led Otter Tail Power Company into the 1960s.

Pisgah's original owner was technically not Otter Tail Power Company, but an associated company called Otter Tail *Electric* Company whose owners were Vernon Wright and other OTP executives. Pisgah's entire output was purchased by OTP. After 20 years under this arrangement, the plant was officially sold to Otter Tail Power in 1938.

■ DESCRIPTION

Pisgah Dam and Hydroelectric Plant is located on the Otter Tail River near the western edge of Fergus Falls (see fig. 1 and sketch maps in Chapter 7). Part of the inventoried property is located in Buse Township and part within the Fergus Falls city limits. The river flows from east to west at this location.

Otter Tail Power Company's four other hydroelectric plants at Fergus Falls are located within a few miles of Pisgah. Located about 7 miles downstream is the Dayton Hollow plant. Located upstream from Pisgah are Central, Hoot Lake, and Taplin Gorge (about 2 miles, 4 miles, and 13 miles upstream, respectively).

Pisgah's principal architecture-history resources are a reservoir, dam, and powerhouse, each of which is described below.

Pisgah was historically approached via a narrow gravel service drive from the north, which is extant. Today a gravel service drive also enters from the south and ends at a small gravel

parking area (fig. 92). Adjacent to the parking area is modern substation (about 40' x 50') with step-up transformers and transmission equipment. A row of timber utility poles crosses the river on top of the dam. There is a small modern shed south of the powerhouse used for storing stoplogs (fig. 95).

Pisgah's grounds are open to the public. The landscape retains reasonably good historic integrity and is comprised of mowed turf grass surrounded by an informal fringe of deciduous trees and shrubs. The river banks are generally wooded.

The setting has changed somewhat, but is still dominated by the river, its wooded banks, and lightly-developed land. Surrounding properties include a city sewage treatment plant to the west, a few industrial properties, and a suburban residential neighborhood to the south.

Resources no longer on site: An electrical substation once stood immediately southwest of the powerhouse. Pisgah is evidently not missing any other major structures.

Reservoir

The storage reservoir, essentially a widening of the Otter Tail River, was created when the dam was built in 1918. According to a 1979 dam inspection report, the reservoir technically extends upriver from (east of) the dam about 3,000'. (Its size and shape are not obvious on current aerial photos.) At normal level the Pisgah reservoir stores about 250 acre-feet (or about 11 million cubic feet) of water, according to the 1979 report. The elevation of the normal pool is about 1,158' (Army COE 1979).

The reservoir has been historically used for fishing and other recreation. Much of the upper bank is only lightly developed. The southern shore is lined with scattered homes, and there are an industrial facility and two parks near the eastern end.

Dam

Pisgah Dam, which was built in 1918, is aligned at a slight northwest-southeast angle across the Otter Tail River (fig. 143). It is an earthen and poured concrete gravity dam that produces a head of 25'. The dam has not been significantly altered since 1918. The poured concrete spillway and the powerhouse intakes were rehabilitated in 1962.

The dam is comprised of two sections of embankment or earthen dam flanking a poured concrete spillway and integrated powerhouse (figs. 86-87). The poured concrete spillway and powerhouse together measure about 63' long. The embankment section north of the spillway is about 220' long, 38' high, and 12' wide. The embankment section south of the powerhouse is about 150' long, 21' high, and 14' wide (Army COE 1979).

Concrete wing walls (or core walls) extend from the northern end of the spillway and the southern end of the powerhouse and penetrate the earthen embankment sections (fig. 98). The northern wing wall is roughly 22' long and the southern wing wall is roughly 38'. The wing walls are about 30" to 36" thick (Army COE 1979). The embankments are planted with grass.

The spillway is about 40' wide with six bays, each 5.5' wide. The elevation of the crest is 1,152'. The bays were originally controlled with manual stoplogs. Three bays now have simple steel vertical gates (fig. 100) and three retain stoplogs. The stoplogs are 4" x 6" treated wood timbers that are stacked in place by hand. The spillway apron has about five steps that dissipate

the energy of the falling water. There is a concrete fish ladder (abandoned) at the northern end of the spillway (fig. 97).

A poured concrete walkway runs along the crest of the spillway and along the eastern side of the powerhouse. The walkway incorporates timber decking above the powerhouse water intake so operators can access the headrace (fig. 99). The walkway has original pipe railings and more recent safety railings that have been welded to earlier pipe rails.

Powerhouse

The Pisgah Dam powerhouse, built in 1918, is incorporated into the dam. It is basically intact. Pisgah has the simplest design and least architectural detailing of the five OTP hydroelectric powerhouses on the Otter Tail River at Fergus Falls. It is built of poured concrete and two layers of brick and is about 50' tall. The footprint is about 32' (N-S) x 28' (E-W). The exterior is faced with smooth brown brick and the building has simple window openings, most of which retain original 4/4 sash. The window openings are rectangular on the exterior, but on the upper level of the powerhouse the window openings are segmental-arched. The building has single-leaf doors. Along the exterior of the south side is a steep, poured concrete stairway with a pipe railing (figs. 96, 105). A set of transmission equipment has been removed from the building's flat concrete roof (fig. 88). The original step-up transformers were evidently located in the powerhouse.

The powerhouse has a double-intake structure (about 22' wide) on the upstream side whose two openings are protected by trash racks. The water passes through this headrace structure and into the vertical reaction turbine mounted in a water-filled chamber about 12' below the generator room floor (fig. 90). Water flows out of the powerhouse and back into the river via the 22'-wide tailrace located on the downstream (western) side of the powerhouse.

The upper level of the powerhouse is comprised of a single room dominated by a 520-kw vertical generator (figs. 89, 101) directly mounted above a vertical turbine (out of sight below the floor). The generator was supplied by Electric Machinery Company and installed in 1918. The turbine, also installed in 1918, is a Leffel-built 56" type "F" vertical turbine (fig. 91). The turbine is rated to produce 850 horsepower and spins at 150 RPM under a 25' head. The generator is supported by a circular concrete collar about 12' in diameter. Mounted south of the generator, and still in use, are the original gear works and manual wheel for the turbine wicket gates (fig. 103). The gates are adjusted either manually or with an adjoining electric motor. Against the northern wall of the generator room is a bank of about 28 modern storage batteries (fig. 101). Against the southern wall is an array of modern control equipment. The upper level of the powerhouse has walls lined with painted common brick, and simple, wooden window and door casings.

The lower level of the powerhouse was originally entered via a woodframe, shed-roofed enclosure (perhaps a transformer room?) built on the southern elevation of the building (fig. 88). The woodframe structure was replaced with a poured concrete structure of similar size perhaps circa 1940 (fig. 96). The lower level of the powerhouse has exposed concrete on the interior walls. This level provides access to the turbine and also contains a large, early step-up transformer that is no longer in use (fig. 106).

■ HISTORIC BACKGROUND

Pisgah Dam Timeline

1907	Otter Tail Power Company (OTP) established by Vernon Wright and others
1918	Pisgah built by Otter Tail Electric Company
1918	went on-line with one 520-kw hydro unit (all output sold to OTP)
1938	Pisgah sold to OTP
1962	dam and powerhouse intakes refurbished

Pisgah Dam and Hydroelectric Plant was built in 1918. The dam and plant were designed by Vernon A. Wright (1862-1938), who designed Otter Tail Power Company's other hydroelectric plants on the Otter Tail River. Pisgah's builder was M. A. O'Brien ("Large" 1920). Before entering the power business in Fergus Falls, Wright had been an architect in Boston. He was educated at the University of Minnesota, Massachusetts Institute of Technology (MIT), and L'Ecole des Beaux Arts in Paris.

Otter Tail Power (OTP) was founded in 1907 by Vernon Wright who recruited three other investors – Frederick G. Barrows, Fred Leffler, and E. W. Anderson. A major stockholder, Wright was president from 1907-1933 and was succeeded by his sons, who led the company into the 1960s. Frederick Barrows and Fred Leffler were also longtime company executives.

Pisgah's original owner was technically the Otter Tail *Electric* Company, whose principals were OTP executives Vernon A. Wright, Frederick G. Barrows, and Elmer Adams. The plant's entire output was purchased by Otter Tail Power. After 20 years under this arrangement, the plant was officially sold to Otter Tail Power in 1938.

Pisgah began operation in December 1918 with its single 520-kw hydroelectric unit. The turbine was supplied by the James Leffel Company of Springfield, Ohio, a leading builder of hydraulic turbines that had been established in 1862 (and is still in operation). The generator was manufactured by Electric Machinery Company of Minneapolis. The company was established in 1891 and is now owned by a corporation called Converteam.

Pisgah was OTP's fourth plant on the Otter Tail River at Fergus Falls. It came after Central, Dayton Hollow, and Hoot Lake, and preceded Taplin Gorge. The five plants collectively served as the platform from which Otter Tail Power Company grew to become Minnesota's third-largest utility company. Pisgah was built in 1918 at a time of rapid expansion in OTP's capacity. During the two previous years, additional hydroelectric units had been added to Hoot Lake and Dayton Hollow, and shortly after Pisgah was built the company expanded Central. By 1919, the year after Pisgah went on-line, OTP was supplying electricity to about 20 communities spread over 2,000 square miles (Johnson 1986: 11-14).

In 1962 Pisgah Dam was refurbished by the Lee Turzillo Contracting Company. The company also rehabilitated several other dams for OTP in the 1960s including Central, Dayton Hollow, and Taplin Gorge.

Historically Pisgah has been the fourth-largest among OTP's hydroelectric plants on the Otter Tail River. Since 1968 its 520 kilowatts have represented 15% of OTP's nameplate capacity on the

river. (Pisgah now represents 12% of hydroelectric capacity in the entire OTP system if the company's 740-kw Bemidji hydroelectric plant is included.)

The plant has been operating continuously – with its original equipment – for 92 years. It is still owned and operated by Otter Tail Power.

■ EVALUATION OF NATIONAL REGISTER ELIGIBILITY

See Chapter 6 of this report.

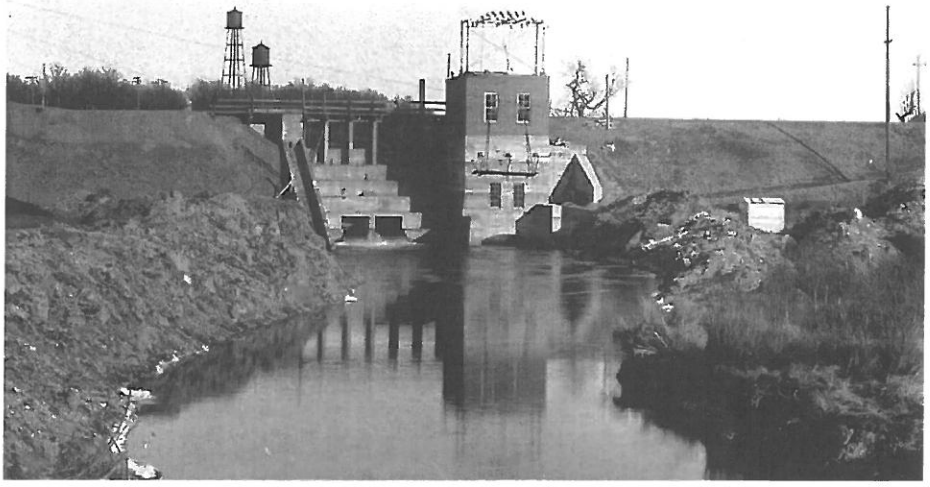


Fig. 86. OT-BUS-003. Pisgah Dam, downstream side nearing completion; 1918 photo by W. T. Oxley (Otter Tail Power Company Collection) (facing E)

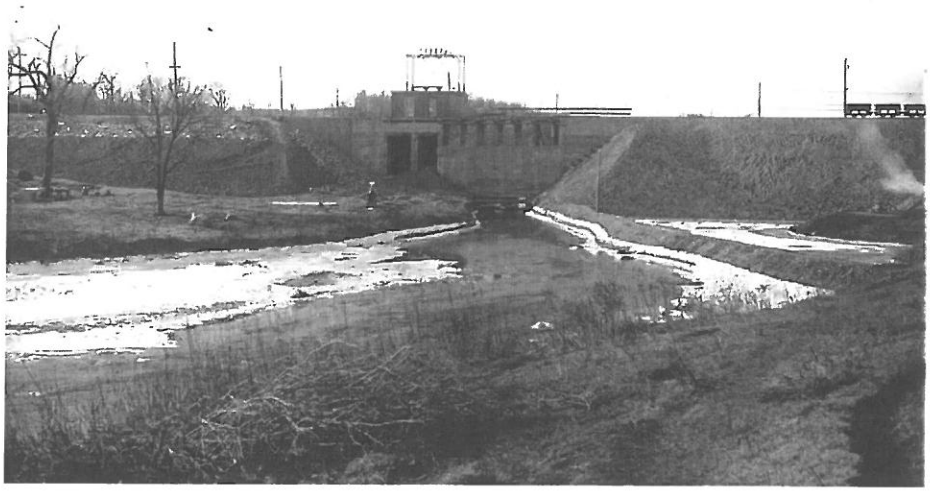


Fig. 87. OT-BUS-003. Pisgah Dam, upstream side nearing completion; note construction rail cars on embankment; 1918 photo by W. T. Oxley (Otter Tail Power Company Collection) (facing SW)

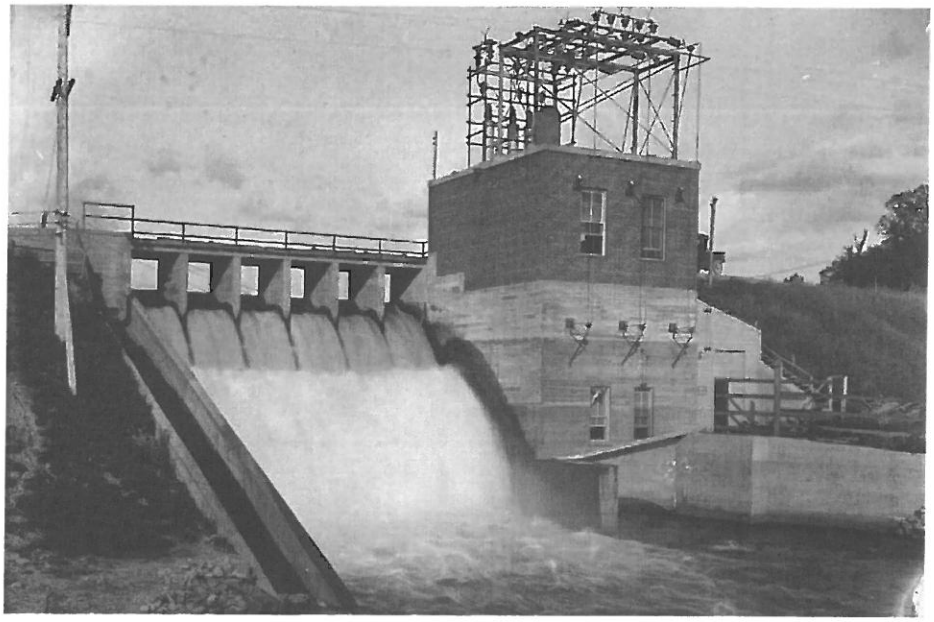


Fig. 88. OT-BUS-003. Pisgah Dam, 1921 photo by W. T. Oxley (Otter Tail Power Company Collection) (facing NE)

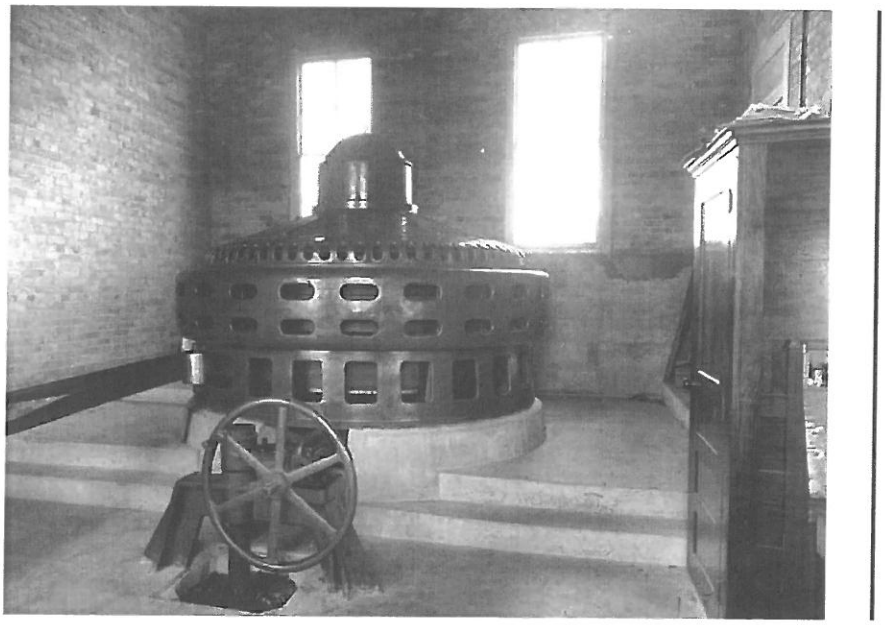


Fig. 89. OT-BUS-003. Pisgah Dam, powerhouse interior with Electric Machine Co. generator (still in place); 1921 photo by W. T. Oxley (Otter Tail Power Company Collection) (facing NE)

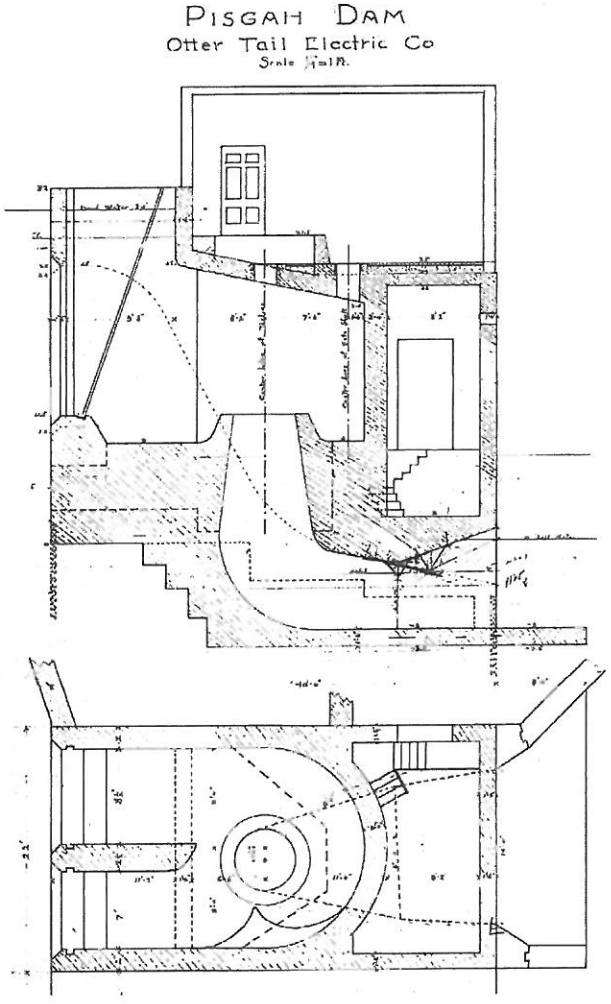


Fig. 90. OT-BUS-003. Pisgah Dam, section drawing of powerhouse; water enters at top left; ca. 1917 (Otter Tail Power Company Collection) (facing n/a)

