APPENDIX Q
PHOTO LOGS -
BETA SITE DRILLING
INVESTIGATION (BS 3,4,5,6)

AECOM

PHOTOGRAPHIC LOG

Project Name:	Site Location:	Investigation:
Project 1007 | MPCA	Twin Cities East Metro, Minnesota	Beta Site Drilling Investigation (BS 3,4,5,6)

Photo No. 1	Date: 1/7/2020

Sample ID and Location:

MW3A
Southeast of Eagle Point Lake

Description:

MW3A at 130-140 feet below ground surface (bgs) in the Shakopee Formation. The Shakopee was first encountered in MW3A at 74 feet bgs and in MW3B at 79 feet bgs.

Photo No. 2	Date: 1/7/2020

Sample ID and Location:

MW3A
Southeast of Eagle Point Lake

Description:

MW3A at 170-180 feet bgs. The contact between the Shakopee and Oneota Formations occurred at 170 feet bgs and is pictured here.

AECOM

PHOTOGRAPHIC LOG

Project Name:	Site Location:	Investigation:
Project 1007 | MPCA	Twin Cities East Metro, Minnesota	Beta Site Drilling Investigation (BS 3,4,5,6)

Photo No. 3	Date: 1/8/2020

Sample ID and Location:

MW3A
Southeast of Eagle Point Lake

Description:

MW3A from 240-250 feet bgs. The Jordan-Oneota contact occurred at 221 feet bgs. Pictured is a typical segment of the core from the Jordan Sandstone.

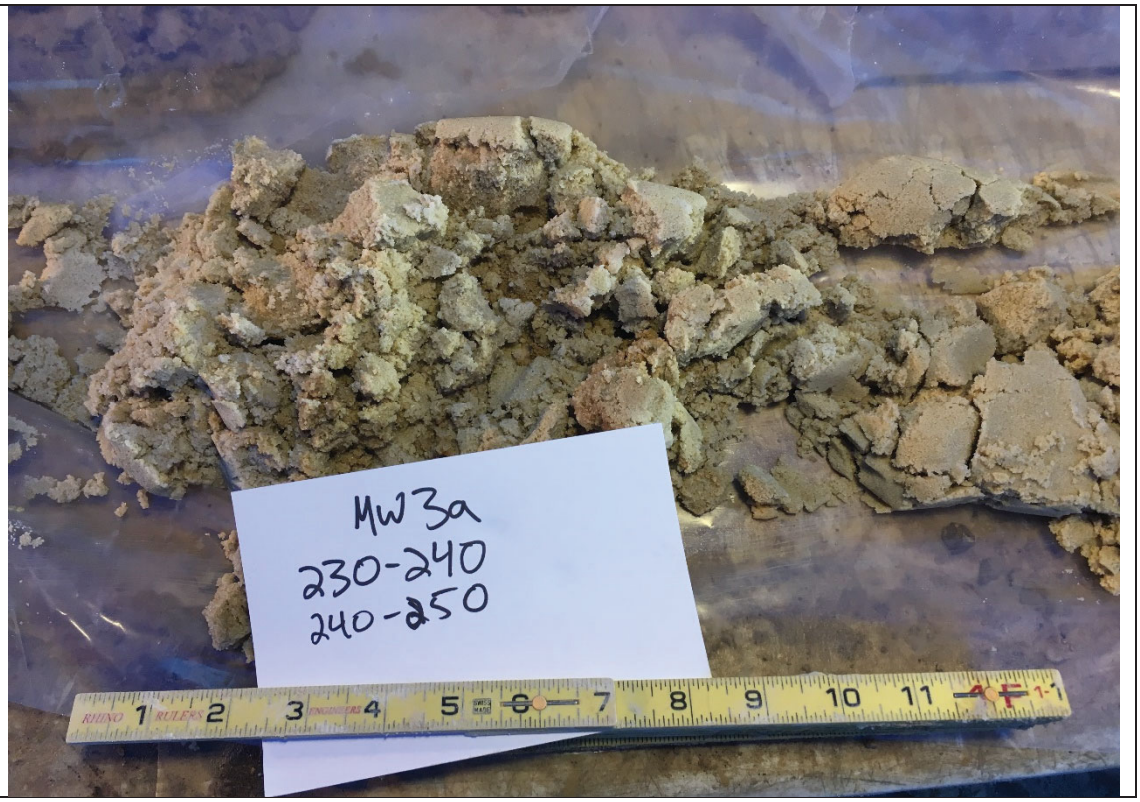


Photo No. 4	Date: 1/13/2020

Sample ID and Location:

MW3B
Southeast of Eagle Point Lake

Description:

Soil from MW3B at 10-20 feet bgs. Two discrete soil samples were collected from this length of core at 15-16.5 feet bgs (directly above the water table), and 16.5-19 feet bgs (at the water table). One water sample was taken at 16.5-19 feet bgs.

AECOM

PHOTOGRAPHIC LOG

Project Name:	Site Location:	Investigation:
Project 1007 | MPCA	Twin Cities East Metro, Minnesota	Beta Site Drilling Investigation (BS 3,4,5,6)

Photo No. 5	Date: 1/13/2020

Sample ID and Location:

MW3B
Southeast of Eagle Point Lake

Description:

Soil from MW3B at 30-35 feet bgs. A composite soil sample was collected at 31-35 feet bgs to correspond with the groundwater sample collected from the same interval.

