Justin Starr, P.G.
New York State Department of Environmental Conservation
Division of Environmental Remediation
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Albany, New York 12233-7014

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Subject: 2020 Transloading Area Restoration Monitoring Report
NYSEG Court Street Former Manufactured Gas Plant Site
NYSDEC Site No. 7-04-031
Our Ref: 30045314.00021
Date: December 21, 2020

Dear Mr. Starr,

On behalf of NYSEG, this letter presents the 2020 restoration monitoring report for the Transloading Area that was temporarily constructed (and subsequently restored) during the 2019 interim remedial measures (IRM) completed at Operable Unit No. 2 (OU-2) of the NYSEG Court Street Former Manufactured Gas Plant (MGP) Site, located in Binghamton, New York.

The restoration monitoring has been completed in accordance with the Transloading Area Restoration Plan (Revised) (Restoration Plan), submitted by Arcadis to the New York State Department of Environmental Conservation (NYSDEC) on September 10, 2019 and approved by NYSDEC via a September 12, 2019 letter to NYSEG.

OBJECTIVES

The objectives of this monitoring report are to:

- Detail the completed restoration
- Provide a summary of the methodologies used to evaluate the effectiveness of the restoration
- Summarize the current restored conditions compared to performance metrics
- Provide a summary of completed corrective actions

The following sections discuss the completed restoration activities, monitoring methods, monitoring results, completed corrective actions, and an overall summary and path forward for restoration monitoring.

RESTORATION AREA

As detailed in the Restoration Plan, the restoration effort generally consisted of installing vegetative cover materials and riprap. The approximate size of the restored transloading area is 0.48 acres, which includes approximately 0.45 acres of seeded upland and bank areas and 0.03 acres of lower bank restored with rip rap. The limits of restoration are shown on Figure 1.

A majority of the seeded area was restored with the wildflower and grass mix specified in the Restoration Plan (Specification Section 32 92 00, Turfs and Grasses). An approximately 20 foot-wide strip of the restored upland and bank area along the existing flood wall was restored using a grass seed mix containing species of Kentucky

blue grass, creeping red fescue, and perennial rye grass (applied at 1.5 pounds per 1,000 square feet), along with fertilizer (5-10-5) applied at 15 pounds per 1,000 square feet, and mulch (straw or timothy hay) covering applied at 100 pounds per 1,000 square feet (as required by the NYSDEC's Article 16 Flood Control Land Use Permit).

Along with the vegetated ground cover, a total of 14 trees (8 red maple [Acer rubrum] and 6 silver maple [Acer saccharinum]) were planted in the Transloading Area (see Figure 1). Additionally, select trees were removed during construction of the original/former Transloading Area (Figure 2) located at the upstream end of the former access road. This area was restored with eight silver maples to replace trees removed during construction of this area.

Rip rap with a D50 of 8 inches was placed along the lower bank of the Transloading Area, from the approximate pre-construction vegetation/scour line (at an approximate elevation of 835', as observed at adjacent non-disturbed bank areas) down to the toe of slope (at an approximate elevation of 829'). An estimated 90 cubic yards of rip rap was placed, in a manner that resulted in no net fill below the mean high-water level (i.e., keyed into the bank), with an approximate thickness of 2 feet (i.e., more than 1.5 times the D50), covering approximately 1,250 square feet.

MONITORING REQUIREMENTS AND METHODS

The Transloading Area will be monitored and maintained to evaluate the status of the restoration relative to performance objectives presented in the Restoration Plan and to identify proposed maintenance or corrective actions (if necessary). The monitoring includes a quantitative evaluation of vegetation for total percent cover and tree survival, and a qualitative assessment of the stability of the restored riverbank.

The performance criteria for the first year of monitoring (i.e., 2020) are as follows:

- 85% minimum vegetative cover
- 100% tree survival
- No invasive plant species currently listed as prohibited on the list of New York State Prohibited and Regulated Invasive Plants
- Less than 5% of any other invasive plant species not identified as prohibited

Quantitative measures of the vegetative cover were performed using a 1-meter square (1 m2) quadrat at five randomly placed locations within the seeded upland and bank portions of the Transloading Area (see Figure 1) to assess:

- The overall vegetative cover
- Percent coverage by species
- Predominant species observed
- Observations of invasive species
- Signs of stress or impacts from herbivory

Individual tree counts were performed to assess survivability.

