SANDOVAL WATER TOWER HAER No. IL-1203
West side of North Pine Street, between Wisconsin and Bar Avenues
Sandoval
Marion County
Illinois

PHOTOGRAPHS
WRITTEN HISTORICAL AND DESCRIPTIVE DATA
SUPPLEMENTAL MATERIALS

HISTORIC AMERICAN ENGINEERING RECORD
National Park Service
U.S. Department of Interior
1849 C Street, NW
Washington, DC 20240

HISTORIC AMERICAN ENGINEERING RECORD

SANDOVAL WATER TOWER

HAER No. IL-1203

Location: West side of North Pine Street, between Wisconsin and Bar Avenues, Sandoval, Marion County Illinois

Present Owner: Village of Sandoval

Present Use: Not Functional

Significance: The Sandoval Water Tower stands as an example of a disappearing resource in the Midwest. Many water towers built during the 1950s are being demolished and replaced with larger state of the art water towers. This tower represents a style of water tower that was common in the middle twentieth century.

Historians: Christopher Flynn and David Halpin, Public Service Archaeology & Architecture Program, June, 2020.

1. Research Strategy: Research undertaken to document the Sandoval water tower included archival, field, and report preparation. Archival research was undertaken prior to, and during field investigations, and included examination of local histories and records as well as known architectural documents to develop an architectural and historical context for the water tower. The field investigations also included photographing and documenting structural elements of the water tower in their present conditions.

2. Actual Research Process: Contact was made with the Public Works Department at the Village Hall in Sandoval where several documents concerning the purchase of the water tower are located. J. T Blankinship, Inc. provided an electronic copy of the original 1955 plan and elevation of the water tower.

Project Information: The 50,000-gallon Sandoval water tower is scheduled to be replaced by a new larger water tower. The project will utilize a Public Water Supply Loan, partially funded by the U.S. Environmental Protection Agency and administered by the Illinois Environmental Protection Agency. The undertaking is subject to review under Section 106 of the National Historic Preservation Act of 1966, as amended, 54 U.S.C. 306108 and its implementing regulations (36 CFR Part 800).

The Illinois State Historic Preservation Office (SHPO) determined that the Sandoval water tower was eligible for listing on the National Register of Historic Places and required Historic American Engineering Record documentation prior to demolition. The SHPO Log number for this undertaking is #021071618.

David Halpin conducted fieldwork, historical research, and compiled this report, Christopher Flynn conducted historical research, Susan Brannock-Gaul drafted the graphics, and Dr. Kevin McGowan served as Principal Investigator for the Public Service Archaeology & Architecture Program, Department of Anthropology, University of Illinois Urbana-Champaign.

Ben Halpern, independent professional photographer, took the black and white photography.

PART I. HISTORICAL INFORMATION

A. Physical Information:

1. **Date of Construction:** 1955

2. **Architects:** W.E. Caldwell Company Inc., Louisville, Kentucky

3. **Builder, contractor, suppliers:** W.E. Caldwell Company Inc., Louisville, Kentucky, James G. Cooney and Associates, Belleville, Illinois.

4. **Original plans and construction:** Electronic copies of the original plans were provided by J. T. Blankinship, Inc., Murphysboro, Illinois. The plans are detailed line drawings of the structure and foundation with measurements and project details.

5. **Alterations and additions:** The Sandoval water tower appears little changed in appearance from original drawings.

B. Historical Context

1. **Marion County**

Marion County is located in southern Illinois, bordered on the north by Fayette County, on the east by Clay and Wayne counties, on the south by Jefferson County, and on the west by Clinton and Fayette counties. Although there are no navigable streams in or bordering Marion County, the northwest portion is drained by the north and east branches of the Kaskaskia River and their many tributaries, the southwest by branches of Raccoon and Crooked creeks, and the eastern portion of the county is drained by branches of

Skillet Fork. East Fork and Crooked Creek flow into the Kaskaskia while Skillet Fork and its branches flow into the Wabash River. As with much of the region, Marion County is underlain with an abundance of bituminous coal, and extensive mining operations were developed in Centralia, Sandoval, Odin, Kinmundy and Salem townships. The surface of the county is level to gently rolling with small hills found near the larger waterways. At the time of Euro-American settlement, about two-thirds of the county was timber-covered and the balance was prairie.[1]

The earliest settlement in Marion County occurred in 1811, when Samuel Young, a native of Tennessee, traveled up the Kaskaskia River from New Madrid and built a cabin on a branch of Crooked Creek, about six miles southeast of present-day Salem. In 1813 Young was joined by his family and his son-in-law, Robert Snodgrass. At that time the nearest settlement was a small fort occupied by Illinois Rangers at Carlyle, twenty-five miles to the west. By 1813, James Young and Robert Snodgrass established a settlement on Vermillion Creek, where they were joined by James Pyles and Jacob and William Albert, all natives of Tennessee. Joseph Hensley, a native of Kentucky, settled at Walnut Hill in 1818. Rufus Ricker, from Indiana, settled at Walnut Hill in 1819, but removed to Salem in 1823, along with Mark Tully. Both Ricker and Tully were very prominent men in the early history of Marion County. The town of Salem was first settled in 1818 by James Young, who sold 30 acres of land to Ricker and Tully, who in turn donated the land to be developed as the Marion County seat. Between 1819 and 1820 several families settled in different parts of the county. The John Wilson family settled in what is now Raccoon Township, the Abraham Romine family settled in Romine Township, and the Frederick Phelps family, from Pennsylvania, settled in Carrigan Township. Many of the early settlers traveled to or through Marion County on the Vincennes Trail between Vincennes, Indiana and St. Louis, Missouri.[2]

Marion County was separated from the north half of Jefferson County and organized in 1823.[3] The total population of Marion County according to an 1825 county census was 557 residents. In June 1826, Rufus Ricker and Mark Tully deeded 30 acres of land to John S. Davis, Leonard P. Piles, and Benjamin Vermillion, County Commissioners, for the purpose of platting and developing the seat of justice of Marion County. The larger town of Centralia, on the southwestern border with Clinton County, owes its existence to the planning and completion of the Illinois Central Railroad Company line through southern Illinois in the early to middle 1850s. After failing to secure land a few miles to the north, the Illinois Central laid out the city of Centralia, placed its shops there, and proceeded to build the town. Centralia thus became pre-eminently a railroad town, serviced first by the Illinois Central, and later by the Chicago, Burlington and Quincy Railroad, the Southern Railway, and the Illinois Southern. Centralia is distinguished from

[1] DeLorme, *Atlas and Gazetteer of Illinois* (Yarmouth, 2004), 78-79, accessed 5 June 2020, https://www.archive.org/; Bowen, B.F. & Company, *Brinkerhoff's History of Marion County* (Indianapolis, 1909), 113, accessed 5 June 2020, https://catalog.hathitrust.org/Record/008718499.
[2] Ibid., 119.
[3] Ibid., 39.

the rest of the county by being settled largely by German immigrants, while to a great extent the surrounding regions of the county were settled by natives of Kentucky and Tennessee.[4]

