# Recordation of the

Head House, Trestle, and Settling Basins 1-4 at the Mahoning Valley Sanitary District Water Treatment Plant,
1181 Ohltown McDonald Road,
Mineral Ridge, Ohio

# Prepared in Accordance

Stipulation II of the Memorandum of Agreement Among the Ohio Environmental Protection Agency, the Mahoning Valley Sanitary District, and the Ohio Historic Preservation Office Regarding Improvements to the Water Purification and Pumping Works, Mineral Ridge Ohio

By:
Chambers, Murphy & Burge
Restoration Architects, Ltd.
43 East Market Street, Suite 201
Akron, Ohio 44308
330-434-9300
cmbarchitects.com

For:
Meander Water
The Mahoning Valle Sanitary District
P.O. Box 4119
Youngstown, Ohio 44515-0119



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#### 2 Introduction

Recordation of the Head House, Trestle and Settling Basins 1-4 for Meander Water, Mahoning Valley Sanitary District (MSVD) Mineral Ridge, Ohio

The purpose of this report is to fulfill the documentation requirements of the Memorandum of Agreement (MOA) between the Mahoning Valley Sanitary District (MSVD), the Ohio Environmental Protection Agency (OEPA) and the Ohio State Historic Preservation Office (OHPO.)

Chambers, Murphy & Burge Restoration Architects, Ltd. (CMB,) of Akron Ohio, has been contracted to fulfill the documentation portion of the MOA. The documentation includes a written narrative report, drawings of the site, floor plans (copies from the original), and photographic documentation of the District's Water Treatment Plant (WTP), including its Head House, Trestle, and Settling Basins #1 through #4. To compile this documentation, CMB performed research and conducted a Field Survey of the facility.

This document contains a history of the property and descriptions of the buildings that comprise it. Dates of construction and architectural descriptions of the buildings referencing their current conditions, building materials, construction methods, and modifications to significant features are included. The historical significance of the facility is also addressed. Supplementing the written narrative is a collection of relevant documents including historic construction photographs, historic site plans, and other documents pertaining to the property.

As stipulated in the MOA, and as contractually obligated by CMB in their agreement with MSVD, the Narrative Report is to be equivalent to the standards required by Historic American Engineering Record Level II. Furthermore, 35 mm photographic documentation conforms to the *Updated Photography Policy, National Register of Historic Places (Rev. March 2008)*. The information collected during the building assessment was compiled into Site and Floor Plans, Photo-keys, and the Photo Index, a collection of current and historic photographs that document historical aspects of the buildings.

This document has been prepared by Registered Architect Eric Beach, AIA and Ashley Cramer, LEED AP ID+C for Chambers & Murphy and Burge. Members of this firm meet the Secretary of Interior's Standards for Architectural History.

#### 3 Source Review

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To assist in the preparation of this document, CMB collected source information related to the property, its buildings, and owners. CMB also reviewed previously compiled data. An Ohio Historic Inventory (OHI) form (TRU-2460-23) that had previously been completed for the property by Gregory A. Griffith of the Trumbull County Planning Commission was provided by the Ohio Historic Preservation Office (OHPO). The form supplies valuable information regarding the property's condition at the time that it was documented for the OHI and recommends that the WTP is *Eligible* for listing in the National Register of Historic Places.

Invaluable primary historical data and secondary information was provided by Mr. Thomas F. Holloway, P.E., Chief Engineer of the Mahoning Valley Sanitary District. Mr. Holloway provided drawings titled "Rapid Mix, Flocculation, Settling Basin and Recarbonation Improvement", dated July 2010 and prepared by MS Consultants, which document proposed changes to the Head House, Trestle and Settling Basins 1-4. He also provided copies of the August 1930 original working drawings and specifications, historic photos dated and indexed in numbered books, and general information prepared by MSVD on the history of the MSVD as a distinct political entity. These drawings provided information on the 1930 design intent for the facility, exterior dimensions and the footprints of the buildings, as well as general site plan information including property size, topography and use. Mr. Holloway also provided his recollection of the chronology and construction of the major facilities in the WTP since 1932.

The MSVD Archives was made available to CMB on June 9, 2011 during the Field Survey. Not all of the archival documents are included in this report. Files from the 1930's are thorough and include Bid Packages and records from several periods of construction, including contracts, correspondence, and change orders. For example, there are several card catalogs of daily work records of tree plantings around the reservoir to retain soils including crew sizes and hours worked for entire years. Not all of the available Historic Photos in the Archives were included in this report. There are 20-30 books containing 50 images each available for future archivists and research.

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#### **Historic Overview**

The Mahoning Valley Sanitary District's (MSVD) Water Treatment Plant (WTP) was created to ensure the quality and consistency of the water supply for the cities of Youngstown and Niles. Located in Mineral Springs, the District's infrastructure consists of a reservoir, water treatment plant and pipelines that connect to the cities of Niles and Youngstown, who in turn serve adjacent communities of Girard, Canfield, Mineral Ridge, Lordstown, Craig Beach and portions of eleven other townships. The following narrative documents the creation of the District, the significance of Meander Creek, the history of construction, the water treatment plant site design, the architectural design, and a description of changes over time.

#### **District Creation and Governance**

The cities of Youngstown and Niles petitioned the State of Ohio and Mahoning County in 1925, and the Mahoning Valley Sanitary District was created in 1926. The 1925 *Petition for a Water Supply District* was organized to address the "inadequacy...to supply the needs and requirements of the municipal corporations..., the danger of pollution of the existing water supply..., the increase in the population in the District, and the increased demands for water...for domestic, municipal and public use; and for the promotion of public health, safety, comfort, convenience and welfare within [the] District" (LaBelle, Item 3). The organization is supervised by a Board of Directors, one from each county in the District, who have authority to carry out the purposes of the Water District. MSVD literature states, "The Mahoning Valley Sanitary District is a political subdivision of the State of Ohio, established under authority of the Sanitary District Act of Ohio, for the purpose of providing public water supply to the member cities of Youngstown and Niles" (LaBelle, Item 3). The subdivision of the district as a distinct political entity is unique in Ohio. The District is governed by Chapter 6115 of the *Ohio Revised Code* and is overseen by the Trumbull and Mahoning Counties' Court of Common Pleas through the Board of Directors noted above.

#### Sites for Water Sources

The City of Niles had been looking at the Meander Creek site for a dam and reservoir as early as 1925 after F.H. Waring, the Assistant Chief engineer of the State Health Board, recommended to city officials that a new water source was needed (Holloway, 7). Holloway is attributed with spearheading the effort as Superintendent of the Niles Water and Light Department. Youngstown was also interested in the site and available land in the watershed in competition with Niles (Holloway, 8). Youngstown's water source, the Mahoning River, was to be condemned in 1927 by the State Department of Health according to a September 20, 1925 <u>Vindicator</u> Article, "Domestic Water Supply is Possible at Low Cost" (Holloway, 24). However, cooler heads prevailed, and the Youngstown Chamber of Commerce created the Special Engineer's Water Committee and reported in July 22, 1925 that, "...the Sanitary District Law (ORC 1919) ...seems to provide a very effective and adequate means of establishing a District..." (Holloway, 8). Later in July and August, Niles and Youngstown councilmen and engineers met and discussed possible cooperation, although both cities continued to proceed independently. As the

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cost of financing the project was estimated at 2-4 million dollars, Niles (at the time a city of 20,000 souls) realized it would be less expensive to partner with Youngstown (1925 population about 130,000). Petitions were drawn up in the fall of 1925 and reviewed by the Judges of the Common Please Courts for Mahoning and Trumbull Counties.