The qualitative assessment of the restored riverbank (made during monthly inspections) consisted of an assessment of significant erosion, areas of excessive settlement, or drainage issues that may impact the restored Transloading Area.

These observations were used to evaluate the need for potential corrective actions for maintenance of the restored areas.

MONITORING RESULTS

A summary of the results of the vegetation monitoring and the bank stability observations is provided in following subsections.

Vegetation Monitoring

Arcadis performed both qualitative and quantitative assessments of vegetative cover (i.e., herbaceous ground cover and trees) in the Transloading Area (and original Transloading Area) on July 20, 2020. Observations and results of those assessments are discussed in the following subsections.

Additionally, during the monthly bank stability inspections (discussed below), Arcadis completed qualitative checks of the vegetation cover throughout the restored areas. In addition to beaver damage to trees (discussed below), notable observations consist of the following:

- During the September 22, 2020 monthly bank inspection, third-party maintenance mowing within the upland portion of the Transloading Area was observed. The mowing has disturbed the restored herbaceous vegetation and damaged tree bark and protective beaver cages. These conditions were discussed between NYSDEC and NYSEG in a September 29, 2020 email and follow-up telephone conversations, and it is NYSEG's understanding that mowing is completed by NYSDEC's Flood Control group
- During the November 23, 2020 monthly bank inspection, approximately 30 piles of dredge spoils were observed within the restored Transloading Area on a portion of the herbaceous vegetation area and up to the base of several restored trees. NYSEG's understands that the piles were placed by NYSDEC's Flood Control group, from the Park Creek project.

Photos of these conditions are included in Attachment 1.

Herbaceous Ground Cover

Herbaceous ground cover monitoring of the seeded Transloading Area was performed at five randomly placed 1 m2 quadrat locations within the upland and bank portions of the restored area. To evaluate the herbaceous layer, the total percent cover of each species identified in each 1 m2 square quadrat was visually estimated using a cover class system (see Table 1), based on the Daubenmire cover class system (Barbour et al 1999). The revised cover class system provides a more refined estimation of percent cover by providing two additional cover classes and modification to class ranges into seven classes. The percent cover type was also visually estimated for each 1 m2 square quadrat by assigning an absolute percent cover value (ranging from 0% to 100%) as viewed from above that does not account for overlap of cover types. Cover type categories included: vegetation, bare soil, woody debris, boulders/ rock. This data was used to calculate percent cover of target species, percent cover of invasive species, and total cover of vegetation in the herbaceous layer.

Photos of the quadrats and general site conditions are included in Attachment 1. A summary of the vegetation monitoring quadrat data by plot is provided in Table 2. A summary of the vegetation monitoring inspection and checklist is provided in Attachment 2.

The results of the five quadrats indicated that the overall vegetative cover by cover class was approximately 77% within the Transloading Area. The overall vegetative cover within the bank seeding area (by itself) was approximately 86%. The species richness was relatively consistent with 10 to 12 herbaceous species found. The two dominant herbaceous plant species found were fescue (Festuca sp.) and oxeye daisy (Leucanthemum vulgare). The low growth height and maturity of the fescue species observed made identification uncertain.

However, based on the specified wildflower and grass mix applied, the fescue is likely sheep fescue (Festuca saximontana). The average height of the herbaceous vegetation found within the quadrats was 4.6 inches; with a range from 3 to 9 inches. The average maximum height of the herbaceous vegetation found within the quadrats was 7.8 inches; with a range from 6 to 12 inches.

Japanese knotweed (Polygonum cuspidatum) was observed in one measured quadrat, but potential encroachment by this invasive species was present immediately upstream and downstream of the restored Transloading Area.

Trees

During the July 20, 2020 assessment, the six silver maples and eight red maples planted in the Transloading Area appeared to be in good health, were fully leaved, and exhibited no signs of stress or herbivory. Tree photos are included in the photograph log provided as Attachment 1.