2. Sandoval Township and Village of Sandoval:

Sandoval Township is located in southwestern Marion County and constitutes the west half of congressional Township 4 North, Range 1 East. It is bordered on the north by Carrigan Township, on the east by Odin Township, on the south by Centralia Township, and on the west by Clinton County. The township is mostly prairie land, with a band of timber across the southern sections. It is drained in the south by Turkey Creek, across its mid-section by Prairie Creek, and in the north by Lost Creek, all three waterways flowing southwesterly into the Kaskaskia River. The earliest Euro-American settlements in Sandoval Township were made in the timber of Turkey Creek. In 1827 the family of Thomas Deadmond arrived from Virginia. Deadmond effectively squatted on his land for the next decade before finally entering the west half of the southeast quarter of Section 28. In 1829 Silas Barr and family arrived from Tennessee and settled on Section 27, in what is now Odin Township. Isaac McClelland migrated from Pennsylvania to Ohio to Centralia Township, Marion County, in 1818. In 1832 Isaac and Sallie McClelland settled on Section 32 in Sandoval Township where they raised a family of six children. The Deadmond and Barr families were similarly prolific, and descendants of all three families are numerous in Sandoval and neighboring townships. The same can be said of the descendants of James Adams, Thomas Pigg and John Hill, who joined the others in the Turkey Creek timber in the early 1830s. Bluford Deadmond, son of Thomas, was the first to move onto and improve prairie land in central Sandoval Township in the middle 1830s. The first school was taught by Peter Wilburn in 1834 in an empty cabin near Silas Barr's home. The next year a log schoolhouse was built near the McClelland family cemetery.[5]

In 1855 the Illinois Central Railroad was completed south to north through Township 2 North, Range 1 East, east of the west township line through the present site of the Village of Sandoval. A branch track was laid running northeasterly from south of Crooked Creek through what would soon become the Village of Odin, four miles east of Sandoval. About the same time, the Baltimore & Ohio Southwestern Railroad constructed an east to west rail line that intersected the Illinois Central about one mile from the township west line. As early as 1853, while the roads were being built, Welcome Martin erected a frame store building on the Baltimore & Ohio right of way, just west of the Illinois Central right of way, and sold goods to the railroad laborers and the general public. In May 1855, the Illinois Central Railroad Company surveyed and laid out the Village of Sandoval at the crossing of the two railroad lines. Two additions to the town were laid out later that same year. The first boarding house or hotel was kept by J. B. Crawford and was later known

[4] Bowen, B.F. & Company, *Brinkerhoff's History of Marion County,* 134, 141.
[5] Ibid., 182.

as Sandoval House. In 1856 the Illinois Central built a depot at the crossing of the Illinois Central Branch and the Baltimore & Ohio Southwestern tracks four miles east of Sandoval and in 1860 the town of Odin was surveyed and laid out. John Hill operated a saloon for the workers and P. Z. Stone opened the first general store in 1857. Both Odin and Sandoval grew and prospered during and after the Civil War as migrants from the southern states settled in Marion County, or continued on to Missouri and Arkansas.[6] The Village of Sandoval was incorporated in February 1859 and in the 1860 census had a population of 599 residents. Its population continued to grow as immigrants from Germany, Poland, Italy, France, Spain and Ireland came to work on the railroads and coal mines, the zinc smelter and the canning factory. Hermann Heinrich, a native of Germany, owned and operated the first mercantile store in Sandoval.[7]

In 1867 Marion County was divided into 16 election precincts, including both Sandoval and Odin precincts. A year later, in 1868, the county adopted township organization, but it was not implemented until 1873, when all of Township 2 North, Range 1 East was organized as Odin Township. The villages of Odin and Sandoval, four miles apart, both continued to grow in importance as rail depots, commercial centers, and grain shipping points. Finally, in 1896, the west half of Township 2 North Range 1 East was detached from Odin Township and organized as Sandoval Township, with each civil township encompassing exactly one half of a full congressional township.[8] Extensive coal deposits underlying both Sandoval and Odin townships were profitably mined by the St. Louis Sandoval Coal and Mining Company from 1877 to 1879, when operations were taken over by the Sandoval Coal and Mining Company. In 1903, when Thomas S. Marshall purchased the Sandoval Coal and Mining Company, the mine employed over three hundred fifty men extracting roughly ten thousand tons of coal per day. The Odin Coal Company began operations in 1886 and eventually provided electricity for lighting the Village of Odin. In 1908, while mining in southern Sandoval Township, the Marion County Coal Company struck oil and developed the first oil well in the county.[9]

According to the "Directory of Coal Mines in Marion County" thirty-two mines operated in the county.[10] Most operated for short periods during the late nineteenth and early twentieth centuries, with a few remaining open into the 1940s, and the last one closing in 1963. The mines near Sandoval were in business from 1882 through 1917.

---

[6] Bowen, B.F. & Company, *Brinkerhoff's History of Marion County,* 187.
[7] "History", Saint Lawrence Catholic Church, accessed 29 April 2020, https://www.stlawrencesandoval.org.
[8] Ibid.,
[9] Bowen, B.F. & Company, *Brinkerhoff's History of Marion County,* 187.
[10] "Directory of Coal Mines in Marion County", Illinois State Geological Survey, accessed 10 June 2020 https://isgs.illinois.edu/sites/isgs/files/maps/coal-maps/mines-series/mines-directories/pdf-files/mines-directory-marion.pdf.

3. Public Water Supply Context

Public water-supply systems, employing reservoirs, aqueducts, and gravity, had been developed and utilized by such early and far-flung civilizations as pre-Christian Rome and the Aztecs of Meso-America. Early public water-supply works were naturally limited by topographical conditions and were dependent upon the principles and effects of gravity. The introduction of artificial or mechanical pumping methods allowed for the development of three general schemes designed to solve the problem of water distribution: the "Gravity", the "Reservoir", and the "Direct" Methods. The Reservoir system, under many designs, involves the mechanical elevation of water from a lower to a higher level, and its storage in basins or reservoirs of sufficient size and elevation to meet all requirements. The Reservoir system ranges in scope from designs for small tanks elevated upon supporting columns to immense reservoirs for the water supply of great cities. In the general scheme of a water-supply system, the elevated reservoir serves a dual purpose – providing for a surplus supply to be utilized as required, as well as permitting a temporary suspension of the mechanical operations of the plant. In large cities, reservoirs are developed in topographically elevated regions. In the rural Midwest, small-town reservoirs, or water tanks, are first built on elevated land if available, and secondly, raised upon a structure of sufficient height to create adequate pressure required to satisfy community needs.[11]

Municipal water systems were uncommon in nineteenth century United States outside of densely populated urban centers. New York City had created localized reservoir and pumping systems by the 1770s, Philadelphia pumped water from the Schuykill River into elevated wood storage tanks by 1799, and Chicago began pumping Lake Michigan water into elevated wooden tanks by 1842. The oldest complete water system in the United States is believed to have been installed in Bethlehem, Pennsylvania between 1754 and 1761.[12] For much of the nineteenth century, rural and small-town American communities obtained most of their water from private wells and other local water sources such as lakes and rivers. By the 1880s, concerns over the supply and quality of water for drinking, washing, and firefighting, led to the development of municipal water storage systems across the country. Many communities were prompted to install municipal water systems after rampant and destructive fires. Fire insurance companies would not insure businesses in communities without sufficient fire protection.[13] Early elevated water storage tanks were usually constructed of iron-girded wood with flat bottoms and conical tops. When filled with water, the wooden tanks, or reservoirs, would initially leak. As the wood became saturated, it would swell and effectively seal in the water. Such storage

---

[11] Hazelhurst, J.N., *Towers and Tanks for Water Works. The Theory and Practice of Their Design and Construction* (New York: Wiley Press, 1907), accessed 3 March 2020, https://catalog.hathitrust.org/. 1-6; Mathis, Gregory R. and John Chlebeck, PE., *Steel Water Towers Associated with South Dakota Water Systems, 1894-1967,* (South Dakota State Historic Preservation Office/ South Dakota State Historical Society, 2012), 7-10, accessed 20 March 2020. https://www.mnhs.org/market/mhspress/minnesotahistory/xml/v53i04.xml.

