Protecting Our Water Environment

Metropolitan Water Reclamation District of Greater Chicago

MONITORING AND RESEARCH DEPARTMENT

REPORT NO. 16-17

SENSITIVE AREA CONSIDERATIONS FOR OUTFALLS DESIGNATED IN NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT NUMBER IL0028061 FOR THE CALUMET WATER RECLAMATION PLANT

June 2016

Metropolitan Water Reclamation District of Greater Chicago
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ABBREVIATION\ACRONYM	DEFINITION
CSO	Combined Sewer Overflow
District	Metropolitan Water Reclamation District of Greater Chicago
EHLO	Emergency High Level Overflow
FPDCC	Forest Preserve District of Cook County
IAC	Illinois Administrative Code
IDNR	Illinois Department of Natural Resources
IDPH	Illinois Department of Public Health
IEPA	Illinois Environmental Protection Agency
IPCB	Illinois Pollution Control Board
ISWS	Illinois State Water Survey
NPDES	National Pollutant Discharge Elimination System
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
WRP	Water Reclamation Plant

DISCLAIMER

Mention of proprietary equipment and chemicals in this report does not constitute endorsement by the Metropolitan Water Reclamation District of Greater Chicago.

SUMMARY AND CONCLUSIONS

Special Condition 13 of the National Pollutant Discharge Elimination System (NPDES) Permit No. IL0028061 for the Metropolitan Water Reclamation District of Greater Chicago's (District) Calumet Water Reclamation Plant (WRP) requires the submittal of documentation to demonstrate that certain combined sewer overflow (CSO) outfalls do not discharge to sensitive areas. Under the Federal CSO Control Policy of 1994, sensitive areas are any water likely to be impacted by a CSO discharge which meet one or more of the following criteria: (1) designated as an Outstanding National Resource Water; (2) designated as a National Marine Sanctuary; (3) found to contain shellfish beds; (4) found to contain threatened or endangered aquatic species or their habitat; (5) used for primary contact recreation; or, (6) within the protection area for a drinking water intake structure. A total of 13 outfalls are included in the NPDES permit which states that "within six months from the completion of the Thornton Composite Reservoir, the permittee shall submit two copies of documentation indicating which of the outfalls listed in this Special Condition do not discharge to sensitive areas." The Special Condition also states that "such documentation shall include information regarding the use of the receiving water for primary contact activities (swimming, water skiing, etc.)." The Illinois Environmental Protection Agency (IEPA) selected these outfalls because they either discharge to a General Use Water or a Primary Contact Recreation Water, as designated by the Illinois Pollution Control Board (IPCB), with the exception of outfall numbers 151 and 152, which discharge to a Non-contact Recreation Water. General Use and Primary Contact Waters have standards established by the IPCB to protect for primary contact recreation activities, defined in Title 35 Illinois Administrative Code (IAC) Part 301.323 as, "any recreational or other water use in which there is prolonged and intimate contact with the water involving considerable risk of ingesting water in quantities sufficient to pose a significant health hazard, such as swimming and water skiing." According to the permit, the IEPA will make a determination if the outfall discharges to a sensitive area based on the information submitted by the District.

The most recent Sensitive Area Consideration Report was submitted in February 2003 and was used as a template for this report. In response to this permit requirement, the District submitted requests to several federal, state, and local authorities to gather information and conducted field surveys of the aquatic and riparian habitat for the receiving waters in proximity of each outfall. The available information and field data were reviewed with respect to the definition of sensitive areas, and were also reviewed with respect to the District's interpretation of the IEPA's justifications as to why primary contact recreation is not appropriate. As a result, it was found that:

- Discharge number 004 does not discharge directly to a waterway. It has a common outfall with Discharge number 153, and thus was not assessed separately. As a result, only 12 of the 13 outfalls were assessed.

- None of the 12 outfalls discharge to a receiving water that falls within any of the following protected classes of waters: Outstanding National Resource Waters, National Marine Sanctuaries, shellfish beds, or public drinking water intakes or their designated protection areas.

- None of the 12 outfalls discharge to receiving waters with federally-threatened or endangered species and their habitat. The state-threatened banded killifish is present, but the Illinois Department of Natural Resources (IDNR) Division of Fisheries concluded that this fish species is fairly common, and they did not believe it warranted a sensitive area designation.

- Two of the 12 outfalls discharge to a waterway that is designated for Non-contact Recreation.

- One of the outfalls discharges to a receiving water where swimming is prohibited by ordinance of the Forest Preserve District of Cook County.

- Eleven of the 12 outfalls discharge to receiving waters that are considered to be excessively deep and therefore present a drowning hazard for swimmers and waders.

- None of the 12 outfalls discharge to a receiving water that is controlled by a proper authority for swimming which provides appropriate life-safety personnel and equipment for swimmer protection.

- Eleven of the 12 outfalls discharge to receiving waters with adequate conditions for water skiing, but where such activity may be hazardous due to the presence of commercial navigation.

- Eleven of the 12 outfalls discharge to a receiving water where the access is restricted by commercial or industrial land use, steel or concrete channel walls, fences, rip rap banks, forested or steep and densely vegetated banks.

- All of the 12 outfalls are expected to have future discharges significantly reduced due to the completion of the Thornton Composite Reservoir.

It is concluded that none of the 12 assessed outfalls currently discharge to a receiving water that meets the federal definition of a sensitive area.

INTRODUCTION

Sensitive areas are defined by the United States Environmental Protection Agency (USEPA) in the 1994 CSO Policy, found in the *Federal Register*, Volume 59, Number 75, Tuesday, April 19, 1994, page 18692. Sensitive areas include:

1. Designated Outstanding National Resource Waters
2. National Marine Sanctuaries
3. Waters with threatened or endangered species and their habitat
4. Shellfish beds
5. Waters with primary contact recreation
6. Public drinking water intakes or their designated protection areas

The CSO Policy sets forth control measures for CSO discharges to sensitive areas, which include a prohibition on new or additional overflows, elimination or relocation of the outfall, or treatment of overflows to meet water quality standards. These additional requirements can be foregone if it can be shown that the overflow does not discharge to a sensitive area.

Special Condition 13 of the NPDES Permit Number IL0028061 for the District's Calumet WRP requires submittal of documentation to demonstrate that certain outfalls do not discharge to sensitive areas. According to the permit issued by the IEPA, the submittal is to be made within six months of the completion of the Thornton Composite Reservoir. For operational purposes, the completion date is considered December 31, 2015.

The discharge number, location and receiving water for the 13 outfalls included in the permit are shown in Table 1 and Figure 1. Note that discharge number 004, Edbrook Gate on the Little Calumet River, no longer discharges directly to the river, but shares the same discharge line as the 125th Street Pump Station (discharge number 153). Therefore discharge 004 was not assessed separately with respect to sensitive areas. Discharge 004 provides relief for Calumet WRP to the North Bank of the Little Calumet River in the vicinity of 127th Street and Edbrook Avenue.

IEPA selected these outfalls because they either discharge to a General Use Water or a Primary Contact Recreation Water, as designated by the IPCB, with the exception of outfall numbers 151 and 152, which discharge to a Non-contact Recreation Water. General Use and Primary Contact Waters have standards established by the IPCB to protect for primary contact recreation activities, defined in IAC Part 301.323 as, "any recreational or other water use in which there is prolonged and intimate contact with the water involving considerable risk of ingesting water in quantities sufficient to pose a significant health hazard, such as swimming and water skiing."

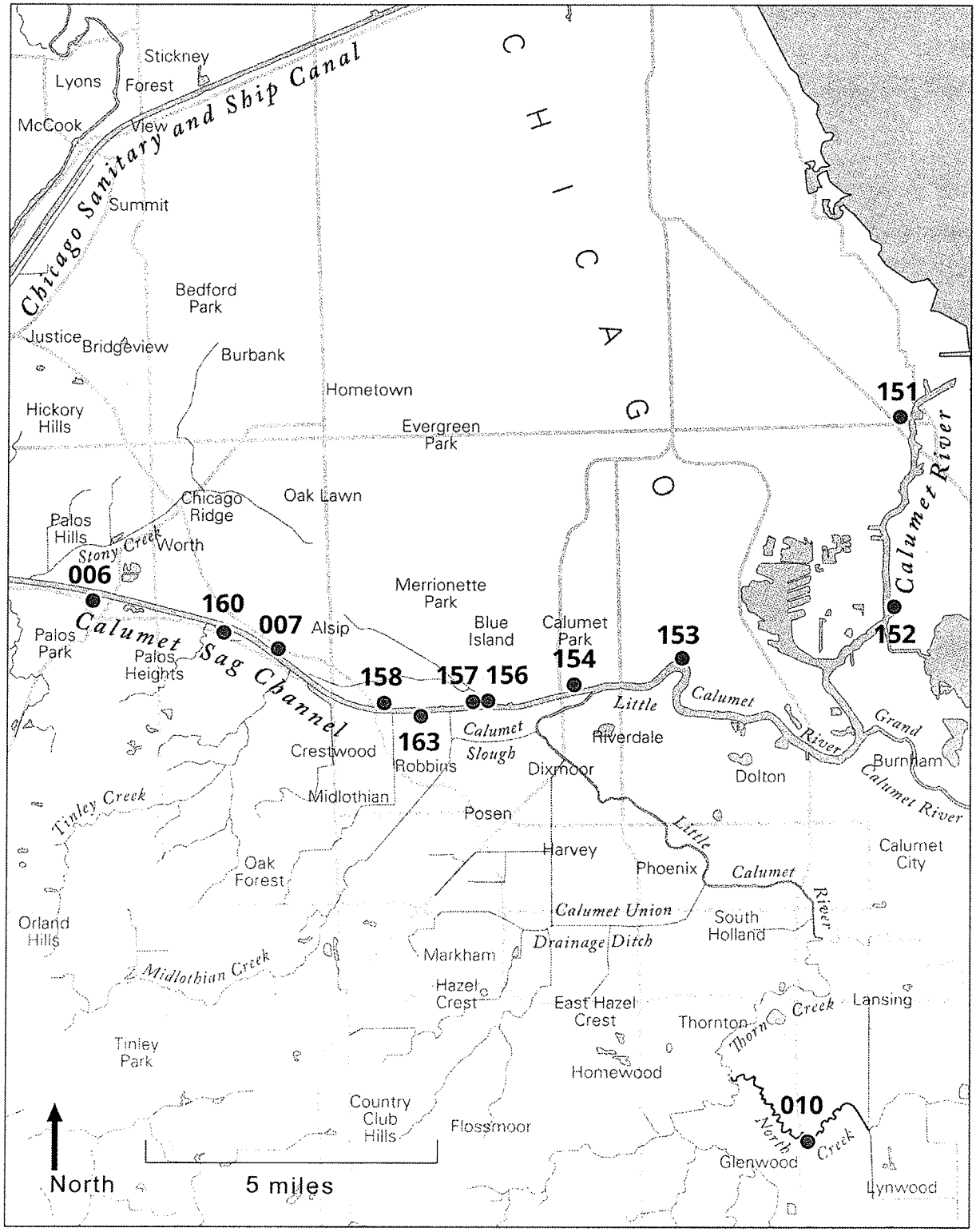
TABLE 1: COMBINED SEWER OVERFLOWS LISTED IN THE CALUMET WATER RECLAMATION PLANT NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT

Discharge Number	Location	Receiving Water
004	Edbrook Gate (near 125th St. P.S.)	Little Calumet River [a]
006	Calumet 18 H Inverted Siphon	Calumet-Sag Channel
007	Calumet 20B Interceptor	Calumet-Sag Channel
010	Glenwood Pump Station	North Creek [b]
151	94th Place	Calumet River
152	122nd Street Pump Station	Calumet River
153	Edbrook Avenue (125th St. P.S.) (N)	Little Calumet River
154	Throop Street	Calumet-Sag Channel
156	Francisco Avenue	Calumet-Sag Channel
157	Central Park	Calumet-Sag Channel
158	Pulaski Road P.S. (Crawford Ave.) (N)	Calumet-Sag Channel
160	Ridgeland Avenue	Calumet-Sag Channel
163	Sacramento	Calumet-Sag Channel

[a]Outfall no longer has direct connection to receiving water; shares discharge line with 125th Street Pump Station.

[b]Receiving water identified as Deer Creek in the permit, but during field investigation this outfall was found to actually discharge into North Creek.

FIGURE 1: LOCATION OF COMBINED SEWER OVERFLOWS LISTED IN CALUMET WATER RECLAMATION PLANT NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT



The permit requires documentation "regarding the use of the receiving water for primary contact activities (swimming, water skiing, etc.)." The permit also requires adequate justification as to why primary contact recreation is not possible, to include, but is not limited to, "(1) Inadequate water depth; (2) Presence of physical obstacles sufficient to prevent access to or for primary contact recreation; and, (3) Uses of adjacent land sufficient to discourage primary contact activities." Using the information submitted by the District, the permit indicates that IEPA will make a determination if the outfall discharges to a sensitive area.

METHODOLOGY

Since sensitive areas are described broadly and could result from various USEPA and IEPA criteria, the District sought to meet this permit requirement using two approaches. First, letters were sent on July 8, 2015 to several federal, state, and local governmental organizations seeking information that might identify the discharge locations as sensitive areas. A typical letter and attached survey form requesting such information is shown in Appendix A. The organizations and addressee name to whom the letters were sent are shown in Table 2. Follow up emails were sent on December 21 and 22, 2015, to the organizations that did not respond to the initial letter.

The second information-gathering effort consisted of a field survey of the receiving stream in the vicinity of the outfall. Surveys occurred on four days in July and September 2015. The survey was intended to gather the information identified in Title 35 IAC Part 375.203, Phase II, Preliminary Stream Inspection. Conditions were observed within a 200 foot reach downstream of each outfall. Water depth and sediment composition were assessed near each bank and in the center of the waterway at 50 and 200 feet downstream of the outfall, and a field survey sheet was completed for each outfall.

The approach used by the District for this Sensitive Area Considerations Report is the same as the last report dated February 2003. The average 7-day low flow, which occurs once in 10 years (7Q10), was obtained from the Illinois State Water Survey website at:

http://www.isws.illinois.edu/docs/maps/lowflow/images/maps/map2.gif.

TABLE 2: SENSITIVE AREA INQUIRY CONTACT LIST

Organization	Contact
United States Environmental Protection Agency, Region 5	Ms. Tinka Hyde
United States Fish and Wildlife Service	Dr. Louise Clemency
Illinois Department of Natural Resources, Impact Assessment Section	Ms. Karen Miller
Illinois Department of Natural Resources, Fisheries Division	Ms. Debbie Bruce
Illinois State Water Survey	Dr. Misganaw Demissie
Illinois Department of Public Health	Dr. Ken McCann
Illinois Environmental Protection Agency	Ms. Marcia Willhite
Chicago Department of Water Management	Mr. Thomas H. Powers
Chicago Park District	Mr. Michael P. Kelly
Forest Preserve District of Cook County	Mr. Arnold Randall
Calumet City	Ms. Michelle Markiewicz- Qualkinbush
City of Blue Island	Mr. Domingo Vargas
City of Chicago	Mr. Rahm Emanuel
City of Palos Heights	Mr. Robert Straz
City of Palos Hills	Mr. Gerald Bennett
Village of Alsip	Mr. Patrick Kitching
Village of Burnham	Mr. Robert E. Polk
Village of Calumet Park	Mr. Ronald Denson
Village of Crestwood	Mr. Louis Presta
Village of Dolton	Mr. Riley Rogers
Village of Palos Park	Mr. John Mahoney
Village of Riverdale	Mr. Lawrence Jackson
Village of Worth	Ms. Mary Werner

RESULTS

Sensitive Area Inquiry Letters

Responses received from the sensitive area inquiry letters are contained in Appendix B. There were twelve respondents: the USEPA, the United States Fish and Wildlife Service (USFWS), the IDNR Division of Fisheries, the Illinois State Water Survey (ISWS), the Illinois Department of Public Health (IDPH), the IEPA, the Forest Preserve District of Cook County (FPDCC), the City of Blue Island, the City of Palos Hills, the Village of Calumet Park, the Village of Crestwood, and the Village of Worth. Responses are summarized below and further addressed in the Discussion section of this report.

The USEPA responded in a letter dated December 30, 2015, providing information pertinent to sensitive area considerations. They referenced a previous letter to the IEPA dated May 11, 2011, which provides evidence that primary contact recreation is occurring in the Calumet-Sag Channel and Little Calumet River. They also noted that CSOs into the Calumet River could impact water quality at Lake Michigan beaches and public drinking water intakes in Lake Michigan.

The USFWS responded, via email on December 24, 2015, on the sensitive area response form regarding category 3 "waters with threatened or endangered species and their habitat." They noted that no Federally Listed Species are present in the discharge areas for the 12 outfalls.

The IDNR responded, via letter in August 2015, on the sensitive area response form that none of the discharges fall within sensitive areas. They noted that while the state threatened banded killifish has been collected in the Calumet and Little Calumet Rivers, these fish are fairly common in the northeast part of the state.

The ISWS responded via email on December 29, 2015, and stated that they had no relevant comments.

The IDPH responded via email on December 21, 2015, and stated that they had no comments.

The IEPA responded, via email on December 21, 2015, on the sensitive area response form that none of the discharges fall within sensitive areas. They noted in an attachment that sensitive areas Categories 1, 2, and 6 do not exist in the area of concern and that the IDNR is the agency to respond to Categories 3 and 4. The IEPA also noted that it does not know if primary contact recreation exists at the discharge locations.

The FPDCC responded via letter dated December 22, 2015, and on the sensitive area response form it noted that none of the discharges fall within sensitive areas. The FPDCC made a special note that primary contact recreational activities are prohibited in Forest Preserve watercourses under section 2-4-4, ORD. No. 1-O-09 of the Forest Preserve District code.

The City of Blue Island responded, via letter received July 30, 2015, on the sensitive area response form that Discharge Number 156 does not discharge into a sensitive area.

The City of Palos Hills responded via letter received in August 2015 and completed a survey for Discharge Number 006 into the Calumet-Sag Channel. The city concluded that there was no habitat for federally-endangered species in the reach downstream of this outfall, according to the Ecological Compliance Assessment Tool report they generated. It noted that the Calumet-Sag Channel was recently designated as a Primary Contact Recreation Water, and that the IPCB stated that jet skiing had been observed on the Calumet-Sag Channel. Thus, the city responded that Discharge Number 006 does discharge into a sensitive area, per Category 5, "Waters with primary contact recreation."

The Village of Calumet Park responded via email on January 12, 2016, and completed a sensitive area response form regarding Discharge Number 154. The village noted that the Calumet-Sag Channel within the vicinity of the outfall has been used for collegiate rowing regattas in the past and that the City of Blue Island has plans to construct a rowing center and marina at Fay's Point. It concluded on the form that this discharge does fall within a sensitive area in regard to Category 5.

The Village of Crestwood responded, via letter received on January 8, 2016, on the sensitive area response form and noted that none of the discharges fall within a sensitive area.

The Village of Worth responded via email on January 7, 2016, in regards to Discharge Number 160. It concluded that this outfall does not fall within a sensitive area.

Field Surveys

The field data sheets and narrative observation summaries generated from the surveys conducted in the permitted outfall areas are included in Appendix C. Table 3 provides the 7Q10 (2003 revision) for each outfall location.

TABLE 3: SEVEN-DAY TEN-YEAR LOW FLOW RATE IN RECEIVING WATERS OF CALUMET WATER RECLAMATION PLANT OUTFALLS

Discharge Number(s)	Receiving Water	7Q10 Flow Rate (cfs)[a]
151, 152	Calumet River	8
153	Little Calumet River	20
154, 156, 157, 158, 160, 163, 6, and 7	Calumet-Sag Channel	259
10	North Creek	0.4

[a]cfs= cubic feet per second

The permitted discharges and the physical conditions of their receiving waters are described in the following sections.

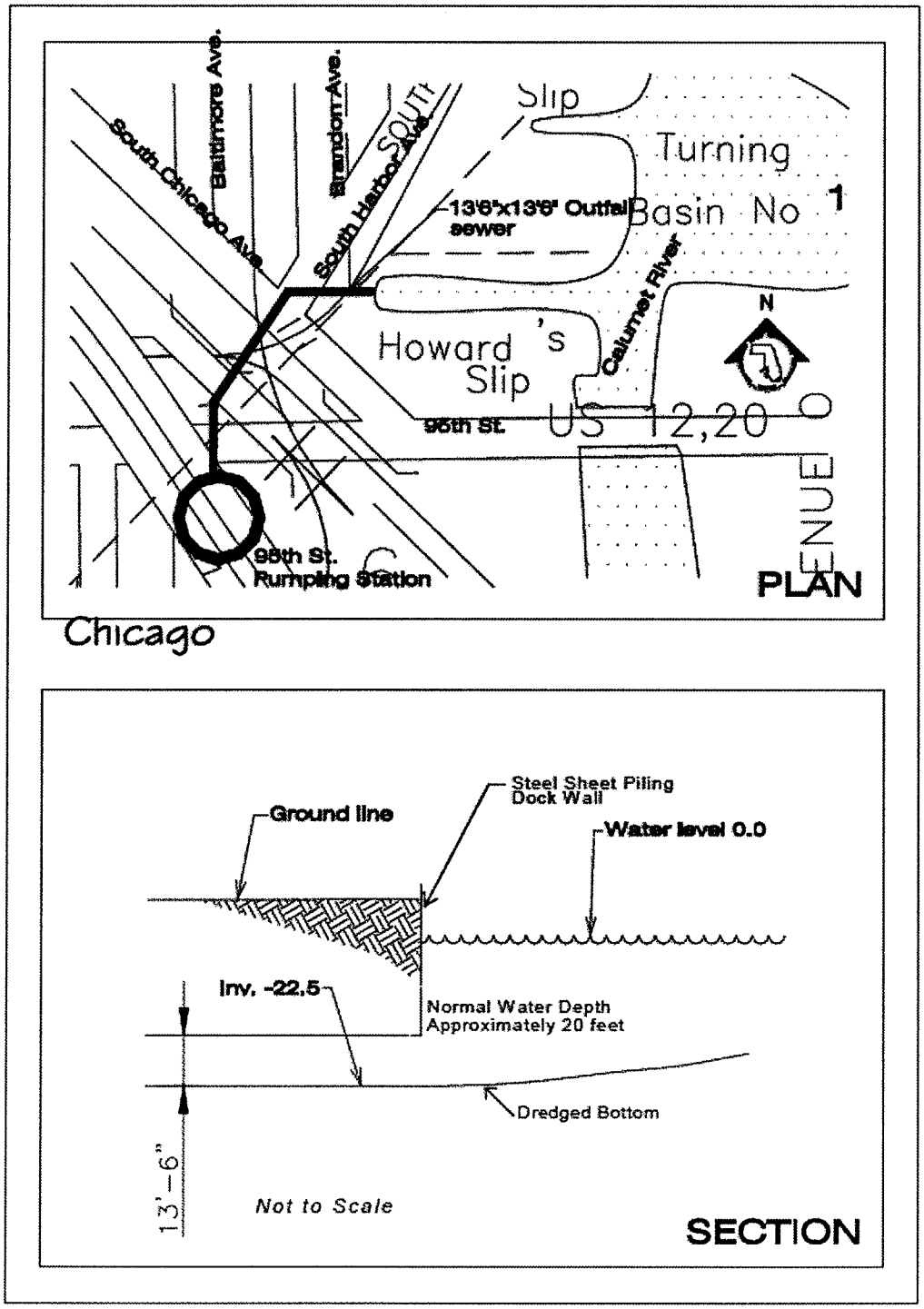
Discharge Number 151 to the Calumet River. This outfall provides relief of excessive combined storm runoff and sewage flows in the Calumet Intercepting Sewer system via pumping of excess flow at the 95th Street Pumping Station to the Calumet River at Howard Slip (Figure 2). According to District operation records, there were no discharges at this location during March–November 2014.

The report and field data sheet from the survey conducted on July 15, 2015, are included in Appendix C-1. Based on the survey, there is little opportunity for primary contact recreation in the proximity of the outfall due to the surrounding urban commercial and industrial land use, fences blocking access, vertical sheet pile river walls, and excessive water depth. The depths ranged 18–29 feet along the river walls to 36 feet deep in the center of the river. Primary contact recreation is possible only if done from watercraft transiting the Calumet River. Swimming would be hazardous due to the use of this channel for commercial navigation as well as the lack of ladders or other ways to exit the water from the high vertical river walls. Effective August 23, 2011, the IPCB designated the Calumet River as a Non-contact Recreation Water.

Discharge Number 152 to the Calumet River. This outfall provides for relief of excessive combined storm runoff and sewage flows in the Calumet Intercepting Sewer system via pumping of excess flow at the 122nd Street Pumping Station to the Calumet River (Figure 3). According to the District's operation records, there were no discharges at this location during March–November 2014.

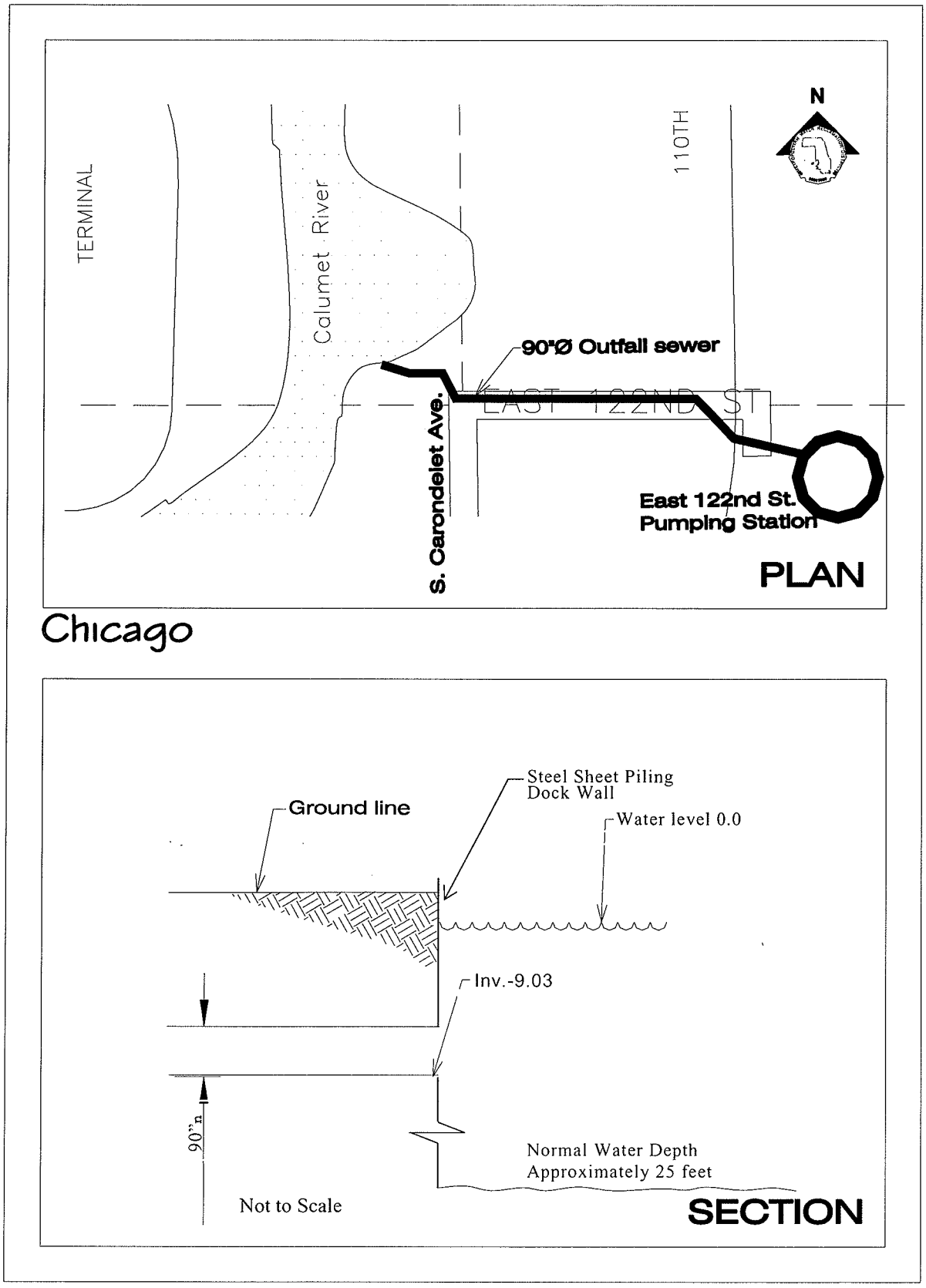
The report and field data sheet from the survey conducted on July 15, 2015, are included in Appendix C-2. Based on the survey, there is little opportunity for primary contact recreation in the proximity of the outfall due to the surrounding urban commercial and industrial land use, private property, fence blocking access, vertical sheet pile or concrete river walls, and excessive water depth. The depths ranged 5.5–31 feet along the river walls to 35 feet deep in the center of the river. Primary contact recreation is possible only if practiced from watercraft transiting the Calumet River. Swimming would be hazardous in this shipping channel. Effective August 23, 2011 the IPCB designated the Calumet River as a Non-contact Recreation Water.

