Memo

SUBJECT
2023 Transloading Area – Qualitative Site Inspection
NYSEG Binghamton Court Street Former Manufactured Gas Plant Site
NYSDEC Site No. 7-04-031

TO
Justin Starr, P.G., NYSDEC

DATE
June 27, 2023

OUR REF
2023 Qualitative Site Inspection

DEPARTMENT
Environment

PROJECT NUMBER
30178743.00038

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On behalf of NYSEG, this memorandum presents the May 30, 2023 qualitative site inspection results for the Transloading Areas at the NYSEG Binghamton Court Street Former Manufactured Gas Plant (MGP) Site, Operable Unit No. 2 (OU-2), located in Binghamton, New York. The Transloading Area was temporarily constructed (and subsequently restored) during the 2019 interim remedial measures (IRM) completed at OU-2.

The qualitative site visit purpose was to evaluate the restoration conditions related to bank stability, tree height and health, herbaceous cover, and invasive plant species presence within the restored Transloading Area. In addition to these routine inspection elements, at the request of the New York State Department of Environmental Conservation (NYSDEC), Arcadis staff also evaluated tree heights for the 8 red maple (*Acer rubrum*) and 6 silver maple (*Acer saccharinum*) and the presence and horizontal and vertical extent of Japanese knotweed (*Polygonum cuspidatum*) within the Transloading Area (Figure 1). This was performed in response to NYSEG's request to cease control measures for Japanese knotweed in the 2022 Transloading Area Restoration Monitoring Report provided to NYSDEC on December 22, 2022.

Additionally, select trees were removed at the original/former Transloading Area (Figure 2) located at the upstream end of the former access road. The original/former Transloading Area was restored with eight silver maples and heights were measured and presence of Japanese knotweed was noted.

The following sections describe inspection observations within the Transloading Area and original/former Transloading Area.

Bank Stability

Within the Transloading Area, past monitoring visits had indicated some minor erosion/sloughing in the lower bank at the upstream end of the restored bank area. During the qualitative site visit, Arcadis further characterized the linear length and range of bank height showing signs of erosion in this area. The lateral extent of the eroded bank area was measured at approximately 43.5 feet with vertical face heights ranging from 1.4 to 4.3 feet. The vegetated bank area root zone is currently helping to prevent additional sloughing. Representative photographs showing the Transloading Area bank and lower bank erosion area are provided in Attachment 1, Photograph Log – Photos # 4 through # 7. Since the November 2022 inspection, no significant increase in the lateral or vertical extent of the erosion was observed.

Justin Starr, P.G.
NYSDEC
June 27, 2023

Tree Health and Height

The Transloading Area and original/former Transloading Area tree inspection indicated healthy specimens that were fully leaved, with no herbivore damage, tree cages intact, and no presence of red gall. One silver maple in the Transloading Area (see Attachment 1, Photograph Log – Photo # 10) had damage to its crown that was possibly caused by wind damage or other natural causes; otherwise, this specimen was healthy. Table 1 provides the tree species and approximate heights found within each area. Tree heights were estimated using a stadia rod (see Attachment 1, Photograph Log – Photos # 8 and # 9). Red maples ranged in height from 15.0 to 25.5 feet (estimated as stadia rod extent was to 25 feet). Silver maples at the Transloading Area ranged in height from 19.2 to 23.3 feet. One damaged silver maple was measured at 13.0 feet tall, however this tree is not in the immediate vicinity of any existing Japanese knotweed encroachment. Silver maples at the original/former Transloading Area ranged in height from 16.0 to 22.1 feet (see Attachment 1, Photograph Log – Photos # 16 and # 17).

Herbaceous Ground Cover

Well established herbaceous ground cover was observed throughout the restored Transloading Area upland and bank areas. A mix of warm season grasses and wildflowers were present (see Attachment 1, Photograph Log – Photos # 3, # 11, and # 12). Ox-eye daisies (*Leucanthemum vulgare*) were dominant and blooming at the time of the site inspection.