[12] Hazelhurst, J.N., *Towers and Tanks for Water Works,* 5.

[13] National Register of Historic Places, Old Havana Water Tower, National Register #93000325.

tanks were, and are still, common on rooftops in dense urban settings. Water towers were often constructed of wood, stone, or masonry brick. Several notable examples of early composite elevated water storage tanks are found in Central Illinois. The water tower in Havana, Illinois, constructed in 1889, was designed to create adequate water pressure through gravity flow. It was constructed with a limestone foundation, brick and steel walls, and a metal roof. The 50,000-gallon storage tank was made of steel. The 1887 Paxton Water Tower in Ford County, the 1891 Benson Water Tower in Woodford County, and the 1896 Ransom Water Tower in LaSalle County all used masonry brick for the towers and wood for the storage tanks.[14]

As municipal water systems utilizing elevated storage tanks proliferated and demands became greater, engineers and builders rapidly transitioned to more cost-effective metallic reservoirs and towers constructed with riveted plates and members of iron or steel. Iron was universally employed until about 1890 but with improved manufacturing processes, iron was supplanted by flexible structural steel as the most suitable material for metallic reservoirs and towers. By 1897, there were more than 3,000 complete municipal water-supply plants in the United States. About one-third of these were equipped with some form of elevated metallic storage tanks, or reservoirs, more than half of which were constructed after 1890. One of the first and best examples of a modern, elevated, riveted-steel tower and tank, supported by 100-foot Z-bar columns, stiffened with I-beam ties and diagonal tie-rods, was constructed in 1898 in Jacksonville, Florida.[15] The basic riveted-steel construction design developed for water towers and storage tanks in the 1890s, and exemplified by the 1898 Jacksonville water tower, changed little over the course of the next fifty years. The most typical water tower erected in towns across the American Midwest in the first half of the twentieth century had a 50,000-gallon capacity storage tank atop a 100-foot-high tower, or trestle, and was of riveted-steel construction.[16]

Since water towers are basically elevated water-containment tanks, boilermakers traditionally constructed the storage tanks, ironworkers constructed structural components such as beams, struts, and girders, and pipe fitters assembled components that conveyed fluids in motion. By the middle of the twentieth century, and throughout the boom years of water tower construction from 1946 to 1980, two large companies dominated the industry. Between them, the Chicago Bridge and Iron Company (now CBI, Inc.) and the Pittsburg-Des Moines Steel Company (now PDM, Inc.) erected between eight and eleven thousand water towers in the Midwest and Plains regions of the United States. Both large companies worked on all types of storage tanks and vessels, and water towers were a small part of their businesses.[17]

---

[14] Mathis, and Chlebeck, *Steel Water Towers Associated with South Dakota Water Systems, 1894-1967*, 15.
[15] Hazelhurst, J.N., *Towers and Tanks for Water Works,* 10.
[16] Spreng, Ronald E., *They Didn't Just Grow There – Building Water Towers in the Post War Era,* Minnesota Historical Society 52, No.4 (1992): 132.
[17] Mathis, and Chlebeck, *Steel Water Towers Associated with South Dakota Water Systems, 1894-1967*, 41-42.

Riveted-steel construction remained the standard for water towers until the 1950s, so much so that a tower built in Minnesota in the 1950s might be nearly identical to a tower built in the 1890s in Iowa. Industry leaders, however, were sensitive to criticisms that too many water towers looked monotonously utilitarian. In 1931, Chicago Bridge & Iron Works sponsored a competition to develop designs that would illustrate viable improvements in the appearance of elevated steel tanks and their supporting structures.[18] While many of the submissions represented aesthetic innovations, the most significant change came about in the 1950s with the introduction and widespread use of welding. Weld technology required many changes in construction techniques and expertise, but also made possible expanded forms and designs. The Toro-spherical Design became popular in the 1950s in populated areas requiring a high-capacity water-storage system, and featured multi-columned towers supporting high-capacity tanks, as well as access ladders, catwalks, and handrails. The 1960s saw the introduction of Pedespheres, or Single-Pedestal design to replace the traditional lattice support of riveted steel. This in the most common type of water tower used today to replace aging riveted-steel tanks and towers. The Hydropillar, introduced in 1962, features a large-diameter, single-enclosed shaft that has become popular for municipal water works because it is considered to be low-maintenance.[19]

4. The Sandoval Water Tower and System

Few historical sources for the Sandoval Water Tower were located during the research conducted for this project. None of the Sandoval Village Board Minutes are extant, but some contract information for the water tower was located at the Village Hall. An October 1954 *Preliminary Engineering Report for Proposed Water System Improvements* indicates that the new 50,000-gallon water tower was proposed to augment the existing 60,000-gallon water tower and system already in use. The report also indicates the water distribution system included a combination of 6.0″, 4.0″, and 2.0″ watermains.[20]

A contract dated June 23, 1955 for $17,715.00 was awarded to the W. E. Caldwell Company, Louisville, Kentucky, for the construction of the elevated steel water storage tank, the foundation, and all appurtenances associated with construction.[21] A second contract dated June 27, 1955 for $33,146.50 was awarded to T&S Construction Company of Centralia, Illinois for watermain extensions and upgrades.[22]

---

[18] Chicago Bridge & Iron Works, *Elevated Tank Designs: Submitted in a Competition* (1931, n.p.), accessed 3 March 2020, https://catalog.hathitrust.org/.
[19] Mathis, and Chlebeck, *Steel Water Towers Associated with South Dakota Water Systems, 1894-1967,* 5.
[20] Cooney, James G., Preliminary Engineering Report for Proposed Water Distribution Improvements, (1954).
[21] Village of Sandoval a, Contract for the Construction of Improvements and Additions to the Municipal Water System, Sandoval, Illinois, (1955).
[22] Village of Sandoval b, Contract for the Construction of Improvements and Additions to the Municipal Water System, Sandoval, Illinois, (1955).

The new 50,000-gallon water tower augmented the extant 60,000-gallon water tower for an unknown number of years before the later was raised. The 1955 50,000-gallon water tower was removed from service during the 1980s leaving the Village with water pumped directly from the water system in Centralia as the only water source for the community.[23]

5. W. E. Caldwell Company, Inc.

The Sandoval, Illinois water tower was constructed in 1955 by W. E. Caldwell Co., Inc. of Louisville, Kentucky. W. E. Caldwell Company, now Caldwell Tanks, Inc., was founded by William E. Caldwell in Louisville, Kentucky in 1887. The Sandoval water tower is a later example of the traditional Caldwell multi-columned elevated storage tank design that originally utilized a wooden tank and tower. Although Caldwell continued to design and sell wood tanks into the middle 1980s, the company had patented an innovative design for a metal tank with a timber and iron support structure by 1892.[24] In the early years of wood tower and tank construction, water towers were often constructed by local builders. With the advent of riveted steel water towers, local manufacturers such as R. D. Cole Manufacturing Company of Georgia and W. E. Caldwell Co, Inc. of Louisville, Kentucky gained a larger share of the market.[25] To remain competitive in the industry, Caldwell embarked on a national marketing campaign focused on designing and field-assembling the latest in elevated water storage technology. By 1908 W. E. Caldwell Company, Inc. had designed, manufactured, and constructed water towers in 34 states.[26] As technology improved and storage needs and capacities increased, two large companies, Chicago Bridge & Iron Company (now CBI, Inc.) and the Pittsburgh-Des Moines Steel Company (now PDM, Inc.) came to dominate the industry despite the fact that water tower construction represented a small percentage of their businesses. In the decades following World War II the water tower building industry boomed as smaller communities across the country rapidly transitioned from dependence on individual wells to modern municipal water systems.[27] Although Chicago Bridge and Iron and Pittsburgh-Des Moines Steel remained industry leaders, W. E. Caldwell & Company retained a sizeable share of the market by specializing in all types of water storage tanks designed to meet specific needs, and by adapting to and innovating new technologies. The Sandoval, Illinois water tower, constructed in 1955, is a welded steel, multi-column elevated steel storage tank with a capacity of 50,000 gallons. Caldwell has been building this style since the company's inception in 1887, originally using wood, then riveted steel, and by the 1950s transitioning to welded steel construction. The standard design includes a balcony and handrail around the tank with access ladders on the tower column and tank to provide maximum exterior access. The standard 50,000- gallon tank has an interior clearance of