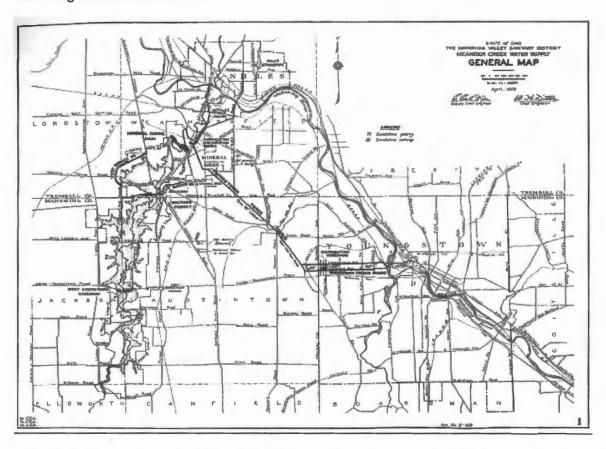


Figure 01, "General Map of the Meander Creek Water Supply" Drawing 1, Bid Package No. 29; W. H. Dittoe, Chief Engineer, April, 1930

#### **History of Construction**

By 1926, the District was incorporated, directors were appointed, initial taxes levied, and appraisers appointed to negotiate for land. The District's planning began immediately so that by 1927 the Official Plan was adopted. Tracts of land and property were purchased for the creation of seven-mile long, 2,010 acre Meander Reservoir located on Meander Creek. Property was also purchased including homes and farms. The 1925 Petition for a Water Supply District allowed for construction of "...reservoirs, trunk sewers, intercepting sewers, pump stations, wells, intakes, purification works, treatment and disposal works..." (LaBelle, Item 3). Construction began in 1929 and the facility was put into service and

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completed in 1932. Construction was funded through the proceeds of bonds levied by the District against real property of the member cities. The total cost was \$9,636,711, which included acquisition of 5,700 acres of land and construction of a dam and reservoir on Meander Creek and adjacent treatment plant buildings and facilities. Due to increased population and demand, modifications and improvements have occurred in 1958-1961 and 1995. This report reviews the impact of *Rapid Mix, Flocculation, Settling Basin and Recarbonation* Improvements work dated 2010 and scheduled to begin in 2011.

#### Water Purification and Pumping Works, Contract No. 29

The buildings specifically affected by the currently proposed improvements are shown in the original working drawings *Water Purification and Pumping Works*, Contract No. 29, dated August 1930, that were prepared by W.H. Dittoe, Chief Engineer and G. Gale Dixon, Deputy Chief Engineer. The Architect's name is not noted on these plans, but research indicates that Charles Frederick Owsley Jr. (1880-1953), son of a prominent Mahoning County architect by the same name, designed the physical enclosures. His father, Charles Frederick Owsley (1846-1935), led the firm Owsley, Boucherle & Co., which designed such notable buildings as the Youngstown Main Library (1910) and the Mahoning County Courthouse (1911).

The original three structures included the Preliminary Treatment Works, known today as the Head House, the Administration and Filter House, and the Pumping Station [See Figure No. 11, Location Plan]. The group of three buildings are arranged in a classic quadrangle with the fourth side a vehicular forecourt surrounded by a rubble masonry wall that was constructed but was eventually removed (Figure No.3 General Plan of Completed Work). The General Plan shows an axial arrangement of entrances to reinforce the intended symmetry; although the current alignment of roads has digressed from the plan and the necessity for parking intrudes on the quadrangle. The Head House is the focal point of the group with its tower (containing lime for water softening) that looms 125 feet above grade. The original Head House includes four Settling Basins: two enclosed within interior wings and two exterior basins surrounded by original railings and light poles. The delivery of lime to the Head House via trains was made possible by a reinforced concrete Trestle that bisects the Head House. The vast Mineral Ridge Dam looms over the site to the south-west.

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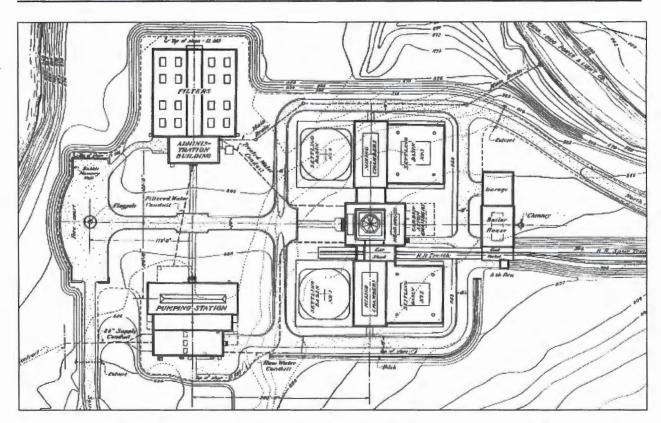


Figure 02, "General Plan of Completed Works" Drawing 3, Bid Package No. 29; W. H. Dittoe, Chief Engineer, April, 1930 (partial view)

# **Architectural Overview**

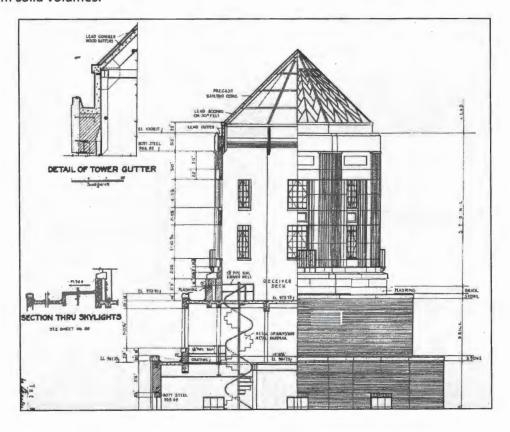
The water treatment technology being removed in the currently proposed modifications are not in themselves unique systems or engineering containment structures, according to Chief Engineer Thomas F. Holloway. However, the celebration of engineering and the confidence in 'progress' that characterized American engineering and architecture of the first half of the twentieth century is manifest at MSVD's Water Treatment Plant as a whole design. The fact that most of the original 1932 "Purification Works" are still in operation, and continue to serve their original function, is a testament to excellent materials, workmanship, and design by the original Chief Engineer W. H. Dittoe. More recent Chief Engineers have had the foresight to plan and design new construction (most recently in 1995) so as to not greatly alter the character of the 1932 design. Recent architect's designs have used an identical brick and detailing to additions to the Filter House, for example.

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#### Architectural Style of the Works

That a physically isolated facility which is not readily accessible to the public and which is highly utilitarian in purpose was designed with such concern for architecture is perhaps the most important component of the property's significance. The National Trust for Historic Preservation characterizes the Art Deco style for commerce and industrial buildings as "...Popularized in the 1920's and 1930's, [Art Deco] was more than just a mode of ornamentation. It's aerodynamic, streamlined style soon became an architectural symbol for the progressiveness of commerce and industry, and was interpreted in stepped back skyscrapers, white stucco walls, curved facades, glass bricks, and stainless steel in landmarks" (Wren, p. 180).

Numerous elements of the MSVD buildings owe an allegiance to the Art Deco Style, both large and small details and designs carried out by skilled craftsmen in high quality materials. A large scale example is the stepped tower of the Head House, typical of setbacks commonly found in Art Deco skyscrapers, then required by building and zoning codes to permit more light at the street level, and avoid canyon-like spaces. The buff 'iron spot' brick used has a monolithic appearance when viewed from a distance, lending itself to the unity of the exterior volumes. The building steps are cubic and appear carved from solid volumes.



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Figure 03, "Head House – Detail of the Tower" Drawing 66, Bid Package No. 29; C.F. Owsley, Consulting Architect, April, 1930 (partial view)

A finely crafted example of Art Moderne was found on the bronze entrance door design of the Head House that no longer remain. The curved metal muntin bars and geometric mosaic tile set in a stepped entrance opening recalls the polychromatic treatments of the style. The bronze doors were removed from the exteriors of the buildings and have been replaced with bronze tinted aluminum store front. An original door still remains in place between the Administration and Filter Building. In the following Figure 4, note the bronze grille detail over the doors that recall the mechanical agitators (mixing equipment) in the Settling Basins.

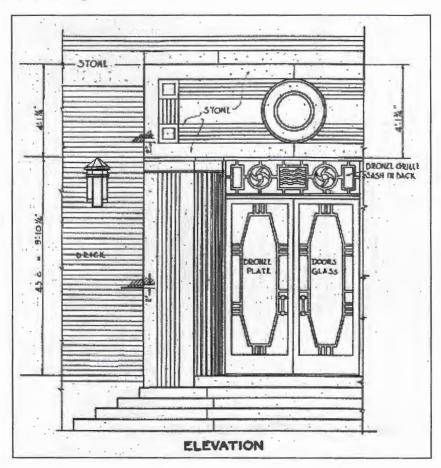


Figure 04, "Miscellaneous Details of Superstructure – Detail of Head House Entrance" Drawing 67, Bid Package No. 29; C.F. Owsley, Consulting Architect, April, 1930 (partial view)

To the credit of the planners of the 2010 project, original lighting and wrought iron guard rails are to remain when exterior Settling Basins at the Head House are filled with engineered soils and lawn.