Invasive Plant Species

In accordance with the restoration plan, corrective actions to control the aggressive encroachment of Japanese knotweed (*Polygonum cuspidatum*) and other invasive species (e.g., spotted knapweed) or nuisance species had been performed during the 2020, 2021, and 2022 growing seasons using foliar application of a glyphosate-based herbicide (specifically AquaNeat) using backpack sprayers. Prior to the restoration of the Transloading Area, the bank area was largely a monoculture of Japanese knotweed (as shown in the inset photograph below from July 30, 2019 during the construction period).

During the May 30, 2023 visit, the spatial extent of Japanese knotweed was observed to be primarily along the margins of the lower bank and outside of restored bank area, with only a few stems found alive in the restored bank and upland area. On the downstream end of the restored bank area, the maximum height of the Japanese knotweed was approximately 7 feet (see Attachment 1, Photograph Log – Photo # 2). Sparse clumps of Japanese knotweed that were primarily less than 3 feet in height were also observed within the lower bank erosion area (see Attachment 1, Photograph Log – Photo # 7). Near the upstream end of the Transloading Area restored bank and upland area, the Japanese knotweed was either dead or stunted and remnant stalks were observed near top of bank at heights of approximately 3.5 feet (see Attachment 1, Photograph Log – Photos # 13 and # 14). In response to the treatment of Japanese knotweed, other pioneering species such as staghorn sumac (*Rhus typhina*) have established within and adjacent to the Transloading Area bank and upland areas (see Attachment 1, Photograph Log – Photo # 15).

In the original/former Transloading Area the Japanese knotweed was also encroaching on the silver maples. With the use of the same foliar herbicide application, the Japanese knotweed stands, adjacent to restoration areas, have largely been reduced or retreated away from the silver maples (see Attachment 1, Photograph Log – Photos # 16 through # 20. The remnant Japanese knotweed stalks that are close to the lone silver maple (as shown in Photo # 16) were approximately 3 to 5 feet in height.

Summary

The May 30, 2023 site inspection evaluated the current overall restoration conditions with respect to bank stability, health of trees and their heights related to potential encroachment by invasive plant species, and vegetation cover including the presence of invasive plant species within or adjacent to the restored Transloading Area or original/former Transloading Area. The site inspection results include the following:

- Consistent with past observations, bank stability within the restored bank area showed some signs of erosion but had not significantly changed from the last inspection in November 2022. The current bank erosion area was approximately 43.5 feet in length with an exposed face height that ranged from 1.4 to 4.3 feet. The lower bank area is stable and sloughed material has settled. The existing restored bank is well vegetated, and the root zone is stabilizing the bank near the erosion line.
- All trees in the Transloading Areas are in good health.
- Japanese knotweed is primarily outside the restored Transloading Area limits. Encroachment on the lower banks and in adjacent top of bank areas is present, but it is not impacting the existing maples that were planted within the restored area.
- Upland and bank herbaceous ground cover exceeds the total cover criteria (i.e., 90%) and is well vegetated with abundant wildflowers and warm season grasses observed.
- Natural recruitment of staghorn sumac within the bank area that had been treated for Japanese knotweed is increasing its canopy and spread within areas adjacent to the Transloading Area restored bank and upland area. The establishment of this native tree species may help to reduce Japanese knotweed advancement in the future.