[23] Phil Milano, Director of Public Works, Sandoval, Illinois. Personal Communication, March 17, 2020.
[24] Spreng, Ronald E., *They Didn't Just Grow There – Building Water Towers in the Post War Era,* 132.
[25] Ibid.
[26] Mathis, and Chlebeck, *Steel Water Towers Associated with South Dakota Water Systems, 1894-1967,* 46.
[27] Spreng, Ronald E., *They Didn't Just Grow There – Building Water Towers in the Post War Era,* 133.

17 feet 3 inches and a tank exterior diameter of 24 feet.[28] Caldwell had previously demonstrated its design flexibility in constructing the "World's Largest Ketchup Bottle" water tower in nearby Collinsville, Illinois, in 1949, and the giant Vess Bottle water tower in St. Louis, in 1953. Today, Caldwell Tanks, Inc. is one of the largest manufactures of water towers in the United States, with the capability to design, fabricate, and construct customized field-erected storage tanks for Potable Water Systems as well as for the Oil & Gas, Chemical, Power and Aerospace industries.[29]

PART II. Structural/Design Information

A. General Statement:

1. **Character:** The Sandoval water tower was designed and built by W. E. Caldwell Company Inc., Louisville, Kentucky, No. B5201. The double ellipsoidal design, and welded joints, of the water tower are common to the middle twentieth century in the Midwest. This 50,000-gallon water tank and tower was built to supplement a 60,000-gallon water tower to provide additional service to Sandoval in 1955. The earlier water tower is no longer extant, and the current water tower is not functional.

2. **Condition of fabric:** The exterior of the Sandoval water tower exhibits surface corrosion, but no structural failures were observed. The water tower was taken out of service due to leaks and the maintenance costs.

B. Description:

1. **Materials:** The Sandoval Water Tower is a welded steel structure with four support columns and a riser.

2. **Dimensions:**

    a. Over-all dimensions: Water tower occupies an area of approximately 506 square feet at base. Tank capacity is 50,000 gallons.

    b. Height: 73′-0″ to bottom of bowl, 93′-6″ to the top of the tank.

    c. Diameter of Tank: 22′-0″.

    d. Foundations: The water tower rises from four concrete piers that are 3′-2″ square at ground level. According to the plans, the piers extend 6′-0″ below the ground

[28] "Multi-Column Elevated Storage Tank," (May 2020, n.p.), accessed 7 June 2020, http://www.caldwellwatertanks.com/tank-multicolumn-overview.html.
[29] "Multi-Column Elevated Storage Tank," (May 2020, n.p.).

surface and are 6′-6″ wide at the base. The column boots are connected to the foundation piers with 6′-0″ long, 1-3/4″ diameter, anchor bolts.

e. Structural system, framing: The water tower is supported by four steel tubular columns, spaced equidistantly in a square, and set at an angle out from the tank. The 16-1/4″ diameter columns are bolted to the concrete piers. The columns are connected by two sets of 6″ square steel struts, and diagonally installed 1-1/4′ diameter round tower rods that are attached to the base of the columns with 10″ turn buckles.

The inlet pipe is housed within a 48″ diameter welded steel riser that rests on an 8′-0″ x 8′-0″ concrete pad. The access hatch for the riser is located on the east side. A 4″ diameter steel overflow pipe and access ladder are located on the northeast column.

The double ellipsoidal shaped water tank is constructed from welded steel plates. Four tubular columns meet the tank at the base of balcony. Above the balcony, in the center of the tank, the name of the town, Sandoval, is painted in black block letters twice around the tank.

f. Roof shape, covering: Ellipsoidal welded steel roof includes a ladder to an access hatch to the interior.

g. Decorative feature and trim: The name Sandoval, is painted two times around the water tank.

C. Mechanicals/Operations:

An electric pump located within the pump house located beneath the riser pad was not accessible. Electrical service is provided from a utility box pole located immediately west of the water tower. Water was pumped into the tank where it is stored, and pressure and gravity released the water into the public watermains and is distributed to the community as needed.

This water tower has not functioned for more than two decades and water service to the community is provided from a water line that extends from the water towers in Centralia, Illinois, located seven miles to the south.

D. Site Information:

General setting and orientation: The Sandoval water tower is located in a grass covered lot on the west side of North Pine Street, between Wisconsin and Bar Avenues. The area in which it is situated is located between the commercial district to the east and

residences to the west. A lot where gravel is stored, and a metal building owned by Sandoval Township is located immediately north of the water tower, and a residence is located to the south.

The water tower is situated in a 30′ square chain link fenced compound near the center of the lot. No other water tower related structures are located on the lot.

PART III. SOURCES OF INFORMATION

A. Primary Sources:

Cooney, James G., *Preliminary Engineering Report for Proposed Water System Improvements, Sandoval, Illinois*, (1954). On file at Sandoval Village Hall.

Village of Sandoval, Illinois a, *Contract for the Construction of Improvements and System Additions to the Municipal Water System, Sandoval, Illinois,* (1955). Contract with W.E. Caldwell Company on file at Sandoval Village Hall.

Village of Sandoval, Illinois b, *Contract for the Construction of Improvements and System Additions to the Municipal Water System, Sandoval, Illinois,* (1955). Contract with T & S Company on file at Sandoval Village Hall.

World International Testing, *Inspection Report for 50,000 Elevated Water Storage Tank for the City of Sandoval, Illinois.* (Steubenville, 1991).

B. Secondary Sources:

Bowen, B.F. & Company, *Brinkerhoff's History of Marion County, Illinois.* (Indianapolis 1909), Hathi Trust Digital Library, https://catalog.hathitrust.org/Record/008718499.

Chicago Bridge and Ironworks. *Elevated Tank Designs: Submitted in a Competition*, (Chicago, 1931). Hathi Trust Digital Library, https://catalog.hathitrust.org/.

Caldwell Tanks Inc., "Multi-Column Elevated Storage Tank," accessed 7 May 2020. http://www.caldwellwatertanks.com/tank-multicolumn-overview.html.

DeLorme, *Illinois Atlas and Gazetteer*: Yarmouth; Maine, 2003. Internet Archive: Digital Library of Free & Borrowable Books, Movies, Music & Wayback Machine. https://www.archive.org/.

Hazelhurst, J.N., *Towers and Tanks for Water Works. The Theory and Practice of Their Design and Construction*. New York: Wiley Press 1901, 1904, 1907. Hathi Trust Digital Library, https://catalog.hathitrust.org/.