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The railings and light posts form a strong symmetrical arrangement around the Head House Entrance so that the above ground appearance of the West Elevation (Figure 06 - Bid Package 29 - Drawing 62) is not irreversibly altered. The mechanical agitators are being removed, however, so the original intent of the railing enclosure will not be apparent.

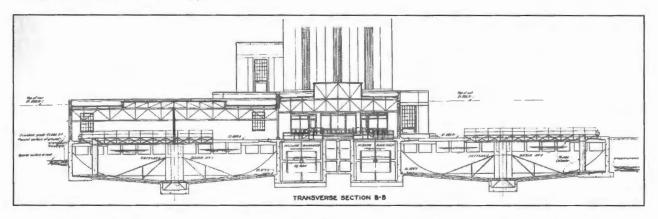


Figure 05, "Preliminary Treatment Works - Transverse Section B-B" Drawing 8, Bid Package No. 29; W. H. Dittoe, Chief Engineer, April, 1930 (partial view)

# **Previous Significant Changes**

During and after World War II it was becoming evident that a shortage of water could result in a dry year, and the treatment facilities were becoming inadequate to handle peak demands (Holloway, 37). In 1947 Parsons, Brinkckerhoff, Hogan and McDonald with Gale Dizon as Associate were endorsed to study the District and report on the requirements for the next 20 years. After the study was complete a plan known as, Amendment No. 1, was submitted to the directors and was adopted on July 7, 1949. Amendment No. 1 plan consisted of the construction of an intake and pumping station at Berlin Reservoir and a pipeline nine miles in length to convey water to Meander Creak (Holloway, 37). The amendment also incorporated a plan that would add a pumping, settling and filtration facilities at the District plant; this portion of the amendment affected the district plant the most and Amendment No. 1 construction was completed in 1961. In the mid 1990's five new buildings were added to the site #11, #18, #23, #25 and #10; 4 of the buildings were constructed of brick to harmonize with the existing structures and one building was constructed of metal.

#### **Proposed Modifications to the Settling Basins**

The Settling Basins 2 & 3 are being infilled and Basins 1 & 4 are to be removed as part of the Proposed Improvements dated 2010. The Mixing Chambers located between the Settling Basins are also being infilled. In Figure 05, above, the interior Basins are on the left side of the

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image. Additionally, concrete headwalls that are below the main finished floor level are being removed. The interior Settling Basin spaces are proposed to be topped with concrete, while the exterior Settling Basins are proposed to be topped with a lawn area.

# **Proposed Modifications to the Trestle**

The changes proposed for the Trestle will affect the exterior appearance of the Head House. Specifically, the proposed plans will remove the Trestle concrete structure up to the Head House, and the Coal and Ash Storage building adjacent to the 1932 Garage Building. The Trestle's elevated concrete structure is about 250 feet long and bisects the Head House. The Trestle is a functional intrusion into the architectural order of the Head House, designed for the purpose of supplying lime by rail car directly to the Head House chemical storage bins. See Figure below; the Train Shed is the tall form on the right side of the head House Tower, and it is to remain.

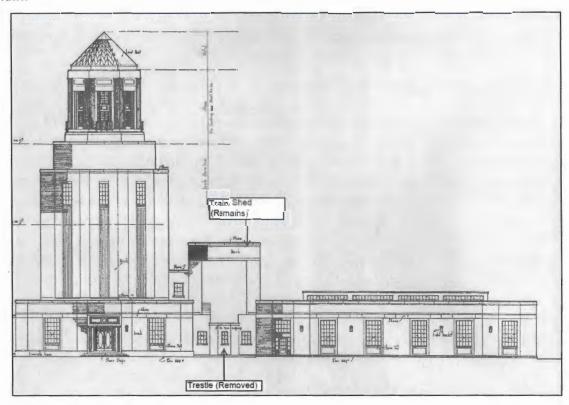


Figure 06, "Preliminary Treatment Works - West Elevation" Drawing 62, Bid Package No. 29; C.F. Owsley, Consulting Architect, April, 1930 (partial view)

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In fact, a tank car remains for storage on the Train Shed level of the Head House. The drawings label this space by that title, but the shed is not differentiated from the building design except by a large opening for the train cars to enter and exit. The train car is to remain in place. The embankment and train tracks that led to the Trestle were removed prior to this proposed work, so that the Trestle is isolated from any existing rail service. Currently, lime is still being used in the water softening process, but is delivered by truck rather than rail. Interestingly, the lime dust that escapes during off-loading of trucks has bonded to the exterior brick masonry walls. Chief Engineer Holloway reported that attempts to clean the lime residue have not been successful.

# Prior Surveys and Data on the Property

Data has been collected from the Archives of the Meander Water MSVD by CMB. The "Transcript of the Proceedings in Re: the Mahoning Valley Sanitary District" (LaBelle, Item 3) includes legal incorporation documents as well as a list of property tracts purchased for the Water Purification Works and Meander Reservoir. The record extends from about 1925-1930. There were several hundred lots involved in the acquisition of more than 5,500 acres of land.

Most recently CMB conducted their own visual survey of the site of the Water Purification Works, on June 9th, 2011. Photographs, sketches of floor plans and notes on conditions during the field survey document the property as it is currently.

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# **Conditions & Itinerary**

On June 9<sup>th</sup>, 2011, Eric Beach, AIA and Ashley Cramer, LEED AP ID+C representing Chambers, Murphy & Burge Restoration Architects conducted a building survey for the Mahoning Valley Sanitary District. The following notes are a summary of the site visit:

Temperature:

80-85 deg. F

Weather:

Partly Cloudy

Arrival/Departure:

9:00 am-4:00 pm

MSVD Representatives: Mr. Thomas F. Holloway, P.E., Chief Engineer

Mr. Martin Kielbasa, Resident Engineer

#### Itinerary Summary:

9:00-10:00 Thomas Holloway, Eric Beach and Ashley Cramer met in a conference room located in the Filter Building. Mr. Holloway reviewed the MSVD history, purpose and functions. CMB representatives shown location of MSVD archives

10:00-10:30 Martin Kielbasa led Eric Beach and Ashley Cramer on a guided tour of the Head House and Trestle structure and the Boiler House.

10:30-12:00 Eric Beach sketched the existing Head House main floor plan the Trestle plan and elevation. Ashley Cramer photo-documented the site, the Head House and Trestle, and specific building features.

12:00-1:00 (Break)

1:00:-4:00 Eric Beach walked the site and building interior conditions, observing construction methods, existing repair or modifications, described the design in notes and sketches. Ashley Cramer photographed more details of items to be removed from the Head House, and searched materials in the MSVD archives.

#### Field Survey Methodology

CMB Architects was provided with two sets of detailed working drawings and specifications at the initial meeting with Thomas Holloway, Chief Engineer, which represent the construction in 1932 and in 2010. The 2010 drawings that CMB received appeared to be based upon a thorough survey of existing conditions and scanning of the 1932 drawings. The methodology of the CMB Field Survey was therefore a process of checking the documents

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validity against the observable visual conditions. Much of the WTP is concealed by the presence of water in various states of purification, and was therefore not observable. To overcome this, CMB has included several photos dated during and after construction. Refer to photo key and index.

After sketching the floor plans and noting structures to be removed, Eric Beach walked around and through the parts of the Works that are affected by the proposed changes. The following Survey is a summary of the Materials and Construction and Proposed Changes to the Head House, Trestle and Settling Basins 1 through 4.

# Materials and Construction - Head House

#### Foundation

The foundation walls are poured in place concrete, extending up 2'-0" above grade. Small exposed river stone and sand aggregate.

#### **Floors**

The floors are constructed of poured in place concrete, sealed and scored.