FIGURE 2: DISCHARGE NUMBER 151



Hyde Park Township, Cook County, Illinois, T37N, R15E, Section 5

FIGURE 3: DISCHARGE NUMBER 152



Hyde Park Township, Cook County, Illinois, T37N, R15E, Section 19

Discharge Number 010 to North Creek. This outfall is a former Emergency High Level Overflow (EHLO) that allows Calumet Intercepting Sewer 17J, Extension C overflow into a local storm sewer which is believed to be owned by the Village of Glenwood and discharges to Thorn Creek. Deer Creek is listed as the receiving water for Discharge Number 010 in the Calumet WRP NPDES permit, however, it was determined that it actually discharges into North Creek, which flows north into Thorn Creek (Figure 1). As a former EHLO, this discharge is not monitored except by visual inspection to verify any discharge.

The report and field data sheet from the survey conducted on September 10, 2015, is included in Appendix C-3. Based on the survey, it is unlikely primary contact recreation would occur at this location due to lack of water depth (ranged from 0.4 to 1.2 feet) and log and debris jams across the creek. The survey reach had primarily muddy bottoms with depths of fine sediments of up to 2.8 feet, which is not conducive to primary contact recreation. The land beneath this creek and the adjoining creek banks are owned by the IAC. Swimming in waters on FPDCC property is prohibited by ordinance of the FPDCC, which can be found at: *https://www.municode.com/library/il/cook_county/codes/forest_preserve?nodeId=TIT2FOPRLAPR_CH4REFOPR_2-4-4SW*

Finally, it should be noted that overflows to Discharge Number 010 are expected to be eliminated or significantly reduced with the completion of the Thornton Reservoir. The District will continue to monitor this location visually and will likely decommission it within two years if it does not discharge.

Discharge Number 153 to Little Calumet River. This outfall provides relief of excessive combined storm runoff and sewage flows in the South Park Sewer system via pumping of excess flow at the 125th Street Pumping station to the Little Calumet River in the vicinity of 127th Street and Edbrook Avenue (Figure 4). The frequency, duration, volume, and estimated loading of discharges at this location during March–November 2014 are in Table 4.

The report and field data sheet from the survey conducted on September 16, 2015, are included in Appendix C-4. Based on the survey, there is little opportunity for primary contact recreation in the proximity of the outfall due to the surrounding urban commercial and industrial land use, fence blocking access, private property, steep banks, fine sediment, and excessive water depth. The water depths ranged from 2 feet along the river walls to 16 feet deep in the center of the river and one depth of fines measurement was 5.7 feet. Swimming and water skiing would be hazardous in this shipping channel.

Discharge Number 154 to Calumet-Sag Channel. This outfall provides relief of excessive combined storm runoff and sewage flows in the Calumet Intercepting Sewer 18A into the Calumet-Sag Channel in the vicinity of Throop Street extended and the north bank of the channel (Figure 5). The frequency, duration, volume, and estimated loading of discharges at this location during March–November 2014 are in Table 5.

The report and field data sheet from the survey conducted on September 16, 2015, are included in Appendix C-5. Based on the survey, there is little opportunity for primary contact recreation in the proximity of the outfall due to the urban commercial and industrial land use

FIGURE 4: DISCHARGE NUMBER 153

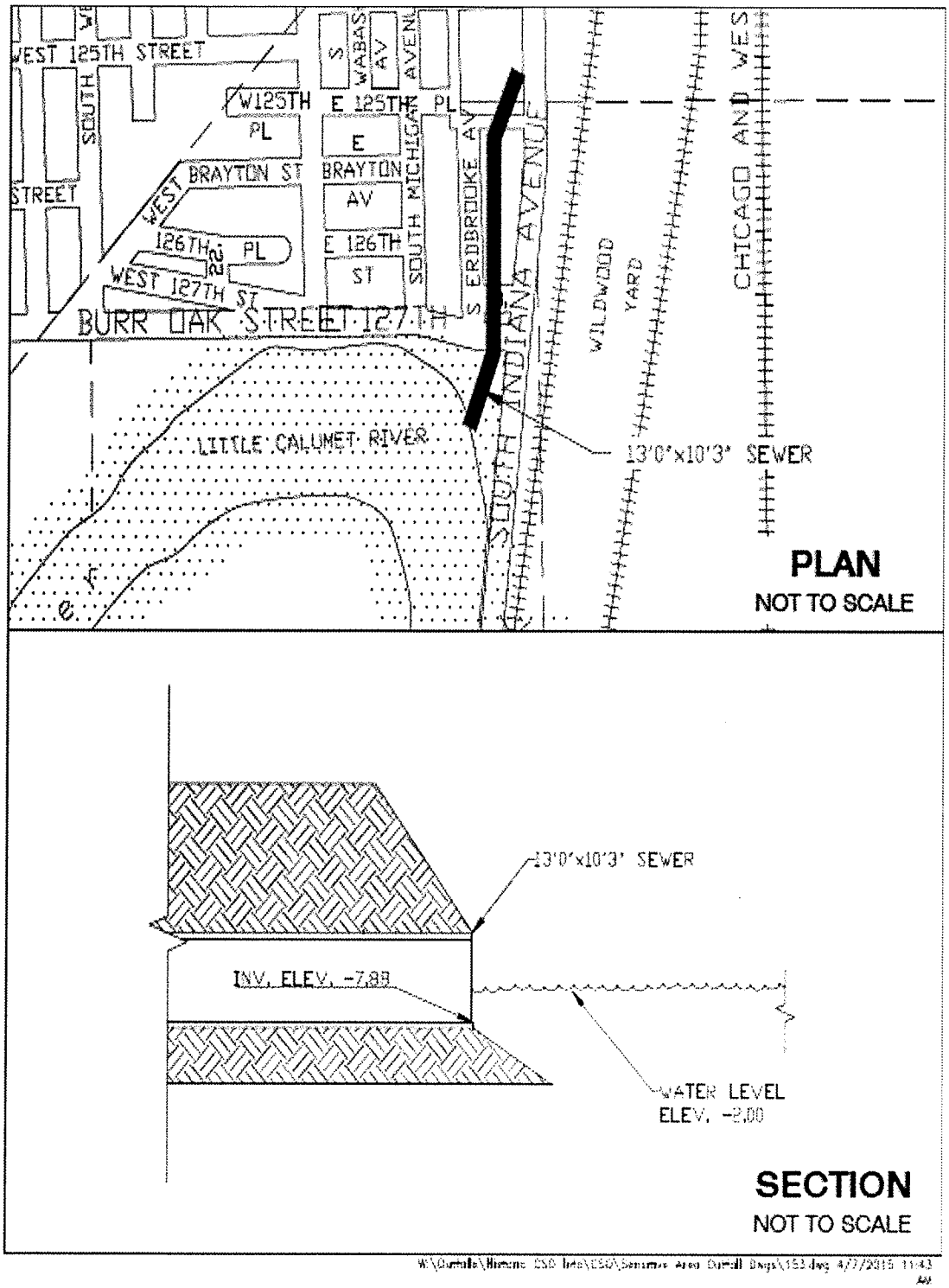


TABLE 4: DISCHARGE NUMBER 153 COMBINED SEWER OVERFLOW FOR MARCH THROUGH NOVEMBER 2014

Month	Start Date(s)	Duration (Hours)	Volume (Million Gallons) [1]	BOD Load (Pounds)[1,2]	SS Load (Pounds)[1,3]
March	None	0	0	0	0
April	None	0	0	0	0
May	11, 20	18.5	73.2	40,585	242,009
June	30	14.4	89.2	49,080	292,154
July	12	17.2	83.2	45,823	272,826
August	22, 23, 25	39.5	232.9	128,205	763,212
September	10	7.3	59.1	32,649	194,560
October	None	0	0	0	0
November	None	0	0	0	0

[1]Estimated
[2]BOD= Five-day Biochemical Oxygen Demand
[3]SS= Suspended Solids

FIGURE 5: DISCHARGE NUMBER 154

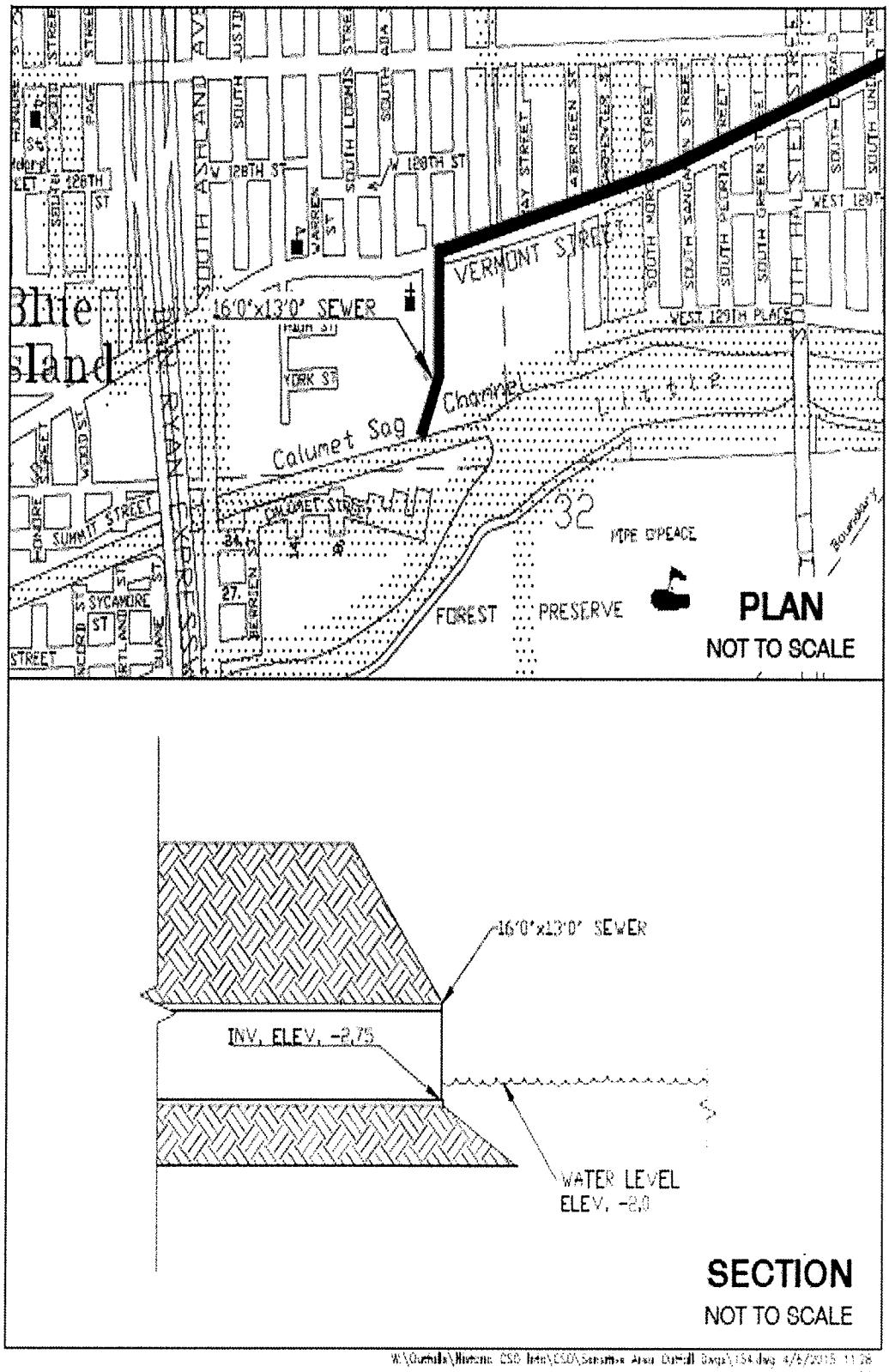


TABLE 5: DISCHARGE NUMBER 154 COMBINED SEWER OVERFLOW FOR MARCH THROUGH NOVEMBER 2014

Month	Start Date(s)	Duration (Hours)	Volume (Million Gallons) [1]	BOD Load (Pounds)[1,2]	SS Load (Pounds)[1,3]
March	None	0	0	0	0
April	None	0	0	0	0
May	20	3.8	25.2	14,034	83,732
June	None	0	0	0	0
July	12	24.7	136.5	74,545	442,949
August	22, 25	4.3	61.5	34,127	203,517
September	10	2.7	24.0	13,367	79,759
October	None	0	0	0	0
November	None	0	0	0	0

[1]Estimated
[2]BOD= Five-day Biochemical Oxygen Demand
[3]SS= Suspended Solids

and cement river wall on the north bank, steep banks and heavy vegetation on the south bank, and excessive water depth. The water depths ranged from 2 feet along the south river wall to 14 feet deep in the center of the river and one depth of fines measurement was 5.2 feet. Swimming and water skiing would be hazardous in this shipping channel.

Discharge Number 156 to Calumet-Sag Channel. This outfall provides relief of excessive combined storm runoff and sewage flows in the West Blue Island Sewer and Calumet Intercepting Sewer 18C into the Calumet-Sag Channel in the vicinity of Francisco Avenue extended and the north bank of the channel (Figure 6). According to District operation records, there were no discharges at this location during March–November 2014.

The report and field data sheet from the survey conducted on September 16, 2015, are included in Appendix C-6. Based on the survey, there is little opportunity for primary contact recreation in the proximity of the outfall due to the urban commercial and industrial land use, densely vegetated and steep banks, and excessive water depth. The depths ranged from 1 foot right along the bank to 16 feet deep in the center of the river. Swimming and water skiing would be hazardous in this shipping channel.

Discharge Number 157 to Calumet-Sag Channel. This outfall provides relief of excessive combined storm runoff and sewage flows in the Calumet Intercepting Sewer 18E into the Calumet-Sag Channel in the vicinity of Central Park Avenue extended and the north bank of the channel (Figure 7). The frequency, duration, volume, and estimated loading of discharges at this location during March–November 2014 are in Table 6.

The report and field data sheet from the survey conducted on September 16, 2015, are included in Appendix C-7. Based on the survey, there is little opportunity for primary contact recreation in the proximity of the outfall due to the urban commercial and industrial land use dominating the area, private property, very steep banks, dense vegetation, rip rap banks, and excessive water depth. The depths ranged from 1 foot along the north bank to 16 feet deep in the center of the river. Swimming and water skiing would be hazardous in this shipping channel.

A freshwater mussel (paper pondshell, *Utterbackia imbecillis*) was collected in the ponar grab during this field survey. However, USEPA CSO guidance (USEPA 1995) describes the shellfish bed sensitive condition with regard to shellfish of economic value for harvesting and consumption, so this collection may not be relevant with respect to assessing sensitive area conditions in the Calumet-Sag Channel.

Discharge Number 158 to Calumet-Sag Channel. This outfall provides relief of excessive combined storm runoff and sewage flows in the Calumet Intercepting Sewer 18E, Extension A into the Calumet-Sag Channel in the vicinity of Pulaski Avenue and the north bank of the channel (Figure 8). The frequency, duration, volume, and estimated loading of discharges at this location during March–November 2014 are in Table 7.

FIGURE 6: DISCHARGE NUMBER 156

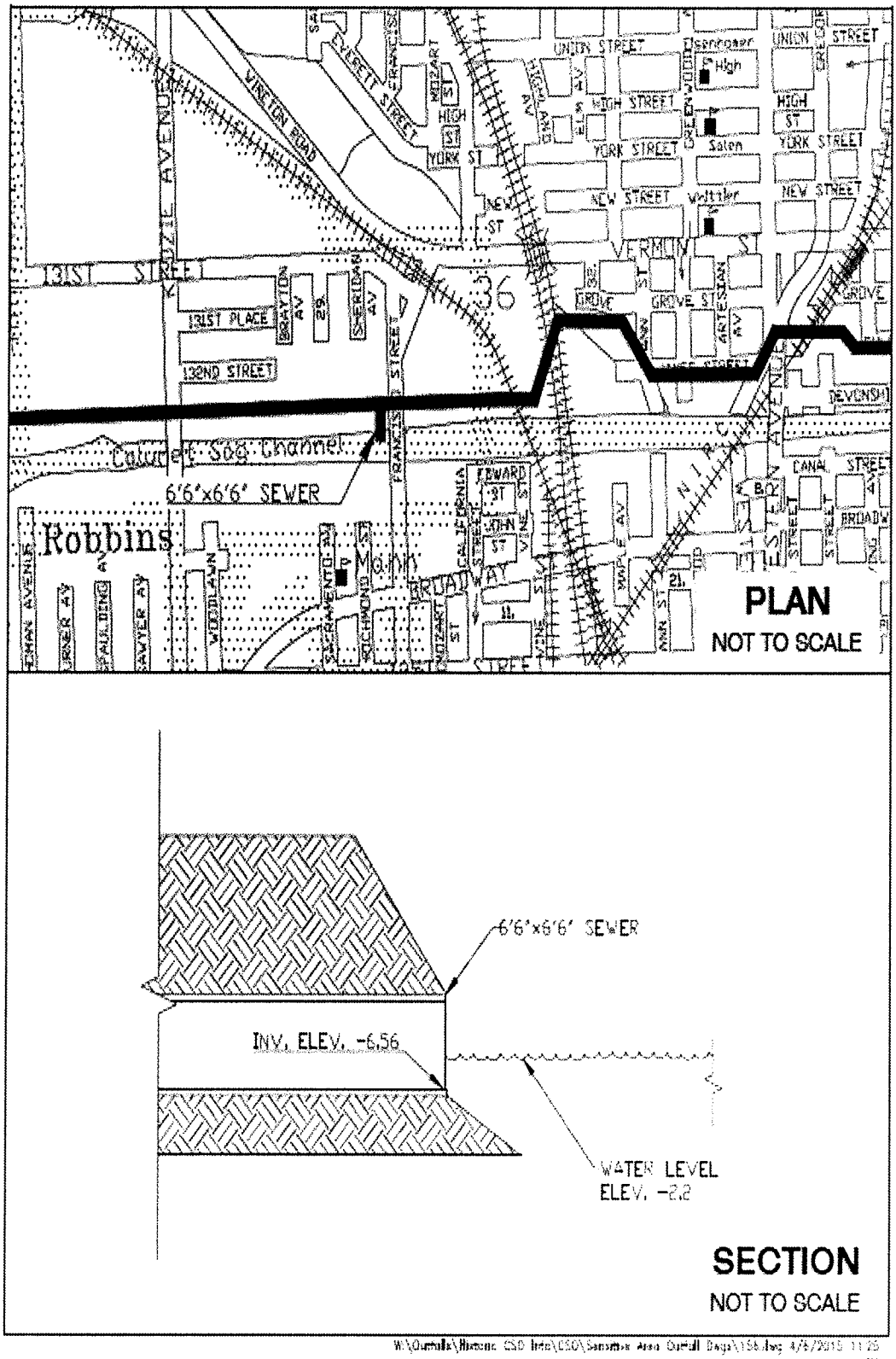


FIGURE 7: DISCHARGE NUMBER 157

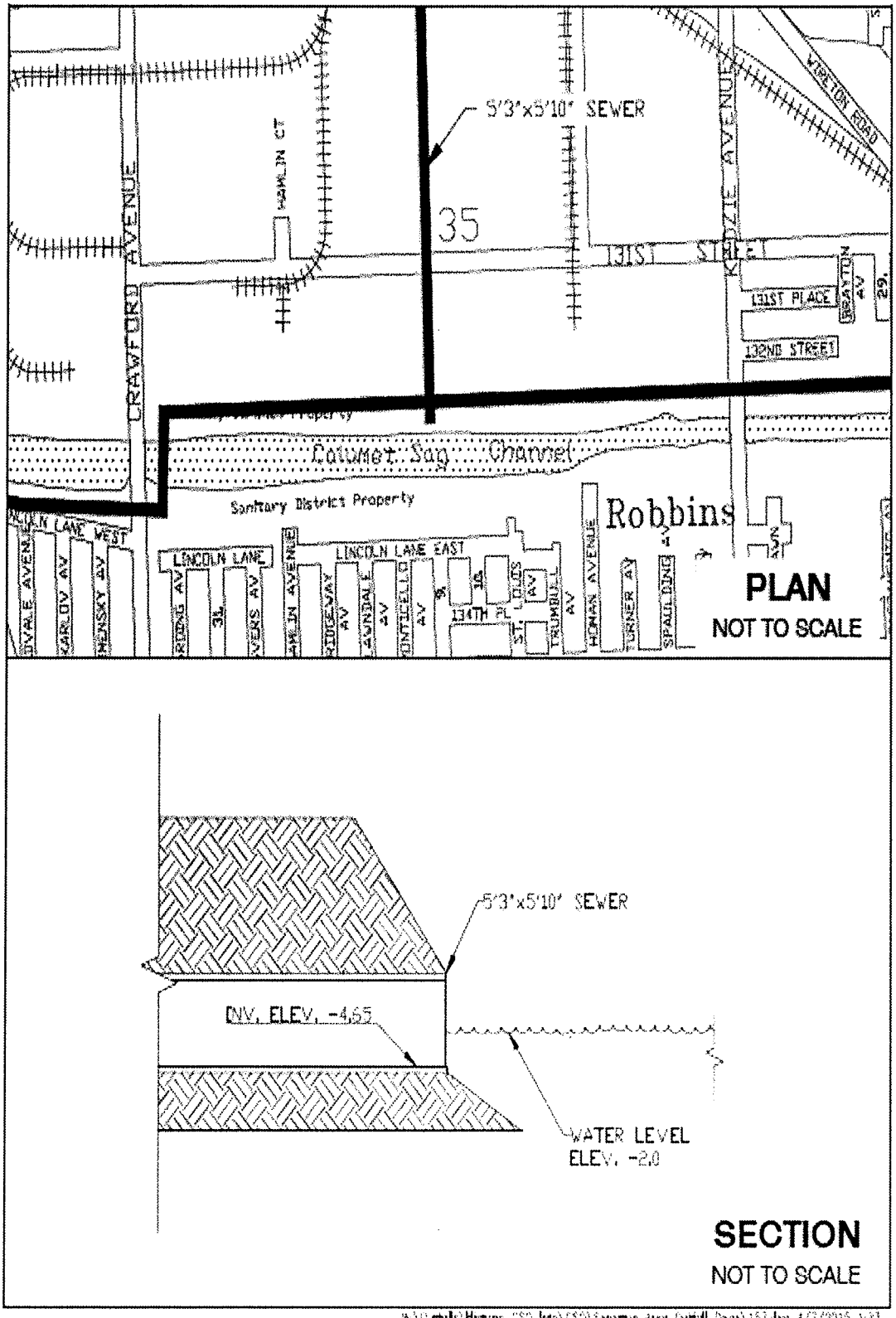


TABLE 6: DISCHARGE NUMBER 157 COMBINED SEWER OVERFLOW FOR MARCH THROUGH NOVEMBER 2014

Month	Start Date(s)	Duration (Hours)	Volume (Million Gallons) [1]	BOD Load (Pounds)[1,2]	SS Load (Pounds)[1,3]
March	None	0	0	0	0
April	3	20.5	53.9	29,828	177,784
May	None	0	0	0	0
June	None	0	0	0	0
July	12	38.6	91.3	50,210	298,857
August	None	0	0	0	0
September	None	0	0	0	0
October	None	0	0	0	0
November	None	0	0	0	0

[1]Estimated
[2]BOD= Five-day Biochemical Oxygen Demand
[3]SS= Suspended Solids

FIGURE 8: DISCHARGE NUMBER 158

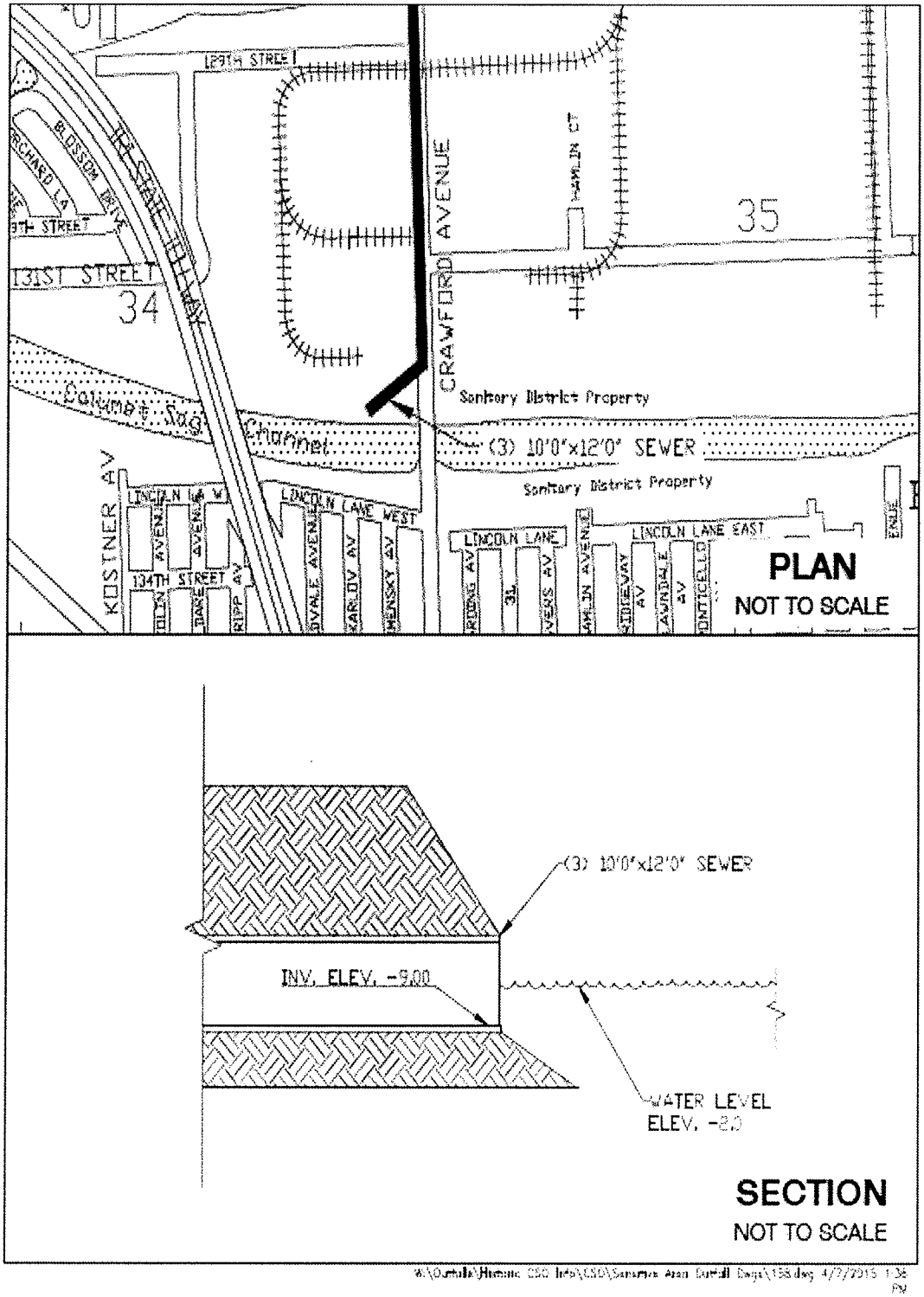


TABLE 7: DISCHARGE NUMBER 158 COMBINED SEWER OVERFLOW FOR MARCH THROUGH NOVEMBER 2014

Month	Start Date(s)	Duration (Hours)	Volume (Million Gallons) [1]	BOD Load (Pounds)[1,2]	SS Load (Pounds)[1,3]
March	None	0	0	0	0
April	3	13.6	6.2	3,468	20,706
May	11, 15, 20	74.1	46.7	25,926	154,636
June	30	34.5	25.1	13,931	83,119
July	12	38.6	28.1	15,585	92,981
August	22, 23, 25, 26	49.5	11.8	6,553	39,129
September	10	16.9	4.1	2,287	13,654
October	None	0	0	0	0
November	None	0	0	0	0

[1]Estimated
[2]BOD= Five-day Biochemical Oxygen Demand
[3]SS= Suspended Solids

The report and field data sheet from the survey conducted on September 17, 2015, are included in Appendix C-8. Based on the survey, there is little opportunity for primary contact recreation in the proximity of the outfall due to the urban commercial and industrial land use dominating the area, steep and densely vegetated banks, barbed wire fence, and excessive water depth. The depths ranged from 2 feet along the bank to 14 feet deep in the center of the river. Swimming and water skiing would be hazardous in this shipping channel.