During the March 17, 2020 monthly inspection seven of the eight silver maples planted in the original Transloading Area were found to be severely damaged as a result of herbivory by beaver. These seven trees were replaced on June 8, 2020. During the June 17, 2020 monthly bank inspection, the eighth original silver maple at the original Transloading Area was found to have been damaged by herbivory. This silver maple was replanted in September. All trees at the original Transloading Area inspected during the July 20, 2020 assessment and subsequent monthly bank inspections were found to be in good health, fully leaved, with only minor signs of insect damage in the crown of one specimen.

Bank Stability

Monthly qualitative bank inspections were conducted by Arcadis from March through December 2020 to document the stability of the restored rip rap and bank areas at the Transloading Area. The restored area appears to be stable and silt fence, erosion control fabric netting, and coir logs are stable and functioning. No significant signs of riverbank erosion, settlement, or soil instability were observed during the inspections. Bank photos are included as part of the photograph log provided as Attachment 1.

CORRECTIVE ACTIONS

A summary of the complete corrective actions is provided below.

Herbicide Application

As part of the July 20, 2020 monitoring event, Arcadis (under Commercial Pesticide Applicator license # C0838939) applied herbicide (specifically Garlon3a) using backpack sprayers via foliar application to Japanese knotweed and other nuisance species found within the Transloading Area (and original Transloading Area). Individual Japanese knotweed and nuisance species were treated throughout the Transloading Area. Larger stands of previously existing Japanese knotweed surrounding the Transloading Area were sprayed to an approximate perimeter buffer of 5 feet (see Figure 1). This pre-emptive treatment was performed to control the spread of invasive species within the restored area and to meet the long-term monitoring goals for invasive species. In addition, to protect the trees planted in the original Transloading Area, herbicide was applied via backpack sprayers to treat the encroaching Japanese knotweed in this area (See Figure 2).

Foliar application was evaluated by observing die back and visual stress shown by yellowing of leaves and stems, throughout the remainder of the growing season and during subsequent monthly bank inspections. During the September 22, 2020 monthly bank inspection, obvious signs of die back and visual stress throughout the treated areas were observed.

However, given continued encroachment of Japanese knotweed within both the bank and upland areas, Arcadis completed an additional foliar application of herbicide. On October 1, 2020, Arcadis (under Commercial Pesticide Applicator license # C0838939) applied herbicide (specifically AquaNeat) using backpack sprayers via foliar application to Japanese knotweed and other nuisance species found within the Transloading Area (and original Transloading Area). This application was conducted consistent with the first application, with additional focus on establishing a buffer between native and restored areas.

During the October 21, 2020 monthly bank inspection, increased die back and visual stress on Japanese knotweed was observed in these treated areas. Photos of the Japanese knotweed are included as part of the photograph log provided as Attachment 1.

Trees

As discussed above, trees that had been damaged by beavers were replaced. During replanting, wire tree cages were installed around all planted trees in the Transloading Area (and original Transloading Area) to deter herbivore activity. Additionally, trees were watered throughout the summer season.

Overseeding

Based on the herbaceous cover observed during the first assessment, on July 20, 2020, the vegetative cover in the main upland area was slightly below the 85% performance criteria. Overseeding was completed in September using a grass seed mix. Arcadis inspected the overseeding of the Transloading Area during the October 21, 2020 monthly bank inspection and new herbaceous groundcover was observed growing.

SUMMARY

The first year of monitoring indicates the restoration has been implemented adequately. Key observations consist of the following:

- The restored bank area is showing suitable vegetative coverage and is successfully stabilizing the bank materials. Vegetation growth within the upland portion of the Transloading Area is slightly under performing, in comparison to the 85% total cover criteria. However, the completed overseeding will support increased growth and coverage in future growing seasons.
- All eight trees installed at the original Transloading Area were replaced as a result of herbivore damage. All planted trees in the Transloading Area (and original Transloading Area) are in good health.
- The bank stability and controls for erosion and surface water runoff, as well as rip rap placement and anchoring, were observed to be stable and functioning as designed.
- Invasive plant species control measures were implemented to control the existing stands of Japanese knotweed that are encroaching on the restored Transloading Areas. Based upon the effectiveness of the foliar herbicide application used, potential future control measure recommendations may be made for control of Japanese knotweed and other invasive species as they are observed.