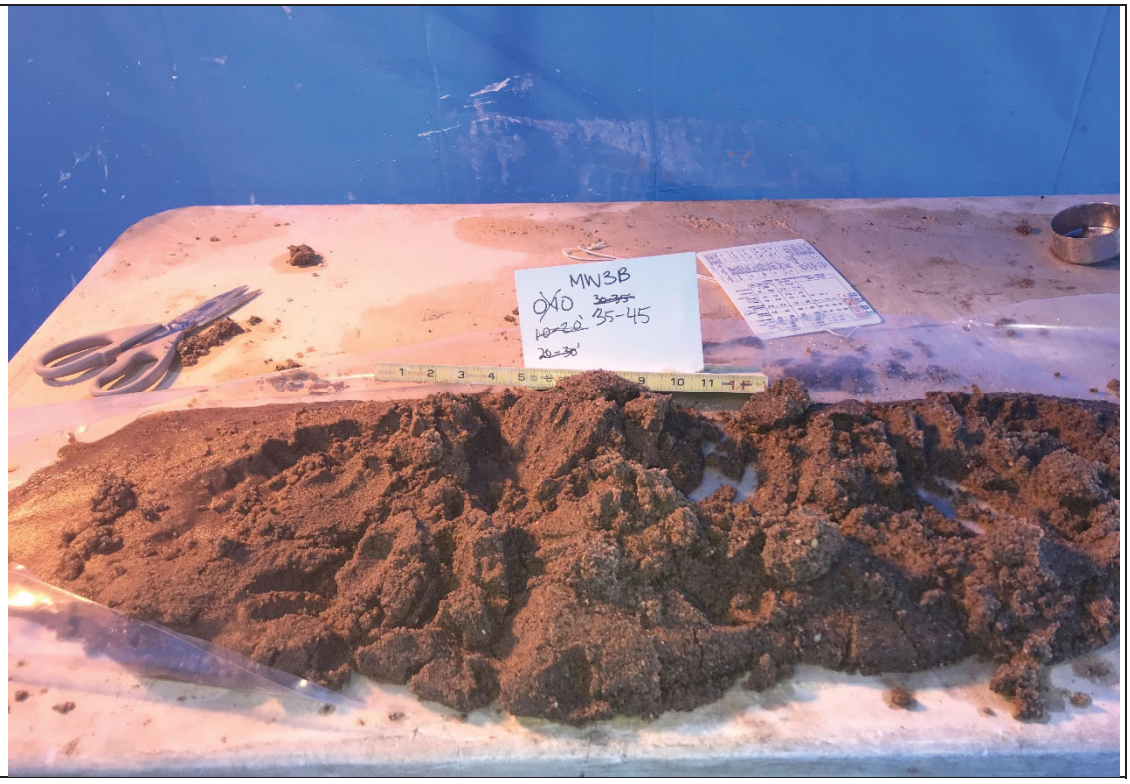
Photo No. 6	Date: 1/13/2020

Sample ID and Location:

MW3B
Southeast of Eagle Point Lake

Description:

MW3B soil from 35-45 feet bgs. A discrete soil sample comprised of coarse-grained, sandy gravel was collected at 41-42 feet bgs. A second discrete soil sample comprised of fine-grained sand was collected at 44-45 feet bgs. A corresponding groundwater sample was collected from 41-45 feet bgs.



AECOM

PHOTOGRAPHIC LOG

Project Name:	Site Location:	Investigation:
Project 1007 | MPCA	Twin Cities East Metro, Minnesota	Beta Site Drilling Investigation (BS 3,4,5,6)

Photo No. 7	Date: 1/13/2020

Sample ID and Location:

MW3B
Southeast of Eagle Point Lake

Description:

Soil from MW3B. Two discrete soil samples and one groundwater sample was taken from this interval. A soil sample of coarse-grained sand was collected at 51-53 feet bgs. A second soil sample of fine-grained sand was collected at 53-55 feet bgs. These two soil samples correspond to the groundwater sample collected at 51-55 feet bgs.

Photo No. 8	Date: 12/16/2019

Sample ID and Location:

MW4A
Lake Elmo peninsula

Description:

Photo is of the Shakopee Formation in MW4A. The contact between unconsolidated soil and the Shakopee occurred at 90 feet bgs.

AECOM

PHOTOGRAPHIC LOG

Project Name:	Site Location:	Investigation:
Project 1007 | MPCA	Twin Cities East Metro, Minnesota	Beta Site Drilling Investigation (BS 3,4,5,6)

Photo No. 9	Date: 12/16/2019

Sample ID and Location:

MW4A
Lake Elmo peninsula

Description:

Photo is of the contact between the Shakopee and the Oneota Formations which occured at 133 feet bgs.

Photo No. 10	Date: 12/13/2019

Sample ID and Location:

MW4A
Lake Elmo peninsula

Description:

The interval from 0-10 feet bgs in MW4A. A discrete soil sample was taken from a clay lens interval between two sand layers at 8-8.5 feet bgs.

AECOM

PHOTOGRAPHIC LOG

Project Name:	Site Location:	Investigation:
Project 1007 | MPCA	Twin Cities East Metro, Minnesota	Beta Site Drilling Investigation (BS 3,4,5,6)

Photo No. 11	Date: 12/13/2019

Sample ID and Location:

MW4A
Lake Elmo peninsula

Description:

Two discrete soil samples were taken from 20-30 feet bgs: one was collected at 20-21 feet bgs to target the silty sand directly above the water table, the second was collected at 20-23 feet bgs to target the silty sand directly below the water table.

Photo No. 12	Date: 12/13/2019

Sample ID and Location:

MW4A
Lake Elmo peninsula

Description:

Three discrete soil samples collected from the 30-40 feet bgs interval. Clayey sand was collected from 31-32 feet bgs. The bottom of the clay layer was sampled from 37-38 feet bgs. The fine- to coarse-grained sand from 30-40 feet bgs, directly below the clay layer, was sampled.

AECOM

PHOTOGRAPHIC LOG

Project Name:	Site Location:	Investigation:
Project 1007 | MPCA	Twin Cities East Metro, Minnesota	Beta Site Drilling Investigation (BS 3,4,5,6)

Photo No. 13	Date: 12/13/2019

Sample ID and Location:

MW4A
Lake Elmo peninsula

Description:

A discrete soil sample comprised of fine-grained sand was collected from the 51-52 feet bgs interval.

Photo No. 14	Date: 12/13/2019

Sample ID and Location:

MW4A
Lake Elmo peninsula

Description:

A discrete soil sample comprised of fine- to coarse-grained sand was collected from the 60-62 feet bgs interval.

AECOM

PHOTOGRAPHIC LOG

Project Name:	Site Location:	Investigation:
Project 1007 | MPCA	Twin Cities East Metro, Minnesota	Beta Site Drilling Investigation (BS 3,4,5,6)

Photo No. 15	Date: 12/13/2019

Sample ID and Location:

MW4A
Lake Elmo peninsula

Description:

A discrete soil sample was collected from the 68-70 feet bgs interval. The soil sample contained a larger percentage of fine sand compared to shallower intervals.

Photo No. 16	Date: 12/13/2019

Sample ID and Location:

MW4A
Lake Elmo peninsula

Description:

A discrete soil sample was collected from 74-75 feet bgs to target the fine- to coarse-grained sand directly above the weathered bedrock.

AECOM

PHOTOGRAPHIC LOG

Project Name:	Site Location:	Investigation:
Project 1007 | MPCA	Twin Cities East Metro, Minnesota	Beta Site Drilling Investigation (BS 3,4,5,6)

Photo No. 17	Date: 12/13/2019

Sample ID and Location:

MW4A
Lake Elmo peninsula

Description:

A discrete soil sample was collected from 80-81 feet bgs. The sample collected was weathered bedrock consisting of gravel-sized dolostone with sand.