Illinois State Geological Survey, "Directory of Coal Mines in Marion County", https://isgs.illinois.edu/sites/isgs/files/maps/coal-maps/mines-series/mines-directories/pdf-files/mines-directory-marion.pdf.

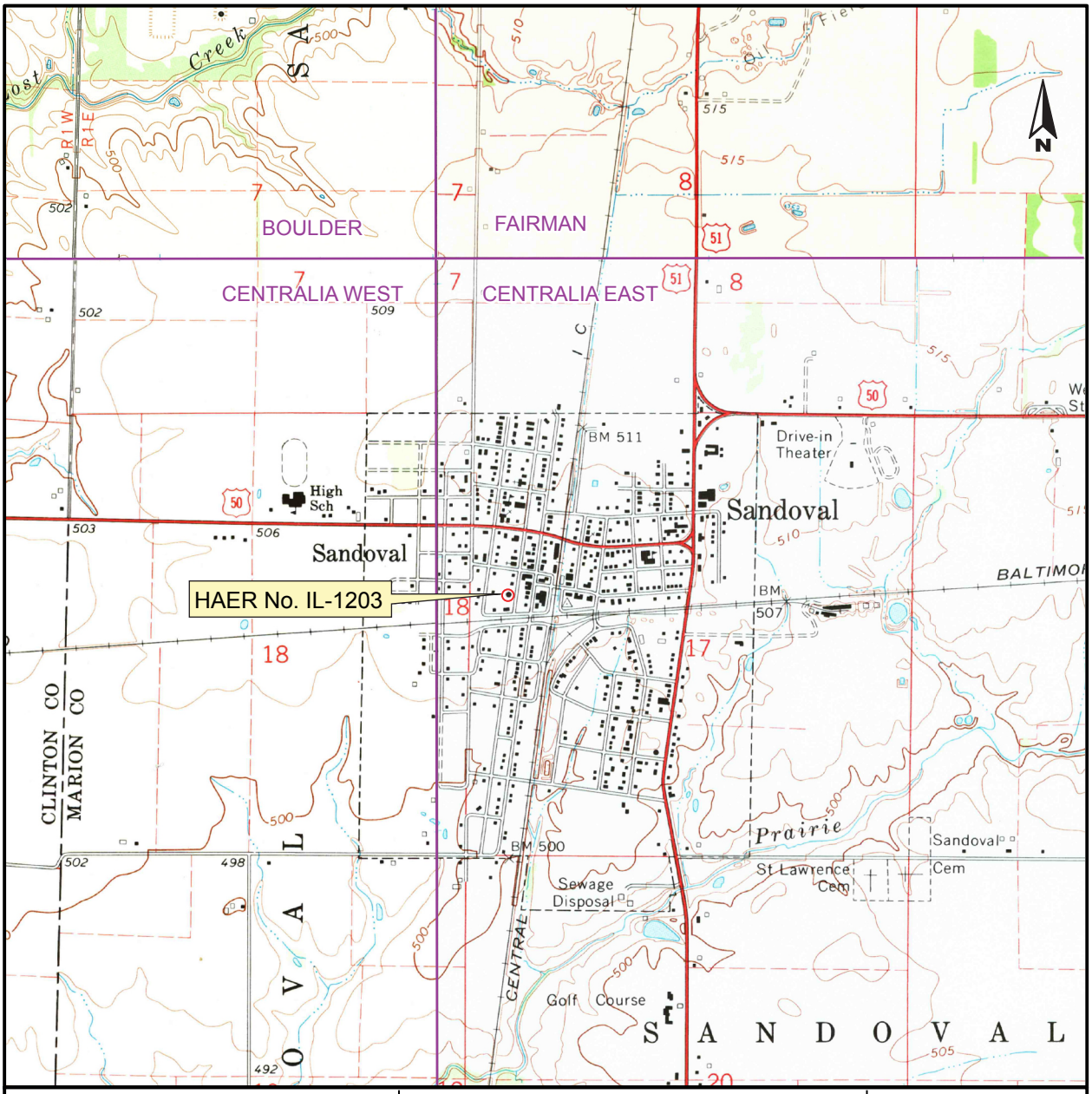
Mathis, Gregory R. and John Chlebeck, PE., *Steel Water Towers Associated with South Dakota Water Systems, 1894-1967*. Pierre, South Dakota State Historical Society, 2012, https://history.sd.gov.

National Register of Historic Places, Old Havana Water Tower, Havana, Mason County, Illinois, National Register #93000325. Illinois Architectural Resources Geographic System, http://gis.hpa.state.il.us/hargis.

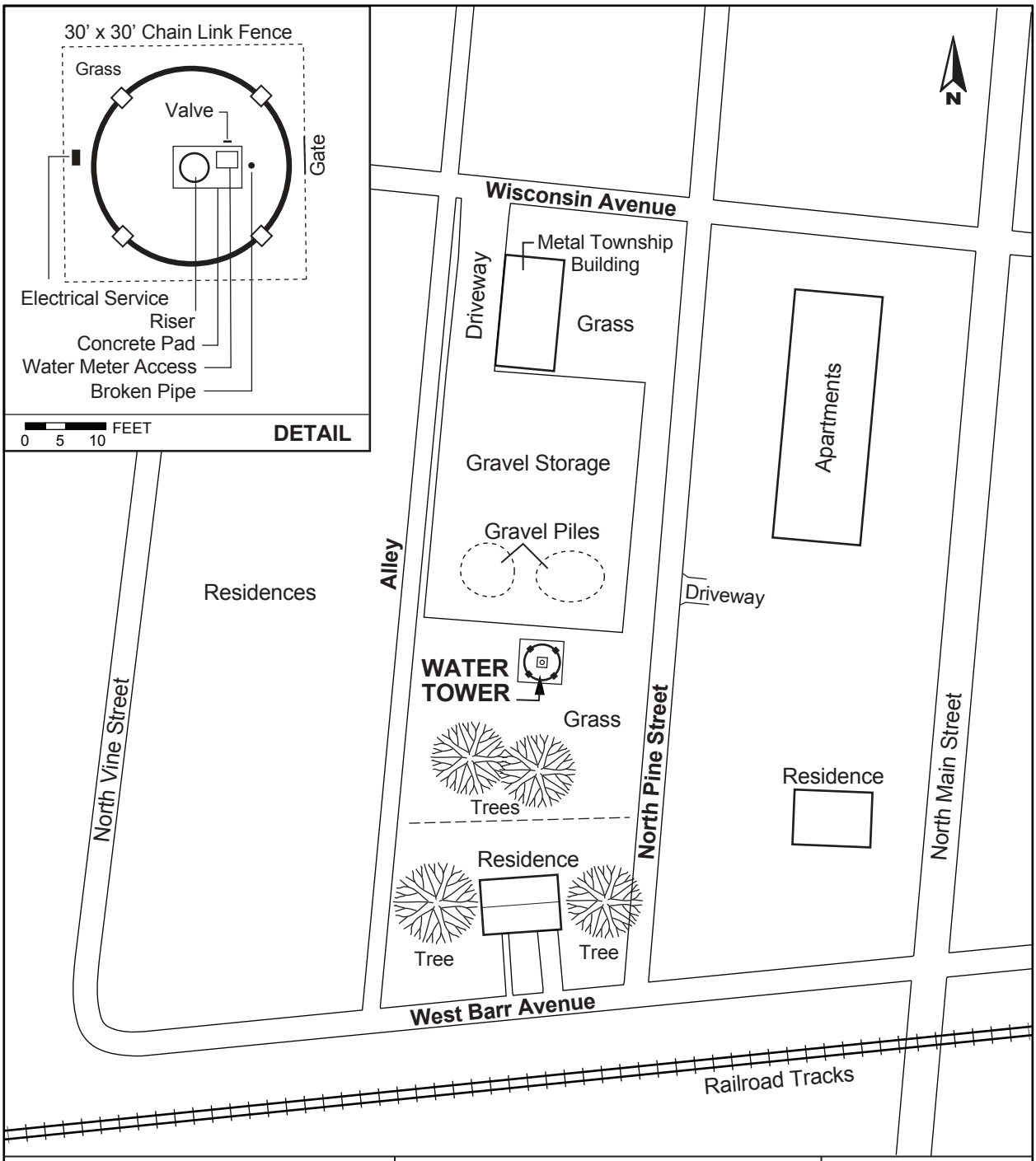
The Living New Deal, "Projects in Illinois", https://livingnewdeal.org/us/il/.