Overall, the restoration has shown suitable stabilization of the previously disturbed area, with functioning protective erosion control measures, and adequate signs that vegetation growth will restore the site to pre-disturbance conditions.

PATH FORWARD

To complete one full year of qualitative riverbank stability assessments (as required by the Restoration Plan), Arcadis anticipates completing the final two monthly inspections in January and February of 2021. Results will be documented in the 2021 Restoration Monitoring Report.

For the second year of vegetation monitoring (i.e., 2021), Arcadis anticipates conducting the restoration monitoring during two events: a qualitative event in the late-Spring/early-Summer and a quantitative event in late-Summer/early-Fall. The qualitative event will be conducted to assess current conditions of the restoration areas with respect to herbaceous ground coverage, tree conditions, and status of Japanese knotweed presence. These observations will be used to address any potential corrective actions required to meet the established restoration performance criteria. The quantitative event will include assessment of herbaceous groundcover using random quadrats and tree survivability to detail the restoration status in comparison to established performance criteria goals.

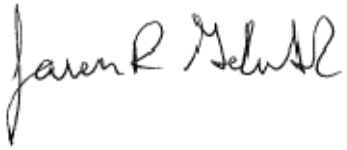
Additionally, based on the presence of Japanese knotweed and other nuisance species, Arcadis anticipates conducting additional herbicide application(s) in 2021. These activities will be timed to provide the most effective treatment for Japanese knotweed based on its natural growth cycle. However, given the abundance of Japanese knotweed and other nuisance species immediately adjacent to the Transloading Area (and because the Japanese knotweed was present prior to bank disturbance), NYSEG may request relief from the invasive species performance criteria.

Placement (and assumed eventual removal) of dredge spoil material in the upland portion of the restored Transloading Area has likely damaged the established herbaceous vegetation. The location of the dredge spoil material immediately adjacent to newly planted trees also has the potential to affect the survivability of the trees. Please note that NYSEG will not be responsible for repairing/replacing vegetative cover or trees damaged by others (beyond NYSEG’s control) and therefore, performance criteria may not be achieved in the affected areas.

Justin Starr, P.G.
New York State Department of Environmental Conservation
December 21, 2020

Please contact Tracy Blazicek at 585.484.6839 or tlblazicek@nyseg.com if you have any questions or require any additional information.

Sincerely,
Arcadis of New York, Inc.



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CC. Benjamin Girtain-Plowe, NYSDEC
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Jason Vogel, Arcadis
Joe Bistrovich, Arcadis

Enc.
Tables
1 Cover Class System
2 2020 Vegetation Monitoring Quadrat Data

Figures
1 Transloading Area Restoration
2 Upstream Transloading Area Restoration

Attachments
1 Photo Log
2 Vegetation Monitoring Forms

Tables

Table 1
Cover Class System
NYSEG
Binghamton Court Street Former MGP Site
Operable Unit No. 2
Transloading Area Restoration

Percent Cover Classes		
Range of Cover (%)	**Cover Class Midpoint**	**Class**
<1%	0.5	0
1-5%	3.0	1
6-15%	10.5	2
16-25%	20.5	3
26-50%	38.0	4
51-75%	63.0	5
76-95%	85.5	6
>95%	98.0	7

Notes:
1. Based on the Daubenmire cover class system (Barbour et al 1999).

Reference:
Barbour, M. G., J.H. Burk, W.D. Pitts, F.S. Gilliam and M.W. Swartz. 1999. Terrestrial Plant Ecology. Third Edition. California: Benjamin/Cummings.

Table 2
2020 Vegetation Monitoring Quadrat Data
NYSEG
Binghamton Court Street Former MGP Site
Operable Unit No. 2
Transloading Area Restoration