#### **Exterior Walls**

The exterior walls are constructed of multiple wythes of a brick with a brick veneer wythe on both the interior and exterior. The bricks are laid in a common bond pattern with non-colored grey mortar. From the visible character of the brick it is an iron- spot buff brick, with black to brown spots on the surface of every exposed brick. The following excerpt from Section 39 of the Specifications identifies allowable brick manufacturer and type: "Kittanning Brick and Fire Clay Co., Shade No. 60, full range set Manganese Grey". Refer to Bibliography for Specifications publication information. During the course of the Field Survey the brick type was confirmed visually and the Archives were not searched to verify if the installed brick is the same as listed above.

Exterior walls are trimmed with stonework, with the exception of the Tower Cupola that is entirely stone. From the visible character of the stone, it is probably Indiana Limestone, "Buff" shade with a rubbed finish.

#### Interior Walls

The interior walls are constructed of exposed brick. Interior face brick is specified as "Shades No.'s 5 and 6 Mingled Buff" by the same manufacturer. Other interior walls are plaster faced common

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brick in stair wells. Existing walls are not painted, except in the stairwell. Metal partitions separate the Head House from the Settling Basins (interior rooms). Partitions are fabricated sheet metal, painted. Partitions are supported by posts integrated with the half-glazed metal partitions.

#### Ceiling

The ceilings throughout the Head House and Settling Basins is constructed of painted steel trusses and bracing with an exposed metal pan decking, also painted. Several skylights pierce the roof deck and have been reglazed with corrugated fiberglass panels.

#### Roof

The roofs were inaccessible during the Field Survey, however, they were observed from above from the Tower parapet roof. The roofs are low slope with skylights and transom windows penetrating the roof. Most roofs observed included parapets with stone copings. The original roofing was modified bitumen, built up roofs (BUR). According to the current Chief Engineer, most roofs have been replaced with EPDM (rubber) except the Tower Parapet roof level which is BUR. An exceptional existing roof is the Tower's pyramidal cupola, originally designed with lead sheet roofing which has since been replaced with stainless steel. The roofing metal has battens in a tree-form pattern as shown in Figure 6, in the Narrative Report.

#### **Exterior Stone Steps**

At the time of the Field Survey, the 1932 stone steps were covered by a temporary wood stair. The 2010 improvement drawings indicate the steps are to be removed and "rebuilt". Not all of the steps were visible so an evaluation was not possible, but the deterioration observed can be repaired. It is preferable to repair rather than replace the original steps.

#### Equipment Modifications to the Building - The Head House and Settling Basins

The Proposed Improvement Plans dated 2010 include removing equipment installed in 1932 and from later dates. These items include but are not limited to:

- Rapid Mixers located at the north east corner of the head house;
- b. Westinghouse switchboard controlling the agitators for the Flocculation Basins;
- c. Gas Control Panel at the west side of the Head House entrance level;
- d. Stone sinks on bronze cabinets (to be turned over to the District);

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- e. Recarbination Flow Meter located at the west side of the Head House entrance level;
- f. Pipe railing around the Flocculation Basins;
- g. Flocculator Drive Mechanisms (motors);
- h. The center sludge collector sweep mechanical agitators in Settling Basins 1, 2, 3, & 4;

# **Building Modifications to the Head House**

The Proposed Improvement Plans dated 2010 include modifications to the Head House exterior appearance and function. These items include but are not limited to:

- a. A Loading Dock (32-inches high) and an A 8-ft x 10-ft. overhead door on the East Elevation:
- b. A 9-ft x 12-ft, overhead door opening on the East Elevation of Settling Basins 2 and 3;
- c. Two Solids Contact Clarifiers, each 136-ft. diameter by 56-ft tall. Located to the north of the Head House;
- d. Between the Clarifiers a brick veneer faced pH Control Building is located;
- e. Several other new buildings are planned that extend north of the domed Solids Contact Clarifiers that will not be directly visible from the Head House. These are indicated in the 2010 drawing, "General Site Plan".

# Materials and Construction - Settling Basins

#### Foundation

The foundation walls are cast in place concrete, extending up to grade. Small exposed river stone and sand aggregate.

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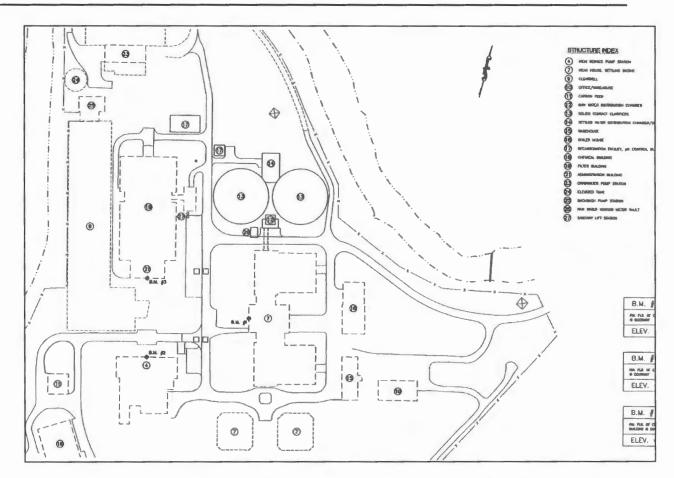


Figure 07, "General Site Layout" Drawing C-0.07, MS Consultants, Inc. John P. Pierko, P.E., Engineer, July 2010 (partial view)

#### Floors and walls

The floors and walls are constructed of cast in place concrete. The formwork and finishing is of very high quality, with smooth surfaces, no visible formwork marks, and well formed curved surfaces.

#### **Exterior walls**

For the interior Settling Basins the walls are the same as the Head House. For the exterior settling basins, there are no exterior walls. The wall structure is completely below grade.

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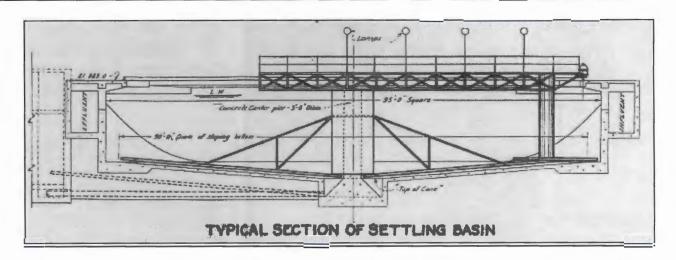


Figure 08, "Purification and Pumping Works - Equipment & Mech Agitators Diagrams " Drawing 117, Bid Package No. 29; W. H. Dittoe, Chief Engineer, April, 1930 (partial view)

#### Interior walls

The Settling Basins' interior walls are cast-in-place concrete. The basins were full of water during the Field Survey. Refer to Historic Photos for views of Settling Basins without water.

#### Ceiling

The exterior Settling Basins are open to the air, the interior Basins ceilings are the same materials as described for the Head House.

#### Roof

The exterior Settling Basins are open to the air, the interior Basins are roofed with the same materials as described for the Head House.

#### Materials and Construction – Trestle, Coal Pocket and Ash Bins

#### Foundation, Exposed Structure of Trestle

The floors and walls are constructed of cast-in-place concrete. The formwork and finishing is of average quality. The surface is eroded with exposed reinforcing bars. The trestle is divided into bays with arched openings

The guard railing at the track level shown in the figure below has already been removed by a previous contact, if it ever existed.

Recordation of the Head House, Trestle and Settling Basins 1-4 for Meander Water, Mahoning Valley Sanitary District (MSVD) Mineral Ridge, Ohio

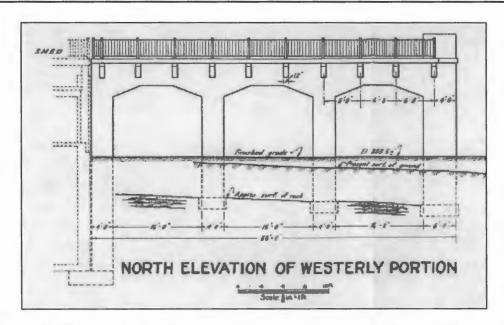


Figure 09, "Reinforced Concrete Railroad Trestle - Elevations & Sections "" Drawing 49, Bid Package No. 29; W. H. Dittoe, Chief Engineer, April, 1930 (partial view)

#### Exposed Walls of the Coal Pocket and Ash Bins

The Coal Pocket is under the Trestle structure (adjacent to the Garage). The Ash Bin is adjacent to the Trestle. The Coal Pocket walls infill the Trestle arches with concrete masonry units. The floors of the Coal Pocket and Ash Bins are poured in place concrete. The Coal Pocket is the eastern termination of the Train Trestle that is being removed. The western termination of the Trestle is on the West side of the Head House.

#### Coke Pocket Roof

Asphalt composition shingles and a metal roof truss have been added on top of the 1932 train Trestle. The date the roof was added is unknown.

Recordation of the Head House, Trestle and Settling Basins 1-4 for Meander Water, Mahoning Valley Sanitary District (MSVD) Mineral Ridge, Ohio

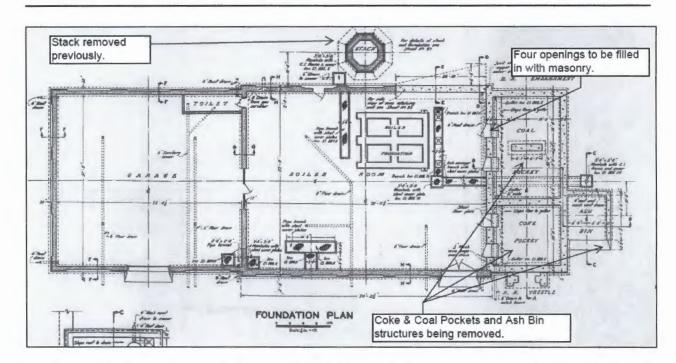


Figure 10, "Coal Pocket, Boiler House & Garage - Plans and Sections "" Drawing 94, Bid Package No. 29; W. H. Dittoe, Chief Engineer, April, 1930 (partial view)

# 6 Bibliography

Recordation of the Head House, Trestle and Settling Basins 1-4 for Meander Water, Mahoning Valley Sanitary District (MSVD) Mineral Ridge, Ohio

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# 07 Appendix I: Figure Index

Recordation of the Head House, Trestle and Settling Basins 1-4 for Meander Water, Mahoning Valley Sanitary District (MSVD) Mineral Ridge, Ohio

Name of Property:

**Mahoning Valley Sanitary District** 

City:

Mineral Ridge, Ohio

County:

Trumbull

State:

Ohio

Name of Scanner:

Chambers, Murphy & Burge/Eric Beach

Date of Scans:

June 2011

**Location of Original Files:** 

Chambers, Murphy & Burge Restoration Architects

43 E. Market St., Suite 201, Akron OH 44308

Number of Scans:

25

Size of Original Documents:

11"x17"

**Index of Figures:** 

Note: Figures 1-10 are partial views of figures that are embedded in the

Narrative Report. Full size figures are included in Appendix I.

Figure 01:

"General Map of the Meander Creek Water Supply" Drawing 1, Bid Package

No. 29; W. H. Dittoe, Chief Engineer, August, 1930

Figure 02:

"General Plan of Completed Works" Drawing 3, Bid Package No. 29; W. H.

Dittoe, Chief Engineer, April, 1930

Figure 03:

"Head House - Detail of the Tower" Drawing 66, Bid Package No. 29; C.F.

Owsley, Consulting Architect, April, 1930

Figure 04:

"Miscellaneous Details of Superstructure - Detail of Head House Entrance"

Drawing 67, Bid Package No. 29; C.F. Owsley, Consulting Architect, April, 1930

Figure 05:

"Preliminary Treatment Works - Transverse Section B-B" Drawing 8, Bid Package

No. 29; W. H. Dittoe, Chief Engineer, April, 1930

Figure 06:

"Preliminary Treatment Works - West Elevation" Drawing 62, Bid Package No.

29; C.F. Owsley, Consulting Architect, April, 1930

Figure 07:

"General Site layout" Drawing C-0.07, Rapid Mix, Flocculation, Settling Basin and

Recarbination Improvements" MS Consultants, July 2010

Figure 08:

"Head House - Detail of the Tower" Drawing 66, Bid Package No. 29; C.F.

Owsley, Consulting Architect, April, 1930 (partial view)

Figure 09:

"Reinforced Concrete Railroad Trestle - Elevations & Sections " Drawing 49, Bid

Package No. 29; W. H. Dittoe, Chief Engineer, April, 1930 (partial view)

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# 07 Appendix I: Figure Index

Recordation of the Head House, Trestle and Settling Basins 1-4 for Meander Water, Mahoning Valley Sanitary District (MSVD) Mineral Ridge, Ohio

Figure 10:	"Reinforced Concrete Railroad Trestle - Elevations & Sections "" Drawing 49, Bid Package No. 29; W. H. Dittoe, Chief Engineer, April, 1930 (partial view)
	The Following Figures were not embedded in the Narrative Report, they are included for reference.
Figure 11:	"Location Plan" Drawing 2, Bid Package No. 29; W. H. Dittoe, Chief Engineer, April, 1930
Figure 12:	"Preliminary Treatment Works" Drawing 7, Bid Package No. 29; W. H. Dittoe, Chief Engineer, April, 1930
Figure 13:	"Head House Plan" Drawing 9, Bid Package No. 29; W. H. Dittoe, Chief Engineer, April, 1930
Figure 14:	"Head House – Substructure of Car Shed" Drawing 14, Bid Package No. 29; W. H. Dittoe, Chief Engineer, April, 1930
Figure 15:	"Prelim Treatment Works - Mixing & Settling Basins 1 & 2 - Plan" Drawing 16, Bid Package No. 29; W. H. Dittoe, Chief Engineer, April, 1930
Figure 16:	"Prelim Treatment Works - Mixing & Settling Basins 1 & 2 - Sections" Drawing 16, Bid Package No. 29; W. H. Dittoe, Chief Engineer, April, 1930
Figure 17:	"Prelim Treatment Works - Carbonation Basins - Sections" Drawing 22, Bid Package No. 29; W. H. Dittoe, Chief Engineer, April, 1930
Figure 18:	"Railroad Spur Track Plan" Drawing 48, Bid Package No. 29; W. H. Dittoe, Chief Engineer, April, 1930
Figure 19:	"Head House – Floor Plans of Tower" Drawing 55, Bid Package No. 29; C.F. Owsley, Consulting Architect, April, 1930
Figure 20:	"Preliminary Treatment Works - Roof Plan" Drawing 56, Bid Package No. 29; C.F. Owsley, Consulting Architect, April, 1930
Figure 21:	"Preliminary Treatment Works - South Elevation" Drawing 63, Bid Package No. 29; C.F. Owsley, Consulting Architect, April, 1930

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# 07 Appendix I: Figure Index

Recordation of the Head House, Trestle and Settling Basins 1-4 for Meander Water, Mahoning Valley Sanitary District (MSVD) Mineral Ridge, Ohio

- Figure 22: "Preliminary Treatment Works North Elevation" Drawing 64, Bid Package No. 29; C.F. Owsley, Consulting Architect, April, 1930
   Figure 23: "Preliminary Treatment Works East Elevation" Drawing 65, Bid Package No. 29; C.F. Owsley, Consulting Architect, April, 1930
   Figure 24: "Preliminary Treatment Works Railing Details Settling Basins" Drawing 68, Bid Package No. 29; C.F. Owsley, Consulting Architect, April, 1930
- Figure 25: "Purification and Pumping Works Special Lighting Fixtures Settling Basins"
  Drawing 111, Bid Package No. 29; C.F. Owsley, Consulting Architect, April, 1930

Figure 1 - Dwg. 1 - General Map of the Meander Creek Water Supply - 1930

Figure 2 - Dwg. 3 - General Plan of Completed Works.tif

Figure 3-Dwg. 66-Head House-Detail of Tower.tif

Figure 4 - Dwg. 67 - Purification and Pumping Works - Misc Det of Superstructure.tif

Figure 5 - Dwg. 8 - Prelim Treatment Works - Transv. Section.tif

Figure 6 - Dwg. 62 - Prelim Treatment Works - West Elev.tif

Figure 7 - Dwg. C-0.07 - 2010 Improvements.tif

Figure 8 - Dwg. 117 - Purification and Pumping Works - Equipment & Mech Agitators Diagrams.tif

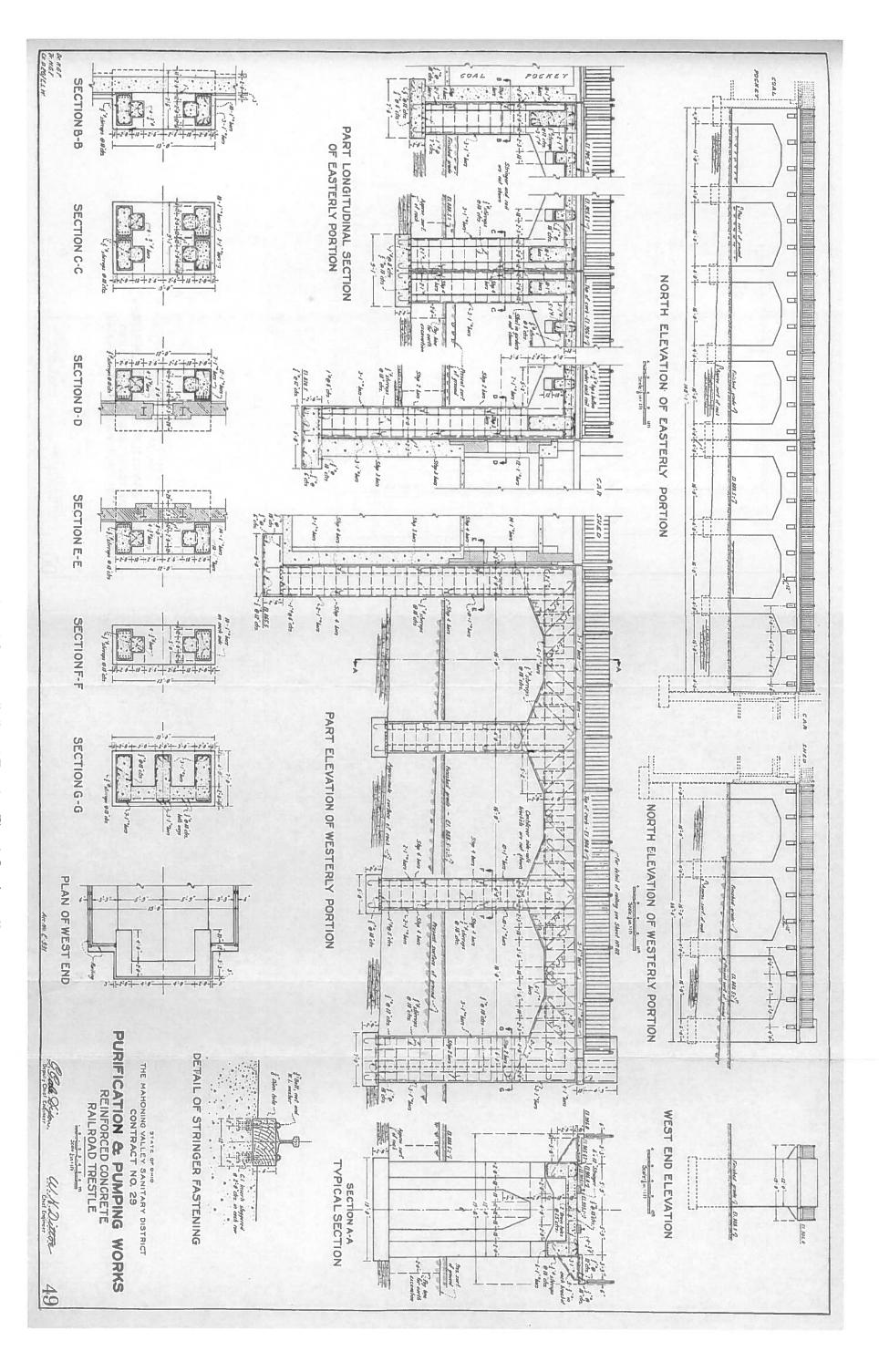


Figure 9 - Dwg. 49 - Reinforced Concrete Railroad Trestle - Elev & Sections.tif

Figure 8 - Dwg. 117 - Purification and Pumping Works - Equipment & Mech Agitators Diagrams.tif

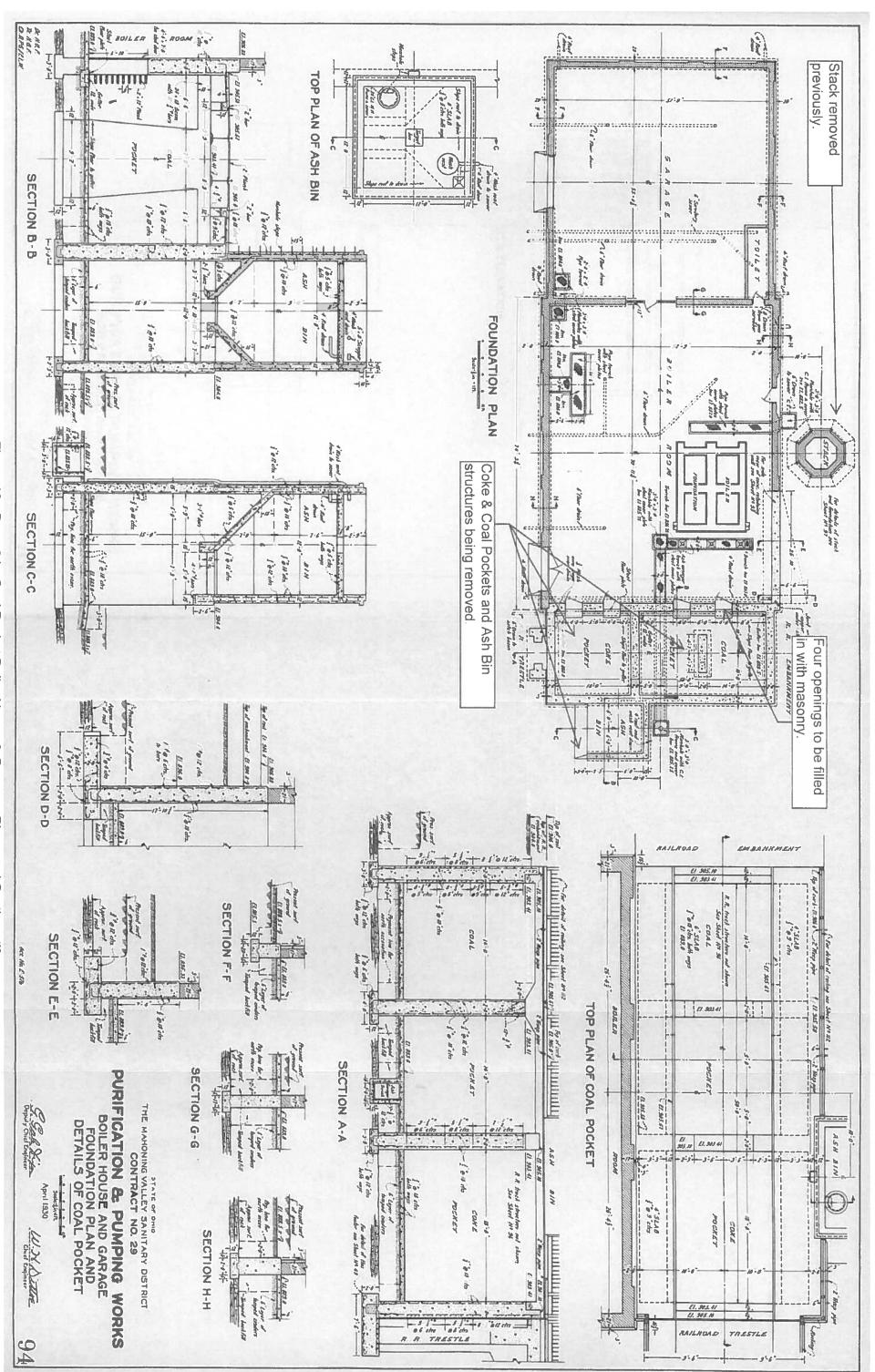


Figure 10 - Dwg. 94 - Coal Pocket Boiler House & Garage - Plans and Sections.tif

Figure 11 - Dwg. 2 - Purification and Pumping Works - Location Plan.tif

Figure 12 - Dwg. 7 - Prelim Treatment Works - Long Section.tif

Figure 13 - Dwg. 9 - Head House - Ground Floor Plan.tif

Figure 14 - Dwg. 14 - Head House - Sub Structure of Car Shed.tif

Figure 15 - Dwg. 16 - Prelim Treatment Works - Mixing & Settling Basins 1 & 2 - Plan.tif

Figure 16.1 - Dwg. 17 - Prelim Treatment Works - Mixing & Settling Basins 1 & 2 - Sections.tif

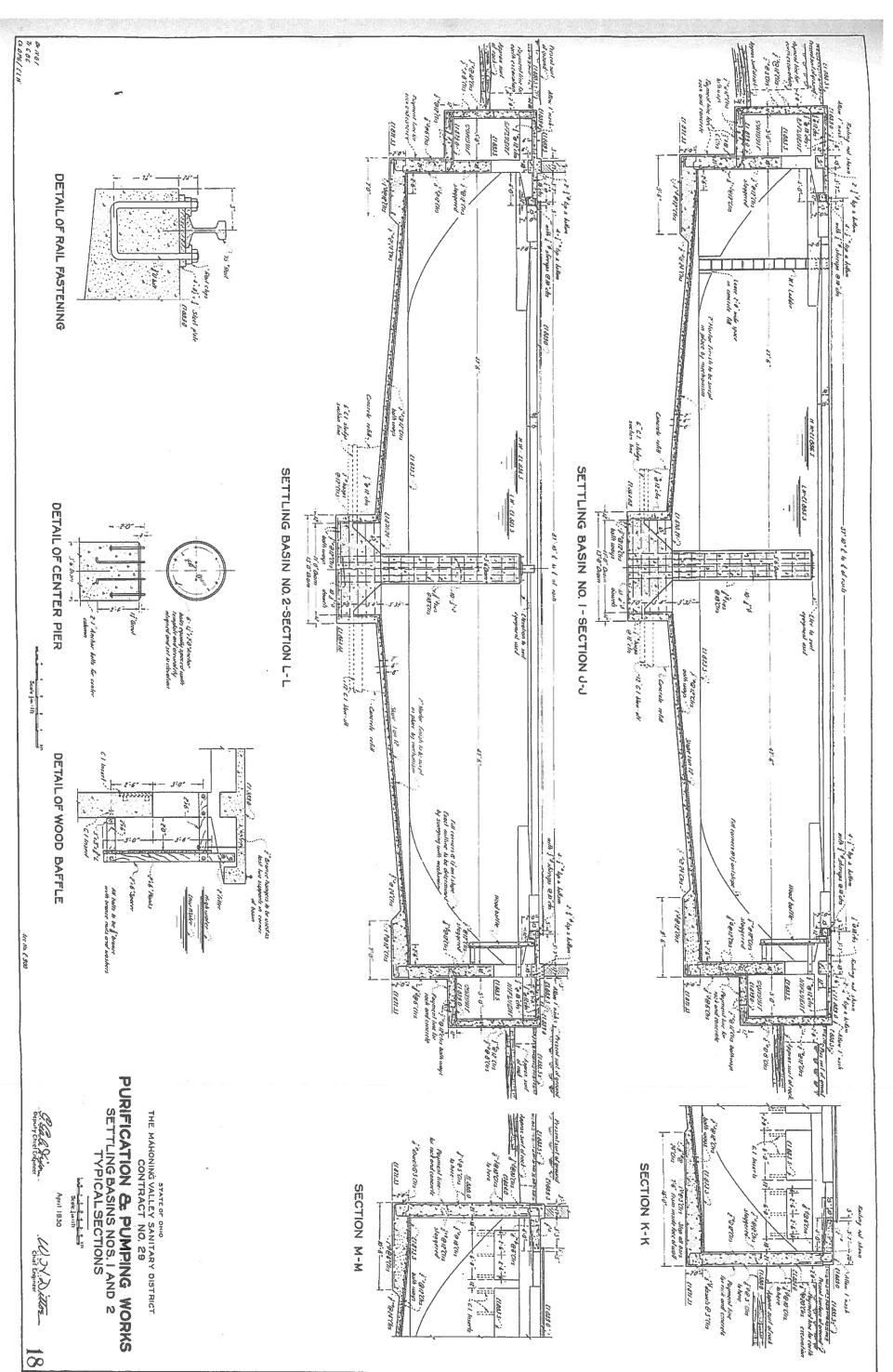


Figure 16.2 - Dwg. 17 - Prelim Treatment Works - Mixing & Settling Basins 1 & 2 - Sections.tif

Figure 16.3 - Dwg. 17 - Prelim Treatment Works - Mixing & Settling Basins 1 & 2 - Sections.tif

Figure 17 - Dwg. 22 - Prelim Treatment Works - Carbonation Basins - Sections.tif

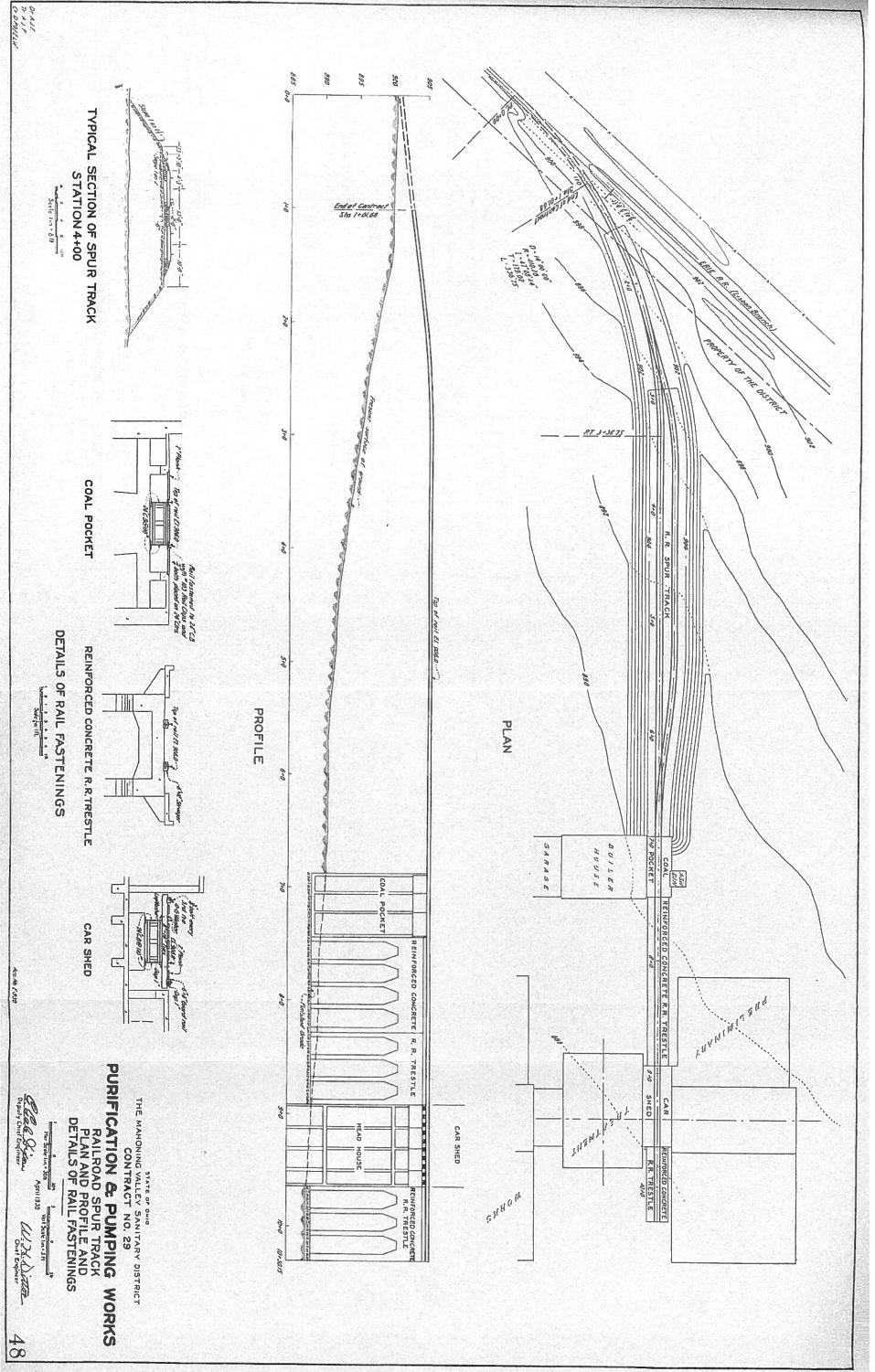


Figure 18 - Dwg. 48 - Railroad Spur Track - Plan.tif

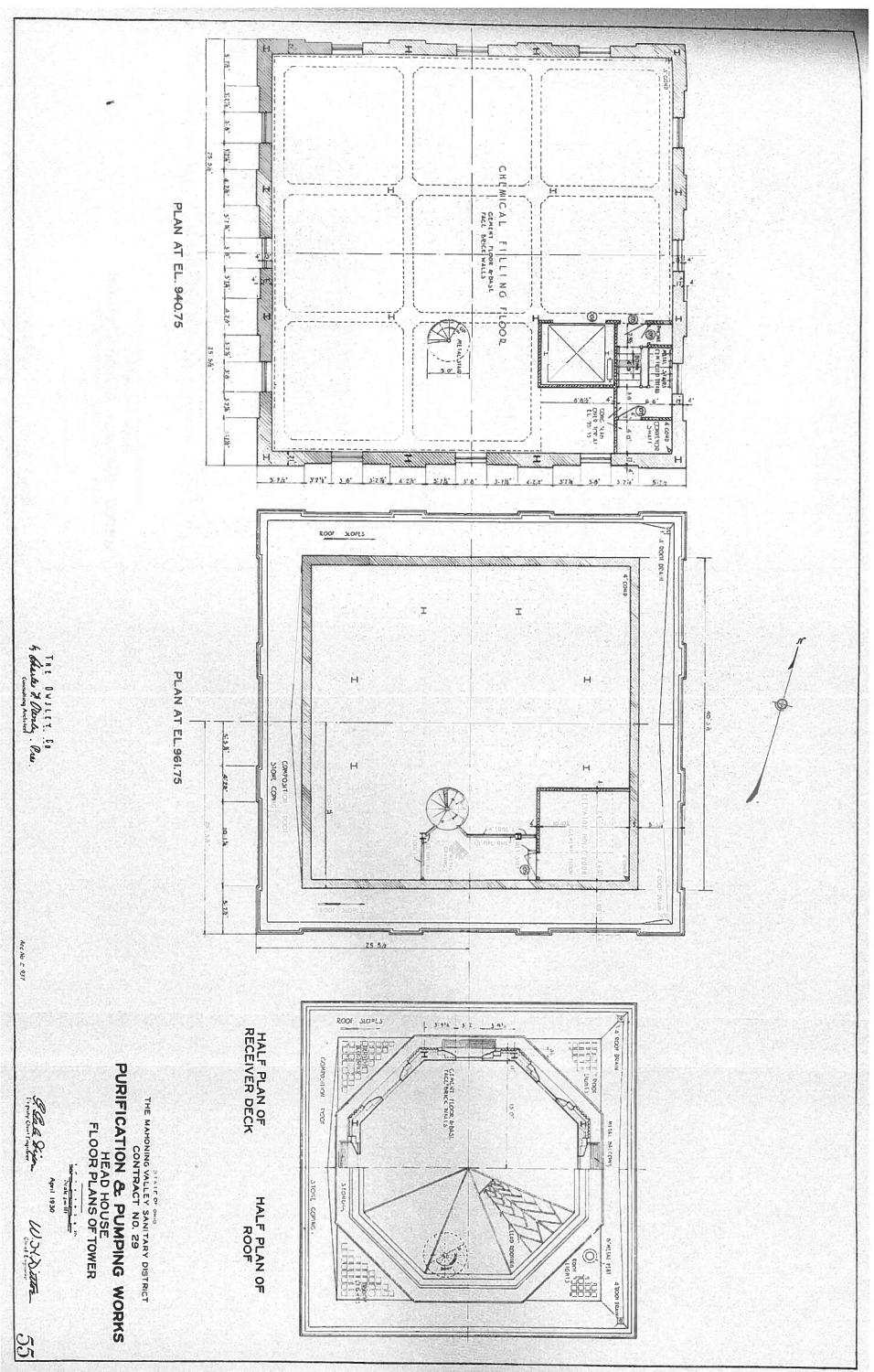


Figure 19 - Dwg. 55 - Head House - Floor Plans of Tower.tif

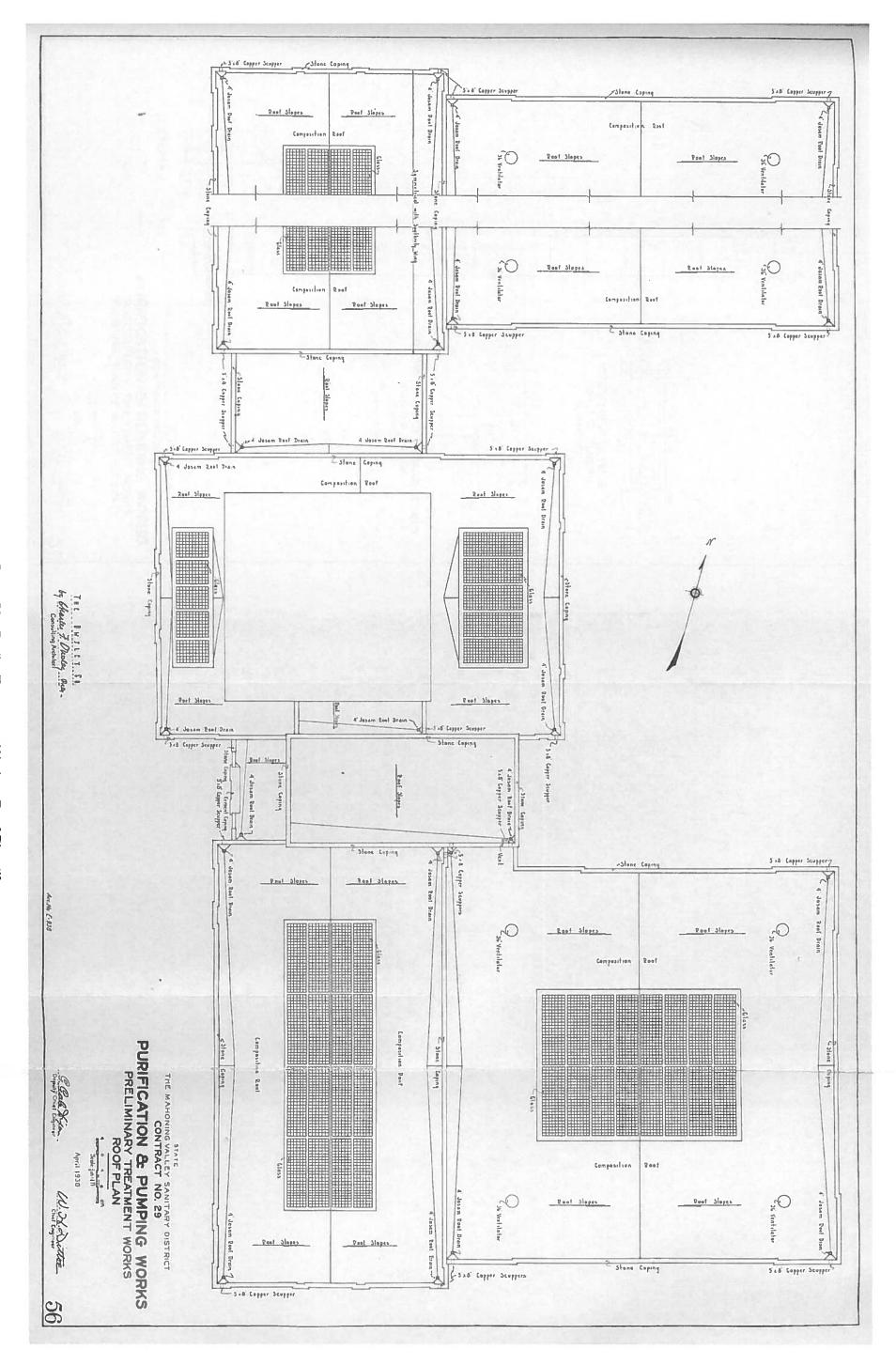


Figure 21 - Dwg. 63 - Prelim Treatment Works - South Elev.tif

Figure 22 - Dwg. 64 - Prelim Treatment Works - North Elev.tif