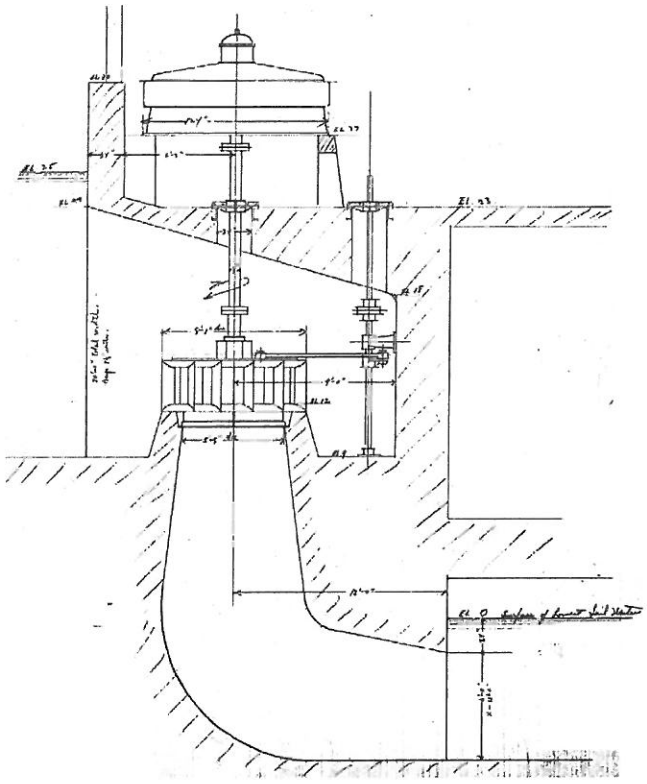


Fig. 91. OT-BUS-003. Pisgah Dam, 56" Type F vertical turbine for Pisgah, generator also shows in drawing; 1917, James Leffel and Co. (Otter Tail Power Company Collection) (facing n/a)

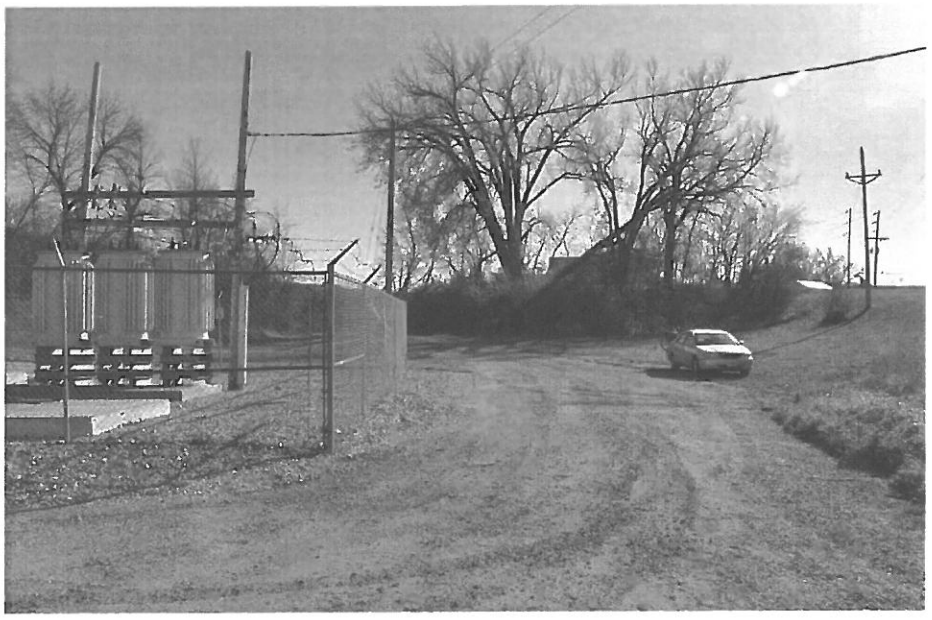


Fig. 92. OT-BUS-003. Pisgah Dam, service drive approaching from the south; substation and small parking area (facing S)

Fig. 93. OT-BUS-003. Pisgah Dam, dam and powerhouse from the south (facing NW)

Fig. 94. OT-BUS-003. Pisgah Dam, southern elevation of powerhouse, embankment in foreground (facing NW)

Fig. 95. OT-BUS-003. Pisgah Dam, reservoir and upstream side of the dam, modern stoplog shed at left; water enters the powerhouse just north (right) of the shed (facing NW)

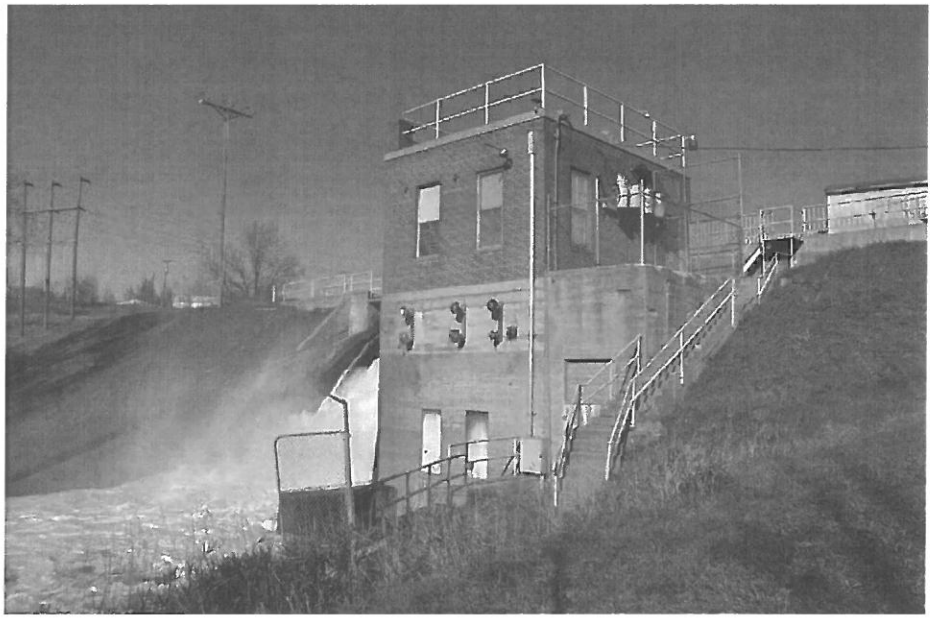


Fig. 96. OT-BUS-003. Pisgah Dam, dam and powerhouse (facing N)

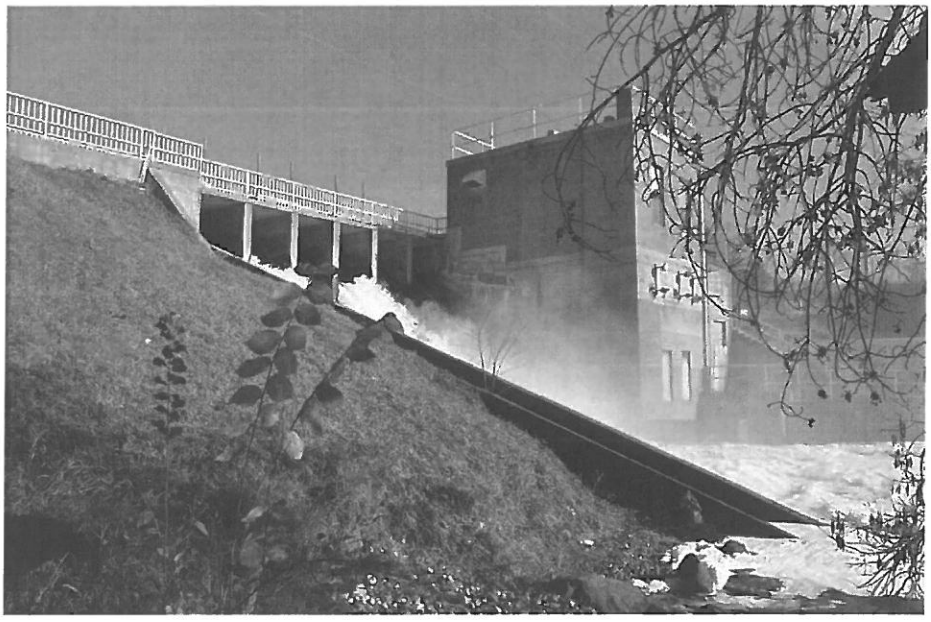


Fig. 97. OT-BUS-003. Pisgah Dam, dam and powerhouse with fish ladder in foreground (facing E)

Fig. 98. OT-BUS-003. Pisgah Dam, northern end of spillway from embankment, concrete wing wall at lower left (facing SE)

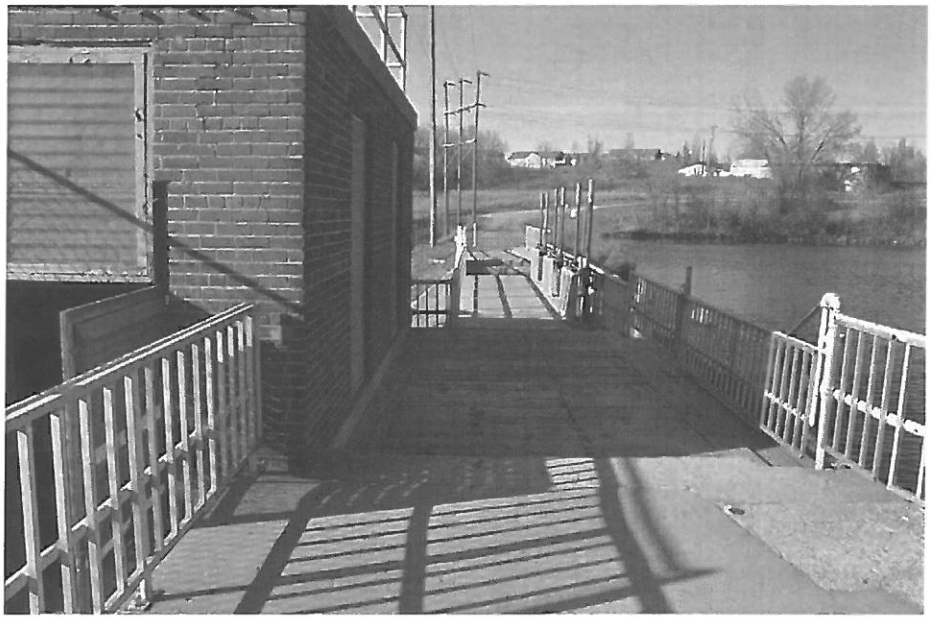


Fig. 99. OT-BUS-003. Pisgah Dam, powerhouse water intakes are immediately east of the powerhouse beneath the timber decking in the walkway (facing NW)

Fig. 100. OT-BUS-003. Pisgah Dam, spillway gate mechanism at top of spillway (facing N)

Fig. 101. OT-BUS-003. Pisgah Dam, generator and wicket gate mechanism, storage batteries at left, powerhouse entrance at right (facing NE)

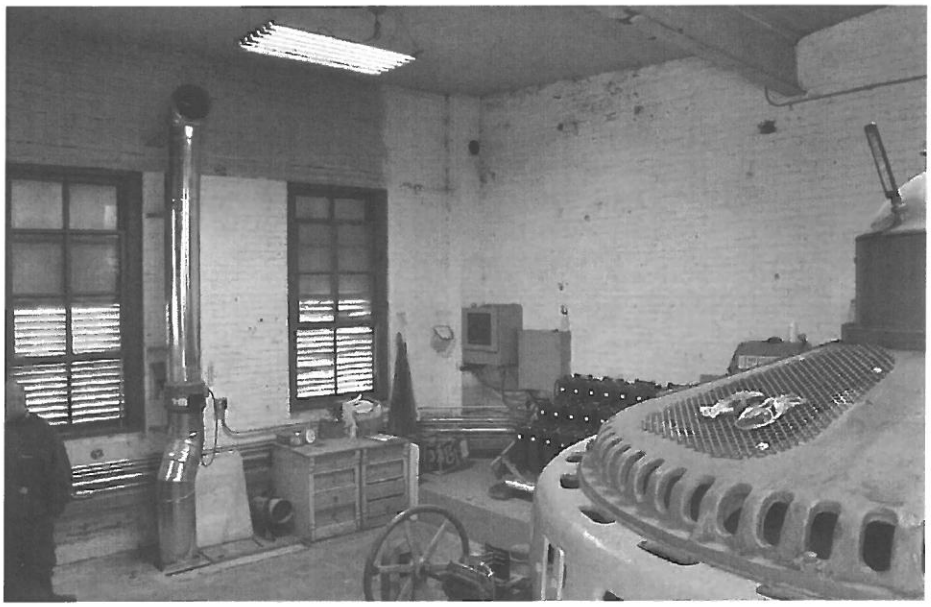


Fig. 102. OT-BUS-003. Pisgah Dam, powerhouse interior with western windows (facing SE)

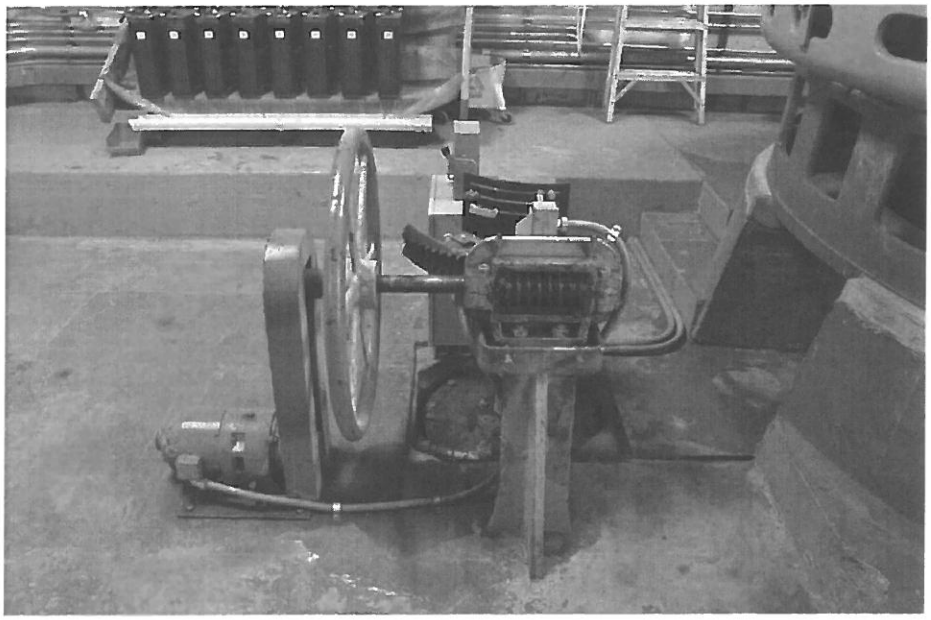


Fig. 103. OT-BUS-003. Pisgah Dam, turbine wicket gate gears and control mechanism with manual wheel and electric motor (facing E)

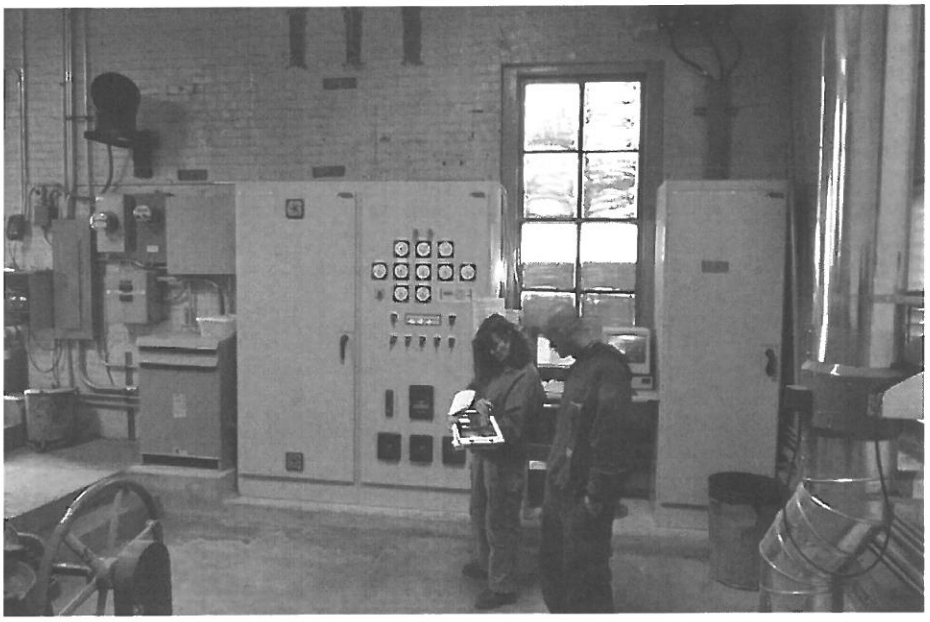


Fig. 104. OT-BUS-003. Pisgah Dam, southern wall of powerhouse (facing NE)

Fig. 105. OT-BUS-003. Pisgah Dam, concrete steps descending the southern side of the powerhouse (facing SW)

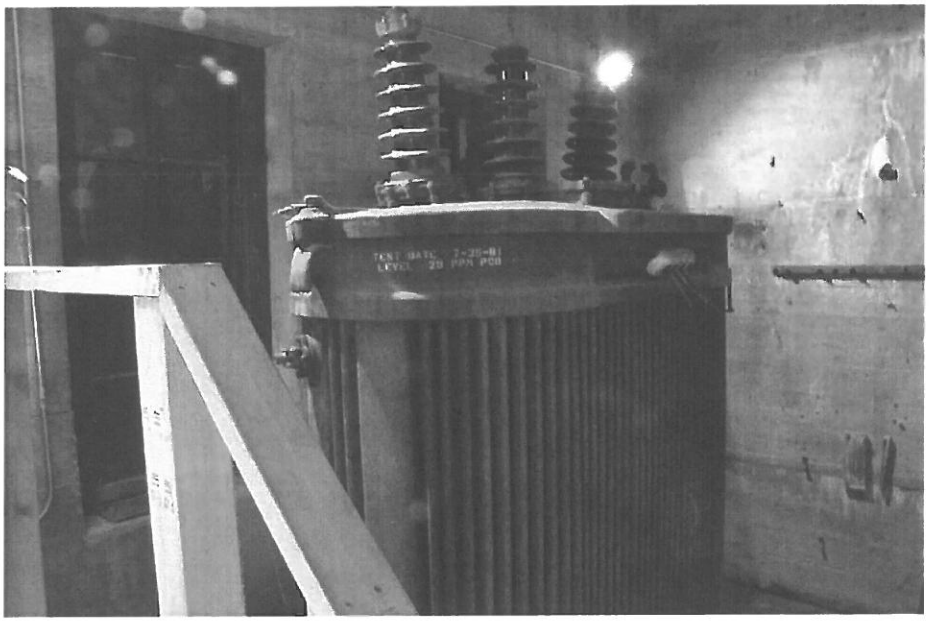


Fig. 106. OT-BUS-003. Pisgah Dam, defunct transformer in lower level of powerhouse (facing NW)

OT-FRI-005 Taplin Gorge Dam and Hydroelectric Plant
Other Name: Friberg Dam
Location: ca. 22450 290th Street
County: Otter Tail
City/Twp: Friberg Twp
TRS: 134N 42W, NE1/4 of NW1/4 Sec 31; 133N 42W, NW1/4 of NE1/4 Sec 31
Built: 1925
Designer: Vernon A. Wright
Builder: Otter Tail Power Co
Recommended: Eligible for the National Register

■ INTRODUCTION

Taplin Gorge Dam and Hydroelectric Plant was built in 1925. The plant is still in operation with its original turbine and generator. In general the property retains good historic integrity (i.e., a low level of alteration).