Discharge Number 160 to Calumet-Sag Channel. This outfall is a former EHLO that provides relief of excessive combined storm runoff and sewage flows in the Calumet Intercepting Sewer 18D, Extension A into the Calumet-Sag Channel in the vicinity of Ridgeland Avenue and the south bank of the channel (Figure 9). As a former EHLO, this discharge is not monitored except by visual inspection to verify any discharge.

The report and field data sheet from the survey conducted on September 17, 2015, are included in Appendix C-9. Based on the survey, there is little opportunity for primary contact recreation in the proximity of the outfall due to steep and densely vegetated banks, guardrail, and excessive water depth. The depths ranged from 3 feet along the bank to 13 feet deep in the center of the river. Swimming and water skiing would be hazardous in this shipping channel.

Discharge Number 163 to Calumet-Sag Channel. This outfall provides relief of excessive combined storm runoff and sewage flows in the Calumet Intercepting Sewer 19A into the Calumet-Sag Channel in the vicinity of Sacramento Avenue and the south bank of the channel (Figure 10). The frequency, duration, volume, and estimated loading of discharges at this location during March–November 2014 are in Table 8.

The report and field data sheet from the survey conducted on September 16, 2015, are included in Appendix C-10. Based on the survey, there is little opportunity for primary contact recreation in the proximity of the outfall due to the urban commercial and industrial land use in part of the reach, steep and densely vegetated banks, and excessive water depth. The depths ranged from 2 feet along the bank to 15 feet deep in the center of the river. Swimming and water skiing would be hazardous in this shipping channel.

Discharge Number 006 to Calumet-Sag Channel. This outfall is a former EHLO that provides relief of excessive combined storm runoff and sewage flows in the Calumet Intercepting Sewer 18H into the Calumet-Sag Channel in the vicinity of Roberts Road extended and the south bank of the channel (Figure 11). As a former EHLO, this discharge is not monitored except by visual inspection to verify any discharge.

The report and field data sheet from the survey conducted on September 17, 2015, are included in Appendix C-11. Based on the survey, there is little opportunity for primary contact recreation in the proximity of the outfall due to the urban commercial and industrial land use on the south bank, steep and densely vegetated banks, and excessive water depth. The depths ranged from 2 feet along the bank to 14 feet deep in the center of the river. Swimming and water skiing would be hazardous in this shipping channel, but there is a boat ramp within view of this discharge.

FIGURE 9: DISCHARGE NUMBER 160

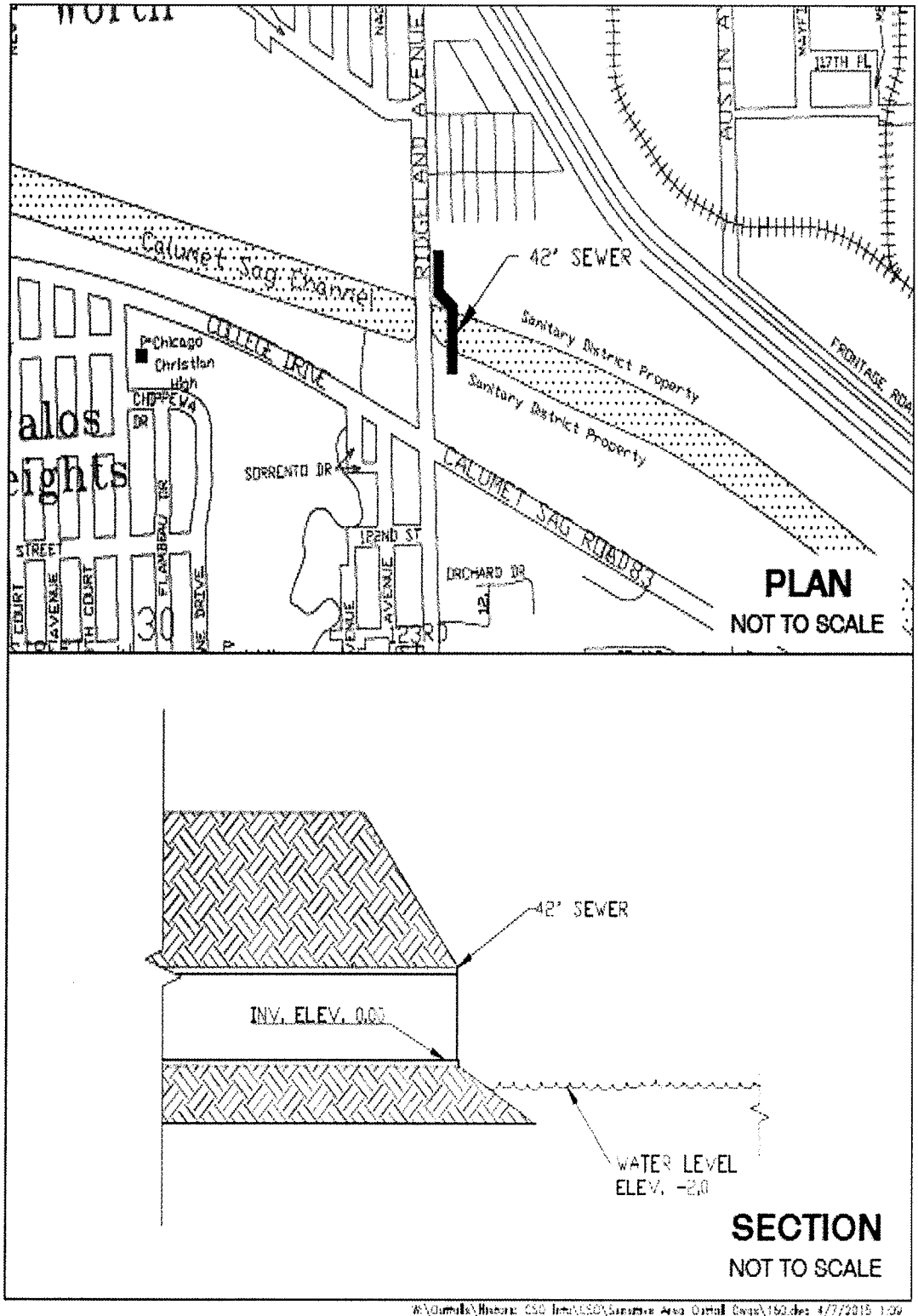


FIGURE 10: DISCHARGE NUMBER 163

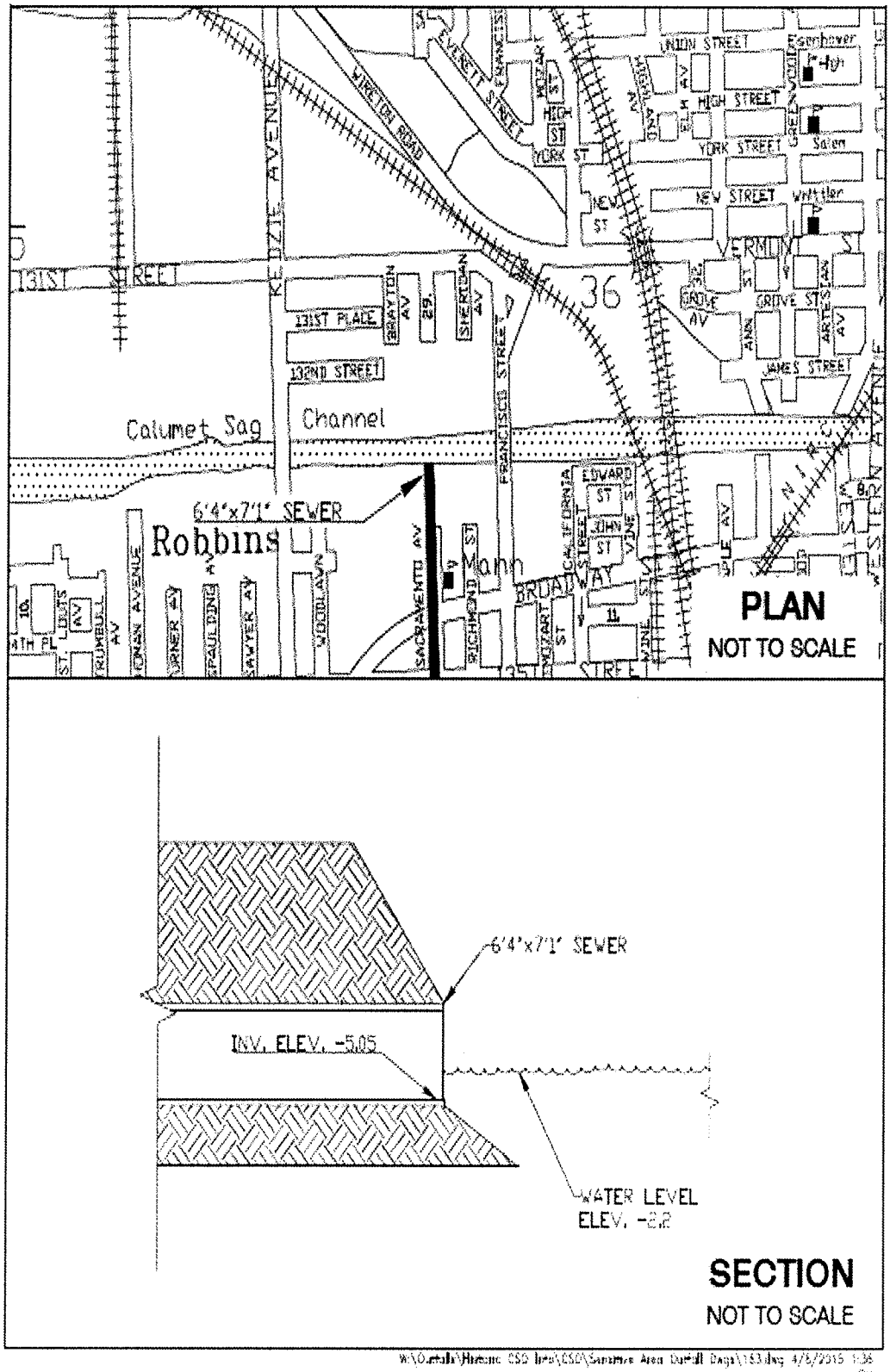
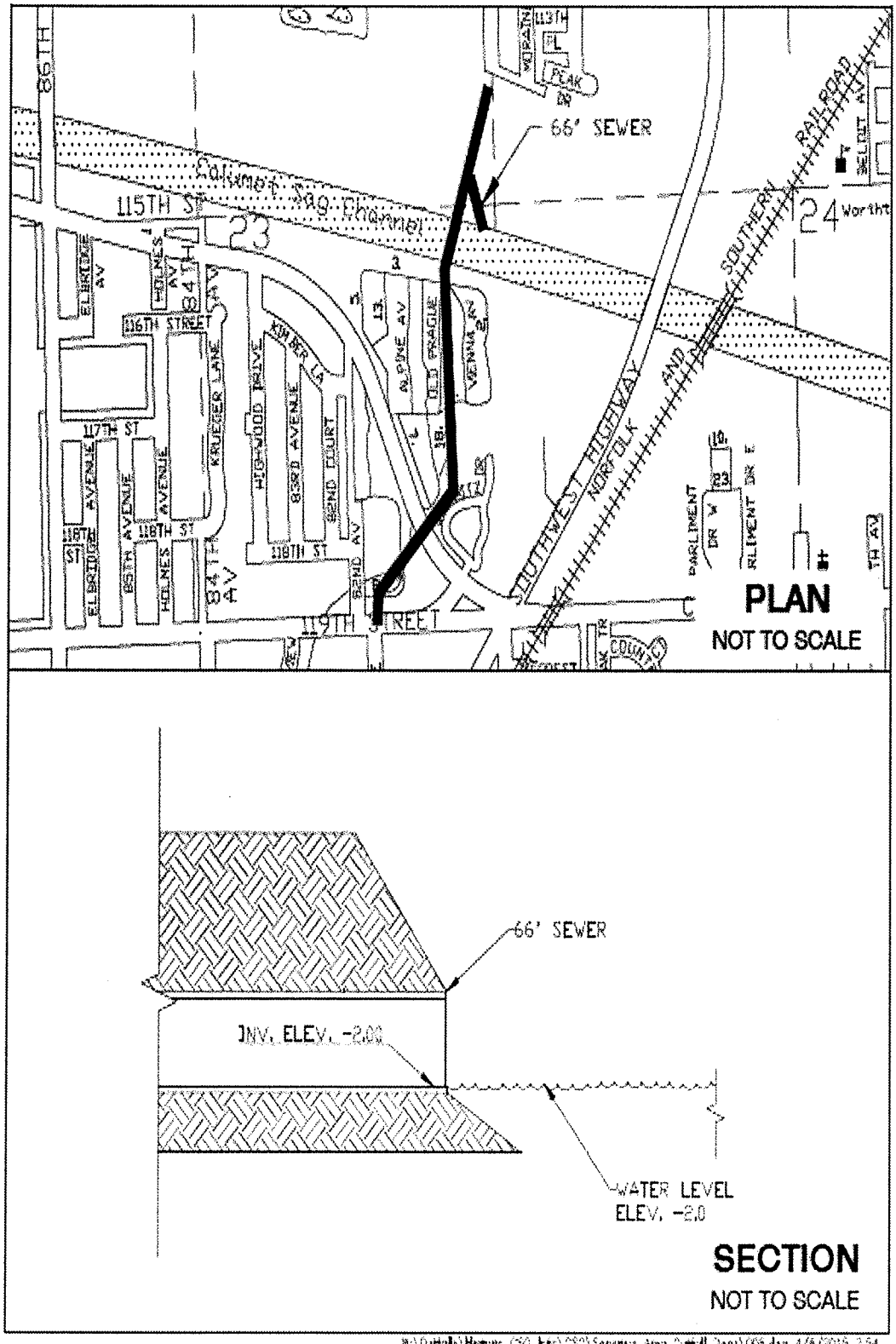


TABLE 8: DISCHARGE NUMBER 163 COMBINED SEWER OVERFLOW FOR MARCH THROUGH NOVEMBER 2014

Month	Start Date(s)	Duration (Hours)	Volume (Million Gallons) [1]	BOD Load (Pounds)[1,2]	SS Load (Pounds)[1,3]
March	None	0	0	0	0
April	3	20.5	1.6	872	5,206
May	None	0	0	0	0
June	None	0	0	0	0
July	12	38.6	2.6	1,476	8,814
August	None	0	0	0	0
September	None	0	0	0	0
October	None	0	0	0	0
November	None	0	0	0	0

[1]Estimated
[2]BOD= Five-day Biochemical Oxygen Demand
[3]SS= Suspended Solids

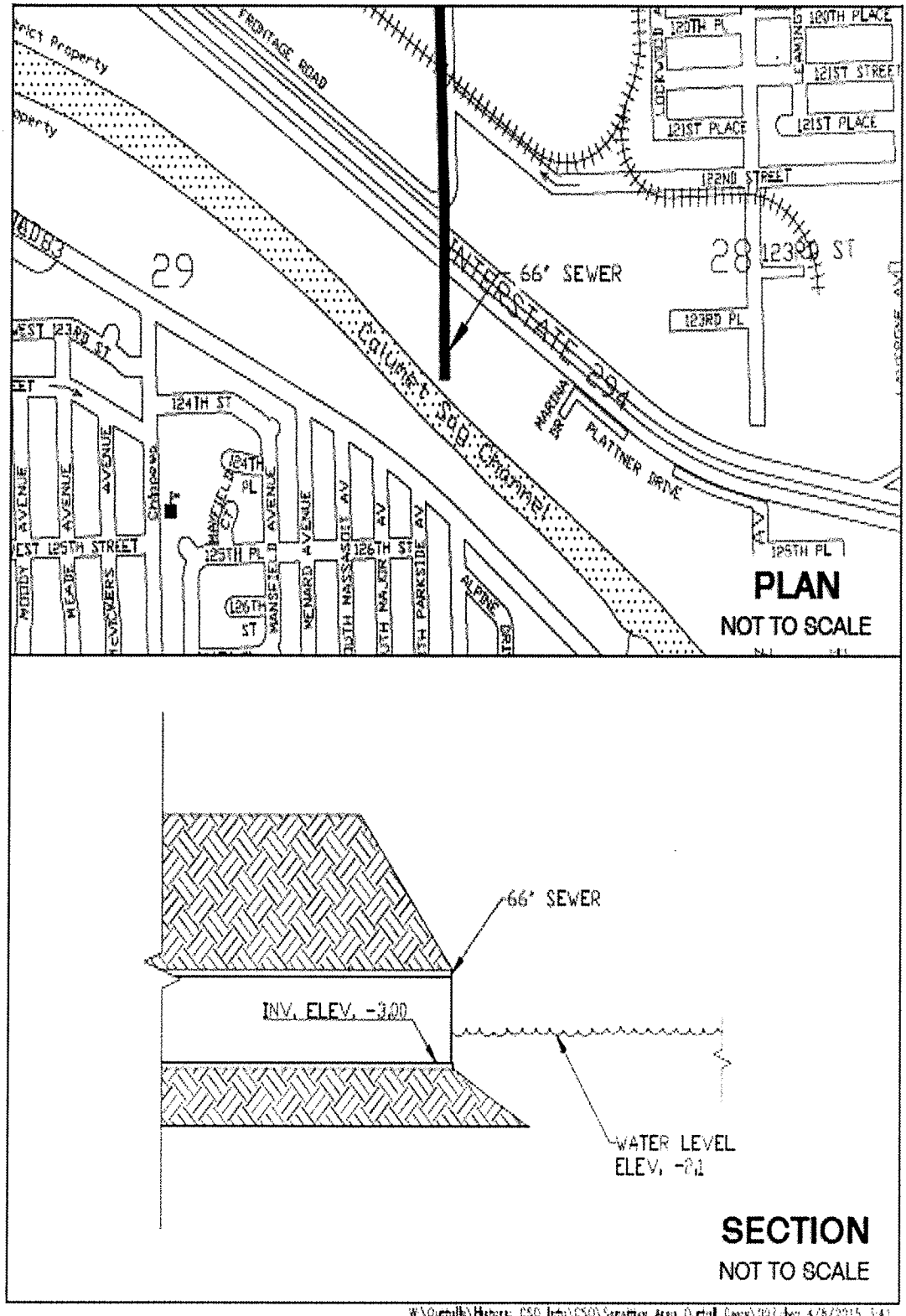
FIGURE 11: DISCHARGE NUMBER 006



Discharge Number 007 to Calumet-Sag Channel. This outfall is a former EHLO that provides relief of excessive combined storm runoff and sewage flows in the Calumet Intercepting Sewer 20B into the Calumet-Sag Channel in the vicinity of Central Avenue extended and the north bank of the channel (Figure 12). As a former EHLO, this discharge is not monitored except by visual inspection to verify any discharge.

The report and field data sheet from the survey conducted on September 17, 2015, are included in Appendix C-12. Based on the survey, there is little opportunity for primary contact recreation in the proximity of the outfall due to the steep and densely vegetated banks and excessive water depth. The depths ranged from 2 feet along the bank to 15 feet deep in the center of the river. Swimming and water skiing would be hazardous in this shipping channel, but there is a boat ramp within view of this discharge.

FIGURE 12: DISCHARGE NUMBER 007



DISCUSSION

Sensitive areas, as defined by the USEPA, fall within one or more of six categories. As a result of the sensitive area inquiry letters and field surveys, the District believes that none of the outfalls discharge to a sensitive area that fits any of the following categories: Designated National Resource Water, National Marine Sanctuary, waters with federally threatened or endangered species and their habitat, shellfish beds, or public drinking water intakes or designated protection areas. The IDNR Division of Fisheries concluded that while the state-threatened banded killifish has been collected in the Calumet River System, this fish species is fairly common in the northeast part of Illinois, and they did not believe it warranted a sensitive area designation.

There has been minimal alteration of the physical conditions in the vicinity of permitted discharges since the previous sensitive area consideration report was submitted to IEPA in February 2003. It is important to mention that although the designated recreational uses for the Calumet-Sag Channel, Calumet River, and Little Calumet River have changed as a result of the Chicago Area Waterway System use attainability analysis, the management of CSOs in the Calumet service area has not changed up to the issuance date of the most recent Calumet WRP NPDES permit, and the full impact of the Thornton Composite Reservoir is yet to be determined. The year 2016 is defined as an operational verification period for the maximum effectiveness of the reservoir. Future CSO discharges will likely be significantly reduced and some of these outfalls may no longer be needed due to the completion of the Thornton Composite Reservoir. Additionally, the Calumet WRP began disinfecting its effluent in March 2016, and the impact on receiving water quality in the Little Calumet River and Calumet-Sag Channel is yet to be determined.

The USEPA's response provided information that the CSOs in the Calumet River could impact water quality at Lake Michigan beaches and public water intakes, but this conflicts with the response made by the IEPA that there are no drinking water intakes on the Calumet River and that the Calumet River is not considered a drinking water protection area. The normal flow of the Calumet River is away from Lake Michigan and in the event of any short-term discharge and river flow reversal, there would be significant dilution in the volume of water in the river and dispersion in Calumet Harbor and Lake Michigan before reaching an intake. Further, the Calumet WRP NPDES Permit No. IL0028061 requires under special condition 13, item 14, that a public notification program be followed to notify potable water supply agencies and beach agencies in Cook County, Illinois, and Lake County, Indiana, whenever flows from the Calumet River are expected to be discharged to Lake Michigan.

The response from USEPA also noted that primary contact recreation is occurring in the Calumet-Sag Channel and the Little Calumet River. The same was mentioned in the inquiry responses received from the City of Palos Hills and Village of Calumet Park. There is consensus that some primary contact recreation activities occur on these waterways, however, none of the information collected indicates that the waters in the vicinity of the outfalls are used for primary contact recreation. In fact, the field surveys collected ample evidence to show that none of the outfalls discharge to areas suitable and safe for primary contact recreation.

The IEPA states under special condition 13 of NPDES Permit No. IL0028061 that adequate justification as to why primary contact recreation is not possible shall be submitted and that adequate justification may include but is not limited to:

1. Inadequate water depth.
2. Presence of physical obstacles sufficient to prevent access to or for primary contact recreation.
3. Uses of adjacent land sufficient to discourage primary contact activities.

The definition of Primary Contact adopted by the IPCB in Section 301.355 specifically mentions swimming and water skiing, so these activities were considered in the determination of whether a receiving water is a sensitive area. Water depths could be too shallow for full body immersion or too deep, posing a drowning hazard if lifeguards and life-safety equipment are not available. For purposes of this discussion, a depth of less than two feet was considered inadequate and a depth more than five feet was considered excessive. IEPA should recognize drowning hazard and the lack of adequate life-safety personnel and equipment for primary contact activities, because municipalities would otherwise incur significant and burdensome liability if primary contact activities by the public are not adequately controlled and protected. It is also essential that swimming in a receiving water be permissible by local laws and regulations.

Water skiing requires adequate water depth and lack of obstacles, submerged objects and shoals for the safe operation of motor-powered watercraft. Adequate channel widths are also required for maneuverability. With respect to primary contact recreation, adequate conditions for water skiing were assumed to include depths greater than four feet, channel widths of at least 200 feet, and straight channel reaches. Safe water skiing should also be done where traffic conditions in the channel are controlled. However, there are currently no controls on motor-powered watercraft traffic and the commercial traffic on these waterways. A commercial boat with a series of barges will occupy a significant portion of the channel width and they cannot stop quickly or maneuver around a water skier or power boat. This creates a hazardous condition for these types of primary contact recreation activities.

The receiving water in the proximity of the outfall for each discharge number is assessed for the above considerations and shown in Table 9. None of the receiving waters at these locations meet the criteria for a sensitive area, with respect to primary contact recreation.

TABLE 9: ASSESSMENT OF SENSITIVE AREA CONDITIONS

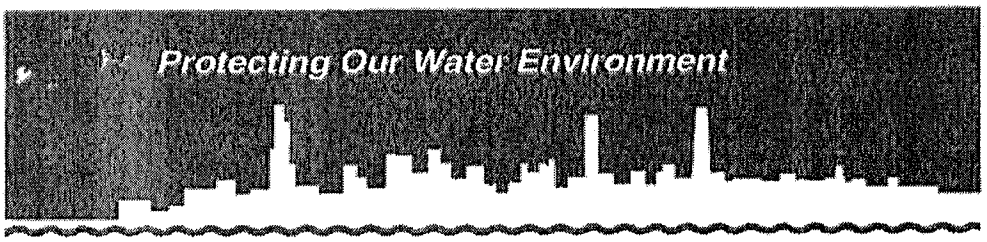
Discharge Number	Swimming			Water Skiing					Land Use	
	Water Depth		Swimming Prohibited	Water Depth		Channel Properties			Bank Access	
	Shallow <2 feet	Deep > 5 feet		Shallow < 4 feet	Adequate > 4 feet	Narrow < 200 feet	Straight	Commercial Navigation	Unrestricted	Restricted
151		X	X		X		X	X		X
152		X	X		X		X	X		X
010	X		X	X		X			X	
153		X			X			X		X
154		X			X		X	X		X
156		X			X		X	X		X
157		X			X		X	X		X
158		X			X		X	X		X
160		X			X		X	X		X
163		X			X		X	X		X
006		X			X		X	X		X
007		X			X		X	X		X

REFERENCES

USEPA. September 1995. *Combined Sewer Overflows: Guidance for Long-Term Control Plan.* Publication Number: EPA 832-B-95-002.

APPENDIX A

TYPICAL LETTER AND ATTACHED SURVEY FORM SEEKING INFORMATION ON SENSITIVE AREAS



Metropolitan Water Reclamation District of Greater Chicago

CECIL LUE-HING RESEARCH AND DEVELOPMENT COMPLEX
6001 West Pershing Road Cicero, Illinois 60804-4112

THOMAS C. GRANATO, Ph.D., BCES
Director of Monitoring and Research

July 8, 2015

Ms. Debbie Bruce
Division Chief of Fisheries
Illinois Department of Natural Resources
One Natural Resources Way
Springfield, IL 62702-1271

Dear Ms. Bruce:

Subject: Sensitive Area Considerations for National Pollutant Discharge Elimination System Permit Number IL0028061, Discharge Numbers 006, 007, 010, 151, 152, 153, 154, 156, 157, 158, 160, and 163

The Metropolitan Water Reclamation District of Greater Chicago is obligated by the subject permit issued by the Illinois Environmental Protection Agency (IEPA) to submit documentation to indicate whether certain outfalls discharge to a sensitive area. We are writing this letter to you to request any information that you have which may be pertinent to this issue. Please respond to this letter within 30 days of receipt thereof.