Path Forward

The Restoration Plan notes that NYSEG may request to cease monitoring activities if performance criteria are being met after monitoring year three. As such, NYSEG requests to cease vegetation monitoring and corrective actions based on the following:

- Current site conditions indicate relatively stable banks, established herbaceous ground cover, and overall healthy tree plantings.
- Riverbank and qualitative vegetation inspections will continue during planned site visits (i.e., sheen monitoring, annual site inspection) to assess whether any significant changes have occurred to reduce the stability of the restored bank area or if any supplemental maintenance is required.
- The presence of Japanese knotweed within the restored area and the adjacent border has been reduced through active treatment over the last three years. Some remnant patches are observed both within the lower and upper bank areas adjacent to the restored Transloading Area.
- The existing tree heights adjacent to existing Japanese knotweed areas are all greater than 15 feet within both the Transloading Area and the original/former Transloading Area. This tree height is well above the current observed heights of the Japanese knotweed present. Note that the pre-disturbed condition of the Transloading Area was primarily a monoculture stand of Japanese knotweed and that uncontrolled stands of this species are present within the Susquehanna River floodplain both upstream and downstream of the site.

Upon review, please contact me or Levia Terrell at 607.423.1652 or lterrell@nyseg.com if you have any questions or require any additional information.

Enc.