Photo No. 18	Date: 12/13/2019

Sample ID and Location:

MW4A
Lake Elmo peninsula

Description:

A discrete soil sample was collected from 85-86 feet bgs to target the fine- to medium-grained sand between two weathered bedrock layers.

AECOM

PHOTOGRAPHIC LOG

Project Name:	Site Location:	Investigation:
Project 1007 | MPCA	Twin Cities East Metro, Minnesota	Beta Site Drilling Investigation (BS 3,4,5,6)

Photo No. 19	Date: 12/13/2019

Sample ID and Location:

MW4A
Lake Elmo peninsula

Description:

The soil directly above the bedrock contact at 88-89 feet bgs consisted of sand with gravel and was sampled.

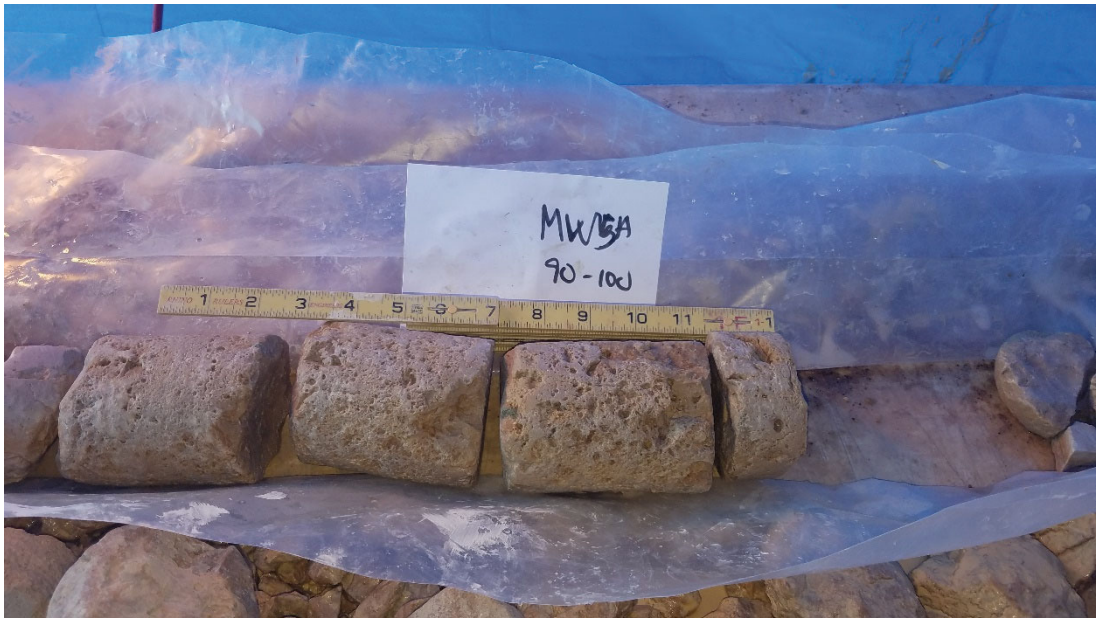
Photo No. 20	Date: 12/3/2019

Sample ID and Location:

MW5A
Lake Elmo fishing pier

Description:

Typical interval of the Shakopee formation at MW5A. The contact between unconsolidated soil and the Shakopee occurred at 60 feet bgs.



AECOM

PHOTOGRAPHIC LOG

Project Name:	Site Location:	Investigation:
Project 1007 | MPCA	Twin Cities East Metro, Minnesota	Beta Site Drilling Investigation (BS 3,4,5,6)

Photo No. 21	Date: 12/3/2019

Sample ID and Location:

MW5A
Lake Elmo fishing pier

Description:

The image shows the Oneota Formation in MW5A. The contact between the Shakopee and Oneota Formations occurred at 140 feet bgs.

Photo No. 22	Date: 12/4/2019

Sample ID and Location:

MW5A
Lake Elmo fishing pier

Description:

The Jordan Formation in MW5A and the typical color variation, ranging from white to tan, that is commonly observed. The contact between the Oneota and Jordan occurred at 203 feet bgs.

AECOM

PHOTOGRAPHIC LOG

Project Name:	Site Location:	Investigation:
Project 1007 | MPCA	Twin Cities East Metro, Minnesota	Beta Site Drilling Investigation (BS 3,4,5,6)

Photo No. 23	Date: 12/9/2019

Sample ID and Location:

MW5B
Lake Elmo fishing pier

Description:

The soil above the water table was comprised of fine to medium, sub-rounded, silty sand with trace fine gravels and cobbles.

Photo No. 24	Date: 12/9/2019

Sample ID and Location:

MW5B
Lake Elmo fishing pier

Description:

A discrete soil sample was collected between 10 and 20 feet bgs to target a clay layer.

AECOM

PHOTOGRAPHIC LOG

Project Name:	Site Location:	Investigation:
Project 1007 | MPCA	Twin Cities East Metro, Minnesota	Beta Site Drilling Investigation (BS 3,4,5,6)

Photo No. 25	Date: 12/9/2019

Sample ID and Location:

MW5B
Lake Elmo fishing pier

Description:

A sample from 28-30 feet bgs was collected to target the sandy clay and silt that was immediately above the water table.

Photo No. 26	Date: 12/9/2019

Sample ID and Location:

MW5B
Lake Elmo fishing pier

Description:

Two soil samples were collected in the interval from 30-40 feet bgs. The soil at the water table (31-32 feet bgs) was comprised of sandy silt. Soil from 34-35 feet bgs was medium- to coarse-grained sand. These two soil samples corresponded with a groundwater sample collected from the water table.

AECOM

PHOTOGRAPHIC LOG

Project Name:	Site Location:	Investigation:
Project 1007 | MPCA	Twin Cities East Metro, Minnesota	Beta Site Drilling Investigation (BS 3,4,5,6)

Photo No. 27	Date: 12/9/2019

Sample ID and Location:

MW5B
Lake Elmo fishing pier

Description:

A clay interval between two sand layers was collected from 48-49 feet bgs.

Photo No. 28	Date: 12/9/2019

Sample ID and Location:

MW5B
Lake Elmo fishing pier

Description:

A paired soil and groundwater sample was collected from 51-55 feet bgs. A second pair of soil and groundwater samples were also collected from this interval to target the interval above the bedrock contact.

AECOM

PHOTOGRAPHIC LOG

Project Name:	Site Location:	Investigation:
Project 1007 | MPCA	Twin Cities East Metro, Minnesota	Beta Site Drilling Investigation (BS 3,4,5,6)

Photo No. 29	Date: 11/12/2019

Sample ID and Location:

MW6A
Royal Golf Course

Description:

The Shakopee Formation at MW6A. The contact between the unconsolidated material and bedrock occurred at 110 feet bgs.