Attached are a table and map to identify the locations covered in the subject permits.

Sensitive areas are defined by the United States Environmental Protection Agency (USEPA) in the 1994 Combined Sewer Overflow Policy, found in the *Federal Register*, Volume 59, Number 75, Tuesday, April 19, 1994, page 18692. Sensitive areas include:

1. Designated Outstanding National Resource Waters
2. National Marine Sanctuaries
3. Waters with threatened or endangered species and their habitat
4. Shellfish beds
5. Waters with primary contact recreation
6. Public drinking water intakes or their designated protection areas

It is believed that the first four categories above are the subject of regulations administered by federal agencies, such as the USEPA or The United States Fish and Wildlife Service (USF&WS). These may also be subject to State of Illinois regulations administered by comparable state agencies. The latter two categories are the subject of Rules adopted by the

Subject: Sensitive Area Considerations for National Pollutant Discharge Elimination System Permit Number IL0028061, Discharge Numbers 006, 007, 010, 151, 152, 153, 154, 156, 157, 158, 160, and 163

Illinois Pollution Control Board and administered by the IEPA. Therefore, we are sending this inquiry to the USEPA, USF&WS, Illinois Department of Natural Resources, and IEPA.

We understand that there are no Designated Outstanding National Resource Waters (No. 1 above) or National Marine Sanctuaries (No. 2 above) in Illinois. Further, the only public drinking water intakes (No. 6 above) located in the Chicago area are in Lake Michigan. Therefore, in responding to this inquiry, you may disregard these three categories unless you have information contrary to these statements.

Be advised that the Illinois Pollution Control Board has defined primary contact as "Any recreational or other water use in which there is prolonged and intimate contact with the water involving considerable risk of ingesting water in quantities sufficient to pose a significant health hazard, such as swimming and water skiing." (35 IAC Section 301.355)

For your convenience, a response form is also attached. Please complete this form and return it, together with all supporting documentation, to the undersigned. If you have any questions, you may contact Jennifer Wasik, Supervising Aquatic Biologist, at (708) 588-4063.

Thank you for your assistance in this matter.

Very truly yours,

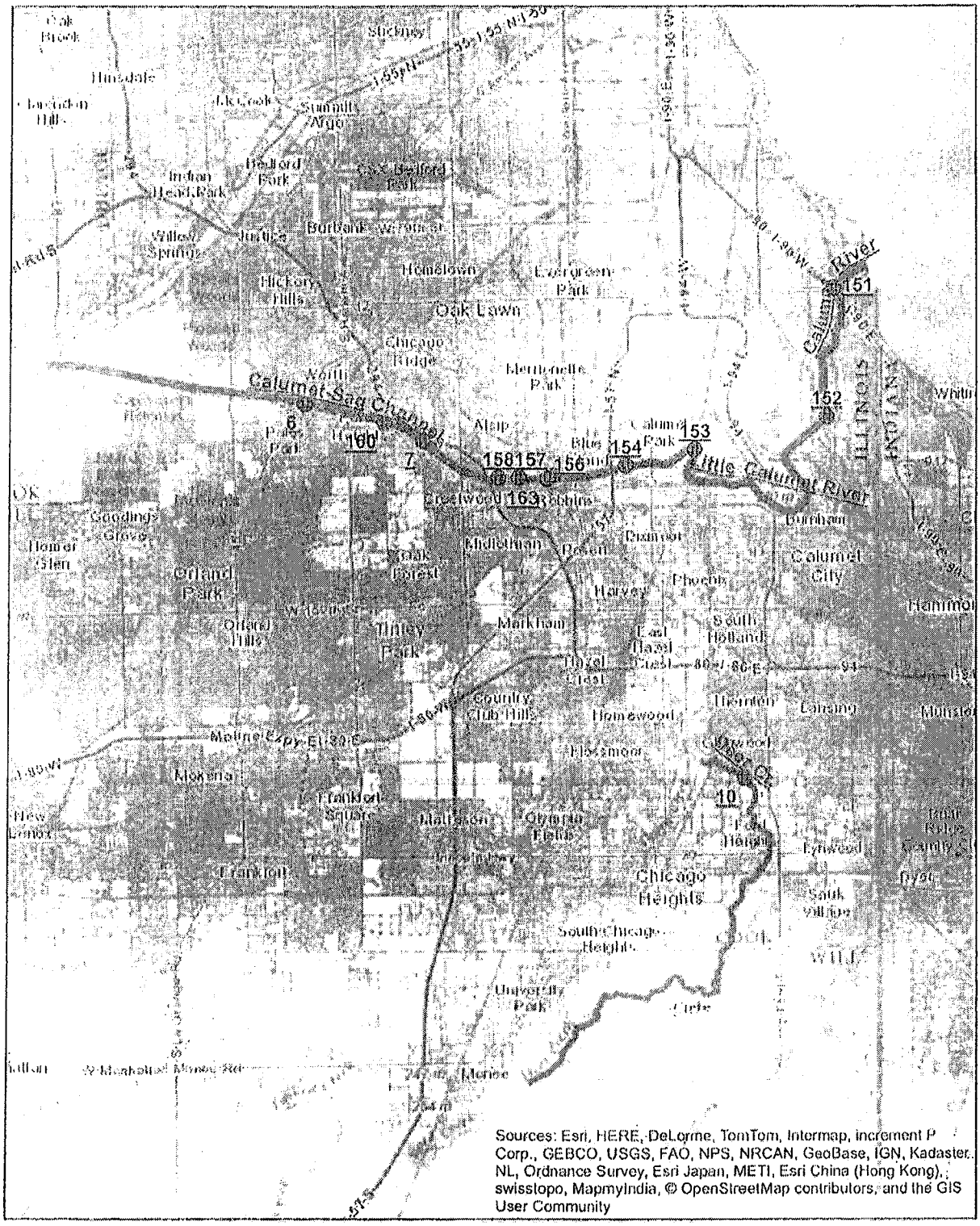
Thomas C. Granato, Ph.D., BCES
Director
Monitoring and Research

TCG:JW:mb
Attachments
cc: M. Sharma

TABLE 1: COMBINED SEWER OVERFLOWS LISTED IN THE CALUMET WATER RECLAMATION PLANT NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT

Discharge Number	Location	Receiving Water
006	Calumet 18 H Inverted Siphon	Calumet Sag Channel
007	Calumet 20B Interceptor	Calumet Sag Channel
010	Glenwood Pump Station	Deer Creek
151	94th Place	Calumet River
152	122nd Street Pump Station	Calumet River
153	Edbrook Avenue (125th St. P.S.) (N)	Little Calumet River
154	Throop Street	Calumet Sag Channel
156	Francisco Avenue	Calumet Sag Channel
157	Central Park	Calumet Sag Channel
158	Pulaski Road P.S. (Crawford Ave.) (N)	Calumet Sag Channel
160	Ridgeland Avenue	Calumet Sag Channel
163	Sacramento	Calumet Sag Channel

Calumet Water Reclamation Plant
Permitted Combined Sewer Overflows



Legend

- CSO Points
- Calumet Channels

N

0 1.75 3.5 7 Miles

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO
Sensitive Area Response Form

Name of Responding Organization: _____

Name of Person Responding: _____

Address: _____

_____

_____

_____

Telephone Number: _____

Signature of Respondent: _____

Subject: NPDES Permit Number IL0028061

Discharge Number(s) _____

We have examined our records and determined that the subject discharges do_____/ do not_____ fall within one or more of the following categories of sensitive areas:

(Circle all that apply)

1. Designated Outstanding National Resource Waters.
2. National Marine Sanctuaries
3. Waters with threatened or endangered species and their habitat.
4. Shellfish beds.
5. Waters with primary contact recreation.
6. Public drinking water intakes or designated protection areas.

Our determination is based on the attached documentation:

(Supply supporting documentation for each category and reference the source in the space provided below)

_____

_____

_____

_____

_____

_____

APPENDIX B

RESPONSES RECEIVED FROM SENSITIVE AREA INQUIRY LETTERS

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

REPLY TO THE ATTENTION OF:

DEC 30 2015

WN-16J

Thomas C. Granato, Director
Monitoring and Research
Metropolitan Water Reclamation District of Greater Chicago
100 E. Erie St.
Chicago, Illinois 60611

Re: Sensitive Area Considerations for Metropolitan Water Reclamation District of Greater Chicago's (MWRD) Calumet WWTP, NPDES Permit No. IL0028061

Dear Mr. Granato:

This letter is in response to your July 8, 2015 request for information that the U.S. Environmental Protection Agency (EPA) has that might be pertinent to sensitive area considerations for combined sewer overflows listed in your letter.

You note in your letter that the Illinois Pollution Control Board (IPCB) has defined primary contact as "[a]ny recreational or other water use in which there is prolonged and intimate contact with the water involving considerable risk of ingesting water in quantities sufficient to pose a significant health hazard, such as swimming and water skiing." As summarized on pages 6-7 of EPA's May 11, 2011, letter to the Illinois Environmental Protection Agency (attached), there is ample evidence in the Illinois Pollution Control Board's administrative record in support of its decision to upgrade recreational uses for the Chicago Area Waterway System that primary contact recreation is occurring in the Calumet-Sag Channel and Little Calumet River.

We also note that the Calumet River at its mouth on Lake Michigan behaves in an estuarial manner, in that water flows not only from the lake into the river, but also into the lake from the river. Consequently, combined sewer overflows (CSOs) into the Calumet River could impact water quality at Lake Michigan beaches including Calumet Park Beach and Hammond Beach. Moreover, as you state in your letter, there are public drinking water intakes in Lake Michigan. In particular, the public drinking water intakes for the following Indiana cities are located nearby the mouth of the Calumet River; Whiting, Hammond and East Chicago. These public drinking water intake locations were considered and included in the Calumet permit's CSO Special Condition 13, on page 17, item 14, in the list of potable water supply agencies that withdraw Lake Michigan water to be notified in the event of CSOs.

CC: Zhang/Wasik
For your
use
1/11/16

If you have any questions related to EPA's response, please contact Janet Pellegrini of my staff. Ms. Pellegrini can be reached by telephone at (312) 886-4298 or by email at pellegrini.janet@epa.gov.

Thank you for your inquiry and your thoughtful consideration of our comments.

Sincerely,

Kevin M. Pierard, Chief
NPDES Programs Branch

Enclosure

cc: Amy Dragovich, IEPA, electronically

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

MAY 11 2011

OFFICE OF WATER

Lisa Bonnett
Interim Director
Illinois Environmental Protection Agency
1021 North Grand Avenue East
Springfield, Illinois 62702

Dear Ms. Bonnett:

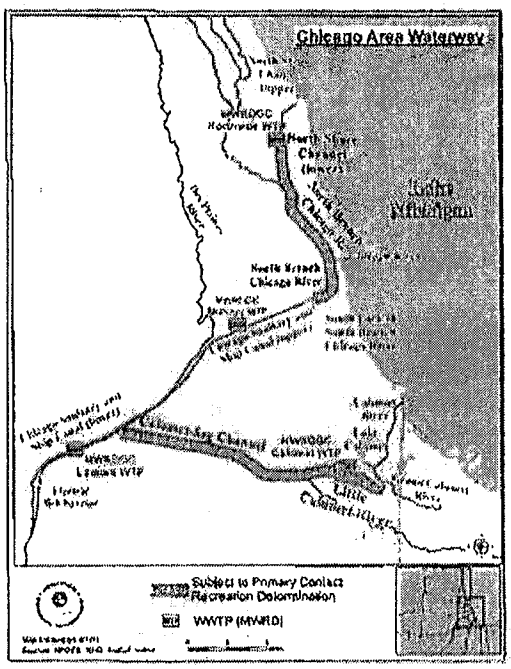
During the past 25 years, the Chicago Area Waterway System (CAWS) has been transformed into a valuable recreational asset that citizens increasingly use for boating, canoeing, kayaking, jet and water skiing, tubing and swimming. The State of Illinois is long overdue on updating its water quality standards to provide the Clean Water Act (CWA) protections that must accompany this transformation. Consequently, the U.S. Environmental Protection Agency has determined that new or revised water quality standards that protect recreation in and on the water are necessary for certain segments of the CAWS. EPA expects Illinois to expeditiously adopt new or revised water quality standards consistent with this determination. If Illinois fails to do so, EPA will promptly do so itself. In either event, to attain those standards, the Metropolitan Water Reclamation District of Greater Chicago (MWRDGC) would likely be required to disinfect discharges from its North Side and Calumet Water Reclamation Plants.

Specifically, EPA has determined that new or revised use designations that provide for recreation in and on the water are necessary for the following segments of the CAWS (hereafter, "the relevant CAWS segments") that are currently designated as Secondary Contact Waters under 35 Ill. Adm. Code 303.441:

- Calumet-Sag Channel;
- Little Calumet River from its junction with the Grand Calumet River to the Calumet-Sag Channel;
- South Branch of the Chicago River;
- North Branch of the Chicago River from its confluence with the North Shore Channel to its confluence with the South Branch; and
- North Shore Channel, excluding the segment extending from the North Side Sewage Treatment Works to Lake Michigan.

These segments are shown below.

This determination is based on EPA's evaluation of new information that was not available in 1985 when Illinois last evaluated water quality standards for the CAWS. This includes information that was generated through (1) the use attainability analysis (UAA) performed from 2002 to 2007 by the Illinois Environmental Protection Agency (IEPA) for the CAWS; and (2) the extensive public hearing and public comment process conducted by the IPCB from 2007 to early 2011. As described more fully below, this information indicates that recreation in and on the water is attainable in the relevant CAWS segments. Consequently, in accordance with 40 CFR § 131.20(a), Illinois is required to revise its standards accordingly. EPA has also determined that, in accordance with 40 CFR § 131.11(b), water quality criteria to protect recreation in and on the water are necessary for the relevant CAWS segments.



EPA's authority to make a determination under section 303(c)(4)(B) of the CWA is discretionary. EPA is choosing to exercise this discretion at this time for these specific waters because Illinois failed to upgrade its standards in a timely manner, notwithstanding the compelling evidence described below that indicates that recreation in and on the water is attainable for these waters. EPA has not made any determination regarding the water quality standards for any other segment of the CAWS or Lower Des Plaines River (LDPR) not specifically addressed by today's determination. Nothing in this determination can or should be construed as expressing any opinion on the appropriateness of the current water quality standards applicable to waters not subject to today's determination. Moreover, nothing in this determination can or should be construed as expressing any opinion on the appropriateness of the proposed revisions to Illinois' water quality standards and regulations pertaining to those other waters that are currently being considered by IPCB; or upon what action EPA might take in response to any new or revised water quality standards that Illinois might adopt for those other waters.

I. Statutory and Regulatory Background

Section 303 of the CWA requires states and authorized tribes (hereafter, collectively referred to as "states") to adopt water quality standards for waters of the United States within their respective jurisdictions. Section 303(c) of the CWA requires, among other things, that state water quality standards include the designated use or uses to be made of the waters and the criteria necessary to protect those uses. Section 303(c)(2)(A) of the CWA requires that states submit new or revised water quality standards to EPA for review and approval or disapproval. Section 303(c)(1) of the CWA requires that, "from time to time (but at least once each three year period beginning with October 18, 1972)," states must "hold public hearings for the purpose of reviewing applicable water quality standards and, as appropriate, modifying and adopting standards." Section 303(c)(4)(B) of the CWA authorizes the Administrator to determine, even in the absence of a state submission, that a new or

revised standard is needed to meet the requirements of the CWA. The authority to make a determination under CWA section 303(c)(4)(B) is discretionary and resides exclusively with the Administrator, unless delegated by the Administrator. For the purposes of today's determination, the Administrator has delegated this authority to me, Nancy K. Stoner, EPA's Acting Assistant Administrator for Water.

Section 101(a)(2) of the CWA states the national interim goal of achieving by July 1, 1983, "water quality which provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water" (hereafter collectively referred to as "the section 101(a)(2) uses") *wherever attainable*. Section 303(c)(2)(A) of the CWA requires water quality standards to "protect the public health and welfare, enhance the quality of water, and serve the purposes" of the CWA. EPA's regulations at 40 CFR Part 131 interpret and implement these provisions through a requirement that water quality standards protect section 101(a)(2) uses unless those uses have been shown to be unattainable based on one of the factors in section 131.10(g). Unless the state demonstrates that a section 101(a)(2) use is not attainable on a water body, the water body must be designated for the 101(a)(2) uses. *See* 40 CFR § 131.10(j)(1) and (k). Where a state adopts water quality standards that do not include the section 101(a)(2) uses for a particular water body segment, the state is required to re-examine the water body segment every three years to determine if any new information has become available. 40 CFR § 131.20(a). If such new information indicates that the uses specified in section 101(a)(2) of the CWA are attainable, the state must revise its standards accordingly. *Id.*

II. History of Illinois Water Quality Standards Subject to this Determination

A. Illinois' Adoption of a Secondary Contact Use Designation

Illinois first adopted the Secondary Contact use designation for the relevant CAWS segments in 1972. According to Illinois, "Secondary Contact" does not provide for recreation in the water. Instead,

> "Secondary Contact" means any recreational or other water use in which contact with the water is incidental or accidental and the probability of ingesting water is minimal. . . . Activities such as fishing, commercial and recreational boating and other shoreline activities where contact is minimal are considered secondary contacts.

IPCB First Notice Opinion and Order in R2008-009(A) at 9 (Aug. 5, 2010).

According to IPCB, when Illinois first adopted the Secondary Contact use designation in 1972, the waters designated as secondary contact had the following characteristics:

1) Routinely dredged and maintained channels, including steep-sided cross sections designed to accommodate barge traffic and optimize flow.
2) Significant sludge deposition, as a result of combined sewer overflows, industrial waste discharges and urban runoff. Sludge depth in the channel system can reach five feet or more despite dredging.
3) Flow reversal projects, such [as the one that occurred in the CAWS] place a premium on head differential. The entire system has minimum slope and, consequently, low velocity, stagnant flow conditions. Because of international agreements on the use of Lake Michigan water, diversion to maintain flow in the system is kept as low as possible.

4) Urban stress is significant within the entire drainage area. There was essentially no recreation potential with most adjacent property commercially owned and access limited.
5) Good physical habitat for aquatic communities in the main channel was non-existent due to the impact of commercial and recreational watercraft use of the system as well as sludge deposition. Watercraft lockage through the Chicago River Control Works averages 25,000 vessels annually; most activity occurs during the summer months.
6) In addition to the above human-made and irretrievable modifications, the CAWS also carries a massive wastewater load including combined sewer overflows during wet weather. During the summer periods, a small "discretionary diversion" of Lake Michigan water is permitted to minimize the combined effects of waste load from the municipal and industrial discharges to the system and poor assimilative capacity.

Id.

B. IEPA's 1984 Removal of Fecal Coliform Criteria for Secondary Contact Waters and 1985 Reevaluation of the Secondary Contact Use Designation for the CAWS

In 1984, EPA approved Illinois' revisions to its water quality standards to remove its then-existing fecal coliform criteria for the Secondary Contact use designation. Following that decision, IEPA reevaluated the Secondary Contact use designation for the CAWS and concluded:

> Primary contact activities are likewise inappropriate due to limited access and danger associated with heavy navigation as well as general aesthetic constraints. USEPA approval of elimination of bacterial indicator water quality standards for Secondary Contact waters supports the elimination of this use.

Attachment to March 4, 1985, letter IEPA to EPA, Region 5, at 8.

EPA approved Illinois' 1985 decision to retain the Secondary Contact use designation for the CAWS. As a result of the decisions removing fecal coliform criteria for the Secondary Contact use designation and retaining the Secondary Contact use designation for the CAWS, the MWRDGC stopped disinfecting discharges from the Calumet and North Side Water Reclamation Plants into relevant CAWS segments.

C. Illinois' 2002-2011 Reevaluation of the Secondary Contact Use Designation for the CAWS

As a result of a UAA IEPA performed from 2002-2007, IEPA proposed that IPCB adopt revised water quality standards for the CAWS, including revised recreational use designations. IEPA proposed replacing the current Secondary Contact use designation with three new use designations: "Incidental Contact Recreation waters," "Non-Contact Recreation water," and "Non-Recreation waters." None of the proposed new uses provide for recreation in the water. However, a related IEPA proposal would require the disinfection of wastewater from MWRDGC's three largest sewage treatment facilities. For a detailed summary of IEPA's disinfection proposal, *see* PC 567 (Post-Hearing Comments of the IEPA). Today's determination makes frequent reference to documents included in IPCB Docket Numbers R2008-009, R2008-009(A) and R2008-009(B). Specifically, documents referred to as "PC," "Exh.," "Initial Filing," and "Transcript" are documents from the IPCB docket. Many of these documents can be accessed via the IPCB website at http://www.ipcb.state.il.us/COOL/external/PendingRulemakings.aspx, or by contacting the IPCB Clerk's Office.

From 2007 through 2011, IPCB held 41 days of public hearings and received approximately 450 public comments expressing support for improving water quality and requiring disinfection to protect recreational uses of the waterways. *See* PC 568 at 13 and 25. Six entities, including MWRDGC, expressed concern about or opposed increased recreational use of the relevant CAWS segments and/or disinfection. *See* PC 295, PC 303, PC 305, and PC 499; 06/19/08 Transcript. On August 5, 2010, IPCB proposed rules for first notice that would result in the adoption of IEPA's proposed recreational use designations for the CAWS. IPCB has not proceeded to take the next steps required under Illinois law to finalize that proposal (*i.e.*, the IPCB has not proceeded to issue second and third notices on that proposal); and has not expressed any opinion on IEPA's effluent disinfection proposal.

III. Information Generated Subsequent to 1985 Indicates That Recreation In and On the Water is Attainable for the Relevant Segments of the CAWS

As described below, new information generated through the ongoing public process by IEPA and IPCB indicates that recreation in and on the water is now attainable for the relevant segments of the CAWS.

A. Information Indicates That There are Numerous Means for the Public to Access All Relevant Segments of the CAWS to Recreate In and On the Water

The first factor cited by IEPA in support of its 1985 decision to retain the Secondary Contact use designation was IEPA's conclusion that "[p]rimary contact activities are . . . inappropriate due to limited access." IEPA's conclusion was based on its belief at the time that "[t]here was essentially no recreation potential with most adjacent property commercially owned and access limited." Attachment to March 4, 1985, letter IEPA to EPA, Region 5, at 8.

Today, however, MWRDGC and the Forest Preserve District of Cook County own substantial portions of the land adjoining the North Shore Channel, North Branch of the Chicago River, Little Calumet River, and Calumet-Sag Channel, *see* http://www.mwrd.org/irj/portal/anonymous/realestateatlas and http://fpdcc.com/visit-us/maps/division-maps, and these governmental entities can provide public access to the waterways. Indeed, as demonstrated by information in IPCB's record, each of the waters subject to this determination already has at least one, and often several, constructed motor boat, canoe, kayak and/or row boat launches that provide access to the water. In addition, two or more areas of public lands, such as park district and forest preserve district lands that could provide direct, open public access to the waters' shoreline, are adjacent to each of the relevant CAWS segments. Lastly, a number of exhibits from the IPCB record make clear that there now are numerous marinas, docks, ladders, and/or gently sloping banks present at various points in the relevant CAWS segments by which individuals can directly enter the waterways to recreate in and on the water. *See* Att. L of Initial Filing (10/27/07), Exh. 346 and Exh. 353 (boat launches); Exh. 264 (docks); Exh. 350 (ladders); and Exh. 351 (gently sloping banks). The public can also access all segments of these water bodies to recreate in and on the water via recreational power boats, jet skis, canoes, kayaks and other watercraft.

Specific access points include the North Shore Channel, which is lined with public land and an associated walk/bike path (Att. B of Initial Filing at 3-8); the North Branch of the Chicago River, which is partially lined with public land (Att. B of Initial Filing at 4-44) and an associated walk/bike path, has 8 adjacent Chicago Park District Parks and 5 canoe launches (Att L. of Initial Filing), as well as serving as a training location for 3 crew teams (Exh. 269); the South Branch of the Chicago River, which has two Chicago Park District Parks and at least two other access points (a marina and dock; Exh. 346); the

Little Calumet River, which is home to at least 9 marinas and a public boat launch (Att. L of Initial Filing), as well as 2 adjacent forest preserves (Att. B of Initial Filing at 4-83); and, the Calumet-Sag Channel, which has approximately 5 miles of river with adjacent forest preserves (http://fpdcc.com/visit-us/maps/division-maps), at least 2 public boat launches (Att. L of Initial Filing), and has served as a site for crew events (Exh. 330 at 3). In addition, local government agencies are working together to improve public access to the CAWS via the implementation of the "Northeast Illinois Regional Water Trail Plan" *See* Exh. 345; *see also* Exhs. 358-363 documenting efforts to improve access in the Calumet area.

For the reasons described above, recreation in and on the water is no longer unattainable due to lack of public access to the relevant CAWS segments.

B. Information Indicates That Barge Traffic Does Not Render Recreation In and On the Water Unattainable in the Relevant CAWS Segments

The second factor cited by IEPA for its 1985 decision to retain the Secondary Contact use designation for the CAWS was IEPA's conclusion that "[p]rimary contact activities are likewise inappropriate due to . . . danger associated with heavy navigation." IEPA's conclusion was based upon IEPA's belief that:

> [t]he waterway was used almost exclusively for commercial barge transport of bulk commodities such as grain, coal, petroleum products and raw minerals; and this barge traffic rendered the waters unsafe for primary contact recreational use.

Attachment to March 4, 1985 Letter from IEPA to EPA, Region 5 at 4.

Today, however, the relevant segments of the CAWS are not used "almost exclusively" for commercial transport of bulk commodities. Instead, each of these segments is now also used for recreational purposes. Specifically, as described above, numerous motor boat, canoe, kayak and/or row boat launches have been constructed for the purposes of providing access for recreational use of the water in all segments; and there is in fact motor-boating, fishing, canoeing, kayaking, rowing, jet skiing, water skiing, tubing, swimming and/or wading occurring in all segments. *See* summaries provided in PC 296 at App. 1 and 2; PC 555 at Att. A; *see also* information provided below from the IPCB record related to swimming observations.

Moreover, in 2009, barge traffic accounted for less than 1% of the total number of vessels traveling through the Chicago lock, and commercial vessel traffic made up only about 10% of the vessels traveling through the O'Brien lock (*see* http://www.ndc.iwr.usace.army.mil/lpms/lock2009web.htm). Indeed, barge traffic is extremely rare in the northern part of the North Branch of the Chicago River and the entire North Shore Channel, as there are no federal navigation channels in the CAWS upstream of Addison Street (*see* http://www2.mvr.usace.army.mil/NIC2/Documents/chart130.pdf). Given the rarity or non-existence of barge traffic in the North Shore Channel and North Branch of the Chicago River, barge traffic in those segments does not render recreation in and on the water unattainable.