Table

1 Tree Heights

Figures

1 Transloading Area Restoration
2 Upstream Transloading Area Restoration

Attachment

1 Photo Log

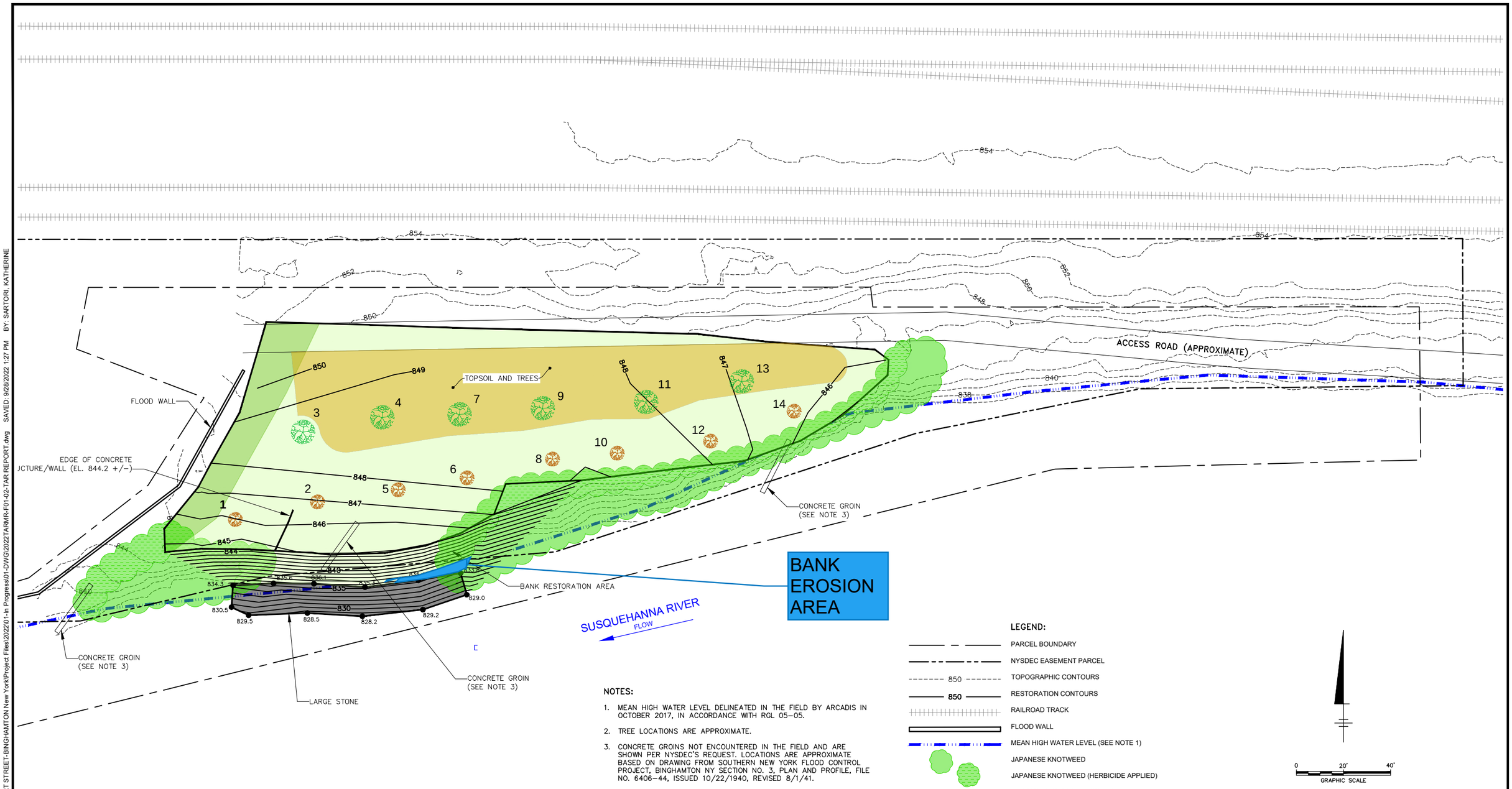
Table

Table 1
Tree Heights
NYSEG - Binghamton Court Street Former MGP Site
Operable Unit No. 2
Transloading Area Restoration

Tree #	Species (Common Name)	Height (feet)
Transloading Area (Figure 1)		
1	Red maple	20.0
2	Red maple	17.5
3	Silver maple	20.8
4	Silver maple	22.7
5	Red maple	15.0
6	Red maple	16.8
7	Silver maple	21.6
8	Red maple	19.0
9	Silver maple	19.2
10	Red maple	21.0
11	Silver maple	23.3
12	Red maple	21.8
13	Silver maple	13.0
14	Red maple	25.5
Original/Former Transloading Area (Figure 2)		
15	Silver maple	17.0
16	Silver maple	16.0
17	Silver maple	18.2
18	Silver maple	21.1
19	Silver maple	20.3
20	Silver maple	22.1
21	Silver maple	21.5
22	Silver maple	18.8

Notes:
1. Tree heights measured using stadia rod on May 30, 2023.

Figures



NOTES:

1. MEAN HIGH WATER LEVEL DELINEATED IN THE FIELD BY ARCADIS IN OCTOBER 2017, IN ACCORDANCE WITH RGL 05-05.
2. TREE LOCATIONS ARE APPROXIMATE.
3. CONCRETE GROINS NOT ENCOUNTERED IN THE FIELD AND ARE SHOWN PER NYSDEC'S REQUEST. LOCATIONS ARE APPROXIMATE BASED ON DRAWING FROM SOUTHERN NEW YORK FLOOD CONTROL PROJECT, BINGHAMTON NY SECTION NO. 3, PLAN AND PROFILE, FILE NO. 6406-44, ISSUED 10/22/1940, REVISED 8/1/41.

LEGEND:

- PARCEL BOUNDARY
- NYSDEC EASEMENT PARCEL
- 850 TOPOGRAPHIC CONTOURS
- **850** RESTORATION CONTOURS
- RAILROAD TRACK
- FLOOD WALL
- MEAN HIGH WATER LEVEL (SEE NOTE 1)
- JAPANESE KNOTWEED
- JAPANESE KNOTWEED (HERBICIDE APPLIED)
- HERBACEOUS GROUND COVER (WILDLIFE AND GRASS SEED MIX)
- HERBACEOUS GROUND COVER (FLOOD WALL SEED MIX)
- NYSDEC RESEEDED AREA
- SILVER MAPLES
- RED MAPLES
- RIPRAP
- 828.2 SURVEYED POINTS WITH ELEVATIONS
- 1 TREE NUMBER

0 20' 40'
GRAPHIC SCALE

NYSEG
COURT STREET FORMER MGP SITE
BINGHAMTON, NEW YORK

2023 TRANSLOADING AREA - QUALITATIVE INSPECTION REPORT

TRANSLOADING AREA RESTORATION

ARCADIS

FIGURE
1

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XREFS:
Design-X-BASE
Design-X-SP
Design-X-PARCEL
Design-X-CONTOURS