Saint Lawrence Catholic Church, "History", accessed 29 April 2020, https://www.stlawrencesandoval.org.

Spreng, Ronald E., "They Didn't Just Grow There – Building Water Towers in the Post War Era," *Minnesota History,* Vol. 52, No. 4, 1992. https://www.mnhs.org/market/mhspress/minnesotahistory/xml/v53i04.xml.



SANDOVAL WATER TOWER WEST SIDE OF NORTH PINE STREET BETWEEN WISCONSIN AND BAR AVENUES SANDOVAL MARION COUNTY ILLINOIS	CENTRALIA EAST QUADRANGLE MARION COUNTY - ILLINOIS 7.5 MINUTE SERIES (TOPOGRAPHIC)1981 Location Miles 0 0.125 0.25 0.5 Kilometers 0 0.25 0.5 1	HAER No. IL-1203 Sheet 1 of 1



SANDOVAL WATER TOWER

WEST SIDE OF NORTH PINE STREET, BETWEEN WISCONSIN AND BAR AVENUES

SANDOVAL

MARION COUNTY

ILLINOIS

SITE PLAN

FEET

0 50 100 200

METERS

0 15 30 60

HAER No. IL-1203

Sheet 1 of 1

HISTORIC AMERICAN ENGINEERING RECORD

INDEX TO PHOTOGRAPHS

SANDOVAL WATER TOWER HAER No. IL-1203
West side of North Pine Street, between Wisconsin and Bar Avenues
Sandoval
Marion County
Illinois

INDEX TO BLACK AND WHITE PHOTOGRAPHS

Benjamin Halpern, Photographer, May 2019

IL-1203-1 General view of water tower facing southwest from East Commercial Avenue

IL-1203-2 General view of water tower facing southwest from Pine Street

IL-1203-3 General view of water tower facing northwest from Pine Street

IL-1203-4 General view of water tower facing north from West Barr Avenue

IL-1203-5 General view of water tower facing south from Sandoval Township storage yard

IL-1203-6 Detail view of water tower facing southwest, water tank and upper structure

IL-1203-7 Detail view of water tower facing north, water tank and upper structure

IL-1203-8 Detail view of water tower looking up, water tank and upper structure

IL-1203-9 Detail view of water tower facing southeast, water tank and upper structure

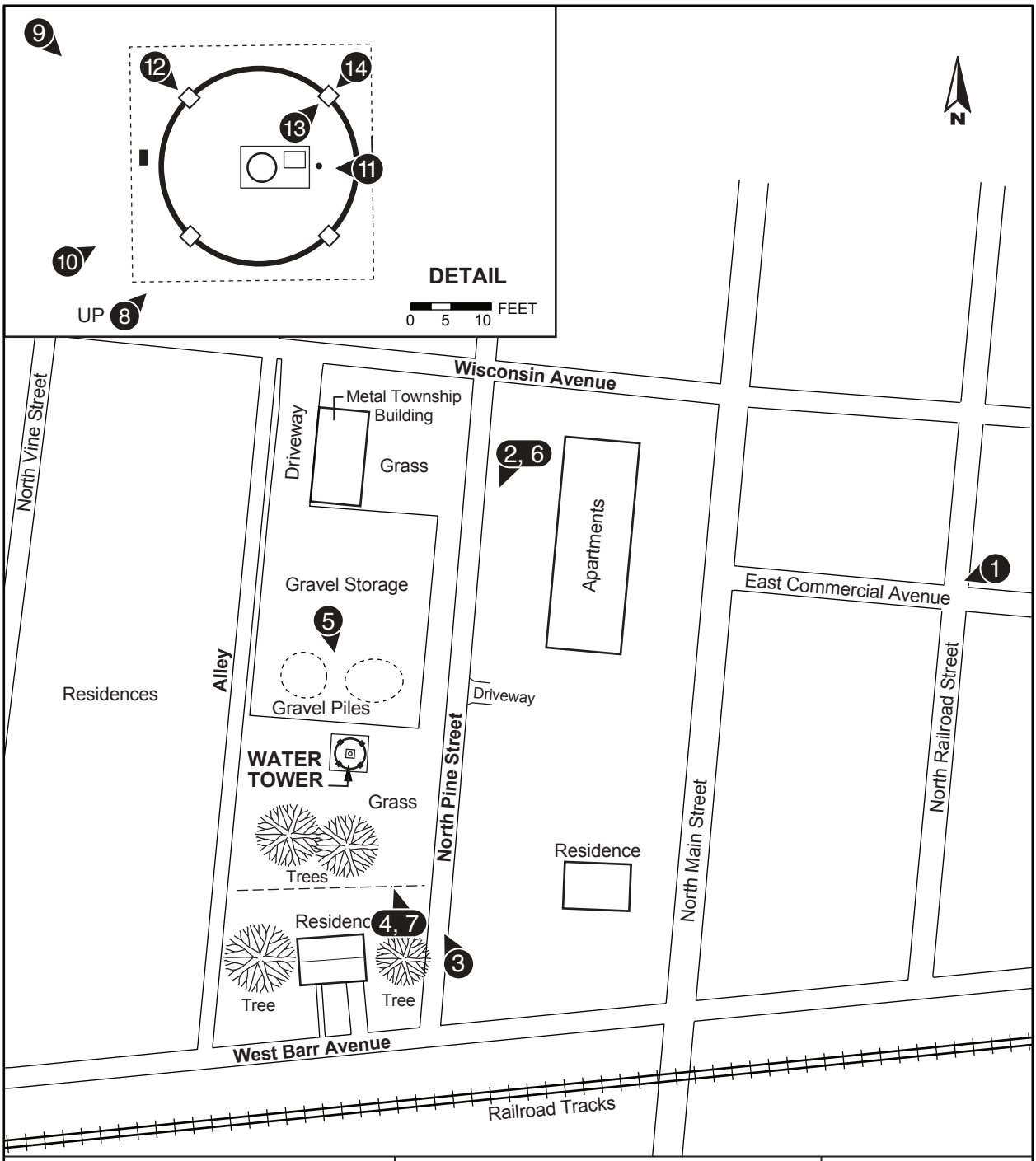
IL-1203-10 Detail view of water tower facing northeast, northeast leg, horizontal strut, and tower rods

IL-1203-11 Detail view of water tower facing west, riser, riser hatch and pump access

IL-1203-12 Detail view of water tower facing southeast, northwest leg, column shoe, tower rod diagonal bracing, and concrete foundation

IL-1203-13 Detail view of water tower facing northeast, northeast leg, column shoe, tower rods, concrete foundation, and overflow pipe.