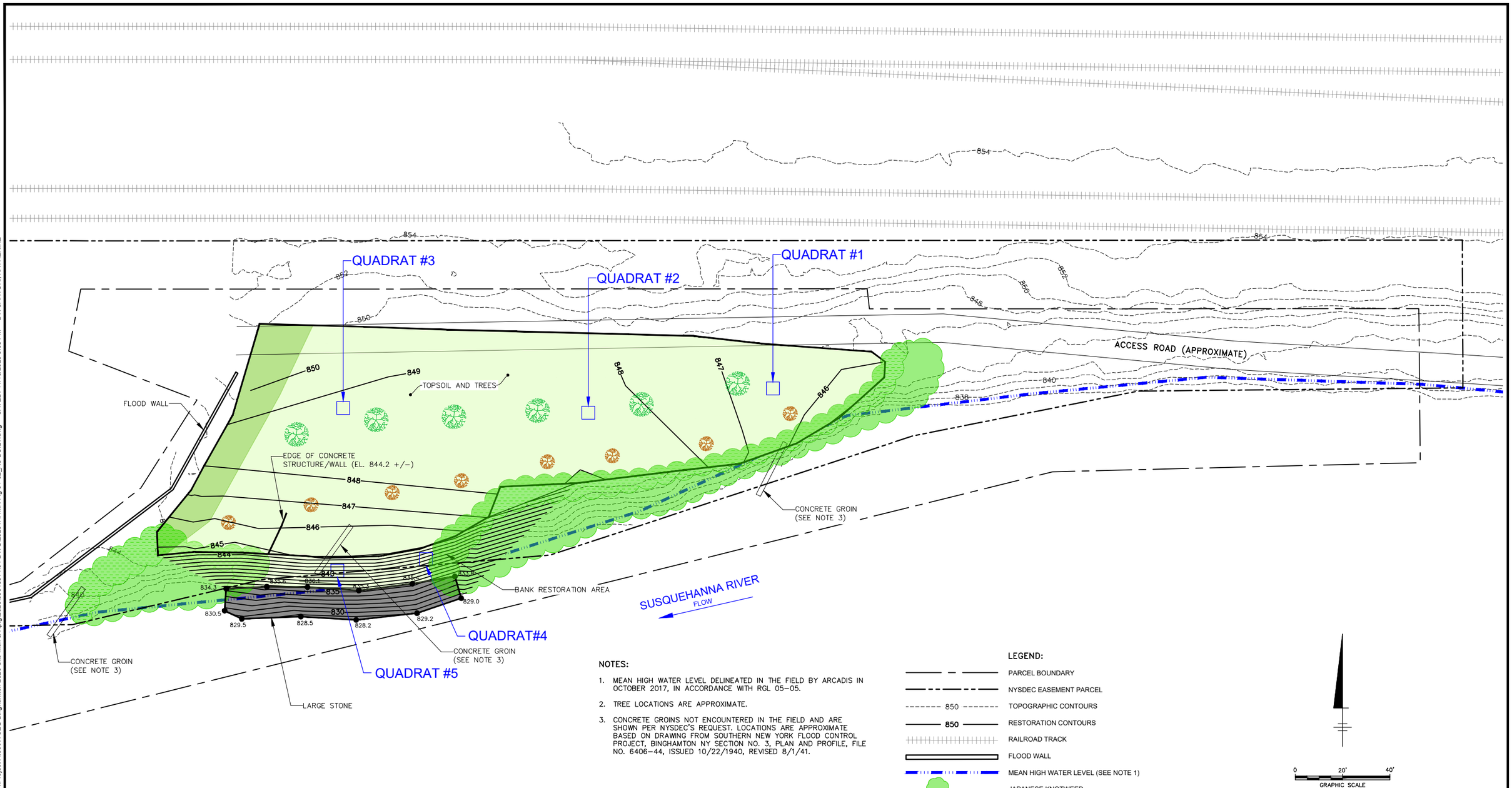
Quadrat I.D. / Scientific Name	Common Name	Growth Form	Indicator Status	Target Species (Y/N)	Invasive (Y/N)	Canopy Cover Class					Canopy Cover (%)	Species Composition
						Q1	Q2	Q3	Q4	Q5		
Festuca sp.	Fescue	graminoid	FACU	Y	N	2	3	3	5	4	30.5	38.5
Poa sp.	Grasses	graminoid	FACU	Y	N	0	0				0	0.0
Trifolium pratense	Red clover	herbaceous	FACU	Y	N	1	1	1		1	2.4	3.0
Melilotus officinalis	Yellow sweetclover	herbaceous	FACU	Y	N	0	1	1	1	0	1.8	2.3
Rudbeckia hirta	Blackeyed susan	herbaceous	FACU	Y	N	2	2	3	1	2	11	13.9
Achillea millefolium	Common yarrow	herbaceous	FACU	Y	N	2	2	2	1	2	9	11.4
Coreopsis lanceolata	Lanceleaf tickseed	herbaceous	FACU	Y	N	1	2	1	1	2	6	7.6
Leucanthemum vulgare	Oxeye daisy	herbaceous	UPL	Y	N	2	2	3	2	2	12.5	15.8
Monarda punctata	Spotted beebalm	herbaceous	UPL	Y	N	1	1	0		0	1.2	1.5
Chamaecrista fasiculata	Partridge pea	herbaceous	FACU	Y	N		0		0	0	0	0.0
Aster sp.	Aster species	herbaceous	FACU	Y	N		0				0	0.0
Lotus corniculatus	Birds-foot trefoil	herbaceous	FACU	N	N			1			0.6	0.8
Conyza canadensis	Canadian horseweed	herbaceous	FACU	Y	N			1	0		0.6	0.8
Polygonum aviculare	Common knotweed	herbaceous	FACU	Y	N	0					0	0.0
Lolium multiflorum	Annual ryegrass	herbaceous	FACU	Y	N			1	1	1	1.8	2.3
Polygonum cuspidatum	Japanese knotweed	herbaceous	FACU	N	Y				1		0.6	0.8
Acer rubrum	Red maple	herbaceous	FAC	Y	N	1	1				1.2	1.5
Cover Type - % Cover												
Vegetation (Cover Class)						5	5	6	6	6	76.5	
Vegetation (Raw Estimates)						65	75	90	90	85	81.0	
Plant Height/Species Richness												
Plot Height Average (inches)						3	5	9	3	3	4.6	
Plot Height Maximum (inches)						6	7	12	8	6	7.8	
Species Richness						11	12	11	10	10	10.8	