LEGEND:

- 850 — TOPOGRAPHIC CONTOUR
- RAILROAD TRACK
- MEAN HIGH WATER LEVEL (SEE NOTE 2)
- JAPANESE KNOTWEED
- JAPANESE KNOTWEED (HERBICIDE APPLIED)
- SILVER MAPLES
- 1 — TREE NUMBER

NOTES:

1. TREE LOCATIONS ARE APPROXIMATE.
2. CONCRETE GROINS NOT ENCOUNTERED IN THE FIELD AND ARE SHOWN PER NYSDEC'S REQUEST. LOCATIONS ARE APPROXIMATE BASED ON DRAWING FROM SOUTHERN NEW YORK FLOOD CONTROL PROJECT, BINGHAMTON NY SECTION NO. 3, PLAN AND PROFILE, FILE NO. 6406–44, ISSUED 10/22/1940, REVISED 8/1/41.

0 20' 40'
GRAPHIC SCALE

NYSEG
COURT STREET FORMER MGP SITE
BINGHAMTON, NEW YORK

2023 TRANSLOADING AREA - QUALITATIVE INSPECTION REPORT

ORIGINAL TRANSLOADING AREA RESTORATION

ARCADIS

FIGURE
2

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XREFS:
Design-X-BASE
Design-X-SP
Design-X-PARCEL
Design-X-CONTOURS

Attachment 1

Photograph Log

PROJECT PHOTOGRAPHS

New York State Electric & Gas
Binghamton Court St. Site
Transloading Area and Former Transloading Area

Photo: 1

Location:
Transloading Bank Area

Description:
Restored bank area.

Coordinates:
42.103214
-75.892103

Date: 05/30/2023

Taken By:
Jason Vogel

Notes:
Looking northeast

Photo: 2

Location:
Transloading Bank Area

Description:
Japanese knotweed outside downstream end of restored bank. Approximate maximum height was 7 feet.

Coordinates:
42.103289
-75.891936

Date: 05/30/2023

Taken By:
Jason Vogel

Notes:
Looking northeast

PROJECT PHOTOGRAPHS

New York State Electric & Gas
Binghamton Court St. Site
Transloading Area and Former Transloading Area

Photo: 3

Location:
Transloading Bank Area

Description:
Downstream end of seeded bank area.

Coordinates:
42.103336
-75.891805

Date: 05/30/2023

Taken By:
Jason Vogel

Notes:
Looking east

Photo: 4

Location:
Transloading Bank Area

Description:
Downstream end of lower bank erosion area.

Coordinates:
42.103325
-75.891650

Date: 05/30/2023

Taken By:
Jason Vogel

Notes:
Looking northeast

PROJECT PHOTOGRAPHS

New York State Electric & Gas
Binghamton Court St. Site
Transloading Area and Former Transloading Area

Photo: 5

Location:
Transloading Bank Area

Description:
Midpoint of lower bank erosion area.

Coordinates:
42.103339
-75.891617

Date: 05/30/2023

Taken By:
Jason Vogel

Notes:
Looking northeast

Photo: 6

Location:
Transloading Bank Area

Description:
Upstream end of lower bank erosion area.

Coordinates:
42.103339
-75.891497

Date: 05/30/2023

Taken By:
Jason Vogel

Notes:
Looking northwest

PROJECT PHOTOGRAPHS

New York State Electric & Gas
Binghamton Court St. Site
Transloading Area and Former Transloading Area

Photo: 7

Location:
Transloading Bank Area

Description:
Upstream end of lower bank erosion area.

Coordinates:
42.103339
-75.891497

Date: 05/30/2023

Taken By:
Jason Vogel

Notes:
Looking northwest along extent of lower bank erosion

Photo: 8

Location:
Transloading Area

Description:
Red maple height being measured with stadia rod.