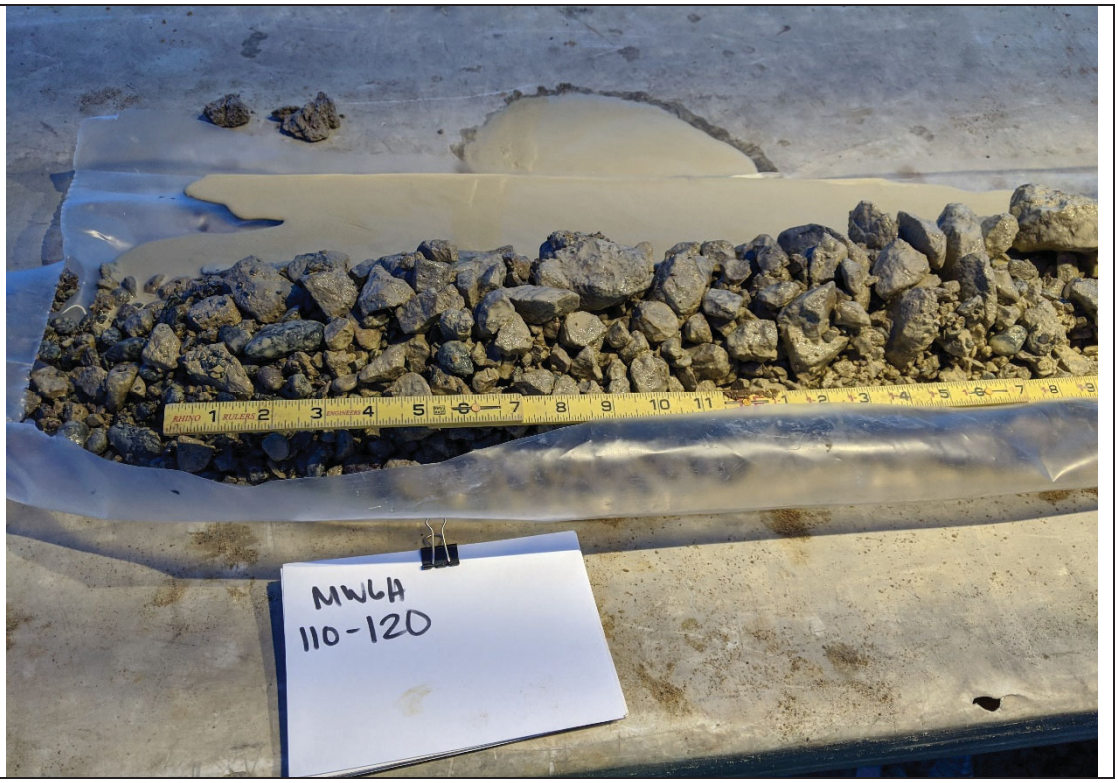


Photo No. 30	Date: 11/12/2019

Sample ID and Location:

MW6A
Royal Golf Course

Description:

The Oneota Formation in MW6A. The contact between the Shakopee and the Oneota Formations occurred at 130 feet bgs.

AECOM

PHOTOGRAPHIC LOG

Project Name:	Site Location:	Investigation:
Project 1007 | MPCA	Twin Cities East Metro, Minnesota	Beta Site Drilling Investigation (BS 3,4,5,6)

Photo No. 31	Date: 11/13/2019

Sample ID and Location:

MW6A
Royal Golf Course

Description:

Photo of the Jordan Formation in MW6A. The contact between the Oneota and the Jordan Formations occurred at 182 feet bgs.

Photo No. 32	Date: 11/19/2019

Sample ID and Location:

MW6B
Royal Golf Course

Description:

The groundwater table was identified at 10 feet bgs. A soil sample was collected immediately above the water table (8.5-10 feet bgs) and at the water table (11-13 feet bgs). A groundwater sample was collected from 11-13 feet bgs.

AECOM

PHOTOGRAPHIC LOG

Project Name:	Site Location:	Investigation:
Project 1007 | MPCA	Twin Cities East Metro, Minnesota	Beta Site Drilling Investigation (BS 3,4,5,6)

Photo No. 33	Date: 11/19/2019

Sample ID and Location:

MW6B
Royal Golf Course

Description:

A groundwater sample was collected from 36-40 feet bgs from a sand and gravel soil interval. A composite sample was collected from 36-40 feet bgs. Two discrete samples were also collected from 37-38 feet bgs and 38-39 feet bgs. The shallower sample contained more gravel while the deeper sample contained a greater percentage of fine- to medium- grained sand.

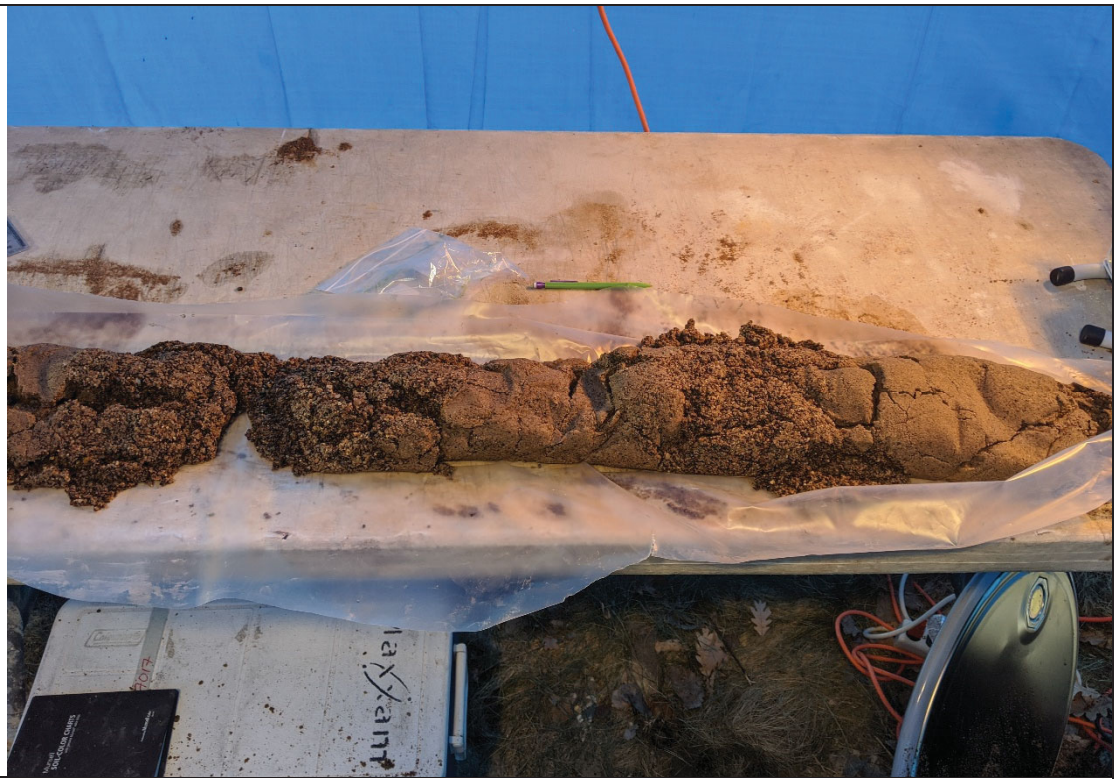


Photo No. 34	Date: 11/19/2019

Sample ID and Location:

MW6B
Royal Golf Course

Description:

A soil sample was collected from 46-47 feet bgs. This interval consisted of silty sand and was targeted because it was finer grained than shallower intervals.

AECOM

PHOTOGRAPHIC LOG

Project Name:	Site Location:	Investigation:
Project 1007 | MPCA	Twin Cities East Metro, Minnesota	Beta Site Drilling Investigation (BS 3,4,5,6)

Photo No. 35	Date: 11/19/2019

Sample ID and Location:

MW6B
Royal Golf Course

Description:

A soil sample consisting of sand and gravel was collected from 106-110 feet bgs to correspond with a groundwater sample.

Photo No. 36	Date: 11/19/2019

Sample ID and Location:

MW6B
Royal Golf Course

Description:

The first encountered bedrock unit in MW6B (the Oneota Formation).

APPENDIX Q
PHOTO LOGS - WINTER SEASONAL SAMPLING EVENT

AECOM

PHOTOGRAPHIC LOG

Project Name:	Site Location:	Investigation:
Project 1007 | MPCA	Twin Cities East Metro, Minnesota	Winter Seasonal Sampling Event

Photo No. 1	Date: 2/24/2020

Sample ID and Location:

RC3
Raleigh Creek

Description:

The image shows the sampling location with highway 694 to the east. Low stream flow was observed in the channel, which was partially covered by layers of snow and ice.

Photo No. 2	Date: 2/24/2020

Sample ID and Location:

RC3
Raleigh Creek

Description:

Frozen organic foam with a light tan/orange color was observed downgradient of the outlet pipe that discharges water from the Oakdale Disposal Site to the east side of Hadley Ave.

AECOM

PHOTOGRAPHIC LOG

Project Name:	Site Location:	Investigation:
Project 1007 | MPCA	Twin Cities East Metro, Minnesota	Winter Seasonal Sampling Event

Photo No. 3	Date: 2/24/2020

Sample ID and Location:

RC5
Raleigh Creek

Description:

The image shows the sampling location, facing east. Low to moderate stream flow was observed in the channel. The areas adjacent to the sampling location was covered with snow and ice.

Photo No. 4	Date: 2/24/2020

Sample ID and Location:

RC5
Raleigh Creek

Description:

A partially frozen foam sample was collected upgradient of the surface water sample from this location. The foam had a wrinkled appearance and was light brown in color.

AECOM

PHOTOGRAPHIC LOG

Project Name:	Site Location:	Investigation:
Project 1007 | MPCA	Twin Cities East Metro, Minnesota	Winter Seasonal Sampling Event

Photo No. 5	Date: 2/24/2020

Sample ID and Location:

RC7A
Raleigh Creek

Description:

The sampling location is south of two culverts that run beneath railroad tracks. Low to moderate surface water flow was observed only through the eastern culvert.

Photo No. 6	Date: 2/24/2020

Sample ID and Location:

RC7A
Raleigh Creek

Description:

A small accumulation of partially frozen foam with a brown/tan color was observed and sampled in this location. Ice within the creek channel was thin and discontinuous.

AECOM

PHOTOGRAPHIC LOG

Project Name:	Site Location:	Investigation:
Project 1007 | MPCA	Twin Cities East Metro, Minnesota	Winter Seasonal Sampling Event

Photo No. 7	Date: 2/24/2020

Sample ID and Location:

RC14
Raleigh Creek

Description:

The image shows a Project 1007 pipe located at Tablyn Park. Low stream flow within the creek was observed at this location.

Photo No. 8	Date: 2/24/2020

Sample ID and Location:

RC14
Raleigh Creek

Description:

The image shows the surface water sample collection area south of the Project 1007 pipe. The creek was completely uncovered by ice and freely flowing.

AECOM

PHOTOGRAPHIC LOG

Project Name:	Site Location:	Investigation:
Project 1007 | MPCA	Twin Cities East Metro, Minnesota	Winter Seasonal Sampling Event

Photo No. 9	Date: 2/24/2020

Sample ID and Location:

RC17A
Raleigh Creek

Description:

A thick ice shelf on the western bank of Raleigh Creek was observed at this location while thinner ice shelves were present along the creek upstream of this area. Low to moderate stream flow was observed in the creek.

Photo No. 10	Date: 2/24/2020

Sample ID and Location:

RC18
Raleigh Creek

Description:

This sampling location is located on the northern point of Eagle Point Lake. Thin, discontinuous ice and snow covers the creek in this location and the creek is stagnant.

AECOM

PHOTOGRAPHIC LOG

Project Name:	Site Location:	Investigation:
Project 1007 | MPCA	Twin Cities East Metro, Minnesota	Winter Seasonal Sampling Event

Photo No. 11	Date: 2/24/2020

Sample ID and Location:

RC21
Raleigh Creek

Description:

Fairly continuous, thin ice shelves cover the sides of Raleigh Creek at this location. Few ice dams were also observed along the creek.

Photo No. 12	Date: 2/24/2020

Sample ID and Location:

RC21
Raleigh Creek

Description:

Foam accumulating on an ice dam in the center of the creek was observed and collected upgradient of the surface water sample from this location.

AECOM

PHOTOGRAPHIC LOG

Project Name:	Site Location:	Investigation:
Project 1007 | MPCA	Twin Cities East Metro, Minnesota	Winter Seasonal Sampling Event

Photo No. 13	Date: 2/25/2020

Sample ID and Location:

EP8
Project 1007 Waterway

Description:

The image shows the frozen wetland area upgradient of Eagle Point Lake Dam.

Photo No. 14	Date: 2/25/2020

Sample ID and Location:

EP8
Project 1007 Waterway

Description:

The image shows the manhole at this sampling location in Lake Elmo Park Reserve near Eagle Point Lake Dam.

