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**Subject: Preliminary Assessment Report – Final
Collateral Channel
EPA Identification Number: ILN000521918
EPA Contract Number: 68HE0519D0005
Task Order – Task Order Line-Item Number (TO-TOLIN): F0072-0001ED006
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Dear Ms. Brantley:

As directed by the U.S. Environmental Protection Agency (EPA), Tetra Tech, Inc. (Tetra Tech) reviewed available information and prepared the enclosed preliminary assessment for the Collateral Channel Site in Chicago, Cook County, Illinois. If you have any questions regarding the assessment, please call me at (312) 201-7730.

Sincerely,



Jennifer Swilik
Environmental Scientist

Enclosure: Preliminary Assessment

cc: Karl Schultz, Program Manager
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PRELIMINARY ASSESSMENT REPORT COLLATERAL CHANNEL CHICAGO, COOK COUNTY, ILLINOIS

Final
January 23, 2024

Prepared for:



U.S. Environmental Protection Agency (EPA) Region 5
77 West Jackson Boulevard
Chicago, Illinois 60604

Submitted by:



**Tetra Tech, Inc. Superfund Technical Assessment and Response
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ACRONYMS AND ABBREVIATIONS

Acronym or Abbreviation	Definition
AARS	Albany Avenue Relief Sewer
AOC	area of observed contamination
Apex/Torco Oil	Apex Motor Fuels/Torco Oil
bgs	below the ground surface
CAWS	Chicago Area Waterways
CDOT	Chicago Department of Transportation
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CH ₄ S	methyl mercaptan
CNT	Center for Neighborhood Technology
CSO	combined sewer overflow
CSSC	Chicago Sanitary and Ship Canal
EPA	U.S. Environmental Protection Agency
FEMA	Federal Emergency Management Agency
H ₂ S	hydrogen sulfide
HBK	HBK Engineering
HRS	Hazard Ranking System
IDNR	Illinois Department of Natural Resources
IEMA	Illinois Emergency Management Agency
IEPA	Illinois Environmental Protection Agency
LVEJO	Little Village Environmental Justice Organization
m ³ gas/m ³	cubic meter of gas per cubic meter
mg/kg	milligrams per kilograms
MGP	manufactured gas plant
MWRD	Metropolitan Water Reclamation District of Greater Chicago
NPL	National Priorities List
NFRAP	no further remedial action planned
NOAA	National Oceanic and Atmospheric Administration
PA	preliminary assessment
PAH	polycyclic aromatic hydrocarbons

Acronym or Abbreviation	Definition
Parsons Engineering	Parsons Engineering Science, Inc.
PCB	polychlorinated biphenyl
ppbv	parts per billion by volume
PPE	probable point of entry
ROD	record of decision
RTC	RTC Industries, Inc.
SARA	The Superfund Amendments and Reauthorization Act
SSI	subsurface intrusion
START	Superfund Technical Assessment and Response Team
TACO	Tiered Approach to Corrective Action Objectives
TDL	target distance limit
Tetra Tech	Tetra Tech, Inc.
TO-TOLIN	task order – task order line-item number
TPAH	total polycyclic aromatic hydrocarbons
UET	upper effects threshold
UIC	University of Illinois at Chicago
USFWS	U.S. Fish and Wildlife Services
UST	underground storage tank
UTL	upper tolerance limit
VOC	volatile organic compound
µg/kg	micrograms per kilogram
µg/m ³	micrograms per cubic meter

1. INTRODUCTION

The U.S. Environmental Protection Agency (EPA)—per the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) and the Superfund Amendments and Reauthorization Act of 1986—authorized the Tetra Tech, Inc. (Tetra Tech) Superfund Technical Assessment and Response Team (START) to begin work under EPA’s direction and supervision on a preliminary assessment (PA) of the Collateral Channel at West 31st Street and Albany Avenue in Chicago, Cook County, Illinois (EPA Identification Number ILN000521918) (EPA 2023c). For clarity, the site is defined as the entirety of the Collateral Channel from its beginning at West 31st Street until it meets the Chicago Sanitary and Ship Canal (CSSC). START completed the PA with EPA under Contract 68HE0519D0005, Task Order – Task Order Line-Item Number (TO-TOLIN) F0072-0001ED006; this report summarizes the results.

START conducted the PA, as directed by the EPA, in response to a petition submitted under Title 42 of the *United States Code*, Section 9605(d), from the Little Village Environmental Justice Organization (LVEJO) to EPA Regional Administrator Debra Shore (Greater Chicago Legal Clinic 2023, p. 1). The petition stated that those represented by LVEJO: (1) live near the Collateral Channel; (2) use La Villita Park and its on-site farm near the Collateral Channel; (3) use the Semillas de Justicia Garden near the Collateral Channel; (4) work in adjacent facilities; (5) will use and occupy the new St. Anthony’s Hospital and daycare center at 31st Street and Kedzie Avenue, roughly 0.1 mile from the Collateral Channel (Savedra 2022); and (6) occupy the nearby Cook County Department of Corrections Facility (Greater Chicago Legal Clinic 2023, p. 3).

1.1. PRELIMINARY ASSESSMENTS – OVERVIEW

A PA is a limited-scope investigation, based on readily available information, on a site in the Superfund Enterprise Management System, formerly known as the Comprehensive Environmental Response, Compensation, and Liability Information System. It fulfills public information needs, furnishes appropriate information about a site early in the assessment process, and supports emergency response and removal activities. Its purpose is to differentiate locations that pose little or no potential relative threat to human health and the environment from those that warrant further investigation under CERCLA. A PA can also identify sites for possible emergency response actions (EPA 1991, p. 2). Overall, it is a compilation of existing information about a site and its surrounding area that emphasizes comprehensive information on targets—

that is, people and resources that might be threatened by a release at the site. Investigators generally do not sample during a PA (EPA 1991, p. 5).

When a PA recommends further investigation, investigators perform a site inspection, typically by collecting waste and environmental samples, to identify eligible hazardous substances at a site and determine whether they are being released into the environment.

Following a PA, EPA applies the Hazard Ranking System (HRS) to derive a site score and determine either that: (1) the site is eligible for further investigation under CERCLA; or (2) the site should receive a “no further remedial action planned” (NFRAP) recommendation. EPA adopted the HRS to prioritize evaluations at hazardous waste sites. Although a NFRAP recommendation means that no further CERCLA assessment is planned, sites with the recommendation may be reexamined later, if warranted. In addition, state or other regulatory authorities may independently act on sites with NFRAP designations (EPA 1991, p. 4). Sites with preliminary HRS scores below 28.50 generally warrant no further remedial interest and are assigned NFRAP designations; however, NFRAP designations can also apply to sites with preliminary HRS scores above 28.50 if EPA believes the sites would receive “no action” records of decision in the event they were added to the NPL (EPA 2022).

1.2. PROJECT OVERVIEW

The scope of this PA for Collateral Channel included: (1) reviewing existing information about the site; (2) collecting additional information about the site, with an emphasis on target information; and (3) evaluating all information to develop an overall site score (EPA 1991, pp. 4-5). As directed by EPA, START then evaluated the site according to the EPA HRS criteria to assess its relative threat of actual or potential releases of hazardous substances.

This PA report is a screening tool (EPA 1991, p. 5). At this stage of evaluation, HRS scoring uses assumptions that are conservative of human health and the environment in instances of insufficient data. Upon the site inspection, the site evaluation is based on current conditions; there are few, if any, assumptions, which may result in a significantly different HRS site score for a site than one calculated during the PA phase.

START, as directed by EPA, developed this PA report per EPA’s *Guidance for Performing Preliminary Assessments under CERCLA* (EPA 1991), the HRS Final Rule (EPA 1990), and the subsurface intrusion amendment (EPA 1990, amended in 2017). It is organized as follows:

- Section 2 discusses the site background, including its location, a history of the site and surrounding properties, and previous investigations on and near the site.
- Section 3 identifies the source areas and waste characteristics.
- Section 4 assesses the migration pathways for groundwater, surface water, soil exposure and subsurface intrusion, and air.
- Section 5 summarizes the PA and its conclusions.
- Section 6 lists the sources referenced in this report.

Additionally, the report includes four appendices: Appendix A includes relevant figures, Appendix B includes the photolog and logbook of a site visit, Appendix C includes the results of endangered species assessments using information from the U.S. Fish and Wildlife Service (USFWS), and Appendix D includes the Ecological Compliance Assessment Tool. For further reference, the report also includes 11 attachments containing reviewed sources with relevant information for this PA.

2. SITE BACKGROUND

This section discusses the site background, including its location, description, and history.

2.1. SITE LOCATION AND DESCRIPTION

The Collateral Channel is a 1,600-foot slip at 31st Street and Albany Avenue in Cook County, Chicago, Illinois (Appendix A, Figures 1 and 2). Specifically, it is in Section 36, Township 39 North, and Range 13 East. The channel is hydraulically connected to the CSSC with minimal flow south into the CSSC (Appendix A, Figure 3). It is approximately 4 acres with central coordinates at 41.835126 and -87.701963.

The channel's water depth varies significantly. In 2007, the water depth was 18 feet from the surface water to the clay and hardpan near the east shore at the northern terminus; this was due to sediment scouring from the combined sewer overflow (CSO) known as the Albany Avenue Relief Sewer (AARS) Outfall (Appendix A, Figure 2). The water depth then decreased to approximately 5 feet as measured from 200 feet from the CSO (Zhao and others 2007, p. 4). The width of the channel is approximately 100 feet (Google Earth 2022).

The Collateral Channel is bordered to the east by the Chicago Fire Department's support services building, the Ferrara Candy Company, and Lakeshore Recycling Services. To the south, it is bordered by the Chicago and Illinois Western Railroad and the CSSC. To the west, the channel borders the Former Apex Motor Fuels/Torco Oil (Apex/Torco Oil) Site and RTC Industries, Inc. (RTC). Lastly, to the north is West 31st Street, close to which is the entrance to La Villita Park (the Former Celotex Site). The land surrounding the Collateral Channel is primarily commercial and industrial; however, several residences are also within 400 feet of it to the north (Appendix A, Figure 2). Attachment 1 includes Certified Sanborn Map Reports from 1919, 1951, 1975, 1987, 1991, 1993, and 2004; each report shows a portion of the properties surrounding the Collateral Channel and indicates the direction relative to it.

2.2. SITE OWNERSHIP

The Metropolitan Water Reclamation District of Greater Chicago (MWRD) owns the Collateral Channel. Currently, MWRD leases the east side of the Collateral Channel to the Chicago Department of Transportation (CDOT). Additionally, Recycling Services, Inc. is a lessee of MWRD's property at the mouth of the channel. The property owner to the west, RTC, does not use the channel for any purpose (The Wetlands Initiative 2007, p. 9).

2.3. SITE OPERATIONAL HISTORY

In the late 1890s, the Sanitary District of Chicago, which is today MWRD, excavated the Collateral Channel to provide a navigational link between the CSSC and the West Fork of the South Branch of the Chicago River (1st Dist. 1903, p. 3) (Appendix A, Figures 2 and 3). By the 1920s, the West Fork was considered a nuisance stream, unworthy of improvement due to its high pollution and lack of navigability (The Wetlands Initiative 2007, p. 8). The U.S. Congress then declared the West Fork to be non-navigable in 1923 (for the western portion) and 1935 (for the eastern portion), leading to its filling (U.S. Government Publishing Office 1935, p. 1) (Attachment 3).

Prior to the construction of regional water reclamation plants in the 1920s and 1930s, such as the Stickney Water Reclamation Plant (Appendix A, Figure 3), sewage and industrial waste from the neighborhood and surrounding areas discharged directly into Collateral Channel (HBK 2018, p. 5). After the filling of the West Fork, the Collateral Channel had no use other than access for riparian properties and as an outlet for local storm and sanitary drainage. Additionally, at the north end of the Collateral Channel, there was another, smaller outfall adjacent to the AARS Outfall, but this was sealed with a bulkhead in 2003 by the City of Chicago's Department of Water Management (The Wetlands Initiative 2007, p. 8). Since 1985, when the CSO was redirected in the sanitary system, the frequency of CSO discharge into Collateral Channel decreased significantly. Currently, the CSO usually only discharges into the Collateral Channel once a year (EPA 2023a).

Currently, CDOT uses the east side of the channel for mooring and loading its floating work platforms. Lakeshore Recycling Systems also proposes to include the construction and operation of a barging facility at the point where the Collateral Channel connects to the CSSC. From this facility, barges with waste-related material would be transferred to and from the dock (Greater Chicago Legal Clinic 2023, p. 6).

2.4. OPERATIONAL HISTORY – SURROUNDING PROPERTIES

The Collateral Channel is surrounded by former industrial operations. This includes the Former Celotex Site to the north, the Former Union Liquors Site to the west, and the Former Apex/Torco Oil Site to the southwest (Appendix A, Figure 2). The Bubbly Creek and Crawford Station are also nearby, but they are not adjacent to Collateral Channel (Appendix A, Figure 3).

2.4.1. Former Celotex Site

The Collateral Channel is south of the Former Celotex Site, which has an address at 2800 South Sacramento Avenue. The Former Celotex Site's facility operated to make, store, and sell asphalt roofing products.

In 1989, the Illinois Environmental Protection Agency (IEPA) received complaints about coal tar at the Former Celotex Site. Later, in 1996, the City of Chicago Department of Environment received additional complaints of runoff from the property's facility, which was flooding neighboring properties (City of Chicago Department of Environment 1996). Surface and subsurface soil samples collected around Troy Street contained volatile organic compounds (VOCs) and polycyclic aromatic hydrocarbons (PAHs) at depths of 0–18 feet. By 1997, the Former Celotex Site was re-graded; additionally, plans to resolve flooding issues with a new drainage system that connects to the storm sewers were underway (EPA 2023b).

A contractor, Parsons Engineering Science, Inc. (Parsons Engineering), on behalf of Celotex Corporation and Allied Signal, Inc., prepared a human health risk assessment for the Former Celotex Site following a 1996 administrative order on consent from EPA (Parsons Engineering 1998, p. 5). The contaminants detected at 0–10 feet below the ground surface (bgs) were carcinogenic and noncarcinogenic PAHs, Aroclor 1254, arsenic, and benzene based on residential, recreational, and industrial remediation goals; however, Parsons Engineering recommended that only PAHs be retained as contaminants of concern (Parsons Engineering 1998, p. 7). Attachment 4 summarizes the maximum detected concentrations of the contaminants in soil at each interval within 0–20 feet bgs (Parsons Engineering 1998, p. 51).

In 2002, Sacramento Corporation bought the Former Celotex Site and later performed remediation work per a 2004 EPA-approved cleanup plan. The plan included EPA's removal oversight. Between 2002 and 2009, the remediation work included the following:

- Covering two acres of the Former Celotex Site with porous clay or gravel
- Placing at least 2 feet of gravel on 22 acres of the main Former Celotex Site
- Placing 2 feet of clay fill cover across the former asphalt plant
- Removing contaminated soil from nearby residential yards and disposing of it off site at an EPA-approved landfill
- Excavating 16,301 tons of contaminated soil and disposing of it off site
- Removing 52,250 gallons of liquid waste and disposing of it off site (EPA 2023b, p. 4)

Remediation finished in 2009. The Chicago Park District acquired the Former Celotex Site in 2012, and it became the La Villita Park, a 21.5-acre park, in 2014 (Greater Chicago Legal Clinic 2023, p. 4).

2.4.2. Former Consolidated Union Liquors/RTC Site

The Former Consolidated Union Liquors Site (now owned by RTC) is on the west side of the Collateral Channel at 3247 and 3157 South Kedzie Avenue (Appendix A, Figure 2). A site assessment of this property identified the presence of polychlorinated biphenyls (PCBs) in soil. The assessment attributed the contamination to the use of fill and historic on-site industrial operations from 1930 until the 1960s. Historic operations included an electric supply corporation in 1947, a warehouse in the 1980s, the Western Metal Company from around 1947 to 1957, warehouses in the 1970s, and paper product companies since 1923 (EDR 2023, pp. 6–7). To the best of RTC's knowledge, there is no documented use of PCBs on the property, PCB-containing equipment was not used on the property, and PCB storage, manufacturing, and handling did not occur on the property; specifically, PCBs are not associated with the RTC operations (EPA 2021, p. 1).

The Former Consolidated Union Liquors Site was being re-enrolled in IEPA's voluntary site remediation program to secure a "no further remediation" designation for future industrial or commercial use (EPA 2021, p. 2). In March 2019, RTC conducted a significant cleanup of PCB contamination (EPA 2021, p. 2). The cleanup involved the following actions:

- Excavating 2,595 tons of materials with PCB concentrations greater than or equal to 10 milligrams per kilogram (mg/kg), then disposing of the materials off site
- Collecting 100 composite soil samples from the excavation
- Collecting post-excavation soil samples to verify that soil PCB concentrations were below the PCB removal goal of 10 mg/kg and conducting further excavation, where necessary, until the goal was reached.

Currently, the property's excavation area is not yet backfilled, and there is not yet an installed, approved engineered barrier over this area. Additionally, there are not institutional controls in place on the property. The final design of the site-wide engineered barrier is dependent upon the future development plan and final approval by IEPA (IEPA 2019a, p. 2). Recently, IEPA confirmed that the property does not yet have a letter of determination of no further remediation.

2.4.3. Former Apex/Torco Oil Site

The Former Apex/Torco Oil Site is on the west side of the Collateral Channel at 3301 South Kedzie Avenue. It is bounded: (1) to the south by the Illinois Central Railroad tracks and the CSSC; (2) to the east by the Collateral Channel; (3) to the north by the Chicago Illinois Western Railroad tracks; and (4) to the west by Kedzie Avenue (Appendix A, Figure 2). This 5-acre area was historically leased by MWRD to industrial tenants performing bulk oil storage operations from 1941 until approximately 2004 (MWRD 2010, p. 1). Six bulk storage tanks were formerly in the area, and a seventh 10,000-gallon tank is reported to have been inside the boiler room (Carlson 2013, p. 12); Attachment 5 shows the layout of these tanks (MWRD 2010, p. 5). The most recent tenant, Apex/Torco Oil, used the property as a bulk storage and distribution facility for heavy petroleum products, such as heavy fuel oil, furnace fuel oil, and clarified slurry oil (MWRD 2010, pp. 1 and 28).

As part of the IEPA site remediation program, on April 20, 2010, MWRD submitted a services agreement form for IEPA's review of voluntary remedial actions at the Former Apex/Torco Oil Site (MWRD 2018, p. 2). Per the form, several phases of soil and groundwater investigations were completed prior to 2010. Additionally, in 2009, petroleum product was removed from the aboveground storage tanks, which were demolished and removed from the former Apex/Torco Oil Site as well as most of the other structures (MWRD 2010, p. 1).

In 2013, an environmental site assessment of the former Apex/Torco Oil Site noted features such as: (1) an oil-water separator with an A-frame roof; (2) an asphalt-paved entrance; (3) soil containment berms; (4) groundwater monitoring wells; (5) vegetated areas; and (6) standing water in the locations of the former aboveground storage tanks. A sheen was also present at several locations along the banks of the ponded areas (from an unknown source) (Carlson 2013, pp. 12-13). Additionally, a "tar" substance was on the soil in several areas and seemed to be part of remnants of residue removed from the bottom of the aboveground storage tanks during their removal. The assessment did not identify PCB-containing electrical equipment (Carlson 2013, p. 28).

The 2013 environmental site assessment noted that stormwater at the former Apex/Torco Oil Site had infiltrated into the on-site soils, flowed into on-site ponds, and migrated toward the CSSC. Based on topography, groundwater from the Former Apex/Torco Oil Site flows radially from the center of the area to the northwest, southwest, and southeast toward the CSSC; however, site-specific information regarding groundwater flow direction was unavailable (Carlson 2013, p. 14).

Most recently, on February 6, 2018, MWRD notified IEPA that it no longer desired the review and evaluation services previously requested for the Former Apex/Torco Oil Site (MWRD 2018, p. 1). MWRD has since proposed to enhance property with clean soil or material and vegetate with native species under an EJ Cooperative Agreement Program. Today, the area is unoccupied. The area is not remediated, and there has been no assessment of surface water or groundwater and how it may have affected the Collateral Channel (IEPA 2013). START notes, however—based on the available information—that the petroleum sources from Apex/Torco are excluded from CERCLA.

2.4.4. City of Chicago Leaking Underground Storage Tanks

There is a City of Chicago facility east of Collateral Channel that included three underground storage tanks (USTs). The USTs included two 8,000-gallon gasoline tanks and one 12,000-gallon gasoline tank with associated piping. The two 8,000-gallon gasoline USTs began leaking in 2021 (Terracon 2021); however, the associated substances are exempt from CERCLA. The Illinois Emergency Management Agency (IEMA) incident number for this event is 20210963, and the leaking USTs were removed on October 26, 2021 (Terracon 2021, p. 8).

Samples were collected following the spills above. Detected concentrations of benzene, toluene, ethylbenzene, total xylenes, methyl tert-butyl ether, lead, and pH were above the most stringent IEPA Tiered Approach to Corrective Action Objectives (TACO) Tier 1 soil remedial objectives in 3 of 10 samples (Terracon 2021, p. 9). Additionally, an oily sheen was in the bottom of the UST excavation, although no free product was observed (Terracon 2021, p. 11). Because of these findings, a Stage 1 site investigation for soil and groundwater is required by IEPA before the property can receive a letter of determination of no further remediation.

Most recently, on November 29, 2022, the City of Chicago removed the 12,000-gallon tank containing gasoline (IEMA Incident 20221066). There was physical evidence of a release, and approximately 213 tons of impacted soil were disposed off site. Samples of the excavation contained benzene concentrations above IEPA TACO Tier 1 soil remedial objectives (Terracon 2023, p. 5). This incident is considered open, with confirmed groundwater contamination that exceeds the Illinois Tier 1 remediation objectives (Appendix A, Figure 2) (IEPA 2023).

2.4.5. Bubbly Creek

Although not directly adjacent to the Collateral Channel, Bubbly Creek is upstream of it and has unique conditions. As discussed in Section 2.5.3, researchers have compared gas ebullition

events in the Collateral Channel with Bubbly Creek, which converges with the CSSC approximately 2 miles upstream of the channel (Appendix A, Figure 3). Bubbly Creek became notorious for its smell, as industrial effluents from sewage discharged directly into the stream. There are also nearby wastes from adjacent stock yards. Upton Sinclair famously exposed the meatpacking industry for disposing of animal corpses in Bubbly Creek in his 1904 novel *The Jungle* (Thorpe 2018). The water in Bubbly Creek is normally stagnant and susceptible to large gas ebullition events (Zhao and others 2007, p. 6).

2.4.6. Peoples Gas Crawford Station Former MGP

Based on forensic sampling, discussed in Section 2.5, a sediment sample showed evidence of manufactured gas plant (MGP)-related PAHs at the confluence of the CSSC and Collateral Channel; therefore, a brief overview of the Peoples Gas Crawford Station Former MGP warrants discussion as a potential contributor to the contamination at the Collateral Channel.

The Crawford Station is approximately 1.25 miles downstream of the Collateral Channel. It is not listed on the NPL but is considered an NPL-caliber site and is being addressed through the Superfund Alternative Approach (EPA 2023d, p. 1). The Koppers Company of Pittsburgh entered into an agreement with Peoples Gas in 1921 to build, finance, and operate Crawford Station as a byproduct coke plant (Appendix A, Figure 3); Peoples Gas then acquired the facility in 1928. Since the 1930s, the Crawford Station facility produced three types of gas: coke oven gas, carbureted water gas, and reformed natural gas. The plant was later modified to include a light oil refining plant and a liquefied petroleum gas peak shaving facility. The plant also underwent a conversion of five of its nine water gas sets to produce reformed natural gas and, later, oil gas. Crawford Station ceased operations in 1965 (EPA 2011, p. 2).

2.4.7. Midwest Generation Crawford Generating Station Chimney

The Midwest Generation Crawford Generating Station chimney operated from 1924 to 2012. This is across the street from the Peoples Gas Crawford Station but is not part of it. The 400-foot chimney at the station was approximately 1 mile west of the Collateral Channel before it imploded on April 11, 2020 (Appendix A, Figure 3). The Crawford Coal Power Plant was planned to be demolished for a distribution warehouse plan. The demolition did not go according to plan and an implosion happened that resulted in dust-covered neighborhoods (Chase 2023).

2.5. PREVIOUS INVESTIGATIONS IN THE COLLATERAL CHANNEL

Previously, EPA conducted a screening of the Collateral Channel. Other investigations included the collection of sediment samples with concentrations of PAHs, pesticides, and PCBs that exceeded screening thresholds from the National Oceanic and Atmospheric Administration (NOAA). There were also other investigations that evaluated biogenic gas and surface water.

2.5.1. Environmental Justice Screening

EPA conducted an Environmental Justice (EJ) screening evaluation of the Collateral Channel using EJScreen in 2023 (Attachment 2). There are 13 EJ indexes and supplemental indexes reflecting the 13 environmental indicators:

- Particulate matter less than 2.5 microns in diameter
- Ozone
- Diesel particulate matter
- Air toxics cancer risk
- Air toxics respiratory hazard
- Toxic releases to air
- Traffic proximity
- Lead paint
- Risk management program facility proximity
- Hazardous waste proximity
- Superfund proximity
- Underground storage tanks
- Wastewater discharge

Each EJ index combines one environmental measure with demographic data to characterize potential areas of concern that may warrant further consideration, analysis, or outreach. The EJScreen provides data as percentiles, which show how residents compare to everyone in the United States. In the CERCLA Site Assessment program, a site is considered a good candidate for additional review for EJ concerns when an EJScreen analysis shows that some of the 13 primary EJ indexes are at or above the 80th percentile in the nation or state. For the Collateral Channel, all 13 EJ indexes are above the 80th percentile in the nation (Attachment 2). Other EPA program offices may utilize different screening criteria values.

2.5.2. Sediment

Previous sediment analyses at the Collateral Channel are divided between analyses of: (1) PAHs, PCBs, and pesticides; and (2) metals. Considering proximity, this section also discusses sediment contamination at the CSSC.

2.5.2.1. PAHs, PCBs, and Pesticides

Sediment samples were collected in 1994, 1995, 2005, and 2018 from the Collateral Channel by MWRD and IEPA (the latter only in 1995) (Attachment 6). PAH, pesticides, and PCB concentrations were compared to the upper effects threshold (UET) for bioassays per the NOAA sediment screening threshold; the UET is the concentration above which adverse biological impacts would be expected. In 1994 and 2005, MWRD sampled 50 feet and 100 feet south of the north end of the Collateral Channel, respectively (Appendix A, Figure 7).

Sampling results from each sampling event indicated that the sediments are of significant concern from an ecological standpoint (The Wetlands Initiative 2007, p. 10). PAHs are the main pollutants of concern in the sediment, with total concentrations ranging within 170–680 mg/kg (170,000–680,000 micrograms per kilogram [µg/kg]) and low-molecular-weight PAHs comprising the bulk of the PAHs at most of the sampling sites (The Wetlands Initiative 2007, p. 10; Zhao and others 2007). Total PAH concentrations were high at the sediment surface but higher in sub-surface sediments—in some cases exceeding 1 gram per kilogram (The Wetlands Initiative, p. 10). Researchers from MWRD, the University of Illinois at Chicago (UIC), the Wetlands Initiative, and Patrick Engineering published a paper in 2007 confirming high levels of contamination in the Collateral Channel with respect to PAHs and non-aqueous phase liquids (The Wetlands Initiative 2007). The paper noted that organic pollutant levels were high in core samples, indicating that sediments are impacted by contamination from as far back as the late 1800s when the channel was connected to the West Fork.

The PAHs listed below exceeded the UET NOAA sediment screening thresholds in MWRD's samples (The Wetlands Initiative 2007, p. 11). PAH concentrations are shown in parenthesis in µg/kg of dry weight sediment; the first concentration in parenthesis is from the 1994 MWRD sample, and the second concentration is the 2005 MWRD sediment sample. Note that the concentrations in the 1994 samples that are closer to the north end of the Collateral Channel are higher, except for benzo(a)anthracene and benzo(k)fluoranthene:

- | | |
|--|--|
| • Anthracene (34,000 µg/kg and 11,500 µg/kg) | • Fluoranthene (52,000 µg/kg and 15,500 µg/kg) |
| • Benzo(a)anthracene (800 µg/kg and 20,500 µg/kg) | • Fluorene (52,000 µg/kg and 15,500 µg/kg) |
| • Benzo(k)fluoranthene (17,000 µg/kg and 22,100 µg/kg) | • Naphthalene (4,900 µg/kg only [no 2005 sample])) |
| • Benzo(a)pyrene (23,000 µg/kg and 14,700 µg/kg) | • Phenanthrene (155,000 µg/kg and 117,000 µg/kg) |
| • Chrysene (47,000 µg/kg and 21,300 µg/kg) | • Pyrene (94,000 µg/kg and 45,300 µg/kg) |

On January 18, 1995, MWRD also collected a sediment sample in the Collateral Channel (IEPA 1995). Attachment 7 includes the analytical results, which show elevated levels of semi-volatile organic compounds, pesticides, and PCBs (Attachment 7, Station 4; Appendix A, Figure 7). That same year, IEPA also collected a sediment sample for PAH, pesticide, and PCB analysis; it is unclear where, within the Collateral Channel, this sample was collected. The sediment sample contained, in addition to the PAHs listed above, the following compounds at the following concentrations, which are above the NOAA sediment screening thresholds (HBK 2018, pp. 17-19):

- Acenaphthene (6,391 µg/kg)
- Benzo(ghi)perylene (7,465 µg/kg)
- Bis(2-ethylhexyl)phthalate (84,288 µg/kg)
- Indeno(1,2,3-cd)pyrene (7,539 µg/kg)
- 4,4'-DDD (2,020 µg/kg)
- PCB 1248 (1,281 µg/kg)
- PCB 1260 (1,678 µg/kg)

Attachment 6 provides more information on these samples.

In November 2018, MWRD sampled sediment again in the Collateral Channel to better understand the distribution of contaminants throughout the channel and evaluate the feasibility of removing sediment via the method proposed in the HBK Engineering (HBK) pilot project report (HBK 2018 and 2019). Four locations along the Collateral Channel were sampled, each of which were assessed by six sediment samples: two locations (east and west) at three depths (HBK 2019, p. 8; Appendix A, Figure 7). Analysis showed that bis(2-ethylhexyl)phthalate and PAHs are present in high concentrations throughout Collateral Channel sediments (HBK 2019, p. 6). Pesticides and PCBs were not detected in any of the samples above laboratory detection limits, but dilution of the samples was required for laboratory purposes due to a high content of solids in the samples (HBK 2019, p. 6).

2.5.2.2. Metals

MWRD's 1994, 2005, and 2018 sampling events, described in Section 2.5.2.1, also included the analysis of metals. Results were compared to the toxic threshold limit concentrations from the *California Assessment Manual for Hazardous Wastes* (CDHS 1981) and the “extremely elevated” values used by IEPA (Kelly and Hite 1984) to classify stream sediments, which is based on comparison of overall concentrations of contaminants in sediment in Illinois. IEPA values address relative concentration; they do not directly address toxicity.

For both 1994 and 2005 samples, chromium, copper, lead, and zinc concentrations were higher than IEPA's “extremely elevated” values (The Wetlands Initiative 2007, p. 11). Additionally, the 2005 samples generally exhibited concentrations of metals greater than the probable effects concentration for cadmium, chromium, copper, lead, mercury, nickel, and zinc (MWRD 2015, p. 2; Attachment 8).

When compared to the previous studies described in this Section 2.5.2, the 2018 sampling by MWRD shows elevated concentrations of cadmium, chromium, iron, lead, mercury, nickel, and zinc and increasing concentrations with depth (HBK 2019, p. 7). Table 1 shows the inorganic results of previous studies compared to the mean and median averages (HBK 2019, p. 7):

Table 1 — Average Sediment Contaminant Concentrations

	MWRD 1994 (mg/Kg dry)	IEPA 1995 (mg/Kg dry)	MWRD 2005 (mg/Kg dry)	TO7 Pilot (mg/L dry)	TO7 SEDIMENT SAMPLING MEAN AVERAGE (mg/Kg dry)	TO7 SEDIMENT SAMPLING MEDIAN AVERAGE (mg/Kg dry)
INORGANIC CONTAMINANTS	mg/Kg	mg/Kg	mg/Kg	mg/L	mg/Kg	mg/Kg
Ammonia Nitrogen (NH3)					1391.96	1154.60
Antimony					117.11	95.45
Arsenic		115.00	4.20		20.59	19.70
Barium				0.17	1059.85	447.55
Beryllium					1.04	1.01
Cadmium	13.10	21.00	16.40	U	59.53	47.50
Chromium - Hexavalent					3.86	3.83
Chromium-Total	86.30	175.00	114.00	U	523.40	258.85
Chromium-Trivalent					575.78	256.40
Copper	418.00	289.00	691.00		1830.50	564.10
Cyanide					22.53	17.10
Cyanide-Amenable					18.05	4.86
Fluoride, Water Extractable					30.76	11.80
Iron		22300.00	27938.00		99716.52	31385.80
Lead	506.70	76.00	733.00	0.22	1969.07	842.15
Manganese					824.05	290.20
Mercury	1.90	1.20	1.10	0.00	10.12	4.30
Nickel	89.00	61.00	86.70		282.80	145.40
Nitrogen-Total					19232.72	6780.55
Oils & Greases					23936.40	25724.90
Phosphorus-Total					8814.25	2305.50
Selenium				U	U	U
Silver				U	20.76	6.36
Thallium					U	U
Zinc	846.70	1062.00	1594.00		3403.94	1159.70

Notes: TO = Task Order

Reference: HBK Engineering (HBK). 2018. *Contract 14-820-3S Task Order 7: Collateral Channel Pilot Project*. February 5.

2.5.2.3. Chicago Sanitary and Ship Canal

The CSSC is in a highly urbanized and historically industrial area; therefore, it is expected that some of the same contaminants in the Collateral Channel are also present in the CSSC (Peoples Gas 2023). Additionally, the contribution of background concentrations associated with CERCLA releases are important for HRS scoring and determining potential actions; these background levels reflect the concentrations of hazardous substances in the environment near the site, and

so the CSSC's contamination is relevant. To establish an observed release of hazardous substances to the environment that is associated with a site, the HRS requires that concentrations of hazardous substances be present at levels that are significantly elevated above the background levels. As a result, generally, under CERCLA, cleanup levels are not set at concentrations below background levels. As shown by the data described in the following paragraphs, the CSSC and the Collateral Channel may have similar levels and types of contaminants.

Peoples Gas collected 166 surface sediment samples (0–0.5 feet below the mudline) along the CSSC, both upstream and downstream of the Collateral Channel (Peoples Gas 2023, p. 73, 74). Analytical results for these samples' total PAH concentrations ranged from 41 µg/kg to 8,135,000 µg/kg, with a mean concentration of 190,000 µg/kg and a median concentration of 70,000 µg/kg (Peoples Gas 2023, p. 74). The Peoples Gas investigation found that exceedances of the upper tolerance limit (UTL) for metals (refer to Section 2.6.1 for UTL information) are co-located with exceedances of the UTL for total PAH (TPAH) in surface sediment throughout the CSSC (Peoples Gas 2023, p. 92).

Additionally, Peoples Gas investigated the sediments in the north branch of the CSSC 2011 and concluded that ambient sediment conditions exceed, by orders of magnitude, the ecological screening level sediment benchmarks used to address the risk to aquatic receptors associated with total PAH and metal concentrations in sediment (Peoples Gas 2023, p. 64).

2.5.3. Biogenic Gas Production: Methane, Nitrous Oxide, and Hydrogen Sulfide

For the Collateral Channel, biogenic gas is primarily produced from the action of methanogenic archaea (using methane and carbon dioxide). It may also be produced from denitrification and fermentation when considering sulfate-reducing conditions within the sediments. In September 2005, UIC performed extensive characterization of gas production in the Collateral Channel. Gas production was variable but most prominent near the CSO (the AARS Outfall). Annually, UIC estimated that sediments released up to 4.5 cubic meter of gas per cubic meter ($\text{m}^3 \text{ gas}/\text{m}^3$) for a methane, nitrous oxide, and hydrogen sulfide mixture. For comparison, Bubbly Creek (Section 2.4.5) sediment releases less than 1 $\text{m}^3 \text{ gas}/\text{m}^3$ (Zhao and others 2007, p. 5). Additionally, during START and EPA's site visit on October 27, 2023, a sheen and bubbles were on the Collateral Channel at the outfall of the CSO (Appendix B).

2.5.4. Surface Water

For the Collateral Channel, MWRD measured organic priority pollutants in surface water (IEPA 1995). As noted in Attachment 6, the only detected priority pollutants were acetone and trichloroethene (Attachment 6, Station 4; Appendix A, Figure 7). MWRD measured organic priority pollutants again on September 12, 2005, the results of which are shown in Table 2 (The Wetlands Initiative 2007, p. 13):

Table 2 — Organic Priority Pollutants in Water – Collateral Channel

Sampling Station	Phenol Concentration	Toluene Concentration	3- and 4-Methylphenol Concentration
C1 (100 feet south of the north end)	19 µg/kg	4.7 µg/kg	20.1
C2 (midpoint of the channel)	10 µg/kg	2.4 µg/kg	--
C3 (north of railroad Bridge)	9 µg/kg	--	--

Note: The original source of this table does not explain what "--" indicates (The Wetlands Initiative 2007, p. 13).

Acronym: µg/kg: micrograms per kilogram

Per the results of Table 2, phenol and toluene concentrations are below the numeric standards for chemical contaminants of the Illinois Administrative Code, Section 35 302.208. For the 3- and 4-methylphenol concentration, the result is below the IEPA-derived acute and chronic aquatic life criteria (IEPA 2019b).

Later, on December 22, 2017, MWRD conducted a pilot study approximately 75 feet southwest of the CSO outfall (Appendix A, Figure 7). The purposes of the study were to: (1) explore a small-scale study of dredging and delivering pumped sediments to the Stickney Water Plant for treatment (Appendix A, Figure 3); and (2) collect samples for laboratory analysis. As part of the pilot test to determine the effectiveness of the Stickney Water Treatment Plant to treat the contaminants, treated water from this study was sampled from the discharge side of a pump and the following compounds were detected (HBK 2018, pp. 17–19):

- Acenaphthene
- Acenaphthylene
- Anthracene
- Benzo(a)anthracene
- Benzo(a)pyrene
- Benzo(ghi)perylene
- Benzo(k)fluoranthene
- Bis(2-chloro-ethylhexyl)phthalate
- Chrysene
- Ethyl benzene
- Fluoranthene
- Fluorene

- Indeno(1,2,3-cd)pyrene
- Naphthalene
- Phenanthrene
- Pyrene
- Toluene

Attachment 6 provides more information on these samples.

2.6. INVESTIGATIONS SURROUNDING THE COLLATERAL CHANNEL

In addition to evaluations of the Collateral Channel itself, there have been investigations of nearby properties that may relate to potential contribution to the channel's contamination.

2.6.1. Crawford Station Forensic Sampling

Peoples Gas investigations from 1992 and 2001 confirmed the presence of VOCs, PAHs, metals, and cyanide in groundwater and soil samples collected at Crawford Station. Samples were collected below the water table at depths of up to 26 feet bgs in various soil borings. Observations included tar, tar in fractures, tar-coated sand, a naphthalene-type odor, and sheen. MGP-related contaminants were migrating mainly through fractures in the brown-gray, silty clay unit of the aquifer below the site (EPA 2011, p. 3).

Additionally, in 2023, Sediment Sample CSSC-SD-227H—collected at the confluence of the Collateral Channel and the CSSC—underwent an analysis of PAHs (Appendix A, Figure 7). The analysis characterized specific PAH profiles to differentiate them, related these profiles to potential source types, and identified the vertical spatial extent of MGP-related profiles within the sediment (Peoples Gas 2023, p. 80). The TPAH concentration was then compared to the Bubbly Creek ambient UTL¹ (Peoples Gas 2023, pp. 64-66 and 80). The TPAH in Sample CSSC-SD-227H were below the TPAH UTL (214 mg/kg).

For Sediment Sample CSSC-SD-227H, the analytical results were evaluated to determine which MGP effects on sediment in the CSSC were likely related to the Crawford Station or other facilities (Peoples Gas 2023, p. 80). The evaluation determined that Sample CSSC-SD-227H—collected

¹ As part of a 2015 investigation by Peoples Gas, 65 sediment samples from 15 borings from four locations over two sampling events were collected upstream of Pitney Court Station MGP (the most upstream historical MGP in Bubbly Creek). The characterization of ambient sediment conditions in Bubbly Creek was done by calculating an UTL for TPAHs and metals as a screening tool to focus the field investigation as concentrations of TPAH and metals above the UTL are more likely to be associated with a specific MGP source, rather than ambient TPAH and metal concentrations in the Chicago Area Waterways (CAWS), as TPAHs and metals above ecological screening levels are common throughout the CAWS. The UTLs are concentration limits above which the individual result observed in a sample collected in the CSSC is more likely to be associated with a specific source, such as the former MGP, rather than ambient TPAH concentrations in CAWS.

between 9.6 feet and 10.5 feet below the mudline—had contamination likely associated with historic MGP activities (Peoples Gas 2023, pp. 138 and 203). The sediment above 10 feet below the mudline, however, was not determined to show evidence of historic MGP activities (Peoples Gas 2023, p. 138). No samples were collected from the Collateral Channel.

2.6.2. Odor Monitoring and Surveys

Previous odor and monitoring surveys at surrounding areas were conducted by MWRD, LVEJO, and the Center for Neighborhood Technology (CNT).

2.6.2.1. MWRD Monitoring

In 2016 and 2017—using a hydrogen sulfide (H_2S) analyzer (Jerome meter)—MWRD monitored odors across 13 locations adjacent to the Collateral Channel (Patino 2017, pp. 10–11; Attachment 9; Appendix A, Figure 8). The monitoring included testing for odor intensity and character. Elevated concentrations of H_2S were present in 2016; subsequently, that year, MWRD began diverting water from the Collateral Channel into a nearby intercepting sewer to alleviate stagnant flow conditions. Additionally, odor control filters were installed at manholes near 31st Street and Albany Avenue. Following the placement of odor control filters in 2016, the odor reportedly decreased in intensity (Patino 2017, p. 14). Joseph Schuessler, the principal civil engineer at MWRD, confirmed on November 8, 2023, that the odor control filters are changed twice per year (MWRD 2023a).

Starting on December 1, 2019, MWRD began using sensor data to prepare biweekly monitoring reports on H_2S and methyl mercaptan (CH_4S) at Location 12, which is at the north end of the Collateral Channel (Appendix A, Figure 8). MWRD produced a graph of this data through June 2023 (Attachment 11). The peaks in H_2S and CH_4S concentrations are generally in June through August. The available data from the latest biweekly reporting period, September 18–October 1, 2023—which is not included in the graph of Attachment 11—showed a peak H_2S reading of 102 parts per billion by volume (ppbv) (67 degrees Fahrenheit) on September 21, 2023 (MWRD 2023d; Appendix A, Figure 8). Methyl mercaptan was not analyzed in the latest biweekly reports because the usual sensor was down and the temporary replacement sensor could only monitor H_2S . During the hotter weeks of 2023, there was a peak H_2S reading of 293 ppbv on August 29, 2023, when the temperature is approximately 69 degrees Fahrenheit. The next three highest readings recorded were 290 ppbv on September 1, 2023 (69 degrees Fahrenheit), 253 ppbv on August 24, 2023 (85 degrees Fahrenheit), and 168 ppbv on September 3, 2023 (75 degrees

Fahrenheit) (MWRD 2023c). All H₂S readings were below the minimum detection level (20 ppbv) from July 10 until July 20 of 2023 (with temperature ranging within 62–90 degrees Fahrenheit) (MWRD 2023b). Although data was of unknown quality and background samples were not identified, an air release above the EPA Superfund Chemical Data Matrix benchmarks was assume for conservative HRS scoring purposes.

The monitoring data described above was only taken at the north end of the Collateral Channel; no data was collected by sensors for H₂S at nearby manholes, storm drains, or the surrounding neighborhoods. MWRD, furthermore, did not sample with these sensors at the other 12 locations shown in Figure 8 of Appendix A.

2.6.2.2. LVEJO and CNT Survey

Additionally, for December 2022–January 2023, LVEJO and the Center for Neighborhood Technology (CNT) distributed a survey to measure the impact of the Collateral Channel on the surrounding community. Of the total respondents, whose number is unknown, 41 percent reported that La Villita Park (Appendix A, Figure 2) smells bad generally or all the time. Many members of the community also conveyed a concern regarding the general smell of the neighborhood, which is believed to be caused by a larger contributor. Participants relayed that they believed the odor source to be the south end of the park, adjacent to the Collateral Channel. The survey found that 28 percent of respondents identified the foul smells to be present throughout the year and that a majority found the odor strength to increase during the summer months. Respondents conveyed that this coincided with a hesitation to be outdoors for long periods of time due to the overall odor throughout the community. The survey concluded that the community seeks remediation (LVEJO 2023, pp. 19–27).

2.6.3. Groundwater Sampling

In 2018, RTC evaluated groundwater samples for PCBs at the Former Consolidated Union Liquors Site (Section 2.4.2) to the west of the Collateral Channel; the assessment used five monitoring wells (Attachment 10). Here, groundwater generally flows to the east towards the Collateral Channel (V3 2018, p. 8). PCBs—namely, Aroclor 1016, Aroclor 1221, Aroclor 1232, Aroclor 1242, Aroclor 1248, Aroclor 1254, and Aroclor 1260—were not detected in any of the groundwater samples (EPA 2021, p. 2; V3 2018, pp. 11 and 56).

Based on topography, groundwater from the Former Apex/Torco Oil Site (Section 2.4.3) flows radially from the center of the area to the northwest, southwest, and southeast toward the CSSC;

however, site-specific information regarding groundwater flow direction was unavailable (Carlson 2013, p. 14).

3. WASTE AND SOURCE CHARACTERISTICS

A PA operates by identifying and evaluating a site's wastes and the sources of such wastes.

3.1. WASTES

For this PA, the Collateral Channel's wastes are the contaminated sediments as well as the gases released from these sediments. Sediments are contaminated with PAHs in concentrations of 170–680 mg/kg, PCBs, and pesticides as well as some metals (cadmium, chromium, copper, lead, mercury, nickel, and zinc) (MWRD 2015, pp. 1–2). Gases from these sediments have been estimated to release up to 4.5 m³ gas/m³ of a methane, nitrous oxide, and H₂S mixture. More recently, MWRD measured 102 ppbv of H₂S near the Collateral Channel (at the east corner of the channel at 31st St) (Attachment 9, Location 12). These gases cause nuisance smells in the surrounding community. The source of H₂S is unknown.

3.2. SOURCES

The Collateral Channel's contaminated sediment likely came from multiple historical operations conducted adjacent to and within the channel. The Former Celotex Site (currently La Villita Park), north of the Collateral Channel, was a former source of roofing, tar-related PAH; additionally, stormwater from this area had previously flooded neighborhoods to its west and now water from the area is directed to the storm sewers, which are connected to the CSO at Collateral Channel. Another adjacent property, the Former Apex/Torco Oil Site, contained petroleum-related PAHs (Carlson 2013, p. 14). Similarly, the Former Consolidated Union Liquors Site had PCBs on its property, and stormwater runoff and groundwater discharge from both these areas may have discharged contaminated water and sediments into the Collateral Channel. Most nearby operations are either no longer in operation or have been remediated; however, the Collateral Channel itself has not been remediated and remains as it has been since the early 1900s. Considering that the channel's contamination dates to the 1800s (The Wetlands Initiative 2007), there is the possibility that it is still impacted by historical operations. Additionally, the Collateral Channel still receives discharge from the CSO (the AARS Outfall) during times of significant precipitation events; it is not a permitted outfall. The CSO, therefore, is a potential source of contamination as well.

It is difficult to precisely attribute or relatively apportion releases of hazardous substances to the sediments in the Collateral Channel specifically to one or more of these potential sources. START

therefore evaluated the site as a contaminated sediment plume with no identified source as directed by EPA.

4. MIGRATION AND EXPOSURE PATHWAYS AND TARGETS

4.1. GROUNDWATER MIGRATION PATHWAY

This section discusses the geologic and hydrogeologic setting, groundwater targets, and pathway conclusions drawn from known information about the Collateral Channel. Groundwater targets is a HRS term for potential ecological resources or human receptors.

4.1.1. Geology and Hydrogeology

The surficial geology of Cook County is primarily a consequence of depositional glacial processes that occurred during the last ice age (ISGS 2004, p. 7). In general, the topography slopes to the east towards Lake Michigan, except where the north–south stream valleys dissect the landscape (ISGS 2004, p. 7). The central and southeastern portions of Cook County comprise a low, flat plain bordering Lake Michigan (ISGS 2004, p. 7).

Quaternary deposits underlying surface soils consist primarily of material deposited by glaciers during the last ice age, but some post-glacial sediments may also be present (ISGS 2004, p. 11). These deposits are 50–100 feet thick in the vicinity of the Collateral Channel (ISGS 2015, p. 1). Most of Cook County is underlain by clay-rich glacial till from the Wadsworth Formation, and the low, flat plain in east–central Cook County is underlain by silt and clay from the Equality Formation, which was deposited when the area was covered by a former glacial lake (ISGS 2004, p. 11).

The top layer of bedrock in Cook County is almost exclusively Silurian dolomite and forms an important bedrock aquifer despite the low porosity of the rock matrix (ISGS 2004, p. 17). This formation lacks adequate capacity for most municipal and industrial wells, but the fractures and dissolution cavities within the rock matrix provide enough capacity for some residential wells (ISGS 2004, p. 17). The aquifer is recharged locally from precipitation and may be susceptible to contamination where the overlying glacial materials are thin (ISGS 2004, p. 17).

Additionally, Ordovician shales and dolomites of the Maquoketa Group underlie the Silurian dolomite aquifer (ISGS 2004, p. 20). This formation is largely impermeable and forms an important aquitard between the locally recharged Silurian aquifer and deeper bedrock aquifers (ISGS 2004, p. 20). The thickness of the Maquoketa Group varies from 260 feet in southeastern and central

Cook County to approximately 100 feet in southwestern Cook County (Kolata and Graese 1983, Plate 1A).

A driller's log from a water well approximately 300 feet west of the Collateral Channel indicates that unconsolidated sediments extend from the surface to 60 feet bgs (Layne Bowler Co. 1928, p. 1). This log also reports that Silurian dolomite is encountered 60–255 feet bgs, and the Maquoketa Group extends 255–500 feet bgs (Layne Bowler Co. 1928, p. 1).

The land west of the Collateral Channel is generally flat with an approximate elevation of 595 feet per the North American Vertical Datum of 1988 (USGS 1929, 1953, and 2021). A previous investigation indicated that the soils on the west side of the channel consisted of fill material from the surface to 4–9 feet bgs; this fill's color changed between dark brown and black and contained cinders, slag, topsoil, sand, gravel, brick, concrete, and miscellaneous debris (V3 2018, p. 8). Considering the data, nearby surface soils likely have been disturbed by over a century of industrial and residential development in this urban area.

Subsurface soils below 4–9 feet bgs consisted of glacial deposits of silts and clays as well as a transition to gray silts and clays with some sand and gravel 11–20 feet bgs (V3 2018, p. 8). Shallow groundwater was present between 4.5 feet and 9.2 feet bgs and flowed eastward toward the Collateral Channel (V3 2018, p. 8).

4.1.2. Groundwater Targets

Potential groundwater targets include persons who obtain drinking water from private domestic wells within the target distance limit (TDL)—for groundwater, the TDL includes the area within a 4-mile radius from the Collateral Channel. Other targets include persons supplied with drinking water from public water suppliers with water sources from groundwater wells within the same TDL.

No drinking water wells are within the TDL. In 1997, the Chicago City Council passed a groundwater ordinance prohibiting the installation of new potable water supply wells. Because new potable wells are prohibited, groundwater contamination is not a potential source of exposure for most sites in Chicago (V3 2018, p. 8). The city uses Lake Michigan water as its drinking water supply.

4.1.3. Groundwater Conclusions

Contaminated groundwater from historically contaminated nearby properties has the potential to discharge into the Collateral Channel, thus contributing to its PAH and PCB contamination. Without more site-specific data, however, it is unclear whether groundwater contamination from the Former Apex/Torco Oil Site is a contributing source to PCB and PAH contamination in the Collateral Channel. Additionally, with respect to modeling surface water dilution from groundwater, no data has been obtained on the Collateral Channel flow rate. Evidence indicates the water is mostly stagnant (Patino 2017; The Wetlands Initiative, p. 11). Overall, the threat to drinking water wells is low, as no drinking water wells are within the 4-mile TDL.

4.2. SURFACE WATER PATHWAY

This section discusses the hydrogeologic setting, surface water targets, and pathway conclusions drawn from known information about the Collateral Channel.

4.2.1. Hydrologic Setting

The Collateral Channel is approximately 0.28 mile in length. It is hydrologically connected to the CSSC, which flows southwest towards the Des Plaines River (Appendix A, Figure 3). The CSO—namely, the AARS Outfall—connects at the north end of the Collateral Channel (Appendix A, Figure 2). A previous, smaller outfall was adjacent to the AARS Outfall, but the City of Chicago's Department of Water Management sealed it with a bulkhead in 2003. The AARS Outfall has a full flow capacity of 205 million gallons per day and a surcharge capacity of 326 million gallons per day (The Wetlands Initiative 2007, p. 8). Since 1985, the frequency of CSO discharge into Collateral Channel has decreased significantly. The water level and CSSC is controlled by the Lockport Powerhouse and Lock Facility, which is over 30 miles downstream from the Collateral Channel. MWRD has described the flow of Collateral Channel as “stagnant” (Patino 2017). While START possesses data on the AARS Outfall flow rate, there is no such data for the Collateral Channel flow rate. Evidence indicates that the water is mostly stagnant (Patino 2017; The Wetlands Initiative, p. 11).

According to the flood map published by the Federal Emergency Management Agency (FEMA), the Collateral Channel is in Zone A, indicating that it is within a special flood hazard area for the 100-year flood, but no base flood elevations have been determined (Appendix A, Figure 5). The

adjacent areas on higher ground are within Zone X, indicating that the areas have been determined to be outside the 500-year floodplains.

The segment of the CSSC adjacent to the Collateral Channel is part of Hydrologic Unit Code 712000301. According to the 2022 Illinois EPA 303(d) report, the 6.03 miles of the CSSC with this hydrologic unit code is potentially impaired by: (1) PCBs and mercury in fish tissue; (2) low dissolved-oxygen levels; and (3) high concentrations of total phosphorus (IEPA 2022). Potential sources of impairment include flow regulation and modification, hydromodification, channelization, urban runoff as stormwater runoff, the CSO, and municipal point source discharges (The Wetlands Initiative 2007, p. 12).

Lastly, EPA's Enforcement and Compliance History Online database and IEPA's permit data do not identify any current National Pollutant Discharge Elimination System permit along the Collateral Channel.

4.2.2. Surface Water Targets

The Collateral Channel and the CSSC waterbodies are defined in the National Wetland Inventory as a R2UBHx riverine with a lower-perennial, unconsolidated-bottom, permanently flooded, and excavated landscape (Appendix A, Figure 4) (USFWS 2023). An on-site wetland delineation surrounding the Collateral Channel, dated July 24, 2007, found that upland plants dominated the vegetated zones and that there were no wetland hydrological indicators (The Wetland Initiative 2007, p. 13).

In accordance with PA guidance, START evaluated targets along the 15-mile (in-water) downstream TDL under EPA's direction. Targets could include drinking water intakes, fisheries, and sensitive environments. The in-water segment TDL begins at the probable point of entry to surface water—namely, the confluence of the Collateral Channel and the CSSC—and continues downstream of the CSSC for 15 miles (Appendix A, Figure 4) (EPA 1991). Based on the 15-mile TDL from the confluence of the Collateral Channel and the CSSC, there are approximately 9,484 linear feet of mapped U.S. Fish and Wildlife Services (USFWS) National Wetlands Inventory wetlands (Appendix A, Figures 4–4C). These wetlands are approximately 8–10.5 miles downstream from the Collateral Channel (Appendix A, Figures 4B–4C); however, based on the stagnant flow conditions at Collateral Channel, it is unlikely that contaminated sediment or surface water from the Collateral Channel influences these wetlands (Patino 2017). There are multiple

potential sources of contamination, furthermore, that lie along the CSSC that could contribute to any discovered contamination in these wetlands, including Crawford Station and Bubbly Creek.

There is an indication that recreational fishing for consumption may occur within the Collateral Channel. One fishing website indicates that 54 logged catches have occurred in the Collateral Channel, with at least one catch including a largemouth bass (Fishbrain 2023). Additionally, photos associated with catches from Collateral Channel show fish laying in sinks, which suggests that they are going to be cleaned and cooked (Fishbrain 2023, p. 14). IEPA was unable to verify the frequency of public angling in the area with Illinois Department of Natural Resources (IDNR) or MWRD.

There is currently a fish advisory for the CSSC that suggests residents limit the intake of: (1) largemouth bass (of all sizes) to one meal per month; (2) sunfish (all sizes) to one meal per week; (3) the common carp (shorter than 12 inches) to six meals per year (and none that are greater than 12 inches long); and (4) the channel catfish (18 inches or longer) to one meal per month (IDPH 2023). Federal endangered and threatened species that could be associated with the CSSC within the 15-mile TDL include the endangered northern long-eared bat (*Myotis septentrionalis*), the piping plover (*Charadrius melodus*), the red knot (*Calidris canutus rufa*), the whooping crane (*Grus americana*), the eastern massasauga (*Sistrurus catenatus*), the hine's emerald dragonfly (*Somatochlora hineana*), and the rusty patched bumble bee (*Bombus affinis*) (Appendix C). According to the Illinois Natural Heritage Database, however, there are no records of state-listed threatened or endangered species, Illinois Natural Area Inventory sites, dedicated Illinois nature preserves, or registered land and water reserves in the Collateral Channel (IDNR 2023) (Appendix D). Based on field surveys, the only benthic animals found in the Collateral Channel sediments are small tubificid oligochaete worms, a pollution-tolerant species (The Wetlands Initiative 2007, p. 14).

Lastly, in 2007, on-site observations from researchers and employees from adjacent properties included turtles, Canada geese, egrets, and Muscovy ducks (a poultry breed). Beaver activity was also apparent from cuttings in the woody vegetation on the side slopes along the west bank of Collateral Channel (The Wetlands Initiative 2007, p. 14).

4.2.3. Surface Water Conclusions

The Collateral Channel has an open connection to the CSSC, a segment that is open to recreational and commercial boating and recreational fishing. The presence of contaminated

sediments provides evidence that a variety of hazardous substances—PAHs, PCBs, pesticides, metals, and VOCs—could migrate into the CSSC. Targets associated with the migration include fish and federal and state threatened and endangered species.

4.3. SOIL EXPOSURE AND SUBSURFACE INTRUSION PATHWAY

The Collateral Channel is a waterbody with sediments deeper than two feet from the surface of the water. There is no surficial contamination to evaluate under the soil exposure component; therefore, no area of observed contamination (AOC) can be established, and START and the EPA did not evaluate the soil exposure component.

Additionally, no subsurface contamination associated with the channel (such as groundwater contamination) has been identified; therefore, START and the EPA did not evaluate the subsurface intrusion component.

4.3.1. Physical Characteristics

The Collateral Channel is a waterbody. The water depth is 18 feet from the surface water to the clay and hardpan near the east shore at the northern terminus. The water depth then decreases to approximately 5 feet when measured 200 feet from the CSO (Zhao and others 2007, p. 4).

4.3.2. Soil Targets

The channel does not contain soil, so soil targets are not a concern of the Collateral Channel. People live and work in the vicinity of the Collateral Channel; however, because there is no surficial contamination associated with the Collateral Channel, no AOC can be established, and, therefore, there are no targets associated with the soil exposure component.

Likewise, no subsurface contamination in the areas around the Collateral Channel has been associated with the channel; therefore, no area of observed exposure or subsurface contamination can be established. In the absence of such areas, there are no targets to associate with the component.

4.3.3. Conclusions

There are people living and working within the vicinity of the Collateral Channel; however, no surficial contamination or subsurface contamination has been associated with the channel, so no

AOC can be established for the soil exposure component. Similarly, no area of observed exposure or subsurface contamination can be established for the subsurface intrusion component.

4.4. AIR MIGRATION PATHWAY

This section discusses the air migration pathway, as well as targets associated with this pathway, and draws component-specific conclusions for the Collateral Channel.

4.4.1. Air Releases

For the Collateral Channel, biogenic gas is primarily produced from the action of methanogenic archaea (using methane and carbon dioxide). It may also be produced from denitrification and fermentation when considering sulfate-reducing conditions within the sediments. In September 2005, UIC performed extensive characterization of gas production in Collateral Channel. Gas production was variable but most prominent near the CSO (the AARS Outfall). UIC estimated that sediments release up to 4.5 m³ gas/m³ for a methane, nitrous oxide, and hydrogen sulfide mixture annually. For comparison, Bubbly Creek (Section 2.4.5) sediment was estimated to release less than 1 m³ gas/m³ (Zhao and others 2007, p. 5).

As described in Section 2.6.2, in 2016 and 2017—using a H₂S analyzer (Jerome meter)—MWRD monitored odors across 13 locations adjacent to the Collateral Channel (Patino 2017, pp. 10–11; Attachment 9; Appendix A, Figure 8). Following the placement of odor control filters in 2016, the odor reportedly decreased in intensity (Patino 2017, p. 14). Joseph Schuessler, the principal civil engineer at MWRD, confirmed on November 8, 2023, that the odor control filters are changed twice per year (MWRD 2023a).

Starting on December 1, 2019, MWRD began using sensor data to prepare biweekly monitoring reports on H₂S and CH₄S at Location 12, which is at the north end of the Collateral Channel (Appendix A, Figure 8). As described in Section 2.6.2, the peaks in H₂S and CH₄S concentrations are generally in June through August months (Attachment 11). During the hotter weeks of 2023, there was a peak H₂S reading of 293 ppbv on August 29, 2023, when the temperature is approximately 69 degrees Fahrenheit.

The monitoring data described above was only taken at the north end of the Collateral Channel; no data was collected by sensors for H₂S at nearby manholes, storm drains, or surrounding neighborhoods. Additionally, MWRD did not conduct sampling at the other 12 locations shown in Figure 8 of Appendix A. Establishing an observed release for HRS purposes includes not only

documentation of a significant increase in contaminant levels above background levels, but it also includes attribution of the significant increase to the site. Although data was of unknown quality and background samples were not identified, an air release above the EPA Superfund Chemical Data Matrix benchmarks was assume for conservative HRS scoring purposes. Additional evaluation is needed to confirm whether scoring H₂S releases from ebullition can be attributed to Collateral Channel sediment and is consistent with the HRS.

Additionally, for December 2022–January 2023, LVEJO and the Center for Neighborhood Technology (CNT) distributed a survey to measure the impact of the Collateral Channel on the surrounding community. Of the total respondents, whose number is unknown, 41 percent reported that La Villita Park (Appendix A, Figure 2) smells bad generally or all the time. Many members of the community also conveyed a concern regarding the general smell of the neighborhood, which is believed to be caused by a larger contributor. Participants relayed that they believed the odor source to be the south end of the park, adjacent to the Collateral Channel. The survey found that 28 percent of respondents identified the foul smells to be present throughout the year and that a majority found the odor strength to increase during the summer months. Respondents conveyed that this coincided with a hesitation to be outdoors for long periods of time due to the overall odor throughout the community. The survey concluded that the community seeks remediation (LVEJO 2023, pp. 19–27).

4.4.2. Air Targets

Emissions to air have the potential to threaten nearby targets, including residents, schools, and workers. To assess this potential, the Missouri Census Data Center has a Circular Air Profiles application that aggregates 2017–2021 American Community Survey data to approximate circular areas; these areas are specified by the latitude and longitude, starting at the Collateral Channel. The application also uses data from the latest tract or block-group-level, 5-year estimates. From the application, the residential population within a 4-mile radius of the channel is distributed as follows (Appendix A, Figure 6) (Missouri Census Data Center 2023):

- 0–0.25 mile: 454 people
- 0.25–0.50 mile: 11,194 people
- 0.50–1.0 mile: 35,552 people
- 1.0–2.0 miles: 124,934 people
- 2.0–3.0 miles: 208,665 people

- 3.0–4.0 miles: 250,078 people

The nearest residence is approximately 300 feet northwest of the Collateral Channel. A major development with open-space components is planned one block from the Collateral Channel: the Focal Point Community Campus (Appendix A, Figure 2). It will be a 28.9-acre, mixed-use campus at 3100 South Kedzie Avenue that will bring new medical facilities, office space, retail, daycare, and open space for Saint Anthony’s Hospital (Savedra 2022, p. 2). The open space will include a plaza, an amphitheater, a playground, and outdoor soccer and baseball fields. Plans also involve access points for a potential trail on railroad tracks that cross over the Collateral Channel (LVEJO 2023, pp. 16–17).

Lastly, according to the USFWS National Wetlands Inventory, there are no acres of vegetated wetlands within the 4-mile TDL of the site. There are 344 acres of riverine, the majority of which is the CSSC (Appendix A, Figure 6) (USFWS 2023). Federal endangered and threatened species that could be associated with the CSSC within the 4-mile TDL include the endangered northern long-eared bat (*Myotis septentrionalis*), the piping plover (*Charadrius melodus*), the red knot (*Calidris canutus rufa*), the whooping crane (*Grus americana*), the eastern massasauga (*Sistrurus catenatus*), the hine’s emerald dragonfly (*Somatochlora hineana*), and the rusty patched bumble bee (*Bombus affinis*) (Appendix C).

4.4.3. Air Migration Pathway Conclusions

The effect of smells and gas ebullitions indicate the potential of an air release from Collateral Channel sediment. In prior studies, the Collateral Channel’s gas ebullition events were compared to the nearby Bubbly Creek (Section 2.4.5), which is notorious for its smells from large gas ebullition events (Thorp 2018; Zhao and others 2007, p. 6). Annually, sediments in the Collateral Channel are estimated to release up to 4.5 m³ gas/m³ of a methane, nitrous oxide, and hydrogen sulfide mixture while Bubbly Creek is estimated to release less than 1 m³ gas/m³ (Zhao and others 2007, p. 5). Additionally, community surveys conducted by LVEJO show that respondents hesitate to recreate outdoors for long periods of time due to the overall “odor” of the area, which tends to increase in the summer.

The graphical representation in Attachment 11 indicates that H₂S increases in summer months near the Collateral Channel; however, there is no data for nearby areas for comparison, and the source of H₂S is unknown. There are no exemptions in CERCLA for releases of hazardous substances from CSOs. CERCLA Section 101(14) defines a “hazardous substance” broadly by

authorizing a list of hazardous substances under CERCLA Section 102 and by referencing several environmental statutes, such as the Clean Water Act, the Clean Air Act, the Solid Waste Disposal Act, and the Toxic Substances Control Act. Substances from CSOs that fall within this definition, such as PAHs, are appropriate for regulation under CERCLA.

Generally, sources do not include those volumes of air or surface water sediments that have become contaminated by migration; however, in the case of contaminated surface water sediments with no identified source, the contaminated sediments themselves may be considered a source. If the contamination in sediments were considered the release from the CSO, it may be feasible to score a release to air from the release to sediments. Although data was of unknown quality and background samples were not identified, an air release above the EPA Superfund Chemical Data Matrix benchmarks was assumed for conservative HRS scoring purposes. Additional evaluation is needed to confirm whether scoring H₂S releases from ebullition can be attributed to Collateral Channel sediment and is consistent with the HRS.

5. SUMMARY AND CONCLUSIONS

PAs differentiate sites that pose little or no potential relative threat to human health and the environment from sites that warrant further investigation. For the Collateral Channel, this PA identified PAH-, PCB-, and metal-contaminated sediments and gases potentially released from those sediments. There are multiple potential contributors to the contamination, both historical and current, and some contributors have been remediated. Nevertheless, the Collateral Channel contamination has not significantly changed from 1995 to 2017 based on the sediment sampling results.

The original function of the Collateral Channel was to provide a navigational link between the CSSC and the West Fork of the South Branch of the Chicago River. Even though the West Fork—which was considered polluted—has since been filled, a study by MWRD, UIC, the Wetlands Initiative, and Patrick Engineering shows that contamination in the Collateral Channel sediment dates to when West Fork was still present and connected to the Collateral Channel (The Wetlands Initiative 2007, p. 10). Remedial actions have not been taken to address this historic contamination. Additionally, it is possible that the current AARS Outfall contains contaminated urban runoff when it occasionally discharges into the Collateral Channel.

Other possible contributors to the Collateral Channel's contamination include nearby properties (Appendix A, Figures 2 and 3). The Former Celotex Site, while currently remediated, previously had samples with volatile organic compounds and PAHs in soils at depths ranging within 0–18 feet bgs, and it had documented runoff into western residential neighborhoods. The Former Consolidated Union Liquors Site had elevated PCBs in soil that, while since remediated, may also have historically contaminated the Collateral Channel (EPA 2021). Thirdly, the Former Apex/Torco Oil Site has un-remediated contamination in on-site soils and wetlands. (The Former Apex/Torco Oil Site is likely exempt from CERCLA.) Lastly, a 2023 sample from sediment at a depth from 9.6 feet to 10.5 feet below the mudline showed evidence of MGP-related PAHs at the confluence of the CSSC and Collateral Channel; this has similar contaminants of concern as the Peoples Gas Crawford Station (Peoples Gas 2023, p. 138 and 203).

Five groundwater monitoring wells adjacent to the channel did not have detected PCBs; however, no other analytes were considered in the evaluation. Additionally, no other groundwater has been sampled around the Collateral Channel. It is possible, then, that a contributing source of contaminated groundwater to the Collateral Channel exists at the Former Apex/Torco Oil Site. Nevertheless, groundwater contamination is not a potential source of exposure under HRS,

because new potable wells are prohibited, and the City of Chicago obtains drinking water from Lake Michigan, which is upstream of the Collateral Channel (V3 2018, p. 8)

Regarding the surface water migration pathway, any potential releases from the Collateral Channel have the potential to affect the fish in the Collateral Channel and CSSC, which allows fishing with a fish advisory. Wetlands are also along the 15-mile TDL pathway of surface water and within the 4-mile TDL of air, and the CSSC has the potential to provide habitat for the endangered northern long-eared bat (*Myotis septentrionalis*). Nevertheless, the actual contamination of targets is unlikely because of the usually stagnant flow at Collateral Channel, the high dilution rate of the CSSC, and the possible attribution of contamination from other sources along the CSSC.

Overall, the two main pathways of concern are: (1) the ingestion of contaminated fish; and (2) the outdoor air pathway from H₂S events near the Collateral Channel during the summer months. In the summer of 2023, H₂S peaks up to 293 ppbv near the Collateral Channel. Additionally, a recent survey indicates that respondents believe that the nearby La Villita Park smells bad generally or all the time, and many conveyed a concern regarding the general smell of the neighborhood. Participants relayed that they believed the general direction was the south end of the park, close to the Collateral Channel (LVEJO 2023).

There are many uncertainties with the surface water pathway and the air pathway concerns at the site. First, it is undetermined whether the presence of H₂S as measured in the air at the Collateral Channel is from the CSO, the Collateral Channel, or another source. Additional evaluation is needed to confirm whether scoring H₂S releases from ebullition can be attributed to Collateral Channel sediment and is consistent with the HRS. Second, it is unknown whether an observed release to surface water could be documented within the Collateral Channel. Establishing an observed release requires identifying a significant increase in contaminant concentrations above background level and attributing the significant increase to the site. For the purposes of this PA, START assumed, under the EPA's direction, that an observed release could be established within the Collateral Channel. Additionally, START considered the surface water and air pathways, as directed by EPA, but given the uncertainties surrounding the source of H₂S and whether contamination is releasing to the CSSC, these scoring assumptions are conservative and may not be an eligible exposure pathway under the HRS.

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APPENDIX A. FIGURES

Figure 1 — Site Location Map

Figure 2 — Site Layout Showing Surrounding Properties

Figure 3 — Location of Nearby Properties

Figure 4 — 15-Mile Surface Water Pathway – TDL Wetlands

Figure 4A — 15-Mile Surface Water Pathway – TDL Wetlands (River Marker Mile 1–5)

Figure 4B — 15-Mile Surface Water Pathway – TDL Wetlands (River Marker Mile 4–10)

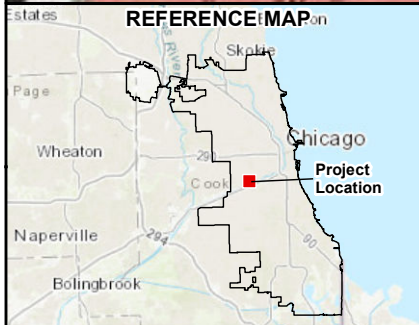
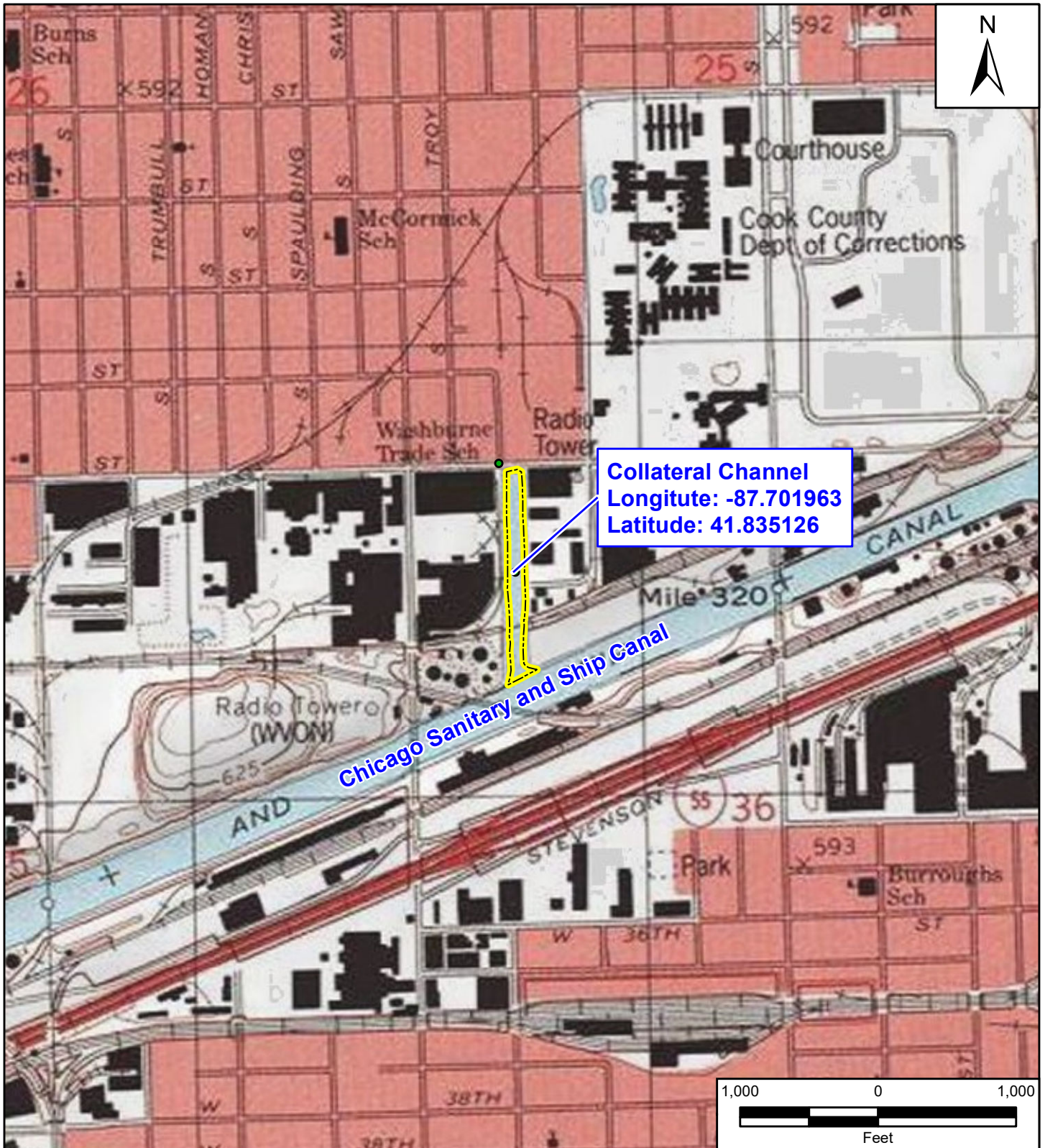
Figure 4C — 15-Mile Surface Water Pathway – TDL Wetlands (River Marker Mile 10–15)

Figure 5 — FEMA Floodplain Map

Figure 6 — 4-Mile TDL Map

Figure 7 — Historic Sediment and Surface Water Samples

Figure 8 — MWRD Odor Monitoring



Legend

Location of Collateral Channel

Source: USGS 7.5-Minute Topographic Quadrangle Map:
Chicago, IL 1994

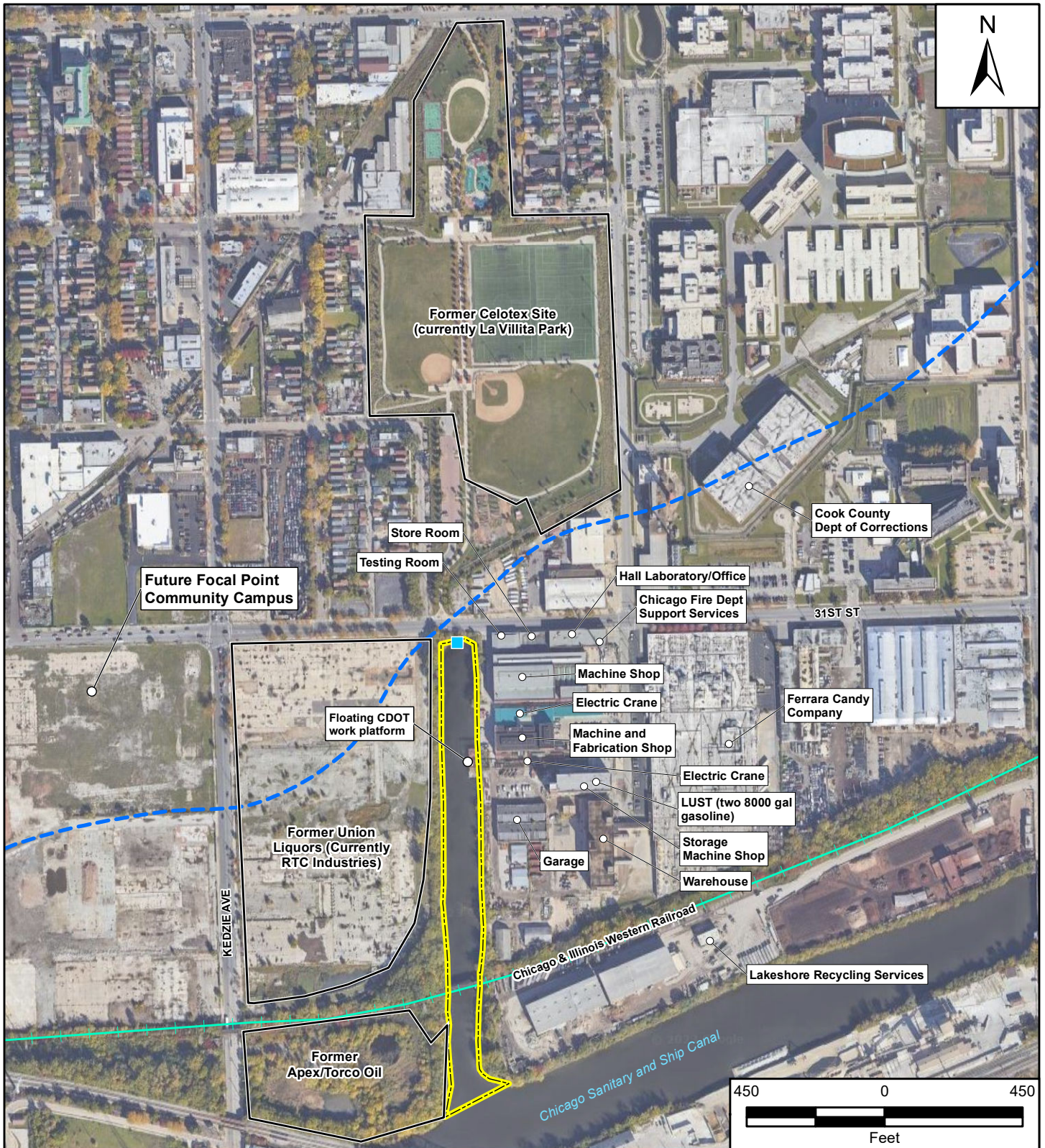
Collateral Channel
31st Street and Albany Avenue
Chicago, Cook County, Illinois

Figure 1
Site Location Map



Prepared For: EPA

Prepared By: Tetra Tech



Legend

- Albany Avenue Relief Sewer Outfall
- Former West Fork of the South Branch of the Chicago River
- + Railroad
- Approximate Site Footprint
- Approximate Project Boundary

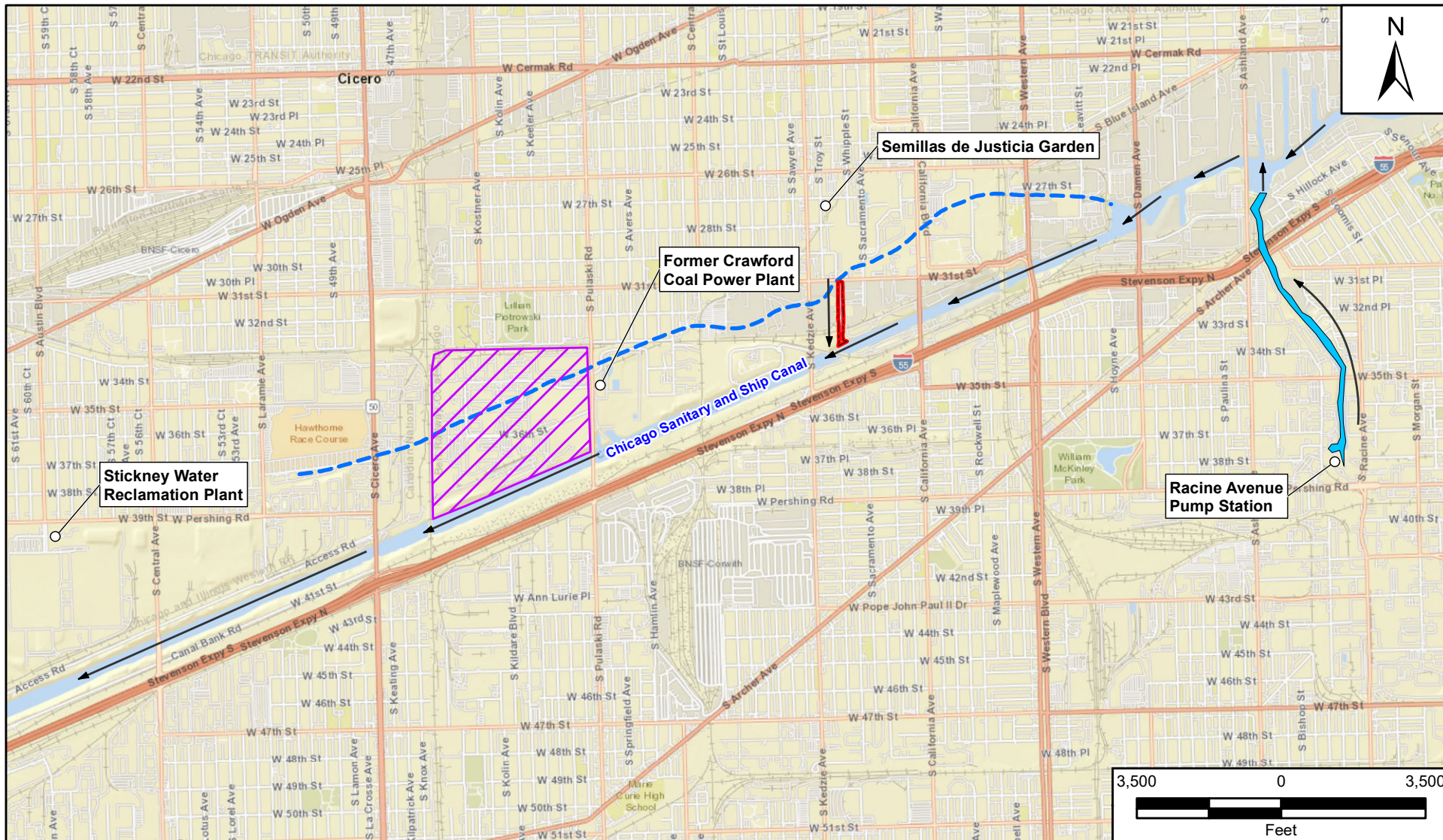
Collateral Channel
31st Street and Albany Avenue
Chicago, Cook County, Illinois

Figure 2
Site Layout Showing
Surrounding Properties



Prepared For: EPA

Prepared By: Tetra Tech



Legend

- Collateral Channel
- People's Gas Crawford Station
- Bubbly Creek
- Former West Fork of the South Branch of the Chicago River
- Flowlines

Source: modified from World Street Map

Date Saved: 10/31/2023

EPA Contract No.: 68-HE-0519-D0005

TO-TOLIN: F00720001ED006

Collateral Channel
31st Street and Albany Avenue
Chicago, Cook County, Illinois

Figure 3
Location of Nearby Properties

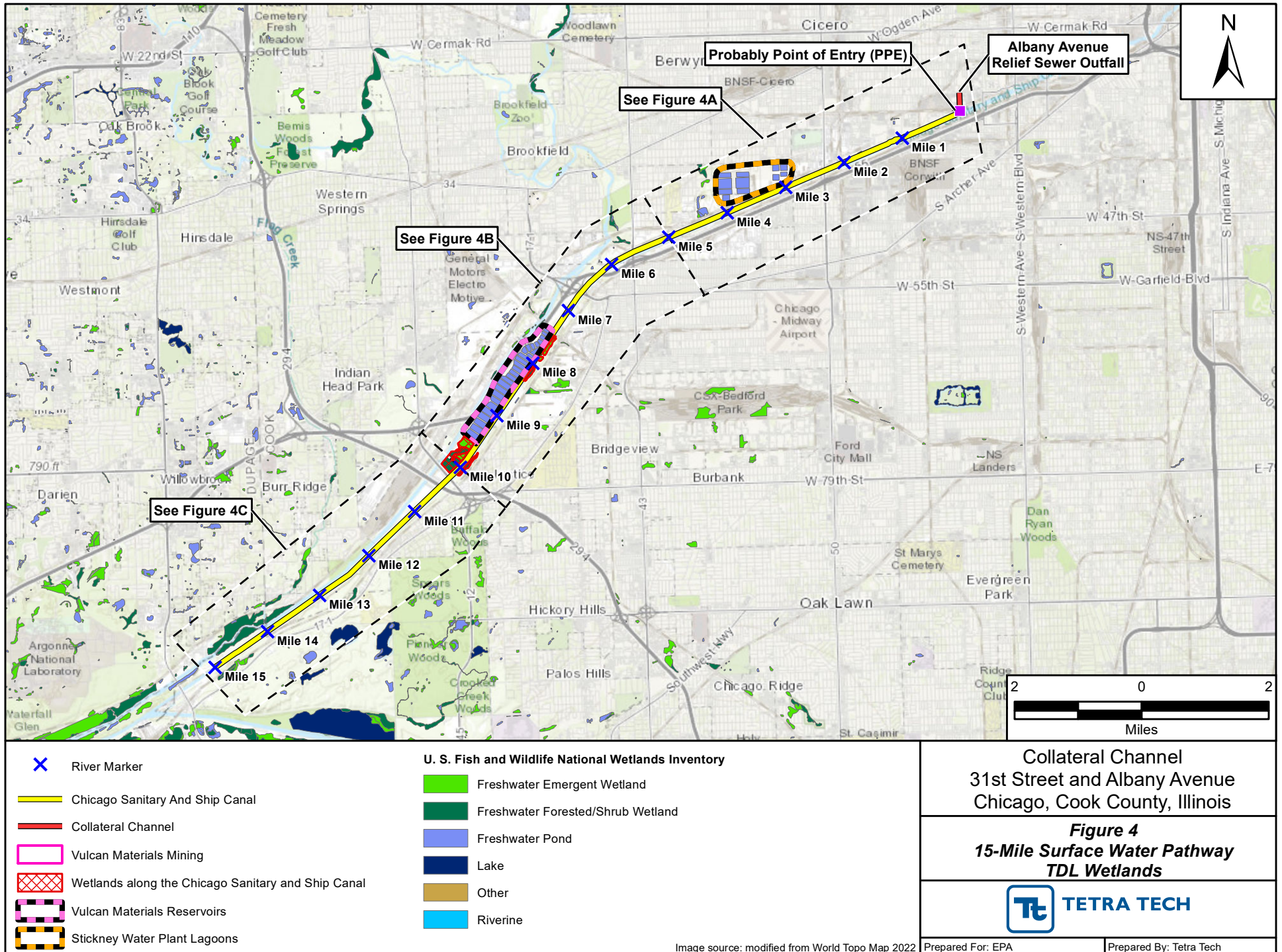


Prepared For: EPA

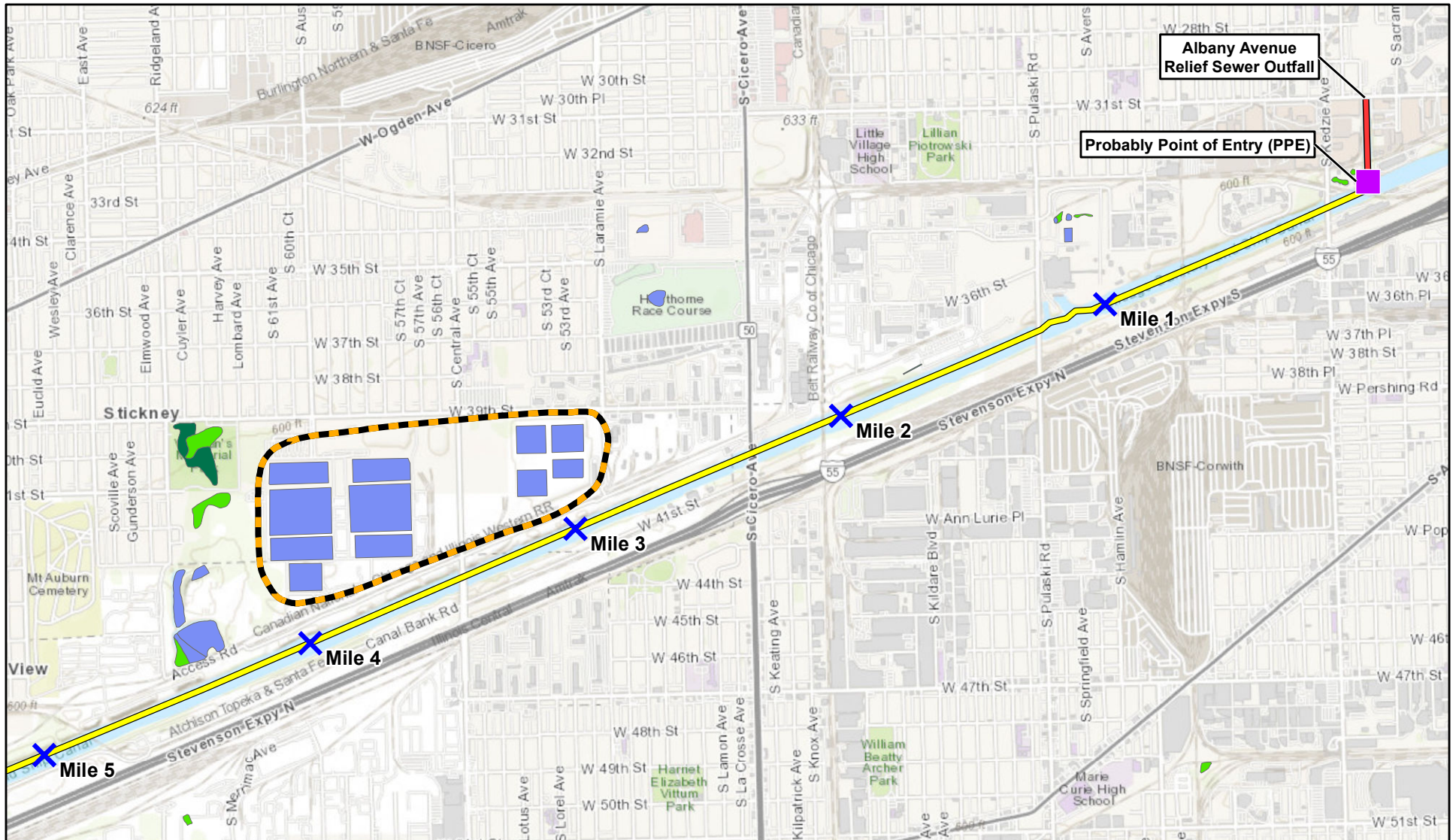
Prepared By: Tetra Tech

Coordinate System: NAD 1983 StatePlane Illinois East FIPS 1201 Feet
Projection: Transverse Mercator
Datum: North American 1983 Units: Foot US

G:\G09031-START V\Illinois\Collateral Channel\mxd\2023-08\Fig4-15MileSurfaceWaterPathway.mxd m.banh



G:\G09031-START Villinois\Collateral Channel\mxd\2023-08\Fig4A-15MileSurfaceWaterPathway-RM1-5.mxd m.banh

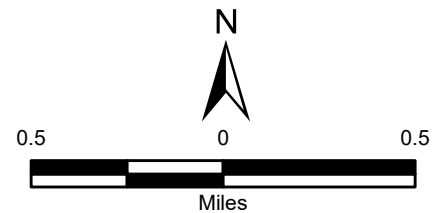


Legend

- River Marker
- Chicago Sanitary And Ship Canal
- Collateral Channel
- Stickney Water Plant Lagoons

U. S. Fish and Wildlife National Wetlands Inventory

- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Riverine



Collateral Channel
31st Street and Albany Avenue
Chicago, Cook County, Illinois

Figure 4A
15-Mile Surface Water Pathway
TDL Wetlands (River Marker Mile 1-5)



Prepared For: EPA

Prepared By: Tetra Tech

Image source: modified from World Topo Map 2022

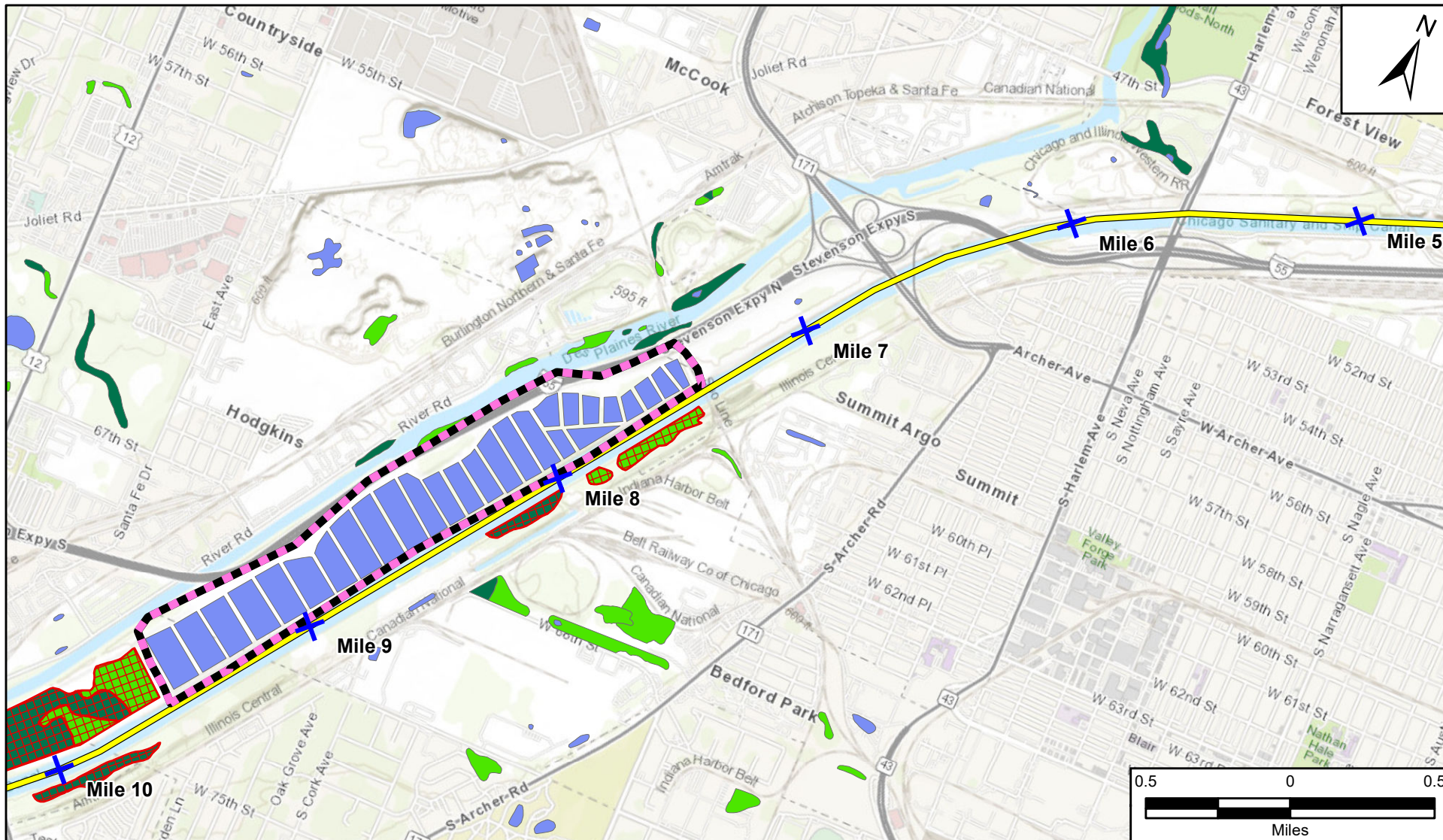
Date Saved: 1/3/2024

EPA Contract No.: 68-HE-0519-D0005

TO-TOLIN: F00720001ED006

Coordinate System: NAD 1983 StatePlane Illinois East FIPS 1201 Feet
Projection: Transverse Mercator
Datum: North American 1983 Units: Foot US

G:\G09031-START Villinois\Collateral Channel\mxd\2023-08\Fig4B-15MileSurfaceWaterPathway-RM5-10.mxd m.banh



Legend

- River Marker
- Chicago Sanitary And Ship Canal
- Collateral Channel
- Wetlands along the Chicago Sanitary and Ship Canal
- Vulcan Materials Reservoirs

U. S. Fish and Wildlife National Wetlands Inventory

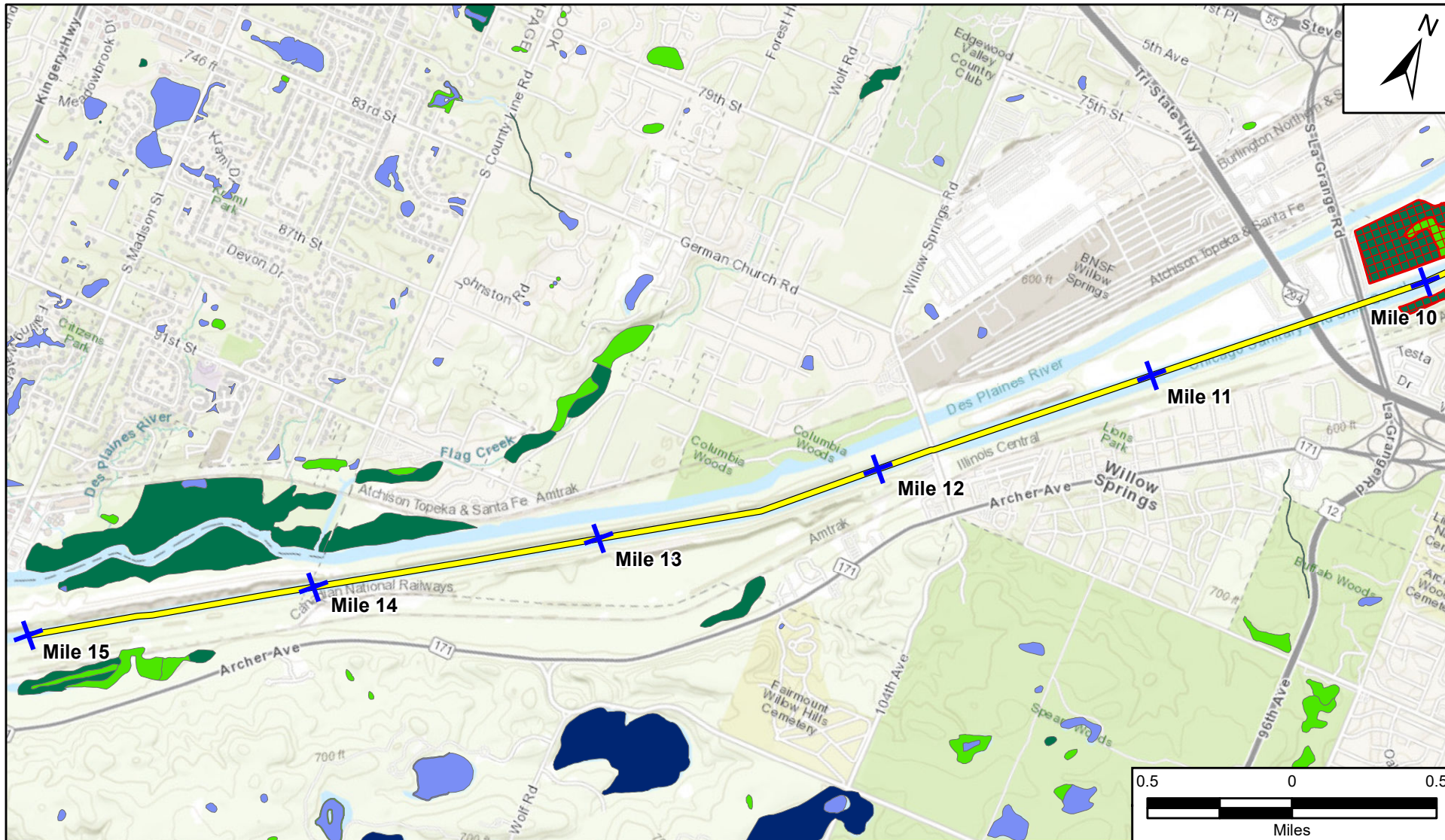
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Riverine

Collateral Channel
31st Street and Albany Avenue
Chicago, Cook County, Illinois

Figure 4B
15-Mile Surface Water Pathway
TDL Wetlands (River Marker Mile 5-10)



G:\G90031-START Villinois\Collateral Channel\mxd\2023-08\Fig4C-15MileSurfaceWaterPathway-RM10-15.mxd m.banh



Legend

- River Marker
- Chicago Sanitary And Ship Canal
- Collateral Channel
- Wetlands along the Chicago Sanitary and Ship Canal
- Vulcan Materials Reservoirs

U. S. Fish and Wildlife National Wetlands Inventory

- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Riverine

Collateral Channel
31st Street and Albany Avenue
Chicago, Cook County, Illinois

Figure 4C
15-Mile Surface Water Pathway
TDL Wetlands (River Marker Mile 10-15)



Prepared For: EPA

Prepared By: Tetra Tech

Image source: modified from World Topo Map 2022

Date Saved: 12/26/2023

EPA Contract No.: 68-HE-0519-D0005

TO-TOLIN: F00720001ED006

Coordinate System: NAD 1983 StatePlane Illinois East FIPS 1201 Feet
Projection: Transverse Mercator
Datum: North American 1983 Units: Foot US



Legend

- Albany Avenue Relief Sewer Outfall
- Former West Fork of the South Branch of the Chicago River
- + Railroad
- Approximate Former Site Footprint
- Approximate Project Boundary

Flood Hazard Zones

- 1% Annual Chance Flood Hazard

Collateral Channel
31st Street and Albany Avenue
Chicago, Cook County, Illinois

Figure 5
FEMA Floodplain Map



Prepared For: EPA

Prepared By: Tetra Tech

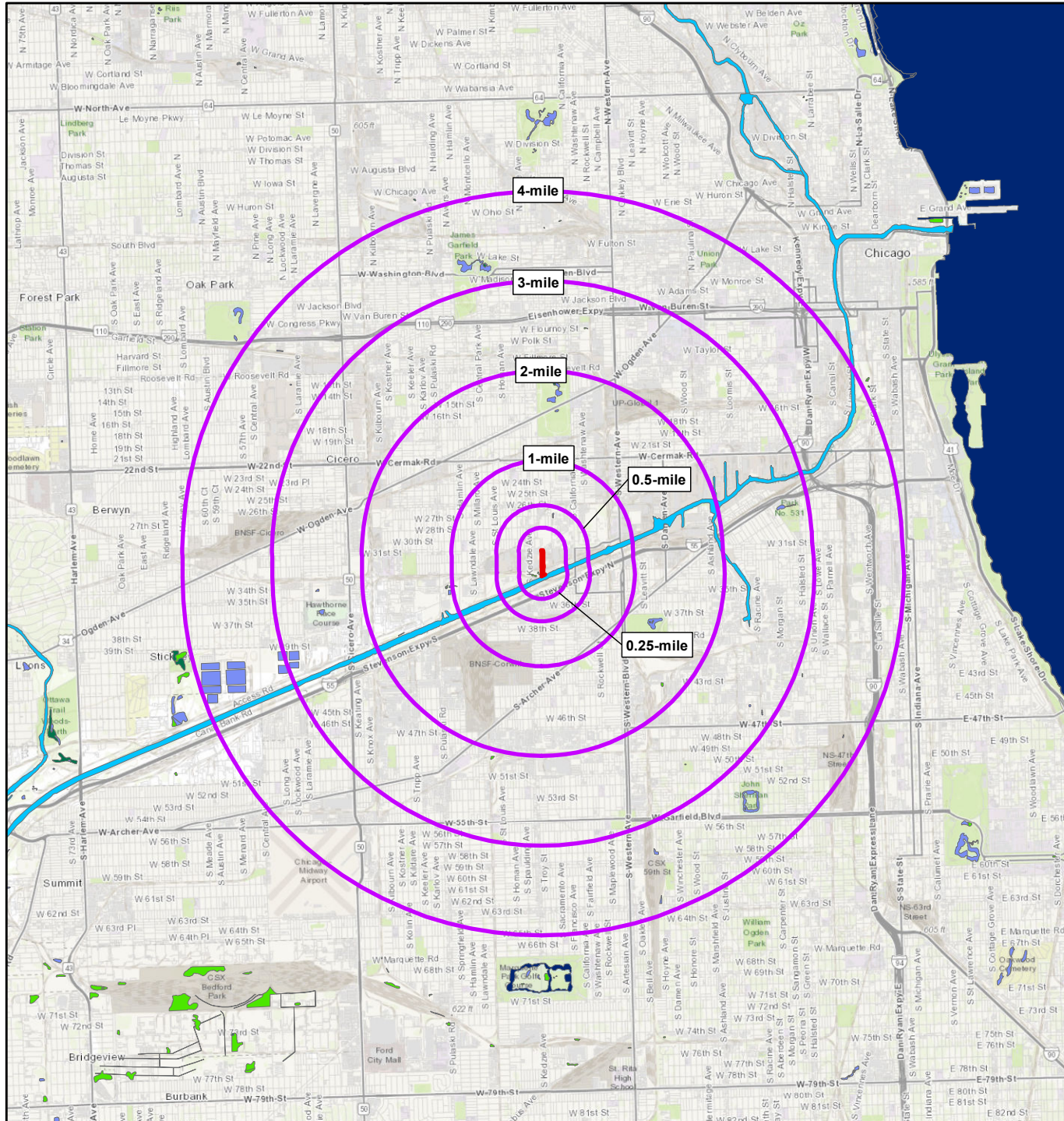
Image source: modified from bing Maps Aerial 2016

Date Saved: 9/8/2023

EPA Contract No.: 68-HE-0519-D0005

TO-TOLIN: F00720001ED006

Coordinate System: NAD 1983 StatePlane Illinois East FIPS 1201 Feet
Projection: Transverse Mercator
Datum: North American 1983 Units: Foot US



Legend

■ Approximate Project Boundary

■ 4-mile TDL

US Fish and Wildlife Service National Wetlands Inventory

■ Freshwater Emergent Wetland

■ Freshwater Forested/Shrub Wetland

■ Freshwater Pond

■ Lake

■ Other

■ Riverine

Image source: modified from World Topo Map 2022

**Collateral Channel
31st Street and Albany Avenue
Chicago, Cook County, Illinois**

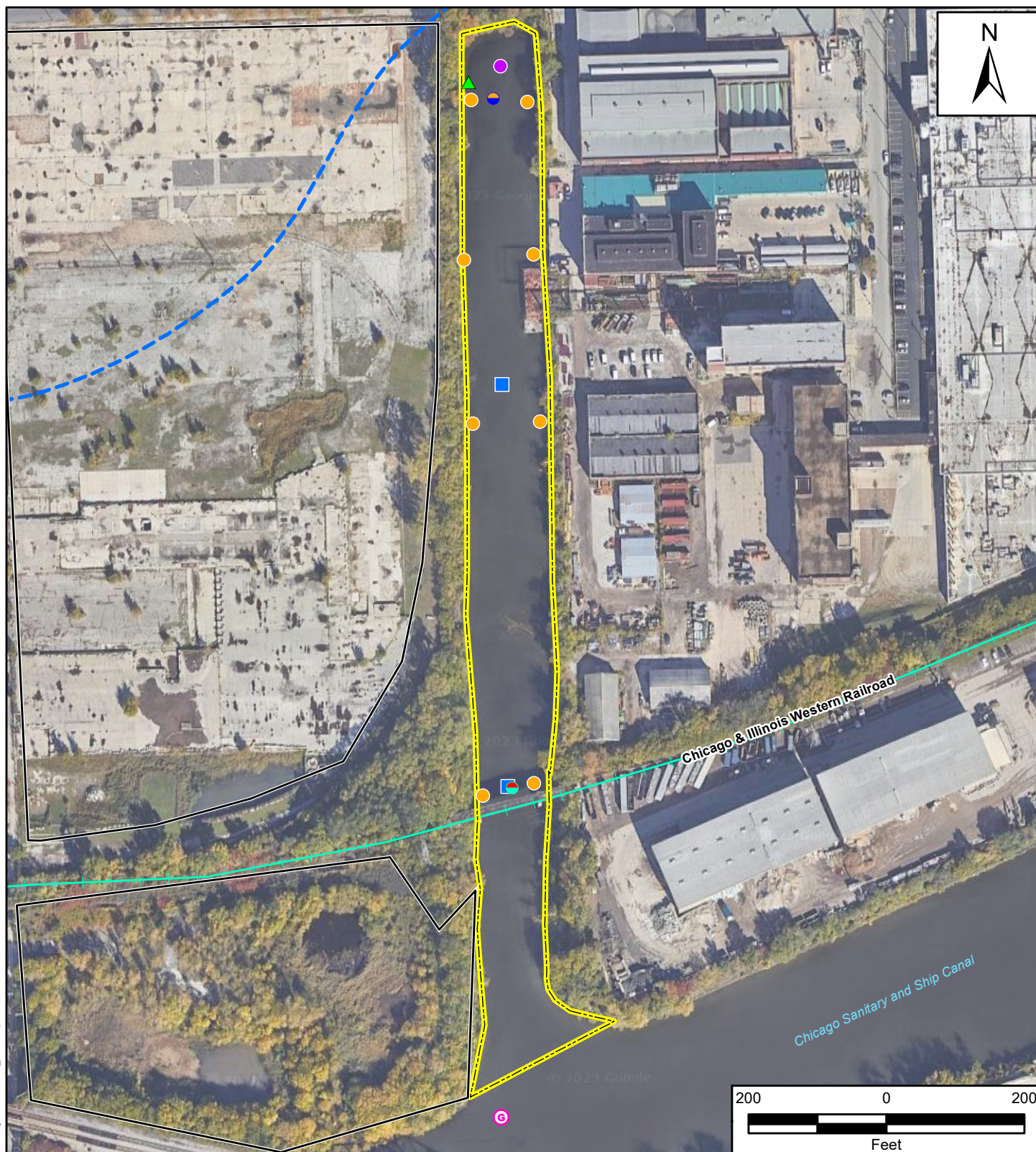
**Figure 6
4-Mile TDL Map**



Prepared For: EPA

Prepared By: Tetra Tech

G:\G0301-START Villinois\Collateral Channel\mxd\2023-11\Fig7-HistoricSed_SW\Samples.mxd m_banh



- 2018 MWRD Sediment Sample
- 2017 MWRD pilot study
- 2005 MWRD Surface Water Sample
- 1995 MWRD Sediment & Surface Water Sample
- 1994 & 2005 MWRD Sediment & Surface Water Sample
- 1994 & 2005 MWRD Sediment Sample
- Peoples Gas Forensic Sediment Sample (CSSC-SD-227H)

- Former West Fork of the South Branch of the Chicago River
- Railroad
- Approximate Site Footprint
- Approximate Project Boundary

Collateral Channel
31st Street and Albany Avenue
Chicago, Cook County, Illinois

Figure 7
Historic Sediment and Surface
Water Samples



Image source: modified from bing Maps Aerial 2016

Prepared For: EPA

Prepared By: Tetra Tech

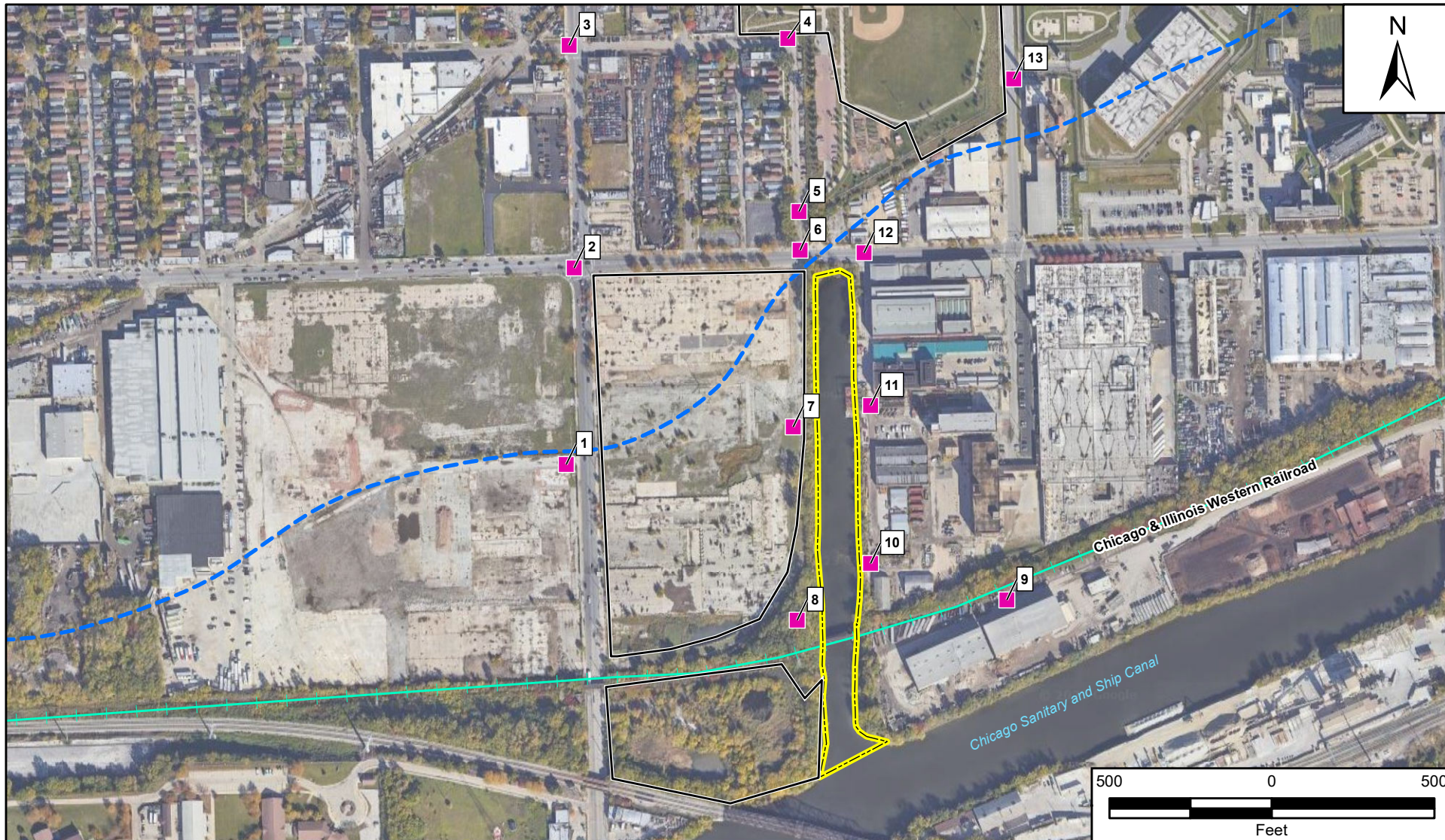
Date Saved: 11/29/2023

EPA Contract No.: 68-HE-0519-D0005

TO-TOLIN: F00720001ED006

Coordinate System: NAD 1983 StatePlane Illinois East FIPS 1201 Feet
Projection: Transverse Mercator
Datum: North American 1983 Units: Foot US

G:\G090031-START Villinois\Collateral Channel\mxd\2023-11\Fig8-MWRD_OdorMonitoring.mxd m.banh



Legend

- Odor Monitoring Location
- Former West Fork of the South Branch of the Chicago River
- Railroad
- Approximate Site Footprint
- Approximate Project Boundary

Collateral Channel
31st Street and Albany Avenue
Chicago, Cook County, Illinois

Figure 8
MWRD Odor Monitoring



Prepared For: EPA

Prepared By: Tetra Tech

Image source: modified from bing Maps Aerial 2016

Date Saved: 11/29/2023

EPA Contract No.: 68-HE-0519-D0005

TO-TOLIN: F00720001ED006

Coordinate System: NAD 1983 StatePlane Illinois East FIPS 1201 Feet
Projection: Transverse Mercator
Datum: North American 1983 Units: Foot US

APPENDIX B. LOGBOOK AND PHOTOLOG



Photographic Documentation

Client: USEPA

Site Name: Collateral Channel Site - PA

Location: Chicago, Cook County, Illinois

Photos by: Tetra Tech, Inc.

TOLIN Number: F0072-0001ED006

Dates: 10/27/2023

Photograph No. 1

Date: 10/27/2023

Description:

A sheen was observed on the water surface at the outfall into the channel. View is towards the south.





Photographic Documentation

Client: USEPA

Site Name: Collateral Channel Site - PA

Location: Chicago, Cook County, Illinois

Photos by: Tetra Tech, Inc.

TOLIN Number: F0072-0001ED006

Dates: 10/27/2023

Photograph No. 2

Date: 10/27/2023

Description:

A floating Chicago Department of Transportation platform is moored in the channel. View is towards the south.





Photographic Documentation

Client: USEPA

Site Name: Collateral Channel Site - PA

Location: Chicago, Cook County, Illinois

Photos by: Tetra Tech, Inc.

TOLIN Number: F0072-0001ED006

Dates: 10/27/2023

Photograph No. 3

Date: 10/27/2023

Description:

Still frame from video showing bubbles coming to the water surface near the sheen at the outfall. View is towards the south.





Photographic Documentation

Client: USEPA

Site Name: Collateral Channel Site - PA

Location: Chicago, Cook County, Illinois

Photos by: Tetra Tech, Inc.

TOLIN Number: F0072-0001ED006

Dates: 10/27/2023

Photograph No. 4

Date: 10/27/2023

Description:

The outfall emptying into the north end of the Collateral Channel. View is towards the north-northwest.





Photographic Documentation

Client: USEPA

Site Name: Collateral Channel Site - PA

Location: Chicago, Cook County, Illinois

Photos by: Tetra Tech, Inc.

TOLIN Number: F0072-0001ED006

Dates: 10/27/2023

Photograph No. 5

Date: 10/27/2023

Description:

Trash was observed along the bank of the Collateral Channel. View is towards the north.





Photographic Documentation

Client: USEPA

Site Name: Collateral Channel Site - PA

Location: Chicago, Cook County, Illinois

Photos by: Tetra Tech, Inc.

TOLIN Number: F0072-0001ED006

Dates: 10/27/2023

Photograph No. 6

Date: 10/27/2023

Description:

A floating Chicago Department of Transportation platform is moored in the channel. View is towards the south.

This photo is a duplicate of Photograph No. 2, but it is also listed as Photograph No. 6 in the field logbook.



Photograph No. 7

Date: 10/27/2023

Description:

A manhole cover near the intersection of 31st and S Albany. The manhole cover is located approximately 50 feet north of 31st on park property. View is towards the east.





Photographic Documentation

Client: USEPA

Site Name: Collateral Channel Site - PA

Location: Chicago, Cook County, Illinois

Photos by: Tetra Tech, Inc.

TOLIN Number: F0072-0001ED006

Dates: 10/27/2023

Photograph No. 8

Date: 10/27/2023

Description:

Looking northeast along the former West Fork of the South Branch of the Chicago River about 10 feet from the bottom of the channel to the top of the mound along the bank.





Photographic Documentation

Client: USEPA

Site Name: Collateral Channel Site - PA

Location: Chicago, Cook County, Illinois

Photos by: Tetra Tech, Inc.

TOLIN Number: F0072-0001ED006

Dates: 10/27/2023

Photograph No. 9

Date: 10/27/2023

Description:

Looking north along S Albany.
Two square manhole covers
are visible.





Photographic Documentation

Client: USEPA

Site Name: Collateral Channel Site - PA

Location: Chicago, Cook County, Illinois

Photos by: Tetra Tech, Inc.

TOLIN Number: F0072-0001ED006

Dates: 10/27/2023

Photograph No. 10

Date: 10/27/2023

Description:

Looking east towards a round manhole cover.





Photographic Documentation

Client: USEPA

Site Name: Collateral Channel Site - PA

Location: Chicago, Cook County, Illinois

Photos by: Tetra Tech, Inc.

TOLIN Number: F0072-0001ED006

Dates: 10/27/2023

Photograph No. 11

Date: 10/27/2023

Description:

Looking north towards a manhole cover near the intersection of 30th and S Albany.





Photographic Documentation

Client: USEPA

Site Name: Collateral Channel Site - PA

Location: Chicago, Cook County, Illinois

Photos by: Tetra Tech, Inc.

TOLIN Number: F0072-0001ED006

Dates: 10/27/2023

Photograph No. 12

Date: 10/27/2023

Description:

Two manholes along 30th
approximately 10 feet west
of S Albany.





Photographic Documentation

Client: USEPA

Site Name: Collateral Channel Site - PA

Location: Chicago, Cook County, Illinois

Photos by: Tetra Tech, Inc.

TOLIN Number: F0072-0001ED006

Dates: 10/27/2023

Photograph No. 13

Date: 10/27/2023

Description:

Looking northeast towards a sign at the park.





Photographic Documentation

Client: USEPA

Site Name: Collateral Channel Site - PA

Location: Chicago, Cook County, Illinois

Photos by: Tetra Tech, Inc.

TOLIN Number: F0072-0001ED006

Dates: 10/27/2023

Photograph No. 14

Date: 10/27/2023

Description:

Looking northeast towards residents waiting in line to get food from community garden workers.





Photographic Documentation

Client: USEPA

Site Name: Collateral Channel Site - PA

Location: Chicago, Cook County, Illinois

Photos by: Tetra Tech, Inc.

TOLIN Number: F0072-0001ED006

Dates: 10/27/2023

Photograph No. 15

Date: 10/27/2023

Description:

Looking east towards the fenced community garden.





Photographic Documentation

Client: USEPA

Site Name: Collateral Channel Site - PA

Location: Chicago, Cook County, Illinois

Photos by: Tetra Tech, Inc.

TOLIN Number: F0072-0001ED006

Dates: 10/27/2023

Photograph No. 16

Date: 10/27/2023

Description:

Looking southeast towards the fenced community garden.



QA 10/27/23

OCTOBER 27, 2023

COLLATERAL CHANNEL

OVERCAST ~ 64°

SSW 10 mph

0930 ONSITE @ 31ST + SOUTH ALBA NY

ALBERT RIOS

PAT ~~HAS~~ HAMBUNT

SANDY ANAGNOSTOPOULOS

#1 PHOTO - SOUTH
SHEEN FROM OUTFALL

#2 FLOATING CDOT
PLATFORM - SOUTH

#3 VIDEO - SOUTH
SHOWS BUBBLES COMING
TO SURFACE W/A SHEEN

#4 NNW OUTFALL

#5 N DOWN TRASH
ON RIVERBANK

QA 10/27/23

COLLATERAL CHANNEL

#6 SOUTH FLOATING CDOT
WORK PLATFORM

#7 MANHOLE
EAST 31ST + ALBANY
~ 50' N OF 31ST
ON PARK
PROPERTY

#8 NE ALONG ^{OR} S
FORMER W FORK
OF S. BRANCH OF CHAGO RIVER
~ 10' FROM BOTTOM
TO TOP OF MOUND

#9 NORTH ALONG SOUTH
ALBANY; 2 SQUARE
MANHOLES

OR 10/27/23

COLLATERAL CHANNEL

ROUND

#10 EAST, MANHOLE COVER

#11 NORTH MANHOLE COVER
@ 30TH + S ALBANY

#12 MANHOLES ON
30TH ~ ~~30~~ ^{OR} 10' W
OF ALBANY

0955 PAT + ALFRED, OFF-SITE

#13 NE SIGN TO
PARK AREA

#14 NE RESIDENTS
WAITING IN LINE TO
~~COLLECT~~ ^{OR} GET FOOD
FROM COMMUNITY
GARDEN WORKERS

OR 10/27/23

COLLATERAL CHANNEL

1000:

#15 E } FENCED
#16 SE } COMMUNITY
GARDEN

NO ODOR OR MINIMAL
ODOR NOTED WHILE
WALKING IN SITE
AREA

1015 S CALIFORNIA AVE
AND NORTH BANK OF
CHGO SAN+ SHIP CANAL -
NO PUBLIC ACCESS
TO THE WEST ALTHOUGH
THERE IS A PAVED
ROAD THAT GOES SW
ALONG THE BANK
WITH A SIGN
INDICATING
'FLAMMABLE'

SANDY OFF-SITE

aa 10/27/23 →

APPENDIX C. USFWS – ENDANGERED SPECIES ASSESSMENT RESULTS

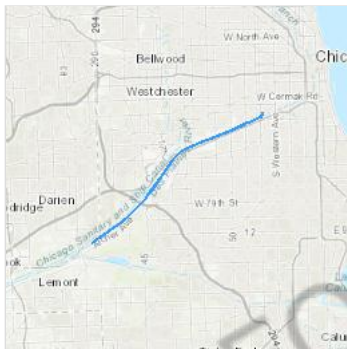
IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Cook County, Illinois



Local office

Chicago Ecological Service Field Office

☎ (312) 485-9337

U.S. Fish And Wildlife Service Chicago Ecological Services Office
230 South Dearborn St., Suite 2938
Chicago, IL 60604-1507

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species¹ and their critical habitats are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries²).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact [NOAA Fisheries](#) for [species under their jurisdiction](#).

1. Species listed under the [Endangered Species Act](#) are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
2. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Northern Long-eared Bat <i>Myotis septentrionalis</i> Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9045	Endangered

Birds

NAME	STATUS
Piping Plover <i>Charadrius melodus</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/6039	Endangered

Red Knot *Calidris canutus rufa* Threatened
 Wherever found
 There is **proposed** critical habitat for this species.
<https://ecos.fws.gov/ecp/species/1864>

Whooping Crane *Grus americana* [EXPN](#)
 No critical habitat has been designated for this species.
<https://ecos.fws.gov/ecp/species/758>

Reptiles

NAME	STATUS
Eastern Massasauga (=rattlesnake) <i>Sistrurus catenatus</i> Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/2202	Threatened

Insects

NAME	STATUS
Hine's Emerald Dragonfly <i>Somatochlora hineana</i> Wherever found There is final critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/7877	Endangered
Monarch Butterfly <i>Danaus plexippus</i> Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9743	Candidate
Rusty Patched Bumble Bee <i>Bombus affinis</i> Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9383	Endangered

Flowering Plants

NAME	STATUS
Eastern Prairie Fringed Orchid <i>Platanthera leucophaea</i> Wherever found This species only needs to be considered if the following condition applies: Follow the guidance provided at https://www.fws.gov/midwest/endangered/section7/s7process/plants/epfos7guide.html No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/601	Threatened

Leafy Prairie-clover *Dalea foliosa*
No critical habitat has been designated for this species.
<https://ecos.fws.gov/ecp/species/5498>

Endangered

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

You are still required to determine if your project(s) may have effects on all above listed species.

Bald & Golden Eagles

Bald and golden eagles are protected under the Bald and Golden Eagle Protection Act¹ and the Migratory Bird Treaty Act².

Any person or organization who plans or conducts activities that may result in impacts to bald or golden eagles, or their habitats³, should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

Additional information can be found using the following links:

- Eagle Management <https://www.fws.gov/program/eagle-management>
- Measures for avoiding and minimizing impacts to birds <https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds>
- Nationwide conservation measures for birds <https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf>
- Supplemental Information for Migratory Birds and Eagles in IPaC <https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action>

There are bald and/or golden eagles in your project area.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle <i>Haliaeetus leucocephalus</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds Oct 15 to Aug 31
Golden Eagle <i>Aquila chrysaetos</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds elsewhere

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is $0.25/0.25 = 1$; at week 20 it is $0.05/0.25 = 0.2$.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (l)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

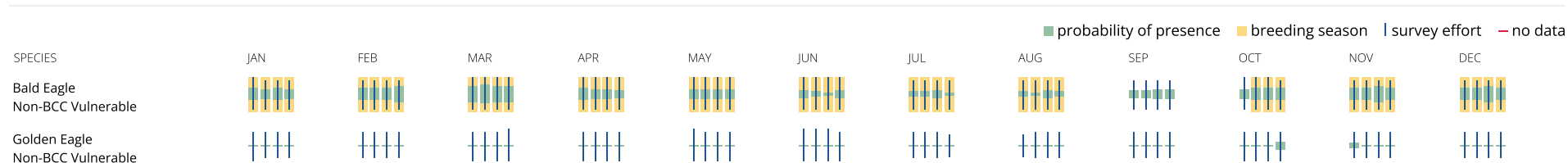
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (—)

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



What does IPaC use to generate the potential presence of bald and golden eagles in my specified location?

The potential for eagle presence is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply). To see a list of all birds potentially present in your project area, please visit the [Rapid Avian Information Locator \(RAIL\) Tool](#).

What does IPaC use to generate the probability of presence graphs of bald and golden eagles in my specified location?

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [Rapid Avian Information Locator \(RAIL\) Tool](#).

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the [Eagle Act](#) should such impacts occur. Please contact your local Fish and Wildlife Service Field Office if you have questions.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats³ should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.

Additional information can be found using the following links:

- Eagle Management <https://www.fws.gov/program/eagle-management>
- Measures for avoiding and minimizing impacts to birds <https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds>
- Nationwide conservation measures for birds <https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf>
- Supplemental Information for Migratory Birds and Eagles in IPaC <https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action>

The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern](#) (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ [below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the [E-bird data mapping tool](#) (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found [below](#).

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
American Golden-plover <i>Pluvialis dominica</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
Bald Eagle <i>Haliaeetus leucocephalus</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds Oct 15 to Aug 31

Black-billed Cuckoo <i>Coccyzus erythrophthalmus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9399	Breeds May 15 to Oct 10
Bobolink <i>Dolichonyx oryzivorus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 20 to Jul 31
Cerulean Warbler <i>Dendroica cerulea</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/2974	Breeds Apr 21 to Jul 20
Chimney Swift <i>Chaetura pelagica</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Mar 15 to Aug 25
Eastern Whip-poor-will <i>Antrostomus vociferus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 1 to Aug 20
Golden Eagle <i>Aquila chrysaetos</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds elsewhere
Henslow's Sparrow <i>Ammodramus henslowii</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3941	Breeds May 1 to Aug 31
Kentucky Warbler <i>Oporornis formosus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Apr 20 to Aug 20
Lesser Yellowlegs <i>Tringa flavipes</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9679	Breeds elsewhere
Prothonotary Warbler <i>Protonotaria citrea</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Apr 1 to Jul 31
Red-headed Woodpecker <i>Melanerpes erythrocephalus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Sep 10
Ruddy Turnstone <i>Arenaria interpres morinella</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds elsewhere
Rusty Blackbird <i>Euphagus carolinus</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds elsewhere

Short-billed Dowitcher *Limnodromus griseus*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/9480>

Breeds elsewhere

Wood Thrush *Hylocichla mustelina*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Breeds May 10 to Aug 31

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is $0.25/0.25 = 1$; at week 20 it is $0.05/0.25 = 0.2$.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (🟡)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (I)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

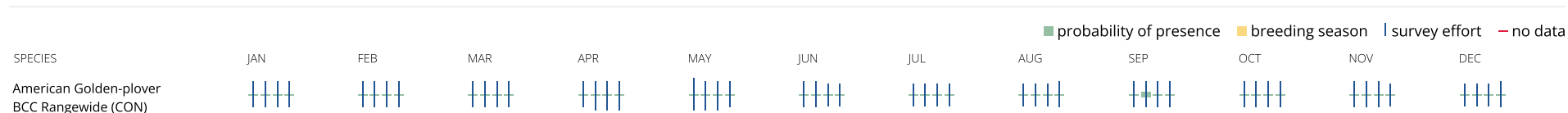
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

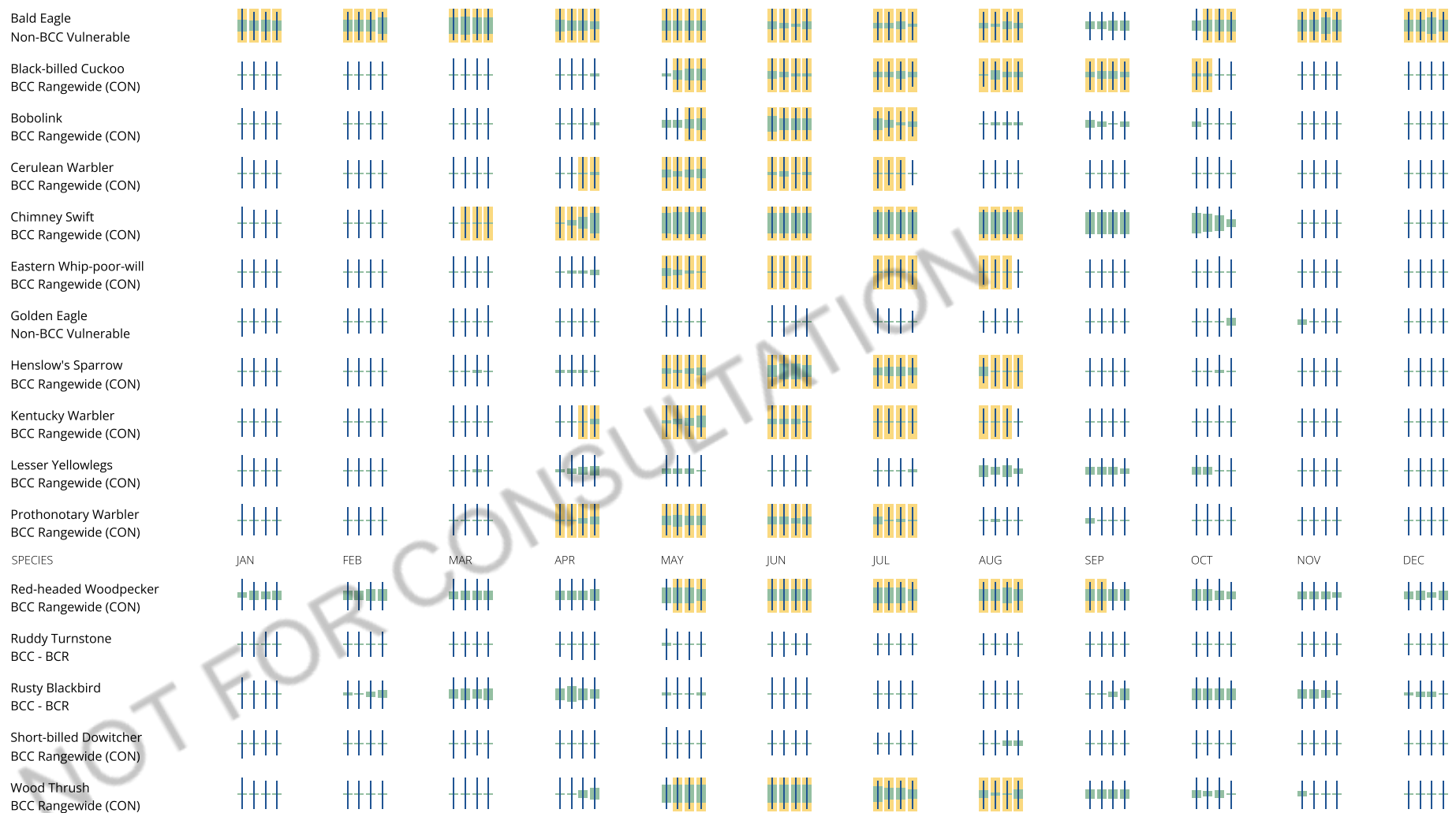
No Data (—)

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.





Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [Rapid Avian Information Locator \(RAIL\) Tool](#).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the [RAIL Tool](#) and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.

Fish hatcheries

There are no fish hatcheries at this location.

Wetlands in the National Wetlands Inventory (NWI)

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

RIVERINE

[R2UBHx](#)

A full description for each wetland code can be found at the [National Wetlands Inventory website](#)

NOTE: This initial screening does **not** replace an on-site delineation to determine whether wetlands occur. Additional information on the NWI data is provided below.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tubercid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

NOT FOR CONSULTATION

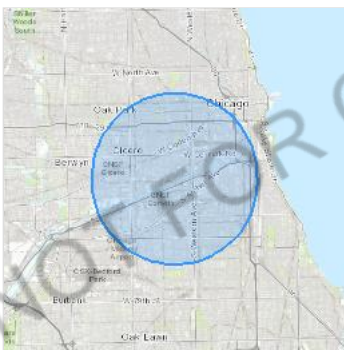
IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Cook County, Illinois



Local office

Chicago Ecological Service Field Office

☎ (312) 485-9337

U.S. Fish And Wildlife Service Chicago Ecological Services Office
230 South Dearborn St., Suite 2938
Chicago, IL 60604-1507

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species¹ and their critical habitats are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries²).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact [NOAA Fisheries](#) for [species under their jurisdiction](#).

1. Species listed under the [Endangered Species Act](#) are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
2. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Northern Long-eared Bat <i>Myotis septentrionalis</i> Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9045	Endangered

Birds

NAME	STATUS
Piping Plover <i>Charadrius melodus</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/6039	Endangered
Red Knot <i>Calidris canutus rufa</i> Wherever found There is proposed critical habitat for this species. https://ecos.fws.gov/ecp/species/1864	Threatened
Whooping Crane <i>Grus americana</i> No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/758	EXPN

Reptiles

NAME	STATUS
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Eastern Massasauga (=rattlesnake) <i>Sistrurus catenatus</i>	Threatened
Wherever found	
No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/2202	

Insects

NAME	STATUS
Hine's Emerald Dragonfly <i>Somatochlora hineana</i>	Endangered
Wherever found	
There is final critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/7877	
Monarch Butterfly <i>Danaus plexippus</i>	Candidate
Wherever found	
No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9743	
Rusty Patched Bumble Bee <i>Bombus affinis</i>	Endangered
Wherever found	
No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9383	

Flowering Plants

NAME	STATUS
Eastern Prairie Fringed Orchid <i>Platanthera leucophaea</i>	Threatened
Wherever found	
This species only needs to be considered if the following condition applies: Follow the guidance provided at https://www.fws.gov/midwest/endangered/section7/s7process/plants/epfos7guide.html	
No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/601	
Leafy Prairie-clover <i>Dalea foliosa</i>	Endangered
No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/5498	

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

You are still required to determine if your project(s) may have effects on all above listed species.

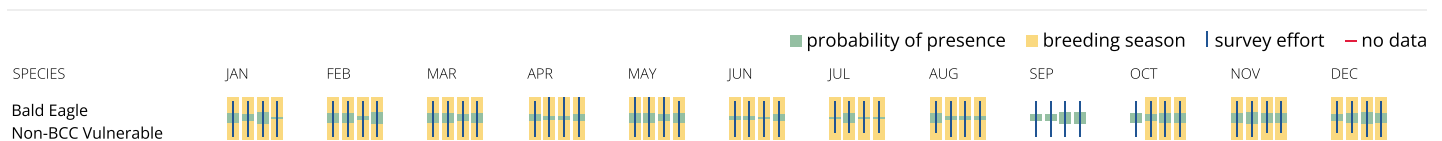
Bald & Golden Eagles

Bald and golden eagles are protected under the Bald and Golden Eagle Protection Act¹ and the Migratory Bird Treaty Act².

Any person or organization who plans or conducts activities that may result in impacts to bald or golden eagles, or their habitats³, should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

Additional information can be found using the following links:

- Eagle Management <https://www.fws.gov/program/eagle-management>
- Measures for avoiding and minimizing impacts to birds <https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds>
- Nationwide conservation measures for birds <https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf>





What does IPaC use to generate the potential presence of bald and golden eagles in my specified location?

The potential for eagle presence is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply). To see a list of all birds potentially present in your project area, please visit the [Rapid Avian Information Locator \(RAIL\) Tool](#).

What does IPaC use to generate the probability of presence graphs of bald and golden eagles in my specified location?

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Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [Rapid Avian Information Locator \(RAIL\) Tool](#).

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the [Eagle Act](#) should such impacts occur. Please contact your local Fish and Wildlife Service Field Office if you have questions.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats³ should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.

Additional information can be found using the following links:

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- Measures for avoiding and minimizing impacts to birds <https://www.fws.gov/library/collections/avoiding-and-minimizing-incident-take-migratory-birds>
- Nationwide conservation measures for birds <https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf>
- Supplemental Information for Migratory Birds and Eagles in IPaC <https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action>

The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern \(BCC\)](#) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ [below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the [E-bird data mapping tool](#) (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found [below](#).

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
American Golden-plover <i>Pluvialis dominica</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
Bald Eagle <i>Haliaeetus leucocephalus</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds Oct 15 to Aug 31

Black-billed Cuckoo <i>Coccyzus erythrophthalmus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9399	Breeds May 15 to Oct 10
Bobolink <i>Dolichonyx oryzivorus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 20 to Jul 31
Cerulean Warbler <i>Dendroica cerulea</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/2974	Breeds Apr 21 to Jul 20
Chimney Swift <i>Chaetura pelagica</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Mar 15 to Aug 25
Eastern Whip-poor-will <i>Antrostomus vociferus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 1 to Aug 20
Golden Eagle <i>Aquila chrysaetos</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds elsewhere
Henslow's Sparrow <i>Ammodramus henslowii</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3941	Breeds May 1 to Aug 31
Kentucky Warbler <i>Oporornis formosus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Apr 20 to Aug 20
Lesser Yellowlegs <i>Tringa flavipes</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9679	Breeds elsewhere
Prothonotary Warbler <i>Protonotaria citrea</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Apr 1 to Jul 31
Red-headed Woodpecker <i>Melanerpes erythrocephalus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Sep 10
Ruddy Turnstone <i>Arenaria interpres morinella</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds elsewhere
Rusty Blackbird <i>Euphagus carolinus</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds elsewhere
Short-billed Dowitcher <i>Limnodromus griseus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9480	Breeds elsewhere
Upland Sandpiper <i>Bartramia longicauda</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9294	Breeds May 1 to Aug 31
Wood Thrush <i>Hylocichla mustelina</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Aug 31

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

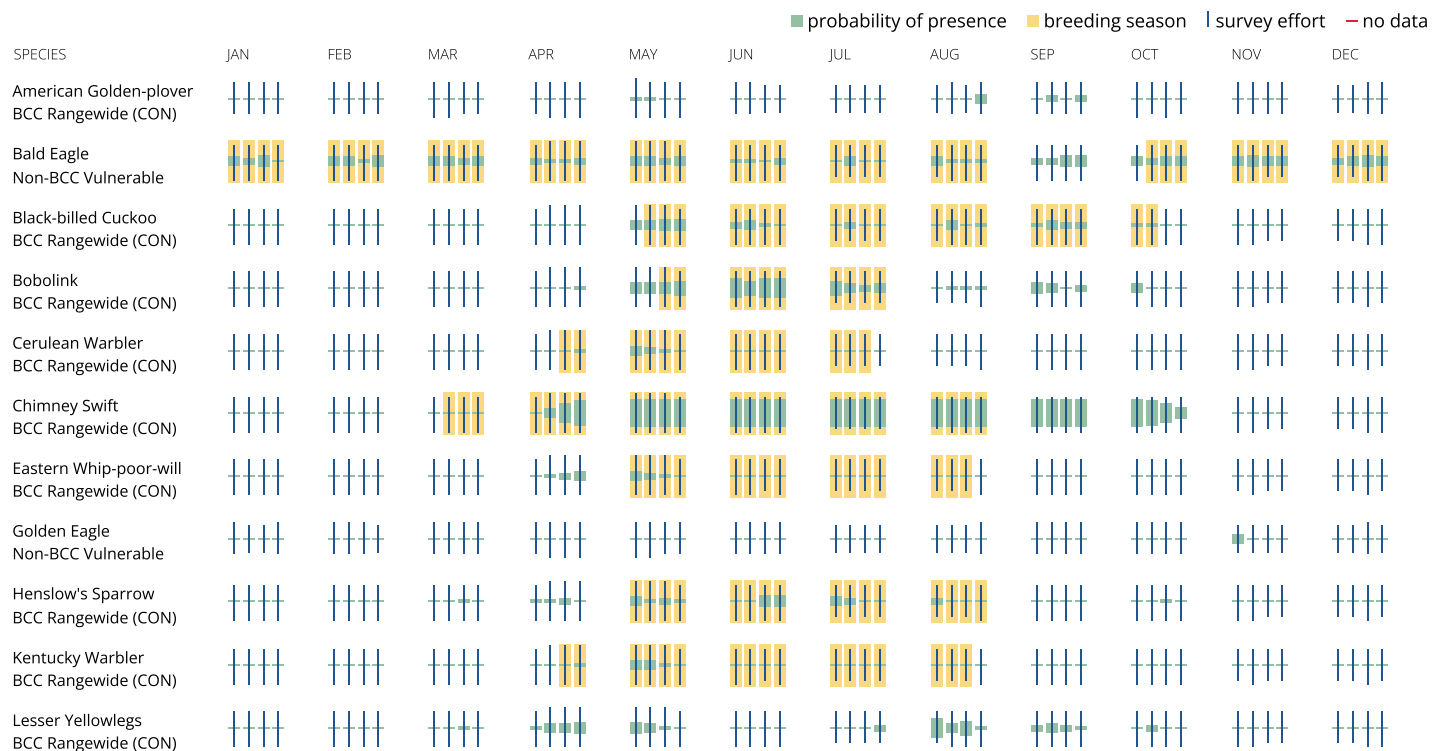
Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

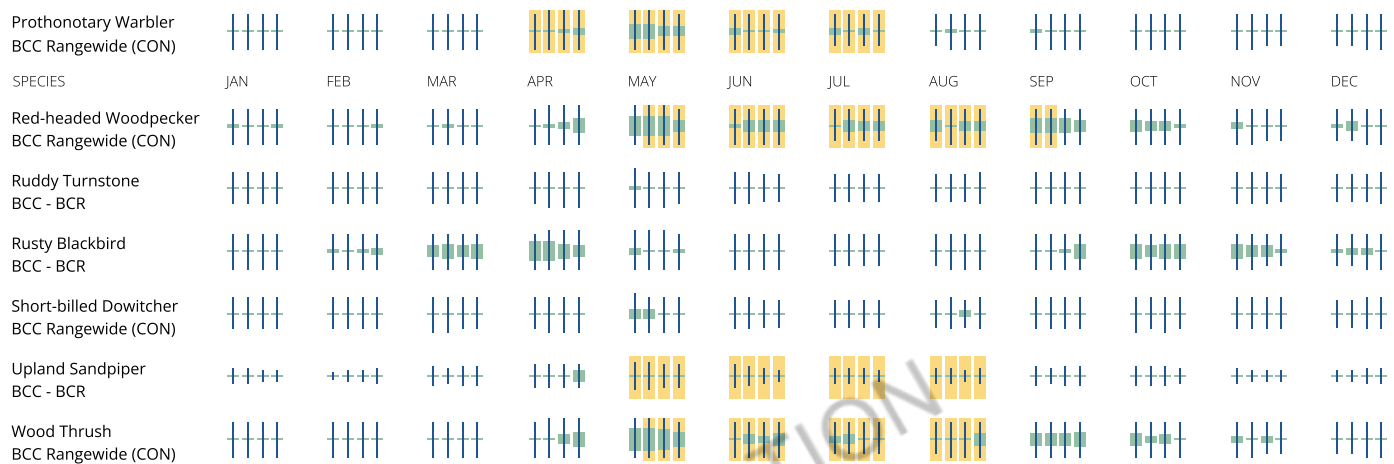
1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is $0.25/0.25 = 1$; at week 20 it is $0.05/0.25 = 0.2$.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.





Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [Rapid Avian Information Locator \(RAIL\) Tool](#).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the [RAIL Tool](#) and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.

Fish hatcheries

There are no fish hatcheries at this location.

Wetlands in the National Wetlands Inventory (NWI)

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Wetland information is not available at this time

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the [NWI map](#) to view wetlands at this location.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tubercid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

NOT FOR CONSULTATION

APPENDIX D. ECOLOGICAL COMPLIANCE ASSESSMENT TOOL – ENDANGERED SPECIES ASSESSMENT RESULTS

Applicant: Jennifer Swilik
Contact: Jennifer Swilik
Address: 1811 Executive Drive
Indianapolis, IN 46241

IDNR Project Number: 2404839
Date: 09/20/2023

Project: Collateral Channel
Address: 3101 S Kedzie Avenue, Chicago

Description: Environmental site assessment of the natural resources surrounding the Collateral Channel and the Chicago Sanitary and Ship Canal.

Natural Resource Review Results

This project was submitted for information only. It is not a consultation under Part 1075.

The Illinois Natural Heritage Database contains no record of State-listed threatened or endangered species, Illinois Natural Area Inventory sites, dedicated Illinois Nature Preserves, or registered Land and Water Reserves in the vicinity of the project location.

Location

The applicant is responsible for the accuracy of the location submitted for the project.

County: Cook

Township, Range, Section:

39N, 13E, 25

39N, 13E, 36



IL Department of Natural Resources

Contact

Impact Assessment Section

217-785-5500

Division of Ecosystems & Environment

Disclaimer

The Illinois Natural Heritage Database cannot provide a conclusive statement on the presence, absence, or condition of natural resources in Illinois. This review reflects the information existing in the Database at the time of this inquiry, and should not be regarded as a final statement on the site being considered, nor should it be a substitute for detailed site surveys or field surveys required for environmental assessments. If additional protected resources are encountered during the project's implementation, compliance with applicable statutes and regulations is required.

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By using this website, you acknowledge that you have read and agree to these terms. These terms may be revised by IDNR as necessary. If you continue to use the EcoCAT application after we post changes to these terms, it will mean that you accept such changes. If at any time you do not accept the Terms of Use, you may not continue to use the website.

1. The IDNR EcoCAT website was developed so that units of local government, state agencies and the public could request information or begin natural resource consultations on-line for the Illinois Endangered Species Protection Act, Illinois Natural Areas Preservation Act, and Illinois Interagency Wetland Policy Act. EcoCAT uses databases, Geographic Information System mapping, and a set of programmed decision rules to determine if proposed actions are in the vicinity of protected natural resources. By indicating your agreement to the Terms of Use for this application, you warrant that you will not use this web site for any other purpose.
2. Unauthorized attempts to upload, download, or change information on this website are strictly prohibited and may be punishable under the Computer Fraud and Abuse Act of 1986 and/or the National Information Infrastructure Protection Act.
3. IDNR reserves the right to enhance, modify, alter, or suspend the website at any time without notice, or to terminate or restrict access.

Security

EcoCAT operates on a state of Illinois computer system. We may use software to monitor traffic and to identify unauthorized attempts to upload, download, or change information, to cause harm or otherwise to damage this site. Unauthorized attempts to upload, download, or change information on this server is strictly prohibited by law.

Unauthorized use, tampering with or modification of this system, including supporting hardware or software, may subject the violator to criminal and civil penalties. In the event of unauthorized intrusion, all relevant information regarding possible violation of law may be provided to law enforcement officials.

Privacy

EcoCAT generates a public record subject to disclosure under the Freedom of Information Act. Otherwise, IDNR uses the information submitted to EcoCAT solely for internal tracking purposes.

ATTACHMENT 1. CERTIFIED SANBORN MAP REPORTS



Collateral Channel

3201 S Kedzie

Chicago, IL 60623

Inquiry Number: 7338848.3

May 18, 2023

Certified Sanborn® Map Report



6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

Certified Sanborn® Map Report

05/18/23

Site Name:

Collateral Channel
3201 S Kedzie
Chicago, IL 60623
EDR Inquiry # 7338848.3

Client Name:

Tetra Tech EM, Inc.
1 South Wacker Drive, 37th Floor
Chicago, IL 60606
Contact: Jennifer Swilik



The Sanborn Library has been searched by EDR and maps covering the target property location as provided by Tetra Tech EM, Inc. were identified for the years listed below. The Sanborn Library is the largest, most complete collection of fire insurance maps. The collection includes maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow, and others. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by the Sanborn Library LLC, the copyright holder for the collection. Results can be authenticated by visiting www.edrnet.com/sanborn.

The Sanborn Library is continually enhanced with newly identified map archives. This report accesses all maps in the collection as of the day this report was generated.

Certified Sanborn Results:

Certification # D36A-4C00-9FB7

PO # NA

Project Collateral Channel

Maps Provided:

2004
1993
1991
1987
1975
1951
1919
1910



Sanborn® Library search results

Certification #: D36A-4C00-9FB7

The Sanborn Library includes more than 1.2 million fire insurance maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow and others which track historical property usage in approximately 12,000 American cities and towns. Collections searched:

- ☒ Library of Congress
- ☒ University Publications of America
- ☒ EDR Private Collection

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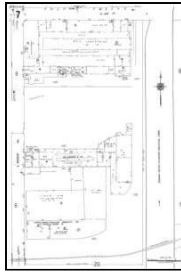
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Sanborn Sheet Key

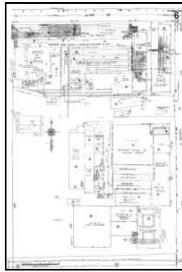
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2004 Source Sheets



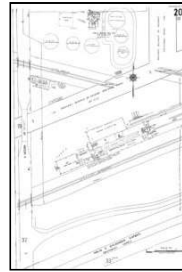
Volume 22, Sheet 7
2004



Volume 22, Sheet 6
2004

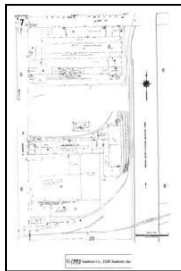


Volume 22, Sheet 8
2004

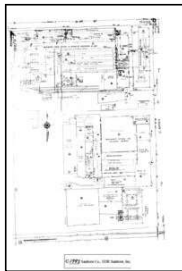


Volume 22, Sheet 20
2004

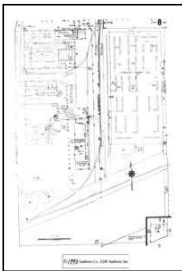
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Volume 22, Sheet 7
1993

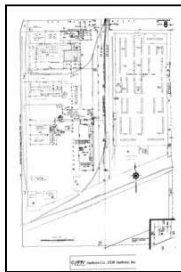


Volume 22, Sheet 6
1993

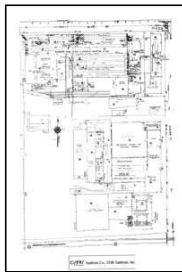


Volume 22, Sheet 8
1993

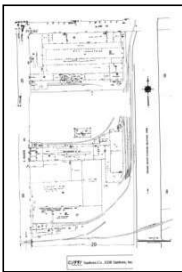
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Volume 22, Sheet 8
1991

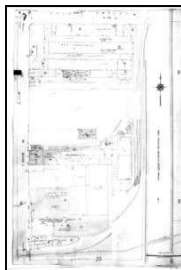


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1991

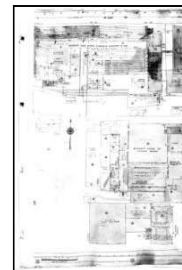


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1991

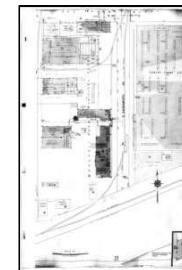
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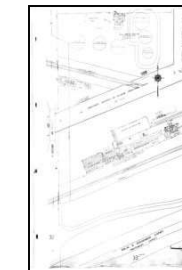
Volume 22, Sheet 7
1987



Volume 22, Sheet 6
1987



Volume 22, Sheet 8
1987



Volume 22, Sheet 20
1987

Sanborn Sheet Key

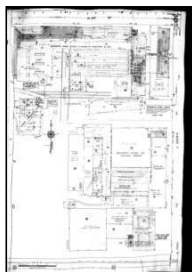
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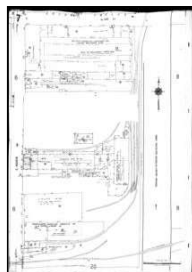
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Volume 22, Sheet 8
1975

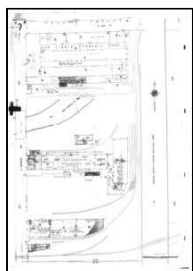


Volume 22, Sheet 6
1975

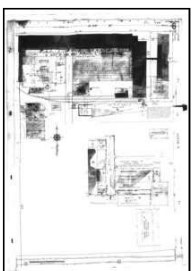


Volume 22, Sheet 7
1975

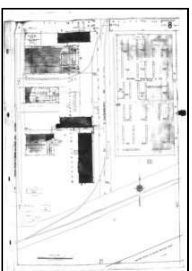
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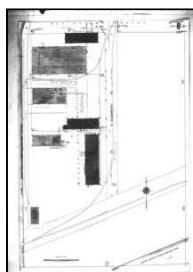


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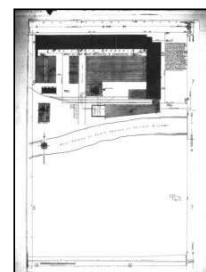


Volume 22, Sheet 8
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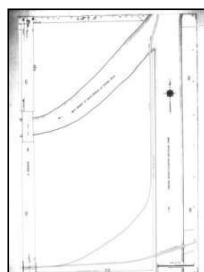
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Volume 22, Sheet 8
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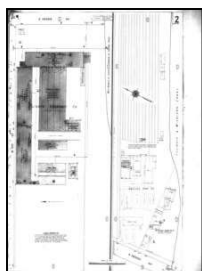


Volume 22, Sheet 6
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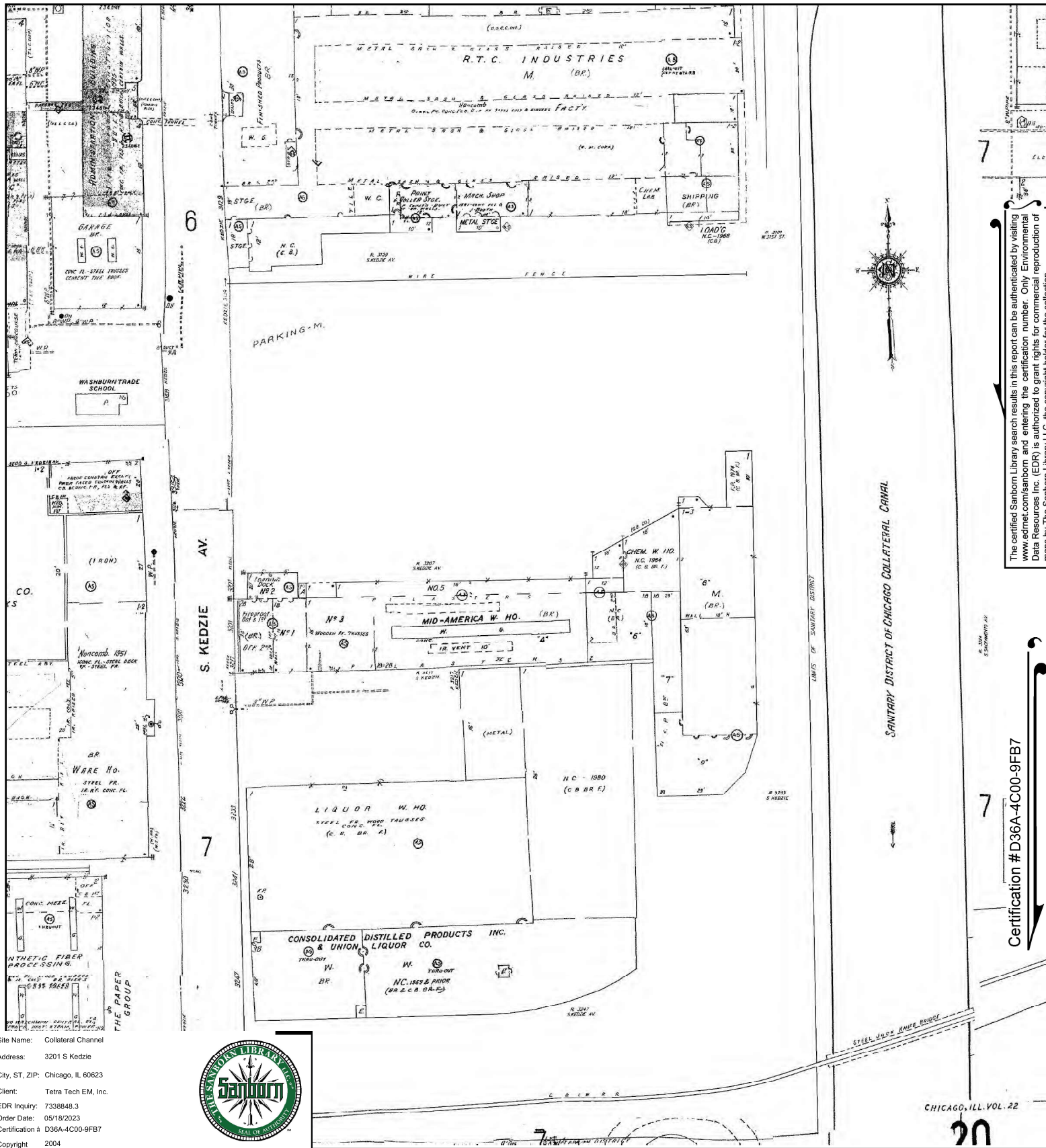


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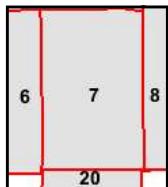
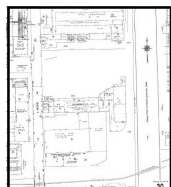
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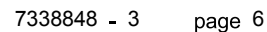
Volume D, Sheet 2
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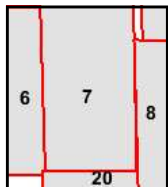




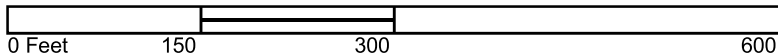
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 Client: Tetra Tech EM, Inc.
 EDR Inquiry: 7338848.3
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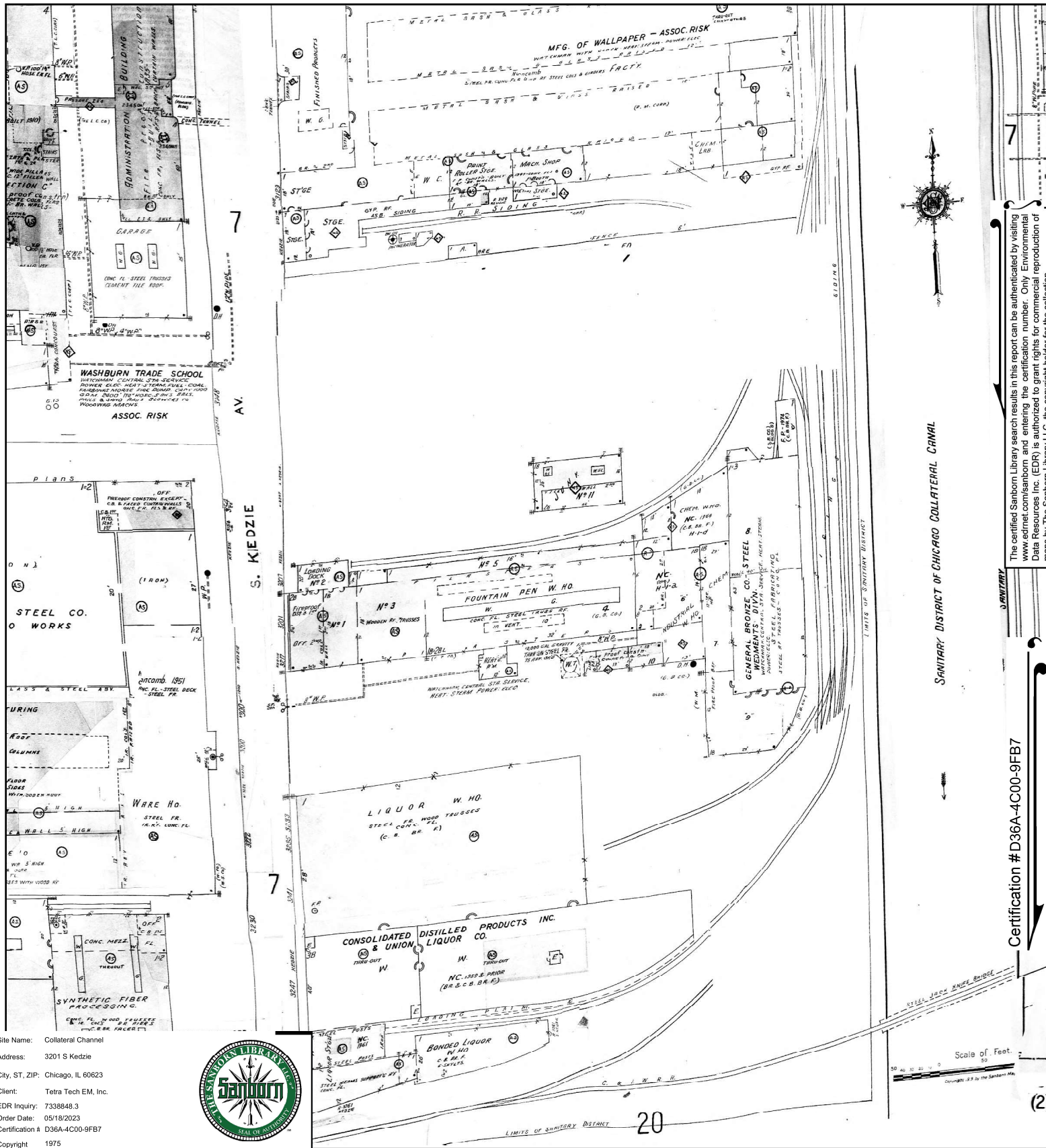


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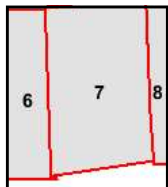


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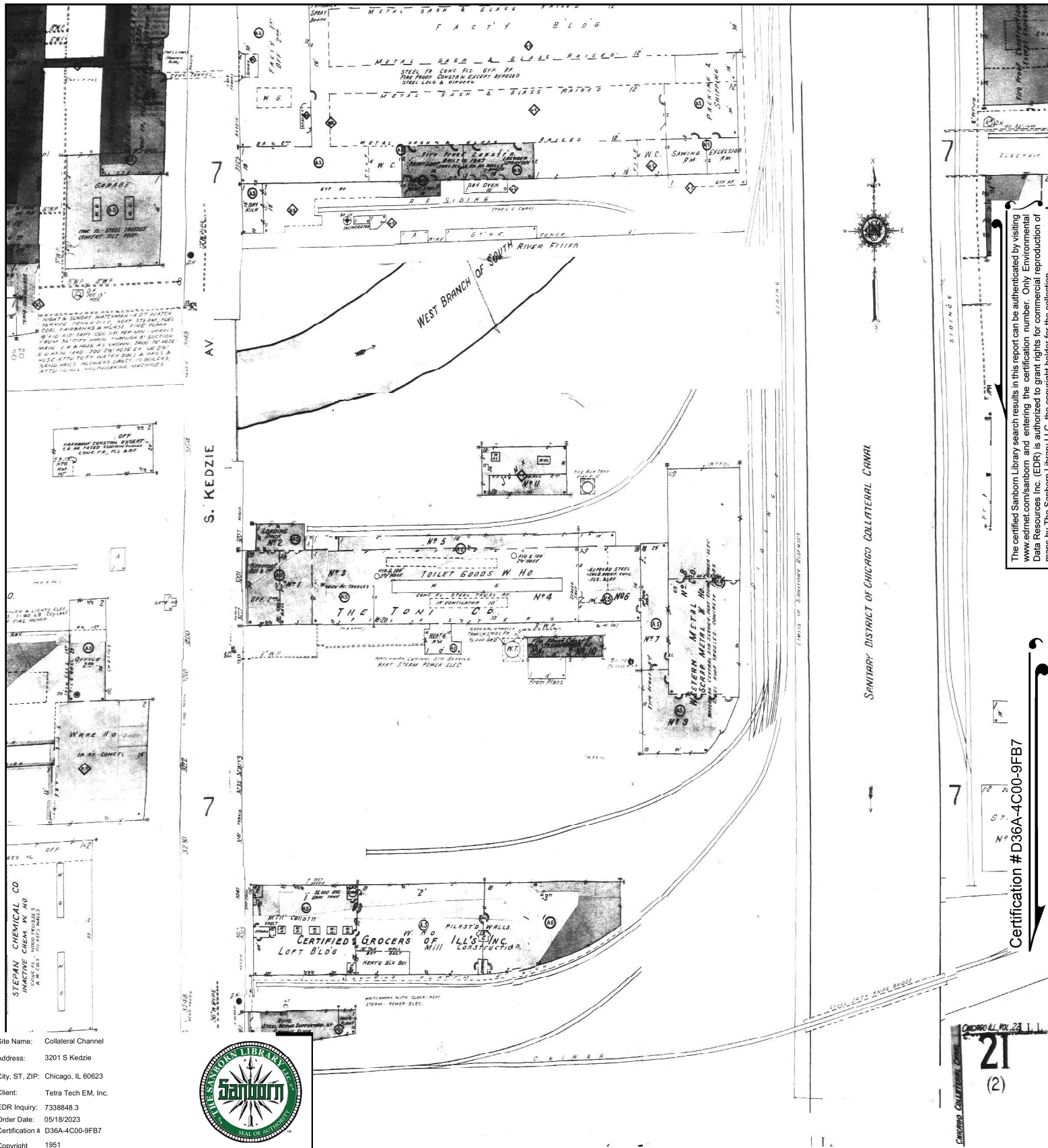
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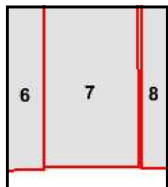
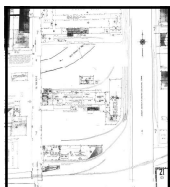
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Volume 22, Sheet 7
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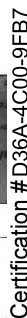


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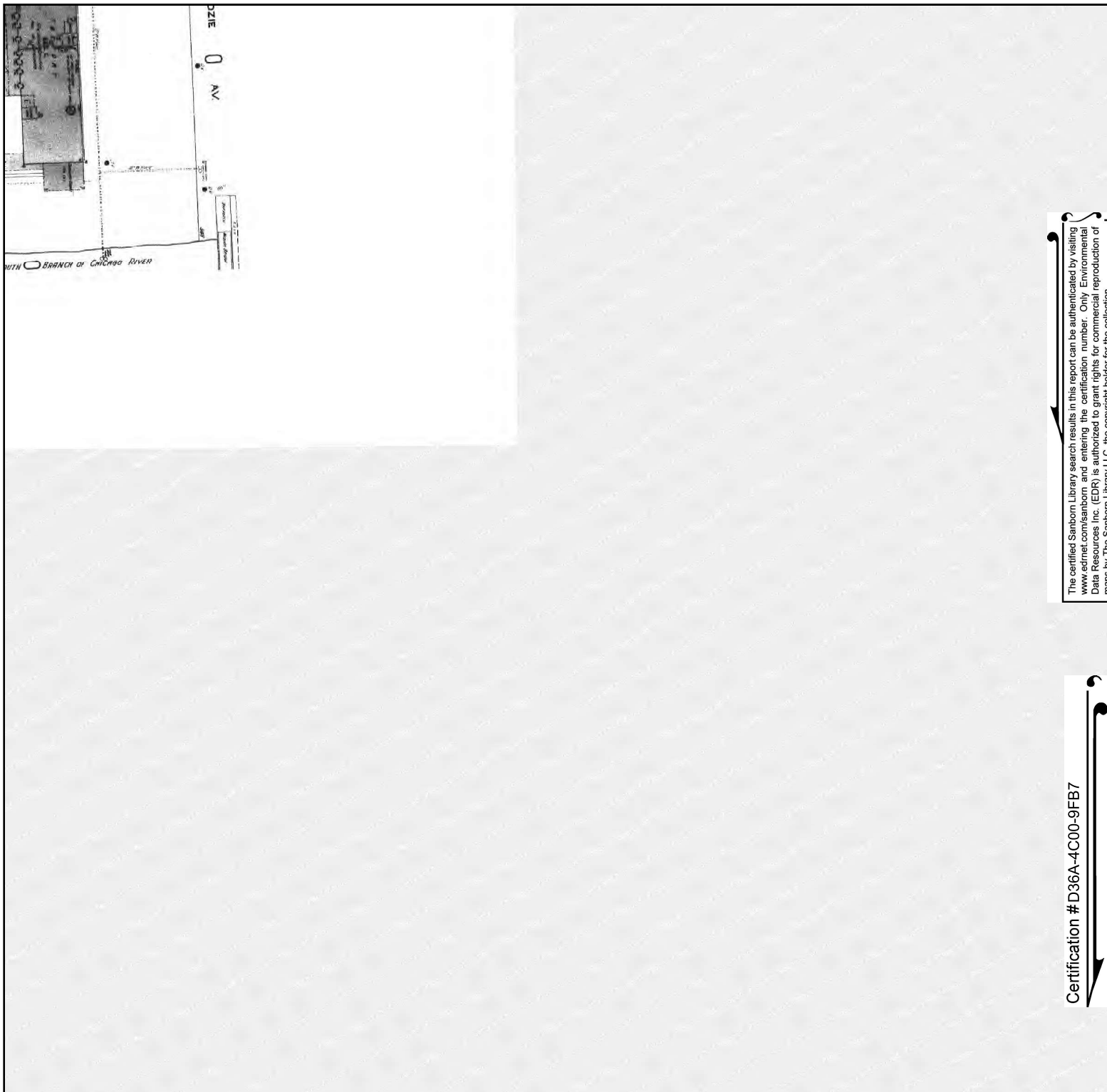


Volume 22, Sheet 8
 Volume 22, Sheet 6
 Volume 22, Sheet 7





A diagram showing a 3x3 grid. The middle row is highlighted in light gray. The cells in the middle row are labeled 6, 7, and 8 from left to right. The other cells are white.



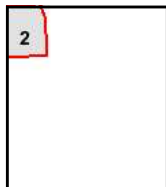
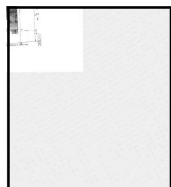
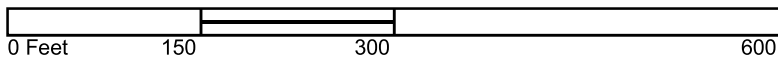
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Collateral Channel

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Chicago, IL 60623

Inquiry Number: 7338848.3

May 18, 2023

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05/18/23

Site Name:

Collateral Channel
3201 S Kedzie
Chicago, IL 60623
EDR Inquiry # 7338848.3

Client Name:

Tetra Tech EM, Inc.
1 South Wacker Drive, 37th Floor
Chicago, IL 60606
Contact: Jennifer Swilik



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Certification # D36A-4C00-9FB7

PO # NA

Project Collateral Channel

Maps Provided:

2004
1993
1991
1987
1975
1951
1919
1910



Sanborn® Library search results

Certification #: D36A-4C00-9FB7

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- ☒ Library of Congress
- ☒ University Publications of America
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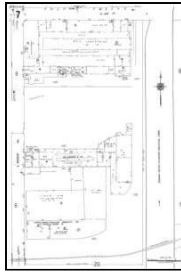
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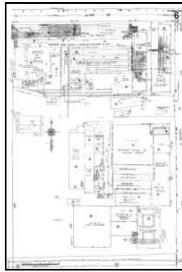
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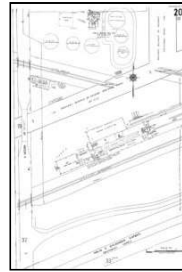
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2004



Volume 22, Sheet 6
2004

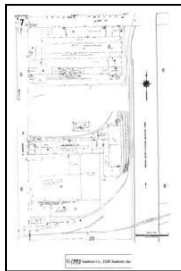


Volume 22, Sheet 8
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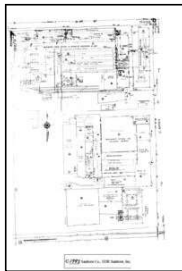


Volume 22, Sheet 20
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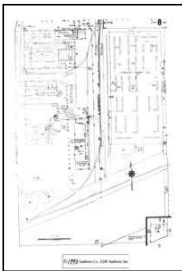
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Volume 22, Sheet 7
1993

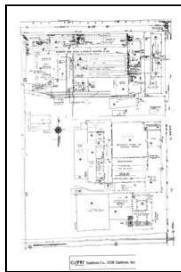


Volume 22, Sheet 6
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Volume 22, Sheet 8
1993

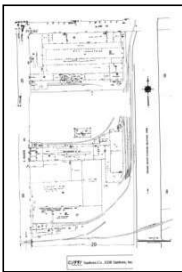
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Volume 22, Sheet 6
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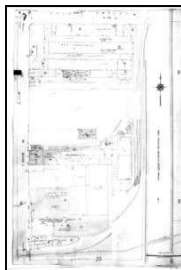


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1991



Volume 22, Sheet 7
1991

1987 Source Sheets



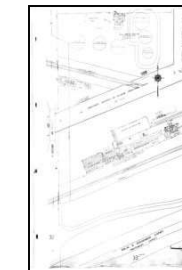
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Volume 22, Sheet 6
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Volume 22, Sheet 20
1987

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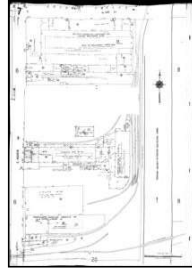
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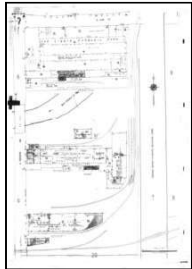


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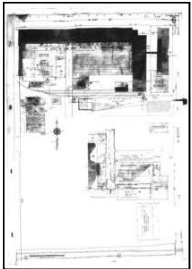


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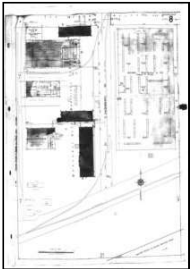
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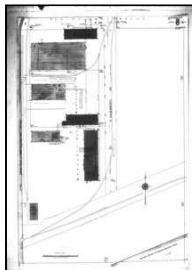


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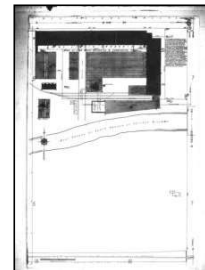


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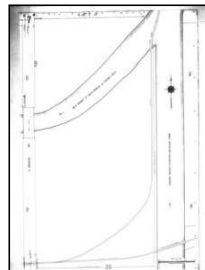
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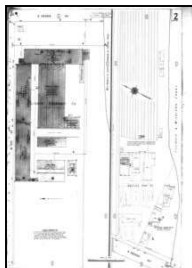


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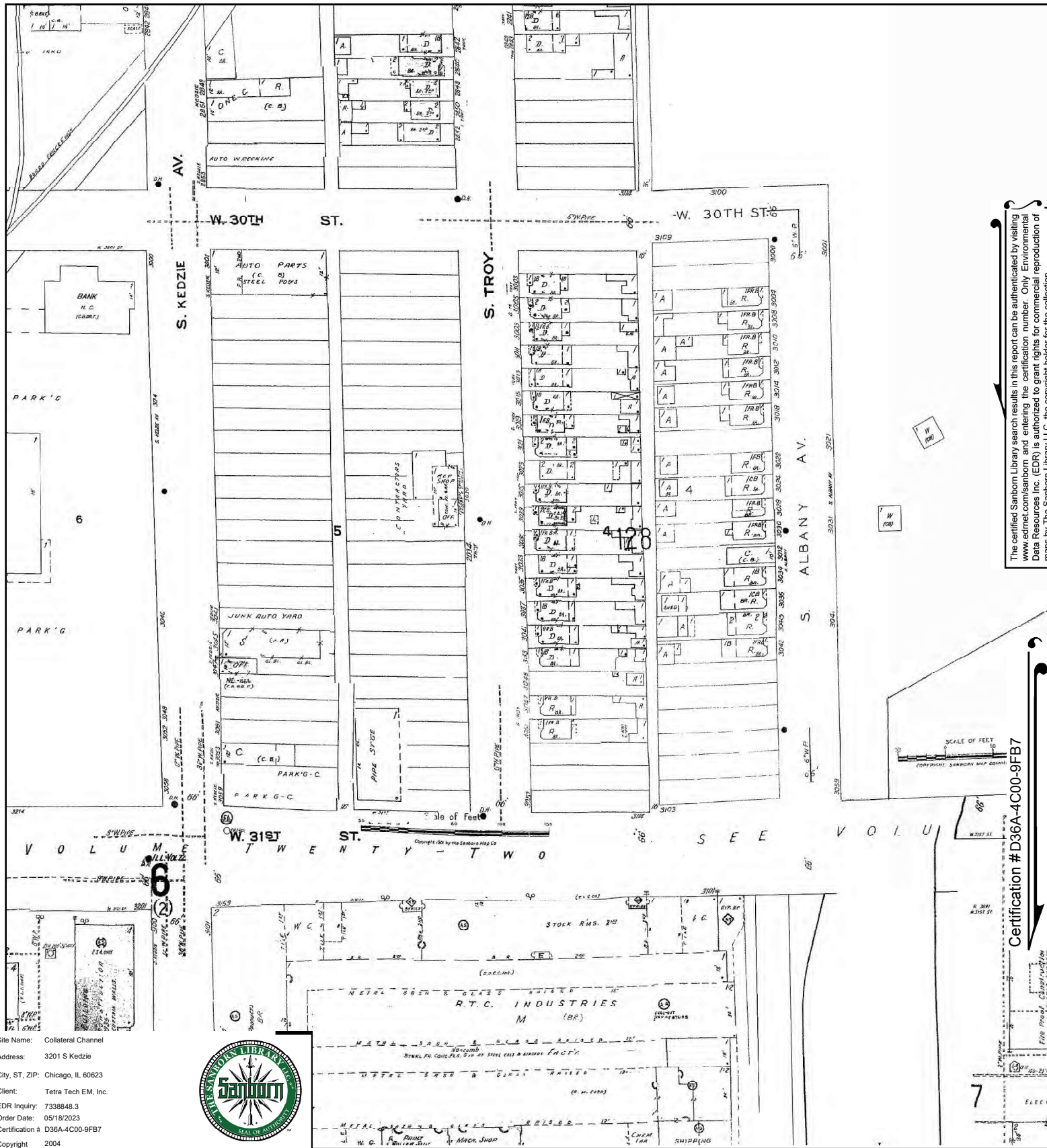


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1910 Source Sheets



Volume D, Sheet 2
1910



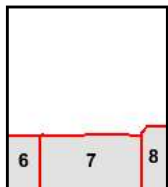
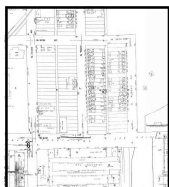
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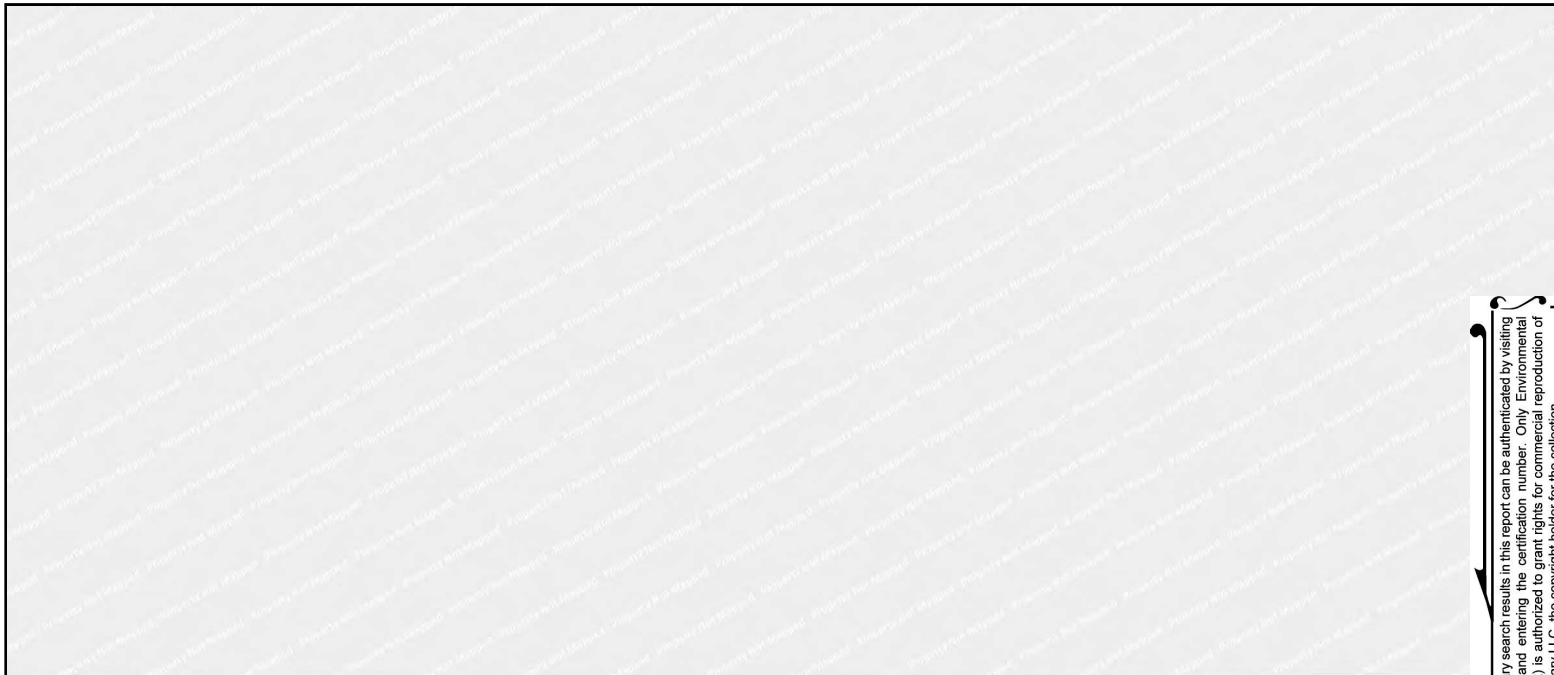


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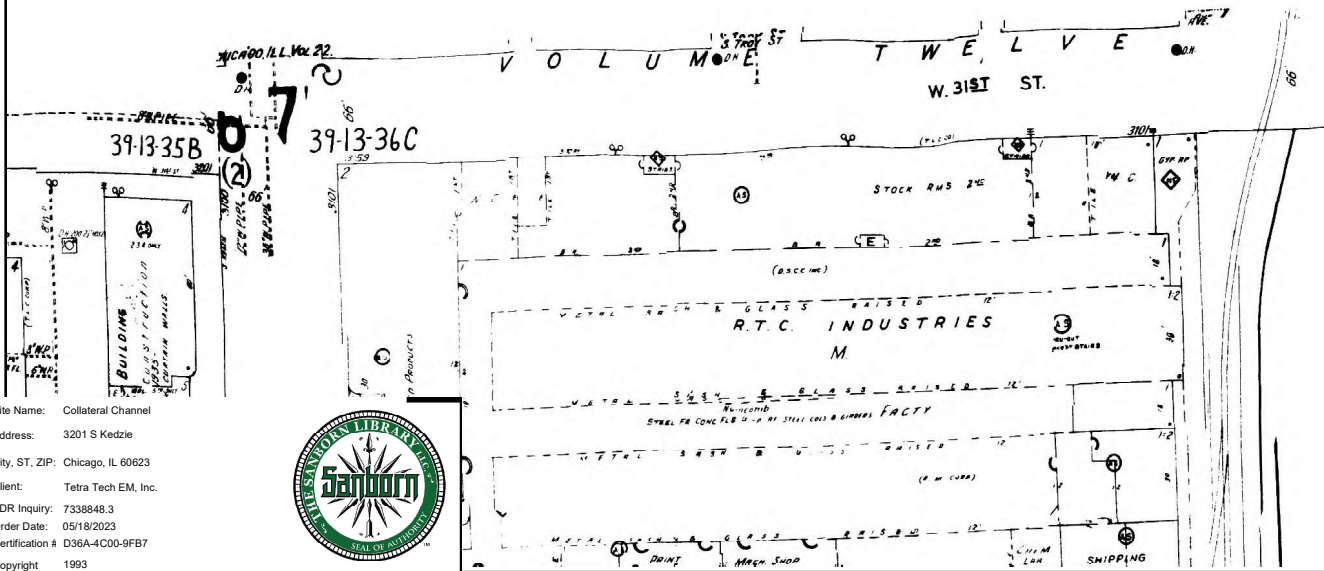


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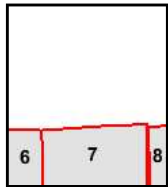
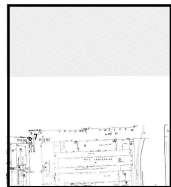


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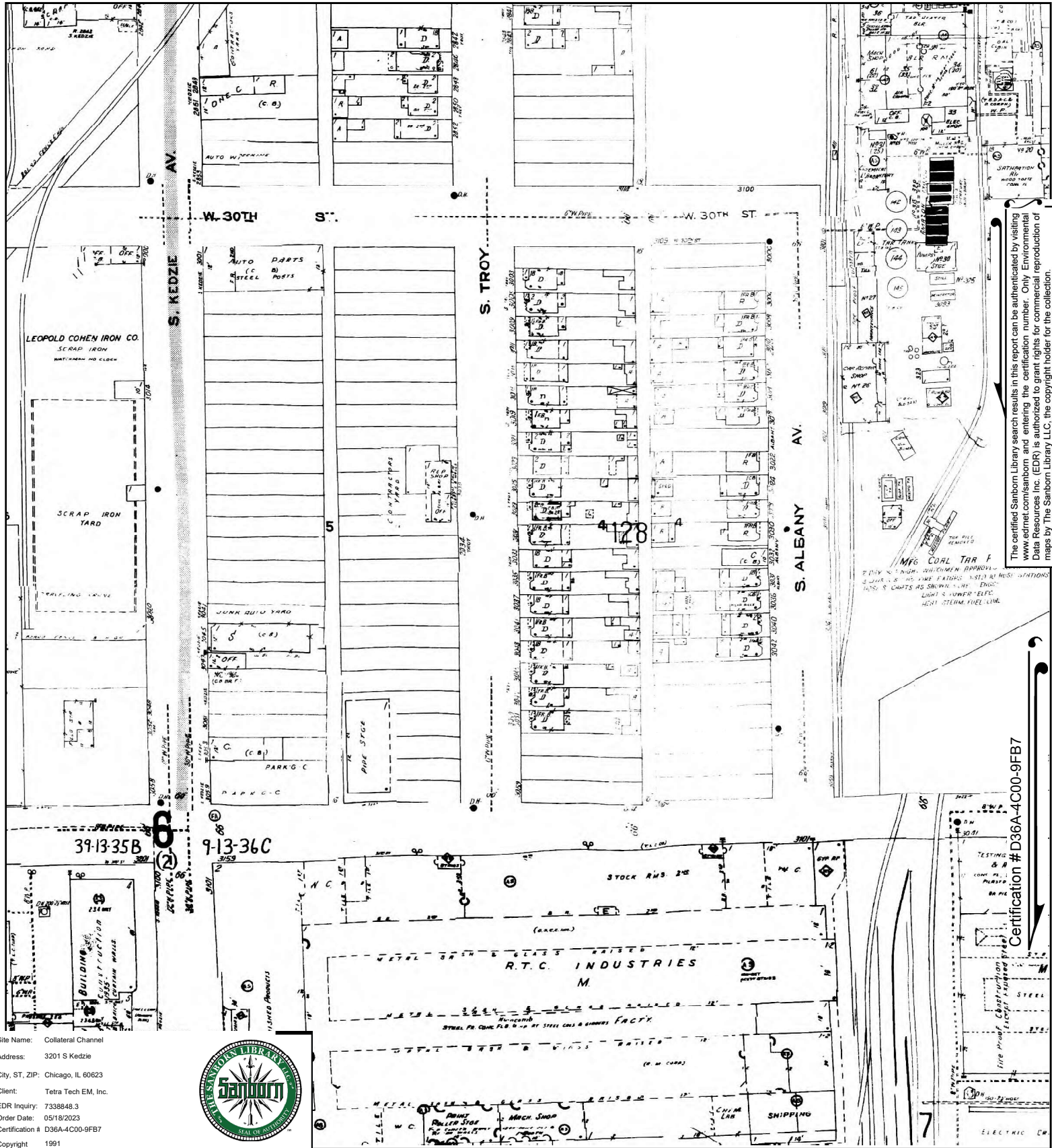
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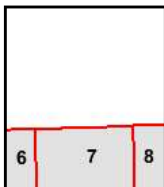
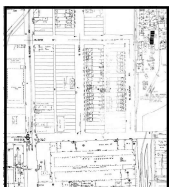
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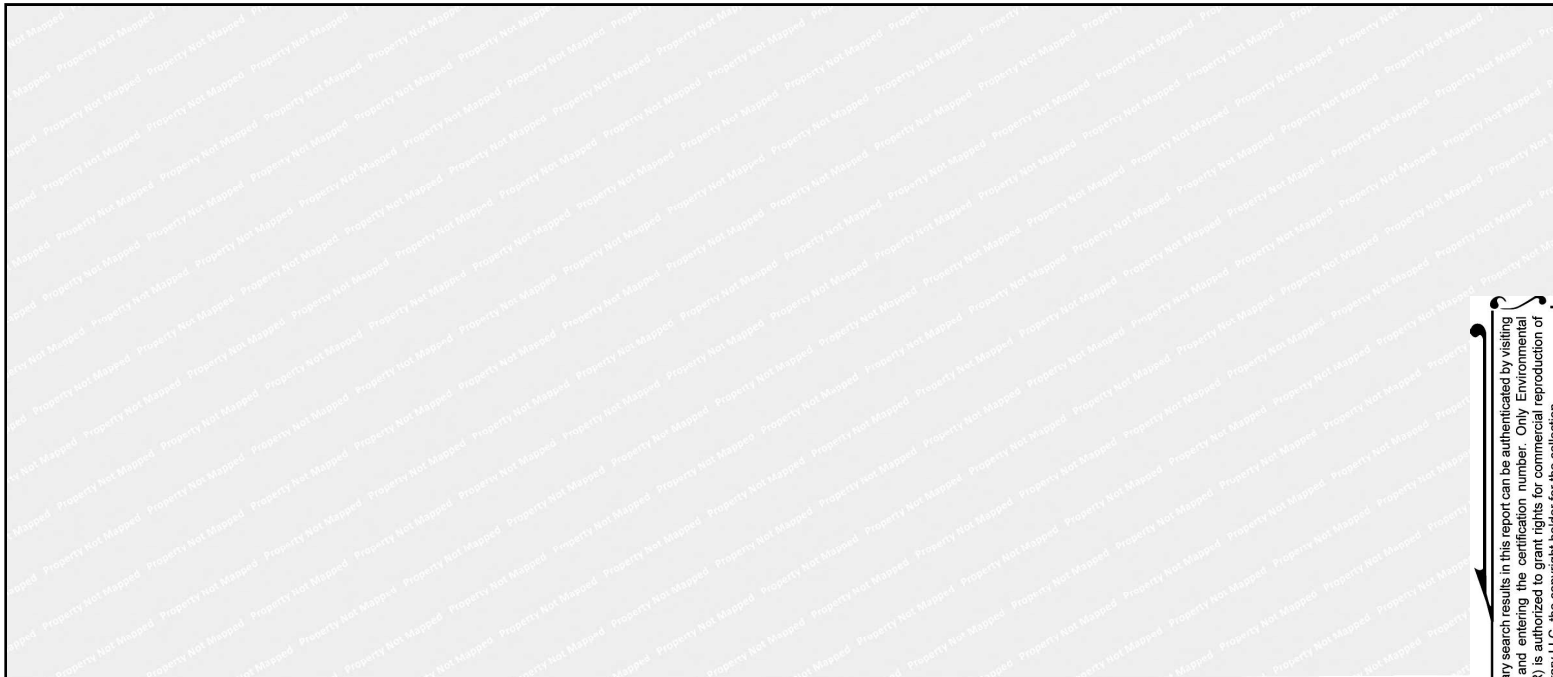
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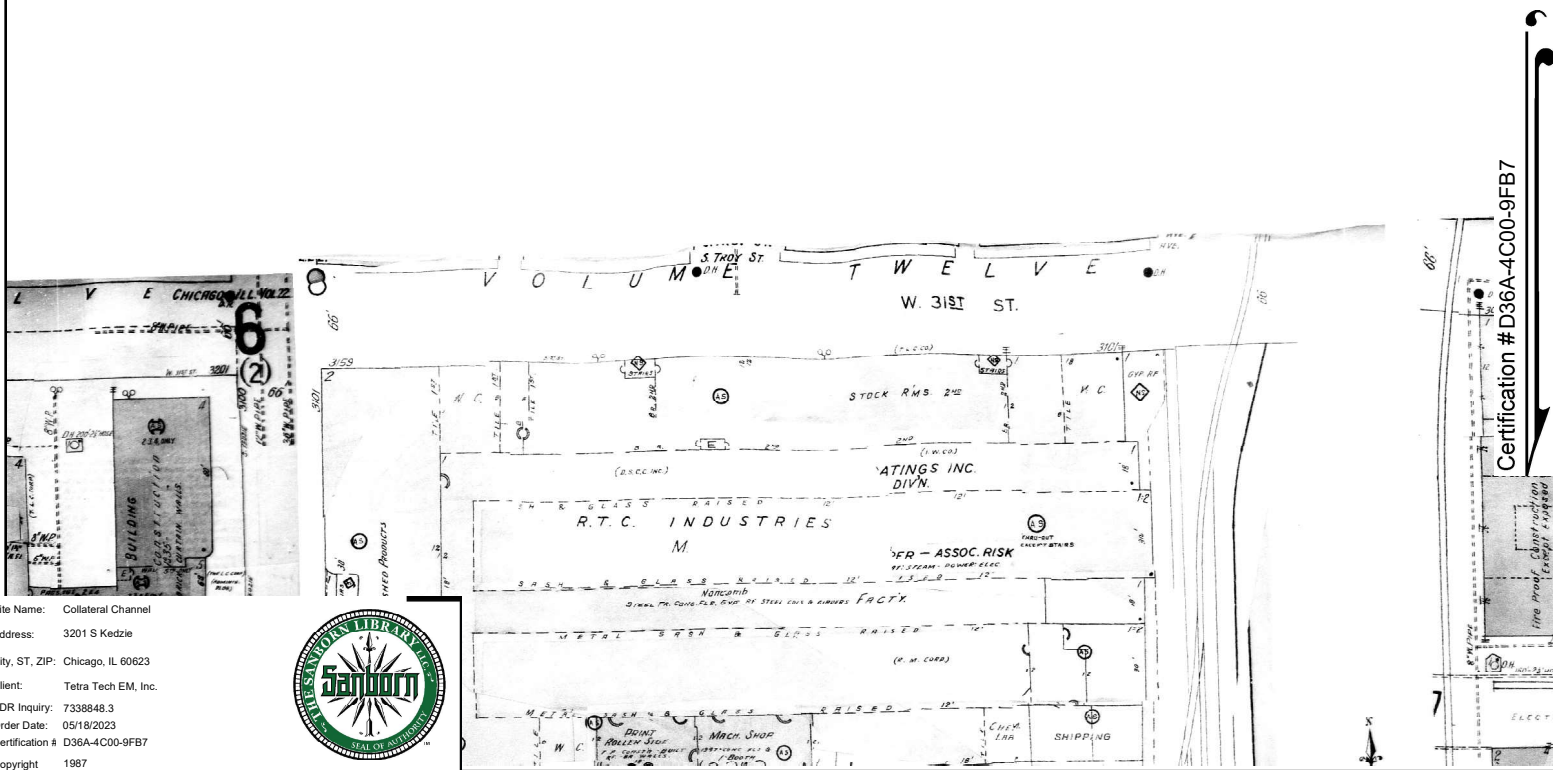
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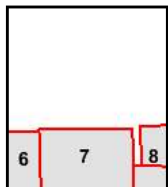
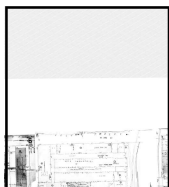


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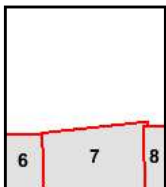


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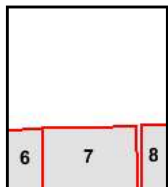


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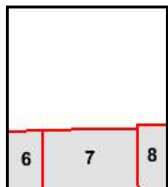
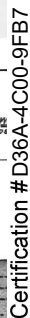
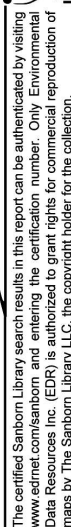


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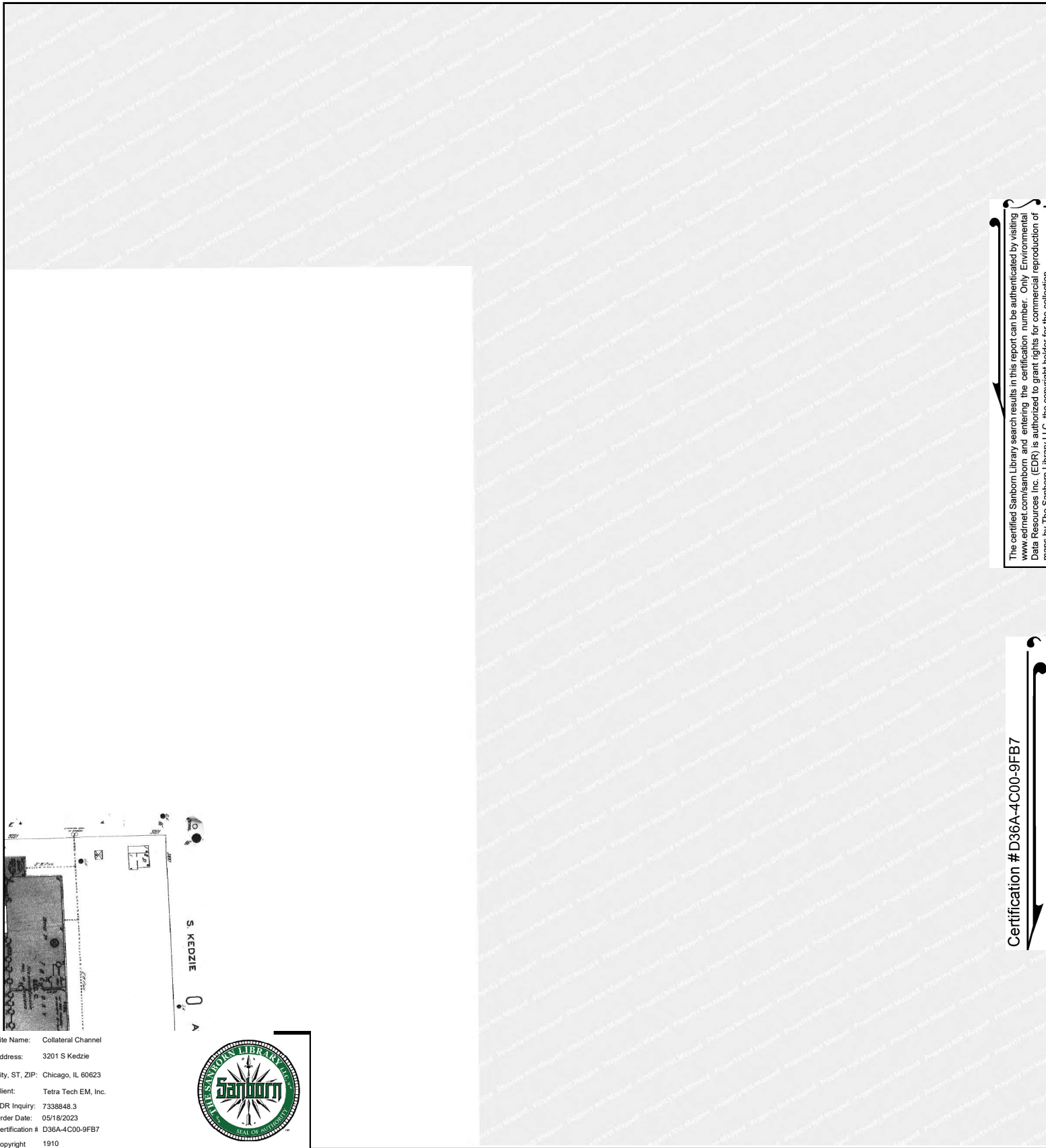
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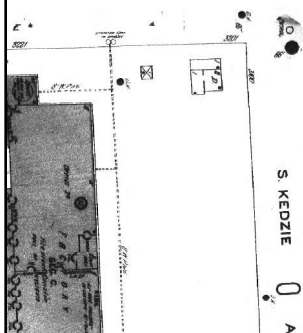


7338848 - 3 page 11



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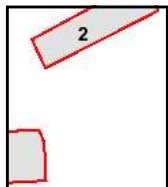
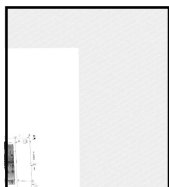
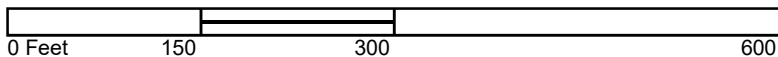
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Site Name: Collateral Channel
 Address: 3201 S Kedzie
 City, ST, ZIP: Chicago, IL 60623
 Client: Tetra Tech EM, Inc.
 EDR Inquiry: 7338848.3
 Order Date: 05/18/2023
 Certification # D36A-4C00-9FB7
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Volume D, Sheet 2





Collateral Channel

3201 S Kedzie

Chicago, IL 60623

Inquiry Number: 7338848.3

May 18, 2023

Certified Sanborn® Map Report



6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

Certified Sanborn® Map Report

05/18/23

Site Name:

Collateral Channel
3201 S Kedzie
Chicago, IL 60623
EDR Inquiry # 7338848.3

Client Name:

Tetra Tech EM, Inc.
1 South Wacker Drive, 37th Floor
Chicago, IL 60606
Contact: Jennifer Swilik



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Certification # D36A-4C00-9FB7

PO # NA

Project Collateral Channel

Maps Provided:

2004
1993
1991
1987
1975
1951
1919



Sanborn® Library search results

Certification #: D36A-4C00-9FB7

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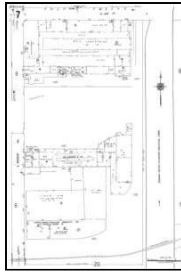
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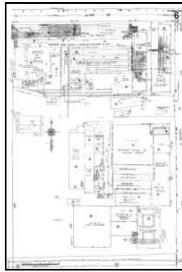
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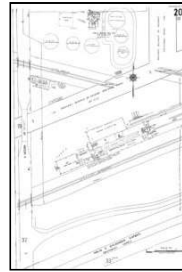
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2004



Volume 22, Sheet 6
2004

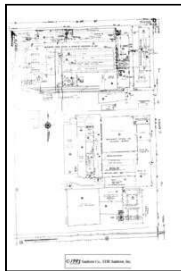


Volume 22, Sheet 8
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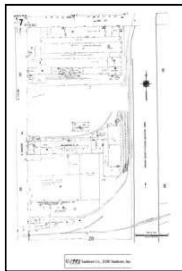


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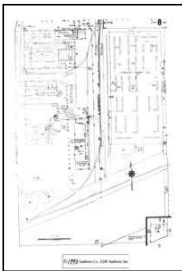
1993 Source Sheets



Volume 22, Sheet 6
1993

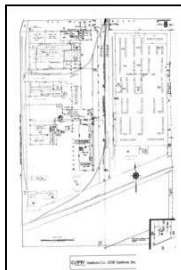


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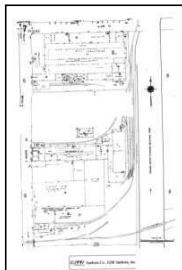


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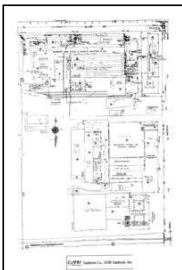
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Volume 22, Sheet 8
1991



Volume 22, Sheet 7
1991

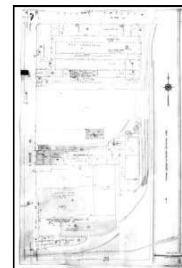


Volume 22, Sheet 6
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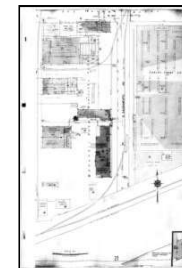
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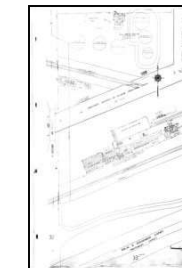
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Volume 22, Sheet 8
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Volume 22, Sheet 20
1987

Sanborn Sheet Key

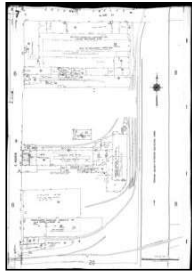
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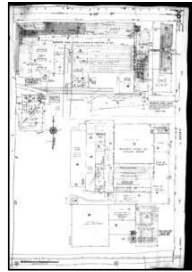
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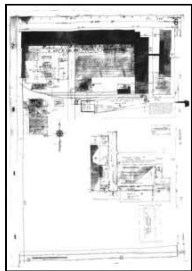


Volume 22, Sheet 7
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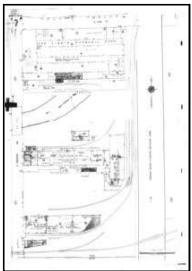


Volume 22, Sheet 6
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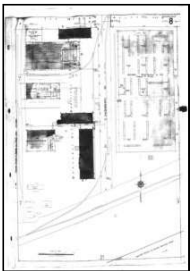
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Volume 22, Sheet 6
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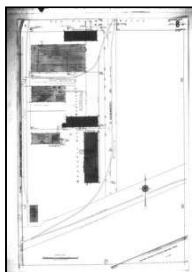


Volume 22, Sheet 7
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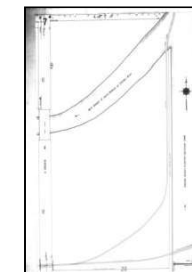


Volume 22, Sheet 8
1951

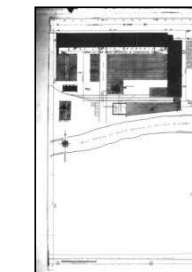
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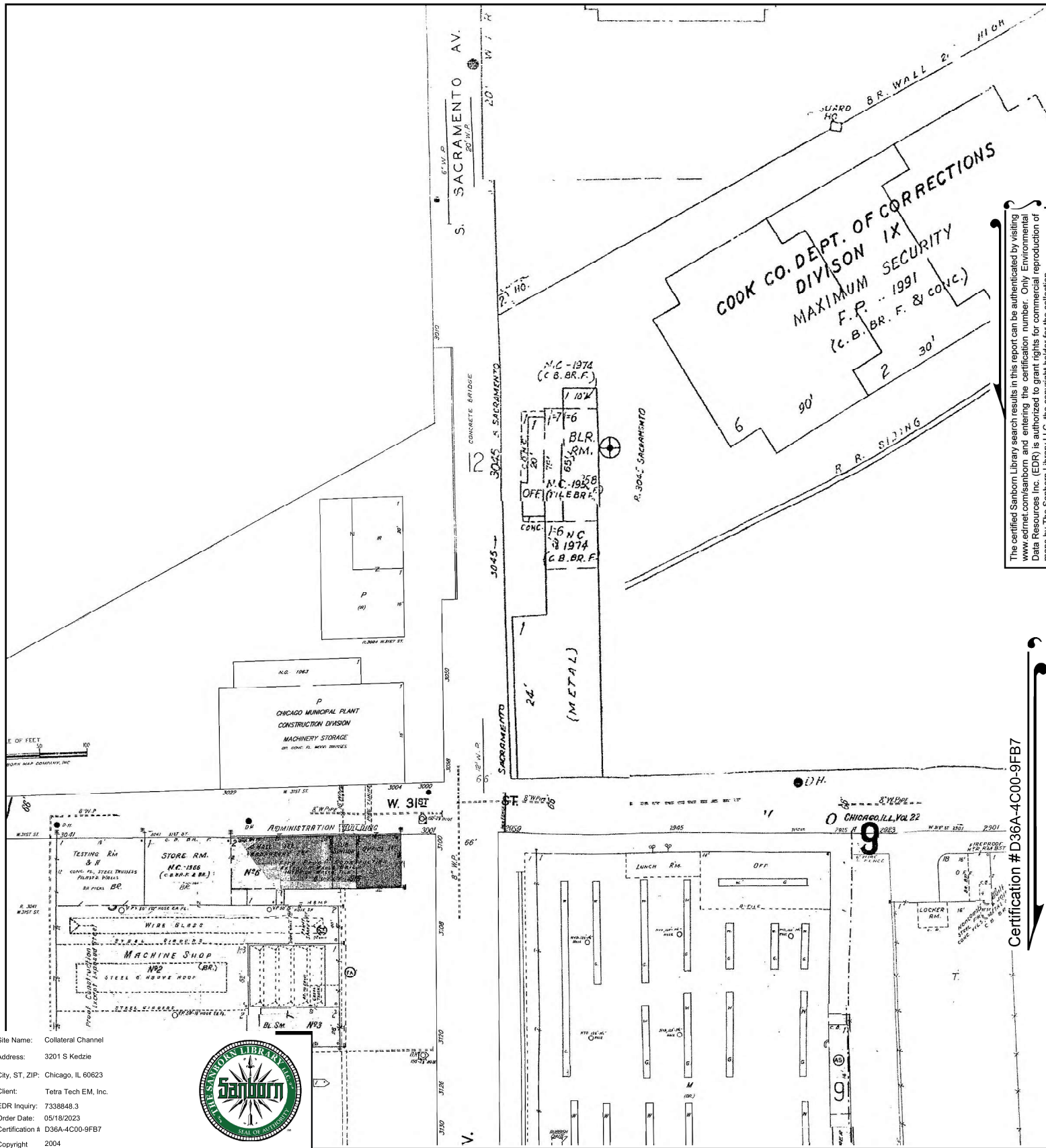
Volume 22, Sheet 8
1919



Volume 22, Sheet 7
1919



Volume 22, Sheet 6
1919



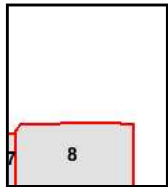
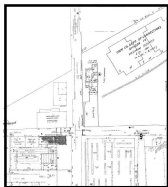
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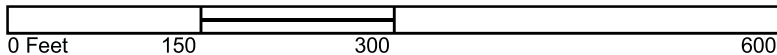
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 Address: 3201 S Kedzie
 City, ST, ZIP: Chicago, IL 60623
 Client: Tetra Tech EM, Inc.
 EDR Inquiry: 7338848.3
 Order Date: 05/18/2023
 Certification #: D36A-4C00-9FB7
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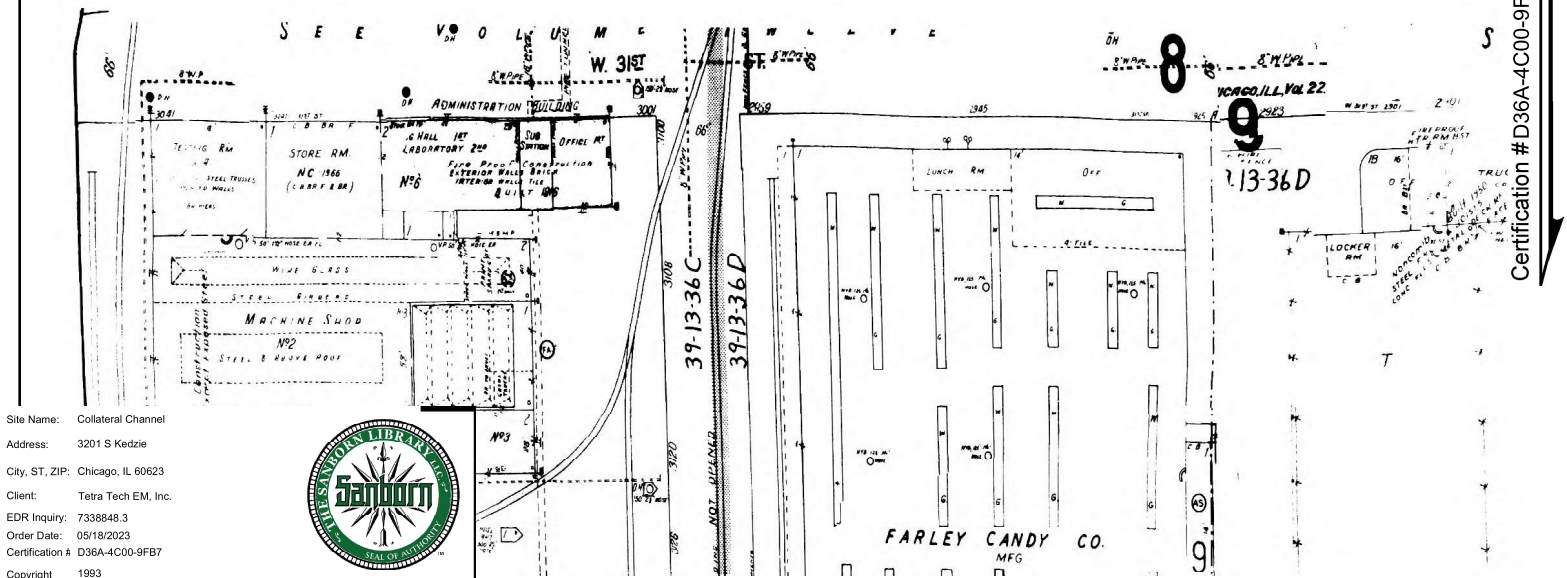


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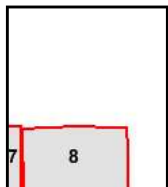
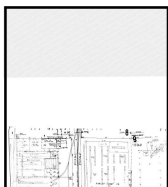


Volume 22, Sheet 20
 Volume 22, Sheet 8
 Volume 22, Sheet 6
 Volume 22, Sheet 7

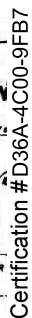




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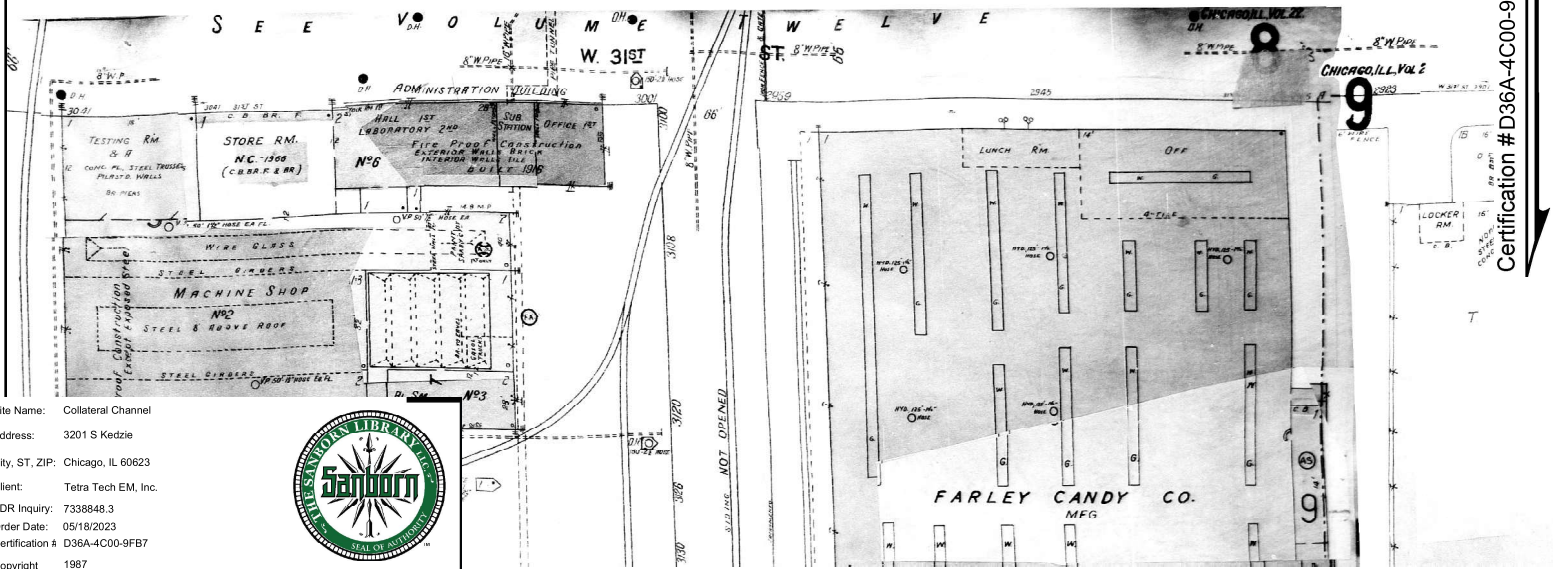


Volume 22, Sheet 8
 Volume 22, Sheet 7
 Volume 22, Sheet 6



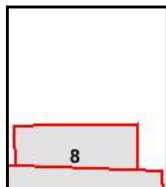
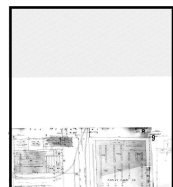
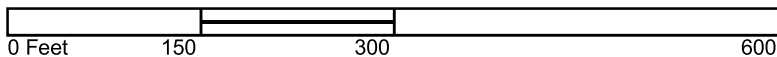


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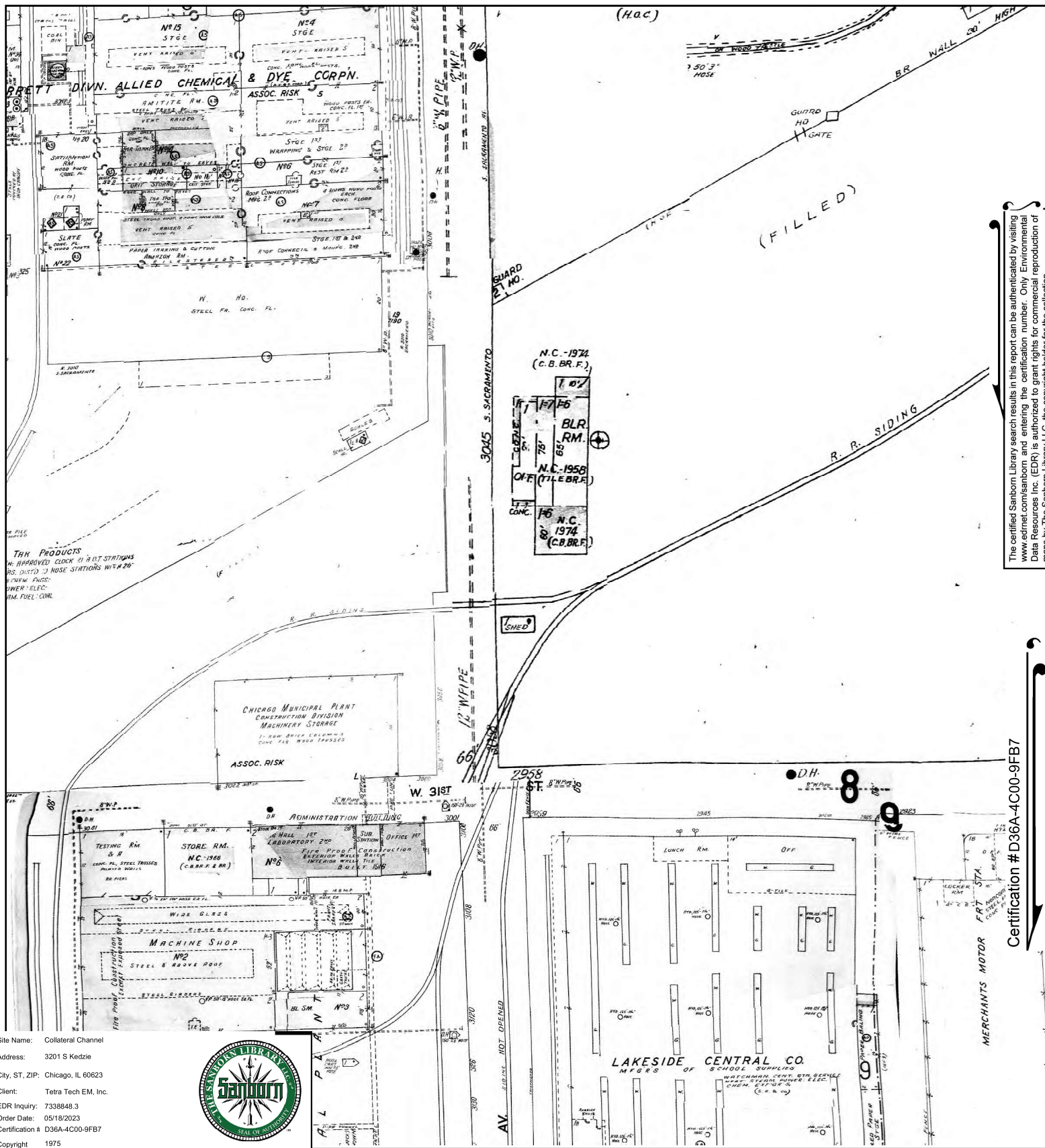
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Volume 22, Sheet 20
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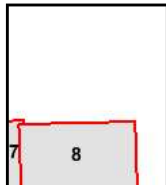
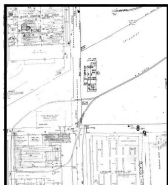




Site Name: Collateral Channel
 Address: 3201 S Kedzie
 City, ST, ZIP: Chicago, IL 60623
 Client: Tetra Tech EM, Inc.
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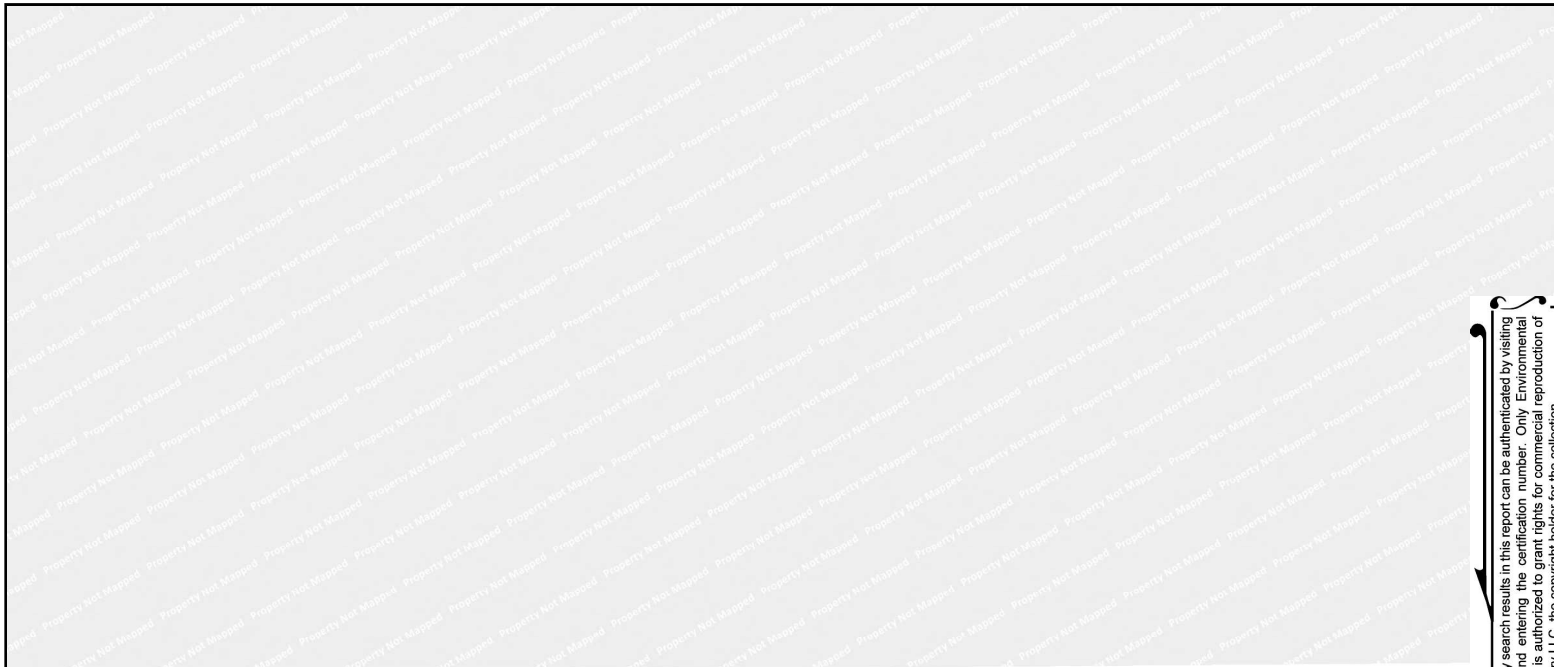
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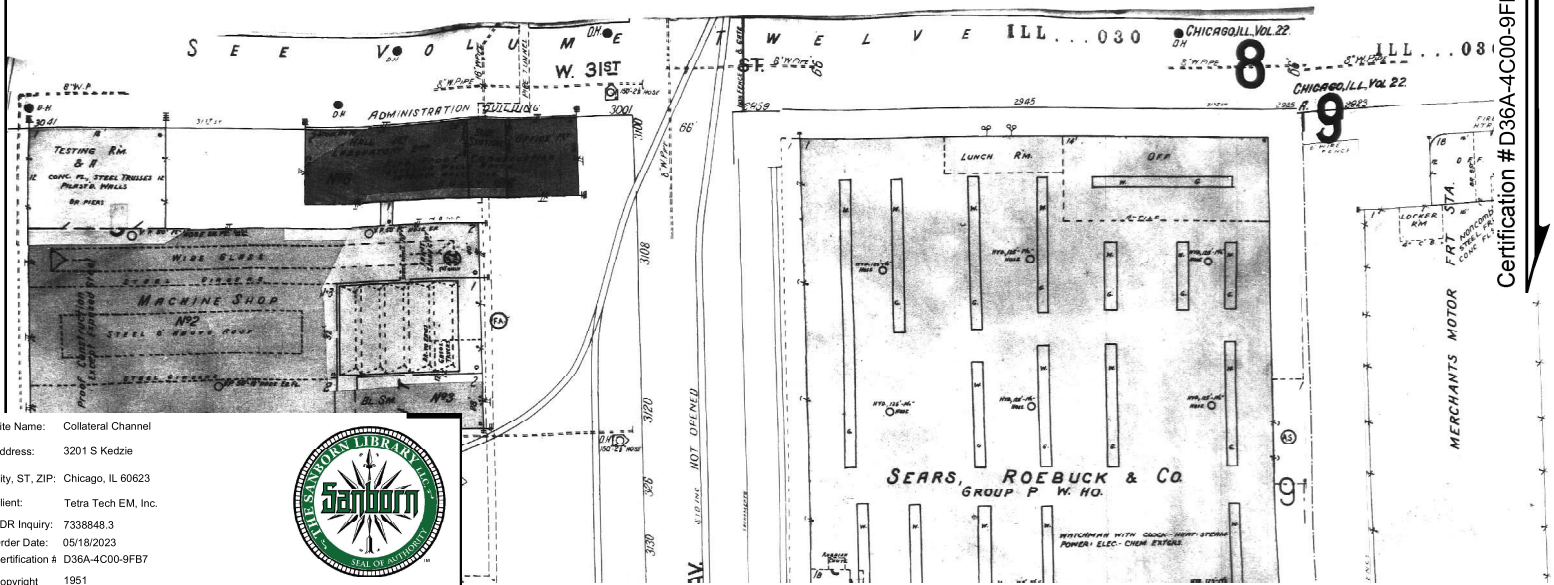
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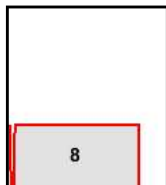
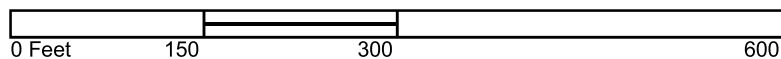


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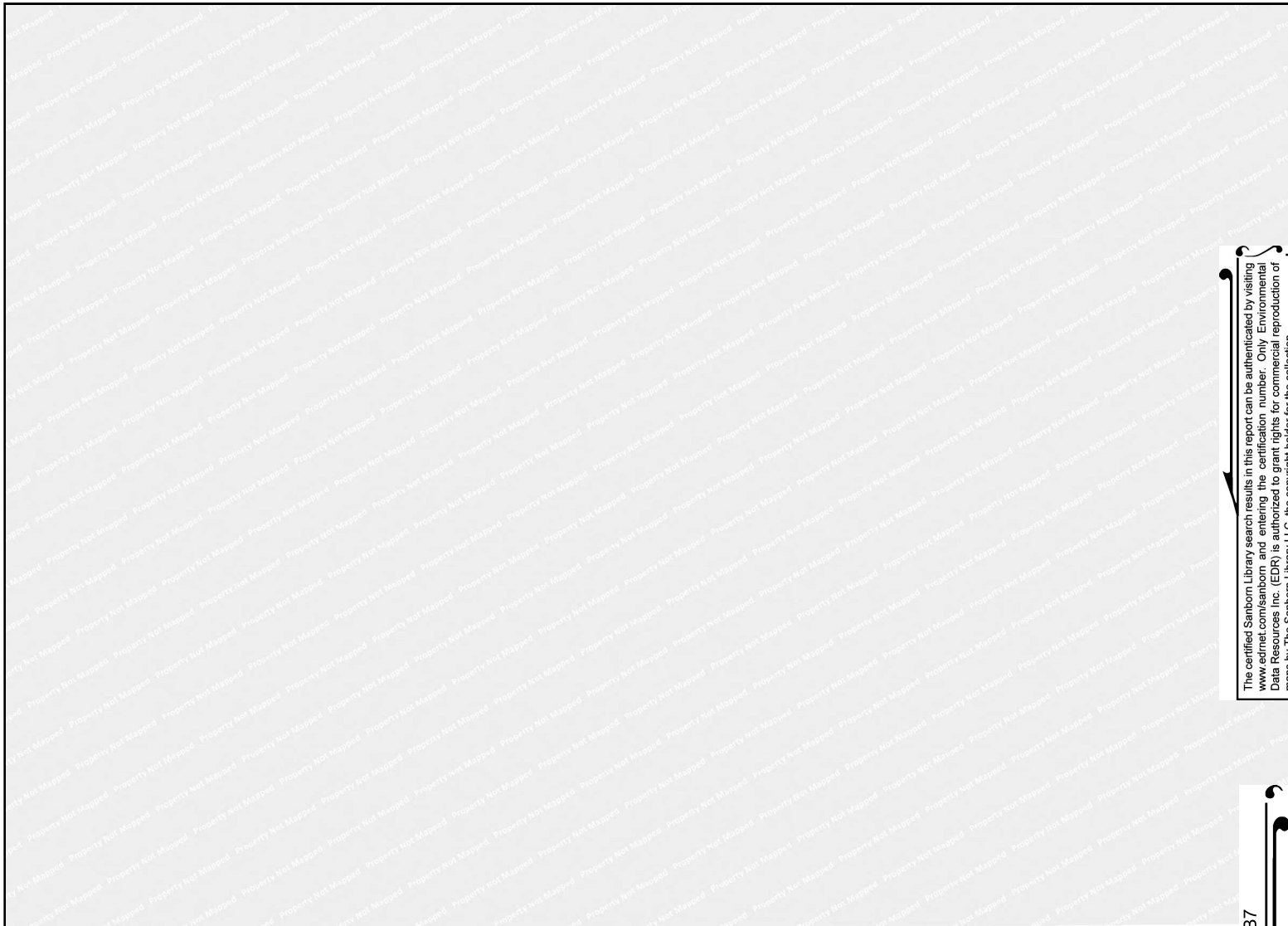
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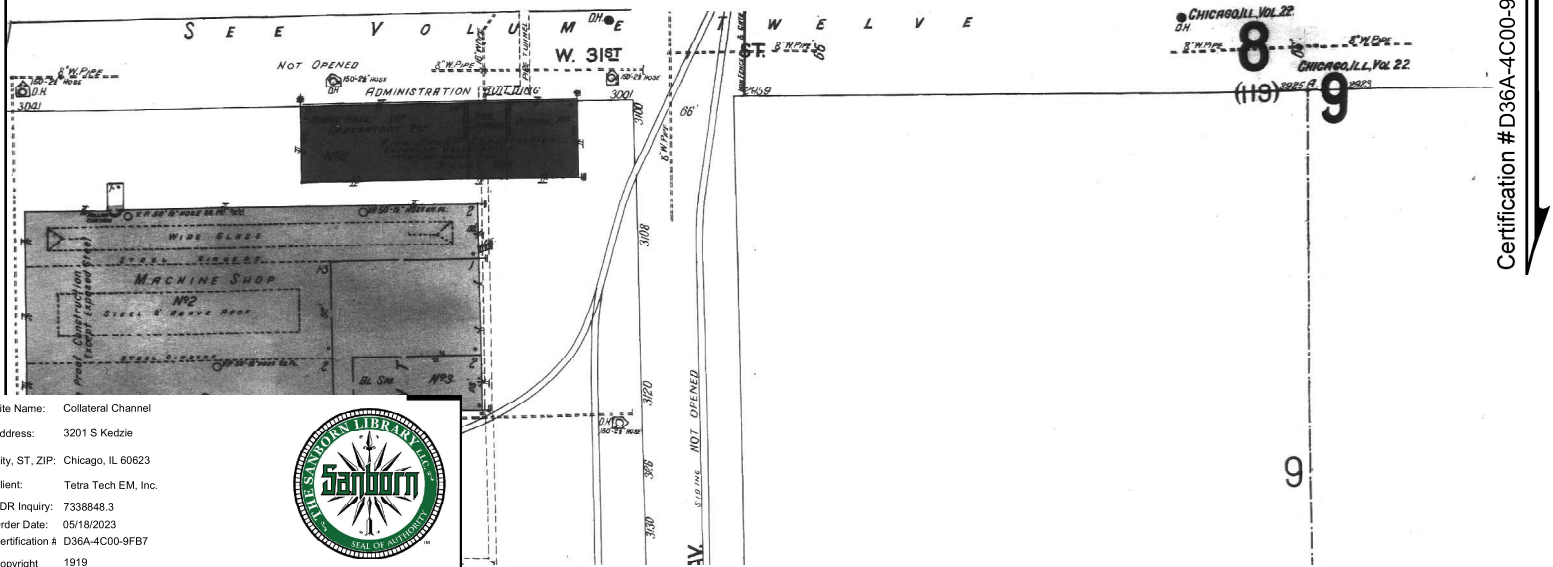


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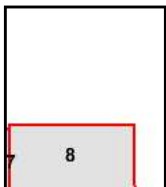
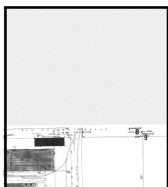


Certification # D36A-4C00-9FB7

Site Name: Collateral Channel
Address: 3201 S Kedzie
City, ST, ZIP: Chicago, IL 60623
Client: Tetra Tech EM, Inc.
EDR Inquiry: 7338848.3
Order Date: 05/18/2023
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Volume 22, Sheet 7
Volume 22, Sheet 8



Collateral Channel

3201 S Kedzie

Chicago, IL 60623

Inquiry Number: 7338848.3

May 18, 2023

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6 Armstrong Road, 4th floor
Shelton, CT 06484
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05/18/23

Site Name:

Collateral Channel
3201 S Kedzie
Chicago, IL 60623
EDR Inquiry # 7338848.3

Client Name:

Tetra Tech EM, Inc.
1 South Wacker Drive, 37th Floor
Chicago, IL 60606
Contact: Jennifer Swilik



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Certified Sanborn Results:

Certification # D36A-4C00-9FB7

PO # NA

Project Collateral Channel

Maps Provided:

2004
1993
1991
1987
1975
1951
1919



Sanborn® Library search results

Certification #: D36A-4C00-9FB7

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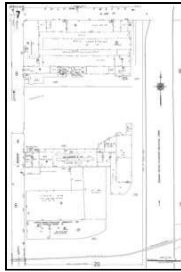
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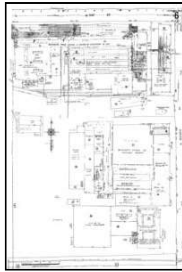
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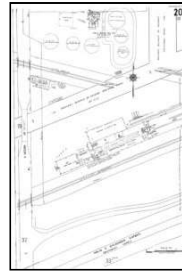
Volume 22, Sheet 7
2004



Volume 22, Sheet 6
2004

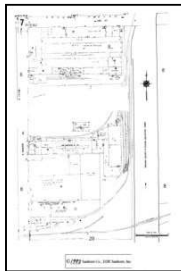


Volume 22, Sheet 8
2004

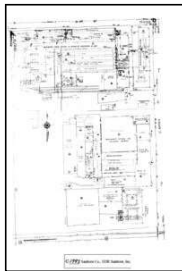


Volume 22, Sheet 20
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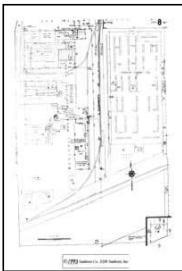
1993 Source Sheets



Volume 22, Sheet 7
1993

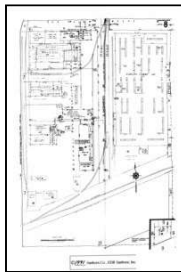


Volume 22, Sheet 6
1993

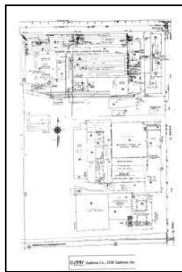


Volume 22, Sheet 8
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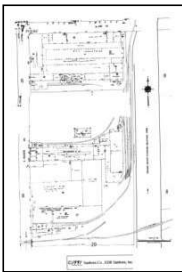
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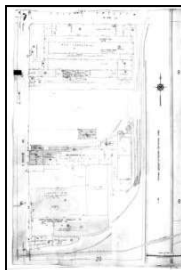


Volume 22, Sheet 6
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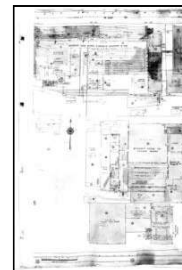


Volume 22, Sheet 7
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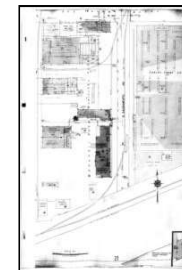
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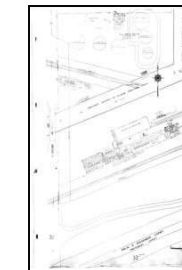
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Volume 22, Sheet 6
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Volume 22, Sheet 8
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Volume 22, Sheet 20
1987

Sanborn Sheet Key

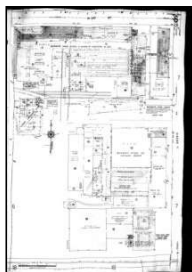
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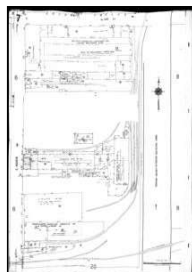
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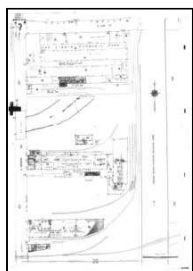


Volume 22, Sheet 6
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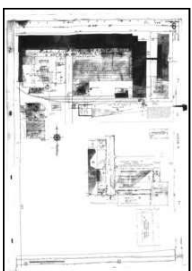


Volume 22, Sheet 7
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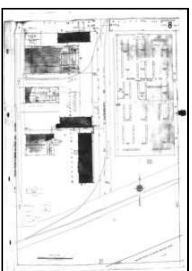
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Volume 22, Sheet 7
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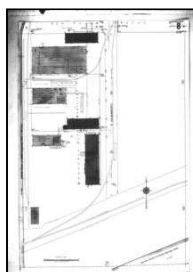


Volume 22, Sheet 6
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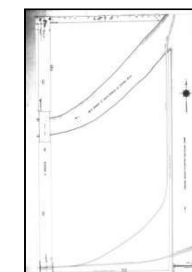


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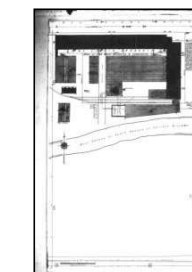
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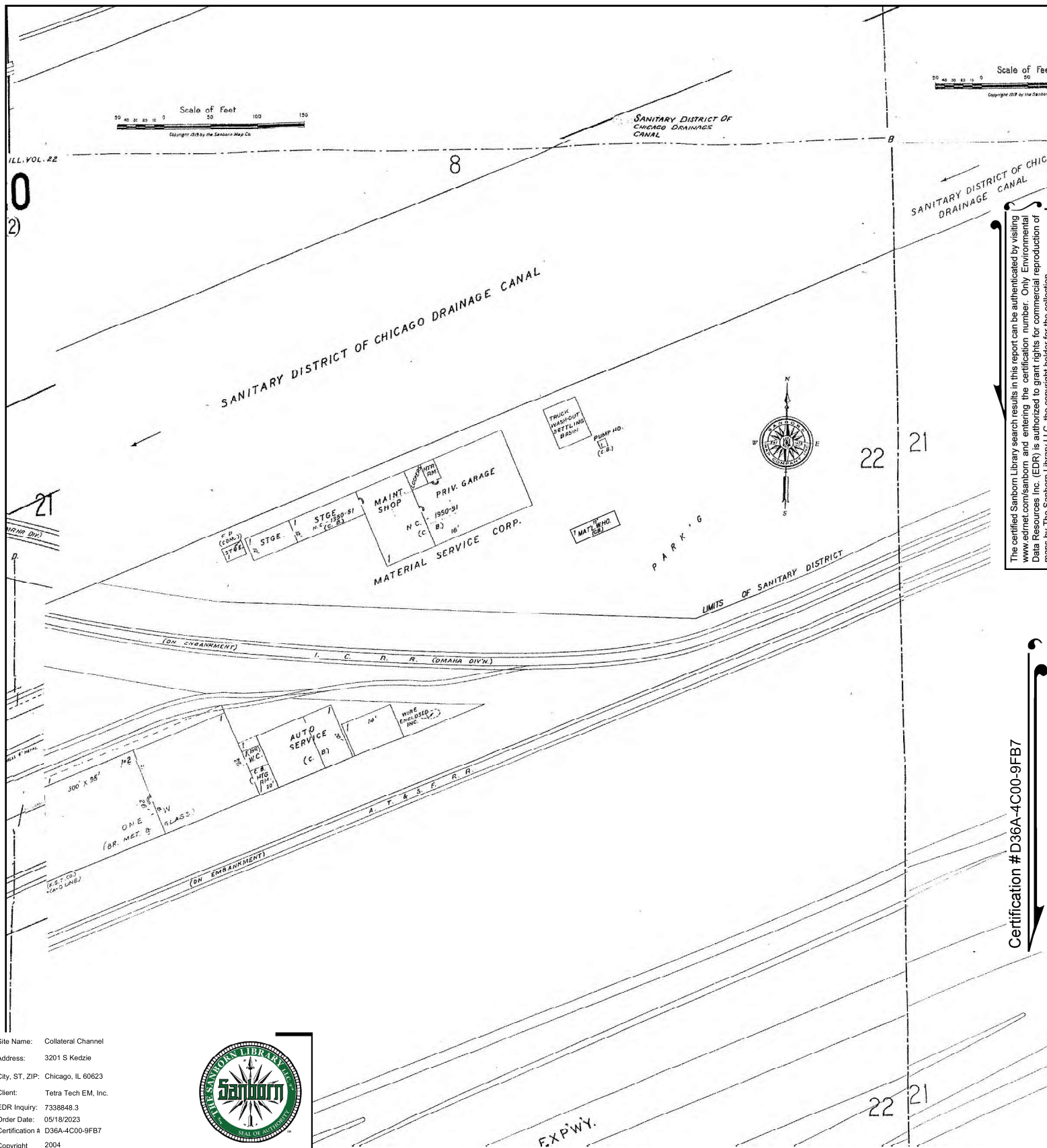
Volume 22, Sheet 8
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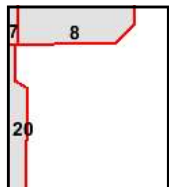
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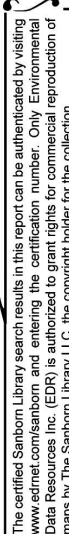


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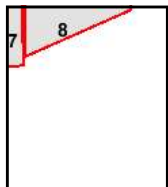


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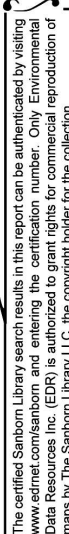




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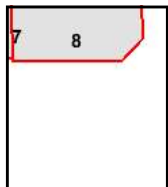


7338848 - 3 page 6



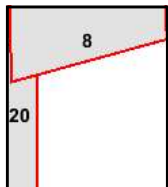
Certification # D36A-4C00-9FB7

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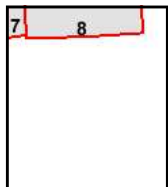


Volume 22, Sheet 7
Volume 22, Sheet 6
Volume 22, Sheet 8

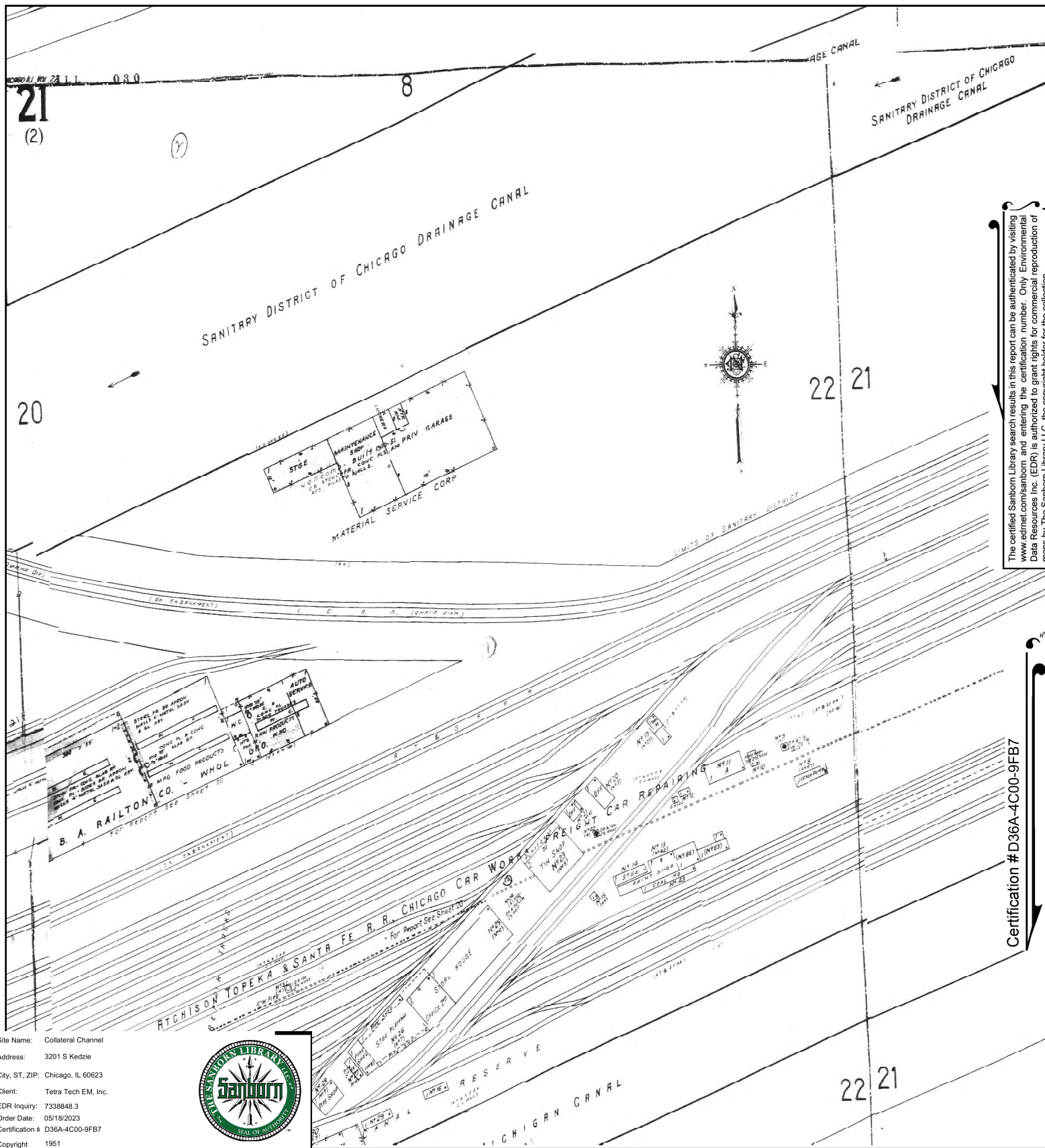




7338848 - 3 page 8



7338848 - 3 page 9



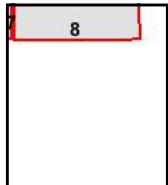
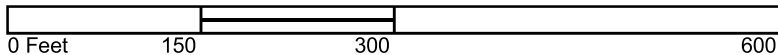
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Site Name: Collateral Channel
Address: 3201 S Kedzie
City, ST, ZIP: Chicago, IL 60623
Client: Tetra Tech EM, Inc.
EDR Inquiry: 7338848.3
Order Date: 05/18/2023
Certification #: D36A-4C00-9FB7
Copyright: 1951

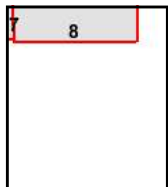


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Volume 22, Sheet 8
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Volume 22, Sheet 7





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Collateral Channel

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Chicago, IL 60623

Inquiry Number: 7338848.3

May 18, 2023

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05/18/23

Site Name:

Collateral Channel
3201 S Kedzie
Chicago, IL 60623
EDR Inquiry # 7338848.3

Client Name:

Tetra Tech EM, Inc.
1 South Wacker Drive, 37th Floor
Chicago, IL 60606
Contact: Jennifer Swilik



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Certification # D36A-4C00-9FB7

PO # NA

Project Collateral Channel

Maps Provided:

2004
1993
1991
1987
1975
1951
1919



Sanborn® Library search results

Certification #: D36A-4C00-9FB7

The Sanborn Library includes more than 1.2 million fire insurance maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow and others which track historical property usage in approximately 12,000 American cities and towns. Collections searched:

- ☒ Library of Congress
- ☒ University Publications of America
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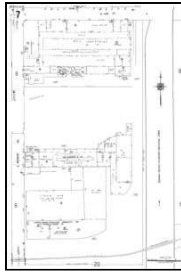
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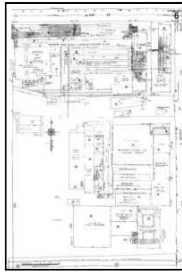
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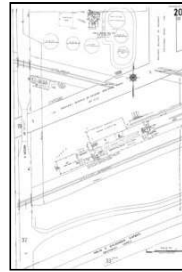
Volume 22, Sheet 7
2004



Volume 22, Sheet 6
2004

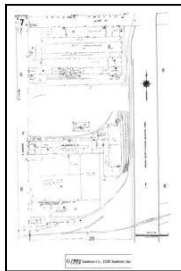


Volume 22, Sheet 8
2004

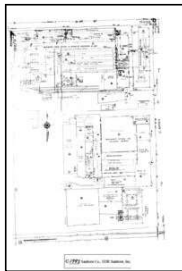


Volume 22, Sheet 20
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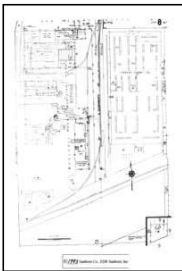
1993 Source Sheets



Volume 22, Sheet 7
1993

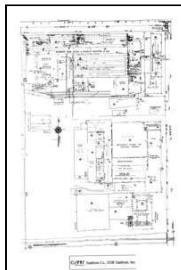


Volume 22, Sheet 6
1993



Volume 22, Sheet 8
1993

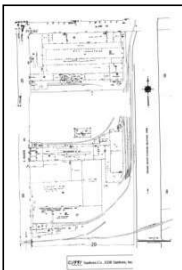
1991 Source Sheets



Volume 22, Sheet 6
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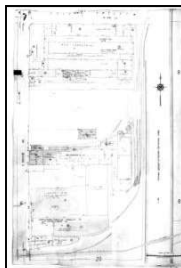


Volume 22, Sheet 8
1991



Volume 22, Sheet 7
1991

1987 Source Sheets



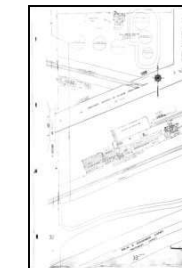
Volume 22, Sheet 7
1987



Volume 22, Sheet 8
1987



Volume 22, Sheet 6
1987



Volume 22, Sheet 20
1987

Sanborn Sheet Key

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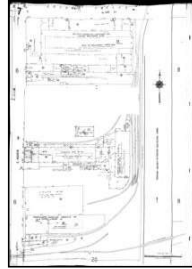
1975 Source Sheets



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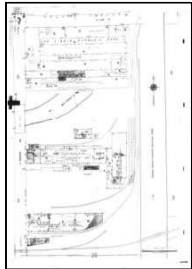


Volume 22, Sheet 6
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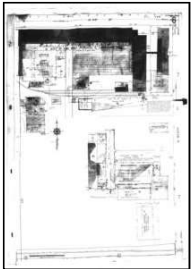


Volume 22, Sheet 7
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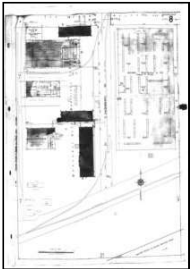
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Volume 22, Sheet 7
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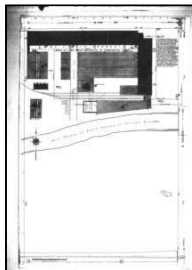


Volume 22, Sheet 6
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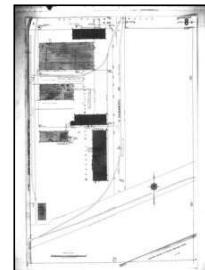


Volume 22, Sheet 8
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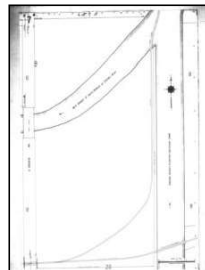
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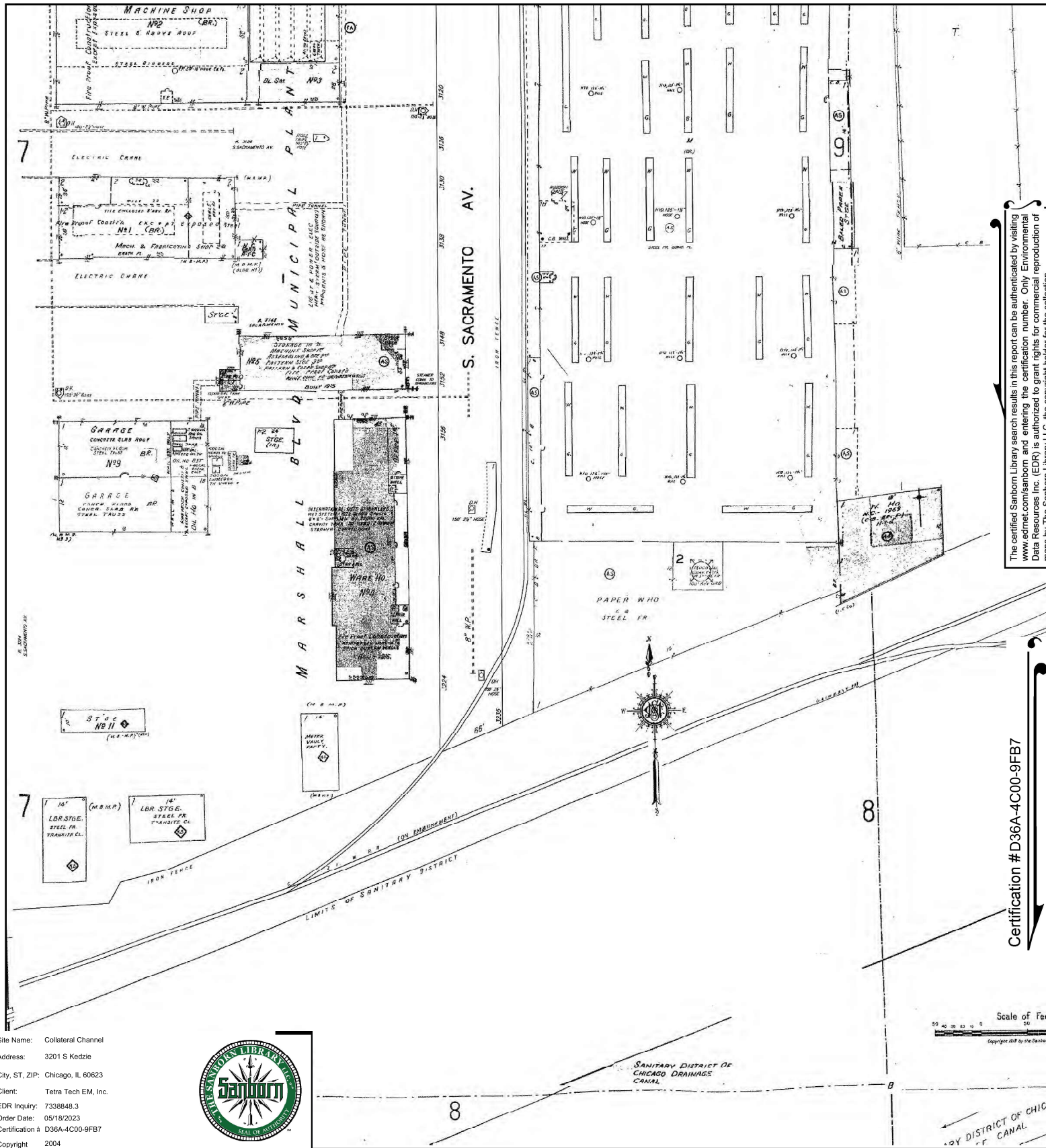
Volume 22, Sheet 6
1919



Volume 22, Sheet 8
1919



Volume 22, Sheet 7
1919



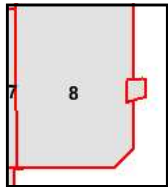
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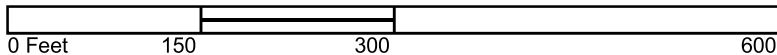
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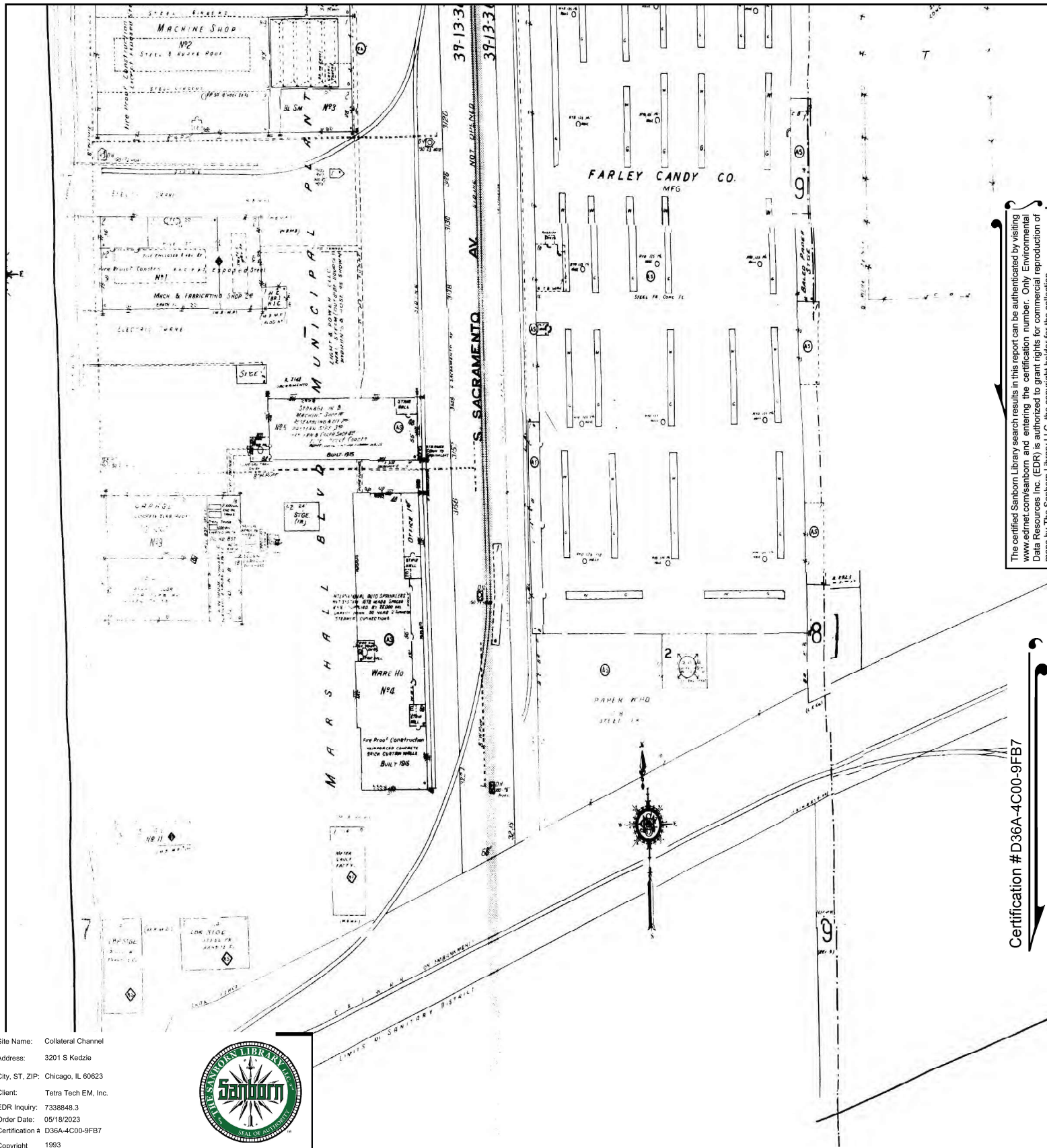


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 Volume 22, Sheet 7





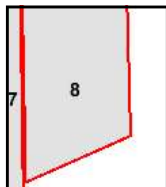
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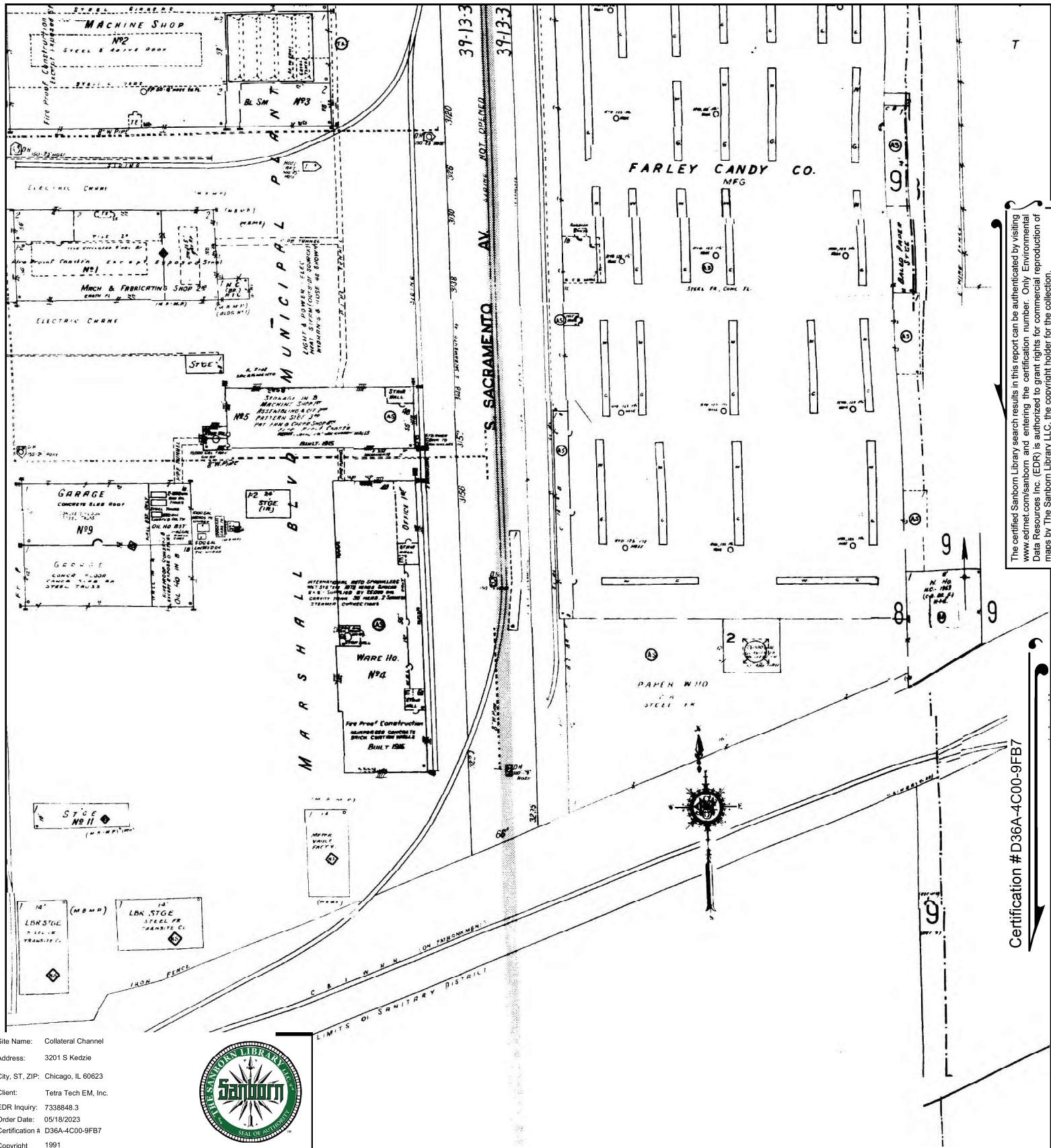
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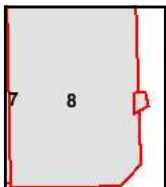
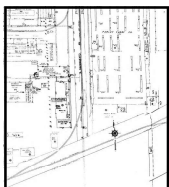
Volume 22, Sheet 8
 Volume 22, Sheet 6
 Volume 22, Sheet 7



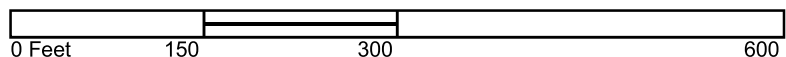
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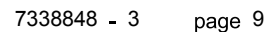
Volume 22, Sheet 7
 Volume 22, Sheet 8
 Volume 22, Sheet 6



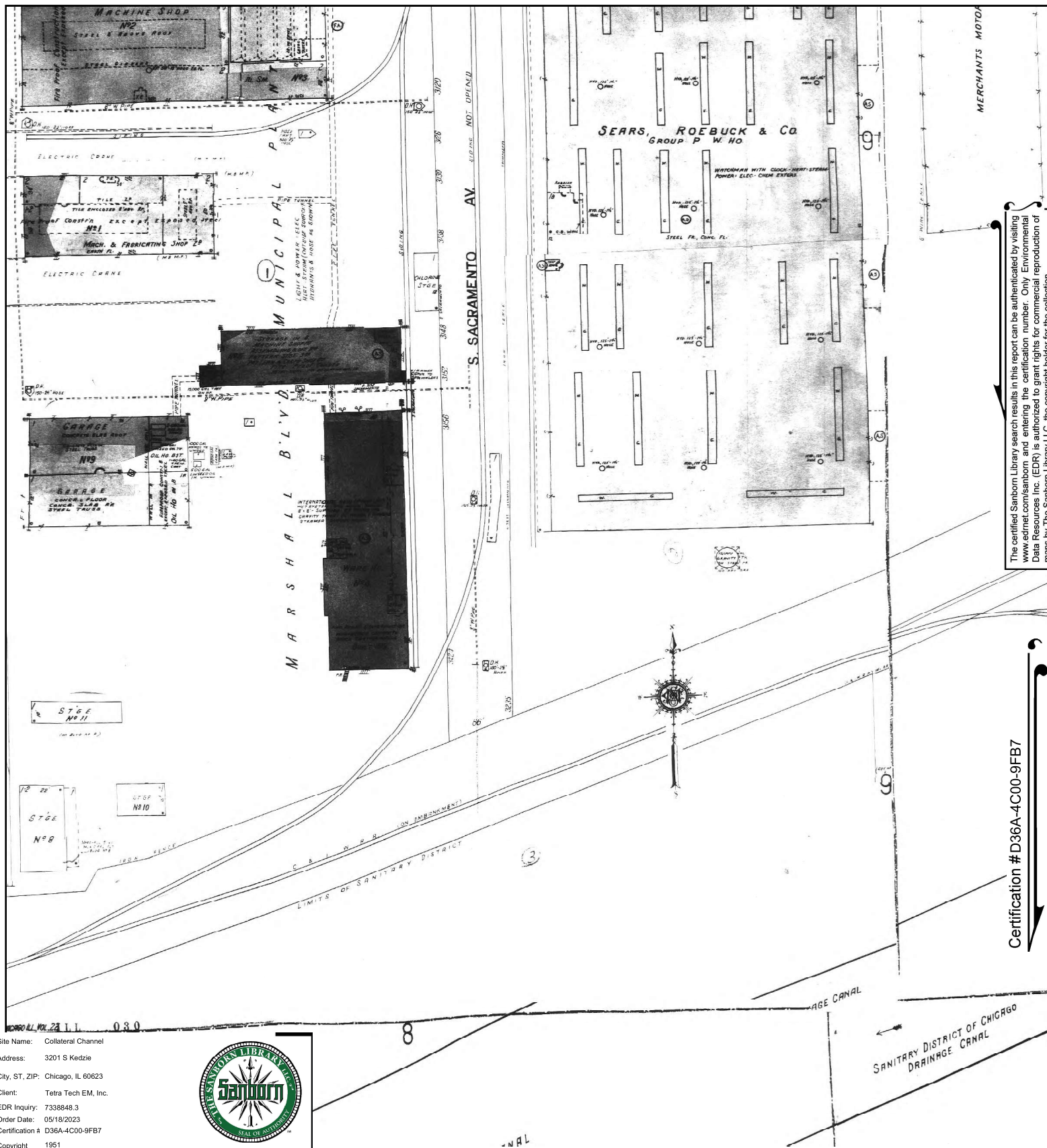
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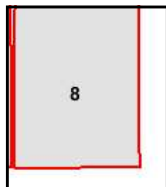
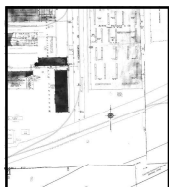




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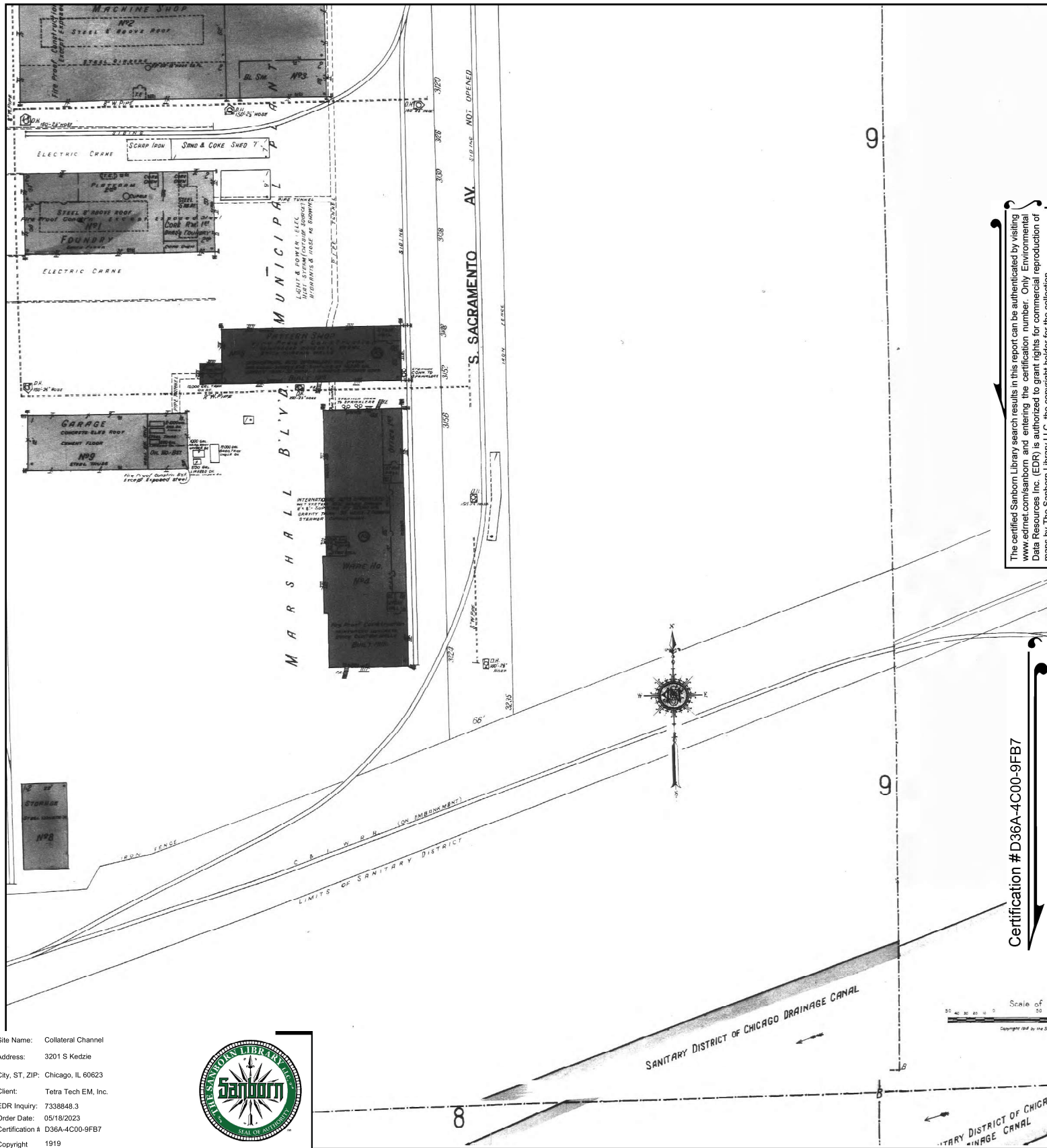
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Volume 22, Sheet 8
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 Volume 22, Sheet 7

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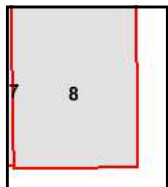
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 EDR Inquiry: 7338848.3
 Order Date: 05/18/2023
 Certification #: D36A-4C00-9FB7
 Copyright: 1919



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 Outlined areas indicate map sheets within the collection.



Volume 22, Sheet 7
 Volume 22, Sheet 8
 Volume 22, Sheet 6

0 Feet 150 300 600





Collateral Channel

3201 S Kedzie

Chicago, IL 60623

Inquiry Number: 7338848.3

May 18, 2023

Certified Sanborn® Map Report



6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

Certified Sanborn® Map Report

05/18/23

Site Name:

Collateral Channel
3201 S Kedzie
Chicago, IL 60623
EDR Inquiry # 7338848.3

Client Name:

Tetra Tech EM, Inc.
1 South Wacker Drive, 37th Floor
Chicago, IL 60606
Contact: Jennifer Swilik



The Sanborn Library has been searched by EDR and maps covering the target property location as provided by Tetra Tech EM, Inc. were identified for the years listed below. The Sanborn Library is the largest, most complete collection of fire insurance maps. The collection includes maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow, and others. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by the Sanborn Library LLC, the copyright holder for the collection. Results can be authenticated by visiting www.edrnet.com/sanborn.

The Sanborn Library is continually enhanced with newly identified map archives. This report accesses all maps in the collection as of the day this report was generated.

Certified Sanborn Results:

Certification # D36A-4C00-9FB7

PO # NA

Project Collateral Channel

Maps Provided:

2004
1993
1991
1987
1975
1951
1919



Sanborn® Library search results

Certification #: D36A-4C00-9FB7

The Sanborn Library includes more than 1.2 million fire insurance maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow and others which track historical property usage in approximately 12,000 American cities and towns. Collections searched:

- ☒ Library of Congress
- ☒ University Publications of America
- ☒ EDR Private Collection

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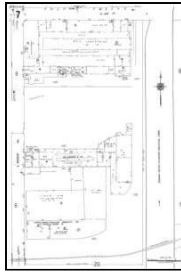
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Sanborn Sheet Key

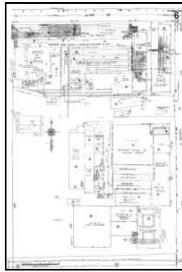
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2004 Source Sheets



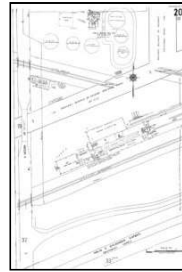
Volume 22, Sheet 7
2004



Volume 22, Sheet 6
2004

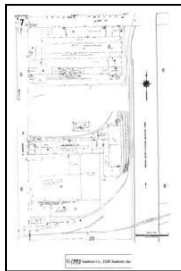


Volume 22, Sheet 8
2004

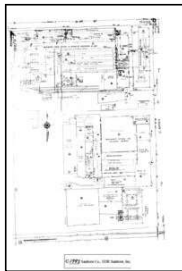


Volume 22, Sheet 20
2004

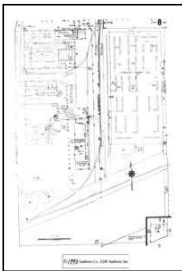
1993 Source Sheets



Volume 22, Sheet 7
1993

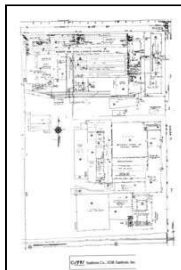


Volume 22, Sheet 6
1993



Volume 22, Sheet 8
1993

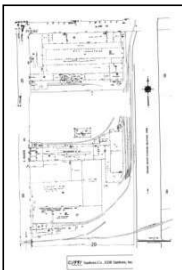
1991 Source Sheets



Volume 22, Sheet 6
1991

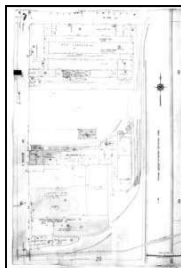


Volume 22, Sheet 8
1991



Volume 22, Sheet 7
1991

1987 Source Sheets



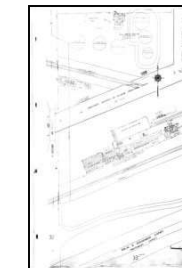
Volume 22, Sheet 7
1987



Volume 22, Sheet 8
1987



Volume 22, Sheet 6
1987



Volume 22, Sheet 20
1987

Sanborn Sheet Key

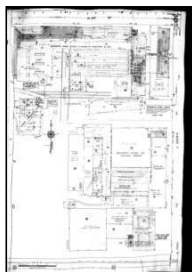
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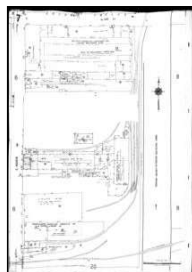
1975 Source Sheets



Volume 22, Sheet 8
1975

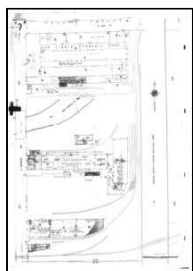


Volume 22, Sheet 6
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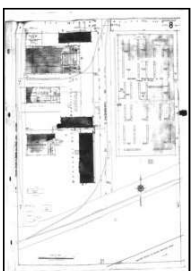


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1975

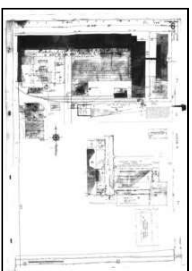
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Volume 22, Sheet 7
1951

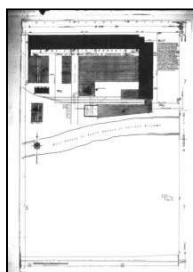


Volume 22, Sheet 8
1951

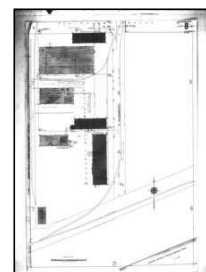


Volume 22, Sheet 6
1951

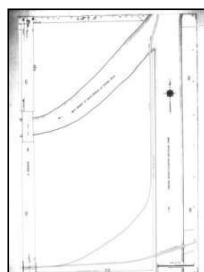
1919 Source Sheets



Volume 22, Sheet 6
1919

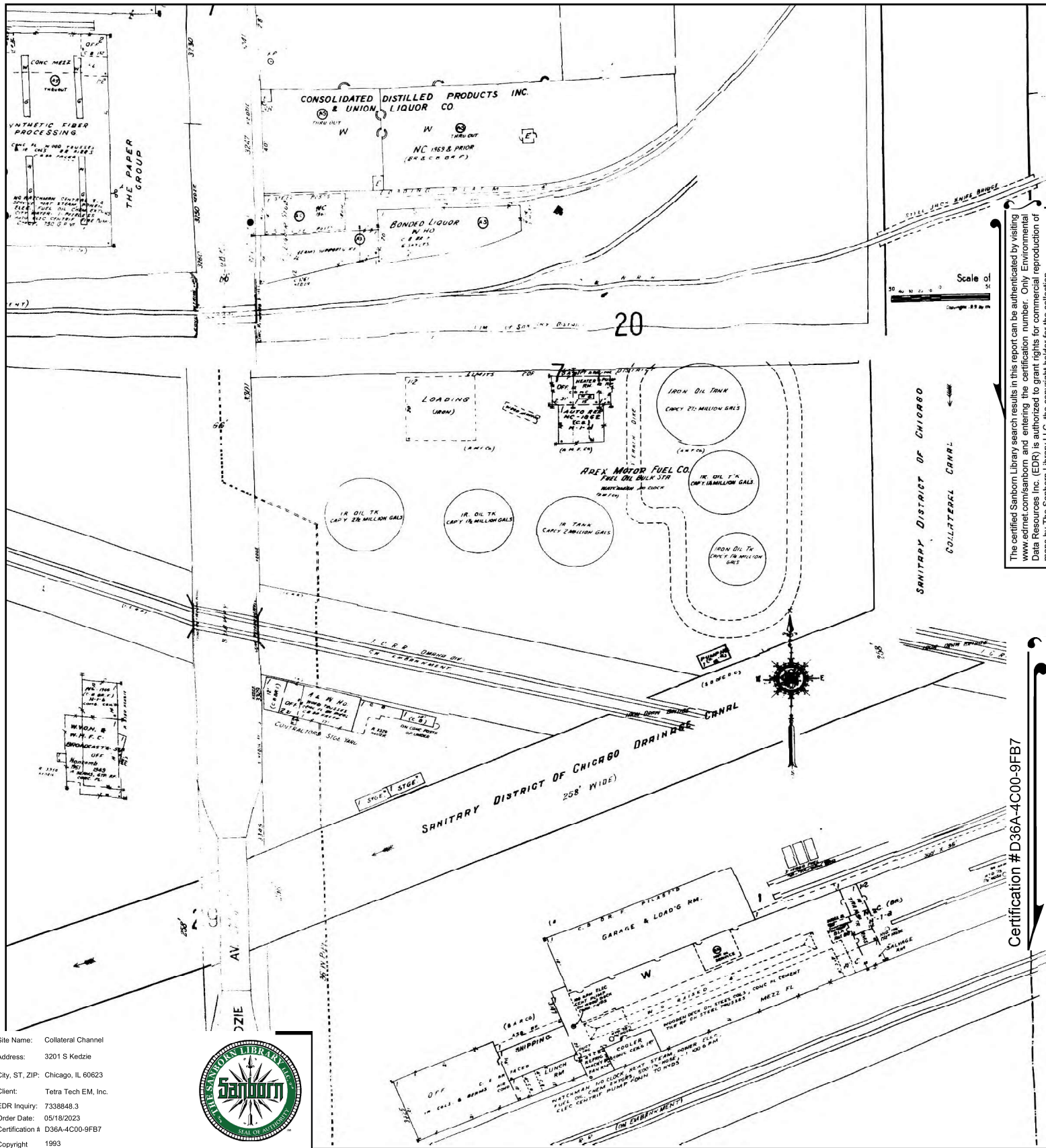


Volume 22, Sheet 8
1919



Volume 22, Sheet 7
1919

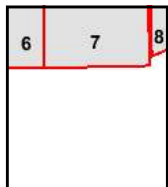




Site Name: Collateral Channel
 Address: 3201 S Kedzie
 City, ST, ZIP: Chicago, IL 60623
 Client: Tetra Tech EM, Inc.
 EDR Inquiry: 7338848.3
 Order Date: 05/18/2023
 Certification #: D36A-4C00-9FB7
 Copyright: 1993



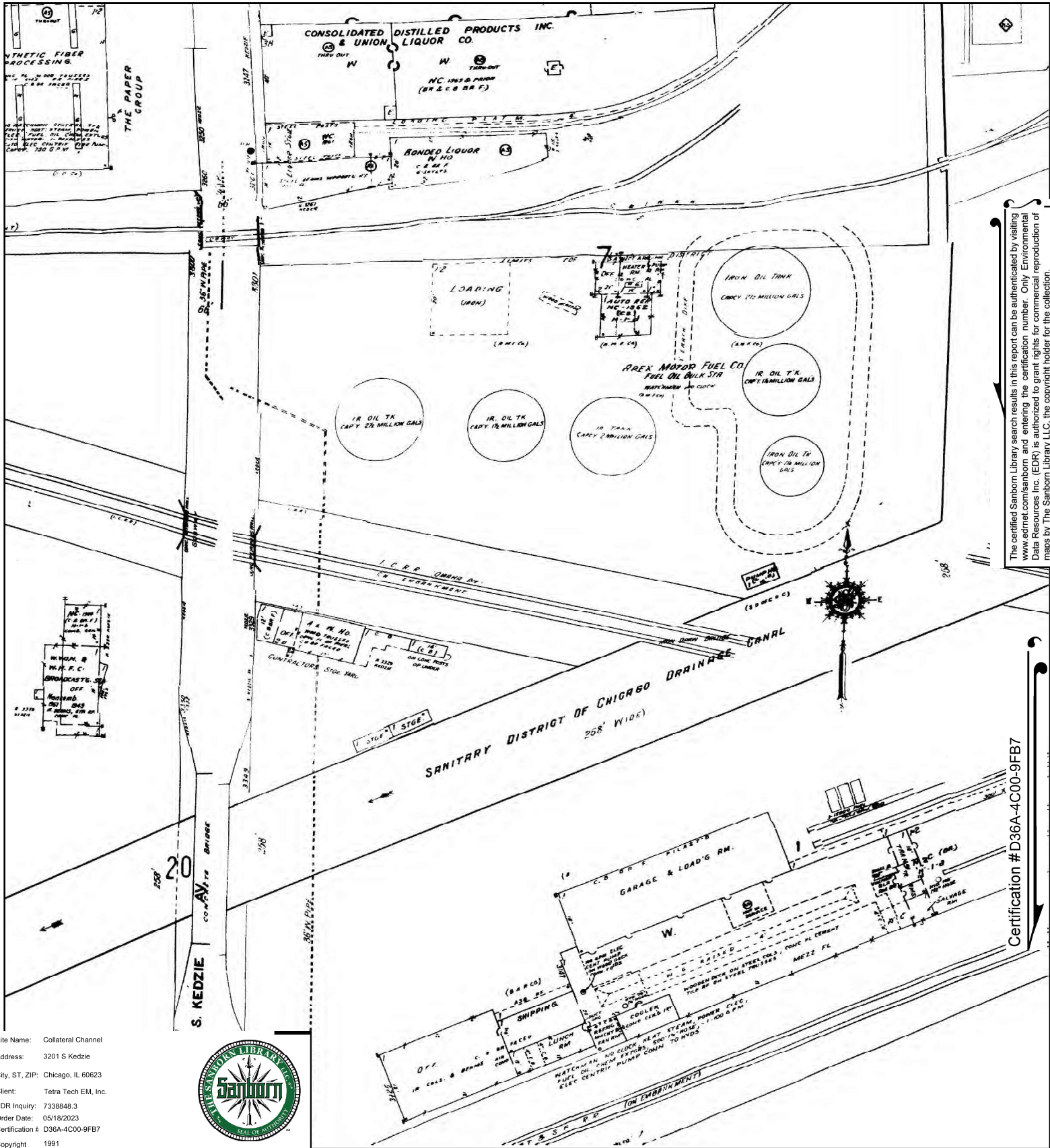
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Volume 22, Sheet 8
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 Volume 22, Sheet 7

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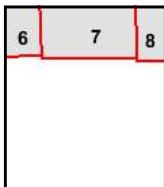
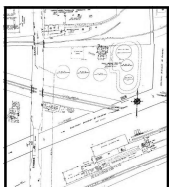
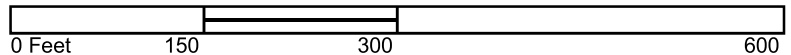
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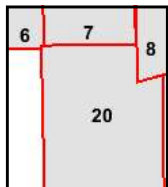


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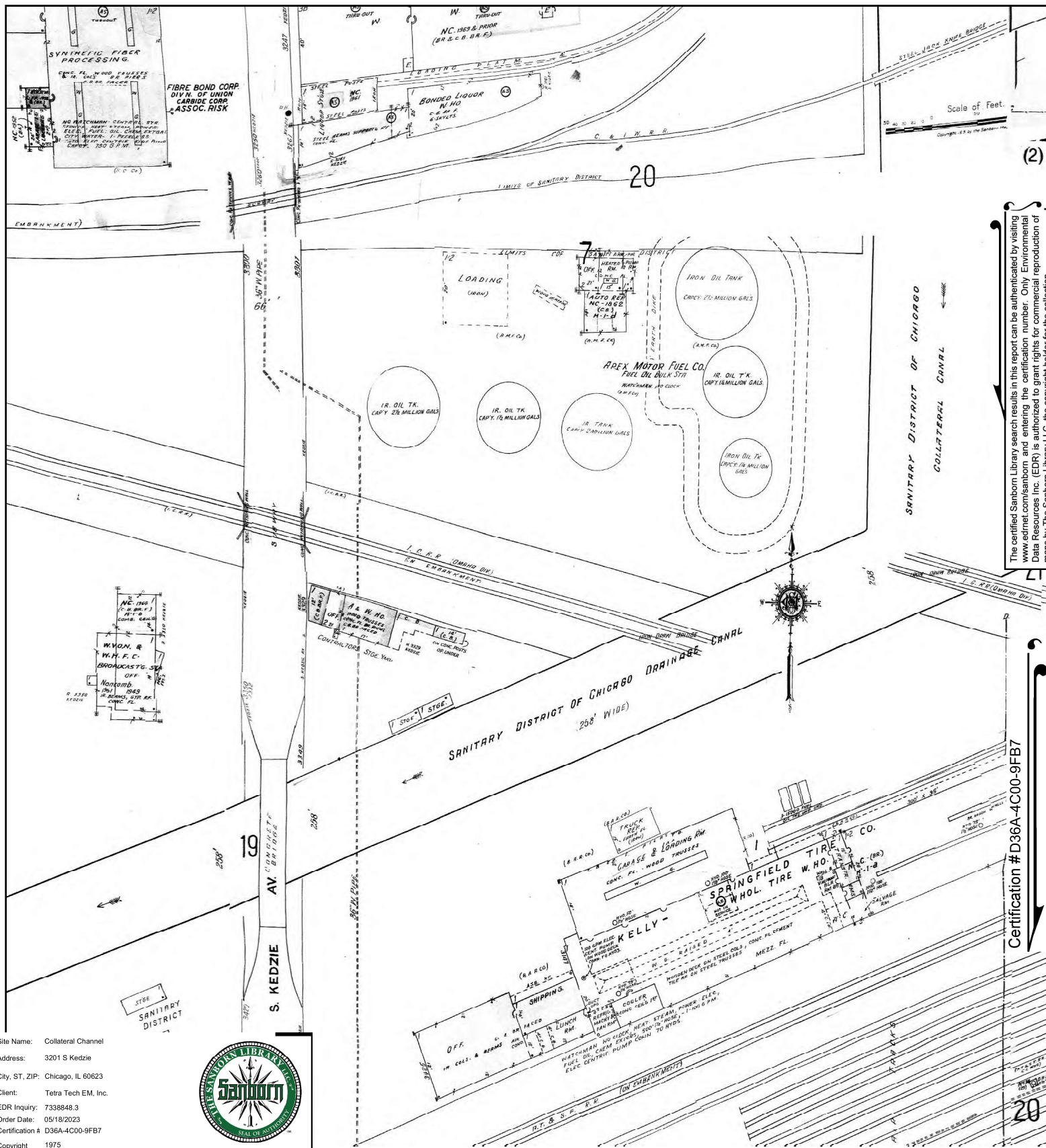


Volume 22, Sheet 7
Volume 22, Sheet 8
Volume 22, Sheet 6





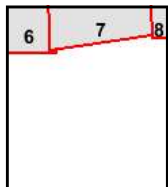
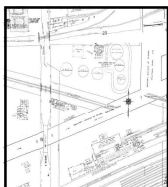
7338848 - 3 page 8



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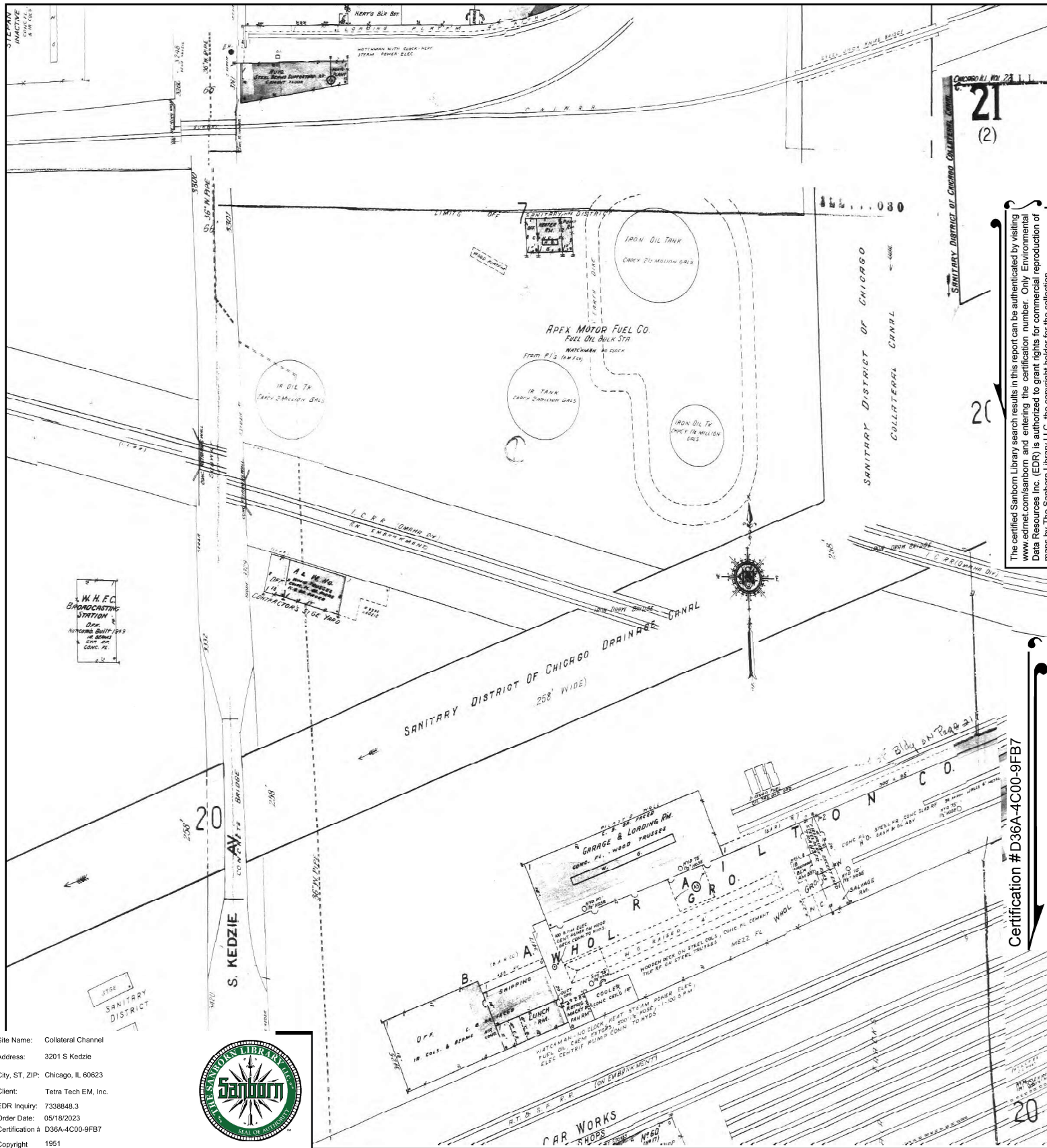
Volume 22, Sheet 7
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 Volume 22, Sheet 8

0 Feet 150 300 600



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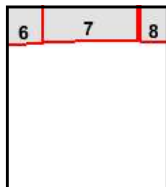
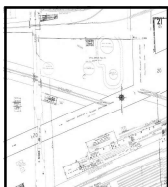
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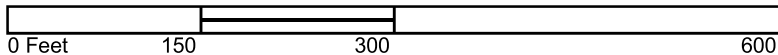
Site Name: Collateral Channel
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 EDR Inquiry: 7338848.3
 Order Date: 05/18/2023
 Certification # D36A-4C00-9FB7
 Copyright 1951

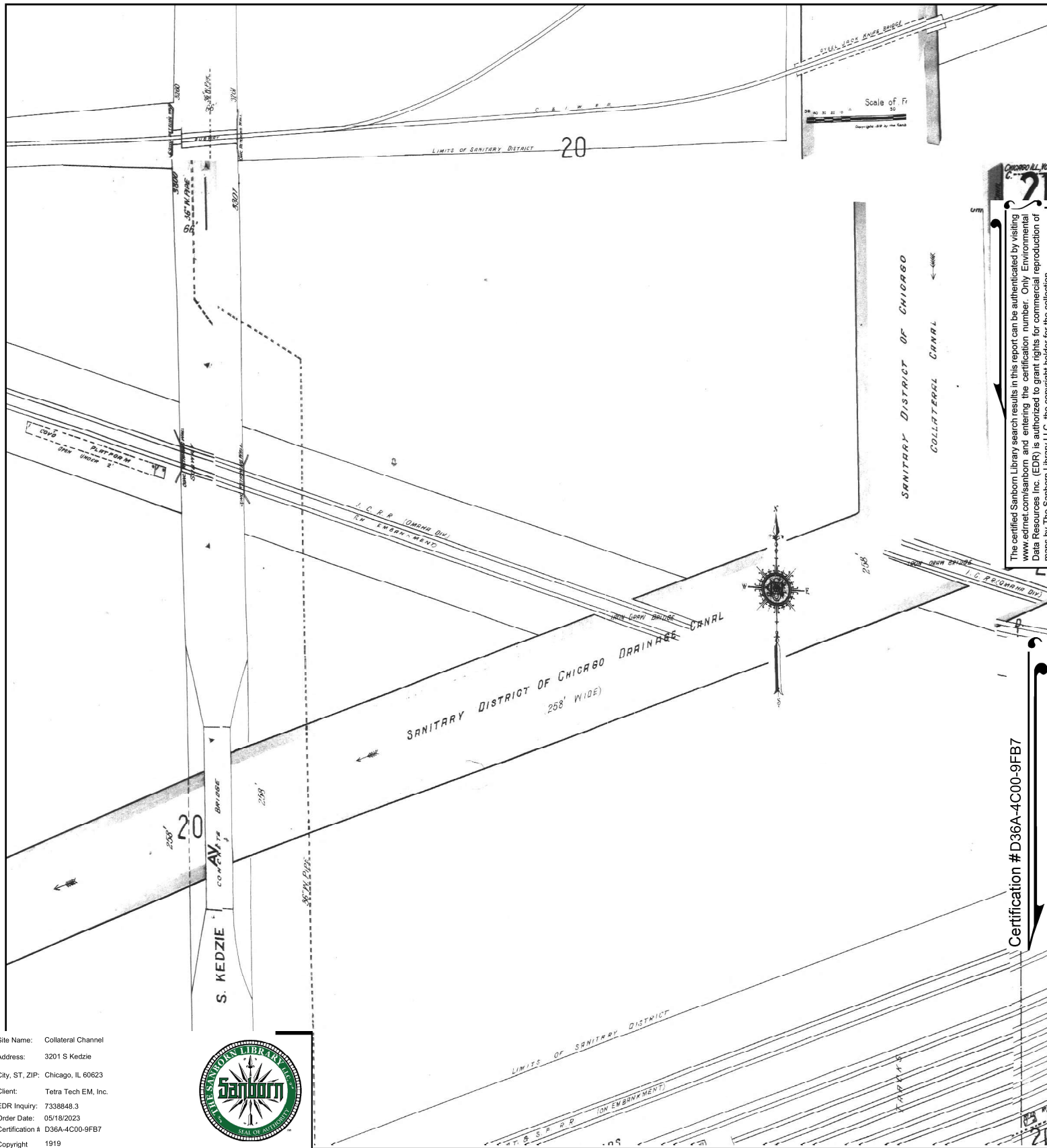


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 Volume 22, Sheet 7

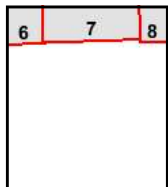
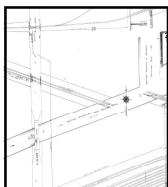




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 Copyright: 1919



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ATTACHMENT 2. EJSCREEN COMMUNITY REPORT



EJScreen Community Report

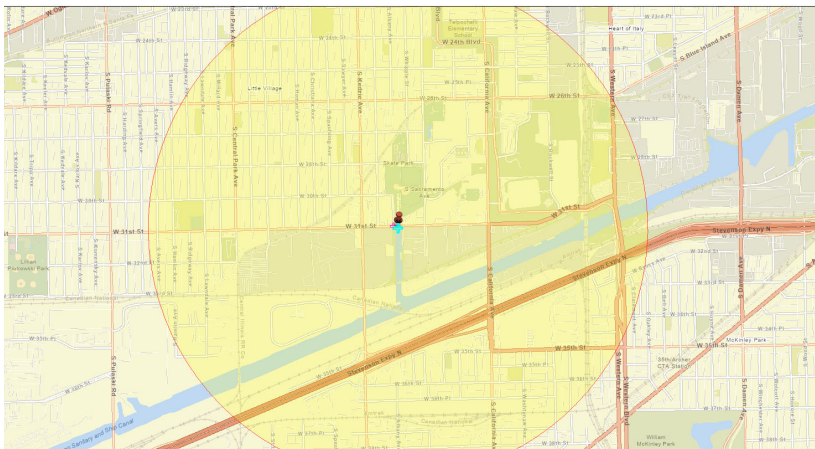
This report provides environmental and socioeconomic information for user-defined areas, and combines that data into environmental justice and supplemental indexes.

Chicago, IL

1 mile Ring Centered at 41.837170,-87.702041

Population: 49,481

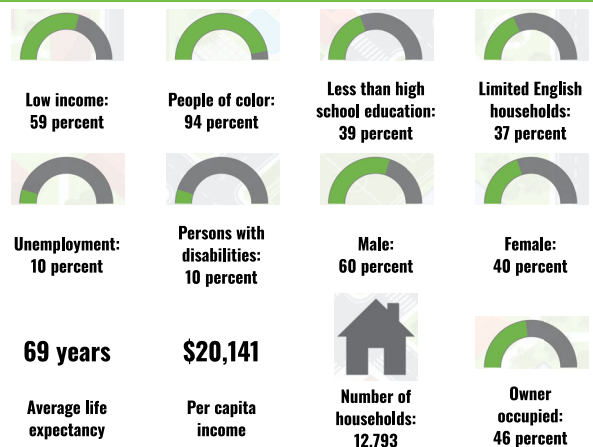
Area in square miles: 3.14



September 14, 2023
Collateral Channel
Search Result (point)

1:18,056
0 0.15 0.3 0.45 0.6 mi
0 0.25 0.5 0.75 1.0 km
Data: Community Maps Contributors, City of Chicago, Esri, HERE, DeLorme, Intermap, SwireHella, Inc., NAVTEQ, USGS, EPA, NPS, US Census Bureau, USDA

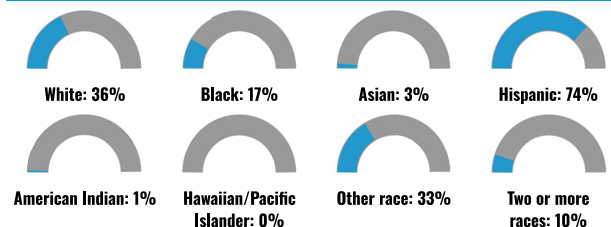
COMMUNITY INFORMATION



LANGUAGES SPOKEN AT HOME

LANGUAGE	PERCENT
English	29%
Spanish	67%
Chinese (including Mandarin, Cantonese)	3%
Total Non-English	71%

BREAKDOWN BY RACE



BREAKDOWN BY AGE



LIMITED ENGLISH SPEAKING BREAKDOWN



Notes: Numbers may not sum to totals due to rounding. Hispanic population can be of any race. Source: U.S. Census Bureau, American Community Survey (ACS) 2017-2021. Life expectancy data comes from the Centers for Disease Control.

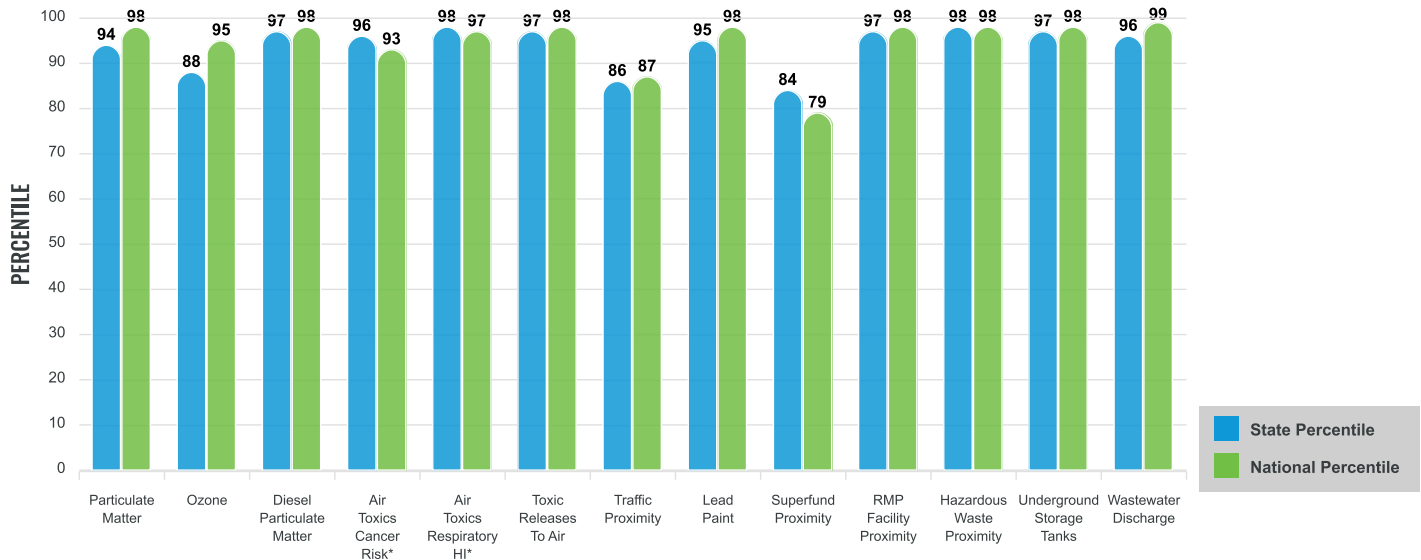
Environmental Justice & Supplemental Indexes

The environmental justice and supplemental indexes are a combination of environmental and socioeconomic information. There are thirteen EJ indexes and supplemental indexes in EJScreen reflecting the 13 environmental indicators. The indexes for a selected area are compared to those for all other locations in the state or nation. For more information and calculation details on the EJ and supplemental indexes, please visit the [EJScreen website](#).

EJ INDEXES

The EJ indexes help users screen for potential EJ concerns. To do this, the EJ index combines data on low income and people of color populations with a single environmental indicator.

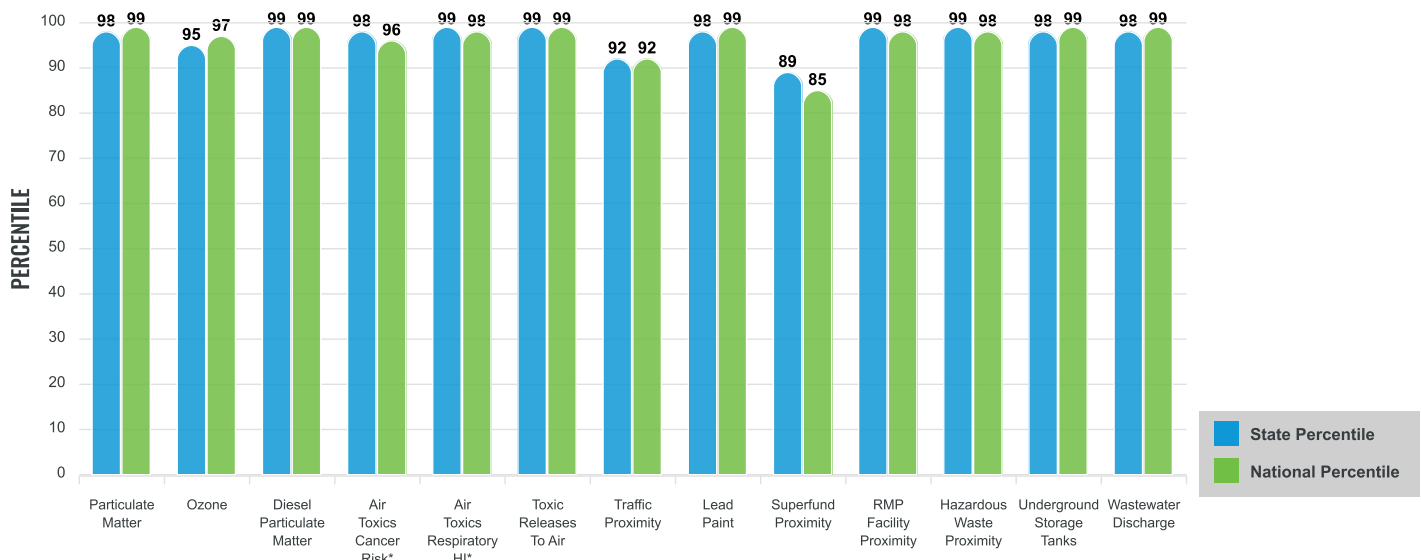
EJ INDEXES FOR THE SELECTED LOCATION



SUPPLEMENTAL INDEXES

The supplemental indexes offer a different perspective on community-level vulnerability. They combine data on percent low-income, percent linguistically isolated, percent less than high school education, percent unemployed, and low life expectancy with a single environmental indicator.

SUPPLEMENTAL INDEXES FOR THE SELECTED LOCATION



These percentiles provide perspective on how the selected block group or buffer area compares to the entire state or nation.

Report for 1 mile Ring Centered at 41.837170,-87.702041

EJScreen Environmental and Socioeconomic Indicators Data

SELECTED VARIABLES	VALUE	STATE AVERAGE	PERCENTILE IN STATE	USA AVERAGE	PERCENTILE IN USA
POLLUTION AND SOURCES					
Particulate Matter ($\mu\text{g}/\text{m}^3$)	10.2	9.44	81	8.08	93
Ozone (ppb)	65.4	63.6	60	61.6	77
Diesel Particulate Matter ($\mu\text{g}/\text{m}^3$)	0.619	0.358	93	0.261	95
Air Toxics Cancer Risk* (lifetime risk per million)	30	24	68	25	52
Air Toxics Respiratory HI*	0.43	0.29	78	0.31	70
Toxic Releases to Air	12,000	6,000	92	4,600	94
Traffic Proximity (daily traffic count/distance to road)	170	200	72	210	71
Lead Paint (% Pre-1960 Housing)	0.76	0.44	82	0.3	89
Superfund Proximity (site count/km distance)	0.047	0.095	47	0.13	41
RMP Facility Proximity (facility count/km distance)	2.7	0.72	95	0.43	98
Hazardous Waste Proximity (facility count/km distance)	7.5	1.7	96	1.9	93
Underground Storage Tanks (count/km ²)	26	8.6	92	3.9	97
Wastewater Discharge (toxicity-weighted concentration/m distance)	12	38	85	22	97
SOCIOECONOMIC INDICATORS					
Demographic Index	77%	34%	94	35%	94
Supplemental Demographic Index	33%	14%	98	14%	96
People of Color	94%	39%	89	39%	91
Low Income	59%	29%	90	31%	88
Unemployment Rate	10%	7%	79	6%	82
Limited English Speaking Households	37%	4%	99	5%	97
Less Than High School Education	39%	11%	97	12%	96
Under Age 5	5%	6%	53	6%	55
Over Age 64	11%	17%	28	17%	29
Low Life Expectancy	18%	20%	38	20%	39

*Diesel particulate matter, air toxics cancer risk, and air toxics respiratory hazard index are from the EPA's Air Toxics Data Update, which is the Agency's ongoing, comprehensive evaluation of air toxics in the United States. This effort aims to prioritize air toxics, emission sources, and locations of interest for further study. It is important to remember that the air toxics data presented here provide broad estimates of health risks over geographic areas of the country, not definitive risks to specific individuals or locations. Cancer risks and hazard indices from the Air Toxics Data Update are reported to one significant figure and any additional significant figures here are due to rounding. More information on the Air Toxics Data Update can be found at: <https://www.epa.gov/haps/air-toxics-data-update>.

Sites reporting to EPA within defined area:

Superfund	0
Hazardous Waste, Treatment, Storage, and Disposal Facilities	2
Water Dischargers	6
Air Pollution	79
Brownfields	2
Toxic Release Inventory	18

Other community features within defined area:

Schools	14
Hospitals	0
Places of Worship	14

Other environmental data:

Air Non-attainment	Yes
Impaired Waters	Yes

Selected location contains American Indian Reservation Lands*	No
Selected location contains a "Justice40 (CEJST)" disadvantaged community	Yes
Selected location contains an EPA IRA disadvantaged community	Yes

Report for 1 mile Ring Centered at 41.837170,-87.702041

EJScreen Environmental and Socioeconomic Indicators Data

HEALTH INDICATORS					
INDICATOR	HEALTH VALUE	STATE AVERAGE	STATE PERCENTILE	US AVERAGE	US PERCENTILE
Low Life Expectancy	18%	20%	38	20%	39
Heart Disease	5.1	5.7	33	6.1	28
Asthma	10.1	9.7	70	10	55
Cancer	2.9	6.1	1	6.1	2
Persons with Disabilities	11.6%	12.1%	52	13.4%	43

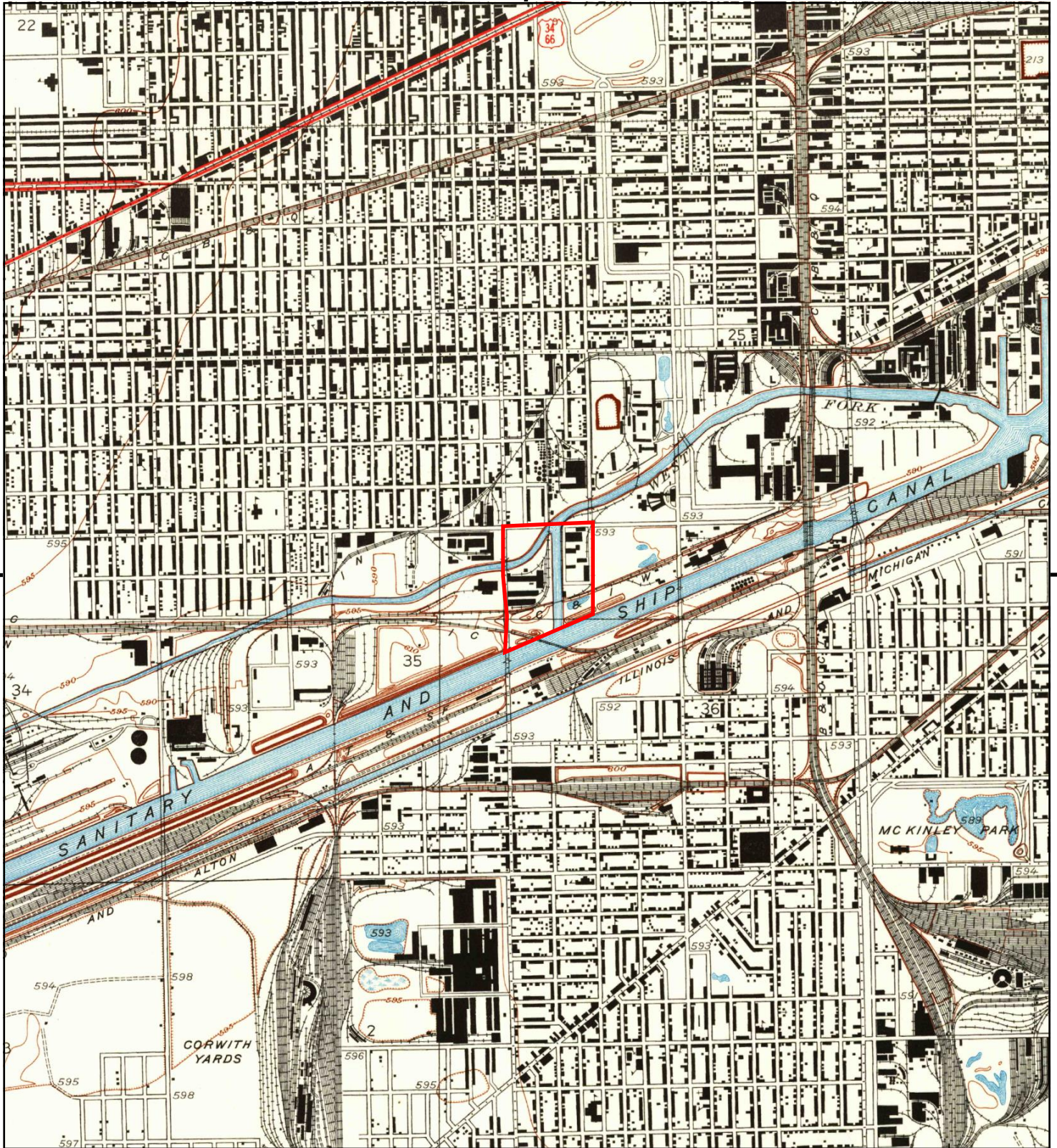
CLIMATE INDICATORS					
INDICATOR	HEALTH VALUE	STATE AVERAGE	STATE PERCENTILE	US AVERAGE	US PERCENTILE
Flood Risk	38%	11%	94	12%	93
Wildfire Risk	0%	0%	0	14%	0

CRITICAL SERVICE GAPS					
INDICATOR	HEALTH VALUE	STATE AVERAGE	STATE PERCENTILE	US AVERAGE	US PERCENTILE
Broadband Internet	21%	14%	78	14%	77
Lack of Health Insurance	21%	7%	97	9%	92
Housing Burden	Yes	N/A	N/A	N/A	N/A
Transportation Access	Yes	N/A	N/A	N/A	N/A
Food Desert	No	N/A	N/A	N/A	N/A

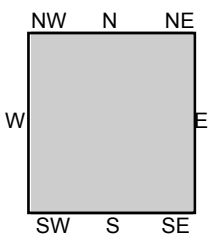
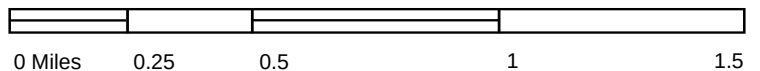
Footnotes

Report for 1 mile Ring Centered at 41.837170,-87.702041

ATTACHMENT 3. 1929 TOPOGRAPHIC MAP



This report includes information from the following map sheet(s).



TP, Englewood, 1929, 7.5-minute

SITE NAME: Collateral Channel
 ADDRESS: 3201 S Kedzie
 Chicago, IL 60623
 CLIENT: Tetra Tech EM, Inc.



ATTACHMENT 4. CELOTEX SOIL DATA

TABLE 3.1
 CONSTITUENTS OF POTENTIAL CONCERN (COPC) SUMMARY (1)
 SOIL (MG/KG)

MAIN SITE RISK ASSESSMENT
 2800 SOUTH SACRAMENTO AVENUE SITE
 CHICAGO, ILLINOIS

Class	Constituent	CAS Number	(0-0.5 ft)		(0-10 ft)		(0-20 ft)	
			Maximum Detected Concentration	Exposure Point Concentration	Maximum Detected Concentration	Exposure Point Concentration	Maximum Detected Concentration	Exposure Point Concentration
Volatiles	Benzene	71432	--	--	5.70E+01	2.01E+00	5.70E+01	2.48E+00
Semi-Volatiles	Carbazole	86748	5.40E+01	4.25E+00	2.20E+02	1.62E+01	2.20E+02	1.66E+01
	Dibenzofuran	132649	8.20E+01	6.18E+00	1.50E+02	1.35E+01	1.50E+02	1.64E+01
PAHs	2-Methylnaphthalene	91576	--	--	3.50E+03	1.10E+02	3.50E+03	1.05E+02
	Acenaphthene	83329	--	--	1.80E+03	8.36E+01	1.80E+03	7.67E+01
	Anthracene	120127	--	--	2.40E+03	9.65E+01	2.40E+03	9.54E+01
	Benzo(a)Anthracene	56553	9.60E+01	8.92E+00	2.80E+03	1.30E+02	2.80E+03	1.12E+02
	Benzo(a)pyrene	50328	1.00E+02	8.09E+00	2.40E+03	1.16E+02	2.40E+03	9.94E+01
	Benzo(b)fluoranthene	205992	1.30E+02	1.34E+01	2.60E+03	1.26E+02	2.60E+03	1.11E+02
	Benzo(g,h,i)perylene	191242	--	--	9.60E+02	5.09E+01	9.60E+02	4.33E+01
	Benzo(k)fluoranthene	207089	5.90E+01	4.73E+00	1.40E+03	6.34E+01	1.40E+03	5.39E+01
	Chrysene	218019	9.80E+01	9.98E+00	3.90E+03	1.49E+02	3.90E+03	1.28E+02
	Dibenz(a,h)anthracene	53703	1.20E+01	1.25E+00	2.10E+02	1.41E+01	2.10E+02	1.44E+01
	Fluoranthene	206440	--	--	6.70E+03	3.13E+02	6.70E+03	2.66E+02
	Fluorene	86737	--	--	1.00E+03	6.61E+01	1.00E+03	6.12E+01
	Indeno(1,2,3-cd)pyrene	193395	4.30E+01	4.35E+00	9.00E+02	4.95E+01	9.00E+02	4.35E+01
	Naphthalene	91203	--	--	2.90E+03	1.59E+02	2.90E+03	1.78E+02
	Phenanthrene	85018	3.50E+02	1.39E+01	8.10E+03	3.46E+02	8.10E+03	3.19E+02
	Pyrene	129000	--	--	5.20E+03	2.50E+02	5.20E+03	2.15E+02
Metals	Arsenic	7440382	4.07E+01	1.10E+01	8.64E+01	1.15E+01	1.04E+02	1.24E+01
	Barium	7440393	2.22E+03	1.77E+02	2.22E+03	1.12E+02	2.22E+03	1.06E+02
	Cadmium	7440439	1.56E+01	2.03E+00	3.64E+01	2.34E+00	3.64E+01	2.06E+00
	Chromium	7440473	3.19E+02	4.23E+01	3.69E+02	4.01E+01	3.69E+02	3.72E+01
	Lead	7439921	1.61E+03	1.57E+02	1.61E+03	1.10E+02	2.68E+03	1.26E+02
	Mercury	7439976	--	--	--	--	2.71E+01	6.94E-01
Pesticides/PCBs	Aroclor-1254	11097691	4.40E+00	4.11E-01	4.40E+00	4.36E-01	4.40E+00	3.97E-01
	Dieldrin	60571	1.40E-01	1.69E-02	1.40E-01	1.88E-02	1.40E-01	1.81E-02

The maximum detected concentration is used in the screening process and the exposure point concentration is used in the quantitative human health risk assessment.

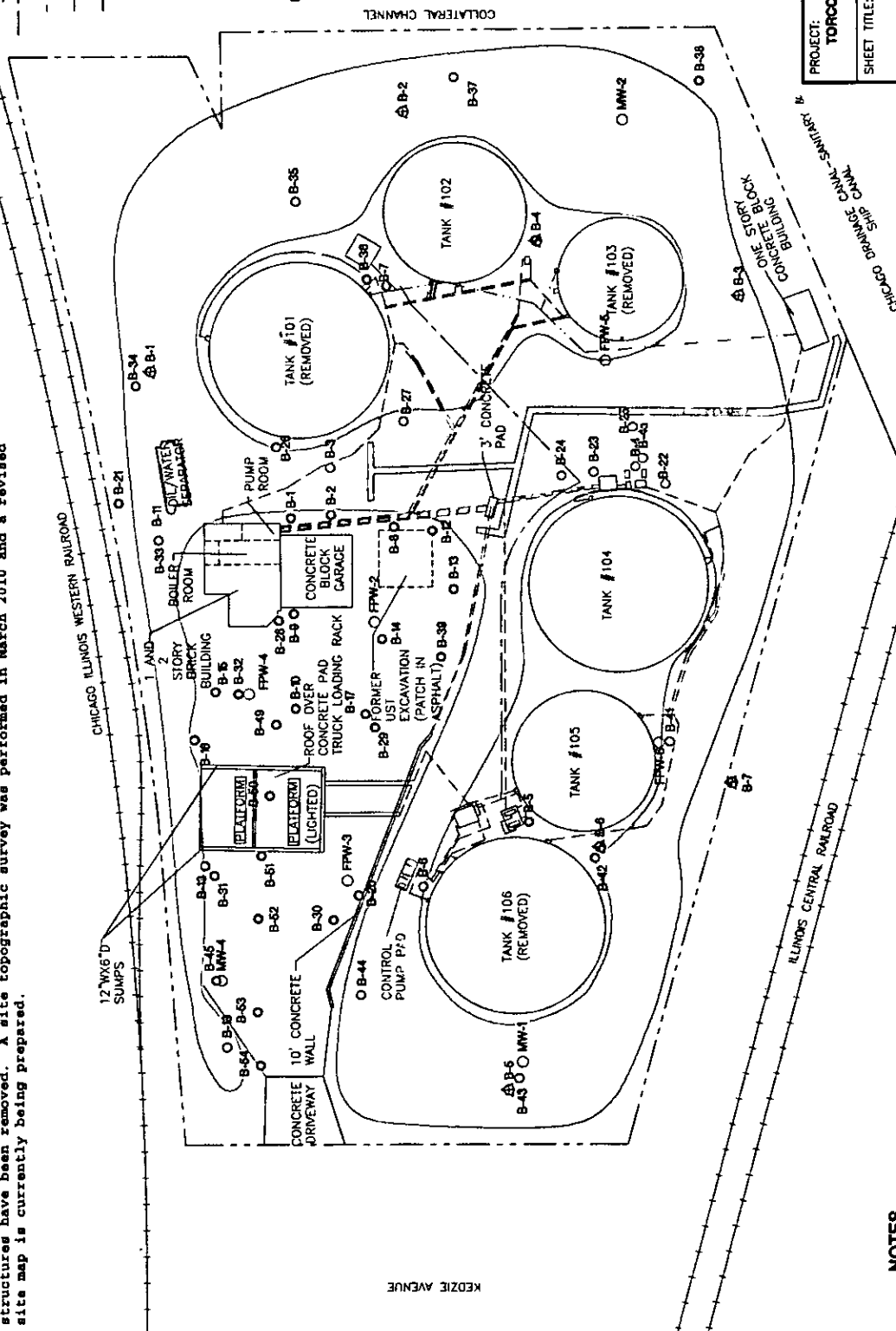
ATTACHMENT 5. APEX/TORCO OIL SITE MAP

This map shows conditions as of February 2007. Since that time, all tanks and most above ground structures have been removed. A site topographic survey was performed in March 2010 and a revised site map is currently being prepared.

LEGEND

- PROPERTY LINE
- ABOVE GROUND PIPING
- UNDERGROUND PIPING
- DRAINAGE TILE
- CONTAINMENT BERM

- BORING LOCATION (MARCH 1998 ENHARC GEOTECHNICAL BERM INVESTIGATION)
- BORING LOCATION (JUNE 1999 OR JUNE 2001 ENHARC ENVIRONMENTAL SITE INVESTIGATION)
- FREE PRODUCT WELL (NOVEMBER 2006 RMT PHASE 2 ESI)
- SOIL BORING (NOVEMBER 2006 RMT PHASE 2 ESI)
- GROUNDWATER MONITORING WELL (NOVEMBER 2006 RMT PHASE 2 ESI)



0 60 120
SCALE: 1" = 60'

PROJECT: FORMER APEX MOTOR FUELS/TORCO OIL CO. - 3301 SOUTH KEDZIE AVENUE
CHICAGO, ILLINOIS 60623

SHEET TITLE: SITE MAP

DRAWN BY: VELT	SCALE: 1" = 60'	PROJ. NO. 05492.22
CHECKED BY:	FILE NO. 56922203.DWG	
APPROVED BY:	DATE PRINTED:	FIGURE 2
DATE: FEBRUARY 2007		

744 Herford Trail
Morton, IL 61550-1824
P.O. Box 8822, 53708-8823
Phone: 815-431-1444
Fax: 815-431-1304

RMI.

NOTES

1. SITE BASEMAP PREPARED BASED ON TORCO OIL/APEX TERMINAL KEDZIE AVE., CHICAGO, IL. SITE PLAN, DATED JANUARY 29, 1997. PREPARED BY MORRIS ENGINEERING, INC. FOR ENHARC.

ATTACHMENT 6. SEDIMENT SAMPLES FROM 2018 HBK ENGINEERING REPORT

Appendix A

Comparative Sediment Constituent Data

Stickney WRP and Collateral Channel Constituent Analysis

HBK Job Number A16-0072-07

Date: 1/20/2018

By: Dyerkes

Color Legend:

Constituents found in HBK pilot project sampling event
Constituents found in MWRD Stickney Influent or digester sampling events

COLLATERAL CHANNEL ENVIRONMENTAL SAMPLING				MONITORING OF ORGANIC PRIORITY POLLUTANTS IN STICKNEY WRP SAMPLES									
Compound	µg/kg (ppb) MWRD 1994	µg/kg (ppb) MWRD 2005	µg/kg (ppb) IEPA 1995	µg/L (ppb) TO-7 Pilot 12/22/2017	Reporting Limit µg/L (ppb)	Effluent (All Dates)	Southwest Raw Sewage 1/14/2014	West Side Raw Sewage 1/14/2014	Southwest Raw Sewage 1/13/2015	West Side Raw Sewage 1/13/2015	Southwest Raw Sewage 1/12/2016	West Side Raw Sewage 1/12/2016	Reporting Limit µg/kg (ppb)
PURGEABLES													
1 Acrolein				U	50	—	—	—	—	—	—	—	250
2 Acrylonitrile				U	10	—	—	—	—	—	—	—	50
3 Benzene				U	2	—	—	—	—	—	—	—	10
4 Bromoform				U	2	—	—	—	—	—	—	—	10
5 Carbon tetrachloride				U	2	—	—	—	—	—	—	—	10
6 Chlorobenzene				U	2	—	—	—	—	—	—	—	10
7 Chlorobromomethane				U	2	—	—	—	—	—	—	—	10
8 Chloroethane				U	4	—	—	—	—	—	—	—	20
9 2-Chloroethylvinyl ether				U	2	—	—	—	—	—	—	—	10
10 Chloroform				U	2	—	—	—	—	—	—	—	10
11 1,2-Dichlorobenzene			bdl	U	3	—	—	—	—	—	2.0	—	15
12 1,3-Dichlorobenzene			bdl	U	3	—	—	—	—	—	—	—	15
13 1,4-Dichlorobenzene			bdl	U	3	—	—	—	—	—	—	—	15
14 Dichlorobromomethane				U	2	—	—	—	—	—	—	—	10
15 1,1-Dichloroethane				U	2	—	—	—	—	—	—	—	10
16 1,2-Dichloroethane				U	2	—	—	—	—	—	—	—	10
17 1,1-Dichloroethylene				U	3	—	—	—	—	—	—	—	15
18 1,2-Dichloropropane				U	2	—	—	—	—	—	—	—	10
19 1,3-Dichloropropene				U	0.3	—	—	—	—	—	—	—	10
20 Ethyl benzene				18.7	2	—	—	—	—	—	—	—	10
21 Methyl bromide					5	—	—	—	—	—	—	—	25
22 Methyl chloride					3	—	—	—	—	—	—	—	15
23 Methylene chloride				U	2	—	—	—	—	—	—	—	10
24 1,1,2,2-Tetrachloroethane				U	3	—	—	—	—	—	—	—	15
25 Tetrachloroethylene				U	2	—	—	—	—	—	—	—	10
26 Toluene				5.76	2	—	8.3	—	5.3	5.0	14.0	2.8	10
27 1,2-trans-Dichloroethylene					2	—	—	—	—	—	—	—	10
28 1,1,1-Trichloroethane				U	2	—	—	—	—	—	—	—	10
29 1,1,2-Trichloroethane				U	2	—	—	—	—	—	—	—	10
30 Trichloroethylene				U	2	—	—	—	—	—	—	—	10
31 Trichlorofluoromethane				U	4	—	—	—	—	—	—	—	20
32 Vinyl chloride				U	0.3	—	—	—	—	—	—	—	15
33 Xylenes (total)				19.5		—	—	—	—	—	—	—	
ACID EXTRACTABLES													
1 2-Chlorophenol					6	—	—	—	—	—	—	—	120
2 2,4-Dichlorophenol					4	—	—	—	—	—	—	—	80
3 2,4-Dimethylphenol					4	—	—	—	—	—	—	—	80
4 4,6-Dinitro-o-cresol					25	—	—	—	—	—	—	—	500
5 2,4-Dinitrophenol					30	—	—	—	—	—	—	—	600
6 2-Nitrophenol					4	—	—	—	—	—	—	—	80
7 4-Nitrophenol					20	—	—	—	—	—	—	—	400
8 p-Chloro-m-cresol					4	—	—	—	—	—	—	—	80
9 Pentachlorophenol					30	—	—	—	—	—	—	—	600
10 Phenol			bdl		4	—	—	—	—	—	—	—	80
11 2,4,6-Trichlorophenol					6	—	—	—	—	—	—	—	120
BASE/NEUTRAL EXTRACTABLES													
1 Acenaphthene			6391	1810	4	—	—	—	—	—	—	—	80
2 Acenaphthylene				17.1	5	—	—	—	—	—	—	—	100
3 Anthracene	34000	11500		684	3	—	—	—	—	—	—	—	60

ATTACHMENT 7. 1995 MWRD SAMPLING DATA



State of Illinois

ENVIRONMENTAL PROTECTION AGENCY

Mary A. Gade, Director

1701 First Avenue, Maywood, IL 60153

MEMORANDUM

DATE: May 16, 1995

TO: Bruce Yurdin, BOW/DWPC/Permits

FROM: Rob Sulski, DWPC/FOS-Maywood

SUBJECT: MWRDGC Dredging of "Bubbly Creek" and Collateral Channel.

cc. DWPC/Permits, A. Keller
File - MWRDGC-Waterways
RBS

JP

5/29/95

RBS

Greg Cargill called me to say the District has internally discussed concluding a study and performing work on dredging Bubbly Creek in 1996 and doing the same on Collateral Channel in 1997. The plan to cap Collateral Channel is expected to cost about a million dollars, he added. He agreed to send me a Plan of Study.

Attached is a copy of MWRD's screening sample results on the subject waterways

RBS/wpdocs\mwrddrdg.mmo

Attachment

25

Protecting Our Water Environment

Metropolitan Water Reclamation District of Greater Chicago

100 EAST ERIE STREET

CHICAGO, ILLINOIS 60611

312 / 751-5600

Cecil Lue-Hing
Director of R&D

312 / 751-5190

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Patricia Young
Harry "Bus" Yourell

fbs

May 8, 1995

Mr. Rob Sulski
Environmental Engineer
Illinois Environmental
Protection Agency
Chicago Area Region
Field Operations Section
1701 S. First Avenue
Maywood, IL 60153

Dear Mr. Sulski:

Subject: Bubbly Creek and Collateral Channel

Please find enclosed ten tables showing the results from the water and sediment quality survey conducted on January 18, 1995 in Bubbly Creek and the Collateral Channel.

If you have any questions, please contact Mr. Irwin Polls at (708) 529-7700, extension 308.

Very truly yours,

R. Lanyon
Richard Lanyon
Assistant Director
Research and Development

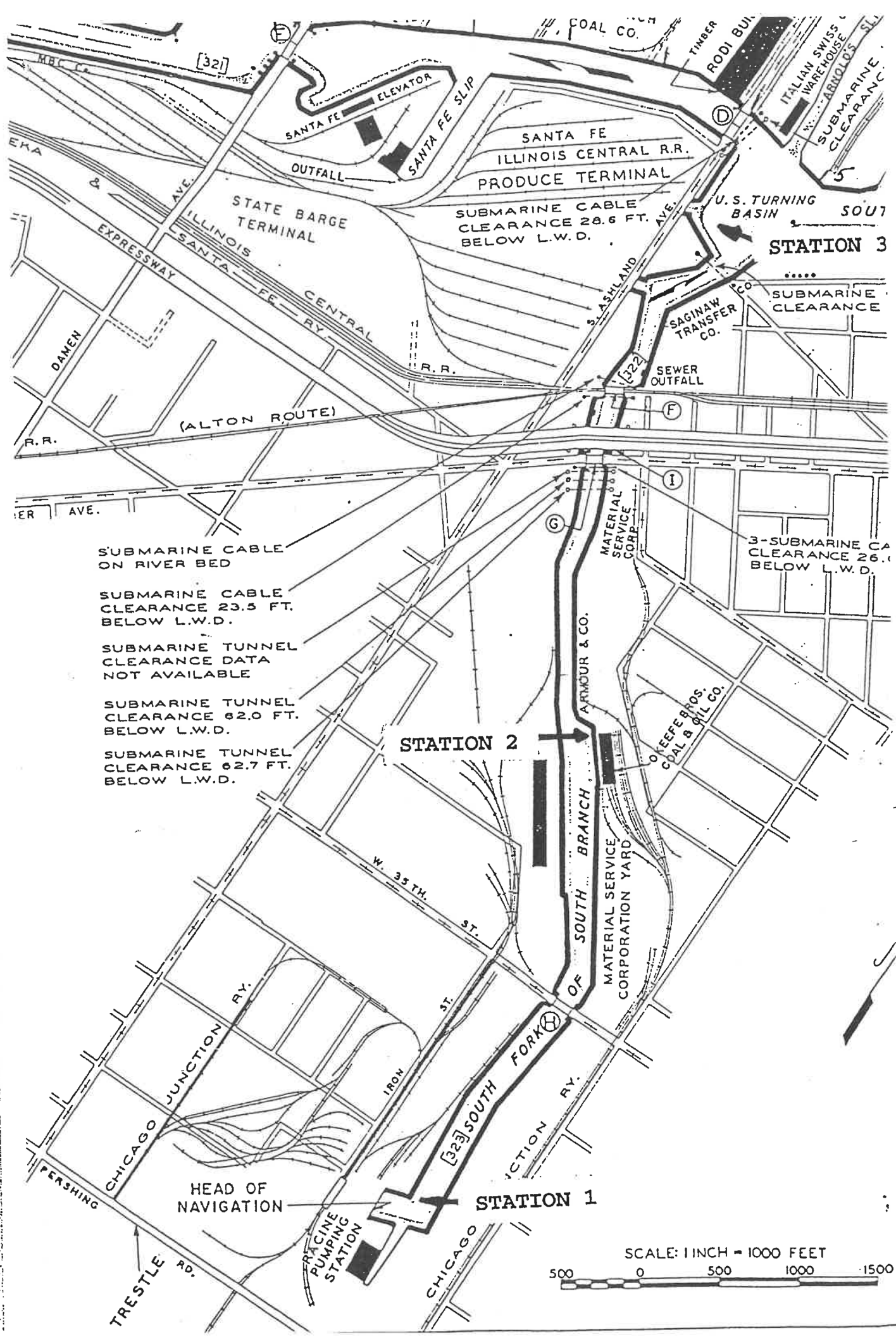
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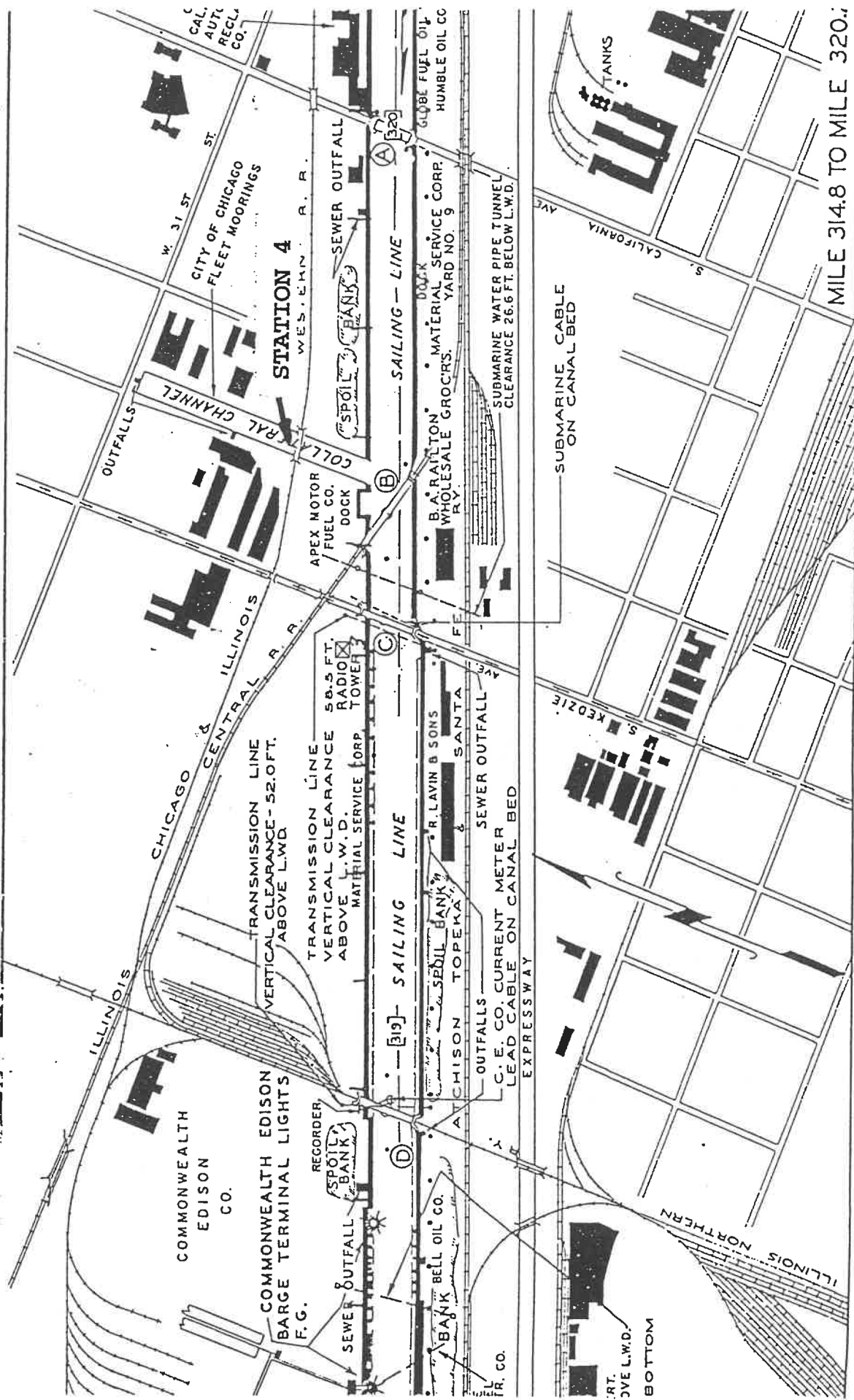
cc: Mr. Polls

RECEIVED
IL ENVIRONMENTAL PROTECTION
AGENCY

MAY 10 1995

DIV. WATER POLLUTION CONTROL
Field Operations Section - Reg. 2





METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 3

WATER QUALITY CHARACTERISTICS
OF THE SOUTH FORK OF THE SOUTH BRANCH OF THE CHICAGO RIVER
JANUARY 18, 1995

Constituents (expressed in mg/L except where noted)	Station 1	Station 2	Station 3	Secondary Contact Standard
pH (units) ¹	6.6	6.7	6.3	6.0-9.0
Dissolved Oxygen	0.8	0.6	5.6	4.0
5-Day Biochemical Oxygen Demand	14	18	5	NS
Total Solids	572	520	518	NS
Total Suspended Solids	16	14	13	NS
Ammonium Nitrogen	3.7	3.3	1.3	NS
Unionized Ammonia	<0.002	<0.002	<0.001	0.1
Fats, Oils and Greases	<4	<4	<4	15.0
Phenols	0.022	0.010	0.005	0.3
Total Cyanide	0.011	0.014	0.008	0.1

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 3 (Continued)

WATER QUALITY CHARACTERISTICS
OF THE SOUTH FORK OF THE SOUTH BRANCH OF THE CHICAGO RIVER
JANUARY 18, 1995

Constituents (expressed in mg/L except where noted)	Station 1	Station 2	Station 3	Secondary Contact Standard
Total Cadmium	<0.01	<0.01	<0.01	0.15
Total Chromium	<0.01	0.01	<0.01	1.3
Total Copper	<0.01	<0.01	<0.01	1.0
Total Iron	0.4	0.4	0.2	2.0
Total Lead	<0.01	0.01	0.01	0.1
Total Mercury	<0.0001	<0.0001	<0.0001	0.0005
Total Zinc	<0.2	<0.2	<0.2	1.0

1Field measurement.

2NS = No standard.

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 4

WATER QUALITY CHARACTERISTICS
OF THE COLLATERAL CHANNEL
JANUARY 18, 1995

Constituents (expressed in mg/L except where noted)	Station 4	Secondary Contact Standard
pH (units)	6.2	6.0-9.0
Dissolved Oxygen	1.7	4.0
5-Day Biochemical Oxygen Demand	20	NS
Total Solids	510	NS
Total Suspended Solids	23	NS
Ammonium Nitrogen	0.02	NS
Un-ionized Ammonia	<0.001	0.1
Fats, Oils and Greases	<4	15.0
Phenols	0.006	0.3
Total Cyanide	0.005	0.1
Total Cadmium	<0.01	0.15
Total Chromium	<0.01	1.3
Total Copper	<0.01	1.0
Total Iron	0.5	2.0
Total Lead	0.01	0.1
Total Mercury	0.0001	0.0005
Total Zinc	<0.1	1.0

NS = No water quality standard.

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 5

ORGANIC PRIORITY POLLUTANTS IN WATER
FROM THE SOUTH FORK OF THE SOUTH BRANCH OF THE CHICAGO RIVER
JANUARY 18, 1995

Priority Pollutants (expressed as µg/L)	Station 1	Station 2	Station 3
<u>Volatiles</u>			
Chloromethane	<1.0	<1.0	<1.0
Bromomethane	<3.5	<3.5	<3.5
Vinyl chloride	<0.7	<0.7	<0.7
Chloroethane	<1.7	<1.7	<1.7
Methylene chloride	<0.8	<0.8	<0.8
Acetone	151.1	141.0	47.9
Carbon disulfide	<1.0	<1.0	<1.0
1,1,-Dichloroethene	<0.6	<0.6	<0.6
1,1,-Dichloroethane	<0.6	<0.6	<0.6
1,2,-Dichloroethene (total)	<0.6	0.9	<0.6
Chloroform	1.8	1.5	<0.7
1,2-Dichloroethane	<1.6	<1.6	<1.6
2-Butanone	<4.6	<4.6	<4.6
1,1,1-Trichloroethane	<0.7	<0.7	<0.7
Carbon tetrachloride	<0.6	<0.6	<0.6
Bromodichloromethane	<0.7	<0.7	<0.7
1,2-Dichloropropane	<0.8	<0.8	<0.8
cis-1,3-Dichloropropene	<1.7	<1.7	<1.7
Trichloroethene	0.8	0.8	<0.6
Dibromochloromethane	<1.8	<1.8	<1.8
1,1,2-Trichloroethane	<2.5	<2.5	<2.5

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 5 (Continued)

ORGANIC PRIORITY POLLUTANTS IN WATER
FROM THE SOUTH FORK OF THE SOUTH BRANCH OF THE CHICAGO RIVER
JANUARY 18, 1995

Priority Pollutants (expressed as µg/L)	Station 1	Station 2	Station 3
<u>Volatiles (Continued)</u>			
Benzene	<0.7	<0.7	<0.7
trans-1,3-Dichloropropene	<0.9	<0.9	<0.9
Bromoform	<4.0	<4.0	<4.0
4-Methyl-2-pentanone	<3.5	<3.5	<3.5
2-Hexanone	<4.6	<4.6	<4.6
Tetrachloroethene	2.6	2.2	2.5
Toluene	<1.8	<1.8	<1.8
1,1,2,2-Tetrachloroethane	<3.9	<3.9	<3.9
Chlorobenzene	<0.6	<0.6	<0.6
Ethyl benzene	<0.6	<0.6	<0.6
Styrene	<1.5	<1.5	<1.5
Xylenes (total)	1.2	<1.0	<1.0
<u>Semivolatiles</u>			
Phenol	<1.5	<1.5	<1.5
Bis(2-chloroethyl) ether	<2.6	<2.6	<2.6
2-Chlorophenol	<2.3	<2.3	<2.3
1,3-Dichlorobenzene	<1.8	<1.8	<1.8
1,4-Dichlorobenzene	<1.8	<1.8	<1.8

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 5 (Continued)

ORGANIC PRIORITY POLLUTANTS IN WATER
FROM THE SOUTH FORK OF THE SOUTH BRANCH OF THE CHICAGO RIVER
JANUARY 18, 1995

Priority Pollutants (expressed as µg/L)	Station 1	Station 2	Station 3
<u>Semivolatiles (Continued)</u>			
1,2-Dichlorobenzene	<1.8	<1.8	<1.8
2-Methylphenol	<5.0	<5.0	<5.0
Bis (2-chloroisopropyl) ether	<2.0	<2.0	<2.0
4-Methylphenol	<5.0	<5.0	<5.0
N-Nitroso-di-n-propylamine	<1.8	<1.8	<1.8
Hexachloroethane	<1.6	<1.6	<1.6
Nitrobenzene	<3.7	<3.7	<3.7
Isophorone	<1.4	<1.4	<1.4
2-Nitrophenol	<1.9	<1.9	<1.9
2,4-Dimethylphenol	<6.4	<6.4	<6.4
Bis (2-chloroethoxy)methane	<1.8	<1.8	<1.8
2,4-Dichlorophenol	<2.0	<2.0	<2.0
1,2,4-Trichlorobenzene	<1.6	<1.6	<1.6
Naphthalene	<1.6	<1.6	<1.6
4-Chloraniline	<2.0	<2.0	<2.0
Hexachlorobutadiene	<1.7	<1.7	<1.7
4-Chloro-3-methylphenol	<1.7	<1.7	<1.7
2-Methylnaphthalene	<5.0	<5.0	<5.0
Hexachlorocyclopentadiene	<3.4	<3.4	<3.4
2,4,6-Trichlorophenol	<1.4	<1.4	<1.4
2,4,5-Trichlorophenol	<4.0	<4.0	<4.0

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 5 (Continued)

ORGANIC PRIORITY POLLUTANTS IN WATER
FROM THE SOUTH FORK OF THE SOUTH BRANCH OF THE CHICAGO RIVER
JANUARY 18, 1995

Priority Pollutants (expressed as µg/L)	Station 1	Station 2	Station 3
<u>Semivolatiles (Continued)</u>			
2-Chloronaphthalene	<1.1	<1.1	<1.1
2-Nitroaniline	<3.0	<3.0	<3.0
Dimethyl phthalate	<1.9	<1.9	<1.9
Acenaphthylene	<1.0	<1.0	<1.0
2,6-Dinitrotoluene	<1.2	<1.2	<1.2
3-Nitroaniline	<3.0	<3.0	<3.0
Acenaphthene	<1.2	<1.2	<1.2
2,4-Dinitrophenol	<20.0	<20.0	<20.0
4-Nitrophenol	<6.2	<6.2	<6.2
Dibenzofuran	<2.0	<2.0	<2.0
2,4,-Dinitrotoluene	<1.4	<1.4	<1.4
Diethyl phthalate	<3.2	<3.2	<3.2
4-Chlorophenyl phenyl ether	<1.1	<1.1	<1.1
Fluorene	<1.5	<1.5	<1.5
4-Nitroaniline	<2.2	<2.2	<2.2
4,6-Dinitro-2-methylphenol	<15.0	<15.0	<15.0
N-Nitrosodiphenylamine	<1.5	<1.5	<1.5
4-Bromophenyl-phenyl ether	<1.7	<1.7	<1.7
Hexachlorobenzene	<1.8	<1.8	<1.8
Pentachlorophenol	<14.5	<14.5	<14.5
Phenanthrene	<1.3	<1.3	<1.3

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 5 (Continued)

ORGANIC PRIORITY POLLUTANTS IN WATER
FROM THE SOUTH FORK OF THE SOUTH BRANCH OF THE CHICAGO RIVER
JANUARY 18, 1995

Priority Pollutants (expressed as µg/L)	Station 1	Station 2	Station 3
<u>Semivolatiles (Continued)</u>			
Anthracene	<1.2	<1.2	<1.2
Carbazole	<5.0	<5.0	<5.0
Di-n-butyl phthalate	<1.4	<1.4	<1.4
Fluoranthene	<1.5	<1.5	<1.5
Pyrene	<4.6	<4.6	<4.6
Butyl benzyl phthalate	<2.5	<2.5	<2.5
3,3'-Dichlorobenzidine	<10.0	<10.0	<10.0
Benzo (a) anthracene	<1.4	<1.4	<1.4
Chrysene	<1.5	<1.5	<1.5
Bis (2-ethylhexyl) phthalate	<15.0	<15.0	<15.0
Di-n-octyl phthalate	<2.7	<2.7	<2.7
Benzo (b) fluoranthene	<2.0	<2.0	<2.0
Benzo (k) fluoranthene	<2.2	<2.2	<2.2
Benzo (a) pyrene	<1.6	<1.6	<1.6
Indeno (1,2,3-cd) pyrene	<3.0	<3.0	<3.0
Dibenzo (a,h) anthracene	<3.7	<3.7	<3.7
Benzo (ghi) perylene	<4.0	<4.0	<4.0

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 5 (Continued)

ORGANIC PRIORITY POLLUTANTS IN WATER
FROM THE SOUTH FORK OF THE SOUTH BRANCH OF THE CHICAGO RIVER
JANUARY 18, 1995

Priority Pollutants (expressed as µg/L)	Station 1	Station 2	Station 3
<u>Pesticides and PCBs</u>			
α-BHC	<0.02	<0.02	<0.02
β-BHC	<0.03	<0.03	<0.03
γ-BHC (Lindane)	<0.02	<0.02	<0.02
Δ-BHC	<0.02	<0.02	<0.02
Heptachlor	<0.02	<0.02	<0.02
Aldrin	<0.02	<0.02	<0.02
Heptachlor epoxide	<0.02	<0.02	<0.02
α-Endosulfan	<0.04	<0.04	<0.04
Dieldrin	<0.04	<0.04	<0.04
4,4'-DDE	<0.04	<0.04	<0.04
Endrin	<0.10	<0.10	<0.10
β-Endosulfan	<0.10	<0.10	<0.10
4,4'-DDD	<0.05	<0.05	<0.05
Endosulfan sulfate	<0.10	<0.10	<0.10
4,4'-DDT	<0.10	<0.10	<0.10
Methoxychlor	<0.50	<0.50	<0.50
Endrin ketone	<0.10	<0.10	<0.10
Endrin aldehyde	<0.10	<0.10	<0.10
α-Chlordane	<0.05	<0.05	<0.05
γ-Chlordane	<0.05	<0.05	<0.05
Toxaphene	<0.25	<0.25	<0.25

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 5 (Continued)

ORGANIC PRIORITY POLLUTANTS IN WATER
FROM THE SOUTH FORK OF THE SOUTH BRANCH OF THE CHICAGO RIVER
JANUARY 18, 1995

Priority Pollutants (expressed as µg/L)	Station 1	Station 2	Station 3
<u>Pesticides and PCBs (Continued)</u>			
PCB-1016	<0.20	<0.20	<0.20
PCB-1221	<0.20	<0.20	<0.20
PCB-1232	<0.20	<0.20	<0.20
PCB-1242	<0.20	<0.20	<0.20
PCB-1248	<0.20	<0.20	<0.20
PCB-1254	<0.20	<0.20	<0.20
PCB-1260	<0.20	<0.20	<0.20

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 6

ORGANIC PRIORITY POLLUTANTS IN WATER
FROM THE COLLATERAL CHANNEL
JANUARY 18, 1995

Priority Pollutants (expressed as µg/L)	Station 4
<u>Volatiles</u>	
Chloromethane	<1.0
Bromomethane	<3.5
Vinyl chloride	<0.7
Chloroethane	<1.7
Methylene chloride	<0.8
Acetone	23.5
Carbon disulfide	<1.0
1,1,-Dichloroethene	<0.6
1,1,-Dichloroethane	<0.6
1,2,-Dichloroethene (total)	<0.6
Chloroform	<0.7
1,2-Dichloroethane	<1.6
2-Butanone	<4.6
1,1,1-Trichloroethane	<0.7
Carbon tetrachloride	<0.6
Bromodichloromethane	<0.7
1,2-Dichloropropane	<0.8
cis-1,3-Dichloropropene	<1.7
Trichloroethene	0.8
Dibromochloromethane	<1.8
1,1,2-Trichloroethane	<2.5
Benzene	<0.7
trans-1,3-Dichloropropene	<0.9
Bromoform	<4.0
4-Methyl-2-pentanone	<3.5
2-Hexanone	<4.6
Tetrachloroethene	5.0
Toluene	<1.8
1,1,2,2-Tetrachloroethane	<3.9
Chlorobenzene	<0.6
Ethyl benzene	<0.6
Styrene	<1.5
Xylenes (total)	<1.0

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 6 (Continued)

ORGANIC PRIORITY POLLUTANTS IN WATER
FROM THE COLLATERAL CHANNEL
JANUARY 18, 1995

Priority Pollutants (expressed as µg/L)	Station 4
<u>Semivolatiles</u>	
Phenol	<1.5
Bis (2-chloroethyl) ether	<2.6
2-Chlorophenol	<2.3
1,3-Dichlorobenzene	<1.8
1,4-Dichlorobenzene	<1.8
1,2-Dichlorobenzene	<1.8
2-Methylphenol	<5.0
Bis (2-chloroisopropyl) ether	<2.0
4-Methylphenol	<5.0
N-Nitroso-di-n-propylamine	<1.8
Hexachloroethane	<1.6
Nitrobenzene	<3.7
Isophorone	<1.4
2-Nitrophenol	<1.9
2,4-Dimethylphenol	<6.4
Bis(2-chloroethoxy)methane	<1.8
2,4-Dichlorophenol	<2.0
1,2,4-Trichlorobenzene	<1.6
Naphthalene	<1.6
4-Chloraniline	<2.0
Hexachlorobutadiene	<1.7
4-Chloro-3-methylphenol	<1.7
2-Methylnaphthalene	<5.0
Hexachlorocyclopentadiene	<3.4
2,4,6-Trichlorophenol	<1.4
2,4,5-Trichlorophenol	<4.0
2-Chloronaphthalene	<1.1
2-Nitroaniline	<3.0
Dimethyl phthalate	<1.9
Acenaphthylene	<1.0
2,6-Dinitrotoluene	<1.2
3-Nitroaniline	<3.0
Acenaphthene	<1.2
2,4-Dinitrophenol	<20.0

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 6(Continued)

ORGANIC PRIORITY POLLUTANTS IN WATER
FROM THE COLLATERAL CHANNEL
JANUARY 18, 1995

Priority Pollutants (expressed as µg/L)	Station 4
<u>Semivolatiles(Continued)</u>	
4-Nitrophenol	<6.2
Dibenzofuran	<2.0
2,4,-Dinitrotoluene	<1.4
Diethyl phthalate	<3.2
4-Chlorophenyl phenyl ether	<1.1
Fluorene	<1.5
4-Nitroaniline	<2.2
4,6-Dinitro-2-methylphenol	<15.0
N-Nitrosodiphenylamine	<1.5
4-Bromophenyl-phenyl ether	<1.7
Hexachlorobenzene	<1.8
Pentachlorophenol	<14.5
Phenanthrene	<1.3
Anthracene	<1.2
Carbazole	<5.0
Di-n-butyl phthalate	<1.4
Fluoranthene	<1.5
Pyrene	<4.6
Butyl benzyl phthalate	<2.5
3,3'-Dichlorobenzidine	<10.0
Benzo (a) anthracene	<1.4
Chrysene	<1.5
Bis (2-ethylhexyl) phthalate	<15.0
Di-n-octyl phthalate	<2.7
Benzo (b) fluoranthene	<2.0
Benzo (k) fluoranthene	<2.0
Benzo (a) pyrene	<1.6
Indeno (1,2,3-cd) pyrene	<3.0
Dibenzo (a,h) anthracene	<3.7
Benzo (ghi) perylene	<4.0

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 6 (Continued)

ORGANIC PRIORITY POLLUTANTS IN WATER
FROM THE COLLATERAL CHANNEL
JANUARY 18, 1995

Priority Pollutants (expressed as µg/L)	Station 4
<u>Pesticides and PCBs</u>	
α-BHC	<0.02
β-BHC	<0.03
γ-BHC (Lindane)	<0.02
Δ-BHC	<0.02
Heptachlor	<0.02
Aldrin	<0.02
Heptachlor epoxide	<0.02
α-Endosulfan	<0.04
Dieldrin	<0.04
4,4'-DDE	<0.04
Endrin	<0.10
β-Endosulfan	<0.04
4,4'-DDD	<0.05
Endosulfan sulfate	<0.10
4,4'-DDT	<0.10
Methoxychlor	<0.50
Endrin ketone	<0.10
Endrin aldehyde	<0.10
α-Chlordane	<0.05
γ-Chlordane	<0.05
Toxaphene	<0.25
PCB-1016	<0.20
PCB-1221	<0.20
PCB-1232	<0.20
PCB-1242	<0.20
PCB-1248	<0.20
PCB-1254	<0.20
PCB-1260	<0.20

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 7

CHEMICAL CHARACTERISTICS OF SEDIMENT
FROM THE SOUTH FORK OF THE SOUTH BRANCH OF THE CHICAGO RIVER
JANUARY 18, 1995

Constituents (expressed as mg/kg of dry weight except where noted)	Station 1	Station 2	Station 3
Total Solids (%)	70.1	14.5	36.3
Total Volatile Solids (%)	3.2	43.7	23.1
Chemical Oxygen Demand	23,894	1,365,680	344,850
Ammonium Nitrogen	25	642	177
Fats, Oils and Greases	2,800	5,034	7,856
Phenols	0.07	1.08	1.07
Total Cyanide	0.28	0.26	1.20
Total Arsenic	29	74	73
Total Cadmium	1	2	5
Total Chromium	36	46	106
Total Copper	142	207	174
Total Iron	7,800	11,800	14,700
Total Lead	186	8	363
Total Manganese	154	179	220
Total Mercury	0.33	2.60	1.40
Total Nickel	18	35	41
Total Silver	<1	3	5
Total Zinc	381	618	750

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 8

CHEMICAL CHARACTERISTICS OF SEDIMENT
FROM THE COLLATERAL CHANNEL
JANUARY 18, 1995

Constituents (expressed as mg/kg dry weight except where noted)	Station 4
Total Solids (%)	30.6
Total Volatile Solids (%)	14.5
Chemical Oxygen Demand	240,510
Ammonium Nitrogen	202
Fats, Oils and Greases	3,655
Phenols	0.07
Total Cyanide	0.67
Total Arsenic	115
Total Cadmium	21
Total Chromium	175
Total Copper	289
Total Iron	22,300
Total Lead	76
Total Manganese	288
Total Mercury	1.2
Total Nickel	61
Total Silver	7
Total Zinc	1,062

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 9

ORGANIC PRIORITY POLLUTANTS IN SEDIMENT
FROM THE SOUTH FORK OF THE SOUTH BRANCH OF THE CHICAGO RIVER
JANUARY 18, 1995

Priority Pollutants (expressed as µg/kg dry weight)	Station 1	Station 2	Station 3
<u>Volatiles</u>			
Chloromethane	<10	<10	<10
Bromomethane	<10	<10	<10
Vinyl chloride	<10	<10	<10
Chloroethane	<10	<10	<10
Methylene chloride	<10	668	968
Acetone	<10	<10	<10
Carbon disulfide	<10	<10	<10
1,1-Dichloroethene	<10	<10	<10
1,1-Dichloroethane	<10	<10	<10
1,2-Dichloroethene (total)	<10	<10	<10
Chloroform	<10	<10	<10
1,2-Dichloroethane	<10	<10	374
2-Butanone	<10	<10	<10
1,1,1-Trichloroethane	<10	<10	<10
Carbon Tetrachloride	<10	<10	<10
Bromodichloromethane	<10	<10	<10
1,2-Dichloropropane	<10	<10	<10
cis-1,3-Dichloropropene	<10	<10	<10
Trichloroethene	<10	<10	<10
Dibromochloromethane	<10	<10	<10
1,1,2-Trichloroethane	<10	<10	<10

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 9 (Continued)

ORGANIC PRIORITY POLLUTANTS IN SEDIMENT
FROM THE SOUTH FORK OF THE SOUTH BRANCH OF THE CHICAGO RIVER
JANUARY 18, 1995

Priority Pollutants (expressed as µg/kg dry weight)	Station 1	Station 2	Station 3
<u>Volatiles (Continued)</u>			
Benzene	<10	<10	<10
trans-1,3-Dichloropropene	<10	<10	<10
Bromoform	<10	<10	<10
4-Methyl-2-pentanone	<10	<10	<10
2-Hexanone	<10	<10	<10
Tetrachloroethene	<10	<10	3,867
Toluene	<10	<10	<10
1,1,2,2-Tetrachloroethane	<10	<10	<10
Chlorobenzene	<10	<10	<10
Ethyl benzene	<10	<10	<10
Styrene	<10	<10	<10
Xylenes (total)	<10	<10	<10
<u>Semivolatiles</u>			
Phenol	<330	<330	<330
Bis(2-chloroethyl)ether	<330	<330	<330
2-Chlorophenol	<330	<330	<330
1,3-Dichlorobenzene	<330	<330	<330
1,4-Dichlorobenzene	<330	<330	<330
1,2-Dichlorobenzene	<330	<330	<330

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 9 (Continued)

ORGANIC PRIORITY POLLUTANTS IN SEDIMENT
FROM THE SOUTH FORK OF THE SOUTH BRANCH OF THE CHICAGO RIVER
JANUARY 18, 1995

Priority Pollutants (expressed as µg/kg dry weight)	Station 1	Station 2	Station 3
<u>Semivolatiles (Continued)</u>			
2-Methylphenol	<330	<330	<330
Bis (2-chloroisopropyl) ether	<330	<330	<330
4-Methylphenol	<330	22,558	33,662
N-Nitroso-di-n-propylamine	<330	<330	<330
Hexachloroethane	<330	<330	<330
Nitrobenzene	<330	<330	<330
Isophorone	<330	<330	<330
2-Nitrophenol	<330	<330	<330
2,4-Dimethylphenol	<330	<330	<330
Bis (2-chloroethoxy) methane	<330	<330	<330
2,4-Dichlorophenol	<330	<330	<330
1,2,4-Trichlorobenzene	<330	<330	<330
Naphthalene	<330	<330	<330
4-Chloraniline	<330	<330	<330
Hexachlorobutadiene	<330	<330	<330
4-Chloro-3-methylphenol	<330	<330	<330
2-Methylnaphthalene	<330	<330	<330
Hexachlorocyclopentadiene	<330	<330	<330
2,4,6-Trichlorophenol	<330	<330	<330
2,4,5-Trichlorophenol	<800	<800	<800
2-Chloronaphthalene	<330	<330	<330

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 9 (Continued)

ORGANIC PRIORITY POLLUTANTS IN SEDIMENT
FROM THE SOUTH FORK OF THE SOUTH BRANCH OF THE CHICAGO RIVER
JANUARY 18, 1995

Priority Pollutants (expressed as µg/kg dry weight)	Station 1	Station 2	Station 3
<u>Semivolatiles (Continued)</u>			
2-Nitroaniline	<800	<800	<800
Dimethyl phthalate	<330	<330	<330
Acenaphthylene	<330	<330	<330
2,6-Dinitrophenol	<800	<800	<800
3-Nitroaniline	<800	<800	<800
Acenaphthene	<330	<330	<330
2,4-Dinitrophenol	<800	<800	<800
4-Nitrophenol	<800	<800	<800
Dibenzofuran	<330	<330	<330
2,4-Dinitrotoluene	<330	<330	<330
Diethyl phthalate	<330	<330	<330
4-Chlorophenyl phenyl ether	<330	<330	<330
Fluorene	<330	<330	<330
4-Nitroaniline	<800	<800	<800
4,6-Dinitro-2-methylphenol	<800	<800	<800
N-Nitrosodiphenylamine	<330	<330	<330
4-Bromophenyl phenyl ether	<330	<330	<330
Hexachlorobenzene	<330	<330	<330
Pentachlorophenol	<800	<800	<800
Phenanthrene	6,119	<330	4,928
Anthracene	<330	<330	<330

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 9 (Continued)

ORGANIC PRIORITY POLLUTANTS IN SEDIMENT
FROM THE SOUTH FORK OF THE SOUTH BRANCH OF THE CHICAGO RIVER
JANUARY 18, 1995

Priority Pollutants (expressed as µg/kg dry weight)	Station 1	Station 2	Station 3
<u>Semivolatiles (Continued)</u>			
Carbazole	<330	<330	<330
Di-n-butyl phthalate	<330	<330	6,284
Fluoranthene	7,784	7,578	7,666
Pyrene	10,946	13,734	15,104
Butyl benzyl phthalate	<330	<330	<300
3,3'-Dichlorobenzidine	<330	<330	<330
Benzo (a) anthracene	3,417	<330	<330
Chrysene	3,836	<330	5,529
Bis (2-ethylhexyl) phthalate	<330	48,367	58,777
Di-n-octyl phthalate	<330	<330	<330
Benzo (b) fluoranthene	3,768	<330	6,112
Benzo (k) fluoranthene	3,705	<330	<330
Benzo (a) pyrene	3,536	<330	<330
Indeno (1,2,3-cd) pyrene	2,201	<330	<330
Dibenzo (a,h) anthracene	<330	<330	<330
Benzo (ghi) perylene	2,031	<330	<330
<u>Pesticides and PCBs</u>			
α-BHC	<1.7	<1.7	<1.7
β-BHC	<1.7	<1.7	<1.7

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 9 (Continued)

ORGANIC PRIORITY POLLUTANTS IN SEDIMENT
FROM THE SOUTH FORK OF THE SOUTH BRANCH OF THE CHICAGO RIVER
JANUARY 18, 1995

Priority Pollutants (expressed as µg/kg dry weight)	Station 1	Station 2	Station 3
<u>Pesticides and PCBs (Continued)</u>			
β-BHC (Lindane)	<1.7	<1.7	<1.7
Δ-BHC	<1.7	<1.7	<1.7
Heptachlor	<1.7	<1.7	<1.7
Aldrin	<1.7	<1.7	<1.7
Heptachlor epoxide	<1.7	<1.7	<1.7
α-Endosulfan	<3.3	<3.3	<3.3
Dieldrin	<3.3	<3.3	<3.3
4,4'-DDE	<3.3	<3.3	<3.3
Endrin	<3.3	<3.3	<3.3
β-Endosulfan	<3.3	<3.3	<3.3
4,4'-DDD	<3.3	<3.3	<3.3
Endosulfan sulfate	<3.3	<3.3	<3.3
4,4'-DDT	<17.0	<17.0	<17.0
Methoxychlor	<3.3	<3.3	<3.3
Endrin ketone	<3.3	<3.3	<3.3
Endrin aldehyde	<1.7	<1.7	<1.7
α-Chlordane	<1.7	<1.7	<1.7
β-Chlordane	<170.0	<170.0	<170.0
Toxaphene	<33.0	<33.0	<33.0
PCB - 1016	<67.0	<67.0	<67.0
PCB - 1221			

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 9 (Continued)

ORGANIC PRIORITY POLLUTANTS IN SEDIMENT
FROM THE SOUTH FORK OF THE SOUTH BRANCH OF THE CHICAGO RIVER
JANUARY 18, 1995

Priority Pollutants (expressed as µg/kg dry weight)	Station 1	Station 2	Station 3
<u>Pesticides and PCBs (Continued)</u>			
PCB - 1232	<33.0	<33.0	<33.0
PCB - 1242	<33.0	<33.0	<33.0
PCB - 1248	<33.0	<33.0	1,059
PCB - 1254	<33.0	<33.0	<33.0
PCB - 1260	721	1,715	3,390

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 10

ORGANIC PRIORITY POLLUTANTS IN SEDIMENT
FROM THE COLLATERAL CHANNEL
JANUARY 18, 1995

Priority Pollutants (expressed as µg/kg dry weight)	Station 4
<u>Volatiles</u>	
Chloromethane	<10
Bromomethane	<10
Vinyl chloride	<10
Chloroethane	<10
Methylene chloride	<10
Acetone	624
Carbon disulfide	<10
1,1,-Dichloroethene	<10
1,1,-Dichloroethane	<10
1,2,-Dichloroethene (total)	<10
Chloroform	<10
1,2-Dichloroethane	<10
2-Butanone	<10
1,1,1-Trichloroethane	<10
Carbon tetrachloride	<10
Bromodichloromethane	<10
1,2-Dichloropropane	<10
cis-1,3-Dichloropropene	<10
Trichloroethene	<10
Dibromochloromethane	<10
1,1,2-Trichloroethane	<10
Benzene	<10
trans-1,3-Dichloropropene	<10
Bromoform	<10
4-Methyl-2-pentanone	<10
2-Hexanone	<10
Tetrachloroethene	<10
Toluene	<10
1,1,2,2-Tetrachloroethane	<10
Chlorobenzene	<10
Ethyl benzene	<10
Styrene	<10
Xylenes (total)	<10

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 10 (Continued)

ORGANIC PRIORITY POLLUTANTS IN SEDIMENT
FROM THE COLLATERAL CHANNEL
JANUARY 18, 1995

Priority Pollutants (expressed as µg/kg dry weight)	Station 4
<u>Semivolatiles</u>	
Phenol	<330
Bis (2-chloroethyl) ether	<330
2-Chlorophenol	<330
1,3-Dichlorobenzene	<330
1,4-Dichlorobenzene	<330
1,2-Dichlorobenzene	<330
2-Methylphenol	<330
Bis (2-chloroisopropyl) ether	<330
4-Methylphenol	<330
N-Nitroso-di-n-propylamine	<330
Hexachloroethane	<330
Nitrobenzene	<330
Isophorone	<330
2-Nitrophenol	<330
2,4-Dimethylphenol	<330
Bis(2-chloroethoxy)methane	<330
2,4-Dichlorophenol	<330
1,2,4-Trichlorobenzene	<330
Naphthalene	<330
4-Chloraniline	<330
Hexachlorobutadiene	<330
4-Chloro-3-methylphenol	<330
2-Methylnaphthalene	<330
Hexachlorocyclopentadiene	<330
2,4,6-Trichlorophenol	<330
2,4,5-Trichlorophenol	<330
2-Chloronaphthalene	<330
2-Nitroaniline	<330
Dimethyl phthalate	<330
Acenaphthylene	<330
2,6-Dinitrotoluene	<330
3-Nitroaniline	<330
Acenaphthene	6,391
2,4-Dinitrophenol	<330

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 10 (Continued)

ORGANIC PRIORITY POLLUTANTS IN SEDIMENT
FROM THE COLLATERAL CHANNEL
JANUARY 18, 1995

Priority Pollutants (expressed as µg/kg dry weight)	Station 4
<u>Semivolatiles (Continued)</u>	
4-Nitrophenol	<330
Dibenzofuran	<330
2,4,-Dinitrotoluene	<330
Diethyl phthalate	<330
4-Chlorophenyl phenyl ether	<330
Fluorene	7,015
4-Nitroaniline	<800
4,6-Dinitro-2-methylphenol	<800
N-Nitrosodiphenylamine	<330
4-Bromophenyl phenyl ether	<330
Hexachlorobenzene	<330
Pentachlorophenol	<800
Phenanthrene	30,900
Anthracene	<330
Carbazole	<330
Di-n-butyl phthalate	<330
Fluoranthene	24,410
Pyrene	39,660
Butyl benzyl phthalate	<330
3,3'-Dichlorobenzidine	<330
Benzo (a) anthracene	9,779
Chrysene	10,531
Bis (2-ethylhexyl) phthalate	84,288
Di-n-octyl phthalate	<330
Benzo (b) fluoranthene	12,129
Benzo (k) fluoranthene	9,487
Benzo (a) pyrene	9,284
Indeno (1,2,3-cd) pyrene	7,539
Dibenzo (a,h) anthracene	<330
Benzo (ghi) perylene	7,465

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 10 (Continued)

ORGANIC PRIORITY POLLUTANTS IN SEDIMENT
FROM THE COLLATERAL CHANNEL
JANUARY 18, 1995

Priority Pollutants (expressed as µg/kg dry weight)	Station 4
<u>Pesticides and PCBs</u>	
α-BHC	<1.7
β-BHC	<1.7
γ-BHC (Lindane)	<1.7
Δ-BHC	<1.7
Heptachlor	<1.7
Aldrin	<1.7
Heptachlor epoxide	<1.7
α-Endosulfan	<1.7
Dieldrin	<3.3
4,4'-DDE	<3.3
Endrin	<3.3
β-Endosulfan	<3.3
4,4'-DDD	2,020
Endosulfan sulfate	<3.3
4,4'-DDT	<3.3
Methoxychlor	<17.0
Endrin ketone	<3.3
Endrin aldehyde	<3.3
α-Chlordane	<1.7
γ-Chlordane	<1.7
Toxaphene	<170.0
PCB-1016	<33.0
PCB-1221	<33.0
PCB-1232	<33.0
PCB-1242	<33.0
PCB-1248	1,281
PCB-1254	<33.0
PCB-1260	1,678

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 11

CONCENTRATION OF CONTAMINANTS INCLUDED IN THE
TOXICITY CHARACTERISTIC LEACHATE PROCEDURE (TCLP)
FOR SEDIMENTS FROM THE SOUTH FORK OF THE SOUTH BRANCH OF THE CHICAGO RIVER
JANUARY 18, 1995

Contaminant (expressed in mg/L)	Station 1	Station 2	Station 3	Regulatory Level
Arsenic	0.2	0.1	<0.1	5.0
Barium	3.1	2.4	1.6	100.0
Benzene	<0.001	<0.001	<0.001	0.5
Cadmium	0.04	0.02	<0.01	1.0
Carbon tetrachloride	<0.001	<0.001	<0.001	0.5
Chlordane	<0.003	<0.003	<0.003	0.03
Chlorobenzene	<0.001	<0.001	<0.001	100.0
Chloroform	<0.001	<0.001	<0.001	8.0
Chromium	0.14	0.06	0.02	5.0
o-Cresol	<0.05	<0.05	<0.05	200.0
m-Cresol	<0.05	<0.05	<0.05	200.0

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 11 (Continued)

CONCENTRATION OF CONTAMINANTS INCLUDED IN THE
TOXICITY CHARACTERISTIC LEACHATE PROCEDURE (TCLP)
FOR SEDIMENTS FROM THE SOUTH FORK OF THE SOUTH BRANCH OF THE CHICAGO RIVER
JANUARY 18, 1995

Contaminants (expressed in mg/L)	Station 1	Station 2	Station 3	Regulatory Level
p-Cresol	<0.05	<0.05	<0.05	200.0
1,4-Dichlorobenzene	<0.02	<0.02	<0.02	7.5
1,2-Dichloroethane	<0.001	<0.001	<0.001	0.5
1,1-Dichloroethylene	<0.001	<0.001	<0.001	0.7
2,4-Dinitrotoluene	<0.01	<0.01	<0.01	0.13
Endrin	<0.001	<0.001	<0.001	0.02
Heptachlor	<0.0002	<0.0002	<0.0002	0.008
Heptachlor epoxide	<0.0002	<0.0002	<0.0002	0.008
Hexachlorobenzene	<0.01	<0.01	<0.01	0.13
Hexachloroethane	<0.02	<0.02	<0.02	0.13
Hexachloro-1,3-butadiene	<0.02	<0.02	<0.02	0.05

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 11 (Continued)

CONCENTRATION OF CONTAMINANTS INCLUDED IN THE
TOXICITY CHARACTERISTIC LEACHATE PROCEDURE (TCLP)
FOR SEDIMENTS FROM THE SOUTH FORK OF THE SOUTH BRANCH OF THE CHICAGO RIVER
JANUARY 18, 1995

Contaminant (expressed in mg/L)	Station 1	Station 2	Station 3	Regulatory Level
Lead	0.2	<0.1	<0.1	5.0
Lindane	<0.0003	<0.0003	<0.0003	0.4
Mercury	<0.01	<0.01	<0.01	0.2
Methoxychlor	<0.005	<0.005	<0.005	10.0
Methyl ethyl ketone	<0.005	<0.005	<0.005	200.0
Nitrobenzene	<0.04	<0.04	<0.04	2.0
Pentachlorophenol	<0.14	<0.14	<0.14	100.0
Pyridine	<0.05	<0.05	<0.05	5.0
Selenium	0.01	<0.01	<0.01	1.0
Silver	0.1	0.05	<0.01	5.0
Tetrachloroethylene	<0.002	<0.002	<0.002	0.7

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 11 (Continued)

CONCENTRATION OF CONTAMINANTS INCLUDED IN THE
TOXICITY CHARACTERISTIC LEACHATE PROCEDURE (TCLP)
FOR SEDIMENTS FROM THE SOUTH FORK OF THE SOUTH BRANCH OF THE CHICAGO RIVER
JANUARY 18, 1995

Contaminant (expressed in mg/L)	Station 1	Station 2	Station 3	Regulatory Level
Toxaphene	<0.005	<0.005	<0.005	0.5
Trichloroethylene	<0.001	<0.001	<0.001	0.5
2,4,5-Trichlorophenol	<0.04	<0.04	<0.04	400.0
2,4,6-Trichlorophenol	<0.01	<0.01	<0.01	2.0
Vinyl chloride	<0.001	<0.001	0.001	0.2

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 12

CONCENTRATION OF CONTAMINANTS INCLUDED IN THE
TOXICITY CHARACTERISTIC LEACHATE PROCEDURE (TCLP)
FOR SEDIMENTS FROM THE COLLATERAL CHANNEL
JANUARY 18, 1995

Contaminant (expressed in mg/L)	Station 4	Regulatory Level
Arsenic	0.1	5.0
Barium	0.75	100.0
Benzene	<0.001	0.5
Cadmium	0.04	1.0
Carbon tetrachloride	<0.001	0.5
Chlordane	<0.003	0.03
Chlorobenzene	<0.001	100.0
Chloroform	<0.001	8.0
Chromium	0.03	5.0
o-Cresol	<0.05	200.0
m-Cresol	<0.05	200.0
p-Cresol	<0.05	200.0
1,4-Dichlorobenzene	<0.02	7.5
1,2-Dichloroethane	<0.001	0.5
1,1-Dichloroethylene	<0.001	0.7
2,4-Dinitrotoluene	<0.01	0.13
Endrin	<0.001	0.02
Heptachlor	<0.0002	0.008

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 12 (Continued)

CONCENTRATION OF CONTAMINANTS INCLUDED IN THE
TOXICITY CHARACTERISTIC LEACHATE PROCEDURE (TCLP)
FOR SEDIMENTS FROM THE COLLATERAL CHANNEL
JANUARY 18, 1995

Contaminant (expressed in mg/L)	Station 4	Regulatory Level
Heptachlor epoxide	<0.0002	0.008
Hexachlorobenzene	<0.01	0.13
Hexachloroethane	<0.02	0.13
Hexachloro-1,3-butadiene	<0.02	0.05
Lead	<0.1	5.0
Lindane	<0.0003	0.4
Mercury	0.0002	0.2
Methoxychlor	<0.005	10.0
Methyl ethyl ketone	<0.005	200.0
Nitrobenzene	<0.04	2.0
Pentachlorophenol	<0.14	100.0
Pyridine	<0.05	5.0
Selenium	0.01	1.0
Silver	<0.01	5.0
Tetrachloroethylene	<0.002	0.7
Toxaphene	<0.005	0.5
Trichloroethylene	<0.001	0.5
2,4,5-Trichlorophenol	<0.04	400.0

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 12 (Continued)

CONCENTRATION OF CONTAMINANTS INCLUDED IN THE
TOXICITY CHARACTERISTIC LEACHATE PROCEDURE (TCLP)
FOR SEDIMENTS FROM THE COLLATERAL CHANNEL
JANUARY 18, 1995

Contaminant (expressed in mg/L)	Station 4	Regulatory Level
2,4,6-Trichlorophenol	<0.01	2.0
Vinyl chloride	<0.001	0.2

ATTACHMENT 8. 2005 MWRD METALS SAMPLING DATA

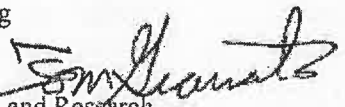
INTEROFFICE MEMORANDUM

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

DEPARTMENT: Monitoring and Research

DATE: April 28, 2015

TO: Catherine O'Connor
Director of Engineering

FROM: Thomas C. Granato 
Director of Monitoring and Research

SUBJECT: Review of Collateral Channel Data and Conditional Request for Additional Sampling

The Monitoring and Research (M&R) Department has reviewed your March 30, 2015 memorandum and attachments regarding the latest concept plan for the Collateral Channel (CC), and has the following responses to the discussion topics outlined therein.

1. The level of concern for the contamination reflected in the sampling data, especially for Polyaromatic Hydrocarbons (PAHs).

The level of concern for the sediment contamination in CC depends on where the large volume of contaminated fine-grained sediments are going to end up during and following placement of limestone rock into the CC, as is described in the concept plan. It seems likely that the heavy rock will sink into the fluffy unconsolidated sediments, thus displacing and suspending contaminants in the water column. The depth to which the rocks will ultimately settle, as well as the time it will take for the rocks to stop migrating down towards the bedrock, will need to be estimated based on in situ tests.

Sediment displacement is a concern since the sediments are potentially toxic to aquatic life. In the absence of sediment toxicity data, toxicity screening levels can be used in order to identify potential problem areas and constituents. Consensus-based sediment quality guidelines developed in MacDonald, et al. 2000, defined sediment contaminants exceeding the Probable Effects Concentrations (PEC) as "presumed toxic." The excerpt from the Collateral Channel Pilot Project Permit Application dated November 1, 2007, which was the first attachment to your March 30, 2015 memorandum, reported total PAH concentrations of 170-680 mg/kg, considerably higher than National Oceanic and Atmospheric Administration's (NOAA) screening threshold concentration of 12 mg/kg, and the PEC of 22.8 mg/kg (MacDonald, et al. 2000), indicating that the sediments can be "presumed toxic" to aquatic life.

In addition, while Zhao, et al. 2007 concluded that heavy metal concentrations "may not present a threat to ecological and/or human health," the surface grab sediment samples collected by M&R in 2005 generally exhibited concentrations greater than the PEC for cadmium, chromium, copper, lead, mercury, nickel, and zinc (Table 1). As such, sediment metal toxicity in the CC could be a concern to aquatic life depending on where and how the suspended sediment eventually settles. Since the 2005 samples were surface grabs, it is likely that the metals concentrations in the sub-surface sediments could be even higher, as was the case with the PAH

Subject: Review of Collateral Channel Data and Conditional Request for Additional Sampling

concentrations in core sediment samples (Zhao, et al. 2007). Buried sediments may sequester legacy contaminants from before the National Pretreatment Program was implemented. These deeper sediments could be disturbed during the placement of the limestone rock.

TABLE 1: METAL CONCENTRATIONS IN COLLATERAL CHANNEL SEDIMENTS COMPARED WITH PROBABLE EFFECTS CONCENTRATION SCREENING LEVELS

Metal Contaminant	Concentration (mg/kg)			Probable Effects Concentration (mg/kg)
	North CC Sampling Site	Center CC Sampling Site	South CC Sampling Site	
Cadmium	16.4	12.0	12.2	5
Chromium	114	98	108	111
Copper	692	389	315	149
Lead	733	430	286	128
Mercury	1.1	1.4	1.2	1
Nickel	86.7	53.9	45.1	49
Zinc	1,594	1,167	1,002	459

The Engineering Department's concept plan states that filling would start at the north end of the CC and continue south toward the Chicago Sanitary and Ship Canal (CSSC), and that neither a coffer dam nor dewatering of the CC are planned at this time. Such a plan would probably result in contaminated sediments being displaced into the CSSC during rock placement. Agencies responsible for reviewing and permitting the project, such as the Illinois Department of Natural Resources, Illinois Environmental Protection Agency, and United States Fish and Wildlife Service, are unlikely to approve this project without adequate protections in place for water quality and aquatic life in the CSSC, so a project containment plan is recommended.

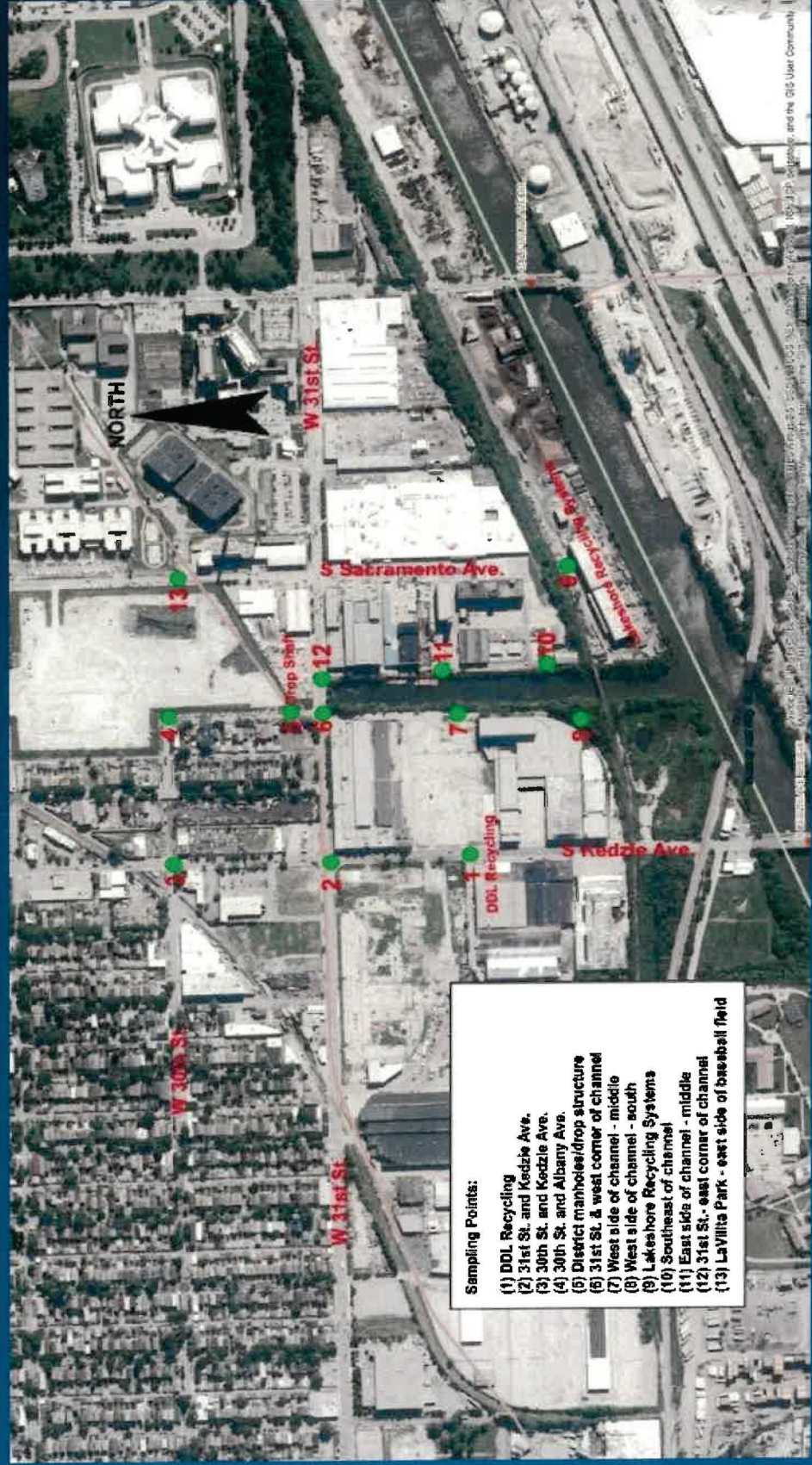
- Whether the concept plan would sufficiently isolate the contaminated sediments or if a clay or alternative cap would be necessary.

In theory, filling the CC with rock and covering with topsoil and biosolids would sufficiently isolate the contaminated sediments. This is based on the assumption that, as mentioned above, the heavy rock will sink to some degree into the soft sediments and settle downward over time, pushing the displaced sediment into the pore spaces of the rock fill. The amount of pore space will depend on the size of the rocks. However, it is important to consider that since the fine sediments are several feet deep in some areas, adequate settling time should be allowed before the addition of

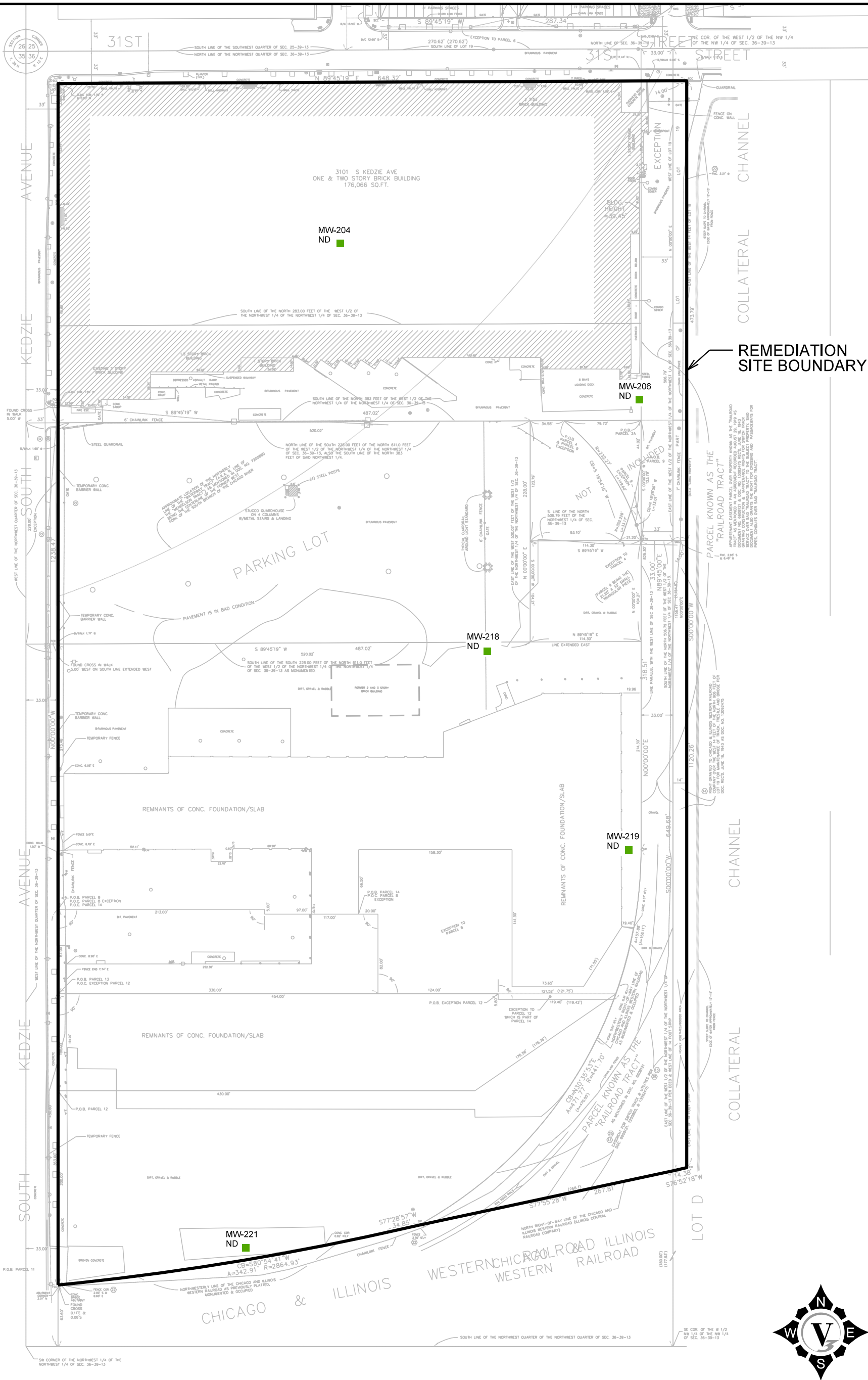
ATTACHMENT 9. 2016–2017 MWRD ODOR AND HYDROGEN MONITORING LOCATIONS



Collateral Channel- Odor Monitoring Locations



ATTACHMENT 10. GROUNDWATER MONITORING WELLS



LEGEND

- Permanent Monitoring Well (V3, 2018)
- ND Non-Detect
- Total PCBs = ND

NOTE:
Site Structures were demolished between
2015-2017 and are no longer located on Site.

 V3 Companies 7325 Janes Avenue Woodridge, IL 60517 630.724.9200 phone 630.724.9202 fax www.v3co.com	REVISIONS			PROJECT NO.: 97070.03	DESIGNED BY: KJW	MONITORING WELL SAMPLE LOCATIONS (WATER)		DRAWING NO. 5
	NO.	DATE	DESCRIPTION	FILE NAME: FIGwell	DRAWN BY: KJW			
				DATE: 09/12/2018	CHECKED BY: RKB	FORMER UNION LIQUORS AND ADJOINING PARCELS 3101-3247 S. KEDZIE AVENUE ILLINOIS		
				SCALE: 1"=100'	PROJECT MANAGER: RKB			
Visio, Vertere, Virtute... "The Vision to Transform with Excellence"								

ATTACHMENT 11. H₂S-CH₄S CONCENTRATIONS

- There were no odor complaints reported to the Citizen Incident Reporting System within a mile of the Collateral Channel from January, 2019, to December, 2023.
- In November 2019, in-person field visits were replaced with a low-range, combination hydrogen sulfide/methyl mercaptan sensor that was installed at the northeastern corner of the channel, adjacent to 3015 West 31st Street, Chicago, IL.