Finally, even in the segments of the CAWS where barge traffic is heavier (in the Calumet-Sag Channel, Little Calumet River, North Branch of the Chicago River downstream of Addison Street, and South Branch of Chicago River), there is evidence from the IPCB record that recreation in the water is occurring. *See* PC 478 at II-5 (Chicago Health, Environmental Exposure, and Recreation Study: 2 people diving or jumping at Clark Park on North Branch downstream of Addison Street, 1 person tubing and 3 people water skiing on Cal-Sag Channel); Exh. 63 (MWRD 2005-2007 recreational use surveys: 3

people swimming, diving or jumping in Little Calumet River, 4 people tubing or skiing in Cal-Sag Channel; Att. B of Initial Filing at 4-47, 4-84 and 4-85 (CAWS UAA: 1 person swimming and 6 people skiing or tubing in Little Calumet River, 1 person swimming and 7 people skiing or tubing in Cal-Sag Channel, and 5 people skiing or tubing in South Branch of Chicago River); Exh. 36 (7% and up to 52% of survey responses noted swimming and skiing/tubing, respectively, in participating South Branch of Chicago River and Little Calumet River marinas); Exh. 330 at 2 (Vic Crivello, a recreational boater who boats the southern portions of the CAWS three weekends a month from May to October, states that "hundreds of families recreate on the Calumet River system . . . power boating, waterskiing, jet skiing, tubing, kayaking, swimming, rowing and fishing. . . There can be as many as 100 boats on a given day [and] jet skiers and water-skiers are becoming more common."). The fact that recreation in the water is now occurring in these more-heavily-barged segments of the CAWS demonstrates that recreation in the water is in fact attainable for those segments of the CAWS, notwithstanding the fact that those segments are also used for commercial navigation.

The information described in this letter and today's determination indicates that new or revised water quality standards are necessary to protect recreation in and on the water. However, nothing in today's determination, the Clean Water Act or EPA's regulations dictate how Illinois must exercise its police and other powers, including its authorities and responsibilities under the Public Trust Doctrine, to manage use of its waters for the common good. For example, to protect safety and/or to accommodate commercial navigational interests, Illinois may choose to impose time, manner and place restrictions on recreational uses of its waterways, commercial navigational uses of its waterways, or both. *See* Water Quality Standards for Puerto Rico, 69 Fed Reg. 3514, 3519 (Jan. 26, 2004).

C. MWRDGC's Need to Occasionally "Draw Down" Water Levels in Anticipation of Storm Events to Prevent Flooding Does Not Render Recreation In and On the Water Unattainable in the Relevant Segments of the CAWS

There have been generalized assertions in the IPCB proceedings that the need to "draw down" the water levels in the LDPR and CAWS to allow storm water runoff to drain into those waterways for flood control purposes results in unsafe recreational conditions. However, it appears that the only specific evidence provided in support of those generalized assertions in the 10 years that Illinois has been evaluating these issues was testimony from a single MWRDGC employee about one incident that occurred in the vicinity of the Lockport Lock and Dam, at the point where MWRDGC opens the locks to begin the "draw down" process (09/08/08P Transcript at 79-80). There does not appear to be any evidence that these "draw downs" would impact recreation occurring in the relevant segments of the CAWS, all of which are at least 12 miles upstream from the Lockport Lock and Dam. Consequently, EPA does not agree that "draw down" conditions render recreation in and on the water unattainable in the relevant segments of the CAWS. Even assuming that unsafe conditions are in fact created when there is a need for MWRDGC to draw down the water levels, those conditions apparently only occur during infrequent, heavy storms, and not during dry (or even moderately wet) weather. To the extent that such conditions do occur in a manner that might threaten public safety, Illinois can exercise its police and other authorities to protect public safety; perhaps by working with MWRDGC to institute a warning system when MWRDGC anticipates the need to drawn down water.

D. There Has Been No Demonstration That Construction of Measures Necessary to Attain Recreation In and On the Water Will Result in Substantial and Widespread Social and Economic Impact

One factor states can use to demonstrate that section 101(a) uses are not attainable is that controls necessary to attain such uses "would result in substantial and widespread social and economic impact." 40 CFR § 131.10(g)(6). Illinois did not rely upon this factor when it submitted its justification in 1985 for retaining the Secondary Contact use designation. Similarly, although there is a great deal of evidence in the IPCB proceedings regarding the costs of disinfecting discharges from the North Side and Calumet Water Reclamation Plants and completing the Tunnel and Reservoir Plan (TARP), none of the participants in the IEPA and IPCB proceedings that have been occurring since 2002 have cited this factor as a basis for not adopting use designations that provide for recreation in and on the water. IEPA and IPCB also did not rely upon this factor to support the proposed recreational use designations that are currently pending before IPCB. Consequently, there is no basis to conclude that the cost of constructing measures necessary to attain recreation in and on the water "would result in substantial and widespread social and economic impact."

It is worth noting in this regard that MWRDGC has an enormous service population, greater than 5 million people (MWRDGC 2011 Budget in Brief at 3), and so MWRDGC is better able to absorb substantial construction and operation costs than if it had a smaller service population. Additionally, MWRDGC "'ranks as one of the lowest cost providers of wastewater treatment in the nation.'" MWRDGC Press Release of August 14, 2009 (quoting Fitch Rating Report). As a result, according to MWRDGC, a resident in MWRDGC's service area who owns a house worth $267,000 (the average value of a house in Cook County) pays $222 per year in property taxes for sewer services. *See* MWRDGC's "President's Annual Message 2010" (available at http://www.mwrd.org). This annual amount is well below the average annual sewer rates paid by residents of many other municipalities. *See* Summary of Annual Sewer Rates for Selected Cities (available from EPA); *see also* Ohio EPA 2009 Sewer and Water Rate Survey (the estimated average annual sewer bill paid by household in the State of Ohio in 2009 was $514).

EPA recognizes it will take MWRDGC time to construct disinfection facilities and complete construction of TARP. Because this would be the first time that a use designation providing for recreation in and on the water would be included in Illinois' water quality standards for the relevant segments of the CAWS, it may be permissible in accordance with 40 CFR §122.47 for the NPDES permits based on these new and revised water quality standards to include compliance schedules for construction of disinfection facilities and completion of TARP, provided that any such compliance schedules are "appropriate" and "require compliance as soon as possible," consistent with 40 CFR §. 122.47(a)(1), and are authorized under Illinois' water quality standards.

E. Two Additional Factors Cited by IEPA in 1985 for Retaining the Secondary Contact Use Designation are No Longer Relevant

IEPA cited two additional factors in support of it its decision in 1985 to retain the Secondary Contact use designation for the CAWS: (1) recreation in the water was inappropriate due to general aesthetic constraints and (2) EPA's approval of Illinois' elimination of bacterial indicator water quality standards for the Secondary Contact use designation supported retaining the Secondary Contact use designation.

As an initial matter, neither of these factors is relevant in evaluating the attainability of recreation in and on the water. *See* 40 CFR § 131.10(g) (listing relevant attainability factors). In addition, concerted efforts and funding from numerous entities (including EPA, the State of Illinois, the City of Chicago and other local governments, MWRDGC and their service population, and numerous environmental and recreational organizations), have led to remarkable changes in the aesthetic condition of the CAWS over the past 25 years, such that these waterways are now an important local asset. According to testimony of the Director of the Friends of the Chicago River, (5/6/09 Transcript at 40), the City of Chicago and the Chicago Park District have spent approximately $100 million to improve public access to the waterways and to implement the Chicago River Agenda (Exh. 276). These efforts help to implement the City's vision, as outlined in the Chicago River Agenda for the CAWS to provide a "second shoreline" to the City. *See also* 10/20/2010 Transcript at 146-147 (explaining how the CAWS waters are "scenic in their own strange industrial and urban way").

Finally, in light of the new information summarized above indicating that recreation in and on the water is now attainable for the relevant segments of the CAWS, EPA's action twenty-seven years ago with respect to Illinois's deletion of its fecal coliform criteria for the Secondary Contact use designation is not relevant in evaluating whether new or revised water quality standards are necessary today.

IV. Determination

EPA's evaluation of new information as described above indicates that recreation in and on the water is attainable for the relevant segments of the CAWS. In light of this new information, 40 CFR § 131.20(a) requires that Illinois revise its water quality standards accordingly, which it has not done. EPA, therefore, hereby determines in accordance with section 303(c)(4)(B) of the CWA that new or revised designated uses that provide for recreation in and on the water, and the criteria necessary to protect such uses, are necessary to meet the requirements of the CWA for the relevant segments of the CAWS. In accordance with 40 CFR § 131.11(a), "[s]uch criteria must be based on sound scientific rationale and must contain sufficient parameters or constituents to protect the designated use." Such criteria should be based on EPA's 1986 Ambient Water Quality Criteria for Bacteria, which EPA developed in accordance with Section 304(a) of the CWA, the 304(a) guidance modified to reflect site-specific conditions, or other scientifically defensible methods. *See* 40 CFR § 131.11(b)(1)(i).

Today's determination is an important step toward ensuring that water quality standards are updated to provide protection to the increasing number of people who wish to recreate in and on the CAWS. EPA expects Illinois to adopt use designations and criteria consistent with this determination. Otherwise, EPA will promptly propose regulations setting forth new or revised use designations that provide for recreation in and on the water.

Sincerely,

Nancy K. Stone
Acting Assistant Administrator

cc: John Therriault, IPCB Clerk's Office (for inclusion in R2008-009(A) docket)
Marcia Willhite, IEPA
Susan Hedman, Regional Administrator, Region 5

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO
Sensitive Area Response Form

Name of Responding Organization: U.S. Fish and Wildlife Service
Name of Person Responding: Shawn Cirton
Address: 230 S. Dearborn St., Ste. 3300
Chicago, IL 60604

Telephone Number: 847-366-2345
Signature of Respondent: Shawn Cirton

Subject: NPDES Permit Number IL0028061

Discharge Number(s) 006, 007, 010, 151, 152, 153, 154, 156, 157, 158, 160, & 163

We have examined our records and determined that the subject discharges do ___ / do not ✓ fall within one or more of the following categories of sensitive areas:

(Circle all that apply)
1. Designated Outstanding National Resource Waters.
2. National Marine Sanctuaries
3. Waters with threatened or endangered species and their habitat.
4. Shellfish beds.
5. Waters with primary contact recreation.
6. Public drinking water intakes or designated protection areas.

Our determination is based on the attached documentation:

(Supply supporting documentation for each category and reference the source in the space provided below)

Our records show that no Federally listed species are present in the above discharge areas.

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO
Sensitive Area Response Form

Name of Responding Organization: Illinois Department of Natural Resources
Name of Person Responding: Debbie Bruce, Chief
Address: Division of Fisheries
One Natural Resource Way
Springfield, IL 62702-1271

Telephone Number: 217-524-4111
Signature of Respondent: Debbie Bruce

Subject: NPDES Permit Number IL0028061

Discharge Number(s) 006, 007, 010, 151, 152, 153, 154, 156, 157, 158, 160, & 163

We have examined our records and determined that the subject discharges do ____ / do not ✓ fall within one or more of the following categories of sensitive areas:

(Circle all that apply)
1. Designated Outstanding National Resource Waters.
2. National Marine Sanctuaries
3. Waters with threatened or endangered species and their habitat.
4. Shellfish beds.
5. Waters with primary contact recreation.
6. Public drinking water intakes or designated protection areas.

Our determination is based on the attached documentation:

(Supply supporting documentation for each category and reference the source in the space provided below)

The State Threatened banded Killifish has been collected by IDNR Fisheries biologists in the Calumet River and Little Calumet River. However they are fairly common in the NorthEast part of State in rivers, streams and lakes.

From: Demissie, Misganaw <demissie@illinois.edu>
Sent: Tuesday, December 29, 2015 11:07 AM
To: Wasik, Jennifer
Cc: McConkey, Sally A; Roadcap, George S; Lian, Yanqing
Subject: RE: Sensitive Area Considerations for National Pollutant Discharge Elimination System Permit Number IL0028061

Hello Jennifer,

The Water Survey has received and reviewed " the Sensitive Area Considerations for National Pollution Discharge Elimination System Permit Number IL0028061" and we have no relevant comments.

Thank you for requesting our input.

Misganaw Demissie, Ph.D., P.E., D.WRE, F.ASCE
Director
Illinois State Water Survey
Prairie Research Institute
University of Illinois at Urbana-Champaign
2204 Griffith Drive, MC-674
Champaign, IL 61820
(217) 333-4753
email:demissie@illinois.edu
http://www.isws.illinois.edu

From: Wasik, Jennifer [mailto:WasikJ@mwrd.org]
Sent: Monday, December 21, 2015 9:43 AM
To: Demissie, Misganaw
Subject: Sensitive Area Considerations for National Pollutant Discharge Elimination System Permit Number IL0028061

Hello Dr. Demissie,

The Metropolitan Water Reclamation District of Greater Chicago sent the attached letter dated July 8, 2015, requesting any information or comment you may have regarding sensitive areas in the Calumet River System near the District's combined sewer overflow discharges. If you wouldn't mind, could you please confirm that you received the letter and have no comments? Please respond by January 15, 2016.

Thank you and happy holidays.

From: McCann, Ken <Ken.McCann@Illinois.gov>
Sent: Monday, December 21, 2015 12:00 PM
To: Wasik, Jennifer
Subject: RE: Sensitive Area Considerations for National Pollutant Discharge Elimination System Permit Number IL0028061

Jennifer -- I have received this letter and have no comments.
ken
Ken McCann, MA, LEHP
Chief, Division of Environmental Health
Illinois Department of Public Health
Ken.McCann@illinois.gov

From: Wasik, Jennifer [mailto:WasikJ@mwrd.org]
Sent: Monday, December 21, 2015 9:45 AM
To: McCann, Ken
Subject: FW: Sensitive Area Considerations for National Pollutant Discharge Elimination System Permit Number IL0028061
Hello Dr. McCann,
The Metropolitan Water Reclamation District of Greater Chicago sent the attached letter dated July 8, 2015, requesting any information or comment you may have regarding sensitive areas in the Calumet River System near the District's combined sewer overflow discharges. If you wouldn't mind, could you please confirm that you received the letter and have no comments? Please respond by January 15, 2016.
Thank you and happy holidays.

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Jennifer Wasik
Supervising Aquatic Biologist
Metropolitan Water Reclamation District of Greater Chicago
Monitoring and Research Department
6001 W. Pershing Road
Cicero, IL 60804
708.588.4063
708.588.3807 (fax)
jennifer.wasik@mwrd.org

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO
Sensitive Area Response Form

Name of Responding Organization: Illinois Environmental Protection Agency BOW
Name of Person Responding: Robert Mosher
Address: 1021 North Grand Ave. East
Springfield, IL 62794-9276

Telephone Number: 217/558-2012
Signature of Respondent: Robert Mosher

Subject: NPDES Permit Number IL0028061

Discharge Number(s) 006, 007, 010, 151, 152, 153, 154, 156, 157, 158, 160 and 163

We have examined our records and determined that the subject discharges do ____ / do not X fall within one or more of the following categories of sensitive areas:

(Circle all that apply)

1. Designated Outstanding National Resource Waters.
2. National Marine Sanctuaries.
3. Waters with threatened or endangered species and their habitat.
4. Shellfish beds.
5. Waters with primary contact recreation.
6. Public drinking water intakes or designated protection areas.

Our determination is based on the attached documentation:

(Supply supporting documentation for each category and reference the source in the space provided below)

See attachment

MWRDGC Sensitive Area Response Form
Robert Mosher Illinois Environmental Protection Agency, Bureau of Water

Illinois EPA agrees that Items #1, 2 and 6 are not pertinent to this area. These categories do not exist in surface waters in the area of concern.

Waters with threatened and endangered species are the purview of the Illinois Department of Natural Resources (IDNR). Illinois EPA recommends that an Eco-CAT inquiry be submitted for each discharge location. This will access the IDNR database for threatened and endangered species and also natural areas.

Shellfish beds are also investigated by IDNR. A resource for mussels beds is found on the following website: http://www.dnr.illinois.gov/conservation/IWAP/Pages/FreshwaterMusselProjects.aspx

Illinois EPA does not know if primary contact recreation exists at the discharge locations. Testimony about primary contact recreation may have been given for these sites at a recent Illinois Pollution Control Board rulemaking of which MWRDGC was a participant. Illinois EPA does not have any further information.

FOREST PRESERVES of Cook County

December 22, 2015

Thomas C. Granato
Metropolitan Water Reclamation District of Greater Chicago
6001 W. Pershing Road
Cicero, IL 60804

Re: Sensitive area considerations for National Pollutant Discharge Elimination System Permit Number IL0028061, Discharge Numbers 006, 007, 010, 151, 152, 153, 154, 156, 157, 158, 160, and 163

Mr. Granato,

This is to acknowledge receipt of your letter, dated July 8, 2015, regarding potential outfall discharge into sensitive areas located on Forest Preserves of Cook County property. We have examined our records and have determined that the subject discharges do not fall within any of the six (6) categories of sensitive areas defined in your letter.

In regards to categories No. 3 and 4, we do not anticipate any impacts to waters with threatened or endangered species, nor to any extant shellfish beds located on Forest Preserve District property.

Furthermore, primary contact aquatic recreational activities are prohibited in Forest Preserve watercourses, lakes, ponds and sloughs under section 2-4-4, Ord. No. 11-O-09 of the Forest Preserve District code. This includes swimming, and certain boating practices. Therefore, impacts due to contamination in this category are negligible.

We are in agreement with and have no further comment regarding your assessment of the three (3) remaining categories of sensitive area outlined in your letter.

As requested, a sensitive area response form is enclosed. If you have any further questions or concerns, you may contact me at (708) 711-1180.

Sincerely,

John McCabe
Director
Department of Resource Management

536 N. Harlem Avenue • River Forest, IL • 60305 • fpdcc.com

773-261-8300 | 708-366-9420 | 800-870-3666 | TDD: 708-771-1189

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO
Sensitive Area Response Form

Name of Responding Organization: Forest Preserves of Cook County

Name of Person Responding: Charles O'Leary, Deputy Director of Resource Management

Address: 536 N. Harlem Avenue
River Forest, IL 60305

Telephone Number: 708-771-1180

Signature of Respondent:

Subject: NPDES Permit Number IL0028061

Discharge Number(s) 006, 007, 010, 151, 152, 153, 154, 156, 157, 158, 160, 163

We have examined our records and determined that the subject discharges do [ ] / do not [✓] fall within one or more of the following categories of sensitive areas:

(Circle all that apply)

1. Designated Outstanding National Resource Waters.
2. National Marine Sanctuaries
3. Waters with threatened or endangered species and their habitat.
4. Shellfish beds.
5. Waters with primary contact recreation.
6. Public drinking water intakes or designated protection areas.

Our determination is based on the attached documentation:

(Supply supporting documentation for each category and reference the source in the space provided below)

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO
Sensitive Area Response Form

Name of Responding Organization: City of Blue Island
Name of Person Responding: Robert C. Houlf
Address: 13051 S. Greenwood
Blue Island IL
60406

Telephone Number: 708-396-7061 ext 7064
Signature of Respondent: Robert C. Houlf

Subject: NPDES Permit Number IL0028061

Discharge Number(s) 156

We have examined our records and determined that the subject discharges do ____ / do not X fall within one or more of the following categories of sensitive areas:

(Circle all that apply)
1. Designated Outstanding National Resource Waters.
2. National Marine Sanctuaries
3. Waters with threatened or endangered species and their habitat.
4. Shellfish beds.
5. Waters with primary contact recreation.
6. Public drinking water intakes or designated protection areas.

Our determination is based on the attached documentation:

(Supply supporting documentation for each category and reference the source in the space provided below)

Combined Sewer Operations and Maintenance Plan
Sections 2.3 and 3.0

2.3 *USE OF AFFECTED WATERCOURSE*

In 1982, the Illinois Pollution Control Board (IPCB) adopted water quality standards designating the waters of the Little Calumet River and the Calumet-Sag Channel as secondary contact waters.[4] Secondary contact waters are defined as any recreational or other water use in which contact with the water is either incidental or accidental, where the probability of ingesting appreciable quantities of water is minimal. Such activities would include fishing, commercial and recreational boating and any limited contact incident to shoreline activity. Also, both watercourses are designated as "not required" to meet the public and food processing water supply standards.

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[4] State of Illinois, Illinois Environmental Protection Agency; Rules and Regulations; Title 35; Environmental Protection, Subtitle C: Water Pollution, Chapter I: Pollution Control Board; December 1, 1982.

Currently, drainage of stormwater and snowmelt runoff from the watershed area is the most prominent use of the Little Calumet River, Calumet-Sag Channel, Midlothian Creek, and Stony Creek East. The Calumet-Sag Channel is also a part of the Illinois Waterway System, and provides an access to the Chicago Sanitary and Ship Canal for the heavily industrialized area in the vicinity of the Calumet and Indiana harbors on Lake Michigan. A limited amount of recreational use is made of the Calumet-Sag Channel and the Little Calumet River, mostly for boating. The rivers and creeks are accessible to the general public at riverside parks, etc. and flow through a generally residential area, where homes back up to the river. Both creeks, however, are too shallow for any type of boating. River banks are used for recreational purposes in the parks, although water contact activities are severely limited.

Due to the physical condition of these watercourses, and their IPCB designation as secondary contact waters, none of the outfalls are believed to be located in ecologically sensitive areas.

3.0 CONTROL STRATEGY

The control strategies for operation of the City's combined sewer system and CSO outfalls can be divided into two categories: source controls and system controls. Source controls pertain to programs that can be implemented by the municipality on a community-wide basis to (1) reduce the amount of contaminants in the storm runoff entering the sewers, and (2) lessen the frequency of CSO occurrences, and localized surcharging, through a combined sewer maintenance program. System controls include proper operation and maintenance of regulator devices, maximization of combined sewer system storage capacity prior to CSO discharges, and optimization of treatment plant operations.

The most important system control will not be provided directly by the City of Blue Island. This control is the Tunnel and Reservoir Plan (TARP), commonly known as the deep tunnel, currently under construction by the MWRDGC.

3.1 TUNNEL AND RESERVOIR PLAN (TARP)

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO
Sensitive Area Response Form

Name of Responding Organization: City of Palos Hills
Name of Person Responding: Dave Weakley
Address: 10335 Roberts Road
Palos Hills, IL 60465

Telephone Number: (708) 598-3400 Ext 1111
Signature of Respondent: Dave Weakley

Subject: NPDES Permit Number IL0028061

Discharge Number(s) 006

We have examined our records and determined that the subject discharges do X / do not ____ fall within one or more of the following categories of sensitive areas:

(Circle all that apply)
1. Designated Outstanding National Resource Waters.
2. National Marine Sanctuaries
3. Waters with threatened or endangered species and their habitat.
4. Shellfish beds.
5. Waters with primary contact recreation.
6. Public drinking water intakes or designated protection areas.

Our determination is based on the attached documentation:

(Supply supporting documentation for each category and reference the source in the space provided below)

Categories 1, 2 and 6 can be disregarded as discussed from the July 8th letter from MWRD. Category 3 is supported by an EcoCAT Map showing endangered species in the surrounding areas. The two species are the Hine's Emerald Dragonfly and Northern Long-eared Myotis (Bat). A map of the critical habitat of the dragonfly is attached showing it is not in the CSO location (USF&WS). As for the bats, the trees are their habitat and not the water. It is assumed that there are no shellfish beds in the location as no supporting information to suggest so was found. Category 5 has a map from the EPA showing the location in the Cal Sag as a water with primary contact, as well as a subsection from the Pollution Control Board stating the Cal Sag as having high recreational use (Jet Skiing), and an amendment stating the channel as a primary contact water (Joint Committee on Administration Rules).

EcoCAT
Ecological Compliance Assessment Tool

Applicant: Christopher B. Burke Engineering, Ltd.
Contact: Brian Kubilius
Address: 9575 West Higgins Road, Suite 600
Rosemont, IL 60018

IDNR Project Number: 1601155
Date: 07/31/2015

Project: Palos Hills Discharge Areas
Address: 10335 S Roberts Road, Palos Hills

Description: The project is focused on identifying if outfalls discharge into sensitive areas, impacting endangered and threatened species.

Natural Resource Review Results

Consultation for Endangered Species Protection and Natural Areas Preservation (Part 1075)

The Illinois Natural Heritage Database shows the following protected resources may be in the vicinity of the project location:

Palos Fen INAI Site
Palos Fen Nature Preserve
Hine's Emerald Dragonfly *(Somatochlora hineana)*
Northern Long-Eared Myotis *(Myotis septentrionalis)*

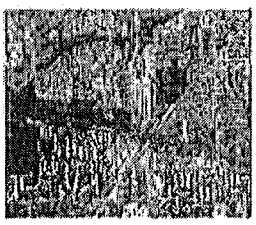
An IDNR staff member will evaluate this information and contact you to request additional information or to terminate consultation if adverse effects are unlikely.

Location

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

County: Cook

Township, Range, Section:
37N, 12E, 23
37N, 12E, 24



IL Department of Natural Resources Contact
Keith Shank
217-785-5500
Division of Ecosystems & Environment

Government Jurisdiction
IL Environmental Protection Agency
Terri LeMasters
1021 North Grand Avenue East
P.O. Box 19276
Springfield, Illinois 62702

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.

Terms of Use

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.

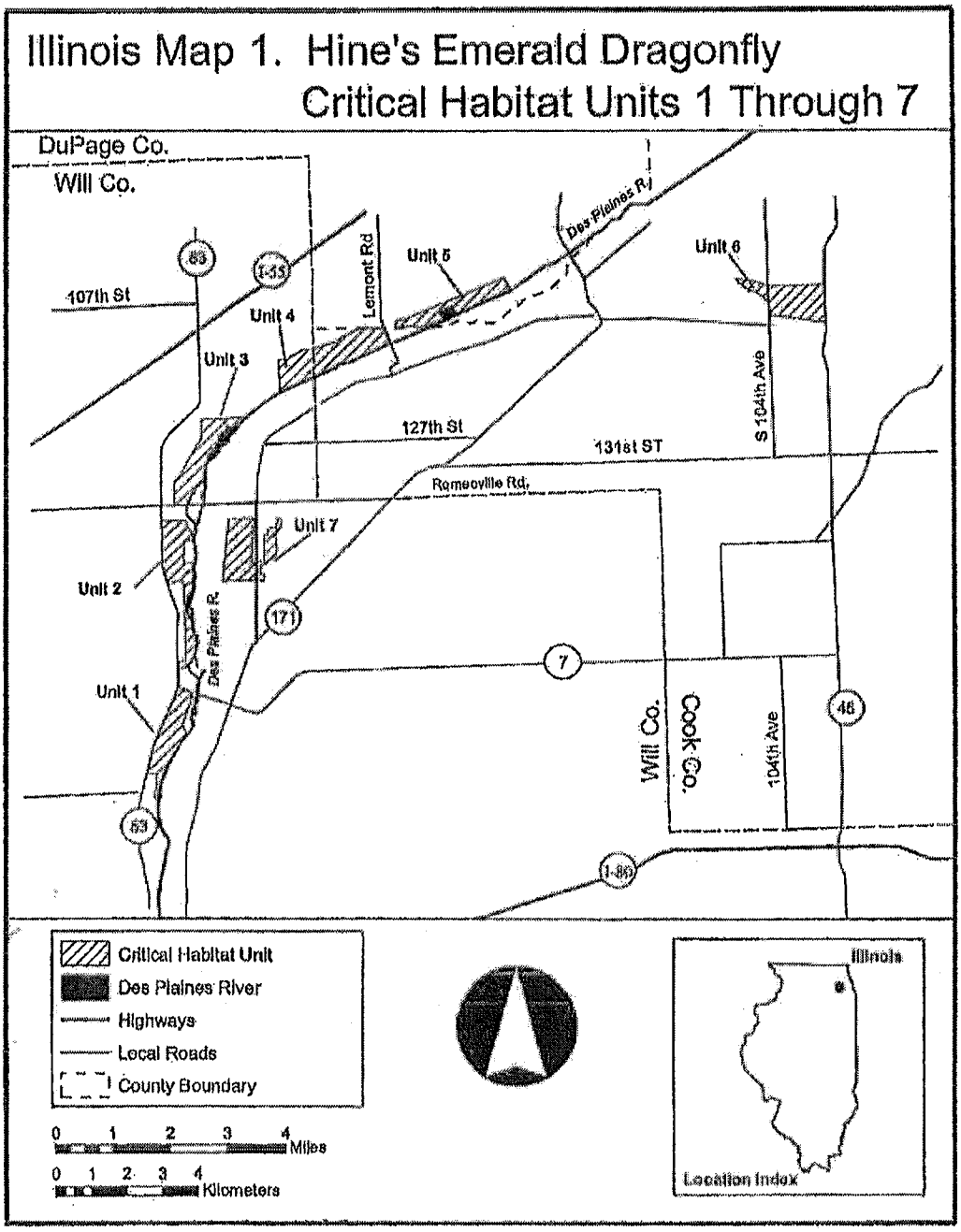
Security

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.