AECOM

PHOTOGRAPHIC LOG

Project Name:	Site Location:	Investigation:
Project 1007 | MPCA	Twin Cities East Metro, Minnesota	Winter Seasonal Sampling Event

Photo No. 15	Date: 2/24/2020

Sample ID and Location:

EP11
Project 1007 Waterway

Description:

The EP11 pipe is shown on the right side of the image while the EP10 pipe is located to the left of the EP11 pipe. Apparent flow from the outlet pipes was low and no ice cover was observed in the channel at this location.

Photo No. 16	Date: 2/25/2020

Sample ID and Location:

EP16
Project 1007 Waterway

Description:

A surface water sample was collected from the center of the channel. The photo was taken facing upstream (north).

AECOM

PHOTOGRAPHIC LOG

Project Name:	Site Location:	Investigation:
Project 1007 | MPCA	Twin Cities East Metro, Minnesota	Winter Seasonal Sampling Event

Photo No. 17	Date: 2/25/2020

Sample ID and Location:

EP16
Project 1007 Waterway

Description:

The image shows detritus from upstream of the channel impeding the flow of water into the culvert. The creek was turbid and the channel bottom was not visible from the bank.

Photo No. 18	Date: 2/25/2020

Sample ID and Location:

EP19
Project 1007 Waterway

Description:

The image shows the sampling location northeast of Eagle Point Lake. Thin frozen ice was observed along both banks and the surface water was stagnant.

AECOM

PHOTOGRAPHIC LOG

Project Name:	Site Location:	Investigation:
Project 1007 | MPCA	Twin Cities East Metro, Minnesota	Winter Seasonal Sampling Event

Photo No. 19	Date: 2/25/2020

Sample ID and Location:

EP19
Project 1007 Waterway

Description:

Potentially frozen foam was observed east of the surface water sampling location. An orange/light brown discoloration was seen along the bank.

Photo No. 20	Date: 2/25/2020

Sample ID and Location:

EP20
Project 1007 Waterway

Description:

The image shows the sampling location just east of the Eagle Point Lake Dam at the secondary outlet structure. Water was stagnant and did not appear to be flowing from the outlet pipe. A sheet of thin, discontinuous ice partially covered the top of the channel and the southern bank.

AECOM

PHOTOGRAPHIC LOG

Project Name:	Site Location:	Investigation:
Project 1007 | MPCA	Twin Cities East Metro, Minnesota	Winter Seasonal Sampling Event

Photo No. 21	Date: 2/25/2020

Sample ID and Location:

EP20
Project 1007 Waterway

Description:

A biosheen was observed on the surface of the water in the sampling area.

Photo No. 22	Date: 2/25/2020

Sample ID and Location:

WL6
Project 1007 Waterway

Description:

This sampling area is located at the corner of Manning Ave and 12 St. N. Foam was observed floating downstream of the outlet pipe and stream flow was low.

AECOM

PHOTOGRAPHIC LOG

Project Name:	Site Location:	Investigation:
Project 1007 | MPCA	Twin Cities East Metro, Minnesota	Winter Seasonal Sampling Event

Photo No. 23	Date: 2/25/2020

Sample ID and Location:

WL6
Project 1007 Waterway

Description:

Foam gathered along fallen reeds in this location and was collected downstream of the surface water sampling area.

Photo No. 24	Date: 2/25/2020

Sample ID and Location:

WL7
Project 1007 Waterway

Description:

The northwest-facing image shows the sample location on the shoulder of 10th St. N.

AECOM

PHOTOGRAPHIC LOG

Project Name:	Site Location:	Investigation:
Project 1007 | MPCA	Twin Cities East Metro, Minnesota	Winter Seasonal Sampling Event

Photo No. 25	Date: 2/25/2020

Sample ID and Location:

WL7
Project 1007 Waterway

Description:

The image shows the sampling area looking east. The channel was not covered by ice and stream flow was low.

Photo No. 26	Date: 2/25/2020

Sample ID and Location:

WL9
West Lakeland North Pond Channel

Description:

Thin ice was seen along the banks of this channel, which connects the North and Middle Ponds.

AECOM

PHOTOGRAPHIC LOG

Project Name:	Site Location:	Investigation:
Project 1007 | MPCA	Twin Cities East Metro, Minnesota	Winter Seasonal Sampling Event

Photo No. 27	Date: 2/26/2020

Sample ID and Location:

WL12
West Lakeland Middle Pond Channel

Description:

Very thin to moderately thin, discontinuous ice covers the channel.

Photo No. 28	Date: 2/26/2020

Sample ID and Location:

WL12
West Lakeland Middle Pond Channel

Description:

Patches of thin ice sheets were observed along the channel banks. Stream flow was low.

AECOM

PHOTOGRAPHIC LOG

Project Name:	Site Location:	Investigation:
Project 1007 | MPCA	Twin Cities East Metro, Minnesota	Winter Seasonal Sampling Event

Photo No. 29	Date: 2/26/2020

Sample ID and Location:

WL15
West Lakeland South Pond Channel

Description:

Large but thin sheets of ice covered the banks.

Photo No. 30	Date: 2/26/2020

Sample ID and Location:

WL15
West Lakeland South Pond Channel

Description:

Very thin, discontinuous ice that was occasionally covered by a layer of snow was observed at this sample location.

AECOM

PHOTOGRAPHIC LOG

Project Name:	Site Location:	Investigation:
Project 1007 | MPCA	Twin Cities East Metro, Minnesota	Winter Seasonal Sampling Event

Photo No. 31	Date: 2/26/2020

Sample ID and Location:

WL18
I-94 Rest Area Pond

Description:

The image shows the manhole at the surface water sampling location, looking east.

Photo No. 32	Date: 2/26/2020

Sample ID and Location:

WL18
I-94 Rest Area Pond

Description:

The image shows the manhole at this sampling location. Water flow was very high inside the manhole structure.

AECOM

PHOTOGRAPHIC LOG

Project Name:	Site Location:	Investigation:
Project 1007 | MPCA	Twin Cities East Metro, Minnesota	Winter Seasonal Sampling Event

Photo No. 33	Date: 2/26/2020

Sample ID and Location:

VB2
Valley Branch Creek

Description:

Stream flow was moderate to high in this sampling area and no ice covered the water surface.

APPENDIX Q
PHOTO LOGS - SEDIMENT SAMPLING EVENT

AECOM

PHOTOGRAPHIC LOG

Project Name:	Site Location:	Investigation:
Project 1007 | MPCA	Twin Cities East Metro, Minnesota	Sediment Sampling Event

Photo No. 1	Date: 4/25/2020

Sample ID and Location:

RC3A
Raleigh Creek

Description:

The image shows the sample site location looking east towards highway 694. The sediment sample was collected from the center of the channel.