The Taplin Gorge plant has a head of 30' (the vertical distance from the top of the system to the turbine blades). By capacity Taplin Gorge is the third-largest of five Otter Tail Power Company (OTP) hydroelectric plants on the Otter Tail River in and near Fergus Falls. Taplin Gorge was one of the last hydroelectric facilities built in the state. It contains Minnesota's most architecturally distinctive example of powerhouse architecture (Hess 1989: E.15).

The Taplin Gorge dam and plant were designed by Vernon A. Wright (1862-1938). An MIT-trained architect, Wright was cofounder and first president of Otter Tail Power Company, as well as its first resident engineering expert. Members of the Wright family were major stockholders and led the company into the 1960s.

■ DESCRIPTION

Taplin Gorge Dam and Hydroelectric Plant is located on the Otter Tail River in Friberg Township about 4.5 miles north of the current Fergus Falls city limits (see fig. 1 and sketch maps in Chapter 7). The river flows from northeast to southwest at this location. The plant is set among a set of hills that rise many feet above the level of the river according to topographical maps.

Taplin Gorge is the easternmost (and northernmost) of the OTP's five Fergus Falls plants. Located downstream from Taplin Gorge are four plants: Hoot Lake (about 9 miles downstream), Central (11 miles downstream), Pisgah (13 miles downstream), and Dayton Hollow (about 20 miles downstream from Taplin).

The Taplin Gorge dam and plant are surrounded by farmland, woodlands, and scattered rural residences. In general the setting is well-preserved.

Taplin Gorge's principal architecture-history resources are a reservoir, dam, diversion or power canal, penstock, and powerhouse. Each is briefly described below.

Taplin Gorge contains a few ancillary structures. They include timber utility poles and a 40' x 40' electrical substation on the same location as three original step-up transformers (figs. 112, 127). There is a small modern shed for storing stoplogs on top of the dam east of the spillway (fig. 121).

The landscape retains reasonably good historic integrity. Today the property is approached from the west via a narrow gravel road called 290th Street. Before about 1960, the entrance road approached from the north near the western bank of the river. (The road may have been moved because of flooding.) The entrance road ends at a small gravel parking area east of the powerhouse. It originally continued southeast from the parking area about 450' to a house where the caretaker evidently lived (fig. 145).

The grounds are informally landscaped with mowed turf grass and mature deciduous shade trees. The river banks are wooded. The grounds are open to the public.

Resources no longer on site: A caretaker's house and outbuildings were built by Taplin Gorge's first caretaker, Edgar Ripley, soon after the plant was built (Hatling 1979). The buildings were evidently located about 450' southeast of the powerhouse. Ripley served as caretaker for 44 years and was succeeded in 1976 by his daughter Pat Ripley Malsom and her husband Leo Malsom (Hatling 1979). No structures remain on the house site. (Historic plat maps indicate the land on which the house stood was owned for a time by Otter Tail Power and was then privately owned. It is now owned again by the company.)

Red River Lake (Reservoir)

The storage reservoir above Taplin Gorge Dam is called Red River Lake. The reservoir was created when the dam was built in 1925. It is about 3.3 miles long and is aligned east-west with the dam at the western end. Its elevation is about 1,299'. According to the Minnesota Department of Natural Resources, the surface area is about 305 acres and the lake is about 55' deep. The banks of the reservoir are mostly comprised of farmland and wooded areas, but there are also more than 40 homes and cabins along the shore.

The reservoir has been historically used for fishing and other recreation. The MnDNR currently stocks it with fish.

Dam

The Taplin Gorge dam, built in 1925, is located on the Otter Tail River about 830' east of the powerhouse. It is an earthen and poured concrete gravity dam that has not been significantly altered since it was built.

The dam was built to impound the Otter Tail River and to divert some of the river's flow westward into a diversion canal (fig. 145). From the canal the water enters an underground penstock which delivers it to the powerhouse turbines, after which it is discharged back into the river. The diverted water bypasses a .6-mile natural loop of the river that extends south of the dam and then curves nearly 180 degrees to flow northward past the western side of the powerhouse (fig. 130).

The dam is about 340' long. It is comprised of a 61'-long poured concrete spillway structure flanked by earthen embankment dam sections with concrete core walls (fig. 110). The embankment dam sections are 80' long east of the spillway and about 200' long west of the

spillway. The concrete core walls extend out from each end of the spillway to penetrate the ends of the embankment sections. The eastern core wall is evidently about 50' long and the western core wall is evidently about 130' long (Dam Safety 1986: Plate 3). The embankment sections are 36' high.

According to a 1925 article in the *Fergus Falls Daily Journal*, "Walls of the dam are 38' high, and rest on massive concrete footings 18' wide, which in turn rest on numerous pilings driven into the river bottom. The core wall of reinforced concrete is 5' thick at bottom, tapering to 12" at top. This wall will be further reinforced by thousands of tons of earth, gravel, and boulders banked up against both sides" ("Now" 1925). The newspaper reported the height of the dam from the bottom of the pilings to the top of the dam to be 70' to 80' ("Now" 1925). Original drawings show timber cribbing supporting the downstream edge of the earthen dam.

The poured concrete, straight-crested spillway is about 61' long. It is comprised of seven 6'-wide bays (fig. 115). One bay originally had a steel Tainter (or radial) gate, and the rest were controlled with stoplogs. Today the Tainter gate remains, but three of the six bays have steel vertical gates, which the rest retain manual stoplogs. (The stoplogs are treated 4" x 6" timbers that are stacked in place by hand.) The elevation of the spillway crest is 1,297. West of the spillway is an abandoned fish ladder that was probably closed in the 1960s. A poured concrete walkway lined with pipe railings runs along the top of the spillway. The spillway gate mechanisms are located here (figs. 117-118).

While the principal dam is the structure just described, another embankment dam section is located north of the diversion canal on the western side of the river (fig. 119). This embankment section is about 400' long and aligned north-south. Its southern end meets the eastern end of the northern wall of the diversion canal.

The principal dam was repaired in 1962, 1967, and 1977.

Diversion or Power Canal

The diversion or power canal, built in 1925, is located about 200' east of the powerhouse. The canal is aligned roughly east-west and is basically intact (figs. 109, 120-123). The canal carries diverted water from the reservoir to the eastern end of the underground penstock. (The water flows through the penstock into the powerhouse.)

The open canal is about 400' long with tall embanked sides. The canal is about 100' wide near the center, about 85' wide near the northeastern end, and about 65' wide at the western end. According to original drawings, it has a 25'-wide, flat bottom and a control structure near the northeastern end. The bottom and sides of the canal are made of earth.

The western 100' of the canal forms an intake structure for the underground penstock (figs. 123-124). The walls and floor of this portion are lined with poured concrete. The floor of the intake structure slants down from east to west, and the walls are tapered so the intake structure is narrowest at the western end. At this point the intake structure is 65' wide and about 22' deep, according to original drawings. At the western end of the canal, marking the opening to the penstock, are three bays with vertical slide gates and trash racks (fig. 125).

A set of narrow steel steps climbs the embankment at the western end of the canal (fig. 126). These steps connect the canal and the top of the dam with the yard east of the powerhouse, which is at a lower elevation.

Penstock

The penstock, which carries the diverted water in the final segment of its journey to the powerhouse, is a buried, rivetted steel, 9'-diameter pipe (fig. 108). It is 200' long. It was installed in 1925 and is evidently intact.

According to a September 1925 article in the *Fergus Falls Daily Journal*, the riveted sections of the penstock pipe "were formerly huge beer vats, taken from the Anheuser Busch brewery at St. Louis" ("Now" 1925). The journalist wrote: "The concrete walls of the dam are up, dredging is all done, deep trenches have been dug or are being dug, and the solid concrete footing and 9' pipe or penstock are in their trenches or ditches like a huge skeleton laid bare to public view. This framework or skeleton will soon be buried under thousands of tons of gravel and earth, grass will again grow on the smooth slopes and casual travelers who pass the place in future will have no intimation by sight or sound that underneath the grass is a controlled torrent of water capable of producing 800 horse power" ("Now" 1925).

Powerhouse

The powerhouse, built in 1925, is an intact, square poured concrete building that measures about 29' x 29'.

The powerhouse has a domed roof with four small domed ventilators – one at each corner of the roof (fig. 128). There is a band of diamond fretwork above a wide smooth frieze. Incised in stone above the main entrance on the eastern facade are the words "Taplin Gorge Station, Otter Tail Power Company, Built AD MCMXXVX". In a similar position on the other three facades are cast medallions: one symbolizing three-phase electric power, one a set of turbine blades, and one bearing the intertwined letters "OTP" for Otter Tail Power (figs. 112, 131). (The same "OTP" symbol appears on the Hoot Lake powerhouse and on the company's 1922 office building in downtown Fergus Falls (fig. 2).)

Architectural historian Jeff Hess, author of a statewide study of Minnesota's hydroelectric facilities, describes the powerhouse as "the state's most striking example of powerhouse architecture." Hess writes:

> Although Wright gave the Taplin Gorge powerhouse enough strength, stability, and massiveness to please the most conservative of architectural critics, the building nevertheless remains an utterly fantastic creation. Instead of turning to Neoclassicism – the customary style for 'serious' architecture of the period, as well as the informing doctrine of Wright's own architectural training at M.I.T. and the Ecole des Beaux Arts in Paris – Wright reputedly drew his inspiration for Taplin Gorge from a sixth-century mausoleum in Ravenna, Italy, the final resting place of Theodoric I, King of the Italian Ostrogoths. Later accounts would claim that the 1925 concrete powerhouse was a 'replica' of the Italian tomb, but Wright's design is at best a loose interpretation. . . . Wright translated this design into a bold, two-story cube displaying a broad fretwork frieze below a shallow central dome with lesser domes at each corner. Whatever its architectural inspiration, the building successfully communicates an austere byzantine dignity which, although compatible with contemporary expectations about the 'solidity'

of powerhouse architecture, is nevertheless a wildly improbable addition to the Otter Tail County countryside (Hess 1989: E.15).

Each facade of the Taplin Gorge powerhouse has five bays comprised of a central door and four blind openings, all rectangular. The main entrance is on the eastern facade. Each of the three elevations suspended over the water has an arched opening at the base. Above the arches are steel ladder rungs used to access the tailrace (fig. 112).

The interior of the main level is a single generator room with exposed poured concrete walls and floor. The domed ceiling (about 21' in diameter) has a skylight at the top (fig. 133). The main entrance has an original double-leaf door (fig. 134). There are corresponding, but narrower, doors on the other three walls that can be opened for ventilation.

The generator room level is dominated by the original 560-kw Westinghouse generator mounted in 12'-diameter poured concrete base (fig. 132). The generator is mounted above the plant's original Leffel-built 40" type "F" reaction vertical turbine (rated 900 horsepower, 240 RPM under a head of 32' to 38'), which is installed below the floor. The governor is a Woodward type "HR". The turbine wicket gate control mechanism is mounted on the floor near the generator.

In the northwestern corner of the generator room is an early wooden cabinet with a slanted desk-like top for record-keeping (fig. 135). Near the southwestern corner is a bank of modern control equipment (in the same position as the equipment in a 1926 photo). Along the northern wall is a narrow set of poured concrete steps leading to the building's lower level.

The lower level has a service corridor (about 5' wide) that curves around the poured concrete water-filled chamber in which the turbine is mounted (fig. 136).

■ HISTORIC BACKGROUND

Taplin Gorge Timeline

1907	Otter Tail Power Company (OTP) established by Vernon Wright and others
1925	plant built
1925	went on-line with one 560-kw hydro unit
1962	dam repaired
1967	dam refurbished
1977	spillway refaced

Taplin Gorge, built in 1925, was the last of the five hydroelectric plants built by Otter Tail Power (OTP) on the Otter Tail River at Fergus Falls. It was also "one of the last hydroelectric facilities built in Minnesota before World War II" (Hess 1989: E.15).

Otter Tail Power Company was founded in 1907 by Vernon A. Wright (1862-1938) who recruited three other investors – Frederick G. Barrows, Fred Leffler, and E. W. Anderson. Wright served as president from 1907-1933 and was succeeded by his sons. Members of the Wright family continued to lead the company into the 1960s. Barrows and Leffler were also longtime company executives.

Wright designed the Taplin Gorge plant as well as OTP's other hydroelectric plants on the Otter Tail River. Before entering the power business in Fergus Falls, Wright had been an architect in Boston. He was educated at the University of Minnesota, Massachusetts Institute of Technology (MIT), and L'Ecole des Beaux Arts in Paris.

Otter Tail Power Company served as its own general contractor for Taplin Gorge, with many area residents hired as part of the work force. Engineer Geoffrey Welch was in charge of construction ("Now" 1925).

As part of the project, a section of the Otter Tail River was dredged to deepen it by about 6' ("Now" 1925). A former neighbor, Myrtle Kenyon recalled in 2003: "The dredger roared along down the river throwing heaps of gravel up either side until the river was not nearly as wide as before, but was much deeper and swifter. After the dredging, the heaps of gravel had to be leveled out and made smooth. My brothers got the job of leveling it off with horses and scrapers. Next came the dam building. . . . Several of my brothers drove our horses on plows and scrapers to get the territory leveled off and ready for the main project." Kenyon also recalled that her mother was hired to cook and serve dinner and supper each day to more than 30 workmen who ate at their farm. Kenyon wrote that some workers also slept in their washhouse for much of the summer (Kenyon 2003: 110).

Pat Ripley Malsom also remembered the power company employing neighboring farmers to work on the project. She recalled Taplin Gorge was built at a time when the farm economy was depressed and wages were welcome. Malsom indicated her father and both grandfathers worked on the crew (Hatling 1979). Former neighbor Duane Kowalski remembered that his grandfather, father, and two uncles worked on the dam ("Retired" 1997). Men worked in 10-hour shifts when construction was at its peak (Hatling 1979).

The power canal was dug by a steam shovel, with the gravel spoils hauled away on rails by two 6-ton locomotives. According to the *Fergus Falls Daily Journal*, "Every machine that can be run by electricity is so operated. This includes pumps, pile drivers, and hoists" ("Now" 1925).

Taplin Gorge's turbine and generator were both installed in the fall of 1925. The generator was evidently assembled on site and the powerhouse built around it (Hatling 1979). The turbine was supplied by the James Leffel Company of Springfield, Ohio, a leading manufacturer of hydraulic turbines established in 1862 and still in business. The generator was manufactured by Westinghouse Electric of East Pittsburgh, Pennsylvania, founded in 1886 and also still in business.

The Taplin Gorge plant went on-line in November 1925, adding to Otter Tail Power's capacity at a time it was critically needed. While Otter Tail Power was serving 44 towns and 17 farms at the end of 1919, ten years later at the end of 1929 the company was providing power to 314 towns, 534 farms, and 125 lake cottages (Mau 1950).

The dam was repaired in 1962, 1967, and 1977 by the Lee Turzillo Contracting Company. Turzillo rehabilitated other OTP dams in the 1960s including Central, Pisgah, and Dayton Hollow.

Taplin Gorge has historically been third-largest among OTP's hydroelectric plants on the Otter Tail River. Since 1968 its 560 kilowatts have represented 16% of OTP's nameplate capacity on the river. (Taplin Gorge now represents 13% of hydroelectric capacity in the entire OTP system if the company's 740-kw Bemidji hydroelectric plant is included.)

Taplin Gorge has been operating continuously for 85 years, with its original turbine and generator. The plant is still owned and operated by Otter Tail Power.

■ EVALUATION OF NATIONAL REGISTER ELIGIBILITY

See Chapter 6 of this report.