(7) Michigan Unit 3, Mackinac County, Michigan.

(i) Michigan Unit 3: Mackinac County. Located on the east end of Bois Blanc Island. Bois Blanc Island has not adopted an addressing system using the public land survey system. The unit is located in Government Lots 25 and 26 of the Cheboygan and McRae Bay 7.5'; USGS topographic quadrangles. The unit extends from approximately Walker's Point south to Rosie Point on the west side of Bob-Lo Drive. It extends from the road approximately 328 ft (100 m) to the west.

(ii) Note: Map of Michigan critical habitat Unit 3 (Michigan Map 1) follows:

(6) Illinois Units 1 through 7, Cook, DuPage, and Will Counties, Illinois.

(i) Illinois Unit 1: Will County. Located in T36N, R10E, Sec. 22, Sec. 27, SE¼ NE¼ Sec. 28, NE¼ SE¼ Sec. 28, NW¼ NW¼ Sec. 34 of the Joliet 7.5′ USGS topographic quadrangle. Land south of Illinois State Route 7, east of Illinois State Route 53, and west of the Des Plaines River.

(ii) Illinois Unit 2: Will County. Located in T36N, R10E, Sec. 3, NW¼ E½ Sec. 10, E½ Sec. 15 of the Romeoville and Joliet 7.5′ USGS topographic quadrangles. Land east of Illinois State Route 53, and west of the Des Plaines River.

(iii) Illinois Unit 3: Will County. Located in T37N, R10E, SW¼ Sec. 26, NW¼ SE¼ Sec. 26, E½ Sec. 34, W½ NW¼ Sec. 35 of the Romeoville 7.5′ USGS topographic quadrangle. Land west and north of the Des Plaines River and north of East Romeoville Road.

(iv) Illinois Unit 4: Will and Cook Counties. Located in T37N, R10E, S½ NE¼ Sec. 24, W½ SW¼ Sec. 24, SE¼ Sec. 24 and T37N, R11E, SW¼ SW¼ Sec. 17, Sec. 19, NW¼ Sec. 20 of the Romeoville 7.5′ USGS topographic quadrangle. Land to the south of Bluff Road, west of Lemont Road, and north of the Des Plaines River.

(v) Illinois Unit 5: DuPage County. Located in T37N, R11E, NW¼ Sec. 15, NW¼ SW¼ Sec. 15, S½ NE¼ Sec. 16, SW¼ Sec. 16, N½ SE¼ Sec. 16, SE¼ Sec. 17 of the Sag Bridge 7.5′ USGS topographic quadrangle. Land to the north of the Des Plaines River.

(vi) Illinois Unit 6: Cook County. Located in T37N, R12E, S½ Sec. 16, S½ NE¼ Sec. 17, N½ SE¼ Sec. 17, N½ Sec. 21 of the Sag Bridge and Palos Park 7.5′ USGS topographic quadrangles. Land to the north of the Calumet Sag Channel, south of 107th Street, and east of U.S. Route 45.

(vii) Illinois Unit 7: Will County. Located in T36N, R10E, W½ Sec. 1, Sec. 2, N½ Sec. 11 of the Romeoville and Joliet 7.5′; USGS topographic quadrangles. Land east of the Illinois and Michigan Canal.

(viii) Note: Map of Illinois critical habitat Units 1 through 7 (Illinois Map 1) follows:

Joint Committee on Administrative Rules

ADMINISTRATIVE CODE

TITLE 35: ENVIRONMENTAL PROTECTION
SUBTITLE C: WATER POLLUTION
CHAPTER I: POLLUTION CONTROL BOARD
PART 303 WATER USE DESIGNATIONS AND SITE-SPECIFIC WATER QUALITY STANDARDS
SECTION 303.220 PRIMARY CONTACT RECREATION WATERS

Section 303.220 Primary Contact Recreation Waters

The following waters are designated as Primary Contact Recreation Waters and must be protected for Primary Contact Recreation uses as defined in 35 Ill. Adm. Code 301.323. These waters must meet the numeric water quality standard for fecal coliform bacteria applicable to protected waters in 35 Ill. Adm. Code 302.209.

a) Lower North Shore Channel from North Side Water Reclamation Plant to confluence with North Branch of the Chicago River;

b) North Branch of the Chicago River from its confluence with North Shore Channel to its confluence with South Branch of the Chicago River and Chicago River;

c) Chicago River;

d) South Branch of the Chicago River;

e) Little Calumet River from its confluence with Calumet River and Grand Calumet River to its confluence with Cal-Sag Channel; and

f) Cal-Sag Channel.

(Source: Amended at 38 Ill. Reg. 5517, effective February 13, 2014)

OMPs represent and contain conditions of the NPDES permits, they should be incorporated into the permit such that the terms of the plan are clear and enforceable.

Similarly, the permits (and the CSO Policy) recognize the problem that Infiltration and Inflow (I/I) contributes to a CSO system. Superintendent Lanyon indicated at the public hearing that MWRDGC has developed a plan to reduce I/I flows to 150 gallons/day per capita. IEPA should review the plan and if it is adequate, include the I/I Plan and a requirement that it be implemented as an enforceable permit condition.

Because CSO control is largely a function of volume control, these NPDES permits should include conditions requiring MWRDGC to implement stormwater management mechanisms and thereby maximize use of the collection system for storage. *See* CSO Policy (II)(B)(2). Permit conditions should require MWRDGC to adopt the Cook County Watershed Management Ordinance it has developed to manage stormwater in the region. A condition should also require MWRDGC to develop and implement a plan that identifies stormwater control projects (including "green infrastructure" projects) that it will construct to reduce the volume of water that inundates the system in a storm.

d. IEPA should identify sensitive areas to be given priority for CSO controls.

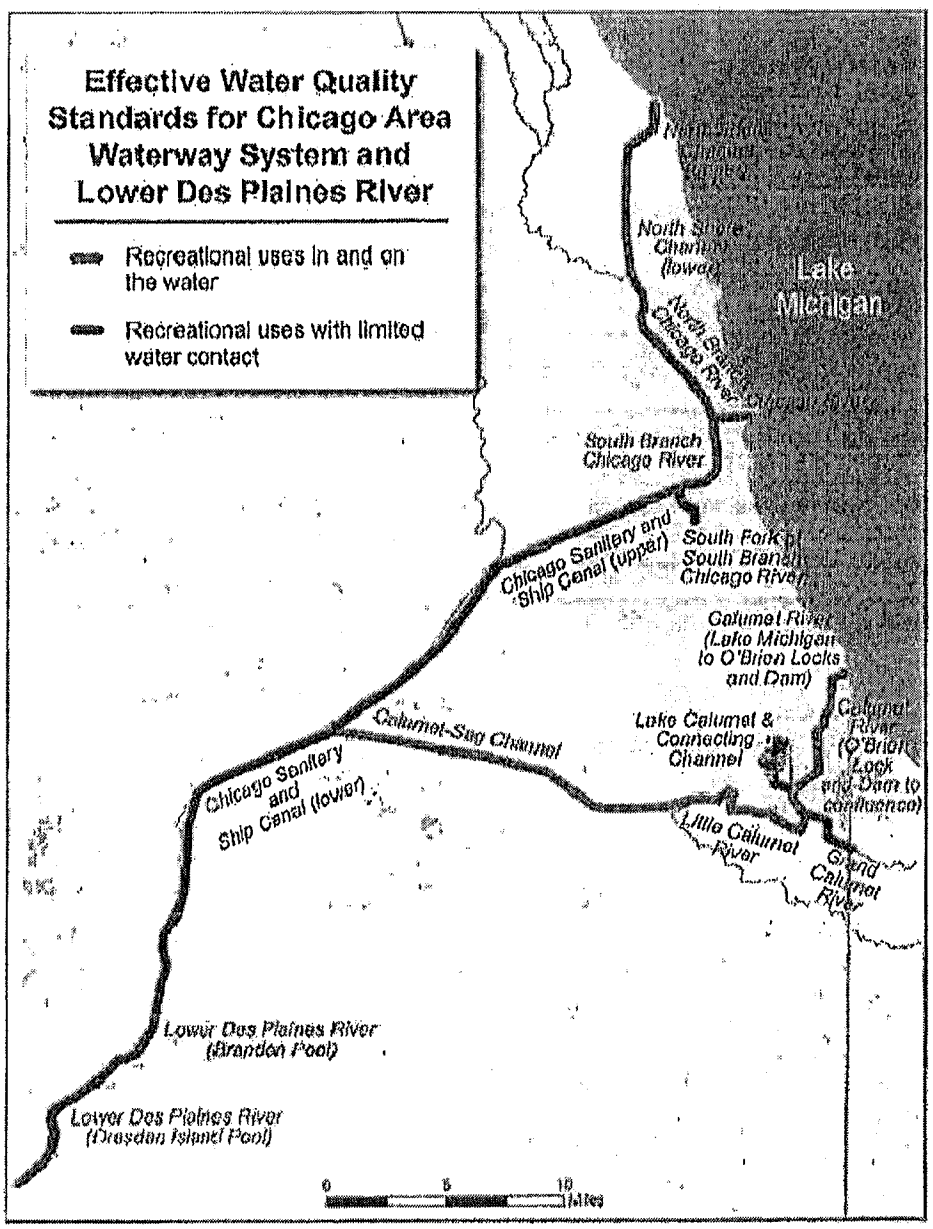
The CSO Policy states that the Long Term Control Plan should give highest priority to controlling overflows to sensitive areas. CSO Policy (II)(C)(3), p. 18692. Sensitive Areas include "waters with threatened or endangered species and their habitat" and "waters with primary contact recreation." *Id.*

The waters to which CSOs in these permits discharge have been identified as habitat for a number of state threatened and endangered aquatic species. The Black Crowned Night Heron is a state-endangered aquatic bird species whose largest breeding population in Illinois exists in the Lake Calumet area. Attachments 3 and 4. Similarly, the Hines Emerald Dragonfly is a state-endangered wetland species that only occurs in Illinois along the Des Plaines River. Attachment 5. The presence of these two species in the waterways receiving CSO discharges should prompt IEPA to identify sensitive areas in the Calumet and Stickney permits. IEPA should also revisit the list of state threatened and endangered species to ensure that other threatened and endangered species do not exist in this area. See Attachments 6 and 7.

Furthermore, jet-skiing is known to occur in the Cal-Sag Channel. See Attachment 8. Jet-skiing is considered a primary contact activity, making the Cal-Sag Channel a "water with primary contact activity." IEPA should consider this a sensitive area and thereby prioritize management of CSOs in this area where primary contact recreation is known to occur.

e. The Stickney, North Side and Calumet permits should include a requirement to notify the public when discharges to Lake Michigan are necessary.

While we recognize that sewer overflow discharges necessitating opening the locks to release water to Lake Michigan are uncommon, they are significant pollution events to a water that is of unquestionable recreational importance to the region. Accordingly, as part of the public notification required by the



http://www.epa.gov/region5/chicagoriver/images/caw-map-20120507-lg.png

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO
Sensitive Area Response Form

Name of Responding Organization: Village of Calumet Park

Name of Person Responding: Robin Streets

Address: Village Hall
12409 S Throop
Calumet Park Il 60827-5819

Telephone Number: 708 926 7427

Signature of Respondent: [signature]

Subject: NPDES Permit Number IL0028061

Discharge Number(s) 154

We have examined our records and determined that the subject discharges do X / do not ___ fall within one or more of the following categories of sensitive areas:

(Circle all that apply)
1. Designated Outstanding National Resource Waters.
2. National Marine Sanctuaries
3. Waters with threatened or endangered species and their habitat.
4. Shellfish beds.
5. Waters with primary contact recreation.
6. Public drinking water intakes or designated protection areas.

Our determination is based on the attached documentation:

(Supply supporting documentation for each category and reference the source in the space provided below)

Because the Cal-Sag Channel has virtually no bends or curves in the 154 discharge area, it has become the destination of choice for collegiate rowing regattas. Having partnered with the City of Blue Island to host these events at Fay's Point in 2007, 2008, 2009, Blue Island has since conducted a feasibility study and now plans to construct a rowing center and marina at Fays Point - which is adjacent to discharge #154. This marina was also named a "priority" by former Gov. Quinn according to the Millennium Reserve Initiative. There have been a total of 11 teams participating in these 2-day regattas which consist of a practice day and 2000/5000 meter race.

METROPOLITAN WATER RECLAMATION DESTRICT OF GREATER CHICAGO
Sensitive Area Response Form

Name of Responding Organization: Village of Crestwood, Illinois
Name of Person Responding: Mayor Louis Presta
Address: 13840 Cicreo Avenue
Crestwood, IL 60445

Telephone Number: (708) 371-4800

Signature of Respondent:

Subject: NPDES Permit Number IL0028061

Discharge Number(s) 006, 007, 010, 151, 152, 153, 154, 156, 157, 158, 160 and 163

We have examined our records and determined the subject discharges do _____/ do not __X__ fall within one or more of the following categories of sensitive areas:

(Circle all that apply)
1. Designated Outstanding National Resource Waters.
2. National Marine Sanctuaries
3. Water with threatened or endangered species and their habitat.
4. Shellfish beds.
5. Water with primary contact recreation.
6. Public drinking water intakes or designated protection areas.

Our determination is based on the attached documentation:

(Supply supporting documentation for each category and reference the source in the space provided below)

From: Mary Werner <mwerner@villageofworth.com>
Sent: Thursday, January 07, 2016 2:30 PM
To: Minarik, Thomas
Subject: RE: Sensitive Area Considerations for National Pollutant Discharge Elimination System Permit Number IL0028061

Mr. Minarik,
I have received and read the attached response form and based on our Discharge Number 160 located at Ridgeland Avenue on the Calumet Sag Channel I have determined the subject discharge does NOT fall within any of the category sensitive areas:

3. Endangered species
4. Shellfish beds
5. recreation contact

It is my understanding the MWRD has already determined categories 1, 2 and 6 do not apply
Please feel free to contact me if you have any questions, comments or concerns.
Sincerely,
Mary M. Werner
Village President
Worth Illinois
7112 W. 111th Street

708-448-1181

From: Minarik, Thomas [mailto:MinarikT@mwrd.org]
Sent: Tuesday, December 22, 2015 11:48 AM
To: mwerner@villageofworth.com
Subject: FW: Sensitive Area Considerations for National Pollutant Discharge Elimination System Permit Number IL0028061

Hello President Werner,

The Metropolitan Water Reclamation District of Greater Chicago sent the attached letter dated July 8, 2015 requesting any information or comment you may have regarding sensitive areas in the Cal-Sag Channel near the Village of Worth. Please note that the letter was inadvertently sent to the previous president Keller. If you wouldn't mind, could you please confirm that you received the letter and have no comments? Please respond by January 15, 2016.

Thank you and happy holidays.

APPENDIX C

FIELD DATA SHEETS AND NARRATIVE OBSERVATION SUMMARIES FOR EACH ASSESSED OUTFALL

Calumet River
Discharge Number 151

On July 15, 2015, a sensitive area assessment survey was conducted in the Calumet River along a 200 foot reach downstream from Discharge No. 151. The left and right banks were inspected visually for various aquatic and riparian habitat features, and observations of odors were noted. At 50 and 200 foot intervals, the water depth was measured across transects and the sediment composition was assessed.

The average seven-day, ten-year flow below Discharge No. 151 in the Calumet River is 8 cfs. The width of the study reach is 258 feet. Side depths ranged from 18 to 29 feet, while the center depth ranged from 35 to 36 feet. The channel morphology is classified as a run and the banks are channelized. The riparian land use is 100 percent urban commercial or industrial. Direct access to the river from the banks is limited due to the sheet pile walls and fenced in industrial area. Access to the water from boats is possible. There was no boat ramp visible and no log jams, debris, aquatic vegetation, or sanitary debris was observed. There was no sanitary odor in the water and there was no sign posted at the outfall.

The sediment composition at the 50 foot interval in the center of the waterway was mostly all clay with a little sand, on the left side it was mostly silt with some sand and mussel shells, and on the right side it was mostly gravel with some mussel shells, sand, silt, and clay. The sediment composition at the 200 foot interval in the center of the waterway was mostly all clay with a little cobble, on the left side it was mostly clay with some mussel shells and sand, and on the right side it was mostly gravel with some clay, sand, cobble and mussel shells. There was no oil in any of the samples or sediment odors and the sediment color was gray or gray/brown. The sediment deposition was not measureable, due to water depth, at any of the sample points except at the left side at 200 foot where the depth of fines was measured to be 0.2 feet.

Note: Left-right orientation is upstream, assuming that the dominant direction of flow in the waterway is away from Lake Michigan.

Metropolitan Water Reclamation District of Greater Chicago
Sensitive Area Assessment

Date 07 / 15 / 15 **Time** 10 : 30

Observer Gallagher **Waterbody** Calumet River

CSO Number 151 **Reach Length Downstream of CSO** 200 feet

Morphology [ ] POOL [X] RUN [ ] RIFFLE **Channel Width (ft)** 258

Water Depth at (50 ft) Left 28.0 Center 36.0 Right 24.0

Water Depth at (200 ft) Left 18.0 Center 35.0 Right 29.0

Channelization [x] YES [ ] NO

Water Level [ ] LOW [x] NORMAL [ ] HIGH [ ] FLOODED

LEFT BANK (observations)

Man-made Structures [ ] DAM [x] RIPRAP [ ] BRIDGE [ ] LEVEE [ ] ROCK GABIONS [x] SHEET PILINGS [ ] OTHER _____

Bank Erosion [ ] SLIGHT [ ] MODERATE [ ] SEVERE [x] NONE

Logjam or Debris Build-up [ ] YES [x] NO

Physical Obstacle Blocking Access [x] YES [ ] NO description Fenced industrial area w/ sheet piling walls

Signs Posted [ ] YES [x] NO description

Boat Ramp/Access Point Visible [ ] YES [x] NO description

Aquatic Vegetation [x] NO [ ] YES if yes → [ ] FLOATING [ ] ATTACHED

Sanitary Waste Odor in Water [ ] YES [x] NO

Sanitary Debris on Banks [ ] YES [x] NO

Riparian Land Use (Visual Observation)

GRASSLAND	____ %	WETLAND	____ %
URBAN RESIDENTIAL	____ %	FOREST	____ %
URBAN COMMERCIAL/INDUSTRIAL	100 %	ROW CROPS	____ %
OTHER (Specify) ____	____ %		

RIGHT BANK (observations)

Man-made Structures [ ] DAM [ ] RIPRAP [ ] BRIDGE [ ] LEVEE [ ] ROCK GABIONS [x] SHEET PILINGS [ ] OTHER _____

Bank Erosion [ ] SLIGHT [ ] MODERATE [ ] SEVERE [x] NONE

Logjam or Debris Build-up [ ] YES [x] NO

Physical Obstacle Blocking Access [x] YES [ ] NO description Fenced industrial area w/ sheet piling walls

Signs Posted [ ] YES [x] NO description

Boat Ramp/Access Point Visible [ ] YES [x] NO description

Aquatic Vegetation [x] NO [ ] YES if yes → [ ] FLOATING [ ] ATTACHED

Sanitary Waste Odor in Water [ ] YES [x] NO

Sanitary Debris on Banks [ ] YES [x] NO

Riparian Land Use (Visual Observation)

GRASSLAND	____ %	WETLAND	____ %
URBAN RESIDENTIAL	____ %	FOREST	____ %
URBAN COMMERCIAL/INDUSTRIAL	100 %	ROW CROPS	____ %
OTHER (Specify) ____	____ %		

SEDIMENT COMPOSITION (observations)

	50 ft			200 ft		
	Left	Center	Right	Left	Center	Right
% Plant Debris						
% Clay		95	5	85	95	10
% Silt	75		5			
% Sludge						
% Sand	20	2	10	5		10
% Gravel			70			70
% Cobble					5	5
% Boulder						
% Bedrock/Concrete						
%_____ mussel shells	5		10	10		5
%_____						
Sediment Color	gray brown	gray	gray	gray brown	gray	gray
Sediment Odor	none	none	none	none	none	none
Depth of Fines (ft)	NA	NA	NA	0.2	NA	NA

Oil in Sediment [x] NONE [ ] LIGHT [ ] MODERATE [ ] HEAVY

Additional Remarks Left side 50 ft N 41°43' 25.1", W -87°32' 36.0"

Right side 200 ft N 41°43' 24.0", W -87°32' 34.0"

Main channel 50 ft & 200 ft downstream of Howard slip

Too deep to do depth of fines @50 ft downstream & @ 200 ft for all but 200 ft left side

mark X in [ ]

Sand (<2mm diameter)
Gravel (2mm to <16mm diameter)
Cobble (16mm to <256mm diameter)
Boulder (>256mm diameter)

Calumet River
Discharge Number 152

On July 15, 2015, a sensitive area assessment survey was conducted in the Calumet River along a 200 foot reach downstream from Discharge No. 152. The left and right banks were inspected visually for various aquatic and riparian habitat features, and observations of odors were noted. At 50 and 200 foot intervals, the water depth was measured across transects and the sediment composition was assessed.

The average seven-day, ten-year flow below Discharge No. 152 in the Calumet River is 8 cfs. The width of the study reach is 360 feet. Side depths ranged from 5.5 to 31.0 feet, while the center depth was 35.0 feet. The channel morphology is classified as a pool and the banks are channelized. The riparian land use is near 100 percent urban commercial or industrial with approximately 5 percent forested on the right bank. Direct access to the river from the banks is limited due to the sheet pile and concrete walls and fenced in industrial area. Access to the water from boats is possible. There was no boat ramp visible and no log jams, debris, or sanitary debris was observed. The left bank had no aquatic vegetation but the right bank had some attached aquatic vegetation. There was no sanitary odor in the water and there was no sign posted at the outfall.

The sediment composition at the 50 foot interval in the center of the waterway was mostly silt and sand with some clay and mussel shells, on the left side it was mostly silt with some mussel shells, and on the right side it was mostly bedrock or concrete with some sand and plant debris. The sediment composition at the 200 foot interval in the center of the waterway was mostly silt with some gravel and mussel shells, on the left side it was mostly silt with some mussel shells, and on the right side it was mostly bedrock or concrete with some silt and mussel shells. There was light oil visible only at the left side at 50 and 200 feet with a slight oil odor and the sediment color was brown or gray. The sediment deposition was not measureable, due to water depth, at the center and left sides at both the 50 and 200 foot intervals. The sediment deposition at the right side at 50 foot was 0.4 feet and at 200 foot was 0.3 feet.

Note: Left-right orientation is upstream, assuming that the dominant direction of flow in the waterway is away from Lake Michigan.

Metropolitan Water Reclamation District of Greater Chicago
Sensitive Area Assessment

Date 07 / 15 / 15 **Time** 12 : 05

Observer Gallagher **Waterbody** Calumet River

CSO Number 152 **Reach Length Downstream of CSO** 200 feet

Morphology [x] POOL [ ] RUN [ ] RIFFLE **Channel Width (ft)** 360

Water Depth at (50 ft) Left 31.0 Center 35.0 Right 5.5

Water Depth at (200 ft) Left 30.0 Center 35.0 Right 19.0

Channelization [x] YES [ ] NO

Water Level [ ] LOW [x] NORMAL [ ] HIGH [ ] FLOODED

LEFT BANK (observations)

Man-made Structures [ ] DAM [ ] RIPRAP [ ] BRIDGE [ ] LEVEE [ ] ROCK GABIONS [x] SHEET PILINGS [ ] OTHER _____

Bank Erosion [ ] SLIGHT [ ] MODERATE [ ] SEVERE [x] NONE

Logjam or Debris Build-up [ ] YES [X] NO

Physical Obstacle Blocking Access [ ] YES [X] NO description

Signs Posted [ ] YES [X] NO description

Boat Ramp/Access Point Visible [ ] YES [X] NO description

Aquatic Vegetation [x] NO [ ] YES if yes → [ ] FLOATING [ ] ATTACHED

Sanitary Waste Odor in Water [ ] YES [X] NO

Sanitary Debris on Banks [ ] YES [X] NO

Riparian Land Use (Visual Observation)

GRASSLAND	%	WETLAND	%
URBAN RESIDENTIAL	%	FOREST	%
URBAN COMMERCIAL/INDUSTRIAL	100 %	ROW CROPS	%
OTHER (Specify)	%		

RIGHT BANK (observations)

Man-made Structures [ ] DAM [x] RIPRAP [ ] BRIDGE [ ] LEVEE [ ] ROCK GABIONS [ ] SHEET PILINGS [x] OTHER concrete wall

Bank Erosion [x] SLIGHT [ ] MODERATE [ ] SEVERE [ ] NONE

Logjam or Debris Build-up [ ] YES [x] NO

Physical Obstacle Blocking Access [x] YES [ ] NO description Fence, industrial area

Signs Posted [ ] YES [x] NO description

Boat Ramp/Access Point Visible [ ] YES [x] NO description

Aquatic Vegetation [ ] NO [x] YES if yes → [ ] FLOATING [x] ATTACHED

Sanitary Waste Odor in Water [ ] YES [x] NO

Sanitary Debris on Banks [ ] YES [x] NO

Riparian Land Use (Visual Observation)

GRASSLAND	%	WETLAND	%
URBAN RESIDENTIAL	%	FOREST	5 %
URBAN COMMERCIAL/INDUSTRIAL	95 %	ROW CROPS	%
OTHER (Specify)	%		

SEDIMENT COMPOSITION (observations)

	50 ft			200 ft		
	Left	Center	Right	Left	Center	Right
% Plant Debris			5			
% Clay		15				
% Silt	90	55		95	75	10
% Sludge						
% Sand		25	10			
% Gravel					20	
% Cobble						
% Boulder						
% Bedrock/Concrete			85			85
%_____ Mussels	10	5		5	5	5
%_____						
Sediment Color	brown	grey	grey	brown	brown	brown
Sediment Odor	slight oil	none	none	slight oil	none	none
Depth of Fines (ft)	NA	NA	0.4	NA	NA	0.3

Oil in Sediment ☐ NONE ☒ LIGHT ☐ MODERATE ☐ HEAVY

Additional Remarks Left side 50 ft N 41°40' 26.6" W -87°33' 10.1"

Right side 200 ft N 41°40' 24.9" W-87°33' 06.6"

Light oil in sediment on left side @50 ft & @200 ft

Too deep to do depth of fines @50 ft downstream & @ 200 ft for both center and left side

mark X in ☐

Sand (<2mm diameter)
Gravel (2mm to <16mm diameter)
Cobble (16mm to <256mm diameter)
Boulder (>256mm diameter)

North Creek
Discharge Number 010

On September 10, 2015, a sensitive area assessment survey was conducted on North Creek along a 200 foot reach downstream from Discharge No. 010 at the point where the overflow ditch meets North Creek. The left and right banks were inspected visually for various aquatic and riparian habitat features, and observations of odors were noted. At 50 and 200 foot intervals, the water depth was measured across transects and the sediment composition was assessed.

The average seven-day, ten-year flow below Discharge No. 010 in North Creek is 0.4 cfs. The width of the study reach is 45 feet. Side depths ranged from 0.4 to 1.2 feet, while the center depth ranged from 0.4 to 0.5 feet. The channel morphology is classified as a run and the banks are not channelized. There is moderate to severe bank erosion throughout the reach. The riparian land use is 100 percent forest. Direct access to the creek from the banks is possible but access to the water from boats is not possible. There was no boat ramp visible and no sanitary debris was observed. There was woody debris and logjams throughout the reach. Attached aquatic vegetation was observed on the left bank only. No sanitary odor was noticed in the water and there was no sign posted at the outfall.