Photo No. 2	Date: 4/25/2020

Sample ID and Location:

RC3A
Raleigh Creek

Description:

Looking downstream at the sample location, fresh foam was observed collecting near grasses and reeds along the bank. The foam consisted of large white bubbles.

AECOM

PHOTOGRAPHIC LOG

Project Name:	Site Location:	Investigation:
Project 1007 | MPCA	Twin Cities East Metro, Minnesota	Sediment Sampling Event

Photo No. 3	Date: 4/25/2020

Sample ID and Location:

RC3
Raleigh Creek

Description:

The image shows the area where wetland samples were collected. Biosheen was observed on the water surface.

Photo No. 4	Date: 4/25/2020

Sample ID and Location:

RC3
Raleigh Creek

Description:

The image shows the sampling location, looking southeast towards Menards at the stormwater ponds. Biosheen was observed in multiple locations.

AECOM

PHOTOGRAPHIC LOG

Project Name:	Site Location:	Investigation:
Project 1007 | MPCA	Twin Cities East Metro, Minnesota	Sediment Sampling Event

Photo No. 5	Date: 4/24/2020

Sample ID and Location:

RC5
Raleigh Creek

Description:

The image shows the culvert upstream of the sample location. A thin film of foam collected along the banks and grasses in the center of the channel.

Photo No. 6	Date: 4/24/2020

Sample ID and Location:

RC5
Raleigh Creek

Description:

Downstream of the sample location, the stream channel branches into several secondary channels.

AECOM

PHOTOGRAPHIC LOG

Project Name:	Site Location:	Investigation:
Project 1007 | MPCA	Twin Cities East Metro, Minnesota	Sediment Sampling Event

Photo No. 7	Date: 4/24/2020

Sample ID and Location:

RC6
Raleigh Creek

Description:

This photo was taken upstream of the main channel. The sediment sample was collected from a secondary channel.

Photo No. 8	Date: 6/24/2020

Sample ID and Location:

RC6
Raleigh Creek

Description:

The image shows the sampling location within a secondary channel. Shallow water covered the sampling area.

AECOM

PHOTOGRAPHIC LOG

Project Name:	Site Location:	Investigation:
Project 1007 | MPCA	Twin Cities East Metro, Minnesota	Sediment Sampling Event

Photo No. 9	Date: 4/24/2020

Sample ID and Location:

RC12
Raleigh Creek

Description:

The image shows the dried creek bed at the sample location. Banks were eroded and the creek bed contained large cobbles and small boulders.

Photo No. 10	Date: 4/25/2020

Sample ID and Location:

RC12
Raleigh Creek

Description:

The image shows the creek bank where composite sediment samples were collected. Dead grasses were observed along the banks of the creek bed.

AECOM

PHOTOGRAPHIC LOG

Project Name:	Site Location:	Investigation:
Project 1007 | MPCA	Twin Cities East Metro, Minnesota	Sediment Sampling Event

Photo No. 11	Date: 4/30/2020

Sample ID and Location:

RC16A
Project 1007 Waterway

Description:

The image shows the sampling location looking east towards the intersection of Stillwater Boulevard and Highway 5. The sediment sample was collected from one of many wetland hummocks present.

Photo No. 12	Date: 4/30/2020

Sample ID and Location:

RC16A
Project 1007 Waterway

Description:

Thin foam collected on the surface along the grasses and reeds near the bank at the sample location. The culvert immediately upstream of this location is the likely source of turbulence creating the foam.

AECOM

PHOTOGRAPHIC LOG

Project Name:	Site Location:	Investigation:
Project 1007 | MPCA	Twin Cities East Metro, Minnesota	Sediment Sampling Event

Photo No. 13	Date: 4/23/2020

Sample ID and Location:

RC17
Raleigh Creek

Description:

Moderate flow with light ripples was observed in the creek at the sampling location.

Photo No. 14	Date: 4/23/2020

Sample ID and Location:

RC17
Raleigh Creek

Description:

Fresh foam was observed collecting along twigs and grasses in the sampling location.

AECOM

PHOTOGRAPHIC LOG

Project Name:	Site Location:	Investigation:
Project 1007 | MPCA	Twin Cities East Metro, Minnesota	Sediment Sampling Event

Photo No. 15	Date: 2/23/2020

Sample ID and Location:

RC17
Raleigh Creek

Description:

Sediment collected at the sampling location comprised of 55% silt, 30% fine to medium sand, and 15% organics.

Photo No. 16	Date: 4/23/2020

Sample ID and Location:

RC18
Raleigh Creek

Description:

Freshly generated, thin foam was observed on the surface of the stream along the far bank. Flow speeds were moderate to high in this location.

AECOM

PHOTOGRAPHIC LOG

Project Name:	Site Location:	Investigation:
Project 1007 | MPCA	Twin Cities East Metro, Minnesota	Sediment Sampling Event

Photo No. 17	Date: 4/23/2020

Sample ID and Location:

RC18
Raleigh Creek

Description:

The image shows the culvert located at the sampling location where the water is notably calm. The sediment sample consisted of approximately 60% sub-angular gravel, 30% coarse, sub-rounded sand, and 10% medium sand.

Photo No. 18	Date: 4/23/2020

Sample ID and Location:

RC18
Raleigh Creek

Description:

A large accumulation of foam was observed at the sample location. The foam was thin and primarily an orange color with patches of white and dark brown foam. Two foam samples were collected. One sample consisted of freshly generated foam that was actively accumulating on the left side of the image; the other sample consisted of older foam from the right side of the image.

AECOM

PHOTOGRAPHIC LOG

Project Name:	Site Location:	Investigation:
Project 1007 | MPCA	Twin Cities East Metro, Minnesota	Sediment Sampling Event

Photo No. 19	Date: 4/23/2020

Sample ID and Location:

RC21
Raleigh Creek

Description:

Foam floating downstream was observed along the far bank and accumulated near leaves and twigs within the stream channel. The accumulate foam was 2-3" tall and fluffy. The sediment sample collected from this sample location consisted of 15% poorly graded fine gravel, 60% medium sub-rounded sand, 15% silt, and 10% organics.

Photo No. 20	Date: 5/14/2020

Sample ID and Location:

RC22
Raleigh Creek

Description:

Grasses and trees were present along the wetland bank and floating algae was observed on the surface of the wetland. The sediment sample collected from 0-6" consisted of 50% low plasticity silt, 40% organic matter, and 10% fine sand.