Coordinates:
42.103461
-75.891794

Date: 05/30/2023

Taken By:
Jason Vogel

Notes:
Looking southwest

PROJECT PHOTOGRAPHS

New York State Electric & Gas
Binghamton Court St. Site
Transloading Area and Former Transloading Area

Photo: 9

Location:
Transloading Area

Description:
Measurement at top of red maple.

Coordinates:
42.103461
-75.891794

Date: 05/30/2023

Taken By:
Jason Vogel

Notes:
Looking southwest towards river

Photo: 10

Location:
Transloading Area

Description:
Silver maple with a broken crown

Coordinates:
42.103531
-75.891006

Date: 05/30/2023

Taken By:
Jason Vogel

Notes:
Looking northeast

PROJECT PHOTOGRAPHS

New York State Electric & Gas
Binghamton Court St. Site
Transloading Area and Former Transloading Area

Photo: 11

Location:
Transloading Area

Description:
Top of bank and upland seeded area.

Coordinates:
42.103394
-75.891914

Date: 05/30/2023

Taken By:
Jason Vogel

Notes:
Looking east

Photo: 12

Location:
Transloading area

Description:
Top of bank and upland seeded area near access road.

Coordinates:
42.103556
-75.891772

Date: 05/30/2023

Taken By:
Jason Vogel

Notes:
Looking east

PROJECT PHOTOGRAPHS

New York State Electric & Gas
Binghamton Court St. Site
Transloading Area and Former Transloading Area

Photo: 13

Location:
Transloading Area

Description:
Top of bank area with previously treated knotweed. Some remnant stalks on lower bank.

Coordinates:
42.103419
-75.891375

Date: 05/30/2023

Taken By:
Jason Vogel

Notes:
Looking east

Photo: 14

Location:
Transloading Area

Description:
Top of bank near upstream end of restoration area. Knotweed approximately 3.5' tall

Coordinates:
42.103417
-75.891278

Date: 05/30/2023

Taken By:
Jason Vogel

Notes:
Looking east

PROJECT PHOTOGRAPHS

New York State Electric & Gas
Binghamton Court St. Site
Transloading Area and Former Transloading Area

Photo: 15

Location:
Transloading Area

Description:
Top end of bank area looking downstream to naturally recruited sumac stand.

Coordinates:
42.103464
-75.891019

Date: 05/30/2023

Taken By:
Jason Vogel

Notes:
Looking west

Photo: 16

Location:
Former Transloading Area

Description:
Silver maple on right of access road with previously treated knotweed to the west

Coordinates:
42.103226
-75.886192

Date: 05/30/2023

Taken By:
Jason Vogel

Notes:
Looking southeast

PROJECT PHOTOGRAPHS

New York State Electric & Gas
Binghamton Court St. Site
Transloading Area and Former Transloading Area

Photo: 17

Location:
Former Transloading Area

Description:
Silver maples on left side of access road.

Coordinates:
42.103255
-75.886145

Date: 05/30/2023

Taken By:
Jason Vogel

Notes:
Looking east

Photo: 18

Location:
Former Transloading Area

Description:
Treated knotweed stand to northwest of planted silver maples.

Coordinates:
42.103236
-75.885756

Date: 05/30/2023

Taken By:
Jason Vogel

Notes:
Looking east

PROJECT PHOTOGRAPHS

New York State Electric & Gas
Binghamton Court St. Site
Transloading Area and Former Transloading Area

Photo: 19

Location:
Former Transloading Area

Description:
Silver maple stand with remnant treated knotweed stand in wood line.

Coordinates:
42.103236
-75.885756

Date: 05/30/2023

Taken By:
Jason Vogel

Notes:
Looking southeast

Photo: 20

Location:
Former Transloading Area

Description:
Silver maple stand with treated knotweed stand towards river.

Coordinates:
42.103253
-75.885739

Date: 05/30/2023

Taken By:
Jason Vogel

Notes:
Looking southeast