The sediment composition at the 50 foot interval in the center of the waterway was mostly sand with some silt and a little gravel, on the left side it was mostly clay and sand with some gravel and silt, and on the right side it was mostly silt with some sand and clay. The sediment composition at the 200 foot interval in the center of the waterway was mostly sand and silt, on the left side it was mostly silt with sand, and on the right side it was all clay. There was no oil in any of the samples or sediment odors and the sediment color was gray/brown, black or tan. The sediment deposition at the 50 foot interval was 1.7 feet on the left side, 2.8 feet in the center, and 0.9 feet on the right side. The sediment deposition at the 200 foot interval was 0.2 feet on the left side, 0.6 feet in the center, and 2.7 feet on the right side.

Note: Left-right orientation is upstream, assuming that the dominant direction of flow in the waterway is away from Lake Michigan.

Metropolitan Water Reclamation District of Greater Chicago
Sensitive Area Assessment

Date 09 / 10 / 15 **Time** 12 : 30

Observer Gallagher **Waterbody** North Creek

CSO Number 10 **Reach Length Downstream of CSO** 200 feet

Morphology ( ) POOL (x) RUN ( ) RIFFLE **Channel Width (ft)** 45

Water Depth at (50 ft) Left 0.5 Center 0.5 Right 0.4

Water Depth at (200 ft) Left 0.6 Center 0.4 Right 1.2

Channelization ( ) YES (x) NO

Water Level ( ) LOW (x) NORMAL ( ) HIGH ( ) FLOODED

LEFT BANK (observations)

Man-made Structures ( ) DAM ( ) RIPRAP ( ) BRIDGE ( ) LEVEE ( ) ROCK GABIONS ( ) SHEET PILINGS (x) OTHER None

Bank Erosion ( ) SLIGHT (x) MODERATE ( ) SEVERE

Logjam or Debris Build-up (x) YES ( ) NO

Physical Obstacle Blocking Access ( ) YES (x) NO description

Signs Posted ( ) YES (x) NO description

Boat Ramp/Access Point Visible ( ) YES (x) NO description

Aquatic Vegetation ( ) NO (x) YES if yes → ( ) FLOATING (x) ATTACHED

Sanitary Waste Odor in Water ( ) YES (x) NO

Sanitary Debris on Banks ( ) YES (x) NO

Riparian Land Use (Visual Observation)

GRASSLAND ____ %		WETLAND ____ %	
URBAN RESIDENTIAL ____ %		FOREST 100 %	
URBAN COMMERCIAL/INDUSTRIAL ____ %		ROW CROPS ____ %	
OTHER (Specify) ____ ____ %			

RIGHT BANK (observations)

Man-made Structures ( ) DAM ( ) RIPRAP ( ) BRIDGE ( ) LEVEE ( ) ROCK GABIONS ( ) SHEET PILINGS (x) OTHER None

Bank Erosion ( ) SLIGHT ( ) MODERATE (x) SEVERE

Logjam or Debris Build-up (x) YES ( ) NO

Physical Obstacle Blocking Access ( ) YES (x) NO description

Signs Posted ( ) YES (x) NO description

Boat Ramp/Access Point Visible ( ) YES (x) NO description

Aquatic Vegetation (x) NO ( ) YES if yes → ( ) FLOATING ( ) ATTACHED

Sanitary Waste Odor in Water ( ) YES (x) NO

Sanitary Debris on Banks ( ) YES (x) NO

Riparian Land Use (Visual Observation)

GRASSLAND ____ %		WETLAND ____ %	
URBAN RESIDENTIAL ____ %		FOREST 100 %	
URBAN COMMERCIAL/INDUSTRIAL ____ %		ROW CROPS ____ %	
OTHER (Specify) ____ ____ %			

SEDIMENT COMPOSITION (observations)

	50 ft			200 ft		
	Left	Center	Right	Left	Center	Right
% Plant Debris						
% Clay	40		10			100
% Silt	10	20	70	70	25	
% Sludge						
% Sand	35	75	20	30	75	
% Gravel	15	5				
% Cobble						
% Boulder						
% Bedrock/Concrete						
%_____						
%_____						
Sediment Color	Grayish Brown	Brown	Black	Grayish Brown	Brown	Tan
Sediment Odor	None	None	None	None	None	None
Depth of Fines (ft)	1.7	2.8	0.9	0.2	0.6	2.7

Oil in Sediment [x] NONE [ ] LIGHT [ ] MODERATE [ ] HEAVY

Additional Remarks

Outlet to North Creek N 41°32' 52.1", W -87°35'24.0"

50 ft N 41°32'52.8", W -87°35'23.9"

200 ft N 41° 32' 53.4", W -87°35'23.8"

Woody debris & snags throughout reach in forest preserve

mark X in [ ]

Sand (<2mm diameter)
Gravel (2mm to <16mm diameter)
Cobble (16mm to <256mm diameter)
Boulder (>256mm diameter)

Little Calumet River
Discharge Number 153

On September 16, 2015, a sensitive area assessment survey was conducted in the Little Calumet River along a 200 foot reach downstream from Discharge No. 153. The left and right banks were inspected visually for various aquatic and riparian habitat features, and observations of odors were noted. At 50 and 200 foot intervals, the water depth was measured across transects and the sediment composition was assessed.

The average seven-day, ten-year flow below Discharge No. 153 in the Little Calumet River is 20 cfs. The width of the study reach is 819 feet. Side depths ranged from 1.8 to 2.4 feet, while the center depth ranged from 15.0 to 15.8 feet. The channel morphology is classified as a pool and the banks are channelized. There is slight bank erosion on the left bank only. The riparian land use is 100 percent urban commercial or industrial. Direct access to the river from the banks is limited due to fences and an industrial area. Access to the water from boats is possible. There was no boat ramp visible and no sanitary odor was noticed. There were log jams, debris, and floating aquatic vegetation observed on both banks and the left bank had sanitary debris on the bank. There was no sign posted at the outfall.

The sediment composition at the 50 foot interval in the center of the waterway was 100% bedrock/concrete, on the left side it was plant debris and silt with a little sand, and on the right side it was mostly sand with some silt. The sediment composition at the 200 foot interval in the center of the waterway was 100% bedrock/concrete, on the left side it was mostly silt with some sand, sludge, and plant debris, and on the right side it was mostly sand with some silt, plant debris, gravel, and mussel shells. There was no oil in any of the samples or sediment odors and the sediment color was dark gray. The sediment deposition at the 50 foot interval in the center and left side was <0.1 feet and was 0.2 feet on the right side. The sediment deposition at the 200 foot interval was <0.1 feet in the center, 5.7 feet on the left side, and 0.4 feet on the right side.

Note: Left-right orientation is upstream, assuming that the dominant direction of flow in the waterway is away from Lake Michigan.

Metropolitan Water Reclamation District of Greater Chicago
Sensitive Area Assessment

Date 09 / 16 / 15 **Time** 8 : 45

Observer Gallagher / Wasik **Waterbody** LCR

CSO Number 153 **Reach Length Downstream of CSO** 200 feet

Morphology [x] POOL [ ] RUN [ ] RIFFLE **Channel Width (ft)** 819

Water Depth at (50 ft) Left 1.8 Center 15.8 Right 2.0

Water Depth at (200 ft) Left 2.1 Center 15.0 Right 2.4

Channelization [x] YES [ ] NO

Water Level [ ] LOW [x] NORMAL [ ] HIGH [ ] FLOODED

LEFT BANK (observations)

Man-made Structures [ ] DAM [ ] RIPRAP [ ] BRIDGE [ ] LEVEE [ ] ROCK GABIONS [ ] SHEET PILINGS [x] OTHER SEPA2(outside 200ft)

Bank Erosion [x] SLIGHT [ ] MODERATE [ ] SEVERE [ ] NONE

Logjam or Debris Build-up [x] YES [ ] NO

Physical Obstacle Blocking Access [x] YES [ ] NO description fence, steep banks

Signs Posted [ ] YES [x] NO description sign post; sign removed

Boat Ramp/Access Point Visible [ ] YES [x] NO description

Aquatic Vegetation [ ] NO [X] YES if yes → [x] FLOATING [ ] ATTACHED

Sanitary Waste Odor in Water [ ] YES [x] NO

Sanitary Debris on Banks [x] YES [ ] NO

Riparian Land Use (Visual Observation)

GRASSLAND	%	WETLAND	%
URBAN RESIDENTIAL	%	FOREST	%
URBAN COMMERCIAL/INDUSTRIAL	100 %	ROW CROPS	%
OTHER (Specify)	%		

RIGHT BANK (observations)

Man-made Structures [ ] DAM [ ] RIPRAP [ ] BRIDGE [ ] LEVEE [ ] ROCK GABIONS [ ] SHEET PILINGS [x] OTHER Acme structure/ pilings

Bank Erosion [ ] SLIGHT [ ] MODERATE [ ] SEVERE [X] NONE

Logjam or Debris Build-up [x] YES [ ] NO

Physical Obstacle Blocking Access [x] YES [ ] NO description Acme Property, steep banks

Signs Posted [ ] YES [x] NO description

Boat Ramp/Access Point Visible [ ] YES [x] NO description

Aquatic Vegetation [ ] NO [x] YES if yes → [x] FLOATING [ ] ATTACHED

Sanitary Waste Odor in Water [ ] YES [x] NO

Sanitary Debris on Banks [ ] YES [x] NO

Riparian Land Use (Visual Observation)

GRASSLAND	%	WETLAND	%
URBAN RESIDENTIAL	%	FOREST	%
URBAN COMMERCIAL/INDUSTRIAL	100 %	ROW CROPS	%
OTHER (Specify)	%		

SEDIMENT COMPOSITION (observations)

	50 ft			200 ft		
	Left	Center	Right	Left	Center	Right
% Plant Debris	50			5		10
% Clay						
% Silt	45		20	80		10
% Sludge				5		
% Sand	5		80	10		65
% Gravel						5
% Cobble						
% Boulder						
% Bedrock/Concrete		100			100	
%_____ mussel shells						10
%_____						
Sediment Color	dk gray	NA	dk gray	dk gray	NA	dk gray
Sediment Odor	no	NA	no	no	NA	no
Depth of Fines (ft)	< 0.1	< 0.1	0.2	5.7	< 0.1	0.4

Oil in Sediment [x] NONE [ ] LIGHT [ ] MODERATE [ ] HEAVY

Additional Remarks No center ponars

GPS center 200 ft: N 41° 39' 43.3", W -87° 37' 15.6"

Steep banks both sides

mark X in [x]

Sand (<2mm diameter)
Gravel (2mm to <16mm diameter)
Cobble (16mm to <256mm diameter)
Boulder (>256mm diameter)

Calumet-Sag Channel
Discharge Number 154

On September 16, 2015, a sensitive area assessment survey was conducted in the Calumet-Sag Channel along a 200 foot reach downstream from Discharge No. 154. The left and right banks were inspected visually for various aquatic and riparian habitat features, and observations of odors were noted. At 50 and 200 foot intervals, the water depth was measured across transects and the sediment composition was assessed.

The average seven-day, ten-year flow below Discharge No. 154 in the Calumet-Sag Channel is 259 cfs. The width of the study reach is 255 feet. Side depths ranged from 2.3 to 11.0 feet, while the center depth ranged from 13.2 to 13.8 feet. The channel morphology is classified as a run and the banks are channelized. There is no bank erosion and the riparian land use is 100 percent urban commercial or industrial on the left bank and 100 percent forest on the right bank. Direct access to the river from the banks is limited due to a cement wall and steep banks that are heavily vegetated. Access to the water from boats is possible. There was no boat ramp visible and no sanitary odor was noticed. There were no log jams, debris, aquatic vegetation, or sanitary debris on the banks. There was an outfall sign posted at the outfall.

The sediment composition at the 50 foot interval in the center of the waterway was 100 percent bedrock/concrete, on the left side it was mostly sludge with some silt, and on the right side it was mostly boulders with some cobble. The sediment composition at the 200 foot interval in the center of the waterway was mostly silt with some sludge and a little mussel shells, on the left side it was mostly sludge with some silt, and on the right side it was mostly boulders with a little gravel. There was no oil in any of the samples or sediment odors and the sediment color was brown/gray. The sediment deposition at the 50 foot interval in the center and right side was <0.1 feet and was 1.6 feet on the left side. The sediment deposition at the 200 foot interval was 0.1 feet in the center and right side, and 5.2 feet on the left side.

Note: Left-right orientation is upstream, assuming that the dominant direction of flow in the waterway is away from Lake Michigan.

Metropolitan Water Reclamation District of Greater Chicago
Sensitive Area Assessment

Date 09 / 16 / 15 **Time** 9 : 45

Observer Gallagher / Wasik **Waterbody** CSC

CSO Number 154 **Reach Length Downstream of CSO** 200 feet

Morphology [ ] POOL [x] RUN [ ] RIFFLE **Channel Width (ft)** 255

Water Depth at (50 ft) Left 10.8 Center 13.8 Right 3.0

Water Depth at (200 ft) Left 11.0 Center 13.2 Right 2.3

Channelization [x] YES [ ] NO

Water Level [ ] LOW [x] NORMAL [ ] HIGH [ ] FLOODED

LEFT BANK (observations)

Man-made Structures [ ] DAM [ ] RIPRAP [ ] BRIDGE [ ] LEVEE [ ] ROCK GABIONS [ ] SHEET PILINGS [x] OTHER concrete wall/ old lock

Bank Erosion [ ] SLIGHT [ ] MODERATE [ ] SEVERE [X] NONE

Logjam or Debris Build-up [ ] YES [x] NO

Physical Obstacle Blocking Access [x] YES [ ] NO description cement wall

Signs Posted [x] YES [ ] NO description MWRDGC sign outfall #154

Boat Ramp/Access Point Visible [ ] YES [x] NO description

Aquatic Vegetation [x] NO [ ] YES if yes → [ ] FLOATING [ ] ATTACHED

Sanitary Waste Odor in Water [ ] YES [x] NO

Sanitary Debris on Banks [ ] YES [x] NO

Riparian Land Use (Visual Observation)

GRASSLAND	%	WETLAND	%
URBAN RESIDENTIAL	%	FOREST	%
URBAN COMMERCIAL/INDUSTRIAL	100 %	ROW CROPS	%
OTHER (Specify)	%		

RIGHT BANK (observations)

Man-made Structures [ ] DAM [x] RIPRAP [ ] BRIDGE [ ] LEVEE [ ] ROCK GABIONS [ ] SHEET PILINGS [ ] OTHER

Bank Erosion [ ] SLIGHT [ ] MODERATE [ ] SEVERE [X] NONE

Logjam or Debris Build-up [ ] YES [x] NO

Physical Obstacle Blocking Access [x] YES [ ] NO description steep bank, heavy veg

Signs Posted [ ] YES [x] NO description

Boat Ramp/Access Point Visible [ ] YES [x] NO description

Aquatic Vegetation [x] NO [ ] YES if yes → [ ] FLOATING [ ] ATTACHED

Sanitary Waste Odor in Water [ ] YES [x] NO

Sanitary Debris on Banks [ ] YES [x] NO

Riparian Land Use (Visual Observation)

GRASSLAND	%	WETLAND	%
URBAN RESIDENTIAL	%	FOREST	100 %
URBAN COMMERCIAL/INDUSTRIAL	%	ROW CROPS	%
OTHER (Specify)	%		

SEDIMENT COMPOSITION (observations)

	50 ft			200 ft		
	Left	Center	Right	Left	Center	Right
% Plant Debris						
% Clay						
% Silt	20			10	70	
% Sludge	80			90	25	
% Sand						
% Gravel						10
% Cobble			10			
% Boulder			90			90
% Bedrock/Concrete		100				
%_____ mussel shells					5	
%_____						
Sediment Color	brown/gray	NA	NA	brown/gray	NA	NA
Sediment Odor	None	NA	NA	None	NA	NA
Depth of Fines (ft)	1.6	< 0.1	< 0.1	5.2	0.1	0.1

Oil in Sediment [x] NONE [ ] LIGHT [ ] MODERATE [ ] HEAVY

Additional Remarks Steep banks both sides

GPS 200 ft Left side 41° 39' 22.3", -87° 39' 18.1"

mark X in [ ]

Sand (<2mm diameter)
Gravel (2mm to <16mm diameter)
Cobble (16mm to <256mm diameter)
Boulder (>256mm diameter)

Calumet-Sag Channel
Discharge Number 156

On September 16, 2015, a sensitive area assessment survey was conducted in the Calumet-Sag Channel along a 200 foot reach downstream from Discharge No. 156. The left and right banks were inspected visually for various aquatic and riparian habitat features, and observations of odors were noted. At 50 and 200 foot intervals, the water depth was measured across transects and the sediment composition was assessed.

The average seven-day, ten-year flow below Discharge No. 156 in the Calumet-Sag Channel is 259 cfs. The width of the study reach is 267 feet. Side depths ranged from 1.1 to 2.9 feet, while the center depth was 15.7 feet. The channel morphology is classified as a run and the banks are channelized. There is no bank erosion and the riparian land use is 50 percent urban commercial and 50 percent forest. Direct access to the river from the banks is limited due to the steep banks that are heavily vegetated and some riprap. Access to the water from boats is possible. There was no boat ramp visible and no sanitary odor was noticed. There was no aquatic vegetation or sanitary debris on the banks, but the left bank did have some logjam or debris build-up. There was no outfall sign posted.

The sediment composition at the 50 foot interval in the center of the waterway was mostly sludge with some silt, on the left side it was all boulders, and on the right side it was mostly bedrock with some boulders. The sediment composition at the 200 foot interval in the center of the waterway was bedrock and, on the left and right side it was bedrock with some boulders. At the 50 foot interval in the center there was no oil in the sample, the sediment had an organic odor, and the sediment color was dark gray. The sediment deposition at the 50 foot interval in the center was 0.4 feet and the left and right side were <0.1 feet. The sediment deposition at the 200 foot interval was 0.1 feet in the center and the left and right side were <0.1 feet.

Note: Left-right orientation is upstream, assuming that the dominant direction of flow in the waterway is away from Lake Michigan.

Metropolitan Water Reclamation District of Greater Chicago
Sensitive Area Assessment

Date 09 / 16 / 15 **Time** 10 : 57

Observer Gallagher / Wasik **Waterbody** CSC

CSO Number 156 **Reach Length Downstream of CSO** 200 feet

Morphology [ ] POOL [x] RUN [ ] RIFFLE **Channel Width (ft)** 267

Water Depth at (50 ft) Left 2.9 Center 15.7 Right 2.6

Water Depth at (200 ft) Left 1.2 Center 15.7 Right 1.1

Channelization [x] YES [ ] NO

Water Level [ ] LOW [x] NORMAL [ ] HIGH [ ] FLOODED

LEFT BANK (observations)

Man-made Structures [ ] DAM [x] RIPRAP [ ] BRIDGE [ ] LEVEE [ ] ROCK GABIONS [ ] SHEET PILINGS [ ] OTHER _____

Bank Erosion [ ] SLIGHT [ ] MODERATE [ ] SEVERE [X] NONE

Logjam or Debris Build-up [ ] YES [x] NO

Physical Obstacle Blocking Access [x] YES [ ] NO description heavily vegetated; steep banks

Signs Posted [ ] YES [x] NO description

Boat Ramp/Access Point Visible [ ] YES [x] NO description

Aquatic Vegetation [x] NO [ ] YES if yes → [ ] FLOATING [ ] ATTACHED

Sanitary Waste Odor in Water [ ] YES [x] NO

Sanitary Debris on Banks [ ] YES [x] NO

Riparian Land Use (Visual Observation)

GRASSLAND	%	WETLAND	%
URBAN RESIDENTIAL	%	FOREST	50 %
URBAN COMMERCIAL/INDUSTRIAL	50 %	ROW CROPS	%
OTHER (Specify)	%		

RIGHT BANK (observations)

Man-made Structures [ ] DAM [x] RIPRAP [ ] BRIDGE [ ] LEVEE [ ] ROCK GABIONS [ ] SHEET PILINGS [x] OTHER Makeshift limestone pier

Bank Erosion [ ] SLIGHT [ ] MODERATE [ ] SEVERE [X] NONE

Logjam or Debris Build-up [x] YES [ ] NO

Physical Obstacle Blocking Access [x] YES [ ] NO description heavy veg, steep bank

Signs Posted [ ] YES [x] NO description

Boat Ramp/Access Point Visible [ ] YES [x] NO description

Aquatic Vegetation [x] NO [ ] YES if yes → [ ] FLOATING [ ] ATTACHED

Sanitary Waste Odor in Water [ ] YES [x] NO

Sanitary Debris on Banks [ ] YES [x] NO

Riparian Land Use (Visual Observation)

GRASSLAND	%	WETLAND	%
URBAN RESIDENTIAL	50 %	FOREST	50 %
URBAN COMMERCIAL/INDUSTRIAL	%	ROW CROPS	%
OTHER (Specify)	%		

SEDIMENT COMPOSITION (observations)

	50 ft			200 ft		
	Left	Center	Right	Left	Center	Right
% Plant Debris						
% Clay						
% Silt		10				
% Sludge		90				
% Sand						
% Gravel						
% Cobble						
% Boulder	100		10	10		10
% Bedrock/Concrete			90	90	100	90
%_____						
%_____						
Sediment Color						
Sediment Odor						
Depth of Fines (ft)	< 0.1	0.4	< 0.1	< 0.1	0.1	< 0.1

Oil in Sediment [x] NONE [ ] LIGHT [ ] MODERATE [ ] HEAVY

Additional Remarks Right side@50/200ft broken limestone

GPS center 200 ft - N 41° 39' 06.9", W -87° 41' 36.5"

mark X in [ ]

Sand (<2mm diameter)
Gravel (2mm to <16mm diameter)
Cobble (16mm to <256mm diameter)
Boulder (>256mm diameter)

Calumet-Sag Channel
Discharge Number 157

On September 16, 2015, a sensitive area assessment survey was conducted in the Calumet-Sag Channel along a 200 foot reach downstream from Discharge No. 157. The left and right banks were inspected visually for various aquatic and riparian habitat features, and observations of odors were noted. At 50 and 200 foot intervals, the water depth was measured across transects and the sediment composition was assessed.

The average seven-day, ten-year flow below Discharge No. 157 in the Calumet-Sag Channel is 259 cfs. The width of the study reach is 300 feet. Side depths ranged from 1.0 to 3.7 feet, while the center depth ranged from 13.3 to 15.7 feet. The channel morphology is classified as a run and the banks are channelized. There is moderate bank erosion on the left bank and the riparian land use is 80 percent urban commercial or industrial and 20 percent forest. There is no bank erosion on the right bank and the riparian land use is 50 percent urban residential and 50 percent forest. Direct access to the river from the banks is limited due to the steep banks that are heavily vegetated and some riprap. Access to the water from boats is possible. There was no boat ramp visible and no sanitary odor was noticed. There were no logjams, aquatic vegetation, or sanitary debris on the banks. There was an outfall sign posted.

The sediment composition at the 50 foot interval in the center of the waterway was bedrock, on the left side it was mostly gravel with some boulders, and on the right side it was mostly bedrock with some boulders. The sediment composition at the 200 foot interval in the center of the waterway was mostly silt with some plant debris, sand, and mussel shells, on the left and right side it was bedrock with some boulders. At the 200 foot interval in the center there was no oil in the sample, the sediment had an organic odor, and the sediment color was brownish gray. The sediment deposition at the 200 foot interval in the center was 0.3 feet and the left and right side were <0.1 feet. The sediment deposition at the 50 foot interval was 0.1 feet on the left and right side and the center was <0.1 feet.

Note: Left-right orientation is upstream, assuming that the dominant direction of flow in the waterway is away from Lake Michigan.

Metropolitan Water Reclamation District of Greater Chicago
Sensitive Area Assessment

Date 09 / 16 / 15 **Time** 11 : 55

Observer Gallagher / Wasik **Waterbody** CSC

CSO Number 157 **Reach Length Downstream of CSO** 200 feet

Morphology [ ] POOL [x] RUN [ ] RIFFLE **Channel Width (ft)** 300

Water Depth at (50 ft) Left 1.0 Center 15.7 Right 3.7

Water Depth at (200 ft) Left 1.7 Center 13.3 Right 1.9

Channelization [x] YES [ ] NO

Water Level [ ] LOW [x] NORMAL [ ] HIGH [ ] FLOODED

LEFT BANK (observations)

Man-made Structures [ ] DAM [x] RIPRAP [ ] BRIDGE [ ] LEVEE [ ] ROCK GABIONS [ ] SHEET PILINGS [x] OTHER Large concrete structure fallen into water on bank

Bank Erosion [ ] SLIGHT [x] MODERATE [ ] SEVERE [ ] NONE

Logjam or Debris Build-up [ ] YES [x] NO

Physical Obstacle Blocking Access [x] YES [ ] NO description very steep & heavily vegetated

Signs Posted [x] YES [ ] NO description CSO#

Boat Ramp/Access Point Visible [ ] YES [x] NO description

Aquatic Vegetation [x] NO [ ] YES if yes → [ ] FLOATING [ ] ATTACHED

Sanitary Waste Odor in Water [ ] YES [x] NO

Sanitary Debris on Banks [ ] YES [x] NO

Riparian Land Use (Visual Observation)

GRASSLAND	%	WETLAND	%
URBAN RESIDENTIAL	%	FOREST	20 %
URBAN COMMERCIAL/INDUSTRIAL	80 %	ROW CROPS	%
OTHER (Specify)	%		

RIGHT BANK (observations)

Man-made Structures [ ] DAM [x] RIPRAP [ ] BRIDGE [ ] LEVEE [ ] ROCK GABIONS [ ] SHEET PILINGS [ ] OTHER

Bank Erosion [ ] SLIGHT [ ] MODERATE [ ] SEVERE [X] NONE

Logjam or Debris Build-up [ ] YES [x] NO

Physical Obstacle Blocking Access [X] YES [ ] NO description steep/heavy vegetation

Signs Posted [ ] YES [x] NO description

Boat Ramp/Access Point Visible [ ] YES [x] NO description

Aquatic Vegetation [x] NO [ ] YES if yes → [ ] FLOATING [ ] ATTACHED

Sanitary Waste Odor in Water [ ] YES [x] NO

Sanitary Debris on Banks [ ] YES [x] NO

Riparian Land Use (Visual Observation)

GRASSLAND	%	WETLAND	%
URBAN RESIDENTIAL	50 %	FOREST	50 %
URBAN COMMERCIAL/INDUSTRIAL	%	ROW CROPS	%
OTHER (Specify)	%		

SEDIMENT COMPOSITION (observations)

	50 ft			200 ft		
	Left	Center	Right	Left	Center	Right
% Plant Debris					5	
% Clay						
% Silt					85	
% Sludge						
% Sand					5	
% Gravel	90					
% Cobble						
% Boulder	10		10	20		20
% Bedrock/Concrete		100	90	80		80
%_____ Mussel Shells					5	
%_____						
Sediment Color					brownish gray	
Sediment Odor					organic	
Depth of Fines (ft)	0.1	< 0.1	0.1	< 0.1	0.3	< 0.1

Oil in Sediment [x] NONE [ ] LIGHT [ ] MODERATE [ ] HEAVY

Additional Remarks

GPS 200 ft Center N 41° 39' 04.9" W -87° 42' 37.0"

Paper pondshell freshwater mussel collected in ponar at River Mile 316.

Fingernail clam & Corbicula collected in ponar grab samples.

mark X in [ ]

Sand (<2mm diameter)
Gravel (2mm to <16mm diameter)
Cobble (16mm to <256mm diameter)
Boulder (>256mm diameter)

Calumet-Sag Channel
Discharge Number 158

On September 17, 2015, a sensitive area assessment survey was conducted in the Calumet-Sag Channel along a 200 foot reach downstream from Discharge No. 158. The left and right banks were inspected visually for various aquatic and riparian habitat features, and observations of odors were noted. At 50 and 200 foot intervals, the water depth was measured across transects and the sediment composition was assessed.