(Cover Class) Total Vegetative Percent Cover	76.5
Relative Percent Cover of Target Species	98.5
Relative Percent Cover of Invasive Species	0.8

Notes:

1. Vegetative cover of individual species estimated at each plot using cover class midpoints shown on Table 1 .
2. Canopy cover values can add up to greater than 100% due to overlapping vegetation.
3. Species composition is a proportional scaling of 0 to 100 percent and represents the percent a species contributes to the total vegetative cover.

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)
- SILVER MAPLES
- RED MAPLES
- RIPRAP
- 828.2 SURVEYED POINTS WITH ELEVATIONS
- VEGETATION SAMPLE QUADRAT

0 20' 40'
GRAPHIC SCALE

NYSEG
COURT STREET FORMER MGP SITE
BINGHAMTON, NEW YORK
2020 TRANSLOADING AREA RESTORATION MONITORING REPORT

TRANSLOADING AREA RESTORATION

ARCADIS Design & Consultancy for natural and built assets

FIGURE
1

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XREFS:
Design-X01
Design-X16
Design-X17
VRP-X- Contours

LEGEND:

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

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
2020 TRANSLOADING AREA RESTORATION MONITORING REPORT

ORIGINAL TRANSLOADING AREA RESTORATION

ARCADIS Design & Consultancy for natural and built assets

FIGURE
2

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XREFS:
Design-X01
Design-X16
Design-X17
VRP-X- Contours

Attachment 1

Photograph Log

VEGETATION MONITORING PHOTOGRAPH LOG

NYSEG
Binghamton Court Street Former MGP Site
Operable Unit No. 2, Transloading Area Restoration

Photograph: 1

Description:
Vegetation Quadrat 1

Location: Binghamton Court Street OU-2 Transloading Area

Photograph taken by:
ARCADIS

Date: 7/20/2020

Photograph: 2

Description:
Vegetation Quadrat 1

Location: Binghamton Court Street OU-2 Transloading Area

Photograph taken by:
ARCADIS

Date: 7/20/2020

VEGETATION MONITORING PHOTOGRAPH LOG

NYSEG
Binghamton Court Street Former MGP Site
Operable Unit No. 2, Transloading Area Restoration