IL-1203-14 Detain view of Caldwell Company Information Plate



SANDOVAL WATER TOWER

WEST SIDE OF NORTH PINE STREET
BETWEEN WISCONSIN
AND BAR AVENUES

SANDOVAL
MARION COUNTY
ILLINOIS

◀1 = LOCATIONS OF PHOTOGRAPHS
(1 TO 14)

FEET
0 50 100 200

METERS
0 15 30 60

HAER No. IL-1203

Sheet 1 of 1

HISTORIC AMERICAN ENGINEERING RECORD
SEE INDEX TO PHOTOGRAPHS FOR CAPTION
HAER No. IL-1203-1

HISTORIC AMERICAN ENGINEERING RECORD
SEE INDEX TO PHOTOGRAPHS FOR CAPTION
HAER No. IL-1203-2

HISTORIC AMERICAN ENGINEERING RECORD
SEE INDEX TO PHOTOGRAPHS FOR CAPTION
HAER No. IL-1203-3

HISTORIC AMERICAN ENGINEERING RECORD
SEE INDEX TO PHOTOGRAPHS FOR CAPTION
HAER No. IL-1203-4

HISTORIC AMERICAN ENGINEERING RECORD
SEE INDEX TO PHOTOGRAPHS FOR CAPTION
HAER No. IL-1203-5

HISTORIC AMERICAN ENGINEERING RECORD
SEE INDEX TO PHOTOGRAPHS FOR CAPTION
HAER No. IL-1203-6

HISTORIC AMERICAN ENGINEERING RECORD
SEE INDEX TO PHOTOGRAPHS FOR CAPTION
HAER No. IL-1203-7

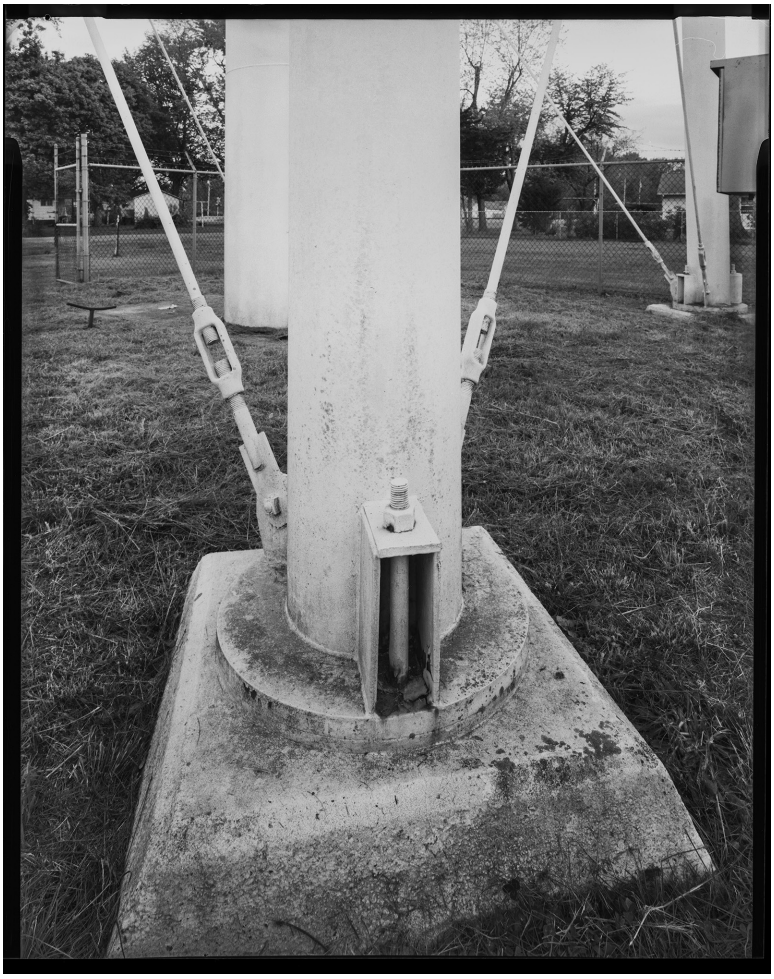
HISTORIC AMERICAN ENGINEERING RECORD
SEE INDEX TO PHOTOGRAPHS FOR CAPTION
HAER No. IL-1203-8