AECOM

PHOTOGRAPHIC LOG

Project Name:	Site Location:	Investigation:
Project 1007 | MPCA	Twin Cities East Metro, Minnesota	Sediment Sampling Event

Photo No. 21	Date: 5/14/2020

Sample ID and Location:

RC23
Raleigh Creek

Description:

The wetland banks were primarily comprised of short to medium grasses and partially mature trees and shrubs. Algae was also observed floating on the wetland surface.

Photo No. 22	Date: 4/23/2020

Sample ID and Location:

FC1
Farney Creek

Description:

The water at this sample location was slightly murky and contained a slightly organic odor. The sediment sample collected was organic-rich (at least 20% organics).

AECOM

PHOTOGRAPHIC LOG

Project Name:	Site Location:	Investigation:
Project 1007 | MPCA	Twin Cities East Metro, Minnesota	Sediment Sampling Event

Photo No. 23	Date: 4/27/2020

Sample ID and Location:

EP16
Project 1007 Waterway

Description:

Sediment collected from this sample location consisted of 60% silt, 10% low plasticity clay, 5% medium, sub-rounded gravel, 20% medium sand, and 5% organics.

Photo No. 24	Date: 4/25/2020

Sample ID and Location:

EP17
Project 1007 Wetland

Description:

Tall grasses and cattails were observed in the sampling area. Floating algae was also observed in the wetland.

AECOM

PHOTOGRAPHIC LOG

Project Name:	Site Location:	Investigation:
Project 1007 | MPCA	Twin Cities East Metro, Minnesota	Sediment Sampling Event

Photo No. 25	Date: 4/25/2020

Sample ID and Location:

EP17
Project 1007 Wetland

Description:

The sediment sample collected from 0-6" in this area consisted of 40% clay, 10% fine sand, and 50% organics.

Photo No. 26	Date: 5/12/2020

Sample ID and Location:

EP18
Eagle Point Lake

Description:

This image shows the sample location at the southern end of Eagle Point Lake. Cattails were observed along the entire shoreline.

AECOM

PHOTOGRAPHIC LOG

Project Name:	Site Location:	Investigation:
Project 1007 | MPCA	Twin Cities East Metro, Minnesota	Sediment Sampling Event

Photo No. 27	Date: 2/25/2020

Sample ID and Location:

EP19
Eagle Point Lake

Description:

Sediment collected from 0-6" consisted of 75% coarse sand, 5% clay, 15% fine sand, 1% coarse gravel, and 4% organics.

Photo No. 28	Date: 2/27/2020

Sample ID and Location:

EP20
Project 1007 Waterway

Description:

Stagnant, very murky water was observed near the culvert at this sample location.

AECOM

PHOTOGRAPHIC LOG

Project Name:	Site Location:	Investigation:
Project 1007 | MPCA	Twin Cities East Metro, Minnesota	Sediment Sampling Event

Photo No. 29	Date: 4/27/2020

Sample ID and Location:

EP20
Project 1007 Waterway

Description:

The sediment sample collected from 0-6" at this location consisted of 70% low to medium plasticity clay, 15% coarse angular sand, 10% fine, rounded gravel, 2% medium, sub-angular gravel, and 3% organics.

Photo No. 30	Date: 4/23/2020

Sample ID and Location:

EP21A
Lake Elmo

Description:

High water levels were observed at this sample location on the western shoreline of Lake Elmo. The sediment sample collected from this location consisted of 50% fine sand, 40% medium sand, 5% coarse sand, and 5% silt.

AECOM

PHOTOGRAPHIC LOG

Project Name:	Site Location:	Investigation:
Project 1007 | MPCA	Twin Cities East Metro, Minnesota	Sediment Sampling Event

Photo No. 31	Date: 4/23/2020

Sample ID and Location:

EP21A
Lake Elmo

Description:

Fresh foam was observed on the beach of the canoe launch at this sampling location. The accumulated foam was approximately 1 inch tall by 5 inches wide.

Photo No. 32	Date: 4/27/2020

Sample ID and Location:

EP23
Lake Elmo

Description:

The sediment sample collected from this location consisted of 55% medium sand, 35% coarse sand, 5% fine gravel, and 5% organics.

AECOM

PHOTOGRAPHIC LOG

Project Name:	Site Location:	Investigation:
Project 1007 | MPCA	Twin Cities East Metro, Minnesota	Sediment Sampling Event

Photo No. 33	Date: 4/27/2020

Sample ID and Location:

EP23
Lake Elmo

Description:

The image shows the texture of the beach sand at this sample location on the northern end of Lake Elmo.

Photo No. 34	Date: 4/27/2020

Sample ID and Location:

EP24
Sunfish Lake

Description:

The image shows the sample location on the northern end of Sunfish Lake. The sediment sample collected consisted of 70% low plasticity clay, 20% organics, and 10% fine to medium sand.

AECOM

PHOTOGRAPHIC LOG

Project Name:	Site Location:	Investigation:
Project 1007 | MPCA	Twin Cities East Metro, Minnesota	Sediment Sampling Event

Photo No. 35	Date: 4/27/2020

Sample ID and Location:

EP24
Sunfish Lake

Description:

High lake water levels that exceeded the tree line were observed on the northern end of Sunfish Lake.

Photo No. 36	Date: 5/12/2020

Sample ID and Location:

GL1
Goose Lake

Description:

The sediment sample collected from this location consisted of 70% silt, 20% low plasticity clay, and 10% sand.

AECOM

PHOTOGRAPHIC LOG

Project Name:	Site Location:	Investigation:
Project 1007 | MPCA	Twin Cities East Metro, Minnesota	Sediment Sampling Event

Photo No. 37	Date: 4/27/2020

Sample ID and Location:

VB1
Valley Branch Creek

Description:

The image shows the culvert that is present at this sample location. Moderate flow was observed throughout the stream but increased near the culvert discharge area. Sediment collected from this location consisted of 60% low to medium plasticity clay, 15% coarse sand, 10% coarse gravel, 5% medium sub-angular gravel, and 5% organics.

Photo No. 38	Date: 4/27/2020

Sample ID and Location:

VB1
Valley Branch Creek

Description:

Both old and freshly generated foam was observed at the sample location. The accumulation of fresh foam was a fluffy, off-white color and was approximately 1-inch thick. The accumulation of older foam was thin and an orange color.

AECOM

PHOTOGRAPHIC LOG

Project Name:	Site Location:	Investigation:
Project 1007 | MPCA	Twin Cities East Metro, Minnesota	Sediment Sampling Event

Photo No. 39	Date: 4/27/2020

Sample ID and Location:

VB3
Valley Branch Creek

Description:

The sediment sample collected from this location consisted of 60% fine to coarse sand, 20% medium plasticity clay, 15% fine, sub-rounded gravel, and 5% organics.