Photograph: 3

Description:
Vegetation Quadrat 3

Location: Binghamton Court Street OU-2 Transloading Area

Photograph taken by:
ARCADIS

Date: 7/20/2020

Photograph: 4

Description:
Vegetation Quadrat 4

Location: Binghamton Court Street OU-2 Transloading Area

Photograph taken by:
ARCADIS

Date: 7/20/2020

NYSEG
Binghamton Court Street Former MGP Site
Operable Unit No. 2, Transloading Area Restoration

Photograph: 5

Description:
Vegetation Quadrat 5

Location: Binghamton Court Street OU-2 Transloading Area

Photograph taken by:
ARCADIS

Date: 7/20/2020

Photograph: 6

Description: Riverbank restoration, facing downstream

Location: Binghamton Court Street OU-2 Transloading Area

Photograph taken by:
ARCADIS

Date: 7/20/2020

NYSEG
Binghamton Court Street Former MGP Site
Operable Unit No. 2, Transloading Area Restoration

Photograph: 7

Description: Seeded portion of the Transloading Area (Upland, facing upstream/east)

Location: Binghamton Court Street OU-2 Transloading Area

Photograph taken by: ARCADIS

Date: 7/20/2020

Photograph: 8

Description: Replaced silver maple within the Original Transloading Area

Location: Binghamton Court Street OU-2 Original Transloading Area

Photograph taken by: ARCADIS

Date: 7/20/2020

NYSEG
Binghamton Court Street Former MGP Site
Operable Unit No. 2, Transloading Area Restoration

Photograph: 9

Description: Riverbank restoration facing east, upstream

Location: Binghamton Court Street OU-2 Transloading Area

Photograph taken by: ARCADIS

Date: 9/22/2020

Photograph: 10

Description: Mowed upland area within the Transloading Area

Location: Binghamton Court Street OU-2 Transloading Area

Photograph taken by: ARCADIS

Date: 9/22/2020

NYSEG
Binghamton Court Street Former MGP Site
Operable Unit No. 2, Transloading Area Restoration

Photograph: 11

Description: Mowed upland area within the Transloading Area

Location: Binghamton Court Street OU-2 Transloading Area

Photograph taken by: ARCADIS

Date: 9/22/2020

Photograph: 12

Description: Bark damage on red maple from mowing activities within the Transloading Area

Location: Binghamton Court Street OU-2 Transloading Area

Photograph taken by: ARCADIS

Date: 9/22/2020

NYSEG
Binghamton Court Street Former MGP Site
Operable Unit No. 2, Transloading Area Restoration

Photograph: 13

Description: Replaced silver maple tree in original transloading area

Location: Binghamton Court Street OU-2 Original Transloading Area

Photograph taken by: ARCADIS

Date: 10/21/2020

Photograph: 14

Description: Reseeded upland area within Transloading Area

Location: Binghamton Court Street OU-2 Transloading Area

Photograph taken by: ARCADIS

Date: 10/21/2020

NYSEG
Binghamton Court Street Former MGP Site
Operable Unit No. 2, Transloading Area Restoration

Photograph: 15

Description: Herbicide treated bank Japanese knotweed

Location: Binghamton Court Street OU-2 Transloading Area

Photograph taken by: ARCADIS

Date: 10/21/2020

Photograph: 16

Description: Herbicide treated upland Japanese knotweed

Location: Binghamton Court Street OU-2 Transloading Area

Photograph taken by: ARCADIS

Date: 10/21/2020

NYSEG
Binghamton Court Street Former MGP Site
Operable Unit No. 2, Transloading Area Restoration

Photograph: 17

Description: Dredge spoil piles in Transloading Area, facing east

Location: Binghamton Court Street OU-2 Transloading Area

Photograph taken by: ARCADIS

Date: 11/23/2020

Photograph: 18

Description: Dredge spoil piles in Transloading Area, facing west

Location: Binghamton Court Street OU-2 Transloading Area

Photograph taken by: ARCADIS

Date: 11/23/2020

Attachment 2

Vegetation Monitoring Forms

Annual Monitoring Inspection Checklist
Binghamton (Court Street) Former MGP Site

I. GENERAL INFORMATION

Inspection Date: 7/20/20
Conducted By: J. Vogel, G. Markiewicz
Weather Conditions: Sunny to Partly Cloudy 80° F

II. INSPECTION SUMMARY

1. Vegetation

A. Woody Vegetation *(Note evidence of damage from trespassing or herbivory, note physical changes since last inspection. If a quantitative assessment is performed, complete the attached field form for each planting area.)*

Transload Area - All 14 trees in good shape; no signs of herbivory

Upstream Area - 7 of 8 trees in good shape; one lost to beaver activity.