The average seven-day, ten-year flow below Discharge No. 158 in the Calumet-Sag Channel is 259 cfs. The width of the study reach is 295 feet. Side depths ranged from 1.9 to 2.7 feet, while the center depth ranged from 11.8 to 13.9 feet. The channel morphology is classified as a run and the banks are channelized. There is no bank erosion and the riparian land use is 80 percent urban commercial or industrial and 20 percent forest on the left bank and 80 percent urban residential and 20 percent forest on the right bank. Direct access to the river from the banks is limited due to the steep banks that are heavily vegetated, some riprap, and a fence with barb wire on the left bank. Access to the water from boats is possible. There was no boat ramp visible and no sanitary odor was noticed. There were no logjams, aquatic vegetation, or sanitary debris on the banks. There was no outfall sign posted.

The sediment composition at the 50 foot interval in the center of the waterway was bedrock, on the left side it was mostly gravel with some cobble and boulders, and on the right side it was mostly bedrock with some sand, boulders, and *Corbicula* shells. The sediment composition at the 200 foot interval in the center and on the left side of the waterway was mostly bedrock with some gravel, on the right side it was bedrock with some silt and boulders. There was no oil in the samples or odors. On the right side the sediment color was brown. The sediment deposition at the 200 foot interval in the center was 0.1 feet, on the right side it was 0.3 feet, and on the left it was <0.1 feet. The sediment deposition at the 50 foot interval was 0.2 feet on the right side and the left side and the center was <0.1 feet.

Note: Left-right orientation is upstream, assuming that the dominant direction of flow in the waterway is away from Lake Michigan.

Metropolitan Water Reclamation District of Greater Chicago
Sensitive Area Assessment

Date 09 / 17 / 15 **Time** 9 : 10

Observer Gallagher / Banal **Waterbody** CSC

CSO Number 158 **Reach Length Downstream of CSO** 200 feet

Morphology [ ] POOL [x] RUN [ ] RIFFLE **Channel Width (ft)** 295

Water Depth at (50 ft) Left 1.9 Center 11.8 Right 1.9

Water Depth at (200 ft) Left 2.2 Center 13.9 Right 2.7

Channelization [x] YES [ ] NO

Water Level [ ] LOW [x] NORMAL [ ] HIGH [ ] FLOODED

LEFT BANK (observations)

Man-made Structures [ ] DAM [x] RIPRAP [ ] BRIDGE [ ] LEVEE [ ] ROCK GABIONS [ ] SHEET PILINGS [ ] OTHER _____

Bank Erosion [ ] SLIGHT [ ] MODERATE [ ] SEVERE [X] NONE

Logjam or Debris Build-up [ ] YES [x] NO

Physical Obstacle Blocking Access [x] YES [ ] NO description: steep bank , dense veg., and tall fence with barbed wire

Signs Posted [ ] YES [x] NO description:

Boat Ramp/Access Point Visible [ ] YES [x] NO description:

Aquatic Vegetation [x] NO [ ] YES if yes → [ ] FLOATING [ ] ATTACHED

Sanitary Waste Odor in Water [ ] YES [x] NO

Sanitary Debris on Banks [ ] YES [x] NO

Riparian Land Use (Visual Observation)

GRASSLAND	%	WETLAND	%
URBAN RESIDENTIAL	%	FOREST	20 %
URBAN COMMERCIAL/INDUSTRIAL	80 %	ROW CROPS	%
OTHER (Specify) _____	%		

RIGHT BANK (observations)

Man-made Structures [ ] DAM [x] RIPRAP [ ] BRIDGE [ ] LEVEE [ ] ROCK GABIONS [ ] SHEET PILINGS [ ] OTHER _____

Bank Erosion [ ] SLIGHT [ ] MODERATE [ ] SEVERE [X] NONE

Logjam or Debris Build-up [ ] YES [x] NO

Physical Obstacle Blocking Access [x] YES [ ] NO description: steep bank + dense veg

Signs Posted [ ] YES [x] NO description:

Boat Ramp/Access Point Visible [ ] YES [x] NO description:

Aquatic Vegetation [x] NO [ ] YES if yes → [ ] FLOATING [ ] ATTACHED

Sanitary Waste Odor in Water [ ] YES [x] NO

Sanitary Debris on Banks [ ] YES [x] NO

Riparian Land Use (Visual Observation)

GRASSLAND	%	WETLAND	%
URBAN RESIDENTIAL	80 %	FOREST	20 %
URBAN COMMERCIAL/INDUSTRIAL	%	ROW CROPS	%
OTHER (Specify) _____	%		

SEDIMENT COMPOSITION (observations)

	50 ft			200 ft		
	Left	Center	Right	Left	Center	Right
% Plant Debris						
% Clay						
% Silt						20
% Sludge						
% Sand			20			
% Gravel	60			20	5	
% Cobble	30					
% Boulder	10		10			10
% Bedrock/Concrete		100	65	80	95	70
%_____ *Corbicula*			5			
%_____						
Sediment Color	NA	NA	Brown	NA	NA	Brown
Sediment Odor	NA	NA	None	NA	NA	None
Depth of Fines (ft)	< 0.1	< 0.1	0.2	< 0.1	0.1	0.3

Oil in Sediment [x] NONE [ ] LIGHT [ ] MODERATE [ ] HEAVY

Additional Remarks Pocket of silt found in a bedrock dominated area in 200ft right depth of fines

200 ft center N 41° 39' 05.1", W -87° 43' 14.6"

mark X in [ ]

Sand (<2mm diameter)
Gravel (2mm to <16mm diameter)
Cobble (16mm to <256mm diameter)
Boulder (>256mm diameter)

Calumet-Sag Channel
Discharge Number 160

On September 17, 2015, a sensitive area assessment survey was conducted in the Calumet-Sag Channel along a 200 foot reach downstream from Discharge No. 160. The left and right banks were inspected visually for various aquatic and riparian habitat features, and observations of odors were noted. At 50 and 200 foot intervals, the water depth was measured across transects and the sediment composition was assessed.

The average seven-day, ten-year flow below Discharge No. 160 in the Calumet-Sag Channel is 259 cfs. The width of the study reach is 285 feet. Side depths ranged from 2.8 to 5.4 feet, while the center depth ranged from 13.2 to 13.4 feet. The channel morphology is classified as a run and the banks are channelized. There is no bank erosion and the riparian land use is 50 percent golf course and 50 percent forest on the left bank and 50 percent public trail and 50 percent forest on the right bank. Direct access to the river from the banks is limited due to the steep banks and dense vegetation, and a guard rail on the right bank. Access to the water from boats is possible. There was no boat ramp visible and no sanitary odor was noticed from the water but there was a septic odor in the air on the right bank. There were no logjams, aquatic vegetation, or sanitary debris on the banks. There was an outfall sign posted.

The sediment composition at the 50 foot interval in the center of the waterway was bedrock, and on the right and left side it was mostly bedrock with some boulders. The sediment composition at the 200 foot interval in the center and on the right and left side was bedrock. The sediment deposition at the 50 and 200 foot intervals was <0.1 feet at each sample point.

Note: Left-right orientation is upstream, assuming that the dominant direction of flow in the waterway is away from Lake Michigan.

Metropolitan Water Reclamation District of Greater Chicago
Sensitive Area Assessment

Date 09 / 17 / 15 **Time** 10 : 30

Observer Gallagher / Banal **Waterbody** CSC

CSO Number 160 **Reach Length Downstream of CSO** 200 feet

Morphology [ ] POOL [x] RUN [ ] RIFFLE **Channel Width (ft)** 285

Water Depth at (50 ft) Left 2.8 Center 13.2 Right 4.0

Water Depth at (200 ft) Left 5.4 Center 13.4 Right 3.3

Channelization [x] YES [ ] NO

Water Level [ ] LOW [x] NORMAL [ ] HIGH [ ] FLOODED

LEFT BANK (observations)

Man-made Structures [ ] DAM [x] RIPRAP [x] BRIDGE [ ] LEVEE [ ] ROCK GABIONS [ ] SHEET PILINGS [ ] OTHER _____

Bank Erosion [ ] SLIGHT [ ] MODERATE [ ] SEVERE [X] NONE

Logjam or Debris Build-up [ ] YES [x] NO

Physical Obstacle Blocking Access [x] YES [ ] NO description Dense veg, steep banks

Signs Posted [ ] YES [x] NO description

Boat Ramp/Access Point Visible [ ] YES [x] NO description

Aquatic Vegetation [x] NO [ ] YES if yes → [ ] FLOATING [ ] ATTACHED

Sanitary Waste Odor in Water [ ] YES [x] NO

Sanitary Debris on Banks [ ] YES [x] NO

Riparian Land Use (Visual Observation)

GRASSLAND	%	WETLAND	%
URBAN RESIDENTIAL	%	FOREST	50 %
URBAN COMMERCIAL/INDUSTRIAL	%	ROW CROPS	%
OTHER (Specify) Golf Course	50 %		

RIGHT BANK (observations)

Man-made Structures [ ] DAM [x] RIPRAP [x] BRIDGE [ ] LEVEE [ ] ROCK GABIONS [ ] SHEET PILINGS [ ] OTHER _____

Bank Erosion [ ] SLIGHT [ ] MODERATE [ ] SEVERE [x] NONE

Logjam or Debris Build-up [ ] YES [x] NO

Physical Obstacle Blocking Access [x] YES [ ] NO description Guardrail on trail Dense veg. steep Bank

Signs Posted [x] YES [ ] NO description MWRD sign with outfall #160

Boat Ramp/Access Point Visible [ ] YES [x] NO description

Aquatic Vegetation [x] NO [ ] YES if yes → [ ] FLOATING [ ] ATTACHED

Sanitary Waste Odor in Water [ ] YES [x] NO septic odor in air

Sanitary Debris on Banks [ ] YES [x] NO

Riparian Land Use (Visual Observation)

GRASSLAND	%	WETLAND	%
URBAN RESIDENTIAL	%	FOREST	50 %
URBAN COMMERCIAL/INDUSTRIAL	%	ROW CROPS	%
OTHER (Specify) trail	50 %		

SEDIMENT COMPOSITION (observations)

	50 ft			200 ft		
	Left	Center	Right	Left	Center	Right
% Plant Debris						
% Clay						
% Silt						
% Sludge						
% Sand						
% Gravel						
% Cobble						
% Boulder	5		10			
% Bedrock/Concrete	95	100	90	100	100	100
%_____						
%_____						
Sediment Color	NA	NA	NA	NA	NA	NA
Sediment Odor	NA	NA	NA	NA	NA	NA
Depth of Fines ft&in	< 0.1	< 0.1	< 0.1	0.1	< 0.1	< 0.1

Oil in Sediment [x] NONE [ ] LIGHT [ ] MODERATE [ ] HEAVY

Additional Remarks : Outfall on south side of channel

: Graffiti on bridge

200 ft Right 41° 40' 25.5", -87° 46' 43.6"

mark X in [ ]

Sand (<2mm diameter)
Gravel (2mm to <16mm diameter)
Cobble (16mm to <256mm diameter)
Boulder (>256mm diameter)

Calumet-Sag Channel
Discharge Number 163

On September 16, 2015, a sensitive area assessment survey was conducted in the Calumet-Sag Channel along a 200 foot reach downstream from Discharge No. 163. The left and right banks were inspected visually for various aquatic and riparian habitat features, and observations of odors were noted. At 50 and 200 foot intervals, the water depth was measured across transects and the sediment composition was assessed.

The average seven-day, ten-year flow below Discharge No. 163 in the Calumet-Sag Channel is 259 cfs. The width of the study reach is 267 feet. Side depths ranged from 1.5 to 2.8 feet, while the center depth ranged from 12.5 to 15.1 feet. The channel morphology is classified as a run and the banks are channelized. There is no bank erosion and the riparian land use is 50 percent urban commercial or industrial and 50 percent forest on both the left and right banks. Direct access to the river from the banks is limited due to the steep banks, dense vegetation, and some riprap. Access to the water from boats is possible. There was no boat ramp visible and no sanitary odor was noticed. There were no logjams, aquatic vegetation, or sanitary debris on the banks. There was an outfall sign posted.

The sediment composition at the 50 foot interval in the center of the waterway was bedrock, on the left side it was mostly boulders with some bedrock, and on the right side it was mostly bedrock with some boulders. The sediment composition at the 200 foot interval in the center of the waterway was bedrock, on the left side it was boulders and bedrock, and on the right side it was bedrock with some boulders. The sediment deposition at the 50 foot interval in the center was 0.1 feet and all of the other transect samples were <0.1 feet.

Note: Left-right orientation is upstream, assuming that the dominant direction of flow in the waterway is away from Lake Michigan.

Metropolitan Water Reclamation District of Greater Chicago
Sensitive Area Assessment

Date 09 / 16 / 15 **Time** 11 : 15

Observer Gallagher/Wasik **Waterbody** CSC

CSO Number 163 **Reach Length Downstream of CSO** 200 feet

Morphology [ ] POOL [x] RUN [ ] RIFFLE **Channel Width (ft)** 267

Water Depth at (50 ft) Left 1.5 Center 12.5 Right 2.8

Water Depth at (200 ft) Left 1.7 Center 15.1 Right 2.0

Channelization [x] YES [ ] NO

Water Level [ ] LOW [x] NORMAL [ ] HIGH [ ] FLOODED

LEFT BANK (observations)

Man-made Structures [ ] DAM [x] RIPRAP [ ] BRIDGE [ ] LEVEE [ ] ROCK GABIONS [ ] SHEET PILINGS [ ] OTHER _____

Bank Erosion [ ] SLIGHT [ ] MODERATE [ ] SEVERE [X] None

Logjam or Debris Build-up [ ] YES [x] NO

Physical Obstacle Blocking Access [x] YES [ ] NO description Dense veg on banks & steep

Signs Posted [x] YES [ ] NO description CSO# 163

Boat Ramp/Access Point Visible [ ] YES [x] NO description

Aquatic Vegetation [x] NO [ ] YES if yes → [ ] FLOATING [ ] ATTACHED

Sanitary Waste Odor in Water [ ] YES [x] NO

Sanitary Debris on Banks [ ] YES [x] NO

Riparian Land Use (Visual Observation)

GRASSLAND	%	WETLAND	%
URBAN RESIDENTIAL	%	FOREST	50 %
URBAN COMMERCIAL/INDUSTRIAL	50 %	ROW CROPS	%
OTHER (Specify)	%		

RIGHT BANK (observations)

Man-made Structures [ ] DAM [x] RIPRAP [ ] BRIDGE [ ] LEVEE [ ] ROCK GABIONS [ ] SHEET PILINGS [ ] OTHER _____

Bank Erosion [ ] SLIGHT [ ] MODERATE [ ] SEVERE [X] NONE

Logjam or Debris Build-up [ ] YES [x] NO

Physical Obstacle Blocking Access [x] YES [ ] NO description Dense Vegetation

Signs Posted [ ] YES [x] NO description

Boat Ramp/Access Point Visible [ ] YES [x] NO description

Aquatic Vegetation [x] NO [ ] YES if yes → [ ] FLOATING [ ] ATTACHED

Sanitary Waste Odor in Water [ ] YES [x] NO

Sanitary Debris on Banks [ ] YES [x] NO

Riparian Land Use (Visual Observation)

GRASSLAND	%	WETLAND	%
URBAN RESIDENTIAL	%	FOREST	50 %
URBAN COMMERCIAL/INDUSTRIAL	50 %	ROW CROPS	%
OTHER (Specify)	%		

SEDIMENT COMPOSITION (observations)

	50 ft			200 ft		
	Left	Center	Right	Left	Center	Right
% Plant Debris						
% Clay						
% Silt						
% Sludge						
% Sand						
% Gravel						
% Cobble						
% Boulder	80		10	50		10
% Bedrock/Concrete	20	100	90	50	100	91
%_____						
%_____						
Sediment Color	NA	NA	NA	NA	NA	NA
Sediment Odor	NA	NA	NA	NA	NA	
Depth of Fines ft&in	< 0.1	0.1	< 0.1	< 0.1	< 0.1	< 0.1

Oil in Sediment [x] NONE [ ] LIGHT [ ] MODERATE [ ] HEAVY

Additional Remarks

Power lines @ 200ft

200 ft center 41° 39' 06.0", -87° 41' 45.2"

mark X in [ ]

Sand (<2mm diameter)
Gravel (2mm to <16mm diameter)
Cobble (16mm to <256mm diameter)
Boulder (>256mm diameter)

Calumet-Sag Channel
Discharge Number 006

On September 17, 2015, a sensitive area assessment survey was conducted in the Calumet-Sag Channel along a 200 foot reach downstream from Discharge No. 006. The left and right banks were inspected visually for various aquatic and riparian habitat features, and observations of odors were noted. At 50 and 200 foot intervals, the water depth was measured across transects and the sediment composition was assessed.

The average seven-day, ten-year flow below Discharge No. 006 in the Calumet-Sag Channel is 259 cfs. The width of the study reach is 282 feet. Side depths ranged from 1.9 to 3.9 feet, while the center depth ranged from 13.4 to 14.0 feet. The channel morphology is classified as a run and the banks are channelized. There is moderate bank erosion on the left bank and the riparian land use on the left bank is 100 percent forest and on the right bank it is 90 percent urban residential with 10 percent forest. Direct access to the river from the banks is limited due to the steep banks that are heavily vegetated and some riprap. Access to the water from boats is possible. There is a boat ramp visible approximately 100 yards upstream of the discharge and no sanitary odor was noticed. There was no aquatic vegetation, sanitary debris, or logjams on the banks. There was an outfall sign posted.

The sediment composition at the 50 foot interval in the center of the waterway was mostly bedrock with some gravel, on the left side it was mostly boulders with some bedrock and gravel, and on the right side it was mostly bedrock with some gravel and boulders. The sediment composition at the 200 foot interval in the center of the waterway was mostly bedrock with a little gravel, on the left side it was mostly gravel and sand with a little cobble and boulders, and on the right side it was bedrock with some boulders. The sediment deposition at the 50 foot interval in the center and right side was 0.1 feet and the left side was <0.1 feet. The sediment deposition at the 200 foot interval was 0.1 feet in the center, 0.2 feet on the left side, and <0.1 feet on the right side.

Note: Left-right orientation is upstream, assuming that the dominant direction of flow in the waterway is away from Lake Michigan.

Metropolitan Water Reclamation District of Greater Chicago
Sensitive Area Assessment

Date 09 / 17 / 15 **Time** 11 : 10

Observer Gallagher / Banal **Waterbody** CSC

CSO Number 6 **Reach Length Downstream of CSO** 200 feet

Morphology [ ] POOL [x] RUN [ ] RIFFLE **Channel Width (ft)** 282

Water Depth at (50 ft) Left 2.6 Center 13.4 Right 1.9

Water Depth at (200 ft) Left 2.0 Center 14.0 Right 3.9

Channelization [x] YES [ ] NO

Water Level [ ] LOW [x] NORMAL [ ] HIGH [ ] FLOODED

LEFT BANK (observations)

Man-made Structures [ ] DAM [ ] RIPRAP [ ] BRIDGE [ ] LEVEE [ ] ROCK GABIONS [ ] SHEET PILINGS [ ] OTHER _____

Bank Erosion [ ] SLIGHT [x] MODERATE [ ] SEVERE

Logjam or Debris Build-up [ ] YES [x] NO

Physical Obstacle Blocking Access [x] YES [ ] NO description Dense Veg +Steep Bank

Signs Posted [ ] YES [x] NO description

Boat Ramp/Access Point Visible [x] YES [ ] NO description Ramp on Right Side upstrm.

Aquatic Vegetation [x] NO [ ] YES if yes → [ ] FLOATING [ ] ATTACHED

Sanitary Waste Odor in Water [ ] YES [x] NO

Sanitary Debris on Banks [ ] YES [x] NO

Riparian Land Use (Visual Observation)

GRASSLAND	%	WETLAND	%
URBAN RESIDENTIAL	%	FOREST	100 %
URBAN COMMERCIAL/INDUSTRIAL	%	ROW CROPS	%
OTHER (Specify)	%		

RIGHT BANK (observations)

Man-made Structures [ ] DAM [x] RIPRAP [ ] BRIDGE [ ] LEVEE [ ] ROCK GABIONS [ ] SHEET PILINGS [x] OTHER Concrete "Creek"

Bank Erosion [ ] SLIGHT [ ] MODERATE [ ] SEVERE [X] NONE

Logjam or Debris Build-up [ ] YES [x] NO

Physical Obstacle Blocking Access [ ] YES [x] NO description

Signs Posted [x] YES [ ] NO description CSO # 006 sign

Boat Ramp/Access Point Visible [X] YES [ ] NO description Ramp on Right Side upstrm.

Aquatic Vegetation [x] NO [ ] YES if yes → [ ] FLOATING [ ] ATTACHED

Sanitary Waste Odor in Water [ ] YES [x] NO

Sanitary Debris on Banks [ ] YES [x] NO

Riparian Land Use (Visual Observation)

GRASSLAND	%	WETLAND	%
URBAN RESIDENTIAL	90 %	FOREST	10 %
URBAN COMMERCIAL/INDUSTRIAL	%	ROW CROPS	%
OTHER (Specify)	%		

SEDIMENT COMPOSITION (observations)

	50 ft			200 ft		
	Left	Center	Right	Left	Center	Right
% Plant Debris						
% Clay						
% Silt						
% Sludge						
% Sand				25		
% Gravel	5	10	15	65	5	
% Cobble				5		
% Boulder	70		5	5		20
% Bedrock/Concrete	25	90	80		95	80
%_____						
%_____						
Sediment Color	NA	NA	NA	NA	NA	NA
Sediment Odor	NA	NA	NA	NA	NA	NA
Depth of Fines (ft)	< 0.1	0.1	0.1	0.2	0.1	< 0.1

Oil in Sediment [x] NONE [ ] LIGHT [ ] MODERATE [ ] HEAVY

Additional Remarks on right side 50' concrete storm "ditch" trickling water into CSC

: Ramp has 2 MWRD caution signs one on each side of the ramp

: CSO on south side of channel boarded up completely

: 200 ft center 41° 40' 59.4" -87° 49' 08.6"

mark X in [ ]

Sand (<2mm diameter)
Gravel (2mm to <16mm diameter)
Cobble (16mm to <256mm diameter)
Boulder (>256mm diameter)

Calumet-Sag Channel
Discharge Number 007

On September 17, 2015, a sensitive area assessment survey was conducted in the Calumet-Sag Channel along a 200 foot reach downstream from Discharge No. 007. The left and right banks were inspected visually for various aquatic and riparian habitat features, and observations of odors were noted. At 50 and 200 foot intervals, the water depth was measured across transects and the sediment composition was assessed.

The average seven-day, ten-year flow below Discharge No. 007 in the Calumet-Sag Channel is 291 cfs. The width of the study reach is 291 feet. Side depths ranged from 2.0 to 5.7 feet, while the center depth ranged from 12.2 to 15.3 feet. The channel morphology is classified as a run and the banks are channelized. There is slight bank erosion on the left bank and the riparian land use on the left bank is 50 percent urban commercial or industrial and 50 percent forest and on the right bank it is 100 percent forest. Direct access to the river from the banks is limited due to the steep banks that are heavily vegetated and some riprap. Access to the water from boats is possible. There is a boat ramp visible upstream of the discharge and no sanitary odor was noticed. There was no aquatic vegetation, sanitary debris, or logjams on the banks. There was an outfall sign posted.

The sediment composition at the 50 foot interval in the center of the waterway was bedrock, on the left and right sides it was mostly bedrock with some boulders. The sediment composition at the 200 foot interval in the center of the waterway was bedrock, on the left side it was mostly bedrock with a little boulders, and on the right side it was bedrock with a little boulders and mussel shells. The sediment deposition at the 50 foot interval in the center and on the right and left sides was <0.1 feet. The sediment deposition at the 200 foot interval in the center and on the left side was <0.1 feet, and on the right side it was 0.2 feet.

Note: Left-right orientation is upstream, assuming that the dominant direction of flow in the waterway is away from Lake Michigan.

Metropolitan Water Reclamation District of Greater Chicago
Sensitive Area Assessment

Date 09 / 17 / 15 **Time** 10 : 00

Observer Gallagher / Banal **Waterbody** CSC

CSO Number 7 **Reach Length Downstream of CSO** 200 feet

Morphology [ ] POOL [x] RUN [ ] RIFFLE **Channel Width (ft)** 291

Water Depth at (50 ft) Left 2.0 Center 15.3 Right 2.4

Water Depth at (200 ft) Left 2.1 Center 12.2 Right 5.7

Channelization [x] YES [ ] NO

Water Level [ ] LOW [x] NORMAL [ ] HIGH [ ] FLOODED

LEFT BANK (observations)

Man-made Structures [ ] DAM [x] RIPRAP [ ] BRIDGE [ ] LEVEE [ ] ROCK GABIONS [ ] SHEET PILINGS [ ] OTHER _____

Bank Erosion [x] SLIGHT [ ] MODERATE [ ] SEVERE [ ] NONE

Logjam or Debris Build-up [ ] YES [x] NO

Physical Obstacle Blocking Access [x] YES [ ] NO description: steep bank +dense veg

Signs Posted [x] YES [ ] NO description: MWRD sigh w/CSO #007 on it

Boat Ramp/Access Point Visible [x] YES [ ] NO description:

Aquatic Vegetation [X] NO [ ] YES if yes → [ ] FLOATING [ ] ATTACHED

Sanitary Waste Odor in Water [ ] YES [X] NO

Sanitary Debris on Banks [ ] YES [X] NO

Riparian Land Use (Visual Observation)

GRASSLAND	____ %	WETLAND	____ %
URBAN RESIDENTIAL	____ %	FOREST	50 %
URBAN COMMERCIAL/INDUSTRIAL	50 %	ROW CROPS	____ %
OTHER (Specify) ____	____ %		

RIGHT BANK (observations)

Man-made Structures [ ] DAM [x] RIPRAP [ ] BRIDGE [ ] LEVEE [ ] ROCK GABIONS [ ] SHEET PILINGS [ ] OTHER _____

Bank Erosion [ ] SLIGHT [ ] MODERATE [ ] SEVERE [X] NONE

Logjam or Debris Build-up [ ] YES [x] NO

Physical Obstacle Blocking Access [x] YES [ ] NO description: steep bank + dense veg

Signs Posted [ ] YES [x] NO description:

Boat Ramp/Access Point Visible [x] YES [ ] NO description:

Aquatic Vegetation [x] NO [ ] YES if yes → [ ] FLOATING [ ] ATTACHED

Sanitary Waste Odor in Water [ ] YES [x] NO

Sanitary Debris on Banks [ ] YES [x] NO

Riparian Land Use (Visual Observation)

GRASSLAND	____ %	WETLAND	____ %
URBAN RESIDENTIAL	____ %	FOREST	100 %
URBAN COMMERCIAL/INDUSTRIAL	____ %	ROW CROPS	____ %
OTHER (Specify) ____	____ %		

SEDIMENT COMPOSITION (observations)

	50 ft			200 ft		
	Left	Center	Right	Left	Center	Right
% Plant Debris						
% Clay						
% Silt						
% Sludge						
% Sand						
% Gravel						
% Cobble						
% Boulder	20		20	5		5
% Bedrock/Concrete	80	100	80	95	100	90
% mussel shells						5
%						
Sediment Color	NA	NA	NA	NA	NA	NA
Sediment Odor	NA	NA	NA	NA	NA	NA
Depth of Fines (ft)	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.2

Oil in Sediment [x] NONE [ ] LIGHT [ ] MODERATE [ ] HEAVY

Additional Remarks

: Alsip boat launch visible upstream of outfall throughout the 200ft reach

200 ft center 41° 40' 00.6", -87° 45' 34.4"

mark X in [ ]

Sand (<2mm diameter)
Gravel (2mm to <16mm diameter)
Cobble (16mm to <256mm diameter)
Boulder (>256mm diameter)