HISTORIC AMERICAN ENGINEERING RECORD
SEE INDEX TO PHOTOGRAPHS FOR CAPTION
HAER No. IL-1203-9

HISTORIC AMERICAN ENGINEERING RECORD
SEE INDEX TO PHOTOGRAPHS FOR CAPTION
HAER No. IL-1203-10

HISTORIC AMERICAN ENGINEERING RECORD
SEE INDEX TO PHOTOGRAPHS FOR CAPTION
HAER No. IL-1203-11

HISTORIC AMERICAN ENGINEERING RECORD
SEE INDEX TO PHOTOGRAPHS FOR CAPTION
HAER No. IL-1203-12



HISTORIC AMERICAN ENGINEERING RECORD
SEE INDEX TO PHOTOGRAPHS FOR CAPTION
HAER No. IL-1203-13

HISTORIC AMERICAN ENGINEERING RECORD
SEE INDEX TO PHOTOGRAPHS FOR CAPTION
HAER No. IL-1203-14

INDEX TO SUPPLEMENTAL MATERIALS

IL-1203-15: Original water tower elevation and foundation, copy, 1955

IL-1203-16: Detail, northeast foundation with scale, 2020

IL-1203-17: 4” overflow pipe, 2020

IL-1203-18: northeast leg with ladder and overflow pipe, 2020

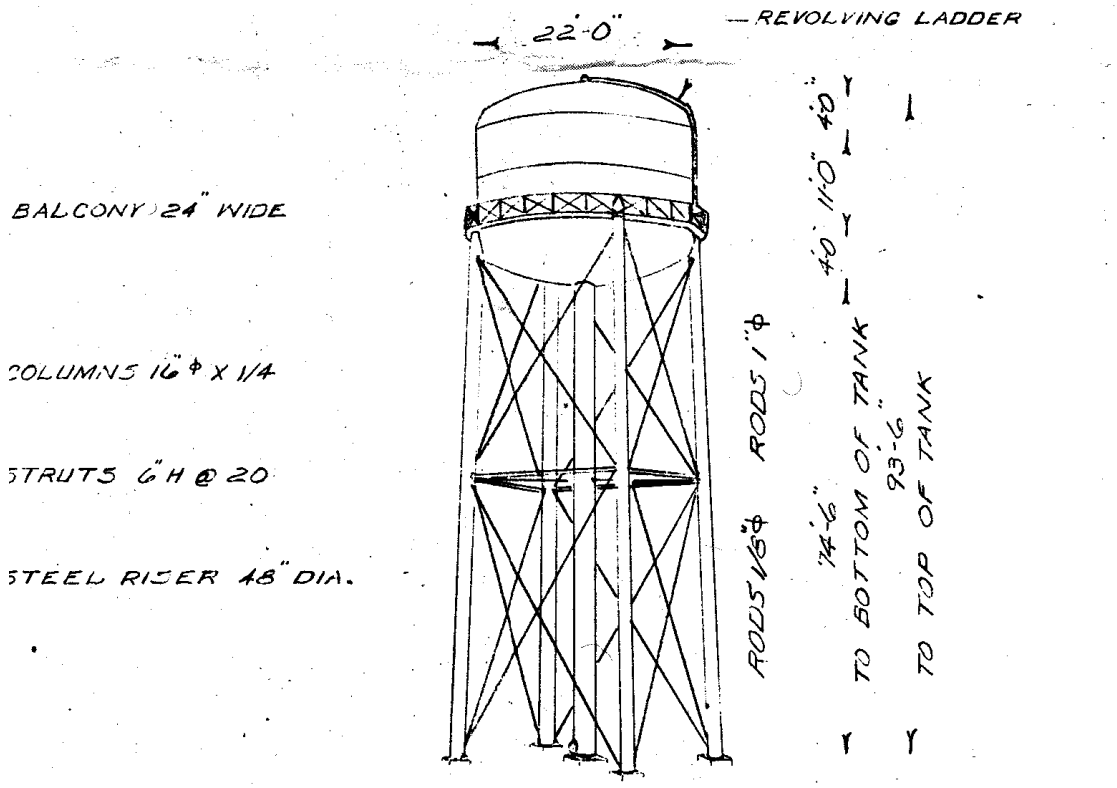
IL-1203-19: 10″ turnbuckle, 2020

IL-1203-20: Riser hatch, 2020

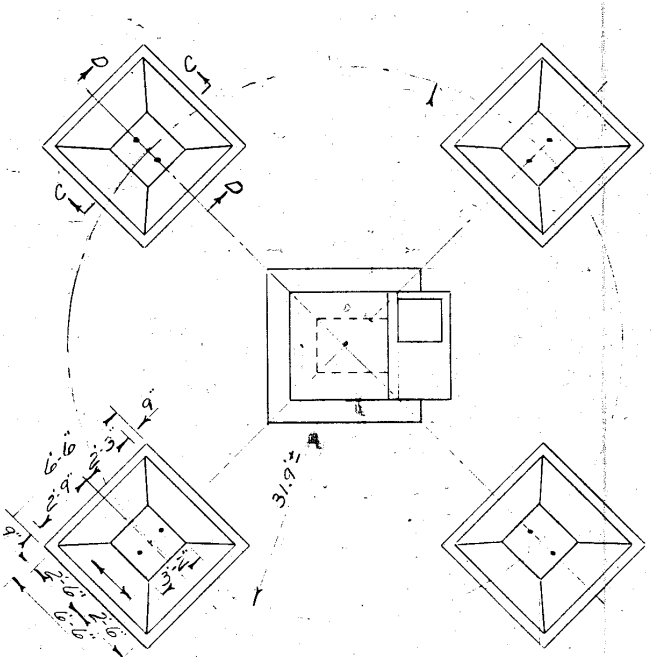
IL-1203-21: Electrical service, 2020

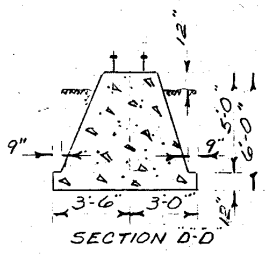
IL-1203-22: Water tower compound, 2020

IL-1203-23: Field notes on copy of original drawings

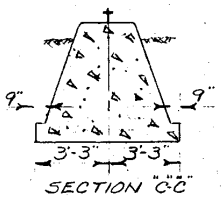


PROPOSED
WELDED ELEVATED STEEL TANK
Capacity 50,000 gals.





SECTION D-D



SECTION C-C

IL-1203-16

IL-1203-17

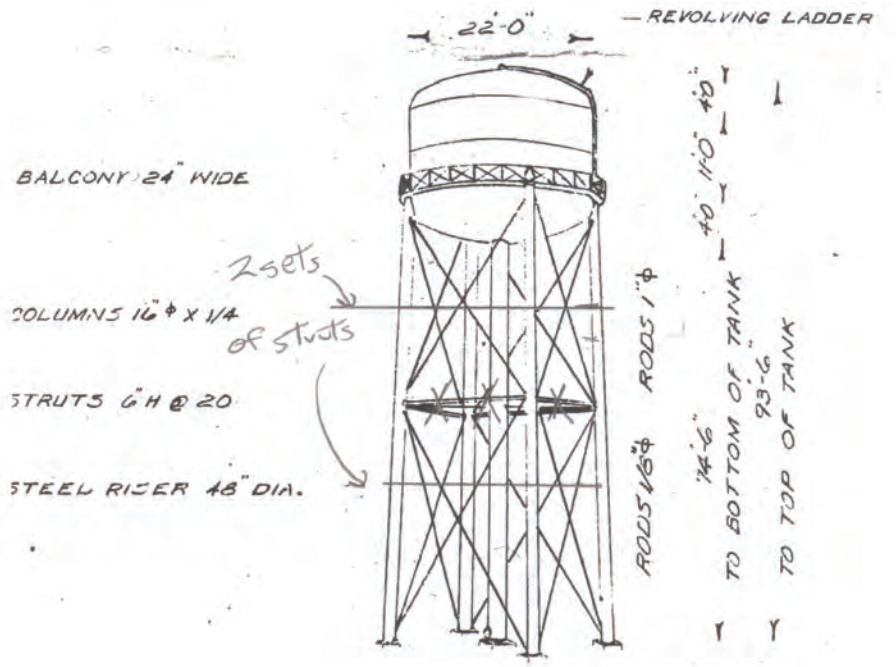
IL-1203-18

IL-1203-19

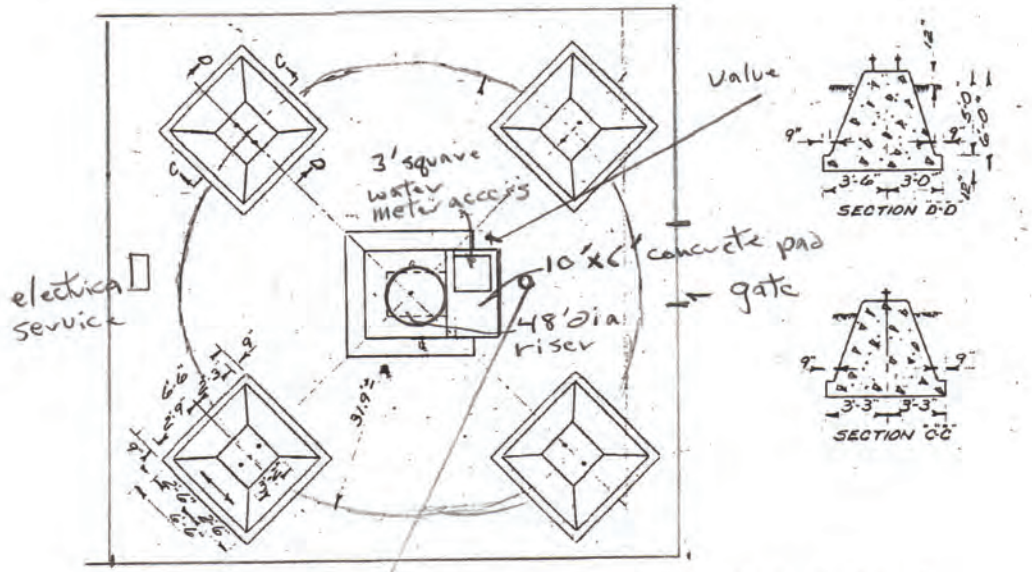
IL-1203-20

IL-1203-21

IL-1203-22



PROPOSED
WELDED ELEVATED STEEL TANK
Capacity 50,000 gals.



broken pipe

30'x30' chainlink fence

6' approximate scale

N

JJH 19-184
Sandoval 4/7/20

IL-1203-23