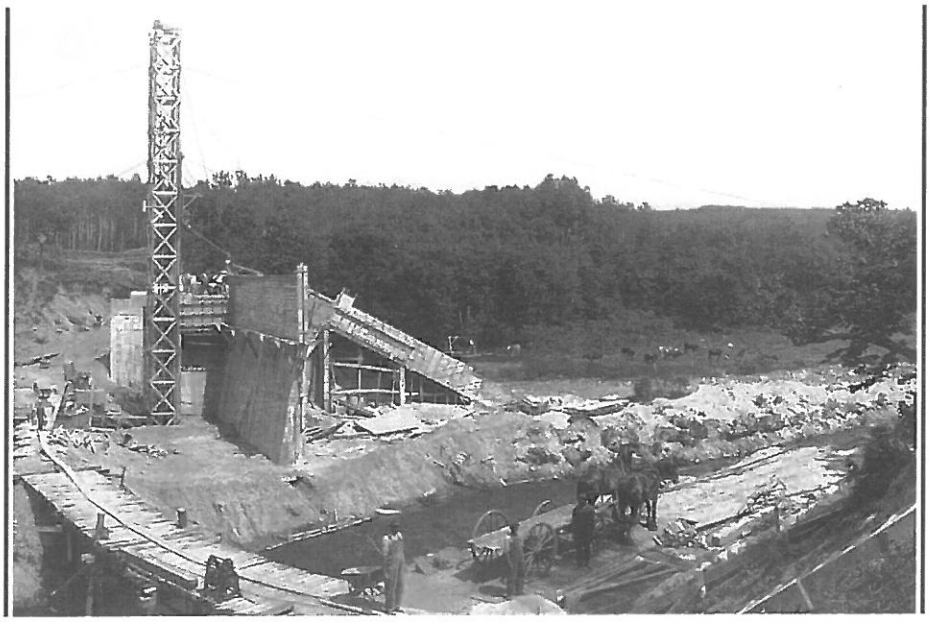


Fig. 107. OT-FRI-005. Taplin Gorge, dam being built, wooded eastern bank of river, 1925 photo by W. T. Oxley (Otter Tail Power Company Collection) (facing E)

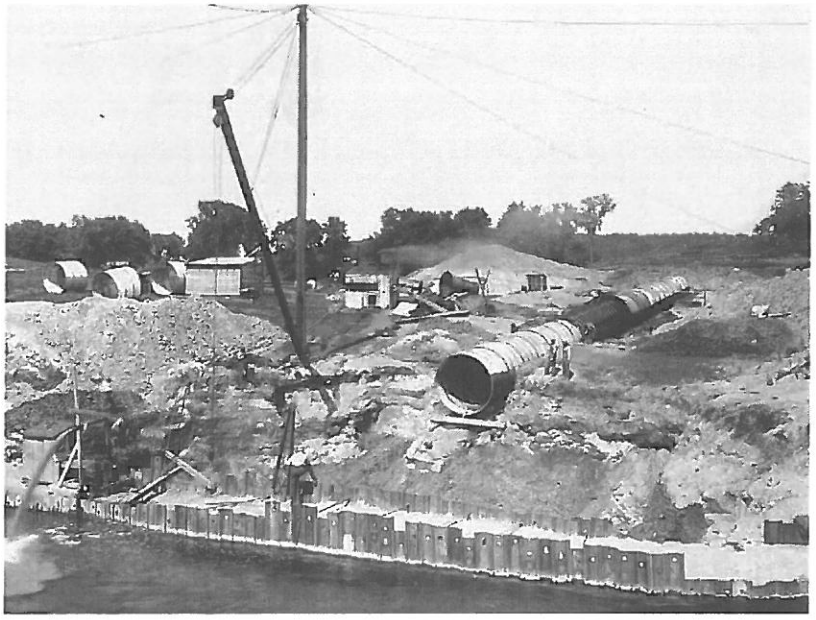


Fig. 108. OT-FRI-005. Taplin Gorge, 9'-diameter penstock being installed; steel evidently was salvaged from beer vats; 1925 photo by W. T. Oxley (OTP Collection) (facing NE)

Fig. 109. OT-FRI-005. Taplin Gorge, southwestern end of canal being built; Oct. 1925 photo by W. T. Oxley (Otter Tail Power Company Collection) (facing W)

Fig. 110. OT-FRI-005. Taplin Gorge, southern side of dam; note fish ladder at left; 1926 photo by W. T. Oxley (Otter Tail Power Company Collection) (facing N)

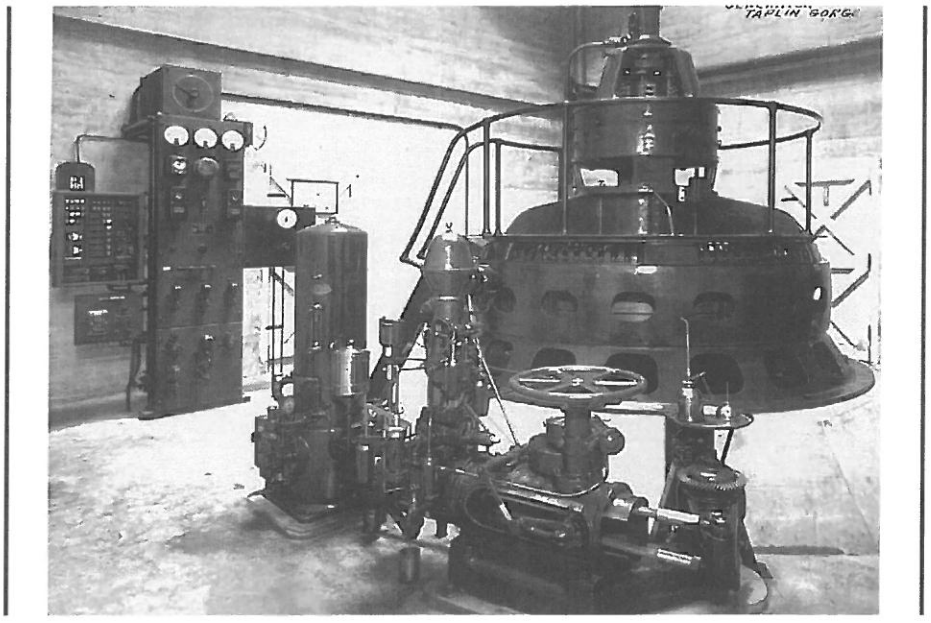


Fig. 111. OT-FRI-005. Taplin Gorge, 1925 Westinghouse generator, wicket gate gears and control mechanism in foreground; 1926 photo by W. T. Oxley (OTP Collection) (facing NE)

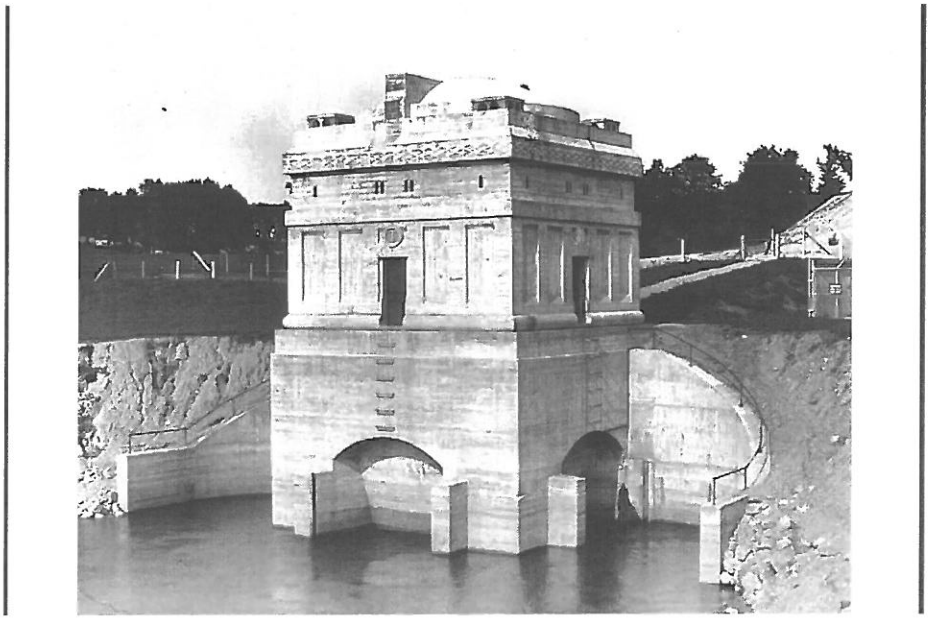


Fig. 112. OT-FRI-005. Taplin Gorge, western and southern sides of powerhouse, embankment and substation at right edge; ca. 1926 photo by W. T. Oxley (OTP Collection) (facing NE)

Fig. 113. OT-FRI-005. Taplin Gorge, northern and western sides of powerhouse; ca. 1926 photo by W. T. Oxley (Otter Tail Power Company Collection) (facing SE)

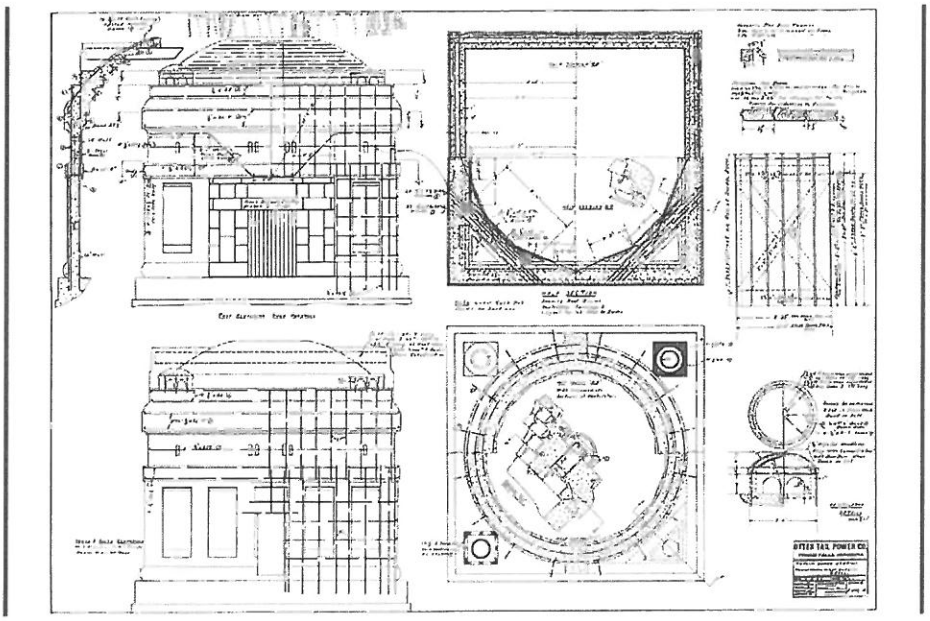


Fig. 114. OT-FRI-005. Taplin Gorge, one of many sheets of Vernon A. Wright's drawings; 1925, Otter Tail Power (Otter Tail Power Company Collection) (facing n/a)

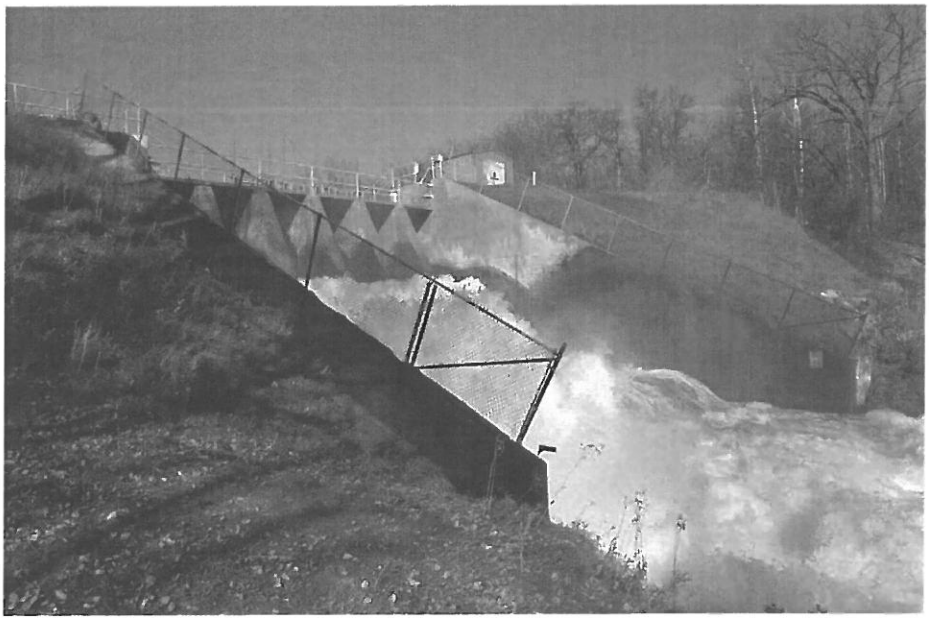


Fig. 115. OT-FRI-005. Taplin Gorge, spillway with eastern bank of Otter Tail River at right (facing NE)

Fig. 116. OT-FRI-005. Taplin Gorge, dam spillway from the top (facing SW)

Fig. 117. OT-FRI-005. Taplin Gorge, walkway and gate controls on spillway; water is being diverted into the canal at upper right (facing W)

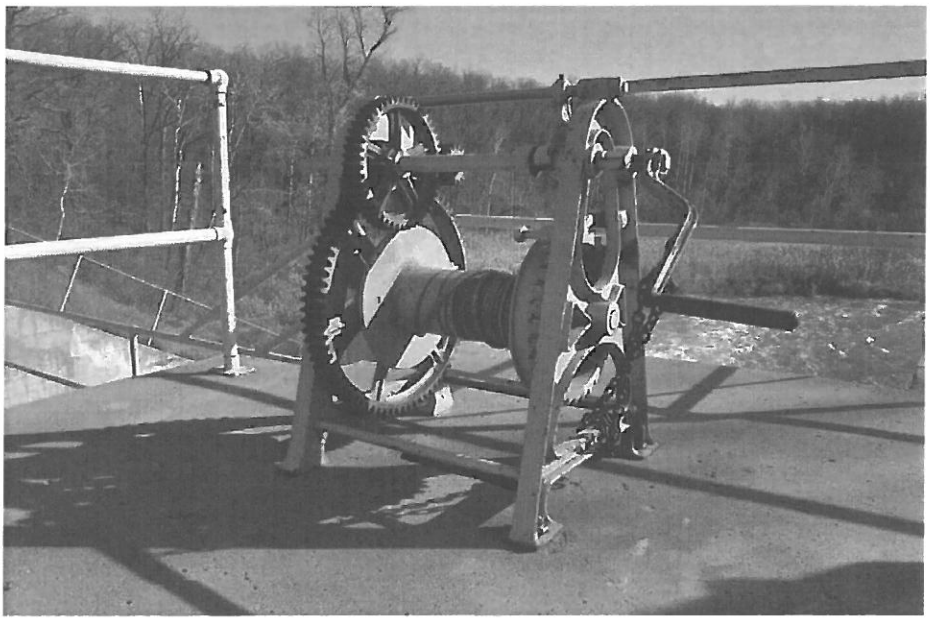


Fig. 118. OT-FRI-005. Taplin Gorge, Tainter gate mechanism on spillway (facing NE)

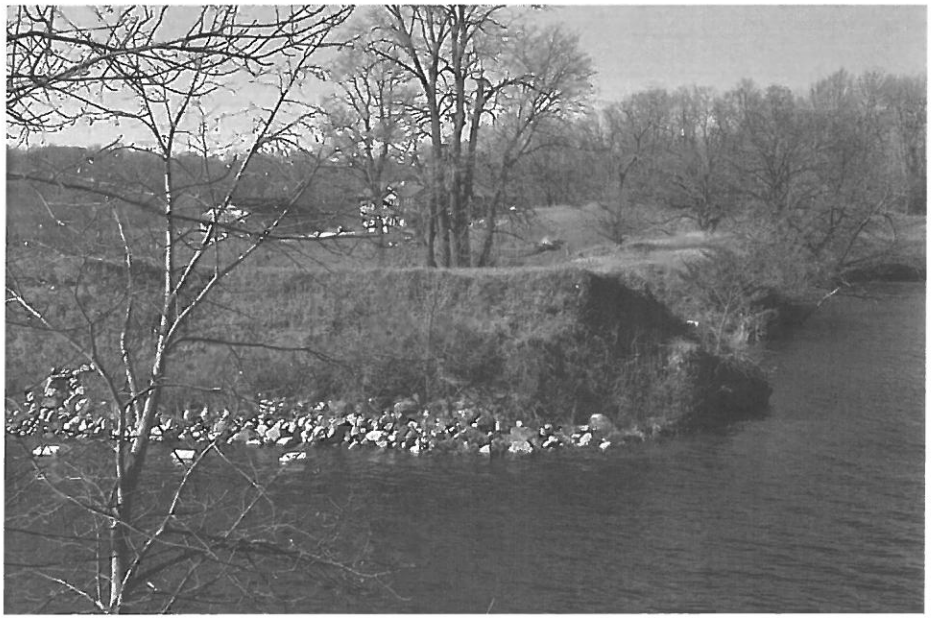


Fig. 119. OT-FRI-005. Taplin Gorge, embankments at northeastern end of diversion or power canal, natural path of the river is top to bottom at right (facing NW)

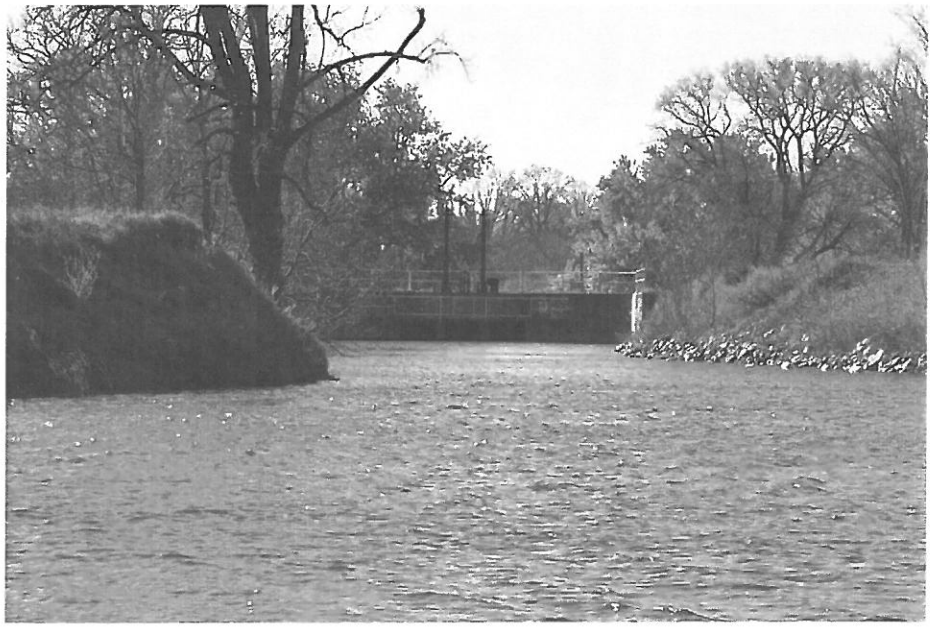


Fig. 120. OT-FRI-005. Taplin Gorge, canal from its eastern end; in distance is the gated penstock intake structure (facing W)

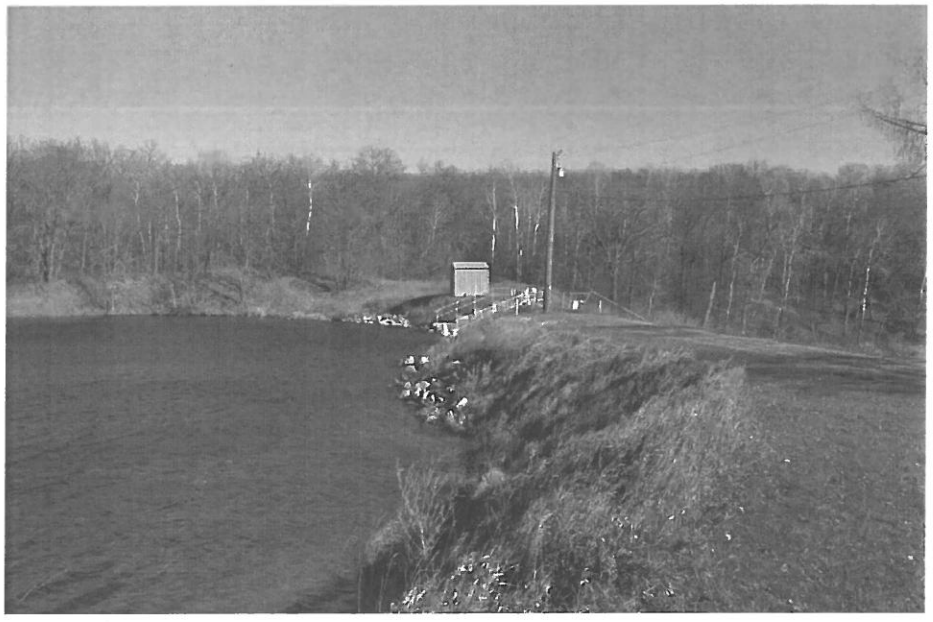


Fig. 121. OT-FRI-005. Taplin Gorge, embankment along southern side of canal with stoplog shed in view; water is diverted top to bottom in photo (facing E)

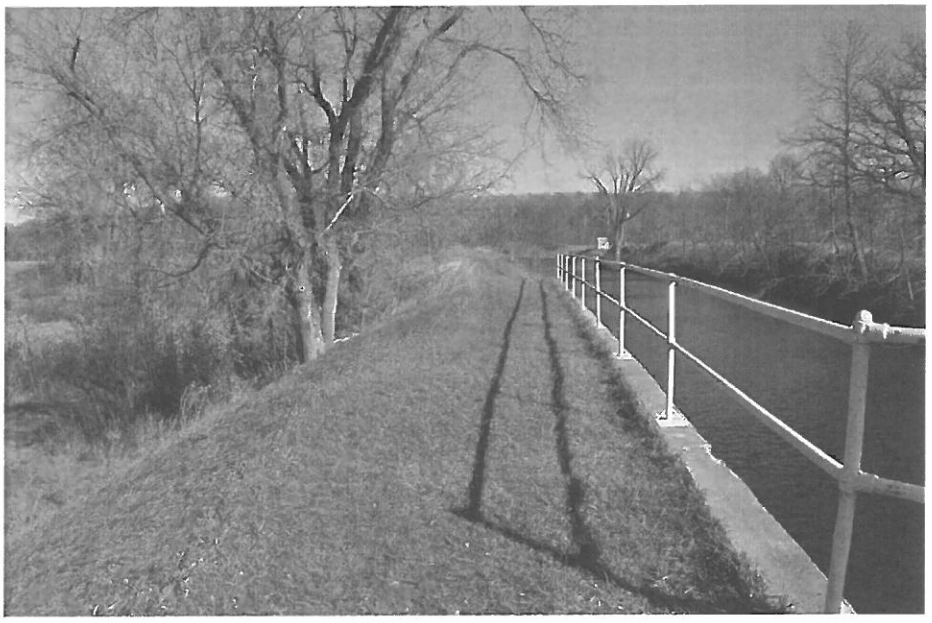


Fig. 122. OT-FRI-005. Taplin Gorge, northern side of diversion or power canal; manmade embankments form canal walls (facing E)

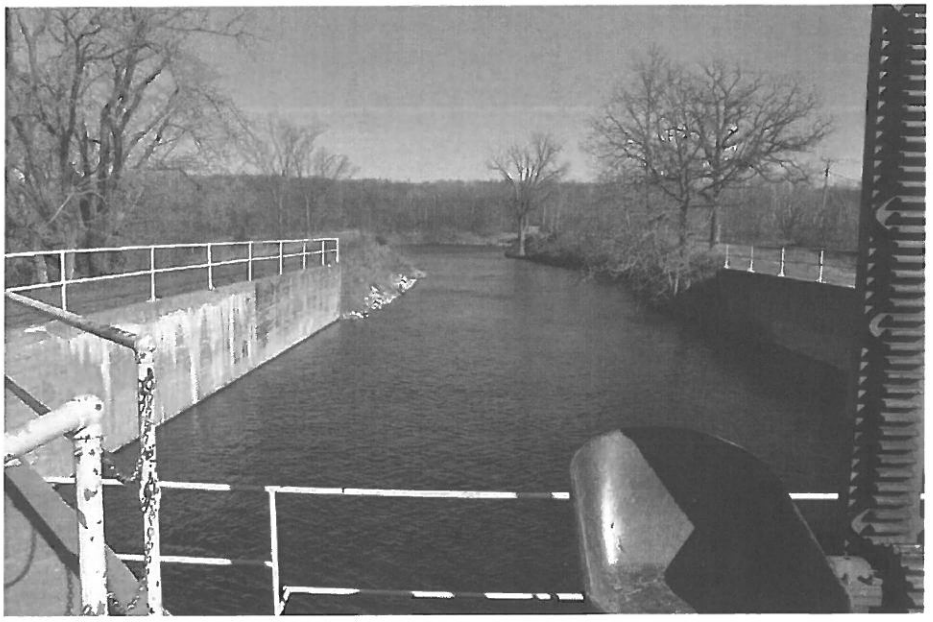


Fig. 123. OT-FRI-005. Taplin Gorge, canal with river in distance; water flows top to bottom in photo (facing E)

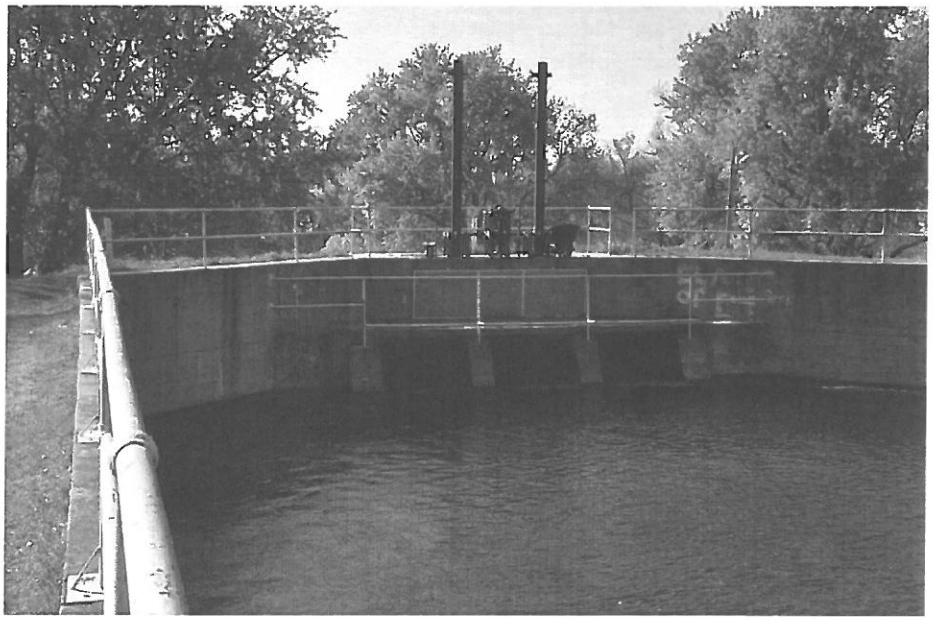


Fig. 124. OT-FRI-005. Taplin Gorge, penstock opening at southwestern end of canal with three trash racks and gate mechanism (facing W)

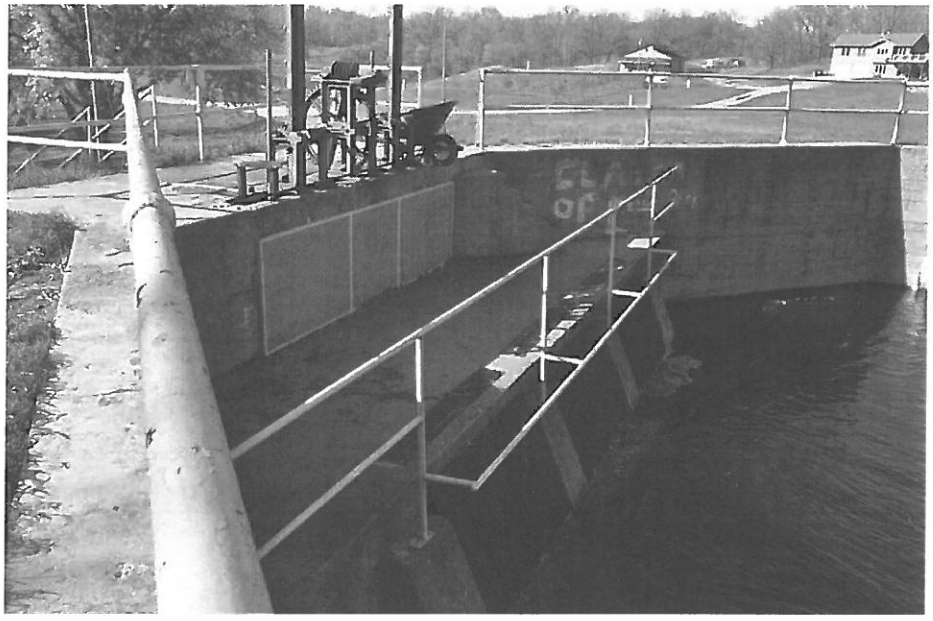


Fig. 125. OT-FRI-005. Taplin Gorge, penstock opening with three trash racks and gate mechanism (facing NW)

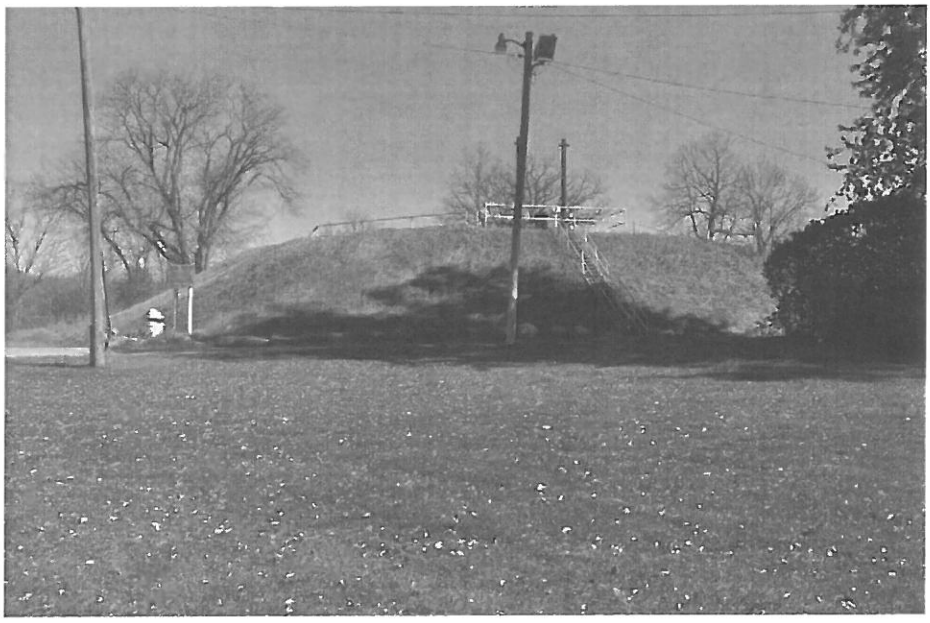


Fig. 126. OT-FRI-005. Taplin Gorge, embankment at southwestern end of canal with steel steps climbing it; penstock is buried under grass in foreground (facing E)

Fig. 127. OT-FRI-005. Taplin Gorge, substation (on original location) and powerhouse (facing W)

Fig. 128. OT-FRI-005. Taplin Gorge, eastern (main) facade of powerhouse; penstock is buried in the foreground (facing W)

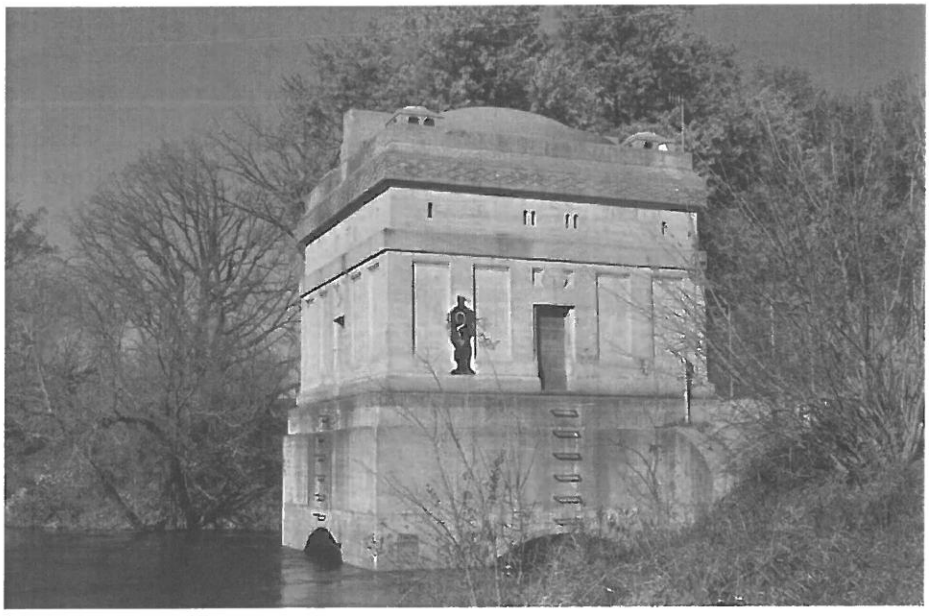


Fig. 129. OT-FRI-005. Taplin Gorge, western and southern sides of powerhouse (facing N)

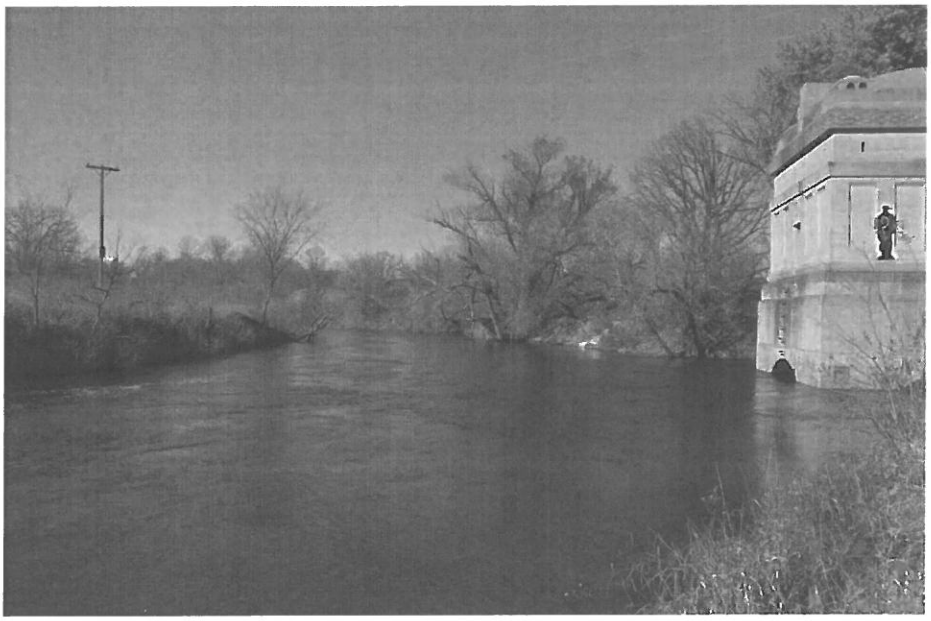


Fig. 130. OT-FRI-005. Taplin Gorge, Otter Tail River west of the powerhouse (flow is bottom to top in photo) (facing N)

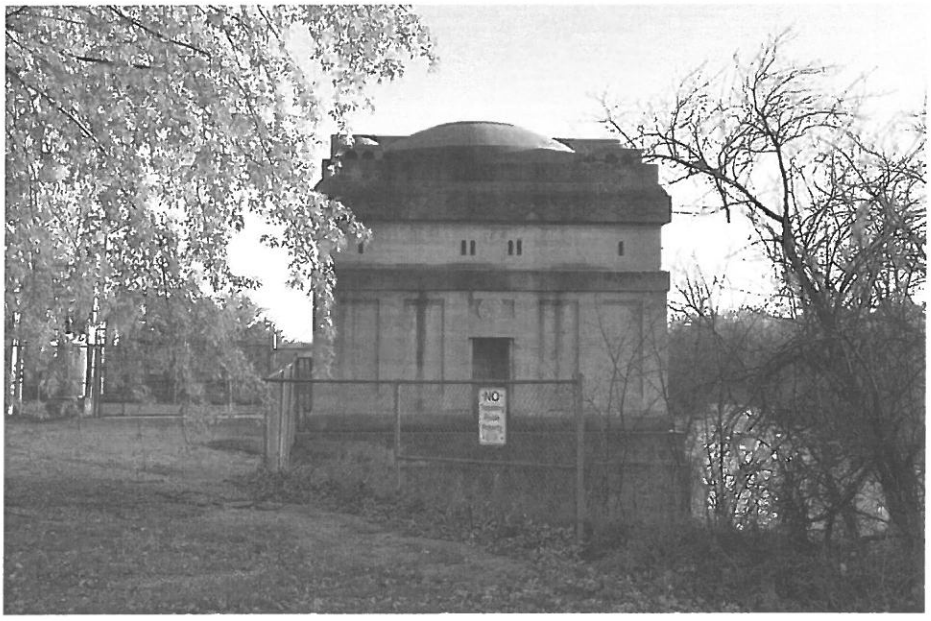


Fig. 131. OT-FRI-005. Taplin Gorge, northern elevation of powerhouse (facing S)

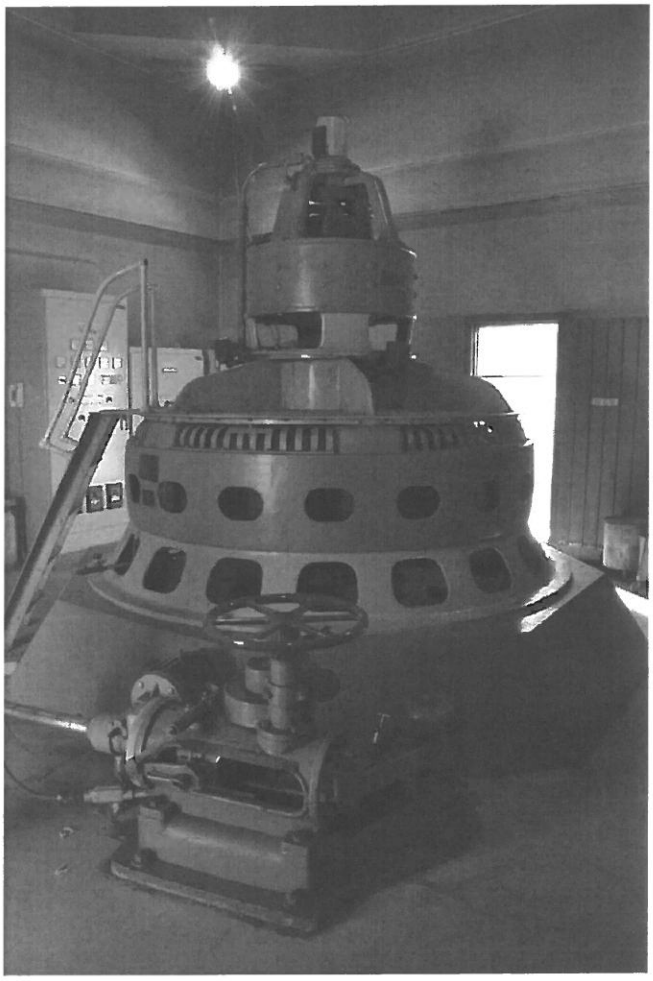


Fig. 132. OT-FRI-005. Taplin Gorge, 1925 Westinghouse generator, wicket gate gears and control mechanism in foreground (facing NE)

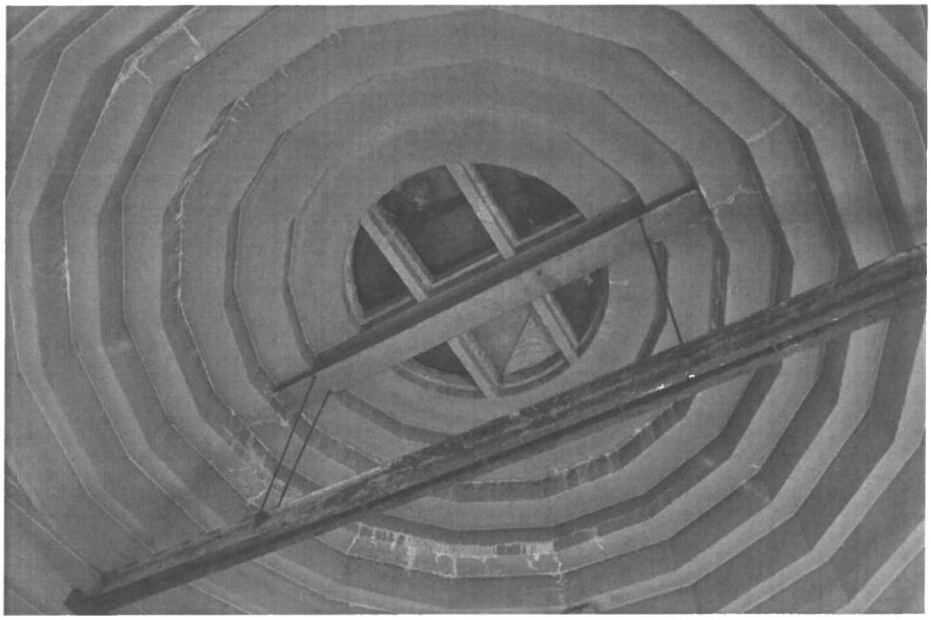


Fig. 133. OT-FRI-005. Taplin Gorge, poured concrete ceiling of upper level of powerhouse (skylight glass covered due to leaking) (facing W)

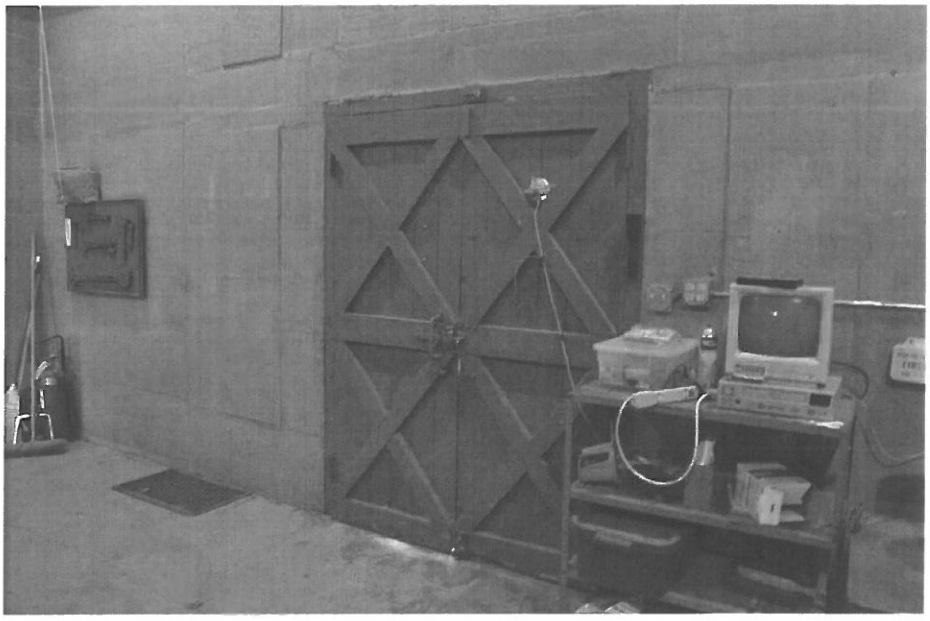


Fig. 134. OT-FRI-005. Taplin Gorge, main entrance to powerhouse with original doors; note early tool board with wrenches on wall at left (facing NE)

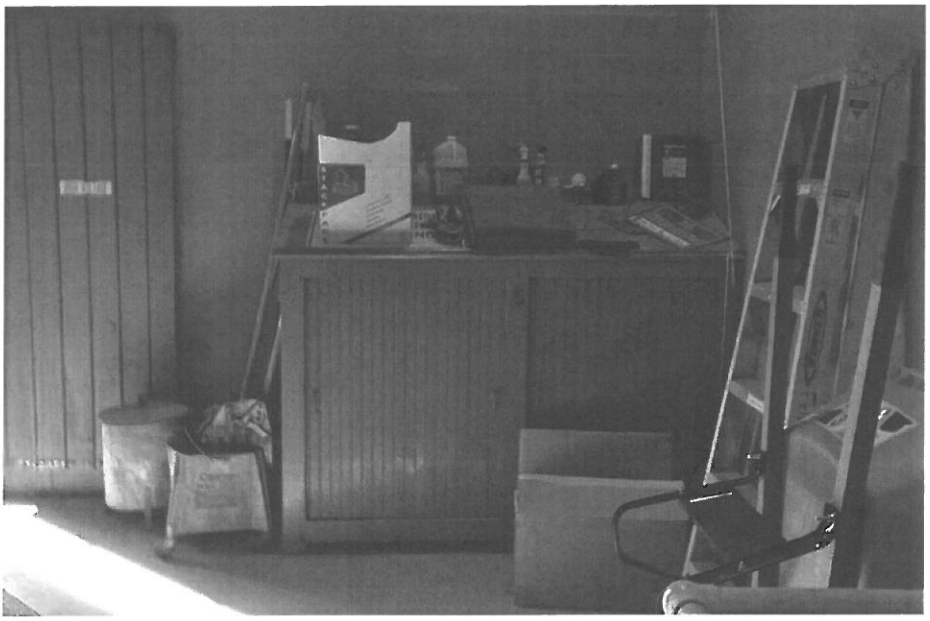


Fig. 135. OT-FRI-005. Taplin Gorge, powerhouse's wooden cupboard with slanted desk-like top for record-keeping (facing E)

Fig. 136. OT-FRI-005. Taplin Gorge, lower level of powerhouse; at left is water-filled turbine chamber (facing W)

EVALUATION OF NATIONAL REGISTER ELIGIBILITY

ELIGIBILITY REQUIREMENTS

Period of Significance

The statewide historic context document "Hydroelectric Power in Minnesota, 1880-1940" establishes 1880-1940 as the historic context's period of significance (Hess 1989). The year 1880 marks the beginning of hydroelectric power generation in Minnesota (and nationally). The year 1940 designates the end of the era when most electricity was generated by hydropower, and marks the beginning of an expansive new period when most electricity was generated by coal-fired steam plants. A nationwide historic context study on hydroelectricity prepared by Duncan Hay (1991) also uses 1880-1940 as its period of significance.

Gemini Research recommends that the overall period of significance for Otter Tail Power's five hydroelectric plants at Fergus Falls begins in 1902 when a turbine and alternating-current generator were installed at Central Dam, and ends in 1940 when Otter Tail Power began its second major period of territorial expansion. This new demand was almost entirely met with the construction and enlargement of coal-fired steam plants rather than with hydroelectricity. Periods of significance for individual plants appear below.

Registration Requirements

The statewide historic context document contains a set of "registration requirements" designed to help assess the significance of Minnesota's pre-1940 hydroelectric plants. These registration requirements, which are also applicable to the hydroelectric plants at Fergus Falls, are summarized below.

National Register Criterion A. Properties are eligible for the National Register of Historic Places under Criterion A if they are "associated with events that have made significant contribution to the broad patterns of our history."

The statewide hydroelectric historic context registration requirements indicate that a pre-1940 hydroelectric facility meets this criterion if it:

A1. "strongly influenced the industrial, commercial, or residential development of a community or region," or

A2. "fostered the acceptance of electricity in a community or region, thereby promoting increased use or additional development of hydroelectricity," or

A3. "played an instrumental role in the development of an electric utility company that had a major impact on the state's hydroelectric industry" (Hess 1989: F.6).

National Register Criterion B. Properties are eligible for the National Register under Criterion B if they are "associated with the lives of persons significant in our past."

The registration requirements in the statewide context indicate: "In most cases this criterion will apply to the original developer of the hydroelectric generating facility." The document states that research should be conducted to determine whether an original developer made significant contributions to the industry (Hess 1989: F.6).

National Register Criterion C. Properties are eligible for the National Register under Criterion C "that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction."

The statewide historic context indicates that a pre-1940 hydroelectric facility meets this criterion if it:

C1. "introduced a significant innovation to hydroelectric engineering in Minnesota such as: AC generation for long-distance transmission; the direct-connected generating unit; the vertical generating unit; the concrete power dam; or the concept of surplus water management," or

C2. "provided a successful solution to challenging site conditions such as in the form of extensive power canals or power tunnels," or

C3. "presently embodies a rare form of hydroelectric engineering for Minnesota such as a rope-drive generating unit; a concrete-arch dam; an Ambursen dam; a 'high-head' installation (i.e., hydraulic head exceeding 200'); an 'outdoor-type' powerhouse," or

C4. "was designed by a notable engineer such as William de la Barre, Ralph D. Thomas, and Hugh L. Cooper" (Hess 1989: F.6).

Integrity or Level of Alteration

According to National Register guidelines, properties eligible for the National Register must "possess integrity of location, design, setting, materials, workmanship, feeling, and association."

The registration requirements in the statewide hydroelectric study suggest that design, materials, and workmanship are particularly applicable to assessing the physical integrity of Minnesota hydropower plants (Hess 1989: F.7).

The historic context document indicates that an eligible hydroelectric plant should retain sufficient integrity so that its basic design and the interrelationship of its parts can be understood and "the historic flow of waterpower" can be traced. Hess advises that the loss of a dam, powerhouse, or major canal section would likely render a property ineligible, but loss of a buried penstock or underground tunnel would be "less crucial since these features never were a visible resource" (Hess 1989: F.7).

The document states that neither a dam or powerhouse should be so altered that its historic structural type (e.g., arch dam) is changed. Hess indicates a dam would not be eligible for the National Register "if a preponderance of its historic material is replaced or significantly obscured by another material." He further states, "Alterations to individual dam components such as gates, trash racks, spillways, flash boards, and so forth are not detrimental to integrity unless

the components are themselves the basis of the property's significance or the alterations are so sweeping that they constitute a major change in the dam's historic materials or structural type" (Hess 1989: F.7).

Regarding dams and powerhouses Hess also writes: "Major alterations to architectural detailing, constituent engineering features, or specific pieces of machinery do not necessarily affect integrity unless the architecture, engineering, or equipment are themselves the basis of significance" (Hess 1989: F.7).

The document indicates a caretaker's house should possess the same degree of architectural integrity necessary for any house in the state to be eligible for the National Register. The house's surroundings must continue to evoke the remote setting that made a caretaker's residence necessary. Hess writes that the house could have originally stood at another location "as long as it was relocated near a hydroelectric generating plant for use as an operator's residence during the plant's period of significance" (Hess 1989: F.8).

Alterations to hydroelectric plants that occur within a plant's period of significance are generally considered "valid historic expressions" (Hess 1989), while changes occuring after the period usually diminish a property's historic integrity.

■ EVALUATION OF THE FIVE PLANTS AT FERGUS FALLS

Gemini Research's recommendations regarding the National Register eligibility of the five Otter Tail Power Company hydroelectric plants at Fergus Falls are discussed below. They are summarized on Table 3 at the end of this chapter.

Central Dam and Hydroelectric Plant (OT-FFC-086)

The recommended period of significance for Central Dam and Hydroelectric Plant begins in 1902 when the first alternating-current turbine-generator unit was installed at Central, and ends in 1940 when Otter Tail Power began its second major period of territorial expansion. This new demand was almost entirely met with the construction and enlargement of coal-fired steam plants rather than with hydroelectricity.

It is recommended that the Central dam and plant meet the integrity guidelines of the statewide historic context study and retain sufficient integrity of location, design, setting, materials, workmanship, feeling, and association to meet National Register integrity requirements. There have been significant changes to the 1870-1871 timber-crib dam, but those alterations occurred within the period of significance and are associated with the generation of alternating-current (AC) electricity by Vernon Wright. The powerhouse addition was built in the 1930s, within the period of significance.

It is recommended that Central is eligible for the National Register under Criterion A by meeting the statewide context study's registration requirements A1 and A3. Central is a good example of the hydroelectric plants at Fergus Falls that comprised Otter Tail Power Company's first generating facilities and embody the technological focus of the company's formative years. Otter Tail Power, established in 1907, became the largest industry in Fergus Falls. The company

supplied western Minnesota (and the eastern Dakotas) with power that fueled agricultural, industrial, commercial, and residential growth during the region's important early 20th century expansion. Central was built and upgraded during Otter Tail Power's first period of growth, and the power generated by the Central plant helped Otter Tail move from supplying electricity to 44 towns in 1919 to supplying 314 towns in 1929. By the 1940s Otter Tail Power was Minnesota's third-largest electric utility and was playing a major role in the region's economic development.

By generating power as early as 1902 and being the first plant in Vernon Wright's generating system, it is recommended that Central also meets the statewide context's registration requirement A2.

Central Dam and Hydroelectric Plant may also be eligible for the National Register under Criterion B (important person). Central is associated with Vernon A. Wright, who designed the plant, was the impetus behind the founding of Otter Tail Power Company, was the company's first engineering expert, and served from 1907-1933 as the company's first president. Further research and analysis is needed, however, to determine *which* historic property best represents Wright's historic contributions; Otter Tail Power Company's extant 1922 headquarters building should be included in this analysis. (See "Other Associated Properties" below.)

The recommended boundaries of the eligible property, which are shown on figs. 137-138 in Chapter 7, encompass about 1.6 acres. The boundaries include the areas historically associated with the facility that retain historic physical integrity. The eastern and western boundaries are drawn at the Mill Street and Cascade Street bridges; these structures are modern in appearance and block the views east and west across the water. The southern boundary follows the riverbank and a current ownership parcel line. The longest western boundary is also a current parcel line. The northwestern and northern boundary was drawn to include the dam's small service parking area but exclude other modern commercial parking lots to the north.

Dayton Hollow Dam and Hydroelectric Plant (OT-BUS-002)

The recommended period of significance for Dayton Hollow Dam and Hydroelectric Plant begins in 1907 when construction of the facility began, and ends in 1940 when Otter Tail Power began its second major period of territorial expansion. This new demand was almost entirely met with the construction and enlargement of coal-fired steam plants rather than with hydroelectricity.

Despite the fact that some structures such as the flat-roofed office building and caretakers' house have been removed, it is recommended that the Dayton Hollow dam and plant meet the integrity guidelines of the statewide historic context study and retain sufficient integrity of location, design, setting, materials, workmanship, feeling, and association to meet National Register integrity requirements.

It is recommended that Dayton Hollow is eligible for the National Register under Criterion A by meeting the statewide historic context study's registration requirements A1 and A3. Dayton Hollow is a good example of the hydroelectric plants at Fergus Falls that comprised Otter Tail Power Company's first generating facilities and embody the technological focus of the company's formative years. Otter Tail Power, established in 1907, became the largest industry in Fergus Falls. The company supplied western Minnesota (and the eastern Dakotas) with power that

fueled agricultural, industrial, commercial, and residential growth during the region's important early 20th century expansion. Dayton Hollow was built and upgraded during Otter Tail Power's first period of growth, and the power generated by the Dayton Hollow plant helped Otter Tail move from supplying electricity to 44 towns in 1919 to supplying 314 towns in 1929. By the 1940s Otter Tail Power was Minnesota's third-largest electric utility and was playing a major role in the region's economic development.

Because Dayton Hollow was the first dam on the Otter Tail River built specifically to generate electricity, was one of the first dams built for this purpose statewide, was the first major building project of Otter Tail Power Company, and increased the company's generating capacity 16-fold thereby enabling Otter Tail to actively recruit and serve its first key customers, it is recommended that Dayton Hollow also meets the statewide context's registration requirement A2.

Dayton Hollow Dam and Hydroelectric Plant may also be eligible for the National Register under Criterion B (important person). Dayton Hollow is associated with Vernon A. Wright, who designed the plant, was the impetus behind the founding of Otter Tail Power Company, was the company's first engineering expert, and served from 1907-1933 as the company's first president. Further research and analysis is needed, however, to determine *which* historic property best represents Wright's historic contributions; Otter Tail Power Company's extant 1922 headquarters building should be included in this analysis. (See "Other Associated Properties" below.)

The recommended boundaries of the eligible property, which are shown on figs. 139-140 in Chapter 7, encompass about 22 acres. The boundaries include the areas historically associated with the facility that retain historic physical integrity. The western boundary follows a current ownership line and the western bank of the river. The southwestern line was drawn at a curve in the river (a point roughly 550' south of the dam) that marks the limit of the view down the river from the dam to the south. The northwestern boundary was drawn across the reservoir about 440' north of the dam; it is recommended the dam and other plant components are no longer a significant part of the viewshed northwest of this line. The northern and eastern boundaries follow current ownership parcel lines. The southern boundary was drawn about 350' south of the southern end of the dam structure.

Hoot Lake Hydroelectric Project (OT-FFC-067)

Gemini Research recommends that Hoot Lake Hydroelectric Project (including dam, canals, and other components) does not meet National Register integrity requirements and is therefore **not eligible** for the National Register. The diversion dam was been altered, the bridge over the Hoot Lake-Wright Lake canal has been replaced, a circa 1970 intake canal has been added, the hydroelectric powerhouse has been altered, and key hydroelectric features have been subsumed by a massive modern steam plant.

This recommendation represents a change from the State Historic Preservation Office's 1988 recommendation that the Hoot Lake hydroelectric facility was eligible for the National Register.

Gemini Research also recommends that none of the separate components of the project (e.g., the diversion canal or the diversion tunnel) are individually eligible for the National Register.

Pisgah Dam and Hydroelectric Plant (OT-BUS-003)

The recommended period of significance for Pisgah Dam and Hydroelectric Plant begins in 1918 when the facility was built, and ends in 1940 when Otter Tail Power began its second major period of territorial expansion. This new demand was almost entirely met with the construction and enlargement of coal-fired steam plants rather than with hydroelectricity.

It is recommended that the Pisgah dam and plant meet the integrity guidelines of the statewide historic context study, and retain the integrity of location, design, setting, materials, workmanship, feeling, and association necessary to meet National Register integrity requirements.

It is recommended that Pisgah is eligible for the National Register under Criterion A by meeting the statewide historic context study's registration requirements A1 and A3. Pisgah is a well-preserved example of the hydroelectric plants at Fergus Falls that comprised Otter Tail Power Company's first generating facilities and embody the technological focus of the company's formative years. Otter Tail Power, established in 1907, became the largest industry in Fergus Falls. The company supplied western Minnesota (and the eastern Dakotas) with power that fueled agricultural, industrial, commercial, and residential growth during the region's important early 20th century expansion. Pisgah was built during Otter Tail Power's first period of growth, and the power generated by the Pisgah plant helped Otter Tail move from supplying electricity to 44 towns in 1919 to supplying 314 towns in 1929. By the 1940s Otter Tail Power was Minnesota's third-largest electric utility and was playing a major role in the region's economic development.

Pisgah Dam and Hydroelectric Plant may also be eligible for the National Register under Criterion B (important person). Pisgah is associated with Vernon A. Wright, who designed the plant, was the impetus behind the founding of Otter Tail Power Company, was the company's first engineering expert, and served from 1907-1933 as the company's first president. Further research and analysis is needed, however, to determine *which* historic property best represents Wright's historic contributions; Otter Tail Power Company's extant 1922 headquarters building should be included in this analysis. (See "Other Associated Properties" below.)

It is also recommended that Pisgah Dam and Hydroelectric Plant is eligible for the National Register under Criterion C as a particularly well-preserved early 20th century hydroelectric plant that embodies the distinctive characteristics of its property type. The Pisgah facility retains basically-intact embankment dams, poured concrete spillway, integrated powerhouse, and other elements that are distinctive and necessary components of the property type and clearly convey the plant's original design, materials, function, and associations.

The recommended boundaries of the eligible property, which are shown on figs. 143-144 in Chapter 7, encompass about 8.9 acres. The boundaries include the areas historically associated with the facility that retain historic physical integrity. The western and eastern boundaries were drawn about 300' downstream and 400' upstream of the dam; it is recommended the dam and other plant components are no longer a significant part of the viewshed outside of these lines. The rest of the boundaries were drawn along the riverbanks and along current property ownership parcel lines.

Taplin Gorge Dam and Hydroelectric Plant (OT-FRI-005)

The recommended period of significance for Taplin Gorge Dam and Hydroelectric Plant begins in 1925 when the facility was built, and ends in 1940 when Otter Tail Power began its second major period of territorial expansion. This new demand was almost entirely met with the construction and enlargement of coal-fired steam plants rather than with hydroelectricity.

It is recommended that the Taplin Gorge dam and plant meet the integrity guidelines of the statewide historic context study, and retain the integrity of location, design, setting, materials, workmanship, feeling, and association necessary to meet National Register integrity requirements.

It is recommended that Taplin Gorge is eligible for the National Register under Criterion A by meeting the statewide historic context study's registration requirements A1 and A3. Taplin Gorge is a well-preserved example of the hydroelectric plants at Fergus Falls that comprised Otter Tail Power Company's first generating facilities and embody the technological focus of the company's formative years. Otter Tail Power, established in 1907, became the largest industry in Fergus Falls. The company supplied western Minnesota (and the eastern Dakotas) with power that fueled agricultural, industrial, commercial, and residential growth during the region's important early 20th century expansion. Taplin Gorge was built during Otter Tail Power's first period of growth, and the power generated by the Taplin Gorge plant helped Otter Tail move from supplying electricity to 44 towns in 1919 to supplying 314 towns in 1929. By the 1940s Otter Tail Power was Minnesota's third-largest electric utility and was playing a major role in the region's economic development.

Taplin Gorge Dam and Hydroelectric Plant may also be eligible for the National Register under Criterion B (important person). Taplin Gorge is associated with Vernon A. Wright, who designed the plant, was the impetus behind the founding of Otter Tail Power Company, was the company's first engineering expert, and served from 1907-1933 as the company's first president. Further research and analysis is needed, however, to determine *which* historic property best represents Wright's historic contributions; Otter Tail Power Company's extant 1922 headquarters building should be included in this analysis. (See "Other Associated Properties" below.)

It is also recommended that Taplin Gorge Dam and Hydroelectric Plant is eligible for the National Register under Criterion C as the state's most architecturally distinctive example of hydroelectric powerhouse architecture and for the high artistic quality of the powerhouse's Byzantine-inspired design. Taplin Gorge is also a particularly well-preserved early 20th century hydroelectric plant that embodies the distinctive characteristics of its property type. The Taplin Gorge facility retains basically-intact embankment dams, poured concrete spillway, diversion canal, penstock, powerhouse, and other elements that are distinctive and necessary components of the property type and clearly convey the plant's original design, materials, function, and associations.

The recommended boundaries of the eligible property, which are shown on figs. 145-146 in Chapter 7, encompass about 27 acres. The boundaries include the areas historically associated with the facility that retain historic physical integrity. The boundaries generally follow current property ownership parcel lines. The northern part of the eastern boundary follows a parcel line and the southern part of the eastern boundary is aligned with that parcel line. The northern boundary (an ownership parcel line) is roughly 400' upstream of the dam; it is recommended the

dam and other plant components are no longer a significant part of the viewshed north of this line.

Other Associated Properties

Otter Tail Power Company's two headquarters buildings still stand near Central Dam in downtown Fergus Falls (figs. 2-3, 138). The 1922 office building, designed by Vernon A. Wright, served as company headquarters until 1955 and is now a private law office. The 1955 General Offices, located on the eastern side of Cascade Street east of Central Dam, still serves as company headquarters. Adjacent to the southern wall of the 1922 office building is the River Inn, the four-story downtown hotel designed by Vernon A. Wright and built in 1929 with Wright as its majority owner (figs. 2, 14-15).

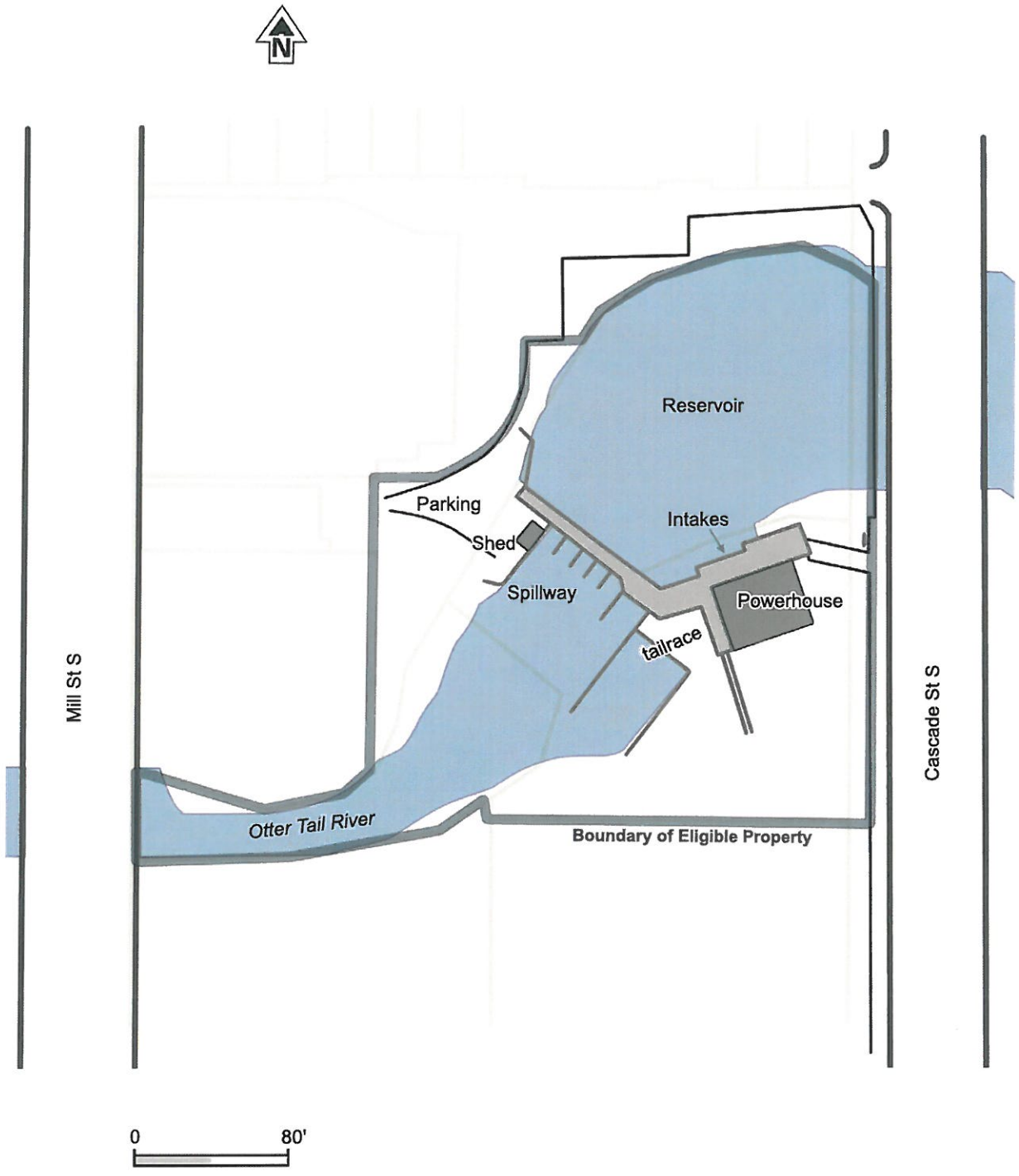
The River Inn is already listed on the National Register. Assessing the National Register eligibility of the two headquarters buildings was beyond the scope of the current study. While the two office buildings are clearly associated with the development of Otter Tail Power, their historical integrity (i.e., degree of physical alteration) has not been evaluated. The association of the River Inn and the 1922 office building with Vernon A. Wright (e.g., National Register Criterion B, important person) has not been sufficiently explored. Further, the role of the two buildings within the body of Wright's architectural work has not been assessed, nor has the significance of Wright as a designer. Any future assessment of these properties should consider whether an Otter Tail Power historic district, focused on Central Dam but including one or more of the other properties, is warranted or appropriate.

Table 3. Recommended National Register Eligibility: Five Otter Tail Power Co. Hydroelectric Facilities

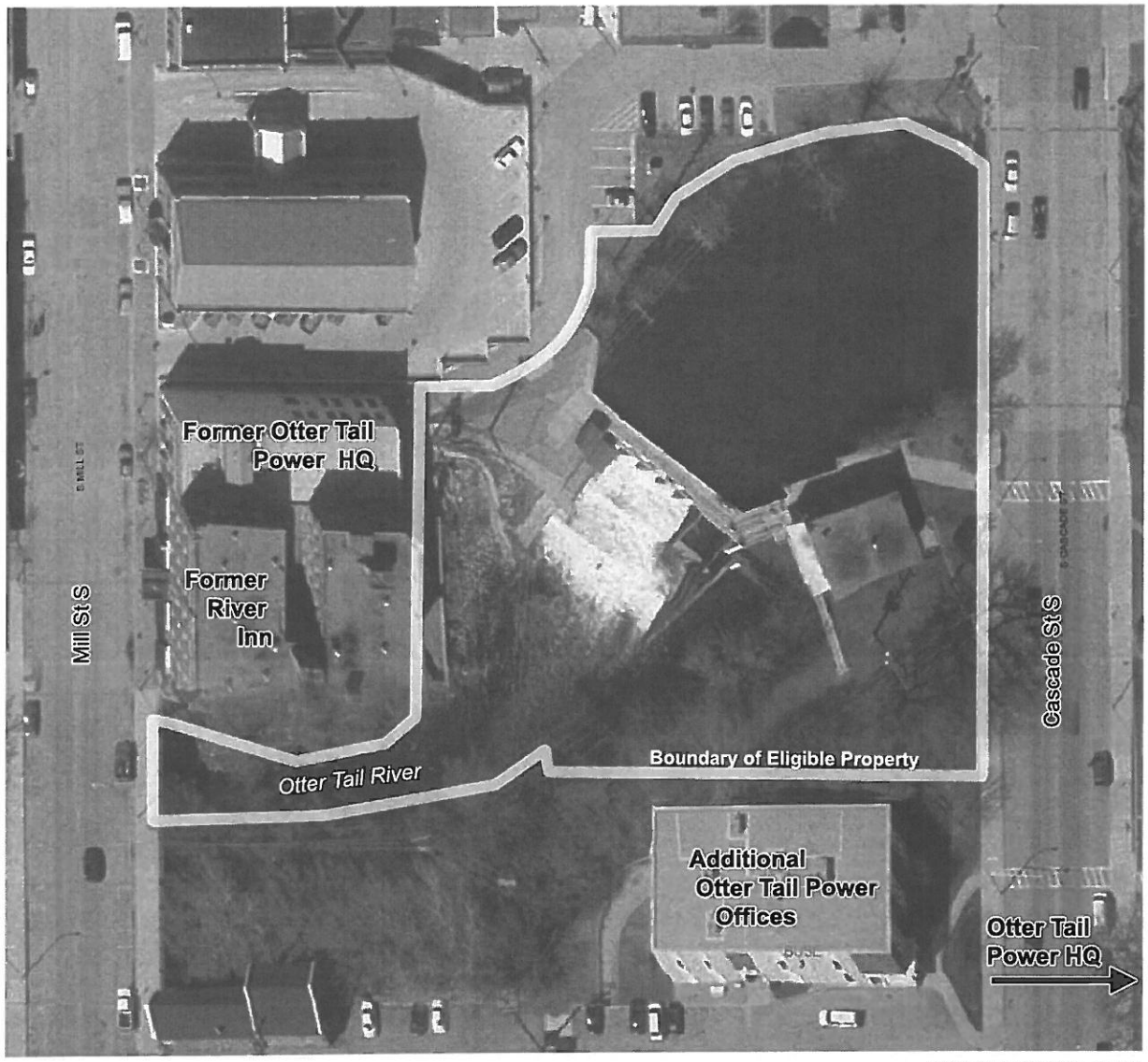
Name	SHPO Inv #	Location	Nat. Register Eligibility	Nat. Register Criteria	Period of Significance
Central Dam and Hydroelectric Plant	OT-FFC-086	Fergus Falls	Eligible	A	1902-1940
Dayton Hollow Dam and Hydroelectric Plant	OT-BUS-002	Buse Township	Eligible	A	1907-1940
Hoot Lake Hydroelectric Project	OT-FFC-067	Fergus Falls	No		
Also Includes:					
Hoot Lake Project Diversion Dam	OT-AUR-004	Aurdal Township	No		
Hoot Lake Project Diversion Canal	OT-AUR-005	Aurdal Township	No		
Hoot Lake Project Diversion Tunnel	OT-FFC-101	Fergus Falls	No		
Hoot Lake Proj Canal Wright & Hoot Lakes	OT-FFC-102	Fergus Falls	No		
Bridge 56520	OT-FFC-103	Fergus Falls	No		
Pisgah Dam and Hydroelectric Plant	OT-BUS-003	Buse Twp, Fergus Falls	Eligible	A, C	1918-1940
Taplin Gorge Dam and Hydroelectric Plant	OT-FRI-005	Friberg Township	Eligible	A, C	1925-1940

INDIVIDUAL PROPERTY SKETCH MAPS

OT-FFC-086
Central Dam and Hydroelectric Plant
Fig. 137 Sketch Map



OT-FFC-086
Central Dam and Hydroelectric Plant
Fig. 138 Aerial View

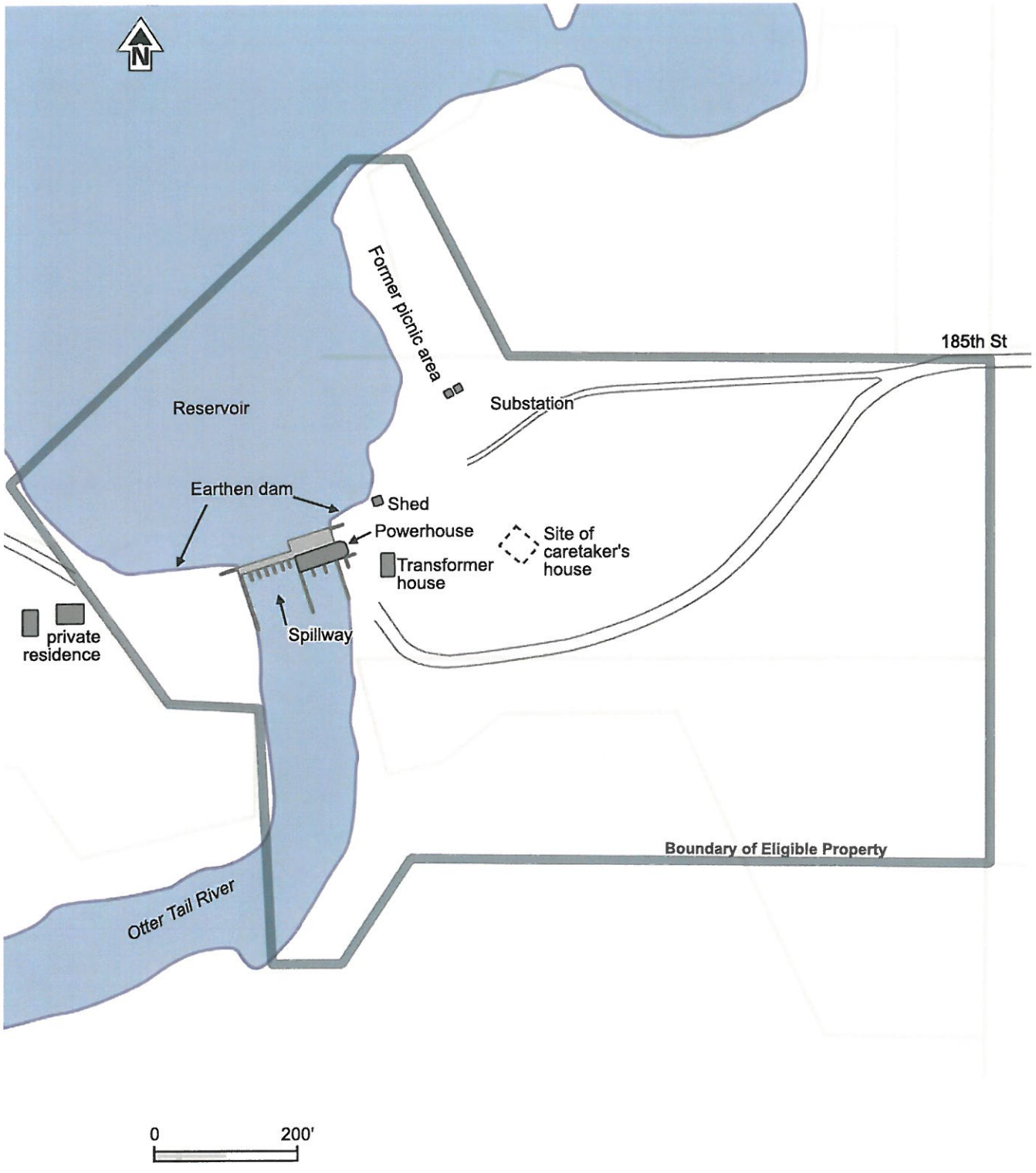


2008 Otter Tail Co. aerial

0 80'

Prep by Gemini Research 11-2010

OT-BUS-002
Dayton Hollow Dam and Hydroelectric Plant
Fig. 139 Sketch Map



Prep by Gemini Research 11-2010

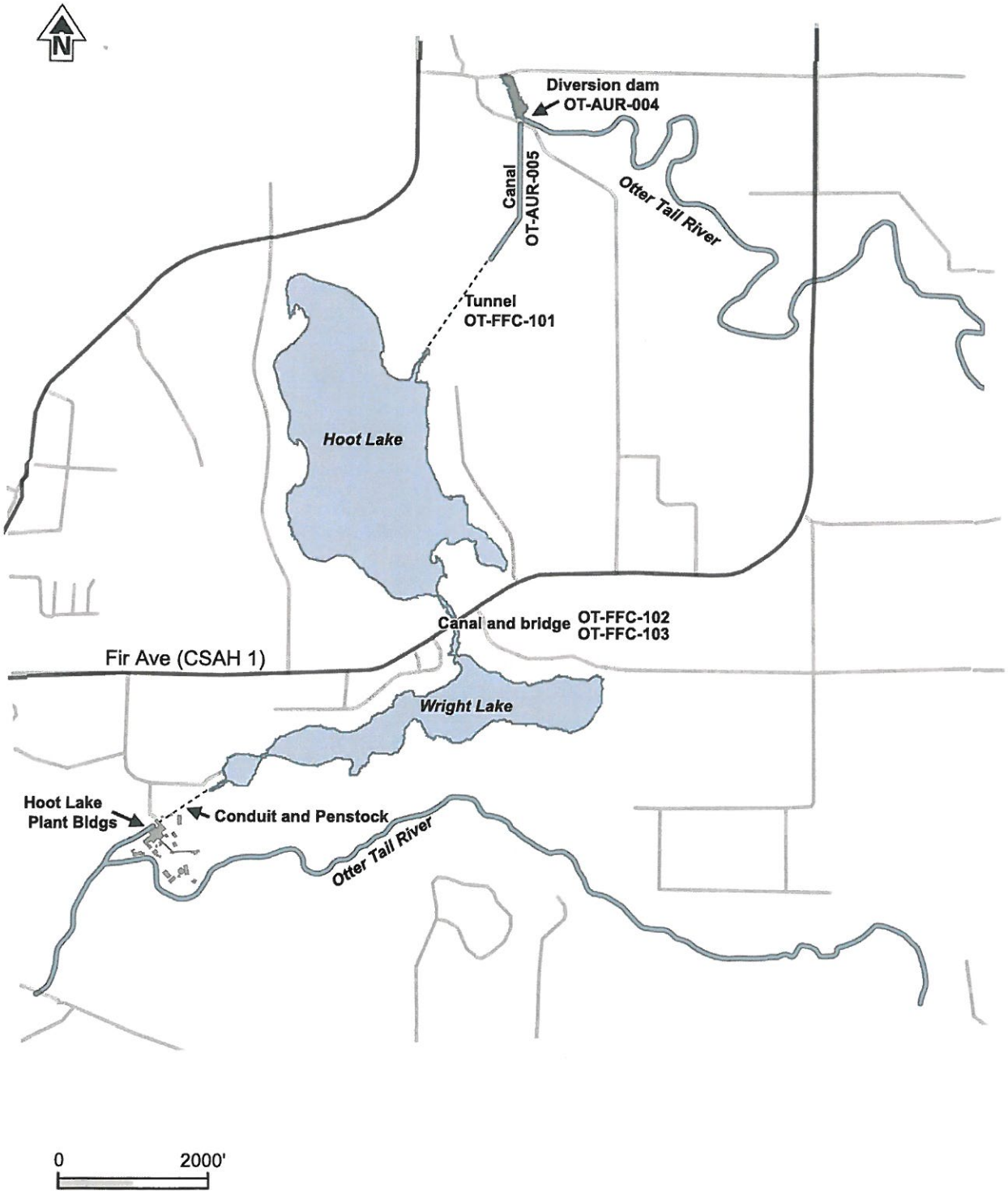
OT-BUS-002
Dayton Hollow Dam and Hydroelectric Plant
Fig. 140 Aerial View

2008 Otter Tail Co. aerial

0 200'

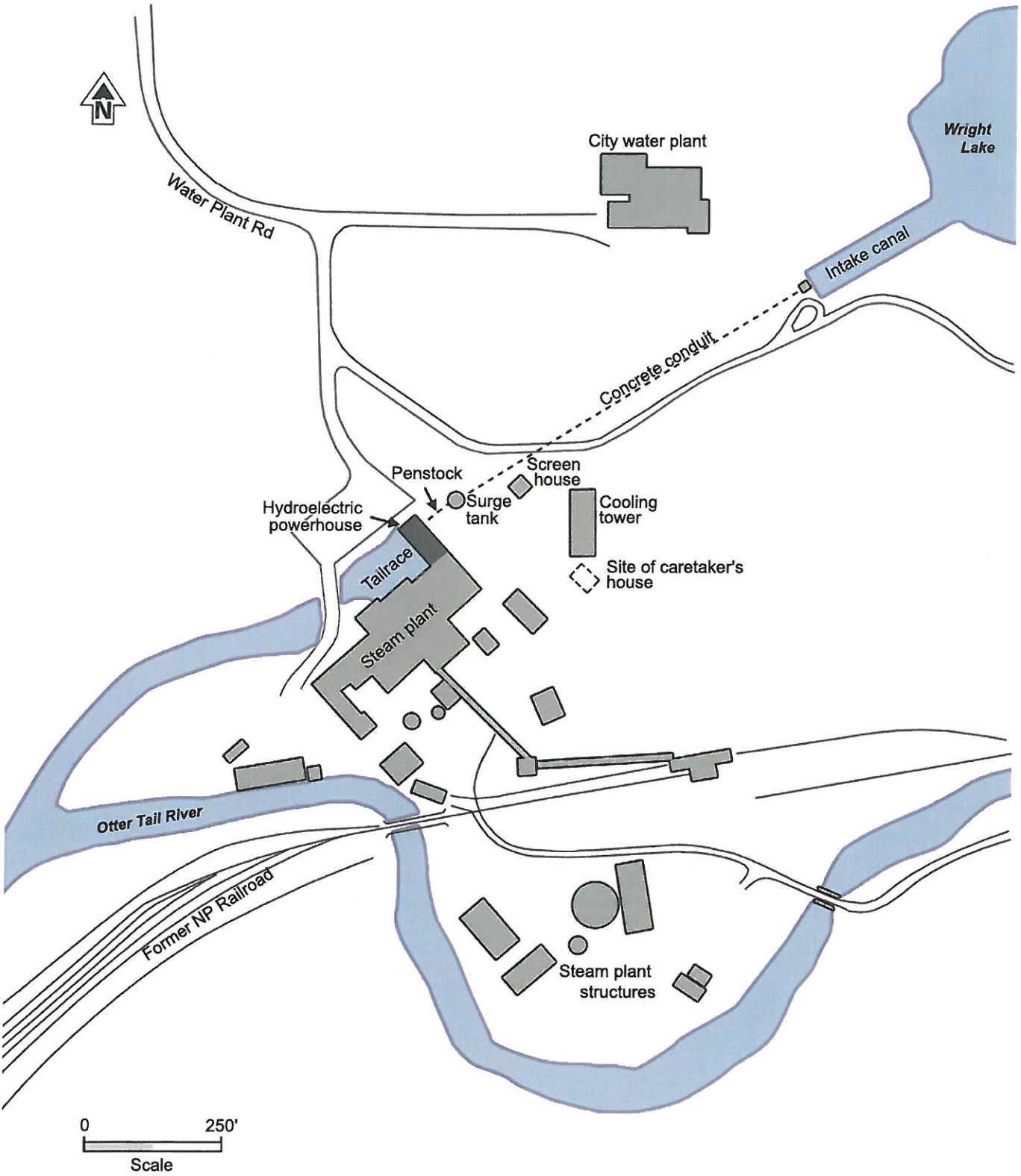
Prep by Gemini Research 11-2010

OT-FFC-067
Hoot Lake Hydroelectric Project
Fig. 141 Sketch Map



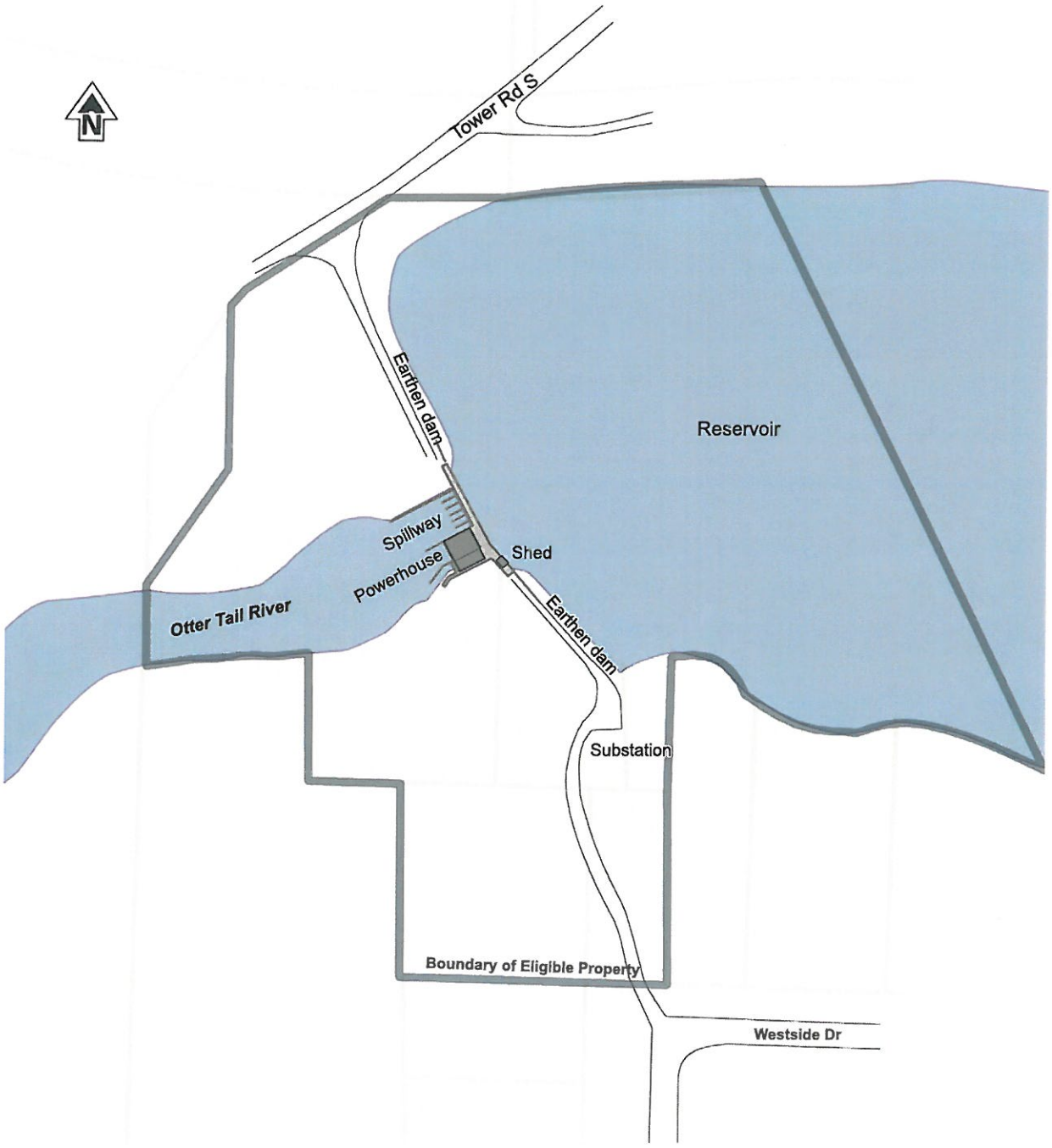
Prep by Gemini Research 11-2010

OT-FFC-067
Hoot Lake Plant
Fig. 142 Sketch Map



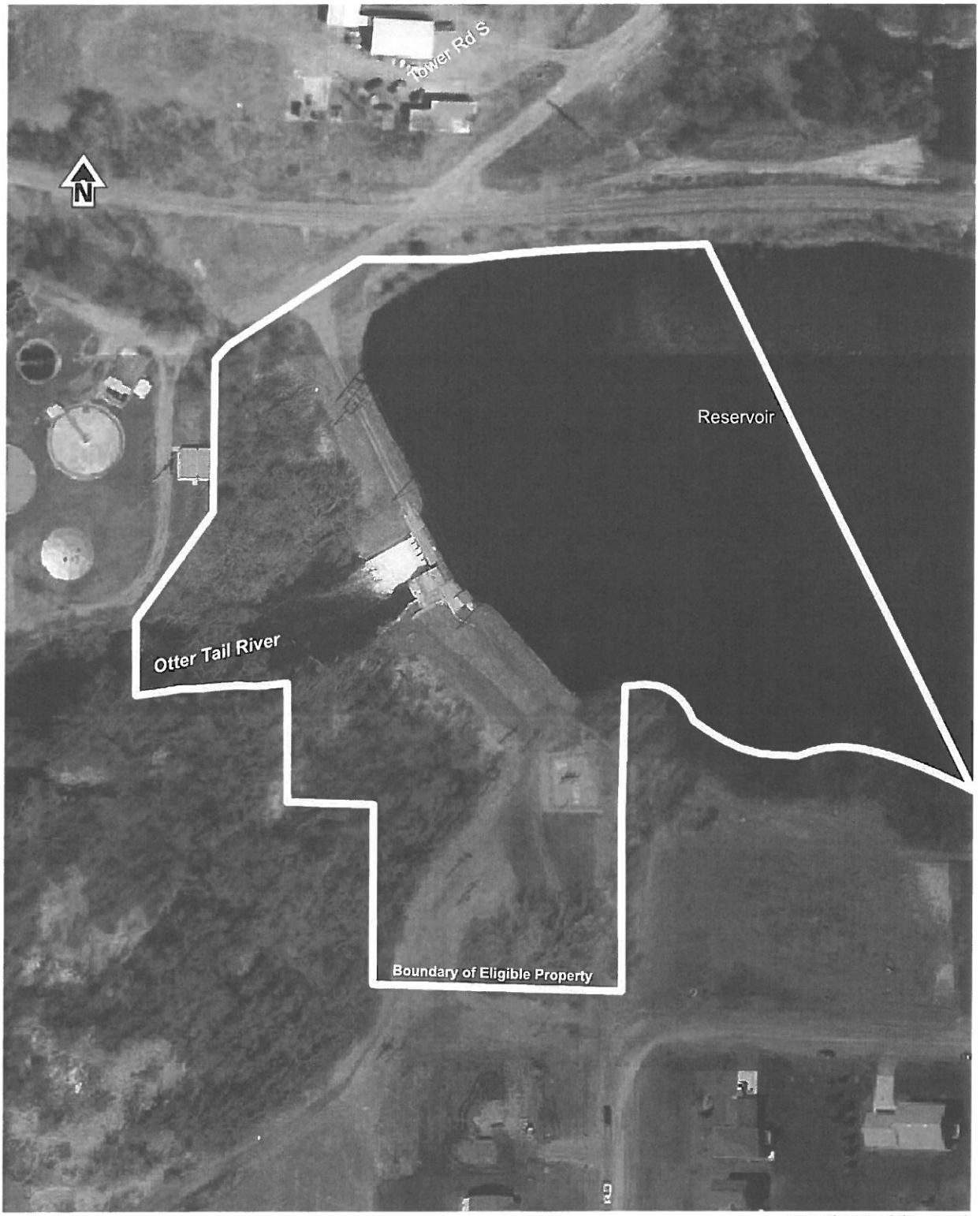
Prep by Gemini Research 11-2010

OT-BUS-003
Pisgah Dam and Hydroelectric Plant
Fig. 143 Sketch Map



Prep by Gemini Research 11-2010

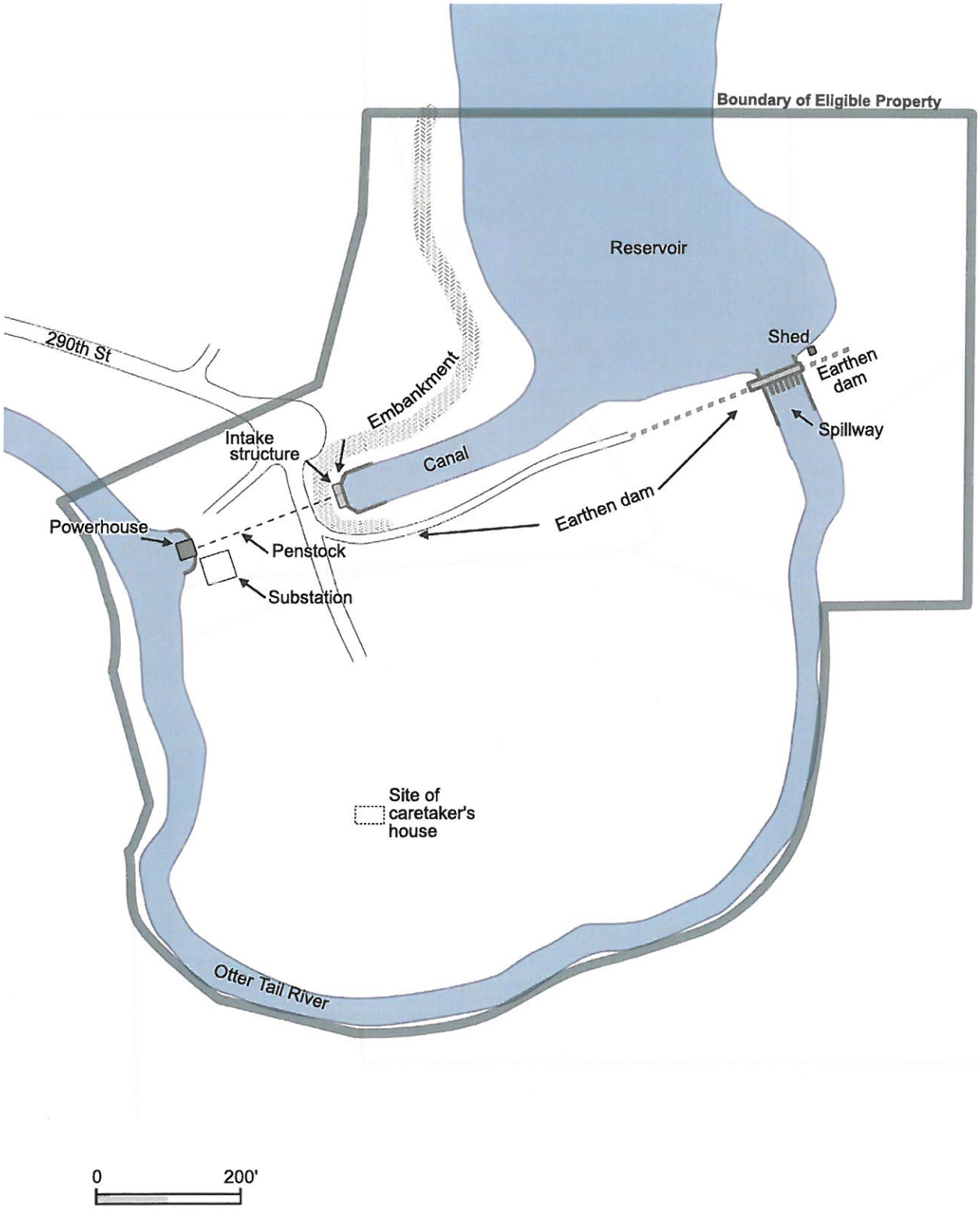
OT-BUS-003
Pisgah Dam and Hydroelectric Plant
Fig. 144 Aerial View



2008 Otter Tail Co. aerial

Prep by Gemini Research 11-2010

OT-FRI-005
Taplin Gorge Dam and Hydroelectric Plant
Fig. 145 Sketch Map



Prep by Gemini Research 11-2010

OT-FRI-005
Taplin Gorge Dam and Hydroelectric Plant
Fig. 146 Aerial View

2008 Otter Tail Co. aerial

0 200'

Prep by Gemini Research 11-2010

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