B. Herbaceous Vegetation *(Note evidence of areas of bare/sparse vegetation; note any damage from trespassing or herbivory; note any physical changes since last inspection. If a quantitative assessment is performed, complete the attached field form for each planting area.)*

Transload Area - Herbaceous vegetation growing in reasonably well on upland and bank areas. One bare spot noted.
Assess herbaceous vegetation using five 1-square meter quadrats within upland and bank area; see field form.
Upstream Area - Herbaceous vegetation growing (not very well) area is mostly mulch, woodchips, debris.

C. Presence of Invasive Species *(Note the invasive species present. If a quantitative assessment is performed, complete the attached field form for each planting area.)*

Transload Area - Japanese Knotweed on banks and growing in restored area.
Performed foliar herbicide spray application to treat Japanese Knotweed and other nuisance species.

Upstream Area - Japanese knotweed on edges of restoration by planted Silver Maples.
Performed foliar herbicide spray application to treat Japanese Knotweed.

2. Riverbank Stability *(Note any physical changes since last inspection; note evidence of significant erosion [e.g., slope failure, ruts, gullies, washouts, or sloughing]; note other conditions that could jeopardize the performance of the completed remediation actions.)*

Transload Area - Minor sloughing in small portion of bank, but no impact to fabric or coir logs functioning.
Herbaceous vegetation cover is good and stabilizing. Riprap in place. Japanese Knotweed sprayed above riprap.

Upstream Area - No riverbank disturbance/restoration in this area.

3. Other Observations *(Confirm that repair/maintenance activities identified during prior inspection, if any, have been performed; note any other general observations.)*

Trees at Upstream Area were replaced and wire cages were installed. Wire cages also installed on all trees at Transload Area. One replacement Silver Maple needed at Upstream Area.
One small bare soil spot on NE corner of Transload Area within the upland seeded area.
Extended hose watering system from ScottTech building in place for Upstream Area trees.

III. FOLLOW-UP MAINTENANCE AND REPAIR ACTIVITIES

Replace one Silver Maple in Upstream Area and install wire cage.
Overseed and mulch bare soil area within the NE corner of Transload Area with specified wildflower and grass mix.

ATTACH ADDITIONAL INFORMATION AS APPROPRIATE

Site Location: Transloading Area - Restoration

Location: / Quadrat No.	Upland Area 1	Upland Area 2	Upland Area 3	Bank Area 4	Bank Area 5
Species Observed	**Herbaceous Percent Cover Estimates[1]**				
Fescue	15	18	18	65	45
Grasses	< 1	< 1	--	--	--
Red clover	5	1	1	--	1
Yellow sweetclover	< 1	1	1	1	< 1
Blackeyed susan	15	10	20	5	15
Common yarrow	10	10	10	5	10
Lanceleaf tickseed	3	3	5	2	8
Oxeye daisy	10	12	25	12	10
Spotted beebalm	1	1	< 1	--	< 1
Partridge pea	--	< 1	--	< 1	< 1
Aster species	--	< 1	--	--	--
Birds-foot trefoil	--	--	1	--	--
Canadian horseweed	--	--	1	< 1	--
Common knotweed	< 1	--	--	--	--
Annual ryegrass	--	--	1	5	1
Japanese knotweed	--	--	--	1	--
Red maple	1	3	--	--	--
Average Herbaceous Height (inches)	3	5	9	3	3
Maximum Herbaceous Height (inches)	6	7	12	8	6
Vegative Cover (%)	65	75	90	90	85
Bare Soil (%)	25	10	5	5	2
Leaf Litter/Vegetation Debris (%)	10	15	5	5	13

Note:

1. Herbaceous percent cover estimates observed per quadrat and used with cover class midpoints to estimate total vegetative cover.