Stearns & Wheler, LLC
ENVIRONMENTAL ENGINEERS & SCIENTISTS

Report

Historical Summary NYSEG Cortland/Homer Former MGP Cortland County, New York

April 2001

HISTORICAL SUMMARY

NYSEG CORTLAND/HOMER FORMER MGP

CORTLAND COUNTY, NEW YORK

Prepared for

NEW YORK STATE ELECTRIC & GAS CORPORATION

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INTRODUCTION

Stearns & Wheler has been retained by NYSEG (New York State Electric and Gas Corporation) to complete a supplemental Remedial Investigation at the former Cortland/Homer manufactured gas plant (MGP) site (subject site) located along South Main Street (Route 11), Village of Homer, Cortland County, New York. This supplemental investigation seeks to identify specific areas located on or adjacent to the subject site that may have been impacted by the former MGP site. As part of that effort, NYSEG has requested that Stearns & Wheler complete a historical review of the site to identify former structures, operations, and events that might be instrumental in defining the scope of future investigation. This report is a comprehensive gathering of recently attained, as well as previously reported information compiled from prior reports commissioned by NYSEG; and public and private records on file with state and local municipal agencies.

METHODS

Several resources were utilized in gathering information as part of this historical component of the Cortland/Homer MGP site historical review. Historical site information gathered for NYSEG from prior investigative phases was compiled for inclusion in this report, and appropriately referenced. In addition, the following agencies were queried for information relevant to the subject site: Cortland County Planning Dept., Cortland County Health Dept., Cortland County Assessor, Cortland Free Library, USDA Natural Resources Conservation Service, USDA Farm Service Agency, Town of Cortlandville Clerk, Town of Cortlandville Assessor, Town of Cortlandville Water & Sewer Depts., Cortland County Historical Society, Village of Homer Clerk, and the Town of Homer Clerk.

The information gathering also included a physical reconnaissance of the study area, specifically the Tioughnioga River located adjacent to the site. As noted previously, the principal objective of the historical assessment was to provide information that might affect the way in which future site investigation is carried out. An important element of future investigation is an evaluation of possible site-related impacts to the sediments of the Tioughnioga River. In order to establish an appropriate area of potential concern within the river, Stearns & Wheler completed a reconnaissance to identify physical barriers or dams that serve as downstream sediment traps. Future investigative efforts would only need to extend downstream to the closest verified trap.

SITE HISTORY

The subject site is located at 216 S. Main Street (Route 11), Village of Homer, Cortland County, New York, and is situated in the Homer-Preble Valley. The site consists of two adjoining land parcels (Tax ID Nos. 76.57-01-08 & 76.57-01-09) south and north, respectively. However, former MGP-related operations were historically confined to the south parcel. A single-story commercial building, attached storage shed, and asphalt-paved storage yard occupy the south parcel. The north parcel is not developed and currently used for parking.

Geologically, bedrock underlying the Homer-Preble Valley consists of nearly flat-lying shale, siltstone, and fine-grained sandstone. Based on a subsurface exploration program conducted by Remediation Technologies, Inc., shallow unconsolidated sediments consist of an upper silty sand with gravel, underlain by a sandy gravel with silt, and a lower silt unit. According to the USGS topographic map of the Cortland, NY Quadrangle (1955), the site is approximately 1,115 feet above sea level. In addition, the site is located approximately five feet above, and 150-ft. west of the West Branch Tioughnioga River, which flows south through the Homer-Preble Valley, and past the site.

The Homer/Cortland MGP was constructed in 1858 and began supplying coal gas to the Village of Homer that same year under the name Homer & Cortland Gas Light Company (HCGL). HCGL incorporated in 1860 and added the City of Cortland to its distribution network that year. The August 3, 1883 edition of the Cortland newspaper, *The Democrat,* reported that a recent leak

in the gas main near the gas house resulted in a loss of approximately 10,000 cu. ft. of coal gas. The September 9, 1887 edition of *The Democrat* reported that HCGL was constructing two buildings: a 124' x 29' and a 75' x 25' building to be used for storing coal, coke, etc. According to *Grip's Historical Souvenir of Cortland* (Welch, Edgar, 1899), the MGP burned and was rebuilt in 1890.

Historic Sanborn fire insurance maps for the years 1902, 1908 and 1915 were on file at the Cortland County Historical Society (CCHS) and reviewed as part of this investigation. The 1902 Sanborn map shows the subject MGP site developed with coal and coke sheds, an iron gas holder (labeled 50,000 cu. ft. capacity with a reported 45,000 cu. ft. capacity), purifying house, retorts, an exterior platform, as well as several other unidentified rooms within the building. Between 1902 and 1908, the Sanborn maps depict the addition of a 100,000 cubic feet capacity gas holder to the south side of the existing gas holder, and the addition of a two-story brick purifying house to the north side of the building. It appears that the former purifying house was converted to storage space between 1902 and 1908. The purifying house has since been dismantled, along with all other related MGP structures. In addition, the exterior platform had been removed. The 1915 Sanborn map shows the same general building design with the addition of a second iron chimney along the west side of the site building, and the identification of all areas/rooms to include a coke shed, coal shed, retorts, engine room, governor room, storage area, tar pump and wash room. An undated photograph on file at the CCHS shows the MGP as it stood some point in time between the years 1915 and 1940, before dismantling commenced. The CCHS photograph of the site and the aforementioned Sanborn maps are included in this letter report as Appendix A.

In 1908, HCGL was renamed Barstow and Co. of New York. New York State Gas & Electric Corporation later purchased the MGP in 1911. New York State Gas & Electric Corporation merged with Ithaca Gas & Electric Company in 1918 and became New York State Electric & Gas (NYSEG). While in operation, coal gas and carburetted water gas were produced on site from 1858 to 1932. According to the *Preliminary Work Plan to Conduct Onsite Pilot-Scale Testing of Pumped Groundwater Treatment Technologies At NYSEG's Cortland/Homer MGP Site* (Remediation Technologies, Inc., April 1992), coal gas was produced on site until 1921 and

carburetted gas replaced coal gas production from 1921 to 1932. The gas holder was used until early 1935 for storing natural gas. According to a September 4, 1940 newspaper article on file at the CCHS, NYSEG dismantled the 45,000 cu. ft. (41'7" diameter x 19' deep) gas holder in 1940. NYSEG reportedly commissioned Otsego Iron Co. of Oneonta to cut down the steel structure. Brockway Motor Company, Inc. (Brockway) purchased the subject property in 1944 and razed the remaining MGP structures. Brockway began constructing a truck sales and service building in 1947. Remediation Technologies, Inc. (RETEC) reported that Brockway utilized two rooms in the northeast corner of the current I.D. Booth building for painting, and paint and oil storage, according to a 1948 floor plan. In addition, RETEC reported the apparent presence of a funnel located in the aforementioned room that discharged to a 500-gallon tank, labeled "spent oil", located outside the building. Irving D. Booth purchased the property in 1971 and renovated the building to its current configuration. RETEC reported that the aforementioned 500-gallon "spent oil" storage tank had been removed.

According to the Cortland County Clerk's Office, the land parcel that comprises the north section of the subject site was owned by Mr. and Mrs. Arthur Call prior to 1928. Mr. and Mrs. Call sold the property to R.E. Bucklin, Inc. in 1928. Clipper Service Station purchased the property from Bucklin in 1929. According to *Investigation of the Former Coal Gasification Site Cortland/Homer, Homer, New York - Task 3* (E.C. Jordan Co., May 1989), a fuel service station was present on the aforementioned property from the 1920's until 1972. Ithaca Propane purchased the site in 1969, and Randolph Well & Pump Company purchased the property in 1971. On May 9, 1972, Irving D. Booth, Inc. purchased the property from Randolph Well & Pump Company and demolished the on-site gasoline service station. New York Telephone occupied the north end of the Booth building, and utilized the parking lot adjoining the Booth building to the north, for company vehicles. A 1,000-gallon gasoline UST and associated fuel dispensing pump were located in the north parking lot and used by New York Telephone company fleet until they were decommissioned in 1984. Today, Verizon (formerly known as New York Telephone and Bell Atlantic) still occupies the northern building.

PROCESSES & PRODUCTION

MGP-related processes and production were investigated to identify if there are specific areas at the site and adjacent to it that may require additional investigation, based on evidence of former structures, operations, spills, etc.

Mr. Alfred Beers, NYSEG representative, was interviewed via telephone on January 29, 2001. Mr. Beers had conducted research on the subject site at the NYS MGP Archive. According to Mr. Beers, the following information was compiled from *Electrical Corporation and Gas Corporations Classes A, B &C for NYSG&E Corporation and Its Predecessors* (1905 through December 31, 1924). Partial records existed for the years 1905 through 1924. A lime scrubber was used in the early reporting years, from 1905 to 1913. On site coal tar production ranged from 19,528 gallons during 1907 to 51,347 gallons during 1913. After 1913, annual gas production rates for the Cortland Homer MGP were combined with three other MGPs making the production rates for the subject site indistinguishable from the total for all four MGPs. Mr. Beers indicated that the median tar production rate for the years 1919 through 1924 was in the 45,000 gallons per year range, based on annual gas production rates. Mr. Beers reported that part of an existing tar well was partitioned off and abandoned in 1907, and a concrete tar well was constructed in its place, however, there was no reference to the location of this well.

The following information was compiled from the previously referenced RETEC report (April 1992). RETEC reportedly attained much of their information from prior site investigation reports, as well as via daily plant operation details provided by Mr. Larry Mastin, former MGP employee (1927 to 1935). RETEC reported that coal used for on site production was shipped by railcar from Scranton, PA. Anthracite coal was reportedly used as a fuel source in the generators, and bituminous coal was used in the retorts. Condensed gas was piped to the relief gas holder, then onto the purifying house, and finally to the distribution holder. Carburetted water gas production consisted of injecting oil onto the gas as it passed through a carburetor. The oil used for this process was light brown in color, and delivered to the site by railcar. This oil was stored in an aboveground storage tank located north of the generator house. Wood chips were used to scrub hydrogen sulfide from the gas in the purifiers. The sulfide saturated wood

chips were aerated in outdoor piles, and later reused. Low sites across the property were occasionally filled with small amounts of residual coal and ash from the generator.

RETEC reported that 20,179,500 cubic feet of gas was sold to 1,385 customers in 1907 and approximately 600,000 cubic feet of gas was produced per day by carburetted water gas processes in 1928. By-product tar was stored in mortared stone-lined tar wells on site. According to previously referenced Sanborn maps reviewed at the CCHS, a single tar pump existed along the north exterior wall of the subject MGP, adjacent to the condensers. In addition, a coal tar storage vessel was located north of the main MGP building, adjacent to the condensers depicted in the 1915 Sanborn map (RETEC, 1992). According to the RETEC report, Mr. Mastin reported the location of a tar well between the relief gas holder and the coalhouse. He also reported the possibility of other on site tar wells, although did not provide definitive locations. Mr. Mastin was present during decommissioning and dismantling of the subject MGP and reported that tar residuals had accumulated in the relief gas holder, but not in the distribution gas holder. At closing, the relief gas holder was reportedly pumped free of tar, which in turn was dehydrated before being shipped off site. The relief holder walls were then flushed with water, and the walls of the holder were pushed into the base, along with soil and unidentified debris to bring the surface up to grade. The tar wells were reportedly decommissioned in the same manner as the gas holders. While the relief holder foundation (unknown construction) was sunken several feet below grade, Mr. Mastin reported that the distribution holder base was constructed of concrete, and was built above grade. The distribution holder did not contain any residues at the time of dismantling (RETEC, April 1992).

According to *Draft Summary Document (Scoping Effort) for the Former Coal Gasification Site Cortland/Homer, Homer, NY* (Groundwater Technology, Inc., March 1993), on-site MGP operations produced coal tar, coke, ash and purification waste (including spent oxide) as process by-products. Groundwater Technology, Inc. (GT) reported that wood chips coated with iron oxide, coal, and ash was spread around the property to fill in low areas. Components of ash included organics (from incomplete burning of the coal), various heavy metals, and salts. Oxide wastes (most chemically bound with iron) included sulfur, cyanide and ammonia compounds. Coal tar consisted of a complex mixture of organic compounds including polynuclear aromatic

hydrocarbons (PAHs) as well as smaller amounts of phenolics and light aromatic compounds (GT, March 1993).

A former drainage culvert is evident north of the existing site building, which conveyed storm water to the river in the past. There is no specific documentation of its period of service, and it is noted that Stearns & Wheler personnel observed the river out-fall to be dry during recent previous site investigations. It is not known how site runoff may have been conveyed to this former drain. There is no apparent tie-in to the site.

RIVER RECONNAISANCE

NYSDEC has suggested that if a historic discharge of coal tar originated from the subject site, then the potential existed for downstream migration of coal tar along the West Branch Tioughnioga River. As part of this historical investigation, Stearns & Wheler evaluated present as well as historic downstream barriers that may have acted as sediment traps for components of coal tar that may have originated from the subject site. The objective for this component of the historical investigation was to determine an appropriate area of investigation for river sediments.

Historic topographic maps such as the USGS topographic Cortland, NY Quadrangle (1955) identify a dam structure located downstream of the subject site, above the Clinton Avenue Bridge. This dam is referenced by the NYSDEC in the Disputed SRI Conclusions section of their *Comments on Cortland Homer MGP Supplemental Remediation Investigation Report*. In their comments, NYSDEC identifies the aforementioned dam in the vicinity of Clinton Avenue as a physical feature which would preclude sediment transport (directly related to tar-impacted sediment transport) further downstream.

Stearns & Wheler field-checked the location of the Clinton Avenue Dam and found no evidence of its existence. It is possible that the West Branch Tioughnioga River may have been straightened at the time the dam was decommissioned during construction of the retail plaza to the north. An aerial photograph (dated March 27, 1995) shows the addition of the adjoining retail plaza, as well as the present river configuration, which does not include a dam structure.

Both the aforementioned 1955 USGS topographic map and the aerial photograph are included in this report as Appendix B, for comparison purposes.

Closer inspection of the river near Clinton Avenue revealed that unconsolidated sediments are largely absent and the riverbed is comprised of large cobbles and boulders. This indicates that deposition of sediments is not occurring near Clinton Avenue. The river reconnaissance proceeded upstream, north from the Clinton Avenue bridge, to determine the most likely dam structure downstream of the site that would act as a sediment trap. Such a location would effectively represent the maximum downstream extent that site-related impacts to sediment could potentially migrate. Several stone-engineered steps were found which divided the river into tiers, and acted as a means of reducing the water velocity. The only structure appearing to serve as a historic barrier to downstream river flow appeared to be an approximately 18-inch high dam structure, located immediately north of where Dry Creek empties into the West Branch Tioughnioga River. This dam structure is constructed of natural materials, including boulders and wooden tree limbs. Soft sediments located on the riverbed, adjacent to the upstream side of the dam, have accumulated in excess of twelve-inches. Water at this location at the time of inspection was approximately 6 to 8 feet in depth. The dam itself is located approximately 5,000 feet downstream from the subject site. The actual age and of the dam is not known, however, this structure appears to be the oldest downstream barrier where soft bottom sediments are still present. The majority of the riverbed downstream of this dam has been scoured free of sediments, so that primarily cobbles and boulders are all that remain. Photographs of the Dry Creek Dam are included in this report as Appendix C.

CONCLUSIONS

Generally, no additional areas of potential concern, beyond those identified in previous studies, were identified at the former Cortland/Homer MGP site as the result of this comprehensive historical investigation.

Because of the way in which the former structures were reportedly dismantled, it is doubtful that a significant amount of residual remains. Historical accounts indicate that the remaining

contents of the former relief holder were removed, and the holder was cleaned prior to being dismantled. The distribution holder reportedly did not contain any residual material at the time it was dismantled, and it is further documented that the distribution holder was above grade. From this information, it is doubtful that residual material remains in either former holder area.

Records indicate that tar wells were present in the past, although specific locations and numbers of wells could not be verified. The tar wells were reportedly decommissioned in the same general fashion as the relief holder; their contents were removed, and their walls were flushed with water prior to being buried in place. From this process, it is unlikely that significant amounts of residual could remain. It appears from general descriptions of former tar well locations that they were located within the existing I.D. Booth/Verizon building footprint. One tar well was reported to be east of the former relief holder (within the Booth portion of the building), and another was reported to be north of the former exterior wall of the condensers (within the Verizon portion).

The tentatively proposed supplemental on-site investigation scope includes soil borings around the perimeter of the I.D. Booth building that will detect any residual from the above former structures that has migrated away from the former source areas within the building footprint.

The dam located just north of the Dry Creek outflow, along the West Branch Tioughnioga River is the only significant downstream barrier that has acted as a trap for sediment flowing downstream from the area adjacent to the subject property. The aforementioned dam is located approximately 5,000 feet downstream from the subject site.

Remnants of a former drainage culvert (evidently a storm drain) still exists north of the site building. The culvert daylights to the river, but is generally dry. There is generally no historical mention of the drain's presence in relation to site-specific information.

RECOMMENDATIONS

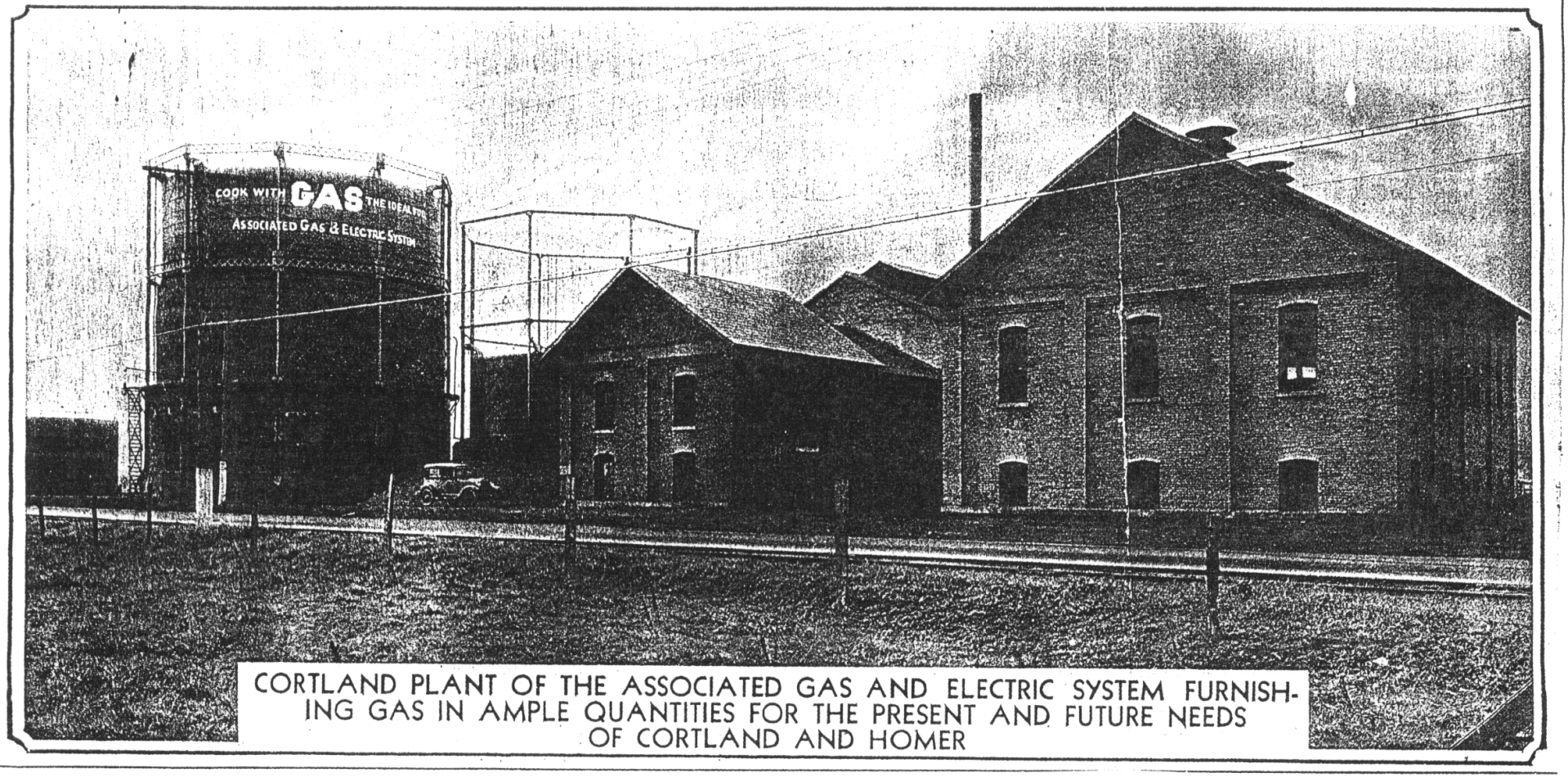
Based on a historical evaluation of prior reports and records reviewed at local municipal agencies, no additional areas of concern with respect to the subject site have been identified. Based on the location of the dam structure further upstream than initially anticipated, it is recommended that future stream sediment sampling programs target the West Branch Tioughnioga River riverbed from the site to the Dry Creek outflow, located approximately 5,000 feet downstream of the subject property. The NYSDEC-approved River Sediment Sampling Program should be modified to account for this revised maximum downstream extent. A river sediment sample could be collected at the previously mentioned culvert drain out-fall to determine its effect on river sediment quality. The findings of the Sediment Sampling Program together with the historical information contained herein, will be used to finalize the scope for supplemental on-site investigation.

APPENDICES

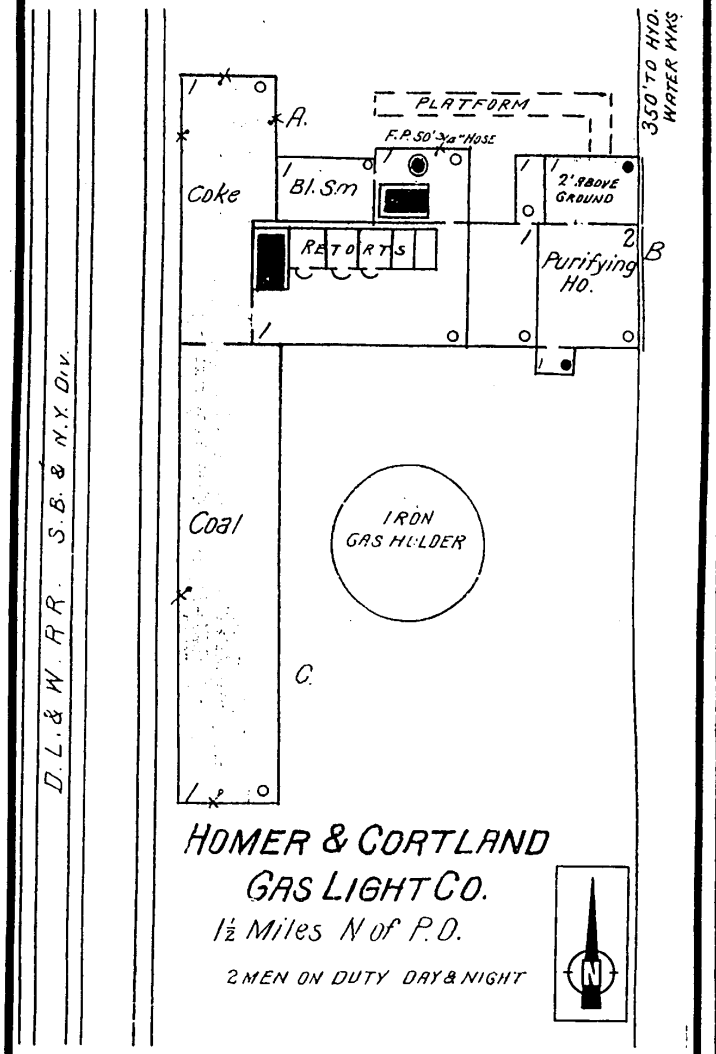
APPENDIX A

CCHS PHOTOGRAPH OF MGP (Circa 1915 – 1940)
HISTORIC SANBORN FIRE INSURANCE MAPS (Dated 1902, 1908, 1915)

Utilities Gas Co.

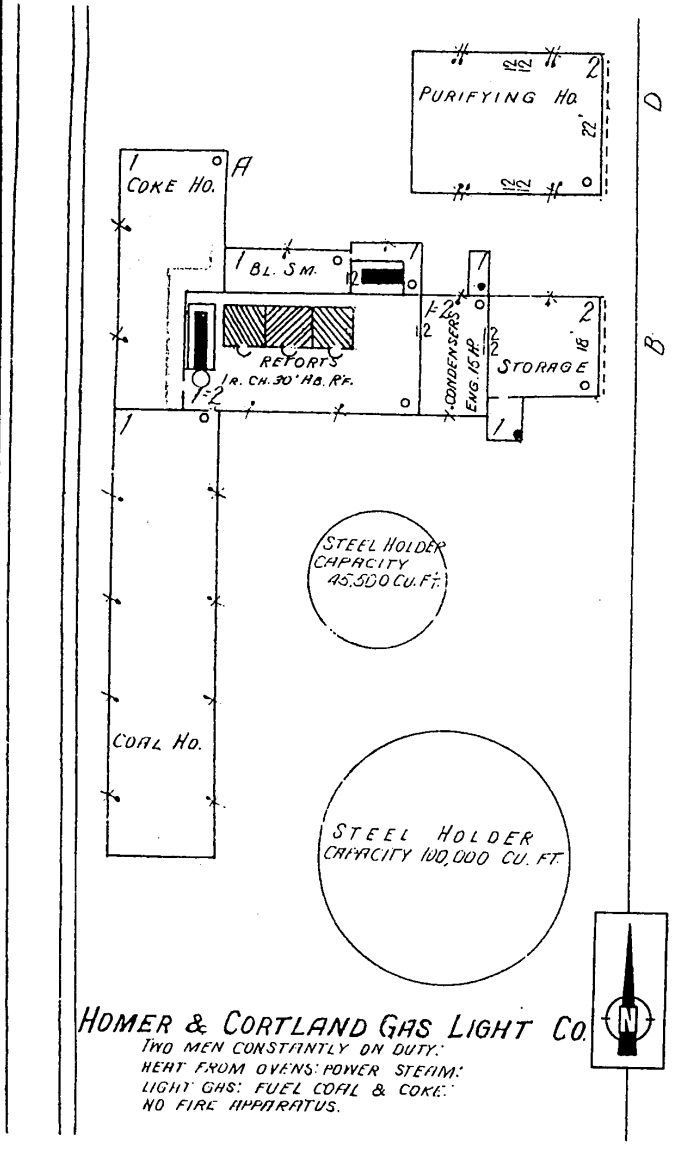


CORTLAND PLANT OF THE ASSOCIATED GAS AND ELECTRIC SYSTEM FURNISHING GAS IN AMPLE QUANTITIES FOR THE PRESENT AND FUTURE NEEDS OF CORTLAND AND HOMER



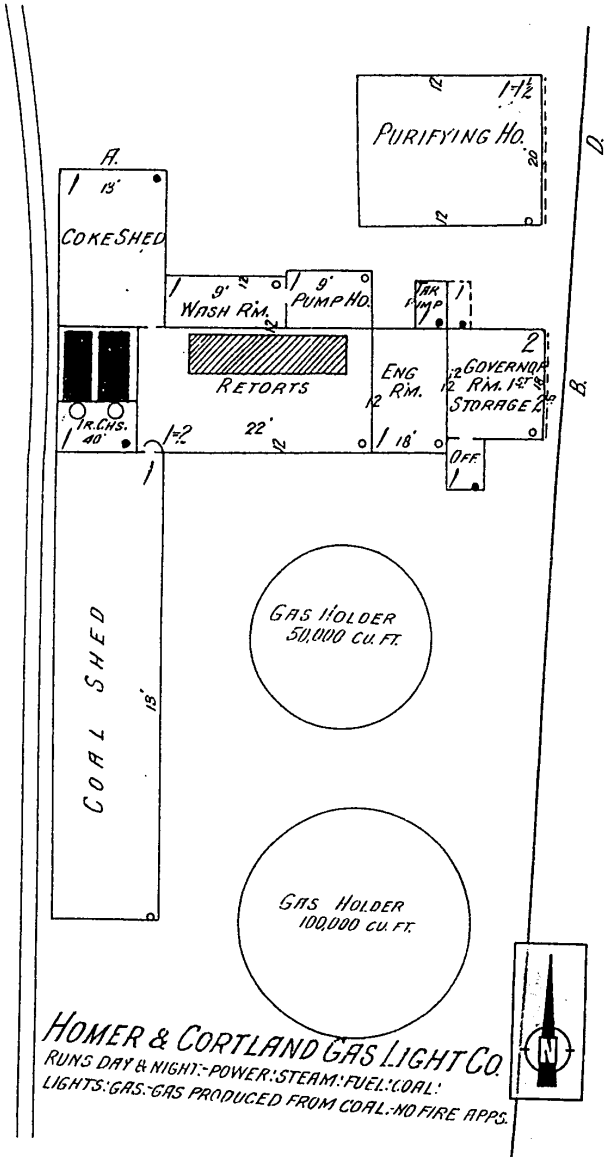
HOMER & CORTLAND GAS LIGHT CO.
1½ Miles N of P.O.
2 MEN ON DUTY DAY & NIGHT

DECEMBER 1902
SANBORN TM



HOMER & CORTLAND GAS LIGHT CO.
TWO MEN CONSTANTLY ON DUTY:
HEAT FROM OVENS: POWER STEAM:
LIGHT GAS: FUEL COAL & COKE:
NO FIRE APPARATUS.

MAY 1908
SANBORN TM

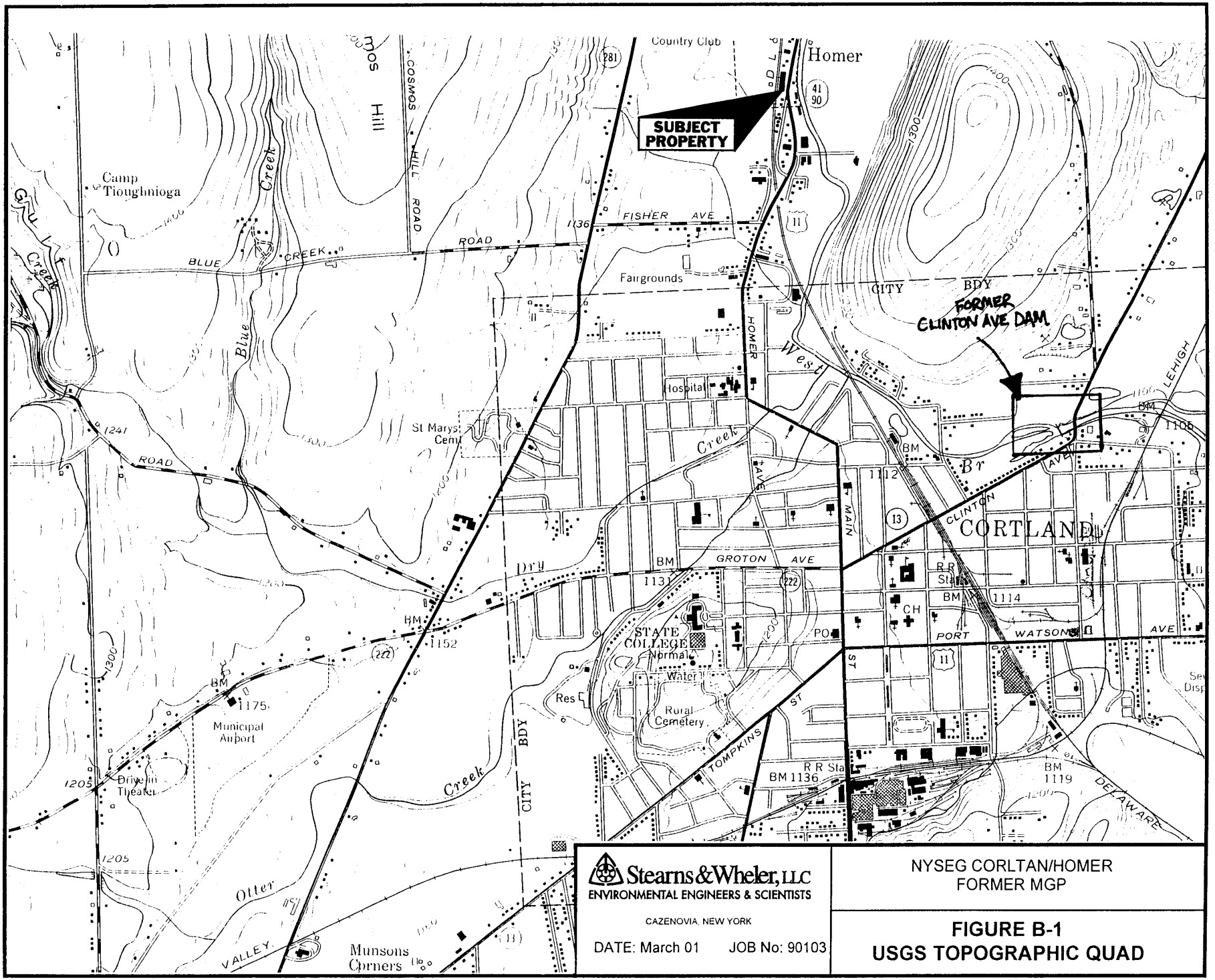


HOMER & CORTLAND GAS LIGHT CO.
RUNS DAY & NIGHT:- POWER: STEAM: FUEL: COAL:
LIGHTS: GAS:- GAS PRODUCED FROM COAL:- NO FIRE APPS.

APRIL 1915
SANBORN TM

APPENDIX B

USGS TOPOGRAPHIC MAPS OF CORTLAND, NY QUADRANGLE (1955)
AERIAL PHOTOGRAPH SHOWING LOCATION OF FORMER
CLINTON AVENUE DAM LOCATION (Dated March 27, 1995)



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CAZENOVIA, NEW YORK

DATE: March 01 JOB No: 90103

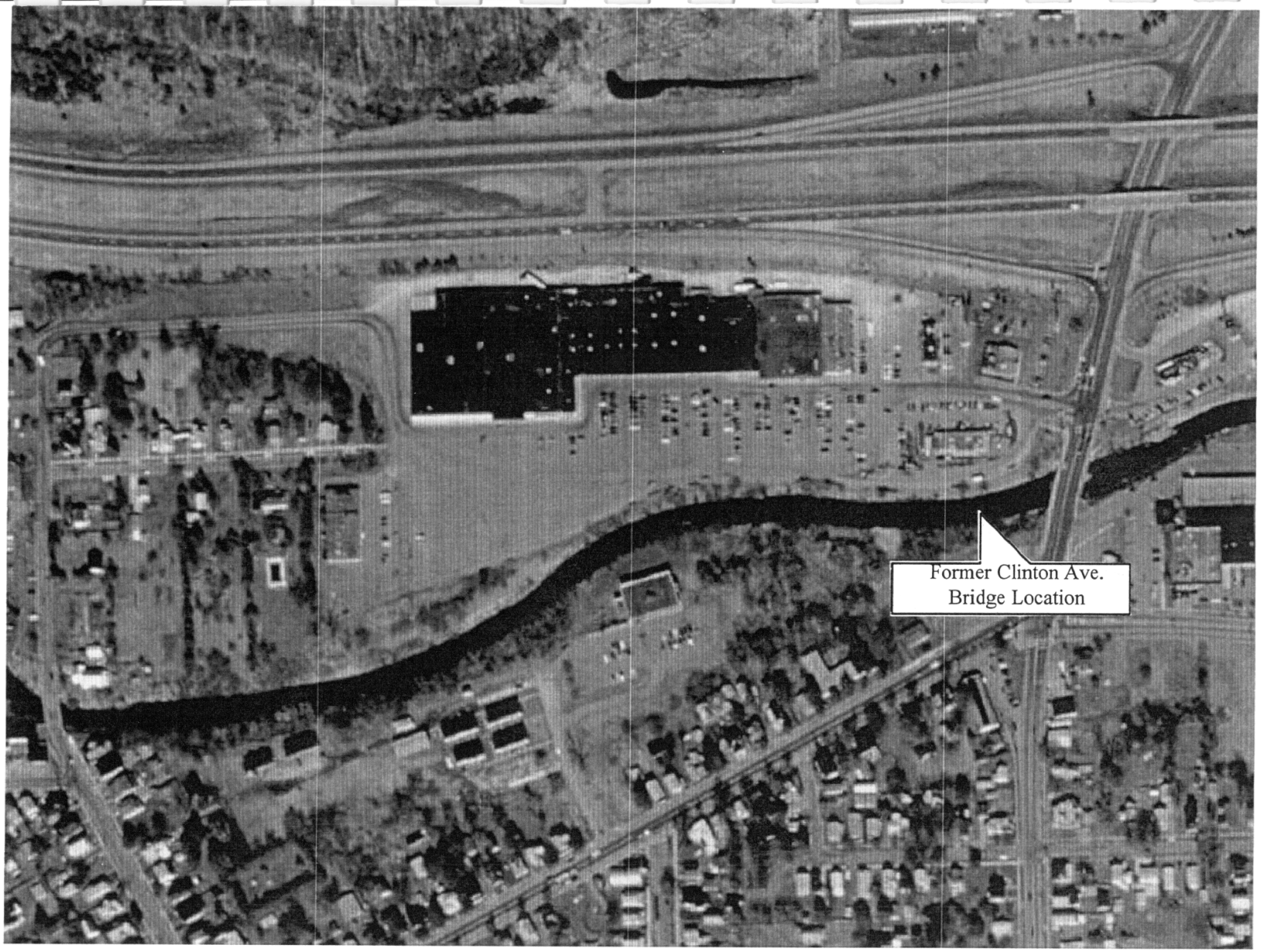
NYSEG CORLTAN/HOMER
FORMER MGP

FIGURE B-1
USGS TOPOGRAPHIC QUAD

SOURCE: USGS HOMER QUADRANGLE

APPENDIX C

PHOTOGRAPHS OF DAM AT DRY CREEK OUTFLOW ALONG WEST BRANCH TIOUGHNIOGA RIVER



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CAZENOVIA, NEW YORK

DATE: March 01 JOB No: 90103

NYSEG CORLTAN/HOMER
FORMER MGP

FIGURE B-2
ARIAL PHOTOGRAPH (MARCH 1995)

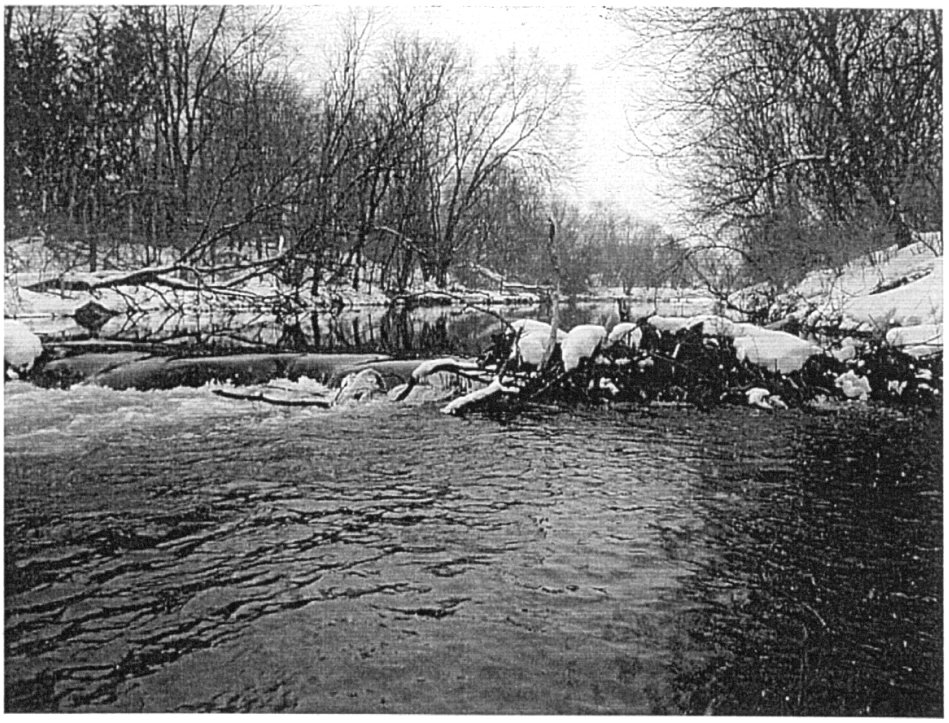

Photo #1. View of dam at Dry Creek outflow, along West Branch Tioughnioga River. View looking upstream.

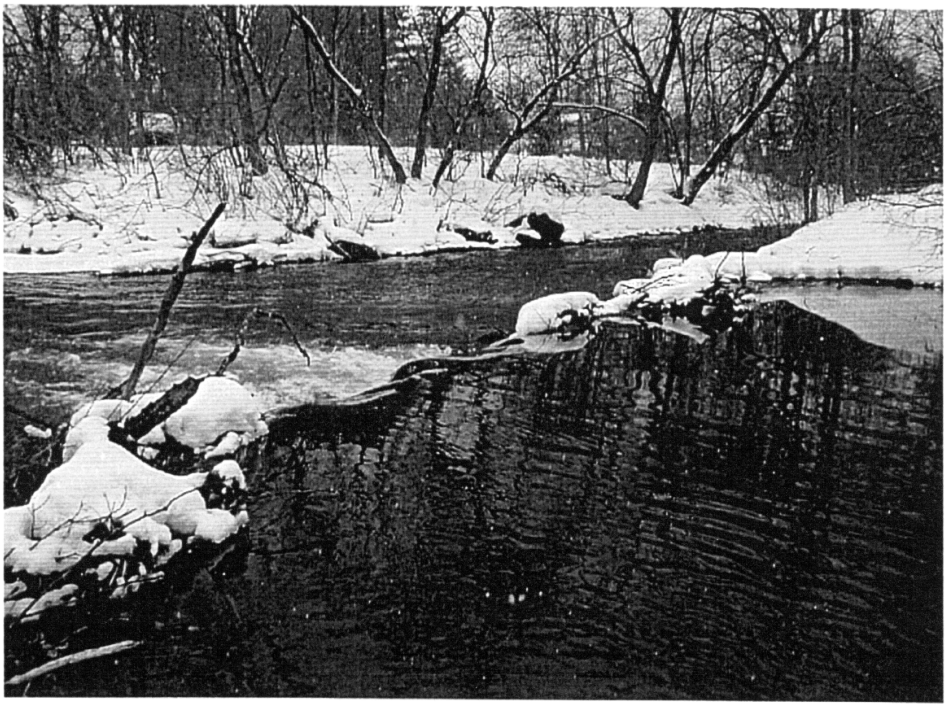

Photo #2. View of Dry Creek outflow dam structure. View from north side of dam with Dry Creek outflow in background.