Rehabilitation Planning Study:
Scenic Fire Lookout Tower, Scenic State Park

Submitted to the
Minnesota Department of Transportation and
Minnesota Department of Natural Resources
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EXECUTIVE SUMMARY

This rehabilitation planning study for the Scenic Fire Lookout Tower was prepared for the Minnesota Department of Transportation (MnDOT) by Gemini Research with engineering assistance from Widseth Smith Nolting.

The study was prepared as mitigation for an Adverse Effect under Section 106 of the National Historic Preservation Act to another fire tower, the Finland Fire Lookout Tower in St. Louis County. Under the Allied Radio Matrix for Emergency Response (ARMER) program administered by MnDOT, a new communications tower will be erected adjacent to the historic Finland tower, causing the Finland tower to lose its eligibility for the National Register of Historic Places. As part of the mitigation for this Adverse Effect, a rehabilitation planning study is being conducted for a similar, National Register-eligible fire tower – the Scenic Fire Lookout Tower in Scenic State Park. The Scenic tower was open for public climbing until several years ago but is currently closed and in need of repair.

The Scenic Fire Lookout Tower is owned by the Minnesota Department of Natural Resources (MnDNR). The 100'-tall steel tower was manufactured by the International Derrick and Equipment Company and erected in 1934 by the Civilian Conservation Corps (CCC) for the State of Minnesota. The Scenic tower was regularly used for fire detection until the late 1960s. It remained a popular feature in Scenic State Park and was open for climbing until several years ago.

The purpose of this planning study is to explore the feasibility of rehabilitating the Scenic Fire Lookout Tower for public climbing in a manner consistent with the Secretary of the Interior's Standards for the Treatment of Historic Properties, thereby preserving the tower's historic integrity and National Register eligibility. A second goal is to provide information and recommendations that will be applicable to similar steel fire towers in Minnesota that may also be considered for preservation and rehabilitation.

The study provides background information on the Scenic tower and its significance. It identifies the character-defining features of the tower and provides an assessment of its current condition. The study presents recommendations for the tower itself as well as for ancillary structures and historic landscape features.

TABLE OF CONTENTS

1.0 INTRODUCTION

This rehabilitation planning study for the Scenic Fire Lookout Tower was prepared for the Minnesota Department of Transportation (MnDOT) by Gemini Research, a cultural resources consulting firm. Widseth Smith Nolting (WSN) provided engineering assistance.

The study was prepared as mitigation for an Adverse Effect under Section 106 of the National Historic Preservation Act to another fire tower, the Finland Fire Lookout Tower in St. Louis County. Under the Allied Radio Matrix for Emergency Response (ARMER) program administered by MnDOT, a new communications tower will be erected adjacent to the historic Finland tower, causing the Finland tower to lose its eligibility for the National Register of Historic Places. As part of the mitigation for this Adverse Effect, a rehabilitation planning study is being conducted for a similar, National Register-eligible fire tower – the Scenic Fire Lookout Tower in Scenic State Park. The Scenic tower was open for public climbing until several years ago but is currently closed and in need of repair.

The Scenic Fire Lookout Tower is owned by the Minnesota Department of Natural Resources (MnDNR). The steel tower was fabricated by the International Derrick and Equipment Company and erected in 1934 by the Civilian Conservation Corps (CCC). The tower measures 100' from the ground to the base of the cab. It was regularly used by the MnDNR's Forestry Division for fire detection from 1934 until the late 1960s.

The purpose of this planning study is to explore the feasibility of rehabilitating the Scenic Fire Lookout Tower for public climbing in a manner consistent with the Secretary of the Interior's Standards for the Treatment of Historic Properties, thereby preserving the tower's historic integrity and National Register eligibility. A second goal is to provide information and recommendations that will be applicable to similar steel fire towers in Minnesota that may also be considered for preservation and rehabilitation.

During preparation of this rehabilitation study, Gemini Research and WSN conducted fieldwork at the Scenic tower. Gemini also examined 8 other Minnesota fire towers as part of the study. In 2014 Gemini visited 21 other fire towers in Minnesota while preparing a statewide historic context study of fire lookout towers (see Granger and Kelly 2016 in this report's References).

The MnDOT Cultural Resources Unit oversaw preparation of this rehabilitation study. Also providing assistance were the Scenic State Park manager, other MnDNR staff from the Parks and Trails and Forestry divisions, and staff from the Minnesota State Historic Preservation Office.

New Deal Development of Scenic State Park

Scenic State Park is located north of Grand Rapids in northern Minnesota's Itasca County. It is one of Minnesota's oldest state parks. Scenic was established in 1921 on about 2,400 acres of mostly state-owned land that included significant stands of old growth forest that had escaped logging.

Scenic State Park's amenities remained very simple until 1933 when large-scale improvement began under a federal-state partnership that was part of the Great Depression recovery effort known as the New Deal. The park improvements were designed by the National Park Service working in cooperation

with Scenic State Park's first superintendent, Hugo V. Zaiser, and other staff of the Minnesota Department of Conservation (now MnDNR). The park improvements were implemented by a 200-man CCC camp (Camp SP-3) that was established in the park in June 1933. It was the first state park CCC camp to begin operation in Minnesota. The camp was occupied by a succession of CCC companies including special companies of World War I veterans. It closed in January 1936. New Deal-sponsored work on the park continued, however, with men employed by the National Park Service and New Deal agencies still living in the park and working to complete park development projects in 1940.

Location of Scenic State Park

The CCC work in Scenic State Park included general landscaping; constructing roads, trails, campgrounds, and service areas; and building several log and stone buildings. The CCC also engaged in forest fire prevention work such as clearing potential fuel from the forest floor, building fire breaks, and planting trees. The men also fought forest fires in the area and likely manned the Scenic Fire Lookout Tower after it was erected in 1934. The fire tower was not built by the state park CCC camp but by a CCC forestry camp located outside of state park boundaries in George Washington State Forest. (See historic background in Chapter 2.)

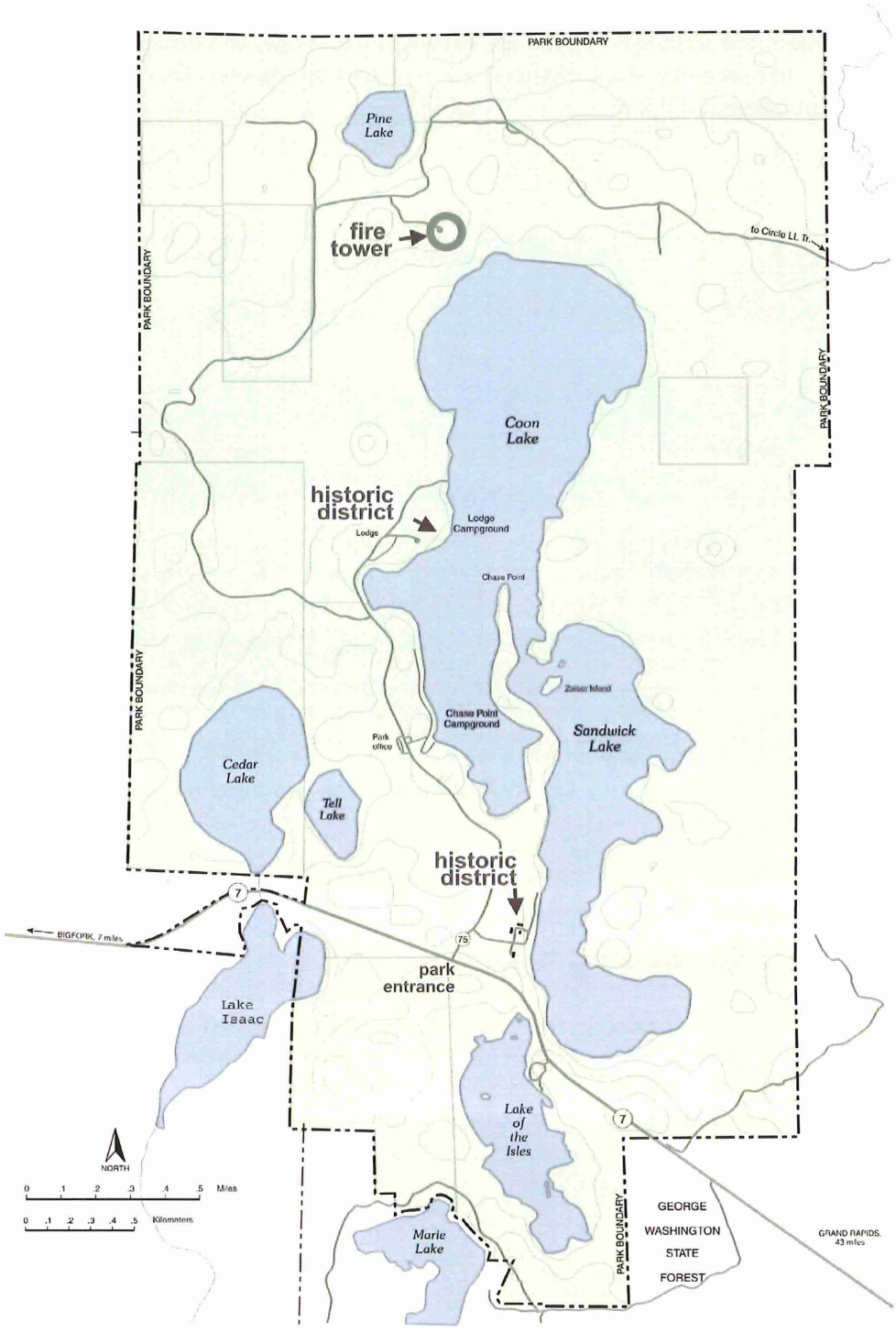
CCC landscape development in Scenic State Park

Scenic State Park's New Deal-built resources form the basis of two historic districts that are listed in the National Register of Historic Places (see map below). The first is a 16-acre district on the west shore of Coon Lake that includes the Shelter Pavilion, now known as the Lodge, and other log buildings and landscape features. The second historic district is a 2-acre area on the west shore of Sandwick Lake with several log service buildings.

CCC-built log and stone structure in the park

Today Scenic State Park includes just under 4,000 acres of forests, lakes, marshes, and streams. Hiking, fishing, canoeing, and camping are popular activities.

The Scenic Fire Lookout Tower, located in the northern part of the park just north of Coon Lake, has historically been popular with visitors and often included in the park's interpretive programming.



Map of Scenic State Park showing the fire tower on a summit north of Coon Lake and the two historic districts (Gemini Research sketch using an MnDNR base map)

Minnesota Towers Listed in, and Eligible for, the National Register of Historic Places

One Minnesota fire lookout tower, the Pequot tower, is individually listed in the National Register of Historic Places. Two other towers, the Aiton Heights tower in Itasca State Park and the St. Croix tower in St. Croix State Park, are Contributing resources within National Register-listed historic districts.

The Scenic tower is one of several other fire towers in Minnesota that have been determined eligible for the National Register but have not been formally listed.

Note: A national nonprofit organization called the Forest Fire Lookout Association (FFLA), along with several partners, sponsors a registry called the National Historic Lookout Registry that includes several Minnesota towers. This program should not be confused with the National Register of Historic Places administered by the U.S. Department of the Interior.

Fire Towers Open for Public Climbing

Fire towers are compelling attractions and popular destinations for hikers, tourists, and history buffs in many U.S. states. The state of New York may have the largest collection of fire towers open for public climbing including clusters of towers in the Adirondack and Catskill mountains. Information on towers in New York is available from the New York Department of Environmental Conservation (DEC). See, for example, the DEC's *Fire Tower Study for Adirondack Park* (2010) as well as a web page about fire towers on the DEC website under Outdoor Activities/Hiking/Fire Towers (www.dec.ny.gov/outdoor/100900.html).

In 2017 there were nine fire towers in Minnesota open for public climbing, as listed below. Most were open for visitors to climb on their own, while at the Boulder Hill tower at the Forest History Center visitors are accompanied by a guide. The towers are open seasonally except for the Pinewood tower at the Beltrami County Fairgrounds which is generally open only during the county fair. The Pine Island (Big Bog), Boulder Hill, and Pinewood towers have interpretative exhibits in nearby visitors centers.

Historic Name	Location	Owner
Aiton Heights	Itasca State Park	MnDNR
Elba	Just south of Whitewater State Park	MnDNR
Isle Harbor	Kathio State Park	MnDNR
Pine Island	Big Bog State Recreation Area	MnDNR
St. Croix	St. Croix State Park	MnDNR
Mud Lake	Agassiz National Wildlife Refuge	U.S. Fish and Wildlife Service
Boulder Hill	Forest History Center, Grand Rapids	Minnesota Historical Society
Pinewood	Beltrami County Fairgrounds, Bemidji	Beltrami County
Pequot*	City of Pequot Lakes	Crow Wing County

* temporarily closed

At St. Croix State Park, the staff indicated to Gemini that an estimated 20,000 people visit the tower annually.

Aiton Heights Fire Lookout Tower

Main Street, Elba, Minnesota

2.0 DESCRIPTION AND SIGNIFICANCE

The Scenic Fire Lookout Tower is located on a remote forested site in the northern part of Scenic State Park in Itasca County. The tower stands on top of a knoll whose elevation is 1,440' above sea level. The tower is reached via a 1.25-mile footpath that travels north from the park Lodge and approaches the tower from the southwest. There is also a narrow winding truck trail (today about 3 miles long) that accesses the tower site from the northwest. The portion of the road nearest the tower is essentially a footpath that is only used by vehicles for tower maintenance and emergencies.

In addition to the fire tower, footpath, and truck trail, the tower site contains remnants of the spotter's cabin and a nearby well with a hand pump. The cabin remnant and pump are located about 125' and 140' east of the tower, respectively (see sketch map below). The fire tower site, like much of Scenic State Park, is densely forested with a mixture of conifers and deciduous trees as well as understory shrubs and groundcover plants.

Like most of Minnesota's fire lookout towers, the Scenic tower is aligned cardinally. The tower is a battered steel structure anchored to concrete piers or footings that are 24" square at the top and about 7' deep (see original plans in Appendix B). The tower is 100' tall measured from the top of the footings to the bottom of the cab. It is about 22' square at the base.

The tower is made of unpainted, galvanized structural steel angles. Major verticals and horizontals are supplemented by diagonal cross-braces and smaller intermediate members. The tower was assembled with galvanized steel bolts, most with square heads. There are galvanized steel gusset plates at key locations.

There are nine flights of steps that climb the tower between the northwest and southeast corners. The stairs are 24" wide and made with lattice-like stringers assembled with galvanized steel rivets and bolts. The stairs have 36"-tall steel angle handrails. The stair treads, which have been replaced in-kind, are 1½"-thick, unpainted pine boards.

The tower has eight landings. The upper five are triangular and the lower three are rectangular. The landings have wooden floor boards that have been replaced in-kind. The landings originally had no handrails. Steel pipe railings (39" tall) were added to the three rectangular landings sometime within the period of significance of 1934-ca. 1968 (see Period of Significance below). All landings have "chicken wire" safety fencing with octagonal openings. This fencing probably dates from the period of significance or is an in-kind replacement.

At the top of the tower is an enclosed steel cab that measures 7' by 7'. The lower walls and hipped roof are made of heavy-gauge galvanized steel sheets bolted to a structural steel frame. The cab has a wooden floor, likely original, that has been covered in recent decades with a layer of plywood. The floor retains its hinged trap door, a rare survivor on a Minnesota tower.

Inside the cab are two elements added within the period of significance: an L-shaped steel safety rail at the floor opening and a rare alidade stand.

The cab has galvanized steel window sash. On each wall, the right-hand sash, when viewed from the inside, pivots open. The windows are intact except the glass panes have been replaced with plexiglass.

Attached to an exterior corner of the cab is part of a vertical antenna that probably remains from the fire tower's two-way radio system. It likely dates from the period of significance.

The base of the tower is surrounded by a chainlink fence, about 32' square, that probably postdates the historic period.

The spotter's cabin foundation is a mortared fieldstone structure that measures about 17' by 24'. Centered on the east wall is a 13'-tall mortared fieldstone chimney designed to vent a heating and cooking stove. Built in 1939, the cabin was made of logs. None of the wood remains.

About 15' east of the foundation is a cast iron hand pump mounted on a 4' by 5' concrete well cover. The well was dug in 1939 and the current hand pump dates from 1964.

More details on the above elements are provided later in this report.

Scenic tower (facing southeast)

The Scenic tower is an International Derrick and Equipment Company (IDECO) Model 1933 tower. Plans for the IDECO Model 1933 are included in Appendix B. The part number on a Scenic tower handrail above (906RF) matches the part number on the plans.

Historical Background

The Scenic Fire Lookout Tower was erected in 1934 by a forestry CCC camp assigned to work in George Washington State Forest which surrounds Scenic State Park. Exactly which state forest camp built the Scenic fire tower has not been established. Possibilities include the Deer Lake Camp (Camp S-95, also known as the Effie camp), the Owen Lake Camp (Camp S-54), and the Side Lake Camp (Camp S-53).

The Scenic tower was one of four fire towers erected by CCC camps assigned to George Washington State Forest. The other three towers were the Deer Lake Farm, Eveleth, and Thistledew towers; all have been razed. CCC camps working in George Washington State Forest also built spotter's cabins at the Scenic, Link Lake, and Thistledew towers. They built patrol cabins, storage buildings, latrines, garages, and ice houses for the state forestry service, as well as manning fire towers, fighting fires, and working on a broad range of fire prevention and conservation improvements including tree planting, road and fire break construction, etc.

According to records of the Minnesota Department of Conservation's Forestry Division, the Scenic tower was erected by the CCC in November 1934 at a cost of $1,010 (about $18,500 in 2017 dollars). Supervising construction were Harold Schuppel and Don Wilson, both longtime Forestry Division employees. (See this report's References for Don Wilson's recollections of early years with the Forestry Division including accounts of erecting fire towers.)

The Scenic tower was fabricated by the International Derrick and Equipment Company (IDECO), a leading supplier of steel fire towers nationwide. The Scenic tower is an IDECO Model 1933 (see

Appendix B for plans). The IDECO Model 1933 was very similar to the Aermotor Company's Model MC-39 tower. Designed in cooperation with the U.S. Forest Service, the two IDECO and Aermotor models were among the most frequently built steel fire lookout towers in the U.S. Only six IDECO towers are known to remain in Minnesota. Three are stair towers – the Scenic, Finland, and Tulaby towers – and three are ladder towers – the Ball Bluff, Clear River, and Height of Land towers. The Finland tower has lost historic integrity.

The Scenic tower was historically part of the Forestry Division's Deer River ranger district. The district was led by veteran forester Mike Guthrie, whose name is stenciled on several of the Scenic tower's largest steel members to serve as a shipping address. Of the fire towers that were operating in the Deer River ranger district in 1970, only the Scenic and Side Lake towers retain historic integrity.

The Scenic tower was designated a "Primary" tower by the Forestry Division. Primary towers were typically manned throughout the entire fire season, which usually extended from April to November. "Secondary" towers were manned only when fire danger was especially high or when visibility was particularly low.

The area protected by the Scenic tower had a radius of at least 18 miles (see map below). In periods of clear weather, the viewshed extended much farther. The tower helped protect a number of critical resources including irreplaceable old growth forests, commercial timber inventories, logging cutover land in recovery, small communities, and rural homes and farms. Within the tower's protection zone was both public and private land including Scenic State Park, the northeast part of Chippewa National Forest, parts of four Minnesota state forests (Bowstring, George Washington, Koochiching, and Pine Island), and the northeast part of the Leech Lake Reservation.

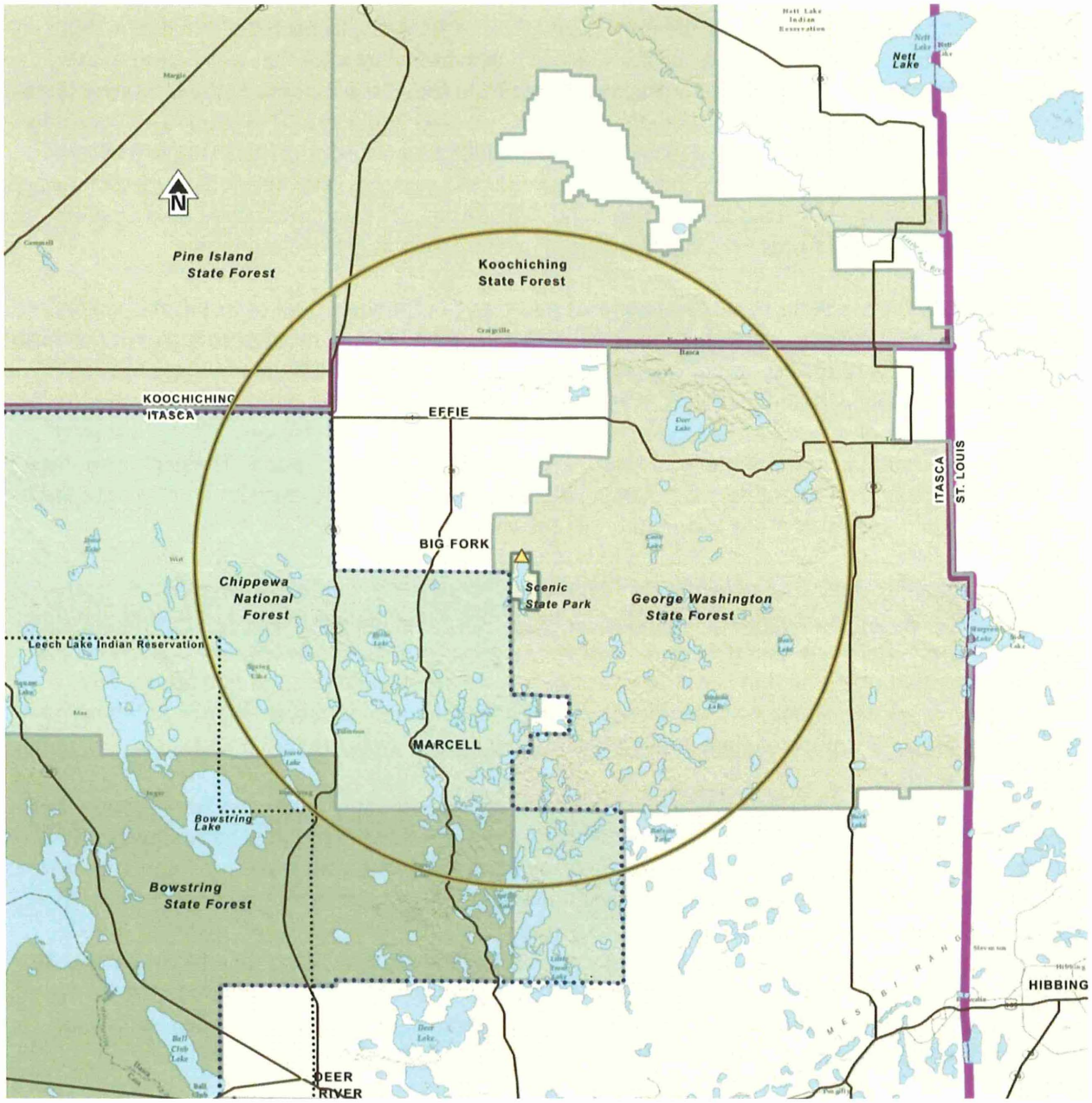
The Scenic tower also played a role in public education as the Forestry Division encouraged the public to visit and climb Minnesota's fire lookout towers as part of an extensive forest fire prevention campaign.

The Scenic tower's first cabin was located a short distance north of the tower on the south shore of Pine Lake (see the 1936 park plan in Appendix D). This cabin became a trail shelter after the CCC built a log cabin adjacent to the tower in 1939. The stone foundation of the 1939 cabin and a nearby well and hand pump are located within the boundaries of the National Register-eligible Scenic tower site.

According to Forestry Division records, the log cabin had one room and an open front porch that measured 7' by 15'. (The porch would have been on the west end.) According to the records, the cabin had a Columbia brand wood-burning 4-hole cook stove and no electricity or running water. After it was no longer needed by the Forestry Division, the cabin was sold to private owners and moved away. It was evidently lost in a fire about a decade ago.

According to Division of Forestry records, a 113'-deep well was installed at the Scenic tower in June 1939, undoubtedly by the CCC.

The Scenic Fire Lookout Tower was regularly manned until about 1968 after which aerial spotting increasingly took over forest fire detection in this part of Minnesota.



The circle on this map has an 18-mile radius which provides a conservative estimate of the area protected by the Scenic tower. The view from the tower in good weather extends many miles farther (Gemini Research sketch map).

Minnesota's System of Fire Lookout Towers

Minnesota fire lookout towers were the principal method of detecting forest fires from about 1900 through the early 1970s. Fire towers formed a broad public safety network that was critical to the protection of about one-third of Minnesota's land area from fire. Development of the fire tower system was spurred by devastating forest fires in the late 19th and early 20th centuries including Minnesota's four largest fires – those at Hinckley (1894), Chisholm (1908), Baudette-Spooner (1910), and Moose Lake-Cloquet (1918). Between 1893 and 1918 nearly 900 Minnesotans lost their lives to forest fires and dozens of communities were burned to the ground. The Hinckley fire and the Moose Lake-Cloquet fire remain two of the worst forest fires in U.S. history in terms of loss of life and property.

Minnesota's first fire lookout towers were boards nailed to trees, towers built of wood, and towers made from modified windmills. Beginning in the early 1910s the State of Minnesota began to purchase prefabricated steel fire towers. Most steel fire towers were designed by federal and state forestry officials collaborating with the manufacturers of windmills and oil derricks. Because the designs were standardized, several companies fabricated nearly identical models of fire towers. The towers were shipped by the manufactured to the local forestry ranger station as a kit of parts. The parts were then hauled to the tower site where they were assembled by a crew of workers using hand tools. The State of Minnesota purchased steel fire towers through the early 1970s.

Most fire lookout towers were owned by the Minnesota Forest Service, later known as the Forestry Division of the Minnesota Department of Conservation (now MnDNR), and by the U.S. Forest Service, which managed the Chippewa and Superior national forests. Some towers were also built by the U.S. Indian Service (later Bureau of Indian Affairs) and by private logging and railroad companies. Fire lookout towers are associated with the growth of forest management and conservation in Minnesota. Historically the foremost job of state and federal forestry agencies was fire prevention.

Forest management and fire protection were strengthened considerably during the Great Depression when the New Deal began in 1933. The New Deal provided a flood of manpower and resources that allowed forestry agencies to replace existing towers with more modern structures, to improve tower sites, and to establish new sites to provide better coverage. A significant number of Minnesota's fire towers were erected by the Civilian Conservation Corps (CCC) and other New Deal agencies. These included newly-fabricated towers like the Scenic tower, and towers that were moved from one site to another as forestry officials worked to improve the system. Extant Minnesota fire towers are an important and lasting accomplishment of the CCC camps based in forested parts of Minnesota and represent the unprecedented natural resource conservation efforts of the New Deal.

There were about 200 fire towers operating in Minnesota in the 1940s through the 1960s when the system was at its peak. Most were owned and operated by the State of Minnesota and the U.S. Forest Service.

Many of the state's fire lookout towers became popular tourist attractions, with tens of thousands of visitors climbing Minnesota towers each season. State and federal forestry officials encouraged the public to visit the towers, and log books were kept in the cabs to record the names of those who climbed to the top. Because 95% of forest fires were caused by human activity, educating the public

was an important part of fire prevention efforts. The Minnesota Board of Tourism was also enlisted to encourage the public to visit the towers.

By the mid-1960s the U.S. Forest Service and the State of Minnesota were increasingly using airplanes for fire surveillance. By the mid-1970s most fire towers were being phased out and aerial spotting was the principal means of fire detection in the state. Today only a few of Minnesota's fire towers are still used for fire detection.

For more information see *Fire Lookout Towers in Minnesota, 1910-1970: Historic Context Information* (Granger and Kelly 2016).

Minnesota's Extant Fire Lookout Towers

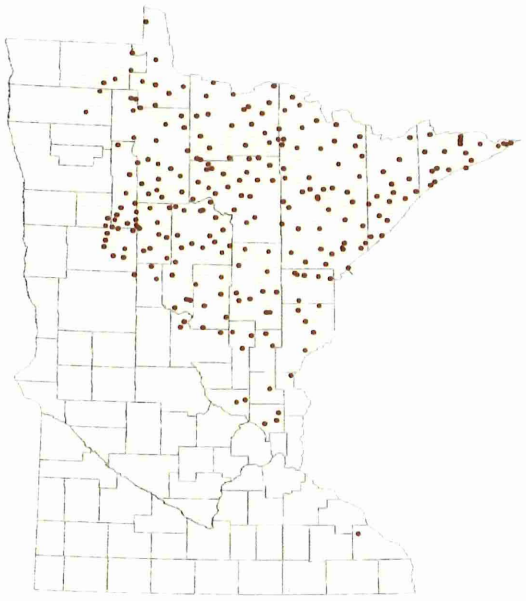
Minnesota currently has about 80 extant fire lookout towers. Most have been altered and do not retain sufficient historic integrity to be eligible for the National Register of Historic Places. One of the most common alterations is the erection of modern structures near the base of a tower. In some cases, a tower's ladder, steps, or cab has been altered or removed. Some towers have been moved from their historic locations.

Minnesota's approximately 80 extant fire towers comprise two groups, those with octagonal cabs (about 23 remain standing) and those with square cabs (about 57 remain). Towers with octagonal cabs are rare nationwide. They were generally built earlier than those with square cabs and have a lighter steel framework.

Minnesota's extant towers with octagonal cabs date from circa 1924-1933. Most are 60' to 90' tall. The extant towers with square cabs date from circa 1928-1972. Most are 90' to 120' tall.

Towers with square cabs are accessed via ladders (about 5 examples remain) or stairs (about 52 examples remain). About half of the extant stair towers in Minnesota, including the Scenic tower, have stairs that climb the superstructure from corner to corner. The other half have stairs that climb the superstructure from side to side.

For more information see *Fire Lookout Towers in Minnesota, 1910-1970: Historic Context Information* (Granger and Kelly 2016).



Fire lookout towers were located in the forested north central and northeastern parts of Minnesota where they played a significant role in land management and natural resource conservation as well as enabling settlement and economic development. Note that there was one tower in the southeast corner of the state – the Elba tower which still stands near Whitewater State Park in Winona County (Gemini Research sketch).

A fire lookout tower with an octagonal cab – Smoky Hills Fire Lookout Tower

Significance of the Scenic Fire Lookout Tower

The Scenic Fire Lookout Tower was recommended eligible for the National Register of Historic Places in 2016 as part of a statewide historic context study of fire lookout towers conducted by Gemini Research for MnDOT (see Granger and Kelly 2015 and Granger and Kelly 2016 in this report's References). The State Historic Preservation Office agreed that the Scenic tower was eligible for the National Register in 2018.

National Register Criterion A

The Scenic Fire Lookout Tower is an excellent example of the accomplishments of CCC forestry work in northern Minnesota. This work represented an unprecedented dedication of public resources to forest management and natural resource conservation in the 1930s and early 1940s. This forestry work is associated with the protection of commercially-viable timber, with the rejuvenation of the northern Minnesota cutover after widespread logging, and with the development of modern forest management practices, foremost of which was fire control and prevention. The Scenic Fire Lookout Tower is also associated with the New Deal – the massive federal and state response to the devastating economic and social impacts of the Great Depression. Among the goals of the New Deal were to construct necessary public infrastructure while at the same time providing meaningful work and job training to the unemployed.

The Scenic tower helped protect a number of critical resources. They included irreplaceable old growth forests, commercial timber inventories, logging cutover land in recovery, small communities, and rural homes and farms. Within the tower's protection zone was both public and private land including Scenic State Park, the northeast part of Chippewa National Forest, parts of four Minnesota state forests, and the northeast part of the Leech Lake Reservation.

National Register Criterion C

The Scenic Fire Lookout Tower embodies the distinctive characteristics of a type, period, or method of construction by being a well-preserved example of a fire lookout tower that possesses all of the character-defining features of this property type (see page 3.1). The Scenic tower also retains features such as a cab trap door, alidade stand, and spotter's cabin foundation and pump that are rare among Minnesota fire towers.

The Scenic tower is one of only six towers still standing in Minnesota that are known to have been fabricated by the International Derrick and Equipment Company (IDECO), an important tower fabricator. Of the six IDECO towers, Scenic is one of two stair towers that retain historic integrity.

Boundaries of the National Register-Eligible Property

The boundaries of the property recommended eligible for the National Register of Historic Places measure about 600' east-west by 320' north-south and encompass about 4.4 acres (see map below). The boundaries were drawn following the recommendations in the "Fire Lookout Towers" subsection of the National Register of Historic Places MPDF entitled "Federal Relief Construction in Minnesota, 1933-1943" (Granger and Kelly 2015).

Recommended boundaries of the National Register-eligible Scenic Fire Lookout Tower (Gemini Research)

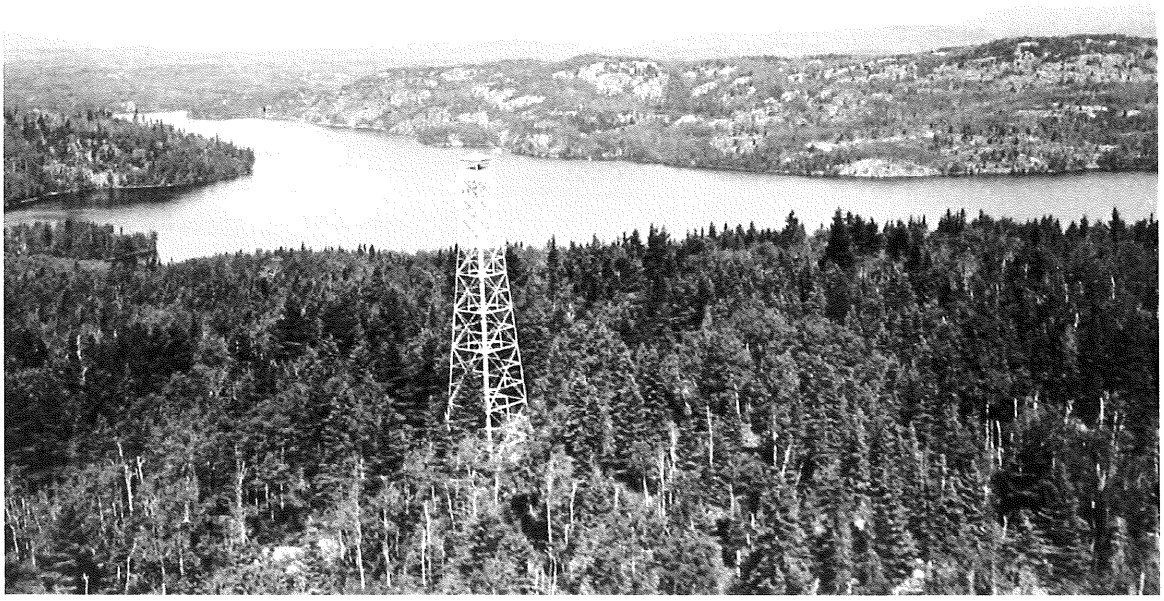
Period of Significance

When a property is determined eligible for the National Register of Historic Places, the property's "period of significance" is identified. The period of significance is the length of time that the property was actively associated with the important events or pattern of activities that make it eligible for the

National Register. The period of significance often begins with the date of construction. It ends when the property is no longer associated in an important way with the significant events or activities.

The recommended period of significance for the Scenic Fire Lookout Tower begins in 1934 when the tower was erected. It ends circa 1968 when the tower was no longer regularly used for fire surveillance. Circa 1968 is an estimate and should be revised if the year the tower was no longer regularly used can be confirmed.

The period of significance is one factor used to determine which historic fabric or site features should be considered "contributing" to a property's historic integrity and significance. For example, the safety rail and alidade stand in the Scenic tower's cab were not original to the tower but were added during the period of significance. Elements or features that date from the period of significance are often identified for preservation in a rehabilitation plan, while elements added after the period of significance are sometimes recommended for removal.



Kekekabic Fire Lookout Tower (razed) in Superior National Forest (from *Superior National Forest*, U.S. Dept. of Agriculture Forest Service, 1941)

3.0 CHARACTER-DEFINING FEATURES

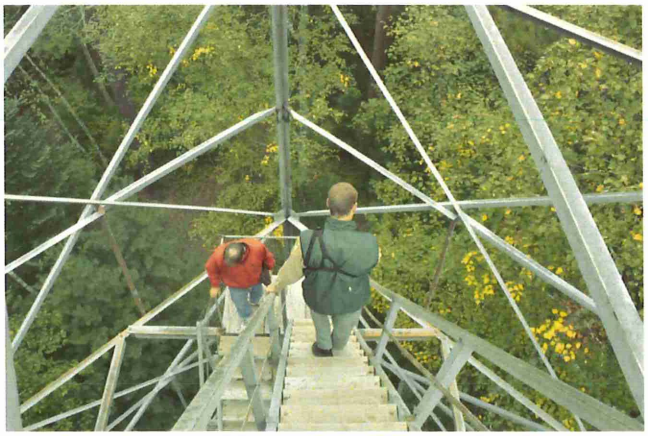
Character-defining features are prominent or distinctive qualities or elements of a historic property that contribute significantly to its physical appearance or character, its historic integrity, and its ability to convey its historic function and significance. In a rehabilitation project, these are the features that are most important to preserve.

A list of character-defining features does not identify all important aspects of a historic property, however. Each property contains additional historic fabric and characteristics that, together with character-defining features, create the property's historic character and authenticity.

Character-Defining Features of Minnesota Fire Lookout Towers

The character-defining features of the property type – Minnesota fire lookout towers – are listed below. The Scenic tower possesses all of these attributes except miscellaneous site elements (the tenth bullet).

- a standardized design that was not customized, altered, or enhanced by forestry agencies except with the addition of elements such as flexible wire safety fencing around ladder, stairs, and/or landings, cab safety rails, and communications or weather forecasting equipment
- on-site assembly of a kit of prefabricated parts
- tower made of structural steel angles bolted together, sometimes with steel rod cross-bracing
- poured concrete footings (unless the tower was secured in natural rock)
- access to the cab via either a steel rung ladder or a set of stairs with wooden treads and landings
- an octagonal or square cab with spartan interior featuring wooden floor, galvanized sheet steel roof and lower walls, and multipaned steel windows with narrow frames and muntins
- a viewshed radius of 10 to 20 miles in most directions
- a site often comprising the summit of a hill
- tower access via a narrow gravel road or dirt footpath
- trail steps, riprapping, retaining walls, and other miscellaneous site elements; extant examples are uncommon
- foundations of small support buildings; extant examples are rare; entire extant support buildings are very rare



Character-Defining Features of the Scenic Fire Lookout Tower

The character-defining features of the Scenic Fire Lookout Tower are listed below:

Overall Design and Construction

- Standardized design built from a kit of prefabricated parts.
- Durable materials.

Footings

- Simple cast concrete footings.

Superstructure

- Battered tower made of unpainted, galvanized structural steel angles. Steel members have crimped ends to facilitate connection.
- 100' tall measured from the top of the footings to the bottom of the cab.
- Galvanized steel bolts with some rivets on stairs. Most bolts have square heads and hex nuts.
- Galvanized steel gusset plates at key nodes.

Markings on Steel

- Rare brass International Derrick and Equipment Company (IDECO) name plate.
- IDECO part numbers incised on the steel members.
- Shipping information – "Mike Guthrie, Ranger, Deer River, Minn." – stenciled onto several large members.

Additional historic fabric: The words "Carnegie USA," which identify the steel maker, are imprinted on large members such as the base corner verticals. This type of imprint is found on the structural steel members of many types of properties (e.g., bridges, etc.) and is not particularly unique.

Part number

IDECO name plate

Stenciled shipping information

Stairs and Landings

- 9 flights of 24"-wide stairs with steel lattice stringers assembled with steel bolts and rivets.
- 3 rectangular landings at lower levels, 5 triangular landings at upper levels.
- Handrails on stairs made of steel angles (handrails are about 36" tall).
- Stair treads and landings made of thick unpainted wooden (pine) boards.

Additional historic fabric: Pipe rails, about 39" high, were added to the rectangular landings. Woven wire safety fencing was added to all landings. Both the pipe rails and safety fencing were added during the period of significance.

Cab

- Square 7' by 7' cab with a hipped roof.
- Roof and walls made of heavy gauge galvanized sheet metal bolted to a steel frame.
- Very simple interior dominated by windows.
- Wooden floor made of thick planks.
- Wooden trap door.

Additional historic fabric: Alidade stand. Steel safety rail at floor opening. Antenna mooring on outside corner of cab. All were added during the period of significance. The alidade stand is rare among Minnesota towers.

Windows

- Galvanized steel multipaned sash; right-hand sash pivots open.
- Narrow frames and muntins for maximum visibility.
- 9 panes per sash (each pane about 12" by 13").

Other Structures, Objects, and Furnishings

- Rare spotter's cabin foundation and chimney (built 1939; measures 17' x 24').
- Hand pump mounted on 4' x 5' cast concrete well cover (well dug 1939, current pump 1964).

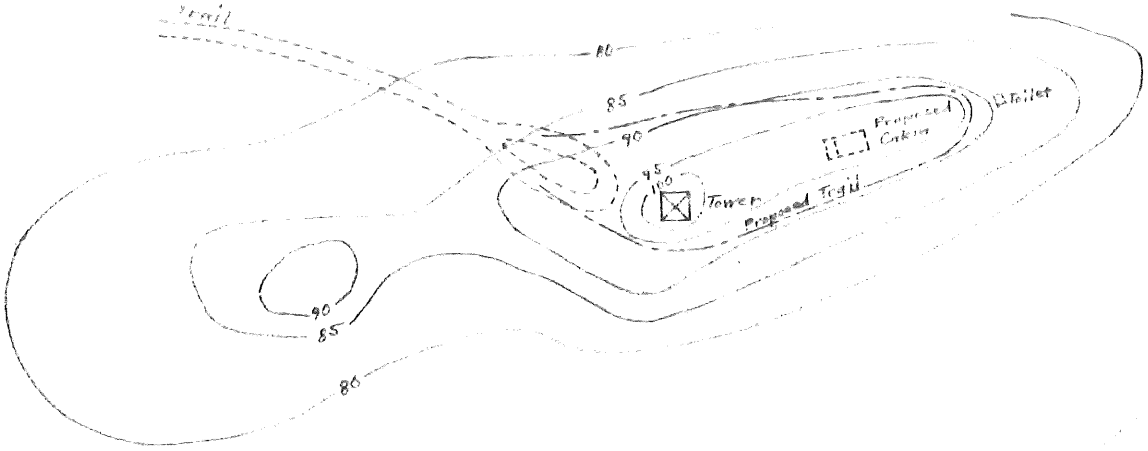
Topography

- Location on a summit.

USGS topographical map, Coon Lake Quad

Spatial Organization

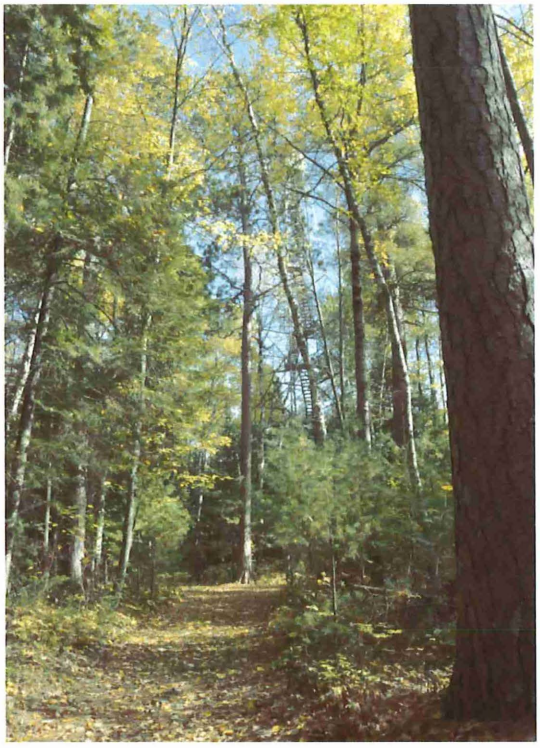
- Site features arranged in an informal cluster in response to topography.

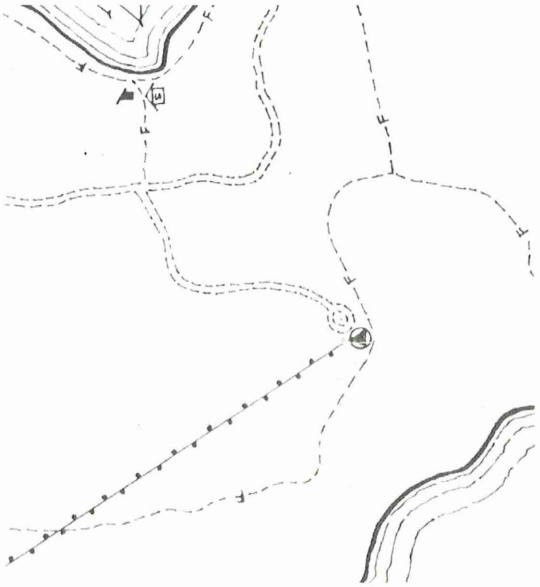


Scenic Fire Lookout Tower January 1938 sketch map (Minnesota Department of Conservation Forestry Division Records, Minnesota Historical Society)

Circulation Patterns

- Narrow, winding truck trail and footpaths providing access to the site.





A January 1936 plan detail showing the tower (marked by a triangle) with foot trails ("F"), truck trails (double dashes), and a telephone line (line with dots) (Minnesota Dept. of Conservation Forestry Division Records, Minnesota Historical Society)

Vegetation

- Dense forest with a mixture of deciduous trees and conifers.

Setting and Viewshed

- Forested public park setting. (Setting being defined as the area outside of the boundaries of the National Register-eligible property.)
- View from the cab extending at least 18-20 miles.

A 1930s view from the cab facing south (Minnesota Department of Conservation Forestry Division Records, Minnesota Historical Society)

Current view from the cab

4.0 CONDITION ASSESSMENT

A condition assessment of the tower was conducted by the engineering firm Widseth Smith Nolting (WSN). The key findings are presented below.

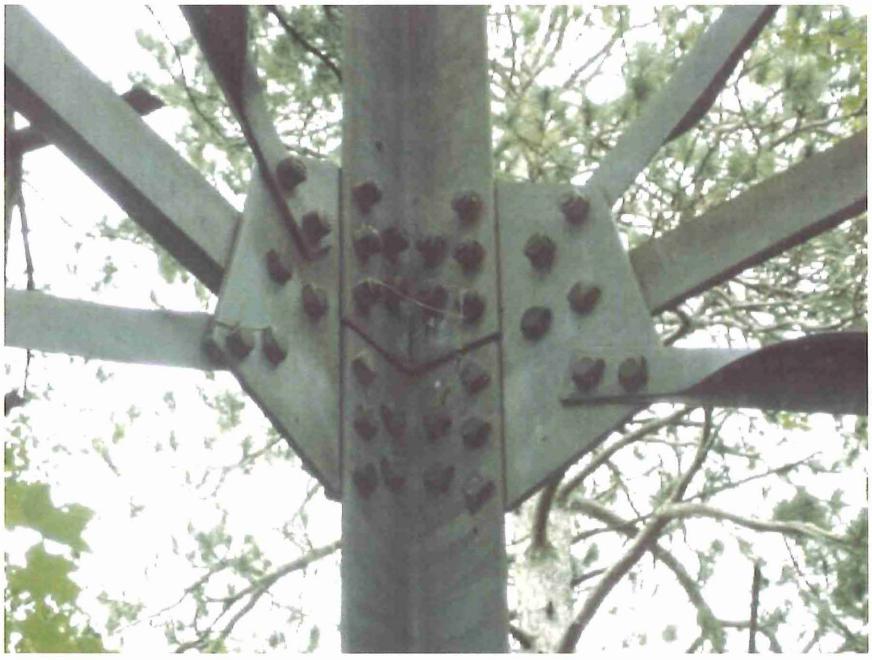
The Scenic tower is an International Derrick and Equipment Company (IDECO) Model 1933 tower. Original plans for the IDECO Model 1933 appear in Appendix B.

Footings

- Foundations are in good condition with some surface spalling. (No repairs needed.) Recommendations include lowering the grade to 6" below top of concrete piers. This will help prevent future spalling of concrete and corrosion of steel.

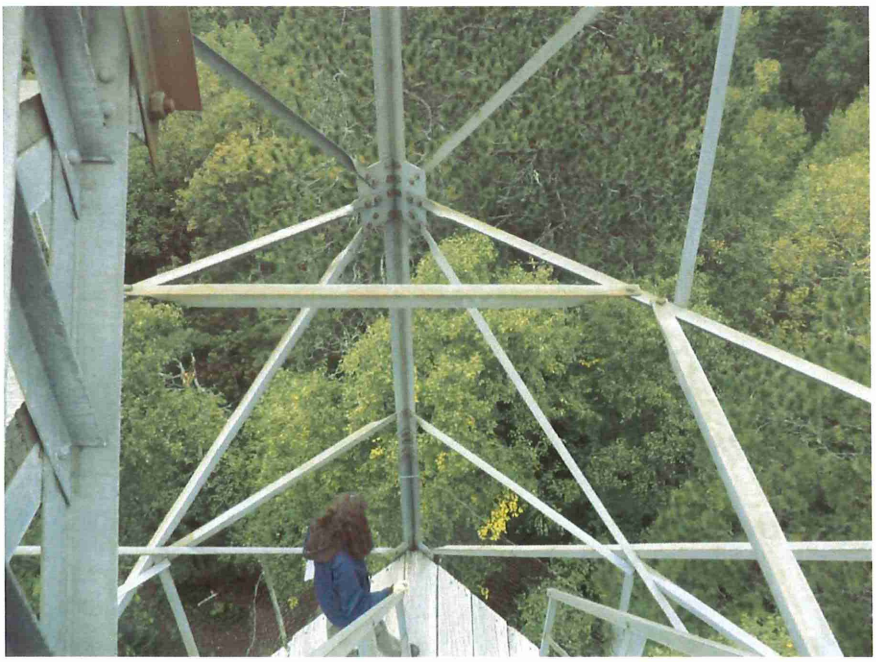
Superstructure

- Tower appears to be structurally sound.
- Typical steel framing.
- Bolted connection of steel members are in good condition. Bolts are galvanized steel, most with square heads and hex nuts.

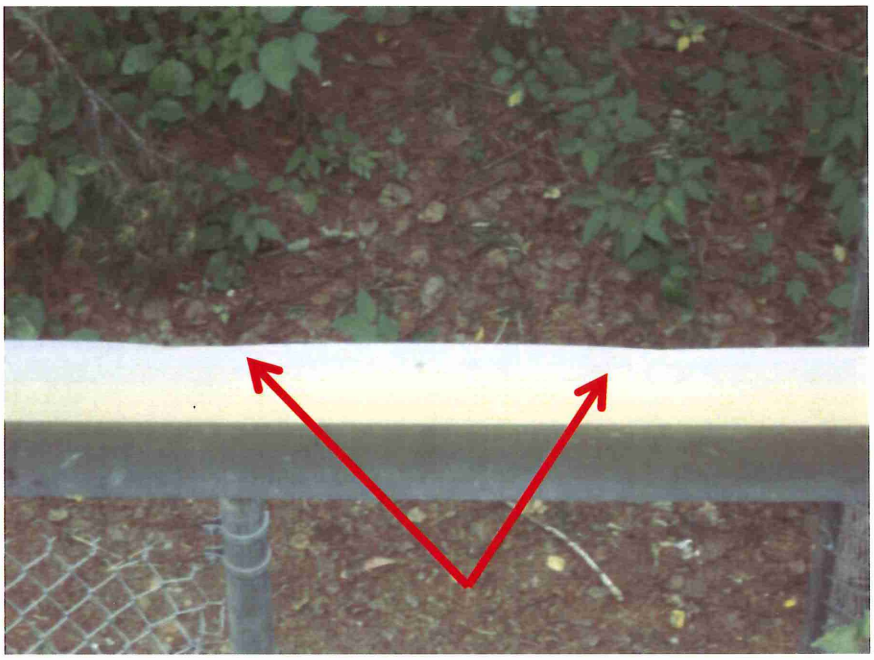


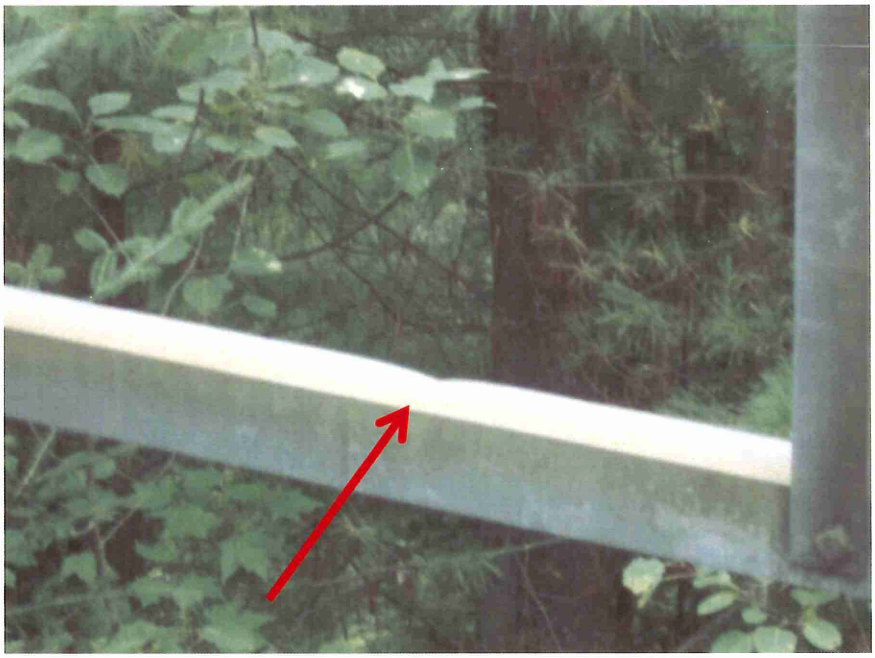
- Some railing members and bracing angles have surface rust and/or minor pitting.

- Several members have surface rust but not to the extent that it affects the strength of the members or the structure.



- There are some slight bends and notches in steel angle framing. The section could be reinforced if analysis indicates it is needed.





- Only two steel members were identified as being modified (notched) during construction. The section could be reinforced if analysis indicates it is needed.

Stairs and Landings

- Handrails at stairs are 36" high. A horizontal strap reduces the opening size.

- A wire was added to reduce the opening size of the railing near top of the tower.

- The railings are about 39" high at the landings.

- The timber planks at railing base connections have deteriorated causing railings to be loose and unstable. Recommendations include attaching replacement railings to the steel structure for more stability, not to the wood landing.

- Some timber landing and stair planks are starting to decay at edges and cut ends. Replace individual planks as needed; match existing plank thickness to maintain a uniform surface.

- Chicken wire fencing at stair landings is loose and pulling away from the wood structure. Find a method to tighten wire fencing and secure it to the landing.

Cab

- Outside of the steel siding on the cab is in good condition with some surface rust. Bolts are rusting but appear to be secure.

- Interior cab steel is in good condition but lacks paint.

- The interior of the cab roof steel is in good condition.

- Steel window frames are in good condition. The putty is failing and a few plexiglass panes are missing.

5.0 RECOMMENDATIONS

This chapter presents rehabilitation recommendations for the Scenic Fire Lookout Tower. The recommendations address the tower itself as well as accompanying resources including the remains of the spotter's cabin, the nearby pump, and historic landscape features such as the site's spatial organization, circulation patterns, and vegetation.

The discussion addresses topics such as:

- alterations needed to adapt the tower to public climbing
- recommendations for the long-term preservation of the structures
- addressing broad public access (e.g., ADA compliance)
- public education and interpretation
- visitor safety instructions
- tower security

Cost-effectiveness, low future maintenance, and preserving the historic integrity of the property were key considerations when formulating the recommendations. The recommendations are consistent with the Secretary of the Interior's (SOI) Standards for the Treatment of Historic Properties and accompanying guidelines.

A general theme throughout the recommendations is that deteriorated historic fabric and features should be preferentially repaired rather than replaced. If an element cannot be repaired and must be replaced, the replacement should be as close to the original size, shape, and materials as possible to help preserve the property's historic character and authenticity.

The Scenic tower, like the other steel fire towers in Minnesota, was intended to be a strong, functional, utilitarian structure that could be readily assembled at a reasonable cost. A simple design and very durable materials are important characteristics and help explain why the Scenic tower is still in remarkably good condition after 85 years. The recommendations in this report are consistent with, and should help preserve, this design sensibility.

The recommendations refer to the "period of significance" for the Scenic Fire Lookout Tower, which has been identified as 1934-ca. 1968. See Period of Significance in Chapter 2 for more information.

This report's recommendations are focused on the Scenic Fire Lookout Tower but should also be applicable to other steel fire towers in Minnesota, particularly those that are accessed with stairs. Many of these towers are similar in design, whether they were made by International Derrick and Equipment Company, Aermotor, or another supplier of steel towers.

Isle Harbor (now Kathio) Fire Lookout Tower (photo by J. Fenlason)

Secretary of the Interior's Standards for the Treatment of Historic Properties

To preserve the historic integrity of the Scenic tower, the rehabilitation recommendations in this report are consistent with the Secretary of the Interior's (SOI) Standards for the Treatment of Historic Properties.

The SOI Standards lay out four treatment paths:

Preservation

- Often used to protect or stabilize a resource without making extensive repairs.

Rehabilitation

- Provides for alterations to support a new or continued use while preserving the property's historic character and authenticity.

Restoration

- Typically targets a specific time period, removing later additions and reconstructing missing elements.

Reconstruction

- Typically used when rebuilding or recreating a lost resource.

The Rehabilitation Standards are those most applicable to a proposed Scenic Fire Tower project because such a project would require some modification of the existing tower to accommodate public climbing.

There are 10 SOI Standards for Rehabilitation, listed below. The goal is to follow all of the standards that are applicable to a given project.

1. A property will be used as it was historically or be given a new use that requires minimal change to its distinctive materials, features, spaces, and spatial relationships.

2. The historic character of a property will be retained and preserved. The removal of distinctive materials or alteration of features, spaces, and spatial relationships that characterize a property will be avoided.

3. Each property will be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or elements from other historic properties, will not be undertaken.

4. Changes to a property that have acquired historic significance in their own right will be retained and preserved.

5. Distinctive materials, features, finishes, and construction techniques or examples of craftsmanship that characterize a property will be preserved.

6. Deteriorated historic features will be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature will match the old in design, color, texture, and, where possible, materials. Replacement of missing features will be substantiated by documentary and physical evidence.

7. Chemical or physical treatments, if appropriate, will be undertaken using the gentlest means possible. Treatments that cause damage to historic materials will not be used.

8. Archeological resources will be protected and preserved in place. If such resources must be disturbed, mitigation measures will be undertaken.

9. New additions, exterior alterations, or related new construction will not destroy historic materials, features, and spatial relationships that characterize the property. The new work will be differentiated from the old and will be compatible with the historic materials, features, size, scale and proportion, and massing to protect the integrity of the property and its environment.

10. New additions and adjacent or related new construction will be undertaken in such a manner that, if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.

While the Rehabilitation Standards apply to the overall project, the Preservation Standards are applicable to the spotter's cabin foundation and the pump, both of which are recommended to remain in place without alteration, and to be periodically maintained and repaired to ensure their long-term preservation. The Preservation Standards, listed below, aim to sustain the existing form, integrity, and materials of a historic resource.

There are 8 Preservation Standards. The goal is to follow all of the standards that are applicable to a given project.

1. A property will be used as it was historically, or be given a new use that maximizes the retention of distinctive materials, features, spaces, and spatial relationships. Where a treatment and use have not been identified, a property will be protected and, if necessary, stabilized until additional work may be undertaken.

2. The historic character of a property will be retained and preserved. The replacement of intact or repairable historic materials or alteration of features, spaces, and spatial relationships that characterize a property will be avoided.

3. Each property will be recognized as a physical record of its time, place and use. Work needed to stabilize, consolidate, and conserve existing historic materials and features will be physically and visually compatible, identifiable upon close inspection, and properly documented for future research.

4. Changes to a property that have acquired historic significance in their own right will be retained and preserved.

5. Distinctive materials, features, finishes, and construction techniques or examples of craftsmanship that characterize a property will be preserved.

6. The existing condition of historic features will be evaluated to determine the appropriate level of intervention needed. Where the severity of deterioration requires repair or limited replacement of a distinctive feature, the new material will match the old in composition, design, color, and texture.

7. Chemical or physical treatments, if appropriate, will be undertaken using the gentlest means possible. Treatments that cause damage to historic materials will not be used.

8. Archeological resources will be protected and preserved in place. If such resources must be disturbed, mitigation measures will be undertaken.

Secretary of the Interior's Guidelines

The SOI Standards for the Treatment of Historic Properties are accompanied by guidelines, one set for buildings and structures and another set for landscape features. The guidelines have been issued as:

Secretary of the Interior's Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings (2017 edition)

Secretary of the Interior's Guidelines for the Treatment of Cultural Landscapes (1996)

Like the Standards, the guidelines are divided into four treatment paths – Preservation, Rehabilitation, Restoration, and Reconstruction.

Both sets of guidelines are applicable to a potential Scenic fire tower rehabilitation project. Both were used to develop this report's recommendations.

State Building Codes

The 2015 Minnesota Conservation Code for Existing Buildings has a chapter on historic buildings and structures (Chapter 12) modeled after a similar chapter in the International Existing Building Code. Chapter 12 of the Minnesota code is intended to provide for the preservation of historic buildings and structures as they are repaired, altered, or undergo a change in occupancy. The rules allow identification by a registered design professional of situations where compliance with building code provisions would damage contributing features of a historic structure (and therefore code flexibility can be considered). The chapter suggests, for example, that in many cases stairway railings on a historic structure may remain in place without alteration provided they are not structurally dangerous. The chapter allows the possibility that projects may make repairs using original or like materials and original methods of construction, and that existing or missing features may be replaced with features that match the originals in configuration, height, and size.

Decisions about the details of code compliance are made by the building officials charged with this responsibility. This rehabilitation report on the Scenic Fire Lookout Tower identifies historic features and materials that are contributing to the property's historic appearance and its eligibility for the National Register of Historic Places. Alteration of these features and materials should be avoided if at all possible to preserve the historic character and National Register eligibility of the property and to allow it to continue to convey its historic appearance, function, and significance.

ADA Compliance

The trails to the Scenic Fire Lookout Tower contain steep inclines and other barriers that do not lend themselves to modification to provide universal accessibility. Similarly the tower itself could not be made accessible without alterations that would make it ineligible for the National Register of Historic Places. This report's recommendations provide suggestions for public interpretation that should help make information about the tower accessible to people with a broad range of abilities.

Rehabilitation Recommendations

The rest of this chapter provides illustrated recommendations for the Scenic fire tower and fire towers with similar designs whether made by International Derrick and Equipment Company or another fabricator.

Recommendations: Footings

The Scenic tower's cast concrete piers or footings are 24" square at the top. They are about 7' deep, according to the historic plans. The tower also has a rectangular concrete landing at the base of the stairs. The footings are in good condition with some surface spalling.

- Preserve the footings without alteration. Annually inspect them.
- Lower the grade to 6" below the top of all footings to help prevent future spalling of the concrete and corrosion of the steel.
- Avoid repairing the footings simply for cosmetic reasons. If work is needed, follow the guidance of *Preservation Brief 15: Preservation of Historic Concrete* (see this report's References) so historic fabric is preserved and the repairs are inconspicuous.

Scenic

Scenic

Other Towers

➔ Take extra care when preserving concrete footings and stair landings that have unusual details so they remain authentic. Follow the guidance of *Preservation Brief 15: Preservation of Historic Concrete* so historic fabric is retained and repairs are inconspicuous.

Ben Draper Fire Lookout Tower

Stair landing with CCC camp number, date (1937), and crew initials – Ben Draper Fire Lookout Tower

Recommendations: Superstructure

The Scenic tower has a battered steel superstructure made of unpainted, galvanized structural steel angles. Major verticals and horizontals are supplemented with diagonal cross-braces and smaller intermediate members. Most members are 2½" to 5" wide. Major members have crimped ends. There are galvanized steel gusset plates at key locations. Connections are made with galvanized steel bolts, most with square heads, and hex nuts. Steel members bear four types of markings: a very rare International Derrick and Equipment Company (IDECO) brass name plate; IDECO part numbers imprinted on each piece of metal; black painted letters reading "Mike Guthrie, Ranger, Deer River, Minn." stenciled onto several large members; and, less importantly, the words "Carnegie USA" (which identifies the steel maker) imprinted on large members such as the base corner verticals.

The superstructure is in good condition. Some members have surface rust and/or minor pitting. A few steel angles have a slight bend or dent from falling tree branches. Two steel members have notches that likely date from original construction.

- ➔ Preserve the superstructure without alteration. Inspect regularly.
- ➔ Follow historic preservation best practices such as those in *Metals in America's Historic Buildings* (see under Gayle in this report's References).
- ➔ Inspect bolts for corrosion. Replace as needed, in-kind (e.g., galvanized steel, square head).

Scenic

- If analysis indicates it is needed, inconspicuously reinforce members with slight bends or notches by tucking an additional metal piece within the angle.

Scenic

Scenic

- Replace bent or damaged members in-kind if not repairable.
- Use existing bolt holes; avoid drilling into the superstructure as much as possible.

- Removing the surface rust at its current level is not necessary but may be desired for cosmetic reasons. If so, judiciously treat only select areas of rust most visible to the public. Remove corrosion using the gentlest means possible and then spot coat with an appropriate product that will not change the appearance or performance of the steel. Match the color of the surrounding metal so the work is inconspicuous.

Scenic

- Avoid obscuring part numbers, shipping details, and other markings.

Scenic

Scenic

➔ Preserve the brass fabricator's plate following best practices for the preservation of historic metal. For example, do not clean, buff , or abrade the surface, which will remove the patina. Mount with appropriate bolts so corrosion is reduced.

Fire tower fabricator's plates are very rare in Minnesota and nationwide.

Scenic

Isle Harbor (Kathio) Fire Lookout Tower

➔ Avoid comprehensively painting the superstructure.

Paint diminishes historic integrity, covers the markings on the steel, and increases future maintenance.

Mud Lake (now Agassiz) Fire Lookout Tower

Mud Lake (now Agassiz) Fire Lookout Tower

➔ Clear trees and shrubs from around the tower to increase air circulation, reduce humidity, and prevent branches from rubbing the steel.

Keeping trees and shrubs cleared will help prevent future rust and other deterioration.

Scenic

- Avoid adding conspicuous extra bracing. If extra members are deemed necessary, hide them within the profile of existing steel angles.

Pine Island (now Big Bog) Fire Lookout Tower

Aiton Heights Fire Lookout Tower

Conspicuous extra bracing substantially diminishes a tower's historic integrity. In combination with other alterations, it can make a forestry fire tower seem more like an electrical utility tower.

Pine Island (now Big Bog) Fire Lookout Tower

Pine Island (now Big Bog) Fire Lookout Tower

Recommendations: Stairs and Landings

The tower has nine flights of stairs. The stairs are 24" wide and assembled with galvanized steel rivets and bolts. The stairs have 36"-tall handrails made of 1½" angles. A horizontal strap reduces the rail opening size in half. The stair treads are in-kind replacements. They are 1½"-thick, unpainted pine boards.

There are eight landings. The lower three are rectangular and the upper five are triangular. The floor boards, which are in-kind replacements, are 1½"-thick, unpainted pine boards. None of the landings originally had handrails. Pipe rails, about 39" tall, were added to the three rectangular landings during the period of significance. All landings have "chicken-wire" safety fencing that either dates from the period of significance or replaces similar fencing installed during the period.

The stairs and landings are in good condition except that landing boards are beginning to deteriorate at the edges. This is causing the pipe railings to become unstable. Chicken wire fencing at the landings is loose.

- ➔ Preserve the stairs and landings at their existing dimensions.
- ➔ Annually inspect stairs, landings, railings, bolts, rivets, and safety fencing. When replacement bolts are needed, match existing (e.g., galvanized steel, square head).
- ➔ Replace stair treads as needed with unpainted pine (or similar) boards of existing dimensions. If treated wood is desired, avoid green which gives a contemporary appearance. Rough sawn boards could be used to provide extra traction. Avoid applying slip resistant paint or abrasive strips to treads. These have not been found to be effective over time and are not a good trade-off given the alteration to the tower's historic character.

Scenic

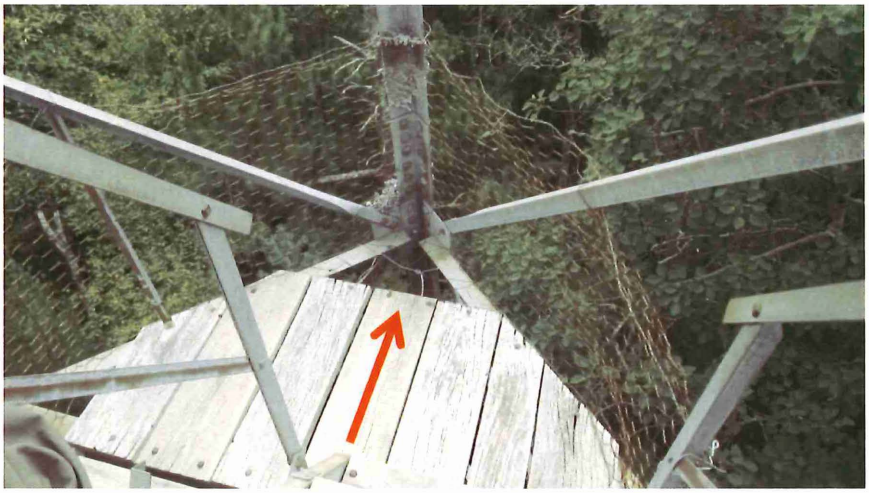
Scenic

➜ Replace landing boards in-kind as needed. Do not paint. Match existing plank thickness to maintain a uniform surface. If treated wood is desired, avoid green which gives a contemporary appearance. Rough sawn boards could be used to provide extra traction.

Scenic

➔ On triangular landings, replace floor boards to extend the landing all the way to the corner.

This is a minor alteration that will improve safety.

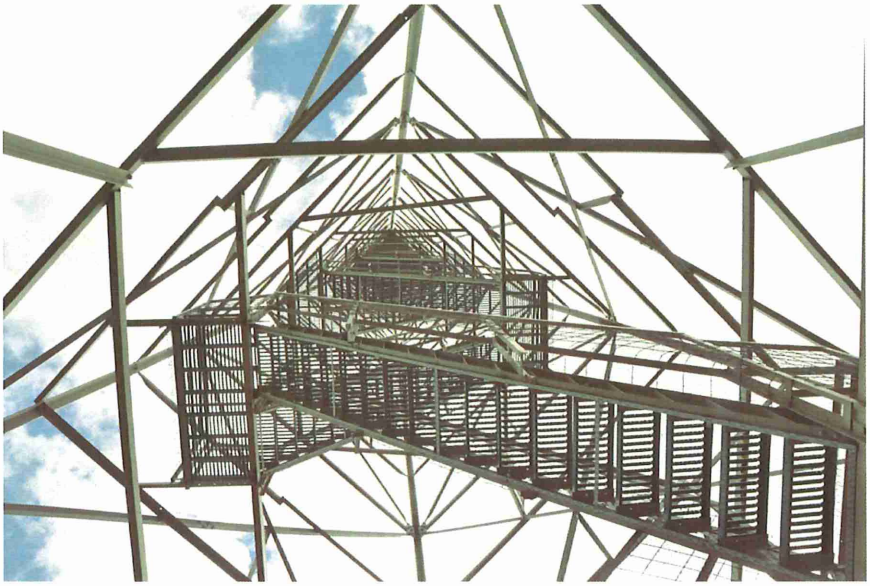


Scenic

➔ Avoid replacing wooden treads and landing floors with metal grates or another material.

Metal steps and landing floors substantially diminish historic integrity and make a tower seem more like an electrical utility tower.

Aiton Heights Fire Lookout Tower



Mud Lake (now Agassiz) Fire Lookout Tower

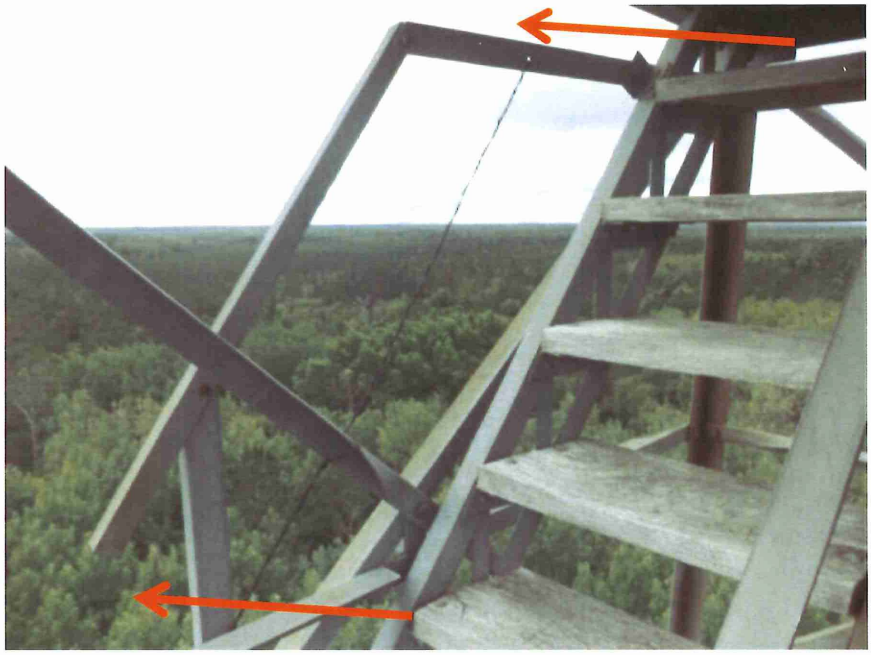
- Retain the stairs' original railing height of 36" if at all possible. This best preserves the Scenic tower's historic integrity.

- Reduce the railings' opening size with flexible wire fencing (see below).

- If it is necessary, raise the railing height to 42". Achieve this by adding a second, higher angle handrail to the existing system via very simple angle attachments, or by replacing the vertical angles with slightly taller angles and reattaching the handrail angles. Any method used to increase railing height or strength should maintain the simplicity of the railing design which has widely spaced angle verticals and an angle handrail.

Scenic

➜ At Scenic's upper flight of steps, improve safety by adding simple extensions to fill in existing gaps in the railings such as the gap at the entrance to the cab.



Scenic

Example of railing with no gap at the cab – St. Croix Fire Lookout Tower

- Avoid using a double railing system to increase stair railing height. It adds out-of-character complexity to the tower design.

Mud Lake (now Agassiz) Fire Lookout Tower

- Avoid using square or round tubular metal for handrails; use steel angles.

Pine Island (now Big Bog) Fire Lookout Tower

- At Scenic's rectangular landings, replace the historic pipe rails with simple, steel angle railings that are secured to the superstructure, not to the landing boards. While the first choice for preservation of the tower's historic integrity would be to retain the existing pipe rails which are from the period of significance, this study recommends that these rails are probably not strong enough. Alterations to improve their strength, and possibly increase their height, would create visual complexity that would be distracting and inconsistent with the tower's design simplicity. Steel angles, on the other hand, would be easier to attach to the frame and would be compatible with the tower's historic materials. Per the Rehabilitation standards, subtly differentiate the new railings, for example with an incised date (e.g. "railing added 2020"), so an interested observer will know they were not part of the original design.

- Make the new railings the same height as the stair railings. Reduce the opening size with flexible safety fencing (see below).

- Connect the landing railings to the stair railings so there are no gaps in the railing system (see red arrows below).

Scenic

Scenic

Example of original angle handrail on an Aermotor tower – St. Croix Fire Lookout Tower

- On Scenic's triangular landings, which currently have no railings, add simple steel angle railings, secured to the tower superstructure, similar to those created for the rectangular landings. Make them the same height as the stair rails. Per the Rehabilitation standards, subtly differentiate the new railings, for example with a note stamped in the metal, to make it clear they are not original.

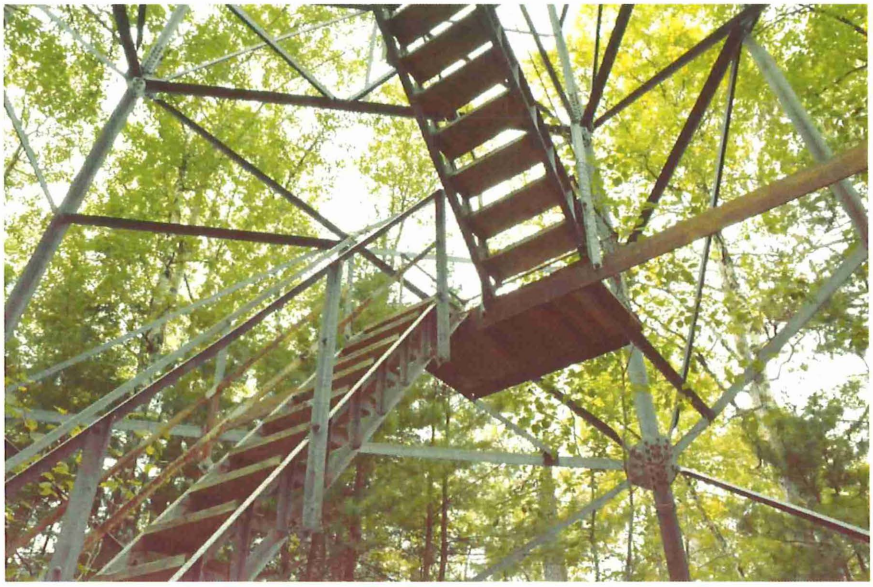
Scenic

- Replace the "chicken wire" fencing on the Scenic tower's landings with the same style of fencing (chicken wire) in a slightly heavier gauge (e.g., 16 rather than 20 gauge) to retain historic integrity and provide a good sense of security for visitors.

  If research indicates fencing with rectangular openings was used on the Scenic tower during the period of significance, this would also be a good option. (See photo above of fencing with rectangular openings at the St. Croix Fire Lookout Tower.)

Scenic

- Add the same flexible wire fencing to all flights of stairs on the Scenic tower. This will reduce the railing opening size and increase visitors' sense of security.



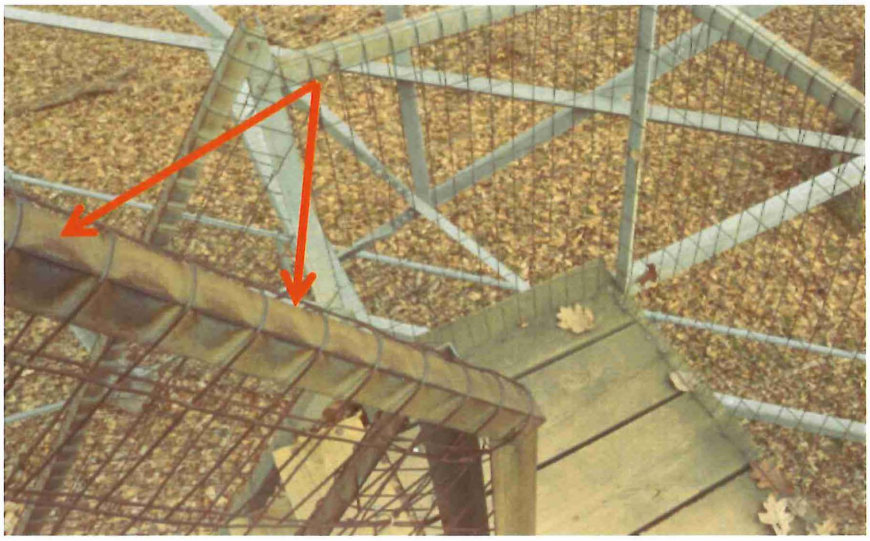
Scenic

- Avoid installing fencing under the stair treads because it adds visual clutter which, when seen from close range, distracts from the tower's design simplicity.

- Find an inconspicuous but secure method to attach the fencing to the railings. Drill into the members as little as possible.

Elba Fire Lookout Tower

➔ Avoid wrapping the fencing around the steel members, which increases the number of points at which corrosion can occur (see arrows).

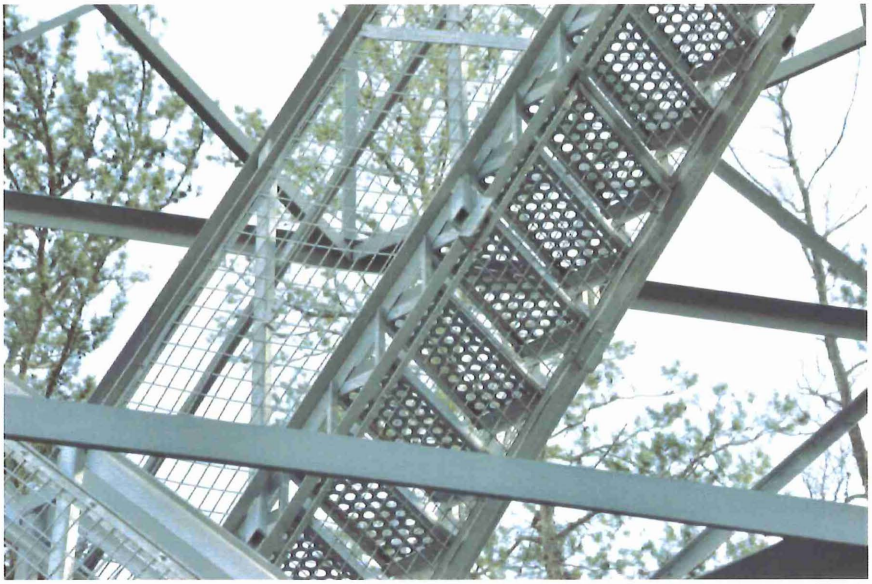


St. Croix Fire Lookout Tower

Woven wire safety fencing (in this case with rectangular openings) has little visual impact from a distance – Nickerson Fire Lookout Tower

➔ Avoid using very heavy gauge fencing; rigid wire fencing; chainlink fencing; vinyl-coated fencing; or shiny materials.

These were not used on Minnesota fire towers during the period of significance. They are visually distracting, contemporary in appearance, and diminish a tower's historic integrity. The flexible wire fencing described above, on the other hand, was historically used on Minnesota towers because it was readily available, strong, durable, and inexpensive.



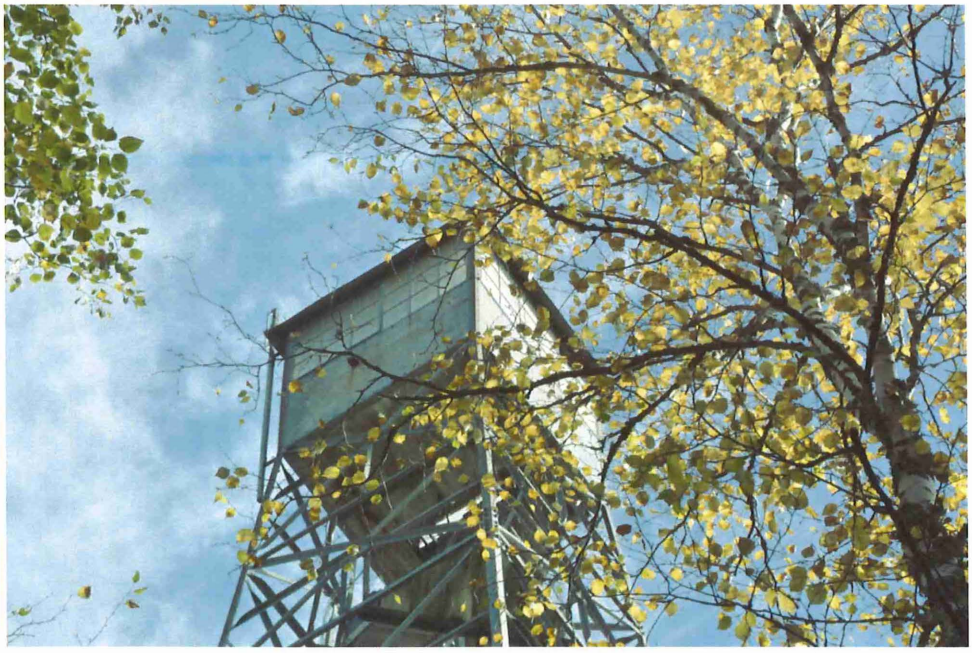
Pine Island (now Big Bog) Fire Lookout Tower

Elba Fire Lookout Tower

Recommendations: Cab – Exterior

The cab is 7' by 7' with a hipped roof. The walls and roof are made of heavy gauge galvanized steel sheets bolted to a steel frame. The exterior appears to have been painted light grayish green at an unknown date. The roof probably retains the original rooftop ventilator (see photo and sketch on next page) but this has not been confirmed. The outside of the cab is in good condition with some surface rust. Bolts are rusting but appear to be secure. There is an antenna mooring on an outside corner, likely added during the period of significance.

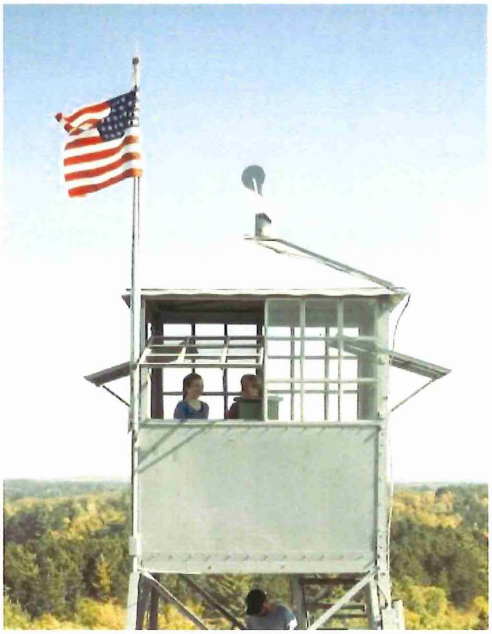
- Preserve the cab roof and walls without alteration.
- Inspect the bolts for rust and replace in-kind as needed (e.g. galvanized steel, square head).
- Properly prepare and repaint exterior walls. Follow historic preservation best practices such as those in *Metals in America's Historic Buildings* (under Gayle in this report's References). Use an appropriate type of paint, colored grayish green (or another color if research reveals it was used historically on the Scenic cab).
- Inspect the roof and repair if needed.
- Replace sheet metal on the roof and walls only if it is beyond repair and only in-kind. Use the same gauge galvanized steel sheets, fastened with bolts.
- Preserve and repair the ventilator at the peak of the roof and the antenna mast on the corner of the cab.

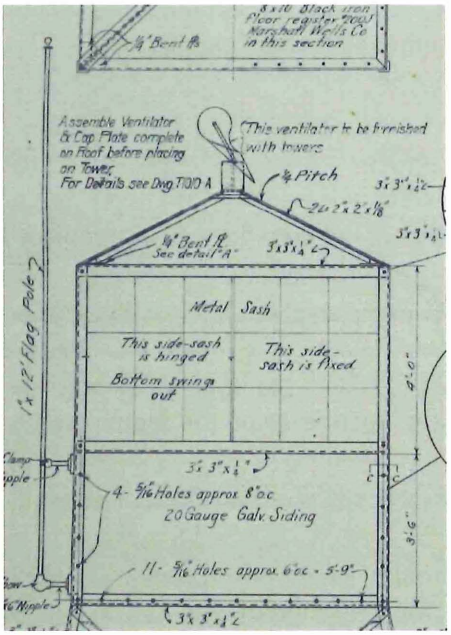


Scenic

Other Towers

➔ Preserve and repair a tower's rooftop ventilator, weathervane, flagpole, and other cab features from the period of significance.





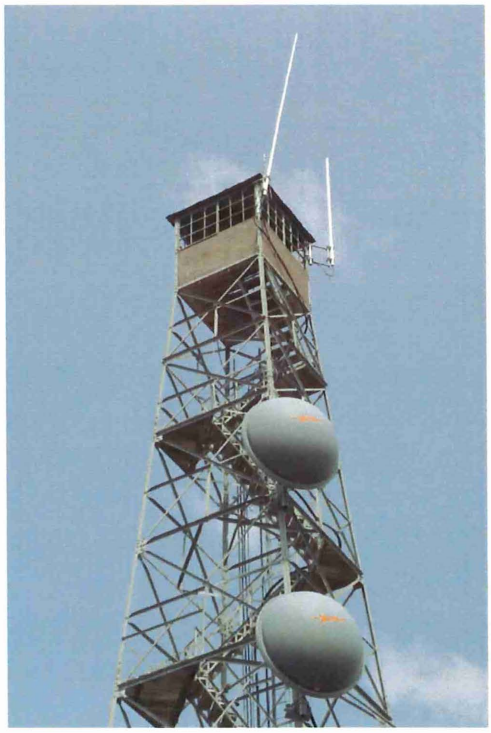
Left: Boulder Hill (now Forest History Center) Fire Lookout Tower (photo courtesy Dave Quam). Right: U.S. Forest Service plan from 1934 (Chippewa National Forest Records, Iron Range Research Center, Chisholm)

Pinewood (now Beltrami County Fairgrounds) Fire Lookout Tower

- Avoid using a cab for branding.

Mud Lake (now Agassiz) Fire Lookout Tower

- Limit any antenna mounted on a tower to one or two vertical masts. Avoid round antenna which are out-of-character and more conspicuous than vertical styles.



Molde Fire Lookout Tower

Recommendations: Cab – Interior

The interior of the Scenic cab has a simple design dominated by windows. The sheet steel has been painted green, likely during the period of significance. (Paint analysis could be conducted to accurately determine original and subsequent colors.) The interior is in good condition but most paint has worn away.

The floor is made of thick tongue and groove boards, likely original. The boards have been covered in recent decades with a layer of plywood. The floor retains a rare hinged trap door. The trap door's planks are joined by metal straps. The floor opening has a steel safety rail which was added during the period of significance.

In the center of the cab is a rare alidade stand also added during the period of significance. It consists of a metal tube, bolted to the floor, topped by a simple wooden platform.

➔ Properly prepare and repaint the walls to protect against corrosion. (This is less important if the cab windows are glazed.) Follow historic preservation best practices such as those in *Metals in America's Historic Buildings* (under Gayle in this report's References). Use a grayish green for the walls, or choose a color based on paint analysis.

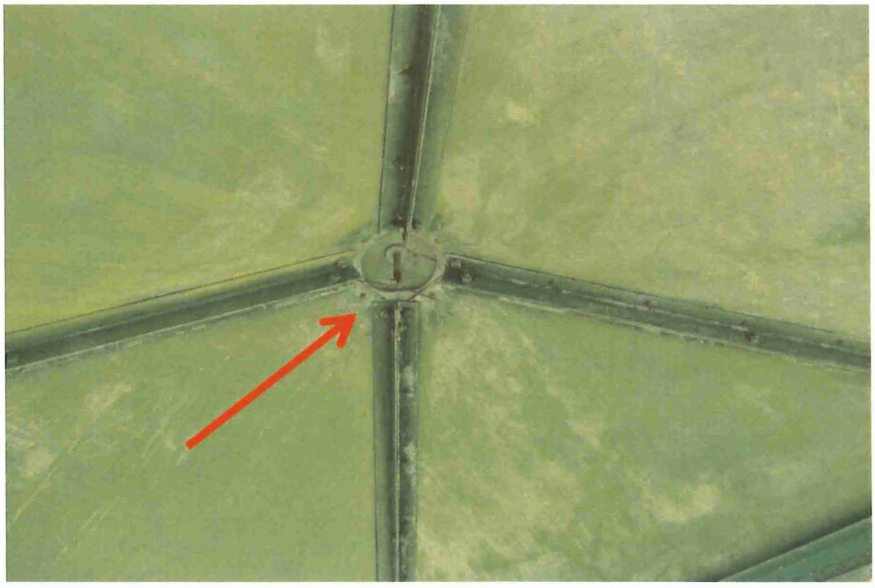
Scenic

- Avoid painting the interior a color not used on Minnesota fire towers during the period of significance such as peachy tan.

Mud Lake (now Agassiz) Fire Lookout Tower

- Leave the Scenic cab ceiling as is (it doesn't need paint) unless corrosion is detected.

- Preserve the ventilator spindle in the ceiling.



Scenic

- Remove the plywood from the floor, which is likely trapping moisture.

- Repair the plank floor as needed, replacing boards in-kind and retaining historic thickness and other dimensions. If treated wood is desired, avoid green which gives a contemporary appearance.

Scenic

- Leave the floor boards unpainted.

  Paint was not likely used on Minnesota fire towers during the period of significance and increases future maintenance.

Isle Harbor (now Kathio) Fire Lookout Tower

- Preserve the trap door, which is a rare survivor, without alteration.

- Remove rust from the metal straps as needed and paint the straps with an appropriate product. Match the existing red-brown color to retain the appearance of age. If the straps require replacement in the future, replace in-kind.

- Add a lock so park staff can lock the door open or closed.

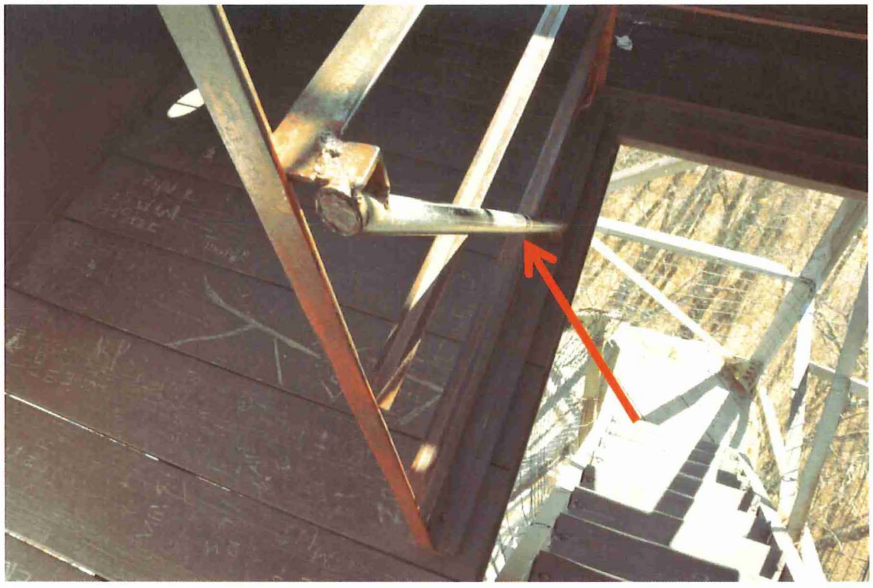
Scenic

➔ Preserve the safety rail, which is not original but is from the period of significance. Leave it unpainted to retain a sense of age and authenticity unless paint is needed to prevent corrosion.

Scenic

➔ If desired, add a diagonal handrail to the safety rail. Retain the safety rail's simple design.

Isle Harbor (now Kathio) Fire Lookout Tower



Isle Harbor (now Kathio) Fire Lookout Tower

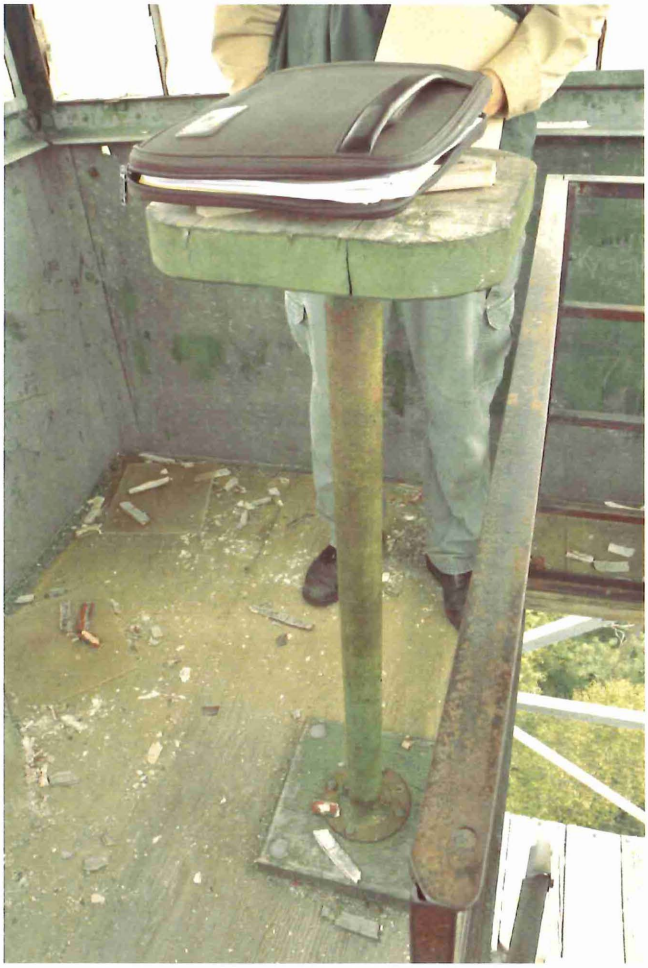
- If reducing the safety rail's opening size is desired, add flexible wire fencing with hexagonal or rectangular openings. This style of fencing was used on Minnesota towers during the period of significance and is visually unobtrusive.

St. Croix Fire Lookout Tower

- Preserve the alidade stand without alteration. The stand is rare among Minnesota fire lookout towers. It was not part of the fire tower's original design but was installed during the period of significance.

- Use the alidade stand to help interpret the tower's historic function (see Public Education and Interpretation below).

- Do not add additional structures or furnishings to the cab. This will retain its historic simplicity and provide room for visitors.



Scenic

Other Towers

➔ Replace the trap door, if missing, using historic plans or photos, or the door from another tower as a model. Retain the opening's historic dimensions. Add a lock so the door can be secured open and closed.

The trap door has been removed but arrows point to the marks left by the hinges – St. Croix Fire Lookout Tower

- If a cab has no safety rail around the floor opening, add a simple steel rail, adapting it from a historic design. Subtly differentiate the new rail, for example with a date stamped in the metal, so an interested observer will know it has been recently added.

Pequot Fire Lookout Tower

- If a tower has been given a safety rail that is out-of-character (photos below), replace it with a more historically compatible steel rail.

- Avoid round tubular steel which would not have been used in a Minnesota fire tower during the period of significance.

Mud Lake (now Agassiz) Fire Lookout Tower

Aiton Heights Fire Lookout Tower

- Avoid adding a diagonal handrail on the wall side of the floor opening since this would preclude reconstructing the trap door. Instead, mount a diagonal handrail on the opposite side of the opening (attached or adjacent to the opening's safety rail).

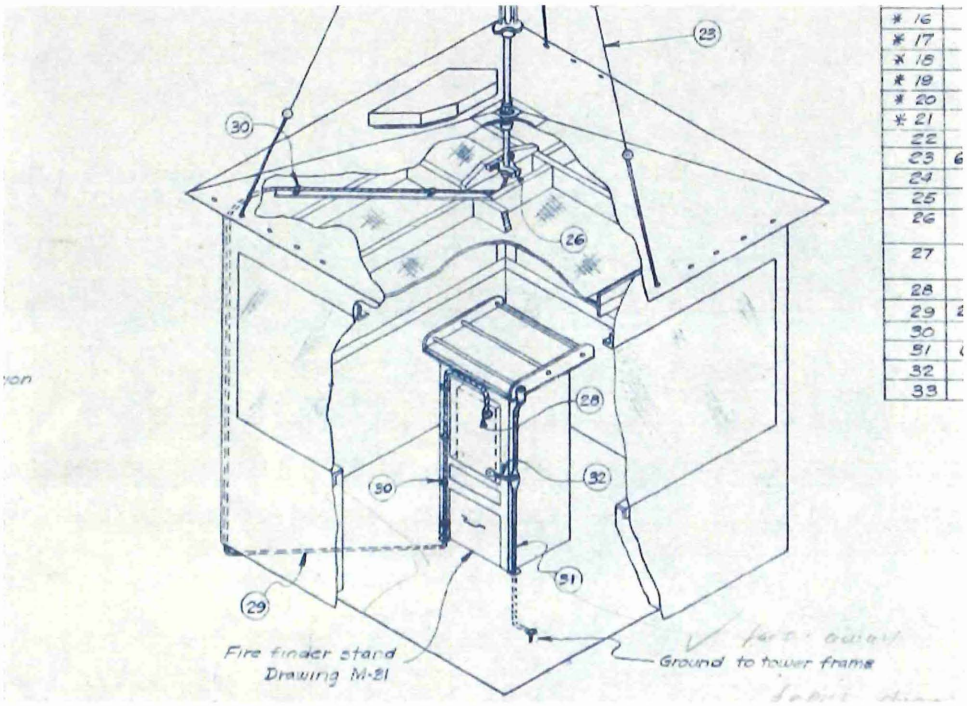
Mud Lake (now Agassiz) Fire Lookout Tower

➔ If there is only a small amount of floor space at top of stairs, add a short horizontal handrail just under the window. Use square tube steel (not round).

Mud Lake (now Agassiz) Fire Lookout Tower

Aiton Heights Fire Lookout Tower

➔ If the alidade stand is missing from a cab, either don't reconstruct or, if a photo or other evidence exists, reconstruct the type of stand that actually existed in the tower.



U.S. Forest Service plan from 1950 (Chippewa National Forest Records, Iron Range Research Center, Chisholm)

Recommendations: Windows

The cab has galvanized steel multipaned sash. The frames are in good condition. On each wall, the right-hand sash, when viewed from the inside, pivots open. (The bottom swings out.) The glass was replaced, after the period of significance, with plexiglass held in place with putty. The plexiglass has clouded with age, the putty is failing, and a few of the panes are missing. The panes measure about 12" by 13".

- Preserve the steel frames without alteration. Multipaned steel sash is an important character-defining feature of Minnesota fire lookout towers.

  Follow historic preservation best practices such as those found in *Metals in America's Historic Buildings* (see Gayle in this report's References).

- As one option, replace the plexiglass with standard glass, or with the thinnest available laminate safety glass. Glazing the windows with glass would best preserve the historic integrity of the tower and would also protect the interior walls and floor from weathering.

  Standard glass would be the most authentic but has the disadvantage of being breakable. Laminate glass would discourage breakage and reduce glass shards, but would be thicker and heavier. Glazed windows would need periodic cleaning. They would also require park staff to open the windows to ventilate the cab for visitor comfort during warm months. For safety, an inconspicuous method should be devised to lock the sash slightly open (for example at 3") to prevent it from being fully opened. This may not be necessary, and standard glass may be a good option, if it is expected that visitors will only enter the cab accompanied by park staff.

- Avoid plexiglass or acrylic which would impart a modern appearance and become cloudy over time.

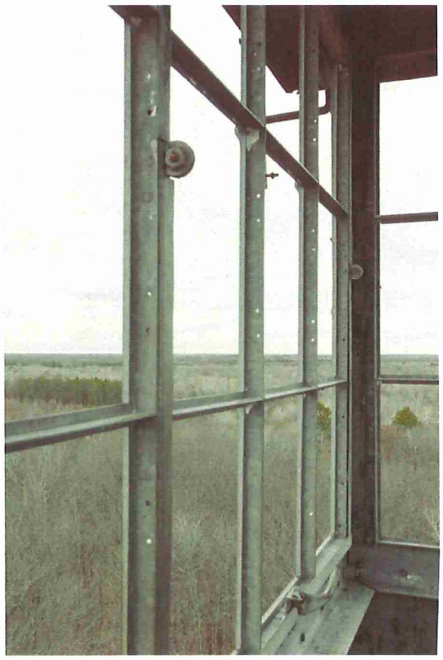
Scenic

Reglazed sash – Pequot Fire Lookout Tower (photo by Travis Grimler, *Pine and Lakes Echo Journal*)

➔ Another option, which may be chosen if the glass is subject to vandalism, is to leave the windows unglazed. This would diminish the historic integrity of the tower somewhat, and is a less desirable option in terms of the SOI Rehabilitation standards.

The impact of unglazed windows on the tower's historic integrity would be fairly minor when the tower is viewed from a distance. The effect would be greater at close range. Without glass, for example, it would be more difficult for a person in the cab to imagine how the tower functioned, with the spotter, telephone or radio equipment, alidade, maps, and other paperwork all needing protection from the wind and rain. A photo mounted in the cab could help visitors envision this. If the windows are unglazed, the interior walls and floor would be exposed to rain and snow which require some increased maintenance. On the other hand, there would be no glass to break, and the cab would stay cool in the summer without the need for staff to open the windows.

Sash without glass – Isle Harbor (now Kathio) Fire Lookout Tower



Sash without glass – St. Croix Fire Lookout Tower. The sash is stamped "Fenestra." It was made by Detroit Steel Products Company, a common supplier of fire tower windows (see the Fenestra trade catalog in this report's References).

➔ Regardless of how the panes are treated, retain the ability to tilt the sash open but keep the sash locked in the closed or slightly-open position for safety.

Other Towers

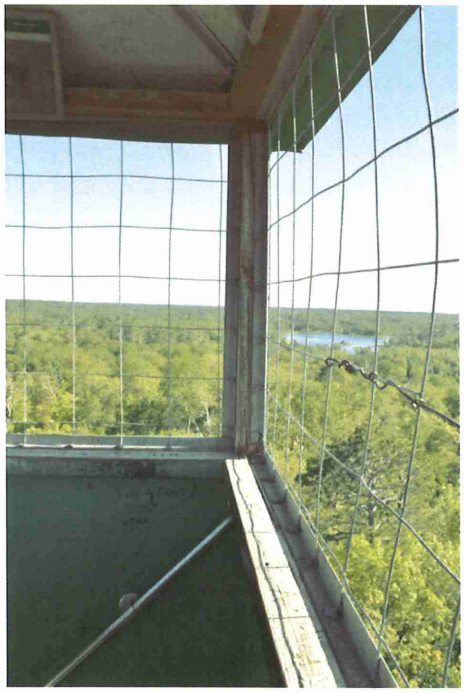
➔ Preserve and repair the steel sash. Replace the sash in-kind if it is missing or beyond repair. (Consider establishing a place to store salvaged window sash for use on other fire towers as needed.)

➔ As a first choice, retain glass in the steel sash (see discussion above).

Badoura Fire Lookout Tower

➜ Avoid replacing the steel sash with a wire grid, which significantly diminishes a tower's historic integrity. If a wire grid exists, replace it with steel sash that matches the original.

Pine Island (now Big Bog) Fire Lookout Tower



Aiton Heights Fire Lookout Tower

Recommendations: Other Structures, Objects, and Furnishings

The base of the tower is surrounded by a chainlink fence that probably postdates the period of significance. The fence is 6' tall and about 32' square. It is topped by three strands of barbed wire. There is a 4'-wide gated opening on the east side.

The site also contains the foundation and chimney of the spotter's cabin and a nearby well with a hand pump (non-functioning).

The remains of the cabin, built in 1939, are located about 125' east of the tower. The foundation measures about 17' by 24' and is 18" thick. It is made of mortared fieldstone on cast concrete footings. Centered on the east wall is a 13'-tall mortared fieldstone chimney designed to vent a heating and cooking stove. There are no remnants of the cabin's log superstructure.

The pump is located about 15' east of the cabin. It is a painted, cast iron hand pump mounted on a 4' by 5' concrete well cover. The pump is cast with the names of the model and manufacturer: "Monitor" and "Baker Mfg Co. Evansville Wisconsin." A well (presumably this one) was dug in 1939. The current pump was installed in 1964.

- ➔ Identify archaeological resources on the site.

- ➔ Preserve the spotter's cabin foundation, with its chimney, without alteration.

  The cabin remnant and the nearby pump are rare on Minnesota fire tower sites and strongly contribute to the property's ability to convey its historic character and operation.

- ➔ Assess the condition of the foundation and chimney. Repair as needed to ensure their long-term preservation consistent with the Secretary of the Interior's Standards for Preservation. Follow the guidance of *Preservation Brief 2: Repointing Mortar Joints in Historic Masonry Buildings* and *Preservation Brief 15: Preservation of Historic Concrete* (see this report's References) so historic fabric is preserved and the repairs are inconspicuous.

- ➔ Clear saplings from the foundation to prevent damage. Repeat as needed.

- ➔ Preserve the pump without alteration. Paint and repair as needed to ensure its long-term preservation.

Scenic

Scenic

➔ Remove the chainlink fence and avoid this method of providing security. (See Tower Security below.)

Chainlink fencing disrupts the tower's ability to convey its historic character, making it difficult to understand how the site may have looked in the 1930s and 1940s.

Chainlink fencing contributes to a non-forestry, "utility tower" effect.

Many visitors will only experience the tower from its base. The experience for those visitors is diminished by the chainlink fence.

Scenic

Elba Fire Lookout Tower

Towers without chainlink fencing have much greater integrity of design, setting, materials, feeling, and association. Visitors can more fully experience the tower in its natural setting and imagine how the site functioned historically.

Tulaby Fire Lookout Tower

More examples of Minnesota towers with no fencing at the base:

Vermilion Dam Fire Lookout Tower

Blackduck Fire Lookout Tower

- Avoid adding more structures or objects to the Scenic site other than two simple interpretive panels and a sign for visitor safety instructions.

- If a bench is desired, make it modest in size and simple in design so it visually blends with the landscape and isn't distracting.

Simple low bench adjacent to the Isle Harbor (now Kathio) Fire Lookout Tower

Other Towers

➔ Preserve and interpret all foundations, retaining walls, steps, and other site features. Repair them to ensure their long-term preservation following historic preservation best practices so historic fabric is retained, repairs are inconspicuous, and the site's character and authenticity are preserved.

These features are rare on Minnesota fire tower sites and are important to helping the towers convey their historic function and significance.

Concrete foundation of a warehouse (storage building) built in 1928, prior to the New Deal – Pequot Fire Lookout Tower

Stone retaining wall near site of spotter's cabin – Pequot Fire Lookout Tower

CCC-built steps – Ben Draper Fire Lookout Tower

Steps built by the CCC or SERA – Sandy Lake Fire Lookout Tower

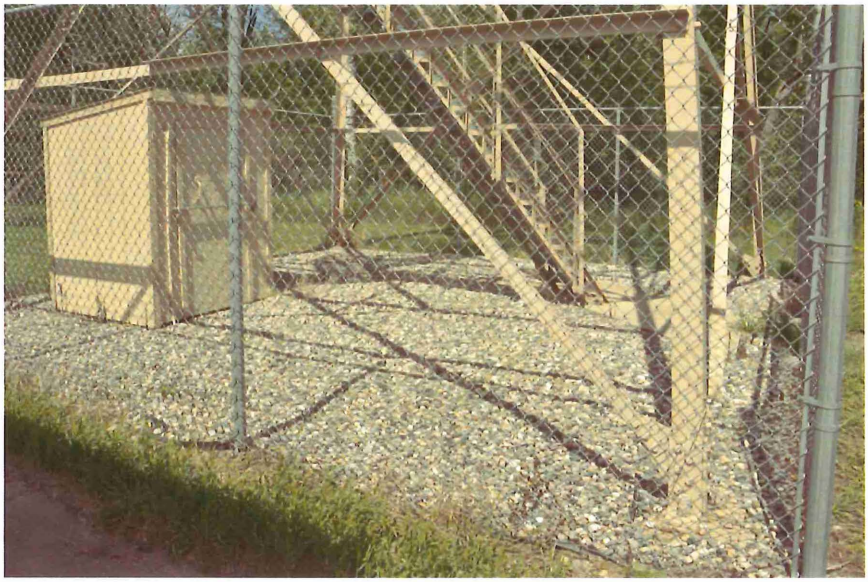
CCC-built warehouse – Mount Maude Fire Lookout Tower (ca. 1937 photo, Minnesota Department of Conservation, Forestry Division Records, Minnesota Historical Society)

The same building photographed in 2016 – Mount Maude Fire Lookout

➔ Avoid adding structures at the base of towers.

Kabekona Fire Lookout Tower

➔ Avoid modern landscaping materials such as pea-rock.



Mud Lake (now Agassiz) Fire Lookout Tower

➔ Where an ADA-compliant path is needed, find a material that is more visually compatible than cast concrete. (Even bituminous is darker, visually "softer," and less conspicuous.)

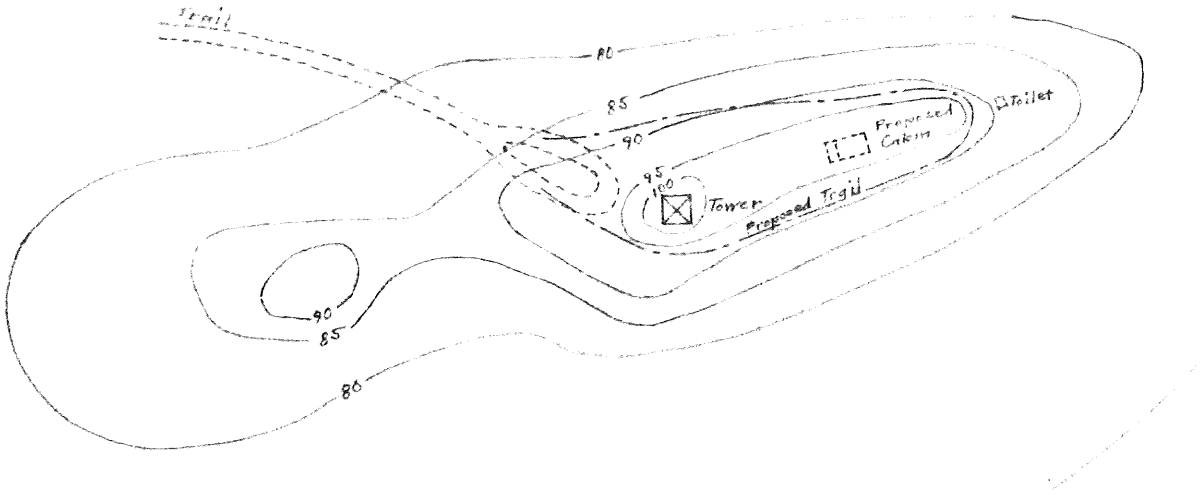
Aiton Heights Fire Lookout Tower

Recommendations: Topography and Spatial Organization

The Scenic tower is located on a remote forested site in the northern part of the state park. The site was chosen because it is one of the highest points in the vicinity.

Like most of Minnesota's fire lookout towers, the Scenic tower is aligned cardinally. The other site features are informally arranged in response to the topography.

➔ Preserve the historic topography and spatial organization without alteration.



Scenic Fire Lookout Tower – January 1938 sketch map (Minnesota Department of Conservation Forestry Division Records, Minnesota Historical Society)

Other Towers

➔ Avoid adding a new road or parking area close to a tower. Instead preserve the historic isolation (if this is a characteristic of the tower) and the tower setting (in a forest, on the edge of a peat bog, etc.) by retaining a generous amount of trees or other vegetation around the tower; letting the tower be approached via a winding trail or walkway; and keeping large-scale manmade elements a good distance away.

Recommendations: Circulation Patterns

The Scenic tower is reached via a 1.25-mile footpath that approaches the tower from the southwest and then continues eastward from the tower site. There is also a truck trail (today about 3 miles long) that accesses the tower site from the northwest. Near the tower, this road is a hiking trail that is only used by vehicles for tower maintenance and emergencies. Both the footpath and truck trail have dirt surfaces and are narrow and winding .

➔ Preserve the footpath and truck trail on or near their historic alignments. Retain their curves, narrow widths, and dirt surfaces.

Footpath – Scenic

Other Towers

➔ Preserve and interpret a tower site's historic circulation features even when they are no longer in use.

CCC-built drive (not regularly used) that ascends the hill to the tower – Pequot Fire Lookout Tower

Recommendations: Vegetation

The Scenic site is densely forested with a mixture of conifers and deciduous trees as well as understory shrubs and groundcover plants.

- Retain historically appropriate forest vegetation around the tower.
- Periodically clear trees and shrubs from around the tower to increase air circulation. This will discourage rust and prevent branches from scratching the metal.
- Periodically clear saplings from the cabin foundation to prevent damage.

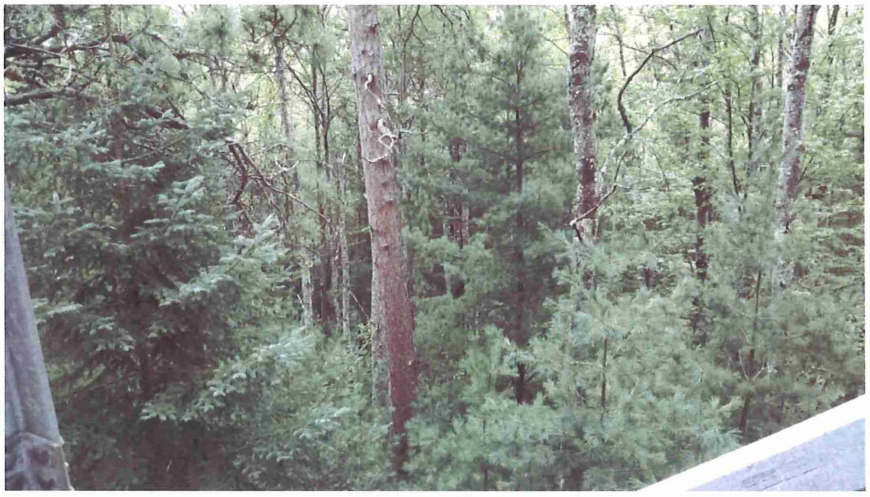
Scenic

Scenic

Recommendations: Setting and Viewshed

The tower stands in a forested public park setting. (The setting being defined as the area outside of the boundaries of the National Register-eligible property.) The view from the cab extends at least 18-20 miles.

- ➔ Preserve the tower's setting without alteration.
- ➔ Preserve the viewshed without alteration, as possible.



Scenic

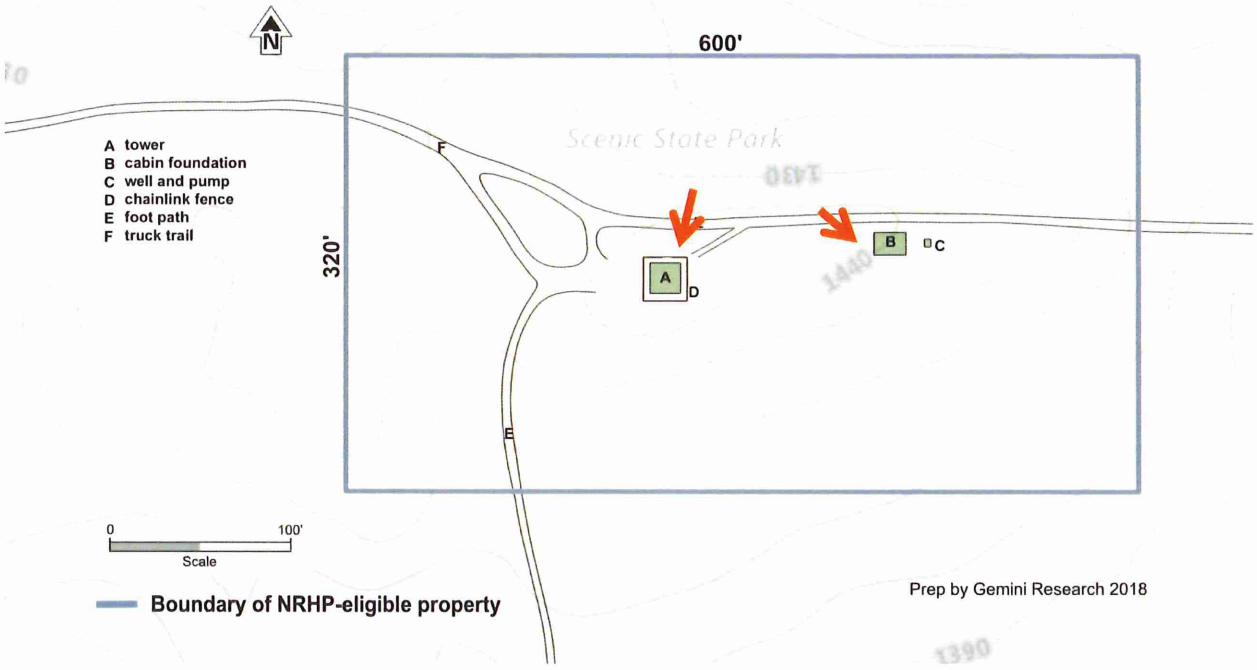
Scenic

Recommendations: Public Education and Interpretation

- Develop site interpretation based on best practices such as "Interpretive Media Design Guidelines" developed by the US Forest Service Region 2 (see this report's References). (The resources of the National Park Service's Center for Interpretive Media at Harpers Ferry Center may also be helpful.)

- Add a modestly-sized interpretive panel near the base of the Scenic tower and another near the cabin foundation (see arrows on sketch map below).

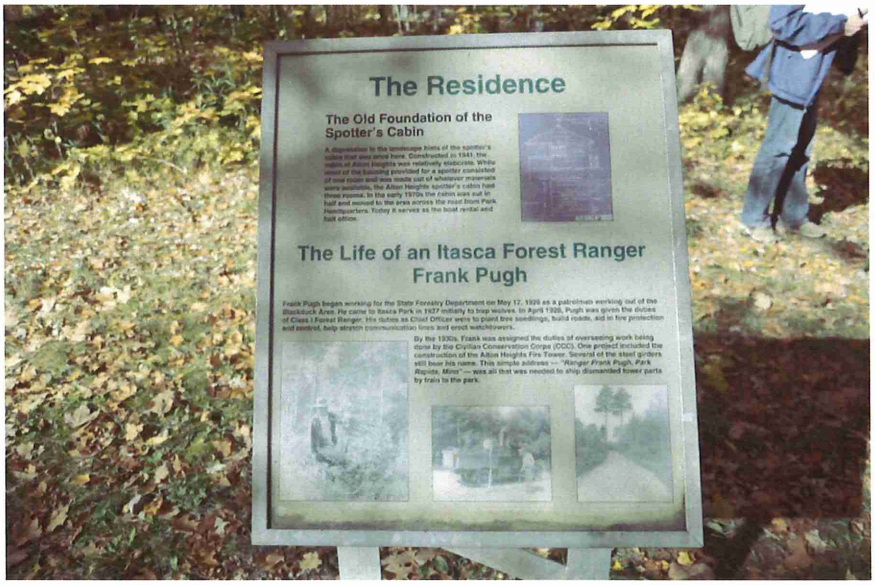
  The content and design of these panels will be important because most visitors will not climb the tower, and there is limited space in the cab for interpretation.



Red arrows show recommended locations for interpretive panels (Gemini Research sketch)

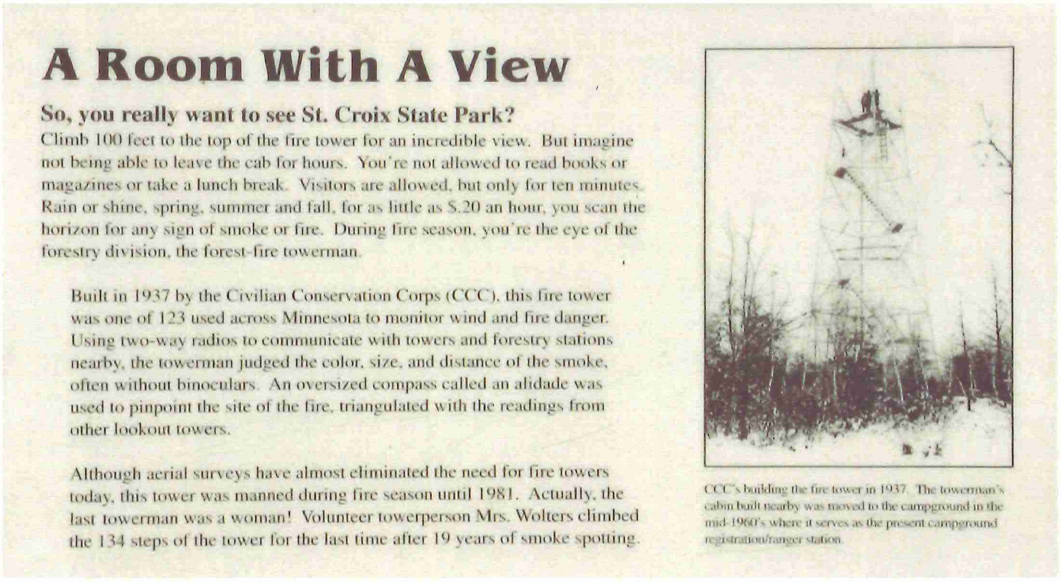
➔ Interpret features with a gentle hand so the site is not overwhelmed by signs.

Modestly-sized marker at the site of the spotter's cabin – Aiton Heights Fire Lookout Tower



Marker in the previous photo – Aiton Heights

➔ Promote and interpret the site as a fire lookout tower, not as an observation tower.



A Room With A View

So, you really want to see St. Croix State Park?

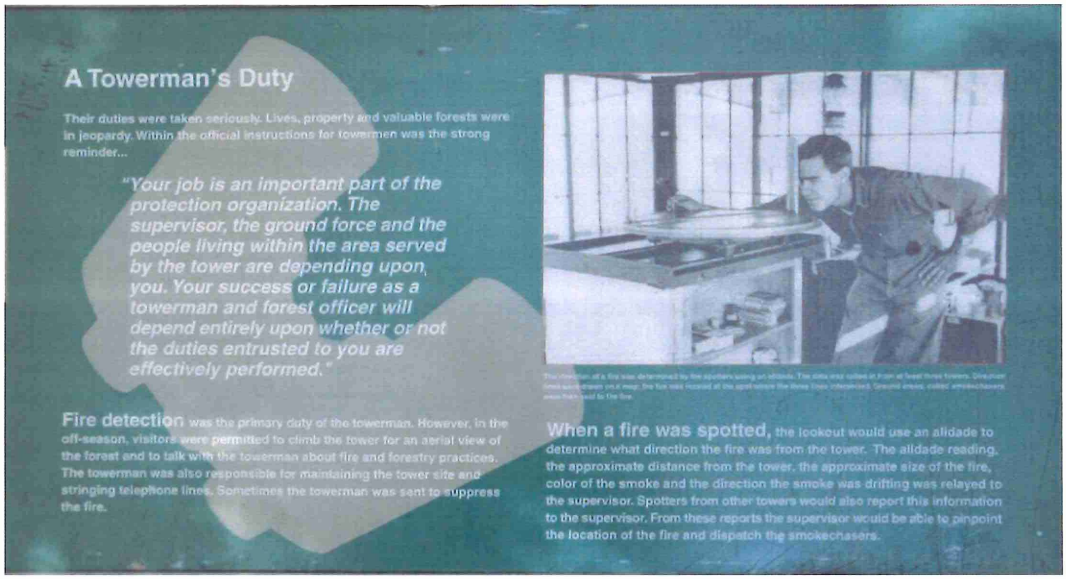
Climb 100 feet to the top of the fire tower for an incredible view. But imagine not being able to leave the cab for hours. You're not allowed to read books or magazines or take a lunch break. Visitors are allowed, but only for ten minutes. Rain or shine, spring, summer and fall, for as little as $.20 an hour, you scan the horizon for any sign of smoke or fire. During fire season, you're the eye of the forestry division, the forest-fire towerman.

Built in 1937 by the Civilian Conservation Corps (CCC), this fire tower was one of 123 used across Minnesota to monitor wind and fire danger. Using two-way radios to communicate with towers and forestry stations nearby, the towerman judged the color, size, and distance of the smoke, often without binoculars. An oversized compass called an alidade was used to pinpoint the site of the fire, triangulated with the readings from other lookout towers.

Although aerial surveys have almost eliminated the need for fire towers today, this tower was manned during fire season until 1981. Actually, the last towerman was a woman! Volunteer towerperson Mrs. Wolters climbed the 134 steps of the tower for the last time after 19 years of smoke spotting.

CCC's building the fire tower in 1937. The towerman's cabin built nearby was moved to the campground in the mid-1960's where it serves as the present campground registration/ranger station.

St. Croix Fire Lookout Tower



A Towerman's Duty

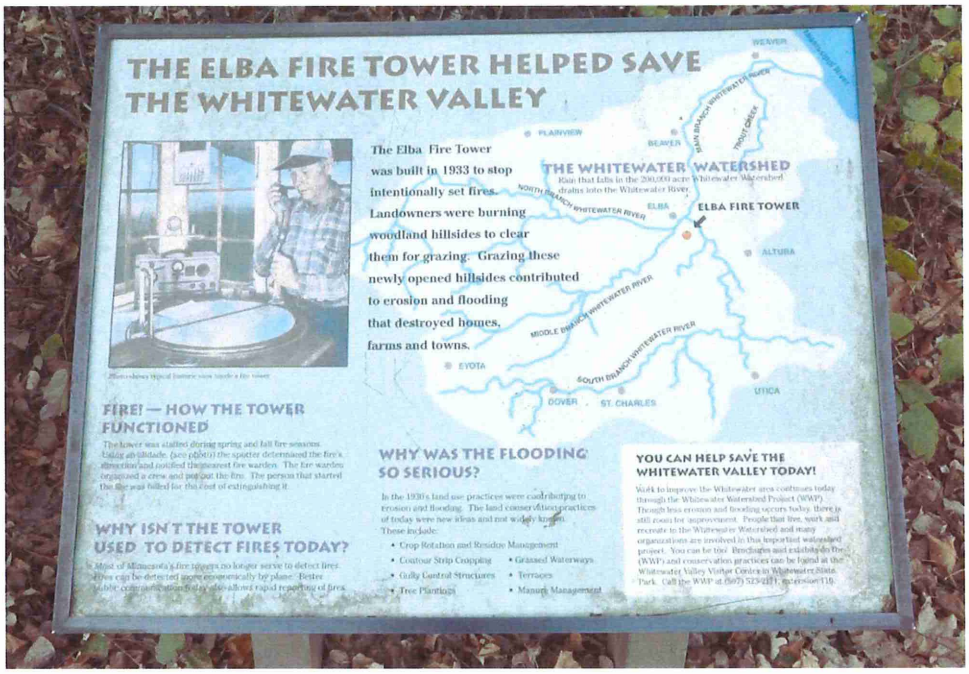
Their duties were taken seriously. Lives, property and valuable forests were in jeopardy. Within the official instructions for towermen was the strong reminder...

"Your job is an important part of the protection organization. The supervisor, the ground force and the people living within the area served by the tower are depending upon you. Your success or failure as a towerman and forest officer will depend entirely upon whether or not the duties entrusted to you are effectively performed."

Fire detection was the primary duty of the towerman. However, in the off-season, visitors were permitted to climb the tower for an aerial view of the forest and to talk with the towerman about fire and forestry practices. The towerman was also responsible for maintaining the tower site and stringing telephone lines. Sometimes the towerman was sent to suppress the fire.

When a fire was spotted, the lookout would use an alidade to determine what direction the fire was from the tower. The alidade reading, the approximate distance from the tower, the approximate size of the fire, color of the smoke and the direction the smoke was drifting was relayed to the supervisor. Spotters from other towers would also report this information to the supervisor. From these reports the supervisor would be able to pinpoint the location of the fire and dispatch the smokechasers.

Aiton Heights Fire Lookout Tower



Elba Fire Lookout Tower

Pine Island (now Big Bog) Fire Lookout Tower

- In the cab, explain how the tower operated. Because the cab has limited room, a small plaque could be mounted flat on the alidade stand and could feature a photo of a tower and alidade in use.

October 1940 photo of Carl Oyen in the Skibo Fire Lookout Tower (razed) in St. Louis County (MnDNR photo)

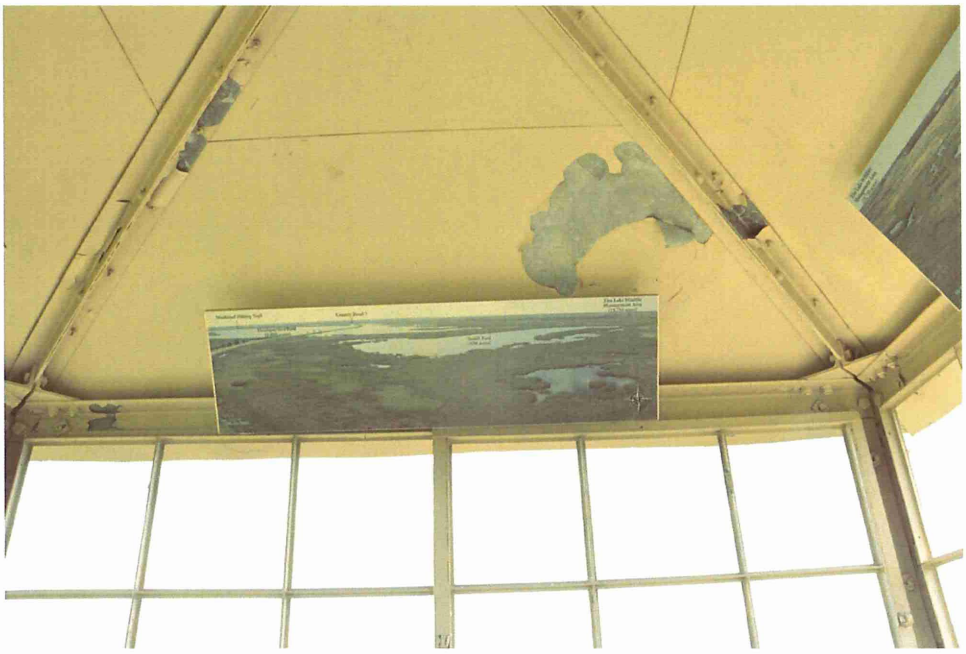
Sighting forest fire across alidade in lookout tower.

Photo from the November 1940 issue of *Minnesota Conservation Volunteer* magazine (MnDNR photo)

- If desired, develop a smart phone application that visitors can access while in the cab. Make the same content available at the exhibit in the park Lodge (see below) to help broaden access to the information and to the fire tower experience. It could also be posted on the park website.

- Interpret the view from the cab with modestly-sized signage above the windows.

  This signage is consistent with the fire tower's original public education function. During the period of significance the public was encouraged to climb the state's fire towers. When visitors reached the top, the forester on duty would point out landmarks visible from the tower as well as explaining fire prevention and how the tower functioned.



Mud Lake (now Agassiz), Aiton Heights, and St. Croix fire towers have similar signs above the windows interpreting the view

- At the Scenic State Park Lodge (historically known as the Shelter Pavilion), which has ADA-compliant access and houses some small exhibits, create an interpretive display to make information about the fire tower available to a broad range of park visitors. Include within the exhibit the same interpretive content available on the tower site and in the cab (see above). Provide a video that includes scenes of hiking the footpath to the tower; the tower and other site features; climbing the tower steps; and views from the cab. The display should be carefully designed so that it does not diminish the historic integrity of the Lodge, which has the most well developed, well preserved interior among New Deal-built Rustic Style buildings in Minnesota state parks. The Lodge is a pivotal structure in Scenic State Park's two National Register historic districts.

Scenic State Park Lodge

- Avoid placing a cab remnant near the Lodge as part of public interpretation of the fire tower. A cab remnant would not be compatible with, and would diminish the historic integrity of, the National Register-listed historic district in which the Lodge is located.

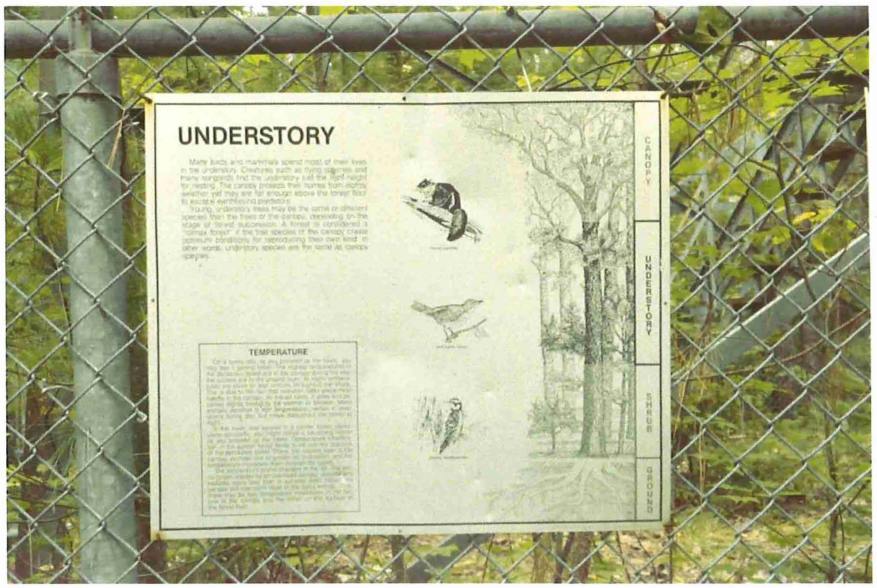
- Develop a companion educational brochure on the Scenic tower for visitors to take home.

➔ Avoid mounting signs on the tower superstructure.

St. Croix Fire Lookout Tower

➔ Avoid interpreting flora, fauna, and other non-fire protection topics at the tower.

Interpreting other topics would distract from the fire tower theme and take up some of the limited space available for interpretation.



Scenic

Other Towers

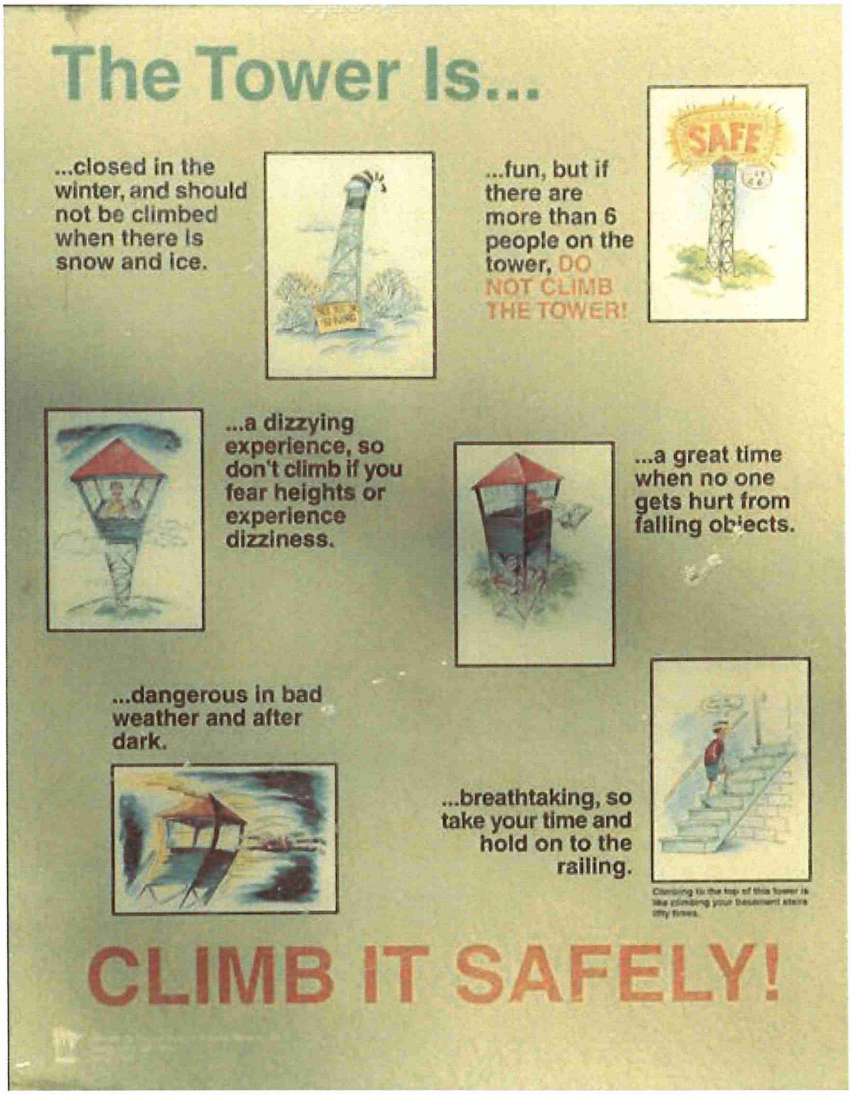
➔ If a cab remnant is used for site interpretation, avoid placing the cab close to the tower base because it adds visual clutter that changes the tower's historic character. Instead, place the cab at least 100' (or more) from the base of the tower. In addition, use a cab that retains its character-defining multipaned sash to provide a more authentic experience.

Cab at the base – Mud Lake (now Agassiz) Fire Lookout Tower

Aiton Heights Fire Lookout Tower

Recommendations: Visitor Safety Instructions

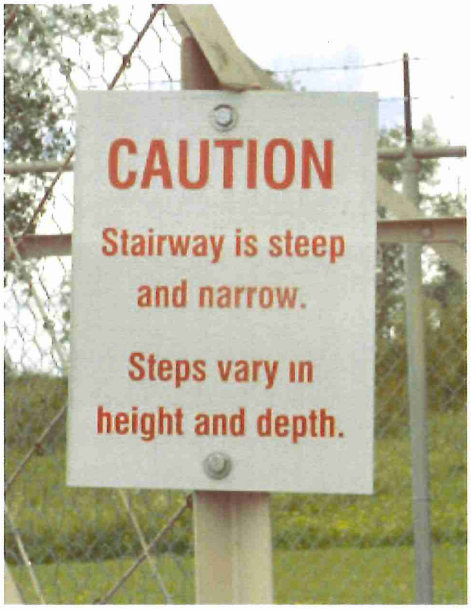
- Install a sign with visitor safety instructions near the base of the Scenic tower.
- Make the same information available at the park office and Lodge.



Sign at the Isle Harbor (now Kathio) tower; signs at Aiton Heights and Elba towers are similar

Mud Lake (now Agassiz) Fire Lookout Tower

Pine Island (now Big Bog)



Mud Lake (now Agassiz)

Agassiz Observation Tower
Do's and Don'ts

DO!!!:

Enjoy the view!
Take in all the sights and sounds nature has provided!
Wear shoes.
Be courteous of others on the tower.
Be safe by observing the rules and precautions listed below.

DO NOT:

- Throw any objects off the tower.
- Spit from the tower.
- Pass others when on the stairs.
- Climb tower if there are more than 8 people already on the tower.
- Climb tower without shoes.

The Observation Tower has some hazards - please be aware:

- Limited overhead clearance (hardhats are available upon request).
- Extremely narrow passages.
- Steep stairways.
- Steps are varied height, depth and surface.
- Climbing the tower is exerting. You should be in good physical condition to climb the tower!

Signs of fatigue and exhaustion can be indicated by one or more of the following symptoms: Shortness of breath; lightheaded or dizziness; headache; pain in chest, arm or neck; irregular or rapid pulse; and nausea.

If you feel any of these symptoms, stop, sit down and rest until you are able to return safely DOWN the tower. Do not continue up the tower.

ACKNOWLEDGEMENT OF DANGER; RELEASE AND HOLD HARMLESS AGREEMENT AND ACCESS PERMIT APPLICATION FOR AGASSIZ NWR OBSERVATION TOWER.

(This form is subject to the Privacy Act of 1974) Issuing Agency: USFWS

AUTHORITY: 50 CFR 25, 50 CFR 26

PRINCIPAL PURPOSE: Indicates certification by an individual or corporation to hold the United States Government, Department of Interior harmless in consideration of permission granted by the U.S. Government for recreational use of the Observation Tower located on Agassiz National Wildlife Refuge (NWR). Indicates an individual or corporation will make an informed decision regarding what each believes is an acceptable level of potential risk before being granted access.

ROUTINE USES: Used to gain access to the Observation Tower located at Agassiz NWR.

TERM OF AGREEMENT: This agreement is valid for one day access to the Observation Tower located at Agassiz NWR. This access permit authorizes used of the Observation Tower as directed by authorized Agassiz NWR personnel. You must check in and check out of the refuge at the refuge office building before and after use of the Observation Tower.

WHO MUST SIGN: Each adult individual (18 years or older) singly or in a group must complete, sign and submit a separate HOLD HARMLESS AGREEMENT AND PERMIT APPLICATION.

CAREFULLY READ EACH STATEMENT, AND SIGN AND DATE IN THE SPACE PROVIDED

I do hereby certify that I, or the man(s) I am responsible for:

1. am am in adequate physical health to perform ingress and egress of approximately 100 ft stairs inclined at a maximum angle of 52 degrees.

2. have been briefed by authorized Agassiz NWR personnel of the safety hazards associated with use of the Observation Tower. These hazards include, but are not limited to, limited access height, excessively narrow and steep stairways with steps varying in height, depth and surface.

3. have been briefed on acceptable and unacceptable uses by authorized Agassiz NWR personnel. I understand that non-compliance with any rule or regulation associated with the use of the Observation Tower by me, or anyone accompanied by me, is in violation of this permit, and will result in my permit for access being revoked.

4. upon my own initiative and, therefore, at my own risk, I accept permission to access the Observation Tower at Agassiz NWR and in consideration of such permission do, for myself, my spouse, my children, my heirs, personal representatives, and assignees of the same, remise, release and forever discharge as well as agree to indemnify and hold harmless the United States Government, any lessee there from, any individual officer, agent, employee, or director thereof from any claim of liability for injury, death or property damage arising out of my usage of or presence upon said structure at Agassiz National Wildlife Refuge in accordance with permission to enter thereon.

ACKNOWLEDGEMENT OF DANGER; RELEASE AND HOLD HARMLESS AGREEMENT AND ACCESS PERMIT APPLICATION FOR AGASSIZ NWR OBSERVATION TOWER (CONTINUED).

I further affirm that I will never prosecute or assist in prosecuting any civil action against the United States Government, U.S. Department of Interior or U.S. Fish and Wildlife Service, or any of their agents, employees, service members, contractors or lessees for claim or liability arising from my access to the Observation Tower at Agassiz NWR.

I CERTIFY THAT BEFORE SIGNING BELOW, I HAVE RECEIVED A BRIEFING ON AND UNDERSTAND THE HOLD HARMLESS AGREEMENT AND THE AGASSIZ NWR OBSERVATION TOWER ACCESS RULES AND REGULATIONS.

Please Complete the Following:

[redacted]
Name (Print or Type)

Street Address

Date of Birth

[redacted]
City State Zip Code

[redacted]
Home Telephone Number

Groups Work Telephone Number

Driver's License and State of Issue

[redacted]
Signature

Date

[redacted]
Signature of guardian or responsible adult
(if applicant is under 18 years of age)

Date

[redacted]

Mud Lake (now Agassiz) Fire Lookout Tower uses a visitor handout and release form

Recommendations: Tower Security

- Instead of fencing the Scenic tower, seasonally block the steps with an unobtrusive portable barrier with signage such as "Warning: tower is temporarily closed to climbing. Tower is monitored. Hunting from tower is prohibited."

- If desired, add a small surveillance camera – real or false – to deter climbing when the tower is closed and to help eliminate the need for a fence.

Photo mock-up using a photo of St. Croix Fire Lookout Tower

Photo mock-up using a photo of Vermilion Dam Fire Lookout Tower

- If fencing is necessary, avoid chainlink. Use a style that blends more readily with the natural setting. Examples might include dark green or gray wire with wood or metal posts. Avoid a top horizontal rail which makes a fence more inconspicuous.

Simple woven wire fence with wood posts (internet photo)

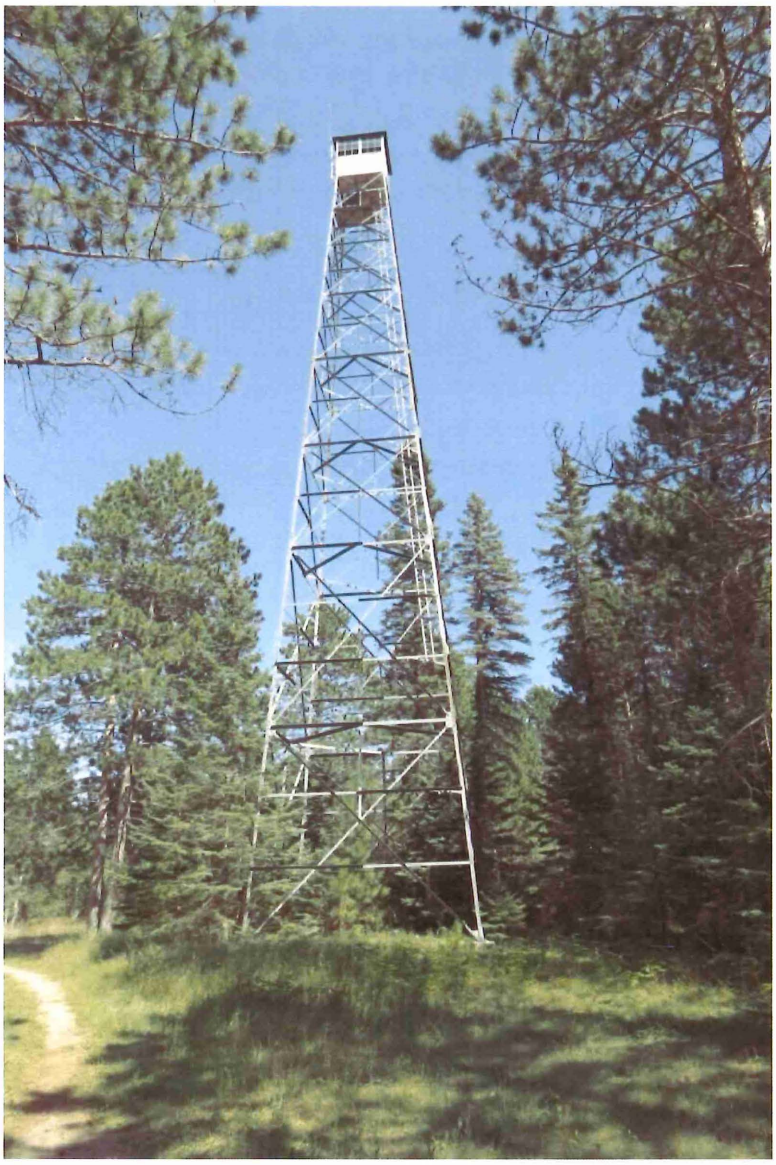
Simple wire fence with metal posts. The mesh has horizontal crimping for added strength so a top horizontal rail is not needed (internet photo)

Recommendations: Other Towers – Mothballing a Tower

- If a fire tower is to be closed long-term or to await rehabilitation, remove the wooden treads from the lower flights of stairs, or remove, in a reversible manner, the entire lowest flight including the stringers and handrails so the tower cannot be climbed but can remain standing. These measures are visually unobtrusive and will obviate chainlink fencing. The tower can continue to retain historic integrity and be a point of interest and public education.

- Conduct periodic maintenance and repairs to ensure the long-term preservation of a closed tower per the Secretary of the Interior's Standards for Preservation and this report's recommendations.

Stair treads removed – Ben Draper Fire Lookout Tower



This ladder tower was closed by removing the lowest 30' to 40' of the ladder to prevent climbing. A similar approach could be used on a stair tower. The tower can then remain standing to continue to convey its historic character and significance – Clear River Fire Lookout Tower

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APPENDIX A: MnDNR CONDITION ASSESSMENTS (2008 AND 2011)

DNR OBSERVATION FIRE TOWER INSPECTION CHECKLIST

Form must be completed prior to seasonal opening by Division Staff

Site

OK Perimeter fencing intact. (6 foot height minimum) - New barbed wire needed on gate

OK Gate intact and lockable.

NO Safety signing in place and readable. No Safety Signage present

NO Emergency information present No Emergency information present.

Stairway and Landings

NO Stair treads intact and sound. Wear does not exceed 20% of the original thickness. No rot or excessive deflection of any stair treads. See attached comments.

OK Railings securely attached including no loose bolts.

NO Mesh present and securely attached at the sides of all stair runs and on the sides of all landings.
Mesh not present on Stair runs.

Cab

OK Trap door (if present) lockable in both the open and closed positions.

OK Safety railing securely in place around trap door opening.

OK Cab floor intact and sound. No rot or excessive deflection of any floor sections. - Floor was wet in some spots.

OK Window glass removed and window frames in place.
Windows need replacement.

Structural

OK Visual inspection of structure for loose, corroded, or missing bolts or nuts. Contact DNR Management Resources if deficiencies are observed.

OK Visual inspection of footings and foundation for cracking, movement, and settling. Contact DNR Management Resources if deficiencies are observed. Some cracking on surface of concrete footin on North 2 footings.

NO Ground rod and ground cable securely attached to tower and ground rod.
- No ground cable on SW corner.

Other Concerns

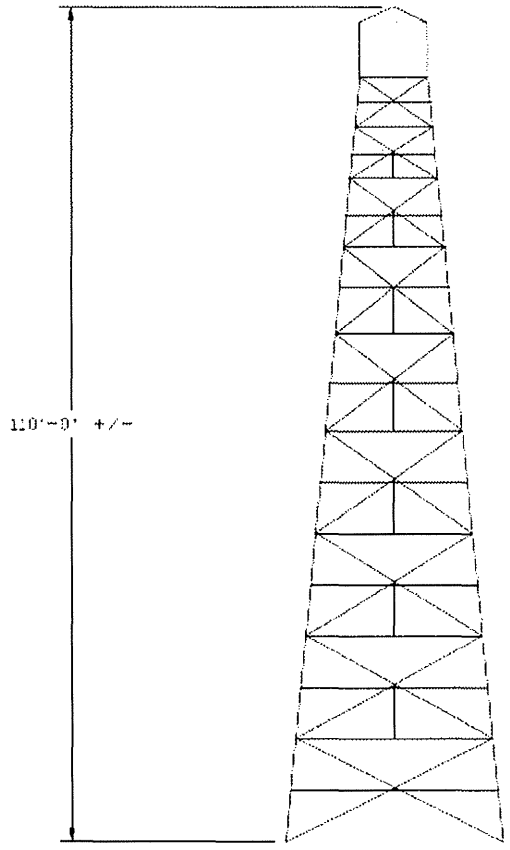
Inspected by Taylor Scott Signature [signature] Date 7-14-08

Manager Signature [signature] Date 7/16/08

1. There were some steps showing evidence of rot on the stair case between the 4th and 5th landings. There were two rotten boards on the 6th landing. Also last step on the 6th landing showed some signs of rot. There is also a board missing on the 4th landing. There is also a loose board underneath one of the railings on the 2nd landing and the 3rd landing. Also, the railing was not fully attached on the 1st and 2nd landing in one spot. There are quite a few wooden steps that could be replaced with new green treated wood boards. There is evidence of rot near the edges of these boards, where the bolts go through the board.

TOWER FEASIBILITY REPORT
SCENIC STATE PARK

File No: SPK00262.00.17.03/HP110140



I hereby certify that this Plan, Project Manual, or Report was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Minnesota

By: _____
Jeff Erickson, P.E.

License Number: 42006

Date: 06/9/2011

PURPOSE:

Scenic State Park has an existing fire tower that was once open to the public. This study is to assist in determining the feasibility of re-opening the tower to the public by providing a structural assessment of the tower.

OBSERVATIONS/NOTES:

1. The existing tower is located within the Scenic State Park and access is limited to a narrow snowmobile trail.
2. The tower is a 110' high steel trussed tower built with galvanized angle steel.
3. The overall condition of the tower is good. There was moderate evidence of steel corrosion or rust on the tower steel members and bolts.
4. The heads of many of the bolts have been corroded.
5. One steel angle on the bottom landing was not galvanized.
6. Two angled cross members are bent on the tower.
7. The handrails consist of a top handrail and one mid-rail built from angle iron.
8. The landings consist of a guardrail with "chicken" wire used as a barrier.
9. The existing landing and stair treads are built from timber.
10. The door getting into the cab is very heavy and difficult to open from the stairs.
11. The windows in the cab are not transparent.

RECOMMENDATIONS/NOTES:

1. The tower bolts should be checked for excessive corrosion and replaced as needed.
2. After the bolts have been checked for corrosion, the tower bolts should be checked for tightness.
3. All the timber planks should be replaced.
4. The two bent cross members should be replaced.
5. A properly designed guard should be installed along the landings and stairs from the base to the top.
6. A structural engineer and architect will need to work with DOLI and the building code in order to determine the required allowable live loads, spacing requirements, and guard rail requirements.
7. A structural engineer will need to analyze and design reinforcement for the tower as needed.
8. An architect will need to analyze existing elements, and design new elements to verify that the overall structure meets other building code requirements.
9. The structure is very similar to the structure that was recently moved to the Big Bog SRA.
10. Based on previous fire tower projects, it is likely that the tower will need to be reinforced at the landings.
11. The access to the tower is fairly restrictive. It is not likely that a crane could be transported back to the site without widening the road.

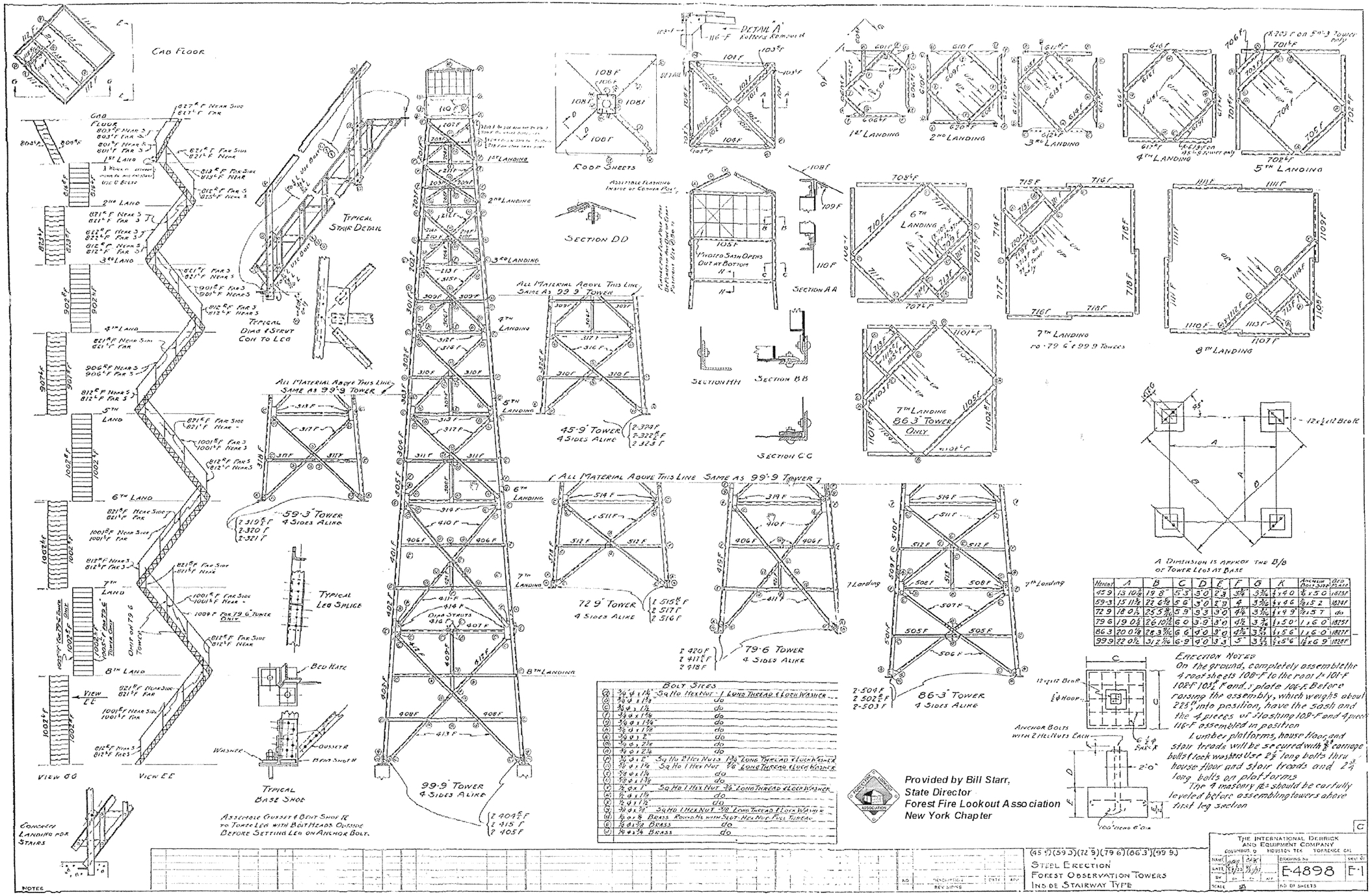
APPENDIX B: HISTORIC CONSTRUCTION PLANS

The Scenic Fire Lookout Tower, erected in 1934, was fabricated by the International Derrick and Equipment Company (IDECO). The Scenic tower is an IDECO Model 1933 tower. The Aermotor company made a very similar tower known as the Aermotor MC-39. (One difference is that the IDECO 1933 had no handrails at the landings, while the Aermotor MC-39 had handrails at the lower rectangular landings.) These two towers, designed in cooperation with the U.S. Forest Service, were among the most frequently built steel fire lookout towers in the U.S.

The Scenic tower is an International Derrick and Equipment Company (IDECO) Model 1933 tower. The part number on the Scenic handrail above (906RF) is indicated on the plans between the fourth and fifth landings.

This appendix contains Construction Plans for the IDECO Model 1933, dated 1933 (one sheet). The plans are courtesy of the Forest Fire Lookout Association.

International Derrick and Equipment Company (IDECO) Model 1933 Plans, dated August 1933 (one sheet). The plans are courtesy of the Forest Fire Lookout Association. The Association obtained them from Bill Starr of the New York Chapter of the Forest Fire Lookout Association.



APPENDIX C: HISTORIC US FOREST SERVICE FIRE TOWER SPECIFICATIONS

Reproduced below are U.S. Forest Service construction specifications for steel fire towers. They were prepared in the 1930s and revised in 1941. The U.S. Forest Service was a principal designer of fire towers used by state and federal forestry agencies nationwide. Plan drawings, and specifications such as these, were provided to companies such as Aermotor and International Derrick and Equipment Company (IDECO) who then fabricated the towers and sold them to forestry agencies.

While these specifications were prepared for a slightly different tower model, they are included herein because they may contain useful information; the Scenic tower was probably manufactured to similar specs. The document is reproduced from *Standard Lookout Structure Plans* (Division of Engineering, USDA Forest Service, 1938).

SPECIFICATIONS FOR STEEL LOOKOUT TOWERS

1. General

These specifications are based on many years of experience with lookout towers and similar structures, and in the light of this experience, towers to be satisfactory must conform to these specifications. The design and details of the structure have been made to meet the requirements of the Forest Service, and bids on towers differing in design or detail cannot be considered.

2. Inspection

The quality of material used, the fabrication, the galvanizing and the preparation for shipment of the material shall, at all times during the processing, be subject to inspection by the Government. Such inspection will be for compliance with specifications only. The contractor shall furnish such equipment, records and assistance as is necessary for the proper inspection of the work. The contractor will further completely assemble and erect such panels of the towers as the Forest Service inspector may require.

3. Work to be Done

The bidder to whom the award is made will be required to furnish all labor and material necessary to the complete fabrication of one or more towers of heights specified, including all structural steel shapes, plates and bars, sheet metal, copper for roof, and ventilator, when called for - (copper or galvanized iron or copper bearing steel for siding at option of purchasing agency); galvanized and glazed metal sash, including putty and necessary fastenings; structural bolts, carriage bolts for fastening down the cab flooring, landings, and stair treads; brass bolts or machine screws with nuts necessary to sheet metal work; cleat and fittings for attaching same to corner angles of cab; hinges, hasp and trap door stay chain. All structural shapes and metal, including sheet metal, shall be completely fabricated so that it will not be necessary to do any cutting, bending, drilling, punching or reaming in erecting the tower or towers.

The contractor will also be required to furnish all material necessary for the erection of the cab, according to the attached plans for the steeltowers, and including cab flooring, necessary wood framing and trim, insulating material, wood screws and other hardware. In addition, the contractor will furnish, fabricate and treat all lumber for the stair treads and landing platforms. The stair tread and landing platform lumber shall be fabricated so that it will not be necessary to do any cutting or boring in its use on the tower, after which it shall be treated as hereafter specified. The Government will furnish all material, including anchor bolts and reinforcing steel, for tower and stair footings, all lightning protection and lock for cab trap door.

4. Materials

Ferrous sheet metal for siding shall be pure iron or copper bearing steel.

Bolts for structural field connections shall be of mild steel square head, with hexagonal nuts and spring steel locking devices, having six spring steel jaws, or approved locking devices equally effective. Locking devices must provide an effective

and permanent lock when tightened against the hexagonal nuts furnished. Bolts shall be of such length that at least one, and not more than three, full threads will be exposed after installation. The threads shall be outside the holes of the connected members, except as required to secure tight connections. Bolts and nuts shall be galvanized after threading, and the threads cleaned after galvanizing so that the nut turns freely on the bolt.

Bolts in tension shall have double nuts. Metal siding and roofing shall be attached to structural shapes with a 1/4" round head brass bolt for machine screws with nuts. Three-eighths (3/8") inch carriage bolts shall be furnished for fastening down cab flooring, stair treads and landings (which will be of 2" lumber, nominal dimension).

Metal sash shall be equal to Fenestra Sash manufactured by the Detroit Steel Products Company. The sash on each side of the tower shall be composed of 15 lights with 6-light ventilators as shown, which shall be pivoted so that the top part swings in and the bottom out. Sash shall be of one piece for each side, and shall be galvanized after fabrication. Provision shall be made for fastening the ventilator in any open position and locking it. The sash shall be weatherproof so that no water can beat in through the sash or connections. The sash shall be so constructed as to obstruct the view as little as possible. Plans of the sash and weather-proofing details shall be submitted for approval before fabrication is authorized.

5. Fabrication

All pieces shall be of sizes called for on the attached design drawings, shall be straight and true, and carefully cut to length. The holes in all structural connections shall be punched, sub-punched and reamed or drilled from the solid, as the contractor may elect.

Unless otherwise stated, the holes in all structural connections shall not exceed the diameter of the bolt which it is to accommodate by more than one thirty-second (1/32) of an inch.

Unless otherwise stated, the sizes of rivets or bolts for structural connections shall be the dimensions given in table of "Structural Connections," which dimensions are for the width of the leg of the smallest angle through which the rivet or bolt passes.

All joints and splices shall be made in accordance with the details on the attached design drawings. The ends of all angles 1/8" thick (except stiffener strut splices) shall be bent together before punching, as indicated on the attached details. The number of bolts for each joint is indicated on the attached drawings; the number in the article indicating the number of bolts on each side of the joint as in the main leg members or the number of bolts in each end of each connecting member as diagonals or struts. All secondary struts bracing the main leg angles, all diagonal struts bracing the main struts laterally, and all landing members shall be connected with at least one bolt, and ring fills shall be provided if these members do not pass the same plane.

Splice angles, foot plates and gusset plates attached to the main leg members shall be fastened by bolts, except as noted in cab construction, and each piece will be separately galvanized.

All angles shall have the vertical leg down and all unequal angles shall have the long leg vertical except as shown on cab details.

Stair landings shall be in sizes, shapes and positions shown on drawings. From the first to the fifth landing, inclusive, the floor boards will extend from stair header to outside of main struts, perpendicular to stair header. Flooring will consist of either 2" x 8", or 2" x 12" plank, nominal dimension.

Details of holes for floor bolts at second landing are typical from third to ninth landings, inclusive. Holes for floor bolts in main struts shall be so spaced as to fall on perpendicular lines through corresponding holes in header.

Each leg angle will have a seven-sixteenth (7/16") inch punched hole near the top (under the cab) for telephone ground connection, and four eleven-thirty-seconds inch (11/32") punched holes near the bottom, (just above the diagonal connection), spaced one and one-sixteenth inches (1-1/16") on centers for attaching the standard "U" type lightning connector.

Lumber Specifications:

The lumber shall be Southern Yellow Pine. Lumber for stair landings and stair treads shall be clear vertical grain. Lumber for finish and sub-floor shall be "A" vertical grain flooring. Baseboard and strip beneath windows shall be "A" finish. All other lumber shall be No. 1 common. Douglas Fir, of a comparable grade, may be furnished in place of Southern Yellow Pine.

Lumber for stair, treads and landings shall be pressure treated with either Zinc Chloride, Chromated Zinc Chloride, or Wolman salts. Such treatment shall be in accordance with Section 4, Preservative Treatment, of "Specifications for Timber Look-out Towers."

6. Shop Drawings

Contractors shall furnish the purchasing agency with two sets of shop drawings for approval, and one set formally approved, or approved subject to minor correction, will be returned to the contractor before fabrication is started. One set of shop drawings, as approved, shall be shipped with each tower for field reference. The Government will check shop details for sizes of members, sufficiency of joints, overall dimensions and other features affecting the shape and strength of the tower. No detailed dimensions will be checked and the contractor will be responsible for these and the fit of members during erection. Bidder's time of delivery shall include an allowance of four calendar days for checking and approving shop drawings; this period to be determined as being the four days following the date of the receipt of the shop drawings by the purchasing agency. No extension of the contract time will be granted because of revisions necessitating re-submission before formal approval. The shop drawings shall also include a detailed bolt list showing the number, type, size and location of all bolts necessary to the erection of each and every part of the completed towers.

7. Erection Diagram

The contractor shall furnish the purchasing agency with one copy of an erection diagram or diagrams, showing location and match marking of the various members of each height of tower to be furnished, by which the position of each member and also the size bolts to use at each joint may be known. He shall also ship two copies of the erection diagram with each tower.

8. Marking

Each member shall be match marked before galvanizing, with incised figures, and/or letters or combinations thereof, to indicate its position in the tower

9. Galvanizing

After all the shop work has been finished, all structural parts of the towers, except anchor bolts, shall be thoroughly galvanized by using the hot process in accordance with ASTM Specification A-123-33.

The galvanizing shall consist of a heavy coating of spelter, evenly and uniformly distributed over all surfaces of angle members, and ferrous metal cab parts. Spelter shall be applied in such a manner that it will not peel off in transportation or in the course of erecting the tower. Any spelter which peels, cracks or blisters under ordinary handling shall be prima facie evidence of poor workmanship and cause for rejection.

The bolts, nuts and locking devices (except brass bolts) shall be galvanized by the hot process.

10. Preparation for Shipment

All members that form one tower shall be put up in bundles, the bundles to be tagged with the tower number and with the proper erection mark. The bolts are to be boxed. All bolts necessary to put any one tower together, with the excess allowance specified, shall be separately boxed according to size. Erection and shop drawings shall be shipped in a bolt box and protected from injury by corrugated cardboard.

11. Optional Steel Cab for 14' x 14' Tower and Optional Steel Stair Treads, Catwalks and Landing Platforms

Where a wooden cab is required by the specified plans for the 14' x 14' steel lookout tower, bidder, at his option, may substitute an insulated steel cab with wood interior floor as shown on the plans equivalent in design and construction to the wood cabs now required. The type of insulation furnished for such steel cabs must be in full accord with generally accepted commercial practice to afford adequate protection against the elements. The window spacing and the door with glass shall be so arranged as to provide maximum outlook area and minimum "blind area" consistent with adequate strength in structural design. Bidders electing to furnish steel cabs must furnish with their bid drawings or blueprints showing in detail the cab they propose to furnish. For stair treads, catwalks, and landing platforms, bidders on steel towers may offer instead of wood, non-skid steel treads. Bidders electing to furnish steel treads must furnish with their bid detailed description of the treads they propose to furnish.

All metal parts must be galvanized in accordance with the specifications.

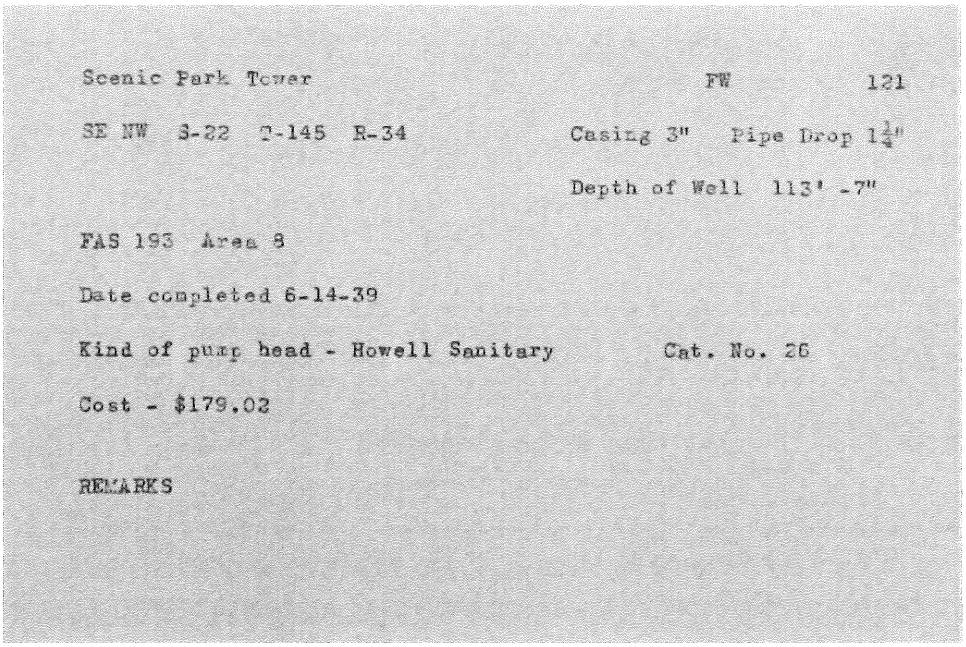
APPENDIX D: MISCELLANEOUS SOURCE MATERIALS

NAME OF TOWER		PRIMARY x SECONDARY	PREFIX	NUMBER
Scenic Park			FT	32
40 OR LOT-BLOCK-SUBDIVISION		SECTION	TWP	RANGE
SE NW		32	61	25
TYPE	HEIGHT	SITE NO	AREA NO.	
4 Post step	100'	FAS 193	5	
CROW'S NEST	TYPE OF ANCHOR	HOW GROUNDED	ACCEPTED BY	
Square Glass	1" Rods	4 corners		
MFD. BY		COST	INV. NO.	
Stacey Corp.				
ERECTED BY		DATE	ERECTION COST	
Schuppel-Wilson		Nov. 1934	$1010.81	
APPRAISED BY	APPRAISED VALUE	APPRAISAL DATE	YEARLY DEPRECIATION	
REMARKS		DRWG BY	DRWG. NOS	
OK to chart. Ownership-State Land.				

Inventory Index Card for the Scenic tower indicating it was erected in November 1934 with Harold Schuppel and Don Wilson supervising. The manufacturer is indicated as Stacey Corporation, which absorbed International Derrick and Equipment Company (IDECO) in the early 1930s, although IDECO continued to manufacture towers under its own name (Minnesota Department of Conservation Forestry Division Records, Minnesota Historical Society).

TYPE OF BUILDING		SIZE	PREFIX	NO.
Cabin		15' x 22'	FB	592
LOCATION			SITE NO.	
Scenic Park			FAS 193	
BUILT BY	COST	APPRAISED VALUE	APPR. BY	DATE / DEPR.
CCC	$731.35	[illegible]		
PLAN NO.	NO. ROOMS	FRONT PORCH	REAR PORCH	
--	1	7x15, not encl.	no	
BASEMENT SIZE	SECOND FLOOR	ATTIC	CISTERN	
none	no	no	no	
SCREENS 8 1 door	STORM SASH no no door	SHADES no no awning	LINOLEUM no no matting	
TYPE HEATING	MAKE & SERIAL NUMBER			
2 stoves	Cook Stove "Columbia" 4 hole-840 Air Tight Heater 18 inch			
PLUMBING none	FIXTURES: TUB	STOOL	SINK	
No water	LAVATORY	SHOWER	LAUNDRY TUB	
TYPE LIGHTING	NO. FIXTURES	NO. OUTLETS	SWITCHES	
none	no	no	no	
PAINTING SURFACES: FLOORS	CEILINGS	GUTTERS no	CABINETS no	
WALLS-INTERIOR	WALLS-EXTERIOR 964	no downspout		
Built 1939				
FORM F-28				

Inventory Index Card for the cabin (Minnesota Department of Conservation Forestry Division Records, Minnesota Historical Society).



Scenic Park Tower FW 121

SE NW 3-22 T-145 R-34 Casing 3" Pipe Drop 1¼"

Depth of Well 113' -7"

FAS 193 Area 8

Date completed 6-14-39

Kind of pump head - Howell Sanitary Cat. No. 26

Cost - $179.02

REMARKS

Inventory Index Card for the well (Minnesota Department of Conservation Forestry Division Records, Minnesota Historical Society).

THE broad expanse of young timber that you have seen from this tower if protected against fire will, in a few years have a value totaling a million dollars.

• •

One match or one cigarette carelessly handled may destroy it all.

• •

How important then that each one of us keep in mind the statement of Calvin Coolidge that

A Tree Saved is a Tree Grown

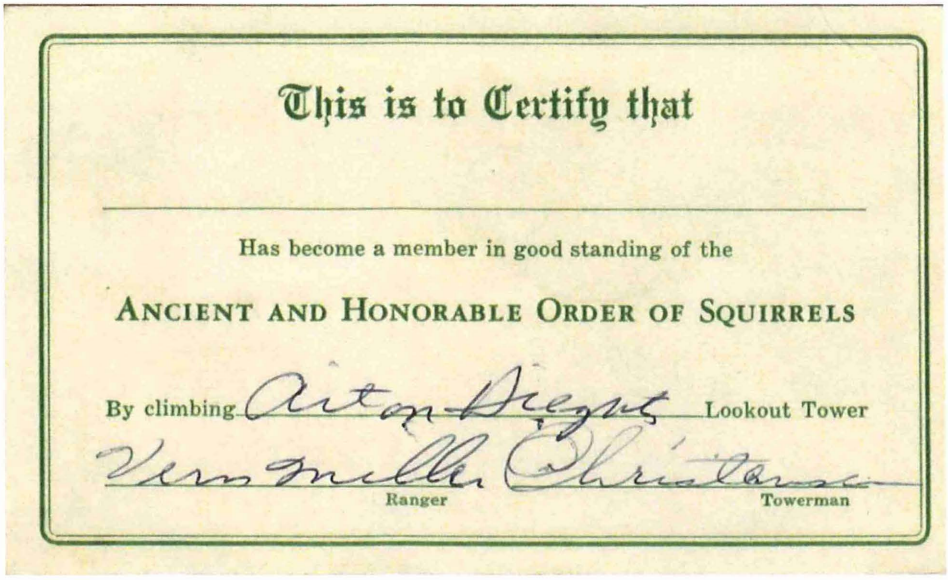
• • •

Keep Minnesota Green

Prevent Forest Fires — It Pays
State of Minnesota
DEPARTMENT OF CONSERVATION
DIVISION OF FORESTRY

Forest Area No. 10

Headquarters Aitonheights



This is to Certify that

_____

Has become a member in good standing of the

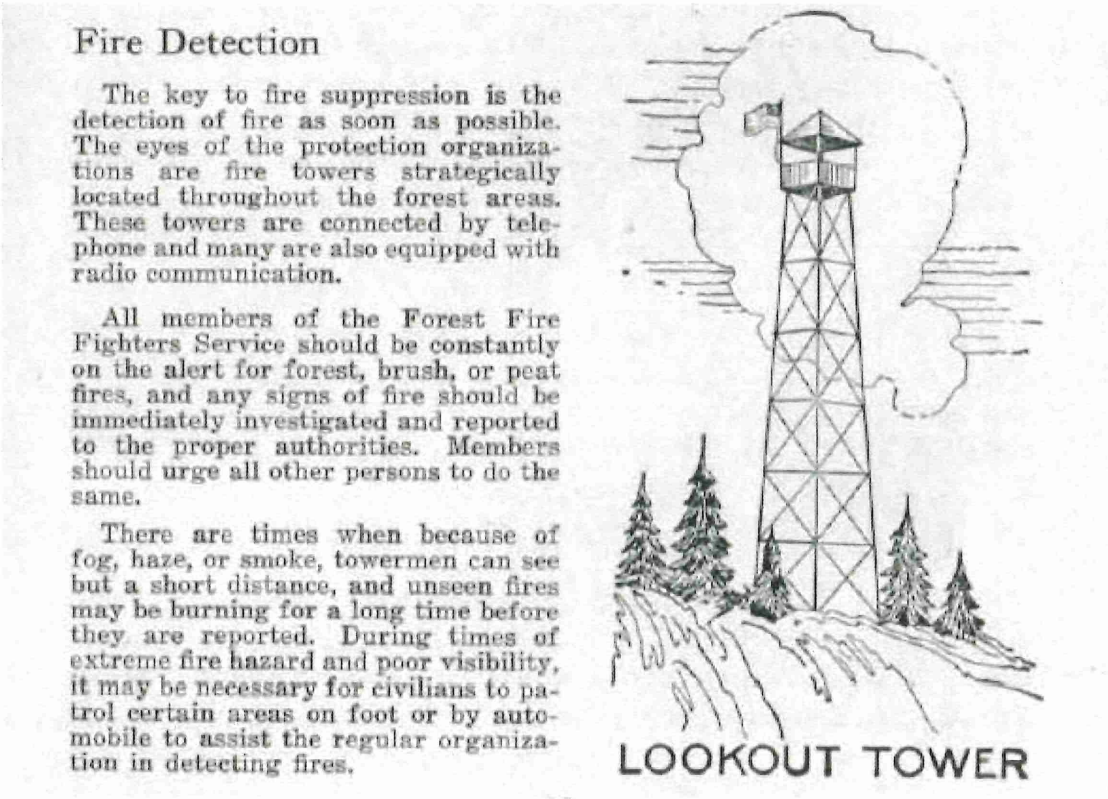
ANCIENT AND HONORABLE ORDER OF SQUIRRELS

By climbing Aiton Heights Lookout Tower

Vern Mueller Ranger

Christenson Towerman

Front and back of a circa 1940s "Ancient and Honorable Order of Squirrels" wallet card given to each member of the public that climbed to the top of a Minnesota fire tower. The program was instituted in Minnesota and then adopted by the U.S. Forest Service and used nationwide. This card is for the Aiton Heights Fire Lookout Tower.



Fire Detection

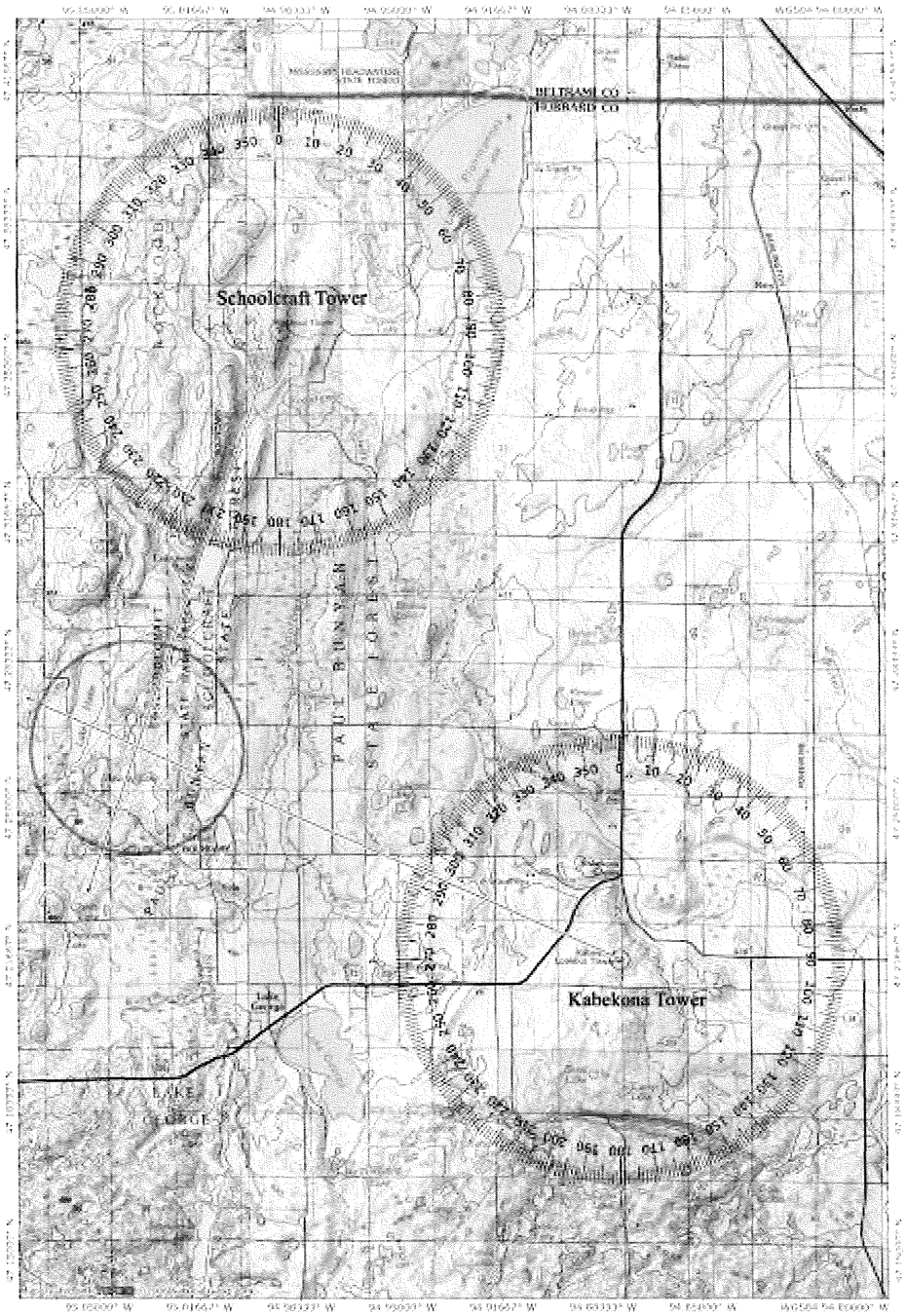
The key to fire suppression is the detection of fire as soon as possible. The eyes of the protection organizations are fire towers strategically located throughout the forest areas. These towers are connected by telephone and many are also equipped with radio communication.

All members of the Forest Fire Fighters Service should be constantly on the alert for forest, brush, or peat fires, and any signs of fire should be immediately investigated and reported to the proper authorities. Members should urge all other persons to do the same.

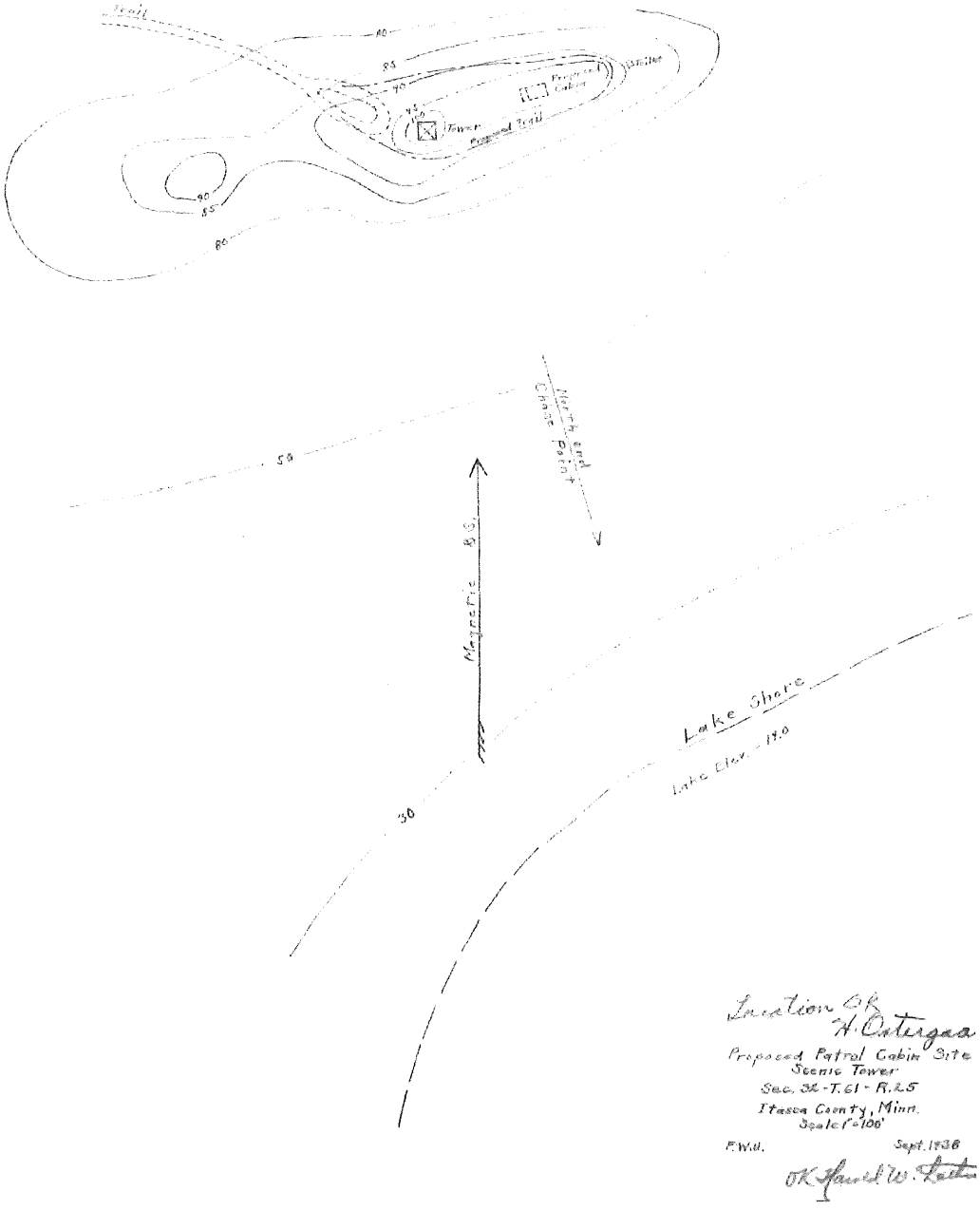
There are times when because of fog, haze, or smoke, towermen can see but a short distance, and unseen fires may be burning for a long time before they are reported. During times of extreme fire hazard and poor visibility, it may be necessary for civilians to patrol certain areas on foot or by automobile to assist the regular organization in detecting fires.

Detail from *Manual Forest Fire Fighters Service, Minnesota* published in 1942 by the Forest Fire Fighters Service of the Office of Civilian Defense (Minnesota Department of Conservation Forestry Division Records, Minnesota Historical Society).

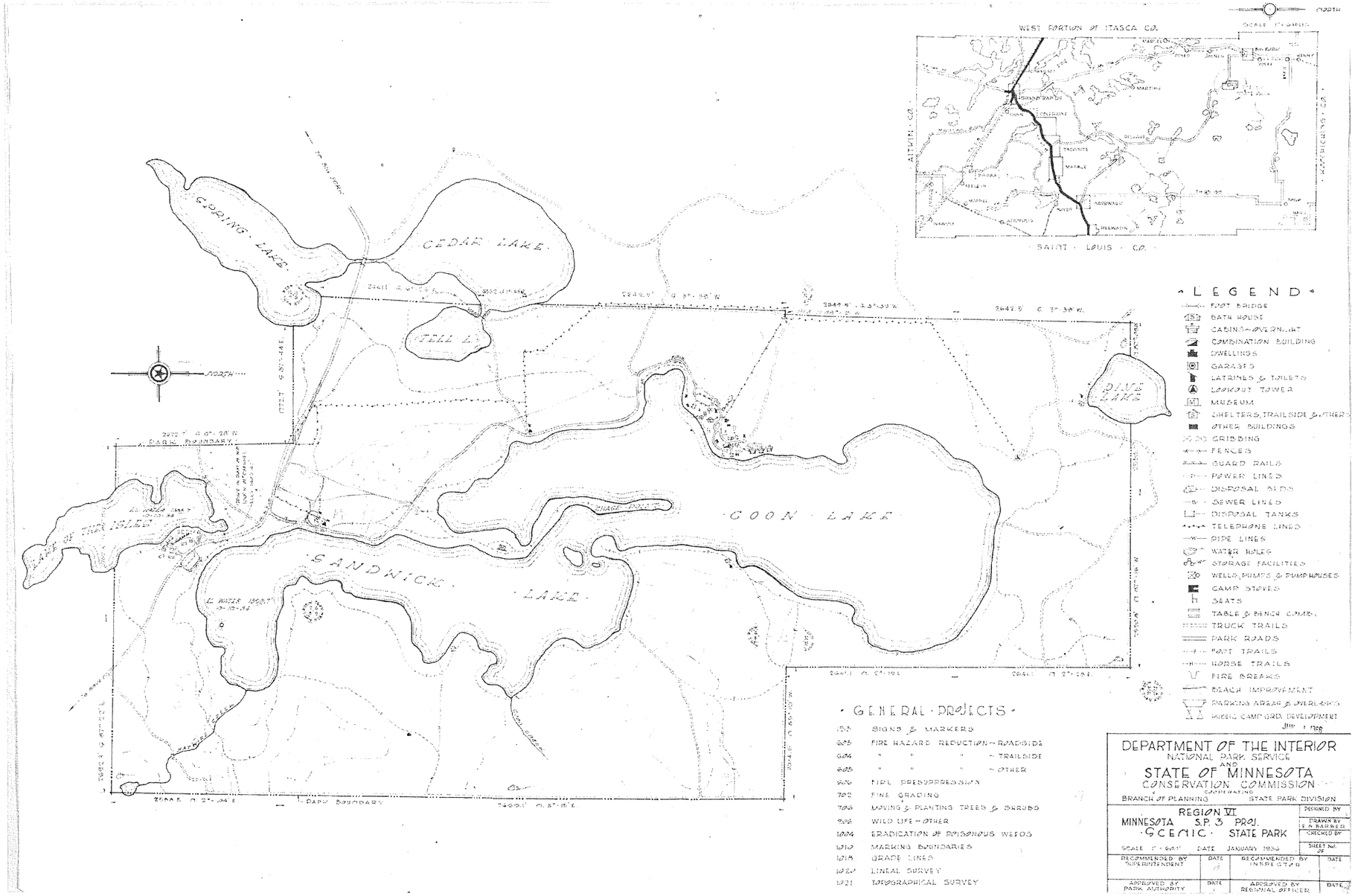
Public education card found in MnDOT historic photo files.



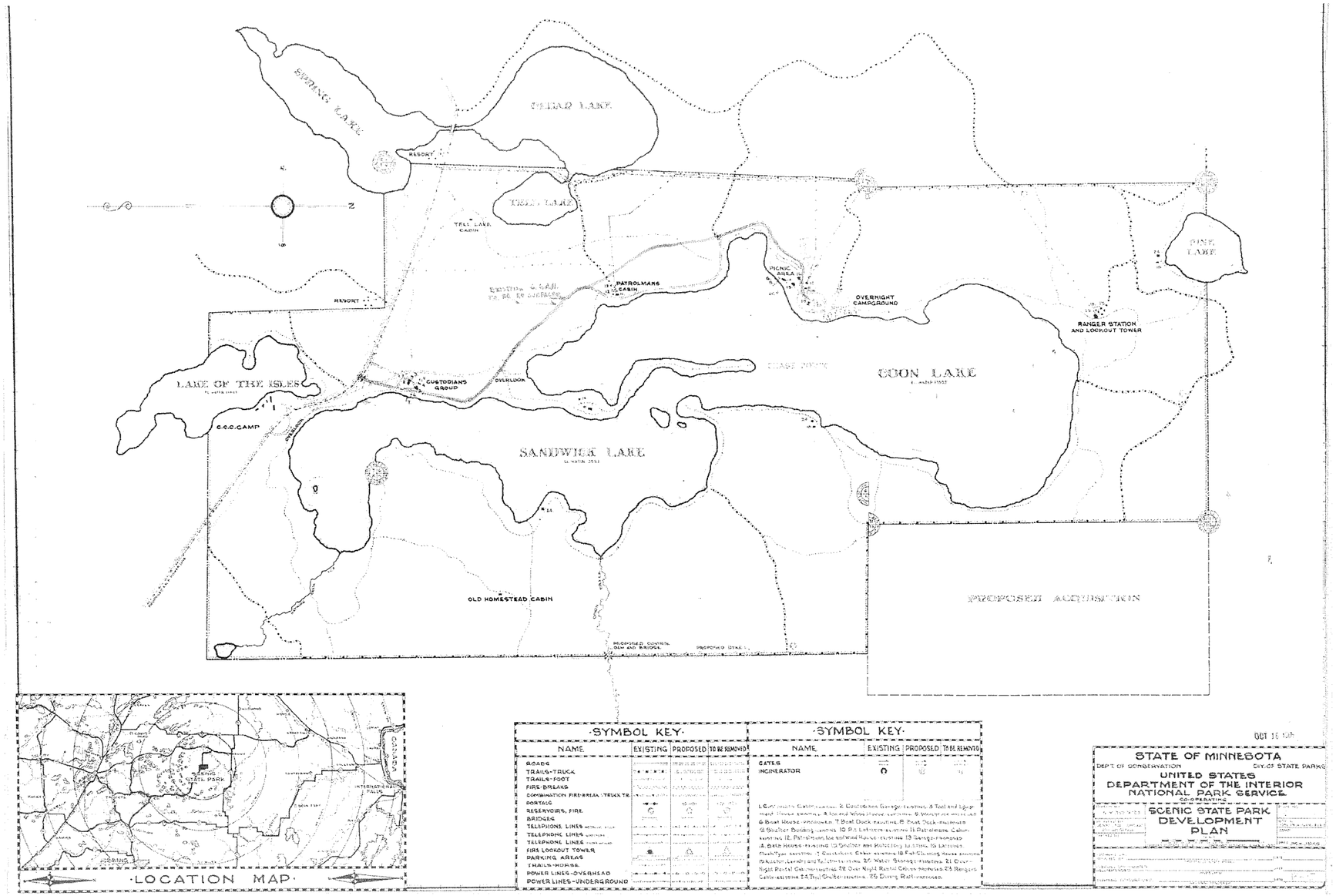
Detail from a ranger district wall map showing an area south of Bemidji. In this example the Schoolcraft and Kabekona towers have called in directional readings (red lines) which intersect to pinpoint the fire location (map from Tom Kremer, *Minnesota's Historical Fire Lookout Towers* website).



January 1938 sketch entitled "Proposed Patrol Cabin Site Scenic Tower." Approved by Harold W. Lathrop, head of the Minnesota Department of Conservation's Division of State Parks, and Harold Ostergaard of the Conservation Department's Division of Forestry (Minnesota Department of Conservation Forestry Division records, Minnesota Historical Society).



January 1936 National Park Service (NPS) and Minnesota Department of Conservation plan of Scenic State Park showing the fire tower at the north end of Coon Lake. There is a telephone line, foot paths, and truck trails accessing the tower. The plan shows that in 1936 the spotter's cabin and latrine were located some distance north of the tower on the south shore of Pine Lake. The plan was drawn by architect Edward W. Barber, Chief of the NPS Minnesota Central Design Office during the New Deal (Minnesota Department of Conservation Forestry Division Records, Minnesota Historical Society).



November 1940 master plan of Scenic State Park by the NPS and Minnesota Department of Conservation. The fire tower site is labeled as a ranger station. Shown adjacent to the tower are a "ranger's cabin," latrine, and proposed garage. The telephone line and truck trails leading to the tower are unchanged from the 1936 plan but there is a second foot trail hugging the west shore of Coon Lake. The former spotter's cabin on Pine Lake is now labeled a trail shelter. The plan was drawn by N. M. Averill of the NPS Minnesota Central Design Office (Minnesota Department of Conservation Forestry Division records, Minnesota